

SIEMENS

SINUMERIK

SINUMERIK 840D sl System variables

List Manual

Preface

Fundamental safety
instructions

1

Introduction

2

List of system variables

3

Appendix A

A

Valid for
Control
SINUMERIK 840D sl / 840DE sl
Software
CNC Software, Version 4.92

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER

indicates that death or severe personal injury will result if proper precautions are not taken.
--

 WARNING
--

indicates that death or severe personal injury may result if proper precautions are not taken.

 CAUTION
--

indicates that minor personal injury can result if proper precautions are not taken.
--

NOTICE

indicates that property damage can result if proper precautions are not taken.
--

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
--

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.
--

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Preface

SINUMERIK documentation

The SINUMERIK documentation is organized into the following categories:

- General documentation/catalogs
- User documentation
- Manufacturer/service documentation

Additional information

You can find information on the following topics at the following address (<https://support.industry.siemens.com/cs/de/en/view/108464614>):

- Ordering documentation/overview of documentation
- Additional links to download documents
- Using documentation online (find and search in manuals/information)

If you have any questions regarding the technical documentation (e.g. suggestions, corrections), please send an e-mail to the following address (<mailto:docu.motioncontrol@siemens.com>).

mySupport/Documentation

At the following address (<https://support.industry.siemens.com/My/ww/en/documentation>), you can find information on how to create your own individual documentation based on Siemens' content, and adapt it for your own machine documentation.

Training

At the following address (<http://www.siemens.com/sitrain>), you can find information about SITRAIN (Siemens training on products, systems and solutions for automation and drives).

FAQs

You can find Frequently Asked Questions in the Service&Support pages under Product Support (<https://support.industry.siemens.com/cs/de/en/ps/faq>).

SINUMERIK

You can find information about SINUMERIK at the following address (<http://www.siemens.com/sinumerik>).

Target group

This publication is intended for project engineers, commissioning engineers, machine operators and service and maintenance personnel.

Benefits

The intended target group can use the Parameter Manual to test and commission the system or the plant correctly and safely.

Utilization phase: Setup and commissioning phase

Standard scope

This documentation describes the functionality of the standard scope. Extensions or changes made by the machine manufacturer are documented by the machine manufacturer.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

Furthermore, for the sake of clarity, this documentation does not contain all detailed information about all types of the product and cannot cover every conceivable case of installation, operation or maintenance.

Note regarding the General Data Protection Regulation

Siemens observes standard data protection principles, in particular the principle of privacy by design. That means that

this product does not process / store any personal data, only technical functional data (e.g. time stamps). If a user links this data with other data (e.g. a shift schedule) or stores personal data on the same storage medium (e.g. hard drive) and thus establishes a link to a person or persons, then the user is responsible for ensuring compliance with the relevant data protection regulations.

Technical Support

Country-specific telephone numbers for technical support are provided in the Internet at the following address (<https://support.industry.siemens.com/sc/ww/en/sc/2090>) in the "Contact" area.


Table of contents


	Preface	3
1	Fundamental safety instructions	7
1.1	General safety instructions	7
1.2	Warranty and liability for application examples	8
1.3	Industrial security	9
2	Introduction	11
2.1	Elements of a system variables table	11
2.2	Structure of a system variables table	13
2.3	Channel-specific and NC-global arithmetic parameters (R / RG)	14
2.4	Supplementary conditions	15
3	List of system variables	17
3.1	Channel-specific synchronized action variables	17
3.2	Channel-specific system variables	19
3.3	Frames	259
3.4	Channel-specific protection zones	265
3.5	Tool holder data	271
3.6	Tool parameters	292
3.7	OEM user cutting edge data	306
3.8	Tool management monitoring data	373
3.9	OEM user monitoring data	376
3.10	Tool-related data	401
3.11	Tool-related grinding data	429
3.12	Magazine location data	433
3.13	OEM user magazine location data	437
3.14	Tool management magazine description data	464
3.15	OEM user tool management magazine description data	469
3.16	Magazine module parameters	492
3.17	Adapter data	495
3.18	Multitool data	499
3.19	Measurement system compensation values	552
3.20	Interpolatory compensation	554

3.21	NC-specific protection zones	558
3.22	Cycles parameterization.....	564
3.23	System data	593
3.24	Axial system variables.....	633
3.25	Safety Integrated	755
3.26	User-specific system variables.....	774
3.27	Kinematic chain	795
3.28	Orientation transformation.....	799
3.29	Protection area elements	816
3.30	Coordinate system-specific working area limitation	825
3.31	Tool data ISO dialect milling	827
3.32	Tool data ISO dialect turning.....	829
A	Appendix A	833
A.1	List of abbreviations	833
	Index.....	839

Fundamental safety instructions

1.1 General safety instructions

 WARNING
Danger to life if the safety instructions and residual risks are not observed
If the safety instructions and residual risks in the associated hardware documentation are not observed, accidents involving severe injuries or death can occur.
<ul style="list-style-type: none">• Observe the safety instructions given in the hardware documentation.• Consider the residual risks for the risk evaluation.

 WARNING
Malfunctions of the machine as a result of incorrect or changed parameter settings
As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.
<ul style="list-style-type: none">• Protect the parameterization against unauthorized access.• Handle possible malfunctions by taking suitable measures, e.g. emergency stop or emergency off.

1.2 Warranty and liability for application examples

Application examples are not binding and do not claim to be complete regarding configuration, equipment or any eventuality which may arise. Application examples do not represent specific customer solutions, but are only intended to provide support for typical tasks.

As the user you yourself are responsible for ensuring that the products described are operated correctly. Application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.

1.3 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Products and solutions from Siemens constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the Internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. using firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that can be implemented, please visit:

Industrial security (<https://www.siemens.com/industrialsecurity>)


Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they become available, and that only the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at:

Industrial security (<https://www.siemens.com/industrialsecurity>)

Further information is provided on the Internet:

Industrial Security Configuration Manual (<https://support.industry.siemens.com/cs/ww/en/view/108862708>)

 WARNING
Unsafe operating states resulting from software manipulation
Software manipulations, e.g. viruses, Trojans, or worms, can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.
<ul style="list-style-type: none">• Keep the software up to date.• Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.• Make sure that you include all installed products into the holistic industrial security concept.• Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.• On completion of commissioning, check all security-related settings.• Protect the drive against unauthorized changes by activating the "Know-how protection" converter function.

Introduction

2.1 Elements of a system variables table

Field name	Meaning		
Identifier	Name of system variables, optional with up to three indexes in square brackets		
Brief description	Brief description of the system variables in a single block		
Data type	Data type of the system variables, e.g. BOOL, BYTE, CHAR, INT, REAL, AXIS, FRAME, STRING		
Description	Detailed description of the system variables.		
Index 1 - Index n	Description and value range for index 1 ...n (optional)		
Unit	Unit of the system variables, e.g. mm, s, degrees, m/s, m/s2, m/s3		
Default value	Default value of the system variables		
Minimum value	Minimum value of the system variables		
Maximum value	Maximum value of the system variables		
Properties of reading / writing the system variables			
PP (part program)	Read	-	Reading in part program is not possible
		X	Reading in part program is possible, no preprocessing stop occurs
		VL_Stop	Reading in part program is possible, a preprocessing stop occurs
	Write	X	Writing in part program is possible, no preprocessing stop occurs
		VL_Stop	Writing in part program is possible, a preprocessing stop occurs
		HL_Sync	Writing in part program is possible; it is performed synchronously with the main run
SA (synchronized action)	Read	-	Reading in a synchronized action is not possible
		X	Reading in a synchronized action is possible
	Write	-	Writing in a synchronized action is not possible
		X	Writing in a synchronized action is possible
PP / SA access level	Read	0 - 7	Protection level for reading in part programs or synchronized actions
	Write	0 - 7	Protection level for writing in part programs or synchronized actions
NC variable	Read	-	Reading via an NC variable or OPI is not possible
		X	Reading via an NC variable or OPI is possible
	Write	-	Reading via an NC variable or OPI is not possible
		X	Writing via an NC variable or OPI is possible
Access level	Read	0 - 7	Protection level for reading via an NC variable or OPI
	Write	0 - 7	Protection level for writing via an NC variable or OPI
OEM-CC	Read	-	Reading in a compile cycle or CC-binding is not possible
		X	Reading in a compile cycle or CC-binding is not possible
	Write	-	Writing in a compile cycle or CC-binding is not possible
		X	Writing in a compile cycle or CC-binding is possible

2.1 Elements of a system variables table

Field name	Meaning
Axis identifier	Permitted name of axis-specific indexes: <ul style="list-style-type: none">• GEO Geometry axis names• CHAN: Channel axis names• MACH: Machine axis name• SPIN: Spindle name
Value determination	Properties relating to value determination: <ul style="list-style-type: none">• Channel-specific: value of the variables in the active channel• Cross-channel: value of the axis-specific variables in the channel in which the axis is currently active
Block search	Properties of the block search: <ul style="list-style-type: none">• Not classified• program-sensitive
Link	Properties of the NCU link: <ul style="list-style-type: none">• No restrictions• Not classified• Lead-link axis

2.2 Structure of a system variables table

<Identifier[Index 1, ...]>	<short description>				<data type>		
Description: <descriptive text>							
Index 1:	<description index 1>						
Index 2:	<description index 2>						
Index 3:	<description index 3>						
Unit:	Default value	Minimum value		Maximum value			
<unit>	<default value>	<minimum value>		<maximum value>			
Properties of reading/writing:							
	PP	SA	PP / SA access level		NC variable	Access level	OEM-CC
Read:	<readability>	<readability>	<access level>		<NC variable>	<access level>	<OEM CC>
Write:	<writeability>	<writeability>	<access level>		<NC variable>	<access level>	<OEM CC>
Axis identifier:	GEO	CHAN	MACH	SPIN	Value determination:	<value determination property>	
Search:	<search property>				Link:	<link property>	

2.3 Channel-specific and NC-global arithmetic parameters (R / RG)

Channel-specific arithmetic parameters (R)

R[<index 1>]	Channel-specific arithmetic parameters of type Real				DOUBLE		
Description:							
System variables Rn or R[n] are channel-specific arithmetic parameters of type REAL and are freely available to the user.							
Programming in the part program: R<n> or R[<n>]							
Programming in a synchronized action: \$Rn or \$R[<n>]							
The channel-specific arithmetic parameters are stored retentively and can be read in and out via the data backup.							
Index 1:	The maximum number of R parameters are specified in machine data MD28050 \$MC_MM_NUM_R_PARAM.						
Unit:	Default value	Minimum value		Maximum value			
-	0.0	Max. negative DOUBLE value		Max. positive DOUBLE value			
Properties of reading/writing:							
	PP	SA	PP / SA access level		NC variable	Access level	OEM_CC
Read:	X	X	7		X	7	X
Write:	X	X	7		X	7	X
Axis identifier:	-	-	-	-	Value determination:	channel-specific	
Search:	program-sensitive				Link:	No restrictions	

Global arithmetic parameters (RG)

RG[<index 1>]	Global arithmetic parameters of type Real				DOUBLE		
Description:							
System variables RGn or RG[n] are NC-global arithmetic parameters of type REAL and are freely available to the user.							
Programming in the part program: RG<n> or RG[<n>]							
The NC-global arithmetic parameters are stored nonvolatily and can be read in and out via the data backup.							
Index 1:	The maximum number of R parameters are specified in machine data MD28050 \$MC_MM_NUM_R_PARAM.						
Unit:	Default value	Minimum value		Maximum value			
-	0.0	Max. negative DOUBLE value		Max. positive DOUBLE value			
Properties of reading/writing:							
	PP	SA	PP / SA access level		NC variable	Access level	OEM_CC
Read:	X	-	7		X	7	X
Write:	X	-	7		X	7	X
Axis identifier:	-	-	-	-	Value determination:	-	
Search:	program-sensitive				Link:	No restrictions	

2.4 Supplementary conditions

Querying REAL and DOUBLE variables

We recommend programming querying of REAL or DOUBLE variables in NC programs and synchronized actions as limit value evaluation.

Example: Querying the actual value of an axis `$VA_IM` to a specific value `AXPOS ± 1*10-6`

```
DEF REAL AXPOS = 123.456
```

```
IF ($VA_IM[<axis>] - 1ex-6) <= AXPOS <= ($VA_IM[<axis>] + 1ex-6)
```

```
...
```

```
ENDIF
```


List of system variables

3.1 Channel-specific synchronized action variables

\$AC_MARKER [n]		User array variable of type Integer			INT	
Description:						
Array variable \$AC_MARKER[n] is used to store application-related integer arithmetic results.						
The variable is stored in DRAM or in SRAM depending on \$MC_MM_BUFFERED_AC_MARKER. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.						
Index 1:	The dimension is defined via the MD \$MC_MM_NUM_AC_MARKER.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_SYSTEM_MARKER [n]		System array variable of type Integer			INT	
Description:						
Array variable \$AC_SYSTEM_MARKER[n] is used to store application-related integer arithmetic results. The variable is reserved for SIEMENS applications.						
The variable is stored in DRAM or in SRAM depending on \$MC_MM_BUFFERED_AC_MARKER. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.						
Index 1:	The dimension is defined via the MD \$MC_MM_NUM_AC_SYSTEM_MARKER.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_PARAM [n]		User array variable of type Real			DOUBLE	
Description:						
Array variable \$AC_PARAM[n] is used to store application-related Real arithmetic results.						
The variable is stored in DRAM or in SRAM depending on \$MC_MM_BUFFERED_AC_PARAM. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.						
Index 1:	The dimension is defined via the MD \$MC_MM_NUM_AC_PARAM.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.1 Channel-specific synchronized action variables

\$AC_PARAM [n]		User array variable of type Real			DOUBLE	
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_SYSTEM_PARAM [n]		System array variable of type Real			DOUBLE	
Description:						
Array variable \$AC_SYSTEM_PARAM[n] is used to store application-related Real arithmetic results. The variable is reserved for SIEMENS applications.						
The variable is stored in DRAM or in SRAM depending on \$MC_MM_BUFFERED_AC_PARAM. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.						
Index 1:	The dimension is defined via the MD \$MC_MM_NUM_AC_SYSTEM_PARAM.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_UBFR		1st basic frame in the data management system				FRAME	
Description:							
Variable \$P_UBFR is used to program the 1st basic frame in the data management system. G500, G54 .. G599 can be used to activate the corresponding data management frame. The data management frames are stored in SRAM and can be read in and out using the data backup feature. \$P_UBFR is equivalent to \$P_CHBFR[0].							
Application:							
\$P_UBFR = ctrans(x,10) : crot(z,45)							
\$P_UBFR[y,tr] = 5							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_SETFRAME		Active system frame for preset actual value memory				FRAME	
Description:							
Variable \$P_SETFRAME is used to program the active system frame for preset actual value memory and scratching.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
Bit0 in \$MC_CHSFRAME_RESET_MASK							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_EXTFRAME		Active system frame for external frame				FRAME	
Description:							
Variable \$P_EXTFRAME is used to program the active system frame for the external work offset.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
Bit1 in \$MC_CHSFRAME_RESET_MASK							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_PARTFRAME		Active system frame for toolholder				FRAME
Description:						
Variable \$P_PARTFRAME determines the active system frame for TCARR and PAROT.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
\$MC_GCODE_RESET_MODE[51]						
\$MC_GCODE_RESET_VALUES[51]						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_TOOLFRAME		Active system frame for TOROT				FRAME
Description:						
Variable \$P_TOOLFRAME determines the active system frame for TOROT and TOFRAME.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
\$MC_GCODE_RESET_MODE[52]						
\$MC_GCODE_RESET_VALUES[52]						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_WPFRAME		Active system frame for the workpiece				FRAME
Description:						
Variable \$P_WPFRAME is used to program the active system frame for workpiece reference points.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
Bit4 in \$MC_CHSFRAME_RESET_MASK						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.2 Channel-specific system variables

\$P_CYCFRAME		Active system frame for cycles			FRAME	
Description:						
Variable \$P_CYCFRAME is used to program the active system frame for cycles.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
Bit5 in \$MC_CHSFRAME_RESET_MASK						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_TRAFRAME		Active system frame for transformations			FRAME	
Description:						
Variable \$P_TRAFRAME is used to program the active system frame for transformations. This system frame is configured as follows when a transformation is selected with TRANSMIT or TRACYL:						
\$MN_FRAME_GEOAX_CHANGE_MODE = 1 oder 2						
\$MC_TRANSMIT_ROT_AX_FRAME_1 = 2						
\$MC_TRANSMIT_ROT_AX_FRAME_2 = 2						
\$MC_TRACYL_ROT_AX_FRAME_1 = 2						
\$MC_TRACYL_ROT_AX_FRAME_2 = 2						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_CHBFRAME [n]		Active basic frame in channel			FRAME	
Description:						
Array variable \$P_CHBFRAME[n] is used to program the nth active basic frame in the channel.						
On a Reset, the activation of the basic frame depends on the following machine data:						
Bit0 and Bit14 in \$MC_RESET_MODE_MASK						
\$MC_CHBFRAME_RESET_MASK						
Index 1:	The dimension is defined via \$MC_MM_NUM_BASE_FRAMES.					
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0

List of system variables

3.2 Channel-specific system variables

\$P_CHBFRAME [n]		Active basic frame in channel				FRAME
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_NCBFRAME [n]		Active global basic frame				FRAME
Description: Array variable \$P_NCBFRAME[n] is used to program the nth active global basic frame. On a Reset, the activation of the basic frame depends on the following machine data: Bit0 and Bit14 in \$MC_RESET_MODE_MASK \$MN_NCBFRAME_RESET_MASK						
Index 1:	The dimension is defined via \$MN_MM_NUM_GLOBAL_BASE_FRAMES.					
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_ACTBFRAME		Active overall basic frame				FRAME
Description: Variable \$P_ACTBFRAME determines the active chained overall basic frame. This frame is produced by chaining together all valid (see \$P_NCBFRMASK) global basic frames and all valid (see \$P_CHBFRMASK) basic frames in the channel. The overall basic frame is always recalculated when a basic frame is activated. On a Reset, the activation of the basic frames depend on the following machine data: Bit0 and Bit14 in \$MC_RESET_MODE_MASK \$MN_NCBFRAME_RESET_MASK \$MC_CHBFRAME_RESET_MASK						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_BFRAME		1. active basic frame in channel				FRAME
Description: Variable \$P_BFRAME is used to program the 1st active basic frame in the channel. The variable is equivalent to \$P_CHBFRAME[0]. On a Reset, the activation of the basic frame depends on the following machine data: Bit0 and Bit14 in \$MC_RESET_MODE_MASK \$MC_CHBFRAME_RESET_MASK						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_BFRAME		1. active basic frame in channel				FRAME	
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_IFFRAME		Active settable frame				FRAME	
Description:							
Variable \$P_IFFRAME is used to program the active settable frame. A settable data management frame \$P_UIFR[n] becomes the active settable frame on execution of G500, G54 to G599.							
On a Reset, the activation of the settable frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
\$MC_GCODE_RESET_MODE[7]							
\$MC_GCODE_RESET_VALUES[7]							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_PFRAME		Programmable frame				FRAME	
Description:							
Variable \$P_PFRAME is used to program the active programmable frame.							
The programmable frame is retained on a Reset when the following setting is configured:							
\$MC_PFRAME_RESET_MODE = 1							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_ACTFRAME		Active overall frame				FRAME	
Description:							
The variable \$P_ACTFRAME determines the active chained total frame. The active total frame is calculated using the following formula:							
$\$P_ACTFRAME = \$P_PARTFRAME : \$P_SETFRAME : \$P_EXTFRAME : \$P_ISO1FRAME : \$P_ISO2FRAME : \$P_ISO3FRAME : \$P_ACTBFRAME : \$P_IFFRAME : \$P_GFRAME : \$P_TOOLFRAME : \$P_WPFRAME : \$P_TRAFRAME : \$P_PFRAME : \$P_ISO4FRAME : \$P_CYCFRAME$							
The total frame is recalculated each time a frame belonging to the frame chain is activated and upon a reset.							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC

List of system variables

3.2 Channel-specific system variables

\$P_ACTFRAME		Active overall frame				FRAME	
Read:	X	-	7		X	7	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_UIFRNUM		Number of active settable frames				INT	
Description:							
Variable \$P_UIFRNUM is used to determine the number of the active settable frame. A settable data management frame \$P_UIFR[n] becomes the active settable frame on execution of G500, G54 to G599.							
G500: \$P_UIFRNUM = 0							
G54: \$P_UIFRNUM = 1							
G599: \$P_UIFRNUM = 99							
On a Reset, the activation of the settable frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
\$MC_GCODE_RESET_MODE[7]							
\$MC_GCODE_RESET_VALUES[7]							
Unit	Init value		Min		Max		
-	0		0		99		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_NCBFRMASK		Global basic frame mask				INT	
Description:							
Variable \$P_NCBFRMASK is used to define the NCU-global basic frame included in the calculation of the overall basic frame \$P_ACTB-FRAME. The variable is implemented in the form of a bit mask in which the global basic frames can be selected. On a Reset, the mask is initialized by \$MN_NCBFRFRAME_RESET_MASK.							
Unit	Init value		Min		Max		
-	0		0		0xFFFF		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_CHBFRMASK		Basic frame mask in the channel				INT	
Description:							
Variable \$P_CHBFRMASK is used to define the channel-specific basic frame included in the calculation of the overall basic frame \$P_ACTB-FRAME. The variable is implemented in the form of a bit mask in which the basic frames can be selected. On a Reset, the mask is initialized by \$MC_CHBFRFRAME_RESET_MASK.							
Unit	Init value		Min		Max		
-	0		0		0xFFFF		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_CHBFRMASK		Basic frame mask in the channel			INT	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHSFRMASK		System frame mask			INT	
Description:						
Variable \$P_CHSFRMASK is used to define the channel-specific system frame included in the calculation of the overall frame \$P_ACT-FRAME. The variable is implemented in the form of a bit mask in which the system frames can be selected. On a Reset, the mask is initialized by \$MC_CHSFRAME_RESET_MASK.						
Unit	Init value	Min	Max			
-	0	0	0x7FF			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_AD [36]		Active tool offsets			DOUBLE	
Description:						
\$P_AD[n]						
Active tool offsets						
n: Parameter numbers 1 - 36						
n = 1-25 \$TC_DP1 to \$TC_DP25						
n = 26 \$TC_DPCE Number of the cutting edge (function: Unique D number)						
n = 27 \$TC_DPH H number of the cutting edge (function: ISO mode)						
n = 28 \$TC_DPV Tool orientation (function: Tool orientation)						
n = 29 \$TC_DPV3 Component 1 of the tool orientation (function: Tool orientation)						
n = 30 \$TC_DPV4 Component 2 of the tool orientation (function: Tool orientation)						
n = 31 \$TC_DPV5 Component 3 of the tool orientation (function: Tool orientation)						
n = 32 \$TC_DPVN3 Normal vector component 1 (function: Tool orientation)						
n = 33 \$TC_DPVN4 Normal vector component 2 (function: Tool orientation)						
n = 34 \$TC_DPVN5 Normal vector component 3 (function: Tool orientation)						
n = 35 \$TC_DPNT Number of teeth on the cutting edge						
n = 36 \$TC_DPROT Base angle of rotation of the cutting edge						
An alarm is issued if a compensation parameter belongs to a function that is not active.						
Index 1:	n: Parameter numbers 1 - 36					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_ADT [36]	Active tool offsets transformed					DOUBLE
Description:						
\$P_ADT[n]						
Active tool offsets transformed						
n: Parameter numbers 1 - 36						
n = 1-25 \$TC_DP1 to \$TC_DP25						
n = 26 \$TC_DPCE Number of the cutting edge (function: Unique D number)						
n = 27 \$TC_DPH H number of the cutting edge (function: ISO mode)						
n = 28 \$TC_DPV Tool orientation (function: Tool orientation)						
n = 29 \$TC_DPV3 Component 1 of the tool orientation (function: Tool orientation)						
n = 30 \$TC_DPV4 Component 2 of the tool orientation (function: Tool orientation)						
n = 31 \$TC_DPV5 Component 3 of the tool orientation (function: Tool orientation)						
n = 32 \$TC_DPVN3 Normal vector component 1 (function: Tool orientation)						
n = 33 \$TC_DPVN4 Normal vector component 2 (function: Tool orientation)						
n = 34 \$TC_DPVN5 Normal vector component 3 (function: Tool orientation)						
n = 35 \$TC_DPNT Number of teeth on the cutting edge						
n = 36 \$TC_DPROT Base angle of rotation of the cutting edge						
An alarm is issued if a compensation parameter belongs to a function that is not active.						
Index 1:	n: Parameter numbers 1 - 36					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	
\$P_DLNO	-					INT
Description:						
\$P_DLNO						
Active additive offset number DL=0 - DL='max.'; 'max' = value of \$MN_MM_MAX_SUMCORR_PER_CUTTEDGE						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	
\$P_TOOL	-					INT
Description:						
\$P_TOOL						
Active tool cutting edge D0 - D'max.'; 'max' = value of \$MN_MM_MAX_CUTTING_EDGE_NO						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

3.2 Channel-specific system variables

\$P_TOOL		-				INT	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$P_TOOLNO		-				INT	
Description:							
\$P_TOOLNO							
Active tool number T0 - T32000; T can be an 8-digit number when 'flat D number' function is active							
This command should not generally be used when magazine management is active.							
When magazine management is active, GETEXET should be used instead.							
(T number programming always works reliably when \$MC_CUTTING_EDGE_DEFAULT=-1, or > 0.							
In cases where \$MC_CUTTING_EDGE_DEFAULT=0, or =-2, T number read errors can occur.							
The T number mechanism is also reliable if it is programmed after D > 0.							
Notice: Particularly with a setting of \$MC_CUTTING_EDGE_DEFAULT=-2, \$P_TOOLNO (the T no. of the active tool with which the currently active D offset has been calculated) and GETEXET (the changed tool) can return different T numbers.							
->see also \$P_MTHSDC and the documentation relating to the subject of multiple toolholders/spindles.							
Unit	Init value		Min		Max		
-	0		0		32000		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$P_TOOLP		-				INT	
Description:							
\$P_TOOLP							
Last programmed tool number T0 - T32000 (in operation without magazine management).							
This command cannot be used when magazine management is active.							
When magazine management is active, GETSELT must be used instead.							
If the function 'T alarm delay after M06' is active, the result T number = -1 if the preceding T address has been programmed incorrectly.							
Unit	Init value		Min		Max		
-	0		0		32000		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Program sensitive			Link:	No restrictions		

List of system variables

3.2 Channel-specific system variables

\$P_TOOLL [3]		\$P_TOOLL[1] to \$P_TOOLL[3] map \$TC_DP3[] to \$TC_DP5[].			DOUBLE	
Description: \$P_TOOLL[n] \$P_TOOLL[1] to \$P_TOOLL[3] correspond to the values in \$TC_DP3[] to \$TC_DP5[], including active tool offsets, independently of the plane selection and setting data such as \$SC_TOOL_LENGTH_CONST etc.						
Index 1:	n: Length 1 - 3					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLO [3]		Active tool orientation			DOUBLE	
Description: \$P_TOOLO[n] Active tool orientation						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOLO_ACT [3]		Active setpoint orientation			DOUBLE	
Description: \$AC_TOOLO_ACT[n] Active command orientation						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$AC_TOOLO_END [3]		Final orientation of the active block			DOUBLE	
Description:						
\$AC_TOOLO_END[n]						
End orientation of active block						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOLO_DIFF		Remaining angle to the orientation in the active block			DOUBLE	
Description:						
\$AC_TOOLO_DIFF						
Remaining angle of tool orientation in active block						
Unit	Init value	Min	Max			
deg.	0.0	0.0	360.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOLO [3]		Actual orientation			DOUBLE	
Description:						
\$VC_TOOLO[n]						
Actual orientation						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOLO_DIFF		Angle between set and actual orientation			DOUBLE	
Description:						
\$VC_TOOLO_DIFF						
Angle between command and actual orientation						
Unit	Init value	Min	Max			
deg.	0.0	0.0	180.0			

List of system variables

3.2 Channel-specific system variables

\$VC_TOOLO_DIFF	Angle between set and actual orientation					DOUBLE
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOLO_STAT	Status of the calculation of the actual orientation					INT
Description:						
\$VC_TOOLO_STAT						
Status of calculation of actual orientation						
Unit	Init value		Min		Max	
-	0		-1		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TC	Active toolholder					INT
Description:						
\$P_TC						
Active toolholder						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TC	Active tool carrier					INT
Description:						
\$AC_TC						
Active toolholder						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_TCNUM		Number of tool carriers available in the channel			INT	
Description:						
\$P_TCNUM						
Number of available toolholders in the channel						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TCANG [2]		Active angle of a tool carrier axis			DOUBLE	
Description:						
\$P_TCANG[n]						
Active angle of a toolholder axis						
Index 1:	n: Angle 1 - 2					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TCDIFF [2]		Angle difference with Hirth teeth			DOUBLE	
Description:						
\$P_TCDIFF[n]						
Difference between calculated and used angle of a toolholder axis with angle incrementation (Hirth tooth system)						
Index 1:	n: Angle 1 - 2					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_TCSOL		Solution number for tool carrier			INT	
Description:						
\$P_TCSOL						
Number of solutions when the angle of the axis of rotation of an orientable tool carrier is defined from a frame						
In the case of 0 to 2 solutions, the relevant value is returned.						
The return value is 3 when the number of solutions is infinite.						
If the angles are specified (TCOABS), the number of solutions is always 1.						
Unit	Init value	Min			Max	
-	0	-2147483648			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TCSTAT		Status of an orientable tool carrier.			INT	
Description:						
\$P_TCSTAT						
Specifies the status of an orientatable toolholder.						
The variable is bit-coded with the following bit meanings:						
0x1 The first axis of rotation exists						
0x2 The second axis of rotation exists						
0x4 The angles used in the calculation are acquired from an orientation in the frame direction						
0x8 The angles used in the calculation have been specified absolutely						
0x10 The polar axis angle is uncertain with the toolholder orientated in the frame direction						
0x1000 Only the tool is rotatable (kinematic type T)						
0x2000 Only the workpiece is rotatable (kinematic type P)						
0x4000 Tool and workpiece are rotatable (kinematic type M)						
The bits specified here are not currently assigned.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLR		Active tool radius			DOUBLE	
Description:						
\$P_TOOLR						
Active tool radius (total)						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_TOOLR		Active tool radius			DOUBLE	
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLND [32000]		Number of edges of tool T			INT	
Description:						
\$P_TOOLND[t]						
Number of tool edges of tool t						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLEXIST [32000]		Tool exists with T no. t			BOOL	
Description:						
\$P_TOOLEXIST[t]						
Does the tool with T no. t exist						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_D		Programmed D number (ISO2.1 mode)			INT	
Description:						
\$P_D						
Programmed D number in ISO_2.1 language mode						
The D number is the tool offset number in ISO mode 2.1 (milling). If no tool offset is active, the value 0 is output.						
The tool offset can be selected with D or H. However, this variable only ever contains the D value.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_D		Programmed D number (ISO2.1 mode)			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions

\$P_H		Programmed H number (ISO2.1 milling)			INT
Description:					
\$P_H					
Programmed H number in ISO_2.1 language mode					
The H number is the tool offset number in ISO mode 2.1 (milling). If no tool offset is active, the value 0 is output.					
The tool offset can be selected with D or H. However, this variable only ever contains the H value.					
Unit	Init value	Min			Max
-	0	-2147483648			2147483647
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	X	7
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions

\$A_TOOLMN [32000]		-			INT
Description:					
\$A_TOOLMN[t]					
Magazine number of tool t					
Index 1:	t: T number 1 - SLMAXTOOLNUMBER				
Unit	Init value	Min			Max
-	0	-2147483648			2147483647
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	X	7	X	7
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$A_TOOLMLN [32000]		-			INT
Description:					
\$A_TOOLMLN[t]					
Magazine location number of tool t					
Index 1:	t: T number 1 - SLMAXTOOLNUMBER				
Unit	Init value	Min			Max
-	0	-2147483648			2147483647
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	X	7	X	7
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

3.2 Channel-specific system variables

\$A_MYMN [32000]	-					INT
Description:						
\$A_MYMN[t]						
Number of home magazine of tool with T no. t.						
(A magazine becomes the home magazine of the tool if the tool is being loaded onto a magazine location of kind 1 (\$TC_MPP1=1).)						
Resulting value = 0 = tool is not loaded (if \$A_TOOLMN> 0, then manual tool).						
Resulting value = -1 = tool management is not active						
Resulting value = -2 = tool with T no. t does not exist.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$A_MYMLN [32000]	-					INT
Description:						
\$A_MYMLN[t]						
Number of the home magazine location of the tool with T no. t.						
(A magazine location becomes the home magazine location of a tool if the tool is being loaded onto a magazine location of kind 1 (\$TC_MPP1=1).)						
Resulting value = 0 = tool is not loaded (if \$A_TOOLMLN> 0, then manual tool).						
Resulting value = -1 = tool management is not active						
Resulting value = -2 = tool with T no. t does not exist.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$A_MONIFACT	-					DOUBLE
Description:						
\$A_MONIFACT						
Factor for tool life monitoring						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

List of system variables

3.2 Channel-specific system variables

\$A_MONIFACT		-			DOUBLE	
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLNG		Number of defined tool groups			INT	
Description:						
\$P_TOOLNG						
Number of defined tool groups assigned to the channel						
OPI block type= TM						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLNT		Number of defined tools			INT	
Description:						
\$P_TOOLNT						
Number of defined tools assigned to the channel						
OPI block type= TV						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLT [1500]		Tool number			INT	
Description:						
\$P_TOOLT[i]						
ith tool number T						
OPI block type= TV						
Index 1:	i= 1,..., \$P_TOOLNT					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_TOOLD [32000,12]		D no. of tool T		INT		
Description:						
\$P_TOOLD[t,i]						
ith D no. of tool with T no. t; i=1,2...						
If t is the value of an undefined tool, -2 is returned						
If i is a value outside the permissible range, 0 is returned						
OPI block type= TO						
Index 1:	t = 1, ..., SLMAXTOOLNUMBER					
Index 2:	i = 1,....., \$P_TOOLND					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_USEKT		Tool selection screen		INT		
Description:						
\$P_USEKT (= USE Kind of Tool)						
Is a bit-coded value						
All tools whose parameter \$TC_TP11 has set one of the bits of \$P_USEKT						
are available for the following tool changes. The value 'zero' has the equivalent content of						
'all bits are set'						
OPI block= C/S						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLNDL [32000,32000]		Number of DL offsets		INT		
Description:						
\$P_TOOLNDL[t,d]						
Number of DL offsets of D offset specified by T no. t and D no. d						
>0 Number of DL offsets						
0 No DL offset for this D offset						
-1 Additive offset function not active						
-2 t is the value of an undefined tool						
-3 d is the value of an undefined D offset						
OPI block type= TOS; TOE						
Index 1:	t = 1, ..., SLMAXTOOLNUMBER					
Index 2:	d = 1,....., SLMAXCUTTINGEDGENUMBER					

List of system variables

3.2 Channel-specific system variables

\$P_TOOLNDL [32000,32000]		Number of DL offsets			INT	
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGN		Number of defined magazines			INT	
Description:						
\$P_MAGN						
Number of defined magazines assigned to the channel.						
> 0 Successful read access						
0 No magazine defined						
-1 WZMG is not active						
OPI block= TM						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAG [64]		Magazine number			INT	
Description:						
\$P_MAG[i]						
ith magazine number						
> 0 Successful read access						
0 i is outside the permissible range						
-1 WZMG is not active						
OPI block= TM						
Index 1:	i= 1,..., \$P_MAGN					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_MAGNDIS [32000,32000]		Number of magazines connected to the internal magazine			INT	
Description:						
P_MAGNDIS[n, m]						
Number of magazines connected to location m of internal magazine n.						
> 0 Successful read access						
0 No magazine is connected to the buffer location						
-1 WZMG is not active						
-2 n is not the number of an internal magazine						
-3 m is not the number of an internal magazine location						
OPI block TPM						
Index 1:	n= must be the number of the buffer magazine or of the loading magazine					
Index 2:	m= 1,..., max. number of a location in the named internal magazine					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGDISS [32000,64]		Number of the magazine connected to the buffer			INT	
Description:						
P_MAGDISS[l, i]						
Number of ith magazine connected to location l of the buffer magazine.						
> 0 Successful read access						
0 i is outside the permissible range						
-1 WZMG is not active						
-2 m is not the number of a buffer magazine location						
-3 no buffer magazine defined						
OPI block TPM						
Index 1:	l= 1,..., max. number of a location in the buffer magazine					
Index 2:	i= 1,..., \$P_MAGNDIS[No. of the buffer magazine, refLoc]					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_MAGDISL [32000,64]		Number of the magazine connected to the loading magazine			INT	
Description: P_MAGDISL[l, i] Number of ith magazine connected to location l of the load magazine. > 0 Successful read access 0 i is outside the permissible range -1 WZMG is not active -2 m is not the number of a load magazine location -3 no load magazine defined OPI block TPM						
Index 1:		l= 1,...., max. number of a location in the loading magazine				
Index 2:		i= 1,...., \$P_MAGNDIS[No. of the loading magazine, refLoc]				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGNS		Number of spindle locations / toolholder locations in the buffer			INT	
Description: \$P_MAGNS Number of spindle locations / toolholder locations in the buffer assigned to the channel. > 0 Successful read access 0 No spindle locations defined -1 WZMG is not active -3 No buffer magazine defined						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_MAGS [20]		Number of the spindle / toolholder in the buffer			INT		
Description:							
\$P_MAGS[n]							
nth number of spindle / of toolholder in buffer							
> 0 Successful read access							
0 n is outside the permissible range							
-1 WZMG is not active							
-3 No buffer magazine defined							
Index 1:		n= 1,..., max. tool holder number					
Unit		Init value		Min		Max	
-		0		-2147483648		2147483647	
Read/Write properties:							
		TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:		X	-	7	-	0	-
Write:		-	-	0	-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:		Not classified			Link:	No restrictions	

\$P_MAGNREL [20]		Number of buffers assigned			INT		
Description:							
\$P_MAGNREL[n]							
Number of buffers assigned to the spindle number / toolholder number n							
> 0 Successful read access							
0 No buffer location assigned to spindle location							
-1 WZMG is not active							
-2 n is not the number of a spindle location							
-3 No buffer magazine defined							
Index 1:		n= 1,..., max. tool holder number					
Unit		Init value		Min		Max	
-		0		-2147483648		2147483647	
Read/Write properties:							
		TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:		X	-	7	-	0	-
Write:		-	-	0	-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:		Not classified			Link:	No restrictions	

\$P_MAGREL [20,1500]		Buffer number			INT	
Description:						
P_MAGREL[n, m]						
mth buffer number of nth spindle number / toolholder number						
> 0 Successful read access						
0 m is outside the permissible range						
-1 WZMG is not active						
-2 n is not the number of a spindle location						
-3 No buffer magazine defined						
Index 1:		n= 1,..., max. tool holder number				

List of system variables

3.2 Channel-specific system variables

\$P_MAGREL [20,1500]		Buffer number			INT	
Index 2:	m= 1,..., \$P_MAGNREL					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGNH		Number of defined magazine location type hierarchies			INT	
Description:						
\$P_MAGNH						
Highest defined magazine location type hierarchy assigned to the channel.						
A magazine location type hierarchy is defined if at least one entry in the hierarchy is <> "9999".						
Non-defined hierarchies are also counted if a defined hierarchy follows.						
> 0 Successful write access						
0 No location type hierarchies defined						
-1 TMMG is not active						
OPI module = TT						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGNHLT [32]		Number of defined location types			INT	
Description:						
\$P_MAGNHLT[n]						
Highest index of a defined location type in the n-th defined hierarchy						
> 0 Successful write access						
0 The hierarchy n is not defined. (All entries = 9999)						
-1 TMMG is not active						
-2 n lies outside the defined range (1 < n <= \$P_MAGNH)						
Alarm 10720 is output for n<1 or n>MD18078 \$MN_MM_MAX_NUM_OF_HIERARCHIES						
OPI module = TT						
Index 1:	n= 1,..., \$P_MAGNH					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-

3.2 Channel-specific system variables

\$P_MAGNHLT [32]		Number of defined location types		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$P_MAGHLT [32,32]		Location type of the hierarchy		INT		
Description:						
P_MAGHLT[n, m]						
m-th location type of the hierarchy n; n= 1,...., \$P_MAGNH; m= 1,...., \$P_MAGNHLT						
>= 0 Successful read access						
9999 Location type in the hierarchy level m of hierarchy n is not defined.						
-1 TMMG is not active						
-2 n lies outside the defined range (1 < n <= \$P_MAGNH)						
-3 m lies outside the defined range (1 < m <= \$P_MAGNHLT[n])						
Alarm 10720 is output for n<1 or. n>MD18078 \$MN_MM_MAX_NUM_OF_HIERARCHIES						
Alarm 10730 is output for m<1 or n>MD18079 \$MN_MM_MAX_NUM_HIERARCHY_ENTRIES						
OPI module = TT						
Index 1:	n= 1,...., \$P_MAGNH					
Index 2:	m= 1,...., \$P_MAGNHLT					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$P_MAGNA		Number of defined adapters		INT		
Description:						
\$P_MAGNA						
Number of defined adapters assigned to the channel.						
> 0 Successful read access						
0 No adapters defined						
-1 'Adapter' function or TMMG is not active						
OPI module = T/TMV						
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

List of system variables

3.2 Channel-specific system variables

\$P_MAGA [1500]		Adapter number			INT	
Description: \$P_MAGA[i] ith adapter number > 0 Successful read access 0 i is outside the permissible range -1 'Adapter' function or TMMG is not active OPI module = T/TMV						
Index 1:		i= 1,..., \$P_MAGNA				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MTHSDC		Master spindle/toolholder for tool offset			INT	
Description: \$P_MTHSDC Master toolholder no. or master spindle no. with reference to which the active tool is determined for the next D offset selection. >0 Successful read access 0 No master toolholder or master spindle available. The next D offset works with T0. -1 TMMG not available. If read as an OPI variable, this is valid for the status in the current main run block						
Unit	Init value	Min			Max	
-	0	-1			20	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_MONMIN		-			DOUBLE	
Description: \$AC_MONMIN Relation between tool monitoring actual value and setpoint. Threshold for tool search strategy "Load only tools with an actual value higher than threshold"						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

3.2 Channel-specific system variables

\$AC_MONMIN		-			DOUBLE	
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_VDITCP [SLTO-MA_MAX_NUM_FREE_PARAM]		-			INT	
Description:						
\$P_VDITCP[n]						
Free parameters for tool management in VDI interface						
Index 1:	n: Index 1 - 3					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_ATPG [9]		Current tool-related grinding data			DOUBLE	
Description:						
\$P_ATPG[n]						
Current tool-related grinding data						
Index 1:	n: Parameter numbers 1 - 9					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOOLENV [1]		Name of a tool environment			STRING	
Description:						
\$P_TOOLENV[i]						
Supplies the name of the tool environment stored under the (internal) index i. If i does not refer to a defined data block, a zero string is returned. If index i is invalid, i.e. less than 1 or greater than the maximum number of data blocks for tool environments (\$MN_MM_NUM_TOOLENV), an alarm is generated.						
Index 1:	The maximum number of tool environments can be configured via the MD \$MN_MM_NUM_TOOLENV.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_TOOLENV [1]		Name of a tool environment			STRING
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_TOOLENVN		Number of tool environments available			INT
Description: \$P_TOOLENVN Specifies the number of defined data blocks for defining tool environments.					
Unit	Init value	Min			Max
-	0	-2147483648			2147483647
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	-	0
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_AP		Angle with polar coordinates			DOUBLE
Description: \$P_AP Programmed angle with polar coordinates in degrees					
Unit	Init value	Min			Max
-	0.0	-1.8E+308			1.8E+308
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	-	0
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_AXN1		Axis identifier for the abscissa			AXIS
Description: Variable \$P_AXN1 supplies the current address of the geometry axis for the abscissa.					
Unit	Init value	Min			Max
-	GEOAXISNUM				
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	-	0
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$P_AXN2		Axis identifier for the ordinate			AXIS
Description: Variable \$P_AXN2 supplies the current address of the geometry axis for the ordinate.					
Unit	Init value	Min			Max
-	GEOAXISNUM				

3.2 Channel-specific system variables

\$P_AXN2		Axis identifier for the ordinate			AXIS	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_AXN3		Axis identifier for the applicate			AXIS	
Description:						
Variable \$P_AXN3 supplies the current address of the geometry axis for the applicate.						
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ACTGEOAX [3]		Current geometry axis identifier			AXIS	
Description:						
Variable \$P_ACTGEOAX[n] supplies the current geometry axis identifier depending on the plane.						
The geometry axis assignment corresponds to the programmed GEOAX(1,X,2,Y,3,Z) values. The assignment can also change on a Reset and on selection and deselection of transformations.						
Index 1:	Array index 1 - 3 for 1st - 3rd geometry axis					
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_GG [61]		Active G function			INT	
Description:						
\$P_GG[n]						
Read active G function of G function group n The index of the G function is supplied as described in the Programming Guide Fundamentals, Section "List of G functions/preparatory functions".						
(This also matches the index output at the PLC interface when configured accordingly)						
Example:						
;Check for G55						
IF \$P_GG[8] == 3 GOTOF LABEL_G55						
Index 1:	n: Number of the G function group					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						

List of system variables

3.2 Channel-specific system variables

\$P_GG [61]		Active G function			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_EXTGG [31]		Active G function with external language			INT	
Description:						
\$P_EXTGG[n]						
Read active G function of G function group n of external language. The index of the G function is supplied as described in the Function Description "ISO Dialects" Section "G commands".						
(This also matches the index output at the PLC interface when configured accordingly)						
Example:						
;Check for G55 in ISO Dialect T						
IF \$P_EXTGG[14] == 2 GOTOF LABEL_G55						
Index 1:	n: Number of the G function group					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_GG [61]		Active G function in synchronized action			INT	
Description:						
\$A_GG[n]						
Read active G function of G function group n in synchronized action The index of the G function is supplied as described in the Programming Guide Fundamentals, Section "List of G functions/preparatory functions".						
(This also matches the index output at the PLC interface when configured accordingly)						
Example:						
;Check for G55 in synchronized action						
WHEN \$A_GG[8] == 3 DO ...						
Index 1:	n: Number of the G function group					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH		Search run active			BOOL	
Description:						
\$P_SEARCH						
Returns TRUE (1) if block search is active						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH1		Search with calculation active			BOOL	
Description:						
\$P_SEARCH1						
Returns TRUE (1) if block search with calculation is active.						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH2		Block search without calculation was active			BOOL	
Description:						
\$P_SEARCH2						
Returns TRUE (1) if last selected search type was "block search without calculation".						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_SEARCHL		Last active search type			INT	
Description:						
\$P_SEARCHL						
supplies the last selected search type:						
(coding analogous to PI service _N_FINDBL)						
0 : No search						
1 : Search without calculation						
2 : Search with calculation on contour						
3 : Reserved						
4 : Search with calculation at end of block						
5 : Search in extended program test						
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SUBPAR [n]		Parameter programmed			BOOL	
Description:						
\$P_SUBPAR[n]						
Interrogate whether parameter n was actually programmed (TRUE) on subroutine call with parameter transfer, or whether the system has applied a default parameter (FALSE).						
Index 1:	n: Parameter numbers 1 to n according to the definition in the PROC statement					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_CTABDEF		Curve table is defined			BOOL	
Description:						
Variable \$P_CTABDEF determines whether a curve table definition is active.						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_IPTRLOCK		-		BOOL		
Description:						
\$P_IPTRLOCK						
Status of disable for updating the interruption pointer (OPI block InterruptionSearch)						
due to part program command IPTRLOCK/IPTRUNLOCK or machine data \$MC_AUTO_IPTR_LOCK:						
FALSE (0) -> interruption pointer is updated when interruption occurs						
TRUE (1) -> the halt block is stored in the interruption pointer						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_DELAYFST		-		BOOL		
Description:						
\$P_DELAYFST						
Interrogation whether delay stop area is active or not depending on part program command DELAYFSTON/DELAYFSTOF.						
Note:						
Delay stop areas defined by G331/G332 can be interrogated only by a synchronized action						
due to the restriction to motion blocks and dwell times						
(see \$AC_DELAYFST).						
FALSE (0) -> Delay stop area is not active						
TRUE (1) -> Delay stop area is active						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_DELAYFST		-		BOOL		
Description:						
\$AC_DELAYFST						
Interrogation in synchronized actions whether delay stop area is active or not due to part program command DELAYFSTON/DELAYFSTOF or G331/G332.						
Note:						
If \$AC_DELAYFST is used outside synchronized actions in the part program, then, analogous to \$P_DELAYFST, the delay stop areas defined with G331/G332 cannot be interrogated owing to the restriction to motion blocks and dwell times (see \$P_DELAYFST).						
FALSE (0) -> Delay stop area is not active						
TRUE (1) -> Delay stop area is active						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_MC		Modal subroutine call active		INT		
Description:						
\$P_MC						
Status of modal subroutine call						
FALSE (0) -> no modal subroutine call						
TRUE (1) -> modal subroutine call active						
Unit	Init value		Min		Max	
-	0		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_REPINF		Repositioning possible		INT		
Description:						
\$P_REPINF						
Status info for repositioning with REPOS command						
FALSE (0) -> Axis cannot be repositioned with REPOS command for following reasons						
- Call is not issued in an ASUB						
- Call is issued by an ASUB that has been started in the Reset state						
- Call is issued by an ASUB that has been started in JOG mode						
TRUE (1) -> Axis can be repositioned with REPOS						
Unit	Init value		Min		Max	
-	0		FALSE		TRUE	

3.2 Channel-specific system variables

\$P_REPINF		Repositioning possible			INT	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SIM		NCK simulation active			BOOL	
Description:						
The variable \$P_SIM returns TRUE if the NCK specifically generated for simulation products is used. This simNCK is used in the products HMI Simulation, virtual NCK (VNCK) and SinuTrain.						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_DRYRUN		Dry run feed selected			BOOL	
Description:						
\$P_DRYRUN						
Returns TRUE (1) if dry run feed is selected, or else FALSE (0).						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_OFFN		Programmed contour offset			DOUBLE	
Description:						
\$P_OFFN						
Programmed contour offset						
Unit	Init value		Min		Max	
-	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$PI		Circle constant			DOUBLE	
Description: Variable \$PI determines the circle constant PI = 3.1415927.						
Unit	Init value	Min			Max	
-	0.0	3.1415927			3.1415927	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Independent			Link:	No restrictions	

\$P_PROG_EVENT		Event-driven program call active			INT	
Description: System variable \$P_PROG_EVENT can be used to query whether the program has been activated implicitly by an event configured with \$MC_PROG_EVENT_MASK or \$MN_SEARCH_RUN_MODE. \$P_PROG_EVENT supplies an integer value between 0 and 6 with the following meaning: 0: Explicit activation by NC Start or ASUB Start via VDI or ASUB interface 1: Implicit activation by "Part program start" event 2: Implicit activation by "Part program end" event 3: Implicit activation by "Operator panel reset" event 4: Implicit activation by "Boot" event 5: Implicit activation after output of last action block following block search 6: Implicit activation of /_N_CST_DIR/_N_SAFE_SPF by "Boot" event (Power-on Safety Event)						
Unit	Init value	Min			Max	
-	0	0			6	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_PROGPATH		Path of the current program			STRING	
Description: \$P_PROGPATH Supplies the path where the program currently being processed is stored in the file system. Example: Subprogram "/_N_WKS_DIR/_N_WELLE_DIR/_N_MYSUB_SPF" is running. \$P_PROGPATH returns the string "/_N_WKS_DIR/_N_WELLE_DIR/".						
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_PROGPATH		Path of the current program			STRING	
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_PROG [INMAXFILESTACK]		Program name of a program level			STRING	
Description:						
\$P_PROG[n]						
Supplies the name of the program on program level n.						
Example:						
\$P_PROG[0]						
Supplies the name of the program on program level 0 = main program name.						
Index 1:	n: Specifies the program level from which the program name is to be read. Numerical value: 0 to 17					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_STACK		Current program level			INT	
Description:						
\$P_STACK						
Supplies the program level on which the current part program is running.						
Unit	Init value	Min		Max		
-	0	0		17		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_ISO_STACK		Current program level in ISO mode			INT	
Description:						
\$P_ISO_STACK						
The variable supplies the current program level in ISO mode. Unlike Siemens mode, not every subprogram or macro call changes the program level in ISO mode.						
Subprogram/macro calls and their effect on \$P_ISO_STACK:						
M98 Pxx ,subprogram call \$P_ISO_STACK remains the same						
G65 Pxx ,non-modal macro \$P_ISO_STACK is incremented						
G66 Pxx ,modal macro \$P_ISO_STACK is incremented						
M macro substitution \$P_ISO_STACK is incremented						
M subprogram substitution \$P_ISO_STACK remains the same						
T substitution \$P_ISO_STACK remains the same						
G substitution \$P_ISO_STACK is incremented						
802S/C: Value range = [0,5]						
Unit	Init value	Min			Max	
-	0	-2147483648			17	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_PATH [INMAXFILESTACK]		Path of a program level			STRING	
Description:						
\$P_PATH[n]						
Supplies the path where the program being processed on program level n is stored in the file system.						
Examples:						
\$P_PATH[0] supplies the directory of the main program, e.g. "/_N_WKS_DIR/_N_WELLE_WPD/".						
\$P_PATH[\$P_STACK - 1] supplies the path of the calling program.						
Index 1:	n: Defines the program level from which the program path is to be read. Numerical value: 0 to 17					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ACTID [16]		Modal synchronized action is programmed			BOOL	
Description:						
Variable \$P_ACTID[n] determines whether the first 16 modal synchronized actions with ID n are programmed.						
Index 1:	Index 1 - 16 corresponds to the nth modal synchronized action.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	

3.2 Channel-specific system variables

\$P_ACTID [16]	Modal synchronized action is programmed				BOOL	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_STAT	-				INT	
Description:						
\$AC_STAT						
-1: Invalid						
0: Channel in Reset state						
1: Channel interrupted						
2: Channel active						
Unit	Init value		Min		Max	
-	0		-1		2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PROG	-				INT	
Description:						
\$AC_PROG						
-1: Invalid						
0: Program in Reset state						
1: Program stopped						
2: Program active						
3: Program waiting						
4: Program interrupted						
Unit	Init value		Min		Max	
-	0		-1		4	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SYNA_MEM	Free synchronized action elements				INT	
Description:						
Variable \$AC_SYNA_MEM determines the number of free synchronized action elements. The maximum number of elements is configured by \$MC_MM_NUM_SYNC_ELEMENTS.						
The value is read from the part program without a preprocessing stop.						
Unit	Init value		Min		Max	

List of system variables

3.2 Channel-specific system variables

\$AC_SYNA_MEM		Free synchronized action elements			INT	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_IPO_BUF		Fill level Ipo buffer			INT	
Description:						
Variable \$AC_IPO_BUF determines the current fill level of the interpolator buffer.						
The value is read from the part program without a preprocessing stop.						
Unit	Init value	Min				Max
-	0	0				2147483647
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_BLOCKTYPE		Block type			INT	
Description:						
Variable \$AC_BLOCKTYPE determines the type of the current main run block.						
The following values are possible:						
0: Block is programmed block (main block).						
1: Block was generated by the system as an intermediate block.						
2: Block was generated by chamfers/rounding						
3: Smooth approach and retraction (SAR)						
4: Block was generated by tool offset						
5: Block was generated by smoothing						
6: Block was generated by TLIFT (tangential follow-up)						
7: Block was generated by path segmentation						
8: Block was generated by compile cycles						
9: Block was generated due to orientation changes on path-relative interpolation of tool orientation (ORIPATH/ORIROT)						
10: Block was generated by pole treatment of orientation transformations which is activated by the the machine data \$MC_POLE_ORI_MODE						
Unit	Init value	Min				Max
-	0	0				9
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_BLOCKTYPEINFO	Block type info	INT
<p>Description:</p> <p>System variable \$AC_BLOCKTYPEINFO can be used to interrogate more detailed information about variable \$AC_BLOCKTYPE.</p> <p>Depending on the value of system variable \$AC_BLOCKTYPE, various values can be returned:</p> <ol style="list-style-type: none"> 1. General, internally generated block: \$AC_BLOCKTYPE = 1 \$AC_BLOCKTYPEINFO = 1000 and contains no further information. 2. Chamfer/rounding: \$AC_BLOCKTYPE = 2 2001: Straight 2002: Circle 3. SAR: \$AC_BLOCKTYPE = 3 3001: Approach with straight line 3002: Approach with quadrant 3003: Approach with semicircle 4. Tool compensation: \$AC_BLOCKTYPE = 4 4001: Approach block after STOPRE 4002: Connection blocks if intersection point not found 4003: Point-type circle on inner corners (with TRACYL only) 4004: Bypass circle (or conical cut) at outer corners 4005: Approach blocks with offset suppression 4006: Approach blocks on repeated WRC activation 4007: Block split due to excessive curvature 4008: Compensation blocks with 3D face milling (tool vector area vector) 5. Smoothing: \$AC_BLOCKTYPE = 5 5001: Smoothing contour by means of G641 5002: Smoothing contour by means of G642 5003: Smoothing contour by means of G643 5004: Smoothing contour by means of G644 6. TLIFT: \$AC_BLOCKTYPE = 6 6001: TLIFT block with linear movement of tangential axis and without lift motion. 6002: TLIFT block with nonlinear movement of tangential axis (polynomial) and without lift movement. 6003: TLIFT block with lift motion, tangential axis motion and lift motion start simultaneously. 6004: TLIFT block with lift motion, tangential axis starts first if specific lift position is reached. 7. Path segmentation: \$AC_BLOCKTYPE = 7 7001: Programmed path segmentation without active punching/nibbling 7002: Programmed path segmentation with active punching/nibbling 7003: Automatic, internally generated path segmentation 8. Compile cycles: \$AC_BLOCKTYPE = 8 In this case, system variable \$AC_BLOCKTYPEINFO contains the ID of the compile cycles Application which created the block 9. Path-relative interpolation of tool orientation (ORIPATH/ORIOTC) 9000: interpolation of tool orientation (ORIPATH) 9001: interpolation of rotation of tool (ORIOTC) 		

List of system variables

3.2 Channel-specific system variables

\$AC_BLOCKTYPEINFO		Block type info			INT	
10: Pole treatment for orientation transformations 10000: Look ahead of position of pole axis for orientation transformations 10001 Inserted block for traversing the pole cone at orientation transformations:						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SPLITBLOCK		-			INT	
Description:						
System variable \$AC_SPLITBLOCK is capable of detecting all blocks generated internally and programmed blocks which were truncated as a result. It can return the following values: = 0 : It is an unchanged programmed block (a block generated by the compressor is viewed here as a programmed block). <> 0: Block has been truncated or is an internally generated block, the variable can assume the following values (variable is bit-coded): = 1: It is an internally generated block or a truncated original block = 3: It is the last block in a chain of internally generated blocks or truncated original blocks						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TANEB		Tangent angle at block end point			DOUBLE	
Description:						
\$AC_TANEB determines the angle between the path tangent at the end of the current block and the path tangent at the start of the next block. This variable should only be applied to programmed main blocks. \$AC_BLOCKTYPE can be used to determine whether the current block is a main block.						
Unit	Init value	Min			Max	
-	0.0	-180.0			180.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_SYNC_ACT_LOAD		Current runtime for synchronized actions				DOUBLE	
Description:							
Variable \$AC_SYNC_ACT_LOAD supplies the current runtime for synchronized actions of the last interpolator cycle in the channel.							
Unit	Init value	Min				Max	
-	0.0	-1.8E+308				1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_SYNC_MAX_LOAD		Longest runtime for synchronized actions				DOUBLE	
Description:							
Variable \$AC_SYNC_MAX_LOAD supplies the longest runtime for synchronized actions of an interpolator cycle in the channel.							
Unit	Init value	Min				Max	
-	0.0	-1.8E+308				1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	X	X	7		-	0	X
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_SYNC_AVERAGE_LOAD		Average runtime for synchronized actions				DOUBLE	
Description:							
Variable \$AC_SYNC_AVERAGE_LOAD supplies the average runtime per interpolator cycle for synchronized actions in the channel.							
Unit	Init value	Min				Max	
-	0.0	-1.8E+308				1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	X	X	7		-	0	X
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_IW_STAT		Position information for PTP				INT	
Description:							
Variable \$AC_IW_STAT describes the position information of the articulated joints (transformation-specific) for cartesian PTP travel. The variable is relevant only for transformations which support PTP.							
Unit	Init value	Min				Max	
-	0	-2147483648				2147483647	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_IW_STAT		Position information for PTP			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_IW_TU		Position information of axes for PTP			INT	
Description: Variable \$AC_IW_TU describes the position information of the axes (MCS) for cartesian PTP travel. The variable is relevant only for transformations which support PTP.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRANS_SYS		Reference system for cart. manual trav. (trans.)			INT	
Description: \$AC_TRANS_SYS Reference system for translation with cartesian manual travel 0: Axis-spec. manual trav. active 1: Cart. manual trav. in BCS 2: Cart. manual trav. in WCS 3: Cart. manual trav. in TCS Only appropriate in connection with transformations which support cart. manual travel.						
Unit	Init value	Min		Max		
-	0	0		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_JOG_COORD		Coordinate system for manual travel			INT	
Description: Variable \$AC_JOG_COORD is used to set the coordinate system frame for manual travel. The following values are possible: 0: Manual travel in WCS 1: Manual travel in SZS						
Unit	Init value	Min		Max		
-	0	0		1		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

3.2 Channel-specific system variables

\$AC_JOG_COORD	Coordinate system for manual travel			INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: Not classified

\$AC_ROT_SYS	Reference system for cart. manual trav. (ori.)			INT		
Description:						
\$AC_ROT_SYS						
Reference system for orientation with cartesian manual travel						
0: Axis-spec. manual trav. active						
1: Cart. manual trav. in BCS						
2: Cart. manual trav. in PCS						
3: Cart. manual trav. in TCS						
Only appropriate in connection with transformations which support cart. manual travel.						
Unit	Init value	Min	Max			
-	0	0	3			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link: Not classified		

\$AC_MEA [2]	Probe has switched			INT		
Description:						
\$AC_MEA[n]						
As soon as all the trigger events programmed in a block have been fulfilled, both values (\$AC_MEA[1] and \$AC_MEA[2]) are set.)						
Index 1:	n: Number of the probe (1 - MAXNUM_PROBE)					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link: Not classified		

\$AC_TRAFO	Active transformation			INT
Description:				
\$AC_TRAFO				
Code number of active transformation				
according to machine data \$MC_TRAFO_TYPE_n				
.				
Note special meaning in the case of parameterized persistent transformation (bit 1 of \$MC_TRAFO_MODE_MASK set to 1):				
The parameters of the first chained transformation are returned in the case of TRACON. 0 is returned if only the persistent transformation is active.				
Unit	Init value	Min	Max	
-	0	-2147483648	2147483647	
Read/Write properties:				

List of system variables

3.2 Channel-specific system variables

\$AC_TRAFO		Active transformation			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TRAFO		Programmed transformation			INT	
Description:						
\$P_TRAFO						
Code number of programmed transformation according to machine data \$MC_TRAFO_TYPE_n						
.						
Note special meaning in the case of parameterized persistent transformation (bit 1 of \$MC_TRAFO_MODE_MASK set to 1):						
The first chained transformation is returned in the case of TRACON. 0 is returned if only the persistent transformation is active.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRAFO_PAR [n]		Transformation selection parameters			DOUBLE	
Description:						
\$AC_TRAFO_PAR[n]						
Selection parameters of active transformation						
.						
Please note special meaning when persistent transformation is configured (Bit 1 of \$MC_TRAFO_MODE_MASK is set to 1):						
The parameters of the first chained transformation are returned in the case of TRACON.						
0 is returned if only the persistent transformation is active.						
Index 1:	n: Number of the parameter					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TRAFO_PAR [n]		Progr. transformation selection parameters			DOUBLE	
Description:						
\$P_TRAFO_PAR[n]						
Selection parameters of programmed transformation						
.						
Please note special meaning when persistent transformation is configured (Bit 1 of \$MC_TRAFO_MODE_MASK is set to 1): The parameters of the first chained transformation are returned in the case of TRACON. 0 is returned if only the persistent transformation is active.						
Index 1:	n: Number of the parameter					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRAFO_PARSET		Transformation data set number			INT	
Description:						
\$AC_TRAFO_PARSET						
The variable contains the value 0 if no kinematic transformation is active.						
If a conventionally defined transformation (i.e. not using kinematic chains) is active, the variable contains the number of the current transformation data set.						
.						
Note the special meaning with a parameterized persistent transformation (Bit 1 of \$MC_TRAFO_MODE_MASK is set to 1): With TRACON, the number of the data set of the first chained transformation is returned. If only the persistent transformation is active, 0 is returned.						
If a transformation defined with kinematic chains is active, the variable contains the number of the \$NT data set with an offset of 1000; this means that the first transformation returns the value 1001.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_TRAFO_PARSET		Transformation data set number			INT	
<p>Description: \$P_TRAFO_PARSET The variable contains the value 0 if no kinematic transformation is active. If a conventionally defined transformation (i.e. not using kinematic chains) is active, the variable contains the number of the current transformation data set. If a transformation defined by kinematic chains is active, the variable contains the number of the \$NT data set with an offset of 1000, in other words, the first transformation returns the value 1001. Note the special meaning with a parameterized persistent transformation (Bit 1 of \$MC_TRAFO_MODE_MASK is set to 1): If only the persistent transformation is active, 0 is returned.</p>						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_LIFTFAST		State of the lifftast			INT	
<p>Description: \$AC_LIFTFAST Information about execution of rapid lift. 0: Initial state. 1: Rapid lift has been executed. The variable is set internally to "1" by the NC at the beginning of the rapid lift process. The variable must be reset to its initial state (\$AC_LIFTFAST=0) by the evaluating program (if one is configured) so that any subsequent rapid lift process can be detected again.</p>						
Unit	Init value	Min			Max	
-	0	-2147483648			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_LIFTFAST		Status of lifftast	INT			
Description:						
\$P_LIFTFAST						
Information about execution of rapid lift.						
0: Initial state.						
1: Rapid lift has been executed.						
The variable is set internally						
to "1" by the NC at the beginning of the rapid lift process.						
The variable must be reset to its initial state (\$AC_LIFTFAST=0)						
by the evaluating program (if one is configured) so that any subsequent						
rapid lift process can be detected again.						
The variable is reset by writing \$AC_LIFTFAST!						
Unit	Init value	Min	Max			
-	0	-2147483648	1			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_ASUP	-	INT
<p>Description: \$AC_ASUP Code number for the reason for activating an ASUB. The reasons are bit-coded and have the following meaning: BIT0: Activation due to: user interrupt "ASUB with BIsync" Activation by: VDI signal, digital-analog interface Continued by: Freely selectable Reorg or Ret BIT1: Activation due to: User interrupt "ASUB" To continue the program with Repos, the position immediately prior to the interrupt is stored. Activation by: VDI signal, digital-analog interface Continued by: Freely selectable BIT2: Activation due to: user interrupt "ASUB from channel state Ready" Activation by: VDI signal, digital-analog interface Continued by: Freely selectable BIT3: Activation due to: user interrupt "ASUB in a manual mode and channel state not READY" Activation by: VDI signal, digital-analog interface Continued by: Freely selectable BIT4: Activation due to: Activation due to: User interrupt "ASUB". To continue the program with Repos, the current position at the moment of interrupt is stored. Activation by: VDI signal, digital-analog interface Continued by: Freely selectable BIT5: Activation due to: Cancellation of subroutine repeat Activation by: VDI signal Continued by: Execution of system ASUB REPOS BIT6: Activation due to: Activation of decoding single block Activation by: VDI signal (+OPI) Continued by: Execution of system ASUB REPOS BIT7: Activation due to: Activation of delete distance to go Activation by: VDI signal Continued by: Execution of system ASUB Ret BIT8: Activation due to: Activation of axis synchronization Activation by: VDI signal Continued by: Execution of system ASUB REPOS BIT9: Activation due to: Mode change Activation by: VDI signal Continued by: Execution of system ASUB REPOS or RET (see MD.) BIT10: Activation due to: Program continuation under TeachIn or after TeachIn deactivation Activation by: VDI signal Continued by: Execution of system ASUB Ret BIT11: Activation due to: Overstore selection Activation by: Pi selection Continued by: Execution of system ASUB REPOS BIT12: Activation due to: Alarm with reaction 'offset block with Repos' (COMPBLOCKWITHREORG)</p>		

3.2 Channel-specific system variables

\$AC_ASUP		-		INT			
Activation by: Internal							
Continued by: Execution of system ASUB REPOS							
BIT13: Activation due to: Retraction with G33 and Stop							
Activation by: Internal							
Continued by: Execution of system ASUB Ret							
BIT14: Activation due to: Activation of dry run feedrate							
Activation by: VDI							
Continued by: Execution of system ASUB REPOS							
BIT15: Activation due to: Deactivation of dry run feedrate							
Activation by: VDI							
Continued by: Execution of system ASUB REPOS							
BIT16: Activation due to: Activation of block suppression							
Activation by: VDI							
Continued by: Execution of system ASUB REPOS							
BIT17: Activation due to: Deactivation of block suppression							
Activation by: VDI							
Continued by: Execution of system ASUB REPOS							
BIT18: Activation due to: Activate machine data							
Activation by: Pi							
Continued by: Execution of system ASUB REPOS							
BIT19: Activation due to: Activate tool offset							
Activation by: Pi "_N_SETUDT"							
Continued by: Execution of system ASUB REPOS							
BIT20: Activation due to: System ASUB after search type SERUPRO has reached the search target.							
Activation by: Pi "_N_FINDBL" Parameter == 5							
Continued by: Execution of system ASUB REPOS							
BIT21: Activation due to: Selection of external work offset							
Activation by: VDI signal							
Continued by: Execution of system ASUB REPOS							
Unit	Init value		Min		Max		
-	0		-2147483648		2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$P_ISTEST		Program test active			BOOL		
Description:							
\$P_ISTEST							
Returns TRUE (1) if program test is active.							
Unit	Init value		Min		Max		
-	FALSE		FALSE		TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_IJSTEST		Program test active			BOOL	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_MMCA		Task acknowledgement for MMC command			STRING	
Description: \$P_MMCA Task acknowledgement for MMC command						
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PROTO		Activate logging function for 1st user			BOOL	
Description: \$A_PROTO Activate / deactivate logging function for the first user. Corresponds to \$A_PROTOD[0].						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_PROTOD [EX_MAX_NUM_PROT_USER]		Activate logging function for user			BOOL	
Description: \$A_PROTOD Activate / deactivate logging function for a user. Corresponds to OPI variable protocUserActive.						
Index 1:	Index of the user of the logging function.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$A_PROT_LOCK [EX_MAX_NUM_PROT_USER]		Disable/enable the logging function for a user			INT	
Description:						
\$A_PROT_LOCK Disable / enable logging function temporarily for a user						
Index 1:		0 - EX_MAX_NUM_PROT_USER-1, USER				
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO1 [n]		1st FIFO stack			DOUBLE	
Description:						
Variable \$AC_FIFO1[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10. The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO. \$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored. R variables assigned to FIFO areas should not be written elsewhere. The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated: $\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$ The FIFO variable is an array variable. Indices 0 - 5 have special meanings: n = 0: When written with index 0, a new value is stored in the FIFO. When read with index 0, the oldest element is read and removed from the FIFO. n=1: Access to the first element read n=2: Access to the second element read n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set. n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.						
Index 1:		The dimension is configured via \$MC_LEN_AC_FIFO.				
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_FIFO2 [n]	2nd FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO2[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10. The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO. \$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored. R variables assigned to FIFO areas should not be written elsewhere. The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated: $\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$ The FIFO variable is an array variable. Indices 0 - 5 have special meanings: n = 0: When written with index 0, a new value is stored in the FIFO. When read with index 0, the oldest element is read and removed from the FIFO. n=1: Access to the first element read n=2: Access to the second element read n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set. n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO3 [n]	3rd FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO3[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
n = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
n=1: Access to the first element read						
n=2: Access to the second element read						
n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
n=4: Number of elements available in the FIFO						
n=5: Current write index relative to the start of the FIFO						
n=6: Oldest element						
n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	X	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_FIFO4 [n]	4th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO4[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10. The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO. \$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored. R variables assigned to FIFO areas should not be written elsewhere. The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated: $\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$ The FIFO variable is an array variable. Indices 0 - 5 have special meanings: n = 0: When written with index 0, a new value is stored in the FIFO. When read with index 0, the oldest element is read and removed from the FIFO. n=1: Access to the first element read n=2: Access to the second element read n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set. n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO5 [n]	5th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO5[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
n = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
n=1: Access to the first element read						
n=2: Access to the second element read						
n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
n=4: Number of elements available in the FIFO						
n=5: Current write index relative to the start of the FIFO						
n=6: Oldest element						
n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	X	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_FIFO6 [n]	6th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO6[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10. The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO. \$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored. R variables assigned to FIFO areas should not be written elsewhere. The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated: $\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$ The FIFO variable is an array variable. Indices 0 - 5 have special meanings: n = 0: When written with index 0, a new value is stored in the FIFO. When read with index 0, the oldest element is read and removed from the FIFO. n=1: Access to the first element read n=2: Access to the second element read n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set. n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO7 [n]	7th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO7[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
n = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
n=1: Access to the first element read						
n=2: Access to the second element read						
n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
n=4: Number of elements available in the FIFO						
n=5: Current write index relative to the start of the FIFO						
n=6: Oldest element						
n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	X	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_FIFO8 [n]	8th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO8[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10. The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO. \$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored. R variables assigned to FIFO areas should not be written elsewhere. The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated: $\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$ The FIFO variable is an array variable. Indices 0 - 5 have special meanings: n = 0: When written with index 0, a new value is stored in the FIFO. When read with index 0, the oldest element is read and removed from the FIFO. n=1: Access to the first element read n=2: Access to the second element read n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set. n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO9 [n]	9th FIFO stack			DOUBLE		
Description:						
Variable \$AC_FIFO9[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
n = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
n=1: Access to the first element read						
n=2: Access to the second element read						
n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
n=4: Number of elements available in the FIFO						
n=5: Current write index relative to the start of the FIFO						
n=6: Oldest element						
n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	X	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_FIFO10 [n]	10th FIFO stack					DOUBLE
Description:						
Variable \$AC_FIFO10[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations. \$MC_NUM_AC_FIFO is used to define the number of FIFO variables \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
n = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
n=1: Access to the first element read						
n=2: Access to the second element read						
n=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
n=4: Number of elements available in the FIFO						
n=5: Current write index relative to the start of the FIFO						
n=6: Oldest element						
n=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_IN [n]	Digital input					BOOL
Description:						
Variable \$A_IN[n] is used to interrogate digital inputs.						
Index 1:	The dimension is configured via \$MN_FASTIO_DIG_NUM_INPUTS.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$A_OUT [n]		Digital output			BOOL	
Description:						
The variable \$A_OUT[n] is used to access the digital outputs.						
If the output is disabled by the interface signal "Disable digital NC outputs", the value returned on reading the variable is always zero.						
Index 1:	The dimension is configured via \$MN_FASTIO_DIG_NUM_OUTPUTS.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INA [n]		Analog input			DOUBLE	
Description:						
Variable \$A_INA[n] is used to access the analog inputs.						
Index 1:	The dimension is configured via \$MN_FASTIO_ANA_NUM_INPUTS.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_OUTA [n]		Analog output			DOUBLE	
Description:						
The variable \$A_OUTA[n] is used to access the analog outputs. When written, the value does not become effective until after the next IPO cycle, and it can then be read back.						
If the output is disabled by the interface signal "Disable analog NC outputs", the value returned on reading the variable is always zero.						
Index 1:	The dimension is configured via \$MN_FASTIO_ANA_NUM_OUTPUTS.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INCO [2]		Comparator input			BOOL	
Description:						
Variable \$A_INCO[n] is used to access the comparator inputs.						
Index 1:	nth comparator input.					
Unit	Init value	Min			Max	

List of system variables

3.2 Channel-specific system variables

\$A_INCO [2]		Comparator input			BOOL	
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DBB [MD_MAX- NUM_VDI_VAR_DATA]		PLC data byte (unsigned)			INT	
Description:						
Array variable \$A_DBB[n] is used to read and write a data byte (8 bits) from PLC. The byte is unsigned and can be read in the range from 0 to 255 and written in the range from -128 to 255.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
See also \$A_DBSB[n].						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min			Max	
-	0	-128			255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DBW [MD_MAX- NUM_VDI_VAR_DATA]		PLC data word (unsigned)			INT	
Description:						
Array variable \$A_DBW[n] is used to read and write a data word (16 bits) from PLC. The byte is unsigned and can be read in the range from 0 to 65535 and written in the range from -32768 to 65535.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
See also \$A_DBSW[n].						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min			Max	
-	0	-32768			65535	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$A_DBD [MD_MAX- NUM_VDI_VAR_DATA]		PLC data doubleword			INT	
Description:						
Array variable \$A_DBD[n] is used to read and write a data doubleword (32 bits) from PLC.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DBR [MD_MAX- NUM_VDI_VAR_DATA]		PLC Real data (32 bits)			DOUBLE	
Description:						
Array variable \$A_DBR[n] is used to read and write Real data (32 bits) from PLC.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DLB [n]		Link variable byte			INT	
Description:						
Variable \$A_DLB[n] enables reading and writing of a data byte (8 bits) which can be transmitted to other channels or NCUs across the NCU link.						
\$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables (\$A_DLx).						
The negative value range of this variable applies to write operations only. The variable can thus store negative values. Only the corresponding positive value can be read back.						
Index 1:	The dimension is configured via \$MC_MM_SIZEOF_LINKVAR_DATA.					
Unit	Init value	Min			Max	
-	0	-128			255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	X	7	X

List of system variables

3.2 Channel-specific system variables

\$A_DLB [n]		Link variable byte			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$A_DLW [n]		Link variable word			INT	
Description: Variable \$A_DLW[n] enables reading and writing of a data word (16 bits) which can be transmitted to other channels or NCUs across the NCU link. \$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables (\$A_DLx). The negative value range of this variable applies to write operations only. The variable can thus store negative values. Only the corresponding positive value can be read back.						
Index 1:	The dimension is configured via \$MC_MM_SIZEOF_LINKVAR_DATA.					
Unit	Init value	Min		Max		
-	0	-32768		65535		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DLD [n]		Integer link variable			INT	
Description: Variable \$A_DLD[n] enables reading and writing of a data doubleword (32 bits) which can be transmitted to other channels or NCUs across the NCU link. \$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables (\$A_DLx).						
Index 1:	The dimension is configured via \$MC_MM_SIZEOF_LINKVAR_DATA.					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DLR [n]		Real link variable			DOUBLE	
Description: Variable \$A_DLR[n] enables reading and writing of a Real value which can be transmitted to other channels or NCUs across the NCU link. \$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables (\$A_DLx).						
Index 1:	The dimension is configured via \$MC_MM_SIZEOF_LINKVAR_DATA.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X

3.2 Channel-specific system variables

\$A_DLR [n]		Real link variable			DOUBLE	
Write:	Mrun syn	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_LINK_TRANS_RATE		Link data transfer rate			INT	
Description: The variable \$A_LINK_TRANS_RATE determines the number of link variables which can still be transferred by the NCU link communication in the current interpolation cycle.						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBB_IN [32]		PLC input byte			INT	
Description: Array variable \$A_PBB_IN[n] is used to read and write a data byte (8 bits) from the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_IN.					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBW_IN [32]		PLC input word			INT	
Description: Array variable \$A_PBW_IN[n] is used to read and write a data word (16 bits) from the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_IN.					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBD_IN [32]		PLC input doubleword			INT	
Description: Array variable \$A_PBD_IN[n] is used to read a data doubleword (32 bits) from the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_IN.					

List of system variables

3.2 Channel-specific system variables

\$A_PBD_IN [32]		PLC input doubleword			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBR_IN [32]		Real PLC input			DOUBLE	
Description:						
Array variable \$A_PBR_IN[n] is used to read Real data (32 bits) from the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_IN.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBB_OUT [32]		PLC output byte			INT	
Description:						
Array variable \$A_PBB_OUT[n] is used to write a data byte (8 bits) to the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_OUT.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBW_OUT [32]		PLC output word			INT	
Description:						
Array variable \$A_PBW_OUT[n] is used to write a data word (16 bits) to the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_OUT.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X

3.2 Channel-specific system variables

\$A_PBW_OUT [32]		PLC output word			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$A_PBD_OUT [32]		PLC output doubleword			INT	
Description: Array variable \$A_PBD_OUT[n] is used to write a data doubleword (32 bits) to the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_OUT.					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PBR_OUT [32]		Real PLC output			DOUBLE	
Description: Array variable \$A_PBR_OUT[n] is used to write Real data (32 bits) to the PLC I/O.						
Index 1:	The dimension is configured via \$MN_PLCIO_NUM_BYTES_OUT.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$C_IN [16]		Signal from PLC to cycle			BOOL	
Description: \$C_IN[n] Signal from the PLC to cycle Reserved for SIEMENS applications! 16 input signals (i.e. 2 bytes) are available. Data transfer is cyclic.						
Index 1:	n: Number of the input 1 - ...					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$C_OUT [16]		Signal from cycle to the PLC			BOOL	
Description: \$C_OUT[n] Signal from cycle to the PLC Reserved for SIEMENS applications! 16 output signals (i.e. 2 bytes) are available. Data transfer is cyclic.						
Index 1:	n: Number of the output 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_CMDT		Trigger, tool management outputs a command			INT	
Description: \$AC_TC_CMDT Trigger variable: \$AC_TC_CMDT (CoMmadTrigger) assumes the value '1' for an interpolation cycle whenever a new command from the magazine management is output to the PLC.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_ACKT		Trigger, PLC acknowledges a tool management command			INT	
Description: \$AC_TC_ACKT Trigger variable: \$AC_TC_ACKT (ACKnowledgeTrigger) assumes the value '1' for an interpolation cycle whenever the PLC acknowledges a TM command.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_TC_CMDC	Number of commands output by the tool management					INT
Description:						
\$AC_TC_CMDC						
Counter variable: \$AC_TC_CMDC (CoMmandCounter) is incremented by 1 every time the TM sends a command to the PLC.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AC_TC_ACKC	Number of PLC acknowledgements to tool management commands					INT
Description:						
\$AC_TC_ACKC						
Counter variable: \$AC_TC_CMDC (ACKnowledgeCounter) is incremented by 1 every time the PLC acknowledges a command from the TM.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AC_TC_FCT	-					INT
Description:						
\$AC_TC_FCT						
Command number. This specifies the requested operation.						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_TC_STATUS		-					INT
Description:							
\$AC_TC_STATUS							
Current status of the command - to be read via \$AC_TC_FCT.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value		Min		Max		
-	0		-2147483648		2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AC_TC_THNO		-					INT
Description:							
\$AC_TC_THNO							
Number of the toolholder (specifically the spindle no.) to which the new tool is to be loaded.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value		Min		Max		
-	0		-2147483648		2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AC_TC_TNO		-					INT
Description:							
\$AC_TC_TNO							
NCK internal T number of the new (to be loaded) tool.							
0: There is no new tool.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value		Min		Max		
-	0		-2147483648		2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

3.2 Channel-specific system variables

\$AC_TC_MMYN		-		INT		
Description:						
\$AC_TC_MMYN						
Home magazine number of the new (to be loaded) tool.						
0: There is no new tool, or the new tool (if \$AC_TC_TNO > 0) is not loaded (manual tool).						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_LMYN		-		INT		
Description:						
\$AC_TC_LMYN						
Home location number of the new (to be loaded) tool.						
0: There is no new tool, or the new tool (if \$AC_TC_TNO > 0) is not loaded (manual tool).						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_MFN		-		INT		
Description:						
\$AC_TC_MFN						
Source magazine number of the new tool.						
0: There is no new tool.						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_TC_LFN		-					INT
Description:							
\$AC_TC_LFN							
Source location number of the new tool.							
0: There is no new tool.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AC_TC_MTN		-					INT
Description:							
\$AC_TC_MTN							
Target magazine number of the new tool.							
0: There is no new tool.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AC_TC_LTN		-					INT
Description:							
\$AC_TC_LTN							
Target location number of the new tool.							
0: There is no new tool.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

3.2 Channel-specific system variables

\$AC_TC_MFO		-			INT	
Description:						
\$AC_TC_MFO						
Source magazine number of the old (to be replaced) tool.						
0: There is no old tool.						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_LFO		-			INT	
Description:						
\$AC_TC_LFO						
Source location number of the old (to be replaced) tool.						
0: There is no old tool.						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_MTO		-			INT	
Description:						
\$AC_TC_MTO						
Target magazine number of the old (to be replaced) tool.						
0: There is no old tool.						
-1: No TM command is active at the instant the variable is read.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_TC_LTO		-					INT
Description:							
\$AC_TC_LTO							
Target location number of the old (to be replaced) tool.							
0: There is no old tool.							
-1: No TM command is active at the instant the variable is read.							
Unit	Init value	Min				Max	
-	0	-2147483648				2147483647	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$A_YEAR		System time: year				INT
Description:						
\$A_YEAR						
System time year						
Unit	Init value	Min				Max
-	0	0				2147483647
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_MONTH		System time: month				INT
Description:						
\$A_MONTH						
System time month						
Unit	Init value	Min				Max
-	0	1				12
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DAY		System time: day				INT
Description:						
\$A_DAY						
System time day						
Unit	Init value	Min				Max
-	0	1				31

3.2 Channel-specific system variables

\$A_DAY		System time: day				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_HOUR		System time: hour				INT
Description:						
\$A_HOUR						
System time hour						
Unit	Init value	Min	Max			
-	0	0	24			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_MINUTE		System time: minute				INT
Description:						
\$A_MINUTE						
System time minute						
Unit	Init value	Min	Max			
-	0	0	60			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_SECOND		System time: second				INT
Description:						
\$A_SECOND						
System time second						
Unit	Init value	Min	Max			
-	0	0	60			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$A_MSECOND		System time: millisec.			INT	
Description:						
\$A_MSECOND System time millisecond						
Unit	Init value	Min		Max		
-	0	0		1000		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TIME		Time from block start			DOUBLE	
Description:						
Variable \$AC_TIME determines the time from the block start in seconds.						
Unit	Init value	Min		Max		
-	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TIMES		-			DOUBLE	
Description:						
\$AC_TIMES Time from block start (REAL) in seconds (excluding times for internally generated intermediate blocks). Each programmed block can be divided into a sequence of sub-blocks for sequential processing. \$AC_TIMES is set to zero o_n_l_y during the 1st cycle of the 1st block in the sequence. It is then incremented in seconds. The variable therefore allows time measurements to be taken over the whole block sequence. The variable can be accessed only from synchronized actions.						
Unit	Init value	Min		Max		
-	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TIMEC		Interpolation cycles since block start			DOUBLE	
Description:						
Variable \$AC_TIMEC determines the number of interpolation cycles which have elapsed since the block start.						
Unit	Init value	Min		Max		
-	0.0	0		1.8E+308		

3.2 Channel-specific system variables

\$AC_TIMEC	Interpolation cycles since block start					DOUBLE
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TIMESC	-					DOUBLE
Description:						
\$AC_TIMESC						
Time from block start (Real) in IPO cycles (excluding cycles for internally generated intermediate blocks).						
Each programmed block can be divided into a sequence of sub-blocks for sequential processing.						
\$AC_TIMESC is set to zero o_n_l_y during the 1st cycle of the 1st block in the sequence. It is then incremented in IPO cycles. The variable therefore allows time measurements to be taken over the whole block sequence.						
The variable can be accessed only from synchronized actions						
Unit	Init value		Min		Max	
-	0.0		0.0		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TIMER [1]	User timer					DOUBLE
Description:						
Array variable \$AC_TIMER[n] is an application-related timer. The time in seconds is counted in multiples of an interpolation cycle.						
The timer is started by assigning a value:						
\$AC_TIMER[n]=<start value>						
The timers can be stopped by assigning a negative value:						
\$AC_TIMER[n]=-1						
The current timer count can be read while the time variable is running or stopped. When the time variable is stopped by assigning -1, the last count value remains stored in the variable and can continue to be read.						
Index 1:	The dimension is defined via \$MC_MM_NUM_AC_TIMER.					
Unit	Init value		Min		Max	
-	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_PRTIME_M		Program run time (machining time)			DOUBLE	
Description:						
The variable \$AC_PRTIME_M "ProgramRunTIME-Main" determines the machining time of the program runtime.						
During the simulation, the anticipated processing time of the blocks in the part program is calculated, and made available in this system variable and the OPI variable 'acPRTIME_M'. This value is cleared by writing a value to the variable.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PRTIME_A		Program run time (idle time)			DOUBLE	
Description:						
The variable \$AC_PRTIME_A "ProgramRunTIME-Auxiliary" determines the idle times for the program runtime.						
During the simulation, the anticipated processing time (idle times) of the blocks in the part program is calculated, and made available in this system variable and the OPI variable 'acPRTIME_A'. This value is cleared by writing a value to the variable.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PRTIME_M_INC		Increment ProgramRunTIME-Main			DOUBLE	
Description:						
The machining time in the program runtime can be incremented by writing the variable \$AC_PRTIME_M_INC "ProgramRunTIME-Main-INCrement"						
During the simulation, the anticipated processing time of the blocks in the part program is calculated, and made available in the OPI variable 'acPRTIME_M'. As certain times (e.g. PLC times) are not considered, the precalculated program runtime can be corrected by writing this variable explicitly.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	-	0	-	0	-
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_PRTIME_A_INC		Increment ProgramRunTIME-Aux.			DOUBLE	
Description:						
The idle time in the program runtime can be incremented by writing to the variable \$AC_PRTIME_A_INC "ProgramRunTIME-Auxiliary-IN-Crement".						
During the simulation, the anticipated processing time of the blocks in the part program is calculated, and made available in the OPI variable 'acPRTIME_M'. As certain times (e.g. PLC times) are not considered, the precalculated program runtime can be corrected by writing this variable explicitly.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	-	0	-	0	-
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PATHN		Normalized path parameter			DOUBLE	
Description:						
Variable \$AC_PATHN is a normalized path parameter whose value varies between 0 at the block start and 1 at the block end.						
Unit	Init value	Min			Max	
-	0.0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_DTBW		Distance from block start in WCS			DOUBLE	
Description:						
Variable \$AC_DTBW determines the geometric distance from the block start in the workpiece coordinate system.						
The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_REPOS_PATH_MODE	-					INT
Description:						
\$AC_REPOS_PATH_MODE						
Type of Repos mode						
0 not defined.						
1 == RMB Repos approach to start of interrupted block						
2 == RMI Repos approach to interruption point in interrupted block						
3 == RME Repos approach to end of interrupted block						
4 == RMN Repos approach to next geometric point in interrupted block						
The variable is defined if a REPOS command is currently being executed, or if a new REPOS mode has been specified via the VDI.						
Unit	Init value	Min			Max	
-	0	-2147483648			4	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	Not classified	

\$AC_DTBB	Distance from block start in BCS					DOUBLE
Description:						
Variable \$AC_DTBB determines the geometric distance from the block start in the basic coordinate system.						
The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_DTEW	Distance from block end in WCS					DOUBLE
Description:						
Variable \$AC_DTEW determines the geometric distance from the block end in the workpiece coordinate system.						
The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_DTEB		Distance from block end in BCS			DOUBLE	
Description:						
Variable \$AC_DTEB determines the geometric distance from the block end in the basic coordinate system.						
The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PLTBB		Path from block start in BCS			DOUBLE	
Description:						
Variable \$AC_PLTBB determines the path from the block start in the basic coordinate system.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PLTEB		Path to block end in BCS			DOUBLE	
Description:						
Variable \$AC_PLTEB determines the path to the block end in the basic coordinate system.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_DELT		Path distance to go in WCS			DOUBLE	
Description:						
Variable \$AC_DELT is used to read the stored path distance to go in the workpiece coordinate system after delete distance to go in motion-synchronous actions.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

List of system variables

3.2 Channel-specific system variables

\$AC_DELT		Path distance to go in WCS			DOUBLE	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_APDV		Position values for SAR are valid			BOOL	
Description: \$P_APDV Returns True if the position values which can be read with \$P_APR[X] or \$P_AEP[X] (respectively starting point or contour point in the case of smooth approach and retraction) are valid.						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_F		Programmed path feed			DOUBLE	
Description: Variable \$P_F is used to read the last programmed path feed F.						
Unit	Init value	Min	Max			
mm/min	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_F		Active programmed path feed			DOUBLE	
Description: Variable \$AC_F is used to read the active programmed path feed F.						
Unit	Init value	Min	Max			
mm/min	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_F_G0		Max. rapid traverse in block			DOUBLE	
Description:						
Variable \$AC_F_G0 returns the maximum rapid traverse velocity in the block.						
Unit	Init value	Min			Max	
mm/min	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_OVR		Path override can be specified via synchronized action			DOUBLE	
Description:						
The variable \$AC_OVR determines the path override specifiable via synchronized action. The path override must be set by assigning a value cyclically to \$AC_OVR in each interpolation cycle. Otherwise \$AC_OVR is reset to 100%.						
The total path override can be read via \$AC_TOTAL_OVR.						
The total path override without the programmable override (e.g. OVR = 10) is limited to the maximum value defined by the machine data \$MN_OVR_FACTOR_LIMIT_BIN or \$MN_OVR_FACTOR_FEEDRATE[30]. Values less than 0 are not allowed.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	X	0	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PLC_OVR		PLC override			DOUBLE	
Description:						
The variable \$AC_PLC_OVR determines the path override defined by the PLC. This is the feedrate override that is set via the Machine Control Panel.						
The rapid traverse override (settable on the Machine Control Panel) is effective with G0 blocks. If the rapid traverse reduction has been activated via the operator interface, then, with G0 blocks, \$SC_OVR_RAPID_FACTOR is also taken into account multiplicatively.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_TOTAL_OVR		Overall path override			DOUBLE	
Description:						
The variable \$AC_TOTAL_OVR supplies the total path override. The value is calculated from the override from the PLC, the synchronized action override (\$AC_OVR) and the programmable override (e.g. OVR = 10). $\$AC_TOTAL_OVR = \$AC_PLC_OVR * \$AC_OVR * OVR / 10000.$						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_VC		Additive path feed override			DOUBLE	
Description:						
\$AC_VC Additive path feed override for synchronized actions The override value must be rewritten in every lpo cycle or else a value of 0 is applied. The override value is ignored with an override of 0. Otherwise, the override value is applied independently of the override. The total feedrate cannot be made negative by an override value. An upper limit is applied to ensure that the maximum axis velocities and acceleration rates cannot be exceeded. The maximum feedrate is limited by \$MN_OVR_FACTOR_LIMIT_BIN, \$MN_OVR_FACTOR_FEEDRATE[0-30] and \$MN_PERMANENT_FEED[0-3] (see machine data). The override value is not included in the calculation in the case of G0, G33, G331, G332 and G63. The variable can be accessed only from synchronized actions.						
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	X	0	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PATHACC		Path acceleration for real-time events			DOUBLE	
Description:						
\$AC_PATHACC Defines an increased path acceleration for override changes and stop/start events. \$AC_PATHACC is taken into account only if the value is higher than the prepared acceleration limit. A value of 0 deselects the function. Values which cause machine axis acceleration rates twice the rate configured in \$MA_MAX_AX_ACCEL[...] are limited internally.						
Unit	Init value	Min			Max	
m/s ²	0.0	0.			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X

3.2 Channel-specific system variables

\$AC_PATHACC		Path acceleration for real-time events			DOUBLE	
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PATHJERK		Path jerk for real-time events			DOUBLE	
Description:						
\$AC_PATHJERK						
Defines an increased path jerk for override changes and stop/start events.						
\$AC_PATHJERK is taken into account only if the value is higher than the prepared jerk limit.						
A value of 0 deselects the function.						
Unit	Init value	Min				Max
m/s ³	0.0	0.				1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_VACTB		Path velocity of geometry axes			DOUBLE	
Description:						
\$AC_VACTB						
Path velocity in the basic coordinate system.						
The velocity is calculated from the velocities of the geometry axes - independent of FGROUP.						
The variable can be accessed only from synchronized actions						
Unit	Init value	Min				Max
Linear / angular speed	0.0	-1.8E+308				1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_VACTW		WCS path velocity of geometry axes			DOUBLE	
Description:						
\$AC_VACTW						
Path velocity in the workpiece coordinate system						
The velocity is calculated from the velocities of the geometry axes - independent of FGROUP.						
The variable can be accessed only from synchronized actions						
Unit	Init value	Min				Max
Linear / angular speed	0.0	-1.8E+308				1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_VACTW		WCS path velocity of geometry axes			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$P_S [n]		Programmed spindle speed			DOUBLE	
Description: \$P_S[n] n: Number of spindle Last programmed spindle speed						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
rpm	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AA_S [1]		Current spindle speed			DOUBLE	
Description: \$AA_S[n] n: Number of spindle Actual spindle speed. The sign corresponds to the direction of rotation.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
rpm	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_CONSTCUT_S [n]		Programmed cutting rate			DOUBLE	
Description: \$P_CONSTCUT_S[n] n: Number of spindle Last programmed constant cutting rate						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
m/min	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-

3.2 Channel-specific system variables

\$P_CONSTCUT_S [n]		Programmed cutting rate			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_CONSTCUT_S [n]		Current constant cutting rate			DOUBLE	
Description: \$AC_CONSTCUT_S[n] n: Number of spindle Current constant cutting rate.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
m/min	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH_S [n]		Search run: speed, cutting rate			DOUBLE	
Description: \$P_SEARCH_S[n] n: Number of spindle Last programmed spindle speed collected during block search or cutting rate						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
rpm	0.0	0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SDIR [n]		Programmed direction of spindle rotation			INT	
Description: \$P_SDIR[n] n: Number of spindle Programmed direction of spindle rotation in part program 3: CW spindle rotation, 4: CCW spindle rotation, 5: Spindle stop						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
-	0	3		5		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_SDIR [n]		Programmed direction of spindle rotation			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_SDIR [n]		Current direction of spindle rotation within the meaning of M3/M4/M5			INT	
Description:						
\$AC_SDIR[n]						
n: Number of spindle						
Current direction of spindle rotation within the meaning of M3/M4/M5 in the part program, synchronized actions, PLC FC18, PLC DBB30.						
3: CW spindle rotation, 4: CCW spindle rotation, 5: Spindle stop						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
-	0	3		5		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH_SDIR [n]		Block search: programmed direction of spindle rotation in part program			INT	
Description:						
\$P_SEARCH_SDIR[n]						
n: Number of spindle						
Last programmed direction of spindle rotation collected during block search						
3: M3 CW spindle rotation						
4: M4 CCW spindle rotation						
5: M5 Spindle stop						
-19: M19, SPOS, SPOSA spindle positioning, position and approach mode is read from SEARCH variables						
70: M70 Changeover to axis mode						
-5: No direction of rotation programmed, not output.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
-	0	3		70		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$P_SMODE [n]		Spindle mode			INT	
Description:						
\$P_SMODE[n]						
n: Number of spindle						
The spindle mode resulting from the last spindle programming action is returned.						
0: No spindle programmed in channel, or spindle is active in another channel, or is being used by the PLC (FC18) or synchronized actions.						
1: Speed control mode						
2: Positioning mode						
3: Synchronous mode						
4: Axis mode						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SMODE [n]		Current spindle mode			INT	
Description:						
\$AC_SMODE[n]						
n: Number of spindle						
Current spindle mode:						
0: No spindle programmed in channel						
1: Speed control mode						
2: Positioning mode						
3: Synchronous mode						
4: Axis mode						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_SGEAR [n]		Spindle: set gear stage			INT	
Description:						
\$P_SGEAR[n]						
n: Number of spindle						
Spindle gear stage last programmed or requested by S programming in the case of M40						
1: 1. Gear stage requested						
....						
5: 5. Gear stage requested						
Index 1:		n: Spindle number (0 ... max. spindle number)				
Unit	Init value	Min			Max	
-	0	1			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SGEAR [n]		Active spindle gear stage			INT	
Description:						
\$AC_SGEAR[n]						
n: Number of spindle						
Active spindle gear stage						
1: 1. Gear stage is active						
....						
5: 5. Gear stage is active						
Index 1:		n: Spindle number (0 ... max. spindle number)				
Unit	Init value	Min			Max	
-	0	1			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SAUTOGEAR [n]		Automatic gear stage change			INT	
Description:						
\$P_SAUTOGEAR[n]						
n: Number of spindle						
Automatic gear stage change (M40) is programmed.						
0: Gear stages are requested by M41..M45						
1: Gear stage is calculated and requested according to programmed speed (S)						
(M40 automatic gear stage change is active)						
Index 1:		n: Spindle number (0 ... max. spindle number)				
Unit	Init value	Min			Max	
-	0	0			1	

3.2 Channel-specific system variables

\$P_SAUTOGEAR [n]	Automatic gear stage change					INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH_SGEAR [n]	Search run: Gear stage M code					INT
Description:						
\$P_SEARCH_SGEAR[n]						
n: Number of spindle						
Last programmed gear stage M function collected during block search						
40: M40 automatic gear stage change						
41: M41 1st gear stage requested						
...						
45: M45 5th gear stage requested						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	1			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SEARCH_SPOS [n]	Search run: Spindle position, path					DOUBLE
Description:						
\$P_SEARCH_SPOS[n]						
n: Number of spindle						
Spindle position or traversing path last programmed via M19, SPOS or SPOSA and collected during block search.						
Position: 0...359,999 if the value in MD 30330 MODULO_RANGE is 360.0 degrees						
Path: -100000000 ... 100000000 degrees. The sign specifies the direction of travel.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
deg.	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_SEARCH_SPOSMODE [n]	Search run: Position approach mode				INT	
Description:						
\$P_SEARCH_SPOSMODE[n]						
n: Number of spindle						
Position approach mode last programmed via M19, SPOS or SPOSA and collected during block search.						
0: DC						
1: AC						
2: IC						
3: DC						
4: ACP						
5: ACN						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min		Max		
-	0	0		5		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_NUM_SPINDLES	Number of spindles in channel				INT	
Description:						
\$P_NUM_SPINDLES						
Calculates the maximum number of spindles in the channel						
0: No spindle programmed in channel.						
1..n: Number of spindles in channel.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_MSNUM	Number of master spindle				INT	
Description:						
\$P_MSNUM						
Returns the number of the master spindle.						
0: No spindle programmed in channel						
1..n: Number of master spindle						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-

3.2 Channel-specific system variables

\$P_MSNUM		Number of master spindle			INT	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MSNUM		Number of master spindle			INT	
Description:						
\$AC_MSNUM						
Returns the number of the current master spindle.						
0: No spindle configured						
1..n: Number of master spindle						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_MTHNUM		-			INT	
Description:						
\$P_MTHNUM - meaningful only when magazine management is active						
Returns the number of the master toolholder.						
0: No master toolholder configured						
1..n: Number of master toolholder						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MTHNUM		-			INT	
Description:						
\$AC_MTHNUM - meaningful only when magazine management is active						
Returns the number of the current master toolholder:						
0: No master toolholder configured						
1..n: Number of master toolholder						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_MTHNUM		-		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	Not classified

\$P_GWPS [31]		Constant grinding wheel peripheral speed active		BOOL		
Description: \$P_GWPS[n] Constant grinding wheel surface speed ON if TRUE						
Index 1:	n: Spindle number					
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	Not classified		

\$AC_FCT1LL		Lower limit for 1st polynomial function		DOUBLE		
Description: Variable \$AC_FCT1LL is used to define the lower limit for the first polynomial function. The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	Not classified		

\$AC_FCT2LL		Lower limit for 2nd polynomial function		DOUBLE		
Description: Variable \$AC_FCT2LL is used to define the lower limit for the second polynomial function. The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	Not classified		

3.2 Channel-specific system variables

\$AC_FCT3LL		Lower limit for 3rd polynomial function			DOUBLE	
Description:						
Variable \$AC_FCT3LL is used to define the lower limit for the third polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT1UL		Upper limit for 1st polynomial function			DOUBLE	
Description:						
Variable \$AC_FCT1UL is used to define the upper limit for the first polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT2UL		Upper limit for 2nd polynomial function			DOUBLE	
Description:						
Variable \$AC_FCT2UL is used to define the upper limit for the second polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT3UL		Upper limit for 3rd polynomial function			DOUBLE	
Description:						
Variable \$AC_FCT3UL is used to define the upper limit for the third polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.2 Channel-specific system variables

\$AC_FCT3UL		Upper limit for 3rd polynomial function			DOUBLE	
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT1C [4]		Coefficients for 1st polynomial function			DOUBLE	
Description: Array variable \$AC_FCT1C[n] is used to program polynomial coefficients a0 - a3 for the first polynomial function. The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Index 1:	n: Degree of order of coefficient 0 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT2C [4]		Coefficients for 2nd polynomial function			DOUBLE	
Description: Array variable \$AC_FCT2C[n] is used to program polynomial coefficients a0 - a3 for the second polynomial function. The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Index 1:	n: Degree of order of coefficient 0 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT3C [4]		Coefficients for 3rd polynomial function			DOUBLE	
Description: Array variable \$AC_FCT3C[n] is used to program polynomial coefficients a0 - a3 for the third polynomial function. The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
Index 1:	n: Degree of order of coefficient 0 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_FCTLL [n]		Lower limit of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCTLL[n] is used to define the lower limit for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:		The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.				
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCTUL [n]		Upper limit of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCTUL[n] is used to define the upper limit for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:		The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.				
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT0 [n]		1st coefficient of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCT0[n] is used to program the a0 coefficient for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:		The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.				
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_FCT1 [n]		2nd coefficient of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCT1[n] is used to program the a1 coefficient for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:	The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT2 [n]		3rd coefficient of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCT2[n] is used to program the a2 coefficient for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:	The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FCT3 [n]		4th coefficient of polynomial functions			DOUBLE	
Description:						
Array variable \$AC_FCT3[n] is used to program the a3 coefficient for the nth polynomial function.						
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).						
n: Number of the polynomial						
Index 1:	The dimension is configured via \$MC_MM_NUM_FCTDEF_ELEMENTS.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_ALARM_STAT		Alarm responses			INT	
Description:						
Variable \$AC_ALARM_STAT returns selected alarm responses.						
The following bits are possible:						
0x04 Channel status NOREADY						
0x40 Stop due to alarm						
0x200 Signal to PLC						
0x11 Axes in follow-up						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_ESR_TRIGGER		ESR trigger			BOOL	
Description:						
\$AN_ESR_TRIGGER = 1						
Trigger "Extended stop and retract"						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	X	0	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_ESR_TRIGGER		ESR trigger			BOOL	
Description:						
\$AC_ESR_TRIGGER = 1						
Trigger "numerically controlled ESR"						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	X	0	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_OPERATING_TIME	Operating time of NC programs in AUTOMATIC mode		DOUBLE
Description:			
<p>\$AC_OPERATING_TIME measures the total operating time of all NC programs in AUTOMATIC mode between NC Start and end of program / NC Reset (in seconds).</p> <p>The measurement can be activated with channel MD 27860 \$MC_PROCESSTIMER_MODE:</p> <p>Bit 0 = 1 \$AC_OPERATING_TIME measurement is active.</p> <p>The following measurement conditions can be selected:</p> <p>Bit 4 = 0 No measurement when dry run feed is active</p> <p>Bit 4 = 1 Measurement even when dry run feed is active</p> <p>Bit 5 = 0 No measurement during program test</p> <p>Bit 5 = 1 Measurement even during program test</p> <p>Bit 9 = 0 No measurement when override is 0%</p> <p>Bit 9 = 1 Measurement even when override is 0%0</p> <p>Use in NC program:</p> <p>IF \$AC_OPERATING_TIME < 12000 GOTOB STARTMARK</p>			
Unit	Init value	Min	Max
s	0.0	-1.8E+308	1.8E+308
Read/Write properties:			
	TP	SA	TP/SA safety
Read:	runin stp	X	7
Write:	runin stp	X	7
Axis entry:			Overlap channel: channel-specific
Scan mode:	Not classified		Link: No restrictions

\$AC_CYCLE_TIME	Execution time of the selected NC program		DOUBLE
Description:			
<p>\$AC_CYCLE_TIME measures the operating time of the selected NC program between NC Start and end of program/NC Reset (in seconds).</p> <p>The timer is cleared at each program start.</p> <p>The measurement can be activated using channel MD 27860 \$MC_PROCESSTIMER_MODE:</p> <p>Bit 1 = 1 \$AC_CYCLE_TIME measurement of current program runtime is active.</p> <p>The following measurement conditions can be selected:</p> <p>Bit 4 = 0 No measurement when dry run feed is active</p> <p>Bit 4 = 1 Measurement even when dry run feed is active</p> <p>Bit 5 = 0 No measurement during program test</p> <p>Bit 5 = 1 Measurement even during program test</p> <p>Bit 6 = 0 Cleared even with start by ASUB and PROG_EVENTS</p> <p>Bit 6 = 1 Not cleared with start by ASUB and PROG_EVENTS</p> <p>Bit 8 = 0 Not cleared by a jump to program start with GOTOS</p> <p>Bit 8 = 1 Cleared by a jump to program start with GOTOS</p> <p>Bit 9 = 0 No measurement when override is 0%</p> <p>Bit 9 = 1 Measurement even when override is 0%</p> <p>Use in NC program:</p> <p>IF \$AC_CYCLE_TIME > 2400 GOTOF ALARM01</p>			
Unit	Init value	Min	Max
s	0.0	-1.8E+308	1.8E+308
Read/Write properties:			

3.2 Channel-specific system variables

\$SAC_CYCLE_TIME		Execution time of the selected NC program			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SAC_CUTTING_TIME		Machining time			DOUBLE	
Description:						
\$SAC_CUTTING_TIME is used to measure the machining time (in seconds).						
This time is defined as the operating time of the path axes (at least one is active) excluding periods when rapid traverse is active in all NC programs between NC Start and end of program / NC Reset optionally including/not including active tool.						
The measurement is also interrupted whenever a dwell time is active.						
The timer is automatically reset to zero each time the control boots with default values.						
The measurement can be activated using channel MD 27860 \$MC_PROCESSTIMER_MODE:						
Bit 2 = 1 \$SAC_CUTTING_TIME measurement is active.						
The following measurement conditions can be selected:						
Bit 4 = 0 No measurement when dry run feed is active						
Bit 4 = 1 Measurement even when dry run feed is active						
Bit 5 = 0 No measurement during program test						
Bit 5 = 1 Measurement even during program test						
Bit 7 = 0 Measurement only with active tool						
Bit 7 = 1 Measurement runs irrespective of the tool						
Use in NC program:						
IF \$SAC_CUTTING_TIME > 6000 GOTOF ACT_M06						
Unit	Init value	Min			Max	
s	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$AC_REQUIRED_PARTS		Definition of the number of required workpieces			DOUBLE	
Description:						
<p>\$AC_REQUIRED_PARTS can be used to define the number of workpieces which, when reached, causes the number of actual workpieces \$AC_ACTUAL_PARTS to be reset (workpiece target).</p> <p>Channel MD 27880 \$MC_PART_COUNTER can be used to activate the display alarm "workpiece target reached" and channel VDI signal "workpiece target reached":</p> <p>Bit 0 = 1: \$AC_REQUIRED_PARTS counter is active</p> <p>Further meaning of bit 1 only when bit 0 = 1:</p> <p>Bit 1 = 0: Alarm/VDI output when \$AC_ACTUAL_PARTS matches \$AC_REQUIRED_PARTS</p> <p>Bit 1 = 1: Alarm/VDI output when \$AC_SPECIAL_PARTS matches \$AC_REQUIRED_PARTS</p> <p>Use in NC program:</p> <p>\$AC_REQUIRED_PARTS = ACTUAL_LOS</p> <p>e.g. for defining a batch size, a daily production output ...</p>						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOTAL_PARTS		Total number of all machined workpieces			DOUBLE	
Description:						
<p>The \$AC_TOTAL_PARTS counter indicates the number of all workpieces machined since the start time.</p> <p>The counter is incremented by 1 when the MC command defined in channel MD 27882\$MC_PART_COUNTER_MCODE[0] is output to the PLC.</p> <p>The counter is automatically reset only when the control boots with default values.</p> <p>Channel MD 27880 \$MC_PART_COUNTER can be used to activate the timer:</p> <p>Bit 4 = 1: \$AC_TOTAL_PARTS counter is active</p> <p>Further meaning of bits 5-6 only when bit 4 = 1:</p> <p>Bit 5 = 0: The \$AC_TOTAL_PARTS counter is incremented by 1 on a VDI output of M02/M30</p> <p>Bit 5 = 1: The \$AC_TOTAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[0] is output.</p> <p>Bit 6 = 0: \$AC_TOTAL_PARTS active even during program test/block search</p> <p>Bit 6 = 1: No processing of \$AC_TOTAL_PARTS during program test/block search</p> <p>Use in NC program:</p> <p>IF \$AC_TOTAL_PARTS > SERVICE_COUNT GOTOF MARK_END</p>						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$AC_ACTUAL_PARTS		Number of workpieces currently machined			DOUBLE	
Description:						
The \$AC_ACTUAL_PARTS counter records the number of all workpieces machined since the start time.						
When the workpiece target is reached (\$AC_REQUIRED_PARTS), the counter is automatically reset (\$AC_REQUIRED_PARTS not equal to 0).						
The counter is incremented by 1 when the MC command defined in channel MD 27882\$MC_PART_COUNTER_MCODE[1] is output to the PLC.						
The counter is automatically reset only when the control boots with default values.						
Channel MD 27880 \$MC_PART_COUNTER can be used to activate the timer:						
Bit 4 = 1: \$AC_TOTAL_PARTS counter is active						
Further meaning of bits 5-6 only when bit 4 = 1:						
Bit 5 = 0: The \$AC_TOTAL_PARTS counter is incremented by 1 on a VDI output of M02/M30						
Bit 5 = 1: The \$AC_TOTAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[0] is output.						
Bit 6 = 0: \$AC_TOTAL_PARTS active even during program test/block search						
Bit 6 = 1: No processing of \$AC_TOTAL_PARTS during program test/block search						
Use in NC program:						
IF \$AC_ACTUAL_PARTS == 0 GOTOF NEW_RUN						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_SPECIAL_PARTS		Number of workpieces counted by user			DOUBLE	
Description:						
The \$AC_SPECIAL_PARTS counter allows the user to apply his own strategy for counting workpieces.						
Channel MD 27880 \$MC_PART_COUNTER can be used to activate the timer:						
Bit 12 = 1: \$AC_SPECIAL_PARTS counter is active						
Further meaning of bits 13-15 only when bit 12 = 1:						
Bit 13 = 0: The \$AC_SPECIAL_PARTS counter is incremented by 1 on a VDI output of M02/M30						
Bit 13 = 1: The \$AC_SPECIAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[2] is output.						
Bit 14 = 0: \$AC_SPECIAL_PARTS active even during program test/block search						
Bit 14 = 1: No processing of \$AC_SPECIAL_PARTS during program test/block search						
Use in NC program:						
\$AC_SPECIAL_PARTS = R20						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$AC_G0MODE		Path traversal with G0			INT	
Description:						
\$AC_G0MODE						
0: G0 not active						
1: G0 and linear interpolation active						
2: G0 and non-linear interpolation active.						
The response of the path axes to G0 depends on machine data						
\$MC_G0_LINEAR_MODE (Siemens mode) or \$MC_EXTERN_G0_LINEAR_MODE						
(ISO mode):						
With linear interpolation, the path axes traverse together,						
With non-linear interpolation, the path axes are traversed						
as positioning axes.						
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_SEMA		Semaphore to measurement interface			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AA_MEAS_SEMA is used to synchronize measuring processes. The variable should be set to 1 before each assignment of the measurement interface and set to 0 when releasing it. Only one measurement interface is available for each channel and should be assigned only if the \$AC_MEAS_SEMA contains the value 0.						
Application:						
if (\$AC_MEAS_SEMA == 0)						
\$AC_MEAS_SEMA = 1 ; Assign measurement interface						
endif						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_LATCH [4]		Unlatch measuring points			INT	
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_LATCH[n] is used to unlatch all current axis positions with reference to a selected coordinate system. Variable \$AC_MEAS_P1_COORD is used to select the coordinate system. \$AC_MEAS_P4_COORD.						
Application:						
\$AA_MEAS_LATCH[0] = 1 ; Unlatch 1st measuring point of all axes						
\$AA_MEAS_LATCH[1] = 1 ; Unlatch 2nd measuring point of all axes						
\$AA_MEAS_LATCH[2] = 1 ; Unlatch 3rd measuring point of all axes						
\$AA_MEAS_LATCH[3] = 1 ; Unlatch 4th measuring point of all axes						
The unlatched measuring point is stored in \$AA_MEAS_POINT1[ax].						
Index 1:		0: 1st measuring point, ... , 3: 4th measuring point				
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_P1_COORD		Coordinate system 1st measuring point			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_P1_COORD is used to set the coordinate system frame for the 1st measuring point.						
Application:						
\$AC_MEAS_P1_COORD = 0 ; WCS						
\$AC_MEAS_P1_COORD = 1 ; BCS						
\$AC_MEAS_P1_COORD = 2 ; MCS						
\$AC_MEAS_P1_COORD = 3 ; SZS						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_P2_COORD		Coordinate system 2nd measuring point			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_P2_COORD is used to set the coordinate system frame for the 2nd measuring point.						
Application:						
\$AC_MEAS_P2_COORD = 0 ; WCS						
\$AC_MEAS_P2_COORD = 1 ; BCS						
\$AC_MEAS_P2_COORD = 2 ; MCS						
\$AC_MEAS_P2_COORD = 3 ; SZS						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_P3_COORD		Coordinate system 3rd measuring point			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_P3_COORD is used to set the coordinate system frame for the 3rd measuring point.						
Application:						
\$AC_MEAS_P3_COORD = 0 ; WCS						
\$AC_MEAS_P3_COORD = 1 ; BCS						
\$AC_MEAS_P3_COORD = 2 ; MCS						
\$AC_MEAS_P3_COORD = 3 ; SZS						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_P4_COORD		Coordinate system 4th measuring point			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_P4_COORD is used to set the coordinate system frame for the 4th measuring point.						
Application:						
\$AC_MEAS_P4_COORD = 0 ; WCS						
\$AC_MEAS_P4_COORD = 1 ; BCS						
\$AC_MEAS_P4_COORD = 2 ; MCS						
\$AC_MEAS_P4_COORD = 3 ; SZS						
Unit	Init value	Min			Max	
-	0	0			3	

3.2 Channel-specific system variables

\$AC_MEAS_P4_COORD		Coordinate system 4th measuring point				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_SET_COORD		Coordinate system of position setpoint				INT
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_SET_COORD is used to set the coordinate system for the position setpoint.						
Application:						
\$AC_MEAS_SET_COORD = 0 ; WCS						
\$AC_MEAS_SET_COORD = 1 ; BCS						
\$AC_MEAS_SET_COORD = 2 ; MCS						
\$AC_MEAS_SET_COORD = 3 ; SZS						
Unit	Init value		Min		Max	
-	0		0		3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_WP_SETANGLE		Workpiece position angle setpoint				DOUBLE
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_WP_SETANGLE is used to define an angle setpoint for the workpiece position.						
Unit	Init value		Min		Max	
deg.	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_CORNER_SETANGLE		Cutting angle setpoint for workpiece corner				DOUBLE
Description:						
Variable for workpiece and tool measurement.						
Variable \$AA_MEAS_CORNER_SETANGLE is used to define an angle setpoint for the corner of a workpiece.						
Unit	Init value		Min		Max	
deg.	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_CORNER_SETANGLE		Cutting angle setpoint for workpiece corner			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_DIR_APPROACH		Approach direction to workpiece			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AA_MEAS_DIR_APPROACH is used to define the direction of approach to the workpiece.						
The following values are possible:						
0:+x						
1:-x						
2:+y						
3:-y						
4:+z						
5:-z						
Unit	Init value	Min	Max			
-	0	0	5			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_ACT_PLANE		Working plane for workpiece			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_ACT_PLANE is used to define the working plane. The working plane is needed in order to define the tool orientation.						
The following values are possible:						
0: G17 working plane x/y infeed direction z						
1: G18 working plane z/x infeed direction y						
2: G19 working plane y/z infeed direction x						
Unit	Init value	Min	Max			
-	0	0	2			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_FINE_TRANS		Fine offset			INT	
Description:						
Variable for workpiece and tool measurement.						
When measuring workpieces, translation offsets can be entered in the fine offset component of the selected frame. Variable \$AC_MEAS_FINE_TRANS is used for this purpose.						
The following values are possible:						
0: Translation offset is entered in coarse offset						
1: Translation offset is entered in fine offset						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_FRAME_SELECT	Frame selection for workpiece measurement		INT			
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_FRAME_SELECT is used to select the frame in which the calculated frame is entered.						
The following values are possible:						
0: \$P_SETFRAME						
1: \$P_PARTFRAME						
2: \$P_EXTFRAME						
10..25: \$P_CHBFRAME[0..15]						
50..65: \$P_NCBFRAME[0..15]						
100..199: \$P_IFFRAME						
500: \$P_TOOLFRAME						
501: \$P_WPFRAME						
502: \$P_TRAFRAME						
503: \$P_PFRAME						
504: \$P_CYCFRAME						
505: \$P_RELFRAME (PCS)						
506: \$P_RELFRAME (ACS)						
1010..1025: \$P_CHBFRAME[0..15], when G500 is active						
1050..1065: \$P_NCBFRAME[0..15], when G500 is active						
2000: \$P_SETFR						
2001: \$P_PARTFR						
2002: \$P_EXTFR						
2010..2025: \$P_CHBFR[0..15]						
2050..2065: \$P_NCBFR[0..15]						
2100..2199: \$P_UIFR[0..99]						
2500: \$P_TOOLFR						
2501: \$P_WPFR						
2502: \$P_TRAFR						
2504: \$P_CYCFR						
2505: \$P_RELFR (PCS)						
2506: \$P_RELFR (ACS)						
3010..3025: \$P_CHBFR[0..15], when G500 is active						
3050..3065: \$P_NCBFR[0..15], when G500 is active						
Unit	Init value	Min	Max			
-	0	0	3065			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_MEAS_CHSFR		Frame selection for system frames			INT	
Description:						
Variable for workpiece and tool measurement.						
In order to convert a position from one coordinate system to another, \$AC_MEAS_CHSFR can be used to define the composition of the desired frame chain. The value of the variable should be selected according to the system frame bitmask \$MC_MM_SYS-TEM_FRAME_MASK.						
Application:						
\$AC_MEAS_CHSFR = 'B1001'						
Only the system frames for preset actual value and TOROT are included in the calculation of the new overall frame.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_NCBFR		Frame selection for global basic frames			INT	
Description:						
Variable for workpiece and tool measurement.						
In order to convert a position from one coordinate system to another, \$AC_MEAS_NCBFR can be used to define the composition of the desired frame chain. The value of the variable should be interpreted as a bitmask from 0x0 to 0xFFFF for the global basic frames (up to 16 frames in total).						
Application:						
\$AC_MEAS_NCBFR = 'B11'						
Only the first two global basic frames are included in the calculation of the new overall frame.						
Unit	Init value	Min			Max	
-	0	0			0xFFFF	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_CHBFR		Frame selection for channel basic frames			INT	
Description:						
Variable for workpiece and tool measurement.						
In order to convert a position from one coordinate system to another, \$AC_MEAS_CHBFR can be used to define the composition of the desired frame chain. The value of the variable should be interpreted as a bitmask from 0x0 to 0xFFFF for the channel basic frames (up to 16 frames in total).						
Application:						
\$AC_MEAS_CHBFR = 'B11'						
Only the first two channel basic frames are included in the calculation of the new overall frame.						
Unit	Init value	Min			Max	
-	0	0			0xFFFF	
Read/Write properties:						

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_CHBFR		Frame selection for channel basic frames			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_UIFR		Frame selection for settable frames			INT	
Description:						
Variable for workpiece and tool measurement.						
In order to convert a position from one coordinate system to another, \$AC_MEAS_UIFR can be used to define the composition of the desired frame chain. The variable range for the settable frames is from 0 to 99 (up to 100 in total).						
Application:						
\$AC_MEAS_UIFR = 1						
The G54 frame is included in the calculation of the new overall frame.						
Unit	Init value		Min	Max		
-	0		0	99		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_PFRAME		Frame selection for the prog. frame			INT	
Description:						
Variable for workpiece and tool measurement.						
In order to convert a position from one coordinate system to another, \$AC_MEAS_PFRAME can be used to define the composition of the desired frame chain.						
The following values are allowed:						
\$AC_MEAS_PFRAME = 1 ; Programmable frame is not included in calculation						
\$AC_MEAS_PFRAME = 0 ; Programmable frame is included in calculation						
Unit	Init value		Min	Max		
-	0		0	1		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_T_NUMBER		Tool selection			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_T_NUMBER is used to select the tool for workpiece and tool measurement. The tool number of the active tool must match the selected tool. The active tool is included in the calculation when T0 is selected. If no tool is selected, the tool selected by \$AC_MEAS_T_NUMBER is used in the calculation.						
Unit	Init value		Min	Max		

3.2 Channel-specific system variables

\$AC_MEAS_T_NUMBER		Tool selection			INT	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_TOOL_MASK		Tool position			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_TOOL_MASK specifies the tool position and considers the tool lengths for workpiece and tool measurement.						
The following values are possible:						
0x0: Default setting; all tool lengths are included						
0x1: The radius of the tool is not included in the calculation						
0x2: The tool is positioned in the x direction (G19)						
0x4: The tool is positioned in the y direction (G18)						
0x8: The tool is positioned in the z direction (G17)						
0x10: The length of the tool is not included in the calculation.						
0x20: The length of the active tool is included in the transformation of the coordinates of a position.						
0x40: The tool is positioned in the x direction (G19)						
0x80: The tool is positioned in the y direction (G18)						
0x100: The tool is positioned in the z direction (G17)						
0x200: Differences in the tool lengths are subtracted.						
Whether or not the radius of a milling tool is included in the calculation is determined from the tool position and direction of approach. If the direction of approach is not specified explicitly, it is derived from the selected plane. The direction of approach is in -z for G17, -y for G18 and -x for G19.						
Unit	Init value		Min		Max	
-	0		0		0x10	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_D_NUMBER		Cutting edge selection			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_D_NUMBER is used to select the tool cutting edge for workpiece and tool measurement. The tool cutting edge number of the active tool must match the selected cutting edge. The active cutting edge is included in the calculation when D0 is selected. If no tool is selected, the cutting edge selected by \$AC_MEAS_D_NUMBER is used in the calculation.						
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_D_NUMBER		Cutting edge selection			INT
Axis entry:					Overlap channel: channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_MEAS_TYPE		Measurement type selection			INT	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_TYPE is used to select the type of measurement.						
The following values are possible:						
0: Default setting						
1: x edge						
2: y edge						
3: z edge						
4: Corner 1						
5: Corner 2						
6: Corner 3						
7: Corner 4						
8: Hole						
9: Shaft						
10: Tool length						
11: Tool diameter						
12: Groove						
13: Web						
14: Preset actual value memory for geo and special axes						
15: Preset actual value memory for special axes only						
16: Inclined edge						
17: Plane_Angles (2 solid angles in one plane)						
18: Plane_Normal (3 solid angles in one plane with specified setpoint)						
19: Dimension_1 (1-dimensional setpoint specification)						
20: Dimension_2 (2-dimensional setpoint specification)						
21: Dimension_3 (3-dimensional setpoint specification)						
22: ToolMagnifier (ShopTurn: Measurement of tool lengths with magnifier)						
23: ToolMarkedPos (ShopTurn: Measurement of a tool length with marked position)						
24: Coordinate transformation of a position						
25: Rectangle						
Unit	Init value	Min			Max	
-	0	0			25	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:					Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_VALID	Validity bits of measurement variables.			INT		
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_VALID is used to define which system variables are valid for the current measurement. The value should be set to 0 before every measurement						
The individual bits are set implicitly when the corresponding variables are written.						
Bit 0: \$AA_MEAS_POINT1[axis]						
Bit 1: \$AA_MEAS_POINT2[axis]						
Bit 2: \$AA_MEAS_POINT3[axis]						
Bit 3: \$AA_MEAS_POINT4[axis]						
Bit 4: \$AA_MEAS_SETPPOINT[axis]						
Bit 5: \$AC_MEAS_WP_SETANGLE						
Bit 6: \$AC_MEAS_CORNER_SETANGLE						
Bit 7: \$AC_MEAS_T_NUMBER						
Bit 8: \$AC_MEAS_D_NUMBER						
Bit 9: \$AC_MEAS_DIR_APPROACH						
Bit 10: \$AC_MEAS_ACT_PLANE						
Bit 11: \$AC_MEAS_FRAME_SELECT						
Bit 12: \$AC_MEAS_TYPE						
Bit 13: \$AC_MEAS_FINE_TRANS						
Bit 14: \$AA_MEAS_SETANGLE[axis]						
Bit 15: \$AC_MEAS_SCALEUNIT						
Bit 16: \$AC_MEAS_TOOL_MASK						
Bit 17: \$AC_MEAS_P1_COORD						
Bit 18: \$AC_MEAS_P2_COORD						
Bit 19: \$AC_MEAS_P3_COORD						
Bit 20: \$AC_MEAS_P4_COORD						
Bit 21: \$AC_MEAS_SET_COORD						
Bit 22: \$AC_MEAS_CHSFR						
Bit 23: \$AC_MEAS_NCBFR						
Bit 24: \$AC_MEAS_CHBFR						
Bit 25: \$AC_MEAS_UIFR						
Bit 26: \$AC_MEAS_PFRAME						
Bit 27: \$AC_MEAS_INPUT						
Bit 28: \$AC_MEAS_GFR						
Bit 29: \$AC_MEAS_ORIWKS						
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_FRAME	Result frame for workpiece measurement				FRAME		
Description: Variable for workpiece and tool measurement. Variable \$AC_MEAS_FRAME is the result frame for workpiece measurement. This frame is calculated by the MEASURE() function or a PI service and is not part of the active frame chain. The calculated result frame can then be copied into the selected frame (\$AC_MEAS_FRAME_SELECT) by the part program or a further PI service.							
Unit	Init value	Min		Max			
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_MEAS_WP_ANGLE	Workpiece position angle				DOUBLE		
Description: Variable for workpiece and tool measurement. Variable \$AC_MEAS_WP_ANGLE is the calculated workpiece position angle for workpiece measurement. The value specifies the relative position of the workpiece in the workpiece coordinate system (WCS).							
Unit	Init value	Min		Max			
deg.	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_MEAS_CORNER_ANGLE	Angle of a corner				DOUBLE		
Description: Variable for workpiece and tool measurement. Variable \$AC_MEAS_CORNER_ANGLE is the calculated cutting angle of the corner for workpiece measurement.							
Unit	Init value	Min		Max			
deg.	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_MEAS_DIAMETER	Tool diameter				DOUBLE
Description: Variable for workpiece and tool measurement. Variable \$AC_MEAS_DIAMETER is the calculated diameter for tool measurement.					
Unit	Init value	Min		Max	

3.2 Channel-specific system variables

\$AC_MEAS_DIAMETER		Tool diameter			DOUBLE	
mm	0.0			-1.8E+308		1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_TOOL_LENGTH		Tool length			DOUBLE	
Description:						
Variable for workpiece and tool measurement.						
Variable \$AC_MEAS_TOOL_LENGTH is the calculated tool length for tool measurement.						
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_RESULTS [10]		Measurement results			DOUBLE	
Description:						
Variable for workpiece and tool measurement.						
Array variable \$AC_MEAS_RESULTS[n] contains the calculation results. The measurement type (\$AC_MEAS_TYPE) determines which elements of the array are written.						
Index 1:	Measurement results					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_SCALEUNIT		Measurement unit			INT	
Description:						
Variable for workpiece and tool measurement.						
The variable \$AC_MEAS_SCALEUNIT specifies the unit of measurement according to the configuration of the input and output values.						
The following values are possible:						
0: The unit of measurement depends on the active G code INCH: G70/G700 METRIC: G71/G710						
1: The unit of measurement corresponds to the configuration (default setting)						
Unit	Init value	Min	Max			
-	1	0	1			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_SCALEUNIT		Measurement unit			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_CHANNO		-			INT	
Description: Interrogate current channel number.						
Unit	Init value	Min			Max	
-	0	1			10	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SERUPRO		-			INT	
Description: \$AC_SERUPRO Interrogate whether search type Serupro is active. (Serupro: "Block search via program test") Can be used in Synacts and the part program \$AC_SERUPRO == 0 Search type Serupro is not active \$AC_SERUPRO == 1 Search type Serupro is active						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_VACTBF		Path velocity in the BCS			DOUBLE	
Description: \$AC_VACTBF supplies the path velocity in the basic coordinate system. FGroup and FGREF are taken into account.						
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_VACTWF		Path velocity in the WCS			DOUBLE		
Description:							
Path velocity in workpiece coordinate system. FGROUP and FGREF are taken into account.							
Unit	Init value	Min			Max		
Linear / angular speed	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		-	0	-
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$P_CHBFR0		Access to 1st channel basic frame			FRAME		
Description:							
Access to 1st channel basic frame. Corresponds to \$P_CHBFR[0].							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_CHBFR1		Access to 2nd channel basic frame			FRAME		
Description:							
Access to 2nd channel basic frame. Corresponds to \$P_CHBFR[1].							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_CHBFR2		Access to 3rd channel basic frame			FRAME		
Description:							
Access to 3rd channel basic frame. Corresponds to \$P_CHBFR[2].							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_CHBFR2		Access to 3rd channel basic frame			FRAME
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_CHBFR3		Access to 4th channel basic frame			FRAME	
Description: Access to 4th channel basic frame. Corresponds to \$P_CHBFR[3].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR4		Access to 5th channel basic frame			FRAME	
Description: Access to 5th channel basic frame. Corresponds to \$P_CHBFR[4].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR5		Access to 6th channel basic frame			FRAME	
Description: Access to 6th channel basic frame. Corresponds to \$P_CHBFR[5].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR6		Access to 7th channel basic frame			FRAME	
Description: Access to 7th channel basic frame. Corresponds to \$P_CHBFR[6].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_CHBFR6		Access to 7th channel basic frame			FRAME	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR7		Access to 8th channel basic frame			FRAME	
Description:						
Access to 8th channel basic frame. Corresponds to \$P_CHBFR[7].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR8		Access to 9th channel basic frame			FRAME	
Description:						
Access to 9th channel basic frame. Corresponds to \$P_CHBFR[8].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR9		Access to 10th channel basic frame			FRAME	
Description:						
Access to 10th channel basic frame. Corresponds to \$P_CHBFR[9].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR10		Access to 11th channel basic frame			FRAME	
Description:						
Access to 11th channel basic frame. Corresponds to \$P_CHBFR[10].						
Unit	Init value		Min		Max	
-						

List of system variables

3.2 Channel-specific system variables

\$P_CHBFR10		Access to 11th channel basic frame			FRAME	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR11		Access to 12th channel basic frame			FRAME	
Description:						
Access to 12th channel basic frame. Corresponds to \$P_CHBFR[11].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR12		Access to 13th channel basic frame			FRAME	
Description:						
Access to 13th channel basic frame. Corresponds to \$P_CHBFR[12].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR13		Access to 14th channel basic frame			FRAME	
Description:						
Access to 14th channel basic frame. Corresponds to \$P_CHBFR[13].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_CHBFR14		Access to 15th channel basic frame			FRAME	
Description:						
Access to 15th channel basic frame. Corresponds to \$P_CHBFR[14].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFR15		Access to 16th channel basic frame			FRAME	
Description:						
Access to 16th channel basic frame. Corresponds to \$P_CHBFR[15].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR0		Access to 1st NCU-global basic frame			FRAME	
Description:						
Access to 1st NCU-global basic frame. Corresponds to \$P_NCBFR[0].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR1		Access to 2nd NCU-global basic frame			FRAME	
Description:						
Access to 2nd NCU-global basic frame. Corresponds to \$P_NCBFR[1].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_NCBFR1		Access to 2nd NCU-global basic frame			FRAME
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_NCBFR2		Access to 3rd NCU-global basic frame			FRAME	
Description: Access to 3rd NCU-global basic frame. Corresponds to \$P_NCBFR[2].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR3		Access to 4th NCU-global basic frame			FRAME	
Description: Access to 4th NCU-global basic frame. Corresponds to \$P_NCBFR[3].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR4		Access to 5th NCU-global basic frame			FRAME	
Description: Access to 5th NCU-global basic frame. Corresponds to \$P_NCBFR[4].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR5		Access to 6th NCU-global basic frame			FRAME	
Description: Access to 6th NCU-global basic frame. Corresponds to \$P_NCBFR[5].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_NCBFR5		Access to 6th NCU-global basic frame			FRAME	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR6		Access to 7th NCU-global basic frame			FRAME	
Description:						
Access to 7th NCU-global basic frame. Corresponds to \$P_NCBFR[6].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR7		Access to 8th NCU-global basic frame			FRAME	
Description:						
Access to 8th NCU-global basic frame. Corresponds to \$P_NCBFR[7].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR8		Access to 9th NCU-global basic frame			FRAME	
Description:						
Access to 9th NCU-global basic frame. Corresponds to \$P_NCBFR[8].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR9		Access to 10th NCU-global basic frame			FRAME	
Description:						
Access to 10th NCU-global basic frame. Corresponds to \$P_NCBFR[9].						
Unit	Init value		Min		Max	
-						

List of system variables

3.2 Channel-specific system variables

\$P_NCBFR9		Access to 10th NCU-global basic frame			FRAME	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR10		Access to 11th NCU-global basic frame			FRAME	
Description:						
Access to 11th NCU-global basic frame. Corresponds to \$P_NCBFR[10].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR11		Access to 12th NCU-global basic frame			FRAME	
Description:						
Access to 12th NCU-global basic frame. Corresponds to \$P_NCBFR[11].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR12		Access to 13th NCU-global basic frame			FRAME	
Description:						
Access to 13th NCU-global basic frame. Corresponds to \$P_NCBFR[12].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_NCBFR13		Access to 14th NCU-global basic frame			FRAME	
Description:						
Access to 14th NCU-global basic frame. Corresponds to \$P_NCBFR[13].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR14		Access to 15th NCU-global basic frame			FRAME	
Description:						
Access to 15th NCU-global basic frame. Corresponds to \$P_NCBFR[14].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFR15		Access to 16th NCU-global basic frame			FRAME	
Description:						
Access to 16th NCU-global basic frame. Corresponds to \$P_NCBFR[15].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME0		Access to 1st current channel basic frame			FRAME	
Description:						
Access to 1st current channel basic frame. Corresponds to \$P_CHBFRAME[0].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_CHBFRAME0		Access to 1st current channel basic frame			FRAME
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_CHBFRAME1		Access to 2nd current channel basic frame			FRAME	
Description: Access to 2nd current channel basic frame. Corresponds to \$P_CHBFRAME[1].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME2		Access to 3rd current channel basic frame			FRAME	
Description: Access to 3rd current channel basic frame. Corresponds to \$P_CHBFRAME[2].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME3		Access to 4th current channel basic frame			FRAME	
Description: Access to 4th current channel basic frame. Corresponds to \$P_CHBFRAME[3].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME4		Access to 5th current channel basic frame			FRAME	
Description: Access to 5th current channel basic frame. Corresponds to \$P_CHBFRAME[4].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_CHBFRAME4		Access to 5th current channel basic frame			FRAME	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME5		Access to 6th current channel basic frame			FRAME	
Description:						
Access to 6th current channel basic frame. Corresponds to \$P_CHBFRAME[5].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME6		Access to 7th current channel basic frame			FRAME	
Description:						
Access to 7th current channel basic frame. Corresponds to \$P_CHBFRAME[6].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME7		Access to 8th current channel basic frame			FRAME	
Description:						
Access to 8th current channel basic frame. Corresponds to \$P_CHBFRAME[7].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME8		Access to 9th current channel basic frame			FRAME	
Description:						
Access to 9th current channel basic frame. Corresponds to \$P_CHBFRAME[8].						
Unit	Init value		Min		Max	
-						

List of system variables

3.2 Channel-specific system variables

\$P_CHBFRAME8		Access to 9th current channel basic frame			FRAME	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME9		Access to 10th current channel basic frame			FRAME	
Description:						
Access to 10th current channel basic frame. Corresponds to \$P_CHBFRAME[9].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME10		Access to 11th current channel basic frame			FRAME	
Description:						
Access to 11th current channel basic frame. Corresponds to \$P_CHBFRAME[10].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME11		Access to 12th current channel basic frame			FRAME	
Description:						
Access to 12th current channel basic frame. Corresponds to \$P_CHBFRAME[11].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_CHBFRAME12		Access to 13th current channel basic frame			FRAME	
Description:						
Access to 13th current channel basic frame. Corresponds to \$P_CHBFRAME[12].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME13		Access to 14th current channel basic frame			FRAME	
Description:						
Access to 14th current channel basic frame. Corresponds to \$P_CHBFRAME[13].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME14		Access to 15th current channel basic frame			FRAME	
Description:						
Access to 15th current channel basic frame. Corresponds to \$P_CHBFRAME[14].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CHBFRAME15		Access to 16th current channel basic frame			FRAME	
Description:						
Access to 16th current channel basic frame. Corresponds to \$P_CHBFRAME[15].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_CHBFRAME15		Access to 16th current channel basic frame			FRAME
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_NCBFRAME0		1. 1st current NCU-global basic frame			FRAME	
Description: Access to 1st current NCU-global basic frame. Corresponds to \$P_NCBFRAME[0].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME1		2. 1st current NCU-global basic frame			FRAME	
Description: Access to 2nd current NCU-global basic frame. Corresponds to \$P_NCBFRAME[1].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME2		3. 1st current NCU-global basic frame			FRAME	
Description: Access to 3rd current NCU-global basic frame. Corresponds to \$P_NCBFRAME[2].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME3		4. 1st current NCU-global basic frame			FRAME	
Description: Access to 4th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[3].						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$P_NCBFRAME3		4. 1st current NCU-global basic frame			FRAME	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME4		5. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 5th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[4].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME5		6. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 6th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[5].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME6		7. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 7th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[6].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME7		8. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 8th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[7].						
Unit	Init value		Min		Max	
-						

List of system variables

3.2 Channel-specific system variables

\$P_NCBFRAME7		8. 1st current NCU-global basic frame			FRAME	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME8		9. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 9th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[8].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME9		10. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 10th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[9].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME10		11. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 11th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[10].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME11		12. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 12th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[11].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME12		13. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 13th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[12].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME13		14. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 14th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[13].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_NCBFRAME14		15. 1st current NCU-global basic frame			FRAME	
Description:						
Access to 15th current NCU-global basic frame. Corresponds to \$P_NCBFRAME[14].						
Unit	Init value	Min			Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_NCBFRAME14		15. 1st current NCU-global basic frame			FRAME
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_NCBFRAME15		16. 1st current NCU-global basic frame			FRAME	
Description: 16th current NCU-global basic frame Corresponds to \$P_NCBFRAME[15].						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TRAFO_CHAIN [4]		Programmed chained transformation			INT	
Description: \$P_TRAFO_CHAIN[n] Code numbers of chained transformations of programmed TRACON according to machine data \$MC_TRAFO_TYPE_m. .br/>Supplies the code number of the nth chained transformation of the programmed TRACON, starting with n=0. \$P_TRAFO_CHAIN[0] is the 1st chained transformation if a TRACON is programmed. If a TRACON command is not programmed, the code number of the programmed transformation is returned (e.g. 257 for TRANSMIT). If there is no transformation programmed, the value '0' is returned. \$P_TRAFO_CHAIN[1] is the 2nd chained transformation if a TRACON is programmed. Otherwise a '0' is returned. The same applies accordingly for \$P_TRAFO_CHAIN[2] and \$P_TRAFO_CHAIN[3].						
Index 1:	n: Index of the chained transformation.					
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRAFO_CHAIN [4]		Active chained transformation			INT
Description: \$AC_TRAFO_CHAIN[n] Code numbers of chained transformations of active TRACON according to machine data \$MC_TRAFO_TYPE_m. .br/>Supplies the code number of the nth chained transformation of the active TRACON, starting with n=0. \$AC_TRAFO_CHAIN[0] is the 1st chained transformation if a TRACON is programmed. If a TRACON command is not active, the code number of the programmed transformation is returned (e.g. 257 for TRANSMIT). If no transformation is active, the value '0' is returned. \$AC_TRAFO_CHAIN[1] is the 2nd chained transformation if a TRACON is active. Otherwise a '0' is returned. The same applies accordingly for \$AC_TRAFO_CHAIN[2] and \$AC_TRAFO_CHAIN[3].					
Index 1:	n: Index of the chained transformation.				

3.2 Channel-specific system variables

\$AC_TRAFO_CHAIN [4]		Active chained transformation			INT	
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_MEAS_INPUT [10]		Measuring input parameter			DOUBLE	
Description:						
Variable for workpiece and tool measurement.						
Array variable \$AC_MEAS_INPUT[n] is used to enter measuring input parameters for workpiece and tool measurement. The control effect of the parameters is documented in the measurement variants.						
Index 1:	n=0..9: Measuring input parameters					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_DBSB [MD_MAX- NUM_VDL_VAR_DATA]		PLC data byte (signed)			INT	
Description:						
Array variable \$A_DBSB[n] is used to read and write a data byte (8 bits) from PLC. The byte is signed and can be read and written in the range from -128 to 127.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
See also \$A_DBB[n].						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min		Max		
-	0	-128		127		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	Mrun syn	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$A_DBSW [MD_MAX- NUM_VDI_VAR_DATA]	PLC data word (signed)			INT		
Description:						
Array variable \$A_DBSW[n] is used to read and write a data word (16 bits) from PLC. The word is signed and can be read and written in the range from -32768 to 32767.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses \$ variables to access this memory.						
See also \$A_DBW[n].						
Index 1:	n: Position offset within the I/O area 0 - ...					
Unit	Init value	Min			Max	
-	0	-32768			32767	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	Mrun syn	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$P_SUB_AXFCT	Substitution active			INT		
Description:						
Returns a bitmask according to machine data \$MA_AXIS_LANG_SUB_MASK. An enabled bit means that the substitution of the corresponding function is active:						
Bit 0 = 1: Automatic gear stage change (M40) and direct gear stage change (M41-M45)						
Bit 1 = 1: Spindle positioning with SPOS/SPOSA/M19						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_GEAR	Programmed gear stage			INT		
Description:						
Returns the programmed or calculated gear stage in the substitution subprogram of an NC language substitution configured with \$MA_AXIS_LANG_SUB_MASK. Outside the substitution subprogram, the variable returns the gear stage of the master spindle.						
Unit	Init value	Min			Max	
-	0	41			45	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_SUB_AUTOGEAR		Automatic gear stage change active			BOOL	
Description:						
In the substitution subprogram of an NC language substitution configured with \$MA_AXIS_LANG_SUB_MASK, this variable indicates whether an automatic gear stage change (M40) was active in the part program line which initiated the substitution process.						
Outside the substitution process, the variable returns the current setting in the interpreter.						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_LA		Leading spindle of active coupling			AXIS	
Description:						
In the substitution subprogram of an NC language substitution configured with \$MA_AXIS_LANG_SUB_MASK, this variable supplies the axis identifier of the leading spindle of the active coupling which initiated the substitution process.						
Outside the substitution process, the variable aborts program execution and triggers an alarm.						
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_CA		Following spindle of active coupling			AXIS	
Description:						
In the substitution subprogram of an NC language substitution configured with \$MA_AXIS_LANG_SUB_MASK, this variable supplies the axis identifier of the following spindle of the active coupling which initiated the substitution process.						
Outside the substitution process, the variable aborts program execution and triggers an alarm.						
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_BLOCKNO [INMAXFILESTACK]		Modal block number level-specific			STRING	
Description:						
\$P_BLOCKNO[n]						
Supplies the last programmed block number of program level n.						
Example:						
\$P_BLOCKNO[0]						
Supplies the modal block number of the program on program level 0 = main program name.						
MD 10284 \$MN_DISPLAY_FUNCTION_MASK Bit0 must be = 1.						
Block numbers programmed during DISPLOF cannot be read with \$P_BLOCKNO.						
Index 1:		n: Specifies the program level from which the block number is to be read. Numerical value: 0 to 11				
Index 3:		Max. string length				
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_LINENO [INMAXFILESTACK]		Line number level-specific			INT	
Description:						
\$P_LINENO[n]						
Supplies the last programmed line number of program level n.						
Example:						
\$P_LINENO[0]						
Supplies the line number of the program on program level 0 = main program level.						
Index 1:		n: Specifies the program level from which the line number is to be read. Numerical value: 0 to 11				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUTO_JOG_STATE		Status Jog in Auto			INT	
Description:						
1: Automatic is selected, \$MN_JOG_MODE_MASK is set and the mode group is "BAG-Reset". By actuating the +/- buttons or the handwheel, you can jog in Auto mode.						
2: After a JOG movement has been performed, this mode group was switched by the system to JOG. The VDI and OPI still display Automatic mode.						
0: Other						
Remark: This information covers the whole mode group and is available to each mode group channel via \$AC_AUTO_JOG_STATE.						
Unit	Init value	Min			Max	

3.2 Channel-specific system variables

\$AC_AUTO_JOG_STATE		Status Jog in Auto			INT	
-	0		0			2
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FIFO [n,m]		FIFO stack			DOUBLE	
Description:						
Variable \$AC_FIFO[n,m] access the n-th. first in first out stack. See also \$AC_FIFO1 .. \$AC_FIFO10.						
\$MC_NUM_AC_FIFO is used to define the range of n values and thus the number of FIFO Stacks \$AC_FIFO1 - \$AC_FIFO10.						
The elements of the stack memory are saved in R variables. The length of all FIFO stacks is configured with \$MC_LEN_AC_FIFO.						
\$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.						
R variables assigned to FIFO areas should not be written elsewhere.						
The number of R variables must be set in machine data \$MC_MM_NUM_R_PARAM such that all FIFO variables can be stored:						
$\$MC_MM_NUM_R_PARAM = \$MC_MM_START_FIFO + \$MC_NUM_AC_FIFO * (\$MC_LEN_AC_FIFO + 6)$						
The FIFO variable is an array variable.						
Indices 0 - 5 have special meanings:						
m = 0: When written with index 0, a new value is stored in the FIFO.						
When read with index 0, the oldest element is read and removed from the FIFO.						
m=1: Access to the first element read						
m=2: Access to the last element read						
m=3: Total of all FIFO elements if Bit0 in \$MC_MM_MODE_FIFO is set.						
m=4: Number of elements available in the FIFO						
m=5: Current write index relative to the start of the FIFO						
m=6: Oldest element						
m=7: Second oldest etc.						
Index 1:	The dimension is configured via \$MC_NUM_AC_FIFO.					
Index 2:	The dimension is configured via \$MC_LEN_AC_FIFO.					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_M_VALUE [168]		Value of active m-auxiliary function			INT	
Description:						
The array variable \$AC_AUXFU_M_VALUE[n] is used to read the value of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the value of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value -1. The relevant extension can be determined with the variable \$AC_AUXFU_M_EXT[n]. The variable \$AC_AUXFU_M_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min	Max			

List of system variables

3.2 Channel-specific system variables

\$AC_AUXFU_M_VALUE [168]		Value of active m-auxiliary function			INT	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_M_EXT [168]		Extension of active m-auxiliary function			INT	
Description:						
The array variable \$AC_AUXFU_M_EXT[n] is used to read the extension of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the extension of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value -1. The relevant value of the auxiliary function can be determined with the variable \$AC_AUXFU_M_VALUE[n]. The variable \$AC_AUXFU_M_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_M_STATE [168]		Output state of active m-auxiliary function			INT	
Description:						
The array variable \$AC_AUXFU_M_STATE[n] is used to read the output status of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the status of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value 0. If the value is greater than 0, the relevant auxiliary function value can be determined with the variable \$AC_AUXFU_M_VALUE[n]. The variable \$AC_AUXFU_M_EXT[n] determines the current extension of the auxiliary function.						
The variable returns the following values:						
0: Auxiliary function not available						
1: M-auxiliary function collected via search run						
2: M-auxiliary function output to the PLC						
3: M-auxiliary function output to the PLC, transfer has been acknowledged.						
4: M-auxiliary function managed by the PLC and integrated into the PLC.						
5: M-auxiliary function managed by the PLC, function has been acknowledged.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$P_THREAD_PITCH		programmed thread pitch			DOUBLE	
Description:						
<p>\$P_THREAD_PITCH provides the lead with G33, G34, G35, G331 and G332 programmed under the address I, J or K. Value 0 is supplied in the RESET state or if no lead has been programmed. With G33, G34 and G35 a positive value is always returned. With G331 and G332, the sign results from the spindle rotation direction: positive in clockwise direction (as with M3) or negative in counterclockwise direction (as with M4).</p> <p>In the following example, \$P_THREAD_PITCH provides the value "1.5".</p> <p>...</p> <p>N11 M4 S500 N12 G33 Z10 K1.4 N13 G33 Z12 K1.5 N14 R1=\$P_THREAD_PITCH ;R1=1.5</p>						
Unit	Init value	Min			Max	
THREAD_PITCH	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_THREAD_PITCH_INC		programmed thread pitch increment			DOUBLE	
Description:						
<p>\$P_THREAD_PITCH_INC supplies the value programmed under the address F for the lead change (G34/G35). Value 0 is supplied in the RESET state or if no lead change has been programmed.</p> <p>The returned value is positive in the case of G34 or negative in the case of G35.</p> <p>Example:</p> <p>M3 S400 G35 F2 Z10 K5 R1=\$P_THREAD_PITCH_INC ;R1= -2</p>						
Unit	Init value	Min			Max	
THREAD_PITCH_INCREMENT	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_THREAD_PITCH		programmed thread pitch			DOUBLE	
Description:						
<p>\$AC_THREAD_PITCH provides the lead for G33, G34, G35, G331 and G332 programmed under address I, J or K. In the RESET state or if no lead has been programmed, the value 0 is given. With G33, G34 and G35, a positive value is always returned. With G331 and G332, the sign from the spindle rotating direction is as follows: positive for clockwise rotation (as with M3) or negative for counterclockwise rotation (as with M4).</p> <p>In the following example, \$AC_THREAD_PITCH provides the value "1.5" :</p> <p>...</p> <p>N11 M4 S500</p> <p>N12 G33 Z10 K1.4</p> <p>N13 G33 Z12 K1.5</p> <p>N14 R1=\$AC_THREAD_PITCH ;R1= 1.5</p>						
Unit	Init value	Min			Max	
THREAD_PITCH	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_THREAD_PITCH_INC		current thread pitch increment			DOUBLE	
Description:						
<p>\$AC_THREAD_PITCH_INC provides the value programmed under the address F for lead change (G34/G35). In the RESET state or if a change in lead has not been programmed, the value 0 is supplied.</p> <p>The returned value is positive for G34 and negative for G35.</p> <p>Example:</p> <p>M3 S400</p> <p>G34 F4 Z10 K2</p> <p>R1=\$P_THREAD_PITCH_INC ;R1= 4</p>						
Unit	Init value	Min			Max	
THREAD_PITCH_INCREMENT	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_THREAD_PITCH_ACT		current thread pitch just now			DOUBLE	
Description:						
<p>\$AC_THREAD_PITCH_ACT provides the current value for the lead. This value is continuously updated in blocks with G34 or G35 according to the value programmed under F.</p> <p>Only with thread blocks (G33, G34, G35, G331 and G332) a value unequal zero is supplied.</p>						
Unit	Init value	Min			Max	
THREAD_PITCH	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						

3.2 Channel-specific system variables

\$SAC_THREAD_PITCH_ACT		current thread pitch just now			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TOOLROT [3]		Programmed tool rotation direction			DOUBLE	
Description:						
\$P_TOOLROT[n]						
Programmed tool rotation vector						
Normalized vector with length 1 and the components						
(n = 1, 2, 3) in the range - 1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following unit vector is returned, depending on the active plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min				Max
-	0.0	-1.0				1.0
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SAC_TOOLR_ACT [3]		Active tool rotation direction			DOUBLE	
Description:						
\$SAC_TOOLR_ACT[n]						
Active command rotation vector						
Normalized vector with length 1 and the components						
(n = 1, 2, 3) in the range - 1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following unit vector is returned, depending on the active plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min				Max
-	0.0	-1.0				1.0
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.2 Channel-specific system variables

\$AC_TOOLR_ACT [3]		Active tool rotation direction			DOUBLE	
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOLR_END [3]		End rotation direction vector			DOUBLE	
Description:						
\$AC_TOOLR_END[n]						
End rotation vector of active block						
Normalized vector with length 1 and the components						
(n = 1, 2, 3) in the range - 1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following unit vector is returned, depending on the active plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOLR_DIFF		Remaining angle of the tool rotation direction			DOUBLE	
Description:						
\$AC_TOOLR_DIFF						
Remaining angle of tool rotation in active block in degree in the range 0 ... 180 degree.						
Unit	Init value	Min	Max			
deg.	0.0	0.0	180.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOLR [3]		Actual rotation direction vector			DOUBLE	
Description:						
\$VC_TOOLR[n]						
Actual tool rotation						
Normalized vector with length 1 and the components						
(n = 1, 2, 3) in the range - 1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following unit vector is returned, depending on the active plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$VC_TOOLR_DIFF		Angle between set and actual rotation			DOUBLE	
Description:						
\$VC_TOOLR_DIFF						
Angle between command and actual tool rotation in degree in the range 0 ... 180 degree.						
Unit	Init value	Min			Max	
deg.	0.0	0.0			180.0	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$VC_TOOLR_STAT		Status of actual rotation direction vector			INT	
Description:						
\$VC_TOOLR_STAT						
Status of calculation of actual tool rotation:						
0: MCS -> BCS Transformation in one ipo cycle						
-1: MCS -> BCS transformation not in one ipo cycle possible						
Unit	Init value	Min			Max	
-	0	-1			0	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7

List of system variables

3.2 Channel-specific system variables

\$VC_TOOLR_STAT		Status of actual rotation direction vector			INT	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_SIMUL		Simulation search run active			BOOL	
Description:						
Value==TRUE						
The part program is executed in the control under the Simulation search run mode.						
The simulation search run is a search run (with calculation)						
which is aborted with an						
internal M30 once the end of the program has been reached.						
The control is internally in search run mode, the variables \$P_SEARCH,						
\$P_SERACH1, \$P_SEARCH2 and \$P_SERACHL are also correctly supplied.						
Parts program adjustments can be made through variables						
\$P_SEARCH* or \$P_SIMUL. \$P_SIMUL is designed only for adjustments						
restricted to the simulation search run.						
Value==FALSE No simulation search run is active.						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	Not classified	

\$P_SUB_STAT		state of substitution subroutine			INT	
Description:						
A replacement of the tool programming has been configured (address D, DL, T or M function through which the tool change cycle is called up). \$P_SUB_STAT now permits polling to see if the substitution process is active and if the process is executed at the start or the end of the block:						
Value 0: Substitution subprogram not active						
Value 1: Substitution subprogram active,						
call-up at start of block						
Value 2: Substitution subprogram active,						
call-up at end of block						
The system variable is influenced by machine data						
\$MN_T_NO_FCT_CYCLE_MODE bit1 and 2.						
Unit	Init value	Min	Max			
-	0	0	2			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$A_USEDND [128]		Workpiece counts for cutting edges			INT	
Description:						
\$A_USEDND[toolHolder]						
The number of cutting edges used in tool holder s, counted since the last setpiece command, including the currently active cutting edge.						
toolHolder=1,...,maximum tool holder number						
toolHolder=0 = The master tool holder is selected						
Result = >0 = Number of cutting edges that have been used.						
Result = 0 = There have been no cuts since the last setpiece command.						
Result = -1 = Tool Management Tool Monitoring is not active.						
Result = -2 = toolHolder is not the value of a defined tool holder.						
Index 1:	toolHolder: Spindle number/tool holder number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_USEDT [128,3000]		Workpiece counts for cutting edges			INT	
Description:						
\$A_USEDT[toolHolder, usedCuttingEdgeIndex]						
T number of the i-th tool, of the cutting edges that have been used or are still being used on the tool holder s since the last workpiece count.						
toolHolder=1,...,maximum tool holder number						
toolHolder=0 = Designates the master tool holder						
usedCuttingEdgeIndex= 1 - \$A_USEDND[toolHolder]						
Result = >0 = T number (can occur several times) (if different D offsets of the tool were used).						
Result = 0 = No more cutting edges used since the last workpiece count.						
Result = -1 = Tool monitoring function is not active.						
Result = -2 = toolHolder is the value of an undefined tool holder.						
Index 1:	toolHolder: Spindle number/tool holder number					
Index 2:	usedCuttingEdgeIndex: index (1 - \$A_USEDND[toolHolder])					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$A_USEDDD [128,3000]		Workpiece counts for cutting edges			INT	
Description:						
\$A_USEDDD[toolHolder, usedCuttingEdgeIndex]						
D number of the i-th tool, of the cutting edges that have been used or are still being used on the tool holder s since the last workpiece count.						
toolHolder=1,...,maximum tool holder number						
toolHolder=0 = Designates the master tool holder						
usedCuttingEdgeIndex = 1 - \$A_USEDND[toolHolder]						
Result = >0 = D number (can occur several times) (if different D offsets of the tool were used).						
Result = 0 = No more cutting edges used since the last workpiece count.						
Result = -1 = Tool monitoring function is not active.						
Result = -2 = toolHolder is the value of an undefined tool holder.						
Index 1:		toolHolder: Spindle number/tool holder number				
Index 2:		usedCuttingEdgeIndex: index (1 - \$A_USEDND[toolHolder])				
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_M_TICK [168]		Time stamp of active M auxiliary function			INT	
Description:						
Field variable \$AC_AUXFU_M_TICK[n] is used to read the time stamp of the M auxiliary function collected (search run) or output last for an auxiliary function group. Auxiliary functions are assigned to groups. The index corresponds to a group number decremented by one. Index 0 therefore determines the value of the M auxiliary function of the 1st group, which was output last. If no auxiliary function has been output for the specific group, the variable indicates value -1. The respective value can be determined using variable \$AC_AUXFU_M_VALUE[n] and the respective extension using variable \$AC_AUXFU_M_EXT[n]. Variable \$AC_AUXFU_M_STATE[n] determines the current output state.						
Index 1:		The index corresponds to the auxiliary function group number decremented by one.				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_CONE_ANGLE		Cone angle			DOUBLE	
Description:						
\$AC_CONE_ANGLE						
Currently active cone angle for cone turning. The cone angle is set by default via the setting data \$SC_CONE_ANGLE and is active in JOG mode only.						
Unit	Init value	Min			Max	
deg.	0.0	-90			90	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.2 Channel-specific system variables

\$AC_CONE_ANGLE		Cone angle			DOUBLE	
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TECCYCLE		Context query in technology cycles			BOOL	
Description:						
To control the context-specific interpretation of program parts in technology cycles, preprocessing variable \$P_TECCYCLE is available. Using this variable, programs can be subdivided into synchronized action program parts and preprocessing program parts.						
Example:						
if (\$P_TECCYCLE == TRUE)						
; Program sequence for a technology cycle in synchronized action						
else						
; Program sequence for parts program cycle						
endif						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_WORKAREA_CS_PLUS_ENABLE [n]		Active coord.-specific working area limitation, positive valid			BOOL	
Description:						
TRUE: The limitation in the positive direction for the specified axis in the active coordinate system-specific working area limitation is valid. (s. \$AC_WORKAREA_CS_LIMIT_PLUS[ax])						
Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_WORKAREA_CS_MINUS_ENABLE [n]		Active coord.-specific working area limitation, negative valid			BOOL	
Description:						
TRUE: The limitation in the negative direction for the specified axis in the active coordinate system-specific working area limitation is valid. (s. \$AC_WORKAREA_CS_LIMIT_MINUS[ax])						
Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						

List of system variables

3.2 Channel-specific system variables

\$AC_WORKAREA_CS_MINUS_ENABLE [n]		Active coord.-specific working area limitation, negative val-id			BOOL	
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$AC_WORKAREA_CS_LIMIT_PLUS [n]		Coordinate system-specific working area limitation positive			DOUBLE	
Description: The limitation in the positive direction for the specified axis in the active coordinate system-specific working area limitation. This value is only evaluated, if \$AC_WORKAREA_CS_PLUS_ENABLE = TRUE.						
Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$AC_WORKAREA_CS_LIMIT_MINUS [n]		Coordinate system-specific working area limitation nega-tive			DOUBLE	
Description: The limitation in the negative direction for the specified axis in the active coordinate system-specific working area limitation. This value is only evaluated, if \$AC_WORKAREA_CS_MINUS_ENABLE = TRUE.						
Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$AC_WORKAREA_CS_COORD_SYS-TEM		Coordinate system applies to the active working area limi-tation			INT	
Description: Coordinate system in which the active, coordinate-specific working area limitation applies. The following values apply: Working area limitation applies in the WCS Working area limitation applies in the SZS						
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety

3.2 Channel-specific system variables

\$AC_WORKAREA_CS_COORD_SYS-TEM		Coordinate system applies to the active working area limitation				INT	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$AC_WORKAREA_CS_GROUP		Group no. of the active, coord.-specific working area limitation				INT	
Description:							
Number of the active group of the coordinate system-specific working area limitation. The value is determined in the NC program by the G code WALCS0-WALCS10.							
Unit	Init value	Min			Max		
-	0	0			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	X	7	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$P_ISO1FRAME		Active system frame for ISO G51.1 mirroring				FRAME	
Description:							
Variable \$P_ISO1FRAME is used to program the active system frame for ISO G51.1 mirroring.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
Bit7 in \$MC_CHSFRAME_RESET_MASK							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	-	0	-	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$P_ISO2FRAME		Active system frame for ISO G68 2DROT				FRAME	
Description:							
The variable \$P_ISO2FRAME is used to program the active system frame for ISO G68 2DROT.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
Bit8 in \$MC_CHSFRAME_RESET_MASK							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	-	0	-	

List of system variables

3.2 Channel-specific system variables

\$P_ISO2FRAME		Active system frame for ISO G68 2DROT				FRAME
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_ISO3FRAME		Active system frame for ISO G68 3DROT				FRAME
Description:						
The variable \$P_ISO3FRAME is used to program the active system frame for ISO G68 3DROT.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
Bit9 in \$MC_CHSFRAME_RESET_MASK						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_ISO4FRAME		Active system frame for ISO G51 Scale				FRAME
Description:						
The variable \$P_ISO4FRAME is used to program the active system frame for ISO G51 Scale.						
On a Reset, the activation of the system frame depends on the following machine data:						
Bit0 in \$MC_RESET_MODE_MASK						
Bit10 in \$MC_CHSFRAME_RESET_MASK						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_ACSFRAME		Active frame between BCS and SZS				FRAME
Description:						
The variable \$P_ACSFRAME determines the active chained total frame between BCS and SZS.						
The following applies to \$MC_FRAME_ACS_SET = 0:						
\$P_ACSFRAME = \$P_PARTFRAME : \$P_SETFRAME : \$P_EXTFRAME : \$P_ISO1FRAME : \$P_ISO2FRAME : \$P_ISO3FRAME :						
\$P_ACTBFRAME : \$P_IFFRAME : \$P_GFRAME : \$P_TOOLFRAME : \$P_WPFRAME						
The following applies to \$MC_FRAME_ACS_SET = 1:						
\$P_ACSFRAME = \$P_PARTFRAME : \$P_SETFRAME : \$P_EXTFRAME : \$P_ISO1FRAME : \$P_ISO2FRAME : \$P_ISO3FRAME :						
\$P_ACTBFRAME : \$P_IFFRAME : \$P_GFRAME : \$P_TOOLFRAME : \$P_WPFRAME : \$P_TRAFRAME : \$P_PFRAME : \$P_ISO4FRAME						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

3.2 Channel-specific system variables

\$P_ACFRAME		Active frame between BCS and SZS			FRAME	
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_CUT_INV		Invert direction of spindle rotation			BOOL	
Description:						
\$P_CUT_INV						
This system variable is used to indicate whether or not the direction of spindle rotation has to be inverted for machining with the currently active tool.						
The variable has the value TRUE if the four following conditions are fulfilled:						
1. A turning tool is active (tool types 500 to 599).						
2. The cutting edge influencing has been activated with the language command CUTMOD = 1 or CUTMOD =2.						
3. A tool carrier with orientation capability is active.						
4. The tool carrier with orientation capability rotates the tool so that the resulting normal of the tool cutting edge to the initial position is rotated more than 90 degrees (typically 180 degrees).						
The content of the variable is FALSE if at least one of the four conditions has not been fulfilled.						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_CUT_INV		Invert direction of spindle rotation			BOOL	
Description:						
This system variable \$AC_CUT_INV is used to indicate whether or not the direction of spindle rotation has to be inverted for machining with the currently active tool.						
The variable has the value TRUE if the four following conditions are fulfilled:						
1. A turning tool is active (tool types 500 to 599).						
2. The cutting edge influencing has been activated with the language command CUTMOD = 1 or CUTMOD =2.						
3. A tool carrier with orientation capability is active.						
4. The tool carrier with orientation capability rotates the tool so that the resulting normal of the tool cutting edge to the initial position is rotated more than 90 degrees (typically 180 degrees).						
The content of the variable is FALSE if at least one of the four conditions has not been fulfilled.						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_CUTMOD		The last programmed value of CUTMOD			INT	
Description:						
\$P_CUTMOD						
Reads the current valid value that was last programmed with the language command CUTMOD (number of the tool carrier for which the cutting edge data modification is to be activated).						
If the last programmed value was CUTMOD = -2 (activation with the currently active tool carrier with orientation capability), \$P_CUTMOD does not return the value -2 but the number of the active tool carrier with orientation capability at the time of programming.						
Unit	Init value	Min			Max	
-	0	-2			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_CUTMOD		The value of CUTMOD in the current block.			INT	
Description:						
\$AC_CUTMOD						
Reads the currently valid value of the language command CUTMOD in the current block (number of the tool carrier for which the cutting edge data modification is to be activated).						
Unit	Init value	Min			Max	
-	0	-2			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_CUTMOD_ANG		Tool rotation angle in the active machining plane			DOUBLE	
Description:						
The variable \$P_CUTMOD_ANG reads the angle through which a tool has been rotated in the active machining plane, and on which the determination of modified cutting edge data with the functions CUTMOD and/or \$SC_CUTDIRMOD is based.						
Unit	Init value	Min			Max	
deg.	0.0	-360			360	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_CUTMOD_ANG		Tool rotation angle in the active machining plane			DOUBLE	
Description:						
The variable \$AC_CUTMOD_ANG determines the angle through which a tool has been rotated in the active machining plane and on which the determination of modified cutting edge data for the functions CUTMOD and/or \$SC_CUTDIRMOD is based.						
Unit	Init value	Min			Max	

3.2 Channel-specific system variables

\$AC_CUTMOD_ANG		Tool rotation angle in the active machining plane			DOUBLE	
deg.	0.0		-360		360	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_SUB_SPOS		Language substitution for SPOS command active			BOOL	
Description:						
Returns an NC language substitution TRUE (1) configured with \$MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by the SPOS command.						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_SPOSA		Language substitution for SPOSA command active			BOOL	
Description:						
Returns an NC language substitution TRUE (1) configured with \$MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by the SPOSA command.						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_M19		Language substitution M19 active.			BOOL	
Description:						
Returns an NC language substitution TRUE (1) configured with \$MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by M19.						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_SUB_SPOSIT		SPOS/SPOSA position with language substitution			DOUBLE	
Description:						
Returns the programmed position of an NC language substitution configured with \$MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram. If the variable is called outside this substitution process, the program execution is canceled with alarm 14055.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_SUB_SPOSMODE		Position approach mode with language substitution			INT	
Description:						
The variable \$P_SUB_SPOSMODE determines, with a language substitution: \$MA_AXIS_LANG_SUB_MASK bit1 = 1 configured in the substitution subprogram, the position approach mode for the spindle position returned by \$P_SUB_SPOSIT. 0: DC 1: AC 2: IC 3: DC 4: ACP 5: ACN If the variable is called outside this substitution process, the program execution is canceled with alarm 14055.						
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$AC_SAFE_SYNA_MEM		Free safety synchronized action elements			INT	
Description:						
The variable \$AC_SAFE_SYNA_MEM determines the number of free synchronized action elements for Safety Integrated. The maximum number of elements is configured by \$MC_MM_NUM_SAFE_SYNC_ELEMENTS. The value is read from the part program without a preprocessing stop.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_ACT_PROG_NET_TIME		Execution time of the selected NC program			DOUBLE	
Description:						
The current net runtime of the current program, in other words, the time during which the program was stopped has been deducted. If a part program is restarted in automatic mode from the channel status RESET, \$AC_ACT_PROG_NET_TIME is automatically reset to zero. \$AC_ACT_PROG_NET_TIME is reset to zero when M30 is reached. The net runtime does not include the time during which the program stops because Override=0.						
\$AC_ACT_PROG_NET_TIME can be further manipulated with \$AC_PROG_NET_TIME_TRIGGER.						
Note: The RESET key does not reset \$AC_ACT_PROG_NET_TIME to zero, it merely stops \$AC_ACT_PROG_NET_TIME.						
\$AC_ACT_PROG_NET_TIME is not reset by default with GOTOS (except with the 828D). If GOTOS is to behave like program end M30, bit 0 of machine data \$MC_PROG_NET_TIMER_MODE must be set.						
When an ASUB is started, \$AC_ACT_PROG_NET_TIME is set to zero, and counts the runtime of the ASUB. \$AC_ACT_PROG_NET_TIME is not reset when Prog-Events is started. \$AC_ACT_PROG_NET_TIME is additionally increased only with a start event, M30 ProgEvent and search run ProgEvent. At the end of an ASUB, \$AC_ACT_PROG_NET_TIME behaves the same as the RESET button, this means that \$AC_ACT_PROG_NET_TIME is only stopped, it is not set to 0.						
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AC_OLD_PROG_NET_TIME		Runtime of the last NC program			DOUBLE	
Description:						
\$AC_OLD_PROG_NET_TIME is the net runtime of the program that has just finished correctly, this means that the program was not canceled with RESET, it was ended normally with M30. If a new program is started, \$AC_OLD_PROG_NET_TIME remains unaffected until M30 is reached again.						
The implicit copying process from \$AC_ACT_PROG_NET_TIME to \$AC_OLD_PROG_NET_TIME takes place only if \$AC_PROG_NET_TIME_TRIGGER is not written.						
Note: \$AC_OLD_PROG_NET_TIME is reset to zero by PI "Select program". \$AC_OLD_PROG_NET_TIME is set to zero if the currently selected program is edited. \$AC_OLD_PROG_NET_TIME is not changed at the end of an ASUB or a Prog-Event.						
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$AC_PROG_NET_TIME_TRIGGER	Trigger for runtime measurement				INT	
Description:						
<p>\$AC_PROG_NET_TIME_TRIGGER is used to selectively measure program sections. This means that by writing \$AC_PROG_NET_TIME_TRIGGER the program can switch time measurement on and off.</p> <p>In order to exploit all trigger possibilities, certain values of \$AC_PROG_NET_TIME_TRIGGER are assigned a special function:</p> <p>0 = Neutral: The trigger is not active, the value is taken from Reset with the start button.</p> <p>1 = Exit: Exits the measurement and copies \$AC_ACT_PROG_NET_TIME to \$AC_OLD_PROG_NET_TIME. \$AC_ACT_PROG_NET_TIME is set to zero, and then starts running again.</p> <p>2 = Start: Starts the measurement and sets \$AC_ACT_PROG_NET_TIME to zero. \$AC_OLD_PROG_NET_TIME is not changed.</p> <p>3 = Stop: Stops the measurement, does not change \$AC_OLD_PROG_NET_TIME, and holds \$AC_ACT_PROG_NET_TIME constant until continue.</p> <p>4 = Continue: Continuation of the measurement, this means that a measurement that has been stopped is resumed. \$AC_ACT_PROG_NET_TIME continues to run. \$AC_OLD_PROG_NET_TIME is not changed.</p>						
Unit	Init value	Min			Max	
s	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$AC_OLD_PROG_NET_TIME_COUNT	Change counter for \$AC_OLD_PROG_NET_TIME				INT	
Description:						
<p>\$AC_OLD_PROG_NET_TIME_COUNT is zero in the Power ON status. \$AC_OLD_PROG_NET_TIME_COUNT is always increased when the NCK has newly written \$AC_OLD_PROG_NET_TIME. This enables the user to ensure that \$AC_OLD_PROG_NET_TIME has been written. This means that, if the user cancels the current program with reset, \$AC_OLD_PROG_NET_TIME and \$AC_OLD_PROG_NET_TIME_COUNT remain unchanged. As oldProgNetTime is reset when a new program is selected, in this case oldProgNetTimeCount is also increased.</p> <p>Note: Two programs running consecutively can have identical runtimes and be correctly terminated. The user can then only detect this by the changed \$AC_OLD_PROG_NET_TIME_COUNT.</p>						
Unit	Init value	Min			Max	
s	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$P_OPMODE	Selected mode				INT
Description:					
<p>The variable \$P_OPMODE determines the mode selected via the PLC.</p> <p>The variable returns the following values:</p> <p>0: JOG (manual traverse)</p> <p>1: MDA (Manual Data Automatic)</p> <p>2: AUTOMATIC</p>					
Unit	Init value	Min			Max
-	0	0			2

3.2 Channel-specific system variables

\$P_OPMODE		Selected mode				INT	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$P_TOFF [n]		Programmed tool length offset				DOUBLE	
Description:							
\$P_TOFF							
Programmed tool length offset.							
The variable returns the tool length offset which is assigned to the geometry axis defined as an index.							
The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.							
Index 1:	Tool length offset of the tool length component in direction of the respective geometry axis with non-rotated tool.						
Unit	Init value		Min		Max		
mm	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:	GEO			Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AC_TOFFL [3]		Programmed tool length offset				DOUBLE	
Description:							
\$AC_TOFFL							
Programmed tool length offset.							
The variable returns the offset assigned in \$AC_TOFFL[1] to the tool length component L1. The same applies to indices 2 and 3.							
\$AC_TOFFL[0] accesses the offset of the length component L1 in the same way as \$AC_TOFFL[1].							
The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.							
Index 1:	Tool length offset of tool length components L1 (indices 0 or 1), L2 (index 2), or L3 (index 3)						
Unit	Init value		Min		Max		
mm	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

List of system variables

3.2 Channel-specific system variables

\$P_TOFFL [3]		Programmed tool length offset			DOUBLE	
Description:						
\$P_TOFFL Programmed tool length offset. The variable returns the offset assigned to the tool length component L1 in \$P_TOFFL[1]. The same applies to indices 2 and 3. \$P_TOFFL[0] accesses the offset of the length component L1 in the same way as \$P_TOFFL[1]. The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.						
Index 1:	Tool length offset of tool length components L1 (indices 0 or 1), L2 (index 2), or L3 (index 3)					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TOFF [n]		Programmed tool length offset			DOUBLE	
Description:						
\$AC_TOFF Programmed tool length offset. The variable returns the tool length offset which is assigned to the geometry axis defined as an index. The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.						
Index 1:	Tool length offset of the tool length component in direction of the respective geometry axis with non-rotated tool.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:	GEO			Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_JOG_CIRCLE_SELECTED		JOG circles selected			BOOL	
Description:						
TRUE: JOG in circles is selected.						
The function is selected via the NC/PLC interface signal DB21-30 DBX30.6 (JOG circle traverse), and the selection is confirmed via DB21-30 DBX377.6 (JOG circle traverse active).						
The maximum and minimum circles and the machining characteristics are defined by setting data:						
- \$SC_JOG_CIRCLE_CENTRE defines the center of the circle,						
- \$SC_JOG_CIRCLE_RADIUS the radius of the circle						
- \$SC_JOG_CIRCLE_MODE the machining characteristics						
(Traversing clockwise or anticlockwise on a circular path, internal or external machining;						
Limitations of the circle with or without taking the tool radius offset into account).						
- \$SC_JOG_CIRCLE_START_ANGLE defines the starting angle						
- \$SC_JOG_CIRCLE_END_ANGLE defines the end angle						
Unit	Init value		Min		Max	
-	FALSE		FALSE		TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TOFFR		Programmed tool radius offset			DOUBLE	
Description:						
\$P_TOFFR						
Programmed tool radius offset.						
The variable returns the tool radius offset programmed with TOFFR.						
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TOFFR		Programmed tool radius offset			DOUBLE	
Description:						
\$P_TOFFR						
Programmed tool radius offset.						
The variable returns the tool radius offset programmed with TOFFR.						
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_TOFFR		Programmed tool radius offset			DOUBLE	
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$AC_STOP_COND [10]		Events for the machining stop				INT	
Description: The field variable \$AC_STOP_COND[n] determines the events that led to machining stopping in the channel. The events are coded as positive numerical values in the field elements (see user documentation for meanings). The field element with the field index 0 corresponds to the highest priority event, higher indexed elements return correspondingly lower priority events. If the nth field element returns the value 0, this means that there are no further stop events.							
Index 1:		Maximum number of simultaneous stop conditions in a channel.					
Unit	Init value	Min			Max		
-	0	0			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified		

\$P_RELFRAME		Active system frame for relative coordinate systems				FRAME	
Description: The variable \$P_RELFRAME is used for programming the active system frame for relative coordinate systems. The system frame is configured in the following machine data: Bit 11 in \$MC_MM_SYSTEM_FRAME_MASK Bit 11 in \$MC_MM_SYSTEM_DATAFRAME_MASK Bit 11 in \$MC_CHSFRAME_RESET_MASK Bit 11 in \$MC_CHSFRAME_RESET_CLEAR_MASK Bit 11 in \$MC_CHSFRAME_POWERON_MASK							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$P_INCOAP_B [n]		Parameters for COA application				BOOL	
Description: Defining and return parameters of the COA application "Cutting generator".							
Index 1:		The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[0] can be used to scan the available array size.					
Unit	Init value	Min			Max		
-	FALSE	FALSE			TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-

3.2 Channel-specific system variables

\$P_INCOAP_B [n]		Parameters for COA application			BOOL	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_INCOAP_C [n]		Parameters for COA application			CHAR	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[1] can be used to scan the available array size.					
Unit	Init value	Min	Max			
-	0	0	CHAR_MAX			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_INCOAP_I [n]		Parameters for COA application			INT	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[2] can be used to scan the available array size.					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_INCOAP_R [n]		Parameters for COA application			DOUBLE	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[3] can be used to scan the available array size.					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_INCOAP_S16 [n]		Parameters for COA application			STRING	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[4] can be used to scan the available array size.					
Index 3:	The string must be terminated with \0. The maximum string length is 16 bytes including the terminating null character.					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_INCOAP_S32 [n]		Parameters for COA application			STRING	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[5] can be used to scan the available array size.					
Index 3:	The string must be terminated with \0. The maximum string length is 32 bytes including the terminating null character.					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_INCOAP_S160 [n]		Parameters for COA application			STRING	
Description: Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable \$P_INCOAP_SIZE[6] can be used to scan the available array size.					
Index 3:	The string must be terminated with \0. The maximum string length is 160 bytes including the terminating null character.					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$P_INCOAP_SIZE [n]		Size of parameter fields for COA application			INT	
Description:						
\$P_INCOAP_SIZE[] returns the currently available array size of the defining and return parameter \$P_INCOAP_<type> of the COA application "Cutting generator". The array size is variable, and is defined by the COA application during power-up.						
The following assignments apply:						
\$P_INCOAP_SIZE[0] returns the array size of \$P_INCOAP_B[]						
\$P_INCOAP_SIZE[1] returns the array size of \$P_INCOAP_C[]						
\$P_INCOAP_SIZE[2] returns the array size of \$P_INCOAP_I[]						
\$P_INCOAP_SIZE[3] returns the array size of \$P_INCOAP_R[]						
\$P_INCOAP_SIZE[4] returns the array size of \$P_INCOAP_S16[]						
\$P_INCOAP_SIZE[5] returns the array size of \$P_INCOAP_S32[]						
\$P_INCOAP_SIZE[6] returns the array size of \$P_INCOAP_S160[]						
Index 1:	Index: 0 - 6					
Unit	Init value	Min				Max
-	0	0				2147483647
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SMAXVELO [n]		Maximum possible spindle speed			DOUBLE	
Description:						
\$AC_SMAXVELO[n]						
n: Number of the spindle						
Maximum possible spindle speed						
The variable returns the maximum possible spindle speed for the spindle mode. This is taken from the lowest value of the active speed limitations, and cannot be exceeded by speed programming or override > 100%.						
A speed limitation is displayed by the VDI interface signal DB31...DBX83.1 'Setpoint speed limited' and by \$AC_SPIND_STATE, bit 10 (speed limitation active).						
The cause of the speed limitation can also be determined with the system variable \$AC_SMAXVELO_INFO.						
In oscillation mode (gear stage change), the variable returns the value for the spindle mode (speed-control mode).						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min				Max
rpm	0.0	0				1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_SMAXVELO_INFO [n]	Identifier for the speed-limiting data			INT		
Description:						
\$AC_SMAXVELO_INFO[n]						
n: Number of the spindle						
Identifier (info) for the speed limiting data (machine/setting data, etc.).						
The system variable is additional information to \$AC_SMAXVELO, and returns the definitive data as an identifier/index. The value read can be used to determine the speed limiting data from the following table.						
0 No limitation (SERUPRO)						
1 Maximum speed (chuck speed) of the spindle MD 35100 SPIND_VELO_LIMIT						
2 The speed is limited to the maximum speed in the current gear stage MD 35130 GEAR_STEP_MAX_VELO_LIMIT						
3 The speed is limited by position control to 90% of the lowest value contained in MD 35100 and MD 35130 (SPCON, SPOS, possibly with COUPON,...)						
4 The speed is limited by position control to MD 35135 GEAR_STEP_PC_MAX_VELO_LIMIT						
5 The speed is limited to SD 43220 SPIND_MAX_VELO_G26 (G26 S.. or preset by HMI)						
6 The speed is limited to MD 35160 SPIND_EXTERN_VELO_LIMIT because of set VDI interface signal DB31,...DBX3.6						
7 The speed is limited to SD 43230 SPIND_MAX_VELO_LIMS with constant cutting speed (G96, G961, G962, G97, LIMS)						
8 The speed is limited to safe speed (SS) by Safety Integrated						
9 The speed is limited by preparation calculations						
10 Limited to the maximum speed of the drive by drive parameter (e.g. SINAMICS p1082, p2000)						
11 The speed is limited to MD 36300 ENC_FREQ_LIMIT at functions that require a functioning measuring system, for example, with position control and G95, G96, G97, G973, G33, G34, G35 for the master spindle. The limitation takes into account the encoder speed, the master spindle arrangement (direct/indirect), the master spindle limiting frequency and the current parameter set						
12 The speed is limited by the axis mode. In the case of a synchronized spindle, axis mode is forced by the leading spindle.						
13 The speed of the overlaid motion of the following spindle is limited to the dynamics remaining after the coupling. A larger motion component of the overlaid motion can be achieved by reducing the leading spindle speed, for example, by programming G26 S, VELOLIM for the leading spindle or VELOLIMA for the following spindle. The coupling factor has to be taken into account.						
14 The speed of the leading spindle is limited by lack of dynamics of the following spindle or a high gear ratio						
15 The speed of the master spindle is limited to MD 35550 DRILL_VELO_LIMIT when tapping with G331, G332.						
16 The speed is limited by the programming of VELOLIM.						
17 The speed is limited by tool parameter \$TC_TP_MAX_VELO						
18 Not used						
19 Not used						
20 The speed is limited by the NCU link.						
21 The speed is limited by SD43235 SD_SPIND_USER_VELO_LIMIT, speed limited on the user side, e.g. by clamping device, chuck speed						
22 The speed is limited by the programming of VELOLIMA						
23 The speed is limited by the clamping state of the tool. If there is a Weiss spindle, the clamping state can be read from \$VA_MOT_CLAMPING_STATE[axn].						
In oscillation mode (gear stage mode), the variable returns the value for spindle mode (speed-control mode)						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min	Max			
-	0	0	17			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SMINVELO [n]		Minimum possible spindle speed			DOUBLE	
Description:						
\$AC_SMINVELO[n]						
n: Number of the spindle						
Minimum possible spindle speed						
The variable returns the minimum possible spindle for open-loop speed control mode. This is formed from the highest speed increase, and cannot be undershot by speed programming or override < 100%						
A speed increase is displayed by the VDI interface signal DB31...,DBX83.2 'Setpoint speed increased' and by \$AC_SPIND_STATE, bit 11 (setpoint speed increased).						
The cause of the increase in speed (machine or setting data, G code, VDI interface etc.) can also be determined with the system variable \$AC_SMINVELO_INFO.						
The increase in speed is effective only if the spindle is in open-loop speed control mode. The system variable always returns the definitive value for the open-loop speed control mode, even if the spindle is in positioning or axis mode.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
rpm	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AC_SMINVELO_INFO [n]		Identifier for the speed-raising data			INT	
Description:						
\$AC_SMINVELO_INFO[n]						
n: Number of the spindle						
Identifier (info) for the speed-increasing data (machine/setting data etc.).						
The system variable is additional information to \$AC_SMINVELO, and returns the speed-increasing data as an identifier/index for the speed control mode. The index can be used to determine the speed-increasing data from the following table.						
0 Not used						
1 Not used						
2 Lower speed limit (minimum speed) of the current gear stage MD 35140 GEAR_STEP_MIN_VELO_LIMIT						
3 Not used						
4 Not used)						
5 Lower speed limit (minimum speed) from SD 43210 SPIND_MIN_VELO_G25 (G25 S.. or preset by HMI)						
In oscillation mode (gear stage change) and in axis mode, the variable returns values from the spindle mode.						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_SMAXACC [n]	Effective acceleration of the spindle				DOUBLE	
Description:						
\$AC_SMAXACC[n]						
n: Number of the spindle						
Active acceleration of the spindle.						
The variable returns the active acceleration of the spindle for the spindle mode.						
\$AC_SPIND_STATE, bit 14 (spindle accelerating) is set for the duration of the acceleration to the defined setpoint speed.						
\$AC_SPIND_STATE, bit 15 (spindle braking) is set for the duration of the braking to the defined setpoint speed.						
The data defining the acceleration can be determined with the system variable \$AC_SMAXACC_INFO.						
In oscillation mode (gear stage change), the variable returns the value for the spindle mode (speed-control mode).						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
rps ²	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SMAXACC_INFO [n]	Identifier for the active spindle acceleration data	INT
<p>Description: \$AC_SMAXACC_INFO[n] n: Number of the spindle Identifier (info) for the machine data of the currently active spindle acceleration. The system variable is additional information to \$AC_SMAXACC, and returns the definitive data as an identifier/index. The index can be used to determine the active acceleration data from the following table. The number range is the same as that in the system variable \$AC_SMAX-VELO_INFO:</p> <p>0 No acceleration limitation (SERUPRO) 1 Not used 2 Acceleration in speed control mode without position control in the current gear stage MD 35200 GEAR_STEP_SPEEDCTRL_ACCEL 3 Not used 4 Acceleration in the current gear stage on account of position control MD 35210 GEAR_STEP_POSCTRL_ACCEL (SPCON, SPOS, possibly with COUPON,...) 5 Not used 6 Not used 7 Not used 8 Not used 9 Acceleration limited by the preparation calculations 10 Not used 11 Not used 12 Acceleration limited by axis mode. In the case of a synchronized spindle, axis mode is forced by the leading spindle. 13 Acceleration of the overlaid motion of the following spindle is limited to the dynamics remaining after the coupling. 14 Acceleration of the leading spindle is limited by lack of dynamics in the following spindle or a high gear ratio 15 Acceleration of the master spindle MD 35212 GEAR_STEP_POSCTRL_ACCEL2 while tapping with G331, G332 (only with corresponding configuration of the second data record) 16 Acceleration limited by programming of ACC or ACCFXS (synchronized action) 17 Acceleration limited by tool parameter \$TC_TP_MAX_ACCEL 18 Not used 19 MD 32301 MA_JOG_MAX_ACCEL limits the acceleration in JOG mode. 20 Acceleration limited by NCU link. 21 Not used 22 Acceleration limited by programming of ACCLIMA 23 Not used</p> <p>In oscillation mode (gear stage change), the variable returns the value for spindle mode (speed-control mode).</p>		
Index 1:	n: Spindle number (0 ... max. spindle number)	
Unit	Init value	Min
-	0	0
		17
Read/Write properties:		
	TP	SA
Read:	runin stp	X
Write:	-	-
Axis entry:		
Scan mode:	Not classified	
		TP/SA safety
		7
		0
		NC-Variable
		X
		-
		Safety
		7
		0
		OEM-CC
		X
		-
		Overlap channel:
		Cross-channel
		Link:
		Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_SPIND_STATE [n]	Status of the spindle in speed control mode	INT
Description:		
\$AC_SPIND_STATE[n]		
n: Number of the spindle		
The variable \$AC_SPIND_STATE returns the selected states of the spindle. For positioning and axis mode, the variable \$AA_IN-POS_STATE[Sn] can also be read.		
Bit 0: "Constant cutting speed active" (VDI interface signal DB31...,DBX84.0)		
Bit 1: "GWPS active" (VDI interface signal DB31...,DBX84.1)		
Bit 2: "CLGON active" (VDI interface signal DB31...,DBX84.2)		
Bit 3: "Tapping without compensating chuck" (VDI interface signal DB31...,DBX84.3)		
Bit 4: "Synchronous mode" (following spindle with synchronous spindle coupling) (VDI interface signal DB31...,DBX84.4)		
Bit 5: "Positioning mode" (VDI interface signal DB31...,DBX84.5)		
Bit 6: "Oscillation mode" (gear stage change) (VDI interface signal DB31...,DBX84.6)		
Bit 7: "Open-loop speed control mode" (VDI interface signal DB31...,DBX84.7)		
Bit 8: "Spindle programmed" (e.g. M3, M4 S., FC18, ...) (VDI interface signal DB31...,DBX64.4/5 or 6/7)		
Bit 9: "Speed limit exceeded" (VDI interface signal DB31...,DBX83.0)		
Bit 10: "Setpoint speed limited" (VDI interface signal DB31...,DBX83.1) active if, as a result of programming or override, the speed would exceed the maximum possible speed (\$AC_SMAXVELO)		
Bit 11: "Setpoint speed increased" (VDI interface signal DB31...,DBX83.2) active when, as a result of programming or override, the speed would fall below the minimum possible speed (system variable \$AC_SMINVELO)		
Bit 12: "Spindle in setpoint range" (VDI interface signal DB31...,DBX83.5)		
Bit 13: "Actual direction of rotation right" (VDI interface signal DB31...,DBX83.7)		
Bit 14: "Spindle accelerates" is active as long as the spindle is accelerating to the defined setpoint speed on the setpoint side.		
Bit 15: "Spindle brakes" is active as long as the spindle is braking to the defined setpoint speed or to a stop on the setpoint side.		
Bit 16: "Spindle stationary" (VDI interface signal DB31...,DBX61.4)		
Bit 17: "Tool with dynamic limitation active" (VDI interface signal DB31...,DBX85.0)		
Bit 18: Reserved		
Bit 19: "Spindle in position" (VDI interface signal DB31...,DBX85.5)		
Bit 20: "Position control active" (VDI interface signal DB31...,DBX61.5)		
Bit 21: "Referenced/synchronized 1" (VDI interface signal DB31...,DBX60.4)		
Bit 22: "Referenced/synchronized 2" (VDI interface signal DB31...,DBX60.5)		
Bit 23: The direction of rotation of the spindle is inverted due to the VDI interface signal "Invert M3/M4 " (DB31...,DBX17.6)		
Index 1:	n: Spindle number (0 ... max. spindle number)	
Unit	Init value	Min
-	0	0
		16777215
Read/Write properties:		
	TP	SA
Read:	runin stp	X
Write:	-	-
Axis entry:		
Scan mode:	Not classified	
	TP/SA safety	NC-Variable
	7	X
	0	-
		Safety
		7
		0
	Overlap channel:	Cross-channel
	Link:	Not classified

3.2 Channel-specific system variables

\$P_ISO2_HNO [n]		H number in ISO2 mode			INT	
Description:						
Contains the offset numbers of H selected for the 3 geometry dimensions. (Tool length offset) Indexing corresponding to \$P_TOOLL[n]. Value = -1: H99 is programmed, or it has been activated in Siemens mode D1. = -2: A D>2 has been programmed in Siemens mode = -3: It cannot be activated in ISO2 mode.						
Index 1:	Geometry index of the tool length compensation					
Unit	Init value	Min			Max	
-	0	-3			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_ISO2_DNO		D number in ISO2 mode			INT	
Description:						
Contains the offset number D selected for the radius Value = -1: H99 is programmed, or it has been activated in Siemens mode D1. = -2: A D>2 has been programmed in Siemens mode = -3: It cannot be activated in ISO2 mode.						
Unit	Init value	Min			Max	
-	0	-3			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_ISO3_DNO		D number in ISO3 mode			INT	
Description:						
Contains the offset number of H selected for ISO3 mode Value = -1: H99 is programmed, or it has been activated in Siemens mode D1. = -2: A D>2 has been programmed in Siemens mode = -3: It cannot be activated in ISO2 mode.						
Unit	Init value	Min			Max	
-	0	-3			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$AC_PREP_ACT_LOAD		Current preprocessing runtime			DOUBLE	
Description: The variable \$AC_PREP_ACT_LOAD returns the current preprocessing runtime in the channel.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PREP_MAX_LOAD		Longest preprocessing runtime			DOUBLE	
Description: The variable \$AC_PREP_MAX_LOAD returns the longest net preprocessing runtime in the channel.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PREP_MIN_LOAD		Shortest preprocessing runtime			DOUBLE	
Description: The variable \$AC_PREP_MIN_LOAD returns the shortest net preprocessing runtime in the channel.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PREP_ACT_LOAD_GROSS		Current preprocessing runtime			DOUBLE	
Description: The variable \$AC_PREP_ACT_LOAD_GROSS returns the current gross preprocessing runtime in the channel.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-

3.2 Channel-specific system variables

\$AC_PREP_ACT_LOAD_GROSS	Current preprocessing runtime				DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_PREP_MAX_LOAD_GROSS	Longest preprocessing runtime				DOUBLE	
Description:						
The variable \$AC_PREP_MAX_LOAD_GROSS returns the longest gross preprocessing runtime in the channel.						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_PREP_MIN_LOAD_GROSS	Shortest preprocessing runtime				DOUBLE	
Description:						
The variable \$AC_PREP_MIN_LOAD_GROSS returns the shortest, gross preprocessing runtime in the channel.						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_IPO_STATE	Status identifier of active functions				INT	
Description:						
\$AC_IPO_STATE						
The variable returns selected information about whether specific functions are active:						
Bit 0: Free-form surfaces mode is active						
Bit 1: Compressor active						
Bit 2: Vector interpolation (e.g. large circle interpolation) is active for tool orientation						
Bit 3: Reserved for smoothing						
Note:						
This variable can only be read in synchronized actions, and not directly in the part program.						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_IPO_STATE		Status identifier of active functions			INT
Axis entry:				Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified

\$AC_CTOL		Active contour tolerance			DOUBLE	
Description: \$AC_CTOL defines the contour tolerance for compressors and smoothing with which the current main run block was prepared.						
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_OTOL		Active orientation tolerance			DOUBLE	
Description: \$AC_OTOL defines the orientation tolerance for compressors and smoothing with which the current main run block was prepared.						
Unit	Init value	Min		Max		
deg.	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_CTOL		Programmed contour tolerance			DOUBLE	
Description: \$P_CTOL states the contour tolerance for compressors and smoothing programmed with CTOL in the part program. If no value is programmed, the variable returns -1.						
Unit	Init value	Min		Max		
mm	0.0	-1.0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_OTOL		Programmed orientation tolerance			DOUBLE
Description: \$P_OTOL states the orientation tolerance for compressors and smoothing programmed with OTOL in the part program. If no value is programmed, the variable returns -1.					
Unit	Init value	Min		Max	
deg.	0.0	-1.0		1.8E+308	
Read/Write properties:					

3.2 Channel-specific system variables

\$P_OTOL		Programmed orientation tolerance			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_FGROUP_MASK		Bit-coded value of axes that contribute to the path velocity			INT	
Description:						
The variable returns a bit-coded value of channel axes programmed with the FGROUP command that contribute to the path velocity.						
Unit	Init value	Min			Max	
-	0	0			0xFFFF	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_FGROUP_MASK		Bit-coded mask of axes that contribute to the path velocity			INT	
Description:						
The variable returns a bit-coded value from programmed channel axes that contribute to the path velocity via the FGROUP command.						
Unit	Init value	Min			Max	
-	0	0			0xFFFF	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_EXT [168]		Extension of the active auxiliary function			INT	
Description:						
The array variable \$AC_AUXFU_EXT[n] is used to read the extension of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the extension of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value -1. The associated value of the auxiliary function can be determined by the variable \$AC_AUXFU_VALUE[n]. The variable \$AC_AUXFU_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_AUXFU_STATE [168]	Output status of the active auxiliary function					INT
Description:						
The array variable \$AC_AUXFU_STATE[n] is used to read the output status of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the status of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value 0. If the value is greater than zero, then the value of the associated auxiliary function can be determined by the variable \$AC_AUXFU_VALUE[n]. The variable \$AC_AUXFU_EXT[n] determines the current extension of the auxiliary function.						
The variable returns the following values						
0: Auxiliary function not available						
1: Auxiliary function has been collected by means of a search run						
2: Auxiliary function has been output to the PLC						
3: Auxiliary function has been output to the PLC and the transport acknowledgement has been made.						
4: Auxiliary function has been accepted is being managed by the PLC.						
5: Auxiliary function is being managed by the PLC and the function acknowledgement has been made.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_VALUE [168]	Value of the active auxiliary function					DOUBLE
Description:						
The array variable \$AC_AUXFU_VALUE[n] is used to read the value of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the value of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value -1. The associated extension can be determined by the variable \$AC_AUXFU_EXT[n]. The variable \$AC_AUXFU_STATE[n] determines the current output status.						
The variable \$AC_AUXFU_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0.0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_AUXFU_TICK [168,2]		Output counter of the active auxiliary function			INT	
Description:						
The array variable \$AC_AUXFU_TICK[groupIndex, n] is used to read the three output counters of the last auxiliary function collected for an auxiliary function group (search run) or output.						
The variable is changed each time an auxiliary function is changed.						
n = 0: Output sequence counter (all outputs within one IPO cycle)						
n = 1: Package counter within an output sequence in the interpolation cycle						
n = 2: Auxiliary function counter within a package						
An auxiliary function package consists of a maximum of 10 auxiliary functions. Two packages per channel can be executed in each IPO cycle during SERUPRO. An output sequence of up to 20 packages can be executed through all channels in one IPO cycle.						
All the auxiliary functions collected in one IPO cycle have the same sequence counter.						
All the auxiliary functions collected in one package (block or synact) have the same package counter.						
The auxiliary function counter is incremented for each auxiliary function collected.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Index 2:	The index corresponds to the counter type					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AC_AUXFU_TYPE [168]		Types of active auxiliary function			CHAR	
Description:						
The array variable \$AC_AUXFU_TYPE[n] is used to read the types M, H, S, T, D, F, L of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the types of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value "". The associated value of the auxiliary function can be determined by the variable \$AC_AUXFU_VALUE[n]. The variable \$AC_AUXFU_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.2 Channel-specific system variables

\$AC_AUXFU_PREDEF_INDEX [168]	Predefined index of the active auxiliary function			INT		
Description:						
The array variable \$AC_AUXFU_PREDEF_INDEX[n] is used to read the predefined index of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The array index corresponds to the group number decremented by one. The index 0 thus determines the predefined index of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group or if the auxiliary function is a user-defined auxiliary function, then the variable returns the value -1. The associated value of the auxiliary function can be determined by the variable \$AC_AUXFU_VALUE[n]. The variable \$AC_AUXFU_STATE[n] determines the current output status.						
Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Unit	Init value	Min	Max			
-	0	-1	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_AUXFU_SPEC [168]	Output specification of the active auxiliary function			INT
Description:				
The array variable \$AC_AUXFU_SPEC[n] is used to read the output specification corresponding to \$MC_AUXFU_PREDEF_SPEC[n], \$MC_AUXFU_ASSIGN_SPEC[n] of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the specification of the last output auxiliary function of the 1st group. The associated value of the auxiliary function can be determined by the variable \$AC_AUXFU_VALUE[n]. The variable \$AC_AUXFU_STATE[n] determines the current output status.				
The output specification is bit-coded:				
Bit 0 = 1 acknowledgment "normal" after an OB1 cycle				
Bit 1 = 1 acknowledgment "quick" with OB40				
Bit 2 = 1 No predefined auxiliary function				
Bit 3 = 1 No output to the PLC				
Bit 4 = 1 Spindle reaction after acknowledgement by the PLC				
Bit 5 = 1 Output before the motion				
Bit 6 = 1 Output during the motion				
Bit 7 = 1 Output at end of block				
Bit 8 = 1 No output after block search types 1, 2, 4				
Bit 9 = 1 Collection during block search type 5 (SERUPRO)				
Bit 10 = 1 No output during block search type 5 (SERUPRO)				
Bit 11 = 1 Cross-channel auxiliary function (SERUPRO)				
Bit 12 = 1 Output via synchronized action				
Bit 13 = 1 Implicit auxiliary function				
Bit 14 = 1 Active M01				
Bit 15 = 1 No output during running-in test				
Bit 16 = 1 Nibbling off				
Bit 17 = 1 Nibbling on				
Bit 18 = 1 Nibbling				
Index 1:	The index corresponds to the auxiliary function group number decremented by one.			
Unit	Init value	Min	Max	
-	0	-2147483648	2147483647	
Read/Write properties:				

3.2 Channel-specific system variables

\$AC_AUXFU_SPEC [168]		Output specification of the active auxiliary function			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$P_TRAFRAME_P		Frame of the workpiece component of an active orientation transformation			FRAME	
Description:						
This variable returns the frame, which describes the current rotation and offset of the workpiece part of an active kinematic orientation transformation.						
Here, workpiece part means the kinematic chain defined between machine zero and workpiece reference point.						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_TRAFRAME_T		Frame of the workpiece component of an active orientation transformation			FRAME	
Description:						
This variable returns the frame, which describes the current rotation and offset of the tool part of an active kinematic orientation transformation.						
Here, tool part means the kinematic chain defined between machine zero and tool reference point.						
Unit	Init value	Min		Max		
-						
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_FZ		Programmed tooth feed			DOUBLE	
Description:						
The variable \$P_FZ is used to read the last programmed tooth feed FZ.						
Unit	Init value	Min		Max		
mm/min	0	2.2E-308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_FZ		Active programmed tooth feed			DOUBLE	
Description: The variable \$AC_FZ is used to read the active programmed tooth feed FZ.						
Unit	Init value	Min			Max	
mm/min	0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_F_TYPE		Types of programmed feed			INT	
Description: The variable \$P_F_TYPE is used to read the type of the last programmed feed.						
Unit	Init value	Min			Max	
-	0	ICFEED_METRIC_TIME			ICFEED_INCH_TEETH	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_F_TYPE		Types of active programmed feed			INT	
Description: The variable \$AC_F_TYPE is used to read the type of the active programmed feed.						
Unit	Init value	Min			Max	
-	0	0			31	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SVC [1]		Programmed cutting speed			DOUBLE	
Description: The variable \$P_SVC[n] is used to read the last programmed cutting speed SVC. n: Number of the spindle						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
mm/min	0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-

3.2 Channel-specific system variables

\$P_SVC [1]		Programmed cutting speed			DOUBLE	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SVC [1]		Active programmed cutting speed			DOUBLE	
Description:						
The variable \$AC_SVC is used to read the active programmed cutting speed SVC.						
n: Number of the spindle						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
mm/min	0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_S_TYPE [1]		Type of spindle programming			INT	
Description:						
The variable \$P_S_TYPE is used to read the type of spindle programming.						
0 Spindle not programmed						
1 Spindle speed S in rpm						
2 Cutting speed SVC in m/min or ft/min						
3 Constant cutting speed S in m/min or ft/min						
4 Constant grinding wheel peripheral speed S in m/s or ft/s						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			31	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_S_TYPE [1]		Types of active spindle programming			INT	
Description:						
The variable \$P_S_TYPE is used to read the active type of spindle programming.						
0 Spindle not programmed						
1 Spindle speed S in rpm						
2 Cutting speed SVC in m/min or ft/min						
3 Constant cutting speed S in m/min or ft/min						
4 Constant grinding wheel peripheral speed S in m/s or ft/s						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			31	

List of system variables

3.2 Channel-specific system variables

\$AC_S_TYPE [1]		Types of active spindle programming				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$VC_SGEAR [n]		Currently activated spindle gear stage				INT
Description:						
The variable \$VC_SGEAR[spino] determines the currently activated spindle gear stage. \$AC_SGEAR[spino] determines the set gear stage in the main run. In the case of the search run, the actual gear stage can vary from the set gear stage, as a gear stage change cannot take place during the search run. Using \$VC_SGEAR[spino] and \$AC_SGEAR[spino], it can be checked whether a gear stage change should take place following a search run.						
The following values are possible:						
1: 1. Gear stage is active						
....						
5: 5. Gear stage is active						
Index 1:	0 ... max. spindle number					
Unit	Init value	Min			Max	
-	0	1			5	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ORI_POS [2,3]		Positions of the orientation axes in the case of orientation programming				DOUBLE
Description:						
The angles of the orientation axes, which result from orientation programming.						
In this case, the first index (0 or 1) refers to the solution, whereas the second index (0..2) refers to the orientation axis, see also \$P_ORI_SOL and \$P_ORI_STAT.						
When the function ORISOLH is called in the mode "Direct tool alignment", the variables \$P_ORI_POS[0 /1, 1] and P_ORI_POS[0 /1, 2] contain the values of the two angles BETA und GAMMA belonging to both solutions.						
Index 1:	Index of the solution					
Index 2:	Index of the orientation axis					
Unit	Init value	Min			Max	
-	0.0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_ORI_DIFF [2,3]		Deviation of axis positions from theor. value in the case of orientation progr.		DOUBLE		
Description:						
The difference between the exact positions of the orientation axes and those provided in \$P_ORI_POS, which result from orientation programming.						
The content may be unequal to zero only if the positions are gridded (Hirth tooth system), i.e if the system data \$NT_HIRTH_INCR of the affected axis is unequal to zero and if this axis is a manual rotary axis.						
In this case, the first index (0 or 1) refers to the solution, whereas the second index (0..2) refers to the orientation axis, see also \$P_ORI_SOL.						
Index 1:	Index of the solution					
Index 2:	Index of the orientation axis					
Unit	Init value	Min			Max	
-	0.0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_ORI_SOL		Number of solutions in the case of orientation programming		INT		
Description:						
If the axis positions are calculated for an orientation transformation with more than one orientation axis which should result in a specified orientation, there is generally more than one solution.						
This system data contains the number of valid solutions together with additional status information.						
The content of \$P_ORI_SOL is coded as follows:						
Negative values: General error states.						
-1: No solutions have been calculated for the active transformation (missing call of ORISOL).						
-2: No transformation is active or the active transformation is not an orientation transformation, which is able to return positions for a specified orientation programming.						
-5: On calling ORISOLH for "Swivel direct", no solution was found.						
-6: On calling ORISOLH for "Swivel direct", the angle GAMMA was too large.						
-7: On calling ORISOLH for "Swivel direct", an angle was specified that could not be set because of the Hirth tooth system.						
Units digit: Number of mathematically possible solutions without considering axis limits and possible error conditions.						
0: A solution does not exist, i.e. the required orientation cannot be set.						
1: One solution exists.						
2: Two solutions exist.						
9: An infinite number of solutions exist, i.e. the position of at least one orientation axis is not specified. The unspecified axis can be determined from the hundreds digit or from the system variable \$P_ORI_STAT.						
Tens digit: Bit-coded display for violated axis limits. The exact cause of the error can be determined from the system variable \$P_ORI_STAT.						
Bit 0 (value 10): At least one axis limit of the 1st orientation axis is violated for at least one solution.						
Bit 1 (value 20): At least one axis limit of the 2nd orientation axis is violated for at least one solution.						
Bit 2 (value 40): At least one axis limit of the 3rd orientation axis is violated for at least one solution.						
Hundreds digit: Bit-coded display for non-defined axis positions (can only occur if there are an infinite number of solutions, i.e. if the units digit is equal to 9).						
Bit 0 (value 100): The position of the 1st orientation axis is not defined.						
Bit 1 (value 200): The position of the 2nd orientation axis is not defined.						
Bit 2 (value 400): The position of the 3rd orientation axis is not defined.						
The identifiers 1st, 2nd and 3rd orientation axis refer to the definition of the axes in the transformation data \$NT_ROT_AX_NAME.						
Unit	Init value	Min			Max	

List of system variables

3.2 Channel-specific system variables

\$P_ORI_SOL		Number of solutions in the case of orientation programming		INT	
-	0	-2147483648		2147483647	
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	-	0
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_ORI_STAT [ORIDIM]		Status of the orientation axes		INT	
Description:					
<p>The system variable contains the status of each orientation axis following the call of ORISOL.</p> <p>The index n of \$P_ORI_STAT[n] corresponds to the index of the affected orientation axis in the transformation data \$NT_ROT_AX_NAME[n].</p> <p>The content of \$P_ORI_SOL is coded as follows:</p> <p>Negative values: General error states.</p> <p>-1: The status is not defined (missing call of ORISOL).</p> <p>-2: No transformation is active or the active transformation is not an orientation transformation, which is able to return positions for a specified orientation programming.</p> <p>-3: The axis is not contained in the active transformation.</p> <p>-4: The position of the axis cannot be calculated, because the desired orientation cannot be achieved with the specified kinematics, even with any assumed traversing range of the axis.</p> <p>-5: On calling the function ORISOLH for "Swivel direct", axis positions were specified in such a way that either the orientation vector or the orientation normal vector of the tool was aligned parallel to the first orientation axis, the position of which is to be calculated. In these cases, the position of this axis is not defined.</p> <p>-6: On calling ORISOLH for "Swivel direct", the angle GAMMA was too large.</p> <p>-7: On calling ORISOLH for "Swivel direct", an angle was specified that could not be set because of the Hirth tooth system.</p> <p>-8: The first orientation axis must not be parameterized as a Hirth axis.</p> <p>-9: Both the second and third rotary axes are parameterized as Hirth axes. A maximum of only one of the two axes may be a Hirth axis.</p> <p>-10: No adaptation to the Hirth tooth system was found.</p> <p>Units digit: Bit-coded display for violated axis limits of the first solution.</p> <p>Bit 0 (value 1): The first solution violates the lower axis limit.</p> <p>Bit 1 (value 2): The first solution violates the upper axis limit.</p> <p>Tens digit: Bit-coded display for violated axis limits of the second solution.</p> <p>Bit 0 (value 10): The second solution violates the lower axis limit.</p> <p>Bit 1 (value 20): The second solution violates the upper axis limit.</p> <p>Hundreds digit: Displays a non-defined axis position.</p> <p>Bit 0 (value 100): The position of the orientation axis is not defined, i.e. the required orientation is achieved through any setting of the rotary axis (pole setting). This information is also contained the system variable \$P_ORI_SOL.</p> <p>Several fault codes, which display violation of the axis limits, can occur simultaneously. As, in the case of violation of an axis limit, an attempt is made to achieve a position within the permitted axis limits by adding or subtracting multiples of 360 degrees, if this is not possible - it is not clearly defined, whether the lower or upper axis limit was violated.</p> <p>If a solution is not available for the desired orientation (\$P_ORI_SOL equals 0), the status of the orientation axes contained in the transformation is 0.</p>					
Index 1:	--				
Unit	Init value	Min		Max	
-	0	-2147483648		2147483647	
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	-	0
Write:	-	-	0	-	0

3.2 Channel-specific system variables

\$P_ORI_STAT [ORIDIM]		Status of the orientation axes			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_MTOOLN		Number of defined Multitools				INT
Description: \$P_MTOOLN Number of defined Multitools, which are assigned to the channel OPI block type= MTV						
Unit	Init value	Min			Max	
-	0	-2			1500	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MTOOLMT [1500]		Multitool number			INT	
Description: \$P_MTOOLMT[i] i-te Multitool number OPI block type= MTV						
Index 1:	i-th multitool, with i= 1,..., \$P_MTOOLN					
Unit	Init value	Min			Max	
-	0	-2			1500	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MTOOLNT [32000]		Number of tools in Multitool			INT	
Description: \$P_MTOOLNT Number of tools in Multitool						
Index 1:	Number of the multitool; 1,..., SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-3			72	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_MTOOLT [32000,72]		T number of the i-th tool in MT			INT	
Description: \$P_MTOOLT T number of the i-th tool in Multitool						
Index 1:	Number of the multitool; 1,..., SLMAXTOOLNUMBER					
Index 2:	i-th tool in the multitool, with i= 1,..., \$P_MTOOLT					
Unit	Init value	Min			Max	
-	0	-2			1500	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$A_MYMTN [32000]		MT number of the proprietary multitool of a tool			INT	
Description: \$A_MYMTN[t] MT number of the proprietary multitool of the tool with the T no. t. > 0 The tool with the T number t is a multitool with the MT number = 0 The tool with the T number t is not a multitool = -1 TMMG function inactive = -2 Multitool function inactive = -3 t is not WZ_T_Nr.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-3			32000	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$A_TOOLMTN [32000]		-			INT	
Description: \$A_TOOLMTN[t] Multitool number of tool t						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-3			32000	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$A_MYMTLN [32000]		-		INT		
Description:						
\$A_MYMTLN[t]						
Number of the proprietary Multitool tool location with the T No. t.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	-3		32000		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$A_TOOLMTLN [32000]		-		INT		
Description:						
\$A_TOOLMTLN[t]						
Multitool location number of tool t						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	-3		32000		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TC_TOOLIS		Is a simple tool or a Multitool transported?				INT
Description:						
\$AC_TC_TOOLIS						
-1: At the time of reading, no tool command is active.						
0: the transported tool is an individual tool.						
1: the transported tool is an MT with a location number as distance coding.						
2: the transported tool is an MT with length distance as distance coding.						
3: the transported tool is an MT with angle distance as distance coding.						
Unit	Init value	Min		Max		
-	-1	-1		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_TC_MTDIST		Distance between tool in Multitool and the reference point			DOUBLE	
Description:						
\$AC_TC_MTDIST						
Distance between tool in Multitool and the reference point.						
-1.0: At the time of reading, no tool management command is active.						
Unit	Init value	Min			Max	
-	0	-1.0			1000.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_MTNLOC		Number of locations for tool change and tool transport contained in the MT			INT	
Description:						
\$AC_TC_MTNLOC						
Number of locations for tool change and tool transport contained in the MT.						
-1: At the time of reading, no tool management command is active.						
0: The new tool of the command at the PLC is a single tool.						
>=2: The new tool of the command at the PLC is an MT with the specified number of locations.						
Unit	Init value	Min			Max	
-	-1	-1			72	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_MTTN		Number of the Multitool with the new tool			INT	
Description:						
\$AC_TC_MTTN						
Number of the Multitool with the new tool						
-1: At the time of reading, no tool management command is active.						
0: The new tool of the command at the PLC is a single tool.						
>0: The new tool of the command at the PLC is an MT with this number.						
Unit	Init value	Min			Max	
-	-1	-1			32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TC_MTLTN		Number of the Multitool location with the new tool			INT	
Description:						
\$AC_TC_MTLTN						
Number of the Multitool location with the new tool.						
-1: At the time of reading, no tool management command is active.						
0: The new tool of the command at the PLC is a single tool.						
>0: MT location number of the target location of the new tool.						
Unit	Init value	Min			Max	
-	-1	-1			32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$AC_PRTIME_B		Program runtime per block			DOUBLE	
Description:						
The variable \$AC_PRTIME_B "ProgramRunTIME-Block" determines the program runtime per block.						
During the simulation, the anticipated processing time of the blocks in the part program is calculated, and made available in this system variable and the OPI variable 'acPRTIMEB'.						
Unit	Init value	Min			Max	
-	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$AC_STOLF		Active G00 tolerance factor			DOUBLE	
Description:						
\$AC_STOLF names the G00 tolerance factor for compressors and smoothing, which was used to prepare the current main run record.						
If a G00 toleranz factor is not programmed with STOLF = <...>, the value of machine data \$MC_G0_TOLERANCE_FACTOR is read.						
If rapid traverse (G00) is not active, this variable will return the value 1.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_STOLF		Programmed G00 tolerance factor			DOUBLE	
Description:						
<p>\$P_STOLF names the G00 tolerance factor, which is programmed with STOLF in the part program for compressors and smoothing. If a value is not programmed, the variable returns the value of MD \$MC_G0_TOLERANCE_FACTOR. If fast motion (G00) is not active, this variable returns the value 1.</p>						
Unit	Init value	Min			Max	
-	0.0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_TMNOIS [32000]		Actual number, T number, magazine number or MT number			INT	
Description:						
<p>\$P_TMNOIS[t] 3 = Index is the number of a defined tool and the number of a defined magazine 2 = Index is the number of a defined magazine 1 = Index is the T number of a defined tool 0 = Index is the MT number of a defined Multitool -3 = invalid index. Is neither the number of a tool nor the number of a Multitool.</p>						
Index 1:	The T number or MT number of a defined tool or multitool.					
Unit	Init value	Min			Max	
-	-3	-3			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_BLOCK_PROGINFO		Block information			INT	
Description:						
<p>The variable \$AC_BLOCK_PROGINFO returns information about the current main run block. The variable is bit-coded. Bit 0: Block is end of main program (M02, M17, M30 or RET(ASUB)) Bit 1: Block is end of subprogram Bit 2: Block is last initializing block</p>						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

3.2 Channel-specific system variables

\$AC_BLOCK_PROGINFO	Block information			INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: Not classified

\$P_WP_STAT	Error status after calling the WORKPIECE process			INT		
Description:						
Contains the error status of the last call of the WORKPIECE process						
The variable is coded as follows:						
0: No error occurred when the function was called.						
1: There is no memory space available for creating a workpiece protection zone.						
2: The name of the specified kinematic chain was not found.						
3: The name of the specified kinematic chain link was not found.						
4: An invalid frame name was specified (only the identifiers of programmable frames are allowed).						
5: The specified protection zone type cannot be interpreted by the NCK.						
6: Invalid name of the workpiece protection zone. Workpiece protection zones must start with __WORKP.						
7: No protection zone definition with the specified name was found.						
8: Reserved (error code not assigned).						
9: Reserved (error code not assigned).						
10: No protection zone type specified.						
11: Less than three parameters were specified for the protection zone type "Box".						
12: Less than two parameters were specified for the protection zone type "CYLINDER".						
-						
The error status is reset to 0 on Reset, but it is only changed when the WORKPIECE process is called again.						
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_FIX_STAT		Error status after calling the Fixture procedure			INT
Description:					
Contains the error status of the last call of the FIXTURE process					
The variable is coded as follows:					
0: No error occurred when the function was called.					
1: There is no memory space available for creating a workholder protection zone.					
2: The name of the specified kinematic chain was not found.					
3: The name of the specified kinematic chain link was not found.					
4: An invalid frame name was specified (only the identifiers of programmable frames are allowed).					
5: The specified protection zone type cannot be interpreted by the NCK.					
6: Reserved (error code not assigned).					
7: No protection zone definition with the specified name was found.					
8: The name of the workholder protection zone was not specified.					
9: Invalid name of workholder protection zone. Workholder protection zones must start with __FIXTURE.					
10: No protection zone type specified.					
11: Less than three parameters were specified for the protection zone type "Box".					
12: Less than two parameters were specified for the protection zone type "CYLINDER".					
-					
The error status is reset to 0 on Reset, but it is only changed when the FIXTURE process is called again.					
Unit	Init value	Min			Max
-	0	-2147483648			2147483647
Read/Write properties:					
	TP	SA	TP/SA safety	NC-Variable	Safety
Read:	X	-	7	X	7
Write:	-	-	0	-	0
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$PC_TRAFO_ROT_CHAIN_INDEX [2]		Index of the i-th rotary axis in the kinematic chain			INT
Description:					
Supplies the position of a rotary axis (orientation axis) in the internal representation of a transformation.					
The position of the orientation axis is defined as follows:					
If one runs through the kinematic forces of an active transformation from the table to the tool, then the first orientation axis receives index 0, the second orientation axis index 1 etc.					
It makes (presently) sense only to apply this system variable if an orientation transformation is active with specified kinematic chains. if this requirement is not met, the return value is -1.					
Exampe:					
\$NT_ROT_AX_NAME[n, 0] = "ORI_TOOL"					
\$NT_ROT_AX_NAME[n, 1] = "ORI_PART"					
\$NT_ROT_AX_NAME[n, 2] = ""					
If "ORI_TOOL" - as the name implies - rotates the tool and "ORI_PART" the workpiece, one receives the following values as a result from reading out \$PC_TRAFO_ROT_CHAIN_INDEX:					
_INDEX = \$PC_TRAFO_ROT_CHAIN_INDEX[0] = 1 ; _INDEX = 1, since the first orientation axis is the second orientation axis in the kinematic chain.					
_INDEX = \$PC_TRAFO_ROT_CHAIN_INDEX[1] = 0 ; _INDEX = 0, since the second orientation axis is the first orientation axis in the kinematic chain.					
_INDEX = \$PC_TRAFO_ROT_CHAIN_INDEX[2] = -1 ; _INDEX = -1 since no third orientation axis is defined (5-axis transformation).					
Index 1:	Array index i points to the corresponding entry in the system variable \$NT_ROT_AX_NAME[n, i]				

3.2 Channel-specific system variables

\$PC_TRAFO_ROT_CHAIN_INDEX [2]		Index of the i-th rotary axis in the kinematic chain			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$PC_TRAFO_ROT_CHAN_AX_IN [2]		Channel axis of the n-th rotary axis of a transformer			AXIS	
Description:						
Supplies the channel axis identifier of the i-th rotary axis (orientation axis) in the internal representation of a transformation.						
The i-th orientation axis is defined as follows:						
If one runs through the kinematic chain of an active transformation from workpiece to tool, the first orientation axis will receive index 0, the second orientation axis index 1 etc.						
Index i can be determined with the help of system variable \$PC_TRAFO_ROT_CHAIN_INDEX from the entry in system date \$NT_ROT_AX_NAME[n, j].						
Example						
:						
DEF AXIS B_AX_CHAN						
DEF INT CHAIN_INDEX						
.						
.						
\$NT_ROT_AX_NAME[n, 0] = "ROT_TOOL_B" ; refers e.g. to a kinematic chain element describing machine axis B11.						
.						
.						
TRAFOON("ORI_TRAFO_TEST") ; activate orientation transformation						
CHAIN_INDEX = \$PC_TRAFO_ROT_CHAIN_INDEX[0] ; supplies e.g. value 1 if B11 rotates the tool in a 5-axis transformation.						
B_AX_CHAN = \$PC_TRAFO_ROT_CHAN_AX[CHAIN_INDEX] ; determine channel axis identifier of machine axis B11						
G0 AX[B_AX_CHAN] = 45. ; traverse axis as a channel axis						
It only makes sense (presently) to apply this system variable if the orientation transformation is active. If this requirement is not met, alarm 14782 will be output.						
Index 1:	Array index i points to the position of the axis in the internal representation of a kinematic chain for describing a kinematic transformation.					
Unit	Init value	Min			Max	
-	0					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$PC_TRAFO_ROT_CHAN_AX_EX [2]	Channel axis of the n-th rotary axis of a transformer				AXIS	
Description:						
Supplies the channel axis identifier of the rotary axis (orientation axis) defined in the transformation data \$NT_ROT_AX_NAME[n, i] of the currently active transformation.						
Is the currently active orientation transformation not defined with the help of kinematic chains, then the return value of this system variable is the same as with system variable \$PC_TRAFO_ROT_CHAN_AX_IN.						
This system variable can (presently) be applied only sensibly if the orientation transformation is active. If this requirement is not met, alarm 14782 will be output.						
Index 1:	Array index i points to the index in the transformation data \$NT_ROT_AX_NAME, which defines the rotary axis (orientation axis) of a kinematic transformation.					
Unit	Init value	Min			Max	
-	0					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRAFO_TYPE_NAME	Transformation type (string)				STRING	
Description:						
Examples: "TRANSMIT" and "TRAORI_STAT"						
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$PC_TRAFO_TYPE_NAME	Transformation type (string)				STRING	
Description:						
Examples: "TRANSMIT" and "TRAORI_STAT"						
Index 3:	MAXSTRINGLEN					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_CUTMODK		Last programmed value of CUTMODK			STRING	
Description:						
\$P_CUTMODK						
Reads the currently valid value which was last programmed with the language command CUTMODK (Name of the orientation transformation defined by kinematic chains for which the cutting edge data modification is to be activated).						
Index 3:	32					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_CUTMODK		Valid value of CUTMODK in current block			STRING	
Description:						
\$AC_CUTMODK						
Reads the currently valid value of the language command CUTMODK in the current block (name of the orientation transformation defined by kinematic chains, for which the cutting edge data modification is to be activated).						
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_SIM_TIME_STEP		Time step in the simulation			DOUBLE	
Description:						
The variable \$AC_SIM_TIME_STEP determines the current time interval in seconds during the simulation, A time interval corresponds to 1..n interpolation cycles in the real machining time. Each time interval in the simulation is executed in an interpolation cycle.						
The value of the variable is greater than zero if bit 4 is set in \$MN_PROG_TEST_MASK and the simulation is selected.						
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_SIM_TIME_BLOCK		Current real machining time of a block			DOUBLE	
Description:						
The variable \$AC_SIM_TIME_BLOCK determines the current real machining time of a block in seconds during the simulation. The real machining time of a block is the time that passes in the case of normal program execution, and not the time that passes during the simulation. The value of the variable is greater than zero if bit 4 is set in \$MN_PROG_TEST_MASK and the simulation has been selected.						
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_SIM_MODE		Simulation mode			INT	
Description:						
The variable \$P_SIM_MODE determines the simulation mode. The following values are possible: 0: No simulation active. 1: Simulation mode is active.						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SIM_MODE		Simulation mode			INT	
Description:						
The variable \$AC_SIM_MODE determines the simulation mode. The following values are possible: 0: No simulation active. 1: Simulation mode is active.						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_COLLPOS		Collision position in world coordinate system			DOUBLE	
Description:						
Point of contact of two collision bodies when a collision alarm occurs.						
Unit	Init value	Min			Max	
Linear / angular position	0	-1.8E+308			1.8E+308	

\$AC_COLLPOS		Collision position in world coordinate system				DOUBLE	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	Cross-channel		
Scan mode:	Not classified			Link:	Not classified		

\$P_CUTMOD_ERR		Error condition after last call of CUTMOD				INT	
Description:							
Error condition after the last call of the CUTMOD function (the CUTMOD function can also be called implicitly on tool change). The variable is reset to zero on RESET. It is initially reset at each tool change, and rewritten if required. The variable is bit-coded. The bits have the following meanings:							
Bit 0: No valid cutting direction is defined for the active tool.							
Bit 1: The edge angles (clearance angle and holder angle) of the active tool are both zero.							
Bit 2: The clearance angle of the active tool has an impermissible value (less than 0 degrees or greater than 180 degrees).							
Bit 3: The holder angle of the active tool has an impermissible value (less than 0 degrees or greater than 90 degrees).							
Bit 4: The cutting tip angle of the active tool has an impermissible value (less than 0 degrees or greater than 90 degrees).							
Bit 5: The cutting edge position - holder angle combination of the active tool is impermissible (with cutting edge positions 1 through 4, the holder angle must be less than or equal to 90 degrees, with cutting edge positions 5 through 8, it must greater than or equal to 90 degrees).							
Bit 6: Impermissible rotation of the active tool (the tool was rotated through +/-90 degrees (with a tolerance of about 1 degree) out of the active machining plane. As a result, the cutting edge position is no longer defined in the machining plane.							
Bit 7: The cutting plate does not lie in the machining plane, and the angle between cutting plate and machining plane exceeds the upper limit specified in the setting data \$SC_CUTMOD_PLANE_TOL.							
Unit	Init value	Min				Max	
-	0	0				2147483647	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

3.2 Channel-specific system variables

\$P_ATD [36,n]		Cutting edge parameters of the stated cutting edge, active tool			DOUBLE	
Description:						
\$P_ATD[n, dNo]						
Active tool offsets of cutting edge dNo						
n: Parameter number 1 to 36						
n = 1-25 \$TC_DP1 to \$TC_DP25						
n = 26 \$TC_DPCE Number of the cutting edge (function: Unique D number)						
n = 27 \$TC_DPH H number of the cutting edge (function: ISO mode)						
n = 28 \$TC_DPV Tool orientation (function: Tool orientation)						
n = 29 \$TC_DP3 Component 1 of the tool orientation (function: Tool orientation)						
n = 30 \$TC_DP4 Component 2 of the tool orientation (function: Tool orientation)						
n = 31 \$TC_DP5 Component 3 of the tool orientation (function: Tool orientation)						
n = 32 \$TC_DPV3 Normal vector component 1 (function: Tool orientation)						
n = 33 \$TC_DPV4 Normal vector component 2 (function: Tool orientation)						
n = 34 \$TC_DPV5 Normal vector component 3 (function: Tool orientation)						
n = 35 \$TC_DPNT Number of teeth on the cutting edge						
n = 36 \$TC_DPROT Base angle of rotation of the cutting edge						
If an offset parameter belongs to a function that is not active, an alarm is output.						
Index 1:	n: Parameter numbers 1 - 36					
Index 2:	Cutting edge number					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

\$P_ATDT [36,n]		Active tool offsets of the stated cutting edge (active tool)			DOUBLE	
Description:						
\$P_ATDT[n]						
Active tool offsets						
n: Parameter numbers 1 - 36						
n = 1-25 \$TC_DP1 to \$TC_DP25						
n = 26 \$TC_DPCE Number of the cutting edge (function: Unique D number)						
n = 27 \$TC_DPH H number of the cutting edge (function: ISO mode)						
n = 28 \$TC_DPV Tool orientation (function: Tool orientation)						
n = 29 \$TC_DPV3 Component 1 of the tool orientation (function: Tool orientation)						
n = 30 \$TC_DPV4 Component 2 of the tool orientation (function: Tool orientation)						
n = 31 \$TC_DPV5 Component 3 of the tool orientation (function: Tool orientation)						
n = 32 \$TC_DPVN3 Normal vector component 1 (function: Tool orientation)						
n = 33 \$TC_DPVN4 Normal vector component 2 (function: Tool orientation)						
n = 34 \$TC_DPVN5 Normal vector component 3 (function: Tool orientation)						
n = 35 \$TC_DPNT Number of teeth on the cutting edge						
n = 36 \$TC_DPROT Base angle of rotation of the cutting edge						
An alarm is issued if a compensation parameter belongs to a function that is not active.						
Index 1:	n: Parameter numbers 1 - 36					
Index 2:	Cutting edge number					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	
\$PC_GCC_STATE		Status of the G code converter			INT	
Description:						
The variable \$PC_GCC_STATUS indicates the status of the G code converter.						
The value of the variable has to be interpreted as follows:						
0 = G code converter is not selected.						
1 = The G code converter is selected via HMI, the active program will be converted at the next NC start.						
2 = The G code conversion is active, the selected program is being processed.						
3 = The G code converter was interrupted by the language command GCCDISABLE, no trace output to the GCC file.						
Note:						
The variable is automatically set to 0 on reset. If the variable is set to 0 via the OPI during conversion, the conversion is terminated.						
Unit	Init value	Min	Max			
-	0	0	3			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.2 Channel-specific system variables

\$PC_GCC_STATE		Status of the G code converter			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AC_TRAFO_NAME		Transformation name (string)			STRING	
Description: Example: "6-axis transformation"						
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TH_OF_D		Tool holder or spindle that determines the active offset D			INT	
Description: \$P_TH_OF_D Tool holder or spindle on which the active tool is mounted, which contains the active D offset. >0: Successful read access 0: No tool holder or spindle available as reference because, for example, no D offset is active. -1: Function is not available because TMFD is active. If read as an OPI variable, this applies to the status in the current main run block.						
Unit	Init value	Min		Max		
-	0	-1		20		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MTHNUM_BEFORE_SEARCH		Master tool holder or spindle before search run			INT	
Description: \$P_MTHNUM_BEFORE_SEARCH Tool holder or spindle before search run or test mode was started. >0: Successful read access 0: No tool holder or spindle available as reference because, for example, no D offset is active. -1: Function is not available because TMFD is active. If the search run or test mode has ended, as from the next D programming, this variable contains the same value as \$P_MTHNUM. If read as an OPI variable, this applies to the status in the current main run block.						
Unit	Init value	Min		Max		
-	0	-1		20		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

3.2 Channel-specific system variables

\$P_MTHNUM_BEFORE_SEARCH	Master tool holder or spindle before search run				INT	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_D_BEFORE_SEARCH	active offset D before search run				INT	
Description:						
\$P_D_BEFORE_SEARCH						
The active D offset before search run or test mode was started.						
>0: Successful read access						
0: No tool holder or spindle available as reference because, for example, no D offset was or is active.						
-1: Function is not available because TMFD is active.						
If the search run or test mode has ended, as from the next D programming, this variable contains the same value as \$P_TOOL.						
If read as an OPI variable, this applies to the status in the current main run block.						
Unit	Init value		Min		Max	
-	0		-1		32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_DL_BEFORE_SEARCH	active offset DL before search run				INT	
Description:						
\$P_DL_BEFORE_SEARCH						
The active setup or sum offset before search run or test mode was started.						
>0: Successful read access						
0: No tool holder or spindle available as reference because, for example, no DL offset was or is active.						
-1: Function is not available because TMFD is active.						
If the search run or test mode has ended, as from the next D or DL programming, this variable contains the same value as \$P_DLNO.						
If read as an OPI variable, this applies to the status in the current main run block.						
Unit	Init value		Min		Max	
-	0		-1		6	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_O_ACT [3,2]	Active setpoint orientation				DOUBLE	
Description:						
\$AC_TOOL_O_ACT[n,i]						
Active set orientation in various coordinate systems.						
n = 1, 2, 3: components of the vector						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	n: Components 1 - 3					

List of system variables

3.2 Channel-specific system variables

\$AC_TOOL_O_ACT [3,2]		Active setpoint orientation			DOUBLE	
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_O_END [3,2]		Final orientation of the active block			DOUBLE	
Description:						
\$AC_TOOL_O_END[n,i]						
End orientation of the active block in various coordinate systems:						
n = 1, 2, 3: components of the vector						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_O_DIFF [2]		Remaining angle to the orientation in the active block			DOUBLE	
Description:						
\$AC_TOOL_O_DIFF[i]						
Residual angle of the tool orientation in the active block in various coordinate systems:						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Residual angle of the tool orientation in the active block						
Index 1:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
deg.	0.0	0.0			360.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$P_TOOL_O [3,2]		Active tool orientation			DOUBLE	
Description:						
\$P_TOOL_O[n,i]						
Active tool orientation in various coordinate systems:						
n = 1, 2, 3: components of the vector						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOL_O [3,2]		Actual orientation			DOUBLE	
Description:						
\$VC_TOOL_O[n,i]						
Actual orientation in various coordinate systems						
n = 1, 2, 3: components of the vector						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOL_O_DIFF [2]		Angle between set and actual orientation			DOUBLE	
Description:						
\$VC_TOOL_O_DIFF[i]						
Angle between set and actual orientation in various coordinate systems:						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
deg.	0.0	0.0			180.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$VC_TOOL_O_DIFF [2]		Angle between set and actual orientation		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$AC_TOOL_R_ACT [3,2]		Active tool rotation direction		DOUBLE		
Description:						
\$AC_TOOL_R_ACT[n,i]						
Active set direction of rotation vector in various coordinate systems						
Vector scaled to the length 1 with the components						
(n = 1, 2, 3) with the value range -1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following directional vectors are returned as a function of the current plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
G19: (0, 0, 1)						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$AC_TOOL_R_END [3,2]		End rotation direction vector		DOUBLE
Description:				
\$AC_TOOL_R_END[n,i]				
End direction of rotation vector of the active block in various coordinate systems				
Vector scaled to the length 1 with the components				
(n = 1, 2, 3) with the value range -1, ..., 1.				
1: x-component				
2: y-component				
3: z-component				
If no tool is active, the following directional vectors are returned as a function of the current plane:				
G17: (0, 1, 0)				
G18: (1, 0, 0)				
G19: (0, 0, 1)				
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)				
Index 1:	n: Components 1 - 3			
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)			
Unit	Init value	Min	Max	
-	0.0	-1.0	1.0	

3.2 Channel-specific system variables

\$AC_TOOL_R_END [3,2]		End rotation direction vector				DOUBLE	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$AC_TOOL_R_DIFF [2]		Remaining angle of the tool rotation direction				DOUBLE	
Description:							
\$AC_TOOL_R_DIFF[i]							
Residual angle of the rotational direction of tool in the active block, value range 0 ... 180 degrees in various coordinate systems:							
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)							
Residual angle of the rotational direction of tool in the active block, value range 0 ... 180 degrees.							
Index 1:	Coordinate system (0: BCS, 1: PCS, 2: ENS)						
Unit	Init value	Min			Max		
deg.	0.0	0.0			180.0		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$P_TOOL_R [3,2]		Programmed tool rotation direction				DOUBLE	
Description:							
\$P_TOOL_R[n,i]							
Programmed rotational direction of tool in various coordinate systems							
Vector scaled to the length 1 with the components							
(n = 1, 2, 3) with the value range -1, ..., 1.							
1: x-component							
2: y-component							
3: z-component							
If no tool is active, the following directional vectors are returned as a function of the active plane:							
G17: (0, 1, 0)							
G18: (1, 0, 0)							
G19: (0, 0, 1)							
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)							
G19: (0, 0, 1)							
Index 1:	n: Components 1 - 3						
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)						
Unit	Init value	Min			Max		
-	0.0	-1.0			1.0		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	

List of system variables

3.2 Channel-specific system variables

\$P_TOOL_R [3,2]		Programmed tool rotation direction			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$VC_TOOL_R [3,2]		Actual rotation direction vector			DOUBLE	
Description:						
\$VC_TOOL_R[n,i]						
Actual direction of rotation vector in various coordinate systems						
Vector scaled to the length 1 with the components						
(n = 1, 2, 3) with the value range -1, ..., 1.						
1: x-component						
2: y-component						
3: z-component						
If no tool is active, the following directional vectors are returned as a function of the active plane:						
G17: (0, 1, 0)						
G18: (1, 0, 0)						
G19: (0, 0, 1)						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min		Max		
-	0.0	-1.0		1.0		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$VC_TOOL_R_DIFF [2]		Angle between set and actual rotation			DOUBLE	
Description:						
\$VC_TOOL_R_DIFF[i]						
Angle between set and actual direction of rotation of the tool in degrees, value range 0 ... 180 degrees in various coordinate systems:						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
Angle between set and actual direction of rotation of the tool in degrees, value range 0 ... 180 degrees.						
Index 1:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min		Max		
deg.	0.0	0.0		180.0		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_EXTBUF [INMAXFILESTACK]		Name of the reload buffer of a program level for Execute from external			STRING	
Description:						
\$P_EXTBUF[n]						
Returns the name of the reload buffer in the passive file system for program level n for Execute from external. If program level n is not processed in the mode "Execute from external", \$P_EXTBUF[n] returns an empty string.						
Examples:						
The main program MAIN.MPF is selected in the first channel by HMI Operate for Execute from external:						
\$P_EXTBUF[0] returns the program name "_N_MAIN_MPF".						
In the first subprogram level, a part program is executed by means of the EXTCALL command:						
\$P_EXTBUF[1] returns the program name "_N_EXTBUF11_SYF".						
Index 1:	n: Defines the program level from which the program name of the reload buffer is to be read for Execute from external. Numerical value: 0 to 17					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_EXTPATH [INMAXFILESTACK]		Path of the reload buffer of a program level for Execute from external			STRING	
Description:						
\$P_EXTPATH[n]						
Returns the path of the reload buffer in the passive file system for program level n for Execute from external. If program level n is not processed in the mode "Execute from external", \$P_EXTPATH[n] returns an empty string.						
Examples:						
The main program MAIN.MPF is selected in the first channel by HMI Operate for Execute from external:						
\$P_EXTPATH[0] returns the path "/_N_EXT_DIR/_N_EXTMOD_DIR/_N_CHAN1_DIR/".						
In the first subprogram level, a part program is executed by means of the EXTCALL command:						
\$P_EXTPATH[1] returns the path "/SYF_DIR/".						
Index 1:	n: Defines the program level from which the program path of the reload buffer is to be read for Execute from external. Numerical value: 0 to 17					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$P_OFF_O [3]		Programmed offset for tool orientation			DOUBLE	
Description:						
\$P_OFF_O[n]						
Programmed offset for the tool orientation						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_R [3]		Programmed offset for rotation of tool			DOUBLE	
Description:						
\$P_OFF_R[n]						
Programmed offset for the rotation of the tool (only with 6-axis kinematics)						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_LEAD		Programmed offset for LEAD angle			DOUBLE	
Description:						
\$P_OFF_LEAD						
Programmed offset for the LEAD angle.						
The interpretation of the LEAD angle is defined by MD \$MC_ORIPATH_MODE.						
The offset angle only becomes effective if the geo axes move.						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						

3.2 Channel-specific system variables

\$P_OFF_LEAD		Programmed offset for LEAD angle			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_TILT		Programmed offset for TILT angle			DOUBLE	
Description:						
\$P_OFF_LEAD						
Programmed offset for the LEAD angle.						
The interpretation of the LEAD angle is defined by MD \$MC_ORIPATH_MODE.						
The offset angle only becomes effective if the geo axes move.						
Unit	Init value	Min	Max			
deg.	0.0	-90.0	90.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_THETA		Programmed offset for THETA angle			DOUBLE	
Description:						
\$P_OFF_THETA						
Programmed offset for the THETA angle.						
The offset angle THETA only becomes effective if the geo axes move and there are 6-axis kinematics.						
Unit	Init value	Min	Max			
deg.	0.0	-180.0	180.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_O [3]		Offset for tool orientation			DOUBLE	
Description:						
\$AC_OFF_O[n]						
Offset for the current tool orientation						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
Index 1:	n: Components 1 - 3					

List of system variables

3.2 Channel-specific system variables

\$AC_OFF_O [3]		Offset for tool orientation			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_R [3]		Offset for rotating the tool			DOUBLE	
Description:						
\$AC_OFF_R[n]						
Offset for the current rotation of the tool						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_LEAD		Current offset for LEAD angle			DOUBLE	
Description:						
\$AC_OFF_LEAD						
Current offset for the LEAD angle.						
The interpretation of the LEAD angle is defined by MD \$MC_ORIPATH_MODE.						
The offset angle only becomes effective if the geo axes move.						
Unit	Init value	Min		Max		
deg.	0.0	-90.0		90.0		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$AC_OFF_TILT		Current offset for TILT angle			DOUBLE	
Description:						
\$AC_OFF_TILT						
Current offset for the TILT angle.						
The interpretation of the TILT angle is defined by MD \$MC_ORIPATH_MODE.						
The offset angle only becomes effective if the geo axes move.						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_THETA		Current offset for THETA angle			DOUBLE	
Description:						
\$AC_OFF_THETA						
Current offset for the THETA angle.						
The offset angle THETA only becomes effective if the geo axes move and there are 6-axis kinematics.						
Unit	Init value	Min			Max	
deg.	0.0	-180.0			180.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_ORI_LIMIT [2]		Maximum possible override of tool orientation reached			BOOL	
Description:						
\$AC_ORI_OFF_LIMIT[i]						
Maximum possible override of the tool orientation has been reached.						
The maximum possible deviation is set by the angle in \$SC_OFF_ORI_LIMIT[i].						
i = 0: Maximum possible deviation of the tool orientation has been reached.						
i = 1: Maximum deviation of the rotation vector has been reached (only with 6-axis kinematics).						
Index 1:	0: Maximum deviation of orientation vector, 1: Maximum deviation of rotation vector					
Unit	Init value	Min			Max	
-	0	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_OFF_ORI_LIMIT [2]	Maximum possible override of tool orientation reached			BOOL
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$AC_TOOL_O_CORR [3,2]	Total set orientation			DOUBLE		
Description: \$AC_TOOL_O_CORR[n,i] Total current set orientation in various coordinate systems, including any existing overrides of the orientation: n = 1, 2, 3: components of the vector i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS) The vector is scaled to the length 1.						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_R_CORR [3,2]	Total rotational direction of tool			DOUBLE		
Description: \$AC_TOOL_O_CORR[n,i] Total active direction of rotation of the tool in various coordinate systems, including any existing overrides: n = 1, 2, 3: components of the vector i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS) The vector is scaled to the length 1.						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min	Max			
-	0.0	-1.0	1.0			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_O_CORRD [3,2]	Active override of the orientation			DOUBLE
Description: \$AC_TOOL_O_CORRD[n,i] Active override in various coordinate systems: n = 1, 2, 3: components of the vector i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS) This vector is the difference between the two vectors \$AC_TOOL_O_CORR and \$AC_TOOL_O_ACT.				
Index 1:	n: Components 1 - 3			

3.2 Channel-specific system variables

\$AC_TOOL_O_CORRD [3,2]		Active override of the orientation			DOUBLE	
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_R_CORRD [3,2]		Active override of the tool rotation			DOUBLE	
Description:						
\$AC_TOOL_R_CORRD[n,i]						
Active override of the rotation of the tool in various coordinate systems:						
n = 1, 2, 3: components of the vector						
i = 0, 1, 2: coordinate system (0 : BCS, 1: PCS, 2: SZS)						
This vector is the difference between the two vectors \$AC_TOOL_R_CORR and \$AC_TOOL_R_ACT.						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_SEARCH_SMODE [n]		Block search: spindle mode			INT	
Description:						
\$P_SEARCH_SMODE[n]						
n: Number of the spindle						
The spindle mode from the last spindle programming in the block search is returned.						
0: No spindle present in the channel or spindle is active in another channel or is being used by PLC (FC18) or synchronized actions.						
1: Speed control mode						
2: Positioning mode						
3: Synchronous mode						
4: Axis mode						
Index 1:	n: Spindle number (0 ... max. spindle number)					
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$P_SEARCH_SMODE [n]		Block search: spindle mode		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	Not classified

\$P_IS_EES_PATH [INMAXFILE-STACK]		Determine type of path notation		BOOL		
Description:						
\$P_IS_EES_PATH[n]						
Query whether the path returned by \$P_PATH[n] or the program name returned by \$P_PROG[n] corresponds to the NCK notation (FALSE) or the EES notation (TRUE) (EES: Execution from External Storage):						
FALSE (0):						
\$P_PATH[n] and \$P_PROG[n] return NCK notation. That means each identifier has a prefix "_N_". The separator for the extension is "_".						
Example of a path and a program name in NCK notation: "/_N_WKS_DIR/_N_MYWPD_WPD/" and "_N_MYPROG_MPF" respectively						
Note: A path in NCK notation can refer to both the passive file system as well as to the global part program memory (GDIR) in EES mode.						
TRUE (1):						
\$P_PATH[n] and \$P_PROG[n] return EES notation. That means the identifiers do not have a prefix "_N_". The separator for the extension is ".".						
Example of a path and a program name in EES notation: "//DEV1:/WKS.DIR/MYWPD.WPD/" and "MYPROG.MPF" respectively						
Index 1:	n: defines the program plane, from which the path information is to be read. Numerical value: 0 to 17					
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	Not classified		

\$P_CUTMODKA		Modification of tool point direction active with CUTMODK		BOOL		
Description:						
\$P_CUTMODKA						
Modification of tool point direction active for a transformation defined with kinematic chains.						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$AC_CUTMODKA		Modification of tool point direction active with CUTMODK		BOOL
Description:				
\$AC_CUTMODK				
Modification of tool point direction active for a transformation defined with kinematic chains.				
Unit	Init value	Min	Max	
-	FALSE	FALSE	TRUE	
Read/Write properties:				

3.2 Channel-specific system variables

\$AC_CUTMODKA		Modification of tool point direction active with CUTMODK			BOOL	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_M_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for milling tools			INT	
Description:						
\$P_M_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) for milling tools, which is assigned to the geometry axis which was transferred as an index.						
Milling tools in this context are all tools with a tool type not lying between 400 and 599.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the active plane and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE and SD42940 \$SC_TOOL_LENGTH_CONST. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
Adapter transformations are not taken into account because they are tool-specific.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO			Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_M_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for milling tools			INT	
Description:						
\$AC_M_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) for milling tools, which is assigned to the geometry axis which was transferred as an index.						
Milling tools in this context are all tools with a tool type not lying between 400 and 599.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the active plane and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE and SD42940 \$SC_TOOL_LENGTH_CONST. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
Adapter transformations are not taken into account because they are tool-specific.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_M_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for milling tools			INT
Axis entry:	GEO			Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_T_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for turning tools			INT	
Description:						
\$P_T_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) for turning and grinding tools, which is assigned to the geometry axis which was transferred as an index.						
Turning and grinding tools in this context are all tools with a tool type lying between 400 and 599.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the active plane and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE, SD42940 \$SC_TOOL_LENGTH_CONST and SD42942 \$SC_TOOL_LENGTH_CONST_T. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST or the hundreds digit of setting data SD42942 \$SC_TOOL_LENGTH_CONST_T is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
Adapter transformations are not taken into account because they are tool-specific.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO			Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_T_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for turning tools			INT	
Description:						
\$AC_T_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) for turning and grinding tools, which is assigned to the geometry axis which was transferred as an index.						
Turning and grinding tools in this context are all tools with a tool type lying between 400 and 599.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the active plane and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE, SD42940 \$SC_TOOL_LENGTH_CONST and SD42942 \$SC_TOOL_LENGTH_CONST_T. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST or the hundreds digit of setting data SD42942 \$SC_TOOL_LENGTH_CONST_T is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
Adapter transformations are not taken into account because they are tool-specific.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-

3.2 Channel-specific system variables

\$AC_T_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for turning tools			INT
Axis entry:	GEO			Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_ACT_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for the active tool			INT	
Description:						
\$P_ACT_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) of the active tool, which is assigned to the geometry axis which was transferred as an index.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the type of the active tool, the active plane, any active adapter transformation and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE, SD42940 \$SC_TOOL_LENGTH_CONST and SD42942 \$SC_TOOL_LENGTH_CONST_T. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST or the hundreds digit of setting data SD42942 \$SC_TOOL_LENGTH_CONST_T is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
This system variable also takes adapter transformations into account.						
If no tool is active, the value 0 is returned.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO			Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_ACT_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for the active tool			INT	
Description:						
\$AC_ACT_TOOL_LENGTH_INDEX						
The system variable returns the number of the tool length components (1, 2 or 3 corresponding to the length components L1, L2, L3) of the active tool, which is assigned to the geometry axis which was transferred as an index.						
The assignment does not take into account any rotations (e.g. as a result of kinematic transformations) or frames. It depends on the type of the active tool, the active plane, any active adapter transformation and the setting data SD42950 \$SC_TOOL_LENGTH_TYPE, SD42940 \$SC_TOOL_LENGTH_CONST and SD42942 \$SC_TOOL_LENGTH_CONST_T. Active mirrorings of a frame can affect the output value if setting data SD42900 \$SC_MIRROR_TOOL_LENGTH is set, see below.						
If the tool length component is active with a negative sign, the index is output with a negative sign. This can be the case if the hundreds digit of setting data SD42940 \$SC_TOOL_LENGTH_CONST or the hundreds digit of setting data SD42942 \$SC_TOOL_LENGTH_CONST_T is equal to 1, or if mirroring of the affected axis is active on account of setting data \$SC_MIRROR_TOOL_LENGTH. If both causes are active simultaneously, the resulting sign is positive once more.						
This system variable also takes adapter transformations into account.						
If no tool is active, the value 0 is returned.						
Index 1:	Name of a geometry axis					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_ACT_TOOL_LENGTH_INDEX [n]		Assignment of tool length components for the active tool			INT
Axis entry:	GEO			Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$P_TOOLBIN [3]		Active binormal vector of the tool orientation			DOUBLE	
Description:						
\$P_TOOLBIN[n]						
This system variable returns the binormal vector of the tool orientation scaled to length 1.						
The vector is equal to the (scaled) cross product of the vector \$P_TOOLROT (normal tool vector) and \$P_TOOLO (tool orientation). If \$P_TOOLROT and \$P_TOOLO are at right-angles to each other, \$P_TOOLBIN (abscissa), \$P_TOOLROT (ordinate) and \$P_TOOLO (applicator) form a clockwise, orthogonal coordinate system. This condition has to be fulfilled unless the tool orientation and normal tool vector are explicitly specified otherwise by tool data \$TC_DPV... or \$TC_DPVN.						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_MEAS_GFR		Frame selection for grinding frames			INT	
Description:						
Variable for workpiece and tool measurement.						
The composition of the desired frame chain can be specified using the variable \$AC_MEAS_GFR in order to convert one position into a position in another coordinate system. The value of the variable ranges from 1 to 100 for the up to 100 settable frames.						
Application:						
\$AC_MEAS_GFR = 1						
The GS1 frame is included in the calculation of the new total frame.						
Unit	Init value	Min	Max			
-	0	0	100			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_GFRAME		Active grinding frame			FRAME
Description:					
The variable \$P_GFRAME is used to program the active grinding frame. A grinding data management frame \$P_GFR[n] becomes the active grinding frame as a result of the execution of GFRAME0 to GFRAME100.					
On reset, the activation of a grinding frame depends on the following machine data:					
Bit0 in \$MC_RESET_MODE_MASK					
\$MC_GCODE_RESET_MODE[63]					
\$MC_GCODE_RESET_VALUES[63]					
Unit	Init value	Min	Max		
-					

3.2 Channel-specific system variables

\$P_GFRAME		Active grinding frame				FRAME	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_GFRNUM		Number of active grinding frame				INT	
Description:							
The variable \$P_GFRNUM determines the number of the active grinding frame. A grinding data management frame \$P_GFR[n] becomes the active grinding frame as a result of the execution of GFRAME0 to GFRAME100.							
GFRAME0: \$P_GFRNUM = 0							
GFRAME100: \$P_GFRNUM = 100							
On reset, the activation of a grinding frame depends on the following machine data:							
Bit0 in \$MC_RESET_MODE_MASK							
\$MC_GCODE_RESET_MODE[63]							
\$MC_GCODE_RESET_VALUES[63]							
Unit	Init value		Min		Max		
-	0		0		100		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$AC_IN_KEY_G [8]		Grinding: Reading in of grinding input [n]				BOOL	
Description:							
The variable enables the corresponding value for the NCK grinding input [n] to be read in from the PLC. Writing by the PLC user program is only successful if write is enabled by \$AC_IN_KEY_G_ENABLE[n] and the PLC interface.							
Index 1:	Number of grinding input						
Unit	Init value		Min		Max		
-	FALSE		FALSE		TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_IN_KEY_G_ISENABLE [8]		Grinding: Enable status of grinding input [n]				BOOL	
Description:							
The variable for the specific grinding input [n] the logic operation (AND) of the enable states of PLC and NCK.							
Index 1:	Number of grinding input						
Unit	Init value		Min		Max		
-	FALSE		FALSE		TRUE		
Read/Write properties:							

List of system variables

3.2 Channel-specific system variables

\$AC_IN_KEY_G_ISENABLE [8]		Grinding: Enable status of grinding input [n]			BOOL	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_IN_KEY_G_RUN_OUT [8]		Grinding: Status (NCK) of grinding function [n]			BOOL	
Description: The variable enables activation/deactivation of the specific grinding function [n] in the part program.						
Index 1:	Number of grinding input					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_IN_KEY_G_ENABLE [8]		Grinding: Enable grinding input [n]			BOOL	
Description: The variable issues the enable signal of the corresponding grinding input [n] on the NCK side. A program reset automatically blocks all inputs.						
Index 1:	Number of grinding input					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_IN_KEY_G_RUN_IN [8]		Grinding: Status (PLC) of grinding function [n]			BOOL	
Description: The variable enables the status bit of the PLC for the specific grinding function [n] to be read in the PLC.						
Index 1:	Number of grinding input					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_IPO_BUFLA	Fill level of IPO buffer in percent without Look Ahead proportion				INT	
Description:						
The \$AC_IPO_BUFLA variable determines the useful fill level of the IPO buffer in percent without the Look Ahead component. The value is read from the part program without preprocessing stop.						
Unit	Init value	Min		Max		
-	0	0		100		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TRAFO_CORR_ELEM_P [4,3]	Offset of a correction element in the part chain of a transformation.				DOUBLE	
Description:						
The variable supplies vector \$NK_OFF_DIR[...] of a correction element in the part chain of an active orientation transformation defined using kinematic chains. The first index of the system variable refers to the section of the part chain with the specified index. For information about the terms "Correction element" and "Section", refer to the documentation on the CORRTRAFO measuring function. The second index is the index of the vector component.						
Index 1:	Index of the correction element					
Index 2:	Index of the vector component					
Unit	Init value	Min		Max		
mm	0.0	2.2E-308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TRAFO_CORR_ELEM_T [4,3]	Offset of a correction element in the tool chain of a transformation.				DOUBLE	
Description:						
The variable supplies vector \$NK_OFF_DIR[...] of a correction element in the part chain of an active orientation transformation defined using kinematic chains. The first index of the system variable refers to the section of the part chain with the specified index. For information about the terms "Correction element" and "Section", refer to the documentation on the CORRTRAFO measuring function. The second index is the index of the vector component						
Index 1:	Index of the correction element					
Index 2:	Index of the vector component					
Unit	Init value	Min		Max		
mm	0.0	2.2E-308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-

List of system variables

3.2 Channel-specific system variables

\$AC_TRAFO_CORR_ELEM_T [4,3]	Offset of a correction element in the tool chain of a transformation.				DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$AC_TRAFO_ORIAX_DIR_P [3,3]	Axis vector of an orientation axis in the part chain of a transformation.				DOUBLE	
Description:						
The variable supplies vector \$NK_OFF_DIR[...] (direction vector) of an orientation axis in the part chain of an active orientation transformation defined using kinematic chains. The first index of the system variable specifies the index of the orientation axes when counting from the start of the chain to the end of the chain.						
The second index is the index of the vector component.						
Index 1:	Index of the orientation axis					
Index 2:	Index of the vector component					
Unit	Init value	Min			Max	
-	0.0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TRAFO_ORIAX_DIR_T [3,3]	Axis vector of an orientation axis in the tool chain of a transformation.				DOUBLE	
Description:						
The variable supplies vector \$NK_OFF_DIR[...] (direction vector) of an orientation axis in the part chain of an active orientation transformation defined using kinematic chains. The first index of the system variable specifies the index of the orientation axes when counting from the start of the chain to the end of the chain.						
The second index is the index of the vector component.						
Index 1:	Index of the orientation axis					
Index 2:	Index of the vector component					
Unit	Init value	Min			Max	
-	0.0	2.2E-308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$AC_TRAFO_ORIAX_LOC [31]	Index of an orientation axis in the kin. chain of an orientation transformation.				INT	
Description:						
The variable supplies the decimal-coded index of an orientation axis in the kinematic chain of an orientation transformation. The tens location designates the subchain in which the orientation axis is contained (0: part chain; 1: tool chain) - and the ones location, the index of the axis when counting from the origin of the chain to the end of the chain.						
The parameter must have the channel axis name (type AXIS) of a rotary axis, which is defined as orientation axis in an active orientation transformation.						
When reading, the following error codes can occur:						
-1 no transformation is active.						
-2 no orientation transformation defined using kinematic chains is active.						
-3 the specified channel axis is not an orientation axis of the active transformation.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0	-3		12		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TRAFO_SECTION_P [4,3]	Section in the part chain of a transformation.				DOUBLE	
Description:						
The variable supplies the vector of the section in the part chain of an active orientation transformation defined using kinematic chains in global coordinates. The first index of the system variable refers to the section of the part chain with the specified index. For the "Section" term, refer to the documentation on measuring function CORRTRAF0.						
The second index is the index of the vector component.						
Index 1:	Index of the section					
Index 2:	Index of the vector component					
Unit	Init value	Min		Max		
mm	0.0	2.2E-308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TRAFO_SECTION_T [4,3]	Section in the tool chain of a transformation.				DOUBLE
Description:					
The variable supplies the vector of the section in the part chain of an active orientation transformation defined using kinematic chains in global coordinates. The first index of the system variable refers to the section of the part chain with the specified index. For the "Section" term, refer to the documentation on measuring function CORRTRAF0					
The second index is the index of the vector component					
Index 1:	Index of the section				
Index 2:	Index of the vector component				
Unit	Init value	Min		Max	
mm	0.0	2.2E-308		1.8E+308	

List of system variables

3.2 Channel-specific system variables

\$AC_TRAFO_SECTION_T [4,3]	Section in the tool chain of a transformation.				DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_PROG_NAME [INMAXFILESTACK]	Program name of a program level without prefix and suffix			STRING		
Description:						
\$P_PROG_NAME[n]						
Supplies the name of the program at program level n without prefix "_N_" and without suffix (file extension) and suffix separator.						
If the program level is executed in the "Execute from external", then the \$P_PROG_NAME refers to the name of the post load buffer.						
Examples:						
In program level 0 = main program name, program_N_MYPROG_MPF is executed						
\$P_PROG_NAME[0]						
supplies the name of the program at program level 0 without prefix and suffix, i.e. "MYPROG".						
At program level 1 in the post load buffer /_N_SYF_DIR/_N_EXTBUF11_SYF, an NC program is executed with EXTCALL command						
\$P_PROG_NAME[1]						
supplies the name of the program at program level 1 without prefix and suffix, i.e. "EXTBUF11".						
Index 1:	n: Specifies the program level from which the program name is to be read. Numerical value: 0 to 17					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_PROG_SUFFIX [INMAXFILE-STACK]	Suffix of the program name of a program level			STRING		
Description:						
\$P_PROG_SUFFIX[n]						
Supplies the file extension (suffix) of the program name at program level n without suffix separator.						
The file extension is always three characters long. In the passive filesystem, "_" is used as suffix separator and for program names in the EES-notation "." (EES: Execution from External Storage).						
If the program level is executed in the "Execute from external" mode, then \$P_PROG_SUFFIX refers to the post load buffer.						
Examples:						
At program level 0 = main program name, program_N_MYPROG_MPF is executed						
\$P_PROG_SUFFIX[0]						
supplies the file extension of the program at program level 0, i.e. "MPF".						
At program level 1 in the post load buffer/_N_SYF_DIR/_N_EXTBUF11_SYF, an agency program is executed with EXTCALL command						
\$P_PROG_SUFFIX[1]						
supplies the file extension of the program at program level 1, i.e. "SYF".						
Index 1:	n: Specifies the program level from which the program name is to be read. Numerical value: 0 to 17					
Index 3:	Max. string length					

3.2 Channel-specific system variables

\$P_PROG_SUFFIX [INMAXFILE-STACK]		Suffix of the program name of a program level			STRING	
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_SYNA_STATE [1399]		Status of a synchronized action			INT	
Description:						
The status of a synchronized action can be read via variable \$AC_SNY_STATE[ID]. The index <ID> is the ID of the modal or static synchronized action, for which the status should be read.						
The value is bit coded.						
Bit description:						
Bit 0 = 0: No lock						
Bit 0 = 1 PLC or synchronized actions are locked						
Bit 1 = 0: PLC not locked						
Bit 1 = 1: PLC locked						
Bit 2 = 0: Synchronized action is not locked						
Bit 2 = 1: Synchronized action is locked						
The disables with which a synchronized action can be disabled have different priorities.						
- Priority 1: Disable by PLC						
- Priority 2: Disable by a synchronized action						
- Priority 3: Single disable by PLC						
Highest priority: 1						
The system variable always returns the value of the disable with the highest priority.						
Examples:						
Disable	Value of variable					
No disable	0					
Channel-wide disable by PLC	3 (bit 0 and bit 1 are set)					
Single disable by PLC	3 (bit 0 and bit 1 are set)					
Channel-wide disable by PLC and a synchronized action	3 (bit 0 and bit 1 are set)					
Disable by a synchronized action	5 (bit 0 and bit 2 are set)					
Single disable by PLC and a synchronized action	5 (bit 0 and bit 2 are set)					
Index 1:	Maximum number of modal motion synchronized actions					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_MEAS_ORIWKS	Transformation behavior of the measuring interface					INT
Description:						
Variable for the frame transformation of orientation axis coordinates.						
The variable \$AC_MEAS_ORIWKS specifies the frame transformation behavior of the measuring interface in respect of the orientation axis coordinates.						
The following values are possible:						
0: Orientation axis coordinates are transformed as ORIMKS						
1: Orientation axis coordinates are transformed as ORIWKS						
2: The frame transformation of the orientation axis coordinates depends on the active G code ORIMKS or ORIWKS.						
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_ACT_ORI_TOOL_LENGTH [3]	Current tool length in the BCS					DOUBLE
Description:						
The variable returns the tool length components of the active tool in the basic coordinate system (BCS).						
This takes into account the tool orientation, including adapter data, mirroring and a possibly active, orientable tool carrier (TCARR).						
The indices designate the geometry axes with the assignment:						
1: X-axis (abscissa)						
2: Y-axis (abscissa)						
3: Z-axis (abscissa)						
The tool lengths (deviating from standard) are measured from the tool reference point to the tool tip. This means that, if no additional rotation is active, the components are output with inverted sign compared to the corresponding cutting edge data.						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Independent			Link:	No restrictions	

\$PC_TRAFO_NAME	Transformation name (string)					STRING
Description:						
Example: "6-axis transformation"						
Index 3:	MAXSTRINGLEN					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	-	7	-	0	-

3.2 Channel-specific system variables

\$PC_TRAFO_NAME		Transformation name (string)			STRING	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_O_DIR [3]		Programmed rotation vector for tool orientation			DOUBLE	
Description:						
\$P_OFF_O_DIR[n]						
Programmed rotation vector for offset of the tool orientation						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
3: z-component of the vector						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_R_DIR [3]		Programmed rotation vector for rotation of the tool			DOUBLE	
Description:						
\$P_OFF_R_DIR[n]						
Programmed rotation vector for the offset of the rotation of the tool (only with 6-axis kinematics)						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
3: z-component of the vector						
Is only relevant with 6-axis kinematics.						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$P_OFF_O_ANGLE		Programmed angle of rotation for offset of the orientation			DOUBLE	
Description:						
\$P_OFF_O_ANGLE Programmed angle of rotation for rotation around the vector \$P_OFF_O_DIR for offset of the tool orientation.						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_OFF_R_ANGLE		Programmed angle of rotation for rotation of the orientation			DOUBLE	
Description:						
\$P_OFF_R_ANGLE Programmed angle of rotation for rotation around the vector \$P_OFF_R_DIR for offset of the rotation of the tool orientation (only with 6-axis kinematics).						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_OFF_O_DIR [3]		Rotation vector for offset of the tool orientation			DOUBLE	
Description:						
\$AC_OFF_O_DIR[n] Rotation vector for offset for the current tool orientation n = 1, 2, 3 1: x-component of the vector 2: y-component of the vector 3: z-component of the vector 3: z-component of the vector						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	-	0	-
Write:	runin stp	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.2 Channel-specific system variables

\$AC_OFF_R_DIR [3]		Rotation vector for offset of the tool rotation			DOUBLE	
Description:						
\$AC_OFF_R_DIR[n]						
Rotation vector for offset for the current tool rotation						
n = 1, 2, 3						
1: x-component of the vector						
2: y-component of the vector						
3: z-component of the vector						
Is only relevant for 6-axis kinematics.						
Index 1:	n: Components 1 - 3					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	runin stp	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$AC_OFF_O_ANGLE		Current angle of rotation for offset of the orientation			DOUBLE	
Description:						
\$AC_OFF_O_ANGLE						
Current angle of rotation for rotation around the vector \$AC_OFF_O_DIR for offset of the orientation.						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	runin stp	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$AC_OFF_R_ANGLE		Current angle of rotation for offset of the rotation vector			DOUBLE	
Description:						
\$AC_OFF_R_ANGLE						
Current angle of rotation for rotation around the vector \$AC_OFF_R_DIR for offset of the rotation vector of the tool.						
Is only relevant for 6-axis kinematics.						
Unit	Init value	Min			Max	
deg.	0.0	-90.0			90.0	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	runin stp	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

List of system variables

3.2 Channel-specific system variables

\$PC_TCARR_OFFSET [4,3]		Vector component n of offset vector m of the active tool carrier			DOUBLE	
Description:						
When a tool carrier is active, a maximum of 4 offset vectors (l1 to l4) are defined. This system variable can be used to read out the vector components. The first index designates the index of the offset vector (1...4), the second index the vector component (0...3). If no tool carrier is active, every read access returns the value 0.						
Index 1:	Field index m refers to the offset vector [m] (with m = 1...4) of the active tool carrier.					
Index 2:	The field index refers to vector component n of the vector which was selected with field index m.					
Unit	Init value	Min			Max	
-	0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$PC_TCARR_AX_VECT [2,3]		Vector component n of the rotary axis vector m of the active tool carrier			DOUBLE	
Description:						
When a tool carrier is active, a maximum of 2 rotary axes (v1 to v2) are defined. This system variable can be used to read out the vector components. The first index designates the index of the rotary axis vector (1...2), the second index the vector component (0...3). If no tool carrier is active, every read access returns the value 0.						
Index 1:	Field index m refers to the rotary axis vector [m] (with m = 1...2) of the active tool carrier.					
Index 2:	Field index n refers to the vector component of the vector which was selected with field index m.					
Unit	Init value	Min			Max	
-	0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$PC_TCARR_AX_OFFSET [2]		Basic position of the rotary axis.			DOUBLE	
Description:						
When a tool carrier is active, a maximum of 2 rotary axes are defined. This system variable can be used to read out the positions of the rotary axes in relation to the basic position. The index designates the index of the rotary axis (1...2). If no tool carrier is active, every read access returns the value 0.						
Index 1:	Field index m refers to the rotary axis offset [m] (with m = 1...2) of the active tool carrier.					
Unit	Init value	Min			Max	
-	0.	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$PC_TRAFO_NUM		Transformation data set number			INT	
Description:						
\$PC_TRAFO_NUM						
The variable contains the value 0, if no kinematic transformation or the persistent transformation is active.						
If a conventionally defined (i.e. not by kinematic chains) transformation is active, the variable contains the number of the current transformation data set (the number n in the machine data \$MC_TRAFO_TYPE_n).						
With an active TRACON transformation, the data set number of the TRACON transformation is returned, in other words, not the data set number of one of the included, chained part transformations.						
If a transformation defined by kinematic chains is active, the variable contains the number of the \$NT data set with an offset of 1000, this means that the first transformation returns the value 1001. In this case, the system variable then returns the same value as \$P_TRAFO_PARSET.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AC_TOOL_O_CORR_DIR [3,2]		Active override of the orientation			DOUBLE	
Description:						
\$AC_TOOL_O_CORR_DIR[n,i]						
Active override of the tool orientation in different coordinate systems:						
n = 1, 2, 3: Components of the vector						
i = 0, 1, 2: Coordinate system (0 : BCS, 1: PCS, 2: SZS)						
This vector is the direction vector of the plane created by the two vectors \$AC_TOOL_O_CORR and \$AC_TOOL_O_ACT.						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min			Max	
-	0.0	-1.0			1.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_O_CORR_ANGLE		Active override of the orientation			DOUBLE	
Description:						
\$AC_TOOL_O_CORR_ANGLE						
Active override of the tool orientation						
This system variable returns the angle in degrees between the two vectors \$AC_TOOL_O_CORR and \$AC_TOOL_O_ACT. This angle does not depend on the coordinate system in which the direction vector \$AC_TOOL_O_CORR_DIR[] is read. If no override of the orientation is active in the interpolator, this angle is 0.0						
Unit	Init value	Min			Max	
deg.	0.0	0.0			180.0	
Read/Write properties:						

List of system variables

3.2 Channel-specific system variables

\$AC_TOOL_O_CORR_ANGLE		Active override of the orientation			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_R_CORR_DIR [3,2]		Active override of the rotation vector of the orientation			DOUBLE	
Description:						
\$AC_TOOL_R_CORR_DIR[n,i]						
Active override of the rotation of the tool orientation in different coordinate systems (only with 6-axis kinematics):						
n = 1, 2, 3: Components of the vector						
i = 0, 1, 2: Coordinate system (0 : BCS, 1: PCS, 2: SZS)						
This vector is the direction vector of the plane created by the two vectors \$AC_TOOL_R_CORR and \$AC_TOOL_R_ACT.						
Index 1:	n: Components 1 - 3					
Index 2:	Coordinate system (0: BCS, 1: PCS, 2: ENS)					
Unit	Init value	Min		Max		
-	0.0	-1.0		1.0		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AC_TOOL_R_CORR_ANGLE		Active override of the rotation of the orientation			DOUBLE	
Description:						
\$AC_TOOL_R_CORR_ANGLE						
Active override of the rotation of the tool orientation						
This system variable returns the angle in degrees between the two vectors \$AC_TOOL_R_CORR and \$AC_TOOL_R_ACT. This angle does not depend on the coordinate system in which the direction vector \$AC_TOOL_R_CORR_DIR[] is read. If no override of the orientation is active in the interpolator, this angle is 0.0						
Unit	Init value	Min		Max		
deg.	0.0	0.0		180.0		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_ISRG0		Reduced rapid traverse active			BOOL	
Description:						
\$P_ISRG0						
Returns TRUE (1) when reduced rapid traverse active						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						

3.2 Channel-specific system variables

\$P_ISRGO		Reduced rapid traverse active			BOOL	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ISPROGSTOP		Programmed stop 1 active			BOOL	
Description:						
\$P_ISPROGSTOP						
Returns TRUE (1) when programmed stop 1 is active.						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ISDRF		Handwheel offset active			BOOL	
Description:						
\$P_ISDRF						
Returns TRUE (1) when handwheel offset is active						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_ISSKIP		Skip block active			BOOL	
Description:						
\$P_ISSKIP						
Returns TRUE (1) when skip block active						
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:					Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.2 Channel-specific system variables

\$AC_PROGINF		Program controls active			INT	
Description:						
\$AC_PROGINF						
Active program controls						
This system variable returns the active program controls as bit information.						
Bit 0: Skip level 0 active						
Bit 1: Skip level 1 active						
Bit 2: Skip level 2 active						
Bit 3: Skip level 3 active						
Bit 4: Skip level 4 active						
Bit 5: Skip level 5 active						
Bit 6: Skip level 6 active						
Bit 7: Skip level 7 active						
Bit 8: Skip level 8 active						
Bit 9: Skip level 9 active						
Bit 10: Dry run feedrate active						
Bit 11: M01 selected						
Bit 12: DRF (handwheel offset) active						
Bit 13: Single block active						
Bit 14: Reduced rapid traverse active						
Bit 15: Feedrate stop active						
Bit 16: Program test active						
Bit 17: Associated M01 selected						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	-	0	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_TOFFCR		Programmed tool corner radius offset			DOUBLE	
Description:						
\$P_TOFFCR						
Programmed tool corner radius offset.						
The variable returns the tool corner radius offset programmed with TOFFLR.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.2 Channel-specific system variables

\$AC_TOFFCR		Programmed tool corner radius offset			DOUBLE	
Description:						
\$AC_TOFFCR						
Programmed tool corner radius offset.						
The variable returns the tool corner radius offset programmed with TOFFLR.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$P_MAGNA1		Number of defined type 1 adapters			INT	
Description:						
\$P_MAGNA1						
Number of defined type 1 adapters in the TO unit of the channel.						
>0 Successful write access						
0 No type 1 adapter defined						
-1 'Adapter' function or TOOLMAN is not active						
OPI module = T/TMV						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_MAGNA2		Number of defined type 2 adapters			INT	
Description:						
\$P_MAGNA2						
Number of defined type 2 adapters in the TO unit of the channel.						
>0 Successful write access						
0 No type 2 adapter defined						
-1 'Adapter' function or TOOLMAN is not active						
OPI module = T/TMV						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.2 Channel-specific system variables

\$A_TOOLADAPT [32000]		Adapter number of the magazine location of the tool			INT	
Description:						
\$A_TOOLADAPT[t]						
Number of the adapter assigned to the magazine location, where the tool or multitool with T no. t is currently located.						
Result value = 0 = No adapter at the magazine location or tool is not loaded.						
Result value = -1 = 'Adapter' function or tool management is not active.						
Result value = -2 = A tool or multitool with T no. t does not exist.						
Index 1:		t: T number 1 - SLMAXTOOLNUMBER				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$A_TOOLMTADAPT [32000]		Adapter number of the multitool location of the tool			INT	
Description:						
\$A_TOOLMTADAPT[t]						
Number of the adapter assigned to the multitool location, where the tool with T no. t is currently located.						
Result value = 0 No adapter at the multitool location or tool is not assigned to a multitool location.						
Result value = -1 'Adapter' function or TOOLMAN function is not active.						
Result value = -2 = A tool with T no. t does not exist.						
Result value = -3 Multitool function not active						
Index 1:		t: T number 1 - SLMAXTOOLNUMBER				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.3 Frames

\$P_UIFR [n]		Settable data management frames				FRAME	
Description:							
Array variable \$P_UIFR[n] is used to program settable data management frames. G500, G54 .. G599 can be used to activate the corresponding data management frame. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
The number of settable frames is configured with \$MC_MM_NUM_USER_FRAMES.							
0: G500							
1: G54							
2: G55							
3: G56							
4: G57							
5: G505							
6: G506							
..							
99: G599							
Index 1:	The number of settable frames is configured via \$MC_MM_NUM_USER_FRAMES.						
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	
Read:	X	-	7		X	7	
Write:	X	-	7		X	7	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	
\$P_CHBFR [n]		Channel-specific basic frames in the data management system				FRAME	
Description:							
Array variable \$P_CHBFR[n] is used to program channel-specific basic frames in the data management system. G500, G54 .. G599 can be used to activate the data management frames. All active basic frames are chained together to produce the overall basic frame \$P_ACTB-FRAME. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
The number of channel basic frames is configured via \$MC_MM_NUM_BASE_FRAMES.							
Unit	Init value	Min			Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	
Read:	X	-	7		X	7	
Write:	X	-	7		X	7	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

List of system variables

3.3 Frames

\$P_SETFR		Data management frame for preset actual value memory				FRAME
Description:						
Variable \$P_SETFR is used to program the system frame in the data management system for preset actual value memory and scratching. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.						
On a Reset, the system frame can be cleared by configuring Bit 0 in \$MC_CHSFRAME_RESET_CLEAR_MASK.						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_EXTFR		Data management frame for external frame				FRAME
Description:						
Variable \$P_EXTFR is used to program the system frame in the data management system for the external work offset. This frame is activated by the PLC. The data management frames are stored in SRAM and can be read in and out using the data backup feature.						
On a Reset, the system frame can be cleared by configuring Bit 1 in \$MC_CHSFRAME_RESET_CLEAR_MASK.						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_PARTFR		Data management frame for TCARR and PAROT				FRAME
Description:						
Variable \$P_PARTFR is used to program the system frame in the data management system for TCARR and PAROT. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.						
Unit	Init value		Min		Max	
-						
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$P_TOOLFR		Data management frame for TOROT and TOFRAME				FRAME	
Description:							
Variable \$P_TOOLFR is used to program the system frame in the data management system for TOROT and TOFRAME. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_WPFR		Data management frame for workpiece				FRAME	
Description:							
Variable \$P_WPFR is used to program the system frame in the data management system for workpiece reference points. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On a Reset, the system frame can be cleared by configuring Bit 4 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_CYCFR		Data management frame for cycles				FRAME	
Description:							
Variable \$P_CYCFR is used to program the system frame in the data management system for cycles. This frame should only be manipulated and activated by cycles. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On a Reset, the system frame can be cleared by configuring Bit 5 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_TRAFR		Data management frame for transformations				FRAME	
Description:							
Variable \$P_TRAFR is used to program the system frame in the data management system for transformations. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
Unit	Init value		Min			Max	
-							

List of system variables

3.3 Frames

\$P_TRAFR		Data management frame for transformations				FRAME	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_ISO1FR		Data management frame for ISO G51.1 mirroring				FRAME	
Description:							
Variable \$P_ISO1FR is used to program the system frame in the data management for the ISO G code G51.1 mirroring. This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_ISO2FR		Data management frame for ISO G68 2DROT				FRAME	
Description:							
Variable \$P_ISO2FR is used to program the system frame in the data management for the ISO G68 2DROT. This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_ISO3FR		Data management frame for ISO G68 3DROT				FRAME	
Description:							
Variable \$P_ISO3FR is used to program the system frame in the data management for the ISO G68 3DROT. This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC

\$P_ISO3FR		Data management frame for ISO G68 3DROT				FRAME	
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_ISO4FR		Data management frame for ISO G51 Scale				FRAME	
Description:							
Variable \$P_ISO4FR is used to program the system frame in the data management for the ISO G code G51 Scale. This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in \$MC_CHSFRAME_RESET_CLEAR_MASK.							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_RELFR		Data management frame for relative coordinate systems				FRAME	
Description:							
The variable \$P_RELFR is used for programming the system frame in the data management for relative coordinate systems. This frame should only be activated and manipulated via the system function. The data management frames are stored in the SRAM, and can be read in and out via the data backup.							
The system frame is configured in the following machine data:							
Bit 11 in \$MC_MM_SYSTEM_FRAME_MASK							
Bit 11 in \$MC_MM_SYSTEM_DATAFRAME_MASK							
Bit 11 in \$MC_CHSFRAME_RESET_MASK							
Bit 11 in \$MC_CHSFRAME_RESET_CLEAR_MASK							
Bit 11 in \$MC_CHSFRAME_POWERON_MASK							
Unit	Init value		Min		Max		
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_NCBFR [n]		Global basic frames in the data management system				FRAME	
Description:							
Array variable \$P_NCBFR[n] is used to program global basic frames in the data management system. G500, G54 .. G599 can be used to activate the data management frames. All active basic frames are chained together to produce the overall basic frame \$P_ACTBFRAME. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
Index 1:	The number of NCU basic frames is configured via \$MN_MM_NUM_GLOBAL_BASE_FRAMES.						
Unit	Init value		Min		Max		
-							

List of system variables

3.3 Frames

\$P_NCBFR [n]		Global basic frames in the data management system				FRAME	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$P_GFR [n]		Data management frames for grinding applications				FRAME	
Description:							
<p>The field variable \$P_GFR[n] is used to program data management frames for grinding applications. The appropriate data management frame can be activated via GFRAME1 to GFRAME100. The data management frames are stored in SRAM, and can be read in and out via the data backup .</p> <p>The number of grinding frames is configured via \$MC_MM_NUM_G_FRAMES.</p> <p>0: GFRAME0 no grinding frame active</p> <p>1: GFRAME1</p> <p>..</p> <p>100: GFRAME100</p>							
Index 1:	The number of grinding frames is configured via \$MC_MM_NUM_G_FRAMES.						
Unit	Init value		Min			Max	
-							
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

3.4 Channel-specific protection zones

\$SC_PA_ACTIV_IMMED [n]		Protection zone immediately active			BOOL	
Description:						
\$SC_PA_ACTIV_IMMED[n]						
n: Number of the protection area						
Protection area immediately active after boot						
TRUE: The protection area is activated immediately after the control has booted and the axes have been referenced						
FALSE: The protection area is not immediately active						
Note: This variable can only be written as a system variable and is not affected by the NC commands between NPROTDEF(..) and EXECUTE(n).						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_T_W [n]		Protection zone specific to workpiece/tool			CHAR	
Description:						
\$SC_PA_T_W[n]						
n: Number of the protection area						
Protection area specific to workpiece/tool						
0: Workpiece-specific protection area						
3: Tool-specific protection area						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.4 Channel-specific protection zones

\$SC_PA_ORI [n]		Orientation of protection zone			INT	
Description:						
\$SC_PA_ORI[n]						
n: Number of the protection area						
Orientation of protection area						
0: Polygon curve in the plane formed by the 1st and 2nd geo axes (G17)						
1: Polygon curve in the plane formed by the 3rd and 1st geo axes (G18)						
2: Polygon curve in the plane formed by the 2nd and 3rd geo axes (G19)						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_LIM_3DIM [n]		Scope of application-limiting protection zone			INT	
Description:						
\$SC_PA_LIM_3DIM[n]						
n: Number of the protection area						
Identifier for limitation of protection area in the axis perpendicular to the polygon curve						
0: No limitation						
1: Limitation in the positive direction						
2: Limitation in the negative direction						
3: Limitation in both directions						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.4 Channel-specific protection zones

\$SC_PA_PLUS_LIM [n]		Limitation of protection zone applicate plus			DOUBLE	
Description:						
\$SC_PA_PLUS_LIM[n]						
n: Number of the protection area						
Positive limitation of protection areas in the axis perpendicular to the polygon curve.						
Effective only if \$SC_PA_LIM_3DIM[n]=1 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_MINUS_LIM [n]		Limitation of protection zone applicate minus			DOUBLE	
Description:						
\$SC_PA_MINUS_LIM[n]						
n: Number of the protection area						
Negative limitation of protection area in minus direction in the axis perpendicular to the polygon curve						
Effective only if \$SC_PA_LIM_3DIM[n]=2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.4 Channel-specific protection zones

\$SC_PA_CONT_NUM [n]		Number of valid contour elements		INT		
Description:						
\$SC_PA_CONT_NUM[n]						
n: Number of the protection area						
Number of valid contour elements						
Protection areas need at least 2 contour elements for a complete description.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Unit	Init value	Min		Max		
-	0	0		10		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_CONT_TYP [n,m]		Type of the contour element		INT		
Description:						
\$SC_PA_CONT_TYP"[n,m]						
n: Number of the protection area						
m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)						
Type (G1, G2, G3) of contour element						
=0: Contour not defined						
=1: Straight						
=2: Circle element (clockwise)						
=3: Circle element (counterclockwise)						
The end point is determined by \$SC_PA_CONT_ORD or \$SC_PA_CONT_ABS. With contour types G2 and G3, \$SC_PA_CENT_ORD or \$SC_PA_CENT_ABS determines the center point of the circle element.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min		Max		
-	0	0		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.4 Channel-specific protection zones

\$SC_PA_CONT_ORD [n,m]		End point of contour element (ordinate)			DOUBLE	
Description:						
\$SC_PA_CONT_ORD[n,m]						
n: Number of the protection area						
m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)						
End point of contour element (ordinate)						
See also description of \$SC_PA_CONT_TYP						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_CONT_ABS [n,m]		End point of contour element (abscissa)			DOUBLE	
Description:						
\$SC_PA_CONT_ABS[n,m]						
n: Number of the protection area						
m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)						
End point of contour element (abscissa)						
See also description of \$SC_PA_CONT_TYP						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.4 Channel-specific protection zones

\$SC_PA_CENT_ORD [n,m]		Center point of contour element (ordinate)		DOUBLE		
Description:						
\$SC_PA_CENT_ORD[n,m]						
n: Number of the protection area						
m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)						
Center point of contour element (ordinate)						
Relevant only if \$SC_PA_CONT_TYP[n,m] = 2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SC_PA_CENT_ABS [n,m]		Center point of contour element (abscissa)		DOUBLE		
Description:						
\$SC_PA_CENT_ABS[n,m]						
n: Number of the protection area						
m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)						
Center point of contour element (abscissa)						
Relevant only if \$SC_PA_CONT_TYP[n,m] = 2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
CHAx: x=channel no.						
Index 1:		The maximum dimension is defined via the MD \$MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.5 Tool holder data

\$TC_CARR1 [n]		X component of offset vector I1				DOUBLE
Description:						
\$TC_CARR1[n]						
x component of offset vector I1						
Attention! All system parameters beginning with '\$TC_' are parameters belonging to the TOA area.						
The special characteristic of this area is that machine data 28085 = MM_LINK_TOA_UNIT can be set to allow different NCK channels to access these parameters.						
If this type of parameter setting has been selected by the NCK, you must be aware that changing these data can have a negative impact on other channels. Before you change any data settings, make sure that the changes will have only a local effect on the channel in which they are made.						
Index 1:	The max. number of tool carriers can be set via the machine data \$MN_MM_NUM_TOOL_CARRIER. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR2 [n]		Y component of offset vector I1				DOUBLE
Description:						
\$TC_CARR2[n]						
Y component of offset vector I1						
The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR3 [n]		Z component of offset vector I1				DOUBLE
Description:						
\$TC_CARR3[n]						
Z component of offset vector I1						
The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.5 Tool holder data

\$TC_CARR3 [n]		Z component of offset vector I1			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR4 [n]		X component of offset vector I2			DOUBLE	
Description: \$TC_CARR4[n] X component of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR5 [n]		Y component of offset vector I2			DOUBLE	
Description: \$TC_CARR5[n] Y component of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR6 [n]		Z component of offset vector I2			DOUBLE	
Description: \$TC_CARR6[n] Z component of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR7 [n]		X component of rotary axis v1			DOUBLE	
Description: \$TC_CARR7[n] X component of rotary axis v1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR8 [n]		Y component of rotary axis v1			DOUBLE	
Description: \$TC_CARR8[n] Y component of rotary axis v1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR9 [n]		Z component of rotary axis v1			DOUBLE	
Description: \$TC_CARR9[n] Z component of rotary axis v1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR10 [n]		X component of rotary axis V2			DOUBLE	
Description: \$TC_CARR10[n] X component of rotary axis v2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					

List of system variables

3.5 Tool holder data

\$TC_CARR10 [n]		X component of rotary axis V2			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR11 [n]		Y component of rotary axis v2			DOUBLE	
Description:						
\$TC_CARR11[n] Y component of rotary axis v2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR12 [n]		Z component of rotary axis v2			DOUBLE	
Description:						
\$TC_CARR12[n] Z component of rotary axis v2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR13 [n]		Angle of rotation alpha1 (in degrees)			DOUBLE	
Description:						
\$TC_CARR13[n] Angle of rotation alpha1 (in degrees)						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_CARR13 [n]		Angle of rotation alpha1 (in degrees)			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR14 [n]		Angle of rotation alpha2 (in degrees)			DOUBLE	
Description:						
\$TC_CARR14[n]						
Angle of rotation alpha2 (in degrees)						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR15 [n]		X component of offset vector I3			DOUBLE	
Description:						
\$TC_CARR15[n]						
X component of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR16 [n]		Y component of offset vector I3			DOUBLE	
Description:						
\$TC_CARR16[n]						
Y component of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.5 Tool holder data

\$TC_CARR17 [n]		Z component of offset vector I3			DOUBLE	
Description: \$TC_CARR17[n] Z component of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR18 [n]		X component of offset vector I4			DOUBLE	
Description: \$TC_CARR18[n] X component of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR19 [n]		Y component of offset vector I4			DOUBLE	
Description: \$TC_CARR19[n] Y component of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR20 [n]		Z component of offset vector I4			DOUBLE	
Description: \$TC_CARR20[n] Z component of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					

\$TC_CARR20 [n]		Z component of offset vector I4			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR21 [n]		Axis identifier of 1st rotary axis			AXIS	
Description:						
\$TC_CARR21[n] Axis identifier of 1st rotary axis						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR22 [n]		Axis identifier of 2nd rotary axis			AXIS	
Description:						
\$TC_CARR22[n] Axis identifier of 2nd rotary axis						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR23 [n]		Kinematic type			CHAR	
Description:						
\$TC_CARR23[n] Type of kinematics: P: Rotatable workpiece (Part) M: Rotatable tool and rotatable workpiece (Mixed) T or any other character apart from P and M: Rotatable tool						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	'T'	0		CHAR_MAX		

List of system variables

3.5 Tool holder data

\$TC_CARR23 [n]		Kinematic type			CHAR	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR24 [n]		Offset of 1st rotary axis in degrees			DOUBLE	
Description:						
\$TC_CARR24[n]						
Offset of 1st rotary axis in degrees						
Specifies the angle in degrees of the 1st rotary axis at which the axis assumes its initial position.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR25 [n]		Offset of 2nd rotary axis in degrees			DOUBLE	
Description:						
\$TC_CARR25[n]						
Offset of 2nd rotary axis in degrees						
Specifies the angle in degrees of the 2nd rotary axis at which the axis assumes its initial position.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR26 [n]		Offset of 1st rotary axis with Hirth teeth			DOUBLE	
Description:						
\$TC_CARR26[n]						
Specifies the offset of the 1st rotary axis if its position is not continuously variable (Hirth tooth system).						
This variable is evaluated only if \$TC_CARR28 is set to a value other than zero.						
For exact meanings, please refer to the description of \$TC_CARR28						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		

\$TC_CARR26 [n]		Offset of 1st rotary axis with Hirth teeth				DOUBLE	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$TC_CARR27 [n]		Offset of 2nd rotary axis with Hirth teeth				DOUBLE	
Description:							
\$TC_CARR27[n]							
Specifies the offset of the 2nd rotary axis if its position is not continuously variable (Hirth tooth system).							
This variable is evaluated only if \$TC_CARR29 is set to a value other than zero.							
For exact meanings, please refer to the description of \$TC_CARR29							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Unit	Init value	Min			Max		
-	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$TC_CARR28 [n]		Minimum incremental step of 1st rotary axis				DOUBLE	
Description:							
\$TC_CARR28[n]							
Specifies the size of the minimum increment (in degrees) by which the 1st rotary axis can change position (e.g. with Hirth tooth systems).							
A programmed or calculated angle is rounded to the nearest value							
calculated from $\phi = s + n \cdot d$							
when n is an integer.							
In this equation							
s = \$TC_CARR28							
d = \$TC_CARR26							
If \$TC_CARR28 equals zero, \$TC_CARR26 and \$TC_CARR28 are not used.							
The settings in machine data							
\$MC_TOCARR_ROT_ANGLE_INCR[i] and \$MC_TOCARR_ROT_ANGLE_OFFSET[i]							
are applied instead.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Unit	Init value	Min			Max		
-	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

List of system variables

3.5 Tool holder data

\$TC_CARR29 [n]		Minimum incremental step of 2nd rotary axis		DOUBLE		
Description:						
\$TC_CARR29[n]						
Specifies the size of the minimum increment (in degrees) by which the 2nd rotary axis can change position (e.g. with Hirth tooth systems). A programmed or calculated angle is rounded to the nearest value calculated from $\phi = s + n * d$ when n is an integer.						
In this equation						
s = \$TC_CARR29						
d = \$TC_CARR27						
If \$TC_CARR29 equals zero, \$TC_CARR27 and \$TC_CARR29 are not used.						
The settings in machine data						
\$MC_TOCARR_ROT_ANGLE_INCR[i] and \$MC_TOCARR_ROT_ANGLE_OFFSET[i] are applied instead.						
Index 1:		The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR30 [n]		Minimum position of 1st rotary axis		DOUBLE		
Description:						
\$TC_CARR30[n]						
Specifies the minimum position of the 1st rotary axis. For full description, see \$TC_CARR32						
Index 1:		The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR31 [n]		Minimum position of 2nd rotary axis		DOUBLE		
Description:						
\$TC_CARR31[n]						
Specifies the minimum position of the 2nd rotary axis. For full description, see \$TC_CARR33						
Index 1:		The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_CARR31 [n]		Minimum position of 2nd rotary axis			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR32 [n]		Maximum position of 1st rotary axis			DOUBLE	
Description:						
\$TC_CARR32[n]						
Specifies the maximum position of the 1st rotary axis.						
When the angle of the 1st rotary axis of an orientable tool carrier aligned according to a frame (TCOFR) is calculated, the only acceptable solutions are those which lie within the \$TC_CARR30 to \$TC_CARR32 range.						
The same applies when the rotary angle is programmed absolutely (TCOABS).						
The limits are not evaluated if both \$TC_CARR30 and \$TC_CARR32 equal zero.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR33 [n]		Maximum position of 2nd rotary axis			DOUBLE	
Description:						
\$TC_CARR33[n]						
Specifies the maximum position of the 2nd rotary axis.						
When the angle of the 2nd rotary axis of an orientable tool carrier aligned according to a frame (TCOFR) is calculated, the only acceptable solutions are those which lie within the \$TC_CARR31 to \$TC_CARR33 range.						
The same applies when the rotary angle is programmed absolutely (TCOABS).						
The limits are not evaluated if both \$TC_CARR31 and \$TC_CARR33 equal zero.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.5 Tool holder data

\$TC_CARR34 [n]		Freely usable string (tool carrier name)			STRING	
Description: \$TC_CARR34[n] Contains a freely definable string. This is provided as a free identifier for the orientable tool carrier. However, it currently has no significance within the NCK, and is therefore not evaluated. This identifier should not be used for other purposes as it may be used in a future upgrade to allow the activation of an orientable tool carrier via a name rather than a number.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR35 [n]		Freely available string (1st rotary axis name)			STRING	
Description: \$TC_CARR35[n] Contains a freely definable string. This is provided as a free identifier for the first rotary axis. Within the NCK, however, it has no significance at all and is therefore not evaluated. It can also be used for any other purpose.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR36 [n]		Freely available string (2nd rotary axis name)			STRING	
Description: \$TC_CARR36[n] Contains a freely definable string. This is provided as a free identifier for the second rotary axis. Within the NCK, however, it has no significance at all and is therefore not evaluated. It can also be used for any other purpose.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_CARR36 [n]		Freely available string (2nd rotary axis name)			STRING	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR37 [n]		Freely available numeric identifier (tool carrier number)			INT	
Description:						
\$TC_CARR37[n]						
Contains an integer number for identifying the toolholder.						
Within the NCK, however, it has no significance at all and is therefore not evaluated.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR38 [n]		Freely available position value (X position)			DOUBLE	
Description:						
\$TC_CARR38[n]						
Contains a position (X component of retraction position)						
Within the NCK, however, it has no significance at all and is therefore not evaluated.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR39 [n]		Freely available position value (Y position)			DOUBLE	
Description:						
\$TC_CARR39[n]						
Contains a position (Y component of retraction position)						
Within the NCK, however, it has no significance at all and is therefore not evaluated.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.5 Tool holder data

\$TC_CARR39 [n]		Freely available position value (Y position)			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR40 [n]		Freely available position value (Z position)			DOUBLE	
Description: \$TC_CARR40[n] Contains a position (Z component of retraction position) Within the NCK, however, it has no significance at all and is therefore not evaluated.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR41 [n]		Fine offset X of the offset vector I1			DOUBLE	
Description: \$TC_CARR41[n] X component of fine offset of offset vector I1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR42 [n]		Fine offset Y of the offset vector I1			DOUBLE	
Description: \$TC_CARR42[n] Y component of fine offset of offset vector I1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR43 [n]		Fine offset Z of the offset vector I1			DOUBLE	
Description:						
\$TC_CARR43[n]						
Z component of fine offset of offset vector I1						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_CARR44 [n]		Fine offset X of the offset vector I2			DOUBLE	
Description:						
\$TC_CARR44[n]						
X component of fine offset of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_CARR45 [n]		Fine offset Y of the offset vector I2			DOUBLE	
Description:						
\$TC_CARR45[n]						
Y component of fine offset of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_CARR46 [n]		Fine offset Z of the offset vector I2			DOUBLE	
Description:						
\$TC_CARR46[n]						
Z component of fine offset of offset vector I2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					

List of system variables

3.5 Tool holder data

\$TC_CARR46 [n]		Fine offset Z of the offset vector I2			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR55 [n]		Fine offset X of the offset vector I3			DOUBLE	
Description:						
\$TC_CARR55[n] X component of fine offset of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR56 [n]		Fine offset Y of the offset vector I3			DOUBLE	
Description:						
\$TC_CARR56[n] Y component of fine offset of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR57 [n]		Fine offset Z of the offset vector I3			DOUBLE	
Description:						
\$TC_CARR57[n] Z component of fine offset of offset vector I3						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_CARR57 [n]		Fine offset Z of the offset vector I3			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR58 [n]		Fine offset X of the offset vector I4			DOUBLE	
Description:						
\$TC_CARR58[n]						
X component of fine offset of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR59 [n]		Fine offset Y of the offset vector I4			DOUBLE	
Description:						
\$TC_CARR59[n]						
Y component of fine offset of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR60 [n]		Fine offset Z of the offset vector I4			DOUBLE	
Description:						
\$TC_CARR60[n]						
Z component of fine offset of offset vector I4						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.5 Tool holder data

\$TC_CARR64 [n]		Fine offset of 1st rotary axis v1			DOUBLE	
Description: \$TC_CARR64[n] Fine offset of offset (\$TC_CARR24) of 1st rotary axis in degrees						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR65 [n]		Fine offset of 2nd rotary axis v2			DOUBLE	
Description: \$TC_CARR65[n] Fine offset of offset (\$TC_CARR25) of 2nd rotary axis in degrees						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR_KIN_TOOL_START [n]		Start element of the TOOL chain for parameterization from kinematic chains			STRING	
Description: \$TC_CARR_KIN_TOOL_START[n] If this system variable is empty, the transfer of data from a machine model defined by kinematic chains to the tool carrier takes into account the entire chain from the root element to the end of the chain defined by \$TC_CARR_KIN_TOOL_END. If the variable contains a name, the chain taken into account starts with the starting point of the named element.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR_KIN_TOOL_END [n]	End element of the tool chain for parameterization from kinematic chains					STRING
Description:						
\$TC_CARR_KIN_TOOL_START[n] Contains the name of the last element of the kinematic chain used to parameterize the tool chain of a tool carrier.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR_KIN_PART_START [n]	Start element of the PART chain for parameterization from kinematic chains					STRING
Description:						
\$TC_CARR_KIN_PART_START[n] If this system variable is empty, the transfer of data from a machine model defined by kinematic chains to the tool carrier takes into account the entire chain from the root element to the end of the chain defined by \$TC_CARR_KIN_PART_END. If the variable contains a name, the chain taken into account starts with the starting point of the named element.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_CARR_KIN_PART_END [n]	End element of the part chain for parameterization from kinematic chains					STRING
Description:						
\$TC_CARR_KIN_TOOL_START[n] Contains the name of the last element of the kinematic chain used to parameterize the part chain of a tool carrier.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.5 Tool holder data

\$TC_CARR_KIN_PART_END [n]	End element of the part chain for parameterization from kinematic chains				STRING	
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions

\$TC_CARR_KIN_CNTRL [n]	Controls the transfer of geometry data from kinematic chain elements.				INT	
Description:						
\$TC_CARR_KIN_CNTRL[n]						
This system data controls the transfer of geometry data from a machine model defined by kinematic chains to parameterize a tool carrier. Currently, only bits 0-2 are assigned. All other bits are reserved.						
The individual bits have the following meanings:						
Bit 0 :						
If this bit is set, the following geometry data - as far as they are required - are read from kinematic chain elements. The content of the corresponding tool carrier data from (\$TC_CARRxx) is then ignored.						
Offset vector I1 (\$TC_CARR1 - \$TC_CARR3)						
Offset vector I2 (\$TC_CARR4 - \$TC_CARR6)						
Rotary axis direction v1 (\$TC_CARR7 - \$TC_CARR9)						
Rotary axis direction v2 (\$TC_CARR10 - \$TC_CARR12)						
Offset vector I3 (\$TC_CARR15 - \$TC_CARR17)						
Offset vector I4 (\$TC_CARR18 - \$TC_CARR20)						
Rotary axis offsets (\$TC_CARR24 - \$TC_CARR25)						
Bit 1 - 2 (H2 - H4):						
If these bits are set (bit 1: part chain; bit 2: tool chain), the contents of the offset vectors I1 (tool chain) and I4 (part chain) are changed so that the end point of the chain coincides with the machine zero point ("Close chain").						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Unit	Init value	Min			Max	
-	0	0			7	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions

\$TC_CARR_CORR_ELEM [n,4,32]	Name of the offset vector I[m] of a tool carrier.				STRING	
Description:						
Name of the offset vector I[m] of the tool carrier[n]. A maximum of 4 offset vectors (I1 to I4) are defined for a tool carrier. The first index designates the index of the tool carrier, the second index the index of the offset vector (1...4).						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 2:	Field index m refers to the offset vector [m] (with m = 1...4) of the active tool carrier.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_CARR_CORR_ELEM [n,4,32]	Name of the offset vector l[m] of a tool carrier.				STRING	
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	
\$TC_CARR_KIN_ROTAX_NAME [n,2,32]	Rotary axis with index m for parameterization from kinematic chains				STRING	
Description:						
\$TC_CARR_KIN_ROTAX_NAME[n,m]						
Contains the name of the rotary element of the kinematic chain used to parameterize the mth rotary axis of the nth tool carrier.						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
Index 2:	The field index m refers to rotary axis [m] (with m = 0...1) of the active tool carrier.					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.6 Tool parameters

3.6 Tool parameters

\$TC_DP1 [32000,32000]		Tool type			INT	
Description: \$TC_DP1[t,d] Tool type When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP1[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP2 [32000,32000]		Cutting edge position			DOUBLE	
Description: \$TC_DP2[t,d] Tool point direction When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP2[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	0.			10.	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP3 [32000,32000]		Geometry - length 1			DOUBLE	
Description: \$TC_DP3[t,d] Geometry - length 1 When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP3[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						

\$TC_DP3 [32000,32000]		Geometry - length 1			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP4 [32000,32000]		Geometry - length 2			DOUBLE	
Description:						
\$TC_DP4[t,d]						
Geometry - length 2						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP4[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP5 [32000,32000]		Geometry - length 3			DOUBLE	
Description:						
\$TC_DP5[t,d]						
Geometry - length 3						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP5[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.6 Tool parameters

\$TC_DP6 [32000,32000]		Geometry - radius			DOUBLE	
Description: \$TC_DP6[t,d] Geometry - radius When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP6[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP7 [32000,32000]		Slotting saw: corner radius			DOUBLE	
Description: \$TC_DP7[t,d] Slotting saw: Corner radius When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP7[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP8 [32000,32000]		Slotting saw: length			DOUBLE	
Description: \$TC_DP8[t,d] Slotting saw: Length When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP8[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

\$TC_DP8 [32000,32000]		Slotting saw: length			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP9 [32000,32000]		Reserved			DOUBLE	
Description:						
\$TC_DP9[t,d] Reserved When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP9[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP10 [32000,32000]		Angle between the end face of the tool and the toroidal surface			DOUBLE	
Description:						
\$TC_DP10[t,d] Angle between tool face and toroidal surface When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP10[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP11 [32000,32000]		Angle between long. axis of the tool and the upper end of the toroidal surface			DOUBLE	
Description:						
\$TC_DP11[t,d] Angle between tool longitudinal axis and upper end of toroidal surface When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP11[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.6 Tool parameters

\$TC_DP11 [32000,32000]		Angle between long. axis of the tool and the upper end of the toroidal surface			DOUBLE	
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP12 [32000,32000]		Wear - length 1 - \$TC_DP3			DOUBLE	
Description:						
\$TC_DP12[t,d]						
Wear - length 1 - \$TC_DP3						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP12[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP13 [32000,32000]		Wear - length 2 - \$TC_DP4			DOUBLE	
Description:						
\$TC_DP13[t,d]						
Wear - length 2 - \$TC_DP4						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP13[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP14 [32000,32000]		Wear - length 3 - \$TC_DP5			DOUBLE	
Description:						
\$TC_DP14[t,d]						
Wear - length 3 - \$TC_DP5						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP14[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP15 [32000,32000]		Wear - radius - \$TC_DP6			DOUBLE	
Description:						
\$TC_DP15[t,d]						
Wear - radius - \$TC_DP6						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP15[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP16 [32000,32000]		Slotting saw: wear on corner radius - \$TC_DP7			DOUBLE	
Description:						
\$TC_DP16[t,d]						
Slotting saw: Wear - corner radius - \$TC_DP7						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP16[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.6 Tool parameters

\$TC_DP16 [32000,32000]		Slotting saw: wear on corner radius - \$TC_DP7			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP17 [32000,32000]		Slotting saw: wear on length - \$TC_DP8			DOUBLE	
Description: \$TC_DP17[t,d] Slotting saw: Wear length - \$TC_DP8 When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP17[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP18 [32000,32000]		Wear - reserved - \$TC_DP9			DOUBLE	
Description: \$TC_DP18[t,d] Wear - reserved - \$TC_DP9 When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP18[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP19 [32000,32000]		Wear - angle between the end face of tool and the toroidal surface - \$TC_DP10			DOUBLE	
Description: \$TC_DP19[t,d] Wear - angle between tool face and toroidal surface - \$TC_DP10 When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP19[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_DP19 [32000,32000]		Wear - angle between the end face of tool and the toroidal surface - \$TC_DP10			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP20 [32000,32000]		Wear - angle between long. axis of tool and upper end of the toroidal surface			DOUBLE	
Description:						
\$TC_DP20[t,d]						
Wear - angle between tool longitudinal axis and upper end of toroidal surface - \$TC_DP11						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP20[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP21 [32000,32000]		Basis - length 1			DOUBLE	
Description:						
\$TC_DP21[t,d]						
Basis - length 1						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP21[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.6 Tool parameters

\$TC_DP22 [32000,32000]		Basis - length 2			DOUBLE	
Description:						
\$TC_DP22[t,d]						
Basis - length 2						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP22[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP23 [32000,32000]		Basis - length 3			DOUBLE	
Description:						
\$TC_DP23[t,d]						
Basis - length 3						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP23[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP24 [32000,32000]		Clear angle			DOUBLE	
Description:						
\$TC_DP24[t,d]						
Clearance angle						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DP24[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

\$TC_DP24 [32000,32000]		Clear angle			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DP25 [32000,32000]		Reserved			DOUBLE	
Description:						
\$TC_DP25[t,d] Reserved When the 'flat D number management' function is active, the syntax is as follows: \$TC_DP25[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCE [32000,32000]		Cutting edge number			INT	
Description:						
\$TC_DPCE[t,d] = 'cutting edge number' of compensation data block t,d When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPCE[d] CE stands for <C>utting<E>dge Value range of legal 'cutting edge numbers': 1 up to value of machine data \$MN_MM_MAX_CUTTING_EDGE_PERTOOL.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPH [32000,32000]		H number of the correction data block with ISO2.1 mode			INT	
Description:						
\$TC_DPH[t,d] = 'H cutting edge number' of compensation data block t,d for Fanuc0 M When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPH[d] An alarm is issued if this variable is used with the function "ISO2.1 mode" or "ISO3.1 mode" inactive.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.6 Tool parameters

\$TC_DPH [32000,32000]		H number of the correction data block with ISO2.1 mode			INT	
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPV [32000,32000]		Tool edge orientation			INT	
Description:						
\$TC_DPV[t,d] = tool cutting edge orientation						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPV[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPV3 [32000,32000]		L1 component of the tool edge orientation			DOUBLE	
Description:						
\$TC_DPV3[t,d] = L1 component of tool cutting edge orientation						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPV3[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPV4 [32000,32000]		L2 component of the tool edge orientation			DOUBLE	
Description:						
\$TC_DPV4[t,d] = L2 component of tool cutting edge orientation						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPV4[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPV5 [32000,32000]		L3 component of the tool edge orientation			DOUBLE	
Description:						
\$TC_DPV5[t,d] = L3 component of tool cutting edge orientation						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPV5[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPVN3 [32000,32000]		L1 component of the orientation normal			DOUBLE	
Description:						
\$TC_DPVN3[t,d] = L1 component of the orientation normal of the tool cutting edge.						
If the function 'flat D-number management' is active, the syntax is as follows:						
\$TC_DPVN3[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.6 Tool parameters

\$TC_DPVN3 [32000,32000]		L1 component of the orientation normal			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_DPVN4 [32000,32000]		L2 component of the orientation normal			DOUBLE	
Description: \$TC_DPVN4[t,d] = L2 component of the orientation normal of the tool cutting edge. If the function 'flat D-number management' is active, the syntax is as follows: \$TC_DPVN4[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPVN5 [32000,32000]		L3 component of the orientation normal			DOUBLE	
Description: \$TC_DPVN5[t,d] = L3 component of the orientation normal of the tool cutting edge. If the function 'flat D-number management' is active, the syntax is as follows: \$TC_DPVN5[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPNT [32000,32000]		Number of teeth on this cutting edge			INT
Description: \$TC_DPNT[t,d] Number of teeth in the cutting edge with active function 'flat D number management' the syntax is as follows: \$TC_DPNT[d]					
Index 1:	t: T number 1 - SLMAXTOOLNUMBER				
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER				
Unit	Init value	Min		Max	
-	0	-2147483648		2147483647	
Read/Write properties:					

\$TC_DPNT [32000,32000]		Number of teeth on this cutting edge			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPROT [32000,32000]		Base angle of rotation of cutting edge			DOUBLE	
Description:						
\$TC_DPROT[t,d]						
Base angle of rotation of this cutting edge						
If the function 'flat D number management' is active, the syntax is as follows:						
\$TC_DPROT[d]						
This angle describes the rotation of the cutting edge along the tool offset length L1 from a zero position of the tool holder, e.g. in the spindle. The angle can be used for aligning the cutting edge of non-axially symmetrical tools.						
Application example: A turning tool is chucked in a spindle. The angle is then the difference between the perpendicular onto the cutting tip and the neutral position of the spindle. This parameter is relevant only for tools that are not rotationally symmetrical.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
deg.	0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.7 OEM user cutting edge data

\$TC_DPC1 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC1[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC1[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC2 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC2[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC2[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC3 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC3[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC3[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						

\$TC_DPC3 [32000,32000]		-				DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$TC_DPC4 [32000,32000]		-				DOUBLE	
Description:							
The type can be specified by machine data. DOUBLE is the default setting							
\$TC_DPC4[t,d]							
When the 'flat D number management' function is active, the syntax is as follows:							
\$TC_DPC4[d]							
Index 1:	t: T number 1 - SLMAXTOOLNUMBER						
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER						
Unit	Init value	Min			Max		
-	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$TC_DPC5 [32000,32000]		-				DOUBLE	
Description:							
The type can be specified by machine data. DOUBLE is the default setting							
\$TC_DPC5[t,d]							
When the 'flat D number management' function is active, the syntax is as follows:							
\$TC_DPC5[d]							
Index 1:	t: T number 1 - SLMAXTOOLNUMBER						
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER						
Unit	Init value	Min			Max		
-	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC6 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC6[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC6[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC7 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC7[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC7[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC8 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC8[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC8[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

3.7 OEM user cutting edge data

\$TC_DPC8 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC9 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC9[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC9[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC10 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC10[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC10[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC11 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC11[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC11[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC11 [32000,32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC12 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC12[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC13 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC13[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC14 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC14[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC15 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC15[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC16 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC16[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC16 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC17 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC17[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC18 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC18[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC19 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC19[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_DPC19 [32000,32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC20 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC20[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC20[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC21 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC21[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC21[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC22 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC22[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC22[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC23 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC23[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC23[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC24 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC24[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC24[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

\$TC_DPC24 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC25 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC25[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC25[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC26 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC26[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC26[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC27 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC27[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC27[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC27 [32000,32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC28 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC28[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC28[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC29 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC29[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC29[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC30 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC30[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC30[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC31 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC31[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC31[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC32 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC32[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC32[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC32 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC33 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC33[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC33[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC34 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC34[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC34[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC35 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC35[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC35[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_DPC35 [32000,32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC36 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC36[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC36[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC37 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC37[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC37[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC38 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC38[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC38[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC39 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC39[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC39[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC40 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC40[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC40[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

\$TC_DPC40 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC41 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC41[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC41[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC42 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC42[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC42[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC43 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC43[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC43[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC43 [32000,32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC44 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC44[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC44[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC45 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC45[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC45[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC46 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC46[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC46[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC47 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC47[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC47[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC48 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC48[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC48[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC48 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC49 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC49[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC49[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC50 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC50[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC50[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC51 [32000,32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC51[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC51[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_DPC51 [32000,32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC52 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC52[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC52[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC53 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_DPC53[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_DPC53[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC54 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC54[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC54[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC55 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC55[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC55[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC56 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC56[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC56[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

\$TC_DPC56 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC57 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC57[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC57[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC58 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC58[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC58[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC59 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC59[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC59[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC59 [32000,32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC60 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC60[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC60[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC61 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC61[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC61[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC62 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC62[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC62[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC63 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC63[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC63[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPC64 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPC64[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPC64[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_DPC64 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS1 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS1[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS1[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS2 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS2[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS2[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS3 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS3[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS3[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_DPCS3 [32000,32000]		-					DOUBLE
Unit	Init value	Min					Max
-	0.0	-1.8E+308					1.8E+308
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$TC_DPCS4 [32000,32000]		-					DOUBLE
Description:							
The type can be specified by machine data. DOUBLE is the default setting							
\$TC_DPCS4[t,d]							
When the 'flat D number management' function is active, the syntax is as follows:							
\$TC_DPCS4[d]							
Index 1:	t: T number 1 - SLMAXTOOLNUMBER						
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER						
Unit	Init value	Min					Max
-	0.0	-1.8E+308					1.8E+308
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

\$TC_DPCS5 [32000,32000]		-					DOUBLE
Description:							
The type can be specified by machine data. DOUBLE is the default setting							
\$TC_DPCS5[t,d]							
When the 'flat D number management' function is active, the syntax is as follows:							
\$TC_DPCS5[d]							
Index 1:	t: T number 1 - SLMAXTOOLNUMBER						
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER						
Unit	Init value	Min					Max
-	0.0	-1.8E+308					1.8E+308
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	X	-	7	X	7	-	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions		

List of system variables

3.7 OEM user cutting edge data

\$TC_DPCS6 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS6[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS6[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS7 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS7[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS7[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS8 [32000,32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS8[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS8[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

3.7 OEM user cutting edge data

\$TC_DPCS8 [32000,32000]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS9 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS9[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS9[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_DPCS10 [32000,32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_DPCS10[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_DPCS10[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP13 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_SCP13[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP13[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP13 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP14 [32000,32000]		Location-dependent wear correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_SCP14[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP14[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP15 [32000,32000]		Location-dependent wear correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_SCP15[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP15[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP16 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_SCP16[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP16[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

3.7 OEM user cutting edge data

\$TC_SCP16 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP17 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP17[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP17[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP18 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_SCP18[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP18[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP19 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_SCP19[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP19[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP20 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_SCP20[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP20[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP21 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_SCP21[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP21[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_SCP21 [32000,32000]	Location-dependent wear correction to \$TC_DP11			DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$TC_SCP23 [32000,32000]	Location-dependent wear correction to \$TC_DP3			DOUBLE		
Description: Offset for \$TC_DP3: \$TC_SCP23[t,d] comparable to \$TC_DP12[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP23[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP24 [32000,32000]	Location-dependent wear correction to \$TC_DP4			DOUBLE		
Description: Offset for \$TC_DP4: \$TC_SCP24[t,d] comparable to \$TC_DP13[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP24[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP25 [32000,32000]	Location-dependent wear correction to \$TC_DP5			DOUBLE		
Description: Offset for \$TC_DP5: \$TC_SCP25[t,d] comparable to \$TC_DP14[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP25[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP25 [32000,32000]		Location-dependent wear correction to \$TC_DP5			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP26 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_SCP26[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP26[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP27 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP27[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP27[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP28 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_SCP28[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP28[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	

\$TC_SCP28 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP29 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_SCP29[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP29[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP30 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_SCP30[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP30[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP31 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_SCP31[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP31[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP31 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP33 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_SCP33[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP33[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP34 [32000,32000]		Location-dependent wear correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_SCP34[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP34[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP35 [32000,32000]		Location-dependent wear correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_SCP35[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP35[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP36 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_SCP36[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP36[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP37 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP37[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP37[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP37 [32000,32000]		Location-dependent wear correction to \$TC_DP7		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_SCP38 [32000,32000]		Location-dependent wear correction to \$TC_DP8		DOUBLE		
Description: Offset for \$TC_DP8: \$TC_SCP38[t,d] comparable to \$TC_DP17[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP38[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_SCP39 [32000,32000]		Location-dependent wear correction to \$TC_DP9		DOUBLE		
Description: Offset for \$TC_DP9: \$TC_SCP39[t,d] comparable to \$TC_DP18[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP39[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_SCP40 [32000,32000]		Location-dependent wear correction to \$TC_DP10		DOUBLE		
Description: Offset for \$TC_DP10: \$TC_SCP40[t,d] comparable to \$TC_DP19[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP40[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_SCP40 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP41 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_SCP41[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP41[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP43 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_SCP43[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP43[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP44 [32000,32000]		Location-dependent wear correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_SCP44[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP44[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP44 [32000,32000]		Location-dependent wear correction to \$TC_DP4			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP45 [32000,32000]		Location-dependent wear correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_SCP45[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP45[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP46 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_SCP46[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP46[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP47 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP47[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP47[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_SCP47 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP48 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_SCP48[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP48[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP49 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_SCP49[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP49[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP50 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_SCP50[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP50[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP51 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_SCP51[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP51[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP53 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_SCP53[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP53[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_SCP53 [32000,32000]		Location-dependent wear correction to \$TC_DP3		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_SCP54 [32000,32000]		Location-dependent wear correction to \$TC_DP4		DOUBLE		
Description: Offset for \$TC_DP4: \$TC_SCP54[t,d] comparable to \$TC_DP13[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP54[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_SCP55 [32000,32000]		Location-dependent wear correction to \$TC_DP5		DOUBLE		
Description: Offset for \$TC_DP5: \$TC_SCP55[t,d] comparable to \$TC_DP14[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP55[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_SCP56 [32000,32000]		Location-dependent wear correction to \$TC_DP6		DOUBLE		
Description: Offset for \$TC_DP6: \$TC_SCP56[t,d] comparable to \$TC_DP15[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP56[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP56 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP57 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP57[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP57[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP58 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_SCP58[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP58[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP59 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_SCP59[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP59[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	

\$TC_SCP59 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP60 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_SCP60[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP60[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP61 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_SCP61[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP61[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP63 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_SCP63[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP63[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP63 [32000,32000]		Location-dependent wear correction to \$TC_DP3			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP64 [32000,32000]		Location-dependent wear correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_SCP64[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP64[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP65 [32000,32000]		Location-dependent wear correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_SCP65[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP65[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP66 [32000,32000]		Location-dependent wear correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_SCP66[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP66[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP67 [32000,32000]		Location-dependent wear correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_SCP67[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP67[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP68 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_SCP68[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_SCP68[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_SCP68 [32000,32000]		Location-dependent wear correction to \$TC_DP8			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_SCP69 [32000,32000]		Location-dependent wear correction to \$TC_DP9			DOUBLE	
Description: Offset for \$TC_DP9: \$TC_SCP69[t,d] comparable to \$TC_DP18[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP69[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP70 [32000,32000]		Location-dependent wear correction to \$TC_DP10			DOUBLE	
Description: Offset for \$TC_DP10: \$TC_SCP70[t,d] comparable to \$TC_DP19[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP70[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_SCP71 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Description: Offset for \$TC_DP11: \$TC_SCP71[t,d] comparable to \$TC_DP20[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_SCP71[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.7 OEM user cutting edge data

\$TC_SCP71 [32000,32000]		Location-dependent wear correction to \$TC_DP11			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP13 [32000,32000]		Location-dependent setting correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_ECP13[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP13[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP14 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_ECP14[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP14[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP15 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_ECP15[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP15[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP15 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP16 [32000,32000]		Location-dependent setting correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_ECP16[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP16[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP17 [32000,32000]		Location-dependent setting correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_ECP17[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP17[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP18 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_ECP18[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP18[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_ECP18 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP19 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP19[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP19[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP20 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_ECP20[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP20[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP21 [32000,32000]		Location-dependent setting correction to \$TC_DP11		DOUBLE		
Description:						
Offset for \$TC_DP11: \$TC_ECP21[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP21[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP23 [32000,32000]		Location-dependent setting correction to \$TC_DP3		DOUBLE		
Description:						
Offset for \$TC_DP3: \$TC_ECP23[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP23[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP24 [32000,32000]		Location-dependent setting correction to \$TC_DP4		DOUBLE		
Description:						
Offset for \$TC_DP4: \$TC_ECP24[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP24[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_ECP24 [32000,32000]		Location-dependent setting correction to \$TC_DP4		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_ECP25 [32000,32000]		Location-dependent setting correction to \$TC_DP5		DOUBLE		
Description: Offset for \$TC_DP5: \$TC_ECP25[t,d] comparable to \$TC_DP14[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP25[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_ECP26 [32000,32000]		Location-dependent setting correction to \$TC_DP6		DOUBLE		
Description: Offset for \$TC_DP6: \$TC_ECP26[t,d] comparable to \$TC_DP15[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP26[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_ECP27 [32000,32000]		Location-dependent setting correction to \$TC_DP7		DOUBLE		
Description: Offset for \$TC_DP7: \$TC_ECP27[t,d] comparable to \$TC_DP16[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP27[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP27 [32000,32000]		Location-dependent setting correction to \$TC_DP7			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP28 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_ECP28[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP28[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP29 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP29[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP29[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP30 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_ECP30[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP30[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	

\$TC_ECP30 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP31 [32000,32000]		Location-dependent setting correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_ECP31[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP31[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP33 [32000,32000]		Location-dependent setting correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_ECP33[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP33[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP34 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_ECP34[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP34[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP34 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP35 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_ECP35[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP35[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP36 [32000,32000]		Location-dependent setting correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_ECP36[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP36[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP37 [32000,32000]		Location-dependent setting correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_ECP37[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP37[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP38 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_ECP38[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP38[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP39 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP39[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP39[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP39 [32000,32000]		Location-dependent setting correction to \$TC_DP9		DOUBLE
Axis entry:			Overlap channel:	channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_ECP40 [32000,32000]		Location-dependent setting correction to \$TC_DP10		DOUBLE		
Description: Offset for \$TC_DP10: \$TC_ECP40[t,d] comparable to \$TC_DP19[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP40[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP41 [32000,32000]		Location-dependent setting correction to \$TC_DP11		DOUBLE		
Description: Offset for \$TC_DP11: \$TC_ECP41[t,d] comparable to \$TC_DP20[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP41[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP43 [32000,32000]		Location-dependent setting correction to \$TC_DP3		DOUBLE		
Description: Offset for \$TC_DP3: \$TC_ECP43[t,d] comparable to \$TC_DP12[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP43[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.7 OEM user cutting edge data

\$TC_ECP43 [32000,32000]		Location-dependent setting correction to \$TC_DP3			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP44 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_ECP44[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP44[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP45 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_ECP45[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP45[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP46 [32000,32000]		Location-dependent setting correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_ECP46[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP46[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP46 [32000,32000]		Location-dependent setting correction to \$TC_DP6			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP47 [32000,32000]		Location-dependent setting correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_ECP47[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP47[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP48 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_ECP48[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP48[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP49 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP49[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP49[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

\$TC_ECP49 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP50 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_ECP50[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP50[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP51 [32000,32000]		Location-dependent setting correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_ECP51[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP51[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP53 [32000,32000]		Location-dependent setting correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_ECP53[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP53[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP54 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_ECP54[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP54[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP55 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_ECP55[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP55[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_ECP55 [32000,32000]		Location-dependent setting correction to \$TC_DP5		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_ECP56 [32000,32000]		Location-dependent setting correction to \$TC_DP6		DOUBLE		
Description: Offset for \$TC_DP6: \$TC_ECP56[t,d] comparable to \$TC_DP15[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP56[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_ECP57 [32000,32000]		Location-dependent setting correction to \$TC_DP7		DOUBLE		
Description: Offset for \$TC_DP7: \$TC_ECP57[t,d] comparable to \$TC_DP16[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP57[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_ECP58 [32000,32000]		Location-dependent setting correction to \$TC_DP8		DOUBLE		
Description: Offset for \$TC_DP8: \$TC_ECP58[t,d] comparable to \$TC_DP17[t,d] When the 'flat D number management' function is active, the syntax is as follows: \$TC_ECP58[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP58 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP59 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP59[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP59[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP60 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_ECP60[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP60[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP61 [32000,32000]		Location-dependent setting correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_ECP61[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP61[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	

\$TC_ECP61 [32000,32000]		Location-dependent setting correction to \$TC_DP11			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP63 [32000,32000]		Location-dependent setting correction to \$TC_DP3			DOUBLE	
Description:						
Offset for \$TC_DP3: \$TC_ECP63[t,d] comparable to \$TC_DP12[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP63[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP64 [32000,32000]		Location-dependent setting correction to \$TC_DP4			DOUBLE	
Description:						
Offset for \$TC_DP4: \$TC_ECP64[t,d] comparable to \$TC_DP13[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP64[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP65 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Description:						
Offset for \$TC_DP5: \$TC_ECP65[t,d] comparable to \$TC_DP14[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP65[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP65 [32000,32000]		Location-dependent setting correction to \$TC_DP5			DOUBLE	
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP66 [32000,32000]		Location-dependent setting correction to \$TC_DP6			DOUBLE	
Description:						
Offset for \$TC_DP6: \$TC_ECP66[t,d] comparable to \$TC_DP15[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP66[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP67 [32000,32000]		Location-dependent setting correction to \$TC_DP7			DOUBLE	
Description:						
Offset for \$TC_DP7: \$TC_ECP67[t,d] comparable to \$TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP67[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP68 [32000,32000]		Location-dependent setting correction to \$TC_DP8			DOUBLE	
Description:						
Offset for \$TC_DP8: \$TC_ECP68[t,d] comparable to \$TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP68[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP69 [32000,32000]		Location-dependent setting correction to \$TC_DP9			DOUBLE	
Description:						
Offset for \$TC_DP9: \$TC_ECP69[t,d] comparable to \$TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP69[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ECP70 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Description:						
Offset for \$TC_DP10: \$TC_ECP70[t,d] comparable to \$TC_DP19[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP70[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.7 OEM user cutting edge data

\$TC_ECP70 [32000,32000]		Location-dependent setting correction to \$TC_DP10			DOUBLE	
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	
\$TC_ECP71 [32000,32000]		Location-dependent setting correction to \$TC_DP11			DOUBLE	
Description:						
Offset for \$TC_DP11: \$TC_ECP71[t,d] comparable to \$TC_DP20[t,d]						
When the 'flat D number management' function is active, the syntax is as follows:						
\$TC_ECP71[d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.8 Tool management monitoring data

\$TC_MOP1 [32000,32000]		Prewarning limit of tool life			DOUBLE	
Description:						
\$TC_MOP1[t,d]						
Prewarning limit for downtime						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP2 [32000,32000]		Residual tool life			DOUBLE	
Description:						
\$TC_MOP2[t,d]						
Residual tool life						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP3 [32000,32000]		Prewarning limit quantity			INT	
Description:						
\$TC_MOP3[t,d]						
Prewarning limit for workpiece count						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.8 Tool management monitoring data

\$TC_MOP4 [32000,32000]		Residual workpieces			INT	
Description: \$TC_MOP4[t,d] Residual workpieces						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP5 [32000,32000]		Prewarning limit for wear			DOUBLE	
Description: \$TC_MOP5[t,d] Prewarning limit for wear						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP6 [32000,32000]		Residual wear			DOUBLE	
Description: \$TC_MOP6[t,d] Residual wear						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.8 Tool management monitoring data

\$TC_MOP11 [32000,32000]		Specified tool life			DOUBLE	
Description: \$TC_MOP11[t,d] Specified tool life						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP13 [32000,32000]		Specified workpiece count			INT	
Description: \$TC_MOP13[t,d] Specified workpiece count						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOP15 [32000,32000]		Specified wear			DOUBLE	
Description: \$TC_MOP15[t,d] Specified wear						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.9 OEM user monitoring data

\$TC_MOPC1 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MOPC1[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC2 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MOPC2[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC3 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MOPC3[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC4 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC4[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC5 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC5[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC6 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC6[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC7 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC7[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC8 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC8[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC9 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC9[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC10 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC10[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC11 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC11[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC12 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC12[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC13 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC13[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC14 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC14[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC15 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC15[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC16 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC16[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC17 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC17[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC18 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC18[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC19 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC19[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC20 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC20[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC21 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC21[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC22 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC22[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC23 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC23[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC24 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC24[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC25 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC25[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC26 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC26[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC27 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC27[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC28 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC28[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC29 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC29[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC30 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC30[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC31 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC31[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC32 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC32[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC33 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC33[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC34 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC34[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC35 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC35[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC36 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC36[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC37 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC37[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC38 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC38[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC39 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC39[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC40 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC40[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC41 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC41[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC42 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC42[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC43 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC43[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC44 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC44[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC45 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC45[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC46 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC46[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC47 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC47[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC48 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC48[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC49 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC49[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC50 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC50[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC51 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC51[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC52 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC52[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC53 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC53[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC54 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC54[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC55 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC55[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC56 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC56[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC57 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC57[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC58 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC58[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC59 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC59[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC60 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC60[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPC61 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC61[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC62 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC62[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC63 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPC63[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPC64 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPC64[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS1 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS1[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS2 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS2[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPCS3 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPCS3[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS4 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPCS4[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS5 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MOPCS5[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS6 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS6[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS7 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS7[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS8 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS8[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.9 OEM user monitoring data

\$TC_MOPCS9 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS9[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MOPCS10 [32000,32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MOPCS10[t,d]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 2:	d: Cutting edge number / D number 1 - SLMAXCUTTINGEDGENUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.10 Tool-related data

\$TC_TP2 [32000]		Tool identifier			STRING	
Description:						
\$TC_TP2[t]						
Tool identifier						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP1 [32000]		Duplonumber			INT	
Description:						
\$TC_TP1[t]						
Duplo number						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP3 [32000]		Size on left			INT	
Description:						
\$TC_TP3[t]						
Size on left						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TP4 [32000]		Size on right			INT	
Description: \$TC_TP4[t] Size on right						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP5 [32000]		Size at top			INT	
Description: \$TC_TP5[t] Size at top						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP6 [32000]		Size at bottom			INT	
Description: \$TC_TP6[t] Size at bottom						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP7 [32000]		Magazine location type			INT	
Description: \$TC_TP7[t] Magazine location type						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TP7 [32000]		Magazine location type			INT	
Unit	Init value	Min		Max		
-	9999	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP8 [32000]		Status			INT	
Description:						
\$TC_TP8[t]						
Tool status						
Value 0: Not enabled						
Bit 0: Active tool						
Bit 1: Enabled						
Bit 2: Disabled						
Bit 3: Measure						
Bit 4: Prewarning limit reached						
Bit 5: Tool is being changed						
Bit 6: Fixed-location-coded						
Bit 7: Tool was in use						
Bit 8: Tool in buffer magazine with transport order						
Bit 9=1: Ignore disabled status of the tool						
Bit 9=0: Do not ignore						
Bit 10: Tool is to be unloaded						
Bit 11: Tool is to be loaded						
Bit 12: Tool is master tool						
Bit 13: Reserved						
Bit 14: Tool marked for 1:1 replacement						
Bit 15: Tool in use as manual tool						
Bit 16: Reserved						
Bit 17: Tool is at a disabled magazine location						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	0		0x3FFFF		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TP9 [32000]		Type of tool monitoring			INT	
Description: \$TC_TP9[t] Type of tool monitoring						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP11 [32000]		Sub-group for \$P_USEKT			INT	
Description: \$TC_TP11[t] Specification of the sub-group to which the tool belongs. (See \$P_USEKT) The data is bit-coded.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP10 [32000]		Order of the replacement tools for tool search			INT	
Description: \$TC_TP10[t] Selection order of replacement tools if this is set with \$TC_MAMP2, bit 3 Replacement tool is selected with ascending values. The uniqueness is not checked.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP_PROTA [32000]		Name for the protection zone			STRING	
Description:						
\$TC_TP_PROTA[t]						
Name of the 3-dimensional protection area for the Multitool, or the name of the file that contains the description of the protection area for the Multitool. A new name can only be written if the collision avoidance or 3D protection area function is activated.						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 3:	Maximum file name length (collision avoidance/3D protection areas function)					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP_MAX_VELO [32000]		Maximum speed of the tool			DOUBLE	
Description:						
\$TC_TP_MAX_VELO[t]						
Maximum speed of the tool when the value is >0. There is no monitoring if a speed limit has not been defined (=0).						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
rpm	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	4	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TP_MAX_ACC [32000]		Maximum acceleration of the tool			DOUBLE	
Description:						
\$TC_TP_MAX_ACC[t]						
Maximum acceleration of the tool when the value is >0. There is no monitoring if an acceleration limit has not been defined (=0).						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
rps ²	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	4	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TPC1 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC1[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC2 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC2[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC3 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC3[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC4 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC4[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TPC4 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC5 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC5[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC6 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC6[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC7 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC7[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.10 Tool-related data

\$TC_TPC7 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC8 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC8[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC9 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC9[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC10 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC10[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC11 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC11[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC12 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC12[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC13 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC13[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC14 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC14[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.10 Tool-related data

\$TC_TPC14 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC15 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC15[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC16 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC16[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC17 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC17[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_TPC17 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC18 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC18[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC19 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC19[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC20 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC20[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TPC21 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC21[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC22 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC22[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC23 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC23[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC24 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC24[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TPC24 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC25 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC25[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC26 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC26[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC27 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC27[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.10 Tool-related data

\$TC_TPC27 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC28 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC28[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC29 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC29[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC30 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC30[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC31 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC31[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC32 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC32[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC33 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC33[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC34 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC34[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.10 Tool-related data

\$TC_TPC34 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC35 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC35[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC36 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC36[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC37 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC37[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_TPC37 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC38 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC38[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC39 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC39[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC40 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC40[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TPC41 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC41[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC42 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC42[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC43 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC43[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC44 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC44[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TPC44 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC45 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC45[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC46 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC46[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC47 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC47[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.10 Tool-related data

\$TC_TPC47 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC48 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC48[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC49 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC49[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC50 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC50[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC51 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC51[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC52 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC52[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC53 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC53[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC54 [32000]		-		DOUBLE		
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC54[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.10 Tool-related data

\$TC_TPC54 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC55 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC55[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC56 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC56[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC57 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting						
\$TC_TPC57[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_TPC57 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC58 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC58[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC59 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC59[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC60 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC60[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.10 Tool-related data

\$TC_TPC61 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC61[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC62 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC62[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC63 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC63[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPC64 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPC64[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TPC64 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS1 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS1[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS2 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS2[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS3 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS3[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.10 Tool-related data

\$TC_TPCS3 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS4 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS4[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS5 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS5[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS6 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS6[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS7 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS7[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS8 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS8[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS9 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS9[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPCS10 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. DOUBLE is the default setting \$TC_TPCS10[t]						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

List of system variables

3.10 Tool-related data

\$TC_TPCS10 [32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.11 Tool-related grinding data

\$TC_TPG1 [32000]		-		INT		
Description:						
\$TC_TPG1[t]						
Spindle number						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG2 [32000]		-		INT		
Description:						
\$TC_TPG2[t]						
Chaining rule						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG3 [32000]		-		DOUBLE		
Description:						
\$TC_TPG3[t]						
Minimum grinding wheel radius						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.11 Tool-related grinding data

\$TC_TPG4 [32000]		-		DOUBLE		
Description: \$TC_TPG4[t] Minimum grinding wheel width						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG5 [32000]		-		DOUBLE		
Description: \$TC_TPG5[t] Current grinding wheel width						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG6 [32000]		-		DOUBLE		
Description: \$TC_TPG6[t] Maximum speed						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG7 [32000]		-		DOUBLE		
Description: \$TC_TPG7[t] Max. peripheral speed						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					

\$TC_TPG7 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
m/sec	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG8 [32000]		-		DOUBLE		
Description:						
\$TC_TPG8[t]						
Angle of inclined grinding wheel						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG9 [32000]		-		INT		
Description:						
\$TC_TPG9[t]						
Parameter no. f. radius calculation						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG_DRSPROG [32000]		Parameters for file name		STRING		
Description:						
\$TC_TPG_DRSPROG[t]						
Parameters for file name						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 3:						
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						

List of system variables

3.11 Tool-related grinding data

\$TC_TPG_DRSPROG [32000]		Parameters for file name			STRING	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_TPG_DRSPATH [32000]		Parameters for path			STRING	
Description:						
\$TC_TPG_DRSPATH[t] Parameters for path						
Index 1:	t: T number 1 - SLMAXTOOLNUMBER					
Index 3:	Maximum path length (160 characters)					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.12 Magazine location data

\$TC_MPP3 [32000,32000]		Consider adjacent location ON			BOOL	
Description:						
\$TC_MPP3[n,m]						
Consider adjacent location On/Off						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPP1 [32000,32000]		Location type			INT	
Description:						
\$TC_MPP1[n,m]						
Location type						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPP2 [32000,32000]		Location type			INT	
Description:						
\$TC_MPP2[n,m]						
Location type						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	9999	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.12 Magazine location data

\$TC_MPP6 [32000,32000]		T no. of the tool at this location			INT	
Description: \$TC_MPP6[n,m] T no. of tool in this location						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPP4 [32000,32000]		Location status			INT	
Description: \$TC_MPP4[n,m] Location status Bit 0: Disabled Bit 1=1: Free to hold a tool Bit 1=0: Occupied Bit 2: Reserved for tool from buffer magazine Bit 3: Reserved for tool to be newly loaded Bit 4: Occupied in left half location Bit 5: Occupied in right half location Bit 6: Occupied in upper half location Bit 7: Occupied in lower half location Bit 8: Left half location reserved Bit 9: Right half location reserved Bit 10: Lower half location reserved Bit 11: Lower half location reserved Bit 12: Wear group disabled Bit 13: Disabled magazine location can be overlapped by oversize tool						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	2	0			0x3FFF	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPP5 [32000,32000]		Location type index/wear group number			INT	
Description:						
\$TC_MPP5[n,m]						
Buffer magazine: Location type index						
Real magazines: Wear group number						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MPP7 [32000,32000]		Adapter number of tool adapter at this location			INT	
Description:						
\$TC_MPP7[n,m]						
Adapter number of tool adapter in this location						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MPP66 [32000,32000]		Reserved for T no.			INT	
Description:						
\$TC_MPP66[n,m]						
T no. of tool stored in buffer						
for which the location defined by n,m is reserved.						
A write operation is meaningful only when a backup file is loaded to the NCK.						
The name assignment is based on \$TC_MPP6 - T no. of tool stored in the magazine location.						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7

List of system variables

3.12 Magazine location data

\$TC_MPP66 [32000,32000]		Reserved for T no.			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_MPP_SP [32000,32000]		Spindle number assigned to the tool holder			INT	
Description:						
\$TC_MPP_SP[n,m]						
Only of significance if						
- Working with tool holders (\$MC_TOOLHOLDER_MANAGEMENT > 0)						
- The magazine location "m" belongs to a buffer magazine "n"						
- The magazine location describes a tool holder (\$TC_MPP1[n,m]=2)						
In this case, the system variable contains the spindle number whose speed is to be monitored for the maximum tool speed.						
When not working with tool holders (\$MC_TOOLHOLDER_MANAGEMENT = 0), the variable contains the value of the spindle index from \$TC_MPP5.						
This variable contains the value =0 if the magazine location "n,m" is not a buffer magazine location for a spindle or tool holder.						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC1 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MPPC1[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC2 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MPPC2[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC3 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MPPC3[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC4 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC4[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC5 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC5[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC6 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC6[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC7 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC7[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC8 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC8[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC9 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC9[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC10 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC10[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC11 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC11[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC12 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC12[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC13 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC13[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC14 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC14[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC15 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC15[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC16 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC16[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC17 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC17[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC18 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC18[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC19 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC19[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC20 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC20[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC21 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC21[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC22 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC22[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC23 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC23[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC24 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC24[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC25 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC25[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC26 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC26[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC27 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC27[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC28 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC28[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC29 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC29[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC30 [32000,32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC30[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC31 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC31[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC32 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC32[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC33 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC33[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC34 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC34[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC35 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC35[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC36 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC36[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC37 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC37[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC38 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC38[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC39 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC39[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC40 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC40[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC41 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC41[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC42 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC42[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC43 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC43[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC44 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC44[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC45 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC45[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC46 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC46[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC47 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC47[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC48 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC48[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC49 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC49[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC50 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC50[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC51 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC51[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC52 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC52[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC53 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC53[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC54 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC54[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC55 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC55[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC56 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC56[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC57 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC57[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC58 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC58[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC59 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC59[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC60 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC60[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPC61 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC61[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC62 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC62[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPC63 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC63[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPC64 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPC64[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS1 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS1[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS2 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS2[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPCS3 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS3[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS4 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS4[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS5 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS5[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.13 OEM user magazine location data

\$TC_MPPCS6 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS6[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS7 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS7[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS8 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS8[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.13 OEM user magazine location data

\$TC_MPPCS9 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS9[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPPCS10 [32000,32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MPPCS10[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MDP1 [32000,32000]		-		INT		
Description:						
\$TC_MDP1[n,m] Distance to tool change point betw. magazine n and location m of 1st internal magazine internal mag. 1 distance parameter						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-

List of system variables

3.13 OEM user magazine location data

\$TC_MDP1 [32000,32000]		-		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$TC_MDP2 [32000,32000]		-		INT		
Description: \$TC_MDP2[n,m] Distance to tool change point betw. magazine n and location m of 2nd internal magazine internal mag. 2 distance parameter						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MLSR [32000,32000]		-		INT		
Description: \$TC_MLSR[n,m]=0 Assignment of buffer location n to buffer location m m must identify a location of type 'Spindle'. n must identify a location which is not a 'Spindle' type location. In this way it is possible, for example, to define which grippers, spindles, etc. are assigned. The default parameter setting is 0. The write operation defines a relationship, the read operation checks whether a particular relationship exists. If it does not exist, the read operation generates an alarm.						
Index 1:	m: Physical magazine location number of location type not equal to SPINDLE					
Index 2:	m: Physical magazine location number of location type equal to SPINDLE					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MPTH [32,32]	Magazine location type hierarchy			INT		
Description:						
\$TC_MPTH[n,m]						
Magazine location type hierarchy						
The location types can be brought into a hierarchy by programming these system variables.						
n: = Index of the hierarchy, from 0... \$MN_MM_MAX_NUM_OF_HIERARCHIES-1						
m: = Index within the hierarchy n, from 0... \$MN_MM_MAX_HIERARCHY_ENTRIES-1						
Index 1:	n: Hierarchy 0 - SLMAXHIERARCHYNUMBER-1					
Index 2:	m: Location type 0 - SLMAXHIERARCHYENTRIES - 1					
Unit	Init value	Min	Max			
-	9999	1	32000			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.14 Tool management magazine description data

3.14 Tool management magazine description data

\$TC_MAP2 [32000]		Identifier of magazine			STRING	
Description: \$TC_MAP2[n] Identifier of magazine						
Index 1:	n: Magazine number 1 - ..					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAP1 [32000]		Type of magazine			INT	
Description: \$TC_MAP1[n] Type of magazine						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAP3 [32000]		Status of magazine			INT	
Description: \$TC_MAP3[n] Status of magazine						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	2	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.14 Tool management magazine description data

\$TC_MAP4 [32000]		Reserved			INT	
Description: \$TC_MAP4[n] Chaining to next magazine						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	-1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MAP5 [32000]		Reserved			INT	
Description: \$TC_MAP5[n] Chaining to previous magazine						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	-1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MAP6 [32000]		Number of lines			INT	
Description: \$TC_MAP6[n] Number of lines						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	1	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MAP7 [32000]		Number of columns			INT	
Description: \$TC_MAP7[n] Number of columns						
Index 1:	n: Magazine number 1 - ..					

List of system variables

3.14 Tool management magazine description data

\$TC_MAP7 [32000]		Number of columns			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MAP8 [32000]		Current magazine position in relation to tool change position			INT	
Description:						
\$TC_MAP8[n]						
Current magazine position in relation to tool change position						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_MAP9 [32000]		Current wear group number			INT	
Description:						
\$TC_MAP9[n]						
Current wear group number						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.14 Tool management magazine description data

\$TC_MAP10 [32000]	Current search strategies of the magazine.			INT		
Description:						
\$TC_MAP10[n]						
Current search strategies of the magazine						
- Tool search strategy						
- Empty location search strategy (bits 14, 15 and 16 cannot be changed and are hidden.)						
The NCK enters the value from \$TC_MAMP2 as default. In particular the globally effective bits 14, 15 and 16 are entered via \$TC_MAMP2 .						
A set bit has the following meaning:						
Tool search:						
Bit0=0: (Default strategy) Take the first available tool found in the tool group. Search first in the magazine from which the last change was made.						
Bit0=1: Select the "active" tool in the magazine of the previously changed tool, otherwise find the replacement tool with the lowest duplo number. If no tool is found in this magazine, the search is continued in the other linked magazines.						
Bit1: Find the next replacement tool that is closest to the current magazine position.						
Bit2: Select the "active" tool, otherwise the replacement tool with the lowest number contained in \$TC_TP10.						
Bit3: Find the tool in the group with the lowest actual value of the monitored size.						
Bit4: Find the tool in the group with the highest actual value of the monitored size.						
Bit5: Reserved						
Bit6: Search first in the currently considered magazine (effective only in conjunction with bit 7=1).						
Bit7=0: Start the tool search in the magazine from which the last changed tool came.						
Bit7=1: Always start the search in the 1st magazine in the distance table.						
Note:						
Bit7=1 + bit0=1 or bit2=1, if no "active tool" is found in the magazine, then - if present - the active tool is selected from one of the other magazines linked to the tool holder						
Empty location search:						
Bit8: Search forwards. Search in ascending order from location no. 1.						
Bit9: Search forwards. Search in ascending order from the current location at the change position.						
Bit10: Search backwards. Search backwards from the last location no.						
Bit11: Search backwards. Search backwards from the current location at the change position.						
Bit12: Symmetrical search. The search starts at the current location no. at the change position (1st location left, 1st location right, 2nd location left, 2nd location right. and so on).						
Bit13: 1:1 exchange (only with tool change of significance): If the old and new tools have the same location type and size, the magazine location of the "new" tool to be loaded is transferred to the "old" tool to be unloaded and vice versa. The 1:1 exchange is checked first. If the 1:1 exchange is not possible, the other settings become effective for the search strategy.						
Bit14=0: Search first in the individual magazines. If no possible location is found, search for a free location for the tool in the next magazine.						
Bit14=1: Search in all magazines for the best location for the tool corresponding to the hierarchy.						
Bit15=0: (Conventional type of hierarchy): With this type, the location type of the sought tool is sought in the table of system variables \$TC_MPTH. If the location type is found, this hierarchy is accepted, and evaluated from this level to the end.						
Bit15=1: (Alternative type of hierarchy: Location type hierarchies can be defined for the selected location types 1, ..., \$MN_MM_MAX_NUM_OF_HIERARCHIES. The hierarchy for location type 1 is defined by \$TC_MPTH[0,n], that for location type 2 by \$TC_MPTH[1,n], and so on. (n: index within a hierarchy). With this setting, one location type can be defined in different hierarchies.						
Bit16: The hierarchy analysis is canceled for the mini hierarchy that consists merely of the location type itself and location type 0. In this case, the empty location search does not distinguish between the suitable location type (\$TC_TP7 == \$TC_MPP2) and the general location type "0" of the magazine location.\$TC_MAP10[n].						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.14 Tool management magazine description data

\$TC_MAP10 [32000]		Current search strategies of the magazine.			INT	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.15 OEM user tool management magazine description data

\$TC_MAPC1 [32000]		-	INT			
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC1[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC2 [32000]		-	INT			
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC2[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC3 [32000]		-	INT			
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC3[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC4 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC4[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC5 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC5[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC6 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC6[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC7 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC7[n]						
Index 1:	n: Magazine number 1 - ..					

3.15 OEM user tool management magazine description data

\$TC_MAPC7 [32000]			-	INT		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC8 [32000]			-	INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC8[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC9 [32000]			-	INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC9[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC10 [32000]			-	INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC10[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC10 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC11 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC11[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC12 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC12[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC13 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC13[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.15 OEM user tool management magazine description data

\$TC_MAPC14 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC14[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC15 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC15[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC16 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC16[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC17 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC17[n]						
Index 1:	n: Magazine number 1 - ..					

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC17 [32000]		-			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC18 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC18[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC19 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC19[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC20 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC20[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.15 OEM user tool management magazine description data

\$TC_MAPC20 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC21 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC21[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC22 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC22[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC23 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC23[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC24 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC24[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC25 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC25[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC26 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC26[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC27 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC27[n]						
Index 1:	n: Magazine number 1 - ..					

3.15 OEM user tool management magazine description data

\$TC_MAPC27 [32000]		-		INT		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC28 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC28[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC29 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC29[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC30 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC30[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC30 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC31 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC31[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC32 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC32[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC33 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC33[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.15 OEM user tool management magazine description data

\$TC_MAPC34 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC34[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC35 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC35[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC36 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC36[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC37 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC37[n]						
Index 1:	n: Magazine number 1 - ..					

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC37 [32000]		-			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC38 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC38[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC39 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC39[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC40 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC40[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.15 OEM user tool management magazine description data

\$TC_MAPC40 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC41 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC41[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC42 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC42[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC43 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC43[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC44 [32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC44[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC45 [32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC45[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC46 [32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC46[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC47 [32000]		-		INT		
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC47[n]						
Index 1:	n: Magazine number 1 - ..					

3.15 OEM user tool management magazine description data

\$TC_MAPC47 [32000]		-		INT		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC48 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC48[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC49 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC49[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC50 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC50[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC50 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC51 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC51[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC52 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC52[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC53 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPC53[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.15 OEM user tool management magazine description data

\$TC_MAPC54 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC54[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC55 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC55[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC56 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC56[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC57 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC57[n]						
Index 1:	n: Magazine number 1 - ..					

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC57 [32000]		-			INT	
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC58 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC58[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC59 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC59[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC60 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC60[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.15 OEM user tool management magazine description data

\$TC_MAPC60 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC61 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC61[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC62 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC62[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPC63 [32000]		-			INT	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MAPC63[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPC64 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPC64[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS1 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS1[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS2 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS2[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS3 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS3[n]						
Index 1:	n: Magazine number 1 - ..					

3.15 OEM user tool management magazine description data

\$TC_MAPCS3 [32000]		-		INT		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS4 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS4[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS5 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS5[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS6 [32000]		-		INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS6[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.15 OEM user tool management magazine description data

\$TC_MAPCS6 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS7 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPCS7[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS8 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPCS8[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAPCS9 [32000]		-			INT	
Description: The type can be specified by machine data. INT is the default setting \$TC_MAPCS9[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.15 OEM user tool management magazine description data

\$TC_MAPCS10 [32000]	-			INT		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MAPCS10[n]						
Index 1:	n: Magazine number 1 - ..					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.16 Magazine module parameters

\$TC_MAMP1	Identifier of magazine block		STRING			
Description:						
\$TC_MAMP1 Identifier of magazine block						
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	"n"					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MAMP2	Type of search strategy (tool search and empty location search)			INT		
Description:						
\$TC_MAMP2						
Type of tool search (bit0..7) and type of empty location search (bit8..16)						
Tool search:						
Bit0=0: (Default strategy) Take the first available tool found in the tool group. Search first in the magazine from which the last change was made.						
Bit0=1: Select the "active" tool in the magazine of the previously changed tool, otherwise find the replacement tool with the lowest duplo number. If no tool is found in this magazine, the search is continued in the other linked magazines.						
Bit1: Find the next replacement tool that is closest to the current magazine position.						
Bit2: Select the "active" tool, otherwise the replacement tool with the lowest number contained in \$TC_TP10.						
Bit3: Find the tool in the group with the lowest actual value of the monitored size.						
Bit4: Find the tool in the group with the highest actual value of the monitored size.						
Bit5: Reserved						
Bit6: Search first in the currently considered magazine (effective only in conjunction with bit 7=1).						
Bit7=0: Start the tool search in the magazine from which the last changed tool came.						
Bit7=1: Always start the search in the 1st magazine in the distance table.						
Note:						
Bit7=1 + bit0=1 or bit2=1, if no "active tool" is found in the magazine, then - if present - the active tool is selected from one of the other magazines linked to the tool holder						
Empty location search:						
Bit8: Search forwards. Search in ascending order from location no. 1.						
Bit9: Search forwards. Search in ascending order from the current location at the change position.						
Bit10: Search backwards. Search backwards from the last location no.						
Bit11: Search backwards. Search backwards from the current location at the change position.						
Bit12: Symmetrical search. The search starts at the current location no. at the change position (1st location left, 1st location right, 2nd location left, 2nd location right. and so on).						
Bit13: 1:1 exchange (only with tool change of significance): If the old and new tools have the same location type and size, the magazine location of the "new" tool to be loaded is transferred to the "old" tool to be unloaded and vice versa. The 1:1 exchange is checked first. If the 1:1 exchange is not possible, the other settings become effective for the search strategy.						
Bit14=0: Search first in the individual magazines. If no possible location is found, search for a free location for the tool in the next magazine.						
Bit14=1: Search in all magazines for the best location for the tool corresponding to the hierarchy.						
Bit15=0: (Conventional type of hierarchy): With this type, the location type of the sought tool is sought in the table of system variables \$TC_MPTH. If the location type is found, this hierarchy is accepted, and evaluated from this level to the end.						
Bit15=1: (Alternative type of hierarchy: Location type hierarchies can be defined for the selected location types 1, ..., \$MN_MM_MAX_NUM_OF_HIERARCHIES. The hierarchy for location type 1 is defined by \$TC_MPTH[0,n], that for location type 2 by \$TC_MPTH[1,n], and so on. (n: index within a hierarchy). With this setting, one location type can be defined in different hierarchies.						
Bit16: The hierarchy analysis is canceled for the mini hierarchy that consists merely of the location type itself and location type 0. In this case, the empty location search does not distinguish between the suitable location type (\$TC_TP7 == \$TC_MPP2) and the general location type "0" of the magazine location.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.16 Magazine module parameters

\$TC_MAMP3		Handling of tools in wear groups			INT	
Description:						
\$TC_MAMP3						
Handling of tools in wear groups						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.17 Adapter data

\$TC_ADPTT [32000]		Adapter transformation number			INT	
Description:						
\$TC_ADPTT[a]						
Adapter transformation number (adapter type 1)						
Index 1:		a: Adapter number 1 - SLMAXADAPTERNUMBER				
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT1 [32000]		Adapter geometry: Length 1			DOUBLE	
Description:						
\$TC_ADPT1[a]						
Adapter geometry: Length 1 (adapter type 1)						
Index 1:		a: Adapter number 1 - SLMAXADAPTERNUMBER				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT2 [32000]		Adapter geometry: Length 2			DOUBLE	
Description:						
\$TC_ADPT2[a]						
Adapter geometry: Length 2 (adapter type 1)						
Index 1:		a: Adapter number 1 - SLMAXADAPTERNUMBER				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.17 Adapter data

\$TC_ADPT3 [32000]		Adapter geometry: Length 3			DOUBLE	
Description: \$TC_ADPT3[a] Adapter geometry: Length 3 (adapter type 1)						
Index 1:	a: Adapter number 1 - SLMAXADAPTERNUMBER					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT_TYPE [32000]		Tool adapter type			INT	
Description: \$TC_ADPT_TYPE[n] Tool adapter type 0: No adapter defined by the number "n". 1: Adapter with the number "n" is type 1. (Old type) 2: Adapter with the number "n" is type 2. (Angle head adapter) The adapter is deleted with \$TC_ADPT_TYPE[n] = 0. If other values are written to \$TC_ADPT_TYPE, they are ignored (no alarm).						
Index 1:	Adapter number: 1 - SLMAXADAPTERNUMBER					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT_OFF [32000,3,3]		Type 2 adapter: Offset			DOUBLE	
Description: \$TC_ADPT_OFF[n,3,3] Type 2 adapter: Offset It is determined by 3 vector parameters per adapter. The vector parameters describe the adapter elements. All vector parameters have 3 coordinates.						
Index 1:	Adapter number: 1 - SLMAXADAPTERNUMBER					
Index 2:	Element number in type 2 adapter (angle head adapter)					
Index 3:	Number of the vector component of the type 2 adapter element					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_ADPT_OFF [32000,3,3]		Type 2 adapter: Offset			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT_DIR [32000,3,3]		Type 2 adapter: Direction of rotary axis			DOUBLE	
Description:						
\$TC_ADPT_DIR[n,3,3]						
Type 2 adapter: Direction of rotary axis						
It is determined by 3 vector parameters per adapter.						
The vector parameters describe the direction of the adapter rotary axes.						
All vector parameters have 3 coordinates.						
Index 1:	Adapter number: 1 - SLMAXADAPTERNUMBER					
Index 2:	Rotary axis number in the type 2 adapter (angle head adapter)					
Index 3:	Number of the direction component in the type 2 adapter rotary axis					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ADPT_ANG [32000,3]		Type 2 adapter: Angle			DOUBLE	
Description:						
\$TC_ADPT_ANG[n,3]						
Type 2 adapter: Angle						
There are 3 angle parameters per adapter.						
Index 1:	Adapter number: 1 - SLMAXADAPTERNUMBER					
Index 2:	Angle number in type 2 adapter (angle head adapter)					
Unit	Init value	Min		Max		
deg.	0.0	-360		360		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.17 Adapter data

\$TC_ADPT_ANG_CONST [32000,3]	Type 2 adapter: Angle offset			DOUBLE		
Description:						
\$TC_ADPT_ANG[n,3]						
Type 2 adapter: Angle offset						
There are 3 angle offset parameters per adapter.						
The 2nd angle parameter is limited to +/-180 degrees.						
Index 1:	Adapter number: 1 - SLMAXADAPTERNUMBER					
Index 2:	Angle offset number in type 2 adapter (angle head adapter)					
Unit	Init value	Min			Max	
deg.	0.0	-360			360	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.18 Multitool data

\$TC_MTPN [32000]		Number of locations in the Multitool			INT	
Description:						
\$TC_MTPN[n]						
Number of locations in the Multitool						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP2 [32000]		Identifier of Multitool			STRING	
Description:						
\$TC_MTP2[n]						
Identifier of Multitool						
Index 1:	n: Multitool number					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP3 [32000]		Size on left			INT	
Description:						
\$TC_MTP3[n]						
Size to the left						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.18 Multitool data

\$TC_MTP4 [32000]		Size on right			INT	
Description: \$TC_MTP4[n] Size to the right						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP5 [32000]		Size at top			INT	
Description: \$TC_MTP5[n] Upward size						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP6 [32000]		Size at bottom			INT	
Description: \$TC_MTP6[n] Downward size						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	1	1			11	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP7 [32000]		Multitool location type			INT	
Description: \$TC_MTP7[n] Multitool location type						
Index 1:	n: Multitool number					

\$TC_MTP7 [32000]		Multitool location type			INT	
Unit	Init value	Min		Max		
-	9999	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP8 [32000]		Multitool status			INT	
Description:						
\$TC_MTP8[n]						
Multitool status						
Value 0: Not enabled						
Bit 0: Active MT						
Bit 1: Enabled						
Bit 2: Disabled						
Bit 3: Measure						
Bit 4: Prewarning limit reached						
Bit 5: MT is being changed						
Bit 6: Fixed-location-coded						
Bit 7: MT was in use						
Bit 8: MT in buffer magazine with transport order						
Bit 9: Ignore disabled status of the MT						
Bit 10: MT must be unloaded						
Bit 11: MT must be loaded						
Bit 12: Master tool						
Bit 13: Reserved						
Bit 14: Marked for 1:1 replacement						
Bit 15: Manual tool						
Bit 16: MT is disabled if a tool is disabled in the MT						
Bit 17: MT is at a disabled magazine location						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	0		0x3FFFF		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP_POS [32000]		Position			INT	
Description:						
\$TC_MTP_POS[n]						
Position						
Index 1:	n: Multitool number					

List of system variables

3.18 Multitool data

\$TC_MTP_POS [32000]		Position			INT	
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP_KD [32000]		Type of distance coding			INT	
Description:						
\$TC_MTP_KD[n] Type of distance coding						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	1	1		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTP_PROTA [32000]		Name for the protection zone			STRING	
Description:						
\$TC_MTP_PROTA[n] Name of the 3-dimensional protection area for the Multitool, or the name of the file that contains the description of the protection area for the Multitool. A new name can only be written if the collision avoidance or 3D protection area function is activated.						
Index 1:	n: Multitool number					
Index 3:	Maximum file name length (collision avoidance/3D protection areas function)					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC1 [32000]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPC1[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						

\$TC_MTPC1 [32000]		-			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC2 [32000]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPC2[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC3 [32000]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPC3[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC4 [32000]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPC4[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPC4 [32000]		-			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_MTPC5 [32000]		-			DOUBLE	
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPC5[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC6 [32000]		-			DOUBLE	
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPC6[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC7 [32000]		-			DOUBLE	
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPC7[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC8 [32000]		-		DOUBLE		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPC8[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC9 [32000]		-		DOUBLE		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPC9[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC10 [32000]		-		DOUBLE		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPC10[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC11 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC11[n]						
Index 1:	n: Multitool number					

List of system variables

3.18 Multitool data

\$TC_MTPC11 [32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC12 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC12[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC13 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC13[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC14 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC14[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_MTPC14 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC15 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC15[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC16 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC16[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC17 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC17[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.18 Multitool data

\$TC_MTPC18 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC18[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC19 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC19[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC20 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC20[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC21 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC21[n]						
Index 1:	n: Multitool number					

\$TC_MTPC21 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC22 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC22[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC23 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC23[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC24 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC24[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.18 Multitool data

\$TC_MTPC24 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC25 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC25[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC26 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC26[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC27 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC27[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC28 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC28[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC29 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC29[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC30 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC30[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC31 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC31[n]						
Index 1:	n: Multitool number					

List of system variables

3.18 Multitool data

\$TC_MTPC31 [32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC32 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC32[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC33 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC33[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC34 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC34[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_MTPC34 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC35 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC35[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC36 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC36[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC37 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC37[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.18 Multitool data

\$TC_MTPC38 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC38[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC39 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC39[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC40 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC40[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC41 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC41[n]						
Index 1:	n: Multitool number					

\$TC_MTPC41 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC42 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC42[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC43 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC43[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC44 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC44[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.18 Multitool data

\$TC_MTPC44 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC45 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC45[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC46 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC46[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC47 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC47[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC48 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC48[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC49 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC49[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC50 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC50[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC51 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC51[n]						
Index 1:	n: Multitool number					

List of system variables

3.18 Multitool data

\$TC_MTPC51 [32000]		-			DOUBLE	
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC52 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC52[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC53 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC53[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC54 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC54[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_MTPC54 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC55 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC55[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC56 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC56[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC57 [32000]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC57[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.18 Multitool data

\$TC_MTPC58 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC58[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC59 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC59[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC60 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC60[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC61 [32000]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPC61[n]						
Index 1:	n: Multitool number					

\$TC_MTPC61 [32000]		-		DOUBLE		
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC62 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC62[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC63 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC63[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPC64 [32000]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting \$TC_MTPC64[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.18 Multitool data

\$TC_MTPC64 [32000]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS1 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS1[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS2 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS2[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS3 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS3[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS4 [32000]		-		INT		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPCS4[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS5 [32000]		-		INT		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPCS5[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS6 [32000]		-		INT		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPCS6[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS7 [32000]		-		INT		
Description:						
The type can be specified by the machine data. Default setting is INT \$TC_MTPCS7[n]						
Index 1:	n: Multitool number					

List of system variables

3.18 Multitool data

\$TC_MTPCS7 [32000]		-			INT	
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS8 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS8[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS9 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS9[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPCS10 [32000]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPCS10[n]						
Index 1:	n: Multitool number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_MTPCS10 [32000]		-			INT	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPP2 [32000,72]		Multitool location type			INT	
Description: \$TC_MTPP2[n,m] Multitool location type						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	0			32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPP4 [32000,72]		Multitool location status			INT	
Description: \$TC_MTPP4[n,m] Multitool location status Bit 0=1: Disabled Bit 0=0: Enabled Bit 1=1: Free to hold a tool Bit 1=0: Occupied						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	2	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPP6 [32000,72]		T no. of the tool at this Multitool location			INT	
Description: \$TC_MTPP6[n,m] T No. of the tool on this Multitool location						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	

List of system variables

3.18 Multitool data

\$TC_MTPP6 [32000,72]		T no. of the tool at this Multitool location			INT	
-	0	0			32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPP7 [32000,72]		Adapter number of the tool adapter at this Multitool location			INT	
Description:						
\$TC_MTPP7[n,m]						
Adapter number of the tool adapter on this Multitool location						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value		Min		Max	
-	0		0		32000	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPL [32000,72]		Distance from reference location, length			DOUBLE	
Description:						
\$TC_MTPPL[n,m]						
Distance from reference location, length						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPA [32000,72]		Distance from reference location, angle			DOUBLE	
Description:						
\$TC_MTPPA[n,m]						
Distance from reference location, angle						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value		Min		Max	
deg.	0.0		0.0		360.0	

\$TC_MTPPA [32000,72]		Distance from reference location, angle			DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC1 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC1[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC2 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC2[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC3 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC3[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						

List of system variables

3.18 Multitool data

\$TC_MTPPC3 [32000,72]		-			DOUBLE	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC4 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC4[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC5 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC5[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC6 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC6[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$TC_MTPPC6 [32000,72]		-			DOUBLE	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC7 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC7[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC8 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC8[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC9 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPC9[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC9 [32000,72]		-			DOUBLE	
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC10 [32000,72]		-			DOUBLE	
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPC10[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC11 [32000,72]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC11[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC12 [32000,72]		-			DOUBLE	
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC12[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC12 [32000,72]		-		DOUBLE	
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_MTPPC13 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC13[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC14 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC14[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC15 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC15[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC15 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC16 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC16[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC17 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC17[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC18 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC18[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC18 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC19 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC19[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC20 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC20[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC21 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC21[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC21 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC22 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC22[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC23 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC23[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC24 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC24[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC24 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC25 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC25[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC26 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC26[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC27 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC27[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC27 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC28 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC28[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC29 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC29[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC30 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC30[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC30 [32000,72]	-			DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$TC_MTPPC31 [32000,72]	-			DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC31[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC32 [32000,72]	-			DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC32[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC33 [32000,72]	-			DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC33[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC33 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC34 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC34[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC35 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC35[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC36 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC36[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC36 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC37 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC37[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC38 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC38[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC39 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC39[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC39 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC40 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC40[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC41 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC41[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC42 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC42[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC42 [32000,72]	-	DOUBLE
Axis entry:		Overlap channel: channel-specific
Scan mode:	Not classified	Link: No restrictions

\$TC_MTPPC43 [32000,72]	-	DOUBLE
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC43[n,m]		
Index 1:	n: Multitool number	
Index 2:	m: Multitool location number	
Unit	Init value	Min
-	0	-2147483648
Read/Write properties:		
	TP	SA
Read:	X	-
Write:	X	-
Axis entry:		Overlap channel: channel-specific
Scan mode:	Not classified	Link: No restrictions

\$TC_MTPPC44 [32000,72]	-	DOUBLE
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC44[n,m]		
Index 1:	n: Multitool number	
Index 2:	m: Multitool location number	
Unit	Init value	Min
-	0	-2147483648
Read/Write properties:		
	TP	SA
Read:	X	-
Write:	X	-
Axis entry:		Overlap channel: channel-specific
Scan mode:	Not classified	Link: No restrictions

\$TC_MTPPC45 [32000,72]	-	DOUBLE
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC45[n,m]		
Index 1:	n: Multitool number	
Index 2:	m: Multitool location number	
Unit	Init value	Min
-	0	-2147483648
Read/Write properties:		
	TP	SA
Read:	X	-
Write:	X	-

List of system variables

3.18 Multitool data

\$TC_MTPPC45 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC46 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC46[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC47 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC47[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC48 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC48[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC48 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC49 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC49[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC50 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC50[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC51 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC51[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC51 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC52 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC52[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC53 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC53[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC54 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC54[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC54 [32000,72]	-				DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_MTPPC55 [32000,72]	-				DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC55[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC56 [32000,72]	-				DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC56[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPC57 [32000,72]	-				DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC57[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC57 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC58 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC58[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC59 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC59[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC60 [32000,72]		-		DOUBLE		
Description: The type can be specified by machine data. INT is the default setting \$TC_MTPPC60[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPC60 [32000,72]		-		DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPC61 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC61[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC62 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC62[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPC63 [32000,72]		-		DOUBLE		
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC63[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPC63 [32000,72]		-			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$TC_MTPPC64 [32000,72]		-			DOUBLE	
Description:						
The type can be specified by machine data. INT is the default setting						
\$TC_MTPPC64[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPCS1 [32000,72]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPCS1[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPCS2 [32000,72]		-			INT	
Description:						
The type can be specified by the machine data. Default setting is INT						
\$TC_MTPPCS2[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPCS2 [32000,72]		-		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPCS3 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS3[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPCS4 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS4[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPCS5 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS5[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

List of system variables

3.18 Multitool data

\$TC_MTPPCS5 [32000,72]		-		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified		Link:	No restrictions

\$TC_MTPPCS6 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS6[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPCS7 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS7[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified		Link:	No restrictions		

\$TC_MTPPCS8 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS8[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-

\$TC_MTPPCS8 [32000,72]		-		INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$TC_MTPPCS9 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS9[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link:	No restrictions	

\$TC_MTPPCS10 [32000,72]		-		INT		
Description: The type can be specified by the machine data. Default setting is INT \$TC_MTPPCS10[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel: channel-specific		
Scan mode:	Not classified			Link:	No restrictions	

3.19 Measurement system compensation values

\$AA_ENC_COMP [n,m]		EEC table: Compensation value			DOUBLE	
Description: \$AA_ENC_COMP[n,m,a] Compensation values a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	m: Point no. 0 - <MD value>					
Index 3:	Maximum number of axes in the system					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:			MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AA_ENC_COMP_STEP [n,31]		EEC table: Distance between interpolation points			DOUBLE	
Description: \$AA_ENC_COMP_STEP[n,a] Increment a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:			MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AA_ENC_COMP_MIN [n,31]		EEC table: Starting position			DOUBLE	
Description: \$AA_ENC_COMP_MIN[n,a] Start position of compensation a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-

3.19 Measurement system compensation values

\$AA_ENC_COMP_MIN [n,31]		EEC table: Starting position			DOUBLE	
Write:	X	-	7	-	0	-
Axis entry:			MACH		Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AA_ENC_COMP_MAX [n,31]		EEC table: End position			DOUBLE	
Description: \$AA_ENC_COMP_MAX[n,a] End position of compensation a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:			MACH		Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AA_ENC_COMP_IS_MODULO [n,31]		EEC table: Modulo functionality			BOOL	
Description: \$AA_ENC_COMP_IS_MODULO[n,a] Compensation is modulo a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:			MACH		Overlap channel: channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.20 Interpolatory compensation

\$AN_CEC [n,m]		CEC table: Compensation value			DOUBLE	
Description: \$AN_CEC[n,m] Compensation value						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Index 2:	n: No. of support point 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_INPUT_NCU [n]		CEC table: Basic axis on NCU			INT	
Description: \$AN_CEC_INPUT_NCU[n]: NCU on which the basic axis is calculated						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_INPUT_AXIS [n]		CEC table: Basic axis			AXIS	
Description: \$AN_CEC_INPUT_AXIS[n]: Name of axis whose setpoint is used as the compensation table input						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_OUTPUT_NCU [n]		CEC table: Compensation axis on NCU			INT	
Description:						
\$AN_CEC_OUTPUT_NCU[n]: NCU on which the compensation axis is calculated						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$AN_CEC_OUTPUT_AXIS [n]		CEC table: Compensation axis			AXIS	
Description:						
\$AN_CEC_OUTPUT_AXIS[n]: Name of axis to which the output of the compensation table is applied						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	GEOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$AN_CEC_STEP [n]		CEC table: Distance between interpolation points			DOUBLE	
Description:						
\$AN_CEC_STEP[n] Distance of offset values						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$AN_CEC_MIN [n]		CEC table: Starting position			DOUBLE	
Description:						
AN_CEC_MIN[n] Start position of compensation table						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					

List of system variables

3.20 Interpolatory compensation

\$AN_CEC_MIN [n]		CEC table: Starting position			DOUBLE	
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_MAX [n]		CEC table: End position			DOUBLE	
Description:						
AN_CEC_MAX[n] End position of compensation table						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_DIRECTION [n]		CEC table: Direction-dependence			INT	
Description:						
\$AN_CEC_DIRECTION[n] Activates direction-dependent action of compensation table 0: both traversing directions of the basic axis 1: positive traversing direction of the basic axis -1: negative traversing direction of the basic axis						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min		Max		
-	0	-1		1		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_MULT_BY_TABLE [n]		CEC table: Multiplication			INT	
Description:						
\$AN_CEC_MULT_BY_TABLE[n] Number of table whose output value is to be multiplied by the output value of the compensation table						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					

\$AN_CEC_MULT_BY_TABLE [n]		CEC table: Multiplication			INT	
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_IS_MODULO [n]		CEC table: Modulo functionality			BOOL	
Description:						
\$AN_CEC_IS_MODULO[n]						
TRUE: Cyclical repetition of compensation table						
FALSE: No cyclical repetition of compensation table						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_CEC_TYPE [n]		CEC table: table type			INT	
Description:						
\$AN_CEC_TYPE[n]						
0: no special table type						
1: table, cylinder error compensation type						
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.21 NC-specific protection zones

\$SN_PA_ACTIV_IMMED [n]	Protection zone immediately active					BOOL
Description:						
\$SN_PA_ACTIV_IMMED[n]						
n: Number of the protection area						
Protection area immediately active after boot						
TRUE: The protection area is activated immediately after the control has booted and the axes have been referenced						
FALSE: The protection area is not immediately active						
Note: This variable can only be written as a system variable and is not affected by the NC commands between NPROTDEF(..) and EXECUTE(n).						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:	The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.					
Unit	Init value	Min				Max
-	FALSE	FALSE				TRUE
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_T_W [n]	Protection zone specific to workpiece/tool					CHAR
Description:						
\$SN_PA_T_W[n]						
n: Number of the protection area						
Protection area specific to workpiece/tool						
0: Workpiece-specific protection area						
3: Tool-specific protection area						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:	The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.					
Unit	Init value	Min				Max
-	0	0				3
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_ORI [n]		Orientation of protection zone			INT	
Description:						
\$SN_PA_ORI[n]						
n: Number of the protection area						
Orientation of protection area						
0: Polygon curve in the plane formed by the 1st and 2nd geo axes (G17)						
1: Polygon curve in the plane formed by the 3rd and 1st geo axes (G18)						
2: Polygon curve in the plane formed by the 2nd and 3rd geo axes (G19)						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_LIM_3DIM [n]		Scope of application-limiting protection zone			INT	
Description:						
\$SN_PA_LIM_3DIM[n]						
n: Number of the protection area						
Identifier for limitation of protection area in the axis perpendicular to the polygon curve						
0: No limitation						
1: Limitation in the positive direction						
2: Limitation in the negative direction						
3: Limitation in both directions						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.21 NC-specific protection zones

\$SN_PA_PLUS_LIM [n]		Limitation of protection zone applicate plus			DOUBLE	
Description:						
\$SN_PA_PLUS_LIM[n]						
n: Number of the protection area						
Positive limitation of protection areas in the axis perpendicular to the polygon curve						
Effective only if \$SN_PA_LIM_3DIM[n]=1 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_MINUS_LIM [n]		Limitation of protection zone applicate minus			DOUBLE	
Description:						
\$SN_PA_MINUS_LIM[n]						
n: Number of the protection area						
Negative limitation of protection area in minus direction in the axis perpendicular to the polygon curve						
Effective only if \$SN_PA_LIM_3DIM[n]=2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_CONT_NUM [n]		Number of valid contour elements			INT	
Description:						
\$SN_PA_CONT_NUM[n]						
n: Number of the protection area						
Number of valid contour elements						
Protection areas need at least 2 contour elements for a complete description.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Unit	Init value	Min			Max	
-	0	0			10	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_CONT_TYP [n,m]		Type of the contour element			INT	
Description:						
\$SN_PA_CONT_TYP[n,m]						
n: Number of the protection area						
m: Number of the contour element						
Type (G1, G2, G3) of contour element						
=0: Contour not defined						
=1: Straight						
=2: Circle element (clockwise)						
=3: Circle element (counterclockwise)						
The end point is determined by \$SN_PA_CONT_ORD or \$SN_PA_CONT_ABS. With contour types G2 and G3, \$SN_PA_CENT_ORD or \$SN_PA_CENT_ABS determines the center point of the circle element.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:		(0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.21 NC-specific protection zones

\$SN_PA_CONT_ORD [n,m]	End point of contour element (ordinate)	DOUBLE				
Description:						
\$SN_PA_CONT_ORD[n,m]						
n: Number of the protection area						
m: Number of the contour element						
End point of contour element (ordinate)						
See also description of \$SN_PA_CONT_TYP						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:	The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.					
Index 2:	(0 - MAXNUM_CONTOURNO_PROTECTAREA)					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_CONT_ABS [n,m]	End point of contour element (abscissa)	DOUBLE				
Description:						
\$SN_PA_CONT_ABS[n,m]						
n: Number of the protection area						
m: Number of the contour element						
End point of contour element (abscissa)						
See also description of \$SN_PA_CONT_TYP						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:	The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.					
Index 2:	(0 - MAXNUM_CONTOURNO_PROTECTAREA)					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_CENT_ORD [n,m]		Center point of contour element (ordinate)			DOUBLE	
Description:						
\$SN_PA_CENT_ORD[n,m]						
n: Number of the protection area						
m: Number of the contour element						
Center point of contour element (ordinate)						
Relevant only if \$SN_PA_CONT_TYP[n,m] = 2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:		(0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$SN_PA_CENT_ABS [n,m]		Center point of contour element (abscissa)			DOUBLE	
Description:						
\$SN_PA_CENT_ABS[n,m]						
n: Number of the protection area						
m: Number of the contour element						
Center point of contour element (abscissa)						
Relevant only if \$SN_PA_CONT_TYP[n,m] = 2 or = 3.						
Note: This variable is not restored during REORG.						
Note: This variable is saved during data backup.						
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI						
Index 1:		The maximum dimension is defined via the \$MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:		(0 - MAXNUM_CONTOURNO_PROTECTAREA)				
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.22 Cycles parameterization

\$C_A		ISO cycle parameter for address A				DOUBLE
Description:						
\$C_A						
Value of programmed address A in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_B		ISO cycle parameter for address B				DOUBLE
Description:						
\$C_B						
Value of programmed address B in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_C		ISO cycle parameter for address C				DOUBLE
Description:						
\$C_C						
Value of programmed address C in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_D		ISO cycle parameter for address D				DOUBLE
Description:						
\$C_D						
Value of programmed address D in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	

\$C_D		ISO cycle parameter for address D				DOUBLE	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	X	-	7	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$C_E		ISO cycle parameter for address E				DOUBLE	
Description:							
\$C_E							
Value of programmed address E in ISO2/3 mode for cycle parameterization							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	X	-	7	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$C_F		ISO cycle parameter for address F				DOUBLE	
Description:							
\$C_F							
Value of programmed address F in ISO2/3 mode for cycle parameterization							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	X	-	7	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

\$C_G		ISO cycle parameter for address G				DOUBLE	
Description:							
\$C_G							
Value of programmed address G in ISO2/3 mode for cycle parameterization							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	-	0	-	
Write:	X	-	7	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	No restrictions		

List of system variables

3.22 Cycles parameterization

\$C_H		ISO cycle parameter for address H			DOUBLE	
Description:						
\$C_H						
Value of programmed address H in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_I [10]		ISO cycle parameter for address I			DOUBLE	
Description:						
\$C_I[]						
Value of programmed address I in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.						
Up to 10 entries are possible for macro programming with G65/G66 in the block with the address I. The values are located in the array in the sequence they were programmed.						
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address I.were programmed.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_J [10]		ISO cycle parameter for address J			DOUBLE	
Description:						
\$C_J[]						
Value of programmed address J in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.						
Up to 10 entries are possible for macro programming with G65/G66 in the block with the address J. The values are located in the array in the sequence they were programmed.						
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address J.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_K [10]		ISO cycle parameter for address K				DOUBLE	
Description:							
\$C_K[]							
Value of programmed address K in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.							
Up to 10 entries are possible for macro programming with G65/G66 in the block with the address K. The values are located in the array in the sequence they were programmed.							
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with the address K.						
Unit	Init value	Min		Max			
-	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$C_L		ISO cycle parameter for address L				DOUBLE	
Description:							
\$C_L							
Value of programmed address L in ISO2/3 mode for cycle parameterization							
Unit	Init value	Min		Max			
-	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$C_M		ISO cycle parameter for address M				DOUBLE	
Description:							
\$C_M							
Value of programmed address M in ISO2/3 mode for cycle parameterization							
Unit	Init value	Min		Max			
-	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	X	-	7		-	0	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

List of system variables

3.22 Cycles parameterization

\$C_N		ISO cycle parameter for address N			DOUBLE	
Description:						
\$C_N						
Value of programmed address N in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_O		ISO cycle parameter for address O			DOUBLE	
Description:						
\$C_O						
Value of programmed address O in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_P		ISO cycle parameter for address P			DOUBLE	
Description:						
\$C_P						
Value of programmed address P in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Q		ISO cycle parameter for address Q			DOUBLE	
Description:						
\$C_Q						
Value of programmed address Q in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$C_Q		ISO cycle parameter for address Q			DOUBLE	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_R		ISO cycle parameter for address R			DOUBLE	
Description:						
\$C_R						
Value of programmed address R in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_S		ISO cycle parameter for address S			DOUBLE	
Description:						
\$C_S						
Value of programmed address S in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_T		Cycle parameter for address T			DOUBLE	
Description:						
\$C_T						
Value of programmed address T for cycle parameterization (ISO2/3 mode) and T function substitution (ISO2/3 and standard modes)						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.22 Cycles parameterization

\$C_U		ISO cycle parameter for address U				DOUBLE
Description:						
\$C_U						
Value of programmed address U in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_V		ISO cycle parameter for address V				DOUBLE
Description:						
\$C_V						
Value of programmed address V in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_W		ISO cycle parameter for address W				DOUBLE
Description:						
\$C_W						
Value of programmed address W in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_X		ISO cycle parameter for address X				DOUBLE
Description:						
\$C_X						
Value of programmed address X in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$C_X		ISO cycle parameter for address X			DOUBLE	
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Y		ISO cycle parameter for address Y			DOUBLE	
Description:						
\$C_Y						
Value of programmed address Y in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Z		ISO cycle parameter for address Z			DOUBLE	
Description:						
\$C_Z						
Value of programmed address Z in ISO2/3 mode for cycle parameterization						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_DL		ISO parameter for address DL			DOUBLE	
Description:						
Value of programmed address DL (additive tool offset) in the case of a subprogram call by M/T function substitution						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.22 Cycles parameterization

\$C_PI		ISO cycle parameter for address P			DOUBLE	
Description: Program number of interrupt routine programmed with M96 Pxx in ISO2/3 mode						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_TS		Tool identifier for T function substitution			STRING	
Description: Returns the string of the programmed tool identifier when the T function or TCA command are replaced. Tool identifiers can only be programmed with tool management active or with tool monitoring without magazine management.						
Index 3:	Maximum string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_A_PROG		ISO cycle parameter for address A			INT	
Description: \$C_A_PROG Address A is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_B_PROG		ISO cycle parameter for address B			INT	
Description:						
\$C_B_PROG						
Address B is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_C_PROG		ISO cycle parameter for address C			INT	
Description:						
\$C_C_PROG						
Address C is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_D_PROG		ISO cycle parameter for address D			INT	
Description:						
\$C_D_PROG						
Address D is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.22 Cycles parameterization

\$C_D_PROG		ISO cycle parameter for address D				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_E_PROG		ISO cycle parameter for address E				INT
Description:						
\$C_E_PROG						
Address E is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_F_PROG		ISO cycle parameter for address F				INT
Description:						
\$C_F_PROG						
Address F is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_G_PROG		ISO cycle parameter for address G				INT
Description:						
\$C_G_PROG						
G function for cycle call is programmed in this block						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_H_PROG		ISO cycle parameter for address H				INT
Description:						
\$C_H_PROG						
Address H is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_I_PROG		ISO cycle parameter for address I				INT
Description:						
\$C_I_PROG						
Address I is programmed in a block with cycle macro call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.22 Cycles parameterization

\$C_I_PROG		ISO cycle parameter for address I				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_J_PROG		ISO cycle parameter for address J				INT
Description:						
\$C_J_PROG						
Address J is programmed in a block with cycle macro call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_K_PROG		ISO cycle parameter for address K				INT
Description:						
\$C_K_PROG						
Address K is programmed in a block with cycle macro call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_L_PROG		ISO cycle parameter for address L			INT	
Description:						
\$C_L_PROG						
Address L is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_M_PROG		ISO cycle parameter for address M			INT	
Description:						
\$C_M_PROG						
Address M is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_N_PROG		ISO cycle parameter for address N			INT	
Description:						
\$C_N_PROG						
Address N is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.22 Cycles parameterization

\$C_N_PROG		ISO cycle parameter for address N				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_O_PROG		ISO cycle parameter for address O				INT
Description:						
\$C_O_PROG						
Address O is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_P_PROG		ISO cycle parameter for address P				INT
Description:						
\$C_P_PROG						
Address P is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Q_PROG		ISO cycle parameter for address Q				INT
Description:						
\$C_Q_PROG						
Address Q is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_R_PROG		ISO cycle parameter for address R				INT
Description:						
\$C_R_PROG						
Address R is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_S_PROG		ISO cycle parameter for address S				INT
Description:						
\$C_S_PROG						
Address S is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.22 Cycles parameterization

\$C_S_PROG		ISO cycle parameter for address S				INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_T_PROG		ISO cycle parameter for address T				INT
Description:						
\$C_T_PROG						
Address T is programmed in a block with cycle call or T function substitution						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_U_PROG		ISO cycle parameter for address U				INT
Description:						
\$C_U_PROG						
Address U is programmed in the current block						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_V_PROG		ISO cycle parameter for address V				INT
Description:						
\$C_V_PROG						
Address V is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_W_PROG		ISO cycle parameter for address W				INT
Description:						
\$C_W_PROG						
Address W is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_X_PROG		ISO cycle parameter for address X				INT
Description:						
\$C_X_PROG						
Address X is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.22 Cycles parameterization

\$C_X_PROG		ISO cycle parameter for address X			INT	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Y_PROG		ISO cycle parameter for address Y			INT	
Description:						
\$C_Y_PROG						
Address Y is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_Z_PROG		ISO cycle parameter for address Z			INT	
Description:						
\$C_Z_PROG						
Address Z is programmed in a block with cycle call						
0 = Not programmed						
1 = Programmed						
3 = Programmed incrementally						
Bit 0 is set if the address is programmed absolutely or incrementally.						
Bit 1 is set in addition if the address is programmed incrementally.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_PL_PROG		ISO cycle parameter for address P			INT	
Description: 0 = Not programmed 1 = M96 Pxx interrupt routine programmed						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_G60_PROG		ISO cycle parameters programmed for G60 in block			INT	
Description: 0 = not programmed 1 = G60 is programmed in the cycle call block						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_DL_PROG		ISO cycle parameter for address DL			INT	
Description: Interrogation as to whether address DL (additive tool offset) has been programmed for a subprogram call per M/T function substitution. 0 = Not programmed 1 = An additive tool offset has been programmed under address DL.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.22 Cycles parameterization

\$C_TS_PROG		Parameter for T function replacement			INT	
Description:						
Query whether a tool identifier was programmed when the T function or TCA command were replaced.						
0 = Not programmed						
1 = Programmed						
Tool identifiers can only be programmed with tool management active or with tool monitoring without magazine management.						
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_ALL_PROG		Bit pattern specifying which addresses are programmed			INT	
Description:						
\$C_ALL_PROG						
Bit pattern of all programmed addresses in a block with cycle call						
Bit0 = Address "A" Bit25 = Address "Z"						
Bit = 1 -> Address programmed						
Bit = 0 -> Address not programmed						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_INC_PROG		Bit pattern specifying whether addresses are programmed incr.			INT	
Description:						
\$C_INC_PROG						
Bit pattern of all incrementally programmed addresses in a block with cycle call						
Bit0 = Address "A" Bit25 = Address "Z"						
Bit = 1 -> Address incrementally programmed						
Bit = 0 -> Address absolutely programmed						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-

\$C_INC_PROG		Bit pattern specifying whether addresses are programmed incr.			INT
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions

\$C_TYP_PROG		Bit pattern specifying whether addresses are progr. as INT/ REAL			INT	
Description:						
\$C_TYP_PROG						
Bit pattern of all addresses programmed with value INT or REAL						
Bit0 = Address "A" Bit25 = Address "Z"						
Bit = 1 -> Address programmed with real value						
Bit = 0 -> Address programmed with int value						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_I_NUM		Number of "I" addresses programmed in block			INT	
Description:						
\$C_I_NUM						
The number of "I" addresses programmed in the block is stored in \$C_I_NUM.						
This value is always 1 for cycle programming if bit 0 is set in						
\$C_I_PROG.						
In the case of macro programming with G65/G66, this variable contains the number of						
"I" addresses programmed in the block (max. 10).						
Unit	Init value	Min		Max		
-	0	-2147483648		10		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_J_NUM		Number of "J" addresses programmed in block			INT
Description:					
\$C_J_NUM					
The number of "J" addresses programmed in the block is stored in \$C_J_NUM.					
This value is always 1 for cycle programming if bit 0 is set in					
\$C_J_PROG.					
In the case of macro programming with G65/G66, this variable contains the number of					
"J" addresses programmed in the block (max. 10).					
Unit	Init value	Min		Max	
-	0	-2147483648		10	

List of system variables

3.22 Cycles parameterization

\$C_J_NUM		Number of "J" addresses programmed in block			INT	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_K_NUM		Number of "K" addresses programmed in block			INT	
Description:						
\$C_K_NUM						
The number of "K" addresses programmed in the block is stored in \$C_K_NUM.						
This value is always 1 for cycle programming if bit 0 is set in \$C_K_PROG.						
In the case of macro programming with G65/G66, this variable contains the number of "K" addresses programmed in the block (max. 10).						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_I_ORDER [10]		Group number of address I for IJK groups			INT	
Description:						
\$C_I_ORDER[]						
Number of IJK group in which I has been programmed						
Up to 10 entries with address I can be made in the block for macro programming with G65/G66. This allows the sequence of IJK groups to be evaluated						
The association between IJK groups is always noted.						
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address I.					
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_J_ORDER [10]		Group number of address J for IJK groups			INT	
Description:						
\$C_J_ORDER[]						
Number of IJK group in which J has been programmed.						
Up to 10 entries with address J can be made in the block for macro programming with G65/G66. This allows the sequence of IJK groups to be evaluated						
The association between IJK groups is always noted.						
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address J.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$C_K_ORDER [10]		Group number of address K for IJK groups			INT	
Description:						
\$C_K_ORDER[]						
Number of IJK group in which K has been programmed.						
Up to 10 entries with address K can be made in the block for macro programming with G65/G66. This allows the sequence of IJK groups to be evaluated						
The association between IJK groups is always noted.						
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with the address K.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$C_ME		Address extension for subprogram calls via M function			INT	
Description:						
\$C_ME						
Address extension for address M for subprogram call per M function						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	X	-	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

List of system variables

3.22 Cycles parameterization

\$C_TE		Address extension for subprogram calls via T function			INT	
Description: \$C_TE Address extension for address T for subprogram call per M function						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_MACPAR [33]		Auxiliary variable for implementing # macros			DOUBLE	
Description: \$MAC_PAR[n] Macro variable in Iso2/3 mode programmed in the original program with #<number>						
Index 1:	The max. number of ISO macro parameters is 33					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_AUX_VALUE [1]		Parameter for auxiliary function replacement.			DOUBLE	
Description: Parameter for auxiliary function replacement. It contains the value of the auxiliary function that is to be replaced. Currently, only M functions can be replaced by appropriate configuration of \$MN_M_NO_FCT_CYCLE.						
Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_AUX_EXT [1]		Parameter for auxiliary function replacement.			INT	
Description: Parameter for auxiliary function replacement. It contains the address extension of the auxiliary function that is to be replaced. Currently, only M functions can be replaced by appropriate configuration of \$MN_M_NO_FCT_CYCLE.						
Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.					
Unit	Init value	Min			Max	
-						

\$C_AUX_EXT [1]		Parameter for auxiliary function replacement.			INT	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_AUX_IS_QUICK [1]		Parameter for auxiliary function replacement.			BOOL	
Description: Parameter for auxiliary function replacement. It contains the information whether the auxiliary function that is to be replaced is to be output with a fast (TRUE) or normal (FALSE) acknowledgment. Currently, only M functions can be replaced by appropriate configuration of \$MN_M_NO_FCT_CYCLE.						
Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_T_VALUE		Cycle parameter for address T			DOUBLE	
Description: \$C_T_VALUE Value of the programmed, non-split address T for T function replacement and M function replacement (ISO3 mode).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_TCA		Parameter for replacing the TCA command			BOOL	
Description: Query whether the replacement of the TCA command is active. FALSE = TCA replacement not active TRUE = TCA replacement active						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-

List of system variables

3.22 Cycles parameterization

\$C_TCA		Parameter for replacing the TCA command			BOOL	
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_DUPLO_PROG		Parameter for replacing the TCA command			BOOL	
Description:						
Query whether a duplo number was programmed when the TCA command was replaced.						
FALSE = duplo number was not programmed						
TRUE = duplo number was programmed						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_DUPLO		Parameter for replacing the TCA command			INT	
Description:						
Returns the value of the programmed duplo number when the TCA command is replaced.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_THNO_PROG		Parameter for replacing the TCA command			BOOL	
Description:						
Query whether a toolholder or spindle number was programmed when the TCA command was replaced.						
FALSE = toolholder or spindle number was not programmed						
TRUE = toolholder or spindle number was programmed						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_THNO		Parameter for replacing the TCA command			INT	
Description:						
Returns the value of the programmed toolholder or spindle number when the TCA command is replaced.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_ISOPRINT		Status ISOOPEN, ISOPRINT, ISOCLOSE			INT	
Description:						
\$C_ISOPRINT						
Status variable for ISOOPEN, ISOPRINT, ISOCLOSE.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_MTL_PROG		Parameter for replacing the MTL command			BOOL	
Description:						
Query whether the address MTL was also replaced when the T function was replaced.						
FALSE = Address MTL was not programmed						
TRUE = Address MTL was replaced						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$C_MTL		Parameter for replacing the MTL command			INT	
Description:						
Returns the value of the programmed location number of the multitool when the MTL command is replaced.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-

List of system variables

3.22 Cycles parameterization

\$C_MTL		Parameter for replacing the MTL command			INT	
Write:	X	-	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.23 System data

\$AN_SETUP_TIME		Time since booting with default values			DOUBLE	
Description:						
The \$AN_SETUP_TIME timer counts the time elapsed since the control last booted with default values (in minutes).						
The timer is automatically reset each time the control boots with default data.						
Use in NC program:						
IF \$AN_SETUP_TIME > 60000 GOTOF MARK01						
Unit	Init value	Min			Max	
s	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AN_POWERON_TIME		Time since control last booted			DOUBLE	
Description:						
The \$AN_POWERON_TIME timer counts the time elapsed since the control last booted (in minutes).						
The timer is automatically reset each time the control boots.						
Use in NC program:						
IF \$AN_POWERON_TIME == 480 GOTOF MARK02						
Unit	Init value	Min			Max	
s	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AN_NCK_VERSION		NCK version			DOUBLE	
Description:						
NCK version						
NCK version: only the integer places in the floating-point number are evaluated, the decimal places can contain identifiers for intermediate versions used by the development department. The integer places contain the official software version identifier of the NCK: For example, the value for NCK version 20.00.00 is variable 200000.0						
compare OPI N/Y nckVersion						
Unit	Init value	Min			Max	
-	0.0	0.0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.23 System data

\$AN_NCK_VERSION		NCK version			DOUBLE
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Independent			Link:	No restrictions

\$AN_IPO_LOAD_LIMIT		IPO utilization limit reached			BOOL	
Description: Variable \$AN_IPO_LOAD_LIMIT returns TRUE when the interpolator load limit is reached. Machine data \$MN_IPO_MAX_LOAD is used to specify the gross interpolator operating time (in % of the interpolation cycle) at which variable \$AN_IPO_LOAD_LIMIT is set to TRUE. If the value falls below the limit again, the variable is reset to FALSE.						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	-	0	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_IPO_ACT_LOAD		Current IPO runtime			DOUBLE	
Description: \$AN_IPO_ACT_LOAD supplies the current interpolator runtime including the runtime of the synchronized actions in all channels.						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_IPO_MAX_LOAD		Maximum IPO runtime			DOUBLE	
Description: \$AN_IPO_MAX_LOAD supplies the longest interpolator runtime of one interpolation cycle (including the runtime of the synchronized actions).						
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_IPO_MIN_LOAD		Shortest IPO runtime			DOUBLE
Description: \$AN_IPO_MIN_LOAD supplies the shortest interpolator runtime including the runtime of the synchronized actions per interpolation cycle in all channels.					
Unit	Init value	Min		Max	
-	0.0	-1.8E+308		1.8E+308	

\$AN_IPO_MIN_LOAD		Shortest IPO runtime				DOUBLE	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	X	X	7	-	0	X	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AN_IPO_LOAD_PERCENT		Ratio of current IPO runtime to IPO cycle				DOUBLE	
Description:							
\$AN_IPO_LOAD_PERCENT supplies the current interpolator load percentage across all channels. Is calculated from the ratio of the interpolator runtime across all channels in the last interpolation cycle to the interpolation cycle.							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AN_SYNC_ACT_LOAD		Current runtime for synchronized actions				DOUBLE	
Description:							
\$AN_SYNC_ACT_LOAD supplies the current runtime for synchronized actions of the last interpolation cycle across all channels.							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

\$AN_SYNC_MAX_LOAD		Longest runtime for synchronized actions				DOUBLE	
Description:							
\$AN_SYNC_MAX_LOAD supplies the longest runtime for synchronized actions of one interpolation cycle across all channels.							
Unit	Init value		Min		Max		
-	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	X	X	7	-	0	X	
Axis entry:				Overlap channel:	channel-specific		
Scan mode:	Not classified			Link:	Not classified		

List of system variables

3.23 System data

\$AN_SYNC_TO_IPO		Synact / IPO computing time percentage			DOUBLE	
Description:						
\$AN_SYNC_TO_IPO supplies the percentage proportion of the synchronized action runtime measured against the overall interpolation runtime of the last interpolation cycle across all channels.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_SERVO_ACT_LOAD		Current runtime of position controller			DOUBLE	
Description:						
\$AN_SERVO_ACT_LOAD supplies the current runtime of the position controller.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_SERVO_MAX_LOAD		Longest runtime of position controller			DOUBLE	
Description:						
\$AN_SERVO_MAX_LOAD supplies the longest runtime of the position controller.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_SERVO_MIN_LOAD		Shortest runtime of position controller			DOUBLE	
Description:						
\$AN_SERVO_MIN_LOAD supplies the shortest runtime of the position controller.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	-	0	X
Write:	X	X	7	X	7	X

\$AN_SERVO_MIN_LOAD	Shortest runtime of position controller			DOUBLE
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: Not classified

\$AN_REBOOT_DELAY_TIME	Time until reboot			DOUBLE		
Description:						
A value higher than zero indicates that the NCK has received the "NCK Reset" signal from the HMI and displays the time period (in seconds) programmed on the NCK for rebooting (Power Off followed by Power ON).						
The user can thus identify a reboot operation in a synchronized action and prepare his application accordingly.						
\$AN_REBOOT_DELAY_TIME is 0.0 provided that no "NCK Reset" has been received.						
Example:						
A synchronized action reacts to the variable and switches the axes to "Safe standstill" in a Safety Integrated application.						
Comments:						
- See also: \$MN_REBOOT_DELAY_TIME						
- The "NCK Reset" is implemented on the OPI by means of PI "_N_IBN_SS".						
Unit	Init value	Min	Max			
s	0.0	0.0	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Independent			Link:	No restrictions	

\$AN_TIMER [n]	System variable for global NCK time measurement			DOUBLE		
Description:						
\$AN_TIMER[n]						
Timer unit in seconds						
The time is counted in multiples of an interpolation cycle.						
The timers are started by \$AN_TIMER[n]=<start value>.						
The timers are stopped by \$AN_TIMER[n]=-1.						
When a timer is stopped, the last current time value is stored.						
Index 1:	The dimension is defined via the MD \$MN_MM_NUM_AN_TIMER.					
Unit	Init value	Min	Max			
-	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.23 System data

\$A_PROBE [2]		Probe status			INT	
Description:						
\$A_PROBE[1]: Status of first probe						
\$A_PROBE[2]: Status of second probe						
0 => not deflected						
1 => deflected						
Index 1:	n: Number of the probe					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PERSDIAG [4,46]	Diagnostics data for data persistence	DOUBLE
<p>Description: Diagnostics data for data persistence (frequency, time required); e.g. CompactFlash Card The time values indicate how long it took to achieve data persistence from the viewpoint of the NC software The following values can be read:</p> <p>Index1 Meaning</p> <ul style="list-style-type: none"> 0 Always sums on all subfunctions 1 Subfunction 'Passive file system' 2 Subfunction 'Active file system' 3 Subfunction 'Machine data' <p>Index2 Meaning</p> <ul style="list-style-type: none"> 0 Number of all synchronous write operations 1 Number of failed synchronous write operations (system deficiency) 2 Summated time of all synchronous write operations in seconds 3 Minimum time required for a synchronous write operation in seconds 4 Average time (averaged across all synchronous write operations) in seconds 5 Maximum time required for a synchronous write operation in seconds 6 Number of overflows of the preprocessing PowerFail buffer since NCK start 7 Number of overflows of the tool change PowerFail buffer since NCK start 8 Number of overflows of the synchronized action PowerFail buffer since NCK start 9 Overflow of the preprocessing PowerFail buffer pending at the time of PowerFail /PowerOff 10 Overflow of the tool change PowerFail buffer pending at the time of PowerFail /PowerOff 11 Overflow of the synchronized action PowerFail buffer pending at the time of PowerFail /PowerOff 12 Number of data entries in the preprocessing PowerFail buffer since NCK start 13 Number of data entries in the tool change PowerFail buffer in IPO since NCK start 14 Number of data entries in the synchronized action PowerFail buffer in IPO since NCK start <p>Index2 values = 6 to 14 only defined for index1 = 2 = active file system</p> <ul style="list-style-type: none"> 20 Number of all asynchronous write operations 21 Number of failed asynchronous write operations (system deficiency) 22 Summated time of all asynchronous write operations in seconds (blocking component) 23 Minimum time required for an asynchronous write operation in seconds (blocking component) 24 Average time (averaged across all asynchronous write operations) in seconds (blocking component) 25 Maximum time required for an asynchronous write operation in seconds (blocking component) 26-31 Reserved 32 Summated time of all asynchronous write operations in seconds (total runtime) 33 Minimum time required for an asynchronous write operation in seconds (total runtime) 34 Average time (averaged across all asynchronous write operations) in seconds (total runtime) 35 Maximum time required for an asynchronous write operation in seconds (total runtime) 36-39 Reserved 40 Number of data backup operations in which an asynchronous data backup operation was still active when it was called. 41 Reserved 42 Summated time that was waited after a collision for the end of the previous asynchronous data backup operation 43 Minimum time that was waited after a collision for the end of the previous asynchronous data backup operation 44 Average time that was waited after a collision for the end of the previous asynchronous data backup operation 45 Maximum time that was waited after a collision for the end of the previous asynchronous data backup operation <p>Writing any value to the following indices deletes the relevant statistic type: A write access to one of the indices 0-5 resets all values of these indices to 0</p>		

List of system variables

3.23 System data

\$AN_PERSDIAG [4,46]		Diagnostics data for data persistence			DOUBLE	
<p>A write access to one of the indices 20-29 resets all values of these indices to 0 A write access to one of the indices 30-39 resets all values of these indices to 0 A write access to one of the indices 40-49 resets all values of these indices to 0 Application in the NC program: IF \$AN_PERSDIAG[0, 1] > 0 GOTOF, check card</p>						
Index 1:	Addressing of the different functionalities.					
Index 2:	Addressing of the different information					
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	2	X	2	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AN_VMODEL_STATUS		System variable for status of VRML model			INT	
Description: TO DO!						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	3	X	3	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPSB_IN [32,128]		PROFIBUS/PROFINET input byte (signed)			INT	
Description: The field variable \$A_DPSB_IN[n,m] is used to read a data byte (8 bits) from PROFIBUS/PROFINET IO. n:= Index for the input data area m:= Byte Index for the data The value is shown as signed. The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read. Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	-128			127	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_IN [32,128]		PROFIBUS/PROFINET input byte (unsigned)			INT		
Description:							
The field variable \$A_DP_IN[n,m] is used to read a data byte (8 bits) from PROFIBUS/PROFINET IO.							
n:= Index for the input data area							
m:= Byte Index for the data							
The value is shown as unsigned.							
The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.							
Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.							
Index 1:		Input data area					
Index 2:		Byte offset within the input data area					
Unit		Init value		Min		Max	
-		0		0		255	
Read/Write properties:							
		TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:		runin stp	X	7	X	7	X
Write:		-	-	0	-	0	-
Axis entry:					Overlap channel:		Cross-channel
Scan mode:		Not classified			Link:		Not classified

\$A_DP_IN_VALID		PROFIBUS/PROFINET valid input data areas			INT		
Description:							
The variable \$A_DP_IN_VALID is used to read all valid input data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit array. The assignment of the bits corresponds to the indices of the input data areas. The input data area is invalid if the input data area could not be logged on during power on or the communications with the PROFIBUS/PROFINET has been interrupted during normal operation. The status of an input data area can be queried with the variable \$A_DP_IN_STATE[n].							
Unit		Init value		Min		Max	
-		0		-2147483648		2147483647	
Read/Write properties:							
		TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:		runin stp	X	7	X	7	X
Write:		-	-	0	-	0	-
Axis entry:					Overlap channel:		Cross-channel
Scan mode:		Not classified			Link:		Not classified

\$A_DP_IN_STATE [32]		PROFIBUS/PROFINET status of input data area			INT	
Description:						
The variable \$A_DP_IN_STATE[n] is used to read the status of the input data area.						
n:= Index for the input data area						
The following states can be read:						
0: Data area has not been configured						
1: Data area could not be activated yet						
2: Data area is available						
3: Data area is currently not available						
Whether an input data area is available can be queried with the variable \$A_DP_IN_VALID.						
Index 1:		Input data area				
Unit		Init value		Min		Max
-		0		0		3

List of system variables

3.23 System data

\$A_DP_IN_STATE [32]		PROFIBUS/PROFINET status of input data area			INT	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_OUT_STATE [32]		PROFIBUS/PROFINET status of output data area			INT	
Description:						
The variable \$A_DP_OUT_STATE[n] is used to read the status of the output data area.						
n:= Index for the output data area						
The following states can be read:						
0: Data area has not been configured						
1: Data area could not be activated yet						
2: Data area is available						
3: Data area is currently not available						
Whether a data area is available can be queried with the variable \$A_DP_OUT_VALID.						
Index 1:	Output data area					
Unit	Init value	Min		Max		
-	0	0		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_OUT_VALID		PROFIBUS/PROFINET valid output data areas			INT	
Description:						
The variable \$A_DP_OUT_VALID_IN is used to read all valid output data areas of the PROFIBUS/PROFINET IO.						
The value is coded as a bit array. The assignment of the bits corresponds to the indices of the output data areas. The output data area is invalid if the output data area could not be logged on during power up or the communications with the PROFIBUS/PROFINET has been interrupted during normal operation. The status of an output data area can be queried with the variable \$A_DP_OUT_STATE[n].						
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_IN_CONF		PROFIBUS/PROFINET configured input data areas			INT	
Description:						
The variable \$A_DP_IN_CONF is used to read all configured input data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit field. The assignment of the bits corresponds to the indices of the input data areas. A configured input data area is present if a logical starting address has been entered in an input data area via machine data \$MN_DPIO_LOGIC_ADDRESS_IN. The status of an input data area can be queried with the variable \$A_DP_IN_STATE[n].						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_OUT_CONF		PROFIBUS/PROFINET configured output data areas			INT	
Description:						
The variable \$A_DP_OUT_CONF is used to read all configured output data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit field. The assignment of the bits corresponds to the indices of the output data areas. A configured data area is present if a logical starting address has been entered in an output data area via machine data \$MN_DPIO_LOGIC_ADDRESS_OUT. The status of an output data area can be queried with the variable \$A_DP_OUT_STATE[n].						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DP_IN_LENGTH [32]		PROFIBUS/PROFINET length of input data area			INT	
Description:						
The variable \$A_DP_IN_LENGTH[n] is used to read the length of the input data area. n:= Index for the input data area Whether an input data area is available can be queried with the variables \$A_DP_IN_VALID and \$A_DP_IN_STATE[n].						
Index 1:	Input data area					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.23 System data

\$A_DP_OUT_LENGTH [32]	PROFIBUS/PROFINET length of output data area					INT
Description:						
The variable \$A_DP_OUT_LENGTH[n] is used to read the length of the output data area.						
n:= Index for the output data area						
Whether an output data area is available can be queried with the variables \$A_DP_OUT_VALID and \$A_DP_OUT_STATE[n].						
Index 1:	Output data area					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPW_IN [32,128]	PROFIBUS/PROFINET input word (unsigned)					INT
Description:						
The field variable \$A_DPW_IN[n,m] is used to read a data word (16 bits) from PROFIBUS/PROFINET IO.						
n:= Index for the input data area						
m:= Byte Index for the data						
The value is shown as unsigned.						
The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.						
Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	0			65535	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPR_OUT [32,128]	PROFIBUS/PROFINET output data (4 bytes)					DOUBLE
Description:						
The field variable \$A_DPR_OUT[n,m] is used to write output data (32 bits REAL) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is compressed to 4 bytes IEEE (real).						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
Unit	Init value	Min			Max	

\$A_DPR_OUT [32,128]		PROFIBUS/PROFINET output data (4 bytes)			DOUBLE	
-	0.0			-1.8E+308		1.8E+308
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPB_OUT [32,128]		PROFIBUS/PROFINET output byte (unsigned)			INT	
Description:						
The field variable \$A_DPB_OUT[n,m] is used to write a data byte (8 bits) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is shown as unsigned.						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	0			255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPW_OUT [32,128]		PROFIBUS/PROFINET output word (unsigned)			INT	
Description:						
The field variable \$A_DPW_OUT[n,m] is used to write a data word (16 bits) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is shown as unsigned.						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	0			65535	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.23 System data

\$A_DPR_IN [32,128]	PROFIBUS/PROFINET input data (4 bytes)			DOUBLE		
Description:						
The field variable \$A_DPR_IN[n,m] is used to read input data (32 bits REAL) from PROFIBUS/PROFINET IO.						
n:= Index for the input data area						
m:= Byte Index for the data						
The value is expanded to 8 bytes IEEE (double).						
The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0.0 is always read.						
Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPSW_IN [32,128]	PROFIBUS/PROFINET input word (signed)			INT		
Description:						
The field variable \$A_DPSW_IN[n,m] is used to read a data word (16 bits) from PROFIBUS/PROFINET IO.						
n:= Index for the input data area						
m:= Byte Index for the data						
The value is shown as signed.						
The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.						
Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	-32768			32767	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPSPD_IN [32,128]		PROFIBUS/PROFINET input data double word DBD (signed)			INT	
Description:						
The field variable \$A_DPSPD_IN[n,m] is used to read a data double word (32 bits) from PROFIBUS/PROFINET IO.						
n:= Index for the input data area						
m:= Byte Index for the data						
The value is shown as signed.						
The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.						
Whether a data area is valid can be queried with the variables \$A_DP_IN_STATE[n] or \$A_DP_IN_VALID.						
Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPSB_OUT [32,128]		PROFIBUS/PROFINET output byte (signed)			INT	
Description:						
The field variable \$A_DPSB_OUT[n,m] is used to write a data byte (8 bits) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is shown as signed.						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
Unit	Init value	Min			Max	
-	0	-128			127	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.23 System data

\$A_DPSW_OUT [32,128]		PROFIBUS/PROFINET output word (signed)			INT	
Description:						
The field variable \$A_DPSW_IN[n,m] is used to write a data word (16 bits) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is shown as signed.						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
Unit	Init value	Min		Max		
-	0	-32768		32767		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$A_DPSD_OUT [32,128]		PROFIBUS/PROFINET output data double word (signed)			INT	
Description:						
The field variable \$A_DPSD_OUT[n,m] is used to write a data double word (32 bits) to PROFIBUS/PROFINET IO.						
n:= Index for the output data area						
m:= Byte Index for the data						
The value is shown as signed.						
The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.						
Whether a data area is valid can be queried with the variables \$A_DP_OUT_STATE[n] or \$A_DP_OUT_VALID.						
Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AN_COLL_MEM_AVAILABLE		Memory available for collision monitoring in KB		DOUBLE
Description:				
Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data \$MN_MM_MAX- NUM_3D_COLLISION.				
The size of the reserved memory area can be read in kbytes with the system variable \$AN_COLL_MEM_AVAILABLE.				
Unit	Init value	Min		Max
-	0.0	0		1.8E+308

\$AN_COLL_MEM_AVAILABLE	Memory available for collision monitoring in KB					DOUBLE
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_MEM_USE_MIN	Minimum memory requirement for collision monitoring					DOUBLE
Description:						
Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data \$MN_MM_MAX- NUM_3D_COLLISION.						
The size of the reserved memory area can be read in kbytes with the system variable \$AN_COLL_MEM_AVAILABLE.						
The system variable \$AN_COLL_MEM_USE_MIN returns the minimum memory space required for collision calculation as a percentage of the reserved memory area.						
It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.						
Unit	Init value		Min		Max	
-	0.0		0		100.	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_MEM_USE_MAX	Maximum memory requirement for collision monitoring in percent					DOUBLE
Description:						
Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data \$MN_MM_MAX- NUM_3D_COLLISION.						
The size of the reserved memory area can be read in kbytes with the system variable \$AN_COLL_MEM_AVAILABLE.						
The system variable \$AN_COLL_MEM_USE_MAX returns the minimum memory space required for collision calculation as a percentage of the reserved memory area.						
It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.						
Unit	Init value		Min		Max	
-	0.0		0		100	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.23 System data

\$AN_COLL_MEM_USE_ACT	Current memory requirement for collision monitoring				DOUBLE	
Description:						
Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data \$MN_MM_MAX- NUM_3D_COLLISION.						
The size of the reserved memory area can be read in kbytes with the system variable \$AN_COLL_MEM_AVAILABLE.						
The system variable \$AN_COLL_MEM_USE_ACT returns the memory space currently required for collision calculation (that is for the last calculation) as a percentage of the reserved memory area.						
It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.						
Unit	Init value	Min		Max		
-	0.0	0		100.		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_STATE [n]	Activation status of a protection area for collision avoidance				BOOL	
Description:						
The system variable indicates if a protection area can currently be part of collision monitoring.						
However, the following requirements must be met first:						
1. The activation status of the protection area is active ("A") or the activation status is PLC-controlled ("P") and the interface bit assigned to the protection area is set.						
2. The protection area group ("Machine", "TOOL" etc.) has been activated in the current operating mode via the associated interface bit.						
A protection area for which this system variable gives the value TRUE only then enters real collision monitoring when it is part of at least one collision pair (\$NP_COLL_PAIR). The other partner must also be an active protection area.						
Index 1:	Index of the protection area whose status is to be read.					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_IPO_ACTIVE	Status of main run monitoring of collision avoidance				BOOL	
Description:						
The system variable indicates if the main run monitoring of the collision avoidance is active.						
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_IPO_LIMIT		Speed reduced by collision monitoring in the main run			BOOL	
Description:						
The system variable indicates if the main run monitoring of the collision avoidance leads to a velocity reduction.						
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_LOAD [2]		CPU time required for collision avoidance functions in ms			DOUBLE	
Description:						
Gives the required calculation time in ms - required for certain operations in connection with collision avoidance. The operation is defined by index i.						
i = 0: Time requirement for last call of PROTA						
i = 1: Time requirement for last call of collision avoidance during preprocessing						
i = 2: Time requirement for last call of the calculation of free space (real-time monitoring)						
The variables can be reset by describing with value 0. Every write attempt with a value other than 0 is refused with an error message.						
Index 1:	Choice of functions					
Unit	Init value	Min			Max	
s	0.0	0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_PREP_ACT_LOAD		Current preprocessing runtime			DOUBLE	
Description:						
\$AN_PREP_ACT_LOAD returns the current net preprocessing runtime across all channels.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PREP_MAX_LOAD		Longest preprocessing runtime			DOUBLE	
Description:						
\$AN_PREP_MAX_LOAD returns the longest net preprocessing runtime across all channels.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	

List of system variables

3.23 System data

\$AN_PREP_MAX_LOAD		Longest preprocessing runtime				DOUBLE
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PREP_MIN_LOAD		Shortest preprocessing runtime				DOUBLE
Description:						
\$AN_PREP_MIN_LOAD returns the shortest net preprocessing runtime across all channels.						
Unit	Init value		Min		Max	
-	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PREP_ACT_LOAD_GROSS		Current preprocessing runtime				DOUBLE
Description:						
\$AN_PREP_ACT_LOAD_GROSS returns the current gross preprocessing runtime across all channels.						
Unit	Init value		Min		Max	
-	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PREP_MAX_LOAD_GROSS		Longest preprocessing runtime				DOUBLE
Description:						
\$AN_PREP_MAX_LOAD_GROSS returns the longest gross preprocessing runtime across all channels.						
Unit	Init value		Min		Max	
-	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_PREP_MIN_LOAD_GROSS	Shortest preprocessing runtime					DOUBLE
Description:						
\$AN_PREP_MIN_LOAD_GROSS returns the shortest gross preprocessing runtime across all channels.						
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	X	X	7	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_AUXFU_LIST_GROUPINDEX [1679]	Global list of auxiliary functions - group index					INT
Description:						
The array variable \$AN_AUXFU_LIST_GROUPINDEX[n] is used to read the group index of the auxiliary function collected in the channel. The variable is only valid in conjunction with search run type 5 (SERUPRO). After the search target has been found, the auxiliary functions collected in groups in the individual channels in accordance with \$AC_AUXFU_TICK[n] are entered in the cross-channel list with channel number \$AN_AUXFU_LIST_CHANNO[n] and group index. The auxiliary functions collected in the channel can be accessed by the group index.						
Index 1:	Index = 0 .. MD_MAXNUM_AUXFU_LIST_INDEX					
Unit	Init value	Min			Max	
-	0	-1			MD_MAXNUM_AUXFU_GROUPS - 1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	3	X	3	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_AUXFU_LIST_CHANNO [1679]	Global list of auxiliary functions - channel number					INT
Description:						
The array variable \$AN_AUXFU_LIST_CHANNO[n] is used to read the channel number of the auxiliary function collected in the channel. The variable is only valid in conjunction with search run type 5 (SERUPRO). After the search target has been found, the auxiliary functions collected in groups in the individual channels in accordance with \$AC_AUXFU_TICK[n] are entered in the cross-channel list with channel number and group index \$AN_AUXFU_LIST_GROUPINDEX[n].						
Index 1:	Index = 0 .. MD_MAXNUM_AUXFU_LIST_INDEX					
Unit	Init value	Min			Max	
-	0	-1			10	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	3	X	3	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.23 System data

\$AN_AUXFU_LIST_ENDINDEX		Last valid index of the global auxiliary function list			INT	
Description:						
The variable \$AN_AUXFU_LIST_ENDINDEX determines the last valid index for the global auxiliary function list.						
Unit	Init value	Min			Max	
-	0	-1			1679	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$AN_AXCTSWE [31]		Axis container rotation slot enabled			INT	
Description:						
Is the rotation enabled for a slot of an axis container?						
Bit mask, each bit corresponds to a slot, e.g. 0x5 corresponds to the slots 1 and 3.						
Bit == 1: the slot of an axis container is enabled for rotation.						
Bit == 0: the slot of an axis container is not enabled for rotation.						
Example: Axis container with 4 slots: whenever (\$AN_AXCTSWE[ct1] and 'Hfff') == 'Hfff' do DO M99.						
As soon as a slot has been enabled for the axis container rotation, bit == 1 is recorded for unused slots. In the example 'Hfff0'.						
If the slots of an axis container are distributed over several NCUs, the current status of the slots is only displayed on the other NCUs if all slots for the axis container rotation have been enabled on the other NCU. In the case of a direct axis container rotation (AXCTSED), nothing is displayed.						
Notice: The most significant bit is not a sign bit, but stands for the 32nd slot of an axis container. Therefore do not query variables with >0 but to != 0 in order to establish whether a slot has actually been enabled for rotation.						
The axis container name or axis name of an axis in the axis container can be specified as an index.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			0x7ffffff	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LAI_AX_JS_AXCTAX		Bit mask shows whether an LAI axis is an axis in an axis container			INT	
Description:						
Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 \$MN_AXCONF_LOGIC_MACHAX_TAB) is an axis in an axis container (machine data 1270x/1271x \$MN_AXCT_AXCONF_ASSIGN_TABi).						
Unit	Init value	Min			Max	
-	0	0			0x7ffffff	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

\$AN_LAI_AX_IS_AXCTAX	Bit mask shows whether an LAI axis is an axis in an axis container			INT
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$AN_LAI_AX_IS_LINKAX	Bit mask shows whether an LAI axis is a link axis.			INT		
Description: Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 \$MN_AXCONF_LOGIC_MACHAX_TAB) is a link axis (axis physically connected to another NCU).						
Unit	Init value	Min	Max			
-	0	0	0x7ffffff			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LAI_AX_IS_LEADLINKAX	Bit mask shows whether an LAI axis is a leading link axis.			INT		
Description: Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 \$MN_AXCONF_LOGIC_MACHAX_TAB) is a leading link axis, i.e. several NCUs refer to the same machine axis through MD10002 \$MN_AXCONF_LOGIC_MACHAX_TAB and the axial MD30554 \$MA_AXCONF_ASSIGN_MASTER_NCU is used to establish which NCU is the master NCU, which creates the setpoint values for the position controller following booting.						
Unit	Init value	Min	Max			
-	0	0	0x7ffffff			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not for lead link axes	

\$AN_LAI_AX_TO_MACHAX [31]	Assignment of the physical axis to an LAI axis.			INT		
Description: The NCU and machine axis are recorded for an LAI axis, this illustrates the physical image of the axis. In this case, the NCU Id is reported from the 10000 location, e.g. 20005: NCU 2 axis 5. Without NCU link, i.e. if there is only one NCU, then only the number of the machine axis is reported. In this case, the NCU Id equals zero. If the LAI axis is not used, 0 is returned.						
Index 1:	Maximum axis number in the logical machine axis image					
Unit	Init value	Min	Max			
-	0	0	0x7ffffff			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.23 System data

\$AN_LAI_AX_TO_IPO_NC_CHANAX [31]	Assignment of an LAI axis to the interpolator (NCU or channel, channel axis).					INT
Description:						
If the LAI axis is currently interpolated on this NCU, the channel and the channel axis number are reported in such a way, which defines the interpolator of the axis. In this case, the channel is recorded from the hundred place and the channel axis number is recorded from the unit place, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.						
If the LAI axis is currently interpolated on another NCU, the NCU Identifier of the interpolating NCU and the global axis number of the machine axis is recorded. In this case, the NCU is recorded from the 10000 place, e.g. 20203: NCU 2 and the global axis number is 203. This global axis number can be used to determine the interpolating channel and the channel axis number on the other NCU with NCU Id 2, with \$AN_IPO_CHANAX[203].						
If the LAI axis is not used, 0 is returned.						
Index 1:	Maximum axis number in the logical machine axis image.					
Unit	Init value	Min			Max	
-	0	0			0x7ffffff	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_IPO_CHANAX [n]	Assignment of the global axis to the interpolator (channel, channel axis).					INT
Description:						
For a global axis number, such as the one reported by \$VA_IPO_NC_CHANAX, the channel and channel axis number are reported, which define the writing interpolator of the axis. In this case, the channel is reported from the hundred place and the channel axis number from the unit place e.g. 1005 – channel 10 channel axis 5.						
If the axis is not used on this NCU with the specified global axis number, 0 is returned.						
Index 1:	Global axis number to be provided by \$VA_IPO_NC_CHANAX.					
Unit	Init value	Min			Max	
-	0	0			0x7ffffff	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LANGUAGE_ON_HMI	Currently set language on HMI					INT
Description:						
The variable \$AN_LANGUAGE_ON_HMI determines the language currently set on the HMI. The variable can only be written on the HMI.						
Application in the NC program:						
IF \$AN_LANGUAGE_ON_HMI == 3 GOTOF ENGLISH						
The possible values are described in the Appendix to the Programming Guide						
Unit	Init value	Min			Max	
-	0	0			255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X

\$AN_LANGUAGE_ON_HMI		Currently set language on HMI			INT	
Write:	-	-	0	X	7	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AN_SLTRACE		Trigger variable for the log function			INT	
Description:						
This variable is reserved for the applications SinuTrace and Operate-Trace.						
It serves as a trigger variable for the log function.						
The variable has the following values:						
0: Inactive						
1: Start logging requested						
2: Stop logging requested						
The value is usually set by the part program, the reset through the application via OPI.						
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_EXPORT_RESTRICTED		Export restriction			BOOL	
Description:						
Export restriction						
Identification of the software subject to export restriction according to BAfA and ECC						
Compare OPI N/Y exportRestricted						
Unit	Init value	Min			Max	
-	TRUE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Independent			Link:	No restrictions	

\$AN_LINK_CONN_SND [16]		Number of link variable changes per cycle			INT	
Description:						
Number of link variable changes per cycle from the current to the specified NCU number.						
The index NCU No of the \$AN_LINK_CONN_SDN[NCU No] variable currently varies from 1 to 16. The variable returns the number of bytes from the current NCU Act to the NCU No reserved for replacing any non-cyclic messages. Depending on the utilization of this transmission capacity, SIEMENS can provide new SDB blocks for the CBE-30, which reduce the total transmission capacity from NCU Act to NCU No. This makes the link faster and the servo cycle shorter. Note: Systems without NCU link return the value 0. If NCU Act == NCU No, the variable returns "0".						
Index 1:	Currently, the index can have a value between 1 and 16.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.23 System data

\$AN_LINK_CONN_SND [16]	Number of link variable changes per cycle					INT
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LINK_CONN_RCV [16]	Number of link variable changes per cycle					INT
Description:						
Number of link variable changes per cycle from the specified NCU number to the current NCU number. The \$AN_LINK_CONN_RCV[NCU-No] variable defines the reserved transmission capacity for non-cyclic messages from NCU No to NCU Act in bytes. Note: Systems without an NCU link return the value 0. The variable "0" is returned if NCU Act == NCU No.						
Index 1:	Currently, the index can have a value between 1 and 16.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LINK_CONN_SIZE_LINKVAR	Gross number of bytes required for a link variable					INT
Description:						
Gross number of bytes required for a link variable that is to be transferred into every PTP relationship The assignment of a link variable (e.g. \$a_dlb[9] = 1) does not utilize the non-cyclic link connections with a message of length \$AN_LINK_CONN_SIZE_LINKVAR. It is irrelevant whether a double-link variable or a byte-link variable is described. The customer can thus estimate the maximum number of transferable link variables per IPO cycle ($\frac{\$AN_LINK_CONN_SND[NCU-No]}{\$AN_LINK_CONN_SIZE_LINKVAR}$ = number of link variables changes per IPO cycle from NCU Act to NCU No).						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LINK_TRANS_RATE_LAST	Number of link variables that were still available in last interpolation cycle					INT
Description:						
Number of link variables which could have been transferred in the previous interpolation cycle. The value of \$AN_LINK_TRANS_RATE_LAST is constant in the current interpolation cycle.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

\$AN_LINK_TRANS_RATE_LAST		Number of link variables that were still available in last interpolation cycle			INT	
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_LINK_TRANS_RATE_LAST_SUM [16]		Unused link variables in the stated transmission direction			INT	
Description:						
Number of unused link variables in the previous interpolation cycle in the stated transmission direction.						
The index NCU no. of the variable \$AN_LINK_TRANS_RATE_LAST_SUM[NCU-No] defines the transmission direction, and nowadays ranges from 1 to 16. The variable returns the number of user link variables (\$A_DLx) for the stated NCU which could have been used in the previous interpolation cycle in this transmission direction.						
Index 1:	Currently, the index can have a value between 1 and 16.					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$A_PROBE_LIMITED [2]		Measuring velocity exceeded.			INT	
Description:						
\$A_PROBE_LIMITED contains the accumulated number of DP communication cycles in which at least one limitation was active.						
An increasing value indicates that the frequency of the probe signals must be reduced (e.g. by reducing the speed of the gearwheel that is to be measured).						
Index 1:	n: Number of the probe					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_SIM_CHAN_MASK		Bit mask of channels that are synchronized in the simulation			INT	
Description:						
The channels that are to be synchronized during the simulation can be specified by the bitcoded variable \$AN_SIM_CHAN_MASK. The variable is defaulted with the bit mask across all configured channels.						
The synchronized multichannel simulation is configured via bit 4 in \$MN_PROG_TEST_MASK.						
Application in the NC program:						
\$AN_SIM_CHAN_MASK = 'B101' ; channel 1 and channel 3 are synchronized in the simulation.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						

List of system variables

3.23 System data

\$AN_SIM_CHAN_MASK		Bit mask of channels that are synchronized in the simulation			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AN_SIM_MAX_IPOSTEP		Maximum simulation step in real-time interpolation cycles			INT	
Description:						
The maximum simulation increment can be read and written in real-time interpolation cycle via variable \$AN_SIM_MAX_IPOSTEP. An event is output to the HMI interface after each increment. This enables the number of interpolation points to be set. If a value of 0 is specified, the system determines the maximum possible increment.						
The variable is only valid in conjunction with the synchronized simulation (see bit 4 \$MN_PROG_TEST_MASK).						
Application in the NC program:						
\$AN_SIM_MAX_IPOSTEP = 10 ; One interpolation cycle in the simulation corresponds to a maximum of 10 real-time interpolation cycles.						
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Current value			Link:	No restrictions	

\$AN_ACTIVATE_COLL_CHECK [2]		Status of the field ActivateCollCheck at the PLC->NCK interface.			INT	
Description:						
Status of the field activateCollCheck at the interface PLC->NCK (DB10.DBX234.0 - DB10.DBX241.7).						
The data are made available in groups of 4 bytes, i.e. with index 0 you receive the first 4 bytes (DB10.DBX234.0 - DB10.DBX237.7), with index 1 the second 4 bytes (DB10.DBX238.0 - DB10.DBX241.7)						
Index 1:	The index designates the group of 4 bytes which is to be output at the PLC interface.					
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AN_COLL_CHECK_OFF		Status of the byte DeactivateCollCheckGroups at the PLC->NCK interface.			INT	
Description:						
Status of the byte DeactivateCollCheckGroups on the interface PLC->NCK (DB10.DBB58) for the operating-mode-dependant suppression of the collision avoidance for groups of protection areas.						
Unit	Init value		Min		Max	
-	0		-2147483648		2147483647	
Read/Write properties:						

\$AN_COLL_CHECK_OFF		Status of the byte DeactivateCollCheckGroups at the PLC->NCK interface.			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$NP_T_NAME [n]		Name of an internally generated tool protection area element.			STRING	
Description: Name of an internally generated tool protection area element.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_T_TYPE [n]		Type of internally generated tool protection area element			STRING	
Description: Type of internally generated tool protection area element. The following types are possible: FRAME: An element of this type does not contain a body, but only defines a frame, which is effective for the subsequent protection area definitions. 1. BOX (L, W, H): Paraxial cuboid symmetrical in relation to the zero point, with the dimensions L in the X direction, W in the Y direction and H in the Z direction, this means that the corners of the cuboid are located at (+/-L/2, +/-W/2, +/-H/2). 2. SPHERE (R): Sphere centered on the zero point with the radius R. 3. CYLINDER (H, R): Cylinder with radius R and height H, longitudinal axis parallel to the Z axis. The center point of the cylinder lies at the zero point, that is the two limiting circular surfaces are parallel to the X-Y plane, and are located at +/-H/2. 4. FILE: Grid consisting of triangular areas in STL format.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.23 System data

\$NP_T_FILENAME [n]		File name of a tool protection area element of the type "FILE".			STRING	
Description:						
This parameter contains the name of the file containing the description of the tool protection area element if this element is the type "FILE".						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_T_PARA [n,3]		Parameters for describing the type			DOUBLE	
Description:						
Parameters describing the tool protection area element. A maximum of 3 parameters are required for the types described in \$NP_T_TYPE.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Index 2:	The maximum number of parameters is 3.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_T_OFF [n,GEODIM]		Offset component			DOUBLE	
Description:						
Component i (0<=i<=2) of the offset vector of the tool protection area element n.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_T_DIR [n,GEODIM]		Direction of rotary axis			DOUBLE	
Description:						
Components of the rotary axis for a coordinate rotation of the tool protection area element n.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					

\$NP_T_DIR [n,GEODIM]		Direction of rotary axis			DOUBLE	
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_T_ANG [n]		Angle of a coordinate rotation in the tool protection area element n.			DOUBLE	
Description:						
Angle (in degrees) of a coordinate rotation in the tool protection area element n.						
Index 1:	The maximum number of tool protection areas is set by the MD \$MN_MM_MAXNUM_3D_T_PROT_ELEM.					
Unit	Init value	Min			Max	
deg.	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_STATE_COND [n]		Activation conditions of a protection area for collision avoidance			INT	
Description:						
The system variable indicates whether a protection area can be a current part of the collision monitoring.						
The individual conditions that have to be fulfilled for a protection area to be active for collision avoidance are also displayed.						
The variable is coded as follows:						
Bit 0: Protection area is monitored (this bit has the same meaning as the system variable \$AN_COLL_STATE).						
Bit 1: The protection area is included in the internally mapped model.						
Bit 2: The protection area has the status 'P' (PLC-controlled).						
Bit 3: The protection area has the status 'A' (active).						
Bit 4: All axes that can move the protection area are referenced.						
Bit 5: Indicates whether a PLC bit is assigned to the protection area.						
Bit 6: Status of the interface bit assigned to the protection area.						
Bit 7: The protection area has no connection with ROOT (the kinematic chain is interrupted by a SWITCH).						
An active protection area (bit 0 = TRUE) participates in the collision avoidance only if it is part of at least one collision pair (\$NP_COLL_PAIR), and its other partner is also an active protection area.						
Index 1:	Index of the protection area whose status is to be read.					
Unit	Init value	Min			Max	
-	FALSE	0			127	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	X

List of system variables

3.23 System data

\$AN_COLL_STATE_COND [n]	Activation conditions of a protection area for collision avoidance				INT
Axis entry:				Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	No restrictions

\$AN_LINK_COMM_STATE	Status of the NCU-Link communication between all NCUs of the NCU-Link cluster				INT	
Description: Status of the NCU-Link communication between all NCUs of the NCU-Link cluster Decimal values of the variable: 0: NCU-Link communication is not active (MD18780 \$MN_MM_NCU_LINK_MASK) 1: NCU-Link communication is active (MD18780 \$MN_MM_NCU_LINK_MASK), and is functioning correctly, that means signs of life are being received from all NCUs in the cluster 2: NCU-Link communication is active (MD18780 \$MN_MM_NCU_LINK_MASK), but is not functioning correctly (e.g. commissioning with inactive link connection, communication error, etc.)						
Unit	Init value	Min	Max			
-	0	0	2			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$AN_FACETS_AVAILABLE	Available number of facets of collision bodies				INT	
Description: Machine parts can be modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18895 \$MN_MM_MAXNUM_3D_FACETS. The system variable \$AN_FACETS_AVAILABLE states how many of them are still available.						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_FACETS_ACT	Currently used number of facets of internal collision bodies				INT	
Description: Machine parts can be modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18895 \$MN_MM_MAXNUM_3D_FACETS. The system variable \$AN_FACETS_ACT states how many of them are currently being used.						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

\$AN_FACETS_ACT	Currently used number of facets of internal collision bodies			INT
Axis entry:				Overlap channel: Cross-channel
Scan mode:	Not classified			Link: No restrictions

\$AN_FACETS_MIN	Minimum number of facets of collision bodies used			INT		
Description:						
Machine parts can be modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18895 \$MN_MM_MAXNUM_3D_FACETS. The system variable \$AN_FACETS_MIN states the lowest number of them that have so far been used.						
It can be reset by writing with any value.						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_FACETS_MAX	Maximum number of facets of collision bodies used			INT		
Description:						
Machine parts can be modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18895 \$MN_MM_MAXNUM_3D_FACETS. The system variable \$AN_FACETS_MIN states the highest number of them that have so far been used.						
It can be reset by writing with any value.						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_FACETS_INTERN_AVAILABLE	Available number of facets of internal collision bodies			INT		
Description:						
Changeable machine parts, such as tools, can be automatically modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18894 \$MN_MM_MAXNUM_3D_FACETS_INTERN. The system variable \$AN_FACETS_INTERN_AVAILABLE states how many of them are still available.						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.23 System data

\$AN_FACETS_INTERN_ACT		Currently used number of internal facets of collision bodies			INT	
Description:						
Changeable machine parts, such as tools, can be automatically modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18894 \$MN_MM_MAXNUM_3D_FACETS_INTERN. The system variable \$AN_FACETS_INTERN_ACT states how many of them are currently being used.						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_FACETS_INTERN_MIN		Minimum number of internal facets of collision bodies used			INT	
Description:						
Changeable machine parts, such as tools, can be automatically modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18894 \$MN_MM_MAXNUM_3D_FACETS_INTERN. The system variable \$AN_FACETS_INTERN_MIN states the lowest number of them that have so far been used. It can be reset by writing with any value.						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_FACETS_INTERN_MAX		Maximum number of internal facets of collision bodies used			INT	
Description:						
Changeable machine parts, such as tools, can be automatically modeled from triangular surfaces for the collision avoidance function. The maximum number of triangles is limited by the machine data 18894 \$MN_MM_MAXNUM_3D_FACETS_INTERN. The system variable \$AN_FACETS_INTERN_MAX states the highest number of them that have so far been used. It can be reset by writing with any value.						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_PROT_AREAS_ACT		Currently used number of protection areas of collision bodies			INT	
Description:						
The collision avoidance function can monitor a maximum number of protection areas. This number is defined by machine data 18890 \$MN_MM_MAXNUM_3D_PROT_AREAS. The system variable \$AN_PROT_AREAS_ACT states how many of the areas are currently being used.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_PROT_AREA_ELEM_ACT		Currently used number of protection area elements of collision bodies			INT	
Description:						
The collision avoidance function can monitor a maximum number of protection area elements. This number is defined by machine data 18892 \$MN_MM_MAXNUM_3D_PROT_AREA_ELEM. The system variable \$AN_PROT_AREA_ELEM_ACT states how many of the elements are currently being used.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_COLL_PAIRS_ACT		Currently used number of collision pairs of collision bodies			INT	
Description:						
The collision avoidance function can monitor a maximum number of protection area pairs. This number is defined by machine data 18898 \$MN_MM_MAXNUM_3D_COLL_PAIRS. The system variable \$AN_COLL_PAIRS_ACT states how many of the pairs are currently being used.						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.23 System data

\$AN_T_PROT_ELEM_ACT		Currently used number of tool protection area elements			INT	
Description:						
The collision avoidance function can only monitor a maximum number of tool protection area elements. This number is defined by machine data 18893 \$MN_MM_MAXNUM_3D_T_PROT_ELEM. The system variable \$AN_T_PROT_ELEM_ACT states how many of the elements are currently being used.						
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_KIN_CHAIN_ELEM_ACT		Number of kinematic elements used			INT	
Description:						
The kinematic chains can only use a maximum number of elements. This number is defined by machine data 18880 \$MN_MM_MAXNUM_KIN_CHAIN_ELEM. The system variable \$AN_KIN_CHAIN_ELEM_ACT states how many of the elements are currently being used.						
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	Not classified			Link:	No restrictions	

\$AN_ROBOUT [8]		NCK-PLC robot control interface			INT	
Description:						
The system variable writes the data of the robot handling for the robot control interface, which is sent from the NCK to the PLC. The data can be read back. The index [0...7] states the relevant byte number.						
Index 1:	Byte number					
Unit	Init value		Min		Max	
-	0		0		255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$AN_ROBIN [8]		NCK-PLC robot status interface			INT	
Description:						
The system variable reads the data of the robot handling for the robot status interface, which is sent from the PLC to the NCK. The index [0...7] states the relevant byte number.						
Index 1:	Byte number					
Unit	Init value		Min		Max	
-	0		0		255	

\$AN_ROBIN [8]		NCK-PLC robot status interface				INT	
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	Cross-channel		
Scan mode:	No restrictions			Link:	No restrictions		

\$AN_POWERON_STATE		>State of NCK power on				INT	
Description:							
The bit-coded variable indicates the state of the NCK power on.							
All bits = 0: NCK power on has not started.							
Bit0=1: The NCK power on has started, i.e. all NCK objects (channels etc.) have already been created and are being initialized.							
Bit1=1: The main run states can now be read. This means that all stations have been initialized, and that power on Reset has been executed together with the Reset INIT blocks.							
Bit2=1: User interventions (Reset, Stop etc.) are now possible and purposeful. This means that any configured Safety ProgEvent has been correctly completed or possibly could not be executed because of alarms. Any configured PowerOn ProgEvent is executed next provided that its execution is not prevented by alarms.							
Bit24=1: The NCK power on has finished together with all the ProgEvents that could be executed automatically (Safety ProgEvent, PowerOn ProgEvent). The bit does not indicate whether or not an error occurred during the power on (see Bit25).							
Bit25=1: The NCK power on finished with errors. This means, for example, that an error occurred while the stations were being initialized, during the Reset INIT blocks or the execution of the Safety ProgEvent. Other alarms indicate the exact problem, and the alarm responses indicate which actions can be executed.							
Unit	Init value	Min			Max		
-	0	0			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:				Overlap channel:	Cross-channel		
Scan mode:	No restrictions			Link:	No restrictions		

\$P_ACCESSLEVEL		Access level				INT	
Description:							
Currently set access authorization level. Can be modified by entering a password or key-operated switch.							
0 = access level for SIEMENS							
1 = access level for machine builders							
2 = access level for commissioning engineers (machine builders)							
3 = access level for end users with password							
4 = access level key-operated switch 3							
5 = access level key-operated switch 2							
6 = access level key-operated switch 1							
7 = access level key-operated switch 0							
Unit	Init value	Min			Max		
-	0	0			7		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	-	7	X	7	-	
Write:	-	-	0	-	0	-	

List of system variables

3.23 System data

\$P_ACCESSLEVEL		Access level			INT
Axis entry:				Overlap channel:	Cross-channel
Scan mode:	No restrictions			Link:	No restrictions

\$P_MODEL_SCALING_OVL [65535]		>Information, whether model scaling is overloaded.			INT	
Description:						
The variable states in bit-coded form whether and how the machine data programmed via the MMCID is changed in respect of the model definition in the characteristics effective on cold start. Changes are only defined and possible for simulation NCK systems.						
The field index corresponds to the MMCID of the machine data that is to be checked. For example, \$AN_MODLE_SCALING_OVL[20700] designates the machine data \$MC_REFP_NC_START_LOCK. The field index of a non-existent MMCID does not lead to the alarm, but returns the value -1 (0xfffffff).						
All bits = 0: The machine data remains unchanged with its characteristics defined for the NCK model.						
Bit0=1: Simulation NCK. An entry in the file that is determined with the internally used environment variable NCNCKSIMS has changed one or more characteristics of the original model definition						
Bit1=1: Simulation NCK. An entry in the file that is determined with the internally used environment variable NCNCKSIMS00 has changed one or more characteristics of the original model definition						
Bit2=1: Simulation NCK. An entry in the file that is determined with the internally used environment variable NCNCKSIMS01 has changed one or more characteristics of the original model definition						
Index 1:	mmcid of a machine data					
Unit	Init value	Min			Max	
-	0	-1			0xf	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$PN_CHANGE_CNTR_NK_DATA		Change counter for kinematic chain data (chain elements and NK_SWITCHes)			INT	
Description:						
Change counter for kinematic chain data (chain elements and NK_SWITCHes).						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$PN_CHANGE_CNTR_NK_ELEM		Change counter for kinematic chain elements (without NK_SWITCH))			INT	
Description:						
Change counter for kinematic chain elements (without NK_SWITCH))						
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$PN_CHANGE_CNTR_NK_ELEM		Change counter for kinematic chain elements (without NK_SWITCH))			INT	
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$PN_CHANGE_CNTR_NK_SWITCH		Change counter for \$NK_SWITCHes			INT	
Description: Change counter for \$NK_SWITCHes						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$PN_CHANGE_CNTR_NP_DATA		Change counter for 3D protection area data (\$NP_xxx)			INT	
Description: Change counter for 3D protection area data (\$NP_xxx)						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$PN_CHANGE_CNTR_NT_DATA		Change counter for transformation data (\$NT_xxx)			INT	
Description: Change counter for transformation data (\$NT_xxx)						
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

List of system variables

3.23 System data

\$P_NCKTYPE		NCK type		INT		
Description:						
The system variable returns the NCK type.						
6000: SOLUTIONLINE						
10700: 840D sl						
14000: 802D sl T/M						
14000: 802D sl N/G o. C/U						
14500: 808D						
15000: 840Di sl						
16000: 828D						
Unit	Init value	Min	Max			
-	0	0	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	Cross-channel	
Scan mode:	No restrictions			Link:	No restrictions	

\$AN_CUTRACE		Trigger variable for the SINAMICS trace function		INT		
Description:						
Variable for triggering the trace function in SINAMICS.						
Writing the value 1 when using telegram 390, 391 or 395 sets bit 4 in all Control Units in drive parameter r898 "Control word drive object 1" activated by MD13120 \$MN_CONTROL_UNIT_LOGIC_ADDRESS.						
The trigger tripped by the telegram must have previously been parameterized in the trace.						
The variable has the following values:						
Write:						
0: No action						
1: Trip trigger						
Read:						
Always 0 because the trigger cannot be read back						
Unit	Init value	Min	Max			
-	0	0	1			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

3.24 Axial system variables

\$P_EP [31]		Programmed end position			DOUBLE	
Description:						
\$P_EP[X]						
System variable \$P_EP supplies the current WCS setpoint position in the interpreter. The numerical value is not necessarily identical to the value programmed in the part program. The two values differ in the following situations:						
- with incremental programming						
- when the WCS is changed by a frame or tool selection						
If an ASUB is started after a block search with calculation, the positions in the interpreter are synchronized with this operation. \$P_EP then supplies the actual standstill positions of the axes in the ASUB. The collected search position can be interrogated via system variable \$AC_RETPOINT.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_EPM [31]		Programmed MCS target position			DOUBLE	
Description:						
Axial variable \$P_EPM[ax] determines the current programmed MCS target position in the preprocessor for the specified axis (see also \$P_EP).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_APR [31]		Axis position in the starting point with SAR in the WCS			DOUBLE	
Description:						
\$P_APR[X]						
Position of axis in workpiece coordinate system at starting point of approach movement on smooth approach to the contour						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0

List of system variables

3.24 Axial system variables

\$P_APR [31]		Axis position in the starting point with SAR in the WCS			DOUBLE	
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_AEP [31]		1st contour point with SAR in the WCS			DOUBLE	
Description: \$P_AEP[X] Approach point: First contour point in workpiece coordinate system on smooth approach to contour						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_POLF [31]		Programmed retraction position of the axis			DOUBLE	
Description: \$P_POLF[X] supplies the programmed retraction position of the axis X: Axis						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_POLF_VALID [31]		Status of the value of \$P_POLF			INT	
Description: \$P_POLF_VALID[X] Supplies the status of \$P_POLF[X] X: Axis Return values: 0: No retraction programmed 1: Retraction programmed Position programmed 2: Retraction programmed as distance						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
-	0		0		2	
Read/Write properties:						

\$P_POLF_VALID [31]		Status of the value of \$P_POLF				INT	
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_IW [31]		Current WCS setpoint of an axis				DOUBLE	
Description:							
Axial variable \$AA_IW[ax] determines the current setpoint in the workpiece coordinate system (WCS) for the specified axis. The setpoint is equivalent to the interpolator output value for the current interpolation cycle. The WCS value contains no axial offset components (DRF, AA_OFF, ext. work offset, etc.).							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular position	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_REPOS_DELAY [31]		-				BOOL	
Description:							
\$AA_REPOS_DELAY[X]							
TRUE: Repos suppression is currently active for this axis.							
FALSE: otherwise							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
-	FALSE		FALSE		TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Program sensitive				Link:	Not for lead link axes	

\$AA_IEN [31]		Current SZS setpoint of an axis				DOUBLE	
Description:							
Axial variable \$AA_IEN[ax] determines the current setpoint in the settable zero coordinate system (SZS) for the specified axis. See also \$AA_IW[ax]. The SZS value contains no axial offset components (DRF, AA_OFF, ext. work offset, etc.).							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular position	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-

List of system variables

3.24 Axial system variables

\$AA_IEN [31]		Current SZS setpoint of an axis				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IBN [31]		Current BZS setpoint of an axis				DOUBLE
Description: Axial variable \$AA_IBN[ax] determines the current setpoint in the basic zero coordinate system (BZS) for the specified axis. See also \$AA_IW[ax]. The BZS value contains no axial offset components (DRF, \$AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IB [31]		Current BCS setpoint of an axis				DOUBLE
Description: Axial variable \$AA_IB[ax] determines the current setpoint in the basic coordinate system (BCS) for the specified axis. See also \$AA_IW[ax]. The BCS value contains no axial offset components (DRF, \$AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IM [31]		Current MCS setpoint of an axis				DOUBLE
Description: Axial variable \$AA_IM[ax] determines the current setpoint in the machine coordinate system (MCS) for the specified axis. See also \$AA_IW[ax]. The MCS value contains all axial offset components (DRF, \$AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_ACT_INDEX_AX_POS_NO [31]		Current indexing position			INT	
Description:						
\$AA_ACT_INDEX_AX_POS_NO[X]						
0: Not an indexing axis, no indexing position is thus available.						
> 0: Number of last reached or last crossed indexing position						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_PROG_INDEX_AX_POS_NO [31]		Programmed indexing position			INT	
Description:						
\$AA_PROG_INDEX_AX_POS_NO[X]						
0: Not an indexing axis, no indexing position is thus available or the indexing axis is not currently approaching an indexing position						
> 0: Number of programmed indexing position						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ENC_ACTIVE [31]		Measuring system is active			BOOL	
Description:						
Axial variable \$AA_ENC_ACTIVE[ax] determines whether the active measuring system is operating below the encoder limit frequency.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_ENC1_ACTIVE [31]	1. Measuring system is active				BOOL	
Description: Axial variable \$AA_ENC1_ACTIVE[ax] determines whether the first measuring system is operating below the encoder limit frequency.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ENC2_ACTIVE [31]	2. Measuring system is active				BOOL	
Description: Axial variable \$AA_ENC2_ACTIVE[ax] determines whether the second measuring system is operating below the encoder limit frequency.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_IM [31]	Current MCS actual value of an axis				DOUBLE	
Description: Axial variable \$VA_IM[ax] determines the encoder actual value (measured by active measuring system) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation). For rotary axes/spindles, the returned value is independent of the modulo setting, a transformation is only performed for specific actions. When a spindle or axis disable is active, this variable returns the current setpoint by definition. In this case, if the actual value also has to be returned, BIT3 must be set in \$MA_MISC_FUNCTION_MASK.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_IM1 [31]		Current MCS actual value of an axis			DOUBLE	
Description:						
Axial variable \$VA_IM1[ax] determines the encoder actual value (measured by encoder 1) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation). For rotary axes/spindles, the returned value is independent of the modulo setting, a transformation is only performed for specific actions.						
When a spindle or axis disable is active, this variable returns the current setpoint by definition. In this case, if the actual value also has to be returned, BIT3 must be set in \$MA_MISC_FUNCTION_MASK.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_IM2 [31]		Current MCS actual value of an axis			DOUBLE	
Description:						
Axial variable \$VA_IM2[ax] determines the encoder actual value (measured by encoder 2) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation). For rotary axes/spindles, the returned value is independent of the modulo setting, a transformation is only performed for specific actions.						
When a spindle or axis disable is active, this variable returns the current setpoint by definition. In this case, if the actual value also has to be returned, BIT3 must be set in \$MA_MISC_FUNCTION_MASK.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_LAG_ERROR [31]		Axis following error			DOUBLE	
Description:						
Variable \$VA_LAG_ERROR[X] supplies the contour-related following error, i.e. position setpoint after fine interpolator actual position value.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:		CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_MW [31]		Measured probe position (WCS)			DOUBLE	
Description: \$AA_MW[X] Probe measured value in workpiece coordinate system						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MM [31]		Measured probe position (MCS)			DOUBLE	
Description: \$AA_MM[X] Probe measured value in machine coordinate system						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MW1 [31]		Probe position trigger 1 (WCS)			DOUBLE	
Description: \$AA_MW1[X] Measurement result axial measurement Trigger event 1 in WCS						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MW2 [31]		Probe position trigger 2 (WCS)				DOUBLE	
Description: \$AA_MW2[X] Measurement result axial measurement Trigger event 2 in WCS							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MW3 [31]		Probe position trigger 3 (WCS)				DOUBLE	
Description: \$AA_MW3[X] Measurement result axial measurement Trigger event 3 in WCS							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MW4 [31]		Probe position trigger 4 (WCS)				DOUBLE	
Description: \$AA_MW4[X] Measurement result axial measurement Trigger event 4 in WCS							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_MM1 [31]		Probe position trigger 1 (MCS)				DOUBLE
Description: \$AA_MM1[X] Measurement result axial measurement Trigger event 1 in MCS						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MM2 [31]		Probe position trigger 2 (MCS)				DOUBLE
Description: \$AA_MM2[X] Measurement result axial measurement Trigger event 2 in MCS						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MM3 [31]		Probe position trigger 3 (MCS)				DOUBLE
Description: \$AA_MM3[X] Measurement result axial measurement Trigger event 3 in MCS						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MM4 [31]		Probe position trigger 4 (MCS)				DOUBLE	
Description:							
\$AA_MM4[X] Measurement result axial measurement Trigger event 4 in MCS							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MEAAC [31]		Axial measurement active				BOOL	
Description:							
\$AA_MEAAC[X] Value is exactly then TRUE if axial measurement active for X Corresponds with NC/PLC interface signal <Messung_aktiv/> (measurement active)							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
-	FALSE	FALSE			TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		-	0	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_DRF [31]		Handwheel override of an axis				DOUBLE	
Description:							
Axial variable \$AC_DRF[ax] determines the axial override value caused by the handwheel (DRF offset).							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AC_PRESET [31]		PRESET value of an axis			DOUBLE	
Description:						
Axial variable \$AC_PRESET[ax] determines the last defined PRESET value.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ETRANS [31]		External zero offset			DOUBLE	
Description:						
Axial variable \$AA_ETRANS[ax] is used to enter an external work offset which can be activated by the PLC. After activation by the PLC, the offset value is traversed as an axial override in the next block.						
If Bit 1 is set in \$MC_MM_SYSTEM_FRAME_MASK, an active movement is stopped immediately, on activation by the PLC, the preprocessor is reorganized, and the system frame is initialized with the axis value of \$AA_ETRANS[ax] and is activated. The offset is traversed before resuming the interrupted movement. The external work offset has an absolute effect on the translation of the current system frame. Multiple activation is thus not additive; only the coarse component of the translation (not the fine offset) is overwritten with the value from \$AA_ETRANS[ax].						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MEAS_P1_VALID [31]		Unlatch 1st measuring point of an axis			INT	
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_P1_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable \$AC_MEAS_P1_COORD is used to select the coordinate system.						
Application:						
\$AA_MEAS_P1_VALID[ax] = 0 ; 1st measuring point of axis is invalid						
\$AA_MEAS_P1_VALID[ax] = 1 ; Determining 1st measuring point of axis						
The unlatched measuring point is stored in \$AA_MEAS_POINT1[ax].						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	runin stp	X	7		X	7

\$AA_MEAS_P1_VALID [31]		Unlatch 1st measuring point of an axis			INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: channel-specific
Scan mode:	Not classified			Link:	Not classified

\$AA_MEAS_P2_VALID [31]		Unlatch 2nd measuring point of an axis			INT		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_P2_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable \$AC_MEAS_P2_COORD is used to select the coordinate system.							
Application:							
\$AA_MEAS_P2_VALID[ax] = 0 ; 2nd measuring point of axis is invalid							
\$AA_MEAS_P2_VALID[ax] = 1 ; Determining 2nd measuring point of axis							
The unlatched measuring point is stored in \$AA_MEAS_POINT2[ax].							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			1		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified		

\$AA_MEAS_P3_VALID [31]		Unlatch 3rd measuring point of an axis			INT		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_P3_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable \$AC_MEAS_P3_COORD is used to select the coordinate system.							
Application:							
\$AA_MEAS_P3_VALID[ax] = 0 ; 3rd measuring point of axis is invalid							
\$AA_MEAS_P3_VALID[ax] = 1 ; Determining 3rd measuring point of axis							
The unlatched measuring point is stored in \$AA_MEAS_POINT3[ax].							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			1		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified		

List of system variables

3.24 Axial system variables

\$AA_MEAS_P4_VALID [31]	Unlatch 4th measuring point of an axis				INT		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_P4_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable \$AC_MEAS_P4_COORD is used to select the coordinate system.							
Application:							
\$AA_MEAS_P4_VALID[ax] = 0 ; 4th measuring point of axis is invalid							
\$AA_MEAS_P4_VALID[ax] = 1 ; Determining 4th measuring point of axis							
The unlatched measuring point is stored in \$AA_MEAS_POINT4[ax].							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	0		1			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	runin stp	X	7		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MEAS_POINT1 [31]	1. measuring point				DOUBLE		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_POINT1[ax] is used to write the 1st measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables \$AC_MEAS_LATCH[0], \$AA_MEAS_P1_VALID[ax].							
Application:							
\$AA_MEAS_POINT1[x] = \$AA_IW[x]							
\$AA_MEAS_POINT1[y] = \$AA_IW[y]							
\$AA_MEAS_POINT1[z] = \$AA_IW[z]							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
Linear / angular position	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MEAS_POINT2 [31]		2. measuring point			DOUBLE		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_POINT2[ax] is used to write the 2nd measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables \$AC_MEAS_LATCH[1], \$AA_MEAS_P2_VALID[ax].							
Application:							
\$AA_MEAS_POINT2[x] = \$AA_IW[x]							
\$AA_MEAS_POINT2[y] = \$AA_IW[y]							
\$AA_MEAS_POINT2[z] = \$AA_IW[z]							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MEAS_POINT3 [31]		3. measuring point			DOUBLE		
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_POINT3[ax] is used to write the 3rd measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables \$AC_MEAS_LATCH[2], \$AA_MEAS_P3_VALID[ax].							
Application:							
\$AA_MEAS_POINT3[x] = \$AA_IW[x]							
\$AA_MEAS_POINT3[y] = \$AA_IW[y]							
\$AA_MEAS_POINT3[z] = \$AA_IW[z]							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_MEAS_POINT4 [31]	4. measuring point				DOUBLE	
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_POINT4[ax] is used to write the 4th measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables \$AC_MEAS_LATCH[3], \$AA_MEAS_P4_VALID[ax].						
Application:						
\$AA_MEAS_POINT4[x] = \$AA_IW[x]						
\$AA_MEAS_POINT4[y] = \$AA_IW[y]						
\$AA_MEAS_POINT4[z] = \$AA_IW[z]						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MEAS_SP_VALID [31]	Validity of position setpoint				INT	
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_SP_VALID[ax] is used to set the defined setpoint of an axis to valid or invalid.						
Application:						
\$AA_MEAS_SP_VALID[ax] = 0 ; Position setpoint of axis is invalid						
\$AA_MEAS_SP_VALID[ax] = 1 ; Position setpoint of axis is valid						
The position setpoint is stored in \$AA_MEAS_SETPOINT[ax]						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MEAS_SETPOINT [31]	Position setpoint of an axis				DOUBLE	
Description:						
Variable for workpiece and tool measurement.						
Axial variable \$AA_MEAS_SETPOINT[ax] is used to define a position setpoint for an axis. This position setpoint is considered when calculating the workpiece position or the tool length.						
Application:						
\$AA_MEAS_SETPOINT[x] = 0.0						
\$AA_MEAS_SETPOINT[y] = 0.0						
\$AA_MEAS_SETPOINT[z] = 0.0						
Index 1:	Maximum axis number					

\$AA_MEAS_SETPOINT [31]		Position setpoint of an axis				DOUBLE	
Unit	Init value	Min		Max			
Linear / angular position	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MEAS_SETANGLE [31]		Angle setpoint of an axis				DOUBLE	
Description:							
Variable for workpiece and tool measurement.							
Axial variable \$AA_MEAS_SETANGLE[ax] is used to define an angle setpoint for an axis. This angle setpoint is considered when calculating the workpiece position or the tool length.							
Application:							
\$AA_MEAS_SETANGLE[x] = 0.0							
\$AA_MEAS_SETANGLE[y] = 0.0							
\$AA_MEAS_SETANGLE[z] = 0.0							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
Linear / angular position	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	7		X	7	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_OFF [31]		Overlaid movement of an axis				DOUBLE	
Description:							
Axial variable \$AA_OFF[ax] is used to overlay a movement for the programmed axis. The behavior of the overlaid movement can be configured with \$MA_AA_OFF_MODE.							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
Linear / angular position	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	X	0		X	7	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_OFF_LIMIT [31]	Limit value reached for axis offset				INT		
Description:							
Axial variable \$AA_OFF_LIMIT[ax] is used to interrogate a limit value for the axis offset \$AA_OFF[ax].							
The following values are possible:							
0: Limit value not reached							
1: Limit value reached in positive axis direction							
-1: Limit value reached in negative axis direction							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	-1		1			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_OFF_VAL [31]	Integrated path of axis offset				DOUBLE		
Description:							
Axial variable \$AA_OFF_VAL[ax] determines the integrated value of the overlaid movement for an axis.							
An overlaid movement can be canceled again by means of the negative value of this variable.							
e.g. \$AA_OFF[axis] = -\$AA_OFF_VAL[axis]							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AC_RETPOINT [31]	Repositioning point in ASUB				DOUBLE
Description:					
\$AC_RETPOINT[X]					
\$AC_RETPOINT[] supplies the WCS position of an axis at which an ASUB has been started. The axis can then be repositioned at this point in the ASUB.					
If an ASUB is started immediately after a block search with calculation, \$AC_RETPOINT then supplies the collected search position.					
For a modulo axis \$AC_RETPOINT[] supplies the position as modulo converted.					
System variable \$AC_RPVALID[] can be used to check whether \$AC_RETPOINT[] is supplying a valid repositioning point within the current program context (see documentation for \$AC_RPVALID[]).					
Note about application in synchronized actions:					
The points generated by REPOS are supplied while the REPOS approach blocks are being processed. The current parameter settings for the REPOS operation (approach to interruption point, block start point, etc.) defined by G codes RMI, RMB, RME, RMN or VDI signal are also taken into account.					
Index 1:	Maximum axis number				
Unit	Init value	Min		Max	

\$AC_RETPOINT [31]		Repositioning point in ASUB			DOUBLE	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_TOFF [31]		Offset in tool direction			DOUBLE	
Description:						
Variable \$AA_TOFF[geo axis] is used to overlay a movement in the corresponding tool direction. The behavior of the overlaid movement can be configured with \$MC_TOFF_MODE.						
Activation in the part program is performed using the TOFFON instruction.						
The TOFFOF instruction can be used to reset the offset values.						
The velocity for the offset can be defined with MD 21194 TOFF_VELO; the acceleration can be defined with MD21196 TOFF_ACCEL.						
The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO				Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_TOFF_VAL [31]		Integrated value of offset in TCS			DOUBLE	
Description:						
Variable \$AA_TOFF_VAL[geo axis] determines the integrated value of the overlaid movement in the corresponding tool direction.						
The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO				Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_TOFF_LIMIT [31]	Limit value for offset in TCS reached		INT
Description: Axial variable \$AA_TOFF_LIMIT[ax] is used to interrogate a limit value for the offset in the tool direction (TCS) via \$AA_TOFF[geo axis]. The following values are possible: 0: Limit value not reached 1: Limit value reached in positive axis direction -1: Limit value reached in negative axis direction The limit values can be defined with SD 42970 TOFF_LIMIT. The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.			
Index 1:	Maximum axis number		
Unit	Init value	Min	Max
-	0	-1	1
Read/Write properties:			
	TP	SA	TP/SA safety
Read:	runin stp	X	7
Write:	-	-	0
Axis entry:	GEO		Overlap channel: channel-specific
Scan mode:	Not classified		Link: Not classified

\$AA_TOFF_PREP_DIFF [31]	Difference value of main run/preprocessing run in TCS		DOUBLE
Description: Variable \$AA_TOFF_PREP_DIFF[geo axis] determines the difference value of the overlaid movement in the corresponding tool direction between the main run and preprocessing run. The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.			
Index 1:	Maximum axis number		
Unit	Init value	Min	Max
mm	0.0	-1.8E+308	1.8E+308
Read/Write properties:			
	TP	SA	TP/SA safety
Read:	runin stp	X	7
Write:	-	-	0
Axis entry:	GEO		Overlap channel: channel-specific
Scan mode:	Not classified		Link: Not classified

\$AA_SOFTENDP [31]	Software limit position, positive direction		DOUBLE
Description: \$AA_SOFTENDP[X] Current software limit position, positive direction			
Index 1:	Maximum axis number		
Unit	Init value	Min	Max
Linear / angular position	0.0	-1.8E+308	1.8E+308
Read/Write properties:			
	TP	SA	TP/SA safety
Read:	runin stp	X	7
Write:	-	-	0

\$AA_SOFTENDP [31]		Software limit position, positive direction				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_SOFTENDN [31]		Software limit position, negative direction				DOUBLE	
Description:							
\$AA_SOFTENDN[X]							
Software limit position, negative direction							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_DTBW [31]		Distance from block start in WCS				DOUBLE	
Description:							
Axial variable \$AA_DTBW[ax] determines the axial distance from the start of the block in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_DTBB [31]		Distance from block start in BCS				DOUBLE	
Description:							
Axial variable \$AA_DTBB[ax] determines the axial distance from the start of the block in the basic coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_DTEW [31]		Distance from block end in WCS			DOUBLE	
Description:						
Axial variable \$AA_DTEW[ax] determines the axial distance to the end of the block in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_DTEB [31]		Distance from block end in BCS			DOUBLE	
Description:						
Axial variable \$AA_DTEB[ax] determines the axial distance to the end of the block in the basic coordinate system for positioning and synchronized axes.						
The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_DTEPW [31]		Distance to go of a reciprocating axis in WCS			DOUBLE	
Description:						
Axial variable \$AA_DTEPW[ax] determines the axial distance to go for the infeed reciprocation in the workpiece coordinate system.						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_DTEPB [31]		Distance to go of a reciprocating axis in BCS			DOUBLE	
Description:						
Axial variable \$AA_DTEPB[ax] determines the axial distance to go for the infeed reciprocation in the basic coordinate system.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_OSCILL_REVERSE_POS1 [31]		Reciprocation reversal position 1			DOUBLE	
Description:						
\$AA_OSCILL_REVERSE_POS1[X]						
Supplies current reversal position 1 for reciprocation.						
In synchronized actions, the value of setting data \$SA_OSCILL_REVERSE_POS1 is evaluated online.						
The variable can be accessed only from synchronized actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_OSCILL_REVERSE_POS2 [31]		Reciprocation reversal position 2			DOUBLE	
Description:						
\$AA_OSCILL_REVERSE_POS2[X]						
Supplies current reversal position 2 for reciprocation.						
In synchronized actions, the value of setting data \$SA_OSCILL_REVERSE_POS2 is evaluated online.						
The variable can be accessed only from synchronized actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_DELT [31]	Stored axial distance to go after deletion of distance-to-go				DOUBLE	
Description: \$AA_DELT[X] Stored axial distance to go in workpiece coordinate system after axial delete distance to go by a motion-synchronous action.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$P_FA [31]	Programmed axial feedrate				DOUBLE	
Description: \$P_FA[X] Last programmed axial feedrate						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular speed	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$AA_OVR [31]	Axial override				DOUBLE	
Description: \$AA_OVR[<axis>] Axial override for motion-synchronous actions. Multiplicative override component, applied in addition to operator override, programmed override and transformational override. The value is limited to max. 200%. If a value of < 0.0 is entered, it is assumed to be 0 and alarm 14756 is output. \$AA_OVR[<axis>] must be rewritten in every lpo cycle or else a value of 100% is applied. Variable \$AA_OVR[<spindle>] alters the spindle override. The variable can be accessed only from motion-synchronous actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	X	0	-	0	X

\$AA_OVR [31]		Axial override				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_PLC_OVR [31]		Axial override from PLC				DOUBLE
Description: \$AA_PLC_OVR[ax] supplies the axial override defined by the PLC.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	CHAN			Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified

\$AA_TOTAL_OVR [31]		Overall axial override				DOUBLE
Description: \$AA_TOTAL_OVR[ax] supplies the overall axial override (PLC_OVR*NC_OVR).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	-	X	0	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	CHAN			Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified

\$AA_VC [31]		Additive axial feedrate override				DOUBLE
Description: \$AA_VC[X] Additive axial feedrate override for motion-synchronous actions. The override value must be rewritten in every Ipo cycle or else a value of 0 is applied. A setting of 0 makes the override inoperative and is not applied to the override value. The total feedrate cannot be made negative by an override value. An upper limit is applied to ensure that the maximum axis velocities and acceleration rates cannot be exceeded. The calculation of other feed components is not affected by \$AA_VC. The override values defined by machine data: \$MN_OVR_FACTOR_LIMIT_BIN, \$MN_OVR_FACTOR_FEEDRATE[30], \$MN_OVR_FACTOR_AX_SPEED[30] and \$MN_OVR_FACTOR_SPIND_SPEED cannot be exceeded. The additive feedrate override is limited such that the resultant feedrate does not exceed the maximum override value of the programmed feedrate. The variable can be accessed only from synchronized actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						

List of system variables

3.24 Axial system variables

\$AA_VC [31]		Additive axial feedrate override				DOUBLE	
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	X	0		-	0	X
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_VACTB [31]		Axis velocity in the BCS				DOUBLE	
Description: Axial variable \$AA_VACTB[ax] determines the axis velocity in the basic coordinate system.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular speed	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_VACTW [31]		Axis velocity in the WCS				DOUBLE	
Description: Axial variable \$AA_VACTW[ax] determines the axis velocity in the workpiece coordinate system.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular speed	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_VACTM [31]		Axis velocity in the MCS				DOUBLE	
Description: Axial variable \$AA_VACTM[ax] determines the axis velocity on the setpoint side in the machine coordinate system. The variable also returns valid values for replacement and PLC axes.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular speed	0.0		-1.8E+308		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_VACTM [31]		Axis velocity actual value in the MCS			DOUBLE	
Description:						
Axial variable \$VA_VACTM[ax] determines the axis velocity actual value in the machine coordinate system. The variable supplies an undefined value if the encoder limit frequency is exceeded. When a spindle/axis disable is active, this variable returns the current velocity setpoint. If it is preferred to return the actual velocity in this situation, BIT3 in \$MA_MISC_FUNCTION_MASK must be set.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LOAD [31]		Drive load			DOUBLE	
Description:						
\$AA_LOAD[X]						
Drive utilization in %						
Only available for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-100			100	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_LOAD [31]		Drive load			DOUBLE	
Description:						
\$VA_LOAD[X]						
Drive utilization in %						
Only available for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-100			100	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_TORQUE [31]		Drive torque setpoint			DOUBLE	
Description: \$AA_TORQUE[X] Drive torque setpoint in Nm or actual force in N Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_TORQUE [31]		Drive torque setpoint			DOUBLE	
Description: \$VA_TORQUE[X] Drive torque setpoint in Nm or actual force in N Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$AA_POWER [31]		Drive active power			DOUBLE	
Description: \$AA_POWER[x] Drive active power in W Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_POWER [31]		Drive active power			DOUBLE	
Description: \$VA_POWER[x] Drive active power in W Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$AA_CURR [31]		Drive actual current			DOUBLE	
Description: \$AA_CURR[X] Actual current of axis or spindle in A Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_CURR [31]		Drive actual current			DOUBLE	
Description: \$VA_CURR[X] Actual current of axis or spindle in A Available only for PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

List of system variables

3.24 Axial system variables

\$VA_DIST_TORQUE [31]		Disturbing torque			DOUBLE	
Description: \$VA_DIST_TORQUE[X] Normalized disturbing torque (disturbing torque/max. motor torque) = output signal of disturbance monitor in the drive - only available on PROFIdrive drives with telegram 203						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-100			100	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_VALVELIFT [31]		Hydraulic valve lift			DOUBLE	
Description: \$VA_VALVELIFT[X] Actual valve lift in mm (for hydraulic module only)						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_PRESSURE_A [31]		Pressure at the A end of the hydraulic cylinder			DOUBLE	
Description: \$VA_PRESSURE_A[X] Pressure at A end of cylinder in bar (for hydraulic module only)						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_PRESSURE_B [31]	Pressure at the B end of the hydraulic cylinder				DOUBLE	
Description:						
\$VA_PRESSURE_B[X] Pressure at B end of cylinder in bar (for hydraulic module only)						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_DP_ACT_TEL [20,31]	PROFIBUS/PROFINET actual telegram from drive to NC				INT	
Description:						
\$VA_DP_ACT_TEL[b,a] b: Word index (16-bit access) in the PROFIBUS/PROFINET telegram a: Machine axis Actual value telegram contents - only available for PROFIBUS/PROFINET. For details, please see telegram configuration in PROFIdrive or drive documentation						
Index 1:	b: Word index in the PROFIBUS/PROFINET actual value frame					
Index 2:	Maximum axis number					
Unit	Init value	Min		Max		
-	0	-2147483648		65535		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_STAT [31]	Axis status				INT	
Description:						
The axial variable \$AA_STAT[<axis>] determines the axis status. The status "Exact stop fine" is derived from the servo status. See also \$AA_INPOS_STAT[<axis>]. The following values are possible: 0: No axis status available 1: Traversing movement pending 2: Axis has reached IPO end 3: Axis in position (exact stop coarse) 4: Axis in position (exact stop fine) Note: With a position default setting for an axis / spindle, the variable can still indicate the statuses 'Exact stop coarse / fine' during block change although the axis / spindle is starting to traverse. Remedy: Also query \$AC_TIMEC.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		

List of system variables

3.24 Axial system variables

\$AA_STAT [31]		Axis status				INT	
-	0	0		4			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_SINGLAX_STAT [31]		Status of single axis				INT	
Description:							
\$AA_SINGLAX_STAT[X]							
Axis status:							
0: Axis is not a single axis							
1: Single axis in Reset							
2: Single axis has ended							
3: Single axis is interrupted							
4: Single axis is active							
5: Single axis alarm is active							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
-	0		0		4		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_REF [31]		Axis is homed				INT	
Description:							
\$AA_REF[X]							
Axis status:							
0: Axis is not homed							
1: Axis is homed							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
-	0		0		1		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_TYP [31]		Axis type				INT
Description:						
\$AA_TYP[<axis>]						
Axis type:						
0: Axis in another channel						
1: Program axis of own channel						
2: Neutral axis						
3: PLC axis						
4: Oscillating axis						
5: Neutral axis which is currently executing a JOG or homing motion						
6: Following axis coupled via master value						
7: Coupled motion following axis						
8: Command axis						
9: CompileCycles axis						
10: Coupled slave axis (master-slave function)						
11: Program axis which is currently executing a JOG or homing motion						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			11	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MASL_STAT [31]		Master-slave coupling status				INT
Description:						
The current status of a master-slave coupling.						
Val. 0: Axis is not a slave axis or no coupling is active.						
Value > 0: Coupling is active, the relevant machine axis number of the master axis is supplied.						
\$AA_MASL_STAT[X]						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$P_SEARCH_MASLC [31]		Master-slave coupling status changed				INT
Description: \$P_SEARCH_MASLC[axis identifier] The current status of a master-slave coupling has been changed during a block search.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_SEARCH_MASLD [31]		Master-slave position offset				DOUBLE
Description: \$P_SEARCH_MASLD[axis identifier] Positional offset between master and slave axes calculated during block search as coupling was closed.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_FXS [31]		Status Desired state of "Travel to fixed stop"				INT
Description: \$AA_FXS[X] Status desired state "Travel to fixed stop" 0: Axis not at limit stop 1: Fixed stop has been successfully approached 2: Approach to fixed stop has failed 3: Selection of travel to fixed stop active 4: Fixed stop has been detected 5: Deselection of travel to fixed stop active						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7

\$AA_FXS [31]		Status Desired state of "Travel to fixed stop"				INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$VA_FXS [31]		Actual status of "Travel to fixed stop"				INT
Description:						
\$VA_FXS[X]						
Status actual state "Travel to fixed stop"						
0: Axis not at limit stop						
1: Fixed stop has been successfully approached						
2: Approach to fixed stop has failed						
3: Selection of travel to fixed stop active						
4: Fixed stop has been detected						
5: Deselection of travel to fixed stop active						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			5	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_FXS_INFO [31]		Additional information with "Travel to fixed stop"				INT
Description:						
\$VA_FXS_INFO[X]						
Additional information with "Travel to fixed stop" if \$VA_FXS[]=2						
0: No additional information available						
1: No approach movement programmed						
2: Programmed end position reached, motion completed						
3: Abort by NC RESET (key reset)						
4: Axis has exited fixed stop window						
5: Torque reduction rejected by drive						
6: PLC has cancelled enables						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			6	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$VA_TORQUE_AT_LIMIT [31]		Status "Torque limit reached"				INT
Description: \$VA_TORQUE_AT_LIMIT[X] "Torque limit reached" status 0: Torque limit not yet reached 1: Torque limit reached In digital systems, the drive returns a status signal indicating whether the programmed torque limit has been reached.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_FOC [31]		Status Desired state of "ForceControl"				INT
Description: \$AA_FOC[X] Status desired state "ForceControl" 0: ForceControl not active 1: ForceControl active modally 2: ForceControl active non-modally						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		X	7
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_FOC [31]		Actual status of "ForceControl"				INT
Description: \$VA_FOC[X] Status actual state "ForceControl" 0: ForceControl not active 1: ForceControl active modally 2: ForceControl active non-modally						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7

\$VA_FOC [31]		Actual status of "ForceControl"				INT	
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_COUP_ACT [31]		Coupling type of a following axis/spindle				INT	
Description:							
\$AA_COUP_ACT[C]							
C: following axis C or S2: following spindle 2							
It is possible to determine whether an axis / spindle is being used by a coupling. The coupling type is returned when the coupling is active. The system variable must be read out for the following axis / spindle.							
Values:							
0: Axis / spindle is not coupled with a leading spindle / leading axis							
1,2,3: Axis is tangentially tracked (TANG)							
4: Synchronous spindle coupling (COUP)							
8: Axis is in coupled-motion (TRAIL)							
16: Following axis in master value coupling (LEAD)							
32: Following axis for electronic gear (ELG)							
64: Axis is active in a gantry grouping							
128,256,384: Axis is tangentially tracked (TANG with optimization)							
512: Following axis of the generic coupling (CP)							
If the axis / spindle is a following axis / spindle in several couplings, the sum is returned as the value.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_EG_SYNFA [31]		Synchronization of the slave axis				DOUBLE	
Description:							
\$AA_EG_SYNFA[a]							
a: Following axis							
Synchronous position of following axis							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$P_EG_BC [31]		Block change criterion with active coupling			STRING	
Description: \$P_EG_BC[a] Block change criterion for EGONSYN, EGON, WAITC.						
Index 1:	Maximum axis number					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	SPIN		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_NUM_LA [31]		Number of defined master axes			INT	
Description: \$AA_EG_NUM_LA[a] a: Following axis Number of leading axes specified with EGDEF						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_EG_SYNCDIFF [31]		Synchronism difference			DOUBLE	
Description: \$VA_EG_SYNCDIFF[a] a: Following axis Synchronism deviation						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_EG_SYNCDIFF_S [31]		Synchronous run difference with sign			DOUBLE	
Description:						
\$VA_EG_SYNCDIFF_S[a]						
a: Following axis						
Signed synchronism deviation						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_AX [31,31]		Leading axis identifier			AXIS	
Description:						
\$AA_EG_AX[n,ax]						
An axis identifier of the nth active leading axis/spindle (counting starts at 0) is returned for the following axis/spindle ax.						
If the leading axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The stated coupling is not active						
- n >= \$AA_EG_NUM_LA[ax] (= number of active leading axes of the following axis)						
Index 1:	n: Index for leading axis (nth leading axis)					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LEAD_SP [31]		Simulated lead value - position			DOUBLE	
Description:						
\$AA_LEAD_SP[LW]						
Simulated master value position						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_LEAD_SV [31]		Simulated lead value - velocity			DOUBLE	
Description: \$AA_LEAD_SV[LW] Simulated master value velocity						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular speed	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LEAD_P_TURN [31]		Modulo compensation of the lead value			DOUBLE	
Description: \$AA_LEAD_P_TURN[LW] Current master value positional component lost as a result of modulo reduction. The actual master value position (used internally by the control) is \$AA_LEAD_P[LW] + \$AA_LEAD_P_TURN[LW] If LW is a modulo axis, \$AA_LEAD_P_TURN is an integral multiple of \$MA_MODULO_RANGE. If LW is not a modulo axis, \$AA_LEAD_P_TURN is always 0. Example_1: \$MA_MODULO_RANGE[LW]=360 \$AA_LEAD_P[LW] =290 \$AA_LEAD_P_TURN[LW] =720 The actual master value position (used internally by the control) is 1010. Example_2: \$MA_MODULO_RANGE[LW]=360 \$AA_LEAD_P[LW] =290 \$AA_LEAD_P_TURN[LW] =-360 The actual master value position (used internally by the control) is -70.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LEAD_P [31]		Current lead value position			DOUBLE	
Description: \$AA_LEAD_P[LW] Current master value position (modulo-reduced) If LW is a modulo axis, the following always applies: 0 <= \$AA_LEAD_P[LW] <= \$MA_MODULO_RANGE[LW]						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LEAD_V [31]		Current lead value - velocity			DOUBLE	
Description: \$AA_LEAD_V[LW] Current master value velocity						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_SYNC [31]		Coupling status of the following axis			INT	
Description: \$AA_SYNC[FA] Coupling status of following axis The actual-value synchronism difference is analyzed to determine the coupling status. See also \$VA_SYNCDIFF 0 => No synchronism 1 => Coarse synchronism 2 => Fine synchronism 3 => Coarse and fine synchronism						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

List of system variables

3.24 Axial system variables

\$AA_SYNC [31]		Coupling status of the following axis				INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IN_SYNC [31]		Synchronization status of the following axis				INT
Description: \$AA_IN_SYNC[FA] Synchronization status of the following axis with master value coupling, ELG and generic coupling 1 => Synchronization in progress, i.e. following axis is being synchronized						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$P_COUP_OFFS [31]		Programmed position offset				DOUBLE
Description: \$P_COUP_OFFS[S2] S2: spindle 2 or C: axis C Programmed position offset from synchronous spindle (following spindle) to leading spindle						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_COUP_OFFS [31]		Position offset on setpoint side				DOUBLE
Description: \$AA_COUP_OFFS[S2] S2: spindle 2 or C: axis C Position offset from synchronous spindle (following spindle) to leading spindle on setpoint side						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

\$AA_COUP_OFFS [31]		Position offset on setpoint side				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_COUP_OFFS [31]		Position offset on actual value side				DOUBLE
Description:						
\$VA_COUP_OFFS[S2]						
S2: spindle 2 or C: axis C						
Position offset from synchronous spindle (following spindle) to leading spindle on actual value side						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_DPE [31]		Power enable for machine axis				BOOL
Description:						
\$VA_DPE[X1]						
Status of power enable for a machine axis (status of the axial pulse enable).						
For PROFIdrive drives with a telegram type greater than 100: The status comes directly from the drive (message word, bit5)						
For other PROFIdrive drives: The status is modeled from further drive status signals (identical to \$VA_SCE, see there)						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ACC [31]		Current axial acceleration value				DOUBLE
Description:						
\$AA_ACC						
Current acceleration value of axis with single-axis interpolation.						
\$AA_ACC = \$MA_MAX_AX_ACCEL * progr. acceleration override.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular acceleration	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

List of system variables

3.24 Axial system variables

\$AA_ACC [31]		Current axial acceleration value				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ACC_PERCENT [31]		Current acceleration value percentage				INT
Description: Variable \$AA_ACC_PERCENT supplies the current acceleration value of the axis for single-axis interpolation in percent.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_ACCLIMA [31]		Acceleration correction in the run-in				INT
Description: \$PA_ACCLIMA Acceleration override set with ACCLIMA in preprocessing run						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	1			200	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_VELOLIMA [31]		Velocity correction in the run-in				INT
Description: \$PA_VELOLIMA Velocity override set with VELOLIMA in preprocessing run						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	1			200	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_JERKLIMA [31]		Jerk correction in the run-in			INT	
Description:						
\$PA_JERKLIMA						
Jerk override set with JERKLIMA in preprocessing run						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	1			200	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ACCLIMA [31]		Acceleration compensation			INT	
Description:						
\$AA_ACCLIMA						
Acceleration override set with ACCLIMA in main run						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	1			200	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_VELOLIMA [31]		Velocity correction			INT	
Description:						
\$AA_VELOLIMA						
Velocity override set with VELOLIMA in main run						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	1			200	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_JERKLIMA [31]		Jerk override			INT	
Description:						
\$AA_JERKLIMA						
Jerk override set with JERKLIMA in main run						
Index 1:	Maximum axis number					

List of system variables

3.24 Axial system variables

\$AA_JERKLIMA [31]		Jerk override			INT		
Unit	Init value	Min		Max			
-	0	1		200			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MOTEND [31]		Current axial end of motion criterion			INT		
Description:							
\$AA_MOTEND							
Current end of motion criterion with single-axis interpolation							
1 = End of motion with exact stop FINE							
2 = End of motion with exact stop COARSE							
3 = End of motion at end of interpolation							
4 = Block change in braking ramp of axis motion							
5 = Block change in braking ramp of axis motion with tolerance window for setpoint							
6 = Block change in braking ramp of axis motion with tolerance window for actual value							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	1		6			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_SCPAR [31]		Setpoint parameter set			INT		
Description:							
\$AA_SCPAR							
Current setpoint parameter set							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	-2147483648		2147483647			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_ESR_STAT [31]		ESR status of an axis				INT
Description:						
\$AA_ESR_STAT[X]						
Status of "Extended stop and retract", bit-coded:						
BIT0: Generator mode is activated						
BIT1: Retraction is activated						
BIT2: Extended stop is activated						
BIT3: DC-link undervoltage						
BIT4: Generator minimum speed						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			15	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ESR_ENABLE [31]		ESR enable				BOOL
Description:						
\$AA_ESR_ENABLE[X] = 1						
Enabling of "Extended stop and retract"						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ESR_TRIGGER [31]		Triggers a single-axis ESR				BOOL
Description:						
\$AA_ESR_TRIGGER[X] = 1						
Activation of "NC-controlled ESR" for PLC-controlled axis (= single axis)						
X: PLC-controlled axis						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	X	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_POLFA [31]		Programmed retraction position for single axis			DOUBLE	
Description:						
\$AA_POLFA[X]						
X: PLC-controlled axis (= single axis)						
Supplies the programmed retraction position of the PLC-controlled axis						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_POLFA_VALID [31]		Status of the value of \$AA_POLFA			INT	
Description:						
\$AA_POLFA_VALID[X]						
Supplies the current status of \$AA_POLFA[X]						
X: PLC-controlled axis (= single axis)						
Return values:						
0: Retraction not programmed						
1: Retraction programmed as position						
2: Retraction programmed as distance						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ALARM_STAT [31]		Display if alarms are present			INT	
Description:						
\$AA_ALARM_STAT						
Displays whether there are alarms present for a PLC-controlled axis.						
The coded, associated alarm responses can be used as a source for the "Extended stop and retract".						
The data is bit-coded so that, if necessary, individual states can also be masked or evaluated separately (bits not listed below supply a value of 0)						
Bit2 = 1: NOREADY (active rapid deceleration + cancellation of servo enable)						
Bit6 = 1: STOPBYALARM (ramp stop of all channel axes)						
Bit9 = 1: SETVDI (VDI interface signal alarm is set)						
Bit13 = 1: FOLLOWUPBYALARM (follow-up)						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	

\$AA_ALARM_STAT [31]		Display if alarms are present			INT	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AN_AXCTSWA [31]		Axis container rotation			BOOL	
Description:						
Is axis container rotation active ?						
Example: EVERY \$AN_AXCTSWA[n] == TRUE DO M99						
Read:						
TRUE: An axis container rotation is currently being executed on the axis container with axis container name n						
FALSE: Axis container rotation is not active.						
The axis container name or the axis name of an axis in the axis container can be specified as the index.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AN_AXCTAS [31]		Axis container current position			INT	
Description:						
Axis container current position:						
The current position of the axis container is returned for the axis container with the axis container name n.						
The value ranges from 0 to the maximum number of occupied slots in the axis container -1.						
In the basic position of the axis container, \$AN_AXCTAS = 0						
The axis container name or the axis name of an axis in the axis container can be specified as the index.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AC_AXCTSWA [31]		Channel enable for axis container rotation			BOOL	
Description:						
Enables axis container rotation in the channel.						
TRUE: The channel has axis container rotation enabled for the axis container name n, and this rotation has not yet finished.						
FALSE: The axis container rotation has finished.						
The axis container name or the axis name of an axis in the axis container can be specified as the index.						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_POSCTRL_MODE [31]		Position controller mode			INT	
Description:						
\$VA_POSCTRL_MODE[X]						
Position controller mode:						
0 = Closed-loop position control						
1 = Closed-loop speed control						
2 = Stop						
3 = Park						
4 = Follow-up						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_SCE [31]		Status of speed controller enable			BOOL	
Description:						
\$VA_SCE[X1]						
Status of speed controller enable						
For SINAMICS drives with a telegram type greater than 100: The status comes directly from the drive (message word, bit11)						
For other PROFIdrive drives: The status is modeled from further drive status signals (including status word1, bit2)						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						

\$VA_SCE [31]		Status of speed controller enable				BOOL	
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_TRAVEL_DIST [31]		Total traverse path				DOUBLE	
Description:							
Total traversing distance of axis in MCS in mm or degrees. The total traversing distance of the axis since the SRAM contents were last erased is added.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
Linear / angular position	0.0		0.0		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Program sensitive				Link:	Not classified	

\$AA_TRAVEL_TIME [31]		Total traversing time of the axis				DOUBLE	
Description:							
Total traversing time of axis in MCS in seconds. The total traversing time of the axis since the SRAM contents were last erased is added.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
s	0.0		0.0		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Program sensitive				Link:	Not classified	

\$AA_TRAVEL_COUNT [31]		Number of traversing operations				DOUBLE	
Description:							
Number of traversing operations of axis in MCS. The total number of traversing operations since the SRAM contents were last erased is stored.							
Index 1:	Maximum axis number						
Unit	Init value		Min		Max		
-	0.0		0.0		1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-

List of system variables

3.24 Axial system variables

\$AA_TRAVEL_COUNT [31]		Number of traversing operations				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_TRAVEL_DIST_HS [31]		Total traversing distance at high velocity				DOUBLE
Description: Total traversing distance of axis in MCS in mm or degrees at high velocity, i.e. at a velocity of >= 80% of the maximum axis velocity. This value is stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		0.0		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_TRAVEL_TIME_HS [31]		Total traversing time of the axis at high velocity				DOUBLE
Description: Total traversing time of axis in seconds at high velocity in MCS, i.e. at a velocity of >= 80% of the maximum axis velocity. This value is stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
s	0.0		0.0		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_TRAVEL_COUNT_HS [31]		No. of traversing operations at high velocity				DOUBLE
Description: Number of traversing operations of axis in MCS at high velocity, i.e. at a velocity of >= 80% of the maximum axis velocity. This value is stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
-	0.0		0.0		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

\$AA_TRAVEL_COUNT_HS [31]		No. of traversing operations at high velocity				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_JERK_TOT [31]		Total axial jerk				DOUBLE
Description: Total axial jerk in m/s ³ . The total jerk applied to the axis is added up and stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular jerk	0.0	0.0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_JERK_TIME [31]		Total traversing time of the axis with jerk				DOUBLE
Description: Total traversing time of axis in seconds in MCS with jerk. The total time period for which the axis traverses with jerk is added up and stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
s	0.0	0.0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

\$AA_JERK_COUNT [31]		Number of traversing operations with jerk				DOUBLE
Description: Number of traversing operations executed by axis in MCS with jerk. This value is stored in the SRAM.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	0.0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Program sensitive				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AC_RPVALID [31]		Repos position valid			BOOL	
Description:						
\$AC_RPVALID[X]						
\$AC_RPVALID[axis identifier] returns TRUE if a valid Repos position, which can be interrogated with \$AC_RETPOINT[axis identifier], is available for this axis.						
Valid Repos positions are generally available while system and user ASUBs are being processed. However, this is not the case in the following situations:						
- The ASUB activates a modified radius when tool radius compensation is active. \$AC_RPVALID then returns FALSE for geometry axes while the ASUB is running. The newly calculated Repos positions only become available with the approach blocks generated by the REPOS command.						
- The end position of the axis was last specified by the main run (FC18, synchronized actions, reciprocation, transfer from another channel after axis replacement).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_SYNCDIFF [31]		Synchronism deviation between actual values			DOUBLE	
Description:						
\$VA_SYNCDIFF[FA]						
FA: Following axis/following spindle						
Deviation in synchronism between actual values for LEAD, TRAIL, ELG and COUP.						
The deviation in synchronism between actual values is the deviation in distance between the servo actual position of the following axis/following spindle and a point calculated (according to the coupling rule) from the servo actual position of the leading axis/leading spindle.						
$\$VA_SYNCDIFF[FA] = \$VA_IM[FA] - K(\$VA_IM[LA])$						
K: Coupling rule						
LA: Leading axis/leading spindle						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_SYNCDIFF [31]	Synchronism deviation between setpoints				DOUBLE	
Description: \$AA_SYNCDIFF[FA] FA: Following axis/following spindle Deviation in synchronism between setpoints for LEAD, TRAIL, ELG and COUP. The deviation in synchronism between setpoints is the deviation in distance between the setpoint position of the following axis/following spindle and a point calculated (according to the coupling rule) from the setpoint position of the leading axis/leading spindle. $\$AA_SYNCDIFF[FA] = \$AA_IM[FA] - K(\$AA_IM[LA])$ K: Coupling rule LA: Leading axis/leading spindle						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_SYNCDIFF_STAT [31]	Status of synchronism deviation between actual values				INT	
Description: VA_SYNCDIFF_STAT[FA] FA: Following axis/following spindle Status of synchronism deviation between actual values: -4: Reserved -3: No valid value in \$VA_SYNCDIFF, tangential control (not TANG(... "P")) -2: No valid value in \$VA_SYNCDIFF, master value coupling and simulated MV -1: No valid value in \$VA_SYNCDIFF 0: No valid value in \$VA_SYNCDIFF, coupling not active 1: Valid value in \$VA_SYNCDIFF						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-4			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_SYNCDIFF_STAT [31]		Status synchron. dev. between setpoints			INT	
Description:						
\$AA_SYNCDIFF_STAT[FA]						
FA: Following axis/following spindle						
Status of synchronism deviation between setpoints:						
-4: No valid value in \$AA_SYNCDIFF, coupled motion from part program						
-3: Reserved						
-2: Reserved						
-1: No valid value in \$AA_SYNCDIFF						
0: No valid value in \$AA_SYNCDIFF, coupling not active						
1: Valid value in \$AA_SYNCDIFF						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
-	0	-4			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_OSCILL_BREAK_POS1 [31]		Reciprocation interruption position 1			DOUBLE	
Description:						
\$AA_OSCILL_BREAK_POS1[<axis>]						
The current approach to reversal position 1 is finished at this position or the last approach to reversal position 1 was finished at this position (reversal position 2 currently being approached).						
\$AA_OSCILL_BREAK_POS1[<axis>] is not equal to \$AA_OSCILL_REVERSE_POS1[<axis>] if the reciprocation motion was interrupted by an external signal (PLC).						
The variable can be accessed only from synchronized actions.						
Index 1:		Maximum axis number				
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_OSCILL_BREAK_POS2 [31]		Reciprocation interruption position 2			DOUBLE	
Description:						
\$AA_OSCILL_BREAK_POS2[<axis>]						
The current approach to reversal position 2 is finished at this position or the last approach to reversal position 2 was finished at this position (reversal position 1 currently being approached).						
\$AA_OSCILL_BREAK_POS2[<axis>] is not equal to \$AA_OSCILL_REVERSE_POS2[<axis>] if the reciprocation motion was interrupted by an external signal (PLC).						
The variable can be accessed only from synchronized actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_BCS_OFFSET [31]		Total axis offsets			DOUBLE	
Description:						
Axial variable \$AA_BCS_OFFSET[ax] is used to determine the total axis offsets for an axis. The total consists of the handwheel (DRF) offset, the overlaid movement (\$AA_OFF[ax]) and the external work offset. This offset is included in the BCS. The MCS is displaced in relation to the BCS according to the offset.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_CHANNO [31]		Axis in the channel			INT	
Description:						
This variable returns the number of the channel in which the axis is being interpolated.						
If value 0 is output, the axis could not be assigned to a channel.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			10	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7

List of system variables

3.24 Axial system variables

\$AA_CHANNO [31]		Axis in the channel			INT	
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_IW_CORR [31]		Actual PCS-Position of one axis incl. overlay rates			DOUBLE	
Description: The axial variable \$AA_IW_CORR[ax] determines the actual setpoint value of the workpiece coordinate system (WCS) for the respective axis. The setpoint value corresponds to the initial value of the interpolator for the actual interpolation cycle. As opposed to \$AA_IW, this value contains the axial overlay shares (DRF, AA_OFF, external WO, retraction etc.).						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IEN_CORR [31]		Actual FCS-Position of one axis incl. overlay rates			DOUBLE	
Description: The axial variable \$AA_IEN_CORR[ax] calculates the actual interpolator position of the adjustable coordinate system (ACS) for the specified axis. See also \$AA_IW_CORR[ax]. The ACS-Value contains any axial overlay rate (DRF, AA_OFF, external Frame, etc.).						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IBN_CORR [31]		Actual FCS-Position of one axis incl. overlay rates			DOUBLE	
Description: The axial variable \$AA_IBN_CORR[ax] calculates the actual interpolator position of the foot coordinate system (FCS) for the specified axis. See also \$AA_IW_CORR[ax]. The FCS-Value contains any axial overlay rate (DRF, \$AA_OFF, external Frame, etc.).						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_IB_CORR [31]		Actual BCS-Position of one axis incl. overlay rates			DOUBLE	
Description:						
The axial variable \$AA_IB_CORR[ax] calculates the actual interpolator position of the base coordinate system (BCS) for the specified axis. See also \$AA_IW_CORR[ax]. The BCS-Value contains any axial overlay rate (DRF, \$AA_OFF, external Frame, etc.).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_TYPE [31]		Axis type			INT	
Description:						
\$AA_TYPE[<axis>]						
Axis type:						
0: Type is not ascertainable						
1: NC-Program axis						
2: Neutral axis						
3: PLC axis						
4: Oscillating axis						
5: Neutral axis which is currently executing a JOG or homing motion						
6: Following axis coupled via master value						
7: Coupled motion following axis						
8: Command axis						
9: CompileCycles axis						
10: Coupled slave axis (master-slave function)						
11: Program axis which is currently executing a JOG or homing motion						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			11	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_DTSW [31]		Distance from start of motion in PCS			DOUBLE	
Description:						
Axial variable \$AA_DTSW[ax] determines the axial distance (with algebraic sign) from the start of motion in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	

List of system variables

3.24 Axial system variables

\$AA_DTSSW [31]		Distance from start of motion in PCS			DOUBLE	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_DTSSB [31]		Distance from start of motion in BCS			DOUBLE	
Description:						
Axial variable \$AA_DTSSB[ax] determines the axial distance (with algebraic sign) from the start of motion in the basic coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.						
Index 1:	Maximum axis number					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_COUP_CORR [31]		Generic coupling: Compensation value for 'Correct synchronism difference'			DOUBLE	
Description:						
The variable \$AA_COUP_CORR[Sn] with spindle Sn (n: spindle number), example S2: spindle 2 or C: axis C serves to execute the "Correct synchronism error" functionality, and provides the compensation value for the position offset for generic couplings with CPFERS="MCS" (or CPSETTYPE="COUP").						
For the duration (MD 30455 MISC_FUNCTION_MASK, bit 7) of the activation of the NC/PLC interface signal <Synchronlauf_nachfuehren/> (Correct synchronism error) for the following spindle in active coupling, the actual values of this spindle are compared with the setpoint values. The difference is the compensation value that can be read with the system variables \$AA_COUP_CORR.						
If the compensation value is known, this value can also be written directly into the system variable. The NC/PLC interface signal <Synchronlauf_nachfuehren/> (Correct synchronism error) should not be set in this case. The variable becomes effective only if a CP coupling has been activated for the spindle with CPSETTYPE="COUP" or CPFERS="MCS". If the axis is not a configured spindle, the writing is ignored.						
In the coupling module, the variable \$AA_COUP_CORR is considered, and it corrects the setpoint values.						
The compensation value is automatically deleted for reference point approach and zero mark synchronization of spindles. The system variable then returns the value 'zero'.						
Depending on the application, the compensation value can also be deleted at an earlier point in time by writing the value '0' to the variables.						
Index 1:	Axis/spindle identifier					
Unit	Init value		Min		Max	
Linear / angular position	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	No restrictions

\$AA_AXCHANGE_TYP [31]		exchange axistype				INT	
Description:							
\$AA_AXCHANGE_TYP[<axis>]							
Type of axis with regard to axis replacement							
0: Axis assigned to NC program							
1: Axis assigned to PLC, or active as command or reciprocating axis							
2: Other channel has right to interpolate							
3: Neutral axis							
4: Neutral axis controlled by PLC							
5: Other channel has right to interpolate, axis requested for NC program							
6: Other channel has right to interpolate, axis requested as neutral axis							
7: Axis is PLC axis or active as command or reciprocating axis, axis requested for NC program							
8: Axis is PLC axis or active as command or reciprocating axis, axis requested as neutral axis.							
9: Firmly assigned PLC axis, in neutral axis status							
10: Firmly assigned PLC axis, controlled by the PLC, in neutral axis status							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
-	0	0			10		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_AXCHANGE_STAT [31]		exchange axis state				INT	
Description:							
\$AA_AXCHANGE_STAT[<Axis>]							
Axis status regarding axis interchange:							
0: Axis can be interchanged							
1: Axis is assigned to the channel, but can become the PLC, command or reciprocating axis							
2: Axis cannot be interchanged							
Index 1:		Maximum axis number					
Unit	Init value	Min			Max		
-	0	0			2		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		-	0	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

3.24 Axial system variables

\$AA_INPOS_STAT [31]	State of the programmed position			INT		
Description:						
<p>The variable \$AA_INPOS_STAT[<axis>] returns the status of a programmed axis position. The indexing position is used for indexing axes. In the case of spindles, \$AA_INPOS_STAT refers to the spindle position of SPOS/SPOSA/M19. In speed control mode M3/M4/M5/SPCOF and after M70 value 0 is always read.</p> <p>\$AA_INPOS_STAT always refers to the programmed position. The programmed position cannot be reached if end positions change during interpolation (delete distance-to-go, NC Stop, REPOS). At zero speed, the variable then gives the value 0.</p> <p>Axis positions can be programmed through the part program, synchronized actions, FC18 or as indexing positions.</p> <p>The variable returns the following values:</p> <p>0: No status available (axis / spindle outside the programmed position)</p> <p>1: Awaiting traversing movement</p> <p>2: Position reached via setpoint</p> <p>3: Position reached via 'Exact stop coarse'</p> <p>4: Position reached via 'Exact stop fine'</p> <p>Note 1: The status referring to the programmed position is independent of the operating mode (AUTOMATIC, JOG, MDI, ...)</p> <p>Note 2: If additional position components (e.g. following axis couplings, corrections, compensations etc.) are inserted, then the programmed position is no longer identical with the machine axis position. During the period of additional traversings, exact stop signals are deleted, and the status can fall to the value 1.</p> <p>Note 3: When approaching a position with tight exact stop limits, overshooting can cause the status to drop briefly again in relation to the dynamics of an axis / spindle.</p> <p>Note 4: Function-dependent, the signals 'Spindle in position' and 'Indexing axis in position' are output on the axial VDI interface.</p> <p>Note 5: When determining the status of a path axis with G643/G644/G645, the variable \$AA_INPOS_STAT can remain at the value '1' on account of smoothing behavior during the path motion. Remedy: Use variable \$AA_STAT (however the variable \$AA_STAT does not check whether a programmed position has been reached).</p>						
Index 1:	Maximum axis number					
Unit	Init value	Min	Max			
-	0	0	4			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

\$VA_ENC_ZERO_MON_ERR_CNT [n,31]	Zero mark monitoring error counter				INT	
Description:						
Incremental and distance-coded measuring systems: \$VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of detected zero mark errors.						
Absolute measuring systems (\$MA_ENC_TYPE=4): NCK.71 and higher: \$VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of detected limit violations by the comparison between the absolute and incremental encoder tracks (limit values see MDs \$MA_ENC_ABS_ZEROMON_WARNING and \$MA_ENC_ABS_ZEROMON_INITIAL)						
NCK.64 and higher: \$VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of deviations in 1/2 coarse increments between the absolute and incremental encoder tracks. \$VA_ENC_ZERO_MON_ERR_CNT[n,ax] is initialized to 0 during power ON. It is not reset by RESET.						
The indices mean: n: Number of encoder ax: Machine axis (See also \$MA_ENC_ZERO_MONITORING and alarm 25020)						
Index 1:	n: Encoder number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified
\$VA_ABSOLUTE_ENC_ERR_CNT [n,31]	Error counter for absolute encoder				INT	
Description:						
Absolute measuring systems (\$MA_ENC_TYPE=4), only for SIMODRIVE 611D: This counter is incremented if any new errors have been recognized during transmission of absolute values. This can be used to observe the transmission of absolute values.						
Other systems/drives: Variable returns 0. \$VA_ABSOLUTE_ENC_ERR_CNT[n,ax] is initialized to 0 during Power ON. RESET does not cause a reset.						
The indices mean: n: Number of encoder ax: Machine axis						
Index 1:	n: Encoder number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety

List of system variables

3.24 Axial system variables

\$VA_ABSOLUTE_ENC_ERR_CNT [n,31]		Error counter for absolute encoder				INT	
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_ABSOLUTE_ENC_STATE [n,31]		Absolute encoder interface status				INT	
Description:							
Absolute measuring systems (\$MA_ENC_TYPE=4), only for SIMODRIVE 611D:							
The axial variable \$VA_ABSOLUTE_ENC_STATE[n,ax] determines the last occurrence of an error state of the absolute encoder interface.							
The indices mean:							
n: Number of encoder							
ax: Machine axis							
Details:							
Bit 0 Interface active							
Bit 1 Error during parity check							
Bit 2 Error bit Alarm							
Bit 3 Error bit CRC error							
Bit 4 Start bit for EnDat transmission missing							
(see also Description of Functions 'Measuring System Monitoring')							
Other systems/drives:							
Variable returns 0.							
Index 1:	n: Encoder number						
Index 2:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			31		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$P_DIAM_STAT [31]		Status of the diameter programming in the preprocessing				INT	
Description:							
The system variable \$P_DIAM_STAT[AX] returns the programmed status of the diameter programming in the channel.							
The programmed status of the diameter programming is bit-coded:							
BIT0 = 0: Diameter programming not active							
BIT0 = 1: Diameter programming active							
Note : The following bits only have a meaning that can be evaluated if BIT0 = 1:							
BIT1 = 0: Channel-specific diameter programming active							
BIT1 = 1: Axis-specific diameter programming active							
BIT2 = 0: Absolute and incremental dimensions in the diameter							
BIT2 = 1: Absolute dimension in the diameter, incremental dimension in the radius							
BIT3 = 0: DIAMCYCOF not active							
BIT3 = 1: DIAMCYCOF active							
Index 1:	Maximum axis number						

\$P_DIAM_STAT [31]		Status of the diameter programming in the preprocessing			INT		
Unit	Init value	Min		Max			
-	0	0		15			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_DIAM_STAT [31]		Status of the diameter programming in the main run			INT		
Description:							
The system variable \$AA_DIAM_STAT[AX] returns the active main run status of the diameter programming in the channel.							
The active status of the diameter programming is bit-coded:							
BIT0 = 0: Diameter programming not active							
BIT0 = 1: Diameter programming active							
Note : The following bits only have a meaning that can be evaluated if BIT0 = 1:							
BIT1 = 0: Channel-specific diameter programming active							
BIT1 = 1: Axis-specific diameter programming active							
BIT2 = 0: Absolute and incremental dimensions in the diameter							
BIT2 = 1: Absolute dimension in the diameter, incremental dimension in the radius							
BIT3 = 0: DIAMCYCOF not active							
BIT3 = 1: DIAMCYCOF active							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	0		15			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$P_SCC_STAT [31]		Status of the G96/G961/G962 assignment in the preprocessing			INT		
Description:							
The system variable \$P_SCC_STAT[AX] returns the preprocessing status of the G96/G961/G962 assignment in the channel, this has been configured or programmed by SCC[AX] .							
The status of the G96/G961/G962 assignment is bit-coded:							
BIT0 = 0: Axis is not assigned to G96/G961/G962							
BIT0 = 1: Axis is assigned to G96/G961/G962							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	0		15			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-

List of system variables

3.24 Axial system variables

\$P_SCC_STAT [31]		Status of the G96/G961/G962 assignment in the pre-processing				INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_SCC_STAT [31]		Status of the G96/G961/G962 assignment in the main run				INT
Description:						
The system variable \$AA_SCC_STAT[AX] returns the main run status of the G96/G961/G962 assignment in the channel, this has been configured or programmed by SCC[AX].						
The status of the G96/G961/G962 assignment is bit-coded:						
BIT0 = 0: Axis is not assigned to G96/G961/G962						
BIT0 = 1: Axis is assigned to G96/G961/G962						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			15	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPNACTFA [31]		Number of active following axes/spindles				INT
Description:						
The system variable \$AA_CPNACTFA[ax] returns the number of active couplings (following axes/spindles) in which the stated axis ax is active as a leading axis/spindle						
Index 1:	Axis/spindle identifier of the leading axis/spindle					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPFCMDPT [31]		Axis setpoint position across all coupling components				DOUBLE
Description:						
The system variable \$AA_CPFCMDPT[ax] returns the coupling component of the axis setpoint position. This component is the sum of all dependent components of the axis position of all leading axes/spindles of the following axis/spindle						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

\$AA_CPFCMDPT [31]		Axis setpoint position across all coupling components			DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel
Scan mode:	Not classified			Link:	Not classified

\$AA_CPFCMDVT [31]		Axis setpoint velocity across all coupling components			DOUBLE	
Description: The system variable \$AA_CPFCMDVT[ax] returns the coupling component of the axis setpoint velocity. This component is the sum of all dependent components of the axis velocity of all leading axes/spindles of the following axis/spindle						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min		Max		
Linear / angular speed	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPFREQV [31]		Required velocity of the coupling			DOUBLE	
Description: The system variable \$AA_CPFREQV[ax] returns the velocity required by the leading axes/spindles.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min		Max		
Linear / angular speed	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPNDFLA [31]		Number of defined master axes			INT	
Description: The system variable \$AA_CPNDFLA[ax] returns the number of leading axes/spindles defined for the following axis/spindle ax.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel	
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPNACTLA [31]		Number of active leading axes			INT
Description: The system variable \$AA_CPNDFLA[ax] returns the number of leading axes/spindles active for the following axis/spindle ax.					
Index 1:	Axis/spindle identifier of the following axis/spindle				

List of system variables

3.24 Axial system variables

\$AA_CPNACTLA [31]		Number of active leading axes			INT	
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPFACCT [31]		Axis setpoint acceleration across all coupling components			DOUBLE	
Description:						
The system variable \$AA_CPFACCT[ax] returns the coupling component of the axis setpoint acceleration. This component is the sum of all dependent components of the axis acceleration of all leading axes/spindles of the following axis/spindle						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min		Max		
Linear / angular acceleration	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPFERS [31]		Reference system of the coupling			STRING	
Description:						
The system variable returns the reference system of the coupling for the following axis/spindle						
"BCS" = basic coordinate system						
"MCS" = machine coordinate system						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPFMSON [31]		Synchronization mode when the coupling is switched on			STRING	
Description:						
The system variable \$AA_CPFMSON[ax] returns the synchronization mode of the following axis/spindle ax when the coupling is switched on. The synchronization mode determines the synchronization response when the coupling is switched on. See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					

\$AA_CPFMSON [31]		Synchronization mode when the coupling is switched on			STRING	
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPFMON [31]		Response of the following axis when the coupling is switched on			STRING	
Description:						
The system variable returns the response of the following axis/spindle when the coupling is switched on						
"STOP" - Following axis/spindle is stopped						
"CONT" - Active motion of the following axis/spindle is accepted as the starting motion						
"ADD" - Active motion is retained as overlaid motion						
See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPFMOF [31]		Response of the following axis when the coupling is switched off			STRING	
Description:						
The system variable returns the response of the following axis/spindle when the coupling is switched off						
"STOP" - Following axis/spindle is stopped						
"CONT" - Active motion of the following axis/spindle is retained						
See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_CPMRESET [31]	Status of the coupling after reset				STRING
Description:					
The system variable \$AA_CPMRESET[ax] returns the status of the coupling for the following axis/spindle after reset or program end					
"NONE" - Current status is retained					
"ON" - Coupling is activated					
"OFF" - Coupling is deactivated					
"DEL" - Coupling is deactivated and deleted					
See the Generic Coupling documentation for further details.					
Index 1:	Axis/spindle identifier of the following axis/spindle				
Index 3:	Max. string length				
Unit	Init value	Min			Max
-	""				
Read/Write properties:					
	TP	SA	TP/SA safety		NC-Variable
Read:	runin stp	X	7		X
Write:	-	-	0		0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel
Scan mode:	Not classified				Link: Not classified

\$AA_CPMSTART [31]	Status of the coupling after program start				STRING
Description:					
The system variable \$AA_CPMSTART[ax] returns the status of the coupling for the following axis/spindle ax after program start					
"NONE" - Current status is retained					
"ON" - Coupling is activated					
"OFF" - Coupling is deactivated					
"DEL" - Coupling is deactivated and deleted					
See the Generic Coupling documentation for further details.					
Index 1:	Axis/spindle identifier of the following axis/spindle				
Index 3:	Max. string length				
Unit	Init value	Min			Max
-	""				
Read/Write properties:					
	TP	SA	TP/SA safety		NC-Variable
Read:	runin stp	X	7		X
Write:	-	-	0		0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel: Cross-channel
Scan mode:	Not classified				Link: Not classified

\$AA_CPMSTARTPRT [31]	Status of the coupling after SERUPRO start				STRING
Description:					
The system variable \$AA_CPMSTART[ax] returns the status of the coupling for the following axis/spindle ax after SERUPRO start					
"NONE" - Current status is retained					
"ON" - Coupling is activated					
"OFF" - Coupling is deactivated					
"DEL" - Coupling is deactivated and deleted					
See the Generic Coupling documentation for further details.					
Index 1:	Axis/spindle identifier of the following axis/spindle				

\$AA_CPMSTARTPRT [31]		Status of the coupling after SERUPRO start			STRING	
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSETTYPE [31]		Default coupling type			STRING	
Description:						
The system variable \$AA_CPSETTYPE[ax] returns the default coupling type for the following axis/spindle ax . See the Generic Coupling documentation for further details.						
"NONE"						
"TRAIL"						
"LEAD"						
"EG"						
"COUP"						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPBC [31]		Block change criterion			STRING	
Description:						
The system variable \$AA_CPBC[ax] returns the active block change criterion when the coupling of the following axis/spindle ax is switched on.						
"NONE" = Block change takes place irrespective of the coupling state						
"FINE" = Block change does not take place until synchronism "fine" is reached						
"COARSE" = Block change does not take place until synchronism "coarse" is reached						
"IPOSTOP" = Block change does not take place until setpoint synchronism is reached						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

List of system variables

3.24 Axial system variables

\$AA_CPBC [31]		Block change criterion				STRING
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPFACT [31]		Active coupling types of a following axis/spindle				INT
Description:						
The active coupling types for the axis/spindle ax are returned as bit-codes						
0 = No active coupling						
Bit 0,1 = TANG						
Bit 2 = 1 ('H04') COUP						
Bit 3 = 1 ('H08') TRAIL						
Bit 4 = 1 ('H10') LEAD						
Bit 5 = 1 ('H20') EG						
Bit 6 = 1 ('H40') GANTRY						
Bit 7,8 = 1 (H180) TANG with option P						
Bit 9 = 1 ('H200') CP, generic coupling						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPDEFLA [31,n]		Specifies the nth defined leading axis/spindle				AXIS
Description:						
\$AA_CPDEFLA[ax,n]						
An axial identifier of the nth defined leading axis/spindle (counting starts at 1) is returned for the following axis/spindle ax.						
If the leading axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The stated coupling is not defined						
- The leading axis/spindle that was found is not known in the channel						
- n == 0						
- n > \$AA_CPDEFLA[ax] (= number of defined leading axes of the following axis)						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Serial number of the leading axis/spindle n (>= 1)					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPACTLA [31,n]		Specifies the nth active leading axis/spindle			AXIS	
Description:						
\$AA_CPACTLA[ax,n]						
An axis identifier of the nth active leading axis/spindle (counting starts at 1) is returned for the following axis/spindle ax.						
If the leading axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The stated coupling is not active						
- The leading axis/spindle that was found is not known in the channel						
- n == 0						
- n > \$AA_CPNACTLA[ax] (= number of active leading axes of the following axis)						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Serial number of the leading axis/spindle n (>= 1)					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPACTFA [31,n]		Specifies the nth active following axis/spindle			AXIS	
Description:						
\$AA_CPACTFA[ax,n]						
An axis identifier of the following axis/spindle of the nth coupling (counting starts at 1) in which the axis ax is active as a leading axis/spindle is returned for the leading axis/spindle ax.						
If the following axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The following axis/spindle that was found is not known in the channel						
- n == 0						
- n > \$AA_CPNACTFA[ax] (= number of active couplings of the axis as a leading axis)						
Index 1:	Axis/spindle identifier of the leading axis/spindle					
Index 2:	Serial number of the following axis/spindle n (>= 1)					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$PA_CPFACT [31]		Coupling type of a following axis/spindle				INT
Description:						
\$PA_CPFACT[ax]						
It is possible to determine whether the axis / spindle ax is being used by a coupling. The coupling type is returned when the coupling is active. The system variable must be read out for the following axis / spindle.						
Bit0, Bit1 tangential following active, TANG						
Bit2 = 1 ('H04') Synchronous spindle active, COUP						
Bit3 = 1 ('H08') Coupled motion active, TRAIL						
Bit4 = 1 ('H10') Master value coupling active, LEAD						
Bit5 = 1 ('H20') Electronic gear active, EG						
Bit6 = 1 ('H40') Gantry grouping active, GANTRY						
Bit7, Bit8 Tangential following active, TANG (with optimization)						
Bit9 = 1 ('H200') Generic coupling active, CP						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPFPOSSTAT [31]		Validity of the synchronized position and stop position				INT
Description:						
\$PA_CPFPOSSTAT[ax]						
The validity of the synchronized position (Bit0) and the stop position (Bit1) can be read for the axis / spindle ax if the coupling is active.						
Bit0 = 1 ('H01') Synchronized position is valid						
Bit1 = 1 ('H02') Stop position is valid						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSETTYPE [31]		Default coupling type				STRING	
Description: Returns the default coupling type for the axis/spindle ax. \$PA_CPSETTYPE[ax] "NONE" "TRAIL" "LEAD" "EG" "COUP"							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Index 3:	Max. string length						
Unit	Init value	Min				Max	
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPNACTFA [31]		Number of active following axes/spindles				INT	
Description: Returns the number of active following axes/spindles for the leading axis/spindle ax.							
Index 1:	Axis/spindle identifier of the leading axis/spindle						
Unit	Init value	Min				Max	
-	0	0				2147483647	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPNDDEFLA [31]		Number of defined leading axes/spindles				INT	
Description: Returns the number of defined leading axes/spindles for the axis/spindle ax.							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Unit	Init value	Min				Max	
-	0	0				2147483647	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$PA_CPNACTLA [31]		Number of active leading axes/spindles			INT	
Description: Returns the number of active leading axes/spindles for the axis/spindle ax.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPFERS [31]		Coordinate reference			STRING	
Description: The coordinate reference of the defined axis/spindle coupling is returned for the axis/spindle ax "NONE" = No coupling active "BCS" = Basic coordinate system "MCS" = Machine (coordinate system)						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPFMSON [31]		Synchronization response at switch on			STRING	
Description: The synchronization mode for the axis/spindle ax is returned when the coupling is switched on. See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPFMON [31]	Response of the following axis when the coupling is switched on				STRING	
Description:						
The system variable returns the response of the following axis/spindle when the coupling is switched on						
"STOP" - Following axis/spindle is stopped						
"CONT" - Active motion of the following axis/spindle is accepted as the starting motion						
"ADD" - Active motion of the following axis/spindle is retained as overlaid motion						
See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPFMOF [31]	Response of the following axis when the coupling is switched off				STRING	
Description:						
The system variable returns the response of the following axis/spindle when the coupling is switched off						
"STOP" - Following axis/spindle is stopped						
"CONT" - Active motion of the following axis/spindle is retained						
See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPMRESET [31]	Status of the coupling after reset				STRING	
Description:						
The system variable \$PA_CPMRESET[ax] returns the status of the coupling for the following axis/spindle after reset or program end						
"NONE" - Current status is retained						
"ON" - Coupling is activated						
"OFF" - Coupling is deactivated						
"DEL" - Coupling is deactivated and deleted						
See the Generic Coupling documentation for further details.						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 3:	Max. string length					

List of system variables

3.24 Axial system variables

\$PA_CPMRESET [31]		Status of the coupling after reset				STRING	
Unit	Init value	Min		Max			
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPMSTART [31]		Status of the coupling after program start				STRING	
Description:							
The system variable \$PA_CPMSTART[ax] returns the status of the coupling for the following axis/spindle ax after program start							
"NONE" - Current status is retained							
"ON" - Coupling is activated							
"OFF" - Coupling is deactivated							
"DEL" - Coupling is deactivated and deleted							
See the Generic Coupling documentation for further details.							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Index 3:	Max. string length						
Unit	Init value	Min		Max			
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPBC [31]		Block change criterion				STRING	
Description:							
The system variable \$PA_CPBC[ax] returns the active block change criterion when the coupling of the following axis/spindle ax is switched on.							
"NONE" = Block change takes place irrespective of the coupling state							
"FINE" = Block change does not take place until synchronism "fine" is reached							
"COARSE" = Block change does not take place until synchronism "coarse" is reached							
"IPOSTOP" = Block change does not take place until setpoint synchronism is reached							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Index 3:	Max. string length						
Unit	Init value	Min		Max			
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPDEFLA [31,n]		Specifies the nth defined leading axis/spindle			AXIS	
Description:						
\$PA_CPDEFLA[ax,n]						
An axis identifier of the nth defined leading axis/spindle (counting starts at 1) is returned for the axis/spindle ax.						
If the leading axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The stated coupling is not defined in the channel						
- n == 0						
- n > number of leading axes of the following axis						
Index 1:	Axis identifier for following axis/spindle					
Index 2:	Index of the leading axis/spindle					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPACTLA [31,n]		Specifies the nth active leading axis/spindle			AXIS	
Description:						
\$PA_CPACTLA[ax,n]						
An axis identifier of the nth active leading axis/spindle (counting starts at 1) is returned for the following axis/spindle ax						
If the leading axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- The specified coupling is not active in the channel						
- n == 0						
- n > number of active leading axes of the following axis						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Index of the leading axis/spindle					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$PA_CPACTFA [31,n]		Specifies the nth active following axis/spindle			AXIS	
Description:						
\$PA_CPACTFA[ax,n]						
An axis identifier of the following axis/spindle of the nth coupling (counting starts at 1), in which the axis ax is active as a leading axis/spindle, is returned for the leading axis/spindle ax.						
If the following axis is a geometry axis, the geometry axis identifier is returned, otherwise the channel axis identifier.						
NO_AXIS is returned in the following cases:						
- n == 0						
- n > number of active couplings of the axis as leading axis in the channel						
Index 1:	Axis/spindle identifier of the leading axis/spindle					
Index 2:	Index of the following axis/spindle					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_DEPAXO [31]		Dependence on other axes			INT	
Description:						
The variable \$AA_DEPAXO[AX] returns an axis code for the stated axis AX, which contains all machine axes with a mechanical dependence on the stated axis.						
A dependency is produced by:						
Active coupling modules, the following axis is dependent on the leading axis						
Active transformations, output axes of the transformation are dependent on the input axes of the transformation						
Closed gantry groupings, the slave axes are dependent on the master axis						
The given axis itself is also returned in the axis code						
The axis code indicates how the machine data \$MC_AXCONF_MACHAX_USED refers not directly to the machine axes but to the logical NCK machine axis image (\$MN_AXCONF_LOGIC_MACHAX_TAB).						
Bit 0 = 0 There is no dependence on the logical machine axis AX1						
Bit 0 = 1 There is a dependence on the logical machine axis AX1						
Bit 1 = 0 There is no dependence on the logical machine axis AX2						
Bit 1 = 1 There is a dependence on the logical machine axis AX2 and so on.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_FIX_POINT_SELECTED [31]		Selected fixed point			INT	
Description:						
\$AA_FIX_POINT_SELECTED[<Axis>]						
0: No fixed point selected						
> 0: Number of the selected fixed point						
Via the NC/PLC interface signal <Aktiviere_Festpunktfahren_inJOG/> (Activate fixed point approach in JOG) you can activate the fixed point approach in the operating mode JOG.						
Bits 0-2 indicate the number of the fixed point to be approached.						
Activation is confirmed via the NC/PLC interface signal <Festpunktfahren_in_JOG_aktiv/> (Fixed point approach in JOG active). The bits indicate the number of the fixed point being approached.						
Index 1:	Axis					
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ON_FIX_POINT [31]		Number of the fixed point at which the axis is currently located			INT	
Description:						
\$AA_ON_FIX_POINT[<Axis>]						
0: Axis is not at a fixed point						
> 0: Number of the fixed point at which the axis currently stands (the fixed point position is the current position).						
This is independent of the way this position was reached.						
Index 1:	Axis					
Unit	Init value	Min			Max	
-	0	0			4	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_ENC1_COMP_VAL [31]		EEC compensation value encoder 1			DOUBLE	
Description:						
The axial variable \$VA_ENC1_COMP_VAL[ax] determines the current compensation value of the measuring system error compensation (encoder 1) in the machine coordinate system (MCS).						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

List of system variables

3.24 Axial system variables

\$VA_ENC1_COMP_VAL [31]		EEC compensation value encoder 1				DOUBLE
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_ENC2_COMP_VAL [31]		EEC compensation value encoder 2				DOUBLE	
Description: The axial variable \$VA_ENC2_COMP_VAL[ax] determines the current compensation value of the measuring system error compensation (encoder 2) in the machine coordinate system (MCS).							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_CEC_COMP_VAL [31]		CEC compensation value				DOUBLE	
Description: The axial variable \$VA_CEC_COMP_VAL[ax] determines the current compensation value of the sag compensation in the machine coordinate system (MCS).							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_TEMP_COMP_VAL [31]		TEMP compensation value				DOUBLE	
Description: The axial variable \$VA_TEMP_COMP_VAL[ax] determines the current compensation value of the temperature compensation in the machine coordinate system (MCS).							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_DTBREB [31]		Total deceleration path in the BCS			DOUBLE	
Description: \$AA_DTBREB[ax] Total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

\$AA_DTBREB_CMD [31]		Command component of the total deceleration path in the BCS			DOUBLE	
Description: \$AA_DTBREB_CMD[ax] Command component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

\$AA_DTBREB_CORR [31]		Correction component of the total deceleration path in the BCS			DOUBLE	
Description: \$AA_DTBREB_CORR[ax] Correction component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_DTBREB_DEP [31]		Coupling component of the total deceleration path in the BCS			DOUBLE	
Description:						
\$AA_DTBREB_DEP[ax]						
Coupling component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_DTBREM [31]		Total deceleration path in the Machine			DOUBLE	
Description:						
\$AA_DTBREM[ax]						
Total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_DTBREM_CMD [31]		Command component of the total deceleration path in the Machine			DOUBLE	
Description:						
\$AA_DTBREM_CMD[ax]						
Command component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_DTBREM_CORR [31]		Correction component of the total deceleration path in the Machine			DOUBLE	
Description:						
\$AA_DTBREM_CORR[ax]						
Correction component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_DTBREM_DEP [31]		Coupling component of the total deceleration path in the Machine			DOUBLE	
Description:						
\$AA_DTBREM_DEP[ax]						
Coupling component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill						
Index 1:	Axis/spindle identifier					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_BRAKE_CONDB [31]	Context-sensitive conditions for interpolator stop in the BCS				INT		
Description:							
The axial variable \$AA_BRAKE_CONDB[ax] indicates the braking requests (conditions) pending on the axis / spindle to the interpolator stop. A braking request consists of a collision direction referring to a coordinate axis in the BCS, and a braking priority referring to the machining level. If the axis / spindle receives a new braking request due to these conditions, bit 0 is set in \$AA_BRAKE_STATE[X] (in the next IPO cycle). Bits 0 to 3 show the highest braking priority in positive direction: 0x0: No pending braking request 0x1: Priority 1 includes all positioning actions (G0, POS, SPOS) 0x2: Priority 2 includes DYNNORM and all movements of priority 1 0x3: Priority 3 includes DYNPOS and all movements of priorities 1 to 2 0x4: Priority 4 includes DYNROUGH and all movements of priorities 1 to 3 0x5: Priority 5 includes DYNSEMIFIN and all movements of priorities 1 to 4 0x6: Priority 6 includes all movements (incl. DYNFINISH). The request can also be triggered by a CP SW Limit Stop. 0x7: Priority 7 includes all movements. The request was triggered by the NC/PLC interface signal <VorschubHalt-SpindelHalt/> (Feed stop / spindle stop). Brakes are always applied independently of the movement direction. 0xD: Priority 13 includes all movements. Axial braking is executed using the Emergency Stop braking ramp. In bits 16 to 19 the highest braking priority is shown in negative direction: 0x0 to 0xD: Same significance as with bits 0 to 3 All other bits are reserved and not set. When displaying the value of the variables in hexadecimal format, the fifth digit from the right indicates the braking priority in negative direction and the digit on the right the braking priority in positive direction.							
Index 1:	Axis identifier						
Unit	Init value	Min		Max			
-	0	0		0xD000D			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	X	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_BRAKE_STATE [31]	Current braking status				INT		
Description:							
\$AA_BRAKE_STATE[X] returns whether braking of the axis / spindle was initiated by a request from \$AA_BRAKE_CONDB[X] or the NC/PLC interface signal <VorschubHalt-SpindelHalt/> (Feed stop / spindle stop). Bit 0 = 1: Current braking request due to a stop from an OEM application or a CP SW Limit Stop or the NC/PLC interface signal <VorschubHalt-SpindelHalt/> (Feed stop / spindle stop) (\$AA_BRAKE_CONDB[X])							
Index 1:	Axis identifier						
Unit	Init value	Min		Max			
-	0	0		0x1			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	-	X	0		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_BRAKE_CONDM [31]	Context-sensitive conditions for interpolator stop in the MCS				INT			
Description:								
The axial variable \$AA_BRAKE_CONDM[ax] indicates the braking requests (conditions) pending on the axis / spindle to the interpolator stop. A braking request consists of a collision direction referring to a coordinate axis in the MCS, and a braking priority referring to the machining level.								
Bits 0 to 3 show the highest braking priority in positive direction:								
0x0: No pending braking request								
0x1: Priority 1 includes all positioning actions (G0, POS, SPOS)								
0x2: Priority 2 includes DYNNORM and all movements of priority 1								
0x3: Priority 3 includes DYNPOS and all movements of priorities 1 to 2								
0x4: Priority 4 includes DYNROUGH and all movements of priorities 1 to 3								
0x5: Priority 5 includes DYNSEMIFIN and all movements of priorities 1 to 4								
0x6: Priority 6 includes all movements (incl. DYNFINISH). The request can also be triggered by a CP SW Limit Stop.								
0x7: Priority 7 includes all movements. The request was triggered by the NC/PLC interface signal <VorschubHalt-SpindelHalt/> (Feed stop / spindle stop). Brakes are always applied independently of the movement direction.								
0xD: Priority 13 includes all movements. Axial braking is executed using the Emergency Stop braking ramp.								
In bits 16 to 19 the highest braking priority is shown in negative direction:								
0x0 to 0xD: Same significance as with bits 0 to 3								
All other bits are reserved and not set.								
When displaying the value of the variables in hexadecimal format, the fifth digit from the right indicates the braking priority in negative direction and the digit on the right the braking priority in positive direction.								
Index 1:	Axis identifier							
Unit	Init value	Min		Max				
-	0	0		0xD000D				
Read/Write properties:								
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC	
Read:	-	X	0		X	7	X	
Write:	-	X	0		-	0	-	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific		
Scan mode:	Not classified				Link:	Not classified		
\$AA_JOG_POS_SELECTED [31]						JOG to position		BOOL
Description:								
\$AA_JOG_POS_SELECTED[<Axis>]								
FALSE: JOG to position inactive.								
TRUE: JOG to position active.								
Via the NC/PLC interface signal <Aktiviere_Anfahren_einer_Position_inJOG/> (Activate approaching position in JOG) jogging to position in the operating mode JOG is activated.								
Activation is confirmed via the NC/PLC interface signal <Anfahren_einer_Position_inJOGaktiv/> (Approaching position in JOG active).								
Index 1:	Axis							
Unit	Init value	Min			Max			
-	FALSE	FALSE			TRUE			
Read/Write properties:								
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC	
Read:	-	X	0		X	7	-	
Write:	-	-	0		-	0	-	

List of system variables

3.24 Axial system variables

\$AA_JOG_POS_SELECTED [31]		JOG to position				BOOL
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_JOG_POS_ACT [31]		JOG to position: Position reached				BOOL
Description:						
The variable \$AA_JOG_POS_ACT[<Axis>] has the following values:						
FALSE: Position not reached by JOG to position.						
TRUE: Position reached by JOG to position.						
Via the PLC signal <Aktiviere_Anfahren_einer_Position_inJOG/> (Activate approaching position in JOG) jogging to position in the operating mode JOG is activated.						
Activation via the NC/PLC interface signal <Anfahren_einer_Position_inJOGaktiv/> DB31, ... DBX75.6 and the system variable \$AA_JOG_POS_SELECTED[<Axis>] is confirmed.						
The position reached via the NC/PLC interface signal <InJOGanzufahrendePosition_ist_erreicht/> (Position approached in JOG reached) is reported.						
The position reached was defined by the setting data \$SA_JOG_POSITION{<Axis>}.						
Index 1:	Axis					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_PCS_REL [31]		Current relative WCS setpoint value of an axis				DOUBLE
Description:						
The axial variable \$AA_PCS_REL[ax] determines the current relative setpoint value in the workpiece coordinate system (WCS) for the corresponding axis. The setpoint value corresponds to \$AA_IW[ax], which is transformed by the current relative system frame \$P_RELFRAME. The axial positions lie in the relative WCS coordinate system.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_ACS_REL [31]		Current SZS setpoint value of an axis				DOUBLE
Description:						
The axial variable \$AA_ACS_REL[ax] determines the current relative setpoint value in the settable zero point coordinate system (SZS) for the corresponding axis. The setpoint value corresponds to \$AA_IEN[ax], which is transformed by the current relative system frame \$P_RELFRAME. The axial positions lie in the relative SZS coordinate system.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	

\$AA_ACS_REL [31]	Current SZS setpoint value of an axis				DOUBLE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_TYPE [31,31]	Type of coupling				INT	
Description:						
\$AA_EG_TYPE[a,b]						
a: Following axis						
b: Leading axis						
Type of coupling for leading axis b						
-1: no coupling defined						
0: Actual value coupling						
1: Setpoint value coupling						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			1	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_NUMERA [31,31]	Numerator of the coupling factor				DOUBLE	
Description:						
\$AA_EG_NUMERA[a,b]						
a: Following axis						
b: Leading axis						
Numerator of coupling factor for leading axis b						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_EG_DENOM [31,31]		Denominator of the coupling factor			DOUBLE	
Description: \$AA_EG_DENOM[a,b] a: Following axis b: Leading axis Denominator of coupling factor for leading axis b						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_SYN [31,31]		Synchronization of the master axis			DOUBLE	
Description: \$AA_EG_SYN[a,b] a: Following axis b: Leading axis Synchronous position of leading axis b						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_EG_ACTIVE [31,31]		Coupling is active for the master axis			BOOL	
Description: \$AA_EG_ACTIVE[a,b] a: Following axis b: Leading axis Coupling for leading axis b is active, i.e. switched on						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7

3.24 Axial system variables

\$AA_EG_ACTIVE [31,31]		Coupling is active for the master axis				BOOL	
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_CPLCMDP [31,31]		Axis position component of the leading axis/spindle				DOUBLE	
Description:							
\$AA_CPLCMDP[FAx,LAx]							
Position component of the axis position of the following axis/spindle FAx caused by an active coupling to the leading axis/spindle LAx							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Index 2:	Axis/spindle identifier of the leading axis/spindle						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_CPLCMDV [31,31]		Velocity component of the leading axis/spindle				DOUBLE	
Description:							
\$AA_CPLCMDV[FAx,LAx]							
Velocity component of the total velocity of the following axis/spindle FAx caused by an active coupling to the leading axis/spindle LAx							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Index 2:	Axis/spindle identifier of the leading axis/spindle						
Unit	Init value	Min			Max		
Linear / angular speed	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_CPLTYPE [31,31]		Type of coupling				INT	
Description:							
\$AA_CPLTYPE[FAx, LAx]							
The active coupling types are returned as bit-codes for the axis/spindle of the following axis/spindle FAx to the leading axis/spindle LAx							
Bit 0,1 = TANG							
Bit 2 = 1 ('H04') COUP							
Bit 3 = 1 ('H08') TRAIL							
Bit 4 = 1 ('H10') LEAD							
Bit 5 = 1 ('H20') EG							
Bit 6 = 1 ('H40') GANTRY							
Bit 7,8 = 1 (H180) TANG with option P							
Bit 9 = 1 ('H200') CP, generic coupling							
Index 1:	Axis/spindle identifier of the following axis/spindle						

List of system variables

3.24 Axial system variables

\$AA_CPLTYPE [31,31]		Type of coupling			INT	
Index 2:	Axis/spindle identifier of the leading axis/spindle					
Unit	Init value	Min			Max	
-	0	0			512	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLACC [31,31]		Acceleration component of the leading axis/spindle			DOUBLE	
Description:						
\$AA_CPLACC[FAx,LAx]						
Acceleration component of the total acceleration of the following axis/spindle FAx caused by an active coupling to the leading axis/spindle LAx						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Axis/spindle identifier of the leading axis/spindle					
Unit	Init value	Min			Max	
Linear / angular acceleration	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLSTATE [31,31,32]		Status of the coupling			STRING	
Description:						
\$AA_CPLSTATE[FAx, LAx]						
Status of the coupling between the following axis/spindle FAx and the leading axis/spindle LAx						
"NONE" = No coupling defined						
"DEF" = Coupling defined, not activated						
"ON" = Coupling is active						
"OFF" = Coupling deactivated						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Axis/spindle identifier of the leading axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLNUM [31,31]		Numerator of the coupling factor			DOUBLE	
Description:						
\$AA_CPLNUM[FAX, LAX]						
Numerator of the link factor between the following axis/spindle FAX and the leading axis/spindle LAX						
Index 1:	Axis/spindle identifier for following axis					
Index 2:	Axis/spindle identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLDEN [31,31]		Denominator of the coupling factor			DOUBLE	
Description:						
\$AA_CPLDEN[FAX, LAX]						
Denominator of the coupling factor between the following axis/spindle FAX and the leading axis/spindle LAX						
Index 1:	Axis/spindle identifier for following axis					
Index 2:	Axis/spindle identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLCTID [31,31]		Curve tables ID of the coupling			INT	
Description:						
\$AA_CPLCTID[FAX, LAX]						
Table number of the active curve table between the following axis/spindle FAX and the leading axis/spindle LAX						
Index 1:	Axis/spindle identifier for following axis/spindle					
Index 2:	Axis/spindle identifier for leading axis/spindle					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_CPLSETVAL [31,31,32]		Coupling reference of the leading axis			STRING	
Description:						
\$AA_CPLSETVAL[FAX, LAX]						
Coupling reference of the leading axis/spindle LAX to the following axis/spindle FAX						
"ACTPOS" = Actual position						
"CMDPOS" = Setpoint position						
"CMDVEL" = Setpoint velocity						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Axis/spindle identifier of the leading axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLTYPE [31,31]		Type of coupling			INT	
Description:						
\$PA_CPLTYPE[FAX, LAX]						
The active coupling types are returned as bit-codes for the axis/spindle of the following axis/spindle FAX for the leading axis/spindle LAX						
Bit 0,1 = TANG						
Bit 2 = 1 ('H04') COUP						
Bit 3 = 1 ('H08') TRAIL						
Bit 4 = 1 ('H10') LEAD						
Bit 5 = 1 ('H20') EG						
Bit 6 = 1 ('H40') GANTRY						
Bit 7,8 = 1 (H180) TANG with option P						
Bit 9 = 1 ('H200') CP, generic coupling						
Index 1:	Axis/spindle identifier for following axis/spindle					
Index 2:	Axis/spindle identifier for leading axis/spindle					
Unit	Init value	Min			Max	
-	0	0			512	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLSTATE [31,31,MAXSTRINGLEN]		Status of the coupling			STRING	
Description: \$PA_CPLSTATE[FAx, LAx] Status of the coupling between the following axis/spindle FAx and the leading axis/spindle LAx "NONE" = No coupling defined "DEF" = Coupling defined, not activated "ON" = Coupling is active "OFF" = Coupling deactivated						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Index 2:	Axis/spindle identifier of the leading axis/spindle					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLNUM [31,31]		Numerator of the coupling factor			DOUBLE	
Description: \$PA_CPLNUM[FAx, LAx] Numerator of the coupling factor between the following axis/spindle FAx and the leading axis/spindle LAx						
Index 1:	Axis/spindle identifier for following axis					
Index 2:	Axis/spindle identifier for leading axis					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLDEN [31,31]		Denominator of the coupling factor			DOUBLE	
Description: \$PA_CPLDEN[FAx, LAx] Denominator of the coupling factor between the following axis/spindle FAx and the leading axis/spindle LAx						
Index 1:	Axis/spindle identifier for following axis					
Index 2:	Axis/spindle identifier for leading axis					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0

List of system variables

3.24 Axial system variables

\$PA_CPLDEN [31,31]		Denominator of the coupling factor				DOUBLE	
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPLCTID [31,31]		Curve tables ID of the coupling				INT	
Description: \$PA_CPLCTID[Fax, LAx] Table number of the active curve table between the following axis/spindle Fx and the leading axis/spindle Lx							
Index 1:	Axis/spindle identifier for following axis/spindle						
Index 2:	Axis/spindle identifier for leading axis/spindle						
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_CPLSETVAL [31,31,MAXSTRIN- GLEN]		Coupling reference of the leading axis				STRING	
Description: \$PA_CPLSETVAL[Fax, LAx] Coupling reference of the leading axis/spindle Lx to the following axis/spindle Fx "ACTPOS" = Actual position "CMDPOS" = Setpoint position "CMDVEL" = Setpoint velocity							
Index 1:	Axis/spindle identifier for following axis/spindle						
Index 2:	Axis/spindle identifier for leading axis/spindle						
Index 3:	Max. string length						
Unit	Init value	Min			Max		
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		-	0	-
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_ENC_ZERO_MON_ACCESS_CNT [n,31]	Updating counter of valid zero monitoring accesses				INT	
Description:						
Incremental and distance-coded measuring systems, only for SIMODRIVE 611D:						
This variable requires a great deal of computing time with this type of encoder, it is only supplied if bit_0 = 1 is set in \$MA_ENC_ZERO_MONITORING_SYSVAR_CTRL.						
After the initialization phase, the system variable is incremented after every minute if one or more zero marks have been detected during this time. During the initialization phase, it is incremented at each detected, protected zero mark.						
See also \$MA_ENC_ZEROMON_SYSVAR_CTRL						
Absolute measuring systems (\$MA_ENC_TYPE=4), only for SIMODRIVE 611D:						
This counter is incremented upon each successful NC access to a valid EnDat absolute value.						
Other drives or deactivated:						
Variable returns 0.						
\$VA_ENC_ZERO_MON_ACCESS_CNT[n,ax] is initialized to 0 at power ON. It is not reset by RESET.						
The indices mean:						
n: Number of encoder						
ax: Machine axis						
Index 1:	n: Encoder number					
Index 2:	Axis identifier					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_ABSOLUTE_ENC_ZERO_MON_MAX [n,31]	Maximum of \$VA_ENC_ZERO_MON_ACT				INT	
Description:						
Absolute measuring systems (\$MA_ENC_TYPE=4), only for SIMODRIVE 611D:						
This system variable contains the maximum value of \$VA_ENC_ZERO_MON_ACT since the encoder was switched on.						
Other systems/drives:						
Variable returns 0.						
\$VA_ABSOLUTE_ENC_ZERO_MON_MAX[n,ax] is initialized to 0 at power ON and encoder selection. RESET does not cause a reset.						
The indices mean:						
n: Number of encoder						
ax: Machine axis						
Index 1:	n: Encoder number					
Index 2:	Axis identifier					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0

List of system variables

3.24 Axial system variables

\$VA_ABSOLUTE_ENC_ZERO_MON_MAX [n,31]		Maximum of \$VA_ENC_ZERO_MON_ACT				INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_ABSOLUTE_ENC_DELTA_INIT [n,31]		Initial difference with absolute encoder				INT
Description:						
Only with absolute encoders: This value includes the initial difference value between the last absolute position buffered in the SRAM and the current absolute position (in the format internal increment - see machine data \$MN_INT_PER_MM and \$MN_INT_PER_DEG). The value is updated at power ON, warm restart, park deselection and return below the encoder limit frequency. Other encoders: Variable returns 0. \$VA_ABSOLUTE_ENC_DELTA_INIT[n,ax] is recalculated during power ON. RESET does not cause a reset. Meaning of the indices: n: Encoder number ax: Machine axis						
Index 1:	n: Encoder number					
Index 2:	Axis identifier					
Unit	Init value	Min			Max	
-	0	0			31	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_ENC_ZERO_MON_ACT [n,31]		Current internal zero monitoring values				INT
Description:						
Incremental and distance-coded measuring systems, only for SIMODRIVE 611D: This system variable contains the current hardware counter value of the last zero mark passed. Absolute measuring systems (\$MA_ENC_TYPE=4), only for SIMODRIVE 611D: This system variable contains the current difference (amount) between the control position and the newly formed absolute position in the format 1/4 coarse encoder increments. Other drives: Variable returns 0. \$VA_ENC_ZERO_MON_ACT[n,ax] is initialized to 0 at power ON. RESET does not cause a reset. The indices mean: n: Number of encoder ax: Machine axis						
Index 1:	n: Encoder number					
Index 2:	Axis identifier					
Unit	Init value	Min			Max	
-	0	0			31	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety

\$VA_ENC_ZERO_MON_ACT [n,31]		Current internal zero monitoring values				INT	
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_ENC_ZERO_MON_INIT [n,31]		Initialization values of hardware counter during zero monitoring				INT	
Description:							
Incremental and distance-coded measuring systems, only for SIMODRIVE 611D:							
This system variable contains the initial hardware counter value with which all further hardware counter values of the zero marks are compared.							
Other systems/drives:							
Variable returns 0.							
\$VA_ENC_ZERO_MON_INIT[n,ax] is initialized to 0 at power ON and encoder selection. RESET does not cause a reset.							
The indices mean:							
n: Number of encoder							
ax: Machine axis							
Index 1:	n: Encoder number						
Index 2:	Axis identifier						
Unit	Init value	Min			Max		
-	0	0			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_COUP_CORR_DIST [31]		Generic coupling: Distance to go from \$AA_COUP_CORR				DOUBLE	
Description:							
\$AA_COUP_CORR_DIST[Sn]							
with spindle Sn (n: spindle number), example S2: spindle 2 or C: axis C							
The variable serves to display the distance to go of \$AA_COUP_CORR (compensation value for the position offset with generic couplings) for the "Correct synchronism error" function.							
Index 1:	Axis/spindle identifier						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	No restrictions	

List of system variables

3.24 Axial system variables

\$AA_CPLINTR [31,31]		Offset value for the input value of the coupling			DOUBLE	
Description: \$AA_CPLINTR[FAX, LAX] Offset value for the input value of the leading axis/spindle LAX of the coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLINSC [31,31]		Scaling factor for the input value of the coupling			DOUBLE	
Description: \$AA_CPLINSC[FAX, LAX] Scaling factor for the input value of the leading axis/spindle LAX of the active coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLOUTTR [31,31]		Offset value for the output value of the coupling			DOUBLE	
Description: \$AA_CPLOUTTR[FAX, LAX] Offset value for the output value of the leading axis/spindle LAX of the active coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPLOUTSC [31,31]		Scaling factor for the output value of the coupling			DOUBLE	
Description:						
\$AA_CPLOUTSC[FAX, LAX]						
Scaling factor for the output value of the leading axis/spindle LAX of the active coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLINTR [31,31]		Offset value for the input value of the coupling			DOUBLE	
Description:						
\$PA_CPLINTR[FAX, LAX]						
Offset value for the input value of the leading axis/spindle LAX of the coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLINSC [31,31]		Scaling factor for the input value of the coupling			DOUBLE	
Description:						
\$PA_CPLINSC[FAX, LAX]						
Scaling factor for the input value of the leading axis/spindle LAX of the active coupling to the following axis/spindle FAX						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$PA_CPLOUTTR [31,31]		Offset value for the output value of the coupling			DOUBLE	
Description: \$PA_CPLOUTTR[Fax, LAx] Offset value for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle Fx						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPLOUTSC [31,31]		Scaling factor for the output value of the coupling			DOUBLE	
Description: \$PA_CPLOUTSC[Fax, LAx] Scaling factor for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle Fx						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSYNCO [31]		Threshold value for position synchronization coarse			DOUBLE	
Description: \$AA_CPSYNCO[ax] Threshold value for position synchronization coarse of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSYNFIP [31]		Threshold value for position synchronization fine			DOUBLE	
Description:						
\$AA_CPSYNFIP[ax]						
Threshold value for position synchronization fine of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSYNCOV [31]		Threshold value for velocity synchronization coarse			DOUBLE	
Description:						
\$AA_CPSYNCOV[ax]						
Threshold value for velocity synchronization coarse of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSYNFIV [31]		Threshold value for velocity synchronization fine			DOUBLE	
Description:						
\$AA_CPSYNFIV[ax]						
Threshold value for velocity synchronization fine of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSYNCOV [31]		Threshold value for position synchronization coarse			DOUBLE	
Description:						
\$PA_CPSYNCOV[ax]						
Threshold value for position synchronization coarse of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					

List of system variables

3.24 Axial system variables

\$PA_CPSYNCOV [31]		Threshold value for position synchronization coarse			DOUBLE	
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSYNFIP [31]		Threshold value for position synchronization fine			DOUBLE	
Description:						
\$PA_CPSYNFIP[ax]						
Threshold value for position synchronization fine of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSYNCOV [31]		Threshold value for velocity synchronization coarse			DOUBLE	
Description:						
\$PA_CPSYNCOV[ax]						
Threshold value for velocity synchronization coarse of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSYNFIV [31]		Threshold value for velocity synchronization fine			DOUBLE	
Description:						
\$PA_CPSYNFIV[ax]						
Threshold value for velocity synchronization fine of the following axis/spindle ax						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular speed	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_CPSYNFIV [31]		Threshold value for velocity synchronization fine				DOUBLE	
Read:	X	-	7	-	0	-	
Write:	-	-	0	-	0	-	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_ITR [31,4]		Current setpoint value at the output of the nth transformation				DOUBLE	
Description:							
The axial variable \$AA_ITR[ax] determines the current setpoint value of an axis at the output of the nth chained transformation.							
The following applies to the data of the transformation layer:							
Transformation layer 0: The positions correspond to the BCS positions, that means \$AA_ITR[x, 0] corresponds to \$AA_IB[x]							
Transformation layer 1: Position setpoint of the axis at the output of the 1st transformation.							
Transformation layer 2: Position setpoint of the axis at the output of the 2nd transformation.							
Transformation layer 3: Position setpoint of the axis at the output of the 3rd transformation.							
Transformation layer 4: Position setpoint of the axis at the output of the 4th transformation, that means \$AA_ITR[x, 4] corresponds to \$AA_IM[x]							
If the transformation chain does not consist of 4 single transformations, then the highest layers return the same setpoint values.							
Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
Index 2:	n: Number of the transformation level 0..4						
Unit	Init value	Min				Max	
Linear / angular position	0.0	-1.8E+308				1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_IBC [31]		Current setpoint value of a cartesian axis				DOUBLE	
Description:							
The axial variable \$AA_IBC[ax] determines the position setpoint of a cartesian axis lying between BCS and MCS. "Cartesian" means that the axis is a linear axis which lies plane-parallel to a coordinate axis in a clockwise coordinate system.							
This value is returned if a geometry axis is still cartesian at the output of the nth transformation.							
The axis identifier used must represent a geometry axis in the BCS, otherwise the variable returns the value 0.							
Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
Unit	Init value	Min				Max	
Linear / angular position	0.0	-1.8E+308				1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$VA_IW [31]	Current actual WCS value of an axis				DOUBLE	
Description:						
The variable \$VA_IW[ax] determines the encoder position of an axis retransformed into the WCS. The WCS value contains all axial override components (DRF, AA_OFF, ext. zero offset etc.) and offset values (CEC etc.). For performance reasons, the positions are only calculated once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.						
When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$VA_IB [31]	Current BCS encoder position of an axis				DOUBLE	
Description:						
The variable \$VA_IB[ax] determines the encoder position of an axis retransformed into the BCS. The BCS value contains all axial override components (DRF, AA_OFF, ext. zero offset etc.) and offset values (CEC etc.). For performance reasons, the positions are calculated only once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.						
When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$VA_IBC [31]	Current cartesian BCS encoder position of an axis				DOUBLE	
Description:						
The variable \$VA_IBC[<Geo-Axis>] determines the encoder position of a cartesian axis lying between the BCS and MCS. "Cartesian" means that the axis is a linear axis which lies plane-parallel to a coordinate axis in a clockwise coordinate system. The axis identifier used can be a geometry, channel or machine axis identifier. This identifier must represent a geometry axis in the BCS, otherwise the variable returns the value 0.0. For performance reasons, the positions are calculated only once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.						
When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$VA_IBC [31]		Current cartesian BCS encoder position of an axis				DOUBLE	
Read:	runin stp	X	7	X	7	X	
Write:	-	-	0	-	0	-	
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_ITR [31,4]		Current actual value at the output of the nth transformation				DOUBLE	
Description:							
The axial variable \$VA_ITR[ax, n] determines the current encoder position of an axis at the output of the nth chained transformation. The following applies to the data of the transformation layer:							
Transformation layer 0: The positions correspond to the BCS positions, that means \$VA_ITR[x, 0] corresponds to \$VA_IB[x]							
Transformation layer 1: Position setpoint of the axis at the output of the 1st transformation.							
Transformation layer 2: Position setpoint of the axis at the output of the 2nd transformation.							
Transformation layer 3: Position setpoint of the axis at the output of the 3rd transformation.							
Transformation layer 4: Position setpoint of the axis at the output of the 4th transformation, that means \$VA_ITR[x, 4] corresponds to \$VA_IM[x]							
If the transformation chain does not consist of 4 single transformations, then the highest layers return the same setpoint values.							
When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.							
Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
Index 2:	n: Number of the transformation level 0..4						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_ATOL [31]		Active axis tolerance				DOUBLE	
Description:							
\$AA_ATOL defines the axis tolerance for compressors and smoothing that was active during the preparation of the current main run block.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$PA_ATOL [31]		Programmed axis tolerance				DOUBLE	
Description:							
\$PA_ATOL states the axis tolerance for compressors and smoothing programmed in the part program. If no value is programmed, the variable returns -1.							
Index 1:	Maximum axis number						

List of system variables

3.24 Axial system variables

\$PA_ATOL [31]		Programmed axis tolerance			DOUBLE	
Unit	Init value	Min		Max		
Linear / angular position	0.0	-1.0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_FGREF [31]		Active radius for rotary axis path			DOUBLE	
Description:						
\$AA_FGREF defines the radius with which a rotary axis contributes to the path distance. The default value is 180mm/PI = 57.296mm. This corresponds to 1mm per degree.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_FGROUP [31]		Effect of an axis on the path velocity			BOOL	
Description:						
If the path of an axis has an effect on the path velocity in the current main run block (FGROUP), then the variable returns TRUE, otherwise FALSE.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$PA_FGROUP [31]		Effect of an axis on the path velocity			BOOL	
Description:						
If the path of an axis has an effect on the path velocity (FGROUP), then the variable returns TRUE, otherwise FALSE.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		-	0
Write:	-	-	0		-	0

\$PA_FGROUP [31]		Effect of an axis on the path velocity			BOOL
Axis entry:	GEO	CHAN	MACH		Overlap channel: channel-specific
Scan mode:	Not classified			Link:	Not classified

\$PA_FGREF [31]		Factor for rotary axis path			DOUBLE	
Description:						
\$PA_FGREF defines the radius with which a rotary axis contributes to the path distance in the part program. The default value is 180mm/PI = 57.296mm. This corresponds to 1mm per degree.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	-	0	-
Write:	-	-	0	-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified	

\$AA_CPMVDI [31]		Responses of the coupling module to VDI signals			INT
Description:					
The variable \$AA_CPMVDI[AX] returns a bit-coded value for the stated axis/spindle with active coupling that indicates the response of the coupling module to specific VDI signals.					
The response is determined by the CP keyword CPMVDI.					
Bit 0 Reserved					
Bit 1 Reserved					
Bit 2 Reserved					
Bit 3 = 0 DBaxis.DBX1.3, axis/spindle disable is not active for the following axis					
The status of the leading axis is active					
Bit 3 = 1 DBaxis.DBX1.3, axis/spindle disable is active for the following axis					
Bit 4 = 0 Dependent position components of the leading axes/spindles are active					
irrespective of the status of the axis/spindle disable of the particular leading axis/spindle					
Bit 4 = 1 Dependent position components of the leading axes/spindles are only active					
if the status of the axis/spindle disable of the leading axis/spindle corresponds to the					
status of the axis/spindle disable of the following axis/spindle.					
Bit 5 = 0 VDI signal DB21.DBX25.7 and/or DB21.DBX1.7, program test is not					
active for the following axis. The status of the leading axis is active.					
Bit 5 = 1 VDI signal DB21.DBX25.7 and/or DB21.DBX1.7, program test is active					
for the following axis.					
Bit 6 = 0 Dependent position components of the leading axis/spindles are active					
irrespective of the status of the axis/spindle disable of the particular leading axis/spindle					
Bit 6 = 1 Dependent position components of the leading axis/spindles are only active					
if the status of the axis/spindle disable of the leading axis/spindle corresponds					
to the status of the axis/spindle disable of the following axis/spindle.					
Bit 7 - 31 Reserved					
Index 1:	Axis/spindle identifier of the following axis/spindle				
Unit	Init value	Min		Max	
-	0	-2147483648		2147483647	
Read/Write properties:					

List of system variables

3.24 Axial system variables

\$AA_CPMVDI [31]		Responses of the coupling module to VDI signals				INT	
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_AX_DISABLE_SRC [31]		Source of the axis/spindle disable				INT	
Description:							
\$AA_AX_DISABLE_SRC							
Bit mask that returns the source of a active axis/spindle disable.							
The data is bit-coded so that individual states can be masked or evaluated separately.							
Bit0 = 1: Resulting state from all sources: axis/spindle disable active.							
Bit1 = 1: Axial signal axis/spindle disable triggered by PLC is active.							
Bit2 = 1: Channel-specific program test is active.							
Bit3 = 1: Axiale suppression of the programm test triggered by PLC is active.							
Bit4 = 1: Axial signal program test (power save mode) is active.							
Bit5 = 1: Serupro is active.							
Bit6 = 1: Link object overall state axis/spindle disable is active.							
Bit7 = 1: Link object overall state real traversing is active.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			7		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_AX_DISABLE [31]		Status of the axis/spindle disable				BOOL	
Description:							
\$AA_AX_DISABLE							
0: Axis/spindle disable is inactive.							
1: Axis/spindle disable is active.							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	FALSE	FALSE			TRUE		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$AA_MASL_DEF [31]		Coupling definition of master slave				INT
Description:						
The current status of a master-slave coupling.						
Val. 0: Axis is not a slave axis or no coupling is active.						
Value > 0: Coupling is active, the relevant machine axis number of the master axis is supplied.						
\$AA_MASL_STAT[X]						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_MACHAX [31]		Assignment of the physical axis				INT
Description:						
The NCU and machine axis are recorded for one axis, this represents the physical image of the axis. For this purpose, the NCU ID is recorded from the 10000 place, e.g. 20005: NCU 2 axis 5. Without NCU link, i.e. if there is only one NCU, only the number of the machine axis is recorded. In this case, the NCU ID is equal to zero.						
If the machine axis identifier is used, the machine axis on this NCU must be assigned to at least one channel, otherwise alarm 17040 channel %1: block %2 impermissible axis index is reported.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	No restrictions

\$AA_IPO_NC_CHANAX [31]		Assignment to NC, channel and channel number of the interpolator.				INT
Description:						
If the axis is currently interpolated on this NCU, the channel and channel axis number are recorded in such a way that they define the interpolator of the axis. In this case, the channel is recorded from the hundredth place and the channel axis number from the units position, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.						
If the axis is currently interpolated on another NCU, the NCU identifier of the interpolating NCU and the global axis number of the machine axis are recorded. In this case, the NCU is recorded from the 10000 position, e.g. 20203: NCU 2 and the global axis number is 203. This global axis number can then be used to determine the interpolating channel and channel axis number on the other NCU, with NCU ID 2, with \$AN_IPO_CHANAX[203].						
If the machine axis identifier is used, the machine axis on this NCU must be assigned to at least one channel, otherwise alarm 17040 channel %1: set %2 impermissible axis index is reported.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	

List of system variables

3.24 Axial system variables

\$AA_IPO_NC_CHANAX [31]		Assignment to NC, channel and channel number of the interpolator.				INT	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	No restrictions	

\$VA_IPO_NC_CHANAX [31]		Assignment of machine axis to NC or channel and chnl. axis of the interpolator.				INT	
Description:							
<p>If the machine axis is currently interpolated on this NCU , the channel and channel axis number are recorded in such a way that they define the interpolator of the axis. In this case, the channel is recorded from the hundredth place and the channel axis number from the unit place, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.</p> <p>If the machine axis is currently interpolated on another NCU, the NCU identifier of the interpolating NCU and the global axis number of the machine axis are recorded. In this case, the NCU is recorded from the 10000 place, e.g. 20103: NCU 2 and the global axis number is 103. These global axis numbers can then be used to determine the interpolating channel and channel axis number on the other NCU, with NCU ID 2, with \$AN_IPO_CHANAX[103].</p> <p>If a machine axis is not used , the Alarm 17040 channel %1: block %2 impermissible axis index is reported.</p>							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	-2147483648			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:			MACH		Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$VA_MOT_SENSOR_CONF [31]		Configuration of motor sensors				INT	
Description:							
<p>The variable \$VA_MOT_SENSOR_CONF[axn] can query the configuration of the motor sensors. The variable is bit-coded, and has the following meanings:</p> <p>Bit0 = 1: Sensors present</p> <p>Bit1 = 1: Sensor S1 present. Analog measured value for position of the draw-bar</p> <p>Bit2 = 0:</p> <p>Bit3 = 0:</p> <p>Bit4 = 1: Sensor S4 present. Digital value for the piston end position.</p> <p>Bit5 = 1: Sensor S5 present. Digital value for the angular position of the shaft.</p> <p>Bit10 = 1: Status value is formed, speed limitations p5043 active.</p>							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			2147483647		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-

\$VA_MOT_SENSOR_CONF [31]		Configuration of motor sensors				INT
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_MOT_CLAMPING_STATE [31]		State of the clamping system				INT
Description:						
The variable \$VA_MOT_CLAMPING_STATE[axn] determines the clamping state on the basis of the position of the draw-bar (value of S1). A maximum speed is assigned to each state. These are stored in the drive parameters p5043[0..6]. The following values are possible:						
0: Sensor not present						
1: Initial state, speed limit 0 rpm						
2: Alarm, speed limit 0 rpm						
3: Tool released / ejected, for speed limit see drive parameter p5043[0]						
4: Clamping (by spring force), for speed limit see drive parameter p5043[1]						
5: Releasing (by compressed air), for speed limit see drive parameter p5043[2]						
6: Releasing (by compressed air), for speed limit see drive parameter p5043[3]						
7: Clamped with tool, for speed limit see drive parameter p5043[4]						
8: Clamped with tool, for speed limit see drive parameter p5043[4]						
9: Continued clamping (by spring force), for speed limit see drive parameter p5043[5]						
10: Clamped without tool, for speed limit see drive parameter p5043[6]						
11: Alarm, speed limit 0 rpm						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			11	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_MOT_SENSOR_ANA [31]		Analog sensor on the motor				INT
Description:						
The variable \$VA_MOT_SENSOR_ANA[axn] determines the analog measured value of the sensor S1. At a resolution of 1mV, the analog value 0 - 10 V is mapped to a maximum of +10000 increments.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$VA_MOT_SENSOR_DIGI [31]	Digital sensors on the motor				INT	
Description:						
The variable \$VA_MOT_SENSOR_DIGI[axn] determines the states of the digital sensors S4 and S5. The variable is bit-coded, and has the following meanings:						
Bit0 = 0:						
Bit1 = 0:						
Bit2 = 0:						
Bit3 = 0:						
Bit4 = 1: Sensor S4 piston end position						
Bit5 = 1: Sensor S5 angular position of shaft						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_CPSYNC2 [31]	Status synchronism(2) of the foll. axis / spindle				INT	
Description:						
\$VA_CPSYNC2[FA]						
Second synchronism monitoring of the following axis/spindle						
0: Monitoring inactive						
Bit 0 = 1: Monitoring 'Synchronism(2) coarse' active						
Bit 1 = 1: Synchronism(2) coarse present						
Bit 2 = 1: Monitoring 'Synchronism(2) fine' active						
Bit 3 = 1: Synchronism(2) fine present						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
-	0	0			15	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel
Scan mode:	Not classified				Link:	Not classified

\$AA_CPSYNCO2 [31]	Threshold value second synchr. monitoring coarse				DOUBLE	
Description:						
\$AA_CPSYNCO2[FA]						
Second synchronism monitoring of the following axis/spindle: threshold value coarse						
Index 1:	Axis/spindle identifier of the following axis/spindle					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						

\$AA_CPSYNCO2 [31]		Threshold value second synchr. monitoring coarse				DOUBLE	
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_CPSYNFIP2 [31]		Threshold value second synchr. monitoring fine				DOUBLE	
Description:							
\$AA_CPSYNFIP2[FA]							
Second synchronism monitoring of the following axis/spindle: threshold value fine							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_POSRES [31]		Axis position is restored				INT	
Description:							
\$AA_POSRES[X]							
Axis status:							
0: Axis position is not restored							
1: Axis position is restored							
Index 1:	Maximum axis number						
Unit	Init value	Min			Max		
-	0	0			1		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

List of system variables

3.24 Axial system variables

\$AA_CPMALARM [31]	Behavior of coupling module re handling of alarms				INT		
Description:							
With an active coupling, the variable \$AA_CPMALARM[AX] returns a bitcoded value for the specified axis/spindle which specifies the behavior of the coupling module in relation to the "Alarmhandlich".							
The behavior is defined by the CP keyword CPMALARM. The default values are derived from MD11410 \$MN_SUPPRESS_ALARM_MASK and MD11415 \$MN_SUPPRESS_ALARM_MASK_2							
The alarms which are suppressed are determined by the individual bits.							
Bit set: The corresponding alarm (warning) is NOT triggered.							
Bit 0: Alarm 16772 "Channel %1 block %2 axis %3 is a following axis, coupling is opened"							
Bit 1: Alarm 16773 "Channel %1 axis %3 is a following axis. The axis/spindle disables of the leading axes are different"							
Bit 2: Alarm 16774 "Channel %1 axis %2 Synchronization interrupted"							
Bit 3: Alarm 22012 "Channel %1 block %2. Leading axis %3 is in simulation mode"							
Bit 4: Alarm 22013 "Channel %1 block %2. Following axis %3 is in simulation mode"							
Bit 5: Alarm 22014 "Channel %1 block %2. There is a big difference in the dynamics of leading axis %3 and following axis %4"							
Bit 6: Alarm 22015 "Channel %1 block %2 Following spindle %3 - no dynamic for additional motion"							
Bit 7: Alarm 22016 "Channel %1 block %2 Following spindle %3 in the range of reduced acceleration capacity"							
Bit 8: Alarm 22025 "Channel %1 block %2 Following axis/spindle %3 synchronism (2): fine tolerance exceeded"							
Bit 9: Alarm 22026 "Channel %1 block %2 Following axis/spindle %3 synchronism (2): coarse tolerance exceeded"							
Bit 10 - 31 Reserved							
Index 1:	Axis/spindle identifier of the following axis/spindle						
Unit	Init value	Min		Max			
-	0	-2147483648		2147483647			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$AA_COLLPOS [31]	Collision position				DOUBLE		
Description:							
\$AA_COLLPOS[AX1]							
Position of the 1st axis in the event of an impending collision.							
Index 1:	Axis identifier						
Unit	Init value	Min		Max			
Linear / angular position	0.0	-1.8E+308		1.8E+308			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	Cross-channel	
Scan mode:	Not classified				Link:	Not classified	

\$VA_CC_COMP_VAL [31,4]		OA compensation value			DOUBLE	
Description:						
The axial variable \$VA_CC_COMP_VAL[ax, n] determines the current compensation value of the nth OA compensation from compile cycles in the machine coordinate system (MCS).						
If no compile cycle that enters OA compensation values is active, the variable has the value 0.0.						
Index 1:	Maximum axis number					
Index 2:	Compile cycle index					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_CC_COMP_VAL_TOTAL [31]		OA total compensation value			DOUBLE	
Description:						
The axial variable \$VA_CC_COMP_VAL[ax, n] determines the current total compensation value of all OA compensations from compile cycles in the machine coordinate system (MCS).						
If no compile cycle that enters OA compensation values is active, the variable has the value 0.0.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_LOAD_SMOOTH [31]		smoothed drive load			DOUBLE	
Description:						
\$AA_LOAD_SMOOTH[ax]						
The variable \$AA_LOAD_SMOOTH[ax] determines the smoothed drive load in percent by means of the PT1 filter.						
The filter constant is set with the machine data MD32925 LOAD_SMOOTH_FILTER_TIME.						
This is only available with PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-100			100	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_POWER_SMOOTH [31]		smoothed drive active power			DOUBLE	
Description:						
\$AA_POWER_SMOOTH[ax]						
The variable \$AA_POWER_SMOOTH[ax] determines the smoothed drive active power in W by means of the PT1 filter.						
The filter constant is set with the machine data MD32926 POWER_SMOOTH_FILTER_TIME.						
This is only available with PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_INERTIA_TOTAL [31]		Moment of inertia/mass of the axis			DOUBLE	
Description:						
\$VA_INERTIA_TOTAL[ax]						
Inertia for rotary drives in kgm2 and mass of linear drives in kg.						
Only available with SINAMICS drives.						
The value of \$VA_INERTIA_TOTAL corresponds to the content of parameter P1493 only if the associated drive function "Moment of inertia estimator" is activated (P0108.10 = 1, P1400.18 = 1) and has settled (P1407.26 = 1). In all other cases, the value zero is returned in \$VA_INERTIA_TOTAL.						
For commissioning and supplementary conditions of the drive function "Moment of inertia estimator", see the SINAMICS Function Manual, Drive Functions (FH1).						
Note for use:						
The inertia/mass is determined on the motor side without taking the gear unit into account.						
For mechanically coupled axes, the individual values are added to give a total value for the group.						
Reading \$VA_INERTIA_TOTAL from synchronous actions is not possible, and leads to alarm 20144.						
Related to SINAMICS drives with:						
- Parameter P108.10: Activation of the function module "Moment of inertia estimator"						
- Parameter P1493: Total moment of inertia						
- Parameter P1400.18: Moment of inertia estimator active						
- Parameter P1407.26: Moment of inertia estimator settled						
- Parameter P1226: Speed threshold for detecting standstill						
- Parameter P1560: Moment of inertia estimator threshold value of acceleration torque						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
kgm ²	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_AX_FORCE [31]		Feedrate force			DOUBLE	
Description:						
\$VA_AX_FORCE[X]						
For rotary drives: converted drive torque setpoint value on the load side \$VA_TORQUE						
For linear drives: actual force value in N						
Only available with PROFIdrive drives.						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
N	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		-	0
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_TRACK_ERR_CONTR [31]		Control deviation of the axis			DOUBLE	
Description:						
The variable \$VA_TRACK_ERR_CONTR[X] returns the control deviation at the input of the position controller						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Current value				Link:	Not classified

\$VA_DESVAL_FILTERS_DELTA_POS [31]		Position difference between the setpoint filter chains			DOUBLE	
Description:						
The variable \$VA_DESVAL_FILTERS_DELTA_POS[X] returns the position difference between the setpoint filter chains						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.24 Axial system variables

\$AA_DESVAL_FILTERS_SELECT [31]	Selection of the setpoint filter chains				BOOL	
Description:						
\$AA_DESVAL_FILTERS_SELECT[X] = 0 Selection of the first setpoint filter chain						
\$AA_DESVAL_FILTERS_SELECT[X] = 1 Selection of the second setpoint filter chain						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_DESVAL_FILTERS_ACTIVE [31]	Status of setpoint filter chains				BOOL	
Description:						
\$VA_DESVAL_FILTERS_ACTIVE[X] = 0 The first setpoint filter chain is active						
\$VA_DESVAL_FILTERS_ACTIVE[X] = 1 The second setpoint filter chain is active						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_DESVAL_FILTERS_DELAY_1 [31]	Effective delay time of the 1st setpoint filter chain				DOUBLE	
Description:						
The variable \$VA_DESVAL_FILTERS_DELAY_1[X] returns the effective delay time of the 1st setpoint filter chain						
Index 1:	Maximum axis number					
Unit	Init value	Min			Max	
s	0.0	0.0			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$VA_DESVAL_FILTERS_DELAY_2 [31]		Effective delay time of the 2st setpoint filter chain			DOUBLE	
Description: The variable \$VA_DESVAL_FILTERS_DELAY_2[X] returns the effective delay time of the 2st setpoint filter chain						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
s	0.0	0.0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$AA_SPEED_OVR [31]		Spindle override			DOUBLE	
Description: \$AA_SPEED_OVR[<Spindle>] Current spindle override in percent for motion-synchronous actions.						
Index 1:	Maximum axis number					
Unit	Init value	Min		Max		
-	0.0	0.0		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	-	X	0		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

3.24 Axial system variables

\$VA_RESET_INERTIA_TOTAL [31]	Reset the moment of inertia estimator in Sinamics				INT		
<p>Description: \$VA_RESET_INERTIA_TOTAL[ax] Reset the moment of inertia estimator. Only available with SINAMICS drives. Writing \$VA_RESET_INERTIA_TOTAL writes the Sinamics parameter P1565. \$VA_RESET_INERTIA_TOTAL = -1: Moment of inertia and load reset. \$VA_RESET_INERTIA_TOTAL = 0: No action. \$VA_RESET_INERTIA_TOTAL = 1: Reset moment of inertia. For commissioning and supplementary conditions of the drive function "Moment of inertia estimator", see the SINAMICS Function Manual Drive Functions (FH1). Note on use: Reading \$VA_RESET_INERTIA_TOTAL always returns zero. Related to SINAMICS drives with: - Parameter P108.10: Activation of function module "Moment of inertia estimator" - Parameter P1493: Total moment of inertia - Parameter P1400.18: Moment of inertia estimator active - Parameter P1407.26: Moment of inertia estimator settled - Parameter P1226: Speed threshold for detecting standstill - Parameter P1560: Moment of inertia estimator acceleration torque threshold value - Parameter P1565: Reset moment of inertia estimator</p>							
Index 1:	Maximum axis number						
Unit	Init value	Min		Max			
-	0	-1		1			
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		-	0	-
Write:	runin stp	X	7		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Current value				Link:	Not classified	

3.25 Safety Integrated

\$A_STOPESI		Stop E active			INT	
Description:						
\$A_STOPESI						
Current Safety Integrated Stop E for any axis:						
Val. 0: No Stop E						
Value not 0: For one of the axes, a Stop E is currently active						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSE [SF_MAXNUM_DIG_EXT_IN-BITS]		External NCK SPL input signal			BOOL	
Description:						
\$A_INSE[n]						
n = bit number (1...192)						
External NCK SPL input signal						
NCK SPL interface for SPL control signal I/O interface logic						
Index 1:	n: Number of the input 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSED [SF_MAX- NUM_DIG_EXT_INWORDS]		External NCK SPL input signals (32-bit)			INT	
Description:						
\$A_INSED[n]						
n = doubleword number (1...6)						
External NCK SPL input signals (32-bit)						
NCK SPL interface for SPL control signal I/O interface logic						
Index 1:	n: Number of the input word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.25 Safety Integrated

\$A_INSED [SF_MAX- NUM_DIG_EXT_INWORDS]	External NCK SPL input signals (32-bit)				INT	
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified

\$A_INSEP [SF_MAX- NUM_DIG_EXT_INBITS]	External PLC SPL input signal				BOOL	
Description: \$A_INSEP[n] n = bit number (1...192) Image of an external PLC SPL input signal PLC SPL interface for SPL control signal I/O interface logic Readable only during the SPL start-up phase						
Index 1:	n: Number of the input 1 - ...					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified

\$A_INSEPD [SF_MAX- NUM_DIG_EXT_INWORDS]	External PLC SPL input signals (32-bit)				INT	
Description: \$A_INSEPD[n] n = doubleword number (1...6) Image of external PLC SPL input signals (32-bit) PLC SPL interface for SPL control signal I/O interface logic Readable only during the SPL start-up phase						
Index 1:	n: Number of the input word 0 - ...					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified

\$A_OUTSE [SF_MAX- NUM_DIG_EXT_OUTBITS]	External NCK SPL output signal					BOOL
Description: \$A_OUTSE[n] n = bit number (1...192) External NCK SPL output signal NCK SPL interface for SPL status signal I/O interface logic Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the output 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_OUTSED [SF_MAX- NUM_DIG_EXT_OUTWORDS]	External NCK SPL output signals (32-bit)					INT
Description: \$A_OUTSED[n] n = doubleword number (1...6) External NCK SPL output signals (32-bit) NCK SPL interface for SPL status signal I/O interface logic Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the output word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_OUTSEP [SF_MAX- NUM_DIG_EXT_OUTBITS]	External PLC SPL output signal					BOOL
Description: \$A_OUTSEP[n] n = bit number (1...192) Image of an external PLC SPL output signal PLC SPL interface for SPL status signal I/O interface logic Readable only during the SPL start-up phase						
Index 1:	n: Number of the output 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	

List of system variables

3.25 Safety Integrated

\$A_OUTSEP [SF_MAX- NUM_DIG_EXT_OUTBITS]	External PLC SPL output signal					BOOL
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_OUTSEPD [SF_MAX- NUM_DIG_EXT_OUTWORDS]	External PLC SPL output signals (32-bit)					INT
Description:						
\$A_OUTSEPD[n]						
n = doubleword number (1...6)						
Image of external PLC SPL output signals (32-bit)						
PLC SPL interface for SPL status signal I/O interface logic						
Readable only during the SPL start-up phase						
Index 1:	n: Number of the output word 0 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSI [SF_MAXNUM_DIG_INT_IN- BITS]	Internal NCK SPL input signal					BOOL
Description:						
\$A_INSI[n]						
n = bit number (1...192)						
Internal NCK SPL input signal						
Interface to the status signals of the axial NCK monitoring channels						
Index 1:	n: Number of the input 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSID [SF_MAXNUM_DIG_INT_IN-WORDS]	Internal NCK SPL input signals (32-bit)					INT
Description:						
\$A_INSID[n]						
n = doubleword number (1...6)						
Internal NCK SPL input signals (32-bit)						
Interface to the status signals of the axial NCK monitoring channels						
Index 1:	n: Number of the input word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSIP [SF_MAXNUM_DIG_INT_IN-BITS]	Internal PLC SPL input signal					BOOL
Description:						
\$A_INSIP[n]						
n = bit number (1...192)						
Image of an internal PLC SPL input signal						
Interface to the status signals of the axial drive monitoring channels						
Readable only during the SPL start-up phase						
Index 1:	n: Number of the input 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_INSIPD [SF_MAX- NUM_DIG_INT_INWORDS]	Internal PLC SPL input signals (32-bit)					INT
Description:						
\$A_INSIPD[n]						
n = doubleword number (1...6)						
Image of internal PLC SPL input signals (32-bit)						
Interface to the status signals of the axial drive monitoring channels						
Readable only during the SPL start-up phase						
Index 1:	n: Number of the input word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						

List of system variables

3.25 Safety Integrated

\$A_INSIPD [SF_MAX- NUM_DIG_INT_INWORDS]		Internal PLC SPL input signals (32-bit)			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_OUTSI [SF_MAX- NUM_DIG_INT_OUTBITS]		Internal NCK SPL output signal			BOOL	
Description: \$A_OUTSI[n] n = bit number (1...192) Internal NCK SPL output signal Interface to the control signals of the axial NCK monitoring channels Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the output 1 - ...					
Unit	Init value	Min	Max			
-	FALSE	FALSE	TRUE			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_OUTSID [SF_MAX- NUM_DIG_INT_OUTWORDS]		Internal NCK SPL output signals (32-bit)			INT	
Description: \$A_OUTSID[n] n = doubleword number (1...6) Internal NCK SPL output signals (32-bit) Interface to the control signals of the axial NCK monitoring channels Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the output word 1 - ...					
Unit	Init value	Min	Max			
-	0	-2147483648	2147483647			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_OUTSIP [SF_MAX- NUM_DIG_INT_OUTBITS]	Internal PLC SPL output signal					BOOL
Description: \$A_OUTSIP[n] n = bit number (1...192) Image of an internal PLC SPL output signal Interface to the control signals of the axial drive monitoring channels Readable only during the SPL start-up phase						
Index 1:	n: Number of the output 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_OUTSIPD [SF_MAX- NUM_DIG_INT_OUTWORDS]	Internal PLC SPL output signals (32-bit)					INT
Description: \$A_OUTSIPD[n] n = doubleword number (1...6) Image of internal PLC SPL output signals (32-bit) Interface to the control signals of the axial drive monitoring channels Readable only during the SPL start-up phase						
Index 1:	n: Number of the output word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_MARKERSI [SF_MAXNUM_MARK- ER]	NCK SPL flags					BOOL
Description: \$A_MARKERSI[n] n = bit number (1...192) NCK SPL flags Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the bit memory 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						

List of system variables

3.25 Safety Integrated

\$A_MARKERSI [SF_MAXNUM_MARKER]		NCK SPL flags			BOOL	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_MARKERSID [SF_MAXNUM_MARKER_WORDS]		NCK SPL flag word			INT	
Description:						
\$A_MARKERSID[n]						
n = doubleword number (1...6)						
NCK SPL flag word (32-bit)						
Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the bit memory word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_MARKERSIP [SF_MAXNUM_MARKER]		PLC SPL flags			BOOL	
Description:						
\$A_MARKERSIP[n]						
n = bit number (1...192)						
Image of a PLC SPL flag						
Readable only during the SPL start-up phase						
Index 1:	n: Number of the bit memory 1 - ...					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_MARKERSIPD [SF_MAX- NUM_MARKER_WORDS]	PLC SPL flag word				INT	
Description: \$A_MARKERSIPD[n] n = doubleword number (1...6) Image of a PLC SPL flag word (32-bit) Readable only during the SPL start-up phase						
Index 1:	n: Number of the bit memory word 1 - ...					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_TIMERSI [SF_MAXNUM_TIMER]	SPL timers				DOUBLE	
Description: \$A_TIMERSI[n] n=timer number (1...16) SPL timers Unit in seconds The time is counted internally in multiples of the interpolation cycle. Incrementation of the time variable is started by value assignment \$A_TIMERSI[n]=<start value> Incrementation of a time variable is stopped through assignment of a negative value \$A_TIMERSI[n]=-1 The current timer count can be read while the time variable is running or stopped. When the time variable is stopped by assigning -1, the last count value remains stored in the variable and can continue to be read. The timers are not stopped by a channel/mode group reset.						
Index 1:	n: Number of the timer 1 - ...					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.25 Safety Integrated

\$A_STATSID		SPL status signals			INT	
Description:						
\$A_STATSID						
Status of the crosswise data comparison between NCK and PLC (SPL-CDC).						
If the value is not equal to zero, then an error has occurred in the SPL-CDC.						
Significance						
Bit 0...5 = 1: CDC error in the input/output signals, bit memories or dynamic data of the FSEND DP/FRECV DP communication						
Bit 6...25 = 0: not assigned						
Bit 26 = 1: error has occurred in the PROFIsafe communication						
Bit 27 = 1: CDC error in the static data						
Bit 28 = 1: CDC error "SPL protection status" (status \$MN_PREVENT_SYNACT_LOCK not equal to DB18 DBX36.0 (SPL READY))						
Bit 29 = 1: Timeout error in the communication between NCK and PLC (in 5 sec all ext.NCK-SPL outputs set to zero, the PLC goes into the stop state)						
Bit 30 = 1: PLC stop signaled to the NCK						
Bit 31 = 0: not assigned						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_CMDSI [SF_MAX- NUM_CMD_MARKER]		SPL DCC control signals			BOOL	
Description:						
\$A_CMDSI[n]						
n = bit number (1..0.16)						
Control word for data cross-check between NCK and PLC (SPL DCC).						
n = 1: Increase time for signal change monitoring to 10 s.						
Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the control signal for data cross-check SPL					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_LEVELSID		SPL DCC level			INT	
Description:						
\$A_LEVELSID						
Displays the fill level for signal change monitoring during data cross-check between NCK and PLC SPL (SPL DCC).						
Specifies the number of signals currently tagged for cross-checking.						
The value is already zero if an SPL signal has different levels on the NCK and PLC but the allowed discrepancy time for the signals (2 sec) has not yet expired.						
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_XFAULTSI		DCC status			INT	
Description:						
\$A_XFAULTSI						
Information on Stop F for a safety axis:						
Bit 0 = 1: An actual value error has been detected by the data cross-check between NCK and drive for any safety axis.						
Bit 1 = 1: Any error on any axis has been detected by the data cross-check between NCK and drive, and the waiting time (<>0) before triggering Stop B on that axis is running or has expired (\$MA_SAFE_STOP_SWITCH_TIME_F).						
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_PLCSIIN [SF_MAX- NUM_PLCIN_MARKER]		SPL signal from PLC to NCK			BOOL	
Description:						
\$A_PLCSIIN[n]						
n = bit number (1...96)						
Single-channel signals from PLC SPL (DB18) to NCK SPL.						
Application:						
\$A_MARKERSI[1] = \$A_PLCSIIN[1] ; Signal from PLC-SPL						
Index 1:	n: Number of the signal 1 - ... from PLC to NCK					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-

List of system variables

3.25 Safety Integrated

\$A_PLCSIIN [SF_MAX- NUM_PLCIN_MARKER]	SPL signal from PLC to NCK				BOOL
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	Not classified

\$A_PLCSIOUT [SF_MAX- NUM_PLCOU_MARKER]	SPL signal from NCK to PLC				BOOL	
Description: \$A_PLCSIOUT[n] n = bit number (1...96) Single-channel signals from NCK SPL to PLC SPL (DB18). Application: \$A_PLCSIOUT[1] = \$A_MARKERSI[1] ; Signal to PLC-SPL Can be written only from SPL (SAFE.SPF program)						
Index 1:	n: Number of the signal 1 - ... from NCK to PLC					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FSDP_ERR_REAC [SF_MAX- NUM_FSENDP_DRIVER]	Response to communications error F_SENDDP				INT	
Description: \$A_FSDP_ERR_REAC[n] n = F_SENDDP relationship (1...16) The system variable sets the response to the occurrence of a communications error. The response to a communications error caused by a fault in the communication path or by the intentional switching off one of the system components can be specifically defined according to the current dependency of the two system components involved in the F_DP communication relationship. 0 = Alarm 27350 + stop D/E 1 = Alarm 27350 2 = Alarm 27351 (display only, self-clearing) 3 = No alarm displayed						
Index 1:	n: Number of F_SENDDP relation					
Unit	Init value	Min		Max		
-	0	0		3		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FSDP_ERROR [SF_MAX- NUM_FSENDDP_DRIVER]	Communications error F_SENDDP				BOOL	
Description:						
\$A_FSDP_ERROR[n] n = F_SENDDP relationship (1...16) The system variable indicates whether there is a communications error. The cause of the error determined by F_SENDDP is contained in the diagnostic data \$A_FSDP_DIAG. TRUE = Communications error FALSE = Normal operation						
Index 1:	n: Number of F_SENDDP relation					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$A_FSDP_SUBS_ON [SF_MAX- NUM_FSENDDP_DRIVER]	Substitute values active in receiver				BOOL	
Description:						
\$A_FSDP_SUBS_ON[[n] n = F_SENDDP relationship (1...16) The system variable states whether substitution values at the F_RECVDP (receiver) are output to the application. TRUE = Output of substitution values FALSE = Output of process values						
Index 1:	n: Number of F_SENDDP relation					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.25 Safety Integrated

\$A_FSDP_DIAG [SF_MAX- NUM_FSEND DP_DRIVER]	Cause of the communications error F_SENDDP				INT	
Description:						
\$A_FSDP_DIAG[n] n = F_SENDDP relationship (1...16) The system variable indicates the cause of the communication (bit 4 - 5) or system (bit 13 - 15) error determined by F_SENDDP. Bits 0 - 3: Reserved Bit 4: 1 = Timeout detected Bit 5: 1 = Sequence number error detected Bit 6: 1 = CRC error detected Bits 7 - 12: Reserved Bit 13: 1 = Discrepancies in the F telegram data (TelegramDiscrepancy) Bit 14: 1 = Sign-of-life monitoring (LifeSign) Bit 15: 1 = Asynchronous error state (StateFault)						
Index 1:	n: Number of F_SENDDP relation					
Unit	Init value	Min	Max			
-	0	0	0x7FFFFFFF			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FRDP_SUBS [SF_MAX- NUM_FRECVDP_DRIVER]	Substitute value F_RECVDP				INT	
Description:						
\$A_FRDP_SUBS[n] n = F_RECVDP relationship (1...16) The system variable defines the substitution values output to the SPL in the following states: - Start of cyclic communication - Communications error						
Index 1:	n: Number of F_RECVDP relation					
Unit	Init value	Min	Max			
-	0	0	0xFFFF			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	runin stp	X	7	-	0	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FRDP_ERR_REAC [SF_MAX- NUM_FRECVDP_DRIVER]	Response to communications error F_RECVDP				INT	
Description:						
\$A_FRDP_ERR_REAC[n] n = F_RECVDP relationship (1...16)						
The system variable sets the response to the occurrence of a communications error. The response to a communications error caused by a fault in the communication path or by the intentional switching off one of the system components can be specifically defined according to the current dependency of the two system components involved in the F_DP communication relationship.						
0 = Alarm 27350 + stop D/E						
1 = Alarm 27350						
2 = Alarm 27351 (display only, self-clearing)						
3 = No alarm displayed						
Index 1:	n: Number of F_RECVDP relation					
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	runin stp	X	7		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

\$A_FRDP_ERROR [SF_MAX- NUM_FRECVDP_DRIVER]	communications error F_RECVDP				BOOL	
Description:						
\$A_FRDP_ERROR[n] n = F_RECVDP relationship (1...16)						
The system variable indicates whether there is a communications error. The cause of the error determined by F_RECVDP is contained in the diagnostic data \$A_FRDP_DIAG.						
TRUE = communications error						
FALSE = Normal operation						
Index 1:	n: Number of F_RECVDP relation					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

List of system variables

3.25 Safety Integrated

\$A_FRDP_SUBS_ON [SF_MAX- NUM_FSENDP_DRIVER]		Substitute values active			BOOL	
Description: \$A_FRDP_SUBS_ON[[n] n = F_RECVDP relationship (1...16) The system variable states whether substitution values are output to the application. TRUE = Output of substitution values FALSE = Output of process values						
Index 1:		n: Number of F_RECVDP relation				
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FRDP_ACK_REQ [SF_MAX- NUM_FSENDP_DRIVER]		User acknowledgement requested			BOOL	
Description: \$A_FRDP_ACK_REQ[[n] n = F_RECVDP relationship (1...16) The system variable indicates that, after a communications error F telegrams are again being exchanged cyclically without error, and that user acknowledgement via interface signal DB18.FRDP_ACK_REI or channel_1 reset is still required to acknowledge the error and output the process values.						
Index 1:		n: Number of F_RECVDP relation				
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

\$A_FRDP_DIAG [SF_MAX- NUM_FRECVDP_DRIVER]		Cause of the communications error F_RECVDP			INT	
Description:						
\$A_FRDP_DIAG[n]						
n = F_RECVDP relationship (1...16)						
The system variable indicates the cause of the communication (bit 4 - 5) or system (bit 13 - 15) error determined by F_RECVDP.						
Bits 0 - 3: Reserved						
Bit 4: 1 = Timeout detected						
Bit 5: 1 = Sequence number error detected						
Bit 6: 1 = CRC error detected						
Bits 7 - 12: Reserved						
Bit 13: 1 = Discrepancies in the F telegram data (TelegramDiscrepancy)						
Bit 14: 1 = Sign-of-life monitoring (LifeSign)						
Bit 15: 1 = Asynchronous error state (StateFault)						
Index 1:	n: Number of F_RECVDP relation					
Unit	Init value	Min			Max	
-	0	0			0x7FFFFFFF	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	
\$A_FRDP_SENDDDP [SF_MAX- NUM_FRECVDP_DRIVER]		Safety mode inactive in the communication partner			BOOL	
Description:						
\$A_FRDP_SENDDDP[n]						
n = F_RECVDP relationship (1...16)						
The system variable shows the current mode of the F-CPU of the F_SENDDDP communication partner:						
TRUE = The F-CPU is in deactivated safety mode						
FALSE = The F-CPU is in safety mode						
Index 1:	n: Number of F_RECVDP relation					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7	X	7	X
Write:	-	-	0	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	Not classified	

List of system variables

3.25 Safety Integrated

\$VA_IS [31]		Safe actual position NCK				DOUBLE	
Description: \$VA_IS[X] X = axis identifier Safe actual position for NCK monitoring channel							
Index 1:	Axis index						
Unit	Init value	Min			Max		
Linear / angular position	0.0	-1.8E+308			1.8E+308		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_STOPSI [31]		Stop by Safety Integrated				INT	
Description: \$VA_STOPSI[X] X = axis identifier Current Safety Integrated Stop for the relevant axis Value Meaning -1 No Stop 0 Stop A 1 Stop B 2 Stop C 3 Stop D 4 Stop E 5 Stop F 10 Test Stop NC							
Index 1:	Axis index						
Unit	Init value	Min			Max		
-	0	-1			10		
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	runin stp	X	7		X	7	X
Write:	-	-	0		-	0	-
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	Not classified	

\$VA_XFAULTSI [31]		Stop F by data cross-check error active				INT
Description:						
\$VA_XFAULTSI[X]						
X = axis identifier						
Information about Safety Integrated Stop F for this axis:						
Bit 0 set: An actual value error has been detected by the data cross-check between NCK and drive.						
Bit 1 set: Any error has been detected by the data cross-check between NCK and drive, and the waiting time (<=>0) before triggering Stop B (\$MA_SAFE_STOP_SWITCH_TIME_F) is running or has expired.						
Index 1:	Axis index					
Unit	Init value	Min			Max	
-	0	0			3	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified
\$VA_SAFE_TYPE [31]		Axial Safety mode				INT
Description:						
\$VA_SAFE_TYPE[X]						
X = Axis identifier						
Information about the active Safety Integrated mode of this axis:						
= 0: No Safety Integrated motion monitoring active.						
= 1: Safety Integrated NCK-integrated motion monitoring active.						
= 2: Safety Integrated drive-based motion monitoring active.						
Index 1:	Axis index					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	runin stp	X	7		X	7
Write:	-	-	0		-	0
Axis entry:	GEO	CHAN	MACH	SPIN	Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	Not classified

3.26 User-specific system variables

SYG_RM [n]		Synact Real parameters for GUD2 block			DOUBLE	
Description: SYG_RM[n] Synact Real parameters in GUD2 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[1])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_IM [n]		Synact Integer parameters for GUD2 block			INT	
Description: SYG_IM[n] Synact Integer parameters in GUD2 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_INT[1])					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_BM [n]		Synact Boolean parameters for GUD2 block			BOOL	
Description: SYG_BM[n] Synact Boolean parameters in GUD2 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[1])					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.26 User-specific system variables

SYG_BM [n]		Synact Boolean parameters for GUD2 block			BOOL	
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_AM [n]		Synact Axis parameters for GUD2 block			AXIS	
Description:						
SYG_AM[n] Synact axis parameters in GUD2 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least four						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[1])					
Unit	Init value	Min		Max		
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_CM [n]		Synact char parameters for GUD2 block			CHAR	
Description:						
SYG_CM[n] Synact char parameters in GUD2 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least four						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[1])					
Unit	Init value	Min		Max		
-	0	0		CHAR_MAX		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_SM [n]		Synact string parameters for GUD2 block			STRING	
Description:						
SYG_SM[n] Synact parameter string in GUD2 block. The maximum string length has been limited to 31 characters.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least four						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[1])					
Index 3:	31 characters and end-of-string character					

List of system variables

3.26 User-specific system variables

SYG_SM [n]		Synact string parameters for GUD2 block			STRING	
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_RU [n]		Synact Real parameters for UGUD block			DOUBLE	
Description:						
SYG_RU[n] Synact Real parameters in UGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least three						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[2])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_IU [n]		Synact Integer parameters for UGUD block			INT	
Description:						
SYG_IU[n] Synact Integer parameters in UGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least three						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_INT[2])					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_BU [n]		Synact Boolean parameters for UGUD block			BOOL	
Description:						
SYG_BU[n] Synact Boolean parameters in UGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least three						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYN- ACT_GUD_BOOL[2])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_AU [n]		Synact Axis parameters for UGUD block			AXIS	
Description:						
SYG_AU[n] Synact Axis parameters in UGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least three						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[2])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_CU [n]		Synact char parameters for UGUD block			CHAR	
Description:						
SYG_CU[n] Synact char parameters in UGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least three						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYN- ACT_GUD_CHAR[2])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X

List of system variables

3.26 User-specific system variables

SYG_CU [n]		Synact char parameters for UGUD block			CHAR
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions

SYG_SU [n]		Synact string parameters for UGUD block			STRING	
Description: SYG_SU[n] Synact parameter string in UGUD block. The maximum string length has been limited to 31 characters. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least three GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_STRING[2])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R4 [n]		Synact Real parameters for GUD4 block			DOUBLE	
Description: SYG_R4[n] Synact Real parameters in GUD4 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[3])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I4 [n]		Synact Integer parameters for GUD4 block			INT
Description: SYG_I4[n] Synact Integer parameters in GUD4 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.					
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_INT[3])				
Unit	Init value	Min		Max	

3.26 User-specific system variables

SYG_I4 [n]		Synact Integer parameters for GUD4 block			INT	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_B4 [n]		Synact Boolean parameters for GUD4 block			BOOL	
Description:						
SYG_B4[n] Synact Boolean parameters in GUD4 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least four						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[3])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A4 [n]		Synact Axis parameters for GUD4 block			AXIS	
Description:						
SYG_A4[n] Synact Real parameters in GUD4 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least four						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[3])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

List of system variables

3.26 User-specific system variables

SYG_C4 [n]		Synact Char parameters for GUD4 block			CHAR	
Description: SYG_C4[n] Synact Char parameters in GUD4 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[3])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_S4 [n]		Synact String parameters for GUD4 block			STRING	
Description: SYG_S4[n] Synact parameter string in GUD4 block. The maximum string length has been limited to 31 characters. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least four GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[3])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R5 [n]		Synact Real parameters for GUD5 block			DOUBLE	
Description: SYG_R5[n] Synact Real parameters in GUD5 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least five GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[4])					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

3.26 User-specific system variables

SYG_R5 [n]		Synact Real parameters for GUD5 block			DOUBLE	
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I5 [n]		Synact Integer parameters for GUD5 block			INT	
Description:						
SYG_I5[n] Synact Integer parameters in GUD5 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least five						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[4])					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_B5 [n]		Synact Boolean parameters for GUD5 block			BOOL	
Description:						
SYG_B5[n] Synact Boolean parameters in GUD5 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least five						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[4])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A5 [n]		Synact Axis parameters for GUD5 block			AXIS	
Description:						
SYG_A5[n] Synact Axis parameters in GUD5 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least five						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[4])					
Unit	Init value	Min			Max	

List of system variables

3.26 User-specific system variables

SYG_A5 [n]		Synact Axis parameters for GUD5 block				AXIS
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_C5 [n]		Synact Char parameters for GUD5 block				CHAR
Description: SYG_C5[n] Synact Char parameters in GUD5 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least five GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_CHAR[4])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_S5 [n]		Synact String parameters for GUD5 block				STRING
Description: SYG_S5[n] Synact parameter string in GUD5 block. The maximum string length has been limited to 31 characters. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least five GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_STRING[4])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R6 [n]		Synact Real parameters for GUD6 block			DOUBLE	
Description:						
SYG_R6[n] Synact Real parameters in GUD6 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least six						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[5])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I6 [n]		Synact Integer parameters for GUD6 block			INT	
Description:						
SYG_I6[n] Synact Integer parameters in GUD6 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least six						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[5])					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_B6 [n]		Synact Boolean parameters for GUD6 block			BOOL	
Description:						
SYG_B6[n] Synact Boolean parameters in GUD6 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least six						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[5])					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

List of system variables

3.26 User-specific system variables

SYG_B6 [n]		Synact Boolean parameters for GUD6 block			BOOL	
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A6 [n]		Synact Axis parameters for GUD6 block			AXIS	
Description: SYG_A6[n] Synact Axis parameters in GUD6 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least six GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[5])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_C6 [n]		Synact Char parameters for GUD6 block			CHAR	
Description: SYG_C6[n] Synact Char parameters in GUD6 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least six GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[5])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_S6 [n]		Synact String parameters for GUD6 block			STRING	
Description: SYG_S6[n] Synact parameter string in GUD6 block. The maximum string length has been limited to 31 characters. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least six GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[5])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min			Max	

SYG_S6 [n]		Synact String parameters for GUD6 block			STRING	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R7 [n]		Synact Real parameters for GUD7 block			DOUBLE	
Description:						
SYG_R7[n] Synact Real parameters in GUD7 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[6])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I7 [n]		Synact Integer parameters for GUD7 block			INT	
Description:						
SYG_I7[n] Synact Integer parameters in GUD7 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_INT[6])					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

List of system variables

3.26 User-specific system variables

SYG_B7 [n]		Synact Boolean parameters for GUD7 block				BOOL
Description:						
SYG_B7[n] Synact Boolean parameters in GUD7 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[6])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A7 [n]		Synact Axis parameters for GUD7 block				AXIS
Description:						
SYG_A7[n] Synact Axis parameters in GUD7 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[6])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_C7 [n]		Synact Char parameters for GUD7 block				CHAR
Description:						
SYG_C7[n] Synact Char parameters in GUD7 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[6])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X

3.26 User-specific system variables

SYG_C7 [n]		Synact Char parameters for GUD7 block			CHAR
Axis entry:				Overlap channel:	channel-specific
Scan mode:	Program sensitive			Link:	No restrictions

SYG_S7 [n]		Synact String parameters for GUD7 block			STRING	
Description:						
SYG_S7[n] Synact parameter string in GUD7 block. The maximum string length has been limited to 31 characters.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least seven						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[6])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R8 [n]		Synact Real parameters for GUD8 block			DOUBLE	
Description:						
SYG_R8[n] Synact Real parameters in GUD8 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least eight						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[7])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I8 [n]		Synact Integer parameters for GUD8 block			INT
Description:					
SYG_I8[n] Synact Integer parameters in GUD8 block.					
A protection level can be assigned to the parameters with REDEF.					
In order to create the parameters, at least eight					
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.					
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_INT[7])				
Unit	Init value	Min		Max	

List of system variables

3.26 User-specific system variables

SYG_I8 [n]		Synact Integer parameters for GUD8 block			INT	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_B8 [n]		Synact Boolean parameters for GUD8 block			BOOL	
Description:						
SYG_B8[n] Synact Boolean parameters in GUD8 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least eight						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[7])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A8 [n]		Synact Axis parameters for GUD8 block			AXIS	
Description:						
SYG_A8[n] Synact Axis parameters in GUD8 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least eight						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[7])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_C8 [n]		Synact Char parameters for GUD8 block			CHAR	
Description:						
SYG_C8[n] Synact Char parameters in GUD8 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least eight						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[7])					
Unit	Init value	Min		Max		
-	0	0		CHAR_MAX		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_S8 [n]		Synact String parameters for GUD8 block			STRING	
Description:						
SYG_S8[n] Synact parameter string in GUD8 block. The maximum string length has been limited to 31 characters.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least eight						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[7])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_R9 [n]		Synact Real parameters for GUD9 block			DOUBLE	
Description:						
SYG_R9[n] Synact Real parameters in GUD9 block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least nine						
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[8])					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.26 User-specific system variables

SYG_R9 [n]		Synact Real parameters for GUD9 block			DOUBLE	
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_I9 [n]		Synact Integer parameters for GUD9 block			INT	
Description: SYG_I9[n] Synact Integer parameters in GUD9 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least nine GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_INT[8])					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_B9 [n]		Synact Boolean parameters for GUD9 block			BOOL	
Description: SYG_B9[n] Synact Boolean parameters in GUD9 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least nine GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYN-ACT_GUD_BOOL[8])					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_A9 [n]		Synact Axis parameters for GUD9 block			AXIS	
Description: SYG_A9[n] Synact Axis parameters in GUD9 block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least nine GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[8])					
Unit	Init value	Min		Max		

SYG_A9 [n]		Synact Axis parameters for GUD9 block				AXIS	
-		NOAXISNUM					
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	X	X	7	X	7	X	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions		

SYG_C9 [n]		Synact Char parameters for GUD9 block				CHAR	
Description:							
SYG_C9[n] Synact Char parameters in GUD9 block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least nine							
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.							
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYN- ACT_GUD_CHAR[8])						
Unit	Init value		Min		Max		
-	0		0		CHAR_MAX		
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	X	X	7	X	7	X	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions		

SYG_S9 [n]		Synact String parameters for GUD9 block				STRING	
Description:							
SYG_S9[n] Synact parameter string in GUD9 block. The maximum string length has been limited to 31 characters.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least nine							
GUD blocks must be activated with MD \$MN_MM_NUM_GUD_MODULES.							
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYN- ACT_GUD_STRING[8])						
Index 3:	31 characters and end-of-string character						
Unit	Init value		Min		Max		
-	""						
Read/Write properties:							
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC	
Read:	X	X	7	X	7	X	
Write:	X	X	7	X	7	X	
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions		

List of system variables

3.26 User-specific system variables

SYG_RS [n]		Synact Real parameters for SGUD block			DOUBLE	
Description: SYG_RS[n] Synchronization Real parameters in SGUD block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least one GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Real is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_REAL[0])					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_IS [n]		Synact Integer parameters for SGUD block			INT	
Description: SYG_IS[n] Synact Integer parameters in SGUD block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least one GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Integer is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_INT[0])					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_BS [n]		Synact Boolean parameters for SGUD block			BOOL	
Description: SYG_BS[n] Synact Boolean parameters in SGUD block. A protection level can be assigned to the parameters with REDEF. In order to create the parameters, at least one GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_BOOL[0])					
Unit	Init value	Min			Max	
-	FALSE	FALSE			TRUE	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X

3.26 User-specific system variables

SYG_BS [n]		Synact Boolean parameters for SGUD block			BOOL	
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_AS [n]		Synact axis parameters for SGUD block			AXIS	
Description:						
SYG_AS[n] Synchronization axis parameters in SGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least one						
GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Axis is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_AXIS[0])					
Unit	Init value	Min			Max	
-	NOAXISNUM					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_CS [n]		Synact char parameters for SGUD block			CHAR	
Description:						
SYG_CS[n] Synchronization Char parameters in SGUD block.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least one						
GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD Char is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_CHAR[0])					
Unit	Init value	Min			Max	
-	0	0			CHAR_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

SYG_SS [n]		Synact string parameters for SGUD block			STRING	
Description:						
SYG_SS[n] Synchronized action parameter string in SGUD block. The maximum string length has been limited to 31 characters.						
A protection level can be assigned to the parameters with REDEF.						
In order to create the parameters, at least one						
GUD block must be activated with MD \$MN_MM_NUM_GUD_MODULES.						
Index 1:	The max. number of SynactGUD String is defined by the machine data (\$MN_MM_NUM_SYNACT_GUD_STRING[0])					
Index 3:	31 characters and end-of-string character					
Unit	Init value	Min			Max	

List of system variables

3.26 User-specific system variables

SYG_SS [n]	Synact string parameters for SGUD block				STRING	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	X	7	X	7	X
Write:	X	X	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Program sensitive			Link:	No restrictions	

3.27 Kinematic chain

\$NK_NAME [n]		Name of chain element			STRING	
Description:						
Name of the nth element of a kinematic chain. The maximum possible number of chain elements is set in MD \$MN_MM_MAX- NUM_KIN_CHAIN_ELEMENTS.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_NEXT [n]		Name of next chain element			STRING	
Description:						
Name of the next chain element. This means that, in contrast to the system variable \$NK_PARALLEL, the subchain referenced by \$NK_NEXT branches off at the end of the current chain element.						
An empty string "" means the end of the chain.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_PARALLEL [n]		Name of a parallel chain element			STRING	
Description:						
Name of a chain element that branches off in parallel to the current chain element. This means that, in contrast to the system variable \$NK_NEXT, the subchain referenced by \$NK_PARALLEL branches off at the start of the current chain element.						
An empty string "" means that a parallel chain element is not present.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.27 Kinematic chain

\$NK_TYPE [n]		Type of chain link			STRING	
Description:						
Type of chain link						
The following types are permitted (No distinction is made between upper and lower case letters):						
"OFFSET"						
"AXIS_LIN"						
"AXIS_LIN_VIRT"						
"AXIS_ROT"						
"AXIS_ROT_VIRT"						
"ROT_CONST"						
"SWITCH"						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_OFF_DIR [n,3]		Offset or directional vector			DOUBLE	
Description:						
Describes the 3 components of the offset vector of a constant chain link or the direction of the axis of a variable chain link.						
If the vector describes a direction, the value of the vector must not equal 0. Otherwise not relevant.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 2:	Index of the 3 components (0 <= i <= 2).					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_AXIS [n]		Axis name, frame name			STRING	
Description:						
Name of axis or frame.						
The content of this component is not evaluated for the element types "OFFSET" and "ROT_CONST" (\$NK_TYPE). For all other element types, it must be ensured that a corresponding element (axis, frame) with the specified name exists. No distinction is made between upper and lower case letters.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					

\$NK_AXIS [n]		Axis name, frame name			STRING	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_A_OFF [n]		Axis offset			DOUBLE	
Description:						
Is relevant only if the chain link describes an axis. In this case, this element indicates the position of the axis in the zero point. In the case of linear axes, this value is redundant as it can also be replaced by a changed offset of the previous link.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Unit	Init value		Min		Max	
mm	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_SWITCH_INDEX [n]		Switch index			INT	
Description:						
Index of a switch in a kinematic chain. This system variable is only evaluated for "SWITCH" type chain elements.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Unit	Init value		Min		Max	
-	-1		-1		MAXNUM_KIN_CHAIN_SWITCHES - 1	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_SWITCH_POS [n]		Switch position			INT	
Description:						
Indicates at which position of a switch in the kinematic chain, a connection is established between the input of the element and the output \$NK_NEXT. This system variable is only evaluated for "SWITCH" type chain elements.						
Index 1:	The maximum number of kinematic chains is set by the MD \$MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Unit	Init value		Min		Max	
-	0		0		2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X

List of system variables

3.27 Kinematic chain

\$NK_SWITCH_POS [n]		Switch position			INT	
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NK_SWITCH [n]		Switch control			INT	
Description: Position of a switch in a kinematic chain.						
Index 1:	The maximum number of switches in kinematic chains is set using MD MAXNUM_KIN_CHAIN_SWITCHES					
Unit	Init value	Min				Max
mm	-1	-1				2147483647
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	7	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.28 Orientation transformation

\$NT_NAME [n]		Name of the transformation data set			STRING	
Description:						
Name of the transformation data set n.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	-	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_TRAFO_TYPE [n]		Transformation type			STRING	
Description:						
The same type of transformation applies as for the transformation data set.						
Only certain reserved key words are permitted for the content of this system data.						
The valid key words are currently:						
- TRAORI for dynamic orientation transformations						
- TRAORI_STAT for static orientation transformations						
- TRAANG_K for transformations without orientation axes. The geometry axes need not be at right angles to each other (inclined axis transformation).						
- TRANSMIT_K for polar transformations						
- TRAFO_OEM for OEM transformations that are implemented in a CC, but without orientation axes.						
- TRAFO_OEM_ORI for OEM transformations that are implemented in a CC with orientation axes.						
-						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	-	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_T_CHAIN_LAST_ELEM [n]		Last elem. of the kin. chain to the tool			STRING	
Description:						
Name of an element in the kinematic description of the machine. This chain element indicates the last link of a kinematic chain. It defines the point of the transformation at which the tool starts.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					

List of system variables

3.28 Orientation transformation

\$NT_T_CHAIN_LAST_ELEM [n]	Last elem. of the kin. chain to the tool				STRING	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_P_CHAIN_LAST_ELEM [n]	Last element of the kin. chain to the workpiece				STRING	
Description:						
>Name of an element in the kinematic description of the machine. This chain element indicates the last link in a kinematic chain. It defines the workpiece zero.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value		Min		Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_T_REF_ELEM [n]	Reference point for tool length calculation				STRING	
Description:						
This system variable refers to the reference point for the tool length calculation (tool reference point). The tool reference point is the starting point of the described kinematic element.						
The tool reference point defines the point in the kinematic chain, where tool wear components can be included, their orientation can be rotated in comparison with basic length components, see the description of the G codes in Group 56 (inclusion of the tool wear).						
If the system variable is not empty, it must contain the name of a chain element, which is the core element of the current chain to the tool.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value		Min		Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_GEO_AX_NAME [n,GEODIM,32]		Names of the linear axes			STRING	
Description:						
This system data refers to a maximum of 3 machine axes. It contains the names of the chain links (\$NK_NAME), which define the axes, which must execute the compensation motions, which result from a kinematic transformation. These axes can be both linear axes (e.g. for all orientation transformations) and rotary axes (e.g. the rotary axis for TRANSMIT).						
The sequence of these axes defines the assignment of the geometrical axes to the channel axes in accordance with the machine data \$MC_AXCONF_GEO_AX_ASSIGN_TAB.						
Example: The system data \$NT_GEO_AX_NAME[n,1] refers to a chain link which contains the rotary machine axis C1. In the current channel, C1 would be the 7th axis. In the case of an active transformation, this entry has the same meaning as the entry \$MC_AXCONF_GEO_AX_ASSIGN_TAB[1] = 7 for a deactivated transformation.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the linear axis					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_NAME [n,ORIDIM,32]		Names of the rotary axes			STRING	
Description:						
This system data refers to a maximum of 3 axes used for setting the orientation. It contains the names of the chain links (\$NK_NAME), which define the machine axes (rotary axes), which must execute the orientation motions, which result from a kinematic transformation.						
The sequence in which the maximum of three rotary axes are contained in this system data is insignificant for machine kinematics, as this is derived from the structure of the kinematic chains. It does, however, define the sequence which also refers to rotary axes (e.g. the Hirth parameters) and the access to the rotary axes.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the rotary axis					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_POS [n,3]		Position of a manual rotary axis			DOUBLE	
Description:						
This system variable is of significance only if the rotary axis, which refers to (\$NT_ROT_AX_NAME), is a manual rotary axis. In this case, the rotary axis position is the result of the total of these system variables and the system variables \$NK_A_OFF and \$NK_A_OFF_FINE of the affected kinematic chain element.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the position component					
Unit	Init value	Min			Max	

List of system variables

3.28 Orientation transformation

\$NT_ROT_AX_POS [n,3]		Position of a manual rotary axis			DOUBLE	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_HIRTH_OFF [n,ORIDIM]		Offset of the Hirth tooth system			DOUBLE	
Description:						
Offset of the Hirth tooth system.						
A Hirth tooth system is activated for a rotary axis if the associated system data \$NT_HIRT_INC[n, i] does not contain a value of 0.						
At a specified setpoint position PHlset of a rotary axis, the currently set angle results in						
$PHlact = \$NT_HIRTH_OFF[n, i] + k * \NT_HIRTH_INC						
whereby k is an integer and is selected in such a way that the difference between PHlact and PHlset is minimized.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the rotary axis					
Unit	Init value		Min		Max	
deg.	0.0		-1.8E+308		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_HIRTH_INC [n,ORIDIM]		Increment of the Hirth tooth system			DOUBLE	
Description:						
Increment of the Hirth tooth system.						
A Hirth tooth system is activated for a rotary axis if this system data does not contain a value of 0.						
At a specified setpoint position PHlset of a rotary axis, the currently set angle results in						
$PHlact = \$NT_HIRTH_OFF[n, i] + k * \NT_HIRTH_INC						
whereby k is an integer and is selected in such a way that the difference between PHlact and PHlset is minimized.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the rotary axis					
Unit	Init value		Min		Max	
deg.	0.0		0.0		1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_MIN [n,ORIDIM]		Minimum position of a rotary axis			DOUBLE	
Description:						
This system variable is evaluated only if \$NT_ROT_AX_MIN[n, i] and \$NT_ROT_AX_MAX[n,i] are not set to zero.						
In this case, it indicates the minimum permitted position of the rotary axis, which is referred to with \$NT_ROT_AX_NAME[n, i].						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the rotary axis					
Unit	Init value	Min		Max		
deg.	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_MAX [n,ORIDIM]		Maximum position of a rotary axis			DOUBLE	
Description:						
Maximum position of a rotary axis.						
This system variable is evaluated only if \$NT_ROT_AX_MIN[n, i] and \$NT_ROT_AX_MAX[n,i] are not set to zero.						
In this case, it indicates the maximum permitted position of the rotary axis, which is referred to with \$NT_ROT_AX_NAME[n, i].						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the rotary axis					
Unit	Init value	Min		Max		
deg.	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_BASE_ORIENT [n,GEODIM]		Vector of the tool base orientation for orientation transformations			DOUBLE	
Description:						
Indicates the vector of the tool orientation in the general orientation transformation.						
The vector becomes effective only if the tool orientation is not indicated when the transformation is called up or read from a programmed tool.						
The vector can equal any amount, but this must not be equal to zero.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the vector component					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.28 Orientation transformation

\$NT_BASE_ORIENT_NORMAL [n,GE-ODIM]		Norm. vector for orientation transformers with 3 orientation degs. of freedom		DOUBLE			
Description:							
Indicates a vector that is perpendicular to the tool orientation (\$NT_BASE_ORIENT) in the case of orientation transformations with 3 degrees of freedom.							
The vector becomes effective only if the tool orientation is not indicated when the transformation is called up or read from a programmed tool.							
The vector can equal any amount, but this must not be equal to zero.							
If \$NT_BASE_ORIENT_NORMAL and \$NT_BASE_ORIENT are neither orthogonal nor parallel, the two vectors are orthogonalized by modifying the normal vector. The normal vector is now in the plane, which is defined by both vectors and rotated in such a way that the two vectors are positioned orthogonally.							
The two named vectors must not be parallel.							
Index 1:		The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:		Index of the vector component					
Unit		Init value		Min		Max	
-		0.0		-1.8E+308		1.8E+308	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	1		X	7	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$NT_POLE_LIMIT [n]		End angle toler. with interpol. through pole for 5/6-axis transf.		DOUBLE			
Description:							
This MD designates an end angle tolerance for the fifth axis of the first 5-axis transformation with the following properties:							
With the interpolation through the pole point, only the 2nd rotary axis moves, the 2nd rotary axis retains its starting position. If a motion is programmed that does not run exactly through the pole point but is to run near the pole within the area given by MD: TRAFO5_NON_POLE_LIMIT then there is a deviation from the defined path, as the interpolation runs exactly through the pole point. This results in a deviation in the position of the end point of the fourth axis (the polar axis) from the programmed value.							
This MD defines the angle by which the polar axis may deviate from the programmed value with 5-axis transformation when switching from the programmed interpolation to the interpolation through the pole point.							
An error message (alarm 14112) is output if there is a greater deviation and the interpolation is not executed.							
Not relevant:							
If the "5-Axis Transformation" option is not installed.							
Also irrelevant with programming in the machine coordinate system ORIMKS.							
Related to:							
MD: TRAFO5_NON_POLE_LIMIT_n							
Index 1:		The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit		Init value		Min		Max	
deg.		2.0		0.0		45.0	
Read/Write properties:							
	TP	SA	TP/SA safety		NC-Variable	Safety	OEM-CC
Read:	X	-	7		X	7	-
Write:	X	-	1		X	7	-
Axis entry:					Overlap channel:	channel-specific	
Scan mode:	Not classified				Link:	No restrictions	

\$NT_POLE_TOL [n]	End angle tolerance for pole interpolation				DOUBLE	
Description:						
End angle tolerance for interpolation through the pole for the 1st 5/6-axis transformation.						
This MD is evaluated only by the generic 5/6-axis transformation.						
If the end orientation lies within the pole cone and within the tolerance cone specified by means of this MD, the pole axis does not move and retains its start position. The other rotary axis, however, moves to the programmed angle.						
This results in a deviation of the end orientation from the programmed orientation.						
The maximum active value of this MD is the value of MD TRAF05_POLE_LIMIT_1, which is used to define the pole cone.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
deg.	0.0	0.0			45.0	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_OFFSET_FROM_FRAME [n]	Transfer rotary axis offset from the work offset when selecting the transformer				INT	
Description:						
For orientation transformations:						
If the content of this data is not equal to zero, the programmable offset for orientation axes is automatically accepted from the work offset active for the orientation axes on switch-on of an orientation transformation.						
For Transmit:						
0: Axial offset of the rotary axis is not considered.						
1: Axial offset of the rotary axis is considered.						
2: Axial offset of the rotary axis is considered until SZS.						
SZS frames include transformed rotations around the rotary axis.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
-	false	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_IGNORE_TOOL_ORIENT [n]	Read out tool orientation from \$NT_BASE_ORIENT				BOOL	
Description:						
Each tool has a defined tool orientation, which is normally used in the case of orientation programming to form the basis of calculating motions or the end points of the orientation axes. If this system data is set, the \$NT_BASE_ORIENT / \$NT_BASE_ORIENT_NORMAL orientation contained in the system data is used in place of the tool orientation, even in the case of an active tool.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					

List of system variables

3.28 Orientation transformation

\$NT_IGNORE_TOOL_ORIENT [n]		Read out tool orientation from \$NT_BASE_ORIENT			BOOL	
Unit	Init value	Min		Max		
-	false	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_TRAFO_INCLUDES_TOOL [n]		Tool handling with active transformation			BOOL	
Description:						
This system variable indicates whether the tool for an active transformation is handled internally or externally. It is only evaluated for certain transformations.						
The prerequisite for an evaluation is that the orientation of the tool in relation to the basic coordinate system cannot be modified by the transformation. In the case of standard transformations, this condition is only met for the "inclined axis transformation".						
If this system variable is set, the basic coordinate system (BCS) refers to the tool reference point even in the case of an active transformation, in all other cases it refers to the tool center point (TCP).						
The operation of protection zones and working area limitations varies accordingly.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min		Max		
-	TRUE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_AUX_POS [n,3]		Auxiliary position			DOUBLE	
Description:						
This system variable contains a position vector for use by measuring cycles. It does not have any meaning within NCK.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the position component					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_IDENT [n,3]		Identifier			INT	
Description:						
This system variable contain a numerical ID for identifying a transformation data set for use by measuring cycles. They do not have any meaning within NCK.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the variable \$NT_IDENT					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	1		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$NT_CORR_ELEM_T [n,4,32]		Names of correction elements			STRING	
Description:						
With this system data, a maximum of 4 constant chain elements (\$NK_NAME) are referred to in the part chain. These are intended to include offset/correction values (linear offsets), determined in the measuring cycles, for example. (Initially) it is only of significance for orientation transformation. In the kinematic chain, an orientation axis must always be located between two of these elements. This means that only for 6-axis transformations, where all 3 orientation axes are defined in the tool chain, all 4 chain elements can also be occupied, while e.g. for 5-axis transformations, this system data may only include a maximum of three entries. The complete kinematic chain from the machine zero (reference point of the kinematic chain) up to the workpiece zero is subdivided into a maximum of 4 sections by the orientation axes. In each of these sections, they can only be a maximum of one correction element. The correction element with index n must be located in the nth section (example: \$NT_CORR_ELEM_T[k, 1] must refer to a chain element between the first and second orientation axis in the part chain)						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Position in the kinematic tool chain					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	1		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.28 Orientation transformation

\$NT_CORR_ELEM_P [n,4,32]		Names of correction elements			STRING	
Description:						
<p>With this system data, a maximum of 4 constant chain elements (\$NK_NAME) are referred to in the part chain. These are intended to include offset/correction values (linear offsets), determined in the measuring cycles, for example. (Initially) it is only of significance for orientation transformation.</p> <p>In the kinematic chain, an orientation axis must always be located between two of these elements. This means that only for 6-axis transformations, where all 3 orientation axes are defined in the tool chain, all 4 chain elements can also be occupied, while e.g. for 5-axis transformations, this system data may only include a maximum of three entries.</p> <p>The complete kinematic chain from the machine zero (reference point of the kinematic chain) up to the workpiece zero is subdivided into a maximum of 4 sections by the orientation axes. In each of these sections, they can only be a maximum of one correction element. The correction element with index n must be located in the nth section (example: \$NT_CORR_ELEM_P[k, 1] must refer to a chain element between the first and second orientation axis in the part chain).</p>						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Position in the kinematic part chain					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_CNTRL [n]	Bit-coded control word	INT														
<p>Description:</p> <p>This data is a bit-coded control word, which can be used to influence the response in specific situations.</p> <p>The individual bits have the following meanings:</p> <p>Bit 0:</p> <p style="padding-left: 20px;">Not assigned</p> <p>Bits 1 - 3 (H2 - H8):</p> <p style="padding-left: 20px;">The orientation axis, to which the bit is assigned (bit 1: first orientation axis, bit 2: second orientation axis, bit 3: third orientation axis) is interpreted as a speed-controlled spindle.</p> <p style="padding-left: 20px;">Presently, only cases are supported, where either the first or third orientation axis is parameterized as a spindle (turning on milling machines or 5-axis milling on machines where the third orientation axis is not operated with position control).</p> <p>Bits 4 - 6 (H10 - H40):</p> <p style="padding-left: 20px;">The orientation axis, which is assigned to the bit (bit 4: first orientation axis, bit 5: second orientation axis, bit 6: third orientation axis) is Hirth gearing. For the Hirth gearing, only machine data \$MA_INDEX_AX_NUMERATOR, \$MA_INDEX_AX_DENOMINATOR and \$MA_INDEX_AX_OFFSET are evaluated.</p> <p style="padding-left: 20px;">The content of machine data \$MA_HIRTH_IS_ACTIVE is not evaluated, i.e. the axis does not have to be parameterized as a real Hirth axis.</p> <p style="padding-left: 20px;">If the axis is parameterized as a modulo axis, machine data \$MA_INDEX_AX_NUMERATOR is replaced by machine data \$MA_MODULO_RANGE. The distances of the permissible axis positions are then obtained from \$MA_MODULO_RANGE / \$MA_INDEX_AX_DENOMINATOR.</p> <p style="padding-left: 20px;">Machine data \$MA_INDEX_AX_OFFSET is also evaluated for modulo axes.</p> <p>Bits 7 - 8 (H80 - H100):</p> <p style="padding-left: 20px;">If these bits are set, additional constant chain elements are automatically inserted internally, if required, at the start points of the part chains (bit7: part chain: bit 8: tool chain), which establish a connection from the start of the chain to the machine zero ("Close chain").</p> <p>Bit 9 - 10 (H200-H400):</p> <p style="padding-left: 20px;">The scope of functions of Transmit and Tracyl transformations are specified more precisely with these bits (with/without central offset axis), see programming guide.</p> <p>Bit 11 (H800):</p> <p style="padding-left: 20px;">If this bit is set, the direction of rotation of the polar axis is inverted for Transmit and Tracyl. This corresponds to machine data MD24810 \$MC_TRACYL_ROT_SIGN_IS_PLUS_n or MD24910 \$MC_TRANSMIT_ROT_SIGN_IS_PLUS_n with conventionally parameterized Transmit and Tracyl transformations.</p> <p>Bits 12 - 15: Reserved for OEM transformations. These bits can have different meanings with the different OEM transformations.</p> <p>Bit 12 : A standard pole handling, that relates only to the orientation, is activated for an OEM orientation transformation.</p> <p>Bit 16 - 18 (H10000 - H40000)</p> <p style="padding-left: 20px;">These bits contain a 3 bit number, which may have values between 0 and 5. For Transmit and Tracyl transformations, the number indicates how the channel axes entered in \$NT_ROT_AX_NAME[n, 1], \$NT_GEO_AX_NAME[n, 0] and \$NT_GEO_AX_NAME[n, 2] are assigned to the geometry axes. It thus replaces machine data MD24120 \$MC_TRAFO_GEO_AX_ASSIGN_TAB_n[0..2] for conventionally parameterized transformations.</p> <p style="padding-left: 20px;">The assignment is shown in the following table. It is assumed that the geometry axis identifiers are defined in the usual order (X, Y, Z).</p> <table border="1" data-bbox="188 1485 596 1719"> <thead> <tr> <th>Numerical value</th> <th>Order of geometry axes</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>X Y Z</td> </tr> <tr> <td>1</td> <td>Z X Y</td> </tr> <tr> <td>2</td> <td>Y Z X</td> </tr> <tr> <td>3</td> <td>Z Y X</td> </tr> <tr> <td>4</td> <td>X Z Y</td> </tr> <tr> <td>5</td> <td>Y X Z</td> </tr> </tbody> </table> <p>Bit 19 - 20 (H80000-H100000):</p> <p style="padding-left: 20px;">If bit 19 is set, the last kinematic chain element that defines the tool reference point must be a rotary axis or a constant rotation. The direction vector of the rotary axis then defines the Z direction of the tool coordinate system. The rotation around the tool Z axis defined in this way derives from the corresponding definition for the local coordinate system of an axis in kinematic chains, see /R1/. If the system variable \$NK_A_OFF of this chain element contains a value unequal to zero, the tool coordinate system is also rotated around the coordinate axis by this angle.</p>			Numerical value	Order of geometry axes	0	X Y Z	1	Z X Y	2	Y Z X	3	Z Y X	4	X Z Y	5	Y X Z
Numerical value	Order of geometry axes															
0	X Y Z															
1	Z X Y															
2	Y Z X															
3	Z Y X															
4	X Z Y															
5	Y X Z															

List of system variables

3.28 Orientation transformation

\$NT_CNTRL [n]		Bit-coded control word			INT	
If bit 20 is also set, the sign of the Z direction of the axis is inverted to determine the tool coordinate system. Bit 21 - 31: Not assigned						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_CLOSE_CHAIN_P [n]		Point to close the part chain.			STRING	
Description:						
This system data refers to an element of the kinematic chain, whose end point is used as reference point for "closing" the part chain. When closing the kinematic chain, at the start point, such an offset element is inserted so that for the zero position of all axes, the specified reference point coincides with the start point of the chain. If the system data is empty, then the reference point is the end point of the chain.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_CLOSE_CHAIN_T [n]		Point to close the tool chain.			STRING	
Description:						
This system data refers to an element of the kinematic chain, whose end point is used as reference point for "closing" the part chain. When closing the kinematic chain, at the start point, such an offset element is inserted so that for the zero position of all axes, the specified reference point coincides with the start point of the chain. If the system data is empty, then the reference point is the end point of the chain.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_TRAFO_INDEX [n]	Index for transformation call with conventional syntax				INT	
Description:						
A transformation defined by kinematic chains can also be activated by conventional language commands, such as TRAORI(<n>) or TRANSMIT(<n>), instead of the call TRAF00N(<Name>), if a value not equal to zero is entered in this system data.						
The content of the system variable is decimal-coded. The decimal places have the following meanings:						
Units digit: Defines the transformation type for which the conventional transformation call is to be diverted to a transformation defined by kinematic chains. The following assignments apply:						
1: TRAORI						
2: TRANSMIT						
3: TRACYL						
4: TRAANG						
5: TRACON						
Tens and hundreds digits: Transformer number (double digit)						
Thousands and ten thousands digits: Number of the channel in which the conventional transformation call is to be diverted to a transformation defined by kinematic chains. The entry 0 is equivalent to the entry 1. This means that the definition automatically applies to the first channel if the channel number is not explicitly defined.						
For a transformation defined by kinematic chains to be called by a conventional language command, the three lowest-value decimal places of this system data must not equal zero. The orientation transformation indicated by the index 1 is also activated for compatibility reasons with the conventional call syntax with TRAORI(0), TRAORI() or TRAORI but not with TRAORI(1). The same applies to the other transformation types (TRANSMIT, TRACYL, TRAANG and TRACON).						
Example: The call TRANSMIT(3) in the fifth channel is diverted to a transformation defined by kinematic chains that contains the entry 5032 in the system data \$NT_TRAFO_INDEX.						
Whether the called transformation is of a type compatible with the transformation type of the original call is not checked.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	
\$NT_POLE_SIDE_FIX [n]						
Restriction of working area in front of/behind pole with TRANSMIT				INT		
Description:						
Restriction of working area in front of/behind pole or no restriction, i.e. traversal through the pole.						
The assigned values have the following meanings:						
0: No restriction of the working area. Traversal through the pole is allowed.						
1: Working area of linear axis for positions ≥ 0 , (if tool length compensation parallel to linear axis = 0)						
2: Working area of linear axis for positions ≤ 0 , (if tool length compensation parallel to linear axis = 0)						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
-	0	0			2	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-

List of system variables

3.28 Orientation transformation

\$NT_POLE_SIDE_FIX [n]		Restriction of working area in front of/behind pole with TRANSMIT			INT	
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_CNT [n,2]		Number of rotary axes in the part or tool chain			INT	
Description:						
This system variable can contain the number of relevant rotary axes of a transformation in the part chain (index 0) or tool chain (index 1). It is used to support the parameterization of a transformation with kinematic chains via the user interface. If the contents of both components are -1 (initialization value), their content is not evaluated. If the content of at least one component is not equal to zero, the contents of both components must be the same as the number of relevant rotary axes found by the analysis of the kinematic chains. Relevant rotary axes in this sense are those rotary axes defined in the \$NT_ROT_AX_Name system variable.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the \$NT_ROT_AX_CNT variable					
Unit	Init value	Min			Max	
-	-1	-1			3	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_TRACON_CHAIN [n,4,32]		Name of the partial transformation			STRING	
Description:						
This system variable is only relevant for transformation type \$NT_TRAFO_TYPE[] = "TRACON_K". Consequently, the names of the partial transformations are given in the order that the transformation from BCS to MCS is to be evaluated.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	The maximum number of transformations in a transformation chain					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	-	0	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_OEM_PAR_I [n,MAX_OEMTRAFOPAR_I]		Parameter for OEM transformation			INT	
Description:						
This integer parameter is evaluated by OEM transformations. The meaning of the individual parameter values depends on the respective OEM transformation. The details are described in the documentation of the particular OEM transformation.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					

\$NT_OEM_PAR_I [n,MAX_OEMTRA-FO_PAR_I]		Parameter for OEM transformation				INT
Index 2:	Index of the variable \$NT_OEM_PAR_I					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_OEM_PAR_D [n,MAX_OEMTRA-FO_PAR_D]		Parameter for OEM transformation				DOUBLE
Description:						
This real parameter is evaluated by OEM transformations. The meaning of the individual parameter values depends on the respective OEM transformation.						
The details are described in the documentation of the particular OEM transformation.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the variable \$NT_OEM_PAR_D					
Unit	Init value	Min		Max		
-	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_OEM_PAR_S [n,MAX_OEMTRA-FO_PAR_S,32]		Parameter for OEM transformation				STRING
Description:						
This string parameter is evaluated by OEM transformations. The meaning of the individual parameter values depends on the respective OEM transformation.						
The details are described in the documentation of the particular OEM transformation.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the variable \$NT_OEM_PAR_S					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.28 Orientation transformation

\$NT_BASE_TOOL_COMP [n]	Compensation of the tool axes for TRANSMIT or TRACYL with frames.				INT	
Description:						
Components of the BaseTool can be compensated via the transformation frame with this bit-coded system variable, so that there is no change in the WCS component on transformation selection.						
Bit0: MD24920 \$NT_BASE_TOOL[n,0] is compensated via \$P_TRAFRAME.						
Bit1: MD24920 \$NT_BASE_TOOL[n,1] is compensated via \$P_TRAFRAME.						
Bit2: MD24920 \$NT_BASE_TOOL[n,2] is compensated via \$P_TRAFRAME.						
This function is only available if the system frame \$P_TRAFRAME has been configured by bit 6 of MD28082 \$MC_MM_SYSTEM_FRAME_MASK.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Unit	Init value	Min			Max	
-	0	0			7	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_T_CHAIN_FIRST_ELEM [n]	First element of the kinematic chain to the tool				STRING	
Description:						
Name of an element in the kinematic description of the machine. The first link of a kinematic chain that leads to the tool is identified by this chain element. If this variable is not defined, the ROOT element of the chain is used for this purpose.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_P_CHAIN_FIRST_ELEM [n]	First element of the kinematic chain to the workpiece				STRING	
Description:						
>Name of an element in the kinematic description of the machine. The first link of a kinematic chain that leads to the workpiece zero is identified by this chain element. If this variable is not defined, the ROOT element of the chain is used for this purpose.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-

\$NT_P_CHAIN_FIRST_ELEM [n]	First element of the kinematic chain to the workpiece			STRING
Axis entry:				Overlap channel: channel-specific
Scan mode:	Not classified			Link: No restrictions

\$NT_BASE_TOOL [n,GEODIM]	Vector of base tool for TRANSMIT or TRACYL.			DOUBLE		
Description:						
Indicates a base offset of the tool zero for the active transformation. The offset is specified for the geometry axes valid for the active transformation. The base offset is included with and without selection of the tool length compensation. Programmed length corrections have an additive effect with respect to the base tool.						
The index i takes the values 0, 1, 2 for the 1st to 3rd geometry axes.						
This system variable is currently only used with TRANSMIT and TRACYL.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Index of the vector component					
Unit	Init value	Min	Max			
mm	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NT_ROT_AX_OFFSET [n,ORIDIM]	Position offset of a/the rotary axis for the active transformation			DOUBLE		
Description:						
This machine data indicates the angular offset of the rotary axis						
1/2/3 (TRAORI) or the rotary axis 1 (TRACYL,TRANSMIT) in degrees for the active transformation of a channel.						
Index 1:	The maximum number of transformation datasets is set by the MD \$MN_MM_NUM_KIN_TRAFOS.					
Index 2:	Rotary axis index (maximum MD_MAXNUM_ROT_AXES_IN_ORI_TRAFO)					
Unit	Init value	Min	Max			
deg.	0.0	-1.8E+308	1.8E+308			
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	1	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.29 Protection area elements

\$NP_PROT_NAME [n]		Name of protection area			STRING	
Description: Name of protection area n.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_CHAIN_ELEM [n]		Assignment to a kinematic chain element			STRING	
Description: This system variable states which kinematic chain element (\$NK_NAME[.]) is assigned to the current protection area.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_PROT_TYPE [n]		Type of protection area			STRING	
Description: Type of protection area. The following values are permitted: "MACHINE" "TOOL" "WORKPIECE" "FIXTURE"						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_1ST_PROT [n]		Name of first element of a protection area			STRING	
Description:						
Name of first element of a protection area.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_PROT_COLOR [n]		Color of the protection area.			INT	
Description:						
Data for visualizing a protection area element.						
The 3 low-value bytes contain the color information in RGB format, the highest byte contains the information for the alpha channel (transparency).						
This data is only active for a protection area element that is part of the protection area for which this data is defined if a separate color parameter has not been defined for it (see system data \$NP_COLOR), this means that the color definition for a protection area element has priority over the color definition of a protection area.						
The default value is 0 (black, transparent).						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_PROT_D_LEVEL [n]		Detailing level of a protection area			INT	
Description:						
Data for visualizing a protection area.						
This data contains an integer value which defines when the relevant protection area is to be displayed in the successive generations of the display.						
This data is only active for a protection area element that is part of the protection area for which this data is defined if a separate D-level parameter has not been defined for it (see system data \$NP_D_LEVEL), this means that the D-level definition for a protection area element has priority over the D-level definition of a protection area.						
The default value is 0.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min			Max	
-	0	0			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X

List of system variables

3.29 Protection area elements

\$NP_PROT_D_LEVEL [n]		Detailing level of a protection area			INT	
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_BIT_NO [n]		No. of interface bit for switchover activated / preactivated			INT	
Description: 64 bits are defined in the PLC interface through which protection areas can be activated once they have been preactivated with the command PROTA(1(,....)). The entry indicates which bit has been assigned to this protection area. The default value is -1, i.e. no interface bit has been assigned to this protection area.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min		Max		
-	-1	-1		63		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_INIT_STAT [n]		Default activation status of a protection area			UCHAR	
Description: Activation status of the protection area at first selection without indication of an activation status. This status is activated for defined protection areas also during runup of the control. The permitted values are: Activated ('A' or 'a'), Inactivated ('I' or 'i'), Preactivated ('P' or 'p'). Default value is 'I'.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min		Max		
-	'I'	0		255		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_INDEX [n,3]		Index for tool identifier			INT	
Description: This component is evaluated only if \$NP_PROT_TYPE[n] contains an automatically generated protection area named ("TOOL"). The indices then define the exact type of the automatically generated protection area.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 2:	Number of the index (0 <= i <= 2)					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						

\$NP_INDEX [n,3]		Index for tool identifier			INT	
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_NAME [n]		Name of protection zone element			STRING	
Description: Name of protection zone element.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEMENT.					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_NEXT [n]		Name of next protection zone element			STRING	
Description: Name of next protection zone element.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEMENT.					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_NEXTP [n]		Name of the next parallel protection area element			STRING	
Description: Name of another protection area element ("parallel" to \$NP_NEXT) that follows the current protection area element.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEMENT.					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X

List of system variables

3.29 Protection area elements

\$NP_NEXTP [n]		Name of the next parallel protection area element			STRING	
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_ADD [n]		Name of an additive protection zone			STRING	
Description: Name of protection element to be added to the current protection zone.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 3:	Max. string length					
Unit	Init value	Min		Max		
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_COLOR [n]		Color of the protection area element.			INT	
Description: Data for visualizing a protection area element. For the coding, see the system variable \$NP_PROT_COLOR. If the content of this data is 0, then the color is not defined. In this case, the protection area element is given the color defined for the protection area in which it is contained. The default value is 0 (color not defined).						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_D_LEVEL [n]		Detailing level of a protection area element			INT	
Description: Data for visualizing a protection area element. If the content of this data is 0, then the detailing level is not defined. In this case, the protection area element is given the detailing level defined for the protection area in which it is contained. The default value is 0.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min		Max		
-	0	0		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

\$NP_D_LEVEL [n]		Detailing level of a protection area element			INT	
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_USAGE [n]		Intended use of the protection area.			UCHAR	
Description:						
This system variable defines whether the protection area element is to be visualized ('V'), is to be included in the protection area monitoring ('C'), or both ('A').						
No distinction is made between upper and lower case letters.						
The default value is 'A'.						
Index 1:	The maximum number of protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min			Max	
-	'A'	0			255	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_TYPE [n]		Type of protection area element			STRING	
Description:						
Type of protection area element. The following types are possible:						
FRAME: An element of this type does not contain a body, it only defines a frame, which is active for the subsequent protection area definitions.						
1. BOX (L, W, H): Axis-parallel cuboid, symmetrically arranged around the zero point, with the dimensions L in the X direction, W in the Y direction and H in the Z direction, i.e. the corners of the cuboid are located at (+/-L/2, +/-W/2, +/-H/2).						
2. SPHERE (R): Sphere centered in the zero point with radius R.						
3. CYLINDER (H, R): Cylinder with radius R and height H, longitudinal axis parallel to Z axis. The center point of the cylinder lies at the zero point, i.e. the two limiting circular areas are parallel to the X-Y plane and are located at +/-H/2.						
4. FILE: Grid of triangular areas in STL format.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEMENT.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.29 Protection area elements

\$NP_FILENAME [n]		File name of a protection area element of the type "FILE"			STRING	
Description:						
This parameter is evaluated only if the protection area element is the type "File" (\$NP_TYPE[.] = "FILE"). In which case, it defines the name of the file containing the description of the protection area element.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_EL-EM.					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_PARA [n,3]		Parameters for describing the type			DOUBLE	
Description:						
Parameters for describing the protection area element. A maximum of 3 parameters are required for the types described under \$NP_TYPE.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_EL-EM.					
Index 2:	The maximum number of parameters is 3.					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_OFF [n,GEODIM]		Offset component			DOUBLE	
Description:						
Component i (0<=i<=2) of the offset vector of protection zone element n.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_EL-EM.					
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_DIR [n,GEODIM]		Direction of rotary axis			DOUBLE	
Description: Components of the rotary axis for a coordinate rotation of the protection area element n.						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 2:	The 2nd index designates the vector component i (0 <= i <= 2).					
Unit	Init value	Min			Max	
-	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_ANG [n]		Angle of a coordinate rotation in the protection area element n.			DOUBLE	
Description: Angle (in degrees) of a coordinate rotation in protection area element n						
Index 1:	The maximum number of items in protection areas is set by the MD \$MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Unit	Init value	Min			Max	
deg.	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$NP_COLL_PAIR [n,2,32]		Protection area pairs			STRING	
Description: Contains the names of two protection areas that can be monitored to prevent them colliding with each other.						
Index 1:	The maximum number of protection area pairs is derived from the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Index 2:	The two protection areas form a pair which can be monitored for collision					
Index 3:	Max. string length					
Unit	Init value	Min			Max	
-	""					
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	X
Write:	X	-	1	X	7	X
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.29 Protection area elements

\$NP_SAFETY_DIST [n]	Safety distance of a pair of protection areas				DOUBLE	
Description:						
Safety distance of a pair of protection areas. If the content of this data is 0.0, the global safety distance contained in \$MN_COLLISION_SAFETY_DIST is effective.						
Index 1:	The maximum number of protection area pairs is derived from the MD \$MN_MM_MAXNUM_3D_PROT_AREAS.					
Unit	Init value	Min			Max	
mm	0.0	0.0			FLT_MAX	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	1		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.30 Coordinate system-specific working area limitation

\$P_WORKAREA_CS_COORD_SYSTEM [n]	Coordinate system to which the working area limitation applies				INT	
Description: Coordinate system in which the group is to apply. The following values apply: Working area limitation in the WCS Working area limitation in the SZS						
Index 1:	Group of the coordinate system-specific working area limitation -1. The maximum value is determined by the MD \$MC_MM_NUM_WORKAREA_CS_GROUPS.					
Unit	Init value	Min		Max		
-	0	-2147483648		2147483647		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_WORKAREA_CS_PLUS_ENABLE [n,m]	Coordinate system-specific working area limitation plus valid				BOOL	
Description: TRUE: The coordinate system-specific working area limitation in the plus direction is valid for the stated axis of the stated group. (See \$P_WORKAREA_CS_LIMIT_PLUS[groupNo-1, ax])						
Index 1:	Group of the coordinate system-specific working area limitation -1. The maximum value is determined by the MD \$MC_MM_NUM_WORKAREA_CS_GROUPS.					
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:	GEO	CHAN	MACH	Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$P_WORKAREA_CS_MINUS_ENABLE [n,m]	Coordinate system-specific working area limitation minus valid				BOOL	
Description: TRUE: The coordinate system-specific working area limitation in the minus direction is valid for the stated axis of the stated group. (See \$P_WORKAREA_CS_LIMIT_MINUS[groupNo-1, ax])						
Index 1:	Group of the coordinate system-specific working area limitation -1. The maximum value is determined by the MD \$MC_MM_NUM_WORKAREA_CS_GROUPS.					
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min		Max		
-	FALSE	FALSE		TRUE		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC

List of system variables

3.30 Coordinate system-specific working area limitation

\$P_WORKAREA_CS_MINUS_ENABLE [n,m]		Coordinate system-specific working area limitation minus valid			BOOL	
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_WORKAREA_CS_LIMIT_PLUS [n,m]		Coordinate system-specific working area limitation positive			DOUBLE	
Description: The coordinate system-specific working area limitation in the plus direction for the stated axis of the stated group. This value is evaluated only if \$P_WORKAREA_CS_PLUS_ENABLE[groupNo-1, ax] = TRUE.						
Index 1:	Group of the coordinate system-specific working area limitation -1. The maximum value is determined by the MD \$MC_MM_NUM_WORKAREA_CS_GROUPS.					
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

\$P_WORKAREA_CS_LIMIT_MINUS [n,m]		Coordinate system-specific working area limitation negative			DOUBLE	
Description: The coordinate system-specific working area limitation in the minus direction for the stated axis of the stated group. This value is evaluated only if \$P_WORKAREA_CS_MINUS_ENABLE[groupNo-1, ax] = TRUE.						
Index 1:	Group of the coordinate system-specific working area limitation -1. The maximum value is determined by the MD \$MC_MM_NUM_WORKAREA_CS_GROUPS.					
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
Unit	Init value	Min			Max	
Linear / angular position	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:	GEO	CHAN	MACH		Overlap channel:	channel-specific
Scan mode:	Not classified			Link:	No restrictions	

3.31 Tool data ISO dialect milling

\$TC_ISO_H [n]		ISO2 tool length offset			DOUBLE	
Description:						
\$TC_ISO_H[n]						
Correction value memory for the geometry of the tool length compensation in ISO2 mode.						
Is available only if ISO2 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_ISO_HW [n]		ISO2 tool length wear			DOUBLE	
Description:						
\$TC_ISO_HW[n]						
Correction value memory for the wear of the tool length compensation in ISO2 mode.						
Is available only if ISO2 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

\$TC_ISO_D [n]		ISO2 tool radius offset			DOUBLE	
Description:						
\$TC_ISO_D[n]						
Correction value memory for the geometry of the tool radius in ISO2 mode.						
Is available only if ISO2 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety		NC-Variable	Safety
Read:	X	-	7		X	7
Write:	X	-	7		X	7
Axis entry:					Overlap channel:	channel-specific
Scan mode:	Not classified				Link:	No restrictions

3.31 Tool data ISO dialect milling

\$TC_ISO_DW [n]		ISO2 tool radius wear			DOUBLE	
Description:						
\$TC_ISO_DW[n]						
Correction value memory for the wear of the tool radius in ISO2 mode.						
Is available only if ISO2 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

3.32 Tool data ISO dialect turning

\$TC_ISO_L1 [n]		ISO3 tool length 1 offset			DOUBLE	
Description:						
\$TC_ISO_L1[n]						
Correction value memory for the geometry of tool length 1 in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_L1W [n]		ISO3 tool length 1 wear			DOUBLE	
Description:						
\$TC_ISO_L1W[n]						
Correction value memory for the wear of tool length 1 in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_L2 [n]		ISO3 tool length 2 offset			DOUBLE	
Description:						
\$TC_ISO_L2[n]						
Correction value memory for the geometry of tool length 2 in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

List of system variables

3.32 Tool data ISO dialect turning

\$TC_ISO_L2W [n]		ISO3 tool length 2 wear			DOUBLE	
Description: \$TC_ISO_L2W[n] Correction value memory for the wear of tool length 2 in ISO3 mode. Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_L3 [n]		ISO3 tool length 3 offset			DOUBLE	
Description: \$TC_ISO_L3[n] Correction value memory for the geometry of tool length 3 in ISO3 mode. Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_L3W [n]		ISO3 tool length 3 wear			DOUBLE	
Description: \$TC_ISO_L3W[n] Correction value memory for the wear of tool length 3 in ISO3 mode. Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min		Max		
mm	0.0	-1.8E+308		1.8E+308		
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_R [n]		ISO3 tool radius compensation			DOUBLE	
Description:						
\$TC_ISO_R[n]						
Correction value memory for the geometry of the tool radius in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_RW [n]		ISO3 tool radius wear			DOUBLE	
Description:						
\$TC_ISO_RW[n]						
Correction value memory for the wear of the tool radius in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
mm	0.0	-1.8E+308			1.8E+308	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

\$TC_ISO_Q [n]		ISO3 cutting edge position			INT	
Description:						
\$TC_ISO_Q[n]						
Cutting edge position in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
Unit	Init value	Min			Max	
-	0	-2147483648			2147483647	
Read/Write properties:						
	TP	SA	TP/SA safety	NC-Variable	Safety	OEM-CC
Read:	X	-	7	X	7	-
Write:	X	-	7	X	7	-
Axis entry:				Overlap channel:	channel-specific	
Scan mode:	Not classified			Link:	No restrictions	

Appendix A

A.1 List of abbreviations

Abbreviation	Derivation of the abbreviation	Meaning
ADI4	Analog Drive Interface for 4 Axis	
AC	Adaptive Control	
ALM	Active Line Module	Infeed module for drives
AP	User program	
AS	Automation system	
ASCII	American Standard Code for Information Interchange	American coding standard for the exchange of information
ASIC	Application Specific Integrated Circuit	User switching circuit
ASUP	Asynchronous subprogram	
AUTO		Operating mode "Automatic"
AUXFU	Auxiliary Function	Auxiliary functions
STL	Statement list	
BA	Operating mode	
Mode group	Mode group	
BERO	Proximity limit switch with feedback oscillator	
BI	Binector Input	
HHU	Handheld unit	
BICO	Binector Connector	Interconnection technology for the drive
BIN	Binary Files	Binary files
BIOS	Basic Input Output System	
BCS	Basic coordinate system	
BO	Binector Output	
OPI	Operator Panel Interface	
CAD	Computer-Aided Design	
CAM	Computer-Aided Manufacturing	
CC	Compile Cycle	Compile cycles
CI	Connector Input	
CF-Card	Compact Flash-Card	
CNC	Computerized Numerical Control	Computerized numerical control
CO	Connector Output	
COM Board	Communication Board	
CP	Communication Processor	
CPU	Central Processing Unit	Central processing unit
CR	Carriage Return	
CRC	Cyclic Redundancy Check	Checksum test
CRT	Cathode Ray Tube	Picture tube

Appendix A

A.1 List of abbreviations

Abbreviation	Derivation of the abbreviation	Meaning
CSB	Central Service Board	PLC module
CTS	Clear To Send	Signals that data is ready to be sent for serial data interfaces
CUTCOM	Cutter Radius Compensation	Tool radius compensation
DB	Data block	Data block in the PLC
DBB	Data-block byte	Data block-byte in the PLC
DBW	Data-block word	Data-block word in the PLC
DBX	Data-block bit	Data-block bit in the PLC
DDE	Dynamic Data Exchange	Dynamic data exchange
DDS	Drive Data Set	Drive data set
DIN	Deutsche Industrie Norm (German Industry Standard)	
DIR	Directory	Directory
DLL	Dynamic Link Library	
DO	Drive Object	Drive object
DPM	Dual Port Memory	
DRAM	Dynamic Random Access Memory	Dynamic memory block
DRF	Differential Resolver Function	Differential resolver function (handwheel)
DRIVE-CLiQ	Drive Component Link with IQ	
DRY	Dry Run	DRY run feedrate
DSB	Decoding Single Block	Decoding single block
DSC	Dynamic Servo Control / Dynamic Stiffness Control	
DSR	Data Send Ready	Signals the availability of serial data interfaces
DW	Data word	
DWORD	Double word (currently 32 bits)	
I	Input	
I/O	Input/Output	
ENC	Encoder	Actual value encoder
EPROM	Erasable Programmable Read Only Memory	Erasable, electronically programmable read-only memory
EQN		Type designation for an absolute encoder with 2048 sine signals per revolution
ESR	Extended stop and retract	
ETC	ETC key	Expansion of the softkey bar in the same menu
FB	Function block	
FBS	Flat screen	
FC	Function Call	Function block in the PLC
FDD	Feed Disable	Feed disable
FdStop	Feed Stop	Feed stop
FEPROM	Flash-EPROM	Read and write memory
FIFO	First In - First Out	Method of storing and retrieving data in a memory
FIPO	Fine interpolator	
FM	Function Module	

Abbreviation	Derivation of the abbreviation	Meaning
FM-NC	Function Module Numerical Control	Numerical control
FPU	Floating Point Unit	Floating-point unit
FRA	Frame block	
FRAME	Data set	Coordinate conversion with the components work off-set, rotation, scaling, mirroring
CRC	Cutter radius compensation	
FST	Feed Stop	Feed stop
CSF	Control system flowchart (PLC programming method)	
FW	Firmware	
GC	Global Control	PROFIBUS: Broadcast telegram
GD	Global data	
GEO	Geometry, e.g. geometry axis	
GP	Basic program	
GS	Gear stage	
GUD	Global User Data	Global user data
HD	Hard Disk	Hard disk
HEX	Abbreviation for hexadecimal number	
AuxF	Auxiliary function	
HMI	Human Machine Interface	SINUMERIK user interface
MSD	Main spindle drive	
HT	Handheld Terminal	Handheld unit
HW	Hardware	
COMM	Commissioning	
IF	Drive module pulse enable	
IK (GD)	Implicit communication (global data)	
IKA	Interpolative Compensation	Interpolatory compensation
IM	Interface Modul	Interface module
INC	Increment	Increment
INI	Initializing Data	Initializing data
IGBT	Insulated Gate Bipolar Transistor	
IPO	Interpolator	
ISO	International Organization for Standardization	International Organization for Standardization
JOG	"Jogging" operating mode	
KD	Coordinate rotation	
KDV	Crosswise data comparison	Crosswise data comparison between the NC and PLC
K_v	Servo-gain factor	Gain factor of control loop
LAD	Ladder diagram	PLC programming method
LCD	Liquid Crystal Display	Liquid crystal display
LED	Light Emitting Diode	Light emitting diode
LF	Line Feed	
LMS		Position measuring system
LSB	Least Significant Bit	Least significant bit

Appendix A

A.1 List of abbreviations

Abbreviation	Derivation of the abbreviation	Meaning
LUD	Local User Data	User data
MAC	Media Access Control	
MAIN	Main program	Main program (OB1, PLC)
MB	Megabyte	
MCI	Motion Control Interface	
MCIS	Motion Control Information System	
MCP	Machine Control Panel	Machine control panel
MD	Machine data	
MDI	"Manual Data Automatic" operating mode	Manual input
MCS	Machine coordinate system	
MPF	Main Program File	Main program (NC part program)
MPI	Multi Point Interface	Multi-point interface
NC	Numerical Control	Numerical control
NCK	Numerical Control Kernel	Numerical control kernel
NCSD	NC Start Disable	NC start disable
NCU	Numerical Control Unit	NC hardware unit
IF	Interfaces	Interface signal
WO	Zero offset	
NX	Numerical Extension	Axis expansion module
OB	Organization block in the PLC	
OEM	Original Equipment Manufacturer	
OP	Operation Panel	Operator panel
OPI	Operation Panel Interface	Interface for connection to the operator panel
OSI	Open Systems Interconnection	Standard for computer communications
OPT	Options	Options
PIQ	Process Image Output	
PII	Process Image Input	
P bus	Peripheral bus	
PC	Personal Computer	
PCMCIA	Personal Computer Memory Card International Association	Standard for plug-in memory cards
PCU	Programmable Control Unit	
PI	Programm Instanz	
PG	Programming device	
PLC	Programmable Logic Control	Programmable Logic Controller
PN	PROFINET	
PO	POWER ON	
POU	Program organization unit	Unit in the PLC user program
PPU	Panel Processing Unit	Panel-based control
PTP	Point to Point	Point-to-point
PZD	Process data for drives	
QEC	Quadrant Error Compensation	Quadrant error compensation
QEC	Quadrant error compensation	

Abbreviation	Derivation of the abbreviation	Meaning
RAM	Random Access Memory	Program memory that can be read and written to
REF POINT		Function "Reference point approach" in JOG mode
REPOS		Function "Repositioning" in JOG mode
RID	Read In Disable	Read-in disable
RPA	R-Parameter Active	Memory area on the NC for R parameter numbers
RPY	Roll Pitch Yaw	Rotation type of a coordinate system
RTC	Real Time Clock	Real-time clock
RTS	Request To Send	RTS, control signal of serial data interfaces
SBL	Single Block	Single block
SBR	Subroutine	Subroutine (PLC)
SBT	Safe Brake Test	Safe Brake Test
SCC	Safety Control Channel	
SD	Setting-Datum	
SDB	System data block	
SDI	Safe Direction	Safe Motion Direction
SBT	Safe Brake Test	Safe Brake Control
SEA	Setting Data Active	Identifier (file type) for setting data
SERUPRO	Search-Run by Program Test	Search run by program test
SFC	System Function Call	
SGE	Safety-related input	
SGA	Safety-related output	
SH	Safe Stop	
SIC	Safety Info Channel	
SK	Softkey	
SKP	Skip	Skip block
SLM	Smart Line Module	
SLP	Safe Limited Position	Safely-Limited Position
SLS	Safely Limited Speed	Safely-Limited Speed
SM	Stepper Motor	
SOS	Safe Operating Stop	Safe Operating Stop
SS1	Safe Stop 1	Safe Stop 1 (time-monitored, ramp-monitored)
SS2	Safe Stop 2	Safe Stop 2
SPF	Subprogram file	Subprogram (NC)
SPL	Safe Programmable Logic	
PLC	Programmable Logic Controller	
SRAM	Static Random Access Memory	Static memory block
TNRC	Tool nose radius compensation	
LEC	Leadscrew error compensation	
SSI	Serial synchronous interface	Serial synchronous interface
STO	Safe Torque Off	Safe Torque Off
STW	Control word	
GWPS	Grinding wheel peripheral speed	
SW	Software	

Appendix A

A.1 List of abbreviations

Abbreviation	Derivation of the abbreviation	Meaning
SYF	System Files	System files
SYNACT	SYNACT Synchronized Action	Synchronized action
TB	Terminal Board (SINAMICS)	
TEA	Testing Data Aktive	Identifier for machine data
TCP	Tool Center Point	Tool tip
TCU	Thin Client Unit	
TEA	Testing Data Active	Identifier for machine data
TM	Terminal Module (SINAMICS)	
TO	Tool Offset	Tool offset
TOA	Tool Offset Active	Identifier (file type) for tool offsets
TRANSMIT	Transform Milling into Turning	Coordinate conversion on turning machines for milling operations
TTL	Transistor–Transistor–Logik	Interface type
UFR	User Frame	Zero offset
SR	Subroutine	
USB	Universal Serial Bus	
UPS	Uninterruptible Power Supply	
VDI		Internal communication interface between NC and PLC
FDD	Feed drive	
VPM	Voltage Protection Module	
VSM	Voltage Sensing Module	
WAB		Function "Smooth Approach and Retraction"
WCS	Workpiece coordinate system	
T	Tool coordinate system:	
TLC	Tool length compensation	
WPD	Work Piece Directory	Workpiece directory
T	Tool	
TM	Tool management	
TC	Tool change	
ZWS		Buffer location
ZOA	Zero Offset Active	Identifier (file type) for zero offset data
ZSW	Status word (of drive)	

Index

\$

- \$A_CMDSI [SF_MAXNUM_CMD_MARKER], 764
- \$A_DAY, 94, 95
- \$A_DBB [MD_MAXNUM_VDI_VAR_DATA], 82
- \$A_DBD [MD_MAXNUM_VDI_VAR_DATA], 83
- \$A_DBR [MD_MAXNUM_VDI_VAR_DATA], 83
- \$A_DBSB [MD_MAXNUM_VDI_VAR_DATA], 157
- \$A_DBSW [MD_MAXNUM_VDI_VAR_DATA], 158
- \$A_DBW [MD_MAXNUM_VDI_VAR_DATA], 82
- \$A_DLB [n], 83, 84
- \$A_DLD [n], 84
- \$A_DLR [n], 84, 85
- \$A_DLW [n], 84
- \$A_DP_IN_CONF, 603
- \$A_DP_IN_LENGTH [32], 603
- \$A_DP_IN_STATE [32], 601, 602
- \$A_DP_IN_VALID, 601
- \$A_DP_OUT_CONF, 603
- \$A_DP_OUT_LENGTH [32], 604
- \$A_DP_OUT_STATE [32], 602
- \$A_DP_OUT_VALID, 602
- \$A_DPB_IN [32,128], 601
- \$A_DPB_OUT [32,128], 605
- \$A_DPR_IN [32,128], 606
- \$A_DPR_OUT [32,128], 604, 605
- \$A_DPSB_IN [32,128], 600
- \$A_DPSB_OUT [32,128], 607
- \$A_DPSD_IN [32,128], 607
- \$A_DPSD_OUT [32,128], 608
- \$A_DPSW_IN [32,128], 606
- \$A_DPSW_OUT [32,128], 608
- \$A_DPW_IN [32,128], 604
- \$A_DPW_OUT [32,128], 605
- \$A_FRDP_ACK_REQ
[SF_MAXNUM_FSEND DP_DRIVER], 770
- \$A_FRDP_DIAG
[SF_MAXNUM_FREQVDP_DRIVER], 771
- \$A_FRDP_ERR_REAC
[SF_MAXNUM_FREQVDP_DRIVER], 769
- \$A_FRDP_ERROR
[SF_MAXNUM_FREQVDP_DRIVER], 769
- \$A_FRDP_SENDMODE
[SF_MAXNUM_FREQVDP_DRIVER], 771
- \$A_FRDP_SUBS
[SF_MAXNUM_FREQVDP_DRIVER], 768
- \$A_FRDP_SUBS_ON
[SF_MAXNUM_FSEND DP_DRIVER], 770
- \$A_FSDP_DIAG
[SF_MAXNUM_FSEND DP_DRIVER], 768
- \$A_FSDP_ERR_REAC
[SF_MAXNUM_FSEND DP_DRIVER], 766
- \$A_FSDP_ERROR
[SF_MAXNUM_FSEND DP_DRIVER], 767
- \$A_FSDP_SUBS_ON
[SF_MAXNUM_FSEND DP_DRIVER], 767
- \$A_GG [61], 48
- \$A_HOUR, 95
- \$A_IN [n], 80
- \$A_INA [n], 81
- \$A_INCO [2], 81, 82
- \$A_INSE [SF_MAXNUM_DIG_EXT_INBITS], 755
- \$A_INSED
[SF_MAXNUM_DIG_EXT_INWORDS], 755, 756
- \$A_INSEP [SF_MAXNUM_DIG_EXT_INBITS], 756
- \$A_INSEPD
[SF_MAXNUM_DIG_EXT_INWORDS], 756
- \$A_INSI [SF_MAXNUM_DIG_INT_INBITS], 758
- \$A_INSID
[SF_MAXNUM_DIG_INT_INWORDS], 759
- \$A_INSIP [SF_MAXNUM_DIG_INT_INBITS], 759
- \$A_INSIPD
[SF_MAXNUM_DIG_INT_INWORDS], 759, 760
- \$A_LEVELSID, 765
- \$A_LINK_TRANS_RATE, 85
- \$A_MARKERSI [SF_MAXNUM_MARKER], 761, 762
- \$A_MARKERSID
[SF_MAXNUM_MARKER_WORDS], 762
- \$A_MARKERSIP [SF_MAXNUM_MARKER], 762
- \$A_MARKERSIPD
[SF_MAXNUM_MARKER_WORDS], 763
- \$A_MINUTE, 95
- \$A_MONIFACT, 35, 36
- \$A_MONTH, 94
- \$A_MSECOND, 96
- \$A_MYMLN [32000], 35
- \$A_MYMN [32000], 35
- \$A_MYMTLN [32000], 209
- \$A_MYMTN [32000], 208
- \$A_OUT [n], 81
- \$A_OUTA [n], 81
- \$A_OUTSE
[SF_MAXNUM_DIG_EXT_OUTBITS], 757
- \$A_OUTSED
[SF_MAXNUM_DIG_EXT_OUTWORDS], 757
- \$A_OUTSEP
[SF_MAXNUM_DIG_EXT_OUTBITS], 757, 758

\$AA_CURR [31], 661
\$AA_DELT [31], 656
\$AA_DEPAXO [31], 712
\$AA_DESVAL_FILTERS_SELECT [31], 752
\$AA_DIAM_STAT [31], 697
\$AA_DTBB [31], 653
\$AA_DTBREB [31], 715
\$AA_DTBREB_CMD [31], 715
\$AA_DTBREB_CORR [31], 715
\$AA_DTBREB_DEP [31], 716
\$AA_DTBREM [31], 716
\$AA_DTBREM_CMD [31], 716
\$AA_DTBREM_CORR [31], 717
\$AA_DTBREM_DEP [31], 717
\$AA_DTBW [31], 653
\$AA_DTEB [31], 654
\$AA_DTEPB [31], 655
\$AA_DTEPW [31], 654
\$AA_DTEW [31], 654
\$AA_DTSB [31], 692
\$AA_DTSW [31], 691, 692
\$AA_EG_ACTIVE [31,31], 722, 723
\$AA_EG_AX [31,31], 671
\$AA_EG_DENOM [31,31], 722
\$AA_EG_NUM_LA [31], 670
\$AA_EG_NUMERA [31,31], 721
\$AA_EG_SYN [31,31], 722
\$AA_EG_SYNFA [31], 669
\$AA_EG_TYPE [31,31], 721
\$AA_ENC_ACTIVE [31], 637
\$AA_ENC_COMP [n,m], 552
\$AA_ENC_COMP_IS_MODULO [n,31], 553
\$AA_ENC_COMP_MAX [n,31], 553
\$AA_ENC_COMP_MIN [n,31], 552, 553
\$AA_ENC_COMP_STEP [n,31], 552
\$AA_ENC1_ACTIVE [31], 638
\$AA_ENC2_ACTIVE [31], 638
\$AA_ESR_ENABLE [31], 679
\$AA_ESR_STAT [31], 679
\$AA_ESR_TRIGGER [31], 679
\$AA_ETRANS [31], 644
\$AA_FGREF [31], 740
\$AA_FGROUP [31], 740
\$AA_FIX_POINT_SELECTED [31], 713
\$AA_FOC [31], 668
\$AA_FXS [31], 666, 667
\$AA_IB [31], 636
\$AA_IB_CORR [31], 691
\$AA_IBC [31], 737
\$AA_IBN [31], 636
\$AA_IBN_CORR [31], 690
\$AA_IEN [31], 635, 636
\$AA_IEN_CORR [31], 690
\$AA_IM [31], 636
\$AA_IN_SYNC [31], 674
\$AA_INPOS_STAT [31], 694
\$AA_IPO_NC_CHANAX [31], 743, 744
\$AA_ITR [31,4], 737
\$AA_IW [31], 635
\$AA_IW_CORR [31], 690
\$AA_JERK_COUNT [31], 685
\$AA_JERK_TIME [31], 685
\$AA_JERK_TOT [31], 685
\$AA_JERKLIMA [31], 677, 678
\$AA_JOG_POS_ACT [31], 720
\$AA_JOG_POS_SELECTED [31], 719, 720
\$AA_LEAD_P [31], 673
\$AA_LEAD_P_TURN [31], 672
\$AA_LEAD_SP [31], 671
\$AA_LEAD_SV [31], 672
\$AA_LEAD_V [31], 673
\$AA_LOAD [31], 659
\$AA_LOAD_SMOOTH [31], 749
\$AA_MACHAX [31], 743
\$AA_MASL_DEF [31], 743
\$AA_MASL_STAT [31], 665
\$AA_MEAACT [31], 643
\$AA_MEAS_P1_VALID [31], 644, 645
\$AA_MEAS_P2_VALID [31], 645
\$AA_MEAS_P3_VALID [31], 645
\$AA_MEAS_P4_VALID [31], 646
\$AA_MEAS_POINT1 [31], 646
\$AA_MEAS_POINT2 [31], 647
\$AA_MEAS_POINT3 [31], 647
\$AA_MEAS_POINT4 [31], 648
\$AA_MEAS_SETANGLE [31], 649
\$AA_MEAS_SETPOINT [31], 648, 649
\$AA_MEAS_SP_VALID [31], 648
\$AA_MM [31], 640
\$AA_MM1 [31], 642
\$AA_MM2 [31], 642
\$AA_MM3 [31], 642
\$AA_MM4 [31], 643
\$AA_MOTEND [31], 678
\$AA_MW [31], 640
\$AA_MW1 [31], 640
\$AA_MW2 [31], 641
\$AA_MW3 [31], 641
\$AA_MW4 [31], 641
\$AA_OFF [31], 649
\$AA_OFF_LIMIT [31], 650
\$AA_OFF_VAL [31], 650
\$AA_ON_FIX_POINT [31], 713
\$AA_OSCILL_BREAK_POS1 [31], 688

\$AA_OSCILL_BREAK_POS2 [31], 689
\$AA_OSCILL_REVERSE_POS1 [31], 655
\$AA_OSCILL_REVERSE_POS2 [31], 655
\$AA_OVR [31], 656, 657
\$AA_PCS_REL [31], 720
\$AA_PLC_OVR [31], 657
\$AA_POLFA [31], 680
\$AA_POLFA_VALID [31], 680
\$AA_POSRES [31], 747
\$AA_POWER [31], 660
\$AA_POWER_SMOOTH [31], 750
\$AA_PROG_INDEX_AX_POS_NO [31], 637
\$AA_REF [31], 664
\$AA_REPOS_DELAY [31], 635
\$AA_S [1], 106
\$AA_SCC_STAT [31], 698
\$AA_SCPAR [31], 678
\$AA_SNGLAX_STAT [31], 664
\$AA_SOFTENDN [31], 653
\$AA_SOFTENDP [31], 652, 653
\$AA_SPEED_OVR [31], 753
\$AA_STAT [31], 663, 664
\$AA_SYNC [31], 673, 674
\$AA_SYNCDIFF [31], 687
\$AA_SYNCDIFF_STAT [31], 688
\$AA_TOFF [31], 651
\$AA_TOFF_LIMIT [31], 652
\$AA_TOFF_PREP_DIFF [31], 652
\$AA_TOFF_VAL [31], 651
\$AA_TORQUE [31], 660
\$AA_TOTAL_OVR [31], 657
\$AA_TRAVEL_COUNT [31], 683, 684
\$AA_TRAVEL_COUNT_HS [31], 684, 685
\$AA_TRAVEL_DIST [31], 683
\$AA_TRAVEL_DIST_HS [31], 684
\$AA_TRAVEL_TIME [31], 683
\$AA_TRAVEL_TIME_HS [31], 684
\$AA_TYP [31], 665
\$AA_TYPE [31], 691
\$AA_VACTB [31], 658
\$AA_VACTM [31], 658
\$AA_VACTW [31], 658
\$AA_VC [31], 657, 658
\$AA_VELOLIMA [31], 677
\$AC_ACT_ORI_TOOL_LENGTH [3], 248
\$AC_ACT_PROG_NET_TIME, 179
\$AC_ACT_TOOL_LENGTH_INDEX [n], 239, 240
\$AC_ACTUAL_PARTS, 123
\$AC_ALARM_STAT, 119
\$AC_ASUP, 68, 69
\$AC_AUTO_JOG_STATE, 160, 161
\$AC_AUXFU_EXT [168], 197
\$AC_AUXFU_M_EXT [168], 162
\$AC_AUXFU_M_STATE [168], 162
\$AC_AUXFU_M_TICK [168], 170
\$AC_AUXFU_M_VALUE [168], 161, 162
\$AC_AUXFU_PREDEF_INDEX [168], 200
\$AC_AUXFU_SPEC [168], 200, 201
\$AC_AUXFU_STATE [168], 198
\$AC_AUXFU_TICK [168,2], 199
\$AC_AUXFU_TYPE [168], 199
\$AC_AUXFU_VALUE [168], 198
\$AC_AXCTSWA [31], 682
\$AC_BLOCK_PROGINFO, 212, 213
\$AC_BLOCKTYPE, 58
\$AC_BLOCKTYPEINFO, 59, 60
\$AC_COLLPOS, 218, 219
\$AC_CONE_ANGLE, 170, 171
\$AC_CONSTCUT_S [n], 107
\$AC_CTOL, 196
\$AC_CUT_INV, 175
\$AC_CUTMOD, 176
\$AC_CUTMOD_ANG, 176, 177
\$AC_CUTMODK, 217
\$AC_CUTMODKA, 236, 237
\$AC_CUTTING_TIME, 121
\$AC_CYCLE_TIME, 120, 121
\$AC_DELAYFST, 52
\$AC_DELT, 101, 102
\$AC_DRF [31], 643
\$AC_DTBB, 100
\$AC_DTBW, 99
\$AC_DTEB, 101
\$AC_DTEW, 100
\$AC_ESR_TRIGGER, 119
\$AC_F, 102
\$AC_F_G0, 103
\$AC_F_TYPE, 202
\$AC_FCT0 [n], 117
\$AC_FCT1 [n], 118
\$AC_FCT1C [4], 116
\$AC_FCT1LL, 114
\$AC_FCT1UL, 115
\$AC_FCT2 [n], 118
\$AC_FCT2C [4], 116
\$AC_FCT2LL, 114
\$AC_FCT2UL, 115
\$AC_FCT3 [n], 118
\$AC_FCT3C [4], 116
\$AC_FCT3LL, 115
\$AC_FCT3UL, 115, 116
\$AC_FCTLL [n], 117
\$AC_FCTUL [n], 117
\$AC_FGROUP_MASK, 197

\$AC_FIFO [n,m], 161
 \$AC_FIFO1 [n], 71
 \$AC_FIFO10 [n], 80
 \$AC_FIFO2 [n], 72
 \$AC_FIFO3 [n], 73
 \$AC_FIFO4 [n], 74
 \$AC_FIFO5 [n], 75
 \$AC_FIFO6 [n], 76
 \$AC_FIFO7 [n], 77
 \$AC_FIFO8 [n], 78
 \$AC_FIFO9 [n], 79
 \$AC_FZ, 202
 \$AC_G0MODE, 124
 \$AC_IN_KEY_G [8], 241
 \$AC_IN_KEY_G_ENABLE [8], 242
 \$AC_IN_KEY_G_IENABLE [8], 241, 242
 \$AC_IN_KEY_G_RUN_IN [8], 242
 \$AC_IN_KEY_G_RUN_OUT [8], 242
 \$AC_IPO_BUF, 58
 \$AC_IPO_BUFLA, 243
 \$AC_IPO_STATE, 195, 196
 \$AC_IW_STAT, 61, 62
 \$AC_IW_TU, 62
 \$AC_JOG_CIRCLE_SELECTED, 183
 \$AC_JOG_COORD, 62, 63
 \$AC_LIFTFAST, 66
 \$AC_M_TOOL_LENGTH_INDEX [n], 237, 238
 \$AC_MARKER [n], 17
 \$AC_MEA [2], 63
 \$AC_MEAS_ACT_PLANE, 128
 \$AC_MEAS_CHBFR, 131, 132
 \$AC_MEAS_CHSFR, 131
 \$AC_MEAS_CORNER_ANGLE, 136
 \$AC_MEAS_CORNER_SETANGLE, 127, 128
 \$AC_MEAS_D_NUMBER, 133, 134
 \$AC_MEAS_DIAMETER, 136, 137
 \$AC_MEAS_DIR_APPROACH, 128
 \$AC_MEAS_FINE_TRANS, 129
 \$AC_MEAS_FRAME, 136
 \$AC_MEAS_FRAME_SELECT, 130
 \$AC_MEAS_GFR, 240
 \$AC_MEAS_INPUT [10], 157
 \$AC_MEAS_LATCH [4], 125
 \$AC_MEAS_NCBFR, 131
 \$AC_MEAS_ORIWKS, 248
 \$AC_MEAS_P1_COORD, 125
 \$AC_MEAS_P2_COORD, 126
 \$AC_MEAS_P3_COORD, 126
 \$AC_MEAS_P4_COORD, 126, 127
 \$AC_MEAS_PFRAME, 132
 \$AC_MEAS_RESULTS [10], 137
 \$AC_MEAS_SCALEUNIT, 137, 138
 \$AC_MEAS_SEMA, 124
 \$AC_MEAS_SET_COORD, 127
 \$AC_MEAS_T_NUMBER, 132, 133
 \$AC_MEAS_TOOL_LENGTH, 137
 \$AC_MEAS_TOOL_MASK, 133
 \$AC_MEAS_TYPE, 134
 \$AC_MEAS_UIFR, 132
 \$AC_MEAS_VALID, 135
 \$AC_MEAS_WP_ANGLE, 136
 \$AC_MEAS_WP_SETANGLE, 127
 \$AC_MONMIN, 44, 45
 \$AC_MSNUM, 113
 \$AC_MTHNUM, 113, 114
 \$AC_OFF_LEAD, 232
 \$AC_OFF_O [3], 231, 232
 \$AC_OFF_O_ANGLE, 251
 \$AC_OFF_O_DIR [3], 250
 \$AC_OFF_ORI_LIMIT [2], 233, 234
 \$AC_OFF_R [3], 232
 \$AC_OFF_R_ANGLE, 251
 \$AC_OFF_R_DIR [3], 251
 \$AC_OFF_THETA, 233
 \$AC_OFF_TILT, 233
 \$AC_OLD_PROG_NET_TIME, 179
 \$AC_OLD_PROG_NET_TIME_COUNT, 180
 \$AC_OPERATING_TIME, 120
 \$AC_OTOL, 196
 \$AC_OVR, 103
 \$AC_PARAM [n], 17, 18
 \$AC_PATHACC, 104, 105
 \$AC_PATHJERK, 105
 \$AC_PATHN, 99
 \$AC_PLC_OVR, 103
 \$AC_PLTBB, 101
 \$AC_PLTEB, 101
 \$AC_PREP_ACT_LOAD, 194
 \$AC_PREP_ACT_LOAD_GROSS, 194, 195
 \$AC_PREP_MAX_LOAD, 194
 \$AC_PREP_MAX_LOAD_GROSS, 195
 \$AC_PREP_MIN_LOAD, 194
 \$AC_PREP_MIN_LOAD_GROSS, 195
 \$AC_PRESET [31], 644
 \$AC_PROG, 57
 \$AC_PROG_NET_TIME_TRIGGER, 180
 \$AC_PROGINF, 256
 \$AC_PRTIME_A, 98
 \$AC_PRTIME_A_INC, 99
 \$AC_PRTIME_B, 211
 \$AC_PRTIME_M, 98
 \$AC_PRTIME_M_INC, 98
 \$AC_REPOS_PATH_MODE, 100
 \$AC_REQUIRED_PARTS, 122

\$AC_RETPOINT [31], 650, 651
\$AC_ROT_SYS, 63
\$AC_RPVALID [31], 686
\$AC_S_TYPE [1], 203, 204
\$AC_SAFE_SYNA_MEM, 178
\$AC_SDIR [n], 108
\$AC_SERUPRO, 138
\$AC_SGEAR [n], 110
\$AC_SIM_MODE, 218
\$AC_SIM_TIME_BLOCK, 218
\$AC_SIM_TIME_STEP, 217
\$AC_SMAXACC [n], 190
\$AC_SMAXACC_INFO [n], 191
\$AC_SMAXVELO [n], 187
\$AC_SMAXVELO_INFO [n], 188
\$AC_SMINVELO [n], 189
\$AC_SMINVELO_INFO [n], 189
\$AC_SMODE [n], 109
\$AC_SPECIAL_PARTS, 123
\$AC_SPIND_STATE [n], 192
\$AC_SPLITBLOCK, 60
\$AC_STAT, 57
\$AC_STOLF, 211
\$AC_STOP_COND [10], 184
\$AC_SVC [1], 203
\$AC_SYNA_MEM, 57, 58
\$AC_SYNA_STATE [1399], 247
\$AC_SYNC_ACT_LOAD, 61
\$AC_SYNC_AVERAGE_LOAD, 61
\$AC_SYNC_MAX_LOAD, 61
\$AC_SYSTEM_MARKER [n], 17
\$AC_SYSTEM_PARAM [n], 18
\$AC_T_TOOL_LENGTH_INDEX [n], 238, 239
\$AC_TANEB, 60
\$AC_TC, 30
\$AC_TC_ACKC, 89
\$AC_TC_ACKT, 88
\$AC_TC_CMDC, 89
\$AC_TC_CMDT, 88
\$AC_TC_FCT, 89
\$AC_TC_LFN, 92
\$AC_TC_LFO, 93
\$AC_TC_LMYN, 91
\$AC_TC_LTN, 92
\$AC_TC_LTO, 94
\$AC_TC_MFN, 91
\$AC_TC_MFO, 93
\$AC_TC_MMYN, 91
\$AC_TC_MTDIST, 210
\$AC_TC_MTLTN, 211
\$AC_TC_MTN, 92
\$AC_TC_MTNLOC, 210
\$AC_TC_MTO, 93
\$AC_TC_MTTN, 210
\$AC_TC_STATUS, 90
\$AC_TC_THNO, 90
\$AC_TC_TNO, 90
\$AC_TC_TOOLIS, 209
\$AC_THREAD_PITCH, 164
\$AC_THREAD_PITCH_ACT, 164, 165
\$AC_THREAD_PITCH_INC, 164
\$AC_TIME, 96
\$AC_TIMEC, 96, 97
\$AC_TIMER [1], 97
\$AC_TIMES, 96
\$AC_TIMESC, 97
\$AC_TOFF [n], 182
\$AC_TOFFCR, 257
\$AC_TOFFL [3], 181
\$AC_TOFFR, 183, 184
\$AC_TOOL_O_ACT [3,2], 223, 224
\$AC_TOOL_O_CORR [3,2], 234
\$AC_TOOL_O_CORR_ANGLE, 253, 254
\$AC_TOOL_O_CORR_DIR [3,2], 253
\$AC_TOOL_O_CORRD [3,2], 234, 235
\$AC_TOOL_O_DIFF [2], 224
\$AC_TOOL_O_END [3,2], 224
\$AC_TOOL_R_ACT [3,2], 226
\$AC_TOOL_R_CORR [3,2], 234
\$AC_TOOL_R_CORR_ANGLE, 254
\$AC_TOOL_R_CORR_DIR [3,2], 254
\$AC_TOOL_R_CORRD [3,2], 235
\$AC_TOOL_R_DIFF [2], 227
\$AC_TOOL_R_END [3,2], 226, 227
\$AC_TOOLO_ACT [3], 28
\$AC_TOOLO_DIFF, 29
\$AC_TOOLO_END [3], 29
\$AC_TOOLR_ACT [3], 165, 166
\$AC_TOOLR_DIFF, 166
\$AC_TOOLR_END [3], 166
\$AC_TOTAL_OVR, 104
\$AC_TOTAL_PARTS, 122
\$AC_TRAFO, 63, 64
\$AC_TRAFO_CHAIN [4], 156, 157
\$AC_TRAFO_CORR_ELEM_P [4,3], 243
\$AC_TRAFO_CORR_ELEM_T [4,3], 243, 244
\$AC_TRAFO_NAME, 222
\$AC_TRAFO_ORIAX_DIR_P [3,3], 244
\$AC_TRAFO_ORIAX_DIR_T [3,3], 244
\$AC_TRAFO_ORIAX_LOC [31], 245
\$AC_TRAFO_PAR [n], 64
\$AC_TRAFO_PARSET, 65
\$AC_TRAFO_SECTION_P [4,3], 245
\$AC_TRAFO_SECTION_T [4,3], 245, 246

\$AC_TRAFO_TYPE_NAME, 216
 \$AC_TRANS_SYS, 62
 \$AC_VACTB, 105
 \$AC_VACTBF, 138
 \$AC_VACTW, 105, 106
 \$AC_VACTWF, 139
 \$AC_VC, 104
 \$AC_WORKAREA_CS_COORD_SYSTEM, 172, 173
 \$AC_WORKAREA_CS_GROUP, 173
 \$AC_WORKAREA_CS_LIMIT_MINUS [n], 172
 \$AC_WORKAREA_CS_LIMIT_PLUS [n], 172
 \$AC_WORKAREA_CS_MINUS_ENABLE [n], 171, 172
 \$AC_WORKAREA_CS_PLUS_ENABLE [n], 171
 \$AN_ACTIVATE_COLL_CHECK [2], 620
 \$AN_AUXFU_LIST_CHANNO [1679], 613
 \$AN_AUXFU_LIST_ENDINDEX, 614
 \$AN_AUXFU_LIST_GROUPINDEX [1679], 613
 \$AN_AXCTAS [31], 681
 \$AN_AXCTSWA [31], 681
 \$AN_AXCTSWE [31], 614
 \$AN_CEC [n,m], 554
 \$AN_CEC_DIRECTION [n], 556
 \$AN_CEC_INPUT_AXIS [n], 554
 \$AN_CEC_INPUT_NCU [n], 554
 \$AN_CEC_IS_MODULO [n], 557
 \$AN_CEC_MAX [n], 556
 \$AN_CEC_MIN [n], 555, 556
 \$AN_CEC_MULT_BY_TABLE [n], 556, 557
 \$AN_CEC_OUTPUT_AXIS [n], 555
 \$AN_CEC_OUTPUT_NCU [n], 555
 \$AN_CEC_STEP [n], 555
 \$AN_CEC_TYPE [n], 557
 \$AN_COLL_CHECK_OFF, 620, 621
 \$AN_COLL_IPO_ACTIVE, 610
 \$AN_COLL_IPO_LIMIT, 611
 \$AN_COLL_LOAD [2], 611
 \$AN_COLL_MEM_AVAILABLE, 608, 609
 \$AN_COLL_MEM_USE_ACT, 610
 \$AN_COLL_MEM_USE_MAX, 609
 \$AN_COLL_MEM_USE_MIN, 609
 \$AN_COLL_PAIRS_ACT, 627
 \$AN_COLL_STATE [n], 610
 \$AN_COLL_STATE_COND [n], 623, 624
 \$AN_CUTRACE, 632
 \$AN_ESR_TRIGGER, 119
 \$AN_EXPORT_RESTRICTED, 617
 \$AN_FACETS_ACT, 624, 625
 \$AN_FACETS_AVAILABLE, 624
 \$AN_FACETS_INTERN_ACT, 626
 \$AN_FACETS_INTERN_AVAILABLE, 625
 \$AN_FACETS_INTERN_MAX, 626
 \$AN_FACETS_INTERN_MIN, 626
 \$AN_FACETS_MAX, 625
 \$AN_FACETS_MIN, 625
 \$AN_IPO_ACT_LOAD, 594
 \$AN_IPO_CHANAX [n], 616
 \$AN_IPO_LOAD_LIMIT, 594
 \$AN_IPO_LOAD_PERCENT, 595
 \$AN_IPO_MAX_LOAD, 594
 \$AN_IPO_MIN_LOAD, 594, 595
 \$AN_KIN_CHAIN_ELEM_ACT, 628
 \$AN_LAI_AX_IS_AXCTAX, 614, 615
 \$AN_LAI_AX_IS_LEADLINKAX, 615
 \$AN_LAI_AX_IS_LINKAX, 615
 \$AN_LAI_AX_TO_IPO_NC_CHANAX [31], 616
 \$AN_LAI_AX_TO_MACHAX [31], 615
 \$AN_LANGUAGE_ON_HMI, 616, 617
 \$AN_LINK_COMM_STATE, 624
 \$AN_LINK_CONN_RCV [16], 618
 \$AN_LINK_CONN_SIZE_LINKVAR, 618
 \$AN_LINK_CONN_SND [16], 617, 618
 \$AN_LINK_TRANS_RATE_LAST, 618, 619
 \$AN_LINK_TRANS_RATE_LAST_SUM [16], 619
 \$AN_NCK_VERSION, 593, 594
 \$AN_PERSDIAG [4,46], 599, 600
 \$AN_POWERON_STATE, 629
 \$AN_POWERON_TIME, 593
 \$AN_PREP_ACT_LOAD, 611
 \$AN_PREP_ACT_LOAD_GROSS, 612
 \$AN_PREP_MAX_LOAD, 611, 612
 \$AN_PREP_MAX_LOAD_GROSS, 612
 \$AN_PREP_MIN_LOAD, 612
 \$AN_PREP_MIN_LOAD_GROSS, 613
 \$AN_PROT_AREA_ELEM_ACT, 627
 \$AN_PROT_AREAS_ACT, 627
 \$AN_REBOOT_DELAY_TIME, 597
 \$AN_ROBIN [8], 628, 629
 \$AN_ROBOUT [8], 628
 \$AN_SERVO_ACT_LOAD, 596
 \$AN_SERVO_MAX_LOAD, 596
 \$AN_SERVO_MIN_LOAD, 596, 597
 \$AN_SETUP_TIME, 593
 \$AN_SIM_CHAN_MASK, 619, 620
 \$AN_SIM_MAX_IPOSTEP, 620
 \$AN_SLTRACE, 617
 \$AN_SYNC_ACT_LOAD, 595
 \$AN_SYNC_MAX_LOAD, 595
 \$AN_SYNC_TO_IPO, 596
 \$AN_T_PROT_ELEM_ACT, 628
 \$AN_TIMER [n], 597
 \$AN_VMODEL_STATUS, 600
 \$C_A, 564

\$C_A_PROG, 572
\$C_ALL_PROG, 584
\$C_AUX_EXT [1], 588, 589
\$C_AUX_IS_QUICK [1], 589
\$C_AUX_VALUE [1], 588
\$C_B, 564
\$C_B_PROG, 573
\$C_C, 564
\$C_C_PROG, 573
\$C_D, 564, 565
\$C_D_PROG, 573, 574
\$C_DL, 571
\$C_DL_PROG, 583
\$C_DUPLO, 590
\$C_DUPLO_PROG, 590
\$C_E, 565
\$C_E_PROG, 574
\$C_F, 565
\$C_F_PROG, 574
\$C_G, 565
\$C_G_PROG, 575
\$C_G60_PROG, 583
\$C_H, 566
\$C_H_PROG, 575
\$C_I [10], 566
\$C_I_NUM, 585
\$C_I_ORDER [10], 586
\$C_I_PROG, 575, 576
\$C_IN [16], 87
\$C_INC_PROG, 584, 585
\$C_ISOPRINT, 591
\$C_J [10], 566
\$C_J_NUM, 585, 586
\$C_J_ORDER [10], 587
\$C_J_PROG, 576
\$C_K [10], 567
\$C_K_NUM, 586
\$C_K_ORDER [10], 587
\$C_K_PROG, 576
\$C_L, 567
\$C_L_PROG, 577
\$C_M, 567
\$C_M_PROG, 577
\$C_MACPAR [33], 588
\$C_ME, 587
\$C_MTL, 591, 592
\$C_MTL_PROG, 591
\$C_N, 568
\$C_N_PROG, 577, 578
\$C_O, 568
\$C_O_PROG, 578
\$C_OUT [16], 88
\$C_P, 568
\$C_P_PROG, 578
\$C_PI, 572
\$C_PI_PROG, 583
\$C_Q, 568, 569
\$C_Q_PROG, 579
\$C_R, 569
\$C_R_PROG, 579
\$C_S, 569
\$C_S_PROG, 579, 580
\$C_T, 569
\$C_T_PROG, 580
\$C_T_VALUE, 589
\$C_TCA, 589, 590
\$C_TE, 588
\$C_THNO, 591
\$C_THNO_PROG, 590
\$C_TS, 572
\$C_TS_PROG, 584
\$C_TYP_PROG, 585
\$C_U, 570
\$C_U_PROG, 580
\$C_V, 570
\$C_V_PROG, 581
\$C_W, 570
\$C_W_PROG, 581
\$C_X, 570, 571
\$C_X_PROG, 581, 582
\$C_Y, 571
\$C_Y_PROG, 582
\$C_Z, 571
\$C_Z_PROG, 582
\$NK_A_OFF [n], 797
\$NK_AXIS [n], 796, 797
\$NK_NAME [n], 795
\$NK_NEXT [n], 795
\$NK_OFF_DIR [n,3], 796
\$NK_PARALLEL [n], 795
\$NK_SWITCH [n], 798
\$NK_SWITCH_INDEX [n], 797
\$NK_SWITCH_POS [n], 797, 798
\$NK_TYPE [n], 796
\$NP_1ST_PROT [n], 817
\$NP_ADD [n], 820
\$NP_ANG [n], 823
\$NP_BIT_NO [n], 818
\$NP_CHAIN_ELEM [n], 816
\$NP_COLL_PAIR [n,2,32], 823
\$NP_COLOR [n], 820
\$NP_D_LEVEL [n], 820, 821
\$NP_DIR [n,GEODIM], 823
\$NP_FILENAME [n], 822

\$NP_INDEX [n,3], 818, 819
 \$NP_INIT_STAT [n], 818
 \$NP_NAME [n], 819
 \$NP_NEXT [n], 819
 \$NP_NEXTP [n], 819, 820
 \$NP_OFF [n,GEODIM], 822
 \$NP_PARA [n,3], 822
 \$NP_PROT_COLOR [n], 817
 \$NP_PROT_D_LEVEL [n], 817, 818
 \$NP_PROT_NAME [n], 816
 \$NP_PROT_TYPE [n], 816
 \$NP_SAFETY_DIST [n], 824
 \$NP_T_ANG [n], 623
 \$NP_T_DIR [n,GEODIM], 622, 623
 \$NP_T_FILENAME [n], 622
 \$NP_T_NAME [n], 621
 \$NP_T_OFF [n,GEODIM], 622
 \$NP_T_PARA [n,3], 622
 \$NP_T_TYPE [n], 621
 \$NP_TYPE [n], 821
 \$NP_USAGE [n], 821
 \$NT_AUX_POS [n,3], 806
 \$NT_BASE_ORIENT [n,GEODIM], 803
 \$NT_BASE_ORIENT_NORMAL [n,GEODIM], 804
 \$NT_BASE_TOOL [n,GEODIM], 815
 \$NT_BASE_TOOL_COMP [n], 814
 \$NT_CLOSE_CHAIN_P [n], 810
 \$NT_CLOSE_CHAIN_T [n], 810
 \$NT_CNTRL [n], 809, 810
 \$NT_CORR_ELEM_P [n,4,32], 808
 \$NT_CORR_ELEM_T [n,4,32], 807
 \$NT_GEO_AX_NAME [n,GEODIM,32], 801
 \$NT_HIRTH_INC [n,ORIDIM], 802
 \$NT_HIRTH_OFF [n,ORIDIM], 802
 \$NT_IDENT [n,3], 807
 \$NT_IGNORE_TOOL_ORIENT [n], 805, 806
 \$NT_NAME [n], 799
 \$NT_OEM_PAR_D
 [n,MAX_OEMTRAFO_PAR_D], 813
 \$NT_OEM_PAR_I
 [n,MAX_OEMTRAFO_PAR_I], 812, 813
 \$NT_OEM_PAR_S
 [n,MAX_OEMTRAFO_PAR_S,32], 813
 \$NT_P_CHAIN_FIRST_ELEM [n], 814, 815
 \$NT_P_CHAIN_LAST_ELEM [n], 800
 \$NT_POLE_LIMIT [n], 804
 \$NT_POLE_SIDE_FIX [n], 811, 812
 \$NT_POLE_TOL [n], 805
 \$NT_ROT_AX_CNT [n,2], 812
 \$NT_ROT_AX_MAX [n,ORIDIM], 803
 \$NT_ROT_AX_MIN [n,ORIDIM], 803
 \$NT_ROT_AX_NAME [n,ORIDIM,32], 801
 \$NT_ROT_AX_OFFSET [n,ORIDIM], 815
 \$NT_ROT_AX_POS [n,3], 801, 802
 \$NT_ROT_OFFSET_FROM_FRAME [n], 805
 \$NT_T_CHAIN_FIRST_ELEM [n], 814
 \$NT_T_CHAIN_LAST_ELEM [n], 799, 800
 \$NT_T_REF_ELEM [n], 800
 \$NT_TRACON_CHAIN [n,4,32], 812
 \$NT_TRAFO_INCLUDES_TOOL [n], 806
 \$NT_TRAFO_INDEX [n], 811
 \$NT_TRAFO_TYPE [n], 799
 \$P_ACCESSLEVEL, 629, 630
 \$P_ACSFRAME, 174, 175
 \$P_ACT_TOOL_LENGTH_INDEX [n], 239
 \$P_ACTBFRAME, 22
 \$P_ACTFRAME, 23, 24
 \$P_ACTGEOAX [3], 47
 \$P_ACTID [16], 56, 57
 \$P_AD [36], 25
 \$P_ADT [36], 26
 \$P_AEP [31], 634
 \$P_AP, 46
 \$P_APDV, 102
 \$P_APR [31], 633, 634
 \$P_ATD [36,n], 220
 \$P_ATDT [36,n], 221
 \$P_ATPG [9], 45
 \$P_AXN1, 46
 \$P_AXN2, 46, 47
 \$P_AXN3, 47
 \$P_BFRAME, 22, 23
 \$P_BLOCKNO [INMAXFILESTACK], 160
 \$P_CHANNO, 138
 \$P_CHBFR [n], 259
 \$P_CHBFR0, 139
 \$P_CHBFR1, 139
 \$P_CHBFR10, 141, 142
 \$P_CHBFR11, 142
 \$P_CHBFR12, 142
 \$P_CHBFR13, 142
 \$P_CHBFR14, 143
 \$P_CHBFR15, 143
 \$P_CHBFR2, 139, 140
 \$P_CHBFR3, 140
 \$P_CHBFR4, 140
 \$P_CHBFR5, 140
 \$P_CHBFR6, 140, 141
 \$P_CHBFR7, 141
 \$P_CHBFR8, 141
 \$P_CHBFR9, 141
 \$P_CHBFRAME [n], 21, 22
 \$P_CHBFRAME0, 147, 148
 \$P_CHBFRAME1, 148

\$P_CHBFRAME10, 150
\$P_CHBFRAME11, 150
\$P_CHBFRAME12, 151
\$P_CHBFRAME13, 151
\$P_CHBFRAME14, 151
\$P_CHBFRAME15, 151, 152
\$P_CHBFRAME2, 148
\$P_CHBFRAME3, 148
\$P_CHBFRAME4, 148, 149
\$P_CHBFRAME5, 149
\$P_CHBFRAME6, 149
\$P_CHBFRAME7, 149
\$P_CHBFRAME8, 149, 150
\$P_CHBFRAME9, 150
\$P_CHBFRMASK, 24, 25
\$P_CHSFRMASK, 25
\$P_CONSTCUT_S [n], 106, 107
\$P_COUP_OFFS [31], 674
\$P_CTABDEF, 50
\$P_CTOL, 196
\$P_CUT_INV, 175
\$P_CUTMOD, 176
\$P_CUTMOD_ANG, 176
\$P_CUTMOD_ERR, 219
\$P_CUTMODK, 217
\$P_CUTMODKA, 236
\$P_CYCFR, 261
\$P_CYCFRAME, 21
\$P_D, 33, 34
\$P_D_BEFORE_SEARCH, 223
\$P_DELAYFST, 51
\$P_DIAM_STAT [31], 696, 697
\$P_DL_BEFORE_SEARCH, 223
\$P_DLNO, 26
\$P_DRYRUN, 53
\$P_EG_BC [31], 670
\$P_EP [31], 633
\$P_EPM [31], 633
\$P_EXTBUF [INMAXFILESTACK], 229
\$P_EXTFR, 260
\$P_EXTFRAME, 19
\$P_EXTGG [31], 48
\$P_EXTPATH [INMAXFILESTACK], 229
\$P_F, 102
\$P_F_TYPE, 202
\$P_FA [31], 656
\$P_FGROUP_MASK, 197
\$P_FIX_STAT, 214
\$P_FZ, 201
\$P_GFR [n], 264
\$P_GFRAME, 240, 241
\$P_GFRNUM, 241
\$P_GG [61], 47, 48
\$P_GWPS [31], 114
\$P_H, 34
\$P_IFRAME, 23
\$P_INCOAP_B [n], 184, 185
\$P_INCOAP_C [n], 185
\$P_INCOAP_I [n], 185
\$P_INCOAP_R [n], 185
\$P_INCOAP_S16 [n], 186
\$P_INCOAP_S160 [n], 186
\$P_INCOAP_S32 [n], 186
\$P_INCOAP_SIZE [n], 187
\$P_IPTRLOCK, 51
\$P_IS_EES_PATH [INMAXFILESTACK], 236
\$P_ISDRF, 255
\$P_ISO_STACK, 56
\$P_ISO1FR, 262
\$P_ISO1FRAME, 173
\$P_ISO2_DNO, 193
\$P_ISO2_HNO [n], 193
\$P_ISO2FR, 262
\$P_ISO2FRAME, 173, 174
\$P_ISO3_DNO, 193
\$P_ISO3FR, 262, 263
\$P_ISO3FRAME, 174
\$P_ISO4FR, 263
\$P_ISO4FRAME, 174
\$P_ISPROGSTOP, 255
\$P_ISRGO, 254, 255
\$P_ISSKIP, 255
\$P_ISTEST, 69, 70
\$P_LIFTFAST, 67
\$P_LINENO [INMAXFILESTACK], 160
\$P_M_TOOL_LENGTH_INDEX [n], 237
\$P_MAG [64], 38
\$P_MAGA [1500], 44
\$P_MAGDISL [32000,64], 40
\$P_MAGDISS [32000,64], 39
\$P_MAGHLT [32,32], 43
\$P_MAGN, 38
\$P_MAGNA, 43
\$P_MAGNA1, 257
\$P_MAGNA2, 257
\$P_MAGNDIS [32000,32000], 39
\$P_MAGNH, 42
\$P_MAGNHLT [32], 42, 43
\$P_MAGNREL [20], 41
\$P_MAGNS, 40
\$P_MAGREL [20,1500], 41, 42
\$P_MAGS [20], 41
\$P_MC, 52
\$P_MMCA, 70

\$P_MODEL_SCALING_OVL [65535], 630
 \$P_MSNUM, 112, 113
 \$P_MTHNUM, 113
 \$P_MTHNUM_BEFORE_SEARCH, 222, 223
 \$P_MTHSDC, 44
 \$P_MTOOLMT [1500], 207
 \$P_MTOOLN, 207
 \$P_MTOOLNT [32000], 207
 \$P_MTOOLT [32000,72], 208
 \$P_NCBFR [n], 263, 264
 \$P_NCBFR0, 143
 \$P_NCBFR1, 143, 144
 \$P_NCBFR10, 146
 \$P_NCBFR11, 146
 \$P_NCBFR12, 146
 \$P_NCBFR13, 147
 \$P_NCBFR14, 147
 \$P_NCBFR15, 147
 \$P_NCBFR2, 144
 \$P_NCBFR3, 144
 \$P_NCBFR4, 144
 \$P_NCBFR5, 144, 145
 \$P_NCBFR6, 145
 \$P_NCBFR7, 145
 \$P_NCBFR8, 145
 \$P_NCBFR9, 145, 146
 \$P_NCBFRAME [n], 22
 \$P_NCBFRAME0, 152
 \$P_NCBFRAME1, 152
 \$P_NCBFRAME10, 154
 \$P_NCBFRAME11, 155
 \$P_NCBFRAME12, 155
 \$P_NCBFRAME13, 155
 \$P_NCBFRAME14, 155, 156
 \$P_NCBFRAME15, 156
 \$P_NCBFRAME2, 152
 \$P_NCBFRAME3, 152, 153
 \$P_NCBFRAME4, 153
 \$P_NCBFRAME5, 153
 \$P_NCBFRAME6, 153
 \$P_NCBFRAME7, 153, 154
 \$P_NCBFRAME8, 154
 \$P_NCBFRAME9, 154
 \$P_NCBFRMASK, 24
 \$P_NCKTYPE, 632
 \$P_NUM_SPINDLES, 112
 \$P_OFF_LEAD, 230, 231
 \$P_OFF_O [3], 230
 \$P_OFF_O_ANGLE, 250
 \$P_OFF_O_DIR [3], 249
 \$P_OFF_R [3], 230
 \$P_OFF_R_ANGLE, 250
 \$P_OFF_R_DIR [3], 249
 \$P_OFF_THETA, 231
 \$P_OFF_TILT, 231
 \$P_OFFFN, 53
 \$P_OPMODE, 180, 181
 \$P_ORI_DIFF [2,3], 205
 \$P_ORI_POS [2,3], 204
 \$P_ORI_SOL, 205, 206
 \$P_ORI_STAT [ORIDIM], 206, 207
 \$P_OTOL, 196, 197
 \$P_PARTFR, 260
 \$P_PARTFRAME, 20
 \$P_PATH [INMAXFILESTACK], 56
 \$P_PFRAME, 23
 \$P_POLF [31], 634
 \$P_POLF_VALID [31], 634, 635
 \$P_PROG [INMAXFILESTACK], 55
 \$P_PROG_EVENT, 54
 \$P_PROG_NAME [INMAXFILESTACK], 246
 \$P_PROG_SUFFIX [INMAXFILESTACK], 246, 247
 \$P_PROGPATH, 54, 55
 \$P_RELFR, 263
 \$P_RELFRAME, 184
 \$P_REPINF, 52, 53
 \$P_S [n], 106
 \$P_S_TYPE [1], 203
 \$P_SAUTOGEAR [n], 110, 111
 \$P_SCC_STAT [31], 697, 698
 \$P_SDIR [n], 107, 108
 \$P_SEARCH, 49
 \$P_SEARCH_MASLC [31], 666
 \$P_SEARCH_MASLD [31], 666
 \$P_SEARCH_S [n], 107
 \$P_SEARCH_SDIR [n], 108
 \$P_SEARCH_SGEAR [n], 111
 \$P_SEARCH_SMODE [n], 235, 236
 \$P_SEARCH_SPOS [n], 111
 \$P_SEARCH_SPOSMODE [n], 112
 \$P_SEARCH1, 49
 \$P_SEARCH2, 49
 \$P_SEARCHL, 50
 \$P_SETFR, 260
 \$P_SETFRAME, 19
 \$P_SGEAR [n], 110
 \$P_SIM, 53
 \$P_SIM_MODE, 218
 \$P_SIMUL, 168
 \$P_SMODE [n], 109
 \$P_STACK, 55
 \$P_STOLF, 212
 \$P_SUB_AUTOGEAR, 159
 \$P_SUB_AXFCT, 158

\$P_SUB_CA, 159
\$P_SUB_GEAR, 158
\$P_SUB_LA, 159
\$P_SUB_M19, 177
\$P_SUB_SPOS, 177
\$P_SUB_SPOSA, 177
\$P_SUB_SPOSIT, 178
\$P_SUB_SPOSMODE, 178
\$P_SUB_STAT, 168
\$P_SUBPAR [n], 50
\$P_SVC [1], 202, 203
\$P_T_TOOL_LENGTH_INDEX [n], 238
\$P_TC, 30
\$P_TCANG [2], 31
\$P_TCDIFF [2], 31
\$P_TCNUM, 31
\$P_TCSOL, 32
\$P_TCSTAT, 32
\$P_TECCYCLE, 171
\$P_TH_OF_D, 222
\$P_THREAD_PITCH, 163
\$P_THREAD_PITCH_INC, 163
\$P_TMNOIS [32000], 212
\$P_TOFF [n], 181
\$P_TOFFCR, 256
\$P_TOFFL [3], 182
\$P_TOFFR, 183
\$P_TOOL, 26, 27
\$P_TOOL_O [3,2], 225
\$P_TOOL_R [3,2], 227, 228
\$P_TOOLBIN [3], 240
\$P_TOOLD [32000,12], 37
\$P_TOOLENV [1], 45, 46
\$P_TOOLENVN, 46
\$P_TOOLEXIST [32000], 33
\$P_TOOLFR, 261
\$P_TOOLFRAME, 20
\$P_TOOLL [3], 28
\$P_TOOLND [32000], 33
\$P_TOOLNDL [32000,32000], 37, 38
\$P_TOOLNG, 36
\$P_TOOLNO, 27
\$P_TOOLNT, 36
\$P_TOOLO [3], 28
\$P_TOOLP, 27
\$P_TOOLR, 32, 33
\$P_TOOLROT [3], 165
\$P_TOOLT [1500], 36
\$P_TRAFO, 64
\$P_TRAFO_CHAIN [4], 156
\$P_TRAFO_PAR [n], 65
\$P_TRAFO_PARSET, 66
\$P_TRAFR, 261, 262
\$P_TRAFRAME, 21
\$P_TRAFRAME_P, 201
\$P_TRAFRAME_T, 201
\$P_UBFR, 19
\$P_UIFR [n], 259
\$P_UIFRNUM, 24
\$P_USEKT, 37
\$P_VDITCP
[SLTOMA_MAX_NUM_FREE_PARAM], 45
\$P_WORKAREA_CS_COORD_SYSTEM [n], 825
\$P_WORKAREA_CS_LIMIT_MINUS [n,m], 826
\$P_WORKAREA_CS_LIMIT_PLUS [n,m], 826
\$P_WORKAREA_CS_MINUS_ENABLE [n,m], 825, 826
\$P_WORKAREA_CS_PLUS_ENABLE [n,m], 825
\$P_WP_STAT, 213
\$P_WPFR, 261
\$P_WPFRAME, 20
\$PA_ACCLIMA [31], 676
\$PA_ATOL [31], 739, 740
\$PA_CPACTFA [31,n], 712
\$PA_CPACTLA [31,n], 711
\$PA_CPBC [31], 710
\$PA_CPDEFLA [31,n], 711
\$PA_CPFAC [31], 706
\$PA_CPFMOF [31], 709
\$PA_CPFMON [31], 709
\$PA_CPFMSON [31], 708
\$PA_CPFPOSSTAT [31], 706
\$PA_CPFRS [31], 708
\$PA_CPLCTID [31,31], 728
\$PA_CPLDEN [31,31], 727, 728
\$PA_CPLINSC [31,31], 733
\$PA_CPLINTR [31,31], 733
\$PA_CPLNUM [31,31], 727
\$PA_CPLOUTSC [31,31], 734
\$PA_CPLOUTTR [31,31], 734
\$PA_CPLSETVAL [31,31,MAXSTRINGLEN], 728
\$PA_CPLSTATE [31,31,MAXSTRINGLEN], 727
\$PA_CPLTYPE [31,31], 726
\$PA_CPMRESET [31], 709, 710
\$PA_CPMSTART [31], 710
\$PA_CPNACTFA [31], 707
\$PA_CPNACTLA [31], 708
\$PA_CPNDEFLA [31], 707
\$PA_CPSETTYPE [31], 707
\$PA_CPSYNCOV [31], 735, 736
\$PA_CPSYNCOV [31], 736
\$PA_CPSYNFIP [31], 736
\$PA_CPSYNFIV [31], 736, 737
\$PA_FGREF [31], 741

\$PA_FGROUP [31], 740, 741
 \$PA_JERKLIMA [31], 677
 \$PA_VELOLIMA [31], 676
 \$PC_GCC_STATE, 221, 222
 \$PC_TCARR_AX_OFFSET [2], 252
 \$PC_TCARR_AX_VECT [2,3], 252
 \$PC_TCARR_OFFSET [4,3], 252
 \$PC_TRAFO_NAME, 248, 249
 \$PC_TRAFO_NUM, 253
 \$PC_TRAFO_ROT_CHAIN_INDEX [2], 214, 215
 \$PC_TRAFO_ROT_CHAN_AX_EX [2], 216
 \$PC_TRAFO_ROT_CHAN_AX_IN [2], 215
 \$PC_TRAFO_TYPE_NAME, 216
 \$PI, 54
 \$PN_CHANGE_CNTR_NK_DATA, 630
 \$PN_CHANGE_CNTR_NK_ELEM, 630, 631
 \$PN_CHANGE_CNTR_NK_SWITCH, 631
 \$PN_CHANGE_CNTR_NP_DATA, 631
 \$PN_CHANGE_CNTR_NT_DATA, 631
 \$SC_PA_ACTIV_IMMED [n], 265
 \$SC_PA_CENT_ABS [n,m], 270
 \$SC_PA_CENT_ORD [n,m], 270
 \$SC_PA_CONT_ABS [n,m], 269
 \$SC_PA_CONT_NUM [n], 268
 \$SC_PA_CONT_ORD [n,m], 269
 \$SC_PA_CONT_TYP [n,m], 268
 \$SC_PA_LIM_3DIM [n], 266
 \$SC_PA_MINUS_LIM [n], 267
 \$SC_PA_ORI [n], 266
 \$SC_PA_PLUS_LIM [n], 267
 \$SC_PA_T_W [n], 265
 \$SN_PA_ACTIV_IMMED [n], 558
 \$SN_PA_CENT_ABS [n,m], 563
 \$SN_PA_CENT_ORD [n,m], 563
 \$SN_PA_CONT_ABS [n,m], 562
 \$SN_PA_CONT_NUM [n], 561
 \$SN_PA_CONT_ORD [n,m], 562
 \$SN_PA_CONT_TYP [n,m], 561
 \$SN_PA_LIM_3DIM [n], 559
 \$SN_PA_MINUS_LIM [n], 560
 \$SN_PA_ORI [n], 559
 \$SN_PA_PLUS_LIM [n], 560
 \$SN_PA_T_W [n], 558
 \$TC_ADPT_ANG [32000,3], 497
 \$TC_ADPT_ANG_CONST [32000,3], 498
 \$TC_ADPT_DIR [32000,3,3], 497
 \$TC_ADPT_OFF [32000,3,3], 496, 497
 \$TC_ADPT_TYPE [32000], 496
 \$TC_ADPT1 [32000], 495
 \$TC_ADPT2 [32000], 495
 \$TC_ADPT3 [32000], 496
 \$TC_ADPTT [32000], 495
 \$TC_CARR_CORR_ELEM [n,4,32], 290, 291
 \$TC_CARR_KIN_CNTRL [n], 290
 \$TC_CARR_KIN_PART_END [n], 289, 290
 \$TC_CARR_KIN_PART_START [n], 289
 \$TC_CARR_KIN_ROTAX_NAME [n,2,32], 291
 \$TC_CARR_KIN_TOOL_END [n], 289
 \$TC_CARR_KIN_TOOL_START [n], 288
 \$TC_CARR1 [n], 271
 \$TC_CARR10 [n], 273, 274
 \$TC_CARR11 [n], 274
 \$TC_CARR12 [n], 274
 \$TC_CARR13 [n], 274, 275
 \$TC_CARR14 [n], 275
 \$TC_CARR15 [n], 275
 \$TC_CARR16 [n], 275
 \$TC_CARR17 [n], 276
 \$TC_CARR18 [n], 276
 \$TC_CARR19 [n], 276
 \$TC_CARR2 [n], 271
 \$TC_CARR20 [n], 276, 277
 \$TC_CARR21 [n], 277
 \$TC_CARR22 [n], 277
 \$TC_CARR23 [n], 277, 278
 \$TC_CARR24 [n], 278
 \$TC_CARR25 [n], 278
 \$TC_CARR26 [n], 278, 279
 \$TC_CARR27 [n], 279
 \$TC_CARR28 [n], 279
 \$TC_CARR29 [n], 280
 \$TC_CARR3 [n], 271, 272
 \$TC_CARR30 [n], 280
 \$TC_CARR31 [n], 280, 281
 \$TC_CARR32 [n], 281
 \$TC_CARR33 [n], 281
 \$TC_CARR34 [n], 282
 \$TC_CARR35 [n], 282
 \$TC_CARR36 [n], 282, 283
 \$TC_CARR37 [n], 283
 \$TC_CARR38 [n], 283
 \$TC_CARR39 [n], 283, 284
 \$TC_CARR4 [n], 272
 \$TC_CARR40 [n], 284
 \$TC_CARR41 [n], 284
 \$TC_CARR42 [n], 284
 \$TC_CARR43 [n], 285
 \$TC_CARR44 [n], 285
 \$TC_CARR45 [n], 285
 \$TC_CARR46 [n], 285, 286
 \$TC_CARR5 [n], 272
 \$TC_CARR55 [n], 286
 \$TC_CARR56 [n], 286
 \$TC_CARR57 [n], 286, 287

\$TC_CARR58 [n], 287
\$TC_CARR59 [n], 287
\$TC_CARR6 [n], 272
\$TC_CARR60 [n], 287
\$TC_CARR64 [n], 288
\$TC_CARR65 [n], 288
\$TC_CARR7 [n], 273
\$TC_CARR8 [n], 273
\$TC_CARR9 [n], 273
\$TC_DP1 [32000,32000], 292
\$TC_DP10 [32000,32000], 295
\$TC_DP11 [32000,32000], 295, 296
\$TC_DP12 [32000,32000], 296
\$TC_DP13 [32000,32000], 296
\$TC_DP14 [32000,32000], 297
\$TC_DP15 [32000,32000], 297
\$TC_DP16 [32000,32000], 297, 298
\$TC_DP17 [32000,32000], 298
\$TC_DP18 [32000,32000], 298
\$TC_DP19 [32000,32000], 298, 299
\$TC_DP2 [32000,32000], 292
\$TC_DP20 [32000,32000], 299
\$TC_DP21 [32000,32000], 299
\$TC_DP22 [32000,32000], 300
\$TC_DP23 [32000,32000], 300
\$TC_DP24 [32000,32000], 300, 301
\$TC_DP25 [32000,32000], 301
\$TC_DP3 [32000,32000], 292, 293
\$TC_DP4 [32000,32000], 293
\$TC_DP5 [32000,32000], 293
\$TC_DP6 [32000,32000], 294
\$TC_DP7 [32000,32000], 294
\$TC_DP8 [32000,32000], 294, 295
\$TC_DP9 [32000,32000], 295
\$TC_DPC1 [32000,32000], 306
\$TC_DPC10 [32000,32000], 309
\$TC_DPC11 [32000,32000], 309, 310
\$TC_DPC12 [32000,32000], 310
\$TC_DPC13 [32000,32000], 310
\$TC_DPC14 [32000,32000], 311
\$TC_DPC15 [32000,32000], 311
\$TC_DPC16 [32000,32000], 311, 312
\$TC_DPC17 [32000,32000], 312
\$TC_DPC18 [32000,32000], 312
\$TC_DPC19 [32000,32000], 312, 313
\$TC_DPC2 [32000,32000], 306
\$TC_DPC20 [32000,32000], 313
\$TC_DPC21 [32000,32000], 313
\$TC_DPC22 [32000,32000], 314
\$TC_DPC23 [32000,32000], 314
\$TC_DPC24 [32000,32000], 314, 315
\$TC_DPC25 [32000,32000], 315
\$TC_DPC26 [32000,32000], 315
\$TC_DPC27 [32000,32000], 315, 316
\$TC_DPC28 [32000,32000], 316
\$TC_DPC29 [32000,32000], 316
\$TC_DPC3 [32000,32000], 306, 307
\$TC_DPC30 [32000,32000], 317
\$TC_DPC31 [32000,32000], 317
\$TC_DPC32 [32000,32000], 317, 318
\$TC_DPC33 [32000,32000], 318
\$TC_DPC34 [32000,32000], 318
\$TC_DPC35 [32000,32000], 318, 319
\$TC_DPC36 [32000,32000], 319
\$TC_DPC37 [32000,32000], 319
\$TC_DPC38 [32000,32000], 320
\$TC_DPC39 [32000,32000], 320
\$TC_DPC4 [32000,32000], 307
\$TC_DPC40 [32000,32000], 320, 321
\$TC_DPC41 [32000,32000], 321
\$TC_DPC42 [32000,32000], 321
\$TC_DPC43 [32000,32000], 321, 322
\$TC_DPC44 [32000,32000], 322
\$TC_DPC45 [32000,32000], 322
\$TC_DPC46 [32000,32000], 323
\$TC_DPC47 [32000,32000], 323
\$TC_DPC48 [32000,32000], 323, 324
\$TC_DPC49 [32000,32000], 324
\$TC_DPC5 [32000,32000], 307
\$TC_DPC50 [32000,32000], 324
\$TC_DPC51 [32000,32000], 324, 325
\$TC_DPC52 [32000,32000], 325
\$TC_DPC53 [32000,32000], 325
\$TC_DPC54 [32000,32000], 326
\$TC_DPC55 [32000,32000], 326
\$TC_DPC56 [32000,32000], 326, 327
\$TC_DPC57 [32000,32000], 327
\$TC_DPC58 [32000,32000], 327
\$TC_DPC59 [32000,32000], 327, 328
\$TC_DPC6 [32000,32000], 308
\$TC_DPC60 [32000,32000], 328
\$TC_DPC61 [32000,32000], 328
\$TC_DPC62 [32000,32000], 329
\$TC_DPC63 [32000,32000], 329
\$TC_DPC64 [32000,32000], 329, 330
\$TC_DPC7 [32000,32000], 308
\$TC_DPC8 [32000,32000], 308, 309
\$TC_DPC9 [32000,32000], 309
\$TC_DPCE [32000,32000], 301
\$TC_DPCS1 [32000,32000], 330
\$TC_DPCS10 [32000,32000], 333
\$TC_DPCS2 [32000,32000], 330
\$TC_DPCS3 [32000,32000], 330, 331
\$TC_DPCS4 [32000,32000], 331

\$TC_DPCS5 [32000,32000], 331
 \$TC_DPCS6 [32000,32000], 332
 \$TC_DPCS7 [32000,32000], 332
 \$TC_DPCS8 [32000,32000], 332, 333
 \$TC_DPCS9 [32000,32000], 333
 \$TC_DPH [32000,32000], 301, 302
 \$TC_DPNT [32000,32000], 304, 305
 \$TC_DPROT [32000,32000], 305
 \$TC_DPV [32000,32000], 302
 \$TC_DPV3 [32000,32000], 302
 \$TC_DPV4 [32000,32000], 303
 \$TC_DPV5 [32000,32000], 303
 \$TC_DPVN3 [32000,32000], 303, 304
 \$TC_DPVN4 [32000,32000], 304
 \$TC_DPVN5 [32000,32000], 304
 \$TC_ECP13 [32000,32000], 353
 \$TC_ECP14 [32000,32000], 353
 \$TC_ECP15 [32000,32000], 353, 354
 \$TC_ECP16 [32000,32000], 354
 \$TC_ECP17 [32000,32000], 354
 \$TC_ECP18 [32000,32000], 354, 355
 \$TC_ECP19 [32000,32000], 355
 \$TC_ECP20 [32000,32000], 355
 \$TC_ECP21 [32000,32000], 356
 \$TC_ECP23 [32000,32000], 356
 \$TC_ECP24 [32000,32000], 356, 357
 \$TC_ECP25 [32000,32000], 357
 \$TC_ECP26 [32000,32000], 357
 \$TC_ECP27 [32000,32000], 357, 358
 \$TC_ECP28 [32000,32000], 358
 \$TC_ECP29 [32000,32000], 358
 \$TC_ECP30 [32000,32000], 358, 359
 \$TC_ECP31 [32000,32000], 359
 \$TC_ECP33 [32000,32000], 359
 \$TC_ECP34 [32000,32000], 359, 360
 \$TC_ECP35 [32000,32000], 360
 \$TC_ECP36 [32000,32000], 360
 \$TC_ECP37 [32000,32000], 361
 \$TC_ECP38 [32000,32000], 361
 \$TC_ECP39 [32000,32000], 361, 362
 \$TC_ECP40 [32000,32000], 362
 \$TC_ECP41 [32000,32000], 362
 \$TC_ECP43 [32000,32000], 362, 363
 \$TC_ECP44 [32000,32000], 363
 \$TC_ECP45 [32000,32000], 363
 \$TC_ECP46 [32000,32000], 363, 364
 \$TC_ECP47 [32000,32000], 364
 \$TC_ECP48 [32000,32000], 364
 \$TC_ECP49 [32000,32000], 364, 365
 \$TC_ECP50 [32000,32000], 365
 \$TC_ECP51 [32000,32000], 365
 \$TC_ECP53 [32000,32000], 366
 \$TC_ECP54 [32000,32000], 366
 \$TC_ECP55 [32000,32000], 366, 367
 \$TC_ECP56 [32000,32000], 367
 \$TC_ECP57 [32000,32000], 367
 \$TC_ECP58 [32000,32000], 367, 368
 \$TC_ECP59 [32000,32000], 368
 \$TC_ECP60 [32000,32000], 368
 \$TC_ECP61 [32000,32000], 368, 369
 \$TC_ECP63 [32000,32000], 369
 \$TC_ECP64 [32000,32000], 369
 \$TC_ECP65 [32000,32000], 369, 370
 \$TC_ECP66 [32000,32000], 370
 \$TC_ECP67 [32000,32000], 370
 \$TC_ECP68 [32000,32000], 371
 \$TC_ECP69 [32000,32000], 371
 \$TC_ECP70 [32000,32000], 371, 372
 \$TC_ECP71 [32000,32000], 372
 \$TC_ISO_D [n], 827
 \$TC_ISO_DW [n], 828
 \$TC_ISO_H [n], 827
 \$TC_ISO_HW [n], 827
 \$TC_ISO_L1 [n], 829
 \$TC_ISO_L1W [n], 829
 \$TC_ISO_L2 [n], 829
 \$TC_ISO_L2W [n], 830
 \$TC_ISO_L3 [n], 830
 \$TC_ISO_L3W [n], 830
 \$TC_ISO_Q [n], 831
 \$TC_ISO_R [n], 831
 \$TC_ISO_RW [n], 831
 \$TC_MAMP1, 492
 \$TC_MAMP2, 493
 \$TC_MAMP3, 494
 \$TC_MAP1 [32000], 464
 \$TC_MAP10 [32000], 467, 468
 \$TC_MAP2 [32000], 464
 \$TC_MAP3 [32000], 464
 \$TC_MAP4 [32000], 465
 \$TC_MAP5 [32000], 465
 \$TC_MAP6 [32000], 465
 \$TC_MAP7 [32000], 465, 466
 \$TC_MAP8 [32000], 466
 \$TC_MAP9 [32000], 466
 \$TC_MAPC1 [32000], 469
 \$TC_MAPC10 [32000], 471, 472
 \$TC_MAPC11 [32000], 472
 \$TC_MAPC12 [32000], 472
 \$TC_MAPC13 [32000], 472
 \$TC_MAPC14 [32000], 473
 \$TC_MAPC15 [32000], 473
 \$TC_MAPC16 [32000], 473
 \$TC_MAPC17 [32000], 473, 474

\$TC_MAPC18 [32000], 474
\$TC_MAPC19 [32000], 474
\$TC_MAPC2 [32000], 469
\$TC_MAPC20 [32000], 474, 475
\$TC_MAPC21 [32000], 475
\$TC_MAPC22 [32000], 475
\$TC_MAPC23 [32000], 475
\$TC_MAPC24 [32000], 476
\$TC_MAPC25 [32000], 476
\$TC_MAPC26 [32000], 476
\$TC_MAPC27 [32000], 476, 477
\$TC_MAPC28 [32000], 477
\$TC_MAPC29 [32000], 477
\$TC_MAPC3 [32000], 469
\$TC_MAPC30 [32000], 477, 478
\$TC_MAPC31 [32000], 478
\$TC_MAPC32 [32000], 478
\$TC_MAPC33 [32000], 478
\$TC_MAPC34 [32000], 479
\$TC_MAPC35 [32000], 479
\$TC_MAPC36 [32000], 479
\$TC_MAPC37 [32000], 479, 480
\$TC_MAPC38 [32000], 480
\$TC_MAPC39 [32000], 480
\$TC_MAPC4 [32000], 470
\$TC_MAPC40 [32000], 480, 481
\$TC_MAPC41 [32000], 481
\$TC_MAPC42 [32000], 481
\$TC_MAPC43 [32000], 481
\$TC_MAPC44 [32000], 482
\$TC_MAPC45 [32000], 482
\$TC_MAPC46 [32000], 482
\$TC_MAPC47 [32000], 482, 483
\$TC_MAPC48 [32000], 483
\$TC_MAPC49 [32000], 483
\$TC_MAPC5 [32000], 470
\$TC_MAPC50 [32000], 483, 484
\$TC_MAPC51 [32000], 484
\$TC_MAPC52 [32000], 484
\$TC_MAPC53 [32000], 484
\$TC_MAPC54 [32000], 485
\$TC_MAPC55 [32000], 485
\$TC_MAPC56 [32000], 485
\$TC_MAPC57 [32000], 485, 486
\$TC_MAPC58 [32000], 486
\$TC_MAPC59 [32000], 486
\$TC_MAPC6 [32000], 470
\$TC_MAPC60 [32000], 486, 487
\$TC_MAPC61 [32000], 487
\$TC_MAPC62 [32000], 487
\$TC_MAPC63 [32000], 487
\$TC_MAPC64 [32000], 488
\$TC_MAPC7 [32000], 470, 471
\$TC_MAPC8 [32000], 471
\$TC_MAPC9 [32000], 471
\$TC_MAPCS1 [32000], 488
\$TC_MAPCS10 [32000], 491
\$TC_MAPCS2 [32000], 488
\$TC_MAPCS3 [32000], 488, 489
\$TC_MAPCS4 [32000], 489
\$TC_MAPCS5 [32000], 489
\$TC_MAPCS6 [32000], 489, 490
\$TC_MAPCS7 [32000], 490
\$TC_MAPCS8 [32000], 490
\$TC_MAPCS9 [32000], 490
\$TC_MDP1 [32000,32000], 461, 462
\$TC_MDP2 [32000,32000], 462
\$TC_MLSR [32000,32000], 462
\$TC_MOP1 [32000,32000], 373
\$TC_MOP11 [32000,32000], 375
\$TC_MOP13 [32000,32000], 375
\$TC_MOP15 [32000,32000], 375
\$TC_MOP2 [32000,32000], 373
\$TC_MOP3 [32000,32000], 373
\$TC_MOP4 [32000,32000], 374
\$TC_MOP5 [32000,32000], 374
\$TC_MOP6 [32000,32000], 374
\$TC_MOPC1 [32000,32000], 376
\$TC_MOPC10 [32000,32000], 379
\$TC_MOPC11 [32000,32000], 379
\$TC_MOPC12 [32000,32000], 379
\$TC_MOPC13 [32000,32000], 380
\$TC_MOPC14 [32000,32000], 380
\$TC_MOPC15 [32000,32000], 380
\$TC_MOPC16 [32000,32000], 381
\$TC_MOPC17 [32000,32000], 381
\$TC_MOPC18 [32000,32000], 381
\$TC_MOPC19 [32000,32000], 382
\$TC_MOPC2 [32000,32000], 376
\$TC_MOPC20 [32000,32000], 382
\$TC_MOPC21 [32000,32000], 382
\$TC_MOPC22 [32000,32000], 383
\$TC_MOPC23 [32000,32000], 383
\$TC_MOPC24 [32000,32000], 383
\$TC_MOPC25 [32000,32000], 384
\$TC_MOPC26 [32000,32000], 384
\$TC_MOPC27 [32000,32000], 384
\$TC_MOPC28 [32000,32000], 385
\$TC_MOPC29 [32000,32000], 385
\$TC_MOPC3 [32000,32000], 376
\$TC_MOPC30 [32000,32000], 385
\$TC_MOPC31 [32000,32000], 386
\$TC_MOPC32 [32000,32000], 386
\$TC_MOPC33 [32000,32000], 386

\$TC_MOPC34 [32000,32000], 387
\$TC_MOPC35 [32000,32000], 387
\$TC_MOPC36 [32000,32000], 387
\$TC_MOPC37 [32000,32000], 388
\$TC_MOPC38 [32000,32000], 388
\$TC_MOPC39 [32000,32000], 388
\$TC_MOPC4 [32000,32000], 377
\$TC_MOPC40 [32000,32000], 389
\$TC_MOPC41 [32000,32000], 389
\$TC_MOPC42 [32000,32000], 389
\$TC_MOPC43 [32000,32000], 390
\$TC_MOPC44 [32000,32000], 390
\$TC_MOPC45 [32000,32000], 390
\$TC_MOPC46 [32000,32000], 391
\$TC_MOPC47 [32000,32000], 391
\$TC_MOPC48 [32000,32000], 391
\$TC_MOPC49 [32000,32000], 392
\$TC_MOPC5 [32000,32000], 377
\$TC_MOPC50 [32000,32000], 392
\$TC_MOPC51 [32000,32000], 392
\$TC_MOPC52 [32000,32000], 393
\$TC_MOPC53 [32000,32000], 393
\$TC_MOPC54 [32000,32000], 393
\$TC_MOPC55 [32000,32000], 394
\$TC_MOPC56 [32000,32000], 394
\$TC_MOPC57 [32000,32000], 394
\$TC_MOPC58 [32000,32000], 395
\$TC_MOPC59 [32000,32000], 395
\$TC_MOPC6 [32000,32000], 377
\$TC_MOPC60 [32000,32000], 395
\$TC_MOPC61 [32000,32000], 396
\$TC_MOPC62 [32000,32000], 396
\$TC_MOPC63 [32000,32000], 396
\$TC_MOPC64 [32000,32000], 397
\$TC_MOPC7 [32000,32000], 378
\$TC_MOPC8 [32000,32000], 378
\$TC_MOPC9 [32000,32000], 378
\$TC_MOPCS1 [32000,32000], 397
\$TC_MOPCS10 [32000,32000], 400
\$TC_MOPCS2 [32000,32000], 397
\$TC_MOPCS3 [32000,32000], 398
\$TC_MOPCS4 [32000,32000], 398
\$TC_MOPCS5 [32000,32000], 398
\$TC_MOPCS6 [32000,32000], 399
\$TC_MOPCS7 [32000,32000], 399
\$TC_MOPCS8 [32000,32000], 399
\$TC_MOPCS9 [32000,32000], 400
\$TC_MPP_SP [32000,32000], 436
\$TC_MPP1 [32000,32000], 433
\$TC_MPP2 [32000,32000], 433
\$TC_MPP3 [32000,32000], 433
\$TC_MPP4 [32000,32000], 434
\$TC_MPP5 [32000,32000], 435
\$TC_MPP6 [32000,32000], 434
\$TC_MPP66 [32000,32000], 435, 436
\$TC_MPP7 [32000,32000], 435
\$TC_MPPC1 [32000,32000], 437
\$TC_MPPC10 [32000,32000], 440
\$TC_MPPC11 [32000,32000], 440
\$TC_MPPC12 [32000,32000], 440
\$TC_MPPC13 [32000,32000], 441
\$TC_MPPC14 [32000,32000], 441
\$TC_MPPC15 [32000,32000], 441
\$TC_MPPC16 [32000,32000], 442
\$TC_MPPC17 [32000,32000], 442
\$TC_MPPC18 [32000,32000], 442
\$TC_MPPC19 [32000,32000], 443
\$TC_MPPC2 [32000,32000], 437
\$TC_MPPC20 [32000,32000], 443
\$TC_MPPC21 [32000,32000], 443
\$TC_MPPC22 [32000,32000], 444
\$TC_MPPC23 [32000,32000], 444
\$TC_MPPC24 [32000,32000], 444
\$TC_MPPC25 [32000,32000], 445
\$TC_MPPC26 [32000,32000], 445
\$TC_MPPC27 [32000,32000], 445
\$TC_MPPC28 [32000,32000], 446
\$TC_MPPC29 [32000,32000], 446
\$TC_MPPC3 [32000,32000], 437
\$TC_MPPC30 [32000,32000], 446
\$TC_MPPC31 [32000,32000], 447
\$TC_MPPC32 [32000,32000], 447
\$TC_MPPC33 [32000,32000], 447
\$TC_MPPC34 [32000,32000], 448
\$TC_MPPC35 [32000,32000], 448
\$TC_MPPC36 [32000,32000], 448
\$TC_MPPC37 [32000,32000], 449
\$TC_MPPC38 [32000,32000], 449
\$TC_MPPC39 [32000,32000], 449
\$TC_MPPC4 [32000,32000], 438
\$TC_MPPC40 [32000,32000], 450
\$TC_MPPC41 [32000,32000], 450
\$TC_MPPC42 [32000,32000], 450
\$TC_MPPC43 [32000,32000], 451
\$TC_MPPC44 [32000,32000], 451
\$TC_MPPC45 [32000,32000], 451
\$TC_MPPC46 [32000,32000], 452
\$TC_MPPC47 [32000,32000], 452
\$TC_MPPC48 [32000,32000], 452
\$TC_MPPC49 [32000,32000], 453
\$TC_MPPC5 [32000,32000], 438
\$TC_MPPC50 [32000,32000], 453
\$TC_MPPC51 [32000,32000], 453
\$TC_MPPC52 [32000,32000], 454

\$TC_MPPC53 [32000,32000], 454
\$TC_MPPC54 [32000,32000], 454
\$TC_MPPC55 [32000,32000], 455
\$TC_MPPC56 [32000,32000], 455
\$TC_MPPC57 [32000,32000], 455
\$TC_MPPC58 [32000,32000], 456
\$TC_MPPC59 [32000,32000], 456
\$TC_MPPC6 [32000,32000], 438
\$TC_MPPC60 [32000,32000], 456
\$TC_MPPC61 [32000,32000], 457
\$TC_MPPC62 [32000,32000], 457
\$TC_MPPC63 [32000,32000], 457
\$TC_MPPC64 [32000,32000], 458
\$TC_MPPC7 [32000,32000], 439
\$TC_MPPC8 [32000,32000], 439
\$TC_MPPC9 [32000,32000], 439
\$TC_MPPCS1 [32000,32000], 458
\$TC_MPPCS10 [32000,32000], 461
\$TC_MPPCS2 [32000,32000], 458
\$TC_MPPCS3 [32000,32000], 459
\$TC_MPPCS4 [32000,32000], 459
\$TC_MPPCS5 [32000,32000], 459
\$TC_MPPCS6 [32000,32000], 460
\$TC_MPPCS7 [32000,32000], 460
\$TC_MPPCS8 [32000,32000], 460
\$TC_MPPCS9 [32000,32000], 461
\$TC_MPTH [32,32], 463
\$TC_MTP_KD [32000], 502
\$TC_MTP_POS [32000], 501, 502
\$TC_MTP_PROTA [32000], 502
\$TC_MTP2 [32000], 499
\$TC_MTP3 [32000], 499
\$TC_MTP4 [32000], 500
\$TC_MTP5 [32000], 500
\$TC_MTP6 [32000], 500
\$TC_MTP7 [32000], 500, 501
\$TC_MTP8 [32000], 501
\$TC_MTPC1 [32000], 502, 503
\$TC_MTPC10 [32000], 505
\$TC_MTPC11 [32000], 505, 506
\$TC_MTPC12 [32000], 506
\$TC_MTPC13 [32000], 506
\$TC_MTPC14 [32000], 506, 507
\$TC_MTPC15 [32000], 507
\$TC_MTPC16 [32000], 507
\$TC_MTPC17 [32000], 507
\$TC_MTPC18 [32000], 508
\$TC_MTPC19 [32000], 508
\$TC_MTPC2 [32000], 503
\$TC_MTPC20 [32000], 508
\$TC_MTPC21 [32000], 508, 509
\$TC_MTPC22 [32000], 509
\$TC_MTPC23 [32000], 509
\$TC_MTPC24 [32000], 509, 510
\$TC_MTPC25 [32000], 510
\$TC_MTPC26 [32000], 510
\$TC_MTPC27 [32000], 510
\$TC_MTPC28 [32000], 511
\$TC_MTPC29 [32000], 511
\$TC_MTPC3 [32000], 503
\$TC_MTPC30 [32000], 511
\$TC_MTPC31 [32000], 511, 512
\$TC_MTPC32 [32000], 512
\$TC_MTPC33 [32000], 512
\$TC_MTPC34 [32000], 512, 513
\$TC_MTPC35 [32000], 513
\$TC_MTPC36 [32000], 513
\$TC_MTPC37 [32000], 513
\$TC_MTPC38 [32000], 514
\$TC_MTPC39 [32000], 514
\$TC_MTPC4 [32000], 503, 504
\$TC_MTPC40 [32000], 514
\$TC_MTPC41 [32000], 514, 515
\$TC_MTPC42 [32000], 515
\$TC_MTPC43 [32000], 515
\$TC_MTPC44 [32000], 515, 516
\$TC_MTPC45 [32000], 516
\$TC_MTPC46 [32000], 516
\$TC_MTPC47 [32000], 516
\$TC_MTPC48 [32000], 517
\$TC_MTPC49 [32000], 517
\$TC_MTPC5 [32000], 504
\$TC_MTPC50 [32000], 517
\$TC_MTPC51 [32000], 517, 518
\$TC_MTPC52 [32000], 518
\$TC_MTPC53 [32000], 518
\$TC_MTPC54 [32000], 518, 519
\$TC_MTPC55 [32000], 519
\$TC_MTPC56 [32000], 519
\$TC_MTPC57 [32000], 519
\$TC_MTPC58 [32000], 520
\$TC_MTPC59 [32000], 520
\$TC_MTPC6 [32000], 504
\$TC_MTPC60 [32000], 520
\$TC_MTPC61 [32000], 520, 521
\$TC_MTPC62 [32000], 521
\$TC_MTPC63 [32000], 521
\$TC_MTPC64 [32000], 521, 522
\$TC_MTPC7 [32000], 504
\$TC_MTPC8 [32000], 505
\$TC_MTPC9 [32000], 505
\$TC_MTPCS1 [32000], 522
\$TC_MTPCS10 [32000], 524, 525
\$TC_MTPCS2 [32000], 522

\$TC_MTPCS3 [32000], 522
\$TC_MTPCS4 [32000], 523
\$TC_MTPCS5 [32000], 523
\$TC_MTPCS6 [32000], 523
\$TC_MTPCS7 [32000], 523, 524
\$TC_MTPCS8 [32000], 524
\$TC_MTPCS9 [32000], 524
\$TC_MTPN [32000], 499
\$TC_MTPP2 [32000,72], 525
\$TC_MTPP4 [32000,72], 525
\$TC_MTPP6 [32000,72], 525, 526
\$TC_MTPP7 [32000,72], 526
\$TC_MTPPA [32000,72], 526, 527
\$TC_MTPPC1 [32000,72], 527
\$TC_MTPPC10 [32000,72], 530
\$TC_MTPPC11 [32000,72], 530
\$TC_MTPPC12 [32000,72], 530, 531
\$TC_MTPPC13 [32000,72], 531
\$TC_MTPPC14 [32000,72], 531
\$TC_MTPPC15 [32000,72], 531, 532
\$TC_MTPPC16 [32000,72], 532
\$TC_MTPPC17 [32000,72], 532
\$TC_MTPPC18 [32000,72], 532, 533
\$TC_MTPPC19 [32000,72], 533
\$TC_MTPPC2 [32000,72], 527
\$TC_MTPPC20 [32000,72], 533
\$TC_MTPPC21 [32000,72], 533, 534
\$TC_MTPPC22 [32000,72], 534
\$TC_MTPPC23 [32000,72], 534
\$TC_MTPPC24 [32000,72], 534, 535
\$TC_MTPPC25 [32000,72], 535
\$TC_MTPPC26 [32000,72], 535
\$TC_MTPPC27 [32000,72], 535, 536
\$TC_MTPPC28 [32000,72], 536
\$TC_MTPPC29 [32000,72], 536
\$TC_MTPPC3 [32000,72], 527, 528
\$TC_MTPPC30 [32000,72], 536, 537
\$TC_MTPPC31 [32000,72], 537
\$TC_MTPPC32 [32000,72], 537
\$TC_MTPPC33 [32000,72], 537, 538
\$TC_MTPPC34 [32000,72], 538
\$TC_MTPPC35 [32000,72], 538
\$TC_MTPPC36 [32000,72], 538, 539
\$TC_MTPPC37 [32000,72], 539
\$TC_MTPPC38 [32000,72], 539
\$TC_MTPPC39 [32000,72], 539, 540
\$TC_MTPPC4 [32000,72], 528
\$TC_MTPPC40 [32000,72], 540
\$TC_MTPPC41 [32000,72], 540
\$TC_MTPPC42 [32000,72], 540, 541
\$TC_MTPPC43 [32000,72], 541
\$TC_MTPPC44 [32000,72], 541
\$TC_MTPPC45 [32000,72], 541, 542
\$TC_MTPPC46 [32000,72], 542
\$TC_MTPPC47 [32000,72], 542
\$TC_MTPPC48 [32000,72], 542, 543
\$TC_MTPPC49 [32000,72], 543
\$TC_MTPPC5 [32000,72], 528
\$TC_MTPPC50 [32000,72], 543
\$TC_MTPPC51 [32000,72], 543, 544
\$TC_MTPPC52 [32000,72], 544
\$TC_MTPPC53 [32000,72], 544
\$TC_MTPPC54 [32000,72], 544, 545
\$TC_MTPPC55 [32000,72], 545
\$TC_MTPPC56 [32000,72], 545
\$TC_MTPPC57 [32000,72], 545, 546
\$TC_MTPPC58 [32000,72], 546
\$TC_MTPPC59 [32000,72], 546
\$TC_MTPPC6 [32000,72], 528, 529
\$TC_MTPPC60 [32000,72], 546, 547
\$TC_MTPPC61 [32000,72], 547
\$TC_MTPPC62 [32000,72], 547
\$TC_MTPPC63 [32000,72], 547, 548
\$TC_MTPPC64 [32000,72], 548
\$TC_MTPPC7 [32000,72], 529
\$TC_MTPPC8 [32000,72], 529
\$TC_MTPPC9 [32000,72], 529, 530
\$TC_MTPPCS1 [32000,72], 548
\$TC_MTPPCS10 [32000,72], 551
\$TC_MTPPCS2 [32000,72], 548, 549
\$TC_MTPPCS3 [32000,72], 549
\$TC_MTPPCS4 [32000,72], 549
\$TC_MTPPCS5 [32000,72], 549, 550
\$TC_MTPPCS6 [32000,72], 550
\$TC_MTPPCS7 [32000,72], 550
\$TC_MTPPCS8 [32000,72], 550, 551
\$TC_MTPPCS9 [32000,72], 551
\$TC_MTPPL [32000,72], 526
\$TC_SCP13 [32000,32000], 333, 334
\$TC_SCP14 [32000,32000], 334
\$TC_SCP15 [32000,32000], 334
\$TC_SCP16 [32000,32000], 334, 335
\$TC_SCP17 [32000,32000], 335
\$TC_SCP18 [32000,32000], 335
\$TC_SCP19 [32000,32000], 336
\$TC_SCP20 [32000,32000], 336
\$TC_SCP21 [32000,32000], 336, 337
\$TC_SCP23 [32000,32000], 337
\$TC_SCP24 [32000,32000], 337
\$TC_SCP25 [32000,32000], 337, 338
\$TC_SCP26 [32000,32000], 338
\$TC_SCP27 [32000,32000], 338
\$TC_SCP28 [32000,32000], 338, 339
\$TC_SCP29 [32000,32000], 339

\$TC_SCP30 [32000,32000], 339
\$TC_SCP31 [32000,32000], 339, 340
\$TC_SCP33 [32000,32000], 340
\$TC_SCP34 [32000,32000], 340
\$TC_SCP35 [32000,32000], 341
\$TC_SCP36 [32000,32000], 341
\$TC_SCP37 [32000,32000], 341, 342
\$TC_SCP38 [32000,32000], 342
\$TC_SCP39 [32000,32000], 342
\$TC_SCP40 [32000,32000], 342, 343
\$TC_SCP41 [32000,32000], 343
\$TC_SCP43 [32000,32000], 343
\$TC_SCP44 [32000,32000], 343, 344
\$TC_SCP45 [32000,32000], 344
\$TC_SCP46 [32000,32000], 344
\$TC_SCP47 [32000,32000], 344, 345
\$TC_SCP48 [32000,32000], 345
\$TC_SCP49 [32000,32000], 345
\$TC_SCP50 [32000,32000], 346
\$TC_SCP51 [32000,32000], 346
\$TC_SCP53 [32000,32000], 346, 347
\$TC_SCP54 [32000,32000], 347
\$TC_SCP55 [32000,32000], 347
\$TC_SCP56 [32000,32000], 347, 348
\$TC_SCP57 [32000,32000], 348
\$TC_SCP58 [32000,32000], 348
\$TC_SCP59 [32000,32000], 348, 349
\$TC_SCP60 [32000,32000], 349
\$TC_SCP61 [32000,32000], 349
\$TC_SCP63 [32000,32000], 349, 350
\$TC_SCP64 [32000,32000], 350
\$TC_SCP65 [32000,32000], 350
\$TC_SCP66 [32000,32000], 351
\$TC_SCP67 [32000,32000], 351
\$TC_SCP68 [32000,32000], 351, 352
\$TC_SCP69 [32000,32000], 352
\$TC_SCP70 [32000,32000], 352
\$TC_SCP71 [32000,32000], 352, 353
\$TC_TP_MAX_ACC [32000], 405
\$TC_TP_MAX_VELO [32000], 405
\$TC_TP_PROTA [32000], 405
\$TC_TP1 [32000], 401
\$TC_TP10 [32000], 404
\$TC_TP11 [32000], 404
\$TC_TP2 [32000], 401
\$TC_TP3 [32000], 401
\$TC_TP4 [32000], 402
\$TC_TP5 [32000], 402
\$TC_TP6 [32000], 402
\$TC_TP7 [32000], 402, 403
\$TC_TP8 [32000], 403
\$TC_TP9 [32000], 404
\$TC_TPC1 [32000], 406
\$TC_TPC10 [32000], 408
\$TC_TPC11 [32000], 409
\$TC_TPC12 [32000], 409
\$TC_TPC13 [32000], 409
\$TC_TPC14 [32000], 409, 410
\$TC_TPC15 [32000], 410
\$TC_TPC16 [32000], 410
\$TC_TPC17 [32000], 410, 411
\$TC_TPC18 [32000], 411
\$TC_TPC19 [32000], 411
\$TC_TPC2 [32000], 406
\$TC_TPC20 [32000], 411
\$TC_TPC21 [32000], 412
\$TC_TPC22 [32000], 412
\$TC_TPC23 [32000], 412
\$TC_TPC24 [32000], 412, 413
\$TC_TPC25 [32000], 413
\$TC_TPC26 [32000], 413
\$TC_TPC27 [32000], 413, 414
\$TC_TPC28 [32000], 414
\$TC_TPC29 [32000], 414
\$TC_TPC3 [32000], 406
\$TC_TPC30 [32000], 414
\$TC_TPC31 [32000], 415
\$TC_TPC32 [32000], 415
\$TC_TPC33 [32000], 415
\$TC_TPC34 [32000], 415, 416
\$TC_TPC35 [32000], 416
\$TC_TPC36 [32000], 416
\$TC_TPC37 [32000], 416, 417
\$TC_TPC38 [32000], 417
\$TC_TPC39 [32000], 417
\$TC_TPC4 [32000], 406, 407
\$TC_TPC40 [32000], 417
\$TC_TPC41 [32000], 418
\$TC_TPC42 [32000], 418
\$TC_TPC43 [32000], 418
\$TC_TPC44 [32000], 418, 419
\$TC_TPC45 [32000], 419
\$TC_TPC46 [32000], 419
\$TC_TPC47 [32000], 419, 420
\$TC_TPC48 [32000], 420
\$TC_TPC49 [32000], 420
\$TC_TPC5 [32000], 407
\$TC_TPC50 [32000], 420
\$TC_TPC51 [32000], 421
\$TC_TPC52 [32000], 421
\$TC_TPC53 [32000], 421
\$TC_TPC54 [32000], 421, 422
\$TC_TPC55 [32000], 422
\$TC_TPC56 [32000], 422

\$TC_TPC57 [32000], 422, 423
 \$TC_TPC58 [32000], 423
 \$TC_TPC59 [32000], 423
 \$TC_TPC6 [32000], 407
 \$TC_TPC60 [32000], 423
 \$TC_TPC61 [32000], 424
 \$TC_TPC62 [32000], 424
 \$TC_TPC63 [32000], 424
 \$TC_TPC64 [32000], 424, 425
 \$TC_TPC7 [32000], 407, 408
 \$TC_TPC8 [32000], 408
 \$TC_TPC9 [32000], 408
 \$TC_TPCS1 [32000], 425
 \$TC_TPCS10 [32000], 427, 428
 \$TC_TPCS2 [32000], 425
 \$TC_TPCS3 [32000], 425, 426
 \$TC_TPCS4 [32000], 426
 \$TC_TPCS5 [32000], 426
 \$TC_TPCS6 [32000], 426
 \$TC_TPCS7 [32000], 427
 \$TC_TPCS8 [32000], 427
 \$TC_TPCS9 [32000], 427
 \$TC_TPG_DRSPATH [32000], 432
 \$TC_TPG_DRSPROG [32000], 431, 432
 \$TC_TPG1 [32000], 429
 \$TC_TPG2 [32000], 429
 \$TC_TPG3 [32000], 429
 \$TC_TPG4 [32000], 430
 \$TC_TPG5 [32000], 430
 \$TC_TPG6 [32000], 430
 \$TC_TPG7 [32000], 430, 431
 \$TC_TPG8 [32000], 431
 \$TC_TPG9 [32000], 431
 \$VA_ABSOLUTE_ENC_DELTA_INIT [n,31], 730
 \$VA_ABSOLUTE_ENC_ERR_CNT [n,31], 695, 696
 \$VA_ABSOLUTE_ENC_STATE [n,31], 696
 \$VA_ABSOLUTE_ENC_ZERO_MON_MAX [n,31], 729, 730
 \$VA_AX_FORCE [31], 751
 \$VA_CC_COMP_VAL [31,4], 749
 \$VA_CC_COMP_VAL_TOTAL [31], 749
 \$VA_CEC_COMP_VAL [31], 714
 \$VA_COUP_OFFS [31], 675
 \$VA_CPSYNC2 [31], 746
 \$VA_CURR [31], 661
 \$VA_DESVAL_FILTERS_ACTIVE [31], 752
 \$VA_DESVAL_FILTERS_DELAY_1 [31], 752
 \$VA_DESVAL_FILTERS_DELAY_2 [31], 753
 \$VA_DESVAL_FILTERS_DELTA_POS [31], 751
 \$VA_DIST_TORQUE [31], 662
 \$VA_DP_ACT_TEL [20,31], 663
 \$VA_DPE [31], 675
 \$VA_EG_SYNCDIFF [31], 670
 \$VA_EG_SYNCDIFF_S [31], 671
 \$VA_ENC_ZERO_MON_ACCESS_CNT [n,31], 729
 \$VA_ENC_ZERO_MON_ACT [n,31], 730, 731
 \$VA_ENC_ZERO_MON_ERR_CNT [n,31], 695
 \$VA_ENC_ZERO_MON_INIT [n,31], 731
 \$VA_ENC1_COMP_VAL [31], 713, 714
 \$VA_ENC2_COMP_VAL [31], 714
 \$VA_FOC [31], 668, 669
 \$VA_FXS [31], 667
 \$VA_FXS_INFO [31], 667
 \$VA_IB [31], 738
 \$VA_IBC [31], 738, 739
 \$VA_IM [31], 638
 \$VA_IM1 [31], 639
 \$VA_IM2 [31], 639
 \$VA_INERTIA_TOTAL [31], 750
 \$VA_IPO_NC_CHANAX [31], 744
 \$VA_IS [31], 772
 \$VA_ITR [31,4], 739
 \$VA_IW [31], 738
 \$VA_LAG_ERROR [31], 639
 \$VA_LOAD [31], 659
 \$VA_MOT_CLAMPING_STATE [31], 745
 \$VA_MOT_SENSOR_ANA [31], 745
 \$VA_MOT_SENSOR_CONF [31], 744, 745
 \$VA_MOT_SENSOR_DIGI [31], 746
 \$VA_POSCTRL_MODE [31], 682
 \$VA_POWER [31], 661
 \$VA_PRESSURE_A [31], 662
 \$VA_PRESSURE_B [31], 663
 \$VA_RESET_INERTIA_TOTAL [31], 754
 \$VA_SAFE_TYPE [31], 773
 \$VA_SCE [31], 682, 683
 \$VA_STOPSI [31], 772
 \$VA_SYNCDIFF [31], 686
 \$VA_SYNCDIFF_STAT [31], 687
 \$VA_TEMP_COMP_VAL [31], 714
 \$VA_TORQUE [31], 660
 \$VA_TORQUE_AT_LIMIT [31], 668
 \$VA_TRACK_ERR_CONTR [31], 751
 \$VA_VACTM [31], 659
 \$VA_VALVELIFT [31], 662
 \$VA_XFAULTSI [31], 773
 \$VC_SGEAR [n], 204
 \$VC_TOOL_O [3,2], 225
 \$VC_TOOL_O_DIFF [2], 225, 226
 \$VC_TOOL_R [3,2], 228
 \$VC_TOOL_R_DIFF [2], 228
 \$VC_TOOLO [3], 29
 \$VC_TOOLO_DIFF, 29, 30
 \$VC_TOOLO_STAT, 30

\$VC_TOOLR [3], 167
\$VC_TOOLR_DIFF, 167
\$VC_TOOLR_STAT, 167, 168

S

SYG_A4 [n], 779
SYG_A5 [n], 781, 782
SYG_A6 [n], 784
SYG_A7 [n], 786
SYG_A8 [n], 788
SYG_A9 [n], 790, 791
SYG_AM [n], 775
SYG_AS [n], 793
SYG_AU [n], 777
SYG_B4 [n], 779
SYG_B5 [n], 781
SYG_B6 [n], 783, 784
SYG_B7 [n], 786
SYG_B8 [n], 788
SYG_B9 [n], 790
SYG_BM [n], 774, 775
SYG_BS [n], 792, 793
SYG_BU [n], 777
SYG_C4 [n], 780
SYG_C5 [n], 782
SYG_C6 [n], 784
SYG_C7 [n], 786, 787
SYG_C8 [n], 789
SYG_C9 [n], 791
SYG_CM [n], 775
SYG_CS [n], 793
SYG_CU [n], 777, 778
SYG_I4 [n], 778, 779
SYG_I5 [n], 781
SYG_I6 [n], 783
SYG_I7 [n], 785
SYG_I8 [n], 787, 788
SYG_I9 [n], 790
SYG_IM [n], 774
SYG_IS [n], 792
SYG_IU [n], 776
SYG_R4 [n], 778
SYG_R5 [n], 780, 781
SYG_R6 [n], 783
SYG_R7 [n], 785
SYG_R8 [n], 787
SYG_R9 [n], 789, 790
SYG_RM [n], 774
SYG_RS [n], 792
SYG_RU [n], 776
SYG_S4 [n], 780

SYG_S5 [n], 782
SYG_S6 [n], 784, 785
SYG_S7 [n], 787
SYG_S8 [n], 789
SYG_S9 [n], 791
SYG_SM [n], 775, 776
SYG_SS [n], 793, 794
SYG_SU [n], 778