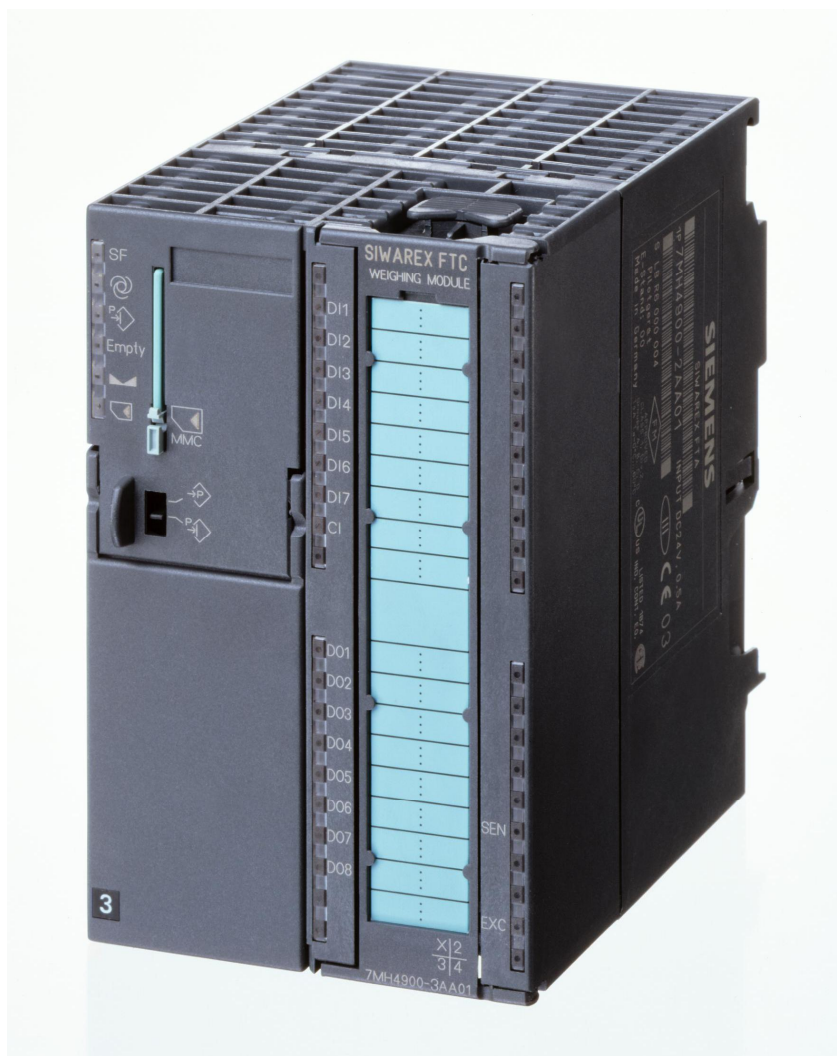# SIEMENS

SIWAREX® FTC_B
Project planning in SIMATIC PCS7

User manual	Status 08/2012

Safety

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
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

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 device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

⚠ WARNING
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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.

SIWAREX FTA

Project planning in SIMATIC PCS7

Revision 08/2012

Inhalt

Bilder

Tabellen

1 Preface

1.1 Purpose of the Information

This manual contains all the information required to configure a plant using SIWAREX FTC in PCS7.

1.2 Required Basic Knowledge

In order to understand the manual, certain knowledge concerning the SIMATIC automation technology especially PCS7 is required. Weighing technology knowledge is also an asset.

1.3 Scope of this Manual

This manual refers to the SIWAREX FTC module:

Type	Name	Order number	from product status (Version)	
SIWAREX FTC	SIWAREX Flexible Technology	7MH4900-3AA01	HW E-Rev. 1	FW V.3.1.4

Table 1-1   Validity of this manual

PCS7 version V8.0 has to be installed.

1.4 Further Support

Do you have more questions concerning the use of SIWAREX FTC? Then please contact your Siemens representative in the office or business location that is responsible for your area, the technical support for SIWAREX Tel.: +49 (0)721 595 2811or open a Support Request www.siemens.com/automation/support-request.

Updated information on SIWAREX Weighing Technology as well as the newest versions of the SIWAREX user manuals can be found on the respective Internet Site.

http://www.siemens.com/weighing-technology

2 Scope of Delivery

The block is used to connect the SIWAREX FTC to the PCS7. The integration of SIWAREX FTC is possible as of PCS 7 version V7.0 as of SP1.

In the first step, SIWAREX FTC must be added to the hardware catalogue by running the HSP.

While planning the hardware configuration in the SIMATIC Manager, the basic features of the module are defined:

- The peripheral address of the module

- Enabling the diagnostic alarms

- Enabling the process alarms

- Behaviour in the case of a CPU-Stop

Note: The diagnose alarms have to be activated to ensure the correct function of the CFC block.

SIWAREX FTC takes up 16 bytes in the input and output area.

Other scale specific parameters that are also changed while the control program is running can be defined in three different ways.

- Using the SIWATOOL FTC_B parameter definition tool

- Internally by making the definition in FB643 and then transferring to SIWAREX FTC

- In the OS using the Faceplate.

PCS7 blocks include the following components:

- CFC blocks for scale functionality (SFT_FTC), command controlling (CMD_FTC) and maintenance (MOD_SIWA)

- Text libraries for use with message texts

- Example – faceplate: can be extended or modified using the Faceplate Designer.

- Example program

3 Overview

3.1 General

SIWAREX FTC (**F**lexible **T**echnology **C**ontinuous Weighing) is a flexible weighing module which can be used for non-automatic scales, force measurement, belt scales, loss-in-weight scales and flow meters.

This manual only refers to belt scales.

PCS7 blocks enable SIWAREX FTC to be integrated into PCS7. The faceplates provided enable operation and monitoring of belt scales and can be customized to the client.

3.2 Benefits

SIWAREX Getting Started has many advantages:

o   Easy integration of scales in PCS7

o   Straightforward transmission of commands in automatic mode

o   Integration with PCS7 Maintenance Station

o   Completed faceplates available for project-specific enhancements

3.3 Application Range

SIWAREX PCS7 blocks are the optimal solution whenever direct weighing technology integration in the automation system is advantageous. Weighing is then a component of complex processes which are controlled by the automation system. Using the SIWAREX FTC software continuous weighing scales can be controlled.

3.4 Structure

The project is made up of two parts:

-   SIWAREX FTC_B PCS7 AS blocks

-   SIWAREX FTC_B PCS7 OS blocks

The ALARM_8P messaging system is also used. In this way, the messages from SIWAREX FTC are displayed to the operator. The message texts are stored in the text library provided.

3.5 Function

The control of the weighing procedure is completely run from the weighing module as if in separately constructed weighing electronics. The integration in SIMATIC enables the progress of the weighing procedure to be influenced directly from the PLC program however. This way, there is sensible task distribution: the extremely fast weighing functions are handled in SIWAREX-FTC, the latching and signal linking is done in the PLC.

SIWAREX-specific CFCs are available for configuration purposes. These are used to transfer commands and setting values to the scales. The scales can be operated, and the scale data displayed using the faceplates.

3.6 Commissioning and Service with SIWATOOL FTC_B

In principle, complete commissioning is possible via the CFC block.

Adjustment parameters (data record 3), basis data (data record 4) and belt scale parameters (data record 5) can be modified retrospectively and scales readjusted via the faceplates.

It is also possible to quickly and easily commission the module using the SIWATOOL PC program.

SIWATOOL FTC_B is included in the scope of delivery of the SIWAREX FTC_B configuration package for PCS7 (order number 7MH4900-3AK63). The program must be installed on a PC before commissioning can be performed. The PC is connected to the SIWAREX FTC using the cable available as an accessory.
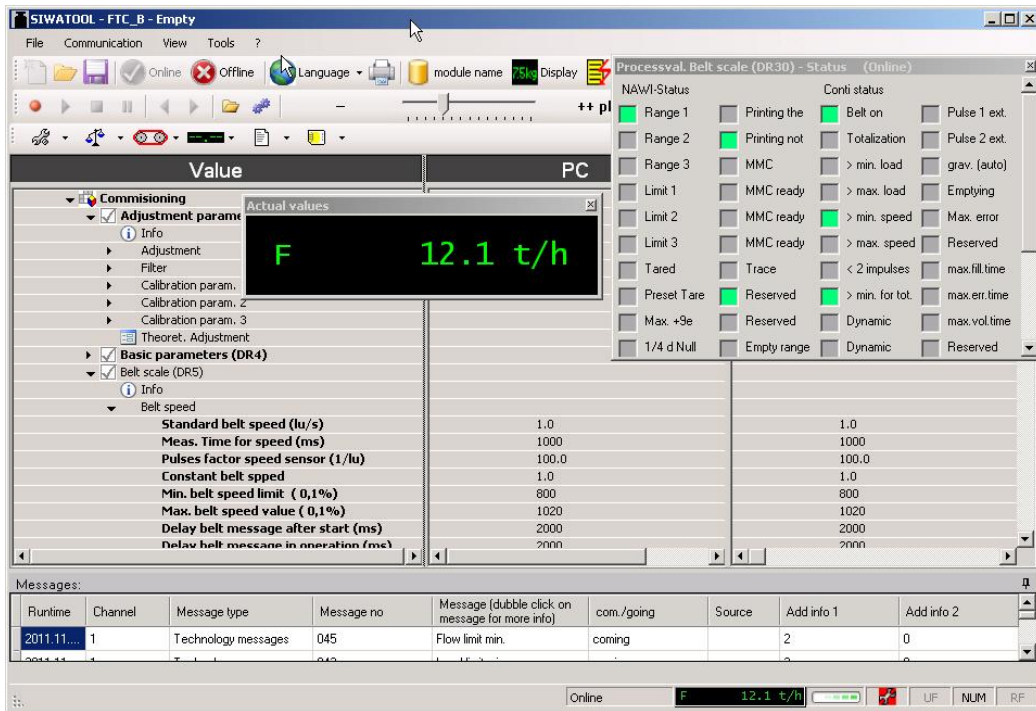
Fig. 3-1   Initial commissioning with SIWATOOL FTC_B

Note:

All data should be read by PCS7 after the parameters for SIWAREX FTC have been defined using SIWATOOL. Data in SIWAREX FTC will then be synchronized with data in the PCS7 project.

4 Description of the CFCs

4.1 CFC SFT_FTC (FB461)

4.1.1 Calling OBs

The block must be installed in the run sequence of following OBs (automatically in CFC):

OB82	Diagnostic alarm
OB100	Restart (warm start)

4.1.2 Startup characteristics

Following initialization, the module ID of the attached module is read out to identify a parameter error. The messages remain blocked for the number of cycles configured at the RUNUPCYC input.

4.1.3 Function

The block is used to control a Siwarex FT module (FTC). Data is transmitted cyclically via the peripheral interface and the various data records are read from the module and/or transferred to the module acyclically. The module message queue is continually read out and corresponding WinCC messages are issued.

Note:

To safeguard the functionality of the faceplate, the values for PROC_V1_M, PROC_V2_M and SC_TYPE_M must be assigned in the S7 interface definition in DR7 and DR3 as follows:

PROC_V1_M = 39 (Flow 1)

PROC_V2_M = 30 (Conti Status)

SC_TYPE_M = 3 (Belt Scale)

4.1.4 User Text Library

Various messages in WinCC include an error text from user text libraries in addition to the error number. The user text libraries must be copied from the SFT_FTC block library to the respective project by the user. To do this, open the SFT_FTC library in SimaticManager, select the "Text Libraries" folder and copy this into your

project. If a folder for user text libraries already exists in your project, please copy the SFT_FTC_DAT_OP, SFT_FTC_OP_MSG and SFT_FTC_TECH user text libraries into this folder.

4.1.5 Addressing Driver wizzard

The EA addresses for the Siwarex FT module must be entirely within the CPU process map. The LADDR input is interconnected with the base address of the Siwarex FT module: Select input -> right mouse button -> Interconnection to Address... -> input from e.g. EW512. The PCS7 driver wizard then automatically installs all required driver blocks. The MODF, PERAF, RACKF and ODIAG block inputs are interconnected by the driver wizard; the SUBN1_ID, SUBN2_ID, RACK_NO, SLOT_NO, BASADR and DADDR inputs are configured according to the data from HW config. When the block for PCS7 V7 is used, also the input EN_CO and an output ENCO are interconnected and the output CO_NO is configured.

4.1.6 Manual/automatik

Switching between the two modes of operation is carried out either through OS operation via AUT_ON_OP (LIOP_SEL = 0) or via the interconnection of the AUT_L (LIOP_SEL = 1) input. The appropriate permissions AUTOP_EN and MANOP_EN are required if the OS system route is taken. The operating mode selected is displayed on the QMAN_AUT output (1: automatic, 0: manual).

Manual Mode: Commands are transmitted from the operator to the block via the MAN_CMD input. Every command code modification on this input is identified as a new command. Manual inputs (ending "_M") act as the source for data records transmitted to the module.

Automatic mode: The block obtains its commands, with positive edge, at the AUTCMDEN input, from the AUT_CMD connectable input. Automatic inputs (ending "_A"), if available, act as the source for data records transmitted to the module; if unavailable, manual inputs fulfil this role (ending "_M").

Instead of the error code and a positive edge, automatic commands can also be triggered with the help of a connection block (see chapter 4.2) by adjusting a bit.

If no automatic command is being processed, but a command is nevertheless present at the MAN_CMD manual input, then this is executed, but always with the manual inputs (ending "_M") as the source for data records written to the module.

If neither a manual nor an automatic command is executed, then the background command specified at the BACK_CMD input is executed cyclically.

A command chain (e.g. read all data records) is interrupted by a new error code, but only ever after the individual command currently being processed has been executed.
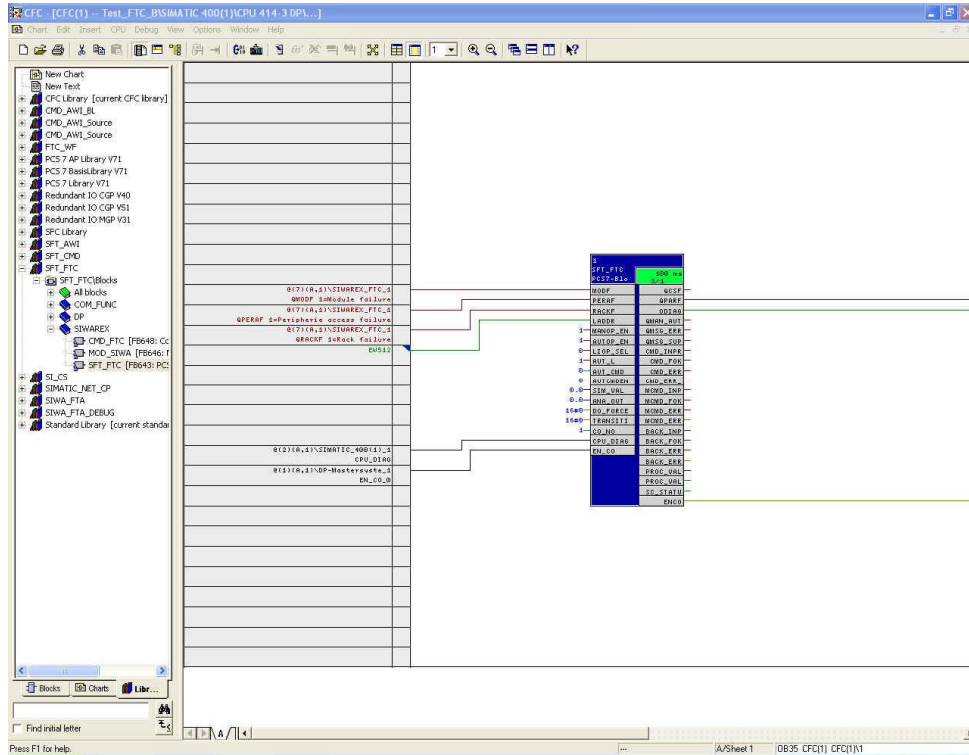
Fig. 4-1   Block SFT_FTC in CFC

4.1.7   Data records

All data records that the S7 controller can access are available as individual parameters for the function block. Parameters for the data records that can be read take the ending "_O" for Output. Parameters of the data records that can be written end in "_M" for Manual and are transferred to WinCC for visualization.

There are also interconnectable automatic inputs (ending "_A") for data records 14 to 22; in automatic mode, these replace manual inputs as the source for writing data records. If automatic inputs do not exist for a data record, then manual input values are transmitted to the module when in automatic mode. If applicable, manual inputs can also be connected in the AS program; however, they will no longer be operable in WinCC.

Values from SIWAREX are assumed for parameters ending "_M" and "_O" when data records from SIWAREX are read, in both automatic and manual modes. Parameters ending "_A" remain unchanged.

Depending on the operating mode, parameters ending "_A" or "_M" act as the source when data records are written to SIWAREX. Manual input values are transmitted to the module when a data record is written via the manual input in automatic mode.

4.1.8   Commands

Block command inputs in automatic mode are processed with the following priorities:

1. Automatic command (AUT_CMD, AUTCMDEN), automatic operating mode required
2. Manual command (MAN_CMD)
3. Command from adding a faceplate view (FP_CMD)
4. Background command (BACK_CMD)

If a new view is added in the faceplate, then the data records are read out whose values are presented here. The command code required for this is written to the FP_CMD parameter and copied to the MAN_CMD input (manual command) via the block and is thus executed as a manual command, assuming no other command is present here.

Possible commands are detailed in chapter 6.2, command list, of the device manual.

4.1.9   Module error messages

Error message memory on the Siwarex FTC module is continually read out by the block. If a message has been read, the ERR_MSG output is set to "TRUE" for one cycle. Outputs ERR_MSG_TYPE and ERR_MSG_C contain the error type and error code of the corresponding message.

ERR_MSG_TYPE	Meaning
16#01	Operating message (fault)
16#02	Technical error
16#04	Data or operating error

Table 4-1   CFC – Message types

The meaning of each error number code is detailed in the device manual.

WinCC issues messages, according to the error type, with text, technical errors, data/operating errors, internal and/or external errors with the error code as a guidance value. These messages always have incoming/outgoing status. The error code of the last error message to be read out is always shown. The most important operating error messages are reported individually.

4.1.10 Message text and message class assigned to the block parameters

Message-block ALARM_8P	Message-No.	Block parameter	Default message text	Message-class
EV_ID1	1	QPARF	Configuration error	S
	2	CSF/QCSF	Control System fault	S
	3	ERR_MSG/ ERR_MSG_TYPE/ ERR_MSG_C	Data/Operation error @9%d@: @9Y%t#SFT_FTC_DAT_OP@	S
	4	ERR_MSG/ ERR_MSG_TYPE/ ERR_MSG_C	Technology error @10%d@: @10Y%t#SFT_FTC_TECH@	S
	5	QINT_03, 06..16	Internal Error coming @8%d@: @8Y%t#SFT_FTC_OP_MSG@ 1)	S
	6	QINT_03, 06..16	Internal Error going @8%d@: @8Y%t#SFT_FTC_OP_MSG@ 1)	S
	7	QEXT_23..32	External Error coming @8%d@: @8Y%t#SFT_FTC_OP_MSG@ 2)	S
	8	QEXT_23..32	External Error going @8%d@: @8Y%t#SFT_FTC_OP_MSG@ 2)	S
EV_ID2	1	QE_RDWR	RAM Error read/write check	S
	2	QE_WDOG	Watchdogerror	S
	3	QE_PALM	Processalarm lost	S
	4	QE_PARA	Parameter error (loss of data)	S
	5	QE_ADC	ADC error	S
	6	QE_MCC	MCC error	S
	7	QE_COMM	Com. fault S7/serial	S
	8	---	---	---

1) Operating errors with numbers 3 and 6 to 16
2) Operating errors with numbers 23 to 32

Table 4-2   CFC – Message texts of SFT_FTC

4.1.11 Assignment of associated values to the block parameters of SFT_FTC

Message-block ALARM_8P	Message-no.	Block parameter
EV_ID1	1	BA_NA
	2	STEP_NO
	3	BA_ID
	4	RAC_DIAG.SUBN1_ID
	5	RAC_DIAG.SUBN2_ID

Message-block ALARM_8P	Message-no.	Block parameter
	6	RAC_DIAG.RACK_NO
	7	RAC_DIAG.SLOT_ID
	8	sy_Nr_Betriebfehler (internal variable for operating error, ERR_MSG_TYPE = 16#01)
	9	sy_Nr_DatenBedienfehler (internal variable for data or operating error, ERR_MSG_TYPE = 16#04)
	10	sy_Nr_Technologiefehler) (interne variable for technical error, ERR_MSG_TYPE = 16#02)

Table 4-3   CFC – Associated values of SFT_FTC

4.1.12 Connections of SFT_FTC (without data records)

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MODF	1 = Module removed / defective (is interconnected by module driver)	BOOL	FALSE	I	
PERAF	1 = I/O access error (is interconnected by module driver)	BOOL	FALSE	I	
RACKF	1 = Rack / station error (is interconnected by module driver)	BOOL	FALSE	I	
SUBN1_ID	ID of the primary DP master system (is interconnected by module driver)	BYTE	16#FF	I	
SUBN2_ID	ID of the redundant DP master system (is interconnected by module driver)	BYTE	16#FF	I	
RACK_NO	Rack number (is interconnected by module driver)	BYTE	0	I	
SLOT_NO	Slot number (configured by the driver wizard)	BYTE	0	I	
BASADR	Base address of Siwarex-FT module (configured by the driver wizard)	INT	0	I	
DADDR	Diagnostic address of Siwarex-FT module (configured by the driver wizard)	INT	0	I	
LADDR	Logical address of the Siwarex-FT module This input must be **interconnected** to the base address: Right mouse button -> Interconnection to Address... -> e.g. IW128	WORD	0	I	
MANOP_EN	Enable: 1=Operator may input MANUAL	BOOL	FALSE	I	
AUTOP_EN	1 Enable: 1=Operator may input AUTO	BOOL	FALSE	I	
LIOP_SEL	Select: 1=Linking, 0=Operator active	BOOL	FALSE	I	
AUT_L	Linkable Input for MANUAL/AUTO mode	BOOL	FALSE	I	
MSG_LOCK	Message Lock	BOOL	FALSE	I	+
SUPP_DATA	1= Suppress data and command error messages	BOOL	FALSE	I	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
SUPP_TECH	1= Suppress technology error messages	BOOL	FALSE	I	
SUPP_OP	1= Suppress operating messages	BOOL	FALSE	I	
RUNUPCYC	Lag: Number of Run Up Cycles	INT	10	I	
EV_ID1	Message ID	DWORD	0	I	
EV_ID2	Message ID	DWORD	0	I	
BA_EN	Batch Enable	BOOL	FALSE	I	+
OCCUPIED	Occupied by Batch	BOOL	FALSE	I	+
BA_ID	Batch ID	DWORD	0	I	+
BA_NA	Batch Name	STRING[32]		I	+
STEP_NO	Batch Step Number	DWORD	0	I	+
BACK_CMD	Background Command	INT	0	I	+
AUT_CMD	Auto Command	INT	0	I	
AUTCMDEN	1= Execute command in Automatic Mode	BOOL	FALSE	I	
SIM_VAL	Simulation for weight value	REAL	0.0	I	
ANA_OUT	Value for analog output	REAL	0.0	I	
DO_FORCE	Force digital output for service	BYTE	16#00	I	
TRANSITION	Transition for automatic weighing step	BYTE	16#00	I	
OCX_WR1	For OCX write data 1	WORD	16#00	I	
OCX_WR2	For OCX write data 2	WORD	16#00	I	
SIG1_6	free Message EV_ID1/Message 6	BOOL	FALSE	I	
SIG1_7	free Message EV_ID1/Message 7	BOOL	FALSE	I	
SIG1_8	free Message EV_ID1/Message 8	BOOL	FALSE	I	
AUX2PR08	Auxiliary Value 8/ EV_ID2	ANY		IO	
AUX2PR09	Auxiliary Value 9/ EV_ID2	ANY		IO	
AUX2PR10	Auxiliary Value 10/ EV_ID2	ANY		IO	
CO_NO	Coordination number for reading data records	INT	0	I	
AUT_ON_OP	Operator Input Mode 1=AUTO, 0=MANUAL	BOOL	FALSE	IO	+
MAN_CMD	Manual Command	INT	0	IO	+
FP_CMD	Faceplate Command	INT	0	IO	+
CPY_M_A	1= Copy manual values to automatic inputs	BOOL	FALSE	IO	+
EN_CO	Current coordination number	STRUCT		IO	
QCSF	1=Control System Fault	BOOL	FALSE	O	+
QPARF	1=Parameterization failure	BOOL	FALSE	O	
QMODF	1=Module failure	BOOL	FALSE	O	
QPERAF	1=Periphery access failure	BOOL	FALSE	O	
QRACKF	1=Rack failure	BOOL	FALSE	O	
ODIAG	Diagnostic Info	DWORD	0	O	
SFB_ERR_C	Error code of last SFB call	WORD	0	O	
L_DR_NO	Last transferred Data Record	INT	0	O	
L_CMD	Last transferred Command	INT	0	O	
QMAN_AUT	1=AUTO, 0=MANUAL Mode	BOOL	FALSE	O	+
QMANOP	1=Operator enabled for MANUAL	BOOL	FALSE	O	+
QAUTOP	1=Operator enabled for AUTO	BOOL	FALSE	O	+
QCMDOP	1=Operator may start a command	BOOL	FALSE	O	+
M_CMD_EN	Enable: 1=Operator may input new MAN_CMD	BOOL	FALSE	O	+
QMSG_ERR	1=Message Error	BOOL	FALSE	O	
QMSG_SUP	1=Message Suppression Active	BOOL	FALSE	O	+
QMSGERR1	1=Message ERROR	BOOL	FALSE	O	
QMSGERR2	1=Message ERROR	BOOL	FALSE	O	
MSG_STAT1	Message: STATUS Output 1	WORD	0	O	
MSG_ACK1	Message: ACK_STATE Output 1	WORD	0	O	
MSG_STAT2	Message: STATUS Output 2	WORD	0	O	
MSG_ACK2	Message: ACK_STATE Output 2	WORD	0	O	
CMD_INPR	Automatic command in progress	BOOL	FALSE	O	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
CMD_FOK	Automatic command finished ok	BOOL	FALSE	O	
CMD_ERR	Error by automatic command execution	BOOL	FALSE	O	
CMD_ERR_C	Error code for automatic command execution	BYTE	16#00	O	
MCMD_INPR	Manual command in progress	BOOL	FALSE	O	
MCMD_FOK	Manual command finished ok	BOOL	FALSE	O	
MCMD_ERR	Error by manual command execution	BOOL	FALSE	O	
MCMD_ERR_C	Error code for manual command execution	BYTE	16#00	O	
BACK_INPR	Background command in progress	BOOL	FALSE	O	
BACK_FOK	Background command finished ok	BOOL	FALSE	O	
BACK_ERR	Error by background command execution	BOOL	FALSE	O	
BACK_ERR_C	Error code for background command execution	BYTE	16#00	O	
REF_COUNT	Refresh counter	BYTE	16#00	O	
PROC_VAL1	Process value 1	REAL	0.0	O	+
PROC_VAL2	Process value 2	DWORD	16#00	O	+
SC_STATUS	Status of the scale	DWORD	16#00	O	
ERR_MSG	1= New error message available	BOOL	FALSE	O	
ERR_MSG_TYPE	Error message type	BYTE	16#00	O	
ERR_MSG_C	Error message code	BYTE	16#00	O	
FB_ERR	1= Function block error occurred	BOOL	FALSE	O	
FB_ERR_C	Function block error code	BYTE	16#00	O	
START_UP	Start up of Siwarex in progress	BOOL	FALSE	O	
QE_RAM	RAM Error	BOOL	FALSE	O	
QE_WDOG	Watchdog Error	BOOL	FALSE	O	
QINT_03	1= Internal Error 03	BOOL	FALSE	O	
QE_PALM	1= Process Alarm lost	BOOL	FALSE	O	
QE_PARA	1= Parameter Error	BOOL	FALSE	O	
QINT_x 06 <= x <= 16	1=Internal Error x	BOOL	FALSE	O	
QE_ADC	Analog/Digital Converter Error	BOOL	FALSE	O	
QE_COM	Communication Error (S7/seriel)	BOOL	FALSE	O	
QE_MCC	MCC Error	BOOL	FALSE	O	
QEXT_x 23 <= x <= 32	1=External Error x	BOOL	FALSE	O	
ENCO	Coordination number	BYTE	0	O	
CPU_DIAG	CPU diagnosis (system structure)	STRUCT		IO	

Table 4-4   CFC-connections of SFT_FTC (without data records)

4.1.13 Calibration parameter (data record 3)

Inputs (manual and/or automatic):

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
CAL_D0_M	DR3: Calibration digits for 0	DINT	1398101	I	x
CAL_D1_M	DR3: Calibration digits for 1	DINT	15379113	I	x
CAL_D2_M	DR3: Calibration digits for 2	DINT		I	X
CAL_D3_M	DR3: Calibration digits for 3	DINT		I	X
CAL_D4_M	DR3: Calibration digits for 4	DINT		I	X
CAL_W1_M	DR3: Calibration weight for 1	REAL	5.000000e+001	I	X
CAL_W2_M	DR3: Calibration weight for 2	REAL		I	X
CAL_W3_M	DR3: Calibration weight for 3	REAL		I	X
CAL_W4_M	DR3: Calibration weight for 4	REAL		I	X
SI_RNG_M	DR3: Input range (1=1mV/v, 2=2mV/V, 4=4mV/V)	BYTE	B#16#2	I	x
F_PARA_M	DR3: Position of the average value filter (Average first=0, low pass=1)	BOOL	B#16#2	I	x
F_TYPS_M	DR3: Filter type signal filter	BYTE		I	x
F_FRQS_M	DR3: Filter low pass frequency	BYTE	B#16#4	I	x
F_DEPTH_M	DR3: Filter depth of average value filter	INT	10	I	x
SC_ID_M	DR3: Scale identity	STRING [10]	SIWAREX XX	I	x
RNG_M	DR3: Amount of weighing ranges	BYTE	B#16#1	I	x
TYPE_RNG_M	DR3: Multi range (0), multi resolution (1)	BOOL	B#16#1	I	x
Z_P_ON_M	DR3: Automatic zero by power on (yes=1, no=0)	BOOL	B#16#1	I	x
Z_P_ON_TARA_M	DR3: Automatic zero by power on and 0<tara>0 (yes=1, no=0)	BOOL	B#16#1	I	x
Z_AUTO_M	DR3: Automatic zeroing (yes=1, no=0)	BOOL	B#16#1	I	x
MIN_WR1_M	DR3: Minimum for weighing range 1	REAL	1.000000e+000	I	x
MAX_WR1_M	DR3: Maximum for weighing range 1	REAL	1.000000e+002	I	x
INC_WR1_M	DR3: Digital increment for weighing range 1	REAL	2.000000e-002	I	x
MIN_WR2_M	DR3: Minimum for weighing range 2	REAL		I	x
MAX_WR2_M	DR3: Maximum for weighing range 2	REAL		I	x
INC_WR2_M	DR3: Digital increment for weighing range 2	REAL		I	x
MIN_WR3_M	DR3: Minimum for weighing range 3	REAL		I	x
MAX_WR3_M	DR3: Maximum for weighing range 3	REAL		I	x
INC_WR3_M	DR3: Digital increment for weighing range 3	REAL		I	x
T_STILL1_M	DR3: Stand still time in ms	TIME	T#1S	I	x
W_STILL1_M	DR3: Stand still weight	REAL	2.000000e-002	I	x
T_WAIT_STILL1_M	DR3: Min waiting time for stand still	TIME	T#2S	I	x
PON_Z_NEG_M	DR3: Zeroing negative range by power on (% of WR3)	BYTE	B#16#A	I	x
PON_Z_POS_M	DR3: Zeroing positive range by power on % of WR3	BYTE	B#16#A	I	x
Z_NEG_V_M	DR3: Zeroing negative range (% of WR3)	BYTE	B#16#1	I	x
Z_POS_V_M	DR3: Zeroing positive range (% of WR3)	BYTE	B#16#3	I	x
TARA_MAX_M	DR3: Tara range (% of WRMax)	BYTE	B#16#64	I	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
SC_TYPE_M	DR3: Type of scale	BYTE	B#16#3	I	x
Res103_M	DR3: Reserve	BYTE		I	x
Res203_M	DR3: Reserve	BYTE		I	x
Res303_M	DR3: Reserve	INT	80	I	x
LEG_TRADE_M	DR3: OIML or no ----	STRING [4]	----	I	x
W_UNIT1_M	DR3: Unit for weight	STRING [4]	Kg	I	x
W_UNIT2_M	DR3: Unit for weight	STRING [4]	t	I	x
L_UNIT_M	DR3: Unit for length	STRING [2]	m	I	x
Z_CAL_TIME_M	DR3: Calibration and zeroing time	TIME	T#10S	I	x

Table 4-5   CFC – connections of SFT_FTC – DS3 inputs

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
CAL_D0_O	DR3: Calibration digits for 0	DINT	1398101	O	
CAL_D1_O	DR3: Calibration digits for 1	DINT	15379113	O	
CAL_D2_O	DR3: Calibration digits for 2	DINT		O	
CAL_D3_O	DR3: Calibration digits for 3	DINT		O	
CAL_D4_O	DR3: Calibration digits for 4	DINT		O	
CAL_W1_O	DR3: Calibration weight for 1	REAL	5.000000e +001	O	
CAL_W2_O	DR3: Calibration weight for 2	REAL		O	
CAL_W3_O	DR3: Calibration weight for 3	REAL		O	
CAL_W4_O	DR3: Calibration weight for 4	REAL		O	
SI_RNG_O	DR3: Input range (1=1mV/v, 2=2mV/V, 4=4mV/V)	BYTE	B#16#2	O	
F_PARA_O	DR3: Position of the average value filter (Average first=0, low pass=1)	BOOL	B#16#2	O	
F_TYPS_O	DR3: Filter type signal filter	BYTE		O	
F_FRQS_O	DR3: Filter low pass frequency	BYTE	B#16#4	O	
F_DEPTH_O	DR3: Filter depth of average value filter	INT	10	O	
SC_ID_O	DR3: Scale identity	STRING [10]	SIWAREX XX	O	
RNG_O	DR3: Amount of weighing ranges	BYTE	B#16#1	O	
TYPE_RNG_O	DR3: Multi range (0), multi resolution (1)	BOOL	B#16#1	O	
Z_P_ON_O	DR3: Automatic zero by power on (yes=1, no=0)	BOOL	B#16#1	O	
Z_P_ON_TARA_O	DR3: Automatic zero by power on and 0<tara>0 (yes=1, no=0)	BOOL	B#16#1	O	
Z_AUTO_O	DR3: Automatic zeroing (yes=1, no=0)	BOOL	B#16#1	O	
MIN_WR1_O	DR3: Minimum for weighing range 1	REAL	1.000000e +000	O	
MAX_WR1_O	DR3: Maximum for weighing range 1	REAL	1.000000e +002	O	
INC_WR1_O	DR3: Digital increment for weighing range 1	REAL	2.000000e -002	O	
MIN_WR2_O	DR3: Minimum for weighing range 2	REAL		O	
MAX_WR2_O	DR3: Maximum for weighing range 2	REAL		O	
INC_WR2_O	DR3: Digital increment for weighing range 2	REAL		O	
MIN_WR3_O	DR3: Minimum for weighing range 3	REAL		O	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MAX_WR3_O	DR3: Maximum for weighing range 3	REAL		O	
INC_WR3_O	DR3: Digital increment for weighing range 3	REAL		O	
T_STILL1_O	DR3: Stand still time in ms	TIME		O	
W_STILL1_O	DR3: Stand still weight	REAL		O	
T_WAIT_STILL1_O	DR3: Min waiting time for stand still	TIME		O	
PON_Z_NEG_O	DR3: Zeroing negative range by power on (% of WR3)	BYTE		O	
PON_Z_POS_O	DR3: Zeroing positive range by power on % of WR3	BYTE		O	
Z_NEG_V_O	DR3: Zeroing negative range (% of WR3)	BYTE		O	
Z_POS_V_O	DR3: Zeroing positive range (% of WR3)	BYTE		O	
TARA_MAX_O	DR3: Tara range (% of WRMax)	BYTE		O	
SC_TYPE_O	DR3: Type of scale	BYTE		O	
Res103_O	DR3: Reserve	BYTE		O	
Res203_O	DR3: Reserve	BYTE		O	
Res303_O	DR3: Reserve	INT		O	
LEG_TRADE_O	DR3: OIML or no ----	STRING [4]		O	
W_UNIT1_O	DR3: Unit for weight	STRING [4]		O	
W_UNIT2_O	DR3: Unit for weight	STRING [4]		O	
L_UNIT_O	DR3: Unit for length	STRING [2]		O	
Z_CAL_TIME_O	DR3: Calibration and zeroing time	TIME		O	
W_FACT_O	DR3: Multiplying factor weiht_1 to weight_2	REAL		O	

Table 4-6   CFC – connections of SFT_FTC – DS3 outputs

4.1.14 Basis parameter (data record 4)

Inputs (manual and/or automatic):

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
Res104_M	DR4: Reserve	BYTE		I	x
Res204_M	DR4: Reserve	BYTE		I	x
Res304_M	DR4: Reserve	WORD		I	x
T_OUT_PR_M	DR4: Time out printer	TIME	T#2S	I	x
PROT_PARA_M	DR4: Weighing protocol output (printer=0, memory card=1)	BOOL	TRUE	I	x
Res404_M	DR4: Reserve	BYTE		I	x
LIMIT1_M	DR4: Limit 1 based on gross weight (0) or net weight (1)	BOOL		I	x
LIMIT2_M	DR4: Limit 2 based on gross weight (0) or net weight (1)	BOOL		I	x
Res504_M	DR4: Reserve	BOOL		I	x
EMPTY_GN_M	DR4: Basic for empty detection gross/net	BOOL		I	x
Res604_M	DR4: Reserve	BYTE		I	x
EMPTY_RNG_M	DR4: Empty range	REAL	1.000000e +000	I	x
LIM1_ON_M	DR4: Value for limit 1 on	REAL	3.000000e +000	I	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
LIM1_OFF_M	DR4: Value for limit 1 off	REAL	3.300000e+000	I	x
LIM2_ON_M	DR4: Value for limit 2 on	REAL	5.000000e+001	I	x
LIM2_OFF_M	DR4: Value for limit 2 off	REAL	4.900000e+001	I	x
LIM3_ON_M	DR4: Value for limit 3 on	REAL	9.900000e+001	I	x
LIM3_OFF_M	DR4: Value for limit 3 off	REAL	9.800000e+001	I	x

Table 4-7   CFC – connections of SFT_FTC – DS4 inputs

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
Res104_O	DR4: Reserve	BYTE		O	
Res204_O	DR4: Reserve	BYTE		O	
Res304_O	DR4: Reserve	WORD		O	
T_OUT_PR_O	DR4: Time out printer	TIME	T#2S	O	
PROT_PARA_O	DR4: Weighing protocol output (printer=0, memory card=1)	BOOL	TRUE	O	
Res404_O	DR4: Reserve	BYTE		O	
LIMIT1_O	DR4: Limit 1 based on gross weight (0) or net weight (1)	BOOL		O	
LIMIT2_O	DR4: Limit 2 based on gross weight (0) or net weight (1)	BOOL		O	
Res504_O	DR4: Reserve	BOOL		O	
EMPTY_GN_O	DR4: Basic for empty detection gross/net	BOOL		O	
Res604_O	DR4: Reserve	BYTE		O	
EMPTY_RNG_O	DR4: Empty range	REAL	1.000000e+000	O	
LIM1_ON_O	DR4: Value for limit 1 on	REAL	3.000000e+000	O	
LIM1_OFF_O	DR4: Value for limit 1 off	REAL	3.300000e+000	O	
LIM2_ON_O	DR4: Value for limit 2 on	REAL	5.000000e+001	O	
LIM2_OFF_O	DR4: Value for limit 2 off	REAL	4.900000e+001	O	
LIM3_ON_O	DR4: Value for limit 3 on	REAL	9.900000e+001	O	
LIM3_OFF_O	DR4: Value for limit 3 off	REAL	9.800000e+001	O	

Table 4-8   CFC – connections of SFT_FTC – DS4 outputs

4.1.15 Parameters belt scale (data record 5)

Inputs (manual and/or automatic):

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
STD_SPD_M	DR5: Standard belt speed (length per second)	REAL	1.000000e+000	O	
SPD_MEAS_T_M	DR5: Speed measuring time	TIME	T#1S	O	
PULS_P_M_M	DR5: Pulses per meter of speed sensor	REAL	1.000000e+002	O	
CONS_SPD_M	DR5: Constant speed (length per second), 0 by sensor use	REAL		O	
MIN_SPD_OF_S_M	DR5: Minimum speed in % of standard belt speed	INT	800	O	
MAX_SPD_OF_S_M	DR5: Maximum speed in % of standard belt speed	INT	1020	O	
DEL_BELT_STA_S_M	DR5: Delay time for belt status messages and errors by start	TIME	T#2S	O	
DEL_BELT_STA_R_M	DR5: Delay time for belt status messages and errors by running	TIME	T#2S	O	
Res105_M	DR5: Reserve	REAL		O	
STD_FLOW_RATE_M	DR5: Standard flow rate of the belt weight/s	REAL	1.000000e+001	O	
STD_LEN_M	DR5: Standard length for load	REAL	1.000000e+000	O	
COR_FACT_L_M	DR5: Correction factor for load value	REAL	1.000000e+000	O	
MIN_FLOW_RATE_OF_S_M	DR5: Minimum flow rate in % of standard flow rate	INT	200	O	
MAX_FLOW_RATE_OF_S_M	DR5: Maximum flow rate in % of standard flow rate	INT	1200	O	
MIN_LOAD_OF_S_M	DR5: Minimum load in % of standard load (see DR31)	INT	200	O	
MAX_LOAD_OF_S_M	DR5: Maximum load in % of standard load (see DR31)	INT	1200	O	
DYN_Z_LIM_OF_S_M	DR5: Plus/minus limit for dynamic zeroing function in % of standard load	INT	5	O	
Res205_M	DR5: Reserve	INT		O	
DEL_FL_R_LIM_S_M	DR5: Delay for the flow rate limits by start	TIME	T#1S	I	x
DEL_FL_R_LIM_R_M	DR5: Delay for the flow rate limits by running	TIME	T#1S	I	x
W_STP_TOT_1_4_M	DR5: Smallest weight step for totalizer 1..4 (in weight unit_1)	REAL	1.000000e+000	I	x
W_STP_TOT_5_8_M	DR5: Smallest weight step for totalizer 5..8 (in weight unit_2)	REAL	1.000000e+001	I	x
W_PER_PULS_GR1_M	DR5: Weight per pulse for digital output (totalizer 1...4)	REAL	1.000000e+000	I	x
PULS_TIME_GR1_M	DR5: Pulse time for one pulse (totalizer 1...4)	TIME	T#300MS	I	x
MIN_PAUSE_GR1_M	DR5: Minimum pause for pulse (totalizer 1...4)	TIME	T#300MS	I	x
W_PER_PULS_GR2_M	DR5: Weight per pulse for digital output (totalizer 5...8)	REAL	1.000000e+000	I	x
PULS_TIME_GR2_M	DR5: Pulse time for one pulse (totalizer 5...8)	TIME	T#300MS	I	x
MIN_PAUSE_GR2_M	DR5: Minimum pause for pulse (totalizer 5...8)	TIME	T#300MS	I	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
OVERLOAD_T_M	DR5: Delay time for overload message for weighing range	TIME	T#100MS	I	x
Res305_M	DR5: Reserve	INT		I	x

Table 4-9   CFC – connections of SFT_FTC – DR5 inputs

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
STD_SPD_O	DR5: Standard belt speed (length per second)	REAL	1.000000e+000	O	
SPD_MEAS_T_O	DR5: Speed measuring time	TIME	T#1S	O	
PULS_P_M_O	DR5: Pulses per meter of speed sensor	REAL	1.000000e+002	O	
CONS_SPD_O	DR5: Constant speed (length per second), 0 by sensor use	REAL		O	
MIN_SPD_OF_S_O	DR5: Minimum speed in % of standard belt speed	INT	800	O	
MAX_SPD_OF_S_O	DR5: Maximum speed in % of standard belt speed	INT	1020	O	
DEL_BELT_STA_S_O	DR5: Delay time for belt status messages and errors by start	TIME	T#2S	O	
DEL_BELT_STA_R_O	DR5: Delay time for belt status messages and errors by running	TIME	T#2S	O	
Res105_O	DR5: Reserve	REAL		O	
STD_FLOW_RATE_O	DR5: Standard flow rate of the belt weight/s	REAL	1.000000e+001	O	
STD_LEN_O	DR5: Standard length for load	REAL	1.000000e+000	O	
COR_FACT_L_O	DR5: Correction factor for load value	REAL	1.000000e+000	O	
MIN_FLOW_RATE_OF_S_O	DR5: Minimum flow rate in % of standard flow rate	INT	200	O	
MAX_FLOW_RATE_OF_S_O	DR5: Maximum flow rate in % of standard flow rate	INT	1200	O	
MIN_LOAD_OF_S_O	DR5: Minimum load in % of standard load (see DR31)	INT	200	O	
MAX_LOAD_OF_S_O	DR5: Maximum load in % of standard load (see DR31)	INT	1200	O	
DYN_Z_LIM_OF_S_O	DR5: Plus/minus limit for dynamic zeroing function in % of standard load	INT	5	O	
Res205_O	DR5: Reserve	INT		O	
DEL_FL_R_LIM_S_O	DR5: Delay for the flow rate limits by start	TIME	T#1S	O	
DEL_FL_R_LIM_R_O	DR5: Delay for the flow rate limits by running	TIME	T#1S	O	
W_STP_TOT_1_4_O	DR5: Smallest weight step for totalizer 1..4 (in weight unit_1)	REAL	1.000000e+000	O	
W_STP_TOT_5_8_O	DR5: Smallest weight step for totalizer 5..8 (in weight unit_2)	REAL	1.000000e+001	O	
W_PER_PULS_GR1_O	DR5: Weight per pulse for digital output (totalizer 1...4)	REAL	1.000000e+000	O	
PULS_TIME_GR1_O	DR5: Pulse time for one pulse (totalizer 1...4)	TIME	T#300MS	O	
MIN_PAUSE_GR1_O	DR5: Minimum pause for pulse (totalizer 1...4)	TIME	T#300MS	O	
W_PER_PULS_	DR5: Weight per pulse for digital output	REAL	1.000000e	O	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
GR2_O	(totalizer 5...8)		+000		
PULS_TIME_GR 2_O	DR5: Pulse time for one pulse (totalizer 5...8)	TIME	T#300MS	O	
MIN_PAUSE_GR 2_O	DR5: Minimum pause for pulse (totalizer 5...8)	TIME	T#300MS	O	
OVERLOAD_T_ O	DR5: Delay time for overload message for weighing range	TIME	T#100MS	O	
Res305_O	DR5: Reserve	INT		O	

Table 4-10   CFC – connections of SFT_FTC – DS5 outputs

4.1.16 Interface parameters (Data record 7)

Inputs (manual and/or automatic):

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
Res107_M	DR7: Reserve	BYTE		I	x
SIM_SRC_W_M	DR7: Source for simulation of weight (0 for not active)	BYTE		I	x
DECPNT_M	DR7: Correction after decimal point for process values	BYTE	B#16#3	I	x
Res207_M	DR7: Reserve	BYTE		I	x
FRC_SERV_EN_ M	DR7: Enable force digital output in service mode (yes=1, no=0)	BOOL		I	x
PROC_V1_M	DR7: Index for process value 1	BYTE	B#16#2	I	x
PROC_V2_M	DR7: Index for process value 2	BYTE	B#16#1E	I	x
Res307_M	DR7: Reserve 2	BYTE		I	x
PR_AL0_M	DR7: Process alarm 0	WORD		I	x
PR_AL1_M	DR7: Process alarm 1	WORD		I	x
PR_AL2_M	DR7: Process alarm 2	WORD		I	x
PR_AL3_M	DR7: Process alarm 3	WORD		I	x
PR_AL4_M	DR7: Process alarm 4	WORD		I	x
PR_AL5_M	DR7: Process alarm 5	WORD		I	x
PR_AL6_M	DR7: Process alarm 6	WORD		I	x
PR_AL7_M	DR7: Process alarm 7	WORD		I	x
S7_LB_M	DR7: Lifebit check (0=off, 1.....n=sec)	TIME		I	x
AO_ZERO_M	DR7: Value for analog output for 0/4 mA	REAL		I	x
AO_END_M	DR7: Value for analog output for 20 mA	REAL		I	x
AO_CST_M	DR7: Value for analog output when OD-signal	REAL		I	x
AO_SRC_M	DR7: Source for control of analog output	BYTE		I	x
AO4_20_M	DR7: Parameter for analog output (0=0.....20 mA, 1=4....20 mA)	BOOL		I	x
PRT_BD_M	DR7: Printer baud rate	BYTE	B#16#3	I	x
RS232XONOFF_ M	DR7: 0=XON/XOFF off, 1=XON/XOFF on	BOOL	TRUE	I	x
RS232RTSCTS_M	DR7: 0=RTS/CTS off, 1=RTS/CTS on	BOOL	TRUE	I	x
RS485_PROT_M	DR7: Protocol for RS484(0=non, 1=SIEBERT S11)	BYTE		I	x
DECPNT_D_M	DR7: Decimal point for SIEBERT Display	BYTE		I	x
RS485_BD_M	DR7: RS485- baud rate	BYTE	B#16#3	I	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
RS485_PAR_M	DR7: Parity	BOOL	B#16#3	I	x
RS485_DATA_M	DR7: Data bits	BOOL	TRUE	I	x
RS485_STOP_M	DR7: Stop bits	BOOL	TRUE	I	x
DOF1_M	DR7: Function for digital output 1	BYTE	B#16#FF	I	x
DOF2_M	DR7: Function for digital output 2	BYTE	B#16#FF	I	x
DOF3_M	DR7: Function for digital output 3	BYTE	B#16#FF	I	x
DOF4_M	DR7: Function for digital output 4	BYTE	B#16#FF	I	x
DOF5_M	DR7: Function for digital output 5	BYTE	B#16#FF	I	x
DOF6_M	DR7: Function for digital output 6	BYTE	B#16#FF	I	x
DOF7_M	DR7: Function for digital output 7	BYTE	B#16#FF	I	x
DOF8_M	DR7: Function for digital output 8	BYTE	B#16#FF	I	x
DO_HL_A1_M	DR7: High/low active for digital output 1	BOOL	B#16#FF	I	x
DO_HL_A2_M	DR7: High/low active for digital output 2	BOOL	B#16#FF	I	x
DO_HL_A3_M	DR7: High/low active for digital output 3	BOOL	B#16#FF	I	x
DO_HL_A4_M	DR7: High/low active for digital output 4	BOOL	B#16#FF	I	x
DO_HL_A5_M	DR7: High/low active for digital output 5	BOOL	B#16#FF	I	x
DO_HL_A6_M	DR7: High/low active for digital output 6	BOOL	B#16#FF	I	x
DO_HL_A7_M	DR7: High/low active for digital output 7	BOOL	B#16#FF	I	x
DO_HL_A8_M	DR7: High/low active for digital output 8	BOOL	B#16#FF	I	x
DO_BY_E1_M	DR7: Digital output 1 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E2_M	DR7: Digital output 2 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E3_M	DR7: Digital output 3 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E4_M	DR7: Digital output 4 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E5_M	DR7: Digital output 5 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E6_M	DR7: Digital output 6 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E7_M	DR7: Digital output 7 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E8_M	DR7: Digital output 8 active by error or OD-signal	BOOL	B#16#FF	I	x
DO_BY_E_EN_M	DR7: Enable digital output by error (1=active, 0=not active)	BOOL	B#16#FF	I	x
Res407_M	DR7: Reserve	BYTE		I	x
DIF1_M	DR7: Function for digital input 1	BYTE		I	x
DIF2_M	DR7: Function for digital input 2	BYTE		I	x
DIF3_M	DR7: Function for digital input 3	BYTE		I	x
DIF4_M	DR7: Function for digital input 4	BYTE		I	x
DIF5_M	DR7: Function for digital input 5	BYTE		I	x
DIF6_M	DR7: Function for digital input 6	BYTE		I	x
DIF7_M	DR7: Function for digital input 7	BYTE		I	x
DI_HL_A1_M	DR7: High/low active for digital input 1	BOOL		I	x
DI_HL_A2_M	DR7: High/low active for digital input 2	BOOL		I	x
DI_HL_A3_M	DR7: High/low active for digital input 3	BOOL		I	x
DI_HL_A4_M	DR7: High/low active for digital input 4	BOOL		I	x
DI_HL_A5_M	DR7: High/low active for digital input 5	BOOL		I	x
DI_HL_A6_M	DR7: High/low active for digital input 6	BOOL		I	x
DI_HL_A7_M	DR7: High/low active for digital input 7	BOOL		I	x
Res507_M	DR7: Reserve	TIME		I	x
Res607_M	DR7: Reserve	DWORD		I	x
MMC_PR_OWR_M	DR7: MMC Protocol data storage overwrite mode (0=no, 1=yes)	BOOL	TRUE	I	x
MMC_TR_OWR_	DR7: MMC Trace date storage overwrite	BOOL	TRUE	I	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
M	mode (0=no, 1=yes)				
MMC_RAM_TR_M	DR7: Trace data write in 0=RAM, 1=MMC	BOOL	TRUE	I	x
MMC_TR_S_M	DR7: MMC Trace memory size (%)	BYTE	B#16#32	I	x
MMC_PR_S_M	DR7: MMC memory size (%) for protocol	BYTE	B#16#32	I	x
MMC_TR_CYC_M	DR7: Trace cycle (1=10ms)	BYTE	B#16#1	I	x

Table 4-11   CFC – connections of SFT_FTC – DS7 inputs

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
Res107_O	DR7: Reserve	BYTE		O	
SIM_SRC_W_O	DR7: Source for simulation of weight (0 for not active)	BYTE		O	
DECPNT_O	DR7: Correction after decimal point for process values	BYTE	B#16#3	O	
Res207_O	DR7: Reserve	BYTE		O	
FRC_SERV_EN_O	DR7: Enable force digital output in service mode (yes=1, no=0)	BOOL		O	
PROC_V1_O	DR7: Index for process value 1	BYTE	B#16#2	O	
PROC_V2_O	DR7: Index for process value 2	BYTE	B#16#1E	O	
Res307_O	DR7: Reserve 2	BYTE		O	
PR_AL0_O	DR7: Process alarm 0	WORD		O	
PR_AL1_O	DR7: Process alarm 1	WORD		O	
PR_AL2_O	DR7: Process alarm 2	WORD		O	
PR_AL3_O	DR7: Process alarm 3	WORD		O	
PR_AL4_O	DR7: Process alarm 4	WORD		O	
PR_AL5_O	DR7: Process alarm 5	WORD		O	
PR_AL6_O	DR7: Process alarm 6	WORD		O	
PR_AL7_O	DR7: Process alarm 7	WORD		O	
S7_LB_O	DR7: Lifebit check (0=off, 1.....n=sec)	TIME		O	
AO_ZERO_O	DR7: Value for analog output for 0/4 mA	REAL		O	
AO_END_O	DR7: Value for analog output for 20 mA	REAL		O	
AO_CST_O	DR7: Value for analog output when OD-signal	REAL		O	
AO_SRC_O	DR7: Source for control of analog output	BYTE		O	
AO4_20_O	DR7: Parameter for analog output (0=0.....20 mA, 1=4....20 mA)	BOOL		O	
PRT_BD_O	DR7: Printer baud rate	BYTE	B#16#3	O	
RS232XONOFF_O	DR7: 0=XON/XOFF off, 1=XON/XOFF on	BOOL	TRUE	O	
RS232RTSCTS_O	DR7: 0=RTS/CTS off, 1=RTS/CTS on	BOOL	TRUE	O	
RS485_PROT_O	DR7: Protocol for RS484(0=non, 1=SIEBERT S11)	BYTE		O	
DECPNT_D_O	DR7: Decimal point for SIEBERT Display	BYTE		O	
RS485_BD_O	DR7: RS485- baud rate	BYTE	B#16#3	O	
RS485_PAR_O	DR7: Parity	BOOL	B#16#3	O	
RS485_DATA_O	DR7: Data bits	BOOL	TRUE	O	
RS485_STOP_O	DR7: Stop bits	BOOL	TRUE	O	
DOF1_O	DR7: Function for digital output 1	BYTE	B#16#FF	O	
DOF2_O	DR7: Function for digital output 2	BYTE	B#16#FF	O	
DOF3_O	DR7: Function for digital output 3	BYTE	B#16#FF	O	
DOF4_O	DR7: Function for digital output 4	BYTE	B#16#FF	O	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
DOF5_O	DR7: Function for digital output 5	BYTE	B#16#FF	O	
DOF6_O	DR7: Function for digital output 6	BYTE	B#16#FF	O	
DOF7_O	DR7: Function for digital output 7	BYTE	B#16#FF	O	
DOF8_O	DR7: Function for digital output 8	BYTE	B#16#FF	O	
DO_HL_A1_O	DR7: High/low active for digital output 1	BOOL	B#16#FF	O	
DO_HL_A2_O	DR7: High/low active for digital output 2	BOOL	B#16#FF	O	
DO_HL_A3_O	DR7: High/low active for digital output 3	BOOL	B#16#FF	O	
DO_HL_A4_O	DR7: High/low active for digital output 4	BOOL	B#16#FF	O	
DO_HL_A5_O	DR7: High/low active for digital output 5	BOOL	B#16#FF	O	
DO_HL_A6_O	DR7: High/low active for digital output 6	BOOL	B#16#FF	O	
DO_HL_A7_O	DR7: High/low active for digital output 7	BOOL	B#16#FF	O	
DO_HL_A8_O	DR7: High/low active for digital output 8	BOOL	B#16#FF	O	
DO_BY_E1_O	DR7: Digital output 1 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E2_O	DR7: Digital output 2 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E3_O	DR7: Digital output 3 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E4_O	DR7: Digital output 4 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E5_O	DR7: Digital output 5 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E6_O	DR7: Digital output 6 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E7_O	DR7: Digital output 7 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E8_O	DR7: Digital output 8 active by error or OD-signal	BOOL	B#16#FF	O	
DO_BY_E_EN_O	DR7: Enable digital output by error (1=active, 0=not active)	BOOL	B#16#FF	O	
Res407_O	DR7: Reserve	BYTE		O	
DIF1_O	DR7: Function for digital input 1	BYTE		O	
DIF2_O	DR7: Function for digital input 2	BYTE		O	
DIF3_O	DR7: Function for digital input 3	BYTE		O	
DIF4_O	DR7: Function for digital input 4	BYTE		O	
DIF5_O	DR7: Function for digital input 5	BYTE		O	
DIF6_O	DR7: Function for digital input 6	BYTE		O	
DIF7_O	DR7: Function for digital input 7	BYTE		O	
DI_HL_A1_O	DR7: High/low active for digital input 1	BOOL		O	
DI_HL_A2_O	DR7: High/low active for digital input 2	BOOL		O	
DI_HL_A3_O	DR7: High/low active for digital input 3	BOOL		O	
DI_HL_A4_O	DR7: High/low active for digital input 4	BOOL		O	
DI_HL_A5_O	DR7: High/low active for digital input 5	BOOL		O	
DI_HL_A6_O	DR7: High/low active for digital input 6	BOOL		O	
DI_HL_A7_O	DR7: High/low active for digital input 7	BOOL		O	
Res507_O	DR7: Reserve	TIME		O	
Res607_O	DR7: Reserve	DWORD		O	
MMC_PR_OWR_O	DR7: MMC Protocol data storage overwrite mode (0=no, 1=yes)	BOOL	TRUE	O	
MMC_TR_OWR_O	DR7: MMC Trace date storage overwrite mode (0=no, 1=yes)	BOOL	TRUE	O	
MMC_RAM_TR_O	DR7: Trace data write in 0=RAM, 1=MMC	BOOL	TRUE	O	
MMC_TR_S_O	DR7: MMC Trace memory size (%)	BYTE	B#16#32	O	

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MMC_PR_S_O	DR7: MMC memory size (%) for protocol	BYTE	B#16#32	O	
MMC_TR_CYC_O	DR7: Trace cycle (1=10ms)	BYTE	B#16#1	O	

Table 4-12   CFC – connections of SFT_FTC – DS7 Outputs

4.1.17 Date/time (Data record 8)

Input/Output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
DT_M	DR08: Date and time for Siwarex	DATE_AND _TIME		I	
DT_O	DR08: Date and time for Siwarex	DATE_AND _TIME		O	

Table 4-13   CFC – connections of SFT_FTC – DS8

4.1.18 Application ID (Data record 9)

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
CRC_CH_O	DR9: CRC checksum of the application software	DWORD		O	x
LENGTH_O	DR9: Application software length	DWORD		O	x
COPYRT_O	DR09: Info of module and number	STRING [26]		O	x
MOD_NAME_O	DR09: Module name	STRING [10]		O	x
APPL_ID_O	DR09: Application identifier	STRING [32]		O	x
FILE_NAME_O	DR09: File name	STRING [20]		O	x
A_VER_O	DR9: Application version	CHAR		O	x
A_F_VER_O	DR9: Function identification	BYTE		O	x
A_DR_VER_O	DR9: Data record structure identification	BYTE		O	x
A_VER_NO_O	DR9: Application version number	BYTE		O	x
CREAT_D_O	DR9: Creation date	STRING [10]		O	x
CREAT_T_O	DR9: Creation time	STRING [8]		O	x
VER_BOOT_O	DR9: Boot version	WORD		O	x
SC_TYPE_O9	DR9: Type of scale	STRING [4]		O	x
Res109_O	DR9: Reserve	WORD		O	x

Table 4-14   CFC – connections of SFT_FTC – DS9

4.1.19 Actual belt position (Data record 14)

Manual, automatic input and output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
BELT_EAGLE_M	DR14: Actual eagle of the belt	INT	I		x
BELT_ANGLE_O	DR14: Actual angle of the belt	INT	O		

Table 4-15   CFC – connections of SFT_FTC – DS14

4.1.20 Tare input weight (Data record 15)

Manual, automatic input and output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
TARE_V_M	DR15: Tare set value	REAL		I	+
TARE_V_O	DR15: Tare set value	REAL		O	

Table 4-16   CFC – connections of SFT_FTC – DS15

4.1.21 Ext. Display default value (Data record 18)

Manual, automatic input and output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
DISP_V_ADD_M	DR18: Additional value for digital display	REAL		I	+
DISP_V_ADD_O	DR18: Additional value for digital display	REAL		O	

Table 4-17   CFC – connections of SFT_FTC – DS18

4.1.22 Batch mode parameter (belt) (Data record 21)

Manual, automatic input and output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
SP_LOAD_V_M	DR21: Set point for load (totalizing)	REAL		I	x
MAX_DOS_T_M	DR21: Maximum time for dosing cycle	TIME		I	x
AFT_RUN_W_M	DR21: In flight value, after run value	REAL		I	x
Res121_M	DR21: Reserve	REAL		I	x
TXTNO_A_M	DR21: Text number for automatic protocol by finished	BYTE	B#16#1	I	x
Res221_M	DR21: Reserve	BYTE		I	x
SP_LOAD_V_O	DR21: Set point for load (totalizing)	REAL		O	
MAX_DOS_T_O	DR21: Maximum time for dosing cycle	TIME		O	
AFT_RUN_W_O	DR21: In flight value, after run value	REAL		O	
Res121_O	DR21: Reserve	REAL		O	
TXTNO_A_O	DR21: Text number for automatic protocol by finished	BYTE	B#16#1	O	
Res221_O	DR21: Reserve	BYTE		O	

Table 4-18   CFC – connections of SFT_FTC – DS21

4.1.23 Interne process value 1 (Data record 26)

Inputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
PRES_TARA_M	DR26: Actual tare is not 0	BOOL	T#10S	I	x
Res126_M	DR26: Reserve	BYTE		I	x
Res226_M	DR26: Reserve	BYTE		I	x
STAND_ALONE_M	DR26: Stand alone activated	BOOL		I	x
DIG_LC_ACT_M	DR26: Digital load cell activated	BOOL		I	x
TARE_W_V_M	DR26: Actual weight process tare value	REAL		I	x
TARE_W_AV_M	DR26: Actual weight process tare value average	REAL		I	x
PWRON_Z_V_M	DR26: Actual Zeroing value by power on	REAL		I	x
ZERO_V_M	DR26: Actual Zeroing value	REAL		I	x
ZERO_V_AUT_M	DR26: Actual Zeroing value automatic	REAL		I	x
SEN_REST_REF_M	DR26: Sensor resistance reference value	INT		I	x
SEN_REST_CH_M	DR26: Sensor resistance actual check value	INT		I	x
MAX_W_MEM_M	DR26: Actual max weight memory	REAL		I	x
ON_TIME_M	DR26: Actual power on time	DINT	15857	I	x
TEMP_MAX_M	DR26: MAX. temperature	INT	404	I	x
S_LEV_M	DR26: Signal level	CHAR		I	x
CRC_M	DR26: CRC	WORD	16#CFD3	I	x

Table 4-19   CFC – connections of SFT_FTC – DS26 Inputs

Outputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
PRES_TARA_O	DR26: Actual tare is not 0	BOOL	T#10S	O	
Res126_O	DR26: Reserve	BYTE		O	
Res226_O	DR26: Reserve	BYTE		O	
STAND_ALONE_O	DR26: Stand alone activated	BOOL		O	
DIG_LC_ACT_O	DR26: Digital load cell activated	BOOL		O	
TARE_W_V_O	DR26: Actual weight process tare value	REAL		O	
TARE_W_AV_O	DR26: Actual weight process tare value average	REAL		O	
PWRON_Z_V_O	DR26: Actual Zeroing value by power on	REAL		O	
ZERO_V_O	DR26: Actual Zeroing value	REAL		O	
ZERO_V_AUT_O	DR26: Actual Zeroing value automatic	REAL		O	
SEN_REST_REF_O	DR26: Sensor resistance reference value	INT		O	
SEN_REST_CH_O	DR26: Sensor resistance actual check value	INT		O	
MAX_W_MEM_O	DR26: Actual max weight memory	REAL		O	
ON_TIME_O	DR26: Actual power on time	DINT	L#15857	O	
TEMP_MAX_O	DR26: MAX. temperature	INT	404	O	
S_LEV_O	DR26: Signal level	CHAR		O	
CRC_O	DR26: CRC	WORD	16#CFD3	O	

Table 4-20   CFC – Connections of SFT_FTC – DS26 Outputs

4.1.24 Process values (Data record 30)

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
Res130_O	DR30: Reserve	BOOL		O	x
SEMP_O	DR30: Status scale empty	BOOL		O	x
SLEG_D_PRO_O	DR30: Status legal data protection on	BOOL		O	x
SRes130_O	DR30: Status reserve	BOOL		O	x
SRes230_O	DR30: Status reserve	BOOL		O	x
SRes330_O	DR30: Status reserve	BOOL		O	x
SST_ALO_O	DR30: Status SIWAREX stand alone mode	BOOL		O	x
SERR_OC_O	DR30: Status module error	BOOL		O	x
SPRINT_O	DR30: Status printing protocol	BOOL		O	x
SRS232_BUSY_O	DR30: Status rs232 busy by Siwarex protocol	BOOL		O	x
SMMC_CON_O	DR30: Status micro memory card connected	BOOL		O	x
SMMC_RDY_O	DR30: Status mmc ready and formatted	BOOL		O	x
SMMC_RDY_F_TR_O	DR30: Status mmc is ready for trace	BOOL		O	x
SMMC_RDY_W_O	DR30: Status mmc is ready for legal data	BOOL		O	x
SMMC_TR_A_O	DR30: Status mmc trace data is active	BOOL		O	x
SRes430_O	DR30: Reserve	BOOL		O	x
SMAX_9E_O	DR30: Status max plus 9 e	BOOL		O	x
S025D_Z_O	DR30: Status zero 0.25 d	BOOL		O	x
SWAIT_STILL1_O	DR30: Status waiting for stand still	BOOL		O	x
SSTILL1_ON_O	DR30: Status stand still 1 on	BOOL		O	x
SSC_CAL_O	DR30: Status scale is calibrated	BOOL		O	x
SCMDERR_DI_O	DR30: Status command error on digital input	BOOL		O	x
SSIM_ON_O	DR30: Status weighing simulation is on	BOOL		O	x
SSERV_MODE_ON_O	DR30: Status service mode is on	BOOL		O	x
SWR1_O	DR30: Status weighing range 1	BOOL		O	x
SWR2_O	DR30: Status weighing range 2	BOOL		O	x
SWR3_O	DR30: Status weighing range 3	BOOL		O	x
SLIM1_ON_O	DR30: Status limit 1 is on	BOOL		O	x
SLIM2_ON_O	DR30: Status limit 2 is on	BOOL		O	x
SLIM3_ON_O	DR30: Status limit 3 is on	BOOL		O	x
STARED_O	DR30: Status scale tared	BOOL		O	x
STARED_BY_M_O	DR30: Status scale tared by manual	BOOL		O	x
SRes530_O	DR30: Reserve	BOOL		O	x
SRes630_O	DR30: Reserve	BOOL		O	x
SRes730_O	DR30: Reserve	BOOL		O	x
SRes830_O	DR30: Reserve	BOOL		O	x
SBAT_ON_O	DR30: Status batch is on	BOOL		O	x
SRes930_O	DR30: Status batch is stopped	BOOL		O	x
SBAT_COM_O	DR30: Status batch is completed	BOOL		O	x
SRes1030_O	DR30: Reserve	BOOL		O	x
SRes1130_O	DR30: Reserve	BOOL		O	x
SRes1230_O	DR30: Reserve	BOOL		O	x
SRes1330_O	DR30: Reserve	BOOL		O	x

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
SRes1430_O	DR30: Reserve	BOOL		O	x
SRes1530_O	DR30: Reserve	BOOL		O	x
SRes1630_O	DR30: Reserve	BOOL		O	x
SRes1730_O	DR30: Reserve	BOOL		O	x
SRes1830_O	DR30: Reserve	BOOL		O	x
SDYN_Z_RNG_O	DR30: Status scale in dynamic zero range	BOOL		O	x
SDYN_Z_ON_O	DR30: Status scale is zeroing (dynamic)	BOOL		O	x
SDYN_Z_AB_O	DR30: Status dynamic zeroing is aborted	BOOL		O	x
SRes1930_O	DR30: Reserve	BOOL		O	x
SRes2030_O	DR30: Reserve	BOOL		O	x
SRes2130_O	DR30: Reserve	BOOL		O	x
SFLOW_RATE_R_O	DR30: Minimal flow rate is running	BOOL		O	x
SFLOW_RATE_H_O	DR30: Status flow rate too high	BOOL		O	x
SBELT_ON_O	DR30: Status belt on	BOOL		O	x
STOT_ON_O	DR30: Status totalizing is active	BOOL		O	x
SLOAD_MIN_OK_O	DR30: Status load low is exceeded	BOOL		O	x
SLOAD_MAX_H_O	DR30: Status load too high	BOOL		O	x
SBELT_S_MIN_OK_O	DR30: Status minimum speed is ok	BOOL		O	x
SBELT_S_MAX_H_O	DR30: Status speed too high	BOOL		O	x
SCOUN_MIN_O	DR30: Status counter to low	BOOL		O	x
SMIN_LO_TOT_O	DR30: `Status min load for totalizing`	BOOL		O	x
SGROS_WGT_O	DR30: Actual weight process value gross	REAL		O	x
SNET_WGT_O	DR30: Actual weight process value net	REAL		O	x
STARE_WGT_O	DR30: Actual weight process value tare	REAL		O	x
SGROS_NET_V_O	DR30: Actual weight process legal value	REAL		O	x
SGROS_NET_V_10X_O	DR30: Actual weight process legal value x 10	REAL		O	x
STARE_V_O	DR30: Actual weight tare process legal value	REAL		O	x
SBELT_SPD_O	DR30: Actual belt speed (length per second)	REAL		O	x
SBELT_SPD_S_O	DR30: Actual belt speed (% of standard belt speed))	INT		O	x
SLOAD_S_O	DR30: Actual load (% of standard load)	INT		O	x
SSTD_LOAD_O	DR30: Standard load (Weight unit 1 per length)	REAL		O	x
SLOAD_O	DR30: Actual load (Weight unit 1 per length)	REAL		O	x
SFLOW_RATE_U1_S_O	DR30: Actual flow rate 1 (weight unit_1 per second)	REAL		O	x
SFLOW_RATE_U1_H_O	DR30: Actual flow rate 2 (weight unit_1 per hour)	REAL		O	x
SFLOW_RATE_U2_H_O	DR30: Actual flow rate 2 (weight unit_2 per hour)	REAL		O	x
SFLOW_RATE_S_O	DR30: Actual flow rate (% of standard flow rate)	INT		O	x
SPOW_ON_T_O	DR30: Device working time (in h)	INT		O	x
SCOUN_TOT_O	DR30: Counter value for measuring period	DINT		O	x

Table 4-21   CFC – connections of SFT_FTC – DS30 outputs

4.1.25 Additional process values (data record 31)

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ACT_DIG_O	DR31: Actual digit value by AD-converter	DINT		O	x
ACT_DIG_FS_O	DR31: Actual digit value by AD-converter after signal filter	DINT		O	x
Res131_O	DR31: Reserve	DINT		O	x
ACT_ERR_SERV_O	DR31: Actual error (only for service)	DWORD		O	x
ACT_DT_O	DR31: Actual date and time in Siwarex	DATE_AND_TIME		O	
ACT_TEMP_O	DR31: Actual temperature value	INT		O	x
ACT_DI_O	DR31: Actual state of digital input	BYTE		O	x
Res231_O	DR31: Reserve	BYTE		O	x
SEN_RES_REF_O	DR31: Sensor resistance reference value	INT		O	x
SEN_RES_CH_O	DR31: Sensor resistance actual check value	INT		O	x

Table 4-22   CFC – connections of SFT_FTC – DS31 outputs

4.1.26 Totalizer (data record 33)

Output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
TOTAL1_O	DR33: Actual totalized weight 1	REAL		O	x
TOTAL2_O	DR33: Actual totalized weight 2	REAL		O	x
TOTAL3_O	DR33: Actual totalized weight 3	REAL		O	x
TOTAL4_O	DR33: Actual totalized weight 4	REAL		O	x
TOTAL5_O	DR33: Actual totalized weight 5	REAL		O	x
TOTAL6_O	DR33: Actual totalized weight 6	REAL		O	x
TOTAL7_O	DR33: Actual totalized weight 7	REAL		O	x
TOTAL8_O	DR33: Actual totalized weight 8	REAL		O	x

Table 4-23   CFC – connections of SFT_FTC – DS33 outputs

4.1.27 ASCII weight value (data record 34)

Output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ASCII_WGT_O	DR34: Actual ASCII weight (same as for display)	STRING [16]		O	x

Table 4-24   CFC – connections of SFT_FTC – DS34 outputs

4.1.28 Cryptodata (data record 35)

Output:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
DATAx_O 01<=x<=32	DR35: Cryptodata	BYTE		O	x

Table 4-25   CFC – connections of SFT_FTC – DS35 outputs

4.1.29 Last log data (data record 44)

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MMC_ID1_O	DR44: MMC Id number1	WORD		O	x
MMC_ID2_O	DR44: MMC Id number2	WORD		O	x
MMC_ID3_O	DR44: MMC Id number3	BYTE		O	x
Res144_O	DR44: Reserve	BYTE		O	x
Res244_O	DR44: Reserve	WORD		O	x
PROT_ID_O	DR44: Id of protocol	DINT		O	x
L_PROT_O	Text of last protocol	STRING [160]		O	x

Table 4-26   CFC – connections of SFT_FTC – DS44 Outputs

4.1.30 String (Data record 45)

Inputs (manual and/or automatic):

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ADD_TXT1_O	DR45: Additional text 1	STRING [16]		I	
ADD_TXT2_O	DR45: Additional text 2	STRING [16]		I	
ADD_TXT3_O	DR45: Additional text 3	STRING [16]		I	
ADD_TXT4_O	DR45: Additional text 4	STRING [16]		I	

Table 4-27   CFC – connections of SFT_FTC – DS45 inputs

Outputs:

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ADD_TXT1_O	DR45: Additional text 1	STRING [16]		O	
ADD_TXT2_O	DR45: Additional text 2	STRING [16]		O	
ADD_TXT3_O	DR45: Additional text 3	STRING [16]		O	
ADD_TXT4_O	DR45: Additional text 4	STRING [16]		O	

Table 4-28   CFC – connections of SFT_FTC – DS45 outputs

4.1.31 Parameter for reading out MCC logs in SIMATIC (data record 46)

Inputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ACC_ID_PROT_M	DR46: Prepare access for protocol with ID	DINT		I	
LAST_PROT_SEL_M	DR46: Selection for last protocol	BYTE		I	
Res146_M	DR46: Reserve	BYTE		I	

Table 4-29   CFC – connections of SFT_FTC – DS46 inputs

Outputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
ACC_ID_PROT_O	DR46: Prepare access for protocol with ID	DINT		O	
LAST_PROT_SEL_O	DR46: Selection for last protocol	BYTE		O	
Res146_O	DR46: Reserve	BYTE		O	

Table 4-30   CFC – connections of SFT_FTC – DS46 outputs

4.1.32 Protocol data (data record 47)

Outputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MMC_ID_1_O	DR47: MMC Id number 1	WORD		O	
MMC_ID_2_O	DR47: MMC Id number 2	WORD		O	
MMC_ID_3_O	DR47: MMC Id number 3	BYTE		O	
Res147_O	DR47: Reserve	BYTE		O	
Res247_O	DR47: Reserve	WORD		O	
PR_ID_O	DR47: Id of protocol	DINT		O	
PROT_DAT1_O	DR47: Text of protocol part 1	STRING[40]		O	
PROT_DAT2_O	DR47: Text of protocol part 2	STRING[40]		O	
PROT_DAT3_O	DR47: Text of protocol part 3	STRING[40]		O	
PROT_DAT4_O	DR47: Text of protocol part 4	STRING[40]		O	

Table 4-31   CFC – connections of SFT_FTC – DS47 outputs

4.1.33 Overview of current records in MMC (data record 123)

Outputs

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
PRT_PR_ID_O	DR123: Id number for printer protocol	DWORD		O	
MMCID_1_O	DR123: MMC Id number 1	WORD		O	
MMCID_2_O	DR123: MMC Id number 2	WORD		O	
MMCID_3_O	DR123: MMC Id number 3	BYTE		O	
Res1123_O	DR123: Reserve	BYTE		O	
Res2123_O	DR123: Reserve	WORD		O	

MMC_CAP_O	DR123: MMC capacity bytes	DINT		O	
MMC_CAP_PR_O	DR123: MMC capacity bytes for protocol	DINT		O	
CAP_TR_O	DR123: Capacity for trace bytes	DINT		O	
OLD_MMC_PR_O	DR123: The oldest id of MMC protocol	DINT		O	
NEW_MMC_PR_O	DR123: The new id of MMC protocol	DINT		O	
OLD_MMC_TR_O	DR123: The oldest id of MMC trace	DINT		O	
NEW_MMC_TR_O	DR123: The new id of MMC trace	DINT		O	
OLD_RAM_TR_O	DR123: The oldest id of RAM trace	DINT		O	
NEW_RAM_TR_O	DR123: The new id of RAM trace	DINT		O	

Table 4-32   CFC – connections of SFT_FTC – DS123 outputs

4.2 CFC CMD_FTC (FB647)

4.2.1 Calling OBs

The block should be installed in the timed interrupt OB, in which the associated driver block of the Siwarex-module is also processed (e.g. OB32). The block must also be installed in the OB100 (carried out automatically in CFC).

4.2.2 Start-up characteristics

Internal flag variables are reset on start-up to enable every pending input bit to be identified as a positive edge and the corresponding command to be issued following initialization.

4.2.3 Function and functional principle

The CMD_FTC block acts as the connection block for the driver block's automatic commands for controlling a Siwarex FT module (SFT_FTC).

There is an input bit for every possible command code and for reading and writing data records. The corresponding command is initiated when the input bit has a positive edge. If several commands are started simultaneously, they are routed to the SFT_FTC block sequentially. After a command is executed, the subsequent pending command to be executed is searched for from its position. Error codes pending at inputs HPRIO1..5 are executed with a higher priority than all other commands (HPRIO1 has the highest priority) and, if necessary, also interrupt linked commands (CMD_601 to 699).

Commands are not routed from the CMD_FTC command block to the SFT_FTC driver block when in manual mode.

4.2.4 Interconnection with SFT_FTC block

Inputs MAN_AUT, CMD_FOK and CMD_ERR of the CMD_AWI block must be connected to outputs QMAN_AUT, CMD_FOK and CMD_ERR of the SFT_FTC block. Outputs AUT_CMD and AUTCMDEN are connected to the SFT_FTC block inputs of the same name.

4.2.5 I/Os of CMD_AWI

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
MAN_AUT	1=AUTO, 0=MANUAL Mode (for connection with QMAN_AUT of SFT_FTCI)	BOOL	FALSE	I	
CMD_FOK	Command ended without error (for connection with CMD_FOK of SFT_FTC)	BOOL	FALSE	I	
CMD_ERR	Command ended with error (for connection with CMD_ERR of SFT_FTC)	BOOL	FALSE	I	
HPRIO1..5	Commands executed with higher priority (HPPRIO1 has the highest priority)	INT	HPRIO 1: 101 HPRIO 2..5: 0	I	
CMD01..CMD199	Commands 1 to 199	BOOL	FALSE	I	
RD_DR1..130	Read data record 1..130	BOOL	FALSE	I	
WR_DR1..130	Write data record 1..130	BOOL	FALSE	I	
CMD601..699	Commands 601..699 (linked commands)	BOOL	FALSE	I	
RESET	Reset block	BOOL	FALSE	IO	
AUT_CMD	Automatic error codes (for connection with AUT_CMD of SFT_FTC)	BOOL	FALSE	O	
AUTCMDEN	1= Execute automatic command (for connection with AUTCMDEN of SFT_FTC)	BOOL	FALSE	O	

Table 4-33   CFC – Connections of CMD_AWI

4.3 MOD_SIWA (FB648)

4.3.1 Area of application

The block acts as the interface of a Siwarex scale module for the PCS 7 maintenance station.

4.3.2 Calling OBs

Timed interrupt OB, in which you install the block (e.g. OB32). The block must also be installed in the following OBs in the run sequence (carried out automatically in CFC):

OB100   Restart

4.3.3 Use in CFC

The CFC function "Generate module drivers" automatically:

- Installs the MOD_SIWA block in its runtime group at the blocks named above, downstream from the RACK block runtime group

- Configures the inputs SLOT, RACK_NO, SUBN1_ID, SUBN2_ID

- Interconnects

  - inputs PERAF, MODF and RACKF are connected to outputs QPERAF, QMODF and QRACKF of the corresponding MOD_1-block

  - inputs PARF and PA_DIAG are connected to outputs QPARF und ODIAG of the corresponding Siwarex driver block

4.3.4 Function

The block forms the maintenance state (MS) for the Siwarex module and sends the corresponding messages to WinCC.

MS	Condition
0, good	No error
7, maintenance; need high	Module removed/defective (MODF = 1) or Module not operative (PA_DIAG = 16#0100)
8, uncertain	Rack error (RACKF = 1)

Table 4-34   Maintenance-States of CMD_FTC

4.3.5 Message text and message class assigned to the block parameters

Message block ALARM_8P	Message no.	Block parameter	Default message text	Message class
EV_ID	1	QMODF	Device @1%d@/ @2%d@/ @3%d@: Withdrawn	S
	2	QPARF	Device @1%d@/ @2%d@/ @3%d@: Configuration error	S
	3	QPERAF	Device @1%d@/ @2%d@/ @3%d@: Access error	S
	4	QMOD_ERR	Device @1%d@/ @2%d@/ @3%d@: bad, maintenance alarm	S

Table 4-35   CFC Message texts of MOD_SIWA

4.3.6 Assignment of associated values to the block parameters of MOD_SIWA

Message block ALARM_8P	Message no.	Block parameter	Meaning
EV_ID	1	SUBN1_ID	Number DP master system
	2	RACK_NO	Subassembly support/station number
	3	SLOT_NO	Slot number

Table 4-36   CFC associated values of MOD_SIWA

4.3.7 I/Os von MOD_SIWA

Connection (Parameter)	Meaning	Data type	Default setting	Type	O&O
CH_EXIST	Channel available	DWORD	0	O	+
CH_OK	Channel OK	DWORD	0	O	+
EN_MSG	1 = Message cleared	BOOL	TRUE	I	
EV_ID	Message number		DWORD	0	I
MODF	1 = Module removed/defective	BOOL	FALSE	I	
MS	Maintenance status		DWORD	0	I
MSG_ACK	Message acknowledgement		WORD	0	O
MSG_STAT	Message error information		WORD	0	O
O_MS	Maintenance status		DWORD	0	O
PA_DIAG	PA diagnostic information	DWORD	0	I	
PARF	1 = Peripheral access error	BOOL	FALSE	I	
PERAF	1 = Peripheral access failure	BOOL	FALSE	I	

QERR	1 = Error	BOOL	FALSE	O	
QMODF	1 = Module removed/defective	BOOL	FALSE	O	
QMSG_SUP	1 = Message suppression active	BOOL	FALSE	O	+
QMSGERR	1 = Message error	BOOL	FALSE	O	
QMOD_ERR	1 = Siwarex module error	BOOL	FALSE	O	
QPARF	1 = Parameterization failure	BOOL	FALSE	O	
QPERAF	1 = Peripheral access error		BOOL	FALSE	O
RACK_NO	1 = Subassembly support/station error			BYTE	0
RACKF	Subassembly support number	BOOL	FALSE	I	
RUNUPCYC	1 = Subassembly support/station error	INT	10	I	
SLOT_NO	Initialization cycles	BYTE	0	I	
SUBN1_ID	Slot number		BYTE	16#FF	I
SUBN2_ID	Number of the primary DP master system		BYTE	16#FF	I

Table 4-37 CFC – connections of MOD_SIWA

5 Description of the Faceplates

5.1 General

Operation and monitoring of the scale via WinCC faceplates is described below.

Descriptions of the individual scales parameters and scale functions are provided in the SIWAREX FTC_B manual and are not explained individually where each faceplate is displayed.

The example faceplate for the SIWAREX FTC modules was created with the Faceplate Designer from PCS7 version 6.1. The WinCC images and scripts that are created can be modified according to individual requirements.

Every time a new view is opened, the displayed parameters are read. Data is not reread when tabs within a view are switched. Data can be updated at any time by clicking the "Receive Data" button.

Note: After translating the OS the OS project editor has to be called once. The OS part of the PCS7 installation has to be installed on all OS and OS server that have to deal with the Siwarex FTA Faceplates.

5.2 Calling Up Faceplates

The process for calling up faceplates can be configured in the Graphics Designer (Dynamic Wizard -> Picture Functions -> Picture selection via measurement point). The faceplates themselves can be called up via the Typical provided.

2 different typicals are available, one with weight display and a second with silo and weight display.

Fig 5-1 Typical with belt and flow value
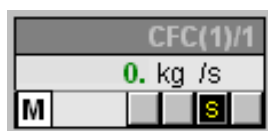
Fig 5-2 Typical with flow value

The Typical is defined in CFC SFT_FTC. A checkmark is set against "Create block icon" in CFC properties. The Typical is defined in the field underneath:

Blank, 1   : Typical with silo and weight display

2   : Typical with weight display

0, > 2   : no Typical

The selection is imported into the OS through OS compilation.

5.3   Faceplate Display in OS

All views of the sample faceplate including their functions are shown in the following sections.

When the buttons "Send Data" and "Receive Data" are confirmed the entire data record is sent or received, also the data which is not displayed.

5.3.1   Standard View

The standard view displays the current flow of the scales and a number of selected statuses. The Manual/Automatic operating modes can also be switched.

In automatic mode, only reading of data records is permitted.
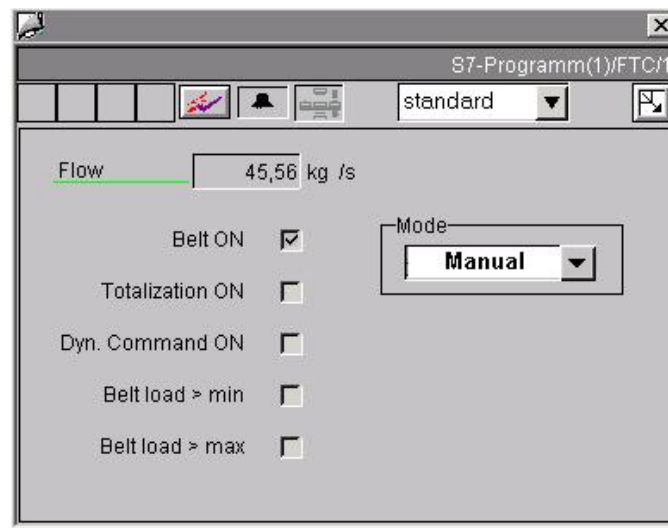
Fig 5-3   Standard view for SIWAREX FTC

5.3.2   Service view

There are several service views. Editing the data for all service views enables scale adjustment and parameterization from the OS. Core parameters for data records 3 (adjustment parameters) and 5 (belt scale) are set in the Calibration 1, Calibration 2 and belt scale tabs. Adjustment and scale commands can be issued in the Operation tab.
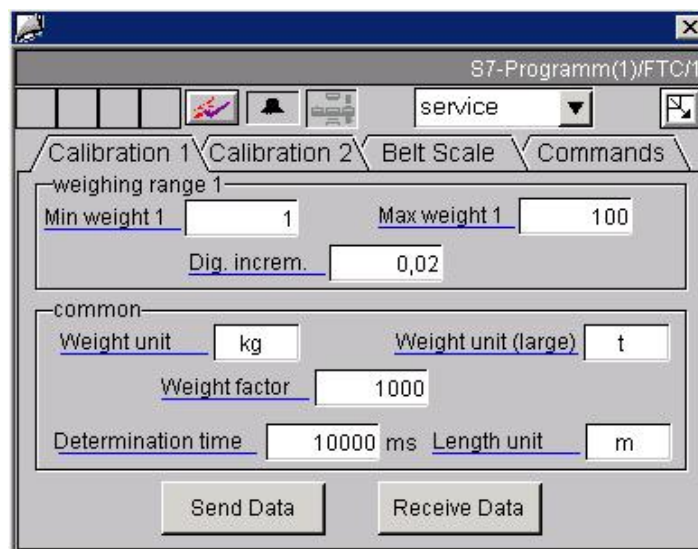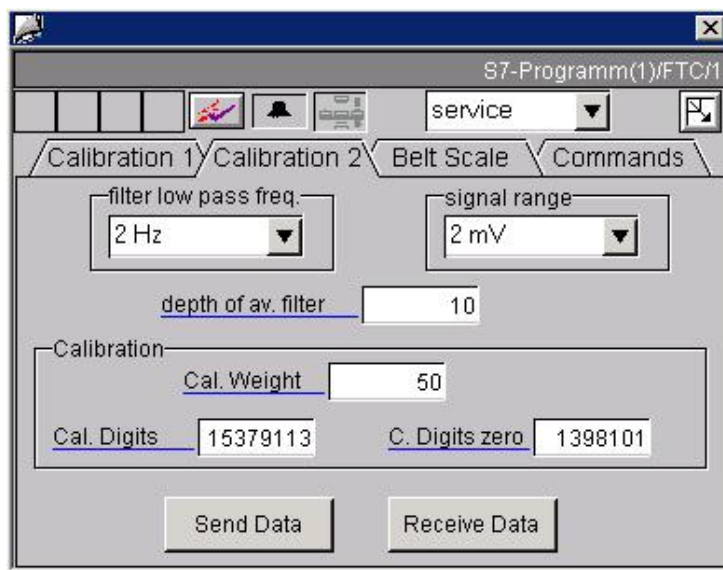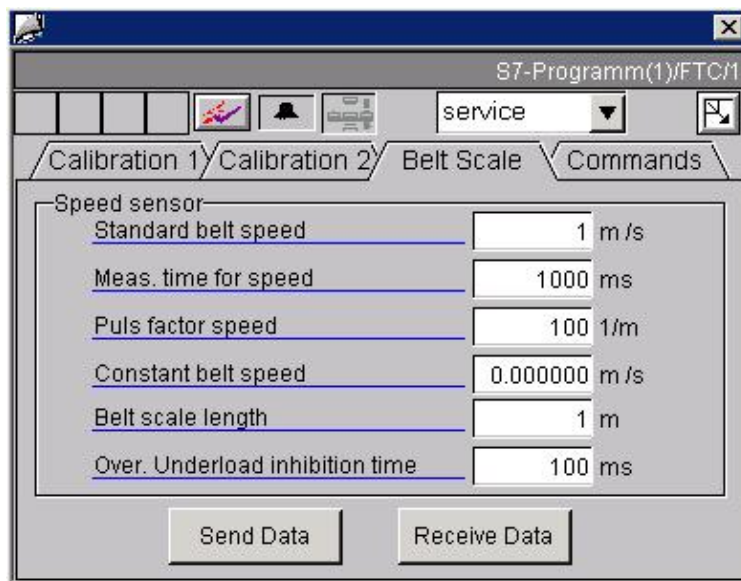

Fig 5-4   Calibration 1 view

Fig 5-5   Calibration 2 view

Fig 5-6   Belt scale view
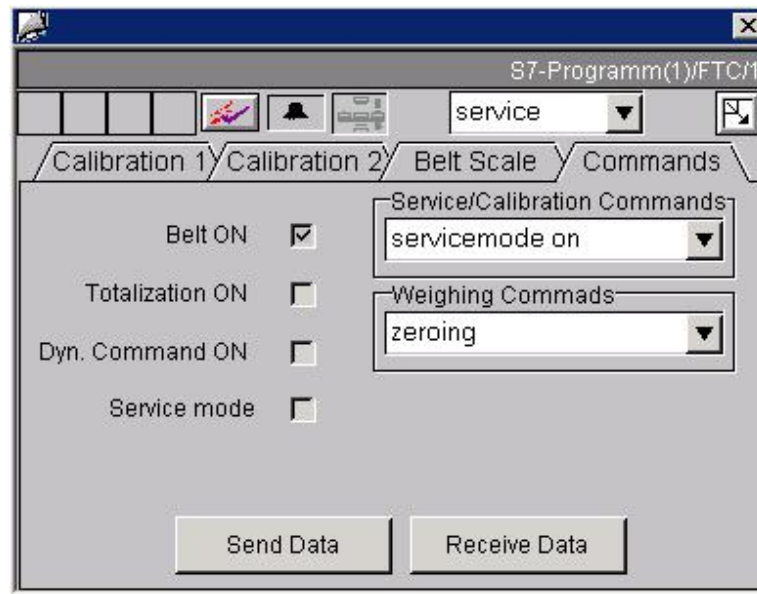
Fig 5-7   Belt scale view

The following commands can be issued via the faceplate.

Service/Calibration Commands:

- servicemode on

- servicemode off

- zeroweight valid

- adjustmentw. 1 valid

- acknowledge error

Weighing commands:

- Set to zero

- Tare

- Delete tare memory

5.3.3   Dosing view

In this view the operator can watch, delete- and protocol all the totalizers. Deleting means that the totalizer left hand to the button will be set to zero. "Delete and Prot." Means that the toalizer will be printed with log text 1 (The totalizer has to be in log text 1) and after that set to zero. The button "Delete all" will cause a set to zero of all totalizers, in tab "Sum 1" and "Sum 2". The "Actualize" button will read the data

record 33 one time, all totalizers will be updated, only after pressing this button the display will be updated.
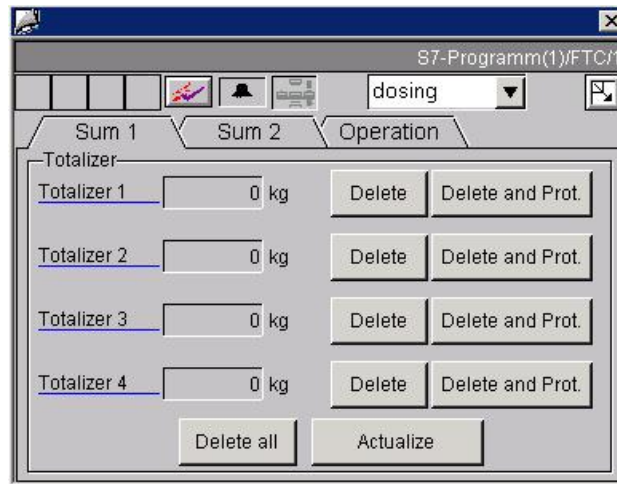

Fig. 5-8   View sum 1/2

In this view the operator can watch the flow value and activate all important command for the belt control, totalizing and dosing.
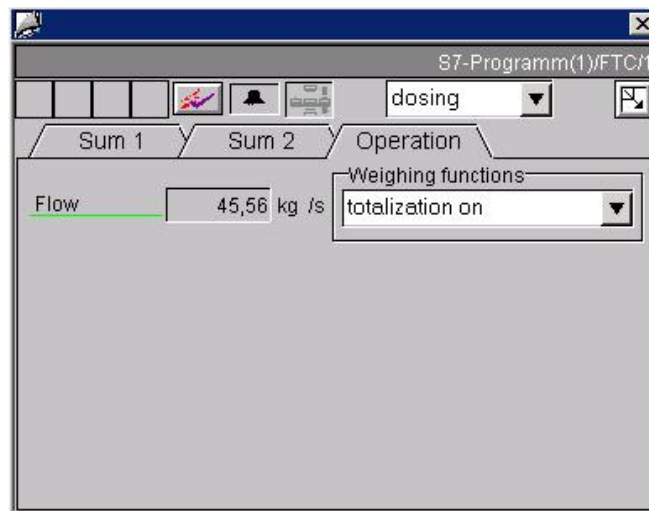

Fig. 5-9   View operation

5.4   Faceplate creation

Mainly, those standard items that are described in the documentation on the Faceplate Designer and that have been delivered with the Faceplate Designer are

used. This description concentrates on the features that have been implemented for the SIWAREX FTC Faceplate.

Tabs

To help clarify matters, two Faceplate view with up to 4 tabs have been shown in different images. Switching between the tabs is done using function „SH6_ChangeView_tab.fct". Each tab must have the name of the image that it is calling.

Reading data record during selection of faceplate view

A command to read data displayed in the faceplate view is always issued for the FP_CMD manual input when a new view is added in the faceplate. The function block copies the value from FP_CMD to the MAN_CMD manual input when no other command (MAN_CMD=0) is present here. This prevents any potential commands pending at the MAN_CMD input from being overwritten when the view in the faceplate is changed.

The button used to read data is inactive while a data record is being read, in order to indicate this.

Operating authorization

In every view, an element having the name „Level5_MODE" or „Level6_MODE" is found. These elements do not only the enable operating authorization from the User Administrator but they also deny operating authorization in Automatic operating mode. This is done with function „SH6_CheckPermission_Plus.fct", which is called when the image is loaded and when the operating mode is changed. Passing the operating mode to the individual elements is performed through direct connections.

Only the Manual-Automatic switch with the "single operating authorization" (level5) can be used with the default settings. All other operations require the "higher value operating authorization" (level6).

Combo-boxes with several entries

Various combo-boxes have 3 or more entries. These combo-boxes are described further using an example of the combo-box for the dosing commands.

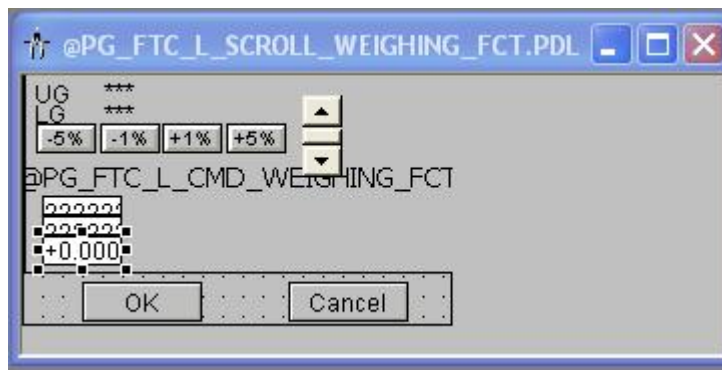With a mouse click on the combo-box, the image „@PG_SFT_FTC_SCROLL_WEIGHING.pdl " is opened:

Fig. 5-10   Combobox with several entries

The image „@PG_SFT_FTC_SCROLL_WEIGHING.pdl" is based on the „@FPD_BedAnalog.PDL" image. The main difference is that the analog value is not entered in the IO-field, instead, a command which has an analog value assigned as the command code is selected. The commands are listed in individual text fields in the image "@PG_SFT_SFC_CMD_WEIGHING.pdl":

Fig. 5-11   Command selection

While selecting a command with the mouse, the command code is written into the IO-field "Value" of the „@PG_SFT_FTC_SCROLL_WEIGHING.pdl" image. If the output value „Value" is changed then the transmitted command is highlighted in colour and the respective command code is transferred to the block with „OK".

6 Configuration Example

One of the sample projects in SIMATIC Manager is the zXy70_04_SIWAREX_FTA project; this allows a PCS7 configuration for SIWAREX FTA to be quickly and easily established through several adjustments to its own environment. The example is applicable to two scales. For instance, SFT_FTC is configured for one scale, while SFT_FTC in conjunction with CMD_AWI is configured for the other.

For the project to be adapted, the following must be carried out in particular:

- the hardware configuration must be adapted

- connections must be secured

- suitable addresses must be configured on SFT_FTC.

7 Abbreviations

AS	Automation system
CFC	Continuous Function Chart (PCS7)
DO	Digital output
DI	Digital input
DR	Data record
FC	STEP7 Function call
FB	Function block
HSP	Hardware Support Package
HW	Hardware
OS	Operator Station
PC	Personal-Computer
SFC	System Function Call (System function)
SIWATOOL	Windows-Software Commissioning and Service of SIWAREX FTA