

SIMATIC

Automation system BRAUMAT/SISTAR*Classic* V5.3 Batch trending

Manual

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This manual is part of the documentation package with the order number:
6FD7680-0PH03

Edition 04/2010
A5E00239387-05

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Preface

Purpose of the Manual

This manual covers the basic description of batch trending with BRAUMAT/SISTAR Classic V5.3 and gives you an overview of the following topics:

- Engineering
- Batch relation
- Triggering
- Visualization
- Manual inputs
- Archiving
- Installation and Configuration

This manual is intended for those responsible for configuring, commissioning and servicing automation systems.

Required Basic Knowledge

You require a general knowledge in the field of automation engineering to be able to understand this manual.

In addition, you should know how to use computers or devices with similar functions (e.g programming devices) under Windows 2000 Prof./Windows 2000 Server or Windows XP Prof./Windows Server 2003 operating systems. Since BRAUMAT/SISTAR *Classic* V5.3 is based on the STEP 7 software, you should also know how to operate it. This is provided in the manual "Programming with STEP 7 V5.3".

Please read always the file "readme.wri" to the current version of BRAUMAT/SISTAR*Classic* before an installation of BRAUMAT/SISTAR*Classic* components.

Where is this Manual valid?

This manual is valid for the software package BRAUMAT/SISTAR*Classic* **from Version V5.3 SP2.**

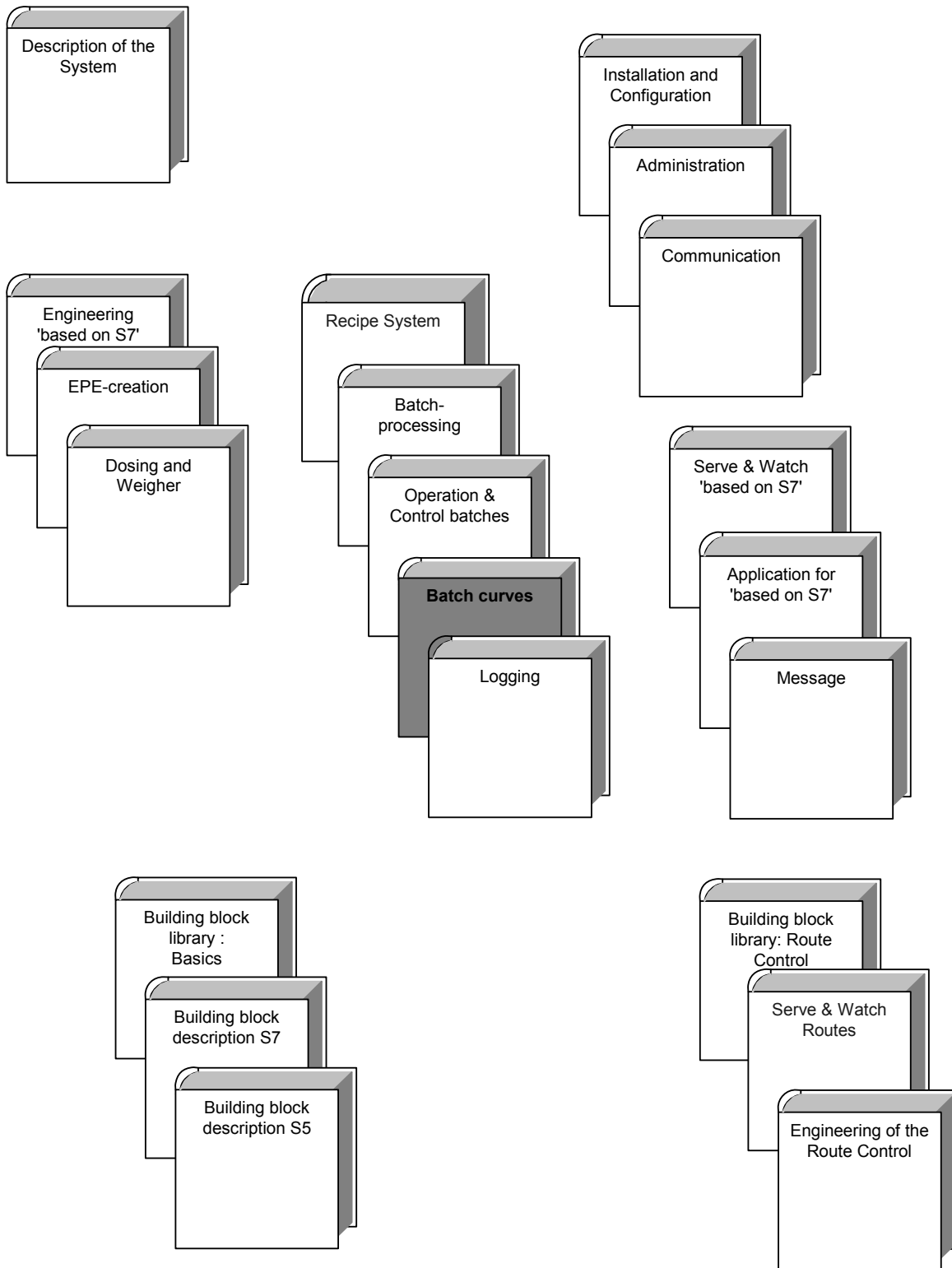
The offered electronic manual is most largely identical with the contents of the on-line help. Due to a technically necessary editorial deadline for the generation of electronic manuals occasionally smaller deviations can give up opposite the on-line helps.

The statements in the on-line helps are primary to those of the manual.

Place of this Documentation in the Information Environment

This manual forms part of the BRAUMAT/SISTAR Classic V5.3 documentation package. The following schematic of the document architecture show the individual manuals as well as their thematic grouping within the entire program package

Document structure



Further Support

If you have any technical questions, please get in touch with your Siemens representative or agent responsible.

You will find your contact person at:

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You will find a guide to the technical documentation offered for the individual SIMATIC Products and Systems here at:

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- The right documents via our Search function in Service & Support.
- A forum, where users and experts from all over the world exchange their experiences.
- Your local representative for Automation & Drives.
- Information on field service, repairs, spare parts and more under "Services".

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1 Batch curves

1.1 Overview

- The System BRAUMAT/SISTAR Classic V5.3 records batch-oriented measured value curves, triggered by the PLC. There are not triggered any individual measured values but groups of curves. Measured values can be divided into up to a maximum of 240 curve groups.
- It is recorded from a server. On the server the application 'trendmanager' must run.
- If measured values are recorded by a server, the number of available process variables is reduced by this quantity, as trending uses the same mechanism.
- More than 1 server can record curves in the plant.
- A compression procedure is used by recording.
- A list describing the measured values needs to be created. The list describes all measured values to be recorded. For each server this list may contain up to 1200 entries for analog values and 999 entries for digital values.
- Digital measurement values can be derived from the analog signals 1-999.
- BRAUMAT/SISTAR Classic V5.3 can also include weekly files and short-time records besides batch curves.
- Digital measured values could be recorded as well as analog curves. The digital measured values are calculated based on the analog signals.
- Curve visualisation is provided by a client application, which can run on each BRAUMAT/SISTAR Classic V5.3 system.
- The client can visualize measured values from different curve servers.
- Values are grouped, whereas a group can contain at most 8 analog and 24 digital measured values.
- An aggregation of several values is called a „curve picture“.
- It is possible to put several curves on top of the other and move and stretch them for the comparison.

Note

On account of a modified telegram structure in the batch relevant client – server communication the following restriction exists:

On upgrading existing plants it should be noted that starting from BRAUMAT/SISTAR Classic V5.3 **no mix of systemversions** between client and server IOSes is supported.

It is not possible f.e. to access stored curves on a V5.2 server from a V5.3 client and vice versa.

Configurations

- Single-user configuration
Curve record as well as curve visualisation run on the same OS.
- Client-server configuration
There is a curve record on one or two redundant Servers and the curve visualisation is available on all clients.
- Multi-client–server configuration
recording is done on several or redundant server. Measured values are visualized by several server.

1.2 Measured value type

Measured values must be assigned one of the following types:

- 1: Short term curve
This measured value can only be used in short-term record files.
- 2: Batch archive
The measured value can be used in batch archives and in weekly archives.
- 3: Weekly archive
This measured value can only be used in weekly archives.

1.3 Curve groups

A curve group contains several values, which are related in a technological manner. Recording is enabled or stopped for the whole group, whereas **at most 240 groups** can be configured.

Grouping of curves is done at engineering of the description list mentioned above.

1.3.1 Status of the curve groups

The PCU software includes a **trigger–data block**, which aggregates the actual informations about all curve groups (status list). The data record of a curve group includes four data words (DB689 in SIMATIC S7).

Structure of the data block

Address (in DW)	Meaning	
Offset	Offset	Has the value 2
Offset + (n-1)*4	Job number	n = Group number
Offset + (n-1)*4 + 1	Batch number	n = Group number
Offset + (n-1)*4 + 2	Year / Recipe type	n = Group number
Offset + (n-1)*4 + 3	Recipe number	n = Group number

1.4 Triggering curves

Triggering (enabling/stopping) of collecting data within the PCU is done by a function block **"trigger–function block FC 695"**. Batch informations as well as curve groups are created. Batch information as well as the curve group number is provided for this block.

The function block is called by recipe procedures or sequence function blocks.

1.5 Comparison curves

The Option “Compare curves” provides the possibility to view several batch or weekly archives simultaneously for comparison purposes. In that way you distinguish between two functions.

Free Selection

- Function 1:
You can open up to 8 batches or week-archives for a configured curve picture (Selection of measured values). The graphs can be moved in order to get them matched for an easier comparison.
- Function 2:
By “free selection” you can select curves from different batches. That selection is used as a reference (Step 1 of Selection) for comparison with another batch.

Compare curves

In order to get the quality of a produced batch, the curve graphs of one batch or selection (Step ‘Free Selection’) can be compared with the corresponding curves of another batch.

Note:

If digital values are configured in the opened curve picture too, the comparison feature is not selectable.

Enable

The function must be enabled in general.

file: ...\windcs\sys\kurven.ini
section: [Select]
key: CmpOptionEna=1

1.6 Archive editor

The archive editor is used for:

- editing manual values into the file and for the transfer of these input values into the PCU,
- a manual modification of curve values

2 AS-Engineering

2.1 Overview

This chapter describes, what to do in the PCU and how to configure it in order to get curves recorded.

2.2 How 'triggering' works

Batch information are transferred into the trigger data block by starting the trigger.

In addition the Trendmanager is informed about the start of a record for the curve group.

The trendmanager reads the batch data and starts with recording the corresponding curve group.

By stopping records a message is sent to the trendmanager, it stops the recording of measured values for this group.

2.3 Batch reference of trigger data block

- Direct input of the batch reference (iSEQID = 0; boACTSEQ = 0).
- Indirect addressing via sequencer-number (iSEQID > 0; boACTSEQ = 0).
The batch reference is read from the sequencer data record, which is indicated via the parameter 'iSEQID'.
- Indirect addressing via sequence number, which is actually processed (iSEQID = 0; boACTSEQ = 1), this is only possible in BRAUMAT/SISTAR Classic V5.3 based on S7[®].

2.4 Input parameter of the trigger function block

iID (integer; from 1 – 240)

The curve group number must be provided manually and must be the same as configured in the measured value description list.

byRecCat, byYear, iOrder_No, iBatch_No, iRecip_No

The batch reference can be provided directly via these inputs. The parameters are transferred into trigger-DB when starting the group.

boRun (bool)

A rising edge at this input parameter starts recording values for this group. The input parameters RecCat, Year, Order_No and Batch_No are taken as batch information at the time, boRun goes from 0 to 1.

boActSeq (bool)

This input parameter is only used in versions “based on S7” and means, that the batch reference is taken from the sequence which is processed actually.

iSeqID (integer)

This input parameter references the sequencer (number) from which the batch reference should be taken.

2.5 Call examples

Direct input of the batch reference

The start and the batch reference can be provided independently by the sequencer with this call:

```
CALL "TRIGG_CURVE_GR_FC"
  boRUN      :=TRUE
  boACTSEQ   :=FALSE
  iID        :=0
  iSEQID     :=0
  byYEAR     :=B#16#1
  byRECCAT   :=B#16#1
  iORDER_NO  :=4711
  iBATCH_NO  :=1
  iRECIP_NO  :=1
```

Indirect indication by Sequencer-number

This call is necessary for background tasks of a sequence, which run independently from the sequence process itself but should trigger the curves anyway.

```
CALL "TRIGG_CURVE_GR_FC"
  boRRUN     :=TRUE
  boACTSEQ   :=FALSE
  iID        :=0
  iSEQID     :=10
  byYEAR     :=B#16#0
  byRECCAT   :=B#16#0
  iORDER_NO  :=0
  iBATCH_NO  :=0
  iRECIP_NO  :=0
```

Indirect by sequence which are processed actually

This call is only used in versions “based on S7”. You should call it in an EOP/EPH (FC1001 – FC1999) or in the sequencer function block (FB1001 – FB1064). Only the curve group and the parameter boACTSEQ = 1 should be provided; all other parameters aren't important.

```
CALL "TRIGG_CURVE_GR_FC"
  boRUN      :=TRUE
  boACTSEQ   :=TRUE
  iID        :=0
  iSEQID     :=0
  byYEAR     :=B#16#0
  byRECCAT   :=B#16#0
  iORDER_NO  :=0
  iBATCH_NO  :=0
  iRECIP_NO  :=0
```

2.6 Telegram for triggering

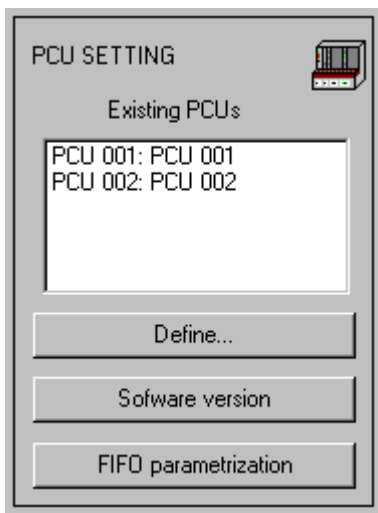
Buffers (FIFOs) must be configured for the trigger telegrams (type 18). The message type must be configured for one of three FIFOs for the server. If curves are recorded parallelly, two FIFOs must be configured - FIFO 3 or FIFO 6 should be used as a default configuration.

Direct input

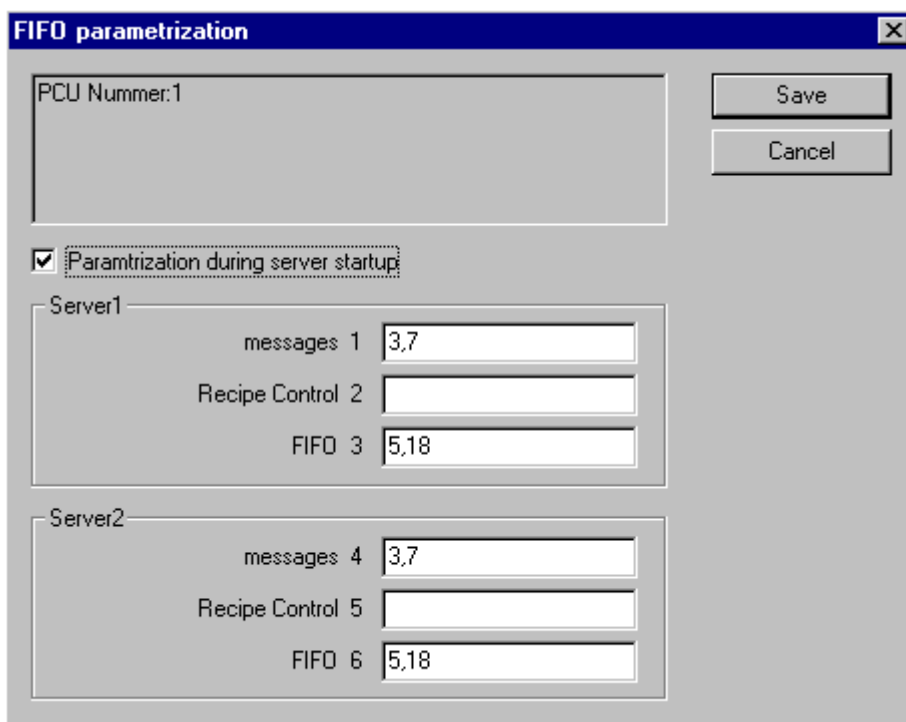
The input of the message type can be done directly via the parametrization tool. However, you can use the automatic configuration during server startup.

Server startup

You can let the system parameterize the FIFOs during the startup of a server, this is then done automatically but must be activated via the application "system adjustments" by pressing the button 'FIFO configuration'.



Then define and activate the FIFO configuration.



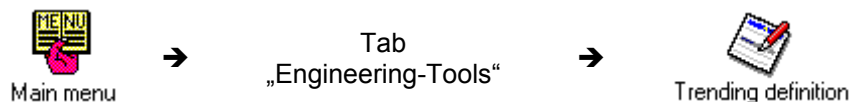
Please enter the message type 18 and enable the checkbox.

The standard message types for the recipe system and route control are configured automatically and needn't to be preselected.

3 Installation and Operation

3.1 Application “trending definition”

Every value to be measured has to be defined first. This is done by the application “MeasEdit.exe”. You can find it here:



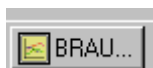
3.2 Starting the Trendmanager

For recording batch curves you must start the application ,Trendmanager‘ (trendman.exe) on the server, doing this in different ways.

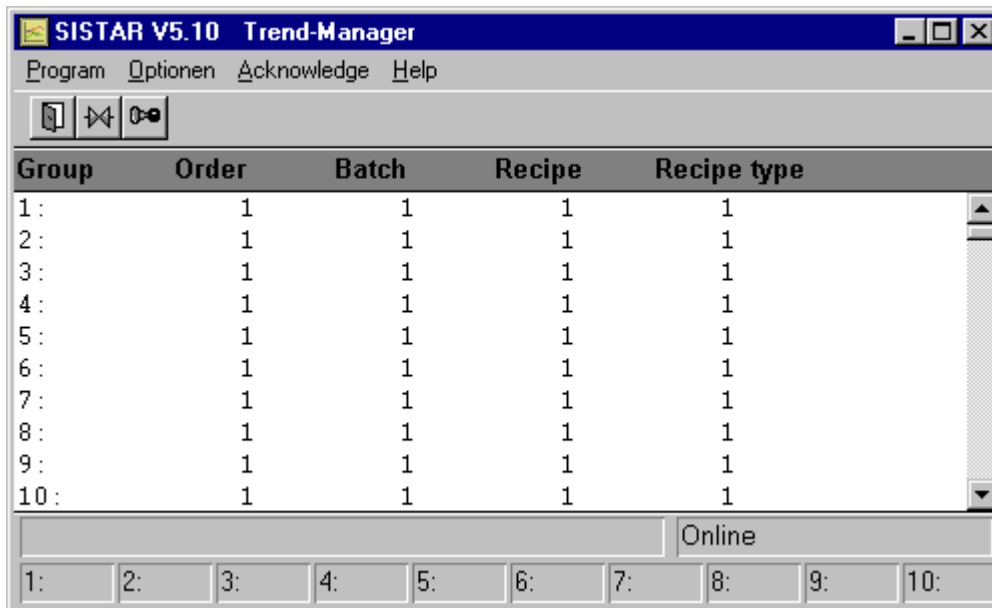
- Manually:
This type isn't recommendable since you easily forget the start of the curve record.
- With the main menu:
 - 1. old AREA.INI format**
Via an adjustment in the file \windcs\sys\sys.ini\windcs you can configure the system to start the trendmanager.
section: [PC]
key: AutoStart=trendman.exe
 - 2. Extended AREA.INI format**
The key is in "\windcs\sys\area.ini". You can enter the key by means of the 'System settings→Configtool' (SiteCfg.exe) application. In the IOS-Settings dialog please enter 'trendman.exe' in the Autostart field

3.3 Trendmanager window

The trendmanager has no operator interface in the standard operation, runs as process on the server and is displayed as an icon in the toolbar. The window can't be opened directly.



Pressing the ,ALT' key and Mouse clicking on the icon at the same time will open the window, which lists all curve groups and their actual batch information:



The window can be opened automatically when the program starts by the following settings in "windcs\sys\trendman.ini":

Entry: [Window]
 Key: Show=1

3.4 Configuration of batch curves

You can make modifications for batch curves, by editing the file ,\windcs\sys\trendman.ini' in an ASCII editor.

Note:

Further information is available at the Simatic Customer Support Center (addresses / partners are found in the preface of this manual).

3.4.1 Configuring the server

➤ Server

All curve servers are configured in this section, whereas it is possible to enter more than 1 server. The servers must be separated by a ; (semicolon) . The syntax for each server is <IOS-Nr>\$<Path>. <Path> defines a network path of the curve server.

Entry: [Network]
 Key: Server=1\$\IOS01c\windcs

3.4.2 Configuring recording

- **StoreOnExit**
Save data before closing the application ON (1, default) or OFF (0).
Entry: [App]
Key: StoreOnExit=1
- **STBufferSize**
Size of the buffer for short-time curves. The default value is 150, the allowed range is 60 to 1800.
Entry: [App]
Key: STBufferSize=150
- **StartMark**
Enables (1, default) or disables (0) saving additional user information, when start trigger rises.
Entry: [App]
Key:
StartMark=0 (Default)
When trend recording is switched off by the curve trigger function or by closing Trenman.exe and then switched on again, the off value is linked to the start value, i.e. the user does not see that trend recording was interrupted.

Startmark=1
This sets a start flag at 80000000 hex in the curve archive each time trend recording is started. This value is not shown as curve value, but is only an identifier for the curve output. The end value is thus not linked to the start value in the curve display, i.e. the curve is interrupted at this point, and the user can recognize this interruption.
- **FlushCycle**
Measured values are recorded in intervals according configuration in the measured value description list. In order to reduce the amount of hard disk accesses, the measured values are collected in main memory of the server and written on the disc after a certain time. The cycle of storing can be defined by this indication (in seconds, default is 15 seconds). If there is a failure on the server, the values which are hold in the main memory will get lost.
Entry: [App]
Key: FlushCycle=15
- **DiffTime**
In BRAUMAT/SISTAR Classic V5.3, measured values are already recorded in a compressed form, values are only recorded if the difference between the old and the new value exceeds a certain hysteresis value. Therefore it could be possible, that a value won't be recorded for a very long time.
The user can force writing the value onto disk at least after a given period of time (in seconds, the default value is 3600 seconds (60 minutes)).

Entry: [App]
Key: DiffTime=3600

3.4.3 Configuring the client


For showing curves on a client the user must enter parameters in the file
...\\windcs\\sys\\trendman.ini:

Entry: [Network]
Key: HostIPAddr=192.168.1.1

Enter the IP-address of the assigned curve server.

3.4.4 Configuring folders

Folders for reading and writing data are done in 'windcs\sys\sys.ini'. There is more than one path possible for a category (paths are grouped as categories).

( See also:  Installation&Configuration  9.3)

The batch curves take always the first entry, parameters must be separated with ; (semicolon).

All data for the batch curves are written and read via the category 'Configuration'.

Category: Configuration

Entry: [Paths]
key: Proj=

3.5 Redundancy

Curve record

Recording curves can be done redundantly by two servers, which run independently from each other.

Client

A client is connected with 1 server, if this server fails, the user must modify the client configuration manually to access the other server. There is no automatic switchover to the other server.

3.6 Where the data is located

The following files are important:

'windcs\trend\ini\measdesc.def'

This is the description file for the analog measured value description list. The file is copied during installation. The file mustn't be changed, as it contains the structure of the data records for a measured values.

```

0  Structur of measurevalue-description-list
97
1  MEASURE_NR  CINT  3  measurevalue number
4  BLOCK_NAME CHAR  6  block name
10 DATAR_NAME  CHAR 16  data record name
26 DATAR_NR    CINT  4  data record number
30 DATAR_ELEM  CHAR  6  data record element
36 REL_ADD     CINT  3  relative address
39 ACQ_CYCLE   CINT  5  acquisition cycle
44 INF_LIMIT   CINT  6  inferior limit
50 SUP_LIMIT   CINT  6  superior limit
56 HYSTER      CINT  5  hysteresis
61 DIMENSION  CHAR 16  dimension
77 DEC_POINT   CINT  2  decimal point
79 HANDLING    CINT  1  archive handling
80 GROUP_NR    CINT  3  group number
83 PCU_NR      CINT  3  PCU number
86 BIT_DW_DRL  CINT  2  Bit/DW/DL/DR ID
88 SOURCE_TYP  CINT  2  source type
90 SOURCE_NR   CINT  3  source number
93 DW_NR       CINT  4  DW number

```

,windcs\trend\ini\measdesc.dbf‘

Analog measured value description lists are stored into this file (dBase format).

,windcs\trend\ini\digidesc.def‘

This is the description file for the digital measured value description list. The file is copied during the installation and must not be changed. The structure of the data record for a digital measured value is defined in this file.

```

0  Structur of digitalvalue-description-list
25
1  MEASURE_NR  CINT  3  measurevalue number
4  BIT_FROM   CINT  2  from witch bit
6  BIT_TO     CINT  2  to witch bit
8  CONNECT    CHAR  1  connection
9  DIGIT_NAME  CHAR 16  name of digitalvalue

```

,windcs\trend\ini\digidesc.dbf‘

Digital measured value description lists are stored within this file (dBase format).

sub folder ,windcs\trend\picture‘

Configured pictures are stored in this sub folder, whereas three different file types exists (different archives):

- *.st (short time) Short-time archive
- *.ltb (long time batch) batch archive
- *.ltw (long time week) weekly archive

sub folder ,windcs\trend\data.xxx‘

The recorded values are stored into this directory. In order to reduce the amount of the files per sub folder, the system creates a sub folder for every 50 measured values, e.g. the sub folder "data.050" contains records of the measured values # 1 up to # 50.

3.7 Storage of the pictures

In the standard delivery of the system all pictures are stored in the system folder.

This behaviour can be changed.

```

File:          kurven.ini
Entry:         [Options]
Keyl:         SynchronizeFiles=

```

Value: 1

The picture files are loaded from the first folder entry in the file sys.ini (Key: PROJ). The pictures are stored to all entries under the PROJ folder.

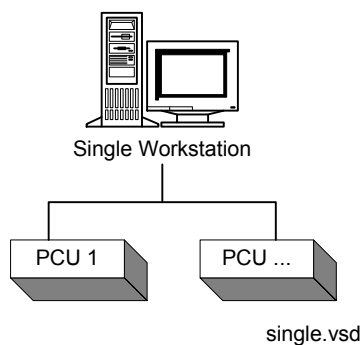
Value: 0 (Default)

All pictures are loaded and stored to the lokal system folder.

4 Configurations

4.1 Single client configuration

Recording and visualizing curves is running on the same OS.



Configuration of ,trendman.ini'

- [Network]
Server=<IOSNo>\${<System path>
The System path can be a local drive, e. g. „c:\windcs“
- [Network]
HostIPAddr=
HostIPAddr may be configured as a local IP-address or leave it empty.

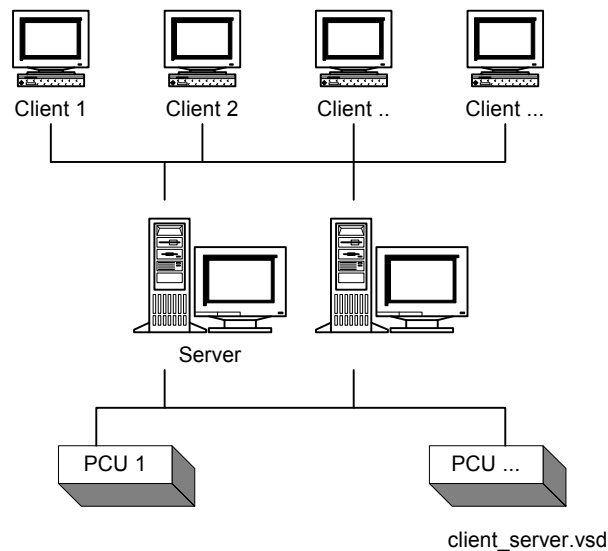
All data is recorded and read locally on the computer.

```
Trendman.ini for the example
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>)
Server=1$C:\WINDCS
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
;HostIPAddr=127.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1

Sys.ini for the example
;[Paths]
;Path for project
PROJ=c:\WINDCS
```

4.2 Client - server configuration





The recording of curve values is running on one or two redundant servers. The visualization is available on all clients.



Configuration of ,trendman.ini'

- [Network]
Server=<iosNr> \$ <System path of the Server>
The System path must be entered as computer and share name, e.g. \\ios01\c\windcs. Sharing must be available on the server machine. This key is used for the clients in order to access to the corresponding data on the server. This sharing is only necessary on the server.
- [Network]
HostIPAddr=ip address of the server
The key is only important on client machines

Configuration of ,sys.ini'

- [Path]
Proj=<system path of the server>
This key also affects other functions of BRAUMAT/SISTAR Classic V5.3.
The path is only important for the 'editor measured value description list' and the trendmanager. The curve visualization use this path depending on a setting.  See also:  Storage of the pictures
- System path of the Client
In order to enable the client to display the trend pictures, these must be stored on the client's local hard disk drive under windcs\trend\picture.
- The curve visualization use this path depending on a setting.  See also:  Storage of the pictures

INI files for the example:

Server1

Trendman.ini for Server1

```
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=1$\IOS2\c\WINDCS
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
;HostIPAddr=127.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1
```

```
Sys.ini for Server1
;[Paths]
;Path for project
PROJ=\\IOS1\c\windcs
```

Server2

Trendman.ini for Server2

```
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=2$\IOS2\c\WINDCS
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
;HostIPAddr=127.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1
```

```
Sys.ini for Server2
;[Paths]
;Path for project
PROJ=\\IOS2\c\windcs
```

Client 1

Trendman.ini for Client1

```
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=1$\IOS1\c\WINDCS
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
HostIPAddr=10.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1
```

```
Sys.ini for Client 1
;[Paths]
;Path for project
PROJ=\\IOS1\c\windcs;\\IOS2\c\windcs
```

Notes:

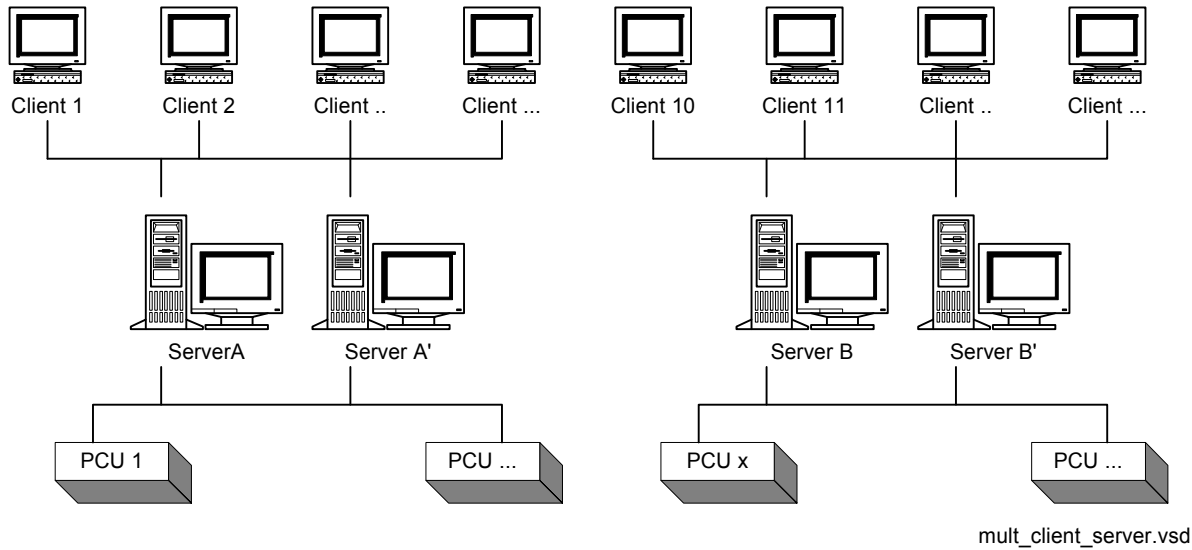
- For the client the following is valid:
Concerning the paths the trendman.ini of the corresponding server is relevant - and not its own!
- A global hosts file should exist on all clients and servers of the system under the Windows directory "system32\drivers\etc".

Example of a host file

```
10.0.0.1      IOS1
10.0.0.2      IOS2
10.0.0.11     CLIENT1
10.0.0.12     CLIENT2
10.0.0.21     CLIENT3
10.0.0.22     CLIENT4
```

4.3 Multi client-server configuration

This configuration consists either of a single server or several redundant servers. On the server as well as on the clients, measured values from several server are visualized.



Curve visualization / archive editor

The Client always accesses a curve server, which has the connection to the other server and reads the measured value description and the data from there.

The picture of the archive editor are always read locally, therefore all pictures of all servers must be hold on all the clients.

Measured value description list



The application measured value description list cannot run on multiple clients, it only can access the local list on a server. The configuration is made via the key [Path] Proj= in file ,sys.ini'. Each server pair has its own measured value description list.

configurating ,trendman.ini'

- [Network]
 Server=<losNr> \$ <Systempfad Servers 1> ; <losNr> \$ <Systempfad Server 3> ; ...
 The system path must be entered as machine name and shared folder, e.g. \\ios1\c\windcs, the server must have this share, which is necessary for all clients, for accessing the data during configuration of curves.

- [Network]
 HostIPAddr=<ip address on the server>
 The setting (one address only) is important only for clients.

Adjustments in ,sys.ini‘

- [Path]
Proj=<system path of the server>
This path setting affects also all other functions of BRAUMAT/SISTAR Classic V5.3. The path is important for the editor measured value description list and the trendmanager app, whereas the curve visualization app doesn't use this path setting.
- System path of the Client
Depending on the setting, the trend visualization function reads the trend pictures from the system folder. In order to enable the client to display the trend pictures, these must be stored on the client's local hard disk drive under windcs\trend\picture. In this system constellation, the trend picture names must be unique.
-  See also:  Storage of the pictures

INI files for the example:

ServerA

```
Trendman.ini for Server1
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=1$\IOS1\c\WINDCS;3$\IOS3\c\windcs
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
;HostIPAddr=127.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1

Sys.ini for Server1
;[Paths]
;Path for project
PROJ=\\IOS1\c\WINDCS
```

ServerA can thus visualize its own trends and those of ServerB.

ServerB

```
Trendman.ini for Server3
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=3$\IOS3\C\WINDCS; 1$\IOS1\c\windcs
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
;HostIPAddr=127.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1

Sys.ini für Server3
;[Paths]
;Path for project
PROJ=\\IOS1\c\WINDCS
```

ServerB can thus visualize its own trends and those of ServerA.

Client 1

```
Trendman.ini für Client1
[Network]
;SISTAR directories of other computers (<IOS-Nr>${<Path>})
Server=1$\IOS1\C\WINDCS
;IP-address used by KURVEN to connect to TRENDMAN (Win32 only)
HostIPAddr=10.0.0.1
;New IOS-Init.-Flag. Server-IOSen now showed in the real way
NewInit=1

Sys.ini for Client 1
;[Paths]
;Path for project
PROJ=\\IOS1\c\windcs;\\IOS2\c\windcs
```

The ServerA and ServerB trends can be visualized on Client1. To enable this function ServerA must be able to visualize the trends of ServerB, and the trend manager must be in run on ServerA.

Notes:

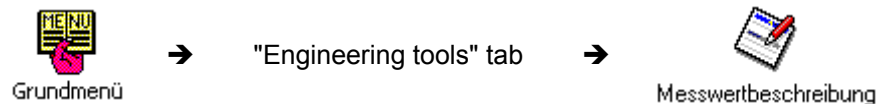
- For the client the following is valid:
Concerning the paths the trendman.ini of the corresponding server is relevant - and not its own!
- A global host file should exist on all clients and servers of the system under the Windows directory "system32\drivers\etc" (for area A and B).
Example of a host file
10.0.0.1 IOS1
10.0.0.2 IOS2
10.0.0.3 IOS3
10.0.0.4 IOS4
10.0.0.11 CLIENT1
10.0.0.12 CLIENT2
10.0.0.21 CLIENT3
10.0.0.22 CLIENT4
...
- In case of extended (new) AREA.INI – Format the path-entries in file SYS.INI are not required.

5 Measured value description list

5.1 General

All measurement values to be recorded must be configured in one of two measured value description lists: BRAUMAT/SISTAR Classic V5.3 always distinguishes between analog measured values and their derived digital values. Each one of these groups is available in a separate database file which the user should not directly edit. The measured value description list Editor (MVDL Editor) unites both lists on one user interface.

Call:



To apply the deltas in a measured value description list, you need to restart the TREND-MANAGER.

The system can only record a limited number of scanning instants. Under the assumption that all scanning instances are saved, the following interrelation can be used to calculate the smallest possible sampling cycle.

min. sampling cycle = max. recording time in seconds / number of points

The practical high limit (with acceptable performance) of the number of scanning instants is approx. 10,000, although the theoretical high limit is a rate of approx. 1,000,000.

5.2 Analog measurement values

5.2.1 Attributes

An analog measured value is characterized by the following attributes:

ID (Identification)

System-wide unique identifier of the measured value. Directly dependent on this are the derived digital values and the trends based on this measured value.

This number also defines the filename used in the archive on the hard disk drive.

Permitted number of entries: 1 to 1200.

Measured value name

Forms the name of the measured value and the caption for the trend.
The maximum length of the name is 16 characters and it may not contain any special characters.

Addressing

Analog measured values can be addresses in two ways:
1. By direct definition of an absolute address (in the Editor: "Absolute")
2. By an attribute of a system or user object (in the Editor: "System")

PCU

The measured value must originate from a control; here, the PCU number assigned in the system control is expected.

Class

Only relevant for the "System" source version: the Braumat class of the recorded measurement value.

Instance

Only relevant for the "System" source version: the Braumat instance number of the recorded measurement value.

Attribute

Only relevant for the "System" source version: the Braumat attribute of the recorded measurement value.

Absolute address

Relevant for addressing type "Absolute" only: a Simatic address in a STEP 7 syntax (e.g. DB712.DBW8). For a S5 machine an equivalent syntax is expected (e.g. DB712.DL8). For absolute addressing the Input- Output or Flags/Memory ranges in AWL-Syntax maybe defined as well (e.g.. I35.7, M99.1, MW 132, QB22).

Archive type

Every analog measured value has to be assigned one of these archive types:
- Short-time archive
- Batch archive
- Long-time archive
- Manual archive

Curve group

Number of the curve group to which this value should be part of.

Refresh

Recording cycle, that is timing interval between to scannings in seconds. Valid range is 2 to 32767 seconds.
The real cycle depends on the hysteresis and the slope of the curve.

Lower limit

Minimum value of the scaling in the picture.

Upper limit

Maximum value of the scaling in the picture.

Hysteresis

Tolerance band where a value is stored if it is not within this range.
The hysteresis is not used for short-time archives.

Dimension

Unit of the measured value (e.g. °C, sec, ...)

Decimal point

Number of digits for the axis marking.

5.2.2 Data types and limits

For data types and limit values there are several unusual features to notice:

Simatic raw type	Interpretation	Lower limit	Upper limit
DBB, IB, QB, MB	unsigned 8-Bit-integer	0	255
DBW, IW, QW, MW	signed 16-Bit-integer	-32 768	32 767
DBD, ID, QD, MD	signed 32-Bit-integer	-99 999 (s.b.)	999 999 (s.b.)
REAL	(not supported)		

For historic reasons of downward compatibility, we have restricted the field length of the high and low limit attributes to *six characters*. 16-bit integer values do not represent a problem, whereas the representation of a 32-bit integer (DINT) values requires a significantly higher number of characters. The usable DINT limits and thus the range of measurement values listed above are the result of this restriction.

5.3 Digital measured values

Beside analog values you can also record and display digital values. Digital measured values aren't inserted directly, but derived based on analog values.

An digital measured value is defined by the following attributes:

Associated analog value

The value derived implicitly by means of the "Derive new measurement value" function. A change of the ID of the analog value does not affect this association.

Note:

For downward compatibility the database's field for a linked analog value is only three characters wide. From this it follows that you can derive digital values from analog values whose ID is between 1 and 999.

(Reminder: possible are 1200 analog values per server).

Measured value description

Name of the measured value as it will appear as a caption in the trend visualization. It may only be a maximum of 16 characters and must not contain any special character.

Start bit

Number of the starting bit for a requested bit-combination.

End bit

Number of the end bit for a requested bit-combination. If the characteristic refers to a single bit, it will correspond to the "Start bit".

Combination type

Combination types logical AND as well as OR are allowed. All bits in range are combined accordingly.

If starting and end bit are the same, this attribute of course doesn't care.

Note:

The at most usable bit naturally depends on the analog value's data type but is always restricted to 15, even for *double word* addresses

5.4 Handling the editor











You can edit analog measured values and their derived digital values in the MVRL Editor. The user interface consists of two table views which are handled in accordance with the standard Windows features.

5.4.1 Elementary usage

Shortcuts

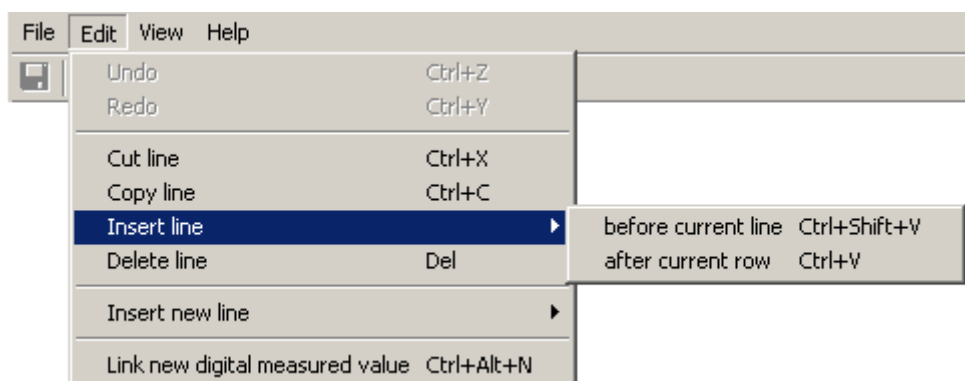
Program	
<Ctrl> S	Save trending definition
<Ctrl> P	Print analog or digital trending definition
<Ctrl> <Shift> P	Print preview for analog or digital trending definition
Edit	
<Ctrl> Z	Undo
<Ctrl> Y	Redo
<Ctrl> X	Cut current line
<Ctrl> C	Copy current line to clipboard
<Ctrl> V	Insert line from clipboard after current line
<Ctrl> <Shift> V	Insert line from clipboard before current line
	Delete current line
<Ctrl> N	Insert new line after current line
<Ctrl> <Shift> N	Insert new line before current line
<Ctrl> <Alt> N	Derive a new digital measured value from current analog measured value
Views	
<Ctrl> <TAB> <F6>	Toggle between analog and digital measured values' view

Toolbar buttons

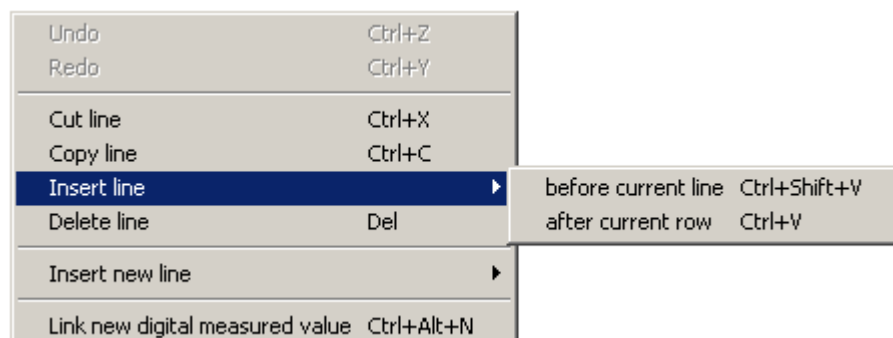
	Save trending definition
	Print analog or digital trending definition
	Print preview for analog or digital trending definition
	Cut current line
	Copy current line to clipboard
	Insert line from clipboard after current line
	Undo
	Redo
	Optimize columns' width for current view
	Show all digital measured values or only those, which are derived from current analog measured value

5.4.2 Create new analog measured values

Alternative 1: the main menu



Alternative 2: By means of the shortcut menu in the "Analog values" view (right-click on the table view)



Alternative 3: keyboard shortcuts

As indicated above, the keyboard shortcut is a faster means of inserting new definition:

<Ctrl>+<Shift>+N	New definition line before current line
<Ctrl>+N	New definition line after current line

5.4.3 Create new digital measured values

Almost same as above. Alternatives are the main menu, a context menu (active view doesn't care), or a keyboard shortcut (<Ctrl><Alt>N).

Please keep in mind that a digital measured value has to be derived from an analog measured value, that is, it cannot exist by itself.

5.4.4 Editing measured values

Notes on the input of values

With the Editor, you have a highly efficient tool at hand for the editing attribute values.

You can basically select any value for editing by means of the shortcut key <F2>, with <ENTER>, or by double-clicking with the left mouse button.

After you have edited a value, you can apply the changes and move to the next column by pressing the <TAB> key (does not apply to the pop-up selection boxes).

Analog values

ID	(no special features to be considered for the input)
Messwert-Bez.	
Adressierung	<F2>, <ENTER>, a double-click opens a selection box, Shortcuts: "s" for "System", "a" for "Absolute"
PCU	<F2>, <ENTER>, a double-click opens a selection box, Shortcut: PCU number
Klasse	<F2>, <ENTER>, a double-click opens a selection box, Shortcut for an instance: instance number.
Instanz	(if you prefer, you can also enter the class and attribute in text format. The text is not case sensitive.)
Attribut	
Absolute Adresse	For SIMATIC S7: STEP 7 STL syntax, For SIMATIC S5: A syntax associated with STEP 7 STL (e.g. DB712.DW8)
Archivtyp	<F2>, <ENTER>, a double-click opens a selection box, Short input by means of the numbers known in previous system versions: 1 (short-term archive) 2 (batch archive) 3 (weekly archive) 4 (manual archive)
Kurvengruppe	(no special features to be considered for the input)
Adressierung	
Untergrenze	
Obergrenze	
Hysterese	
Einheit	
Dezimalpunkt	

Digital values

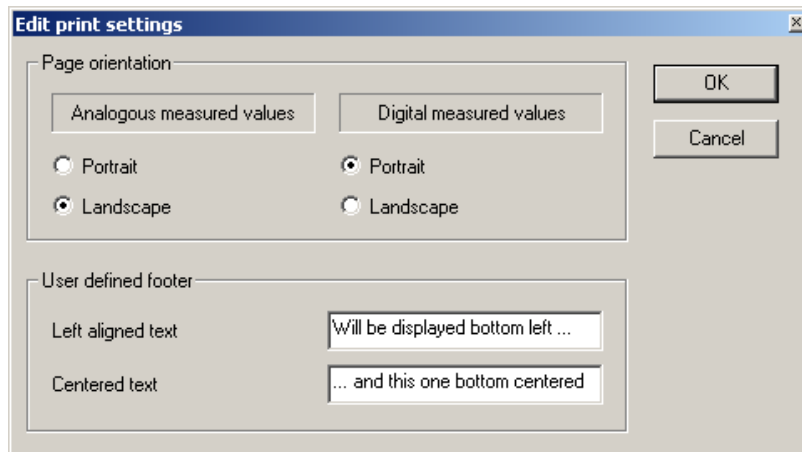
Zugehöriger analoger Messwert	(information only; can not be edited)
Messwert-Bez.	(no special features to be considered for the input)
Start-Bit	
Ende-Bit	
Logische Verknüpfung	<F2>, <ENTER>, a double-click opens a selection box, Shortcut: "a" for "AND", "o" for "OR"

Notes:

All clipboard operations (Cut, Copy, ...) and the "Delete" command always affect a *complete* measurement value line.

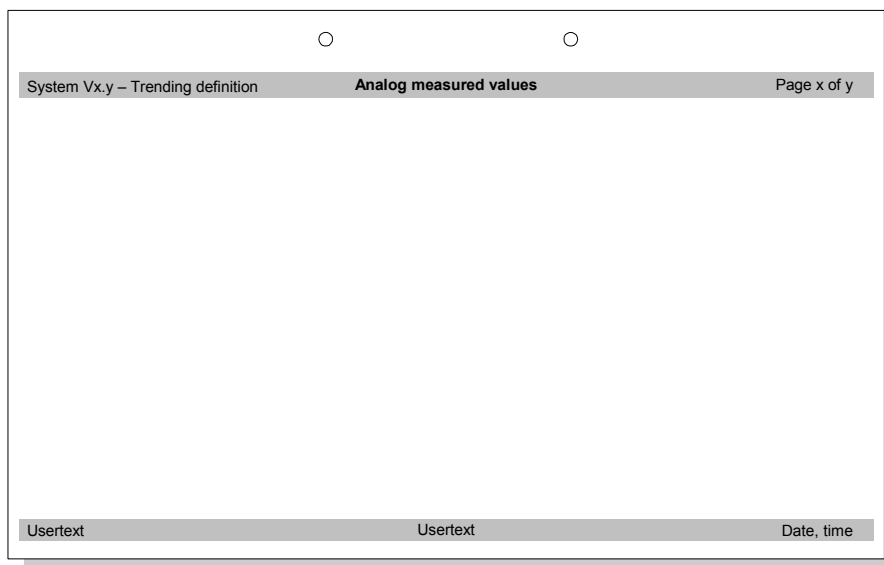
5.4.5 Print settings

Main menu: File -> Print settings



Here you can set some of the printer defaults: separate page layout for analog and digital values and an adaptable footer.

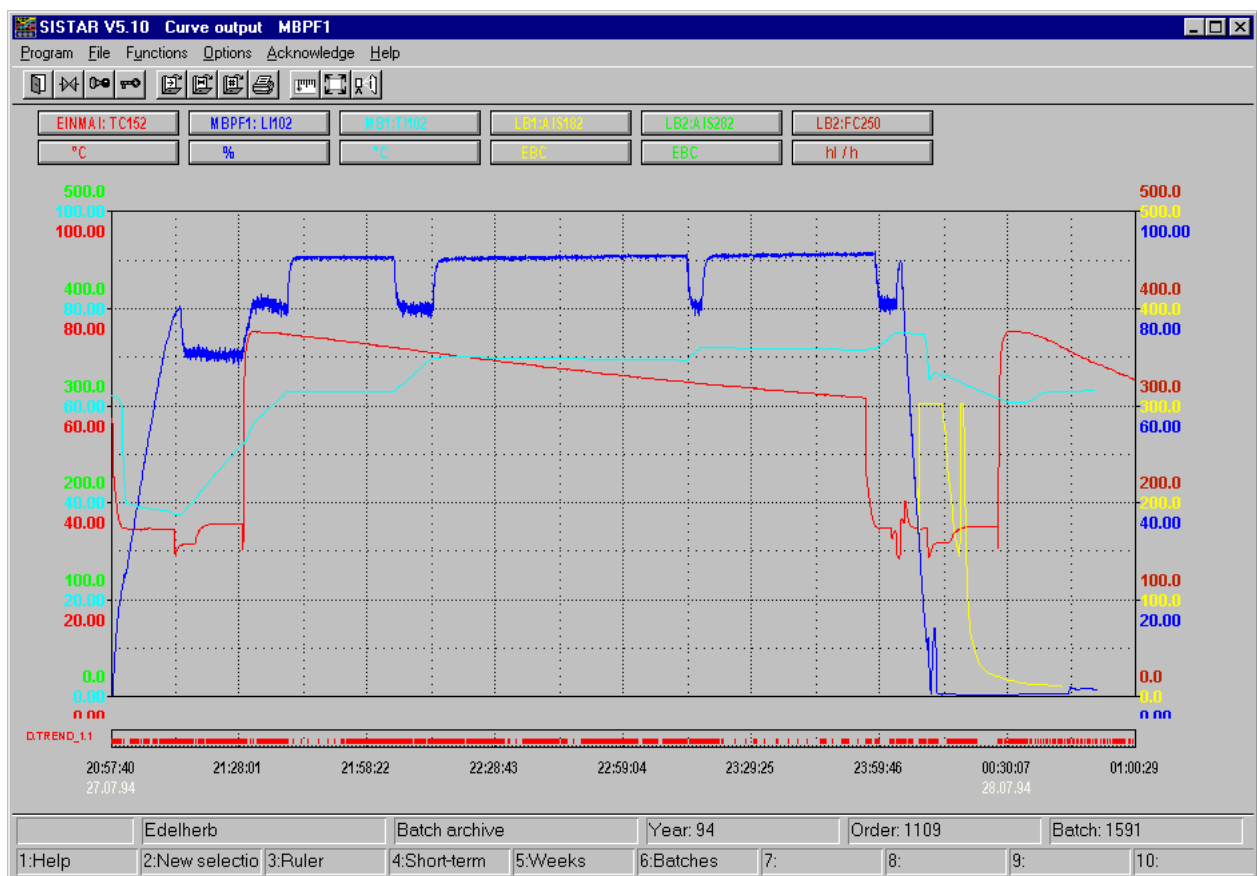
The figure below shows you the layout of a printed page (portrait pages are shown in analog format):



In the user text you can define the customer or the system, for example.

6 Curve visualization

6.1 Overview



The application '**PI-curves**' is used for a graphic output of measured values. It enables the time display of running curve values which have already been recorded or as diagrams on the screen.

Display of analog curves

You can assemble up to a **maximum of eight curves**. Each individual curve is hideable. Furthermore the the user can print a screen shot of the curves. The user can zoom into a graph and get any absolute value from the archive with the corresponding point of time additionally.

The scale, unit and archive maintenance of the curve values are defined in the measured value description list.

Display of digital properties

Digital curve properties of individual bits are displayed as followed:

- Condition "0" (graph with gaps)
- Condition "1" (colored graph)

Display

The following picture combinations are possible:

- Picture with analog curves only: up to 8 analog graphs
- Picture with digital curves only: up to 32 digital graphs
- Mixed picture: up to 8 analog and up to 16 digital graphs

Trendmanager

The visualization application requires a connection to the trendmanager app, which can run locally or remotely on a server.

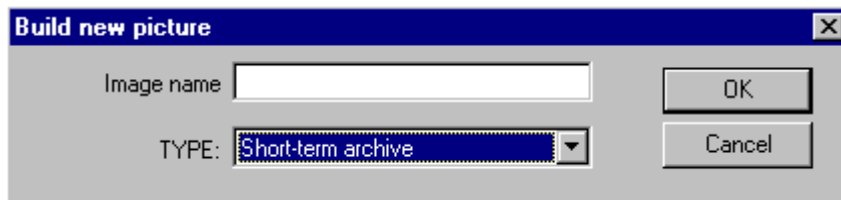
It provides access to the curve archives, which are configured in the measure values description list. Graphs showing currently running batches are updated cyclically.

6.2 Creating pictures

Three types of pictures are possible

- Pictures consisting of values from the ‚short term archive‘.
- Pictures consisting of values from the ‚weekly archive‘.
- Pictures consisting of values from the ‚batch archive‘

Create a new picture by selecting "file / new" from the menu, a dialog appears, where the user can enter the name of the picture and can select a curve type.



The user can select the **short term archive**, **batch archive** or **weekly archive**.

After selecting an archive, first a dialog appears

"edit analog measure values"

afterwards

"edit digital measure values ".

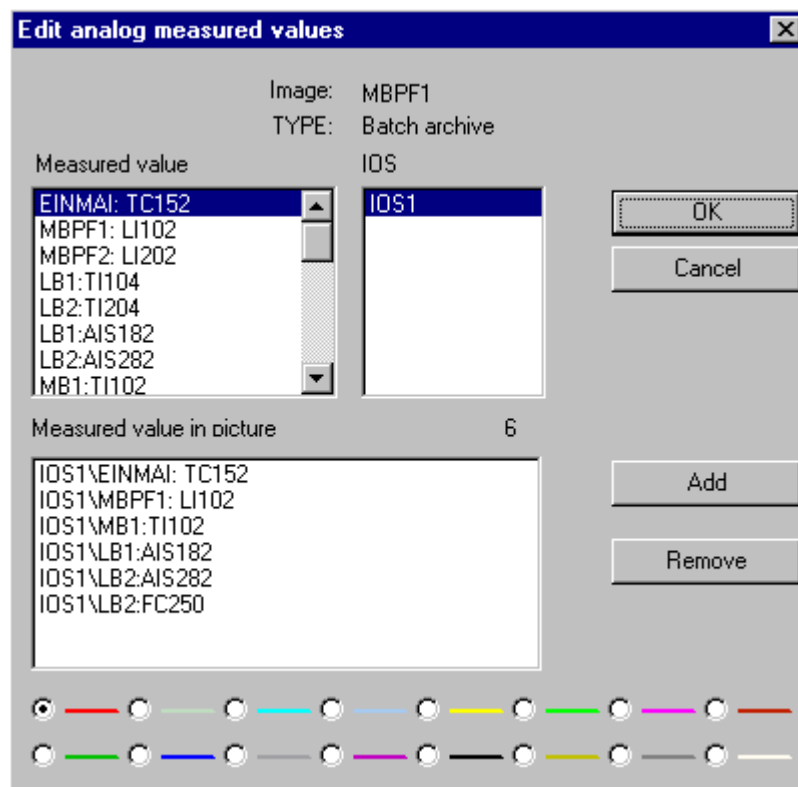
6.3 Dialog ,edit analog measure values‘

The dialog opens automatically when creating new pictures. If a picture is already open, select ,File / Edit / analog measure values‘ in order to open this dialog.

On this dialog, the user defines the values to be displayed by making a selection of both list boxes IOS and MESSWERTE, at most 8 values per picture could be selected.

In addition **one out of 16 colors** can be chosen, than press “**Add**” to assign a value to picture. Pressing “**Remove**” deletes the selected value from the current picture.

Only those values are shown, that could be added to an picture (analog/digital values).



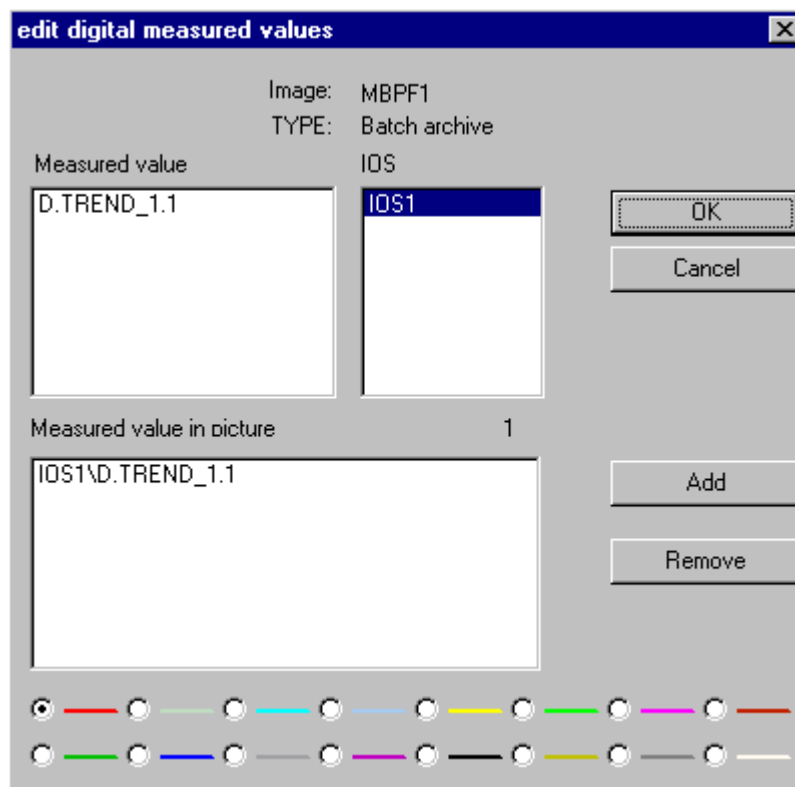
6.4 Dialog ,edit digital measure values‘

The dialog opens automatically by creating new pictures. If a picture is already open, select ,File / Edit / digital measure values‘ to open this dialog.

On this dialog the user defines the digital values of a picture by selecting inputs of both list boxes IOS and MESSWERTE. Up to 16 / 32 values per picture are possible. Refer to “editing analog values”.

Attention:

If the maximum of 16 or 32 values are exceeded, an error box is displayed. Values can be deleted now. Insertion of new values is possible though after closing and reopening the picture.



6.5 Meaning of the tool bar



Standard buttons for BRAUMAT/SISTAR Classic V5.3:

- Closing the application
- Quit ICM errors (only necessary for „BRAUMAT based on S7“)
- Quit horn
- Reset password



Open pictures

- Open pictures based on the short term archive
- Open pictures based on the weekly archive
- Open pictures based on the batch archive



Print a picture



Show/Hide additional information

- Scale
- Show complete graphs
- Show all measure values (show hidden values)

6.6 Open a picture

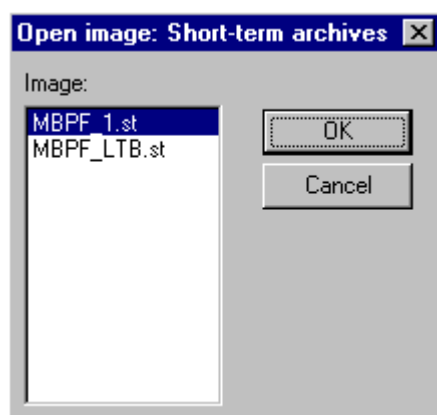
Possibilities:

- Select “File / Open” and the requested curve type in the corresponding sub menu.
- Select the icon in the button bar.

A dialog appears, select a picture.

Depending on the selected curve type (short term, batch, weekly archive) more dialogs appear.

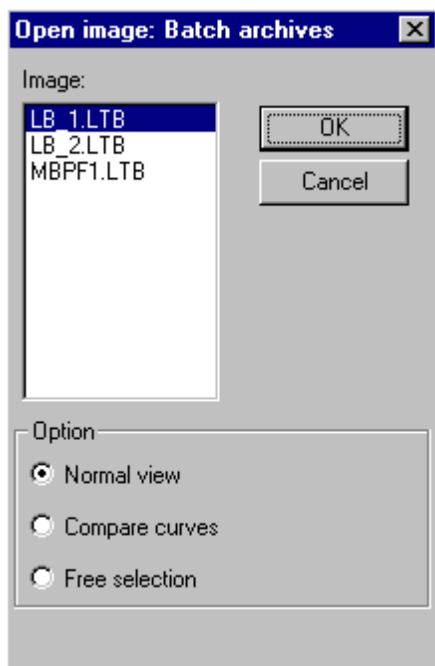
6.6.1 Open a short term archive



For a short term archive no additional selection is necessary.

6.6.2 Open a batch archive

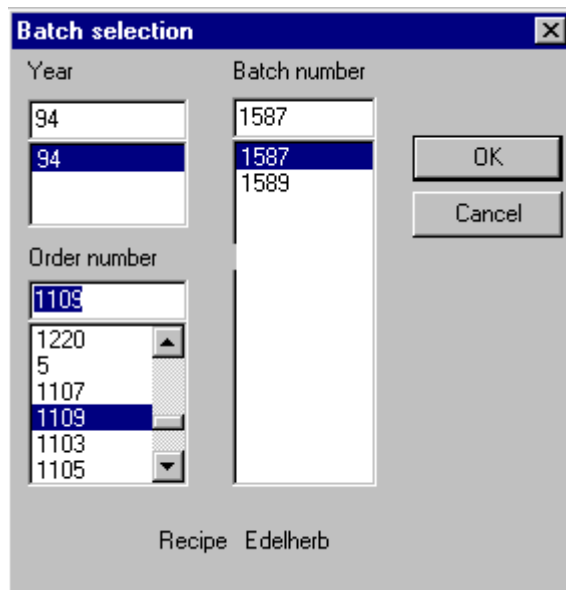
Via '**Batch selection**' it is selected by the selection year, job number and batch number of the area of the corresponding curve archive.



Batch archives provide the following possibilities:

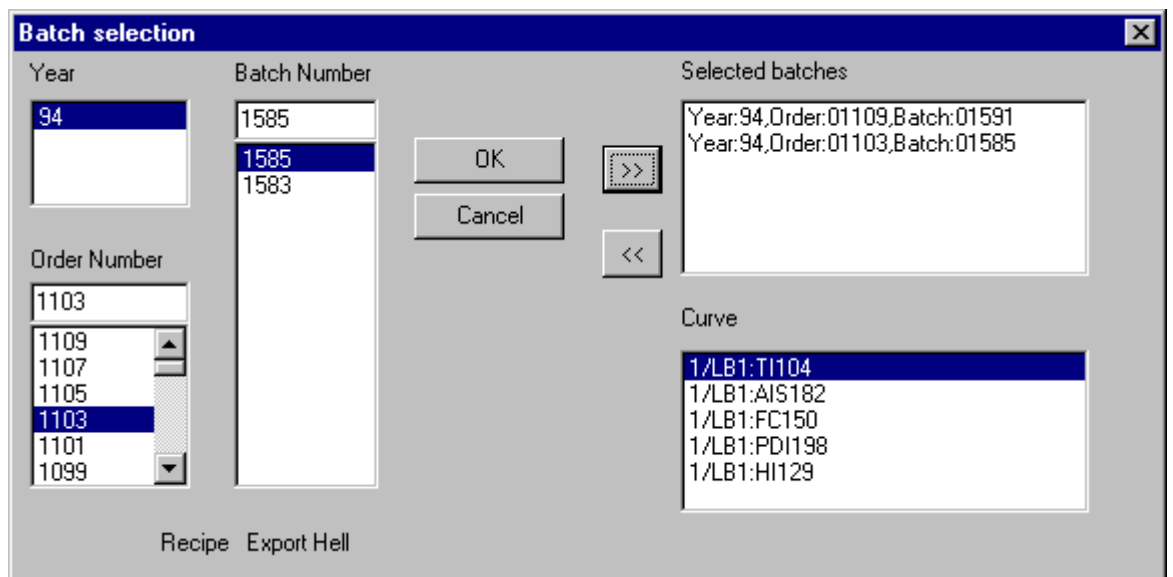
- **Standard view:**
The measured values of the selected image are related to one batch, the user has to select the batch id in the second step.
- **Free selection:**
In this way it is possible to take the measured values of the selected image from different batches. In a second step up to 8 batches are selected for the curves. The selection is measured-value-specific. This selection is used as a reference for the selection 'compare curves'.
- **Compare curves:**
With that option the image curves of a free selectable batch could be set into relation to a already selected reference arrangement. Also here it is necessary to select a batch (id) in a second step.

6.6.3 Selecting batches



Only those batches can be selected where for at least one measure value data has been recorded. This dialog is used for the “normal view” and the option “reference curve”.

6.6.4 Batches “Free selection”



In this dialog the user can select graphs of different batches, which is used later as a reference for the option “reference curves”.

Step 1: Curve

This list contains the configured curves of the earlier selected picture. Adding or removing takes effect on the selected measured value.

Step 2: Year / order number / batch number

In these three fields, the user can select a batch of a curve.

Step 3: Button ,>>'

Add batch to the selected curve.

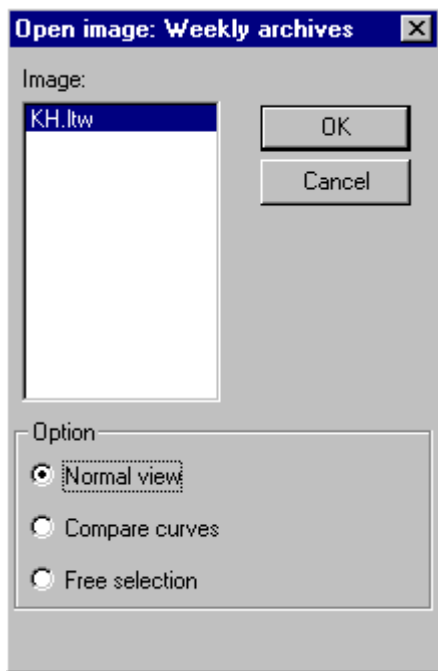
Step 3: Button ,<<‘

Remove batch from selected curve.

Selected batches

This list shows the selected batch or batches of the selected curve.

6.6.5 Open weekly archive

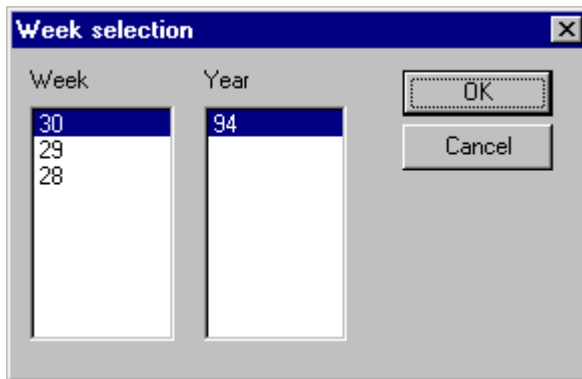


For weekly archives, the user can select between:

- Normal view
- Free selection
- Compare curves

Please refer to “batch archives” for function description and selection sequence. Weeks are compared instead of batches here. After selecting a image for Weekly archives (*.ltw), the week has to be selected in the next dialog.

6.6.6 Selecting the week



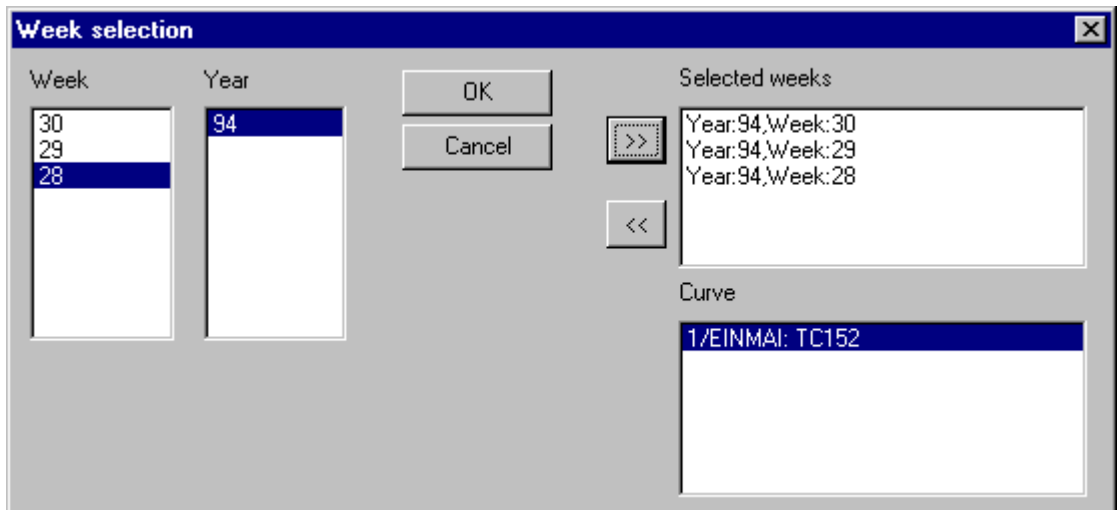
The dialog is used for the normal view as well as for the option “reference curve”.

Week/Year

Only those weeks are displayed for which data had been recorded for at least 1 measured value.

6.6.7 Week selection for ‘Free selection’

After selecting the picture, the following dialog appears and the user can choose the week archives for the curves



Step 1: Selecting the curve

This list contains the measured values that have been configured for the picture. The buttons ,<<' and ,>>' and the ,Selected weeks' list is related to the selected curve.

Step 2: Selecting the week / year

Select the week and a year. Only those weeks are shown for that data had been recorded at least for one measured value.

Step 3: Button ,>>'

This button adds a selected archive (list year and week) to a list of weeks of a selected measured value.

Step 3: Button ,<<‘

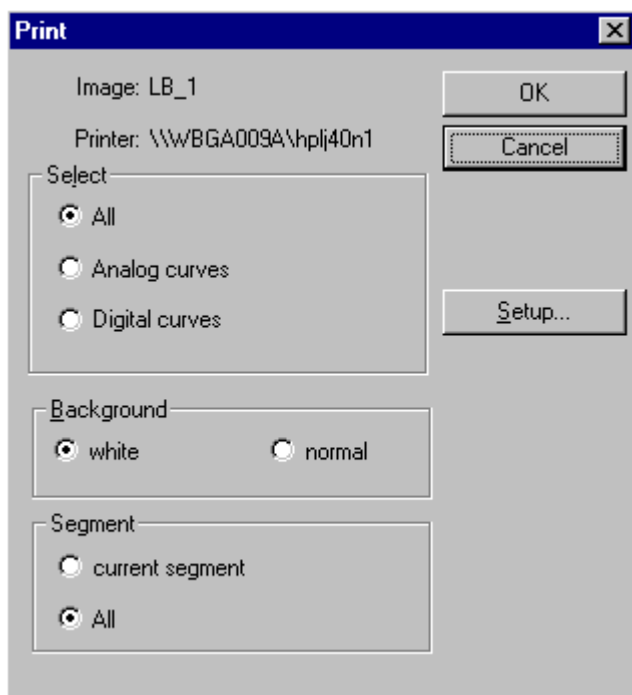
This button removes a selected week (list year and week) from a list of weeks of a selected measured value.

Selected weeks

This list shows only those weeks related to the value, selected in the list “curve”.

6.7 Printing pictures

Selecting "Print" from the “File”-menu or pressing the button "Print" on the button bar the picture can be printed out, the following dialog appears.

**Selection**

- **All**
prints all digital and analog graphs of a picture
- **Analog curves**
prints all analog curves of a selected picture
- **Digital curves**
prints all digital curves of a selected picture

Background

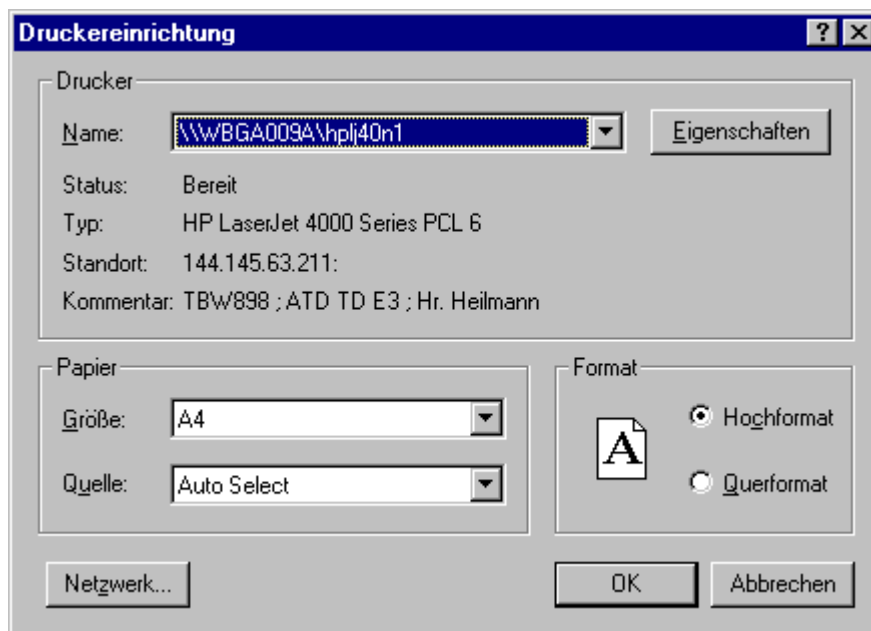
- **White**
The background color of the picture is white
- **Normal**
The background color of the picture corresponds to the color of the screen (windows settings)

Part of the picture

- **Current sub picture**
prints the actual selected part of a picture
- **All**
prints all curves that are displayed on the screen (full time axis and y-axis).

Button "configuration"

Opens the standard printing dialog, the user can select a printer and can modify options.



6.8 Hide/Unhide of trend curves

6.8.1 Hide curves

Graphs shown in a picture can be hidden or shown by pressing the button with name of the measured value. The scale is being hidden according to its graph.

6.8.2 Unhide curves

Pressing the button again shows the curve. Pressing the button 'Show all analog curves'



or by selecting 'Functions/all curves' of the menu all hidden curves are visible again.

6.8.3 Unhide only one curve

By clicking on a single curve within the picture (left mouse button), all other graphs are hidden and only the selected curve will be displayed.

6.8.4 Hide/Unhide scaling

The scaling can be unhidden and hidden by pressing the button that is labeled with the dimension.

6.9 Ruler

Button of the toolbar

Select 'Functions/marker' or press F3 function key or click on button "marker" on the symbol bar, the picture shows a white vertical line, called **"marker line"**.

Showing the values

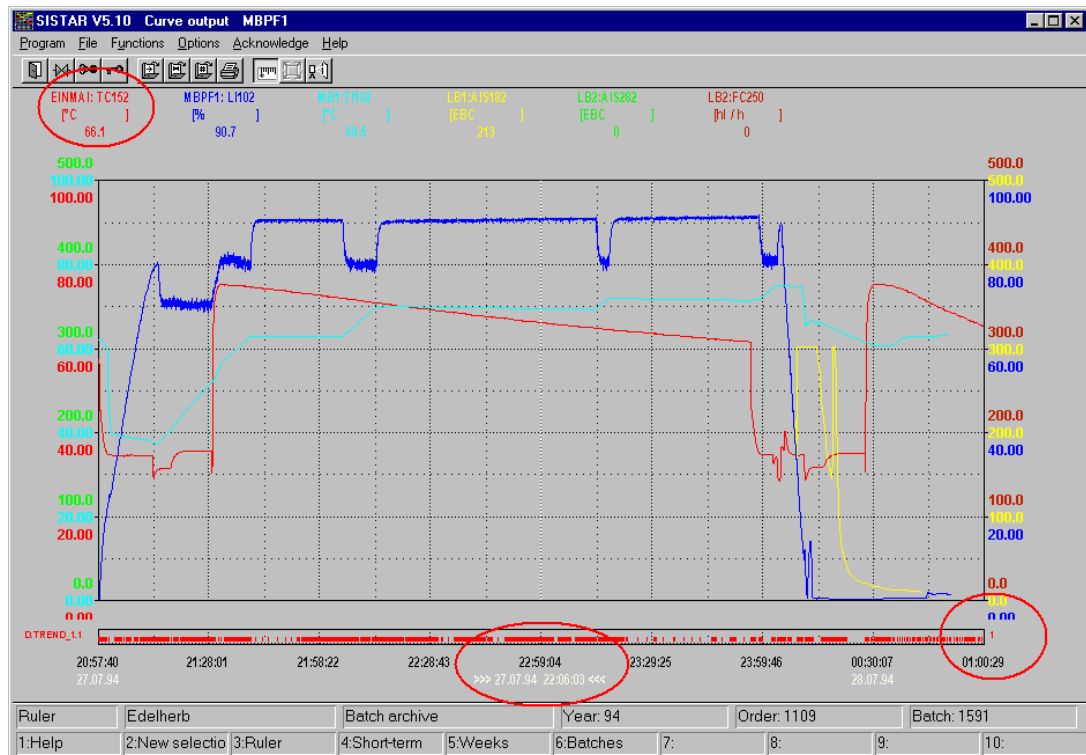
In the upper part of the picture the absolute values of the graphs (crossing point with the marker line) together with its time base are shown.

For digital values the state value (0 or 1) is given on the right side of the digital bar.

Move marker line

The marker can be moved horizontally over all graphs with the cursors while pressing the left mouse or trackball button. The time and y-axis value are updated automatically.

Pressing again F3 or clicking the button "marker line" of the button bar the application switches back to the normal mode.



6.9.1 Difference between two marker lines

Select "difference-marker lines" from the menu "Functions" or via Shift + F3, but function "marker line" has to be activated before.

The picture shows another second vertical, white marker line, called **"difference-marker line"**. Within the upper part of the picture the difference between the curves (cross point of marker lines with a curve) between marker line 1 and 2 is shown. The second line can be moved horizontally via cursors (pressing left mouse button simultaneously). The difference and time values are updated automatically. Pressing Shift+F3 again resets the application to normal mode.

6.9.2 Zooming

Zooming into parts of a picture can be done by pressing the left mouse button and drawing a rectangle within the picture (upper left to lower right corner). A white outlined rectangle marks the selected area, after leaving the left mouse button, the new zoomed in part will be displayed.

6.9.3 Rezoom



Button of the toolbar

Select "Rezoom" from the menu "Functions" or press Shift + F5 or click the button "Rezoom" on the button bar. The scales are reset to their original values (full scale).

6.9.4 Redraw curves

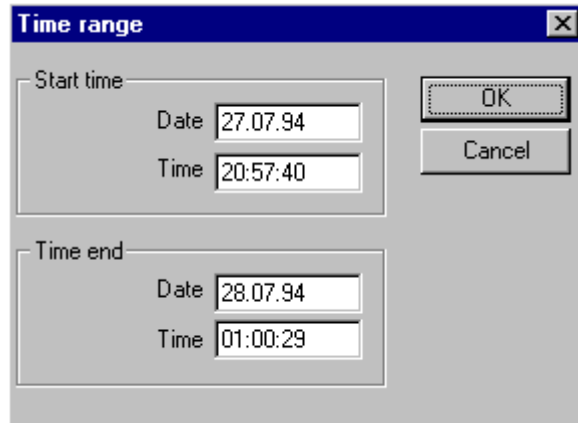
Selecting "Functions / Redraw" redraws all curves of a picture, often used for reference curves. Moving graphs causes sometimes invisible parts of curves.

6.9.5 Select new week or batch

Selecting "functions / new" or pressing F2 depending on the last opened archive type opens the dialog **batch archive** or **weekly archive**.




6.9.6 Display range

Selecting "functions/range" the user can select a range of the time.

A screenshot of a Windows-style dialog box titled "Time range". The dialog has a blue title bar with a close button (X) on the right. It contains two sections: "Start time" and "Time end". Each section has a "Date" field and a "Time" field. The "Start time" fields contain "27.07.94" and "20:57:40". The "Time end" fields contain "28.07.94" and "01:00:29". To the right of these fields are two buttons: "OK" and "Cancel".

Section	Field	Value
Start time	Date	27.07.94
	Time	20:57:40
Time end	Date	28.07.94
	Time	01:00:29

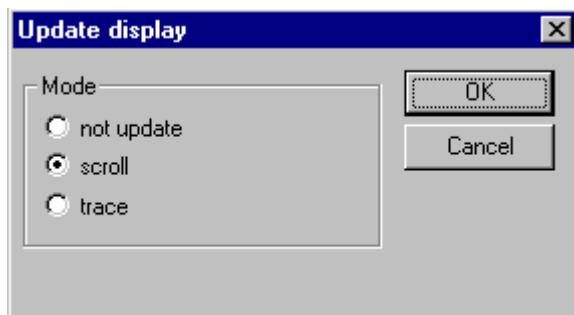
6.9.7 Standard functions

- Button bar
Selecting "options/button bar" unhides and hides the button bar.
- Status bar
Selecting "options/status line" unhides or hides the status bar.
- Function keys
Selecting "options/function keys" unhides or hides the meaning of the functions keys.
- Standard size
Selecting "options/standard size" unhides the whole picture on the screen.
- Quit ICM 
Selecting "quit/ICM error" or pressing the button "quit all ICM errors" at the button bar or pressing F11 quits all ICM errors.
- Quit horn 
By selecting the function "Acknowledge horn" or by clicking the icon "Acknowledge the signal horn" in the button bar or by activating the function key F11 the signal horn can be acknowledged.
- Reset password 
By selecting the function "Reset password" or by clicking the icon "Reset validity of the password" in the button bar the validity of the password is reset.

6.9.8 Changing the display mode

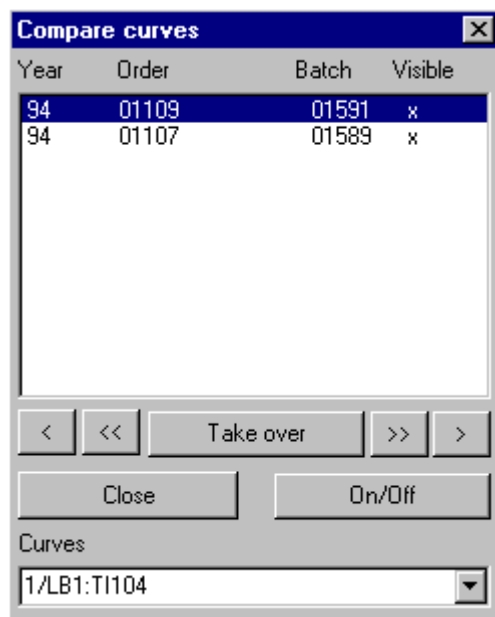
Select "options/viewing mode" opens a dialog **"update view"** with the following options:

- Don't update
The shown graphs are not updated.
- Scroll
The shown graphs are updated, whereby only a part of the time scale (and the curve) is visible .
- Trace
The shown graphs are updated, whereby the whole time scale (and the curve) is visible.



6.9.9 Compare curves

The following dialog is called via menu 'Options → Compare curves'



This window can be opened as an additional (modeless) dialog on top of the curve window and is used to select certain curves, the selected curve is shown in black color.

A selected curve can

- be moved (time) left by pressing ,<' und ,<<'.
- be moved (time) right by pressing ,>' und ,>>'.
- be left on its current position by 'take over' and affects only the view not the archive file.
- be switched on (visible) or off (hidden).

6.9.10 Help

Menu input "Help" offers assistance for:

- system ALT+F1
- system index
- curves F1
- curves index
- information about the application (version).

6.10 Command line arguments

The application can be started with the following command line arguments:

```
kurven.exe <p1> <p2> <p3> ... <p11>
```

- p1: type of appearance of the application
c: application contains menu
p: application contains no menu
- p2: picture name
name of the picture without path but with file extension
- p3: year
Year of a batch or weekly archive. For short term archives the value is not necessary (used 0 instead)
- p4: week
Only necessary for opening weekly archives, for other archive types use 0.
- p5: order number
Only necessary for opening batch archives, for other archive types use 0.
- p6: batch number
Only necessary for opening batch archives, for other archive types use 0.

More optional parameters for mode “application without menu”.

- p7: title (maximal length 28 characters)
- p8: horizontal (x) position of the upper left corner of the app window
- p9: vertical (y) position of the upper left corner of the app window
- p10: window width
- p11: window height

6.11 Examples of comparison curves

Braumat provides the option of comparing saved curves of a curve display with one another.

For weekly curves, the curves of different calendar weeks can be compared with one another; for batch curves, the curves of different batches can be compared with one another.

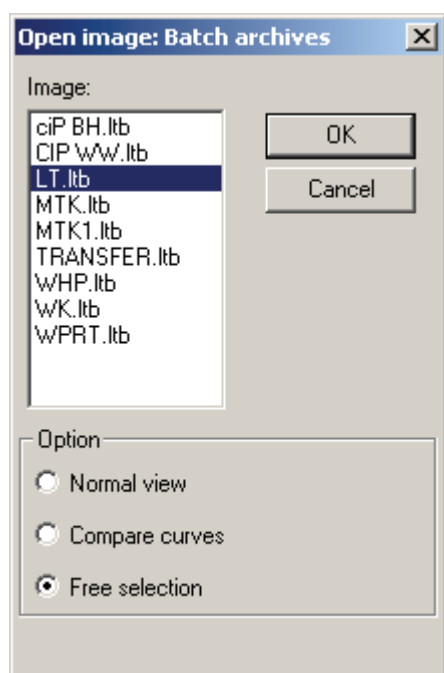
Below is an example showing the selection of comparison batch curves. Weekly curves are selected in the same way, except that the selection is made via "Year/Calendar week" instead of "Year/Order number/Batch number".

BRAUMAT differentiates between the "Free selection" and "Compare curves" options for selection of comparison curves.

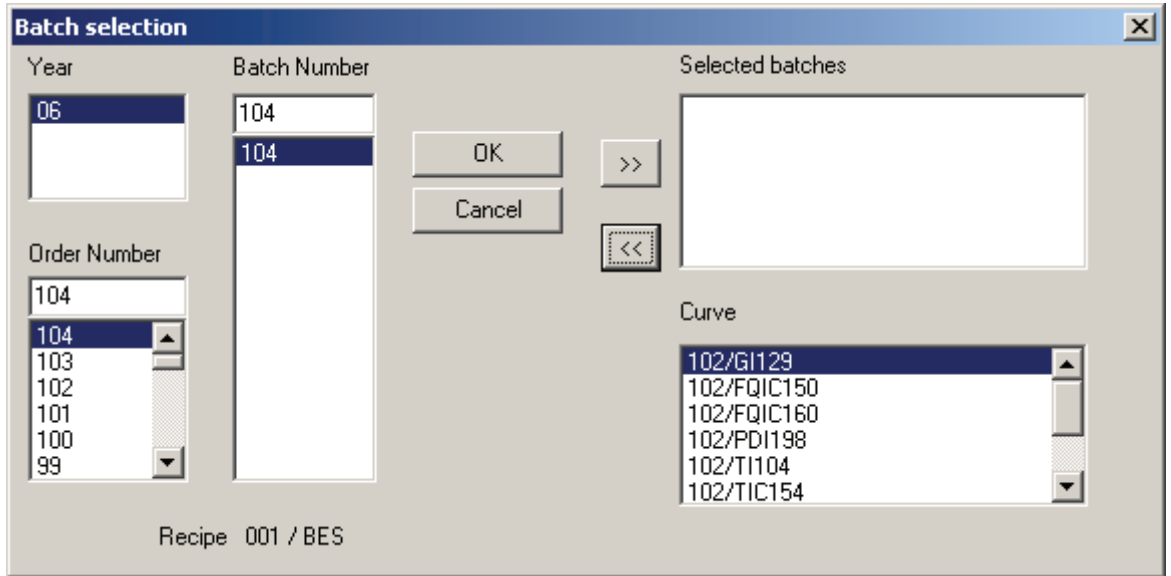
Use the "Free selection" option to display and compare individual curve shapes (of an individual measured value) with recorded curve shapes of the same measured value for different batches or weeks in one curve display. It is possible to compare up to 8 measured values of different batches simultaneously.

Use the "Compare curves" option to compare defined reference curves with all curves of a curve display of a different batch (or calendar week in the case of weekly curves) using the "Free selection" option. An example is shown below.

6.11.1 Curve comparison with the "Free selection" option

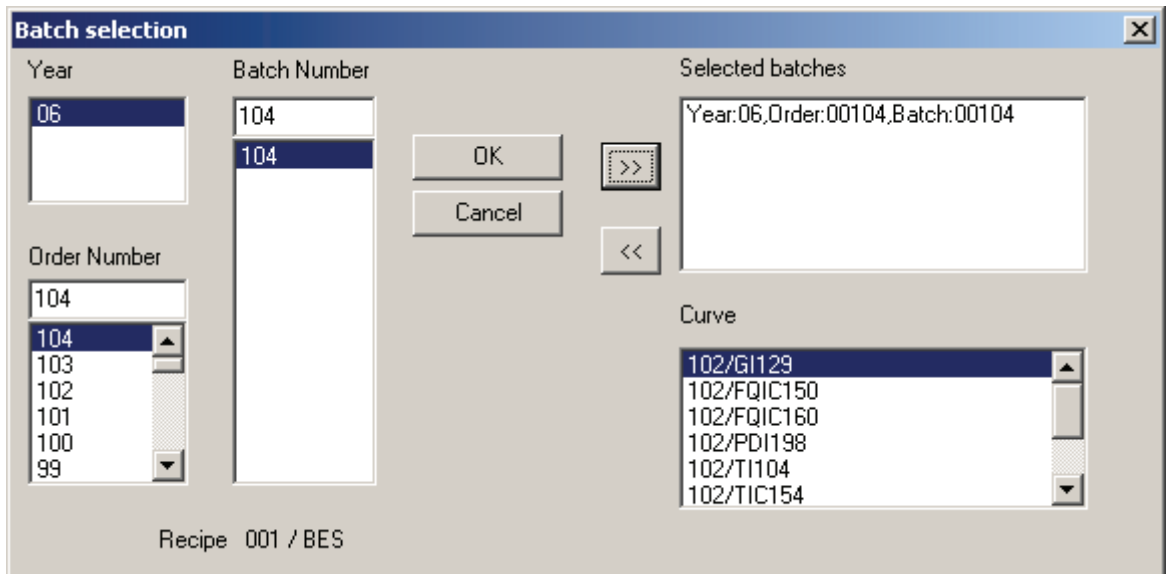


Select "batch curves" and "image name" (here LT.Itb) and the "Free selection" option to open the "Batch selection" window, which enables the normal selection of "Year/Order number/Batch number" on the left, the selection of the curves of this curve image at the bottom right, and the selection of "Selected batches" at the top right. In the following, no batches have been selected yet for the "G1129" measurement.



Batches are selected separately for each curve (measured value in lower right field). In the example, the measured value GI129 is selected here, along with the Year 2006, Order number 104, and Batch number 104 on the left. Clicking the ">>" button causes the selection to be displayed in the top right field (the selection also works by double-clicking on year, order number, or batch number in the left selection area).

As shown in the figure, the measured value GI129 of the server IOS102 is selected from the year 2006, order 104, and batch 104.



By selecting multiple batches on the left, it is possible to select up to 8 candidates for a measured value, which are then displayed together in a curve window.

Batch selection

Year: 06

Batch Number: 103

Order Number: 103

Selected batches:

- Year:06,Order:00104,Batch:00104
- Year:06,Order:00103,Batch:00103

Curve:

- 102/GI129
- 102/FQIC150
- 102/FQIC160
- 102/PDI198
- 102/TI104
- 102/TIC154

Recipe 001 / BES

Batch selection

Year: 06

Batch Number: 100

Order Number: 100

Selected batches:

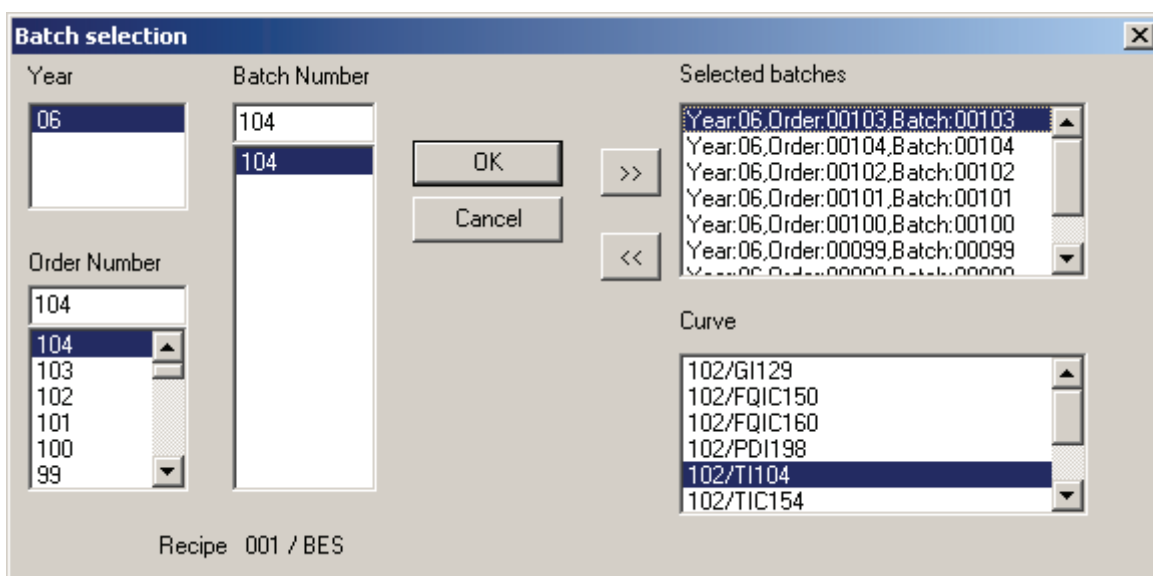
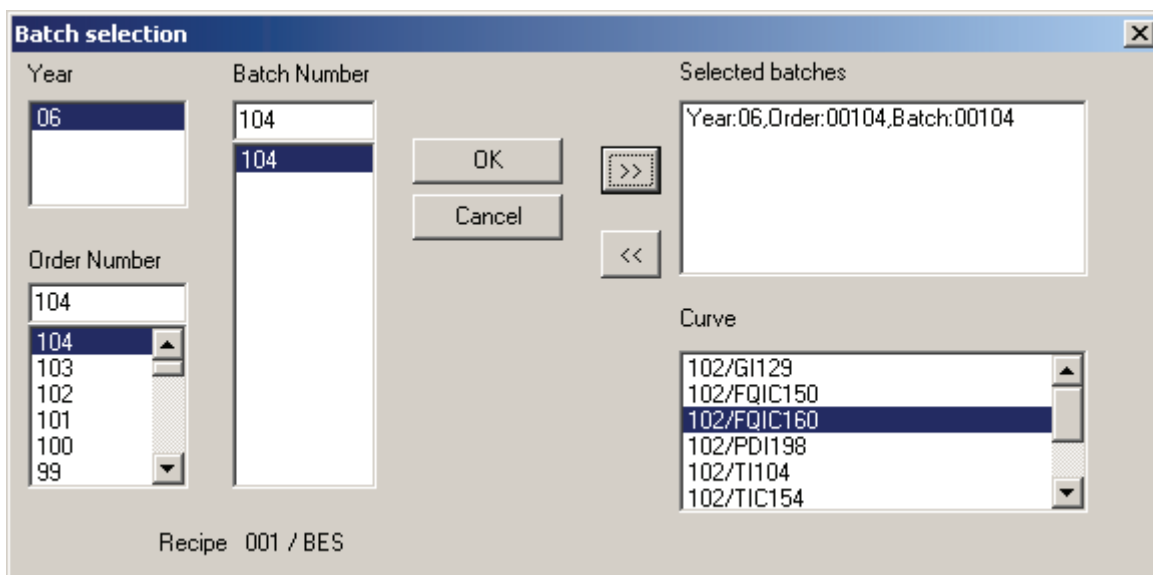
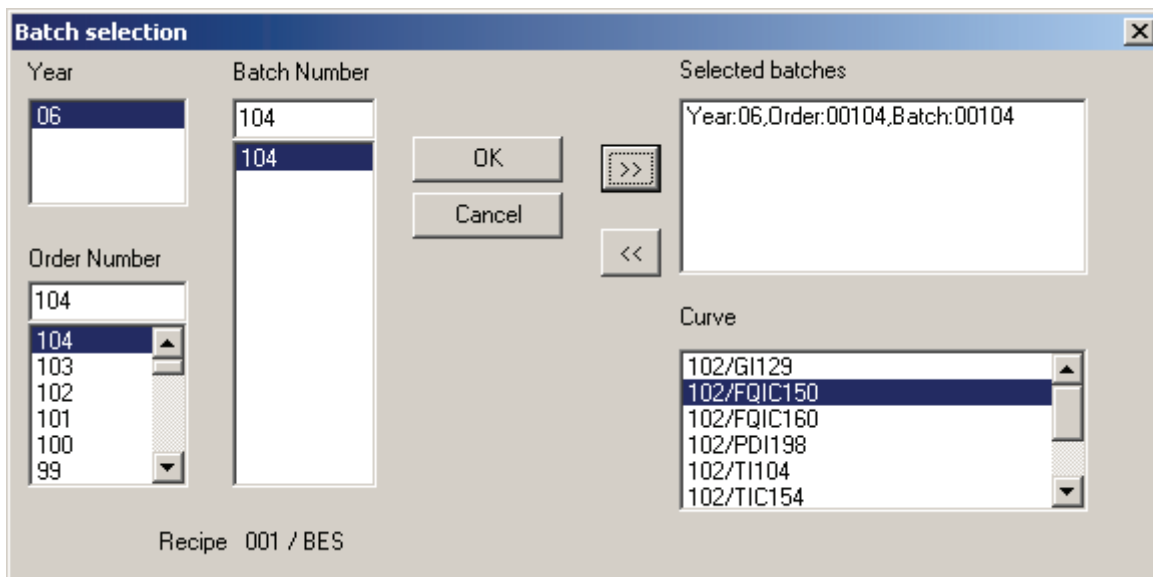
- Year:06,Order:00104,Batch:00104
- Year:06,Order:00103,Batch:00103
- Year:06,Order:00100,Batch:00100

Curve:

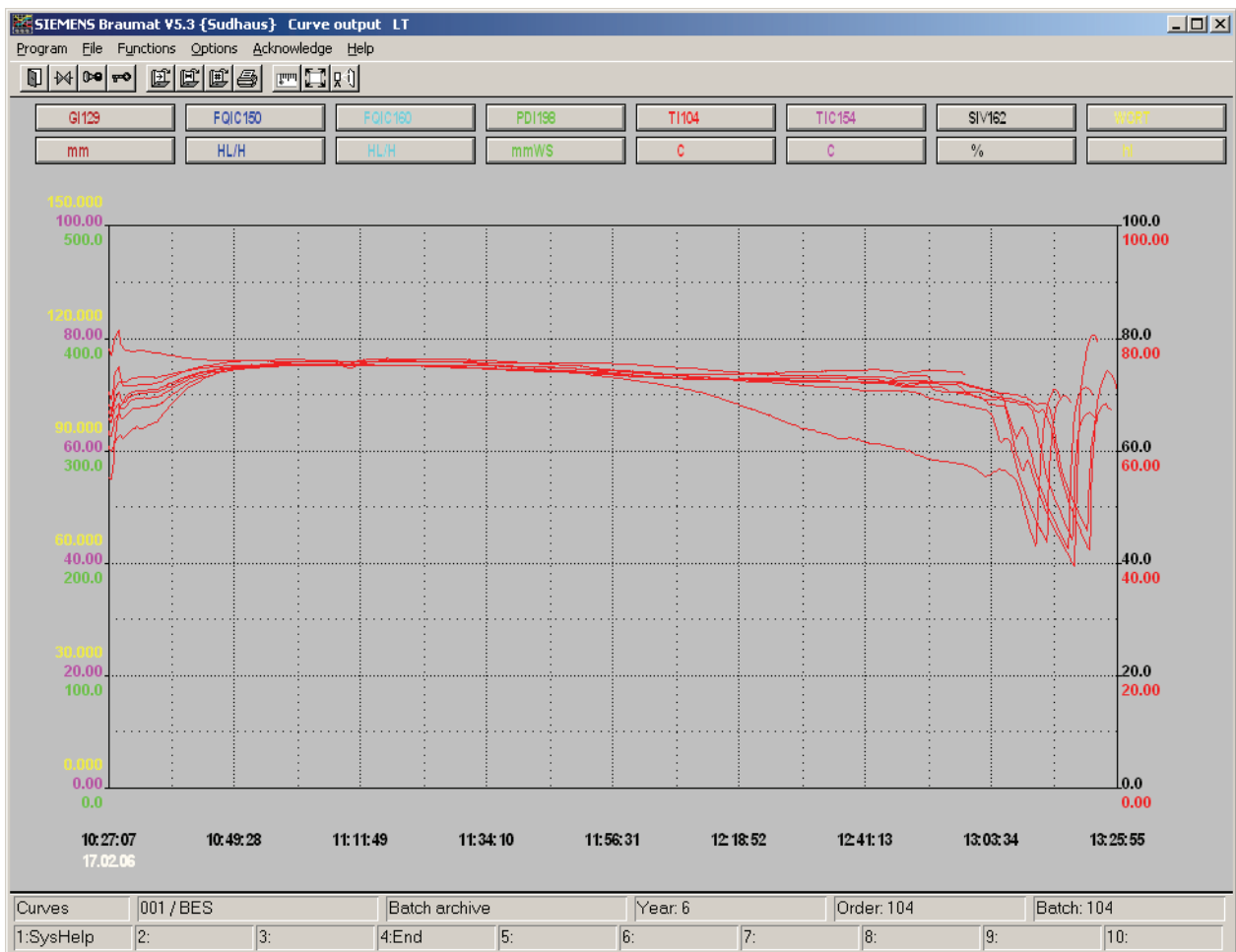
- 102/GI129
- 102/FQIC150
- 102/FQIC160
- 102/PDI198
- 102/TI104
- 102/TIC154

Recipe 001 / KUPFER

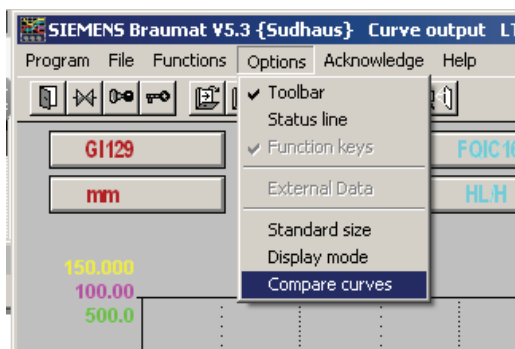
Select additional curves (measured values) the same way if you want to display a common representation of various measured values in one curve window later. The selection of the selected batches of the other curves will be retained.



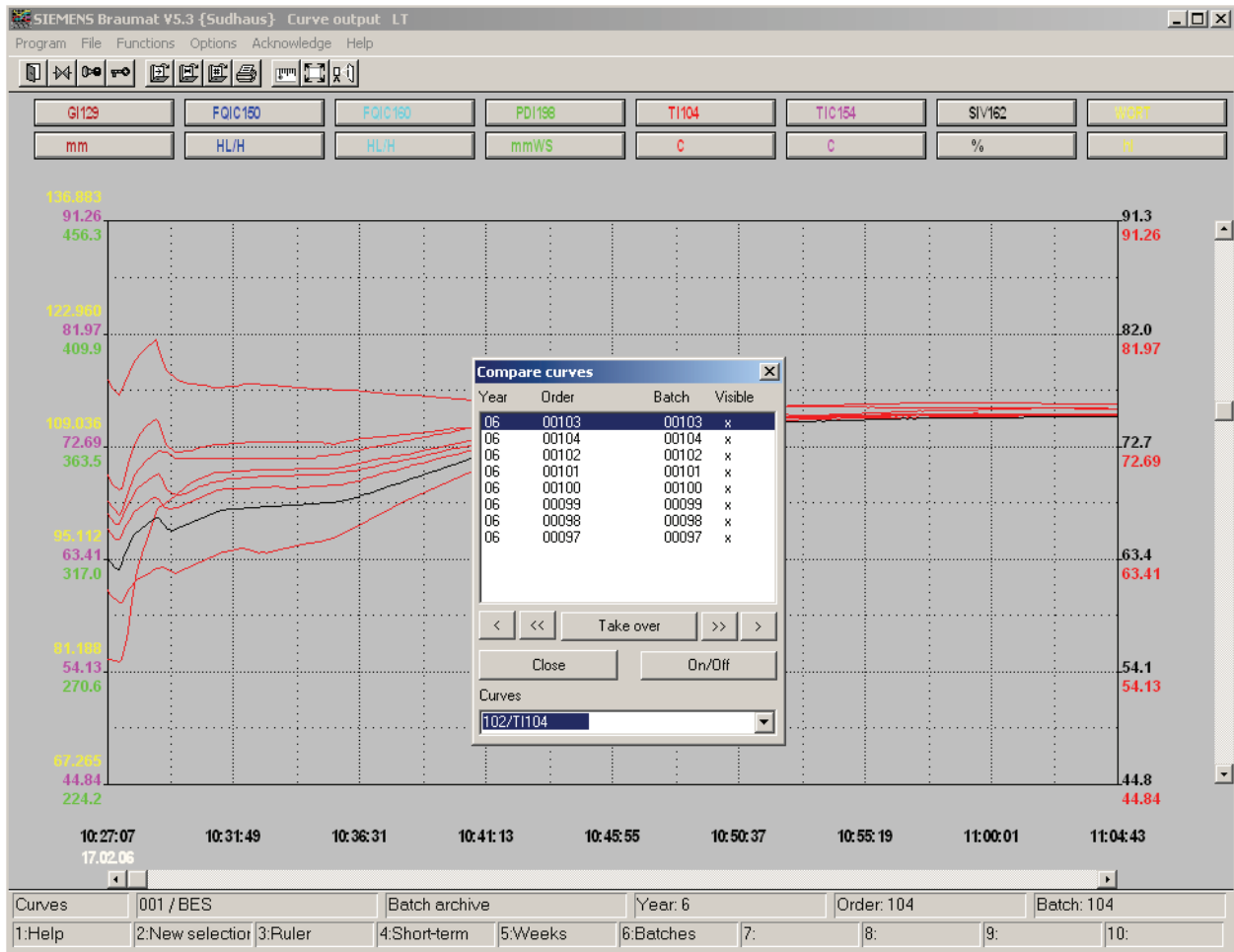
Press OK to open the following curve display:



When comparison curves are open, you access the operating window for the comparison curves with "Options - Compare curves".

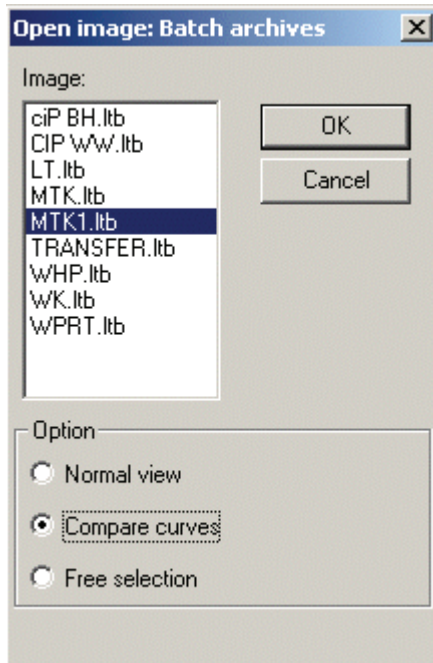


In the Compare curves selection window, the following is possible: 1) after selecting the "Curve" via the drop-down menu" at the very bottom, individual curves can be selected in the list field (the blue bar shows the selected batch), which then turn black; 2) curves can be displayed and hidden ("ON/OFF" button), which is indicated with an X in the "Visible" column; 3) curves can be shifted over the time axis using the arrow or double-arrow buttons (small or large increments, respectively, to left or right).

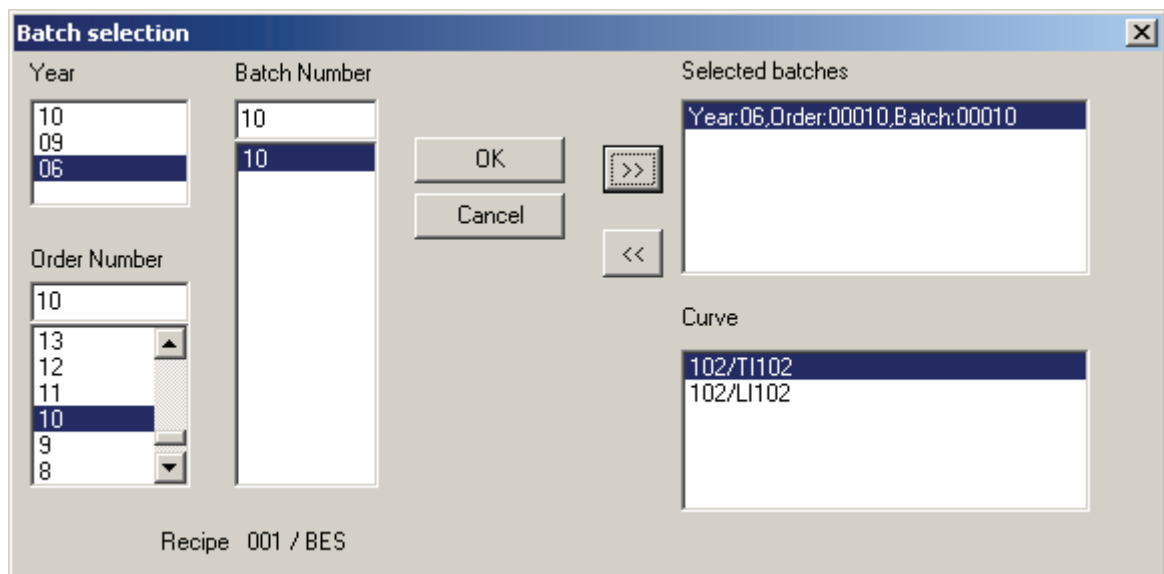


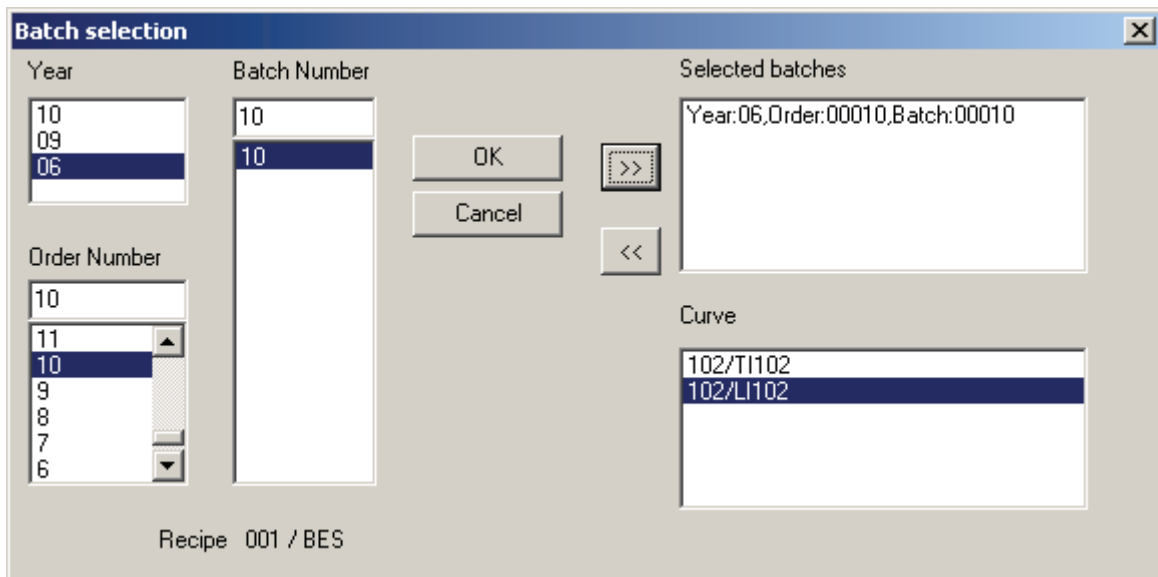
6.11.2 Curve comparison with the "Compare curves" option

To use the "Compare curves" option, the reference curves must first be defined for the comparison using the "Free selection" option. This takes place as described above, with curve image "MTK1" in this case.

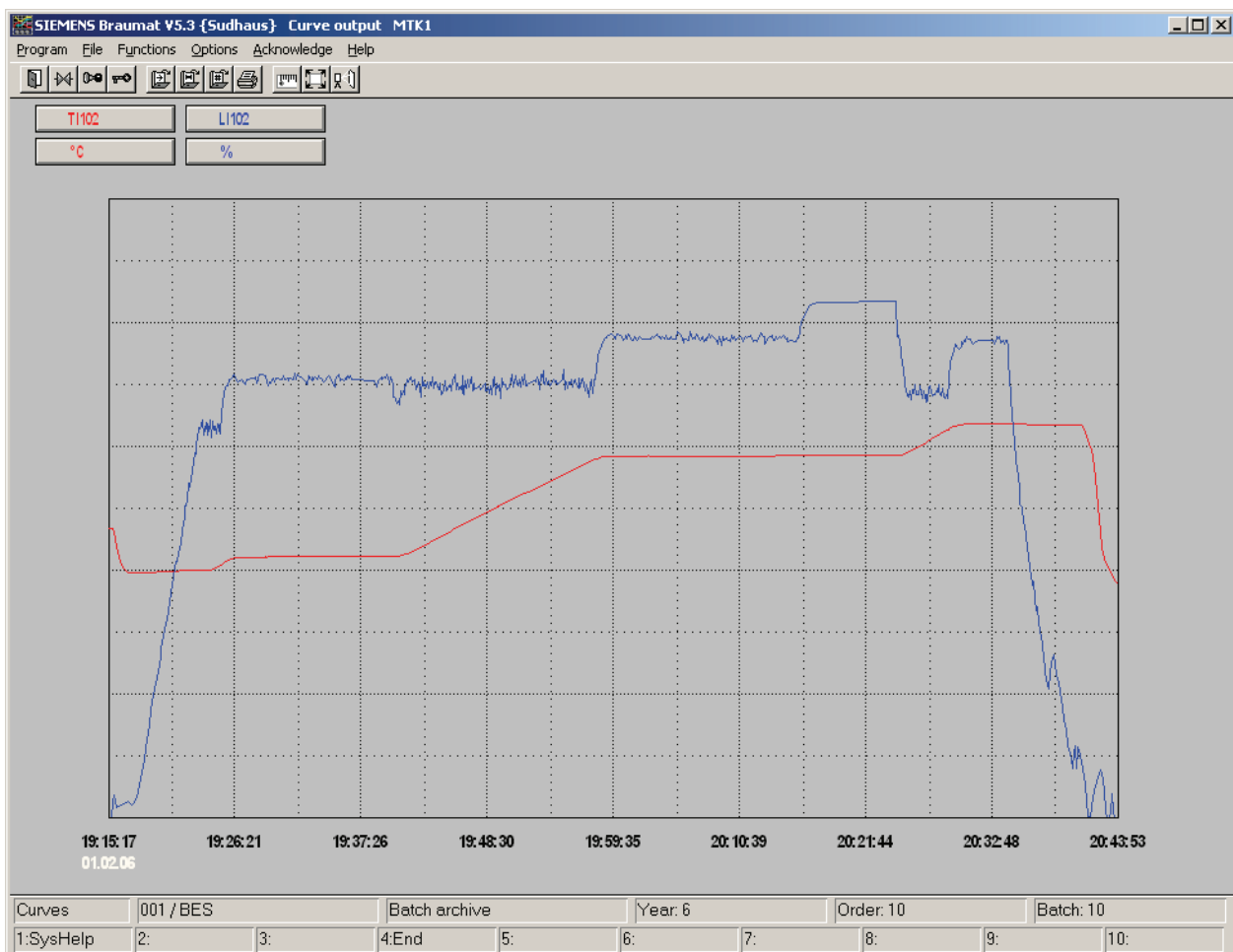


The "TI102" and "LI102" curves of year 2006 with order/batch number 10 are defined as references.

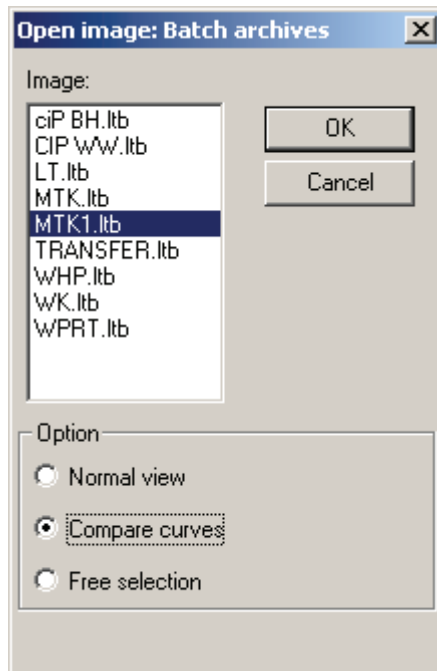




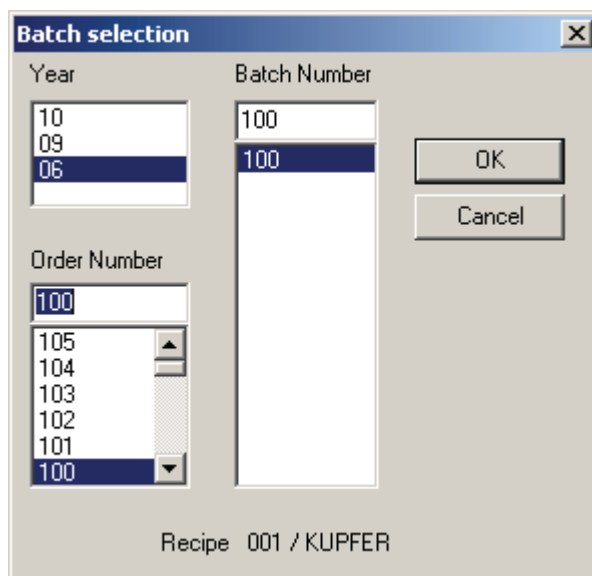
After confirmation with "OK", these two curve shapes will be displayed.



The comparison curve is selected using the "File->Open->Batch archives" function:

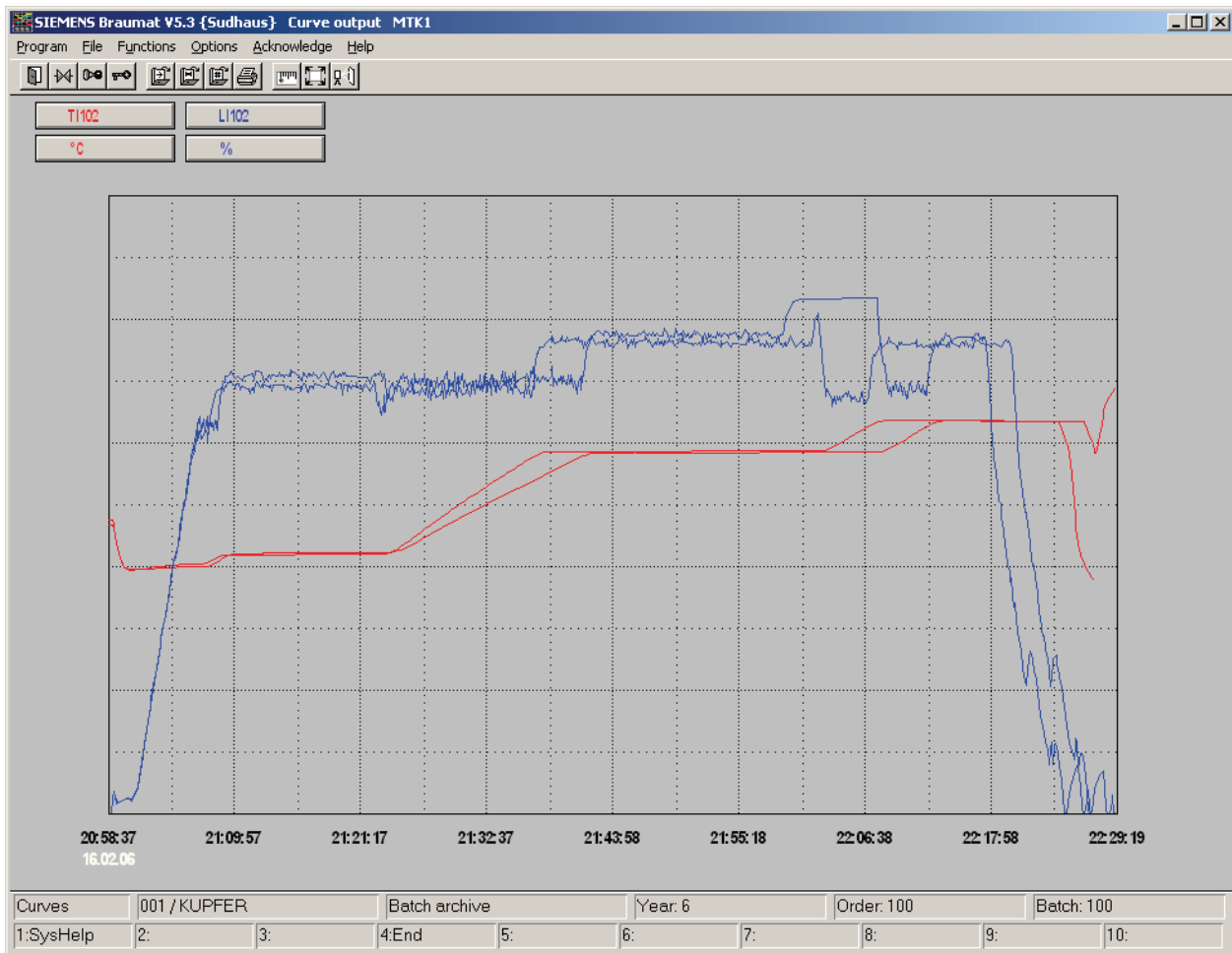


The "Compare curves" option is used to open the selection window for the batches:

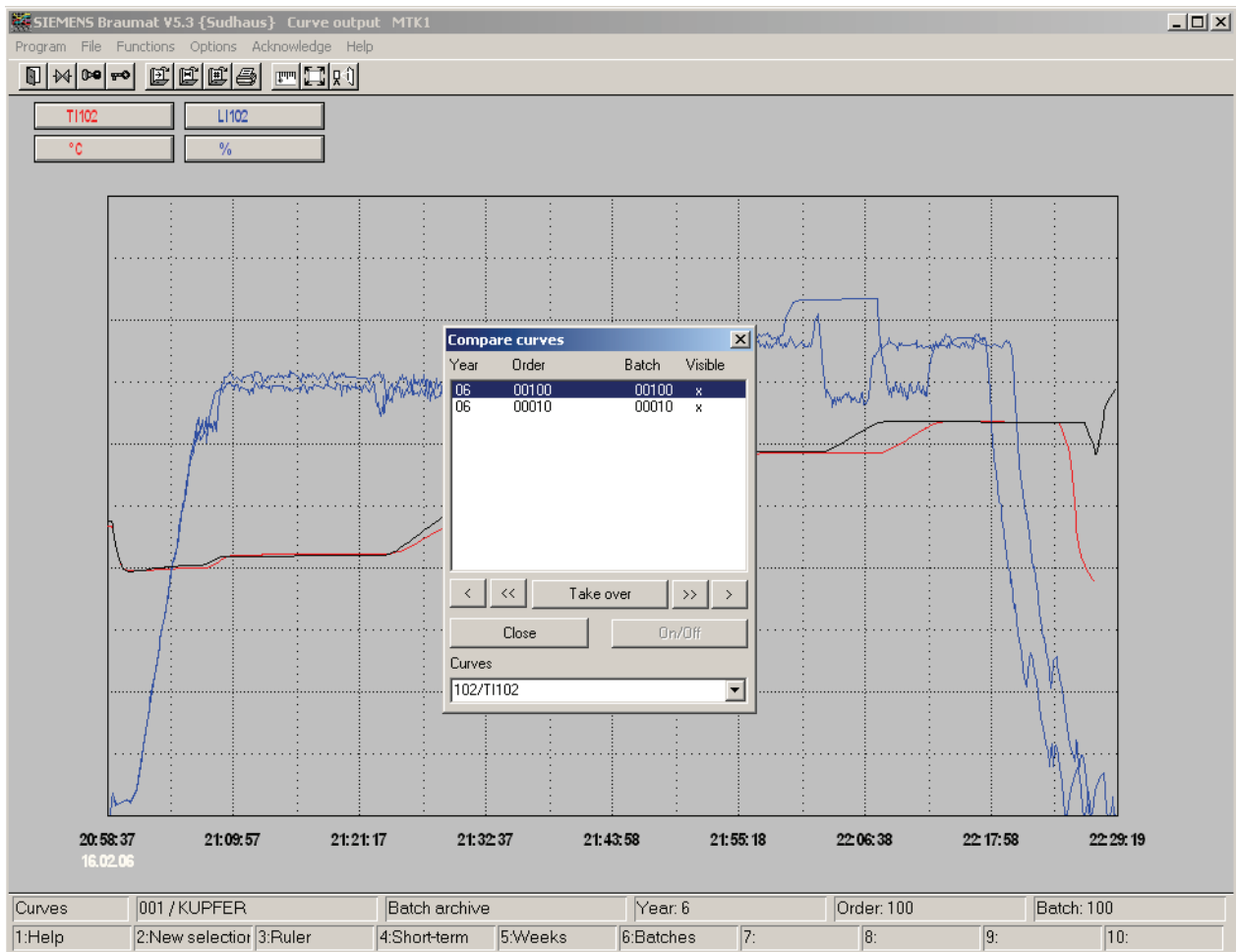


Here you select the comparison batch. You do not define the curve(s) themselves here, because all curves of the respective curve image of this batch will be displayed. It is therefore important to define a meaningful grouping of curves with this option (less is more).

After confirmation with "OK", the curve display will now appear as follows:



Use "Options - Compare curves" to display a window in which you select both the curve itself (drop-down menu at the bottom) as well as the reference and/or comparison curve. The selected curve of the batch - here batch number 100 – that is highlighted with a blue bar, is represented in the curve display in black. It can be displayed and hidden ("ON/OFF" key) and shifted with respect to time using the arrow keys, in order to achieve overlap with the reference curve.



If the curves of another batch are to be compared, this batch is selected with the "Compare curves" option as described above. The reference curves remain the same as before. Thus, it is possible to successively compare multiple batches with references.

7 Archive editor

7.1 Overview

The archive editor is a client-application, used primarily for editing manual values. The view shows a table with a time scale value and the measure value as columns. Several graphs can be edited in the same row (same time column).

The program can not be started by means of the Sistar menu, but must be opened directly in Windows:

- In the Explorer, select the "windcs\sys" folder.
- Double-click 'archedit.exe' to start the program.
- You can also create a shortcut to 'Archedit.exe' on your desktop.

7.2 Engineering

More or less similar to the visualization of curves also the archive editor uses views, but they have to be configured with an ASCII editor manually.

Folder and file name syntax for archive views:

folder: , \windcs\trend\picture'
file extension: , *.man'

Structure of a view:

The number of shown measured values must be configured according the following rules, at most 16 values can be displayed.

```
[ArchiveSet]  
Values=6
```

The next section is ,values' with a key per measure value.

```
[Values]  
;Value...=<number of IOS>,<number of mesured value>  
Value1=2,1  
Value2=2,2  
Value3=2,3  
Value4=2,4  
Value5=2,5  
Value6=2,6
```

Configuration of file ,trendman.ini'

Using manual inputs, configure key StartMark like this (file ,trendman.ini):

```
[App]
StartMark=1
```

Access rights

For saving manual inputs, the user right ,TRENDMAN' must be configured.

7.3 Printing

The measure values can be printed as a table, the margins can be configured in file 'arch_frm.txt' located at the global text folder ,..\texte.x\arch_frm.txt'.

Structure:

line	default value	position
1	Date:	Upper right corner current date will be appended
2	Documentation curve archive	Top centered
3	Customer: sample_customer	Lower left corner
4	Plant: sample_plant	Lower left corner
5	Page:	Lower right corner current page number will be appended

7.4 Command line arguments

The application can be started with the following command line arguments:

```
archedit <p1> <p2>
```

<p1> What to do with the last value ?

- /p: last value will be sent to the PCU.
- /pe: last value, time, order and batch number are sent to the PCU.
- /n: nothing will be sent to the PCU.

<p2> type of the archive

- w weekly archive
- b batch archive
- h manual archive

7.5 configurations of "archedit.ini"

Section [archive]

- Autostart
 - 1: Display last selection again
 - 0: Work with the „open dialog“ after start
- JumpToEnd
 - 1: jump to the last value after selection
 - 0: jump to the first value after selection
- AskBeforePcuSend
 - 1: Query, before value goes to SIMATIC
 - 0: Send value to the SIMATIC without query
- MenuAppl
 - bed: The user applications are displayed in the program-menu
 - sys: The system applications are displayed in the program-menu
- PcuFunction
 - 1: Display menu items 'Send value to a PCU'
 - 0: Don't show menu items for 'Send value to a PCU'
- ValWidth
 - width of columns for the value
- MaxEditDS:
 - Number of the maximum displayed curve points.

7.6 Special functions to archive editor

Last change to PLC

With this function the last value is always sent to PLC. The address is in the measured value description list. Which value has been modified at last is shown in the first column of the table (*).

Last change and additional data to PLC

In addition to the value, also the date, the time, the order and batch number is sent to the PLC.

Addressing

Data is filed at the address given in the measured value description list.

If the application has been started with option '/pe', also an additional data is stored next to the given address in the measured value description list.


Adr (=MWL):	changed value
Adr + 2 Bytes:	second
Adr + 3 Bytes:	value 1 = value has been written and must be reset by the user program.
Adr + 4 Bytes:	hour
Adr + 5 Bytes:	minute
Adr + 6 Bytes:	day
Adr + 7 Bytes:	day of the week
Adr + 8 Bytes:	year
Adr + 9 Bytes:	month
Adr + 10 Bytes:	order number
Adr + 12 Bytes:	batch number

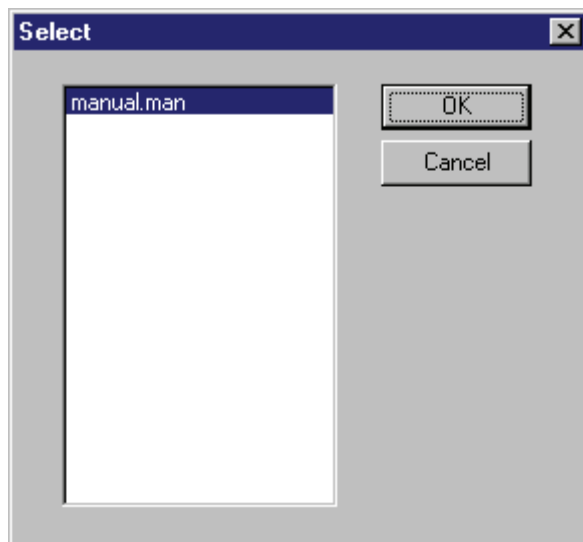
The user program should reserve those addresses beyond the value. This funktion can only be used by user programs.

7.7 Working with the application

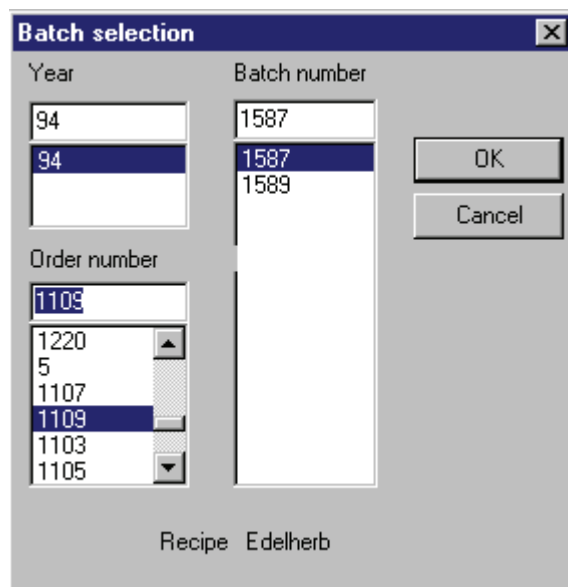
Open

Open a picture by

- Selecting the file "Open" in the menu 'file'.
- Click on the icon  in the button bar.
- By activating the function key F2.



A dialog appears, please select a batch



Sample of a called file:

SISTAR V5.10 Archive editor - manual.man				
Program File Edit Options Acknowledge Help				
No.	Date	Time	EINMAL: TC152	
1	27.07.94	20:57:40	57.2	
2	27.07.94	20:57:48	57.1	
3	27.07.94	20:57:50	55.8	
4	27.07.94	20:57:52	53.1	
5	27.07.94	20:57:54	47.0	
6	27.07.94	20:57:56	45.7	
7	27.07.94	20:57:58	45.1	
8	27.07.94	20:58:06	45.4	
9	27.07.94	20:58:10	45.1	
10	27.07.94	20:58:26	42.6	
11	27.07.94	20:58:28	42.2	
12	27.07.94	20:58:32	41.7	
13	27.07.94	20:58:34	41.3	
14	27.07.94	20:58:40	40.6	
15	27.07.94	20:58:42	40.2	
16	27.07.94	20:58:44	40.1	
17	27.07.94	20:58:50	39.3	
18	27.07.94	20:59:02	38.0	
19	27.07.94	20:59:04	37.7	
20	27.07.94	20:59:08	37.4	
21	27.07.94	20:59:16	36.7	
22	27.07.94	20:59:18	36.7	
23	27.07.94	20:59:26	36.0	
24	27.07.94	20:59:28	36.0	

1/762	IOS:1	FW:13	Year:94	Order:1109	Batch:1591				
1:Help	2:	3:	4:Print	5:	6:	7:	8:	9:	10:

Save



Press this button on the button bar or select "file/save" saves the file on the disk.

Caution:

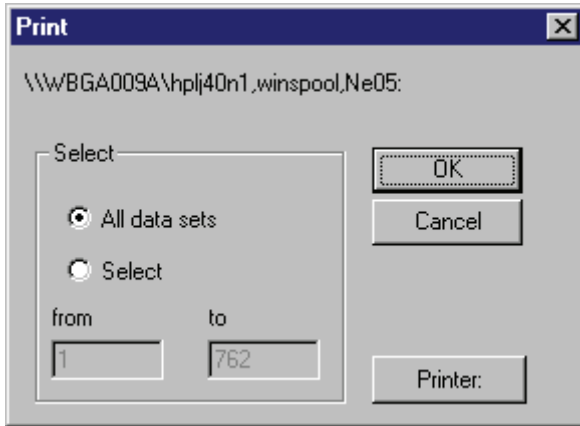
The save function is possible only for so-called 'manual archives'. These may contain type 4 measured values (=manual type) exclusively. The determination of the measured value [type](#) occurs with the application 'Measured value description list' (see chapter 5.). It is recommended for this purpose to define an own view description, which contains only measured values of type 4. When opening such a manual archive view, the batch selection dialog appears too. The selected batch is used, however, only for definition of file location of the manual archive in the corresponding list here. The manually entered values are put aside to the existing measured values.

Print file

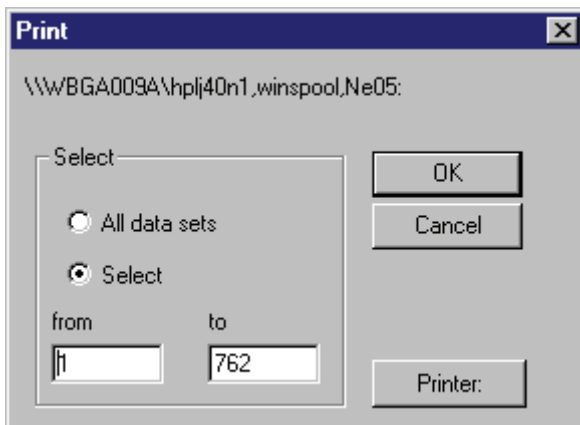


Select "file/print" or click button "print" on the button bar prints a picture, a dialog appears asking for options:

'All data records' print all data sets



Selection prints only a range of data sets



Selecting 'printer' opens the standard printer dialog.

Add value

Select "file/add value" in order to add more values.

Delete value

Select "file/delete value" in order to delete values from the list.

Append value

Select "file/append value" in order to add more values to the list.

Options

- Button bar
- Status bar
- Function keys

Acknowledgement

- Status bar ,Quit ICM errors‘
- Quit horn
- Reset password

Help

- System ALT+F1
- System index
- Information

8 What to do with errors?

8.1 Problem

No	Error description	Todo
1	Visualization doesn't get connection to the trendmanager (server)	Check server entries in file 'trendman.ini'
2	Problems printing on a printer of type HP 550 C	Check configuration in file kurven.ini [Select] BitsPixel=0

