SIEMENS

BRAUMAT/SISTAR Classic

SIMATIC
Batch trending

Function Manual

BRAUMAT/SISTAR Classic V6.0 SP2

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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.

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Preface 1

1.1 Preface

Purpose of the Manual

This manual covers the basic description of batch trending with BRAUMAT/SISTAR Classic V6.0 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.

Where is this Manual valid?

This manual is valid for the software package BRAUMAT/SISTAR Classic from Version V6.0.

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 small deviations may occur compared to the on-line helps. The statements in the on-line helps take priority over those of the manual.

Place of this Documentation in the Information Environment

This manual forms part of the BRAUMAT/SISTAR Classic V6.0 documentation package. The following schematic of the document architecture shows the individual manuals as well as their thematic grouping within the entire program package.

Document structure

Description
of the
System

Installation and
Configuration

Administration

Communication

Engineering with
'based on S7'

EPE creation

Dosing and
Weighers

Recipe System

Batch processing

Operation &
Control of batches

Batch curves

Logging

Serve & Watch
with 'based on
S7'

Application for
'based on S7'

Messages

Building block
library: Basics

Building block
description S7

Building block
description S5

Building block
library: Route
control

Serve & Watch
Routes

Engineering of
the Route Control

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:

http://www.siemens.com/automation/partner (http://www.siemens.com/automation/partner)

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

http://www.siemens.com/simatic-tech-doku-portal (http://www.siemens.com/simatic-tech-doku-portal)

The online catalog and order system is found under:

http://mall.automation.siemens.com/ (http://mall.automation.siemens.com/)

Training Centers

Siemens offers a number of training courses to familiarize you with the SIMATIC S7 automation system. Please contact your regional training center or our central training center in D 90026 Nuremberg, Germany for details:

Internet: http://www.sitrain.com (http://www.sitrain.com)

Technical Support

You can reach the Technical Support for all A&D products

Via the Web form for the Support Request
 http://www.siemens.com/automation/support-request (http://www.siemens.com/automation/support-request)

Additional information about our Technical Support can be found on the Internet pages http://www.siemens.com/automation/service (http://www.siemens.com/automation/service)

Service & Support on the Internet

In addition to our documentation, we offer our know-how online on the Internet at:

http://www.siemens.com/automation/service&support (http://www.siemens.com/automation/service&support)

where you will find the following:

- The newsletter, which constantly provides you with up-to-date information on your products.
- 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".

Batch curves   2

2.1   Overview

- The BRAUMAT/SISTAR Classic V6.0 system records batch-oriented measured value curves. The triggering process happens in the PCU. It triggers groups of curves rather than individual measured values. Measured values can be divided into up to a maximum of 240 curve groups.

- They are recorded from a server. On the server the application 'trendmanager' must run.

- If measured values are recorded by a server, the number of variables is reduced to the quantity that the server is able to provide at any given moment.

- More than 1 server can record curves in the plant.

- A compression procedure is used during 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 measured values and 2400 entries for digital measured values.

- The digital measured values can be derived from all the analog measured values that are available.

- BRAUMAT/SISTAR Classic V6.0 can also include weekly files and short-time records besides batch curves.

- Curve visualization is provided by a client application, which can run on each BRAUMAT/ SISTAR Classic V6.0 system.

- The client can visualize measured values from different curve servers.

- An aggregation of several values is called a "curve picture".

- It is possible to put several curves on top of each 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:

When upgrading existing process cells, please note that, as of BRAUMAT/SISTAR Classic V5.3, there is no support for **composite configuration** in terms of client and server IOS system versions. It is not possible e.g. to access stored curves on a V5.2 server from a V5.3 client and vice versa. Upgrades should always be consistent between Client IOS and Server IOS.

Configurations

- Single-user configuration
  Curve record as well as curve visualization run on the same OS.

- Client - server configuration
  There is a curve record on one or two redundant servers and the curve visualization is available on all clients.

- Multi client - server configuration
  On the server as well as on the clients, measured values from several servers are visualized.

2.2 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.
  They run automatically, i.e. do not need a curve trigger from the control system.

- 2: Batch archive
  The measured value can be used in batch archives and in weekly archives.
  They do not run automatically, i.e. they need a start trigger and a stop trigger from a control system.

- 3: Weekly archive
  This measured value can only be used in weekly archives.
  Run automatically if 255 is used as curve group. If curve groups 1-240 are used, a trigger from a control system is required.

2.3 Curve group

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 performed during engineering of the description list mentioned above.

2.3.1 Status of the curve groups

The PCU software includes a **trigger data block**, which aggregates the actual information relating to 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

2.4 Triggering curves

Triggering (enabling/stopping) data collection within the PCU is performed by a function block trigger **function block (FC695)**. Batch information as well as the curve group number is provided for this block.

The function block is called by recipe procedures (Unit FB or basic operation).

2.5 Compare curves

The Option "Compare curves" provides the possibility to view several batch or weekly archives simultaneously for comparison purposes. In this way you can 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 match them for an easier comparison.

Function 2:
By "free selection" you can select curves from different batches. This selection is used as a reference (Step 1 of Selection) for comparison with another batch.

Compare curves

In order to determine 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

In general, the function must be enabled.

File	…\windcs\sys\kurven.ini:
Input	[Select]
Key	CmpOptionEna=1

2.6 Archive editor

The archive editor is used for:

- entering manual values into the file and the transfer of these input values into the PCU,

- the manual modification of curve values

AS Engineering

3

3.1 General

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

3.2 How 'triggering' works

Batch information is 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 by recording the corresponding curve group.

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

3.3 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 the S7 version.

3.4 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 the 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.

boActSeq (Bool)

This input parameter is only used in the "BRAUMAT based on S7" version and means that the batch reference is taken from the sequence which is currently being processed.

iSeqID   (Integer)

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

3.5   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 of 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 via currently processed sequence

This call is only useful in the S7 version. 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 are irrelevant.

```
 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
```

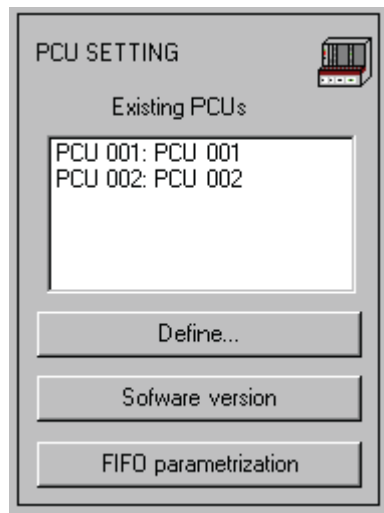# 3.6 Telegram for triggering

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 in parallel, 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 performed directly via the parameterization 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 check box.

The standard message types for the recipe system and route control are configured automatically and do not need to be preselected.

Installation and Operation

<div style="text-align: right; font-size: 3em;">4</div>

4.1 Application "trending definition"

The standard installation includes the appropriate entry in the BRAUMAT/SISTAR Classic V6.0 Main Menu ('Engineering tools' tab).

4.2 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 is not recommended since you can 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' you can configure the system to start to record the curves.

| Input:	[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

4.3 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 cannot be opened directly.
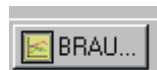
Pressing the 'ALT' key and clicking on the icon at the same time will open the window, which lists all curve groups and their actual batch information:
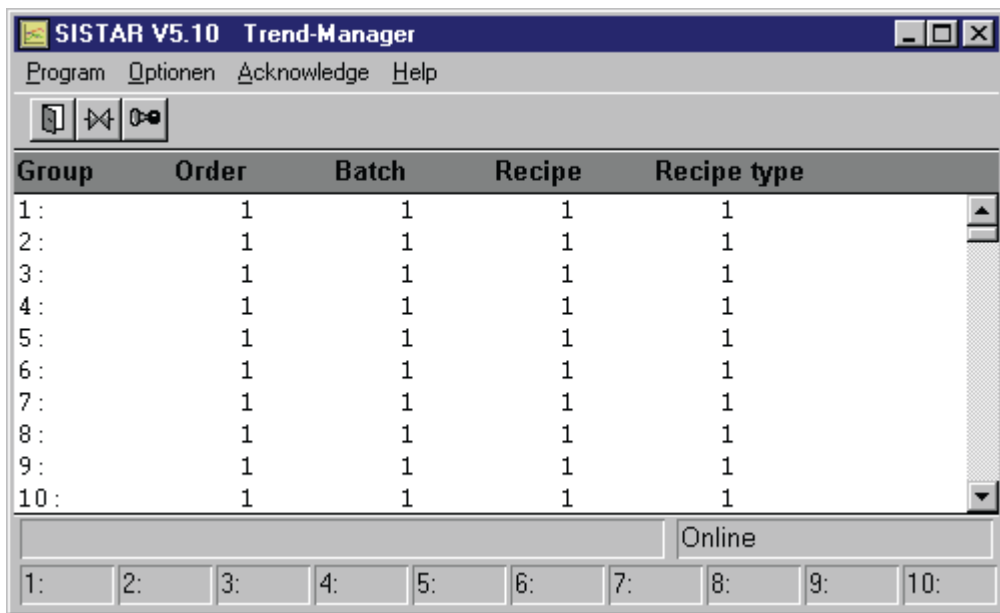
The window can be opened automatically when the program starts by means of the following settings in "\windcs\sys\trendman.ini":

Input	[Window]
Key	Show=1

4.4 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 from the Simatic Customer Support Center (addresses/ partners are found in the preface (Page 7) of this manual).

4.4.1 Configuring the server

Server

All curve servers are configured in this section, whereby 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.

Input:	[Network]
Key:	Server=1$\\IOS01\c\windcs

4.4.2 Configuring recording

StoreOnExit

Save data before closing the application ON (default) / OFF.

Input:	[App]
Key:	StoreOnExit=1

STBufferSize

Size of the buffer for short-term curves. The default value is 150, the allowed range is 60 to 1800.

Input:	[App]
Key:	STBufferSize=150

StartMark

Enables (1, default) or disables (0) saving additional user information, when start trigger rises.

Input:	[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 a 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 detect this interruption.

FlushCycle

Measured values are recorded in intervals according to the configuration in the measured value description list. In order to reduce the amount of hard disk accesses, the measured values are collected in the main memory of the server and written on the disk after a certain time. The cycle for 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 held in the main memory will be lost.

Input:	[App]
Key:	FlushCycle=15

DiffTime

Measured values in BRAUMAT/SISTAR Classic V6.0 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 will not be recorded for a very long time. This could cause disadvantages in regard to data security.

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)).

Input:	[App]
Key:	DiffTime=3600

4.4.3 Configuring the client

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

Input	[Network]
Key	HostIPAddr=192.168.1.1

Enter the IP address of the assigned curve server.

4.4.4 Configuring folders

Paths can be defined for batch curves for data reading and writing. They are compiled in categories. Paths for the categories are indicated in the '\windcs\sys\sys.ini' file. There is more than one path possible for a category.(See also: Installation&Configuration 9.3)

The batch curves always take 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

Input:	[Paths]
Key:	Proj=

4.5 Redundancy

Curve record

Curves can be recorded redundantly by two servers, which run independently of each other.

Client

A client is connected to 1 server. If this server fails, the user must modify the client configuration manually to access the other server.

There is no automatic switch-over to the other server.

4.6 Where the data is located

Topic

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 the installation and must not be changed, as it contains the structure of the data records for a measured value.

```
0       structure of measured value description list

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1       MEASURE_NR      CINT   3      measured value 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     structure of digital value description list
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1     MEASURE_NR    CINT  3    measured value number
4     BIT_FROM      CINT  2    from which bit
6     BIT_TO        CINT  2    to which bit
8     CONNECT       CHAR  1    connection
9     DIGIT_NAME    CHAR 16    name of digital value
```

'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, where three different file types exist (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 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.

4.7   Storage of the pictures

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

This behavior can be changed.

File:	kurven.ini
Input:	[Options]
Key:	SynchonizeFiles=

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 local system folder.

Configurations 5

5.1 Single-user configuration

The recording and visualization of curves are both running on the same OS.

Single Workstation

PCU 1   PCU ...
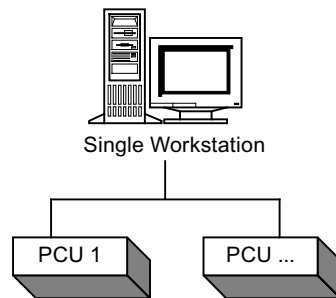
Configuration of 'trendman.ini'

- [Network]
  Server=<IOSNo>$<System path>
  The system path can be a local drive, e. g. c:\windcs)

- [Network]
  HostIPAddr may be configured as a local IP address or left 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 shown in the real way

NewInit=1

Sys.ini for the example

;[Paths]

;Path for project

PROJ=c:\WINDCS
```

5.2 Client - server configuration

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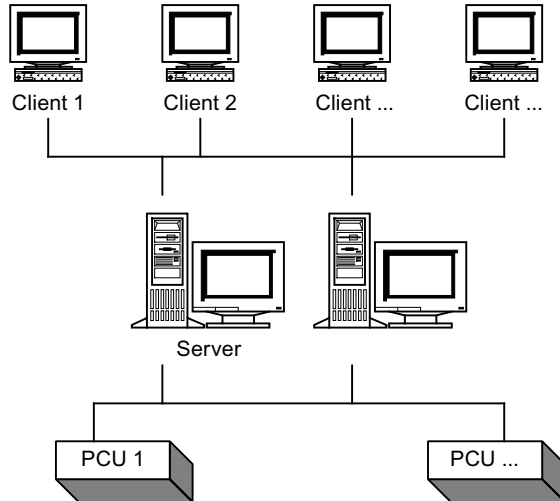
Image ???

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 the corresponding data on the server.
  This sharing is only necessary on the server.

- [Network]
  HostIPAddr=IPAdr of the server
  The key is only important on client machines

Configuration of 'sys.ini'

- [Path]
  Proj=<system path of the server>
  ! This path setting also affects all other functions of BRAUMAT/SISTAR Classic V6.0.
  The path is important for the editor 'measured value description list' and the Trendmanager. The curve visualization uses this path depending on the settings. 🔧 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 uses this path depending on the settings. 🗐 See also: 🗄 Storage of the pictures

INI files for the example:

Server1

Trendman.ini for Server1

[Network]

```
;SISTAR directories of other computers (<IOS-Nr>$<Path>)
Server=1$\\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 shown in the real way
NewInit=1
Sys.ini for Server1
;[Paths]
;Path for project
PROJ=\\IOS1\c\windcs
```
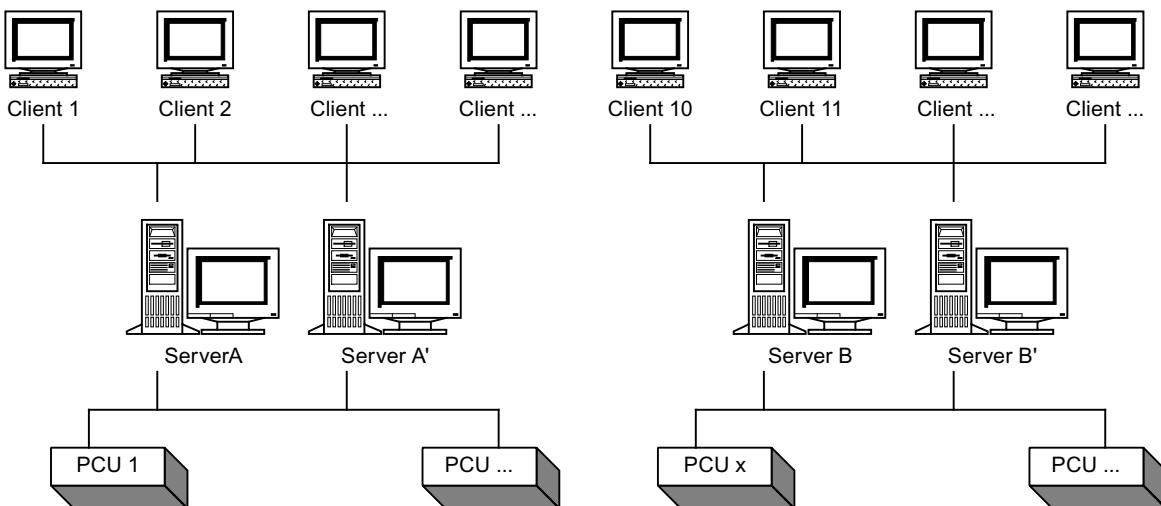
Server2

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 shown 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 shown 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 host 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
  ```

5.3 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 servers 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 pictures of the archive editor are always read locally, therefore all pictures of all servers must be held on all the clients.

Measured value description list

The application 'measured value description list' cannot run on multiple clients, it can only 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.

Adjustments in 'trendman.ini'

- [Network]
  Server=<IosNo> $ <System path Server 1> ; <IosNo> $ <System path 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. This key is used for the clients in order to access the corresponding data on the server.

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

Adjustments in 'sys.ini'

- [Path]
  Proj=<system path of the server>
  ! This path setting also affects all other functions of BRAUMAT / SISTAR Classic V6.0.
  The path is important for the editor 'measured value description list' and the Trendmanager.
  The curve visualization app, however, does not 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 configuration, 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 shown 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 shown in the real way
NewInit=1
Sys.ini for Server3
;[Paths]
;Path for project
PROJ=\\IOS1\c\WINDCS
ServerB can thus visualize its own trends and those of ServerA.
```

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 shown 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 running 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 the case of extended (new) AREA.INI format the path entries in file SYS.INI are not required.

Measured value description list

6

6.1 General

All measurement values to be recorded must be configured in one of two measured value description lists: BRAUMAT/SISTAR Classic V6.0 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:

	→		→	
Grundmenü		"Engineering tools" tab		Messwertbeschreibung
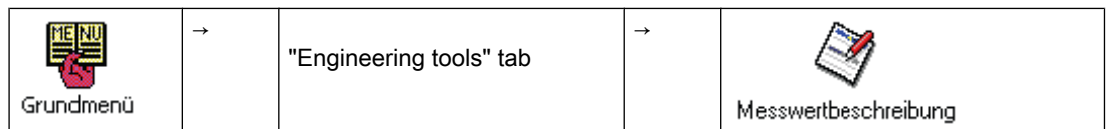
To apply the deltas in a measured value description list, you need to restart the TREND-MANAGER.

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.

6.2 Analog values

6.2.1 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 file name used in the archive on the hard disk drive.

Permitted number of entries: 1 to 1200.

Note

Constraint for S5 PCUs:

Up to 1020 analog measured values are supported per S5 PCU; however, a range of 1 to 1200 also applies to the ID area.

Measured value description

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.DBW18). For an S5 machine an equivalent syntax is expected (e.g. DB712.DW18). For absolute addressing, the input, output or Flags/Memory ranges in AWL-Syntax may be defined as well (e.g. E35.7, M99.1, MW 132, AB22).

Archive type

Every analog measured value has to be assigned one of these four possible archive types:

● Short-time archive

● Batch archive

● Weekly archive

● Manual archive

Curve group

Number of the curve group to which this value should belong.

Refresh

Recording cycle, that is timing interval between two scans 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

For long-term curves: 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, min, …)

This will later appear below the measurement value name in the form of a legend to the curve picture.

Decimal point

Number of digits for the axis marking.

6.2.2   Data types and limits

For data types and limit values there are several unusual features to take into consideration:

Simatic raw type	Interpretation	Lower limit	Upper limit
DBB, EB, AB, MB	unsigned 8-bit integer	0	255
DBW, EW, AW, MW	signed 16-bit integer	-32 768	32 767
DBD, ED, AD, 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) value 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.

6.3   Digital values

In addition to analog values you can also record and display digital values. Digital measured values are not inserted directly, but are derived from **recorded analog** measured values.

● Up to **2400** digital measured values are available per curve server

● These can be derived from the individual bits or bit ranges of the assigned analog measured values (of which there can be up to **1200**)

A digital measured value is defined by the following attributes:

Associated analog value

The digital value is assigned to the analog measured value in the editor using ID 1 ... 1200. This is done by selecting it and calling the "Derive new digital measured value" function. This assignment is retained even if you change the ID of the linked analog value.

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 32 characters and must not contain any special characters.

Start bit

First bit within the measured value for a bit range that is going to be evaluated

End bit

Last bit within the measured value for a bit range that is going to be evaluated

If only one individual bit of a measured value is going to be evaluated, the start and end bit must be identical.

Combination type

If multiple bits of a measured value are going to be evaluated for the purpose of a digital measured value (start and end bit are different), the type of logic operation has to be defined. You can select either an AND or an OR logic operation.

If the start and end bits are identical, this attribute is irrelevant.

Note

The bit range that can be configured for digital measured values is always 0 to 15 (maximum), even if the underlying measured value is a double word (i.e. consists of 32 bits).

6.4 Handling the editor

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

6.4.1 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
<Del>	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

Program	
Views	
<Ctrl> <TAB> <F6>	Toggle between views of analog and digital measured values

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 column widths for current view
↕01 ↕10	Toggle: Show all digital measured values or only those which are derived from current analog measured values

6.4.2 Create new analog measured values

Alternative 1: the main menu
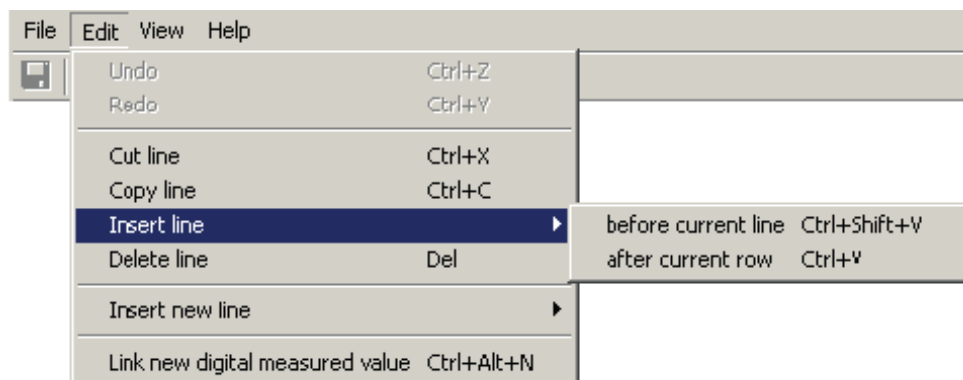
Alternative 2: By means of the shortcut menu in the "Analog values" view (right-click on the table view)
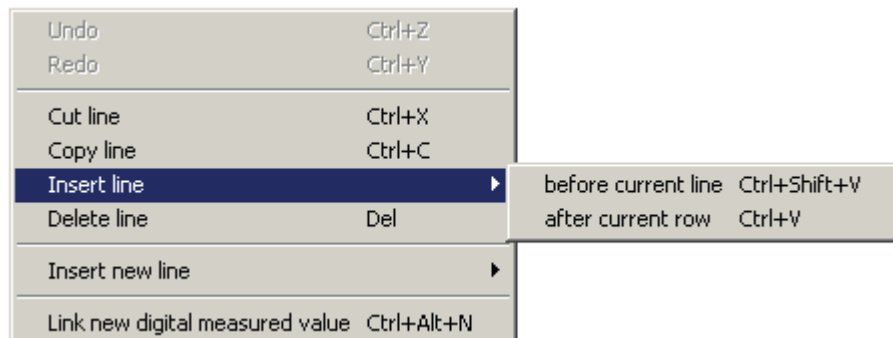
Alternative 3: keyboard shortcuts

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

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

6.4.3 Create new digital measured values

When creating digital measured values, you can also choose from three methods:

- the main menu
- the shortcut menu
- a keyboard shortcut (<Ctrl> <Alt> N).

Note

Digital measured values always have to be derived from analog measured values.

6.4.4 Editing measured values

Notes on the input of values

With the Editor, you have a highly efficient tool at hand for 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).

Editing possibilities

Table 6-1   Analog values

Column	Description
ID Measured value's desc.	(no special considerations for the input)
Addressing	<F2>, <ENTER>, a double-click opens a selection box, Shortcut: "s" for "System", "a" for "Absolute"
PCU	<F2>, <ENTER>, a double-click opens a selection box, Shortcut: PCU number
Class Instance Attribute	<F2>, <ENTER>, a double-click opens a selection box, Shortcut for an instance: instance number. (if you prefer, you can also enter the class and attribute in text format. The text is not case-sensitive.)
Absolute address	For SIMATIC S7: STEP 7-AWL-Syntax, for SIMATIC S5: a syntax associated with STEP 7 STL (e.g. DB712.DW8)
Archive type	<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)
Curve group Update Lower limit Upper limit Hysteresis Unit Decimal point	(no special considerations for the input)

Table 6-2   Digital values

Column	Description
Linked analog value	(information only; cannot be edited)
Measured value's desc. Start bit End bit	(no special considerations for the input)
Logical connection	<F2>, <ENTER>, a double-click opens a selection box, Shortcut: "a" for "AND", "o" for "OR"

Note

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

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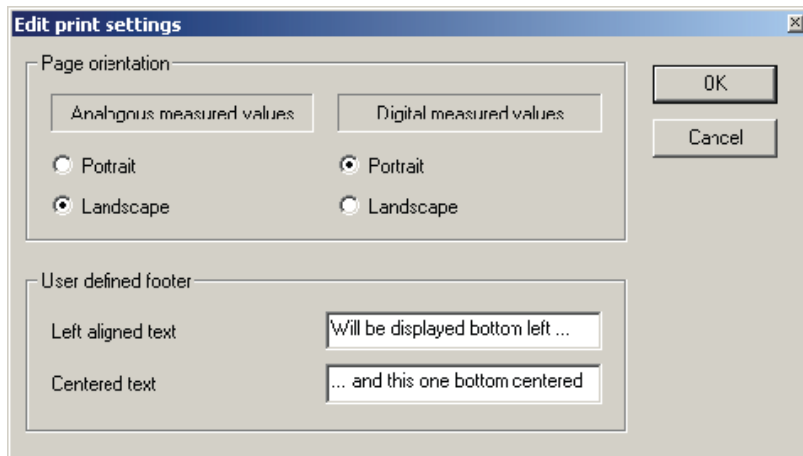
Here you can set some of the printer defaults: separate page layout for analog and digital values and an adaptable footer.

The figure below shows you the layout of a printed page (portrait pages are shown in analog format):
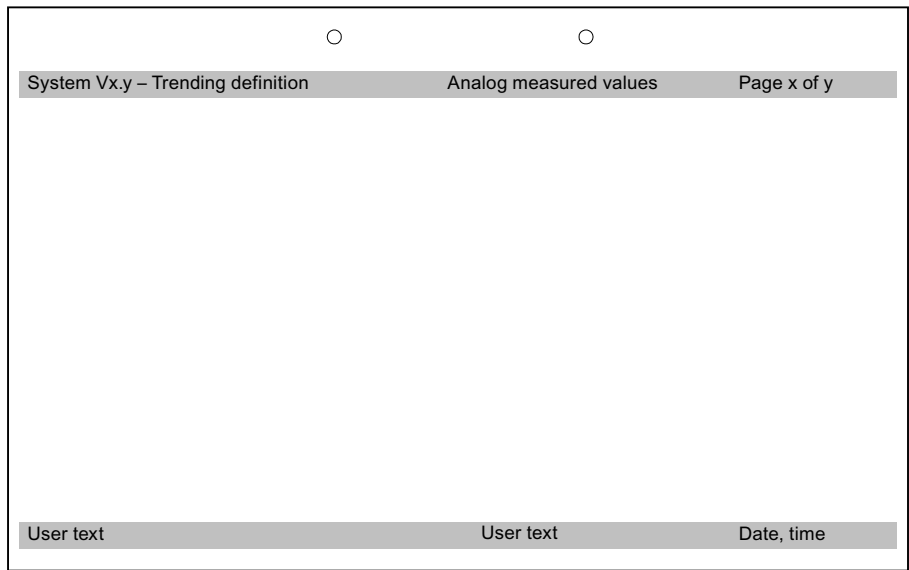
In the user text you can define the customer or the system, for example.

Curve visualization

<div style="text-align: right; font-size: large;">7</div>

7.1 Overview
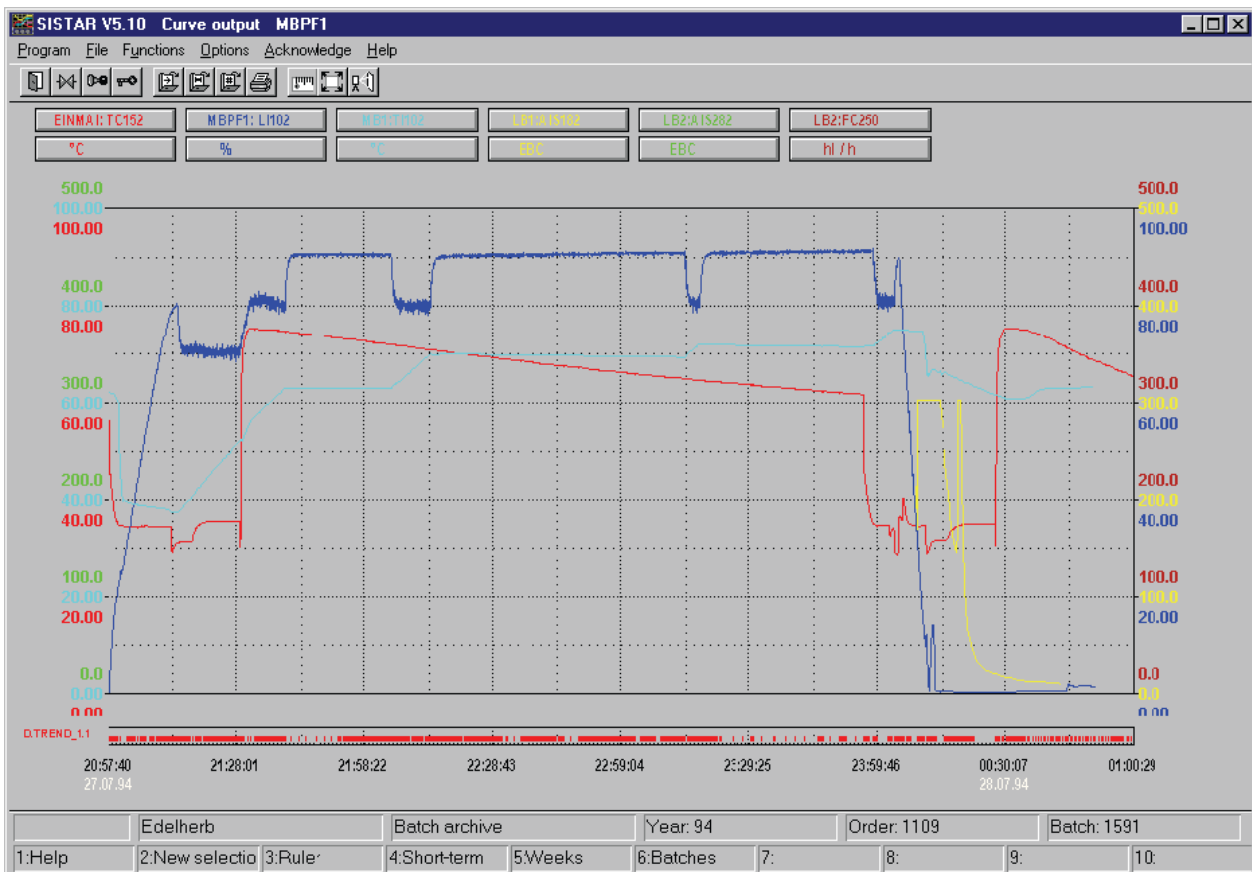
The application 'PI curves' is used for a graphic output of measured values. It enables the time display of archived or running curve values as diagrams on the screen.

Display of analog curves

You can assemble up to a maximum of eight curves. Each individual curve can be hidden. Furthermore the the user can print a screenshot 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 follows:

- 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 measured values description list. Graphs showing currently running batches are updated cyclically.

7.2 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 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 measured values", then "edit digital measured values".

7.3 Dialog 'edit analog measured values'

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

In this dialog, the user defines the values to be displayed by making a selection of both list boxes IOS and MEASURED VALUE, at most 8 values per picture can be selected.

In addition one out of **16 colors** can be chosen, then press "**Add**" to assign a value to the picture. Pressing "**Remove**" deletes the selected value from the current picture in the list box MEASURED VALUE IN PICTURE.

Only those values which could be added to a picture (analog/digital values) are shown.
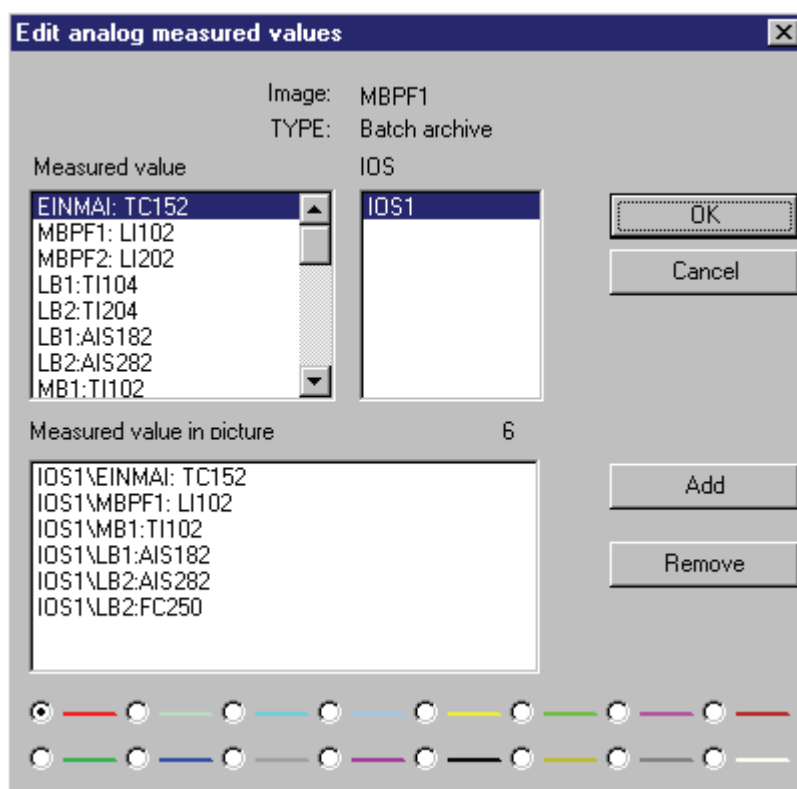
7.4 Dialog 'edit digital measured values'

The dialog opens automatically when creating new pictures. If a picture is already open, select 'File' → 'Edit' → 'digital measured values' in order to open this dialog.

In this dialog the user defines the digital values of a picture by selecting inputs of both list boxes IOS and MEASURED VALUE. Up to 16/32 values per picture are possible. Refer to "editing analog values".

Note

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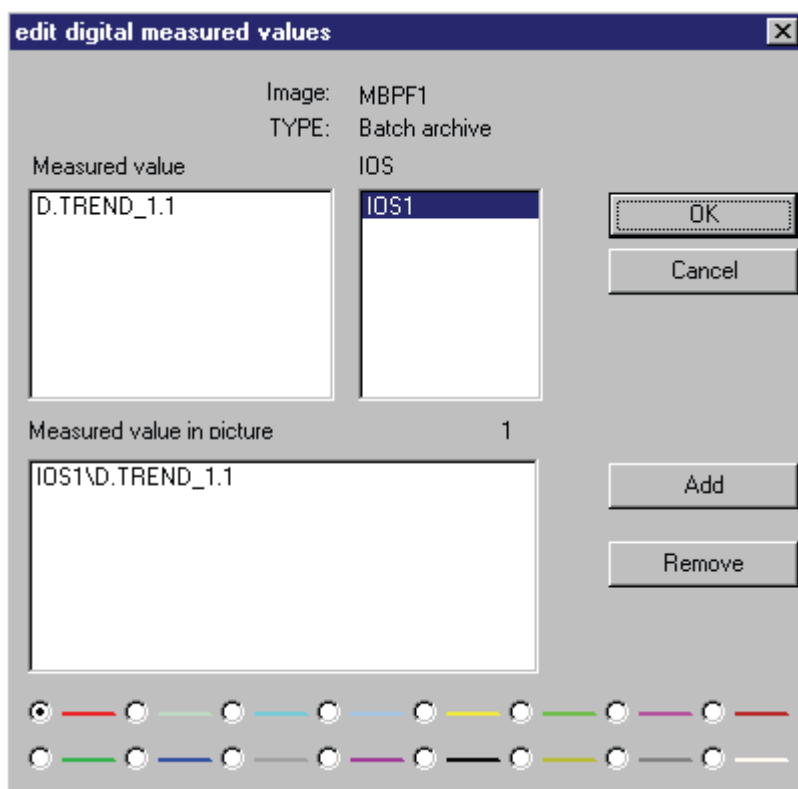
7.5 Meaning of the tool bar

Icon	Topic	Function
	Standard button for BRAUMAT/SISTAR Classic V6.0 for	• Exiting the application • Quitting ICM errors (only necessary for "BRAUMAT based on S7") • Quitting horn • Resetting 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	• Ruler • Show complete graphs • Show all measured values (show hidden values)

7.6 Open pictures

7.6.1 Open pictures

Possibilities:

- Select "File/Open" and click on the desired curve type in the corresponding sub menu.
- Click on 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.

7.6.2 Open a short-term archive
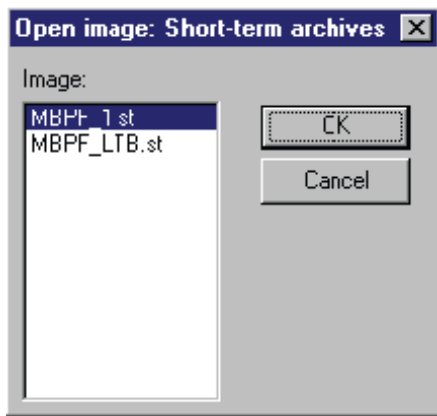
For a short-term archive no additional selection is necessary.

7.6.3 Open a batch archive

Via 'Batch selection' the area of the corresponding curve archive is selected by the selection of year, job number and batch number.
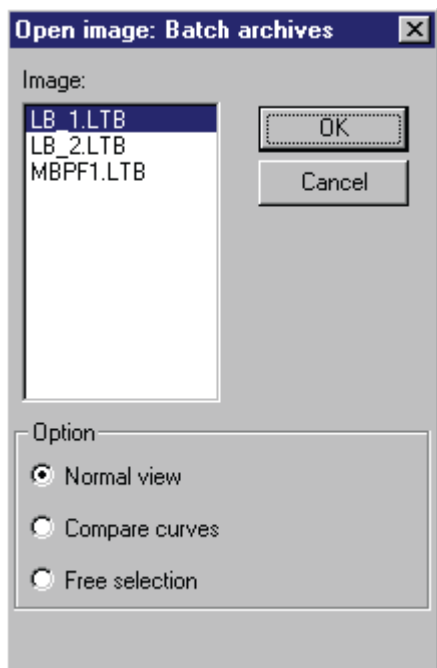
Batch archives provide the following possibilities:

- 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 this option the image curves of a freely selectable batch can be set in relation to an already selected reference arrangement. Here it is also necessary to select a batch (ID) in a second step.

7.6.4   Selecting batches

This dialog is used for the "normal view" and the option "reference curve".

- Only those batches can be selected where data has been recorded for at least one measured value.

- A batch is selected by choosing the year/recipe category/order number/batch number

7.6.5 Batches "Free selection"
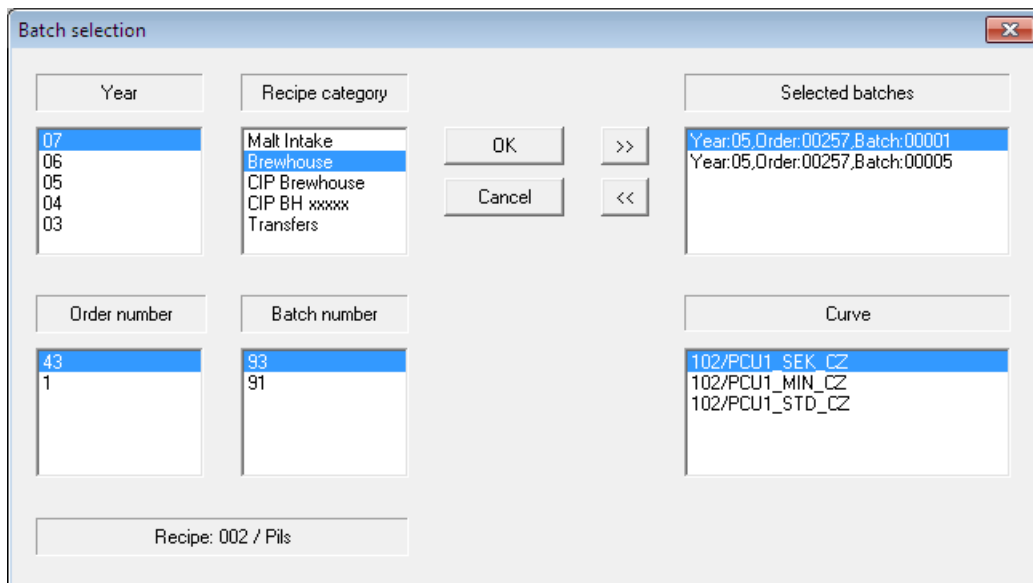
In this dialog the user can select graphs of different batches,

which are 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/Recipe category/Job number/Batch number

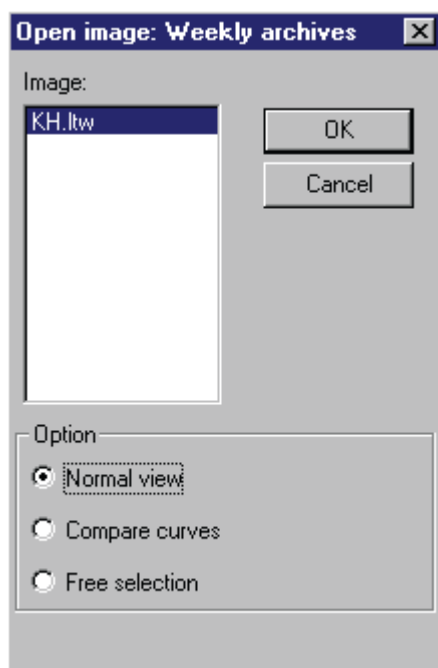Use these fields to select a batch for a curve.

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.

7.6.6 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 an image for weekly archives (*.ltw), the week has to be selected in the next dialog.

7.6.7 Selecting the week
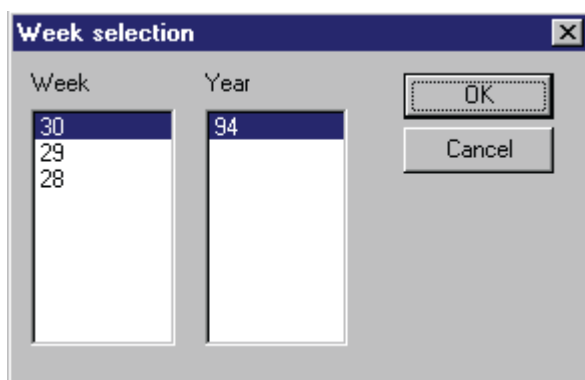
The dialog is used for the 'normal view' as well as for the option "reference curve".

Week/Year

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

7.6.8 'Week' selection for 'Free selection'

After selecting the picture, the following dialog appears and the user can choose the week archives for the curves
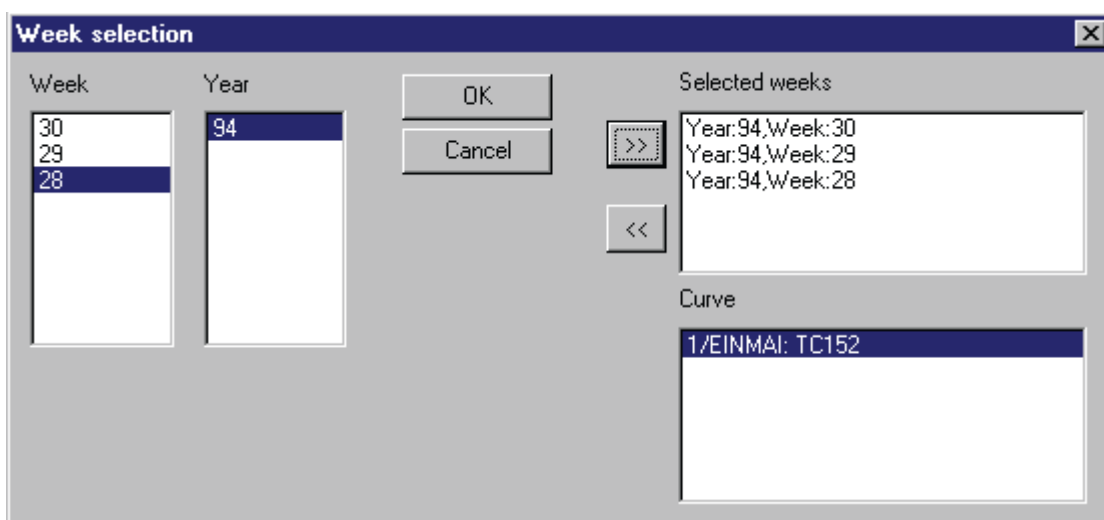
Step 1: Selecting the curve

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

Step 2: Selecting the week/year

Select the week and a year. Only those weeks are shown for which data has been recorded for at least 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 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".

7.7 Printing pictures

An existing picture can be printed out by selecting "Print" from the "File" menu or pressing the button "Print" on the button bar.

The following dialog appears:
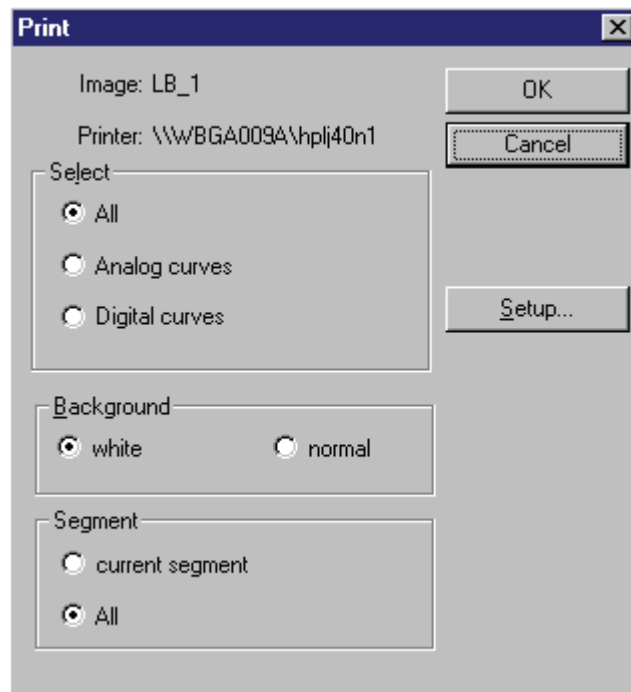
Selection

- All
  prints all digital and analog curves of a picture

- Analog curves
  prints all analog curves of a picture

- Digital curves
  prints all digital curves of a 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.
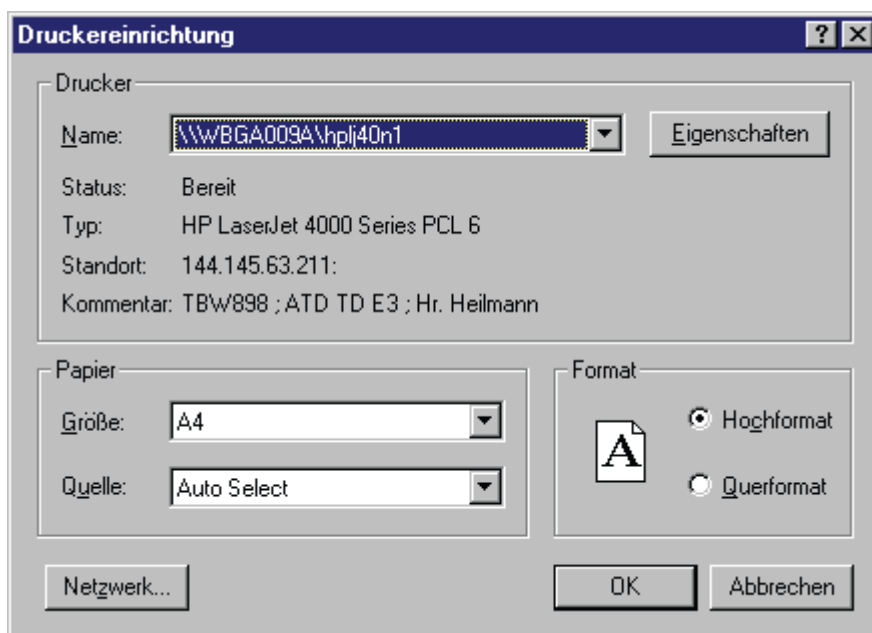
7.8 Hide/Unhide trend curves

7.8.1 Hide curves

Curves 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 curve.

7.8.2 Unhide curves

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

or by selecting 'Functions → All curves' in the menu, all hidden curves are visible again.

7.8.3 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.

7.8.4 Hide/Unhide scaling

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

7.9 Ruler

7.9.1 Ruler

	Button of the toolbar
Select 'Functions/marker' or press the 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 cursor while pressing the left mouse or trackball button. The time and y-axis value are updated automatically. By pressing F3 again or clicking the button "marker line" of the button bar the application switches back to the normal mode.

7.9.2 Difference between two marker lines

Select "difference marker lines" from the menu "Functions" or via Shift + F3, provided the function "marker line" has been activated.

The picture shows a 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 marker can be moved horizontally over all graphs with the cursor while pressing the left mouse or trackball button. The difference and time values are updated automatically. Pressing Shift+F3 again resets the application to normal mode.

7.9.3 Zooming

Zooming into parts of a picture can be performed 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, and after releasing the left mouse button, the new zoomed in part will be displayed.

7.9.4 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) and revert to normal format.	

7.9.5 Redraw curves

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

7.9.6 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**.

7.9.7 Display range

By selecting "functions/range", the user can select a range of time.
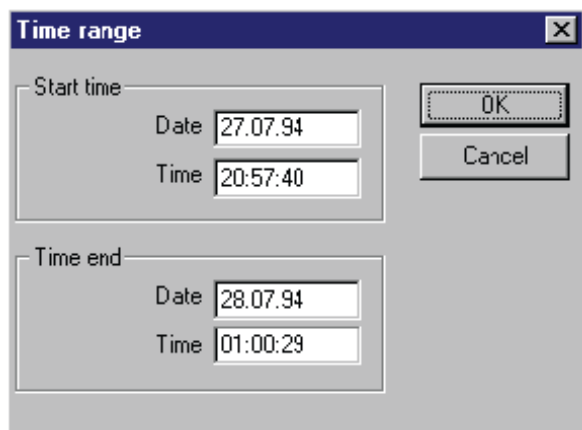
7.9.8 Standard functions

• 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" on the button bar or pressing F11 quits all ICM errors.	
• Quitting 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.	
• Resetting 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.	

7.9.9 Changing the display mode

Selecting "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.
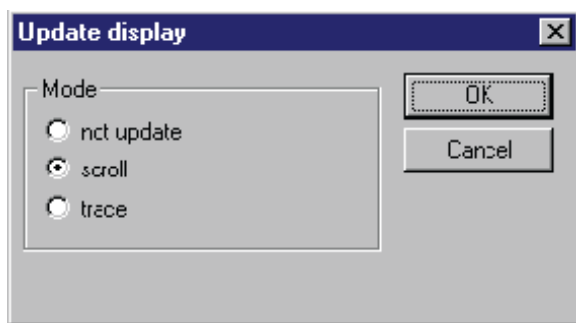
7.9.10   Compare curves

The following dialog is called via menu 'Options → Compare curves'
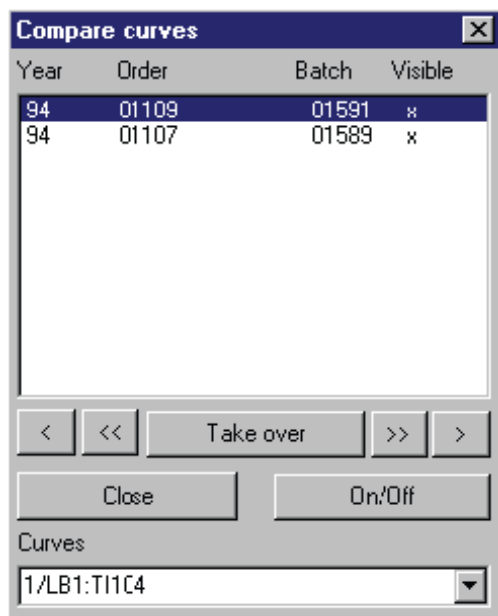
This window can be opened as an additional (modeless) dialog on top of the curve window and is used to select certain curves, whereby the selected curve is shown in black color.

A selected curve can

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

7.9.11   Help

Menu input "Help" offers assistance for:

● System	ALT+F1
● System index	
● Curves	F1
● Curves index	
● Information about the application (version).	

7.10 Command line arguments

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

Case 1: trends.exe <p1> <p2> <p3> ... <p12>

- <p1>: Display type
  c: application is started 'normally' with menu
  p: application is started without a menu.

- <p2>: Image name
  Name of the trend image without path but with file extension (Weeks -> *.ltw, Batches -> *.ltb or Short-term picture -> *.st)

- <p3>: Year
  Specification of the year for batches or weekly archive. The value is not relevant for short-term archives. If '-', the current year is substituted

- <p4>: Week
  Only relevant for weekly archives. For other archive types, '0' is used. If '-', the current calendar week is substituted

- <p5>: Order number
  Only relevant for batch archives. For other archive types, '0' is used. Substitution with $Variable name for current order number is possible.

- <p6>: Batch number
  Only relevant for batch archives. For other archive types, '0' is used. Substitution with $Variable name for current batch number is possible.

- <P7>: Recipe category
  Only relevant for batch archives. For other archive types, '0' is used. Substitution with $Variable name for current recipe category is possible.

Example: trends.exe p T_PCU1LZ.ltw 7 7 (only 4 parameters since this is a weekly archive)

Case 2: Substitution with '$Variable name':

- A variable is defined in the process picture which contains the value for the substitution and a name is configured for this variable.

- The variable name is given for the parameter as $Variable name. The parameter is then supplied with the current variable value by the runtime system.

Example: Trends.exe p Test.ltb - 0 $Order $Batch $Rcat

- An integer variable is created for the current batch number in the process picture which shows the batch number from the unit data set. This variable is called "Batch".

- In the same way, a variable named "Order" is created for the order number

More optional parameters for mode "application without menu".

- <p8>: title (maximum length 28 characters)

- <p9>: horizontal (x) position of the upper left corner of the app window

- <p10>: vertical (y) position of the upper left corner of the app window

- <p11>: window width

- <p12>: window height

7.11 Examples of comparison curves

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

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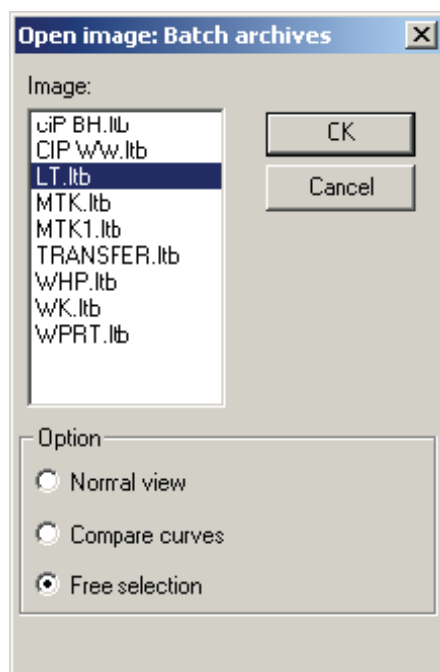
Below is an example showing the selection of comparison batch curves. Weekly curves are selected in the same way, except that the selection is made via "Year/Calendar week" instead of "Year/Order number/Batch number".

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.

7.11.1 Curve comparison with the "Free selection" option

Select "batch curves" and "image name" (here LT.ltb) 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 "GI129" measurement.
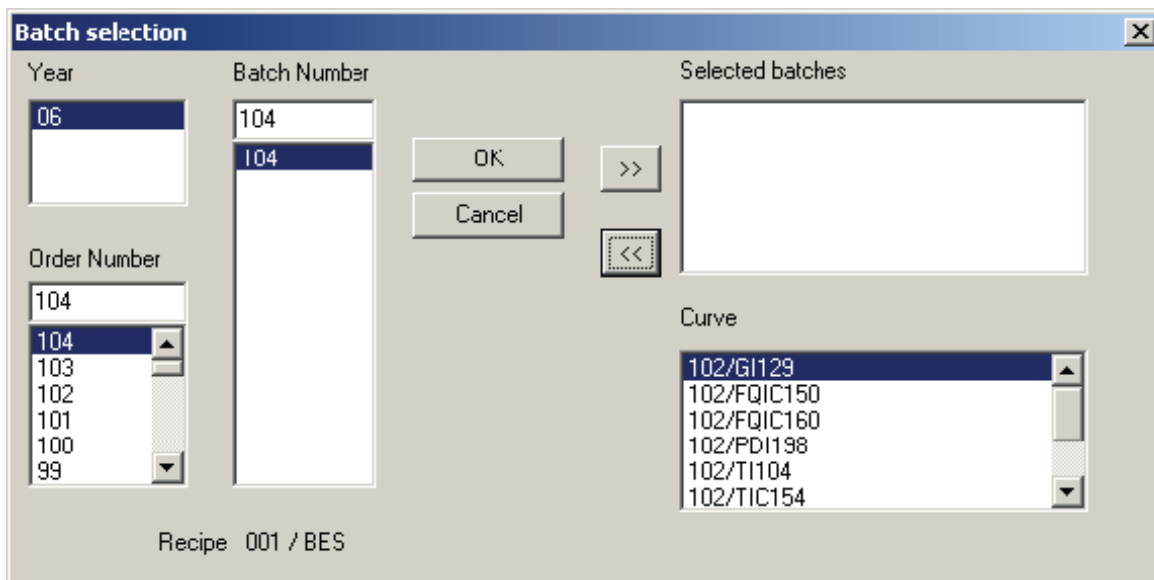

Batches are selected separately for each curve (measured value in lower right field). In the example, the measured value GI129 is selected here, along with the Year 2006, Order number 104, and Batch number 104 on the left. Clicking the ">>" button causes the selection to be displayed in the top right 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.
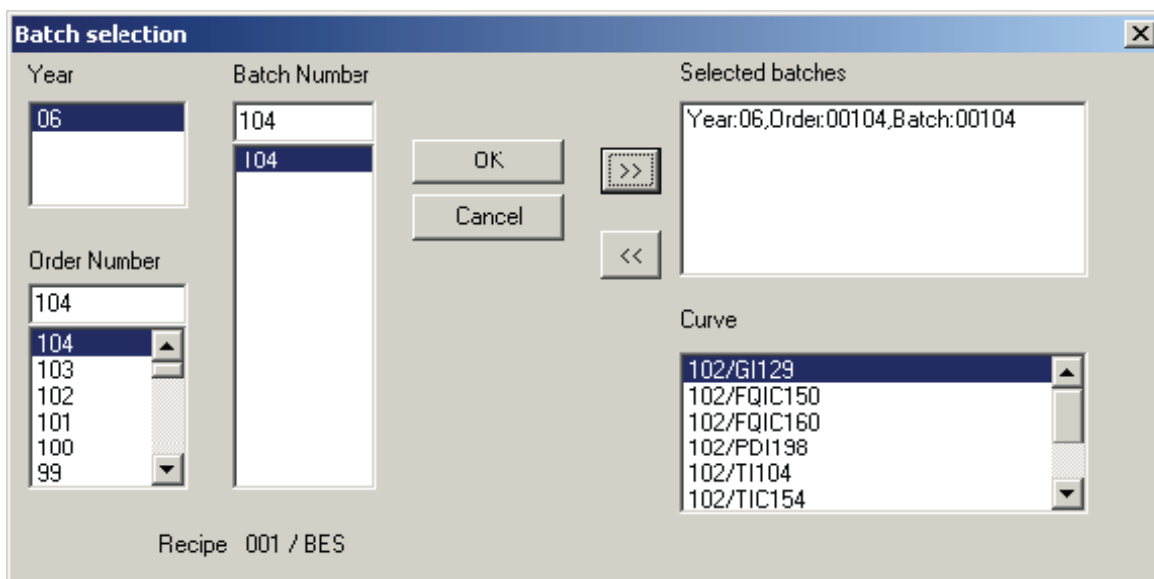
By selecting multiple batches on the left, it is possible to select up to 8 candidates for a measured value, which are then displayed together in a curve window.
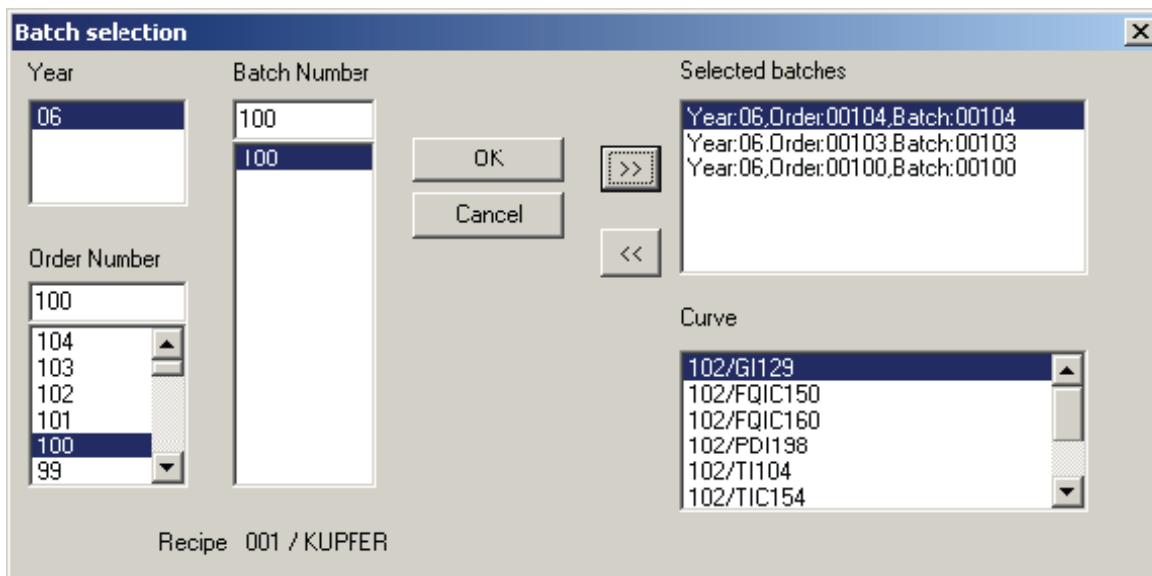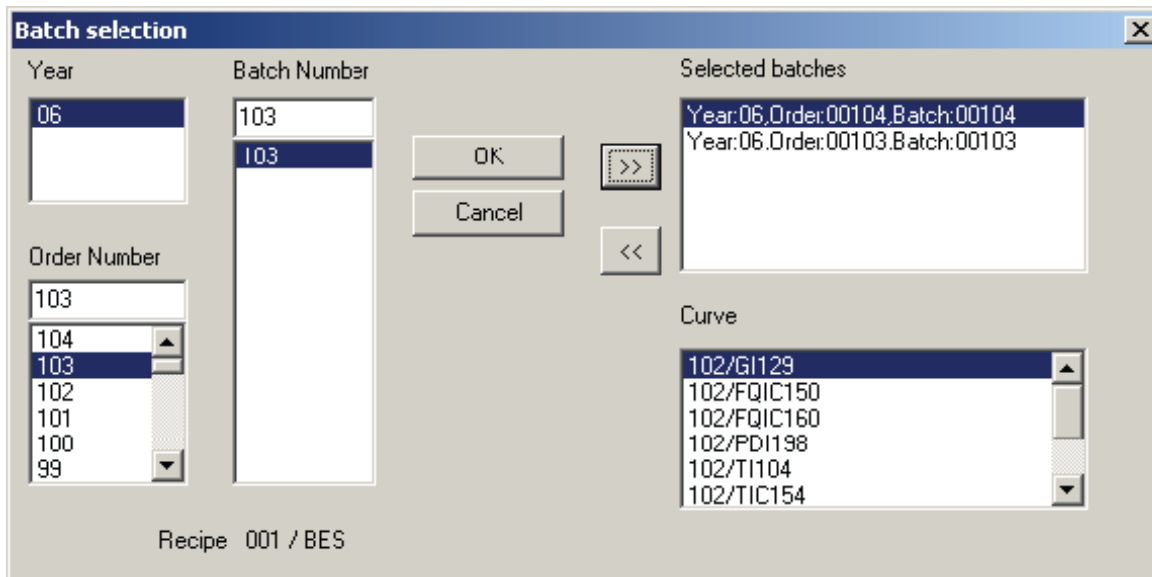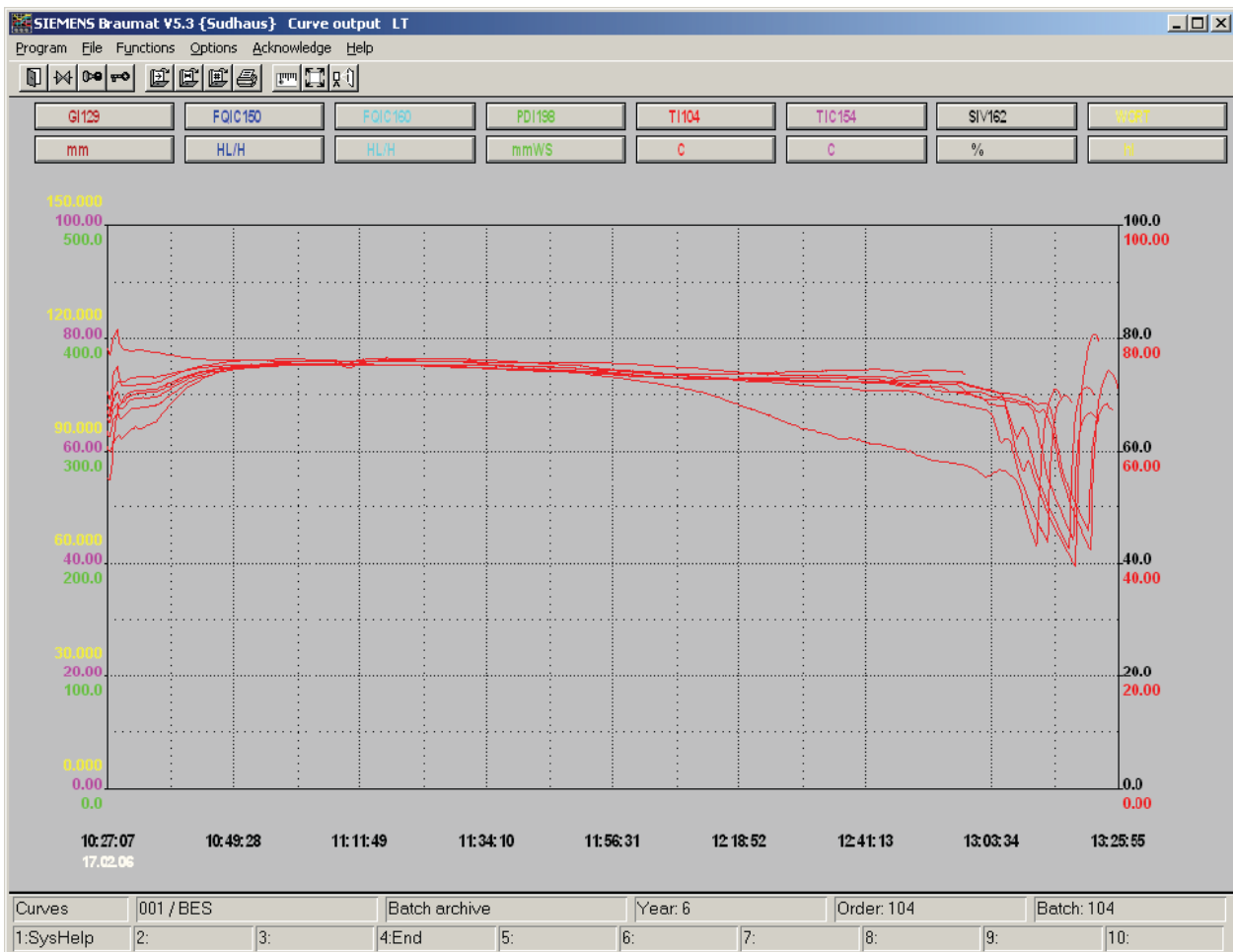

Select additional curves (measured values) in the same way if you want to display a common representation of various measured values in one curve window later. The selection of the selected batches of other curves will be retained.
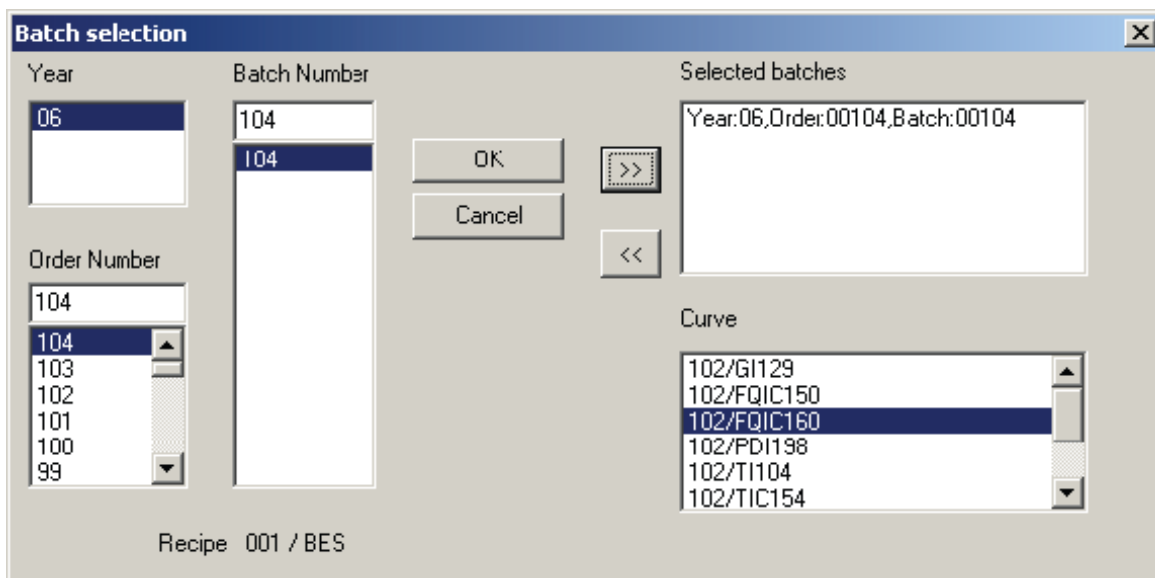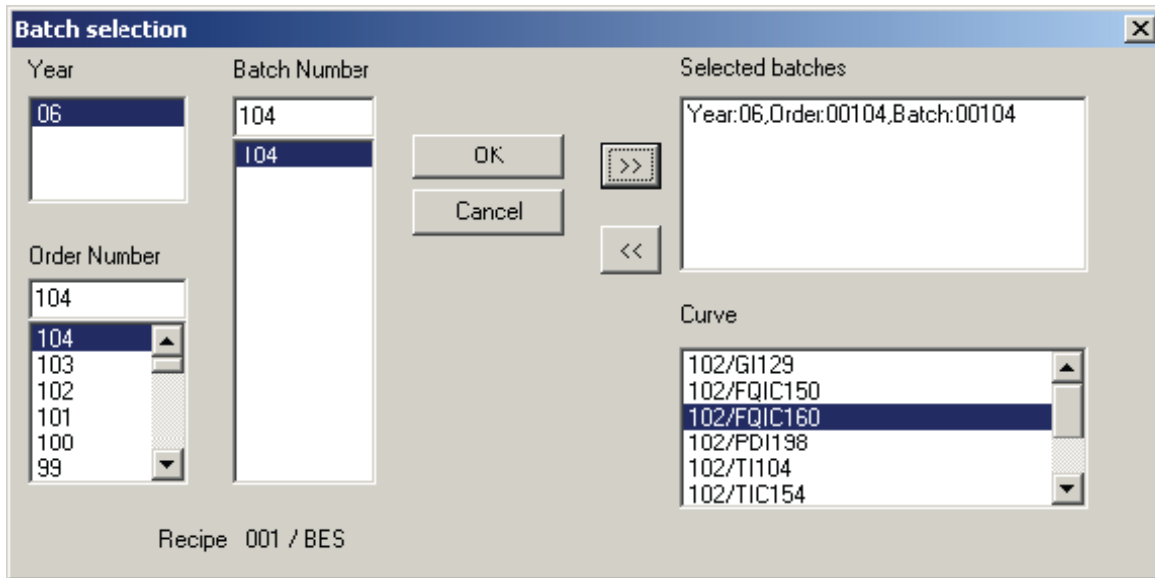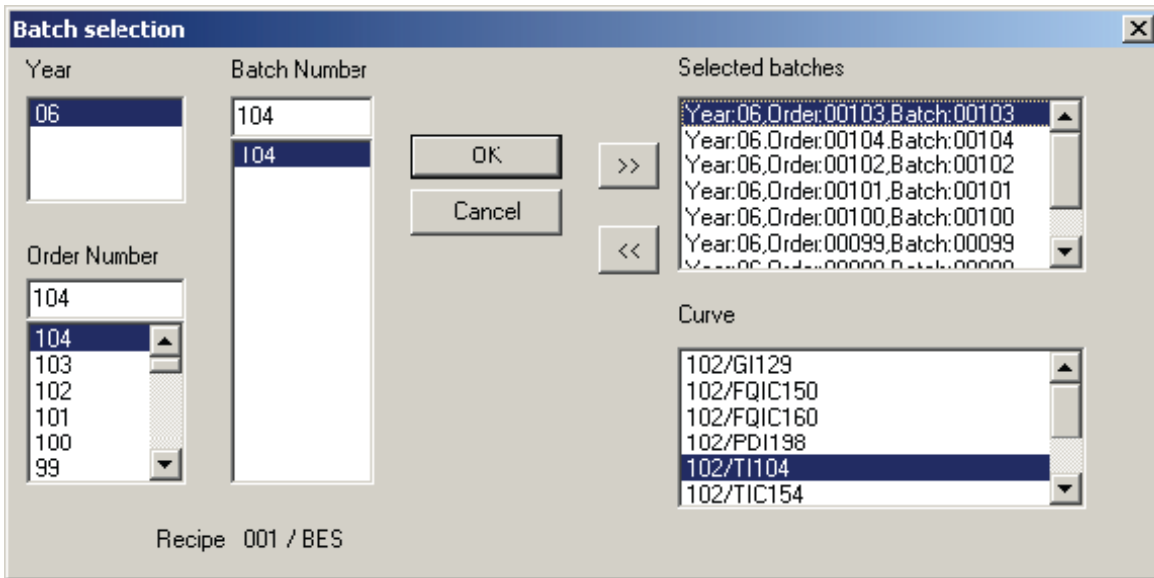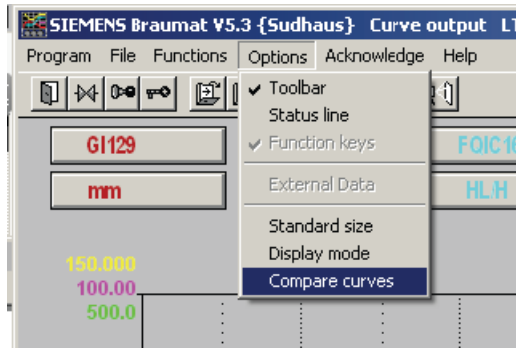
Press OK to open the following curve display:

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).
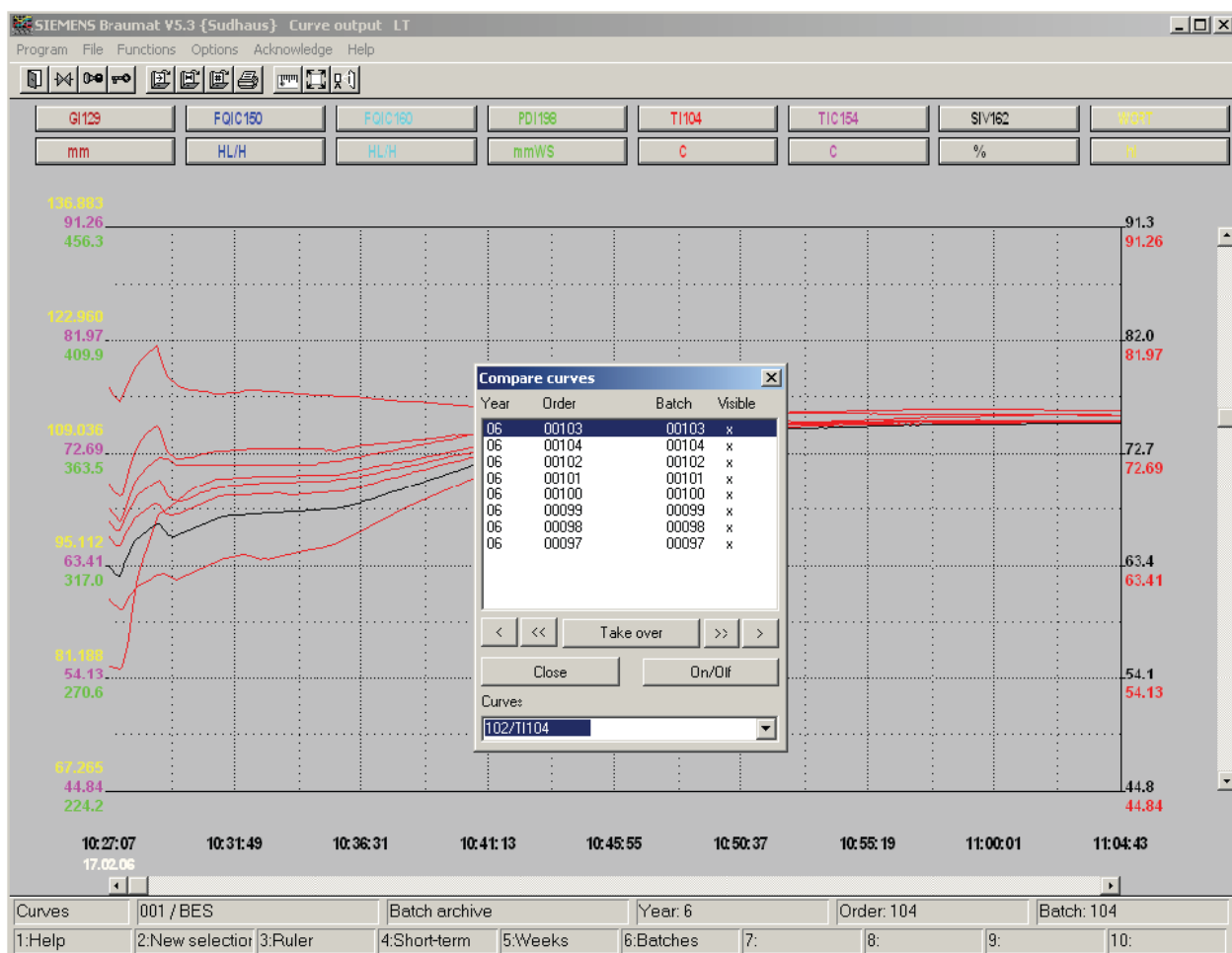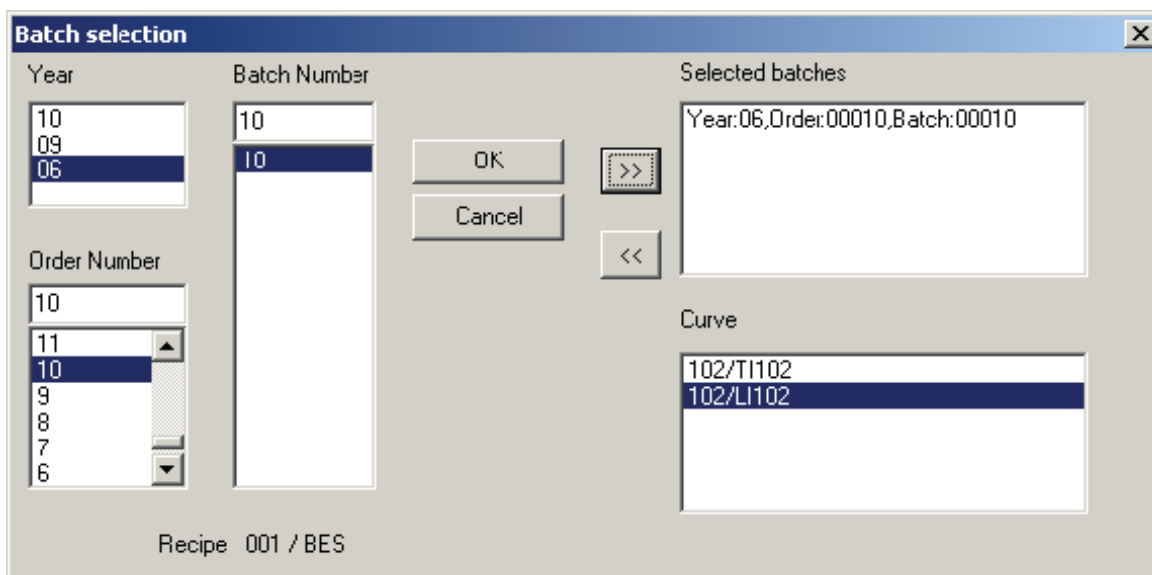
7.11.2 Curve comparison with the "Compare curves" option

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.
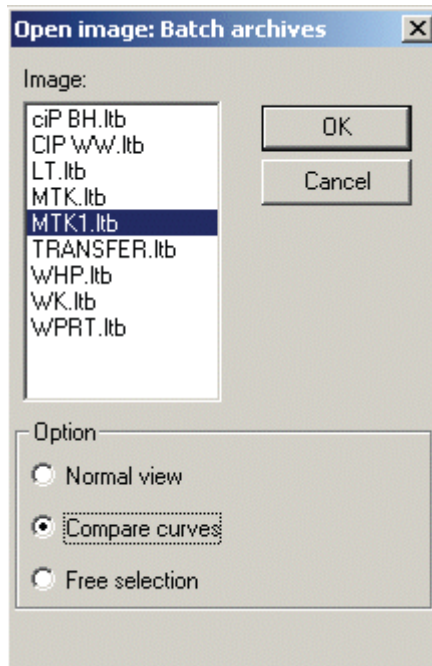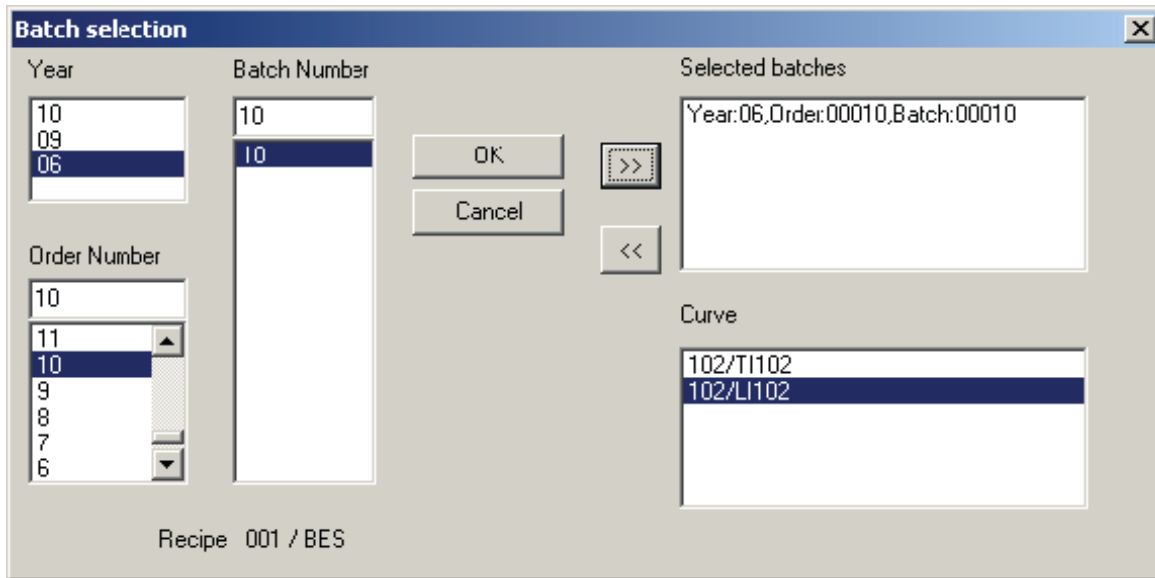

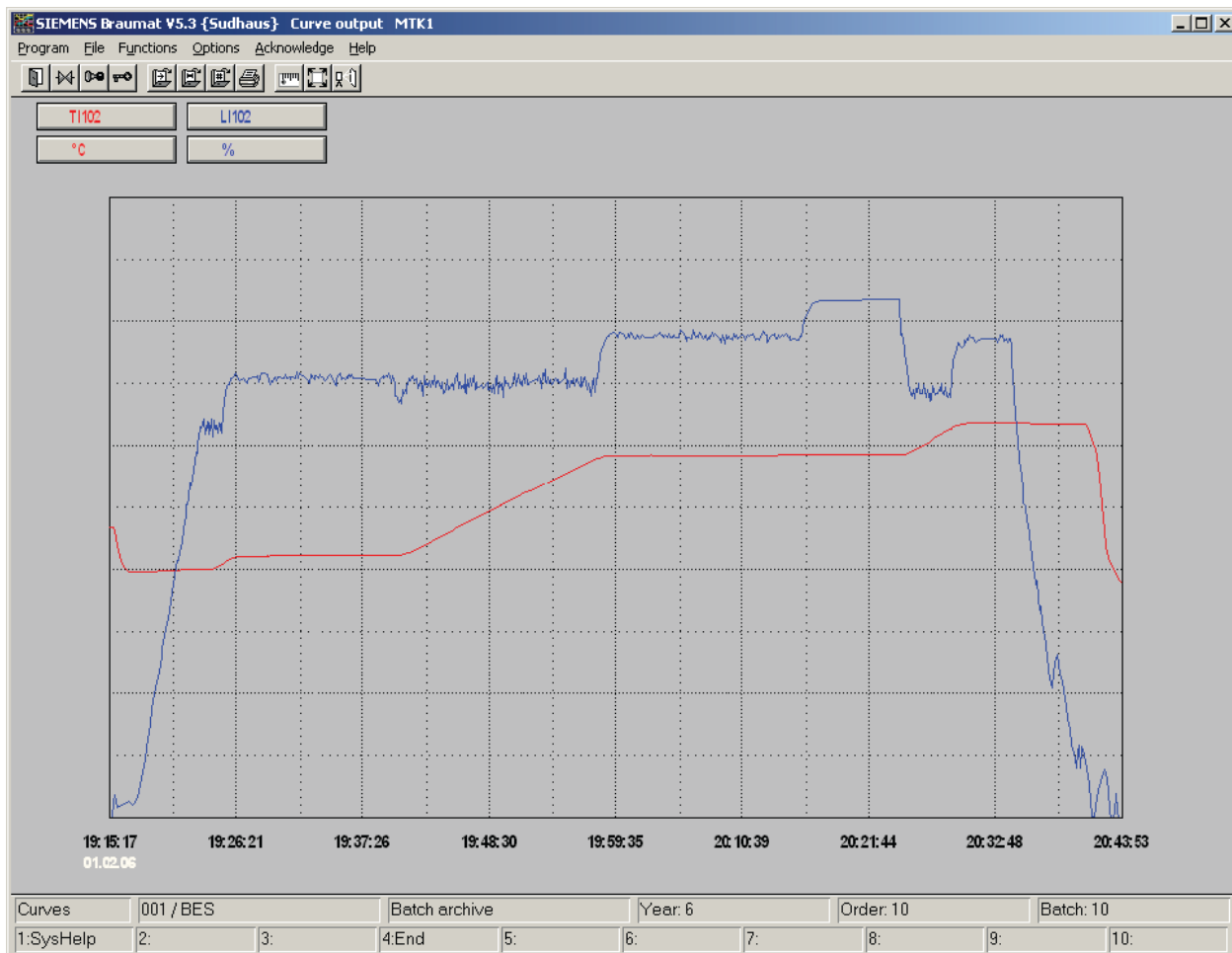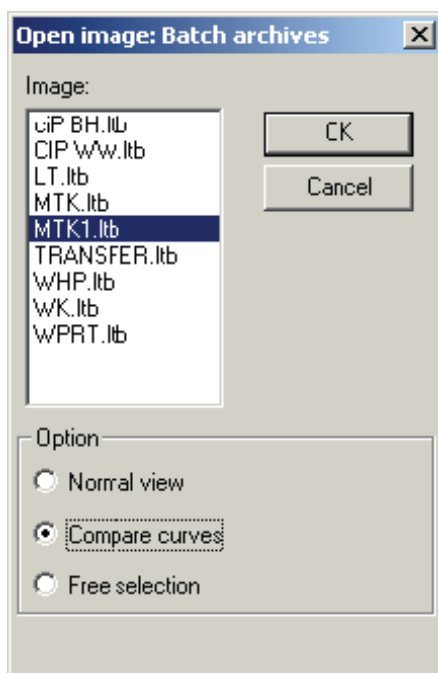The "TI102" and "LI102" curves of year 2006 with order/batch number 10 are defined as references.

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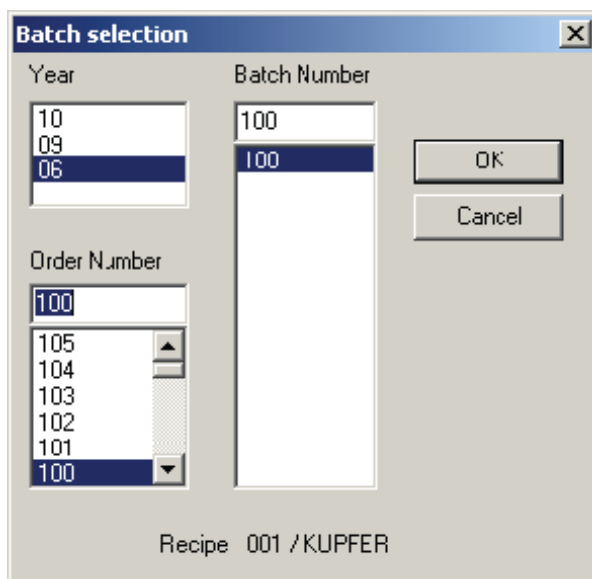
Here you select the comparison batch. You do not define the curve(s) themselves here, because all curves of the respective curve image of this batch will be displayed. It is therefore important to define a meaningful grouping of curves with this option (less is more).

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

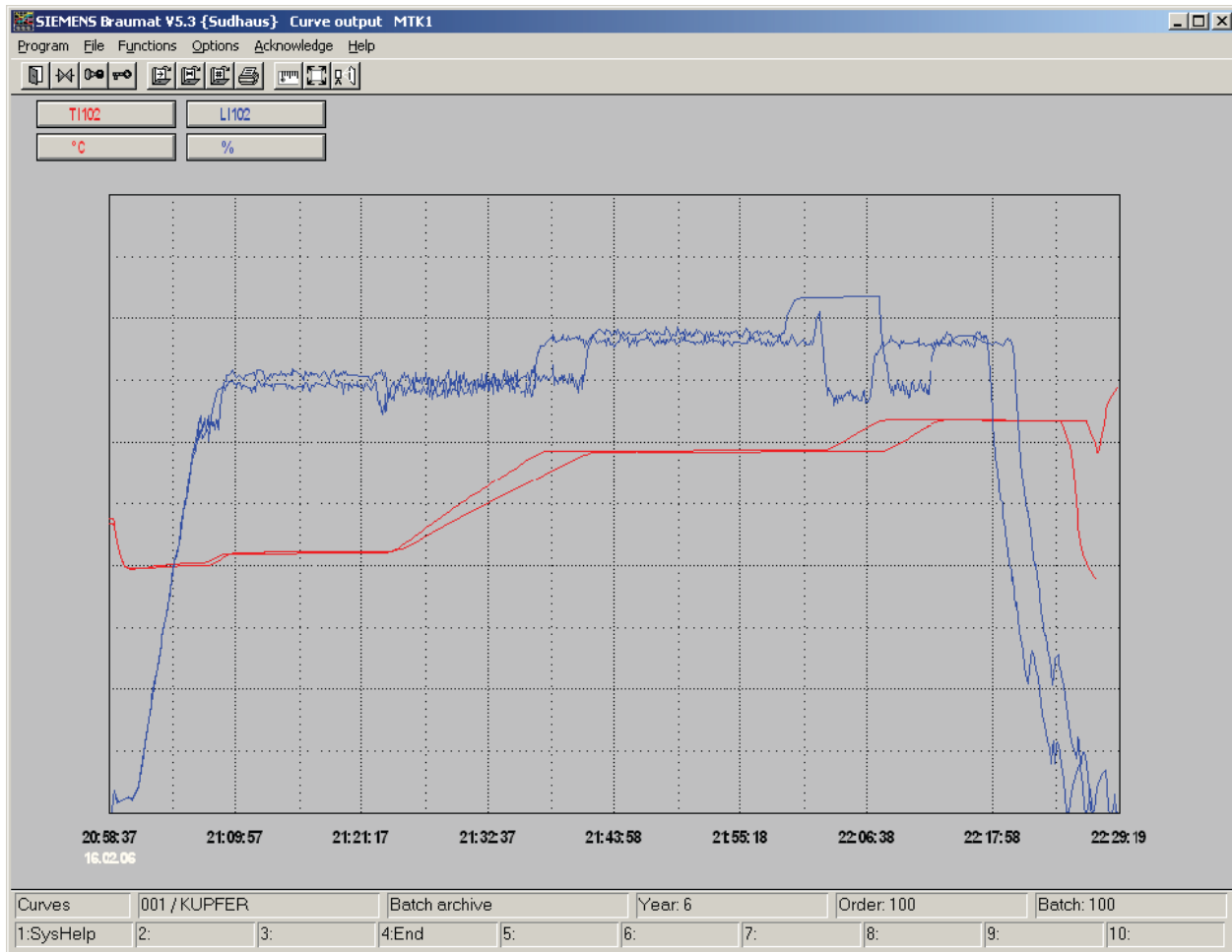Use "Options - Compare curves" to display a window in which you select both the curve itself (drop-down menu at the bottom) as well as the reference and/or comparison curve. The selected curve of the batch - here batch number 100 – that is highlighted with a blue bar, is represented in the curve display 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.
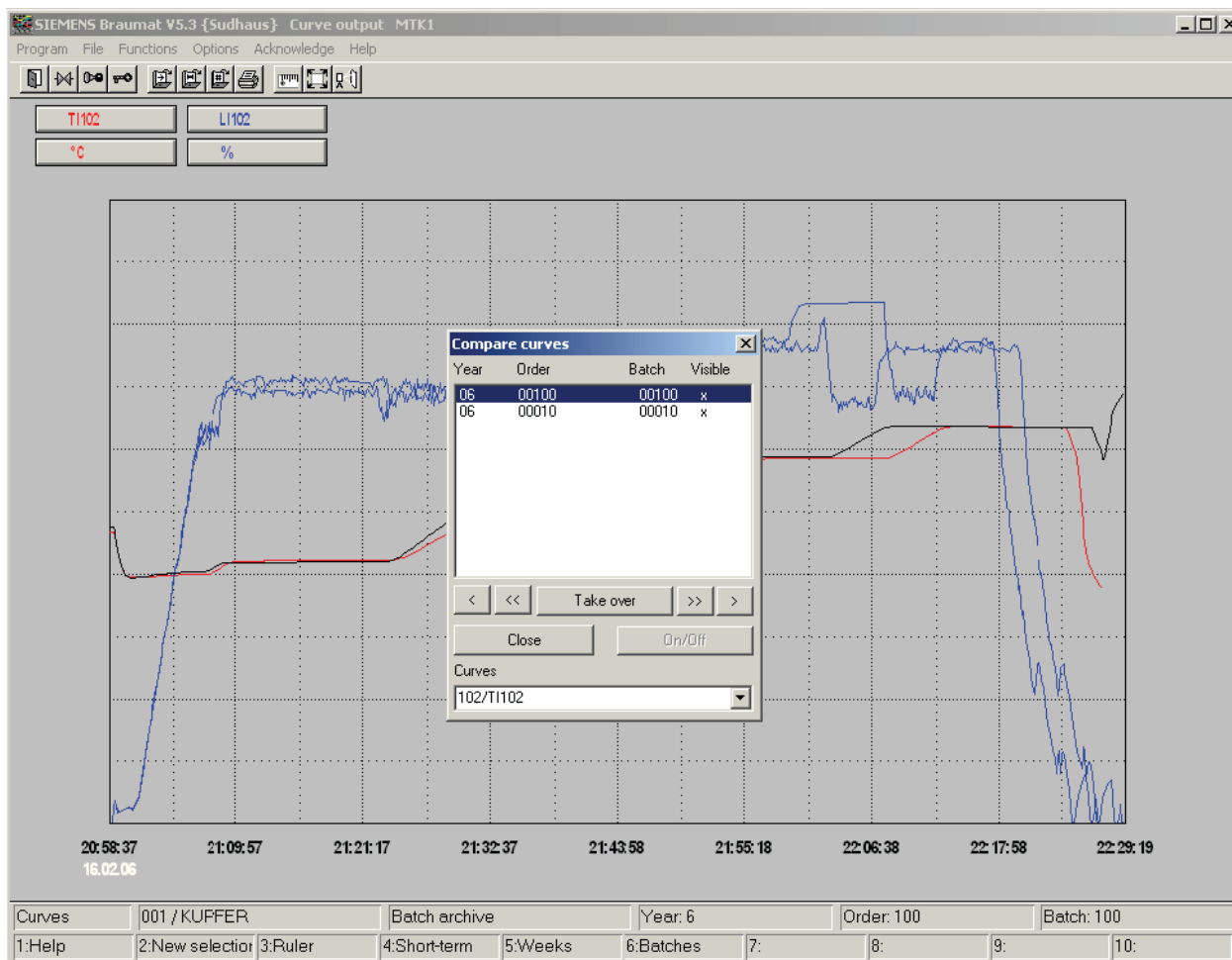
If the curves of another batch are to be compared, this batch is selected with the "Compare curves" option as described above. The reference curves remain the same as before. Thus, it is possible to successively compare multiple batches with references.

Archive editor

<div style="text-align: right; font-size: xx-large;">8</div>

8.1 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 cannot 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.

8.2 Configuration

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

Folder and file name syntax for archive views:

Path:	'\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]
; the list of measured values is specified with this key
;<los-number>,<number of measured value>
Value1=2,1
Value2=2,2
Value3=2,3
Value4=2,4
Value5=2,5
Value6=2,6

Configuration of file 'rendman.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.

8.3 Printing

The measured values can be printed as a table, the margins can be configured in file 'arch_frm.txt'

located in 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

8.4 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 ?

The following values are possible:

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

<p2> type of archive

Possible values:

- w weekly archive

- b batch archive

- h manual archive

8.5 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 maximum displayed curve points.	

8.6 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. The most recently modified value is shown in the first column of the table (*).

Last change and additional data to PLC

In addition to the value, the date, the time, the order and batch number are also 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', additional data is also 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:	Job number
Adr + 12 Bytes:	Batch number

The user program should reserve those addresses beyond the value. This function can only be used by user programs.
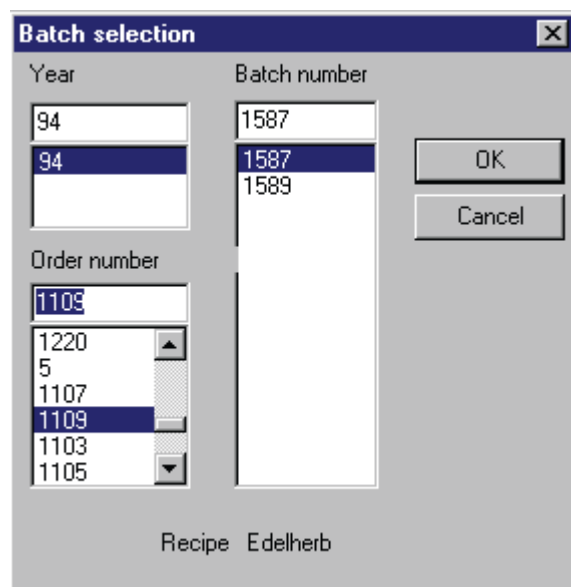
8.7   Working with the application

Open

Open a picture by

- Selecting the file "Open" in the menu 'file'.
- Clicking on the icon in the button bar.
- By activating the function key F2.
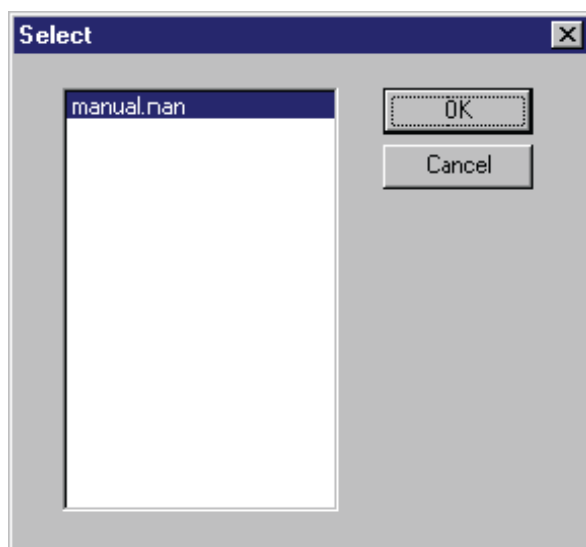
A dialog appears, please select a batch

Example of a called file:

No.	Date	Time	EINMAI: 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	20:50:40	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" to save the file on the disk.


Note

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 Measured value description list (Page 35)). For this purpose it is recommended to define a dedicated 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.
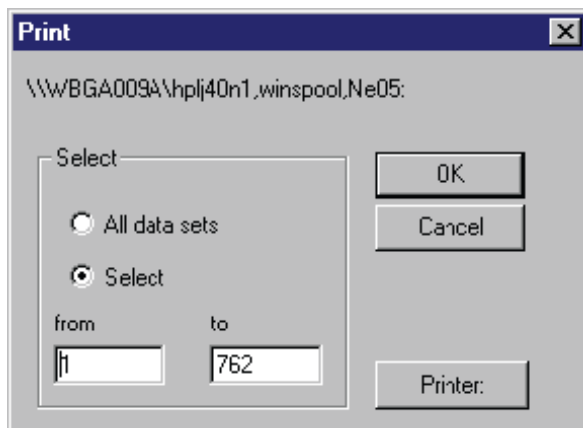

Print file

An existing picture can be printed out by selecting "Print" from the "File" menu or pressing the button "Print" on the button bar.

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

'All data records' prints all data sets
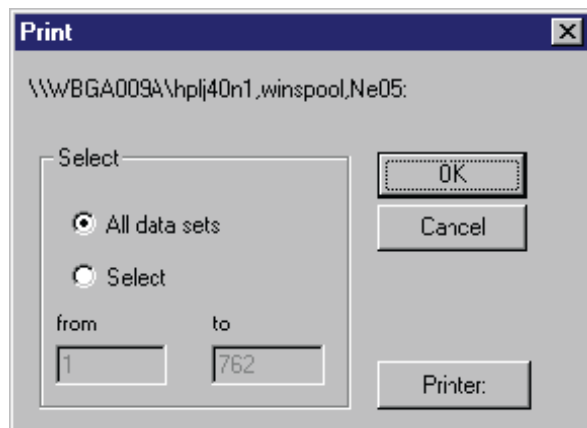
'Selection' prints only a range of data sets

Selecting 'printer' opens the standard printer dialog.

Add value

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

Delete value

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

Append value

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

Options

- Button bar
- Status bar
- Function keys

Acknowledgement

- Status bar 'Quit ICM errors'
- Quitting horn
- Resetting password

Help

- System ALT+F1
- System index
- Information

What to do with errors?   9

9.1   Problem

No	Error description	Todo
1	Visualization does not signal a 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