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S!M PATI®

Installation and Operating manual

S!MPATI® Software from software version 4.80.2

www.weiss-technik.com

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1 NOTES ON THE DOCUMENT

1.1 Scope of application

This document applies to the Simpati software starting with software version 4.80.2.

1.2 Target group of the document

This document is intended for the user and the operator of the test system. The user must be trained and instructed in accordance with the operating manual for the test system. Observe the definition of the target group in the operating manual of the test system.

Some activities described in this document must be carried out by professionals with the following qualifications:

– Training for the installation and configuration of IT systems

1.3 Warning notice levels

DANGER
Failure to comply with the directions results in death or severe injury.

WARNING
Failure to comply with the directions can result in death or severe injury.

CAUTION
Failure to comply with the instructions can result in minor injury.

NOTICE
Failure to comply with the instructions results in property damage.

This is used to indicate additional helpful information.

1.4 Highlights in the document

Text highlight	Explanation	Example
►	instruction	► Select **Settings**.
→	Cross reference	► Adjust light → Chapter 6.7.4.
bold	Text on user interface	► Select **Settings**. ► Pick **Green** from the **Colour** list.
[ ]	Button	► Select [**End**].
>	Several entries to be selected one after the other.	► In the menu, select **Settings** > **Sound** > **Volume**.

Table 1-1 Explanation of text highlights

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1.5 Additional documents

Additional documents on the following topics are included in the documentation of your test system or can be obtained from the website **www.weiss-technik.com/software**.

Subject	Document
Information on the following topics: - Test system controller settings (test systems with MOPS, CTC, TC, DMR, Mincon-/Simcon, Simpac control system) - Model 8990-6C data logger support - Pin assignment of the connecting cables - Operation of TS130 model shock chambers with Simcon/32 controller	Technical appendices for the installation and operating manual for the Simpati software
Install Simpati as a Windows service (Simpati Service)	Installation manual Simpati Service for Simpati
Communication protocol Simpac simserv	Operating manual Communication protocol Simpac simserv

Table 1-2 Additional documents

1.6 Terms used

Term used	Explanation
Tool tip	If you move the mouse pointer over an element, further information on this element is displayed in a window. This window is termed tool tip.
Simpati ID	In Simpati, each test system receives its own number, the Simpati ID. It can take a value from 1 to 99. Each number can only be assigned once.

Table 1-3 Terms used

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2 SAFETY INSTRUCTIONS

DANGER

Failure to observe the operating manual of the test system

Failure to comply with the instructions in the operating manual for the test system and its controller may result in death or serious injury.

- Follow the instructions.

NOTICE

Malfunctions as a result of impermissible accessories

- To minimise fault liability use the connection cables supplied exclusively.
- Take into account that special applications may have different requirements. Follow the specifications for these applications in the Appendix.

NOTICE

Possible data loss as a result of inadequate on-site IT infrastructure

Data cannot be saved completely or not at all as a result of inadequate on-site IT infrastructure. The quality of the IT infrastructure depends on the quality of the cables and any sources of interference.

- Save the data physically close to the test system if possible.
- Heed the quality of the on-site transmission paths and transmission media.

NOTICE

Possible data loss if Windows processes are resulting in high utilization of the Simpati computer

Depending on the performance of the Simpati computer, a high utilization level caused by Windows processes (e.g. virus scanner, updates) may cause data recording to be disturbed/ influenced, and individual data points may not be able to be saved.

- Do not use the Simpati computer for work that places a heavy load on the Simpati computer.

NOTICE

Manual editing of the configuration data

Faulty functions can occur if you manually edit the configuration data.

- Only allow configuration data to be changed by trained service personnel or in consultation with our service hotline.

3 SIMPATI

3.1 Product description

The Simpati software is a control software for up to 99 test systems. With Simpati you can operate your test systems and evaluate and visualise the test data. You can integrate test systems from Weiss Technik and test systems from other suppliers into Simpati.

Main functions include:

- Operating the test system
- Create and save tests
- Create a test report

3.2 Warranty

Warranty claims will be considered only if the Warranty Claim Card is filled in and returned immediately and if the specified requirements are met. The warranty is limited to the replacement of the software package, all other claims are herewith excluded.

3.3 Licence rights

The application is supplied with a single-user licence. When operating several test systems, corresponding additional licences are required. You can obtain additional licences from our Service Center.

4 INSTALLATION/UNINSTALLATION

4.1 System requirements

Requirement	Characteristic
Computer	IBM-compatible computer (Intel i5, 2.2 GHz or equivalent)
Screen resolution	At least 1024 x 768
Operating memory	≥ 8 GB
Free hard disk capacity	1 GB
Supported protocols	Ethernet TCP/IP
Operating system (64-bit)	- Windows 10 up to and including Version 22H2 - Windows 11 up to and including Version 23H2 - Windows Server 2019 up to and including Version 1809 - Windows Server 2022 up to and including Version 21H2
Port enables (firewall) required	→ *4.3.4 »Set the firewall settings«* (page 19)
Software	.NET Framework 4.72 (or higher)*
	Visual C++ Redistributable 2019*
Compatibility	- VM-Ware must meet the system requirements. - FIPS mode must be disabled. - Terminal server may not be used. - RS232 - RS422 - RS485 - IEEE 488.2 with external converter
Recommended: Time synchronization via NTP server	We recommend connecting the computer on which Simpati is installed to an NTP server (time server). This guarantees smooth communication with the connected devices and ensures that the time stamps generated are up-to-date.

Table 4-1 System requirements

* Is installed during the installation of Simpati (if possible).

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4.2 Overview of installation options

Installation	Licence necessary	Scope of functions
Full version	Yes	Complete range of functions for 99 test systems **Standard version:** Includes all functions and supports the latest generation of our test systems (starting from 1999). **Full version (expert version):** Includes further applications and additional drivers for further devices and test systems in addition to the standard version.
Test version	No	Full version* for a period of 6 months. A licence is required after 6 months. **Standard version:** Includes all functions and supports the latest generation of our test systems (starting from 1999). **Full version (expert version):** Includes all older applications and drivers for older test systems in addition to the standard version.
Demo version	No	Demo version with demo test systems. No own test systems can be recorded. Configuration settings are not possible.

Table 4-2 Overview of installation options (with and without licence)

*Converting external test programmes into formats for Simpati is not possible.

4.3 Install Simpati and record test systems

4.3.1 Install Simpati for operation in pharmaceutical sectors

The installation of Simpati in the pharmaceutical sector is only possible with version Simpati 2016, from patch 2.1. This application complies with 21. CFR (Code of Federal Regulations), Part 11. If you wish to install Simpati for operation in the pharmaceutical sector, refer to the technical appendices to the installation and operating manual for the Simpati software → *1.5 »Additional documents«* (page 11).

4.3.2 Installing Simpati

There are several installation options available for Simpati → *4.2 »Overview of installation options«* (page 15).

After installing the demo version, you can proceed directly with operation → *7 »General operation«* (page 56).

You can install Simpati version 4.80 or higher in parallel with an installed Simpati version 2016 or higher. This allows you, to continue to perform tests with the existing version of Simpati whilst you configure Simpati from Version 4.80 and prepare for the changeover.

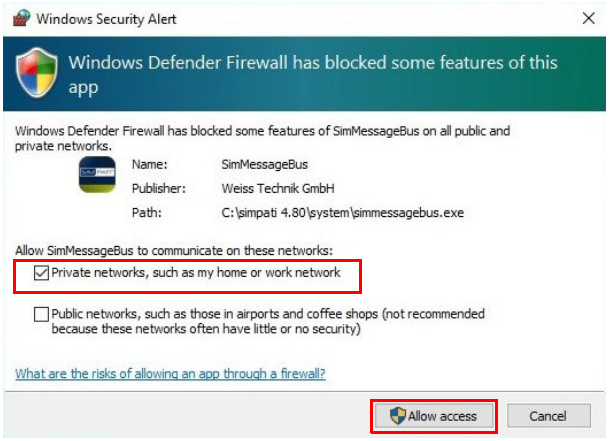
Prerequisite:

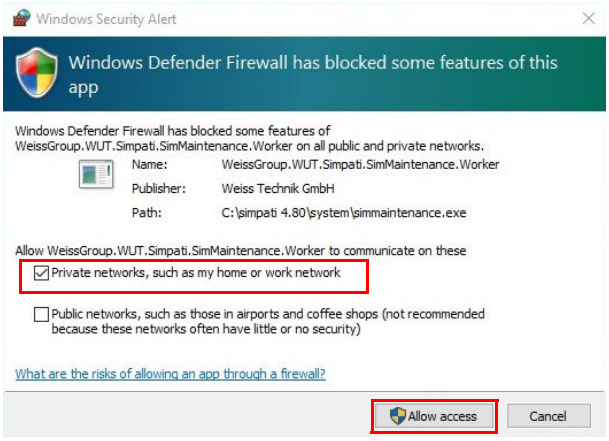
- System requirements must be met → *4.1 »System requirements«* (page 14).
- All Simpati versions older than Simpati version 2016 must be uninstalled.
- FIPS mode must be disabled in the security policy settings of the computer.
- You must have administrator rights for the computer.
- To install the full version: the serial number and registration code of the Simpati licence must be available.

Procedure:

- Go to **www.weiss-technik.com/software** and download the set-up file for Simpati.
- Run the set-up file.
- Follow the instructions of the installation wizard. Recommended: install Simpati on partition C:\. Do not install Simpati in the “Programs” directory.

- If Windows Defender Firewall messages are displayed, allow the use of the private network.





- In the **InstallShield Wizard Completed** window, leave the **Launch Simpati Configuration** check box selected.
  - ✓ The Simpati login window is displayed.
- Enter user name and password. On initial registration:
  - User name: **Admin**
  - Password: **admin**
- Select [**Login**].
  - ✓ After logging in for the first time, you will be asked to change your password.
  - ✓ The **SimConfiguration** window is displayed.

4.3.3 Record test system

Prerequisite:

– Test system must be connected to the computer. The test system must be integrated into the network or connected directly to the computer to achieve this. Information on the connection cables: → *1.5 »Additional documents«* (page 11).

Procedure:

► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.

✓ The Simpati login window is displayed.

► Log in to Simpati.

✓ The **SimConfiguration** window is displayed.

► In the **Weiss Device Configuration** section, select the test system controller that is to be entered into Simpati.

► Make the described settings depending on the controller:

– Acquire test systems with Ethernet interface: → *5.3 »Find test systems with Ethernet interface«* (page 27)

– Test system with control system since 2007 (Simpac): → *5.4 »Record test system with Simpac control system«* (page 28)

– Test system with control system since 1999 (SIMCON, MINCON 32, SIMCON.NET 32): → *5.6 »Record test systems with SIMCON, MINCON control system«* (page 30)

– Test system with control system before 1999 (Mops, CTC, TC, DMR, ISAR): → *5.7 »Record test system with Mops, CTC, TC, DMR, ISAR control system«* (page 31)

– Entering special devices: → *5.8 »Entering special devices«* (page 34)

– Test systems with data logger: → *5.9.1 »Enter test system with data logger«* (page 35)

– Test systems with other control system, other controllers, or other third-party devices: → *Appendix: »Other controls, controllers, third-party devices«* (page 223)

4.3.4 Set the firewall settings

The following ports must be enabled for the smooth operation of Simpati. Contact you system administrator to verify that these ports are not restricted by a firewall.

Port	Application	Function	Direction	TCP	UDP
21	Simpati	For transferring programs using SimC3K (Simpac or higher).	Simpati->test system	x	-
22	Simpati	For transferring programs using SFTP/SSH (new Simpacs with secure function, Simpati v4.70 or higher).	Simpati->test system	x	-
25	Simpati SimMailer	For standard email dispatch from Simpati (port depends on mail server).	Simpati->Mailserver	x	-
80	Simpati TimeLabs	For accessing the web cams.	Simpati->Web cam	x	-
80	Webseason/SimpacWeb	For web access to Simpac.	Client->test system	x	-
443	Weiss platform agent	Communication with platform for Simpati installations with internet access.	Simpati->Internet	x	-
443	Simpati TimeLabs	For SSL access to the web cams.	Simpati->Web cam	x	-
443	Webseason/Https	For access to Webseason.	Client->test system	x	-
465 587	Simpati SimMailer	For SSL/TLS email dispatch Simpati from Simpati (port-dependent from mail server).	Simpati->Mailserver	x	-
502	Simpati	Communication to LabOven with JUMO diraTRON controller	Simpati->test system	x	-
1883	Simpati	Internal communication	Simpati internal	x	-
1900	Simpati	For the Device Finder and Maintenance.	Simpati->Network (broadcast)	-	x
2048	Simpati	For the SimC3K driver (to run test systems with Simpac controller).	Simpati->test system	x	-
2049	Simpati	For Simpati set-up (Simserv/ Simpati Plus) to configure test systems with Simpac control system.	Simpati->test system	x	-
5120	Simpati TimeLabs	For accessing the web cams that are a component part of the controller.	Simpati->test system	x	-
5671	Weiss platform agent	Communication with platform for Simpati installations with internet access.	Simpati->Internet	x	-

Table 4-3 Ports to be enabled

Port	Application	Function	Direction	TCP	UDP
7777	Simpati	JBUS over TCP (for SimConNet test systems, 2006 or earlier).	Simpati->test system	x	-
7777	Simpati	SimServ on Simpati (for SimServ customer applications).	Client->Simpati	x	-
7778	Customer application	For SimServ customer applications (SimConNet).	Client->test system	x	-
7779	Customer application	For SimServ customer applications (SimConNet).	Client->test system	x	-
8443	Control system	For using the lab computer to update the test systems later.	Client->test system	x	-
8888	Simpati	For SimServ protocol with encryption.	Client->test system	x	-
62542	Simpati	For communication with Simpac 2.0 test systems	Simpati->test system	x	-

Table 4-3 Ports to be enabled

4.4 Import Simpati data into new Simpati installation (migration tool)

4.4.1 Description of the migration tool

You can use the Simpati migration tool to import settings and elements from Simpati into a new Simpati installation from version 4.80 onwards. The data retained after uninstalling a previous Simpati installation can also be imported.

- If the Simpati installation from version 4.80 and the previous version of Simpati are on the same computer: → *4.4.2 »Import Simpati data from Simpati installation on the same computer«* (page 22)
- If the Simpati installations are located on different computers: → *4.4.3 »Import Simpati data from another computer«* (page 23)

Copies of the files overwritten in the target directory during migration are saved in a backup directory (Simpati\Migration_xxxxx).

The result of the migration is saved in a log directory (Simpati\Log). The corresponding log file is called SimMigration_[current date].

Overview of imported data

The following files are imported automatically:

- Programs created via Simpati
- Graphical and symbolic programs from the SIMPROG *sub-folder*
- Tabular programs from the SimPrgPool sub-folder
- Configured test systems
- Records of archiving
- Report files with information on past processes
- Configurations:

  - Start-up configurations
  - Driver configurations
  - Recording settings
  - Evaluation settings
  - Display settings of the graphical evaluation
  - SimMailer configuration
  - SimCon.NET configuration
  - TimeLabs settings
  - Inheritance
  - Profile extensions (Mval & AdVars)
- Modules to be started automatically

Overview of non-imported data

The following data are not imported:

- User databased
- Simpati log files
- Visual settings must be reset
- Size of the Simpati window
- Background Image
- Icon settings
- Customized device icons in the device overview
- Recordings that are not in the **MEASURE** sub-folder
- Programs that are not located in the **SIMPROG** sub-folder (e.g. programs that were saved on a network path)

4.4.2 Import Simpati data from Simpati installation on the same computer

Prerequisite:

– Simpati version 4.80 or higher must be installed on the computer (no demo version), and a previous version of Simpati must also be installed (or data from the uninstalled version must be available on the computer).

Procedure:

► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.

✓ The Simpati login window is displayed.

► Log in to Simpati.

✓ The **SimConfiguration** window is displayed.

► Select **S!MPATI Migration Tool**.

✓ The **SimMigration** window is displayed.

► To import data from an installed Simpati previous version, select [**Get available installations**].

✓ The previous versions of Simpati installed on the computer are displayed in the **Source Simpati-Installation** area.

✓ The Simpati versions installed on the computer from 4.80 are displayed in the **Target Simpati Installation** area.

► To import retained data from an uninstalled previous Simpati version, proceed as follows:

► Select [**Manual search**].

✓ The folder search window is displayed.

► Select the folder of the previous Simpati version (e.g. “C:\Simpati x.xx”).

► Select [**OK**].

✓ The previous version of Simpati from the “Simpati x.xx” folder is displayed in the **Source Simpati-Installation** area.

► Select [**Get available installations**].

✓ The Simpati versions installed on the computer from 4.80 are displayed in the **Target Simpati Installation** area.

► In the **Source Simpati-Installation** area, select the Simpati version from which the data are to be imported.

► In the **Target Simpati Installation** area, select the Simpati version into which the data are to be imported.

► Select [**Migrate source to target-installation**].

► Wait until the migration is complete. The progress of the migration is displayed in the **Migration output** area.

✓ The result of the data transfer is displayed in the **Migration output** area.

► Close all windows of Simpati.

► Start Simpati.

4.4.3 Import Simpati data from another computer

Prerequisite:

– Simpati version 4.80 or higher must be installed on the computer to which the data are to be imported (no demo version).

Procedure:

- ► On the computer on which the data to be imported are located, copy the entire “Simpati x.xx” folder (e.g. “Simpati 4.70”) to a storage medium (e.g. USB stick).
- ► Copy the “Simpati x.xx” folder to the desktop of the computer to which the data are to be imported.
- ► Select the **Simpati Configuration** entry in the Simpati folder in the start menu of the computer.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select **S!MPATI Migration Tool**.
  - ✓ The **SimMigration** window is displayed.
- ► Select [**Manual search**].
  - ✓ The source folder search window is displayed.
- ► Select the “Simpati x.xx” folder on the desktop (C:/Users/“your-username”/Desktop).
- ► Select [**OK**].
  - ✓ The previous version of Simpati from the “Simpati x.xx” folder is displayed in the **Source Simpati-Installation** area.
- ► Select [**Get available installations**].
  - ✓ The Simpati versions installed on the target computer from 4.80 are displayed in the **Target Simpati Installation** area.
- ► In the **Source Simpati-Installation** area, select the Simpati version from which the data are to be imported.
- ► In the **Target Simpati Installation** area, select the Simpati version into which the data are to be imported.
- ► Select [**Migrate source to target-installation**].
- ► Wait until the migration is complete. The progress of the migration is displayed in the **Migration output** area.
  - ✓ The result of the data transfer is displayed in the **Migration output** area.
- ► Close all windows of Simpati.
- ► Start Simpati.

4.5 Install Simpati additional programs (optional)

Instructions for the installation and operation of the respective Simpati add-on program can be found on the website **www.weiss-technik.com/software**.

Prerequisite:

– Simpati must be installed.

Simpati additional programs:

Simpati can be expanded with the following additional programs:

– Simpati TimeLabs
– Simpati Service (Simpati as a service installation under Windows for advanced users → *1.5 »Additional documents«* (page 11))

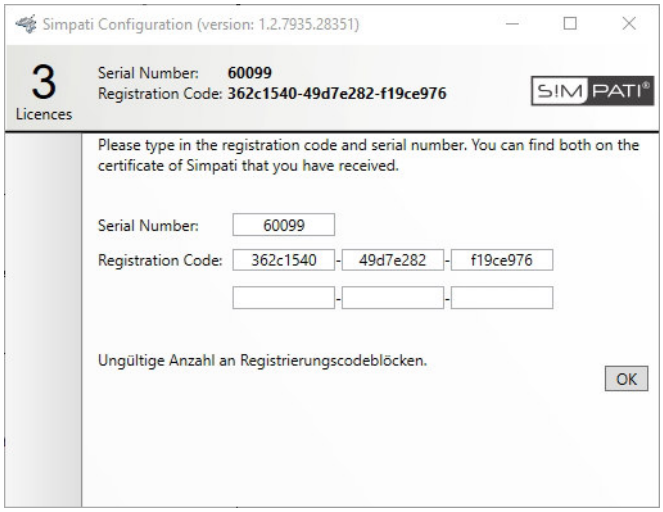
4.6 Convert Simpati demo/test version to full version

Prerequisite:

– Serial number and registration code of the Simpati licence must be available.

Procedure:

► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  ✓ The Simpati login window is displayed.
► Log in to Simpati.
  ✓ The **SimConfiguration** window is displayed.
► Select [**S!MPATI System configuration**].
  ✓ The **Simpati Configuration** pop-up window is displayed.
► Select [**Serial number**] (entire line is one button).
  ✓ The input mask is displayed in the lower part of the pop-up window.



► Delete the data in the fields in the input mask.
► Enter the serial number and registration code (6 blocks) of the Simpati licence.
► Select [**OK**].
► Select [**Finish**].

4.7 Uninstall Simpati

Data that is retained after uninstallation:

- Configuration data of the Simpati installation
- Test system configurations
- User rights
- Test programs
- Evaluations

Procedure:

- ► Close Simpati.
- ► End all Simpati processes (Simpati processes start with “Sim”).
- ► If Simpati add-ons are installed, uninstall the add-ons from the control panel of the add-ons from the control panel of the computer in the following order:
  - Simpati service
  - Simpati TimeLabs
- ► Uninstall Simpati via the control panel of the computer.
- ► To delete all data that remains after uninstallation, delete the Simpati installation folder.

5 CONFIGURATION

5.1 Changing the language of the user interface

Procedure:

- ► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- ► Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select [**S!MPATI-System configuration**].
  - ✓ The **S!MPATI configuration** pop-up window is displayed.
- ► Select the desired languages from **Language** the drop-down list.
- ► Select [**Finish**].

5.2 Changing the location of the system files

You can change the location of the following system files:

– **Report**: report files (daily reports)
– **Init**: configuration files of the test systems
– **PrgPool:** Program files created with the tabular editor
– **Hilfe:** Help files

Procedure:

- ► Select the entry **SimConfiguration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- ► Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select [**S!MPATI-System configuration**].
  - ✓ The **SimConfiguration** pop-up window is displayed.
- ► Change storage locations.

NOTICE
Data loss because of storage location on network drive
Network problems can lead to failures or inconsistencies in the data recording.

- ► Select a local drive as the storage location.

- ► Select [**Finish**].

5.3 Find test systems with Ethernet interface

Prerequisite:

- The test system must be configured and integrated into the network:
  - → *6.1.1 »Prepare test system and assign IP address«* (page 39)
  - → *6.1.2 »Establish network connection«* (page 39)
  - → *6.1.3 »Check network connection between test system and computer«* (page 39)
- The test system must be switched on.
- UPnP function must be activated in the operating system of the computer.

Procedure:

- ► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- ► Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select [**SimDeviceDiscovery (Ethernet Devices)**].
- ► If a message is displayed that the Windows firewall has blocked some features of the application. In the message, activate the check boxes for the networks in which to search for test systems and select [**Allow access**]. This allows the application to communicate with the network and find test systems on the network.
  - ✓ Found test systems are displayed.
- ► Select the test systems to be recorded by Simpati.
- ► Select [**Setup**].

5.4 Record test system with Simpac control system

Test systems with Simpac control system have an Ethernet interface as standard. The interface is controlled via TCP/IP

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Since 2007 (Simpac)**] .
  - ✓ The **Since 2007 (Simpac)** pop-up window is displayed.
- Select the Simpati ID of the test system from the **Number Of Chamber** drop-down list.
- If the test system is to be searched for using the TCP/IP address:
  - Activate the option **TCP/IP adress**.
  - Enter the IP address of the test system in the **IP** field.
- If the test system is to be searched for using the TCP/IP host name:
  - Activate the option **TCP/IP Hostname**.
  - Enter the host name of the test system in the **Hostname** field.
- Set the name of the test system:
  - To use the already set name of the test system, activate the **Read chamber name from chamber. If not defined, use the following** check box. For test systems with Simpac 1.0 control system, a default name is used because the name cannot be read in.
  - To assign or change a name, enter the desired name for the test system in the **Chamber Name** field (max. 20 characters). The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- If existing test system data are to be entered:
  - Set the storage location of the measurement data of the test system in the **Measured Data** field, or select it via the […] button.
  - Set the storage location of the program data of the test system in the **Program Data** field, or select it via the […] button.
- If existing test system data are to be overwritten, activate the **Overwrite existing chamber** check box.
- Select [**Search**].

5.5 Record salt spray chambers (Ascott)

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Corrosion Test Chamber (Ascott)**].
  - ✓ The **Setup Wizard** pop-up window is displayed.
- Select the Simpati ID of the test system in the **Create chamber** drop-down list, and press the Enter key.
- Enter the desired name for the test system in the **Chamber name / ID / Equipment** field (max. 20 characters), and press the Enter key The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- Select the product type in the **Select unit / controller** drop-down list, and press the Enter key.
  - ✓ Settings are now possible in the **Interface** section. Simpati automatically detects which communication connection is possible and allows settings only there.
- For the Ethernet connection, make the following settings in the **Ethernet** section:
  - Enter the IP address of the test system in the **IP Address** field, and press the Enter key.
  - Enter the port number **9600** in the **Port** field, and press the Enter key.
  - Select [**Save Configuration**].

5.6 Record test systems with SIMCON, MINCON control system

Further information on the settings of these controllers → *1.5 »Additional documents«* (page 11).

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Since 1999 (SIMCON/32 MINCON/32 SIMCON.NET)**] .
  - ✓ The **Since 1999 (SIMCON/32 MINCON/32 SIMCON.NET)** pop-up window is displayed.
- Select the Simpati ID of the test system from the **Number Of Chamber** drop-down list.
- Activate the option that is to be used to search for the test system and configure the corresponding settings.
- If the test system is to be searched for via a serial interface:
  - Activate the option **Serial Interface**.
  - Select the COM port number used from the **Serial Interface** drop-down list.
  - Select the serial interface in the **Serial Address** drop-down list.
- If the test system is to be searched for using the TCP/IP address:
  - Activate the option **TCP/IP Adress**.
  - Enter the IP address of the test system in the **IP** field.
  - Enter the port number in the **Port** field.
- If the test system is to be searched for using the TCP/IP host name:
  - Activate the option **TCP/IP Hostname**.
  - Enter the host name of the test system in the **Hostname** field.
  - Enter the port number in the **Port** field.
- Enter the desired name for the test system in the Chamber name field (max. 20 characters). The name is displayed in the main menu and can be changed subsequently → *8.4.1 »Simpati Settings – configuration«* (page 80). If existing test system data are to be entered:
  - Set the storage location of the measurement data of the test system in the **Measurement data** field, or select it via the [**…**] button.
  - Set the storage location of the program data of the test system in the **Program Data** field, or select it via the […] button.
- Select [**Search**].

5.7 Record test system with Mops, CTC, TC, DMR, ISAR control system

5.7.1 Record test system with Mops/CTC/TC control system

Further information on the settings of these controllers → *1.5 »Additional documents«* (page 11).

Procedure:

- ► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- ► Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select [**Before 1999 (Mops, CTC, TC, DMR, ISAR)**] .
  - ✓ The **SimConfiguration** pop-up window is displayed.
- ► Select **[Configuration (MOPS/CTC/TC) controller].**
  - ✓ The **Configuration MOPS/CTC/TC** pop-up window is displayed.
- ► Enter the desired name for the test system in the ***System designation*** field (max. 20 characters). The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- ► Select the Simpati ID of the test system from the **Number of system** drop-down list. All previously configured test systems are marked with an asterisk.
- ► In the drop-down list **Address**, select the address in the control system of the test system → *1.5 »Additional documents«* (page 11), → *Technical Appendices to the Installation and Operating Manual for the Simpati software.*
- ► In the **Interface** drop-down list, select a different interface than is used in the test systems with other *controllers*. All available interfaces are automatically displayed. It may take a while to search for ports.
- ► If existing test system data are to be entered:
  - ► Enter the storage location of the measurement data of the test system in the **Measured Data** field.
  - ► Enter the storage location of the program data of the test system in the **Programs** field.
- ► Select [**Search controller**].

5.7.2 Record test system with DMR control system

Further information on the settings of this control system → *1.5 »Additional documents«* (page 11).

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Before 1999 (Mops, CTC, TC, DMR, ISAR)**] .
  - ✓ The **SimConfiguration** pop-up window is displayed.
- Select **[Configuration (DMR) controller]**.
  - ✓ The **DMR configuration** pop-up window is displayed.
- Enter the desired name for the test system in the ***System designation*** field (max. 20 characters). The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- Select the Simpati ID of the test system from the **Number of system** drop-down list. All previously configured test systems are marked with an asterisk.
- In the drop-down list **Address**, select the address in the control system of the test system → *1.5 »Additional documents«* (page 11), → *Technical Appendices to the Installation and Operating Manual for the Simpati software.*
- In the **Interface** drop-down list, select a different interface than is used in the test systems with other *controllers*. All available interfaces are automatically displayed. It may take a while to search for ports.
- If existing test system data are to be entered:
  - Enter the storage location of the measurement data of the test system in the **Measured Data** field.
  - Enter the storage location of the program data of the test system in the **Programs** field.
- To make settings for communication:
  - Select [**Settings**].
  - ✓ The **Settings** pop-up window is displayed.
  - Carry out the required settings.
  - **OK** Select .
- Select **[Search device]**.

5.7.3 Configure test system with ISAR control system

Further information on the settings of this control system → *1.5 »Additional documents«* (page 11).

Procedure:

- ► Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- ► Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- ► Select [**Before 1999 (Mops, CTC, TC, DMR, ISAR)**] .
  - ✓ The **SimConfiguration** pop-up window is displayed.
- ► Select **[Configuration (ISAR) controller]**.
  - ✓ The **ISAR configuration** pop-up window is displayed.
- ► Select the Simpati ID of the test system from the **Number of system (address)** drop-down list.
- ► Select the COM port number used from the **Interface** drop-down list.
- ► Select the factory type designation of the test system from the **Chamber type** drop-down list.
- ► Select the desired language from **Language** the drop-down list. The channel names are displayed in the selected language.
- ► Enter the desired name for the test system in the ***System designation*** field (max. 20 characters). The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- ► If existing test system data are to be entered:
  - ► Enter the storage location of the measurement data of the test system in the **Measured Data** field.
  - ► Enter the storage location of the program data of the test system in the **Programs** field.
- ► To make settings for communication:
  - ► Select [**Settings**].
  - ✓ The **Settings** pop-up window is displayed.
  - ► Carry out the required settings.
  - ► Select **OK**.
- ► Select [**Save**].

5.8 Entering special devices

This chapter describes how to enter special devices, such as flame ionisation detectors (FID).

Overview of the port number for the respective product type

Product type	Port number
vötschoven Lab (Industrial laboratory furnace of the type “vötschoven Lab”)	502

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Jumo/EZT/FID SimSpecialDeviceSetup**].
  - ✓ The **Setup Wizard** pop-up window is displayed.
- Select the Simpati ID of the test system in the **Create chamber** drop-down list, and press the Enter key.
- Enter the desired name for the test system in the **Chamber name / ID / Equipment** field (max. 20 characters), and press the Enter key The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- Select the product type in the **Select unit / controller** drop-down list, and press the Enter key.
  - ✓ Settings are now possible in the **Interface** section. Simpati automatically detects which communication connection is possible and allows settings only there.
- For the Ethernet connection, make the following settings in the **Ethernet** section:
  - Enter the IP address of the test system in the **IP Address** field, and press the Enter key.
  - Enter the port number used in the **Port** field, and press the Enter key.
  - Select [**Save Configuration**].
- For the **RS232** connection, make the following settings in the RS232 section:
  - In the **Port** drop-down list, select the COM port number used, and press the Enter key.
  - In the **Baud** drop-down list, select the baud rate and press the Enter key.
  - Select [**Save Configuration**].

5.9 Test system with data logger

5.9.1 Enter test system with data logger

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Datenlogger (Almemo)**] .
  - ✓ The **SimSetup Datalogger** pop-up window is displayed.
- Select tab **Configuration**.
- Enter the desired name for the test system in the **Chamber Name** field (max. 20 characters). The name is displayed in the main menu and can be changed later → *8.4.1 »Simpati Settings – configuration«* (page 80).
- Select the Simpati ID of the test system from the **Chamber** drop-down list.
- Select the COM port number used from the **Port** drop-down list.
- Select the baud rate in the **Baud** drop-down list.
- Enter the desired storage location of the measurement data of the test system in the **Archive Path** field.
- Select the channels in the **Channels** drop-down list.
- Make further settings and record data logger.

5.9.2 Test the connection of the data logger

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Datenlogger (Almemo)**].
  - ✓ The **SimSetup Datalogger** pop-up window is displayed.
- Select tab **Connection**.
- Adjust the settings and start the test.

5.9.3 Save data from the data logger to SD card

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Datenlogger (Almemo)**].
  - ✓ The **SimSetup Datalogger** pop-up window is displayed.
- Select tab **Connection**.
- Adjust the desired settings and start recording.

5.9.4 Inherit measurement data from a data logger

Prerequisite:

– Sufficient place holders must be configured in the memory of the test system to which the data are to be transferred.

Procedure:

- Select the entry **Simpati Configuration** in the Simpati folder in the start menu of the computer.
  - ✓ The Simpati login window is displayed.
- Log in to Simpati.
  - ✓ The **SimConfiguration** window is displayed.
- Select [**Datenlogger (Almemo)**].
  - ✓ The **SimSetup Datalogger** pop-up window is displayed.
- Select tab **Inheritance**.
- Carry out the required settings.

5.10 Set the control system of the test system

5.10.1 Set up test system with Simpac control system

Test systems with Simpac control system have an Ethernet interface as standard. The interface is controlled via TCP/IP

To be able to operate the test system via Simpati, make the following settings on the I control unit of the test system:

- Set the access type to **external** on the control unit of the test system. See the instructions for the respective control unit:

  → Operating manual for the control unit (touch panel)

  → Operating manual for the web panel with Webseason operating software

5.10.2 Set test system with other control system

The technical appendices to the installation and operating manual for the Simpati software → *1.5 »Additional documents«* (page 11) describe how to set up test systems with the following controller:

- Mincon/Simcon control system
- DMR control system
- MOPS/CTC-/TC control system

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6 COMMUNICATION

6.1 Ethernet interface

The Ethernet interface of the computer on which Simpati is installed, which is intended for communication with test systems, should be reserved exclusively for this purpose. Communication can take place via Simpati or via communication protocols such as SimServ, OPC UA).

NOTICE

Impairment of network operation because of improper configuration

Improper network configuration may adversely affect network operation even outside the Simpati network.

- Have your network administrator carry out the network configuration.

NOTICE

Impairment of network operation as a result of improper use of virus scanners and/or vulnerability scanners

Scanning the Simpati network for viruses or vulnerabilities may cause communication problems between Simpati and the test system.

- Do not perform scans whilst the test system is in operation.

or

- Configure the scanners in such a way that communication between Simpati and the test system is not affected.

The MAC address can be found on the processor if you have a Simcon controller or on the frame of the control board if you have a Simpac controller.

6.1.1 Prepare test system and assign IP address

Prerequisite:

– The test system and computer with Simpati must be in the same network segment. If necessary, ask your network administrator.

Procedure:

► Configure the test system.

► Assign each test system its own IP address. On doing so, make sure that the IP address has only been assigned once on the entire network. Use the control unit to set the IP address. Using the Ethernet interface will not be enabled if this option is not enabled. Please contact the Hotline.

An IP address from the 192.168.121.xx range is not permitted.

Normally, you can use the default port 7777. Or you can choose another port between 7001 and 7999.

Remember to enter the same port when loading and starting the driver.

► Check port releases → *4.3.4 »Set the firewall settings«* (page 19).

6.1.2 Establish network connection

► Connect the controller to the nearest hub or switch intended for this purpose using a suitable network cable.

6.1.3 Check network connection between test system and computer

Procedure:

► Ensure that the computer is connected to the network and that the TCP/IP installation has been done correctly.

► Connection to the test system can be checked via »Start run«:

Example: check connection via Ethernet between two test systems and Simpati

IP addresses assigned:
First Test system: 192.168.128.36
2. Test system: 192.168.128.37

Directory: Simpati\system

Check the network connection

All entries in the prompt must be confirmed with the Enter key.

- Start the command prompt (**Start > Run > cmd.exe**).
- Input: ping 192.168.128.36

Response:

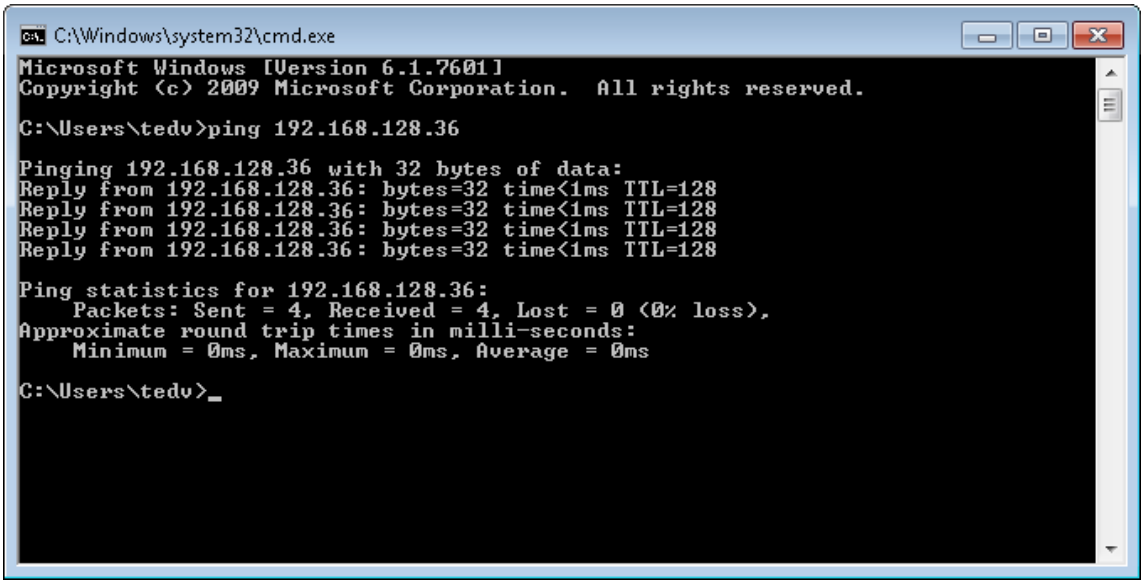

Fig. 6-1 Connection OK

Response:

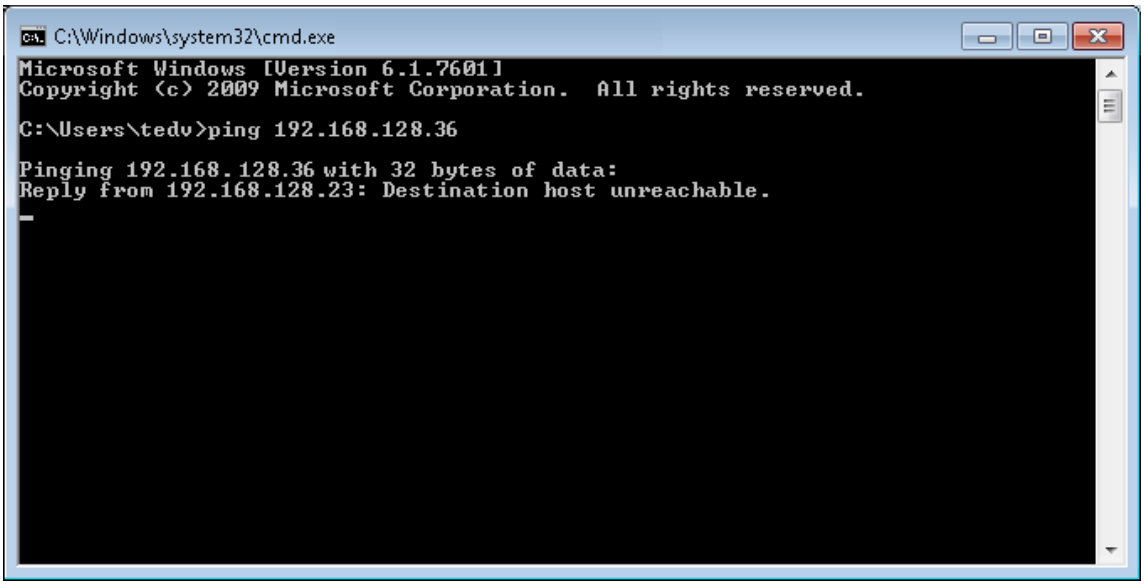

Fig. 6-2 Connection not OK

- Check the communication path.

Read the »Scanning« configuration file

Directory: Simpati\system

- Start the command prompt (**Start > Run > cmd.exe**).
- Entries:

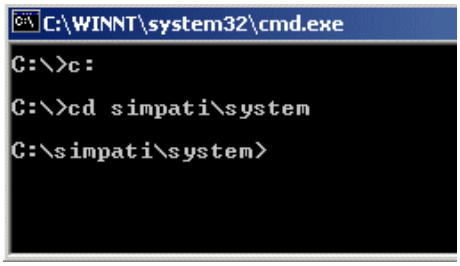

Fig. 6-3 Entry

- Input: simc2k/SCAN_TCPIP#192.168.128.36#7777#1#51

  Response:

Fig. 6-4 Scanning OK

This function reads the test system connected via LAN with the IP address 192.168.128.36, Port 7777 as Simpati-ID of the test system: 1 with the logical address 51.

Storage of the configuration: → Simpati configuration (SimSetup), system configuration and registration.

Response:

Fig. 6-5 Scanning failed

- Check the protocol selection and port on the control unit and adjust them if necessary.

  → *»Check the network connection« (page 40)*

Test system 2

Repeat these steps for the second test system with the address 192.168.128.37

6.1.4 Test of the address list

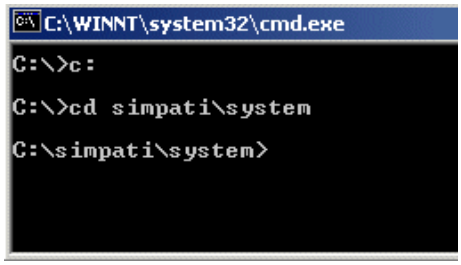

Fig. 6-6 Entry

- Input: type Simpati.adr

  Output:

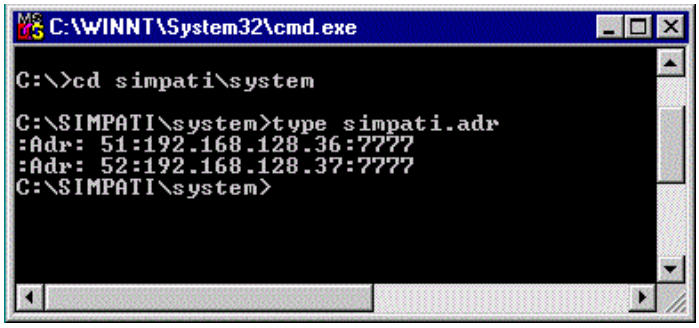

Fig. 6-7 Output OK

Output:

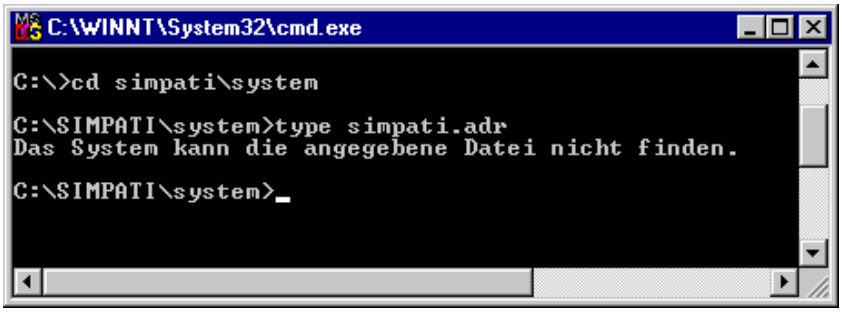

Fig. 6-8 Output faulty

Error: .**Simpati.adr** file was not created.

Repeat steps:

→ *»Check the network connection« (page 40)* and
→ *»Read the »Scanning« configuration file« (page 41)*

- Start Simpati.

6.2 Simpati TCP/IP communication protocol SimServ

6.2.1 Description

SIMSERV offers optional authentication and encrypted communication.

When encryption is activated, user authentication is also activated → *Fig. 6-10 »Set parameters« (page 46)*.

The user authentication for encrypted communication is based on the user administration implemented in Simpati. The logged-in user can execute only the commands or operations for which they has received authorization in Simpati.

SIMSERV enables both encrypted and unencrypted communication via the two protocol suites IPv4 and IPv6. A parallel operation of both protocol suites is also possible so that one client communicates via IPv4 and another via IPv6 at the same time.

Several commands can be sent one after the other without having to re-establish a connection after each command.

Further information on the Simpac simserv communication protocol: → *1.5 »Additional documents«* (page 11).

6.2.2 Function

The mode of operation is illustrated below:

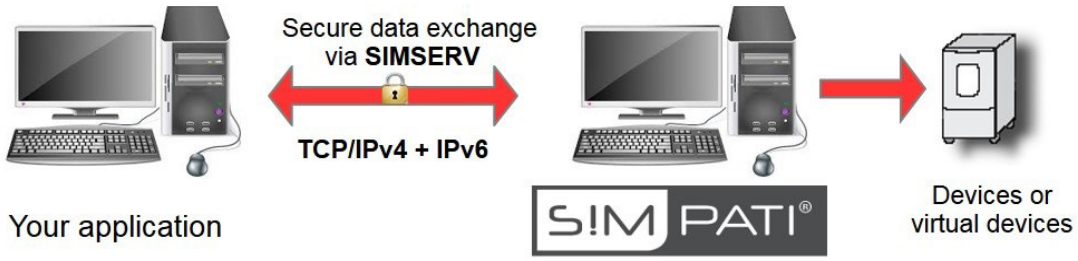

Fig. 6-9 Overview of the mode of operation

6.2.3 Command structure

For each connection to SimServ, the following procedure must be followed on the client:

Unencrypted communication

1) Establish connection
2) Send command
3) Read response
4) Close connection

} n-times

Encrypted communication

1) Establish connection
2) Authenticate user on the server with user name and password
3) Send command
4) Read response
5) Close connection

} n-times

6.2.4 Encrypted communication

An SSL certificate from Windows must be provided for the encryption of messages. To use an existing certificate configuration using parametrisation is required. The parameters are described in the parameter list (→ *6.2.5 Parameter*). If you need assistance with the creation and installation of the certificate, please contact our Service Center.

6.2.5 Parameter

The following parameters are defined for starting SIMSERV:

Parameter	Description	Remarks
/? or -? or -/h or -h	Displays help on the start parameters of SIMSERV on the console.	
-D1	Control readouts of communication values (including passwords) are displayed as unencrypted plain text.	*Optional* *Standard*: no control readouts
-Pxxxx	Port definition for the SIMSERV. xxxx stands for a four-digit number that defines the port number via which the SIMSERV communicates.	*Optional* *Standard*: Port 8888 for encrypted communication. Port 7777 for unencrypted communication.
-E	Encrypted communication.	*Optional* *Standard*: unencrypted communication
-N *"ServerName"*	Name of the server (CN value in the certificate). Quotation marks are necessary in the case of names that contain spaces.	*Optional* *Standard*: "Weiss Group SIMSERV" Ignored in unencrypted communication.
-S *"StoreName"*	Certificate store in which the certificate is installed. **Possible values:** "Root" = certificate store for reliable root certificate authorities. "My" = certificate store for personal certificates. "Own name" = extra certificate store applied Quotation marks are necessary in the case of names that contain spaces.	*Optional* *Standard*: "Root" Ignored in unencrypted communication.
-start	SIMSERV communication starts.	*Optional* *Standard*: no automatic communication start. To start communication, click on the on-screen Start button.

Table 6-1 Parameters for starting SIMSERV

If you start SIMSERV without parameters (**xx:01:simserv::**), all parameters can also be set on the user interface and communication can be started.

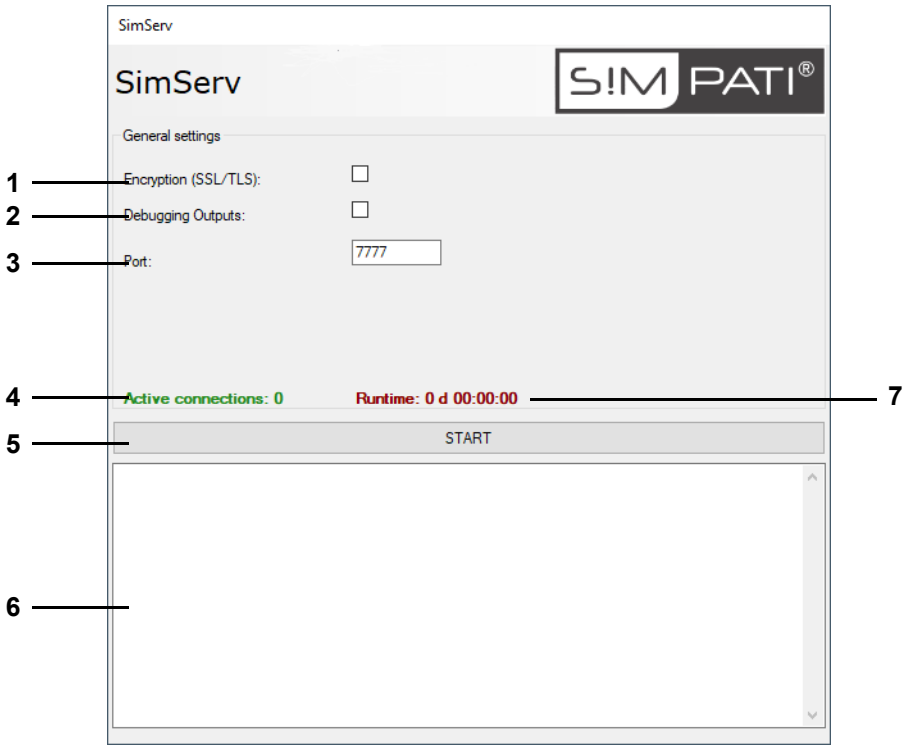

Fig. 6-10 Set parameters

1 Activate encrypted communication (-E)

2 Activate control readouts (-D)

3 Set port number (-P7777)

4 Number of clients currently connected

5 Start communication (-start)

6 Window for the control readouts

7 Runtime since communication start time

6.2.6 Examples

70:01:SIMSERV:-P9999:

Port 9999, unencrypted, no control output, no automatic start, communication to start using the on-screen Start button.

70:01:SIMSERV:-start:

Port 7777, unencrypted, no control output, communication starts automatically with Simpati.

70:01:SIMSERV: -E -start:

Port 8888, encrypted, server name “Weiss Group SIMSERV”, certificate stored at “Root”, no control output, communication starts automatically with Simpati.

70:01:SIMSERV:-P5555 -E -N“*.Simpati.com” -S“Webhosting” -D1 -start:

Port 5555, encrypted, server name “*.Simpati.com”, certificate stored at “Webhosting”, with control output, communication starts automatically with Simpati.

6.2.7 Icons in the task bar

The following graphical elements can be found in the task bar after SIMSERV has been started:

SIMSERV running, no communication.	
SIMSERV running, communicating. Tool tip: version and communication type Right mouse click on the icon allows you to show or hide the SIMSERV user interface or to exit SIMSERV	

6.2.8 Function commands – structure

The structure of the function commands (SIMSERV commands for data exchange with Simpati) is shown below.

Function commands are made up as follows:

Make-up									
Command	Sep	Simpati-ID	Sep	Argument 1	Sep	Argument 2	Sep	and so on up to 4 arguments depending on the function	CR

Table 6-2 Function commands make-up

Sep = separator = “¶” (ASCII 182)
CR = carriage return (\r) at end of command (ASCII 13)

In some clients (e.g. LabView) an LF (LineFeed) must be appended to the CR to ensure that the return values are received correctly.

In the event of an error, the following status is reported:

Error code	CR

Table 6-3 Error

The following error codes are possible:

Error code	Explanation
− 1	Empty string received
− 2	Missing Simpati ID for the test system
− 3	Simpati ID for the test system is in an invalid range
− 4	Test system is not available
− 5	Unknown command ID
− 6	Too few or incorrect parameters
− 7	No server (for server service functions)
− 8	Control variables with this ID not found
− 9	Error whilst executing the commands
− 10	Index error whilst executing the command
− 11	No command execution possible because no user is logged in (with encrypted communication only)
− 12	The user logged in to SIMSERV is not privileged to execute the command
− 13	Duplicate login (the user is attempting to log himself back in to the open session)

Table 6-4 Error codes

If there are no errors a **1** is returned.

6.2.9 Function commands – examples

Authenticating on SIMSERV (opening a session)

23022	¶	User name	¶	Password	¶	CR

► To authenticate, use the credentials on an existing Simpati user.

Server response on successful login:

1	¶	LOG IN	CR

Set the nominal temperature value of the 2nd test system to 25°C

11001	¶	2	¶	1	¶	25.0	CR

The 1st control variable (temperature) always returns 2, the 2nd control variable (e.g. humidity) returns 2, and so on.

Set the actual temperature of the 2nd test system to 30°C

11003	¶	2	¶	1	¶	30.0	CR

Request actual temperature value of the 2nd test system

1004	¶	2	¶	1	¶	CR

Response of the server to a GET ACTUAL VALUE command:

1	¶	23.90	CR

Set digital channel 1 (start) of 2nd Test system

14001	¶	1	¶	1	¶	true	CR

Start/stop archiving test of the 2nd test system

18011	¶	2	¶	test	CR
19050	¶	2	¶	256	CR
19050	¶	2	¶	512	CR

6.2.10 Function commands – test program

The TCP/IP connection can be tested using the “SimServClient.exe” client test program. The test program is located in the **Simpati\system** directory. First start SIMSERV communication.

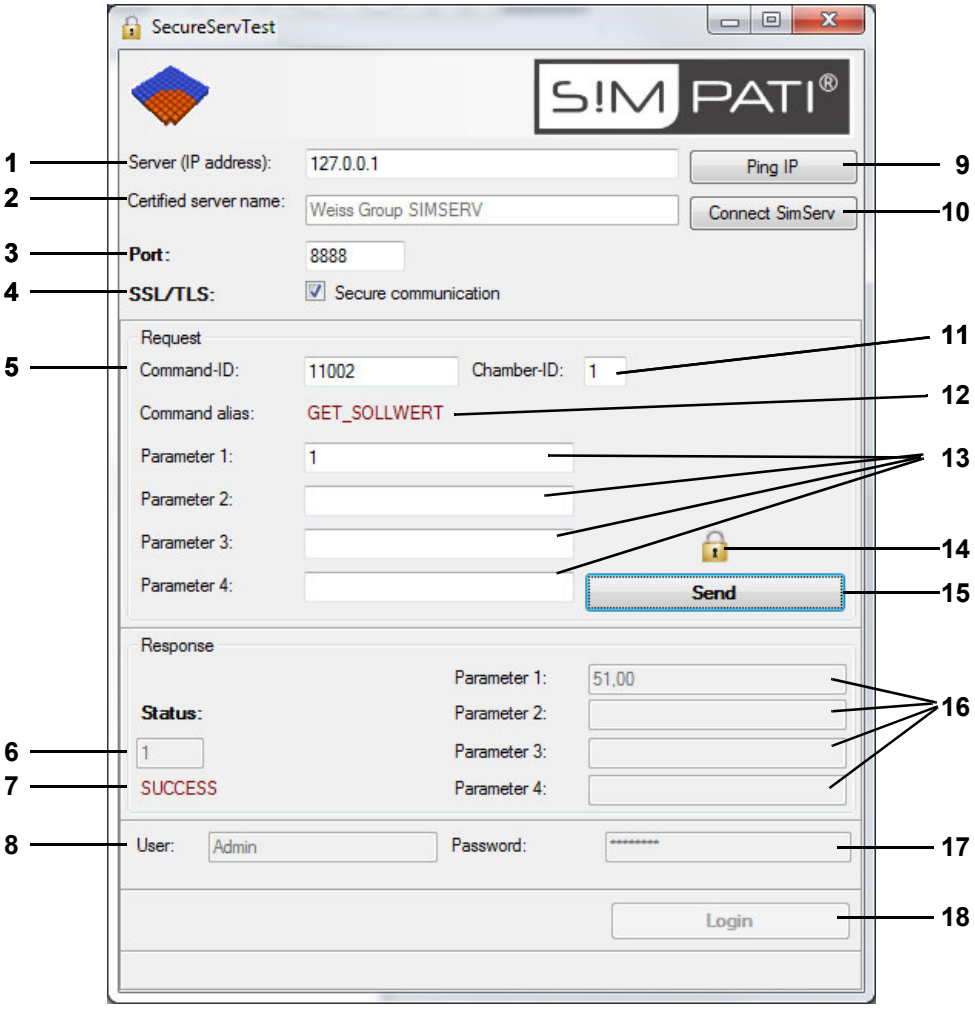

Fig. 6-11 SimServClient.exe

1 SimpatiIP address of the computer (IPv4 or IPv6)
2 SIMSERV-Server name
3 SIMSERV port
4 Set encrypted/unencrypted communication
5 Command
6 Status
7 Status alias
8 Name of the user logged in (active prior to login)
9 Test accessibility of the IP address
10 Establishing a connection to the SIMSERV server
11 Simpati ID of the test system
12 Command alias
13 Parameter 1-4
14 Icon for encrypted communication
Click on icon to get certificate details from the SIMSERV server.
15 Send command
16 Response parameter 1-4
17 Password (active prior to login)
18 Login (active prior to login)

6.2.11 Command list

Available functions

COMMAND	Fct.no	Arg. 1	Arg. 2	Arg. 3	Arg. 4	Response	
AUTHENTICATION							
SET USER	230022	Index	Use name[1]	Password		1¶LOGIN	
GET USER	230023	Index				User name	
CHAMBER INFORMATION							
GET CHAMBER NAME	10006	Index				CHAMBER NAME	
GET CHAMBER TYPE	10017	Index				SimCon	33333
						Simpac	44444
GET CONTROL VARIABLE_COUNT	11018	Index				Number of CONTROL VARIABLEs	
GET DIGITAL CHANNEL_COUNT	14007	Index				Number of DIGITAL CHANNELs	
GET COUNTER_COUNT	16001					Number of COUNTERS	
GET ERROR_COUNT	17002	Index				Number of ERRORS	
GET OPERATING STATUS	10012	Index				AVAILABLE	0×1
						RUN	0×2
						WARNING	0×4
						ERROR	0×8
GET OPERATING MODE	10010	Index				DATA LOGGING	0×01
						MANUAL	0×02
						AUTOMATIC	0×04
						BREAK	0×08
						BUSY	0×10
GET SCANNING CYCLE TIME	10034					SCANNING CYCLE TIME	
GET ARCHIVE PATH	10024					Text	
GET PROGRAM PATH	10026					Text	

Table 6-5 Command list

COMMAND	Fct.no	Arg. 1	Arg. 2	Arg. 3	Arg. 4	Response
CONTROL VARIABLE						
GET NAME	11026	Index				NAME
GET UNIT	11023	Index				UNIT
SET NOMINAL VALUE	11001	Index	Value	Use name[1]		
GET NOMINAL VALUE	11002	Index				NOMINAL VALUE
GET ACTUAL VALUE	11004	Index				ACTUAL VALUE
GET INPUT LIMIT MIN	11007	Index				MIN
GET INPUT LIMIT MAX	11009	Index				MAX
GET WARNING LIMIT MIN	11016	Index				MIN
GET WARNING LIMIT MAX	11017	Index				MAX
GET ALARM LIMIT MIN	11014	Index				MIN
GET ALARM LIMIT MAX	11015	Index				MAX
CONTROL VALUE						
GET NAME	13011	Index				NAME
GET UNIT	13010	Index				UNIT
GET NOMINAL VALUE	13005	Index				NOMINAL VALUE
SET NOMINAL VALUE	13006	Index	Value	User name[1]		
GET INPUT LIMIT MIN	13002	Index				MIN
GET INPUT LIMIT MAX	13004	Index				MAX
MEASURED VALUE						
GET NAME	12019	Index				NAME
GET UNIT	12016	Index				UNIT
GET ACTUAL VALUE	12002	Index				ACTUAL VALUE
GET WARNING LIMIT MIN	12010	Index				MIN
GET WARNING LIMIT MAX	12011	Index				MAX
GET ALARM LIMIT MIN	12008	Index				MIN
GET ALARM LIMIT MAX	12009	Index				MAX

Table 6-5 Command list

COMMAND	Fct.no	Arg. 1	Arg. 2	Arg. 3	Arg. 4	Response
DIGITAL OUTPUT CHANNELS						
SET DIGITALOUT	14001	Index	1/0 ON/OFF	User name[1]		
GET DIGITALOUT	14003	Index				DIGITALOUT, 0/1
DIGITAL INPUT CHANNELS						
GET DIGITALIN	15002	Index				DIGITALIN, 0/1
COUNTER						
GET NAME	16015	Index				NAME
GET ACTUAL VALUE	16003					COUNTER value
ERROR						
GET ERROR TEXT	17007	Index				ERROR TEXT
GET ERROR STATUS	17009	Index				ERROR STATUS, 0/1
GET ERROR CLASS	17005	Index				Control system 1 = Alarm 2 = Warning 4 = Note Simpati 5 = Alarm 6 = Warning
AUTOMATIC MODE						
SET STARTZPGPRGNUMBER	19014	Index	Prog. no.	Loops	User name[1]	
SET STOPZPGPRG	19015	Index			User name[1]	
SET DOWNLOAD	19001	Index	Prog. name	Prog. slot	User name[1]	
GET PROGRAM NAME	19031	Index				Program name
GET PROGRAM STATUS	19062	Index				TRUE/FALSE (1/0)
GET PROGRAM START	19064	Index				Parameter 1-4: name, loops, WARM-UP TIME, START DATE

Table 6-5 Command list

COMMAND	Fct.no	Arg. 1	Arg. 2	Arg. 3	Arg. 4	Response
SET PROGRAM MODE	19050	Index	BREAK 0×20 CONTIN UE 0×40		User name[1]	
SET ALL LOOPS	19003	Index	0 = External 1 = Internal			
GET ALL LOOPS	19004	Index	0 = External 1 = Internal			ALL LOOPS
GET ACTUAL LOOPS	19006	Index	0 = External 1 = Internal			ACTUAL LOOPS
ARCHIVING						
SET ARCHIVE NAME	18011	Index	Archive name	User name[1]		
SET ARCHIVING (Simpati v2.0 or higher)	19050	Index	START 0×100 STOP 0×200	User name[1]		
SET ARCHIVE COMMENT	18023	Index	Text	User name[1]		
GET ARCHIVE COMMENT	18024					Text
GET ARCHIVE NAME	18012					Text

Table 6-5 Command list

1) Argument is optional and only required for encrypted communication with user authentication

7 GENERAL OPERATION

7.1 Start Simpati

Prerequisite:

- Simpati must be installed.
- The user logged on to the computer must have the right to make changes in the entire installation directory of Simpati.
- The user logged on to the computer may not also be the domain-administrator.

Procedure:

- ► Select the Simpati icon [

] on the desktop. Or select the **Start Simpati 4.80** function in the Simpati folder in the Start **menu.**
  - ✓ Simpati establishes a connection to the configured test systems and the Simpati processes are started.
  - ✓ The Simpati start-up dialogue is displayed.
  - ✓ The login window is displayed.

Explanation of the Simpati Start dialogue

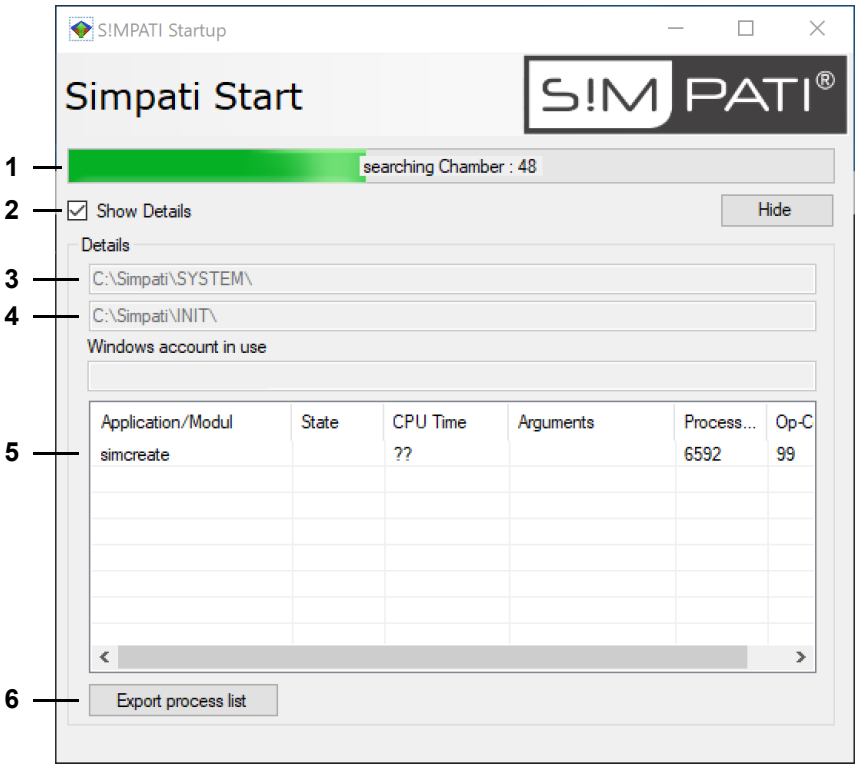

Fig. 7-1 Simpati start dialogue

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1 Progress of search for test systems.
2 Show/hide start dialogue details.
3 Simpati Program Directory.
4 Directory for test system configuration files.
5 List of Simpati processes.
6 Export list of Simpati processes to a .txt file.

7.2 Exit/close Simpati

Procedure:

- Select [ ] in the main menu and confirm the request.
- Wait until Simpati has terminated Simpati all processes.

7.3 Log in to Simpati

Only one user can be logged into Simpati at a time. The user logins/logouts are documented in the report file. You now have access to those test systems and Simpati functions for which you have been granted rights in the user administration → *8.3 »User administration« (page 68)*.

Prerequisite:

– User name and password must be available.

Procedure:

- Start Simpati.
- Wait until the Simpati login window is displayed.

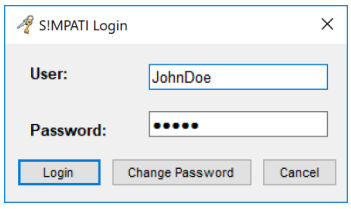

Fig. 7-2 Simpati login window

- Enter user name and password.
  On initial registration:
  – User name: **Admin**
  – Password: **admin**
- Select [**Login**].
  ✓ After logging in for the first time, you will be asked to change your password.
  ✓ The Simpati main menu is displayed.
  ✓ An icon is displayed in the task bar of the computer , which you can use to check the status of the Simpati processes whilst Simpati is running.

7.4 Log off in Simpati

Logging off is one way of safeguarding the test systems and test system processes against unauthorised access.

Procedure:

- Select [] in the main menu.
  - ✓ After logging off, Simpati continues to run.
  - ✓ All test system functions are locked.

7.5 Use Simpati in off-line mode

If the computer running Simpati does not have an internet connection, the certificates of digitally signed .NET applications cannot be verified. Simpati then starts slowly because the system has to wait for a time-out for each certificate. You can use one of the following methods to start Simpati faster in off-line mode:

Method 1: if the PC can temporarily connect to the Internet

- Establish an Internet connection.
- Start Simpati.
  - ✓ Certificate is cached. The certificate is valid for the current user only.
- Disconnect from the Internet.
  - ✓ So long as the certificate is cached, the application starts normally.

Method 2: if the computer has to remain off-line

- Open the Internet options on the computer.
- In the Advanced tab in the Security section, deactivate the Check for blocked certificates from issuers check box. This disabled security option applies only to the user logged on to the computer.
- Select **Accept**.
- Select **OK**.
- Start Simpati.

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7.6 Accessing program components via the start menu

Program components in the start menu of the computer		
Icon	**Designation**	**Explanation**
	**Device Maintenance Watcher**	Opens the **SimMaintenance Watcher** user interface to display the maintenance needs of the test systems.
	**Create PDF from Analyse**	Opens the **Simpati Pdf Generator** user interface to convert a Simpati archive file (*.h*) into a PDF file.
	**Program Conversion**	Opens the **Simpati Pdf Generator** user interface to convert external test programs into formats for Simpati.
	**Start Simpati 4.80**	Starts Simpati
	**Uninstall Simpati**	Uninstalls Simpati
	**Simpati Configuration**	Opens the **SimConfiguration** user interface for various configuration settings. Simpati must be closed beforehand.
	**SimViewer**	Opens the **SimViewer** → *16 »Graphical evaluation (SimViewer)«* (page 161) user interface.

Table 7-1 Explanation of the program components in the start menu of the computer

Procedure:

- ► Select the desired program component in the Simpati folder in the start menu of the computer.
- ► When the Simpati login window appears, log in with the login details.

8 MAIN MENU

8.1 Structure of the main menu

The Simpati main menu is displayed when you start Simpati and log in. The main menu shows the status of the test systems and provides access to the Simpati functions. The Simpati functions are organised on the following screens and menus:

- Main menu → *8.1.1 »Main menu«* (page 60)
- Context menu of the main menu → *8.1.2 »Context menu of the main menu«* (page 62)
- Context menu for test systems → *8.1.3 »Context menu for test systems« (page 62)*

Check the test system icons and the symbols around them to know the status of the test systems → *8.1.4 »Test system icons and abbreviations« (page 64)*.

8.1.1 Main menu

The buttons in the header of the Simpati main menu provide global Simpati functions. The buttons on the left of the Simpati main menu are functions for the end user. You can display a user-defined background (such as a test space layout) and place the test system icons wherever you like.

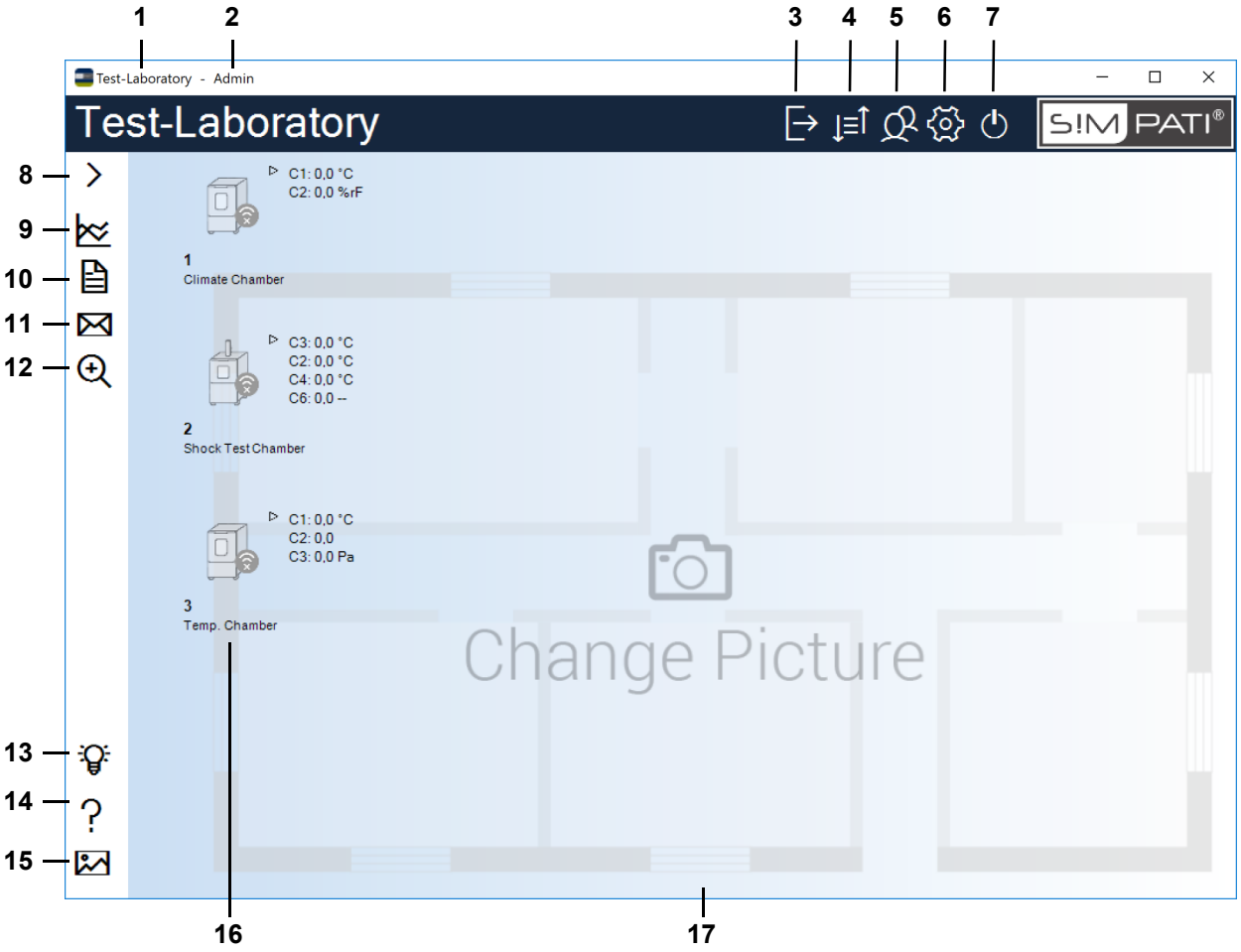

Fig. 8-1 Simpati main menu

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1 Customised title of the Simpati main menu.

→ *8.4.1 »Simpati Settings – configuration« (page 80)*

2 Name of the currently logged-in user.

3 Log in/log off.

→ *7.3 »Log in to Simpati«* (page 57), → *7.3 »Log in to Simpati«* (page 57)

4 Toggle between symbolic and tabular main menu view.

→ *8.2 »Tabular view of main menu« (page 67)*

5 Administration of users and user rights.

→ *8.3 »User administration« (page 68)*

6 Edit Simpati settings.

→ *8.4 »Simpati settings« (page 79)*

7 Exit Simpati.

→ *7.2 »Exit/close Simpati« (page 57)*

8 Show/hide the key for the buttons on the left in the Simpati main menu.

9 Start graphical evaluation.

→ *16 »Graphical evaluation (SimViewer)« (page 161)*

10 Simpati Show events. You may filter the events to see who was logged in at the time.

→ *17 »Reports and messages (Simreport)« (page 196)*

11 Configure SimMailer. Run SimMailer to automatically send emails with up-to-date test system details such as on warning and alarms.

→ *18 »Set up automatic sending of email« (page 198)*

12 Browse the network for other test systems. Before working with newly found test systems, you must first configure them in Simpati.

→ *9 »Settings for the test system« (page 82)*

13 Open on-line training for Simpati.

14 Simpati Open operating manual.

15 Change the background image of the Simpati main menu. Choose from the available images or your own background image (e.g. the test lab layout).

→ *8.4.1 »Simpati Settings – configuration« (page 80)*

16 Icons representing the test systems and showing the test system status and its key control variables.

→ *8.1.4 »Test system icons and abbreviations« (page 64)*

Test system icons will not scale automatically when you change the size of the main menu. To know how to change the icon size, go to the chapter below:

→ *8.1.3 »Context menu for test systems« (page 62)*, “Options”

17 Background image (wallpaper).

You may move the test system icons to any place on the background image as follows. press and hold the Ctrl key on your keyboard, pick up the test system icon with the mouse and drag it to another place.

The background image will not scale automatically when you change the size of the main menu.

8.1.2 Context menu of the main menu

Right-click on the main menu (but not on any of the controls or test system icons) to show the context menu of the main menu:

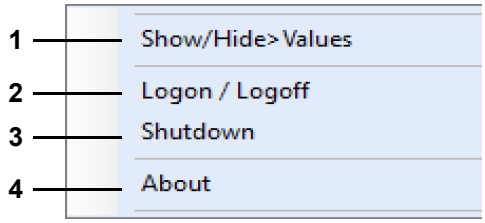

Fig. 8-2 Context menu of the main menu

1 Show/hide the values next to the test system icons.

2 Log in/log off.

3 Exit Simpati.

4 Show Simpati version number and licence information.

8.1.3 Context menu for test systems

Right-click on a test system icon on the main menu to show the context menu for test systems.

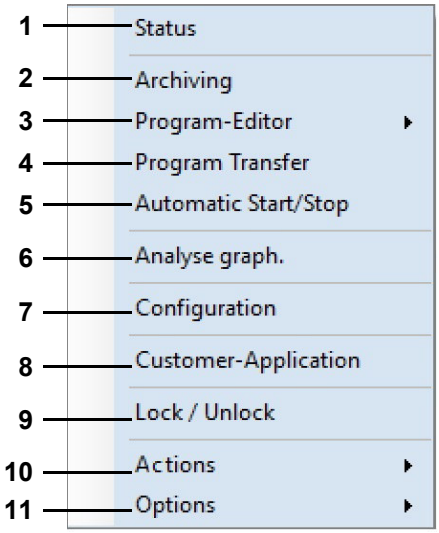

Fig. 8-3 Context menu for test systems

1 Show the test system status (for operation in manual mode).

→ *10 »Manual mode and status display of the test system« (page 88)*

2 Save test sequence and measured data.

→ *15 »Archiving« (page 160)*

3 Create a test program.

→ *11.2 »Create test program with symbolic editor«* (page 96)
→ *11.3 »Create test program with graphical editor«* (page 113)
→ *11.4 »Create test program with tabular editor«* (page 127)

→ *11.6 »Creating test programs for a shock test chamber«* (page 139)

4 Transfer a test program to the test system controller and run it.

The storage locations in the control system of the test system can hold up to 100 test programs.

→ *12 »Transfer test program between test system and Simpati« (page 152)*

5 Start/stop a test program stored in the test system.

→ *14 »Starting/stopping a test program« (page 158)*

6 Start graphical evaluation.

→ *16 »Graphical evaluation (SimViewer)« (page 161)*

7 Configure the interface and the test system parameters.

→ *9 »Settings for the test system« (page 82)*

8 Start the customer application.

A client application is a program that you need frequently. You can define which customer application is started in the general settings for the test system.

→ *9.1 »Configure general settings for the test system« (page 83)*

Another approach to run the customer application is to double-click on the test system icon.

9 The user logged into Simpati blocks or releases the operation of the test system in Simpati for other Simpati users. Unlocking is possible only by the user who has locked the use or by the Simpati Admin user “Admin”.

10 **Actions > Open WebSeason**: opens the user interface of the test system controller in the web browser. For test systems with Webseason, the Webseason user interface is opened. For test systems without Webseason, the Simpac Web user interface is opened. If the control unit does not have a web user interface, nothing is opened.

Actions > Disable Device: deactivates the connection between this computer with Simpati and the test system. This means that no more data, reports, and messages from the test system are transferred to this computer.

Actions > Enable Device: activates the connection between this computer with Simpati and the test system. The **Enable Device** function can be executed only if the test system is accessible.

11 Set the size of test system icons and show or hide the actual values otherwise appearing next to a test system icon.

8.1.4 Test system icons and abbreviations

The test systems are represented by icons in the symbolic view of the Simpati main menu. Major test system details are grouped around every icon.

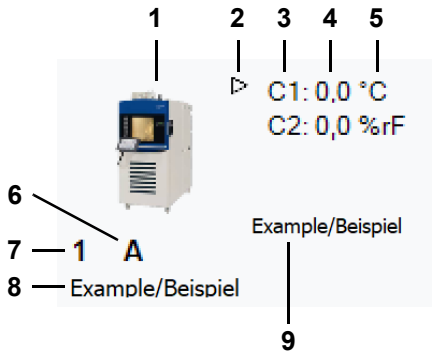

Fig. 8-4 Test system icon with test system details (Example illustration)

1 Test system icon.

The test system icon tells you whether the test system is ready or whether there is an active warning/alarm.

→ *»Test system icons« (page 65)*

Pick the icon matching your test system.

→ *9.1 »Configure general settings for the test system« (page 83)*

Right-clicking on the test system icon displays the context menu and its test system function items.

→ *8.1.3 »Context menu for test systems« (page 62)*

Double-clicking on the test system icon starts the customer application you specified when configuring the test system.

2 Click on this control to show or hide the actual values of the control variables of the test system.

Up to the first four control variables are shown.

3 Control variable ID.

4 Actual value of control variable.

5 Physical unit of control variable.

6 Current mode (e. g. **A** = Automatic mode) → *»Test system modes« (page 65)*.

7 Test system ID.

8 Test system name.

9 Name of test program.

Read the section below to find explanations of other icons appearing around the test system icon:

→ *»Other icons around test system icons« (page 66)*

Test system icons

Test system icon	Explanation
	Test system is off-line and is not communicating with Simpati.
	Test system is ready.
	Normal operation, test system is running (in manual or automatic mode).
	Warning.
	Alarm.

Fig. 8-5 Test system icons

You may pick one of the available or your own test system icon. Display the following dialogue to define the test system icons.

→ *9.1 »Configure general settings for the test system« (page 83)*

Display the following dialogue to define icon sizes and positions:

→ *8.4.2 »Simpati Settings – view« (page 81)*

Test system modes

Abbreviation	Explanation
M	Test is running in manual mode.
A	Test is running in automatic/program mode.
P	Test program interrupted.
B	Busy (status) with downloading or uploading.
D	Simpati is only for data collection.
W	Wait for start mode.

Fig. 8-6 Test system modes

Other icons around test system icons

Icon	Explanation
	Archiving is activated.
	The test system is locked by the logged-in user.
	Test system is locked by an application. Tool tip: user name and IP address of the computer from which the test system was locked.
	Test system is locked locally. Tool tip: name of the locker.
	The test system runs in internal mode. This means that the test system cannot be operated via Simpati. Operation is possible only directly via the control panel of the test system.
	Data are requested again and are updated as a result.

Fig. 8-7 Other icons around test system icons

8.2 Tabular view of main menu

Click this icon in the Simpati main menu to switch from symbolic to tabular view and back.
→ *8.1.1 »Main menu« (page 60)*

If warning messages (yellow) or alarm messages (red) are pending for a test system, the line of the test system is coloured.Right-click on a line to display the context menu for the corresponding test system → *8.1.3 »Context menu for test systems«* (page 62).

To switch to the tabular view

- Click on  .
  - ✓ The tabular view of the main menu is displayed.
  - ✓ Its header and icons remain unchanged.

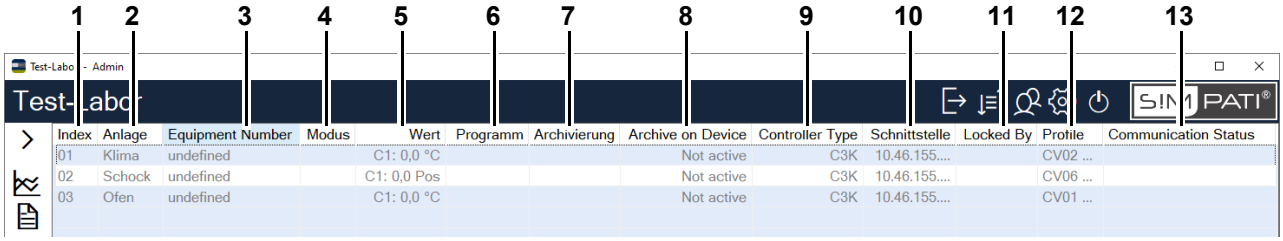

Fig. 8-8 Tabular view of the Simpati main menu

1 Simpati ID of the test system.
2 Designation of the test system
3 Device number (serial number) of the test system
4 Current mode (e.g. **A** = Automatic mode). → *»Test system modes« (page 65)*
5 Value of the first test system control variable (control variable ID = 1). → *9.3 »Setting profiles/limits« (page 85)*
6 Name of the current test program
7 Name of the currently active recording file
8 Status of the redundant Simpati recording on the control unit
9 Control type
10 PC interface via which the test system is controlled (IP address/host name: port)
11 Status of locking the device with user name
12 Existing profiles
13 Communication status

Press the “+” and “–” keys on your numeric keypad to zoom in or out of the table. Click on a column header to sort the table by this column.

To switch to the symbolic view

- Click on  again.
  - ✓ The symbolic view of the main menu is displayed.

8.3 User administration

User administration is accessed by clicking on this icon on the Simpati main menu.

→ *8.1.1 »Main menu« (page 60)*

Users can be created, changed and assigned to groups in the user administration. Every user is assigned a user name and password. User administration also lets you assign system and Simpati rights to every user to specify what exactly they are allowed to do with. For this purpose, system rights and test system rights are assigned to the users.

Users can be put into user groups. This is a practical means of assigned the same set of access rights to several users. In this case, you assign the rights at group level. Every user in a group will automatically share the same rights.

Apart from the group rights, group members can be assigned or withdrawn rights at individual level.

There are overview screens that make it easier to keep track of who is allowed to do what.

Standard procedure of creating users and assigning user rights

- ► Click on  .
  - ✓ User administration starts.

→ *8.3.1 »Start screen of user administration« (page 69)*

- ► Create a group.

→ *8.3.7 »Creating user groups« (page 75)*

- ► Configure the password settings, system and test system rights of the group.

→ *8.3.9 »Set the password settings, system rights and test system rights of the group« (page 77)*

- ► Create and assign users to the group.

→ *8.3.2 »Creating users« (page 70)*

  - ✓ Every user owns the password settings, system and test system rights of the group.

- ► Set a user's inherited rights, as appropriate.

→ *8.3.4 »Changing the password settings« (page 72)*
→ *8.3.5 »Editing the system access rights« (page 73)*
→ *8.3.6 »Edit test system rights« (page 74)*

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8.3.1 Start screen of user administration

Simpati main menu > 

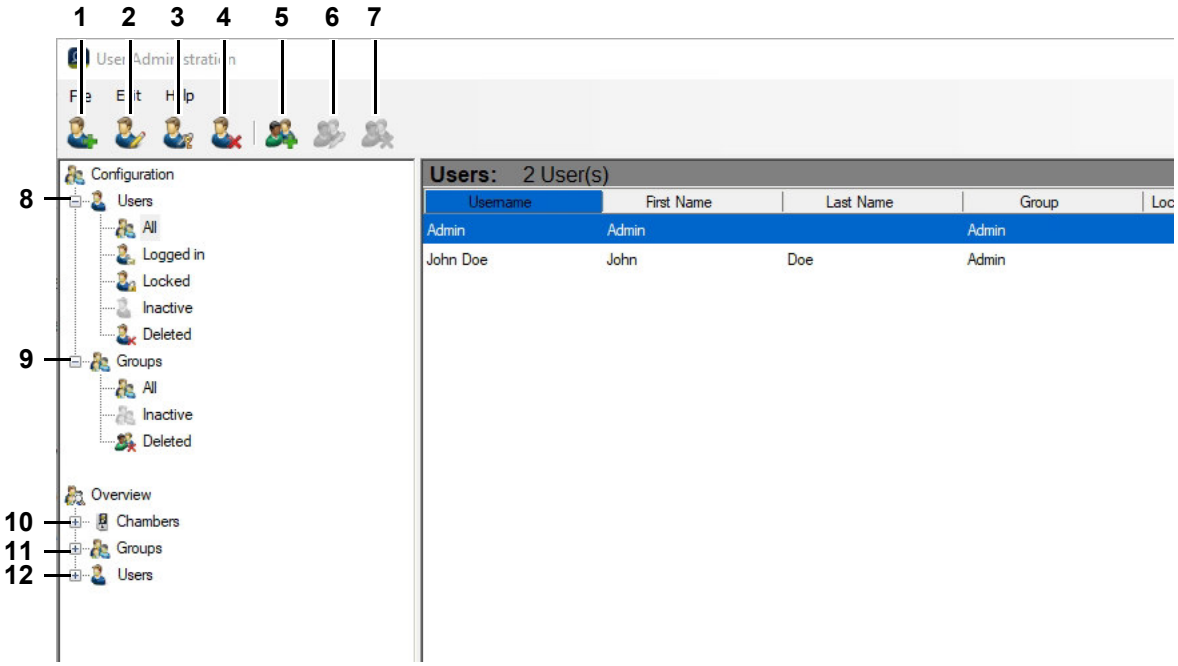

Fig. 8-9 Start screen of user administration

1 Create new user.

→ *8.3.2 »Creating users« (page 70)*

2 Edit a user's general data, password settings, system rights and test system rights.

→ *8.3.3 »Editing general user data« (page 71)*
→ *8.3.4 »Changing the password settings« (page 72)*
→ *8.3.5 »Editing the system access rights« (page 73)*
→ *8.3.6 »Edit test system rights« (page 74)*

3 Change a user's password.

4 Delete user.

5 Create new group.

→ *8.3.7 »Creating user groups« (page 75)*

6 Set the password settings, system rights and test system rights of a group.

→ *8.3.9 »Set the password settings, system rights and test system rights of the group« (page 77)*

7 Delete group.

8 User lists: users are filtered by various criteria such as "logged in" or "locked".

9 Group lists: groups are filtered by various criteria such as "inactive" or "deleted".

10 Overview of test systems: who is allowed to do what with a specific test system?

11 Overview of groups: which set of rights does a group of users own?

12 Overview of users: which system and test system rights does a single user have?

8.3.2 Creating users

Simpati main menu >  > **Add user**

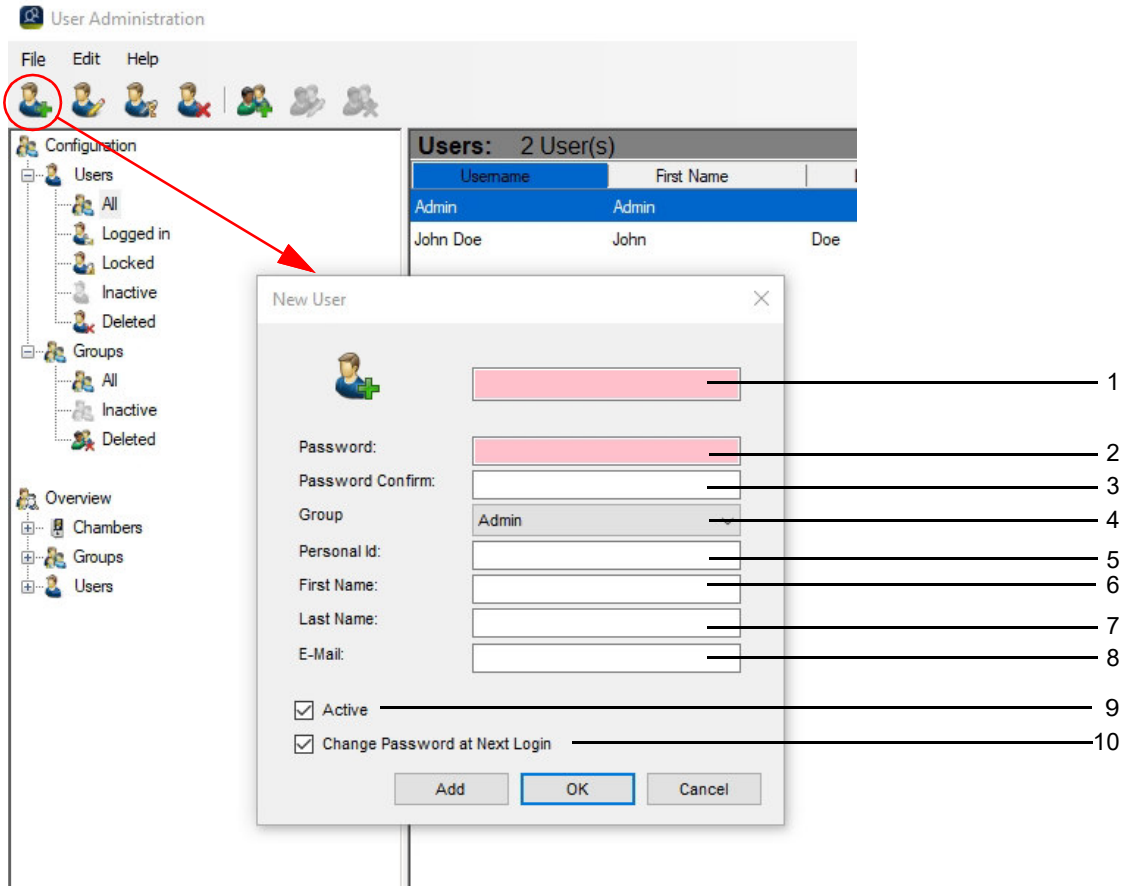

Fig. 8-10 User administration – new user

1 Set a user name.
2 Specify a password.
3 Repeat password.
4 Assign user to a group (a user can belong to not more than a single group).
5 Enter payroll number (optional).
6 Enter first name (optional).
7 Enter last name (optional).
8 Enter email address (optional).
9 Activate/deactivate user.
10 The next time the user logs in they must change the password assigned by the administrator.

8.3.3 Editing general user data

Simpati main menu >  > **Edit User** > tab **General**

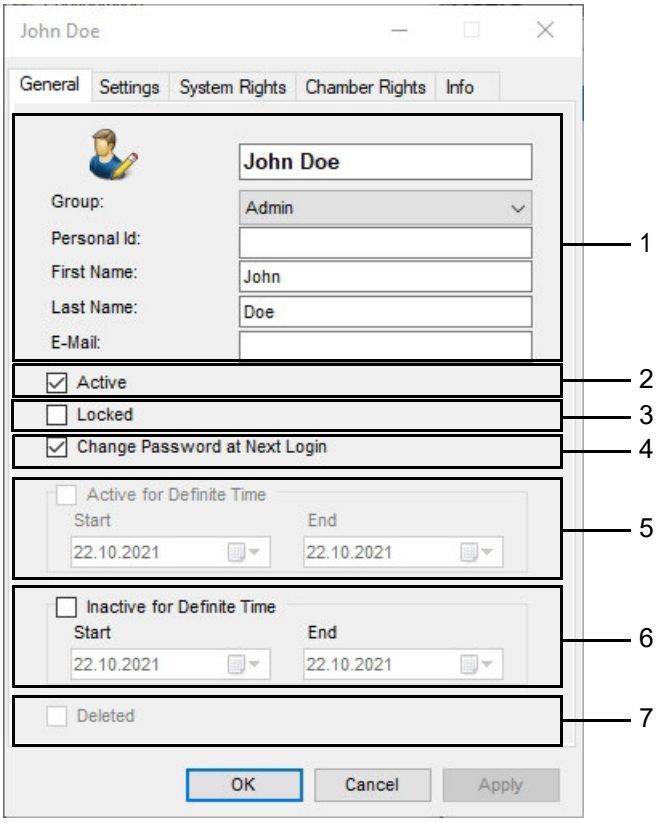

Fig. 8-11 User administration – edit general user data

1 Fields for changing the user's main data and group membership.

2 Activate/deactivate user account.

3 Lock user account. The user cannot log in.

4 User must change their password the next time they log in.

5 Period in which the user is activated. The user can log on to Simpati and use Simpati during this period.

6 Period during which the user is deactivated. The user will not be able to log in to Simpati during this period.

7 Delete user.

8.3.4 Changing the password settings

Simpati main menu >  > **Edit User** > tab **Settings**

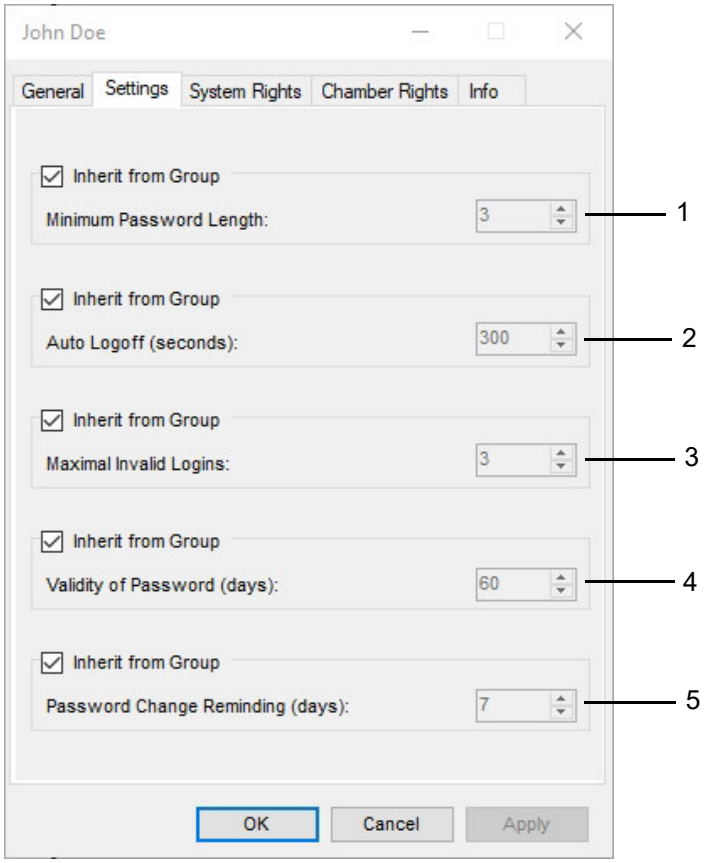

Fig. 8-12 User administration – change password settings

1 Valid passwords are between 1 and 30 characters long.

In the pharma variant, passwords must be at least 8 characters long and may not have been used as passwords before. Characters have to be of at least three of the following categories: lower-case, upper-case, special characters, numerals.

2 The user is automatically logged out if there has been no interaction on the Simpati computer within the specified time. Prerequisite: the automatic logout function must be activated in Simpati. → *8.4.1 »Simpati Settings – configuration«* (page 80).

In the Pharma version, the time until automatic log-off is pre-set to 5 minutes and can only be changed to a time ranging from 40 - 300 seconds.

3 You may allow up to 30 invalid login attempts.

In the pharma variant, the number of invalid login attempts is limited to 3.

4 Passwords can remain valid for 1 to 1000 days.

In the pharma variant, the validity period is limited 1 to 100 days. Further information on installation for operation in pharmaceutical environments → *1.5 »Additional documents«* (page 11).

5 Number of days on which the user is notified of the impending expiry of the password.

8.3.5 Editing the system access rights

Simpati main menu >  > **Edit User** > tab **System Rights**

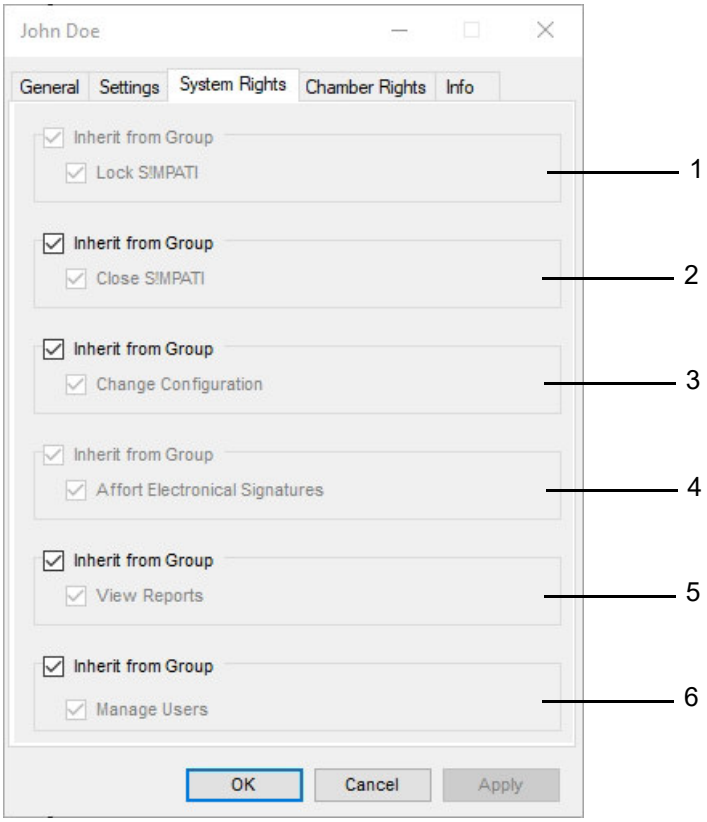

Fig. 8-13 Use administration – edit system rights

Ticked options allow users to:

1 Lock Simpati. A password is required for the next access.

2 Exit Simpati.

3 Change Simpati system configuration.

→ *8.4 »Simpati settings« (page 79)*

4 Sign electronically (optional).

5 Show reports.

6 Manage users.

8.3.6 Edit test system rights

Simpati main menu >  > **Edit User** > tab **Chamber Rights**

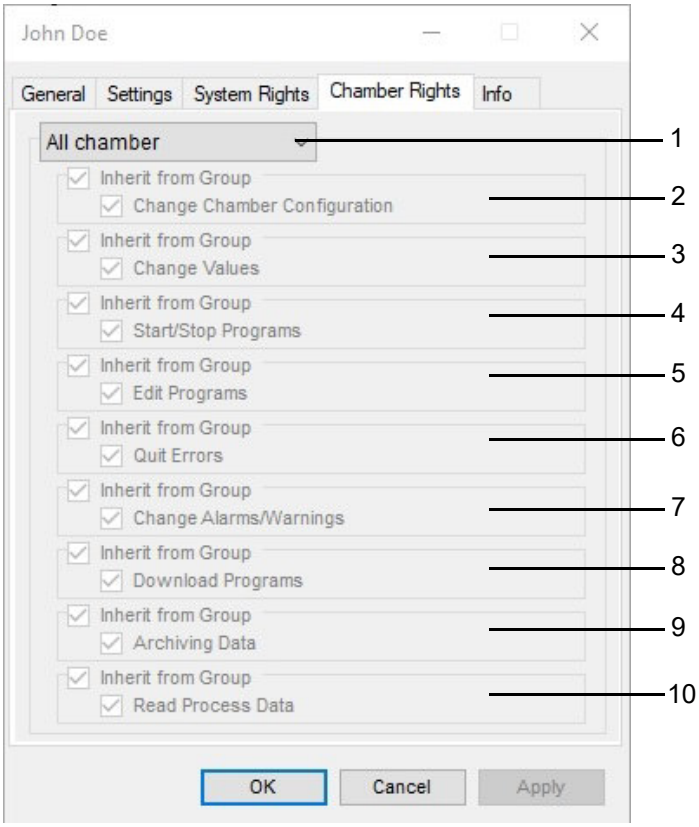

Fig. 8-14 Use administration – edit test system rights

Ticked options allow users to:

1 Select a test system.

2 Change the test system configuration.

→ *9 »Settings for the test system« (page 82)*

3 Change nominal and control values and digital channels.

4 Start and stop programs.

5 Create programs.

6 Acknowledge error messages.

7 Change alarm and warning limits.

8 Transfer programs.

9 Archive data.

10 Run graphical evaluation.

8.3.7 Creating user groups

Simpati main menu >  > **Add Group**

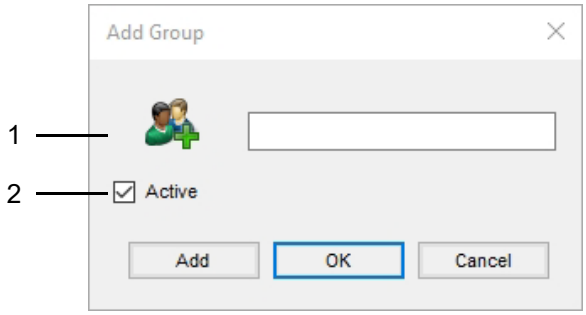

Fig. 8-15 User administration – add group

1 Enter group name.

2 Activate/deactivate group.

8.3.8 Editing general group data

Simpati main menu >  > **Edit Group** > tab **General**

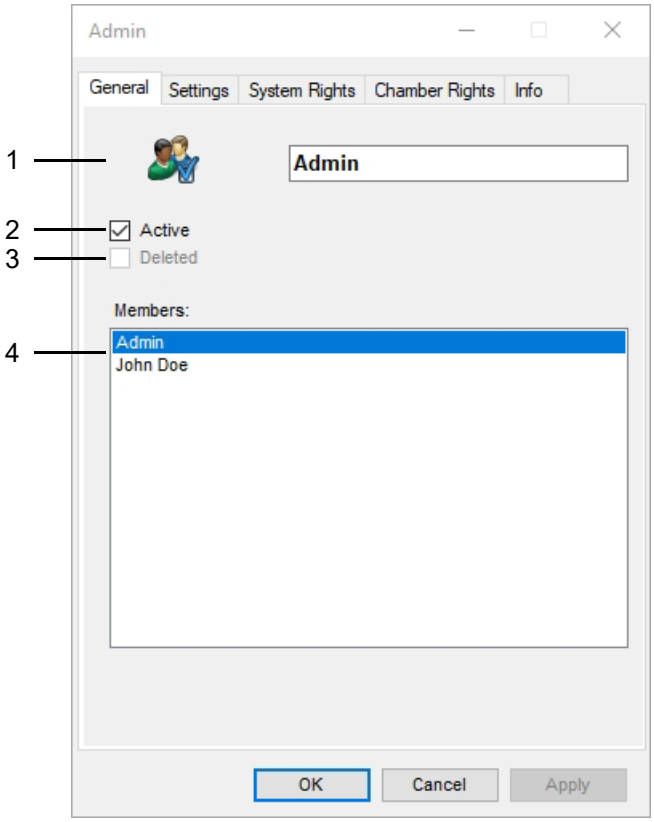

Fig. 8-16 User administration – general group data

1 Edit group name.
2 Activate/deactivate group.
3 Group deleted.
4 Users belonging to this group.

8.3.9 Set the password settings, system rights and test system rights of the group

Simpati main menu >  > **Edit group** > Tab **Settings**

Simpati main menu >  > **Edit group** >Tab **System Rights**

Simpati main menu >  > **Edit group** > Tab **Chamber Rights**

Editing the password settings, system rights, and test system rights of a group is identical to changing user rights:

→ *8.3.4 »Changing the password settings« (page 72)*

→ *8.3.5 »Editing the system access rights« (page 73)*

→ *8.3.6 »Edit test system rights« (page 74)*

8.3.10 »Edit« Menu

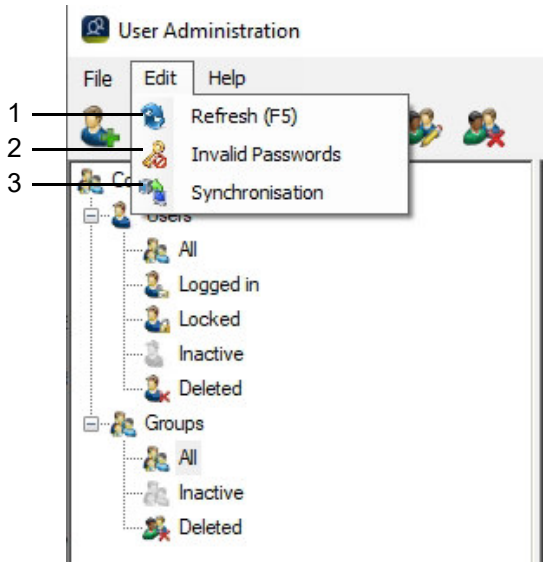

Fig. 8-17 Use administration – edit menu

1 Refresh view.

2 Exclude passwords.

3 Transfer of user data and user access rights to the control unit of the test system selected.

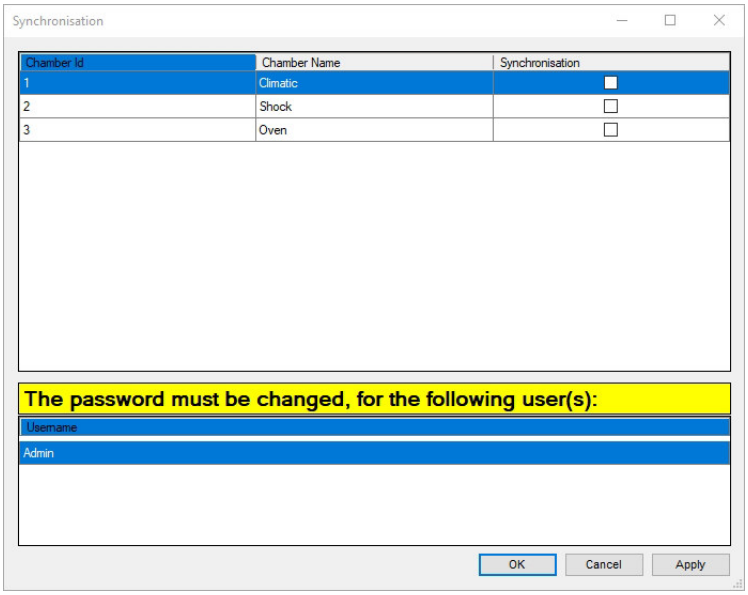

Fig. 8-18 User administration – synchronisation

The control unit will not display the data until the test system has been restarted (master switch Off/On) after synchronisation.

Passwords that have elapsed can only be changed in Simpati User administration user administration.

The validity of control unit passwords is not monitored, the reason being that, otherwise, operating the test system may not work properly when the control unit and the Simpati PC are not communicating.

8.4 Simpati settings

Click this icon in the Simpati main menu to edit the Simpati settings.
→ *8.1.1 »Main menu« (page 60)*

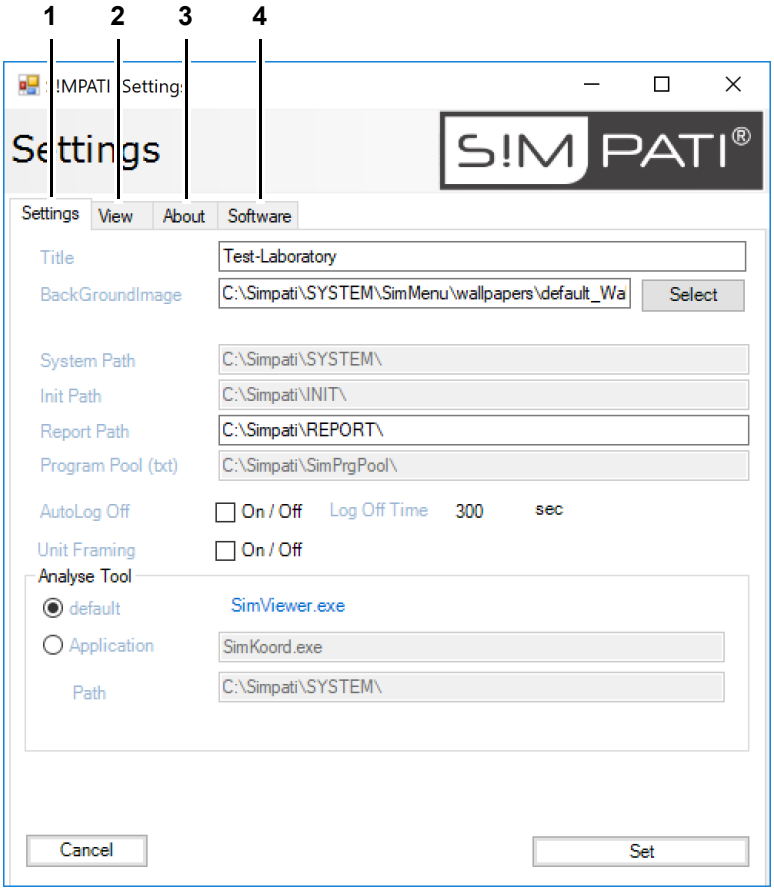

Fig. 8-19 Simpati dialogue settings

The dialogue has the following tabs:

1 Configure the main menu and other Simpati settings.

→ *8.4.1 »Simpati Settings – configuration« (page 80)*

2 Set the arrangement of test system icons on the main menu.

→ *8.4.2 »Simpati Settings – view« (page 81)*

3 Simpati version number and licence information.

4 Information on Simpati Software.

8.4.1 Simpati Settings – configuration

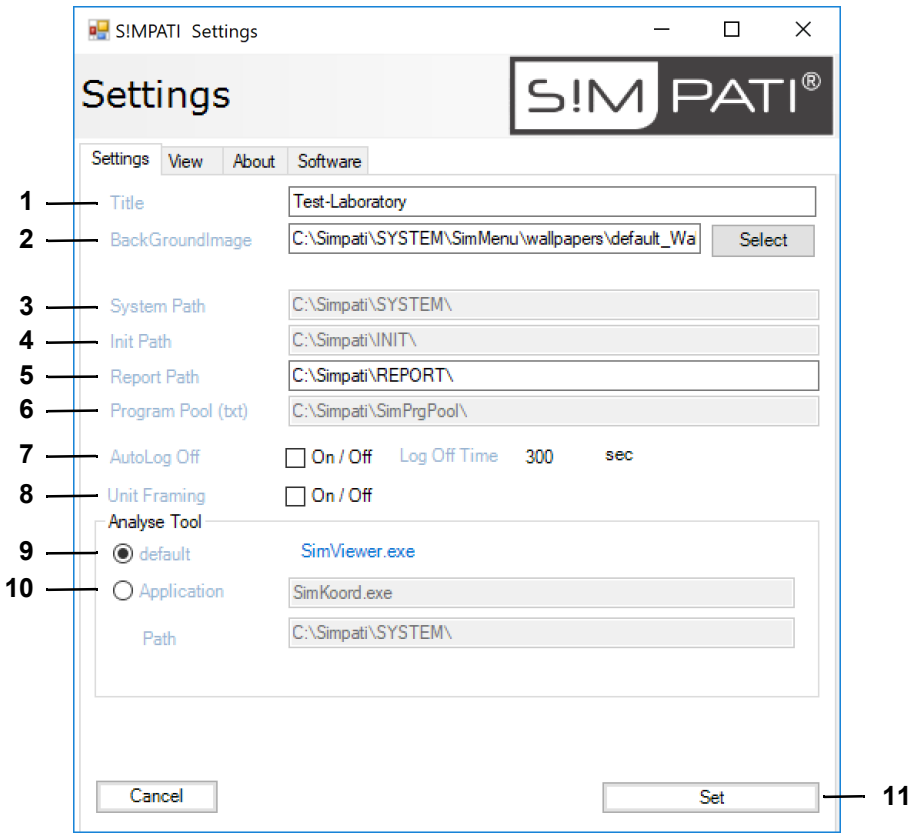

Fig. 8-20 Simpati Settings – configuration

1 Enter a main menu title.

2 Choose background image for the main menu.

Click on “Select” to choose a background image such as you own image showing the layout of your test lab. Do not fill in this box if you do not wish to show a background image.

3 Simpati directory for Simpati system files.

4 Directory for test system configuration files.

5 Reports directory.

6 Test programs directory.

7 Enable/disable automatic logout in Simpati.

If the check mark is set, the logged-in user is logged out after a defined time if they are not working on the Simpati computer. The time until automatic logout is defined in the user administration.

→ *8.3.4 »Changing the password settings« (page 72)*

In the Pharma version, automatic log-off is always activated.

8 Put a frame around the test system icons shown on the main menu.

9 For the graphical evaluation, “SimViewer” is available as standard from Simpati version 4.70 onwards. In addition, the predecessor module “SimKoord” is still supported up to and including Simpati Version 4.80.x. → *16 »Graphical evaluation (SimViewer)« (page 161)*

10 File name and directory of the alternative application for the graphical evaluation.

11 Accept changed settings.

8.4.2 Simpati Settings – view

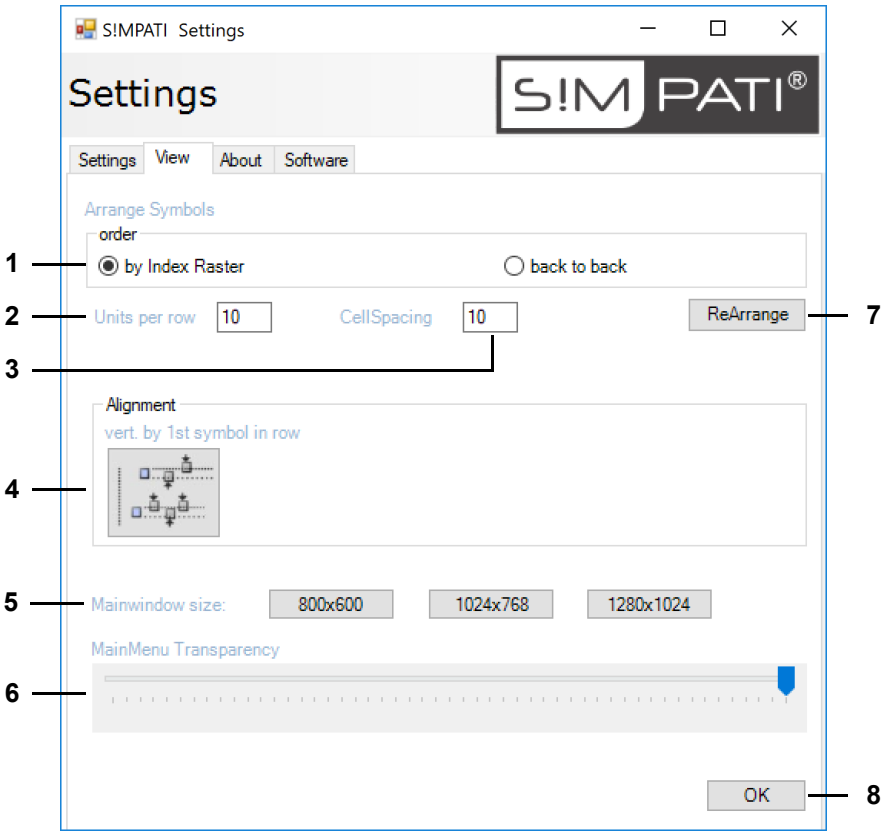

Fig. 8-21 Simpati Settings – view

1 Set the arrangement of test system icons:

– “by Index Raster”: the arrangement of test system icons will use the pattern set in the factory.

– “back to back”: test system icons will be arranged from left to right and line by line from top to bottom sorted by their consecutive IDs.

2 Number of test system icons per line.

3 Number of pixels between test system icons (horizontal and vertical).

4 If you opt against arranging the icons in a pattern or back to back, double-click on this icon to vertically move the test system icons until they are aligned with the first test system icon in the line. This will move test system icons only if their position overlaps the line after the first icon.

5 Set the size of the main menu.

6 Set the transparency of the main menu.

7 Rearrange the test system icons on the main menu in order to check the effect of the current settings.

8 Confirm your changes and close the dialogue.

You may move the test system icons to any place on the main menu as follows. press and hold the Ctrl key on your keyboard, pick up the test system icon with the mouse and drag it to another place.

9 SETTINGS FOR THE TEST SYSTEM

You need to know the following terms for the test system settings:

Term	Explanation
Control variable	The test system uses control variables to set physical quantities such as the temperature or the relative humidity to user-defined nominal values and to maintain these. The test system outputs a warning/alarm whenever the actual reading of a control variable is off the set limits.
Control value	The test system uses control values to actuate certain test system functions such as the fan speed. The test system does not report whether the value has been reached.
Measured value	Apart from the control variables, the test system can measure other physical quantities such as the temperature inside the test space. This does without setting a nominal value. The test system outputs a warning/alarm whenever the actual reading is off the set limits.
Counter	The test system can also output operation-related values such as the operating hours of the test system.
Digital channel/ output	A digital channel/output can be used to enable or disable a specific test system function such as extracting exhaust gases or supplying compressed air. Customer-specific digital channels may be added.
Digital channel/input	Another test system can use a digital channel/input to influence the test process.

Fig. 9-1 Terms related to the test system settings

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9.1 Configure general settings for the test system

You can access the menu via the context menu of the test system and the **Configuration** entry.

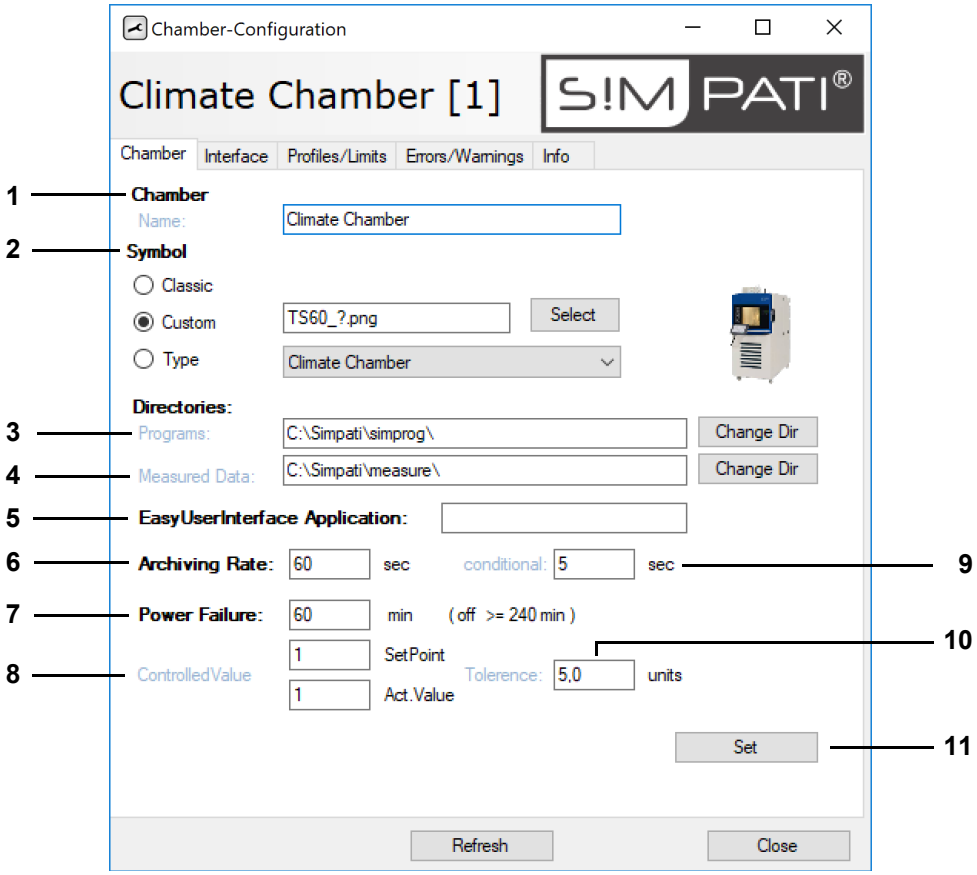


Fig. 9-2 General settings for the test system

1 Test system name shown on the main menu.

2 Test system icon shown on the main menu.

You can choose from a standard icon, a user-defined icon, or the icon of the test system type concerned.

3 Test programs directory.

4 Measured data directory.

5 Define the customer application. A customer application is a program that you need frequently and want to start via the context menu for test systems or by double-clicking on the test system icon in the main menu. For example, you can also save *SimStatus.exe* or *SimViewer.exe* as an application.

→ *8.1.3 »Context menu for test systems« (page 62)*, “Customer application”

6 Time between two entries during recording.

The default data recording cycle of the archiving module is 5 s. The archiving interval can only be integer multiples of 5 s, the only exception being the “rapid archiving” option which supports archiving intervals shorter than 5 s.

7 Maximum tolerable downtime of the power supply. If you enter 240 min, any power grid downtime is accepted.

Testing will be continued if the control variable (Item 8) is within the tolerance range and provided that the power failure does not last longer than the set time. To continue archiving, you need to restart the computer.

8 ID of the controlled variable whose actual value must remain within the tolerance range (Item. 10) so that the test continues after a network failure. The value is pre-set and cannot be changed.

→ *9.3 »Setting profiles/limits« (page 85)*

9 This recording rate is used when a critical condition exists in the test system: 5 s or a multiple of 5 s.

10 Tolerance range of the controlled variable (pos. 8) that may not be exceeded after a network failure in order to continue the measurement.

11 Save settings.

9.2 Set the interface between the test system and Simpati

You can access the menu via the context menu of the test system and the **Configuration** entry. The interface cannot be set for all test systems.

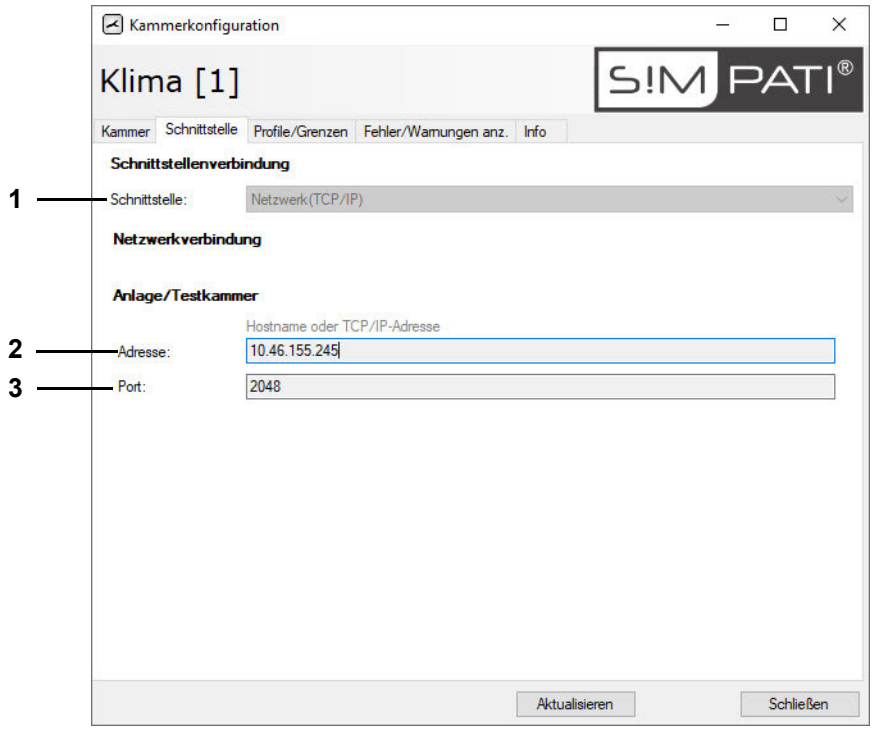


Fig. 9-3 Test system configuration: interface

1 Interface type used for data transfer between the computer with Simpati and test system.

2 Test system address.

3 Test system port.

9.3 Setting profiles/limits

You can access the menu via the context menu of the test system and the **Configuration** entry.

The pharma variant does not allow you to enter any values. In this case, use the status menu. → *10 »Manual mode and status display of the test system« (page 88)*

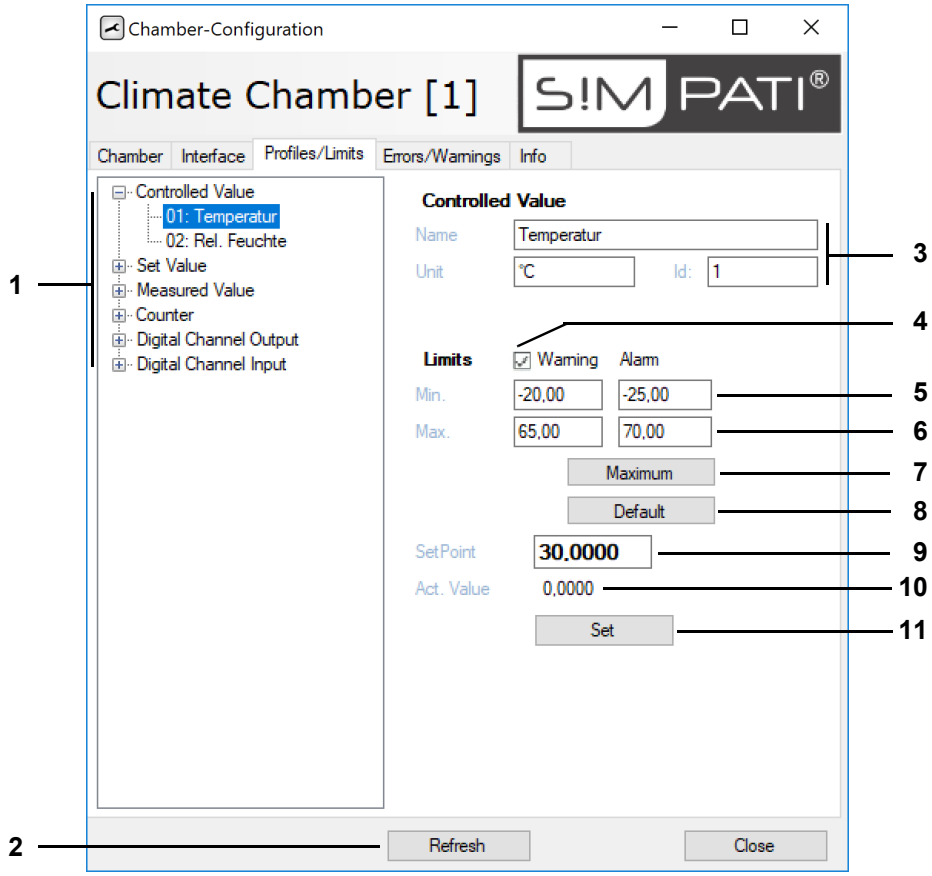


Fig. 9-4 Test system configuration: profiles/limits

1 List of parameters for controlling the test system and for data recording.

2 Refresh view.

3 Designation, unit, and ID of the parameter selected. Changes in these input fields should be made only by those with expert knowledge or with support from our service hotline. Incorrect entries impair the functionality. Do not use a colon (":").

4 Activate/deactivate warning limits (not adjustable for all test systems). If the warning limits are deactivated (no check mark set), the warning limits are not monitored.

5 Lower limit values for warnings and alarms (not adjustable for all test systems).

6 Upper limit values for warnings and alarms (not adjustable for all test systems).

7 Maximum warning and alarm limit values of the test system.

8 Standard test system values for warning and alarm limits.

9 Nominal value (for manual operation).

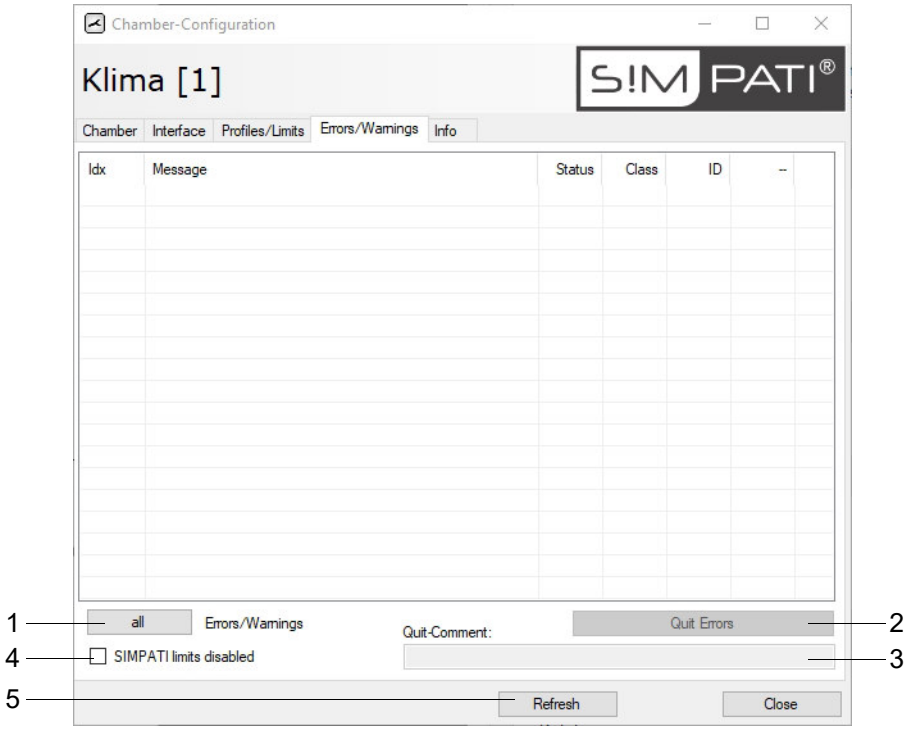
10 Actual value.

11 Save settings.

9.4 Open errors/warnings

Procedure:

- In the main menu in the context menu of the test system, select **Configuration** → *8.1.3 »Context menu for test systems«* (page 62).
- Select tab **Error/Warnings**.



1 This control toggles between the lists of messages.

Current messages are highlighted in the list of all warning/alarm/error messages set for thse test system concerned.

2 All current messages are acknowledged but not deleted; they appear in the overall list of messages. This can be done only with the appropriate authorisation and only if the test system is operated in external mode.

3 Comment on acknowledging the errors in the overall list of messages.

4 Use the check box to deactivate Simpati limit monitoring for warnings and alarms. You can tick this box only if you have the right to “Change alarms/warnings”.

If Simpati limit monitoring is switched off (tick is checked), no report entries for internal Simpati warnings and alarms are generated. System faults continue to be monitored. In the pharma variant, this box is unticked. Further information on installation for operation in pharmaceutical environments → *1.5 »Additional documents«* (page 11).

5 Refresh view.

Error messages emanating from the test system controller are described in the operating instructions of the test system.

- Messages caused by the test system must first be acknowledged on the test system after the cause has been eliminated and then in Simpati.

9.5 Access test system information

You can access the menu via the context menu of the test system and the **Configuration** entry.

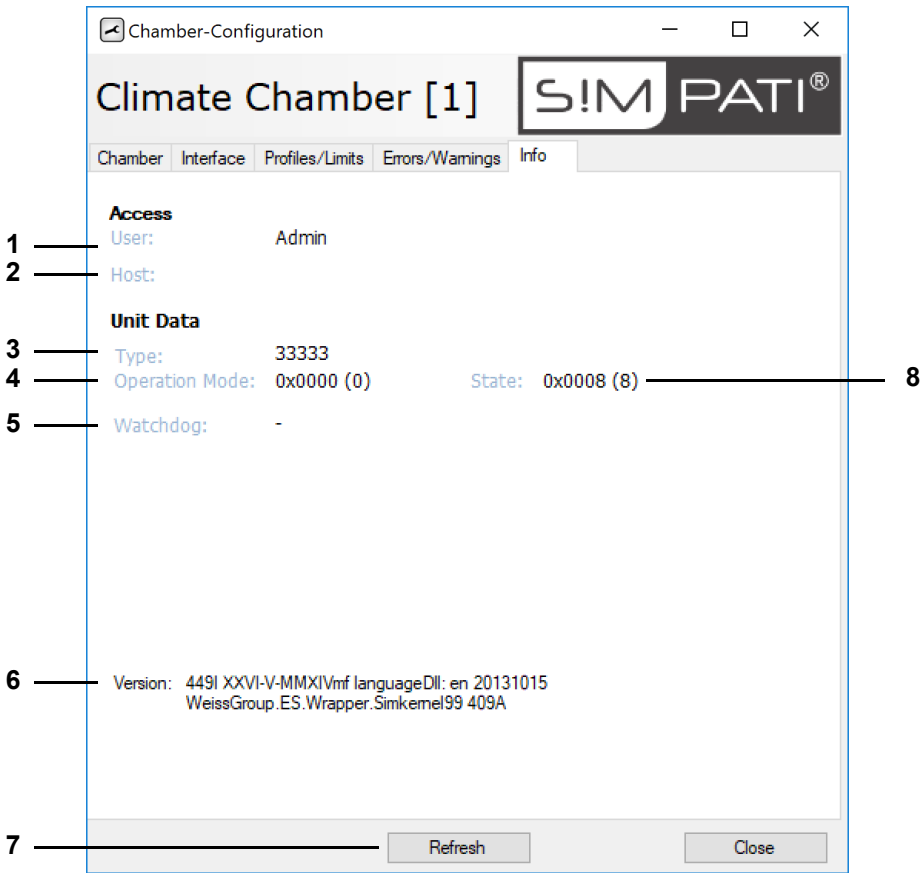


Fig. 9-5 Test system configuration: info

1 Currently logged-in user.
2 Server/computer controlling the test system.
3 Info for service personnel.
4 Info for service personnel.
5 Info for service personnel.
6 Simpati Version No./Simpati language setting.
7 Refresh view.
8 Info for service personnel.

10 MANUAL MODE AND STATUS DISPLAY OF THE TEST SYSTEM

You can access the menu via the context menu of the test system and the **Status** entry.

The menu window is used to display the actual state of the test system and to operate the test system in manual mode.

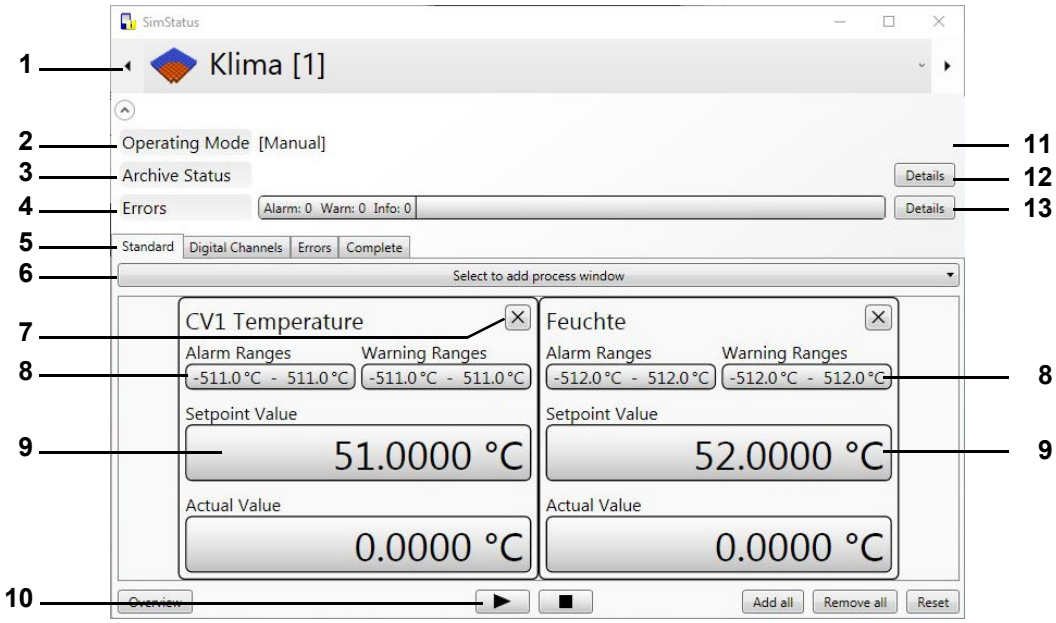


Fig. 10-1 Status display of the state of the test system

1 Selection of the test system.

2 Operating mode.

3 Archiving.

4 Display warning/alarm/error messages.

5 Choice of display types.

6 Select the process data to be displayed.

7 Close the window.

8 Input option for warning and alarm limits (not adjustable for all test systems).

9 Input option for entering nominal values.

10 Start and stop test in manual mode.

11 In automatic/program mode you can access a menu window containing information about the test program → *Fig. 10-4 »Information window for automatic/program mode«* (page 90).

12 If the test is to be recorded, a menu window with archiving information will be available → *Fig. 10-5 »Window with archiving information in automatic/program mode«* (page 91).

13 Opens the list of warning/alarm/error messages → *9.4 »Open errors/warnings«* (page 86).

10.1 Tests in manual mode

The following window is displayed when clicking on one of the fields marked “9”:

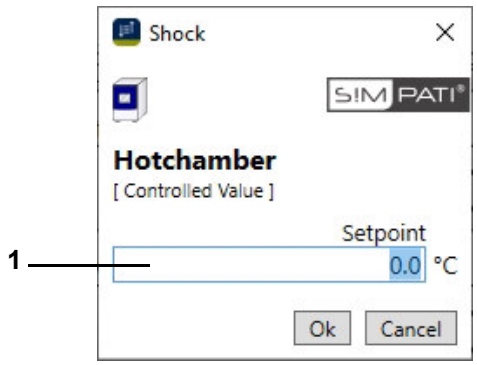


Fig. 10-2 Input menu – nominal value

1 Enter value and confirm with “OK”.

The pharma variant displays the Enter Password box.

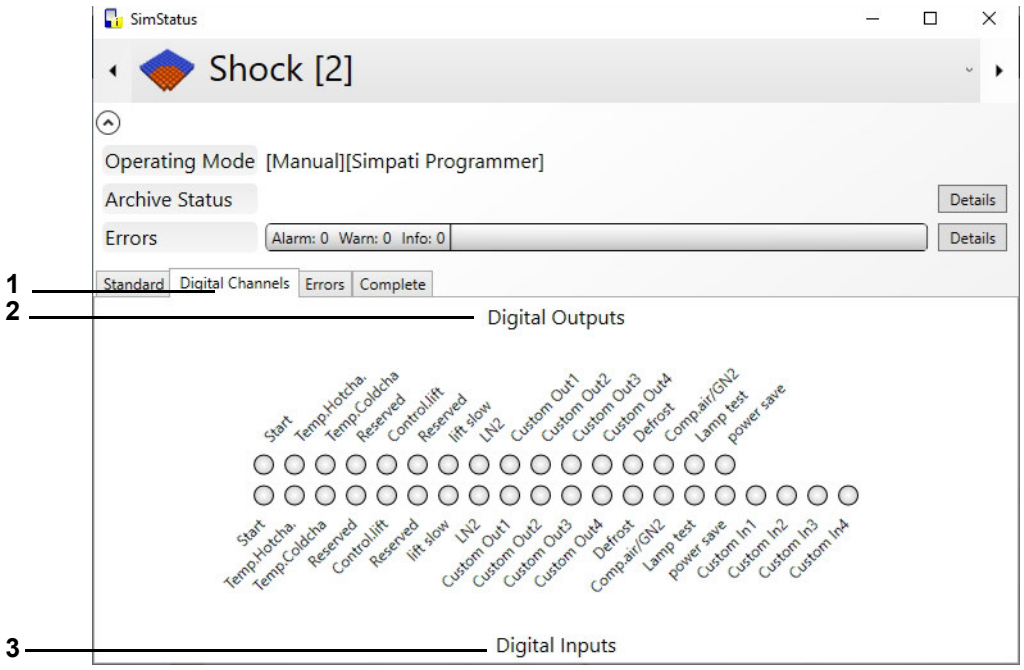


Fig. 10-3 Digital channels tab

Active channels are highlighted green. The channels are activated or deactivated by clicking on the respective check box.

You start the system by clicking on the **Start** check box. The pharma variant displays the Enter Password box.

1 **Digital Channels** tab

2 Digital outputs

3 Digital inputs

10.2 Status display of the state of the test system

10.2.1 Program details (automatic/program mode)

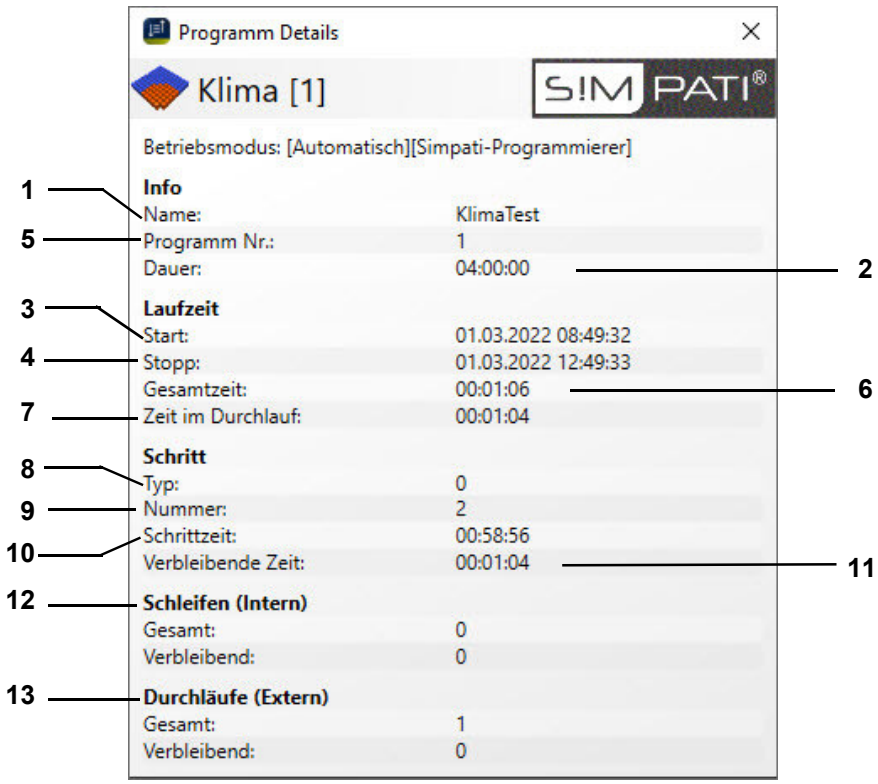


Fig. 10-4 Information window for automatic/program mode

1 Test program name.
2 Total runtime of test program.
3 Start time of test program.
4 End time of test program.
5 Test program number in the test system control system.
6 Elapsed runtime.
7 Runtime of current cycle.
8 Program step type.
9 Current program step (CTC control system).
10 Runtime of current step.
11 Remaining runtime of current step.
12 Program loops.
13 Complete program repeats (as selected at the start of the program).

10.2.2 Archive status details in automatic/program mode

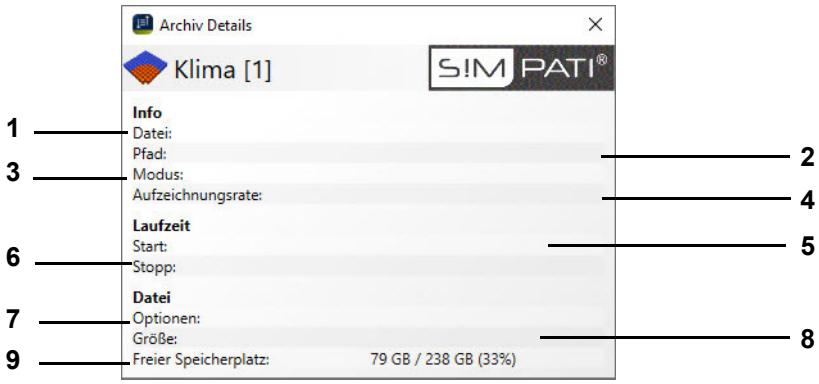


Fig. 10-5 Window with archiving information in automatic/program mode

1 Archive name.
2 The measurement file is stored in this directory.
3 Data recording mode.
4 Archiving file → *Fig. 15-1 »Archiving«* (page 160).
5 Start of recording.
6 End of recording (here: same as end of test program).
7 Options such as daily name change.
8 Size of archive file.
9 Free hard drive memory.

10.2.3 Display of pending errors/warnings

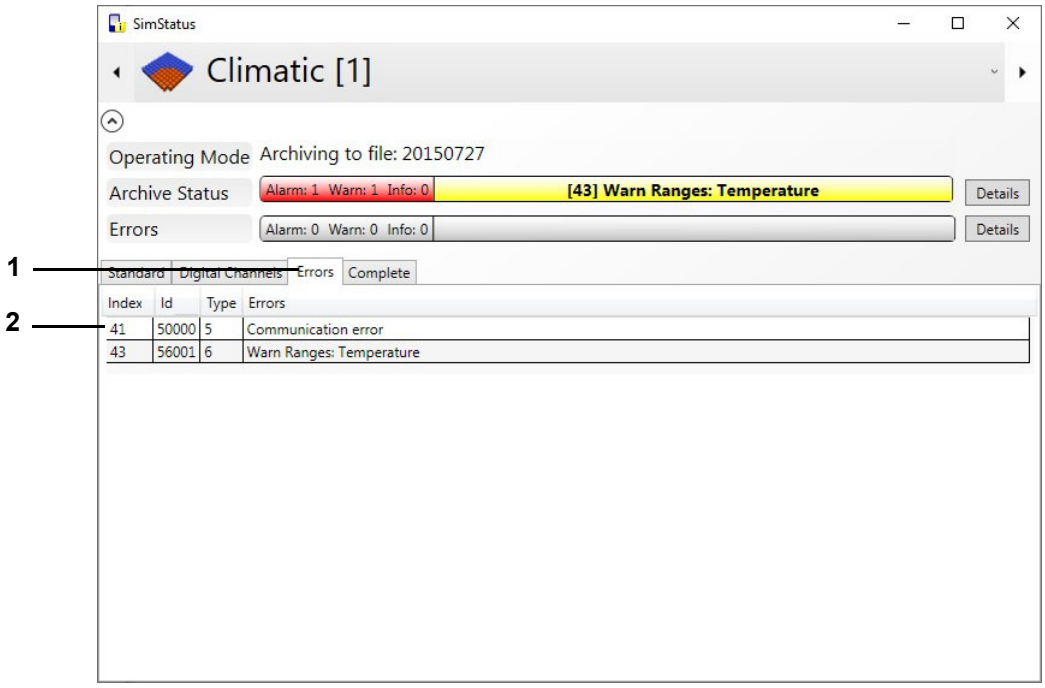


Fig. 10-6 Error tab

1 **Error** tab

2 List of the error messages shown in the columns:

– Index: error index generated by Simpati.

– ID: identification number of the error.

– Type: error type.
- 1 control system error
- 2 control system warning
- 4 info
- 5 Simpati error
- 6 Simpati warning

– Error: error description.

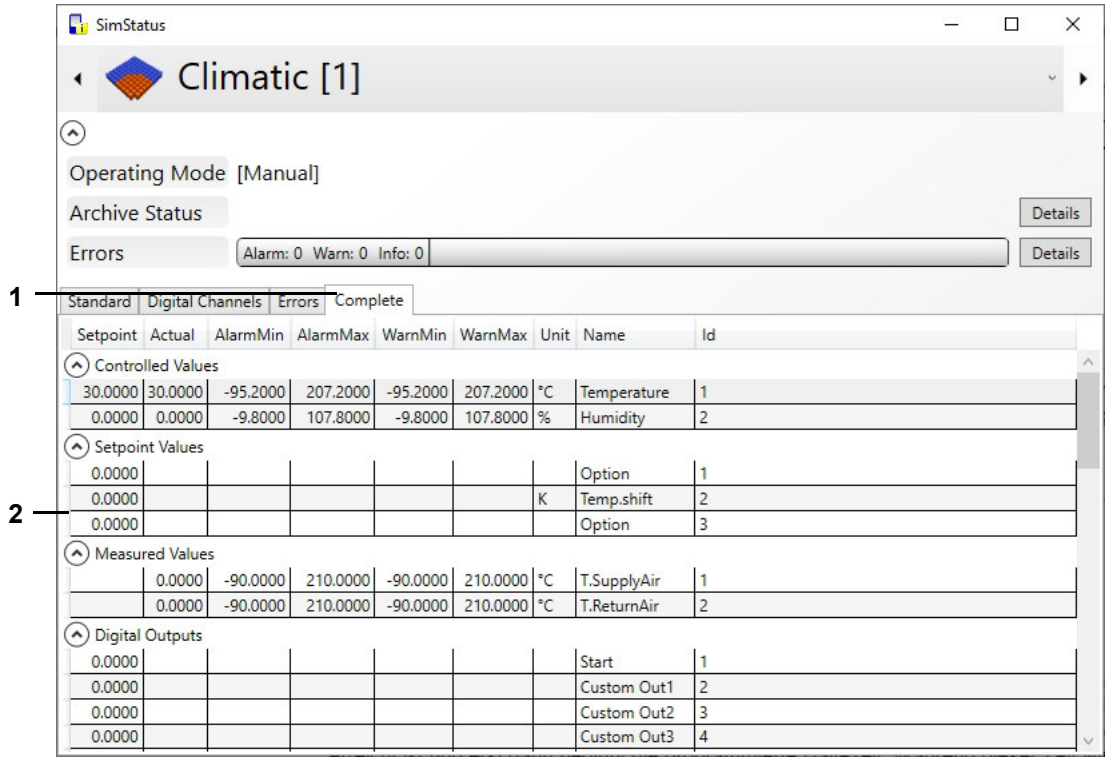


Fig. 10-7 Total tab

1 **Total** tab

2 List of available variables including their values, limits, units and IDs

11 COMPILING A TESTPROGRAM

You can access the menu via the context menu of the test system and the **Program-Editor** entry.

When programming loops, please take the following information into account → *»Loop« (page 125)*.

Test programs in the graphical editor are automatically saved in the Symbol Editor format also. This function is also available in the Symbol Editor. Select the appropriate settings when saving.

- Check your test programs after such an import or export.

11.1 General notes on creating programs

11.1.1 Guaranteed holding time

At larger temperature changes, it will take some time until the temperature is as it should be. The programmed test duration (holding time) is kept at the temperature required using this function. This means that Simpati detects when the required temperature is achieved and only then starts the programmed holding time. During that time, the temperature will not change until the holding time is over.

If a jump is programmed, the jump time is automatically adjusted to include the time required to match the actual value to the nominal value required.

Guaranteed holding time when programming ramps:

- When programming a ramp, deactivate the guaranteed holding time for the time the ramp is due.
- After the end of the ramp, you may enter a guaranteed holding time again.

Only the following controllers support the guaranteed holding time function: DMR, Prodicon Plus, Mincon, Simcon, Simpac and Stange. The method of programming depends on the controller as described below.

Test systems with DMR control system

After setting up the test program as normal, the following must also be observed with this control system

Guaranteed holding time is activated via digital channel 8.

Program a tolerance band to allow Simpati to detect when the nominal temperature is reached. Then with the right mouse button click on a profile data point on the temperature curve. Now use the context menu function to set the tolerance band.

Please note that the tolerance band must be revised after a jump.

Tolerance band monitoring is only available for the temperature profile in the standard version (»R2-38«).

- If monitoring of temperature and humidity is required, the 32-bit configuration must be set on-site by the service personnel.

Test system with a Prodicon Plus or Stange control system

After setting up the test program as normal, pay attention to the following with this control system:

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Guaranteed holding time is activated via digital channel 17. Digital channel 17 is not configured by default and must be adapted if required using the Service Hotline.

Program an envelope curve to allow Simpati to detect when the nominal temperature is reached. Envelope curves work similar to a tolerance band. Then with the right mouse button click on a profile data point on the temperature curve. Now use the context menu function to set the envelope curve.

As opposed to tolerance bands, envelope curves need not be manually adapted to other controllers if a jump is included.

Test systems with Mincon, Simcon, Simpac, MOPS, CTC or TC control system

After setting up the test program as normal, the following also needs to be considered as regards one of these control systems.

Program a tolerance band to allow Simpati to detect when the nominal temperature is reached. Then with the right mouse button click on a profile data point on the temperature curve. Now use the context menu function to set the tolerance band.

Use the Wait function as an alternative to the tolerance band.

The Wait function can also be programmed in the symbolic editor in the Mincon, Simcon and Simpac controllers → *»Wait function« (page 102)*.

11.2 Create test program with symbolic editor

You can access the menu via the context menu of the test system and the **Program-Editor > symbolic** entry.

The symbol editor is a programming tool for test systems controlled by a Simcon, Simpac or Mincon controller. With the symbolic editor it is possible to save the test program in the format of the graphical editor. This allows you to run the test programs created at this point in test systems equipped with other controllers.

Profiles that are not displayed will appear as inactive on the control unit and will not be taken into account by the program sequence (i.e. these profiles are kept at the value set).

- Make sure that all of the profiles required for operation of the test system are correctly entered and displayed.

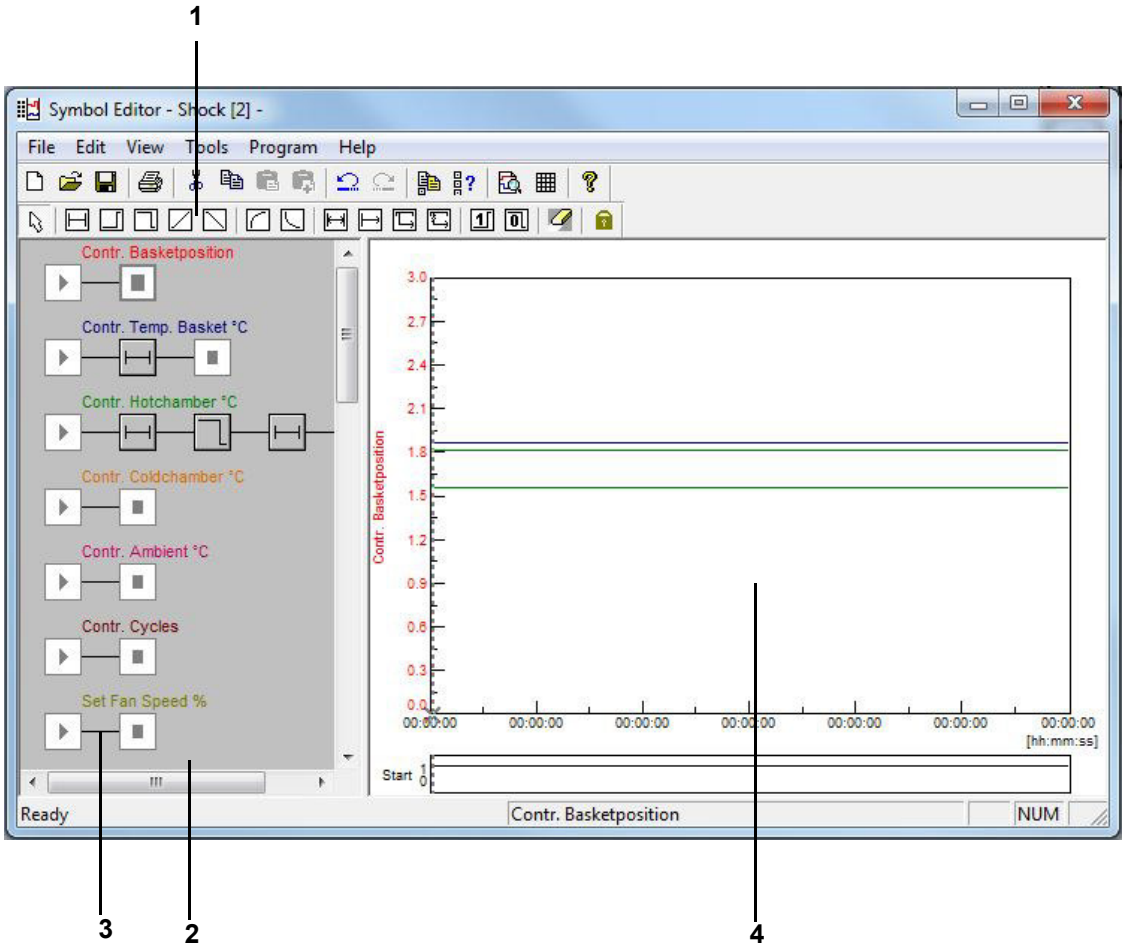


Fig. 11-1 Symbol editor

1 Program modules.

2 Profile.

3 Link line.

4 Preview.

Programming involves program modules picked from the icon bar and joined to make up a profile. A profile depicts the test sequence (preview) of the corresponding control variable, digital channel or control value.

Program module	Explanation
	Selection function → *»Selection module« (page 102)*
	Time module for all profiles → *»Time module« (page 102)*

11.2.1 Analogue function for control variables and control values

Program module	Explanation
	Nominal value jump up → *»Nominal value jump up/down« (page 102)*
	Nominal value jump down → *»Nominal value jump up/down« (page 102)*
	Nominal value ramp up → *»Nominal value ramp up/down« (page 103)*
	Nominal value ramp down → *»Nominal value ramp up/down« (page 103)*
	E-function up → *»E-function« (page 104)*
	E-function down → *»E-function« (page 104)*

11.2.2 Functions affecting the program sequence

Program module	Explanation
	Loop → *»Loop« (page 105)*
	Conditional program jump → *»Conditional program jump« (page 105)*
	Program call for a different test program → *»Starting another test program (sub-program)« (page 106)*
	Stop of another running program → *»Program stop of a different test program (sub-program)« (page 106)*
	Digital channel IN → *»Digital channel ON/OFF« (page 107)*
	Digital channel OUT → *»Digital channel ON/OFF« (page 107)*
	Eraser module for deleting program modules → *»Eraser function« (page 107)*
	Lockout function to maintain the current selection → *»Lockout function« (page 107)*

After left-clicking to select a program module, the mouse pointer takes the shape of the program module you selected. Left-click on a link line to drop the program module at that place. Clicking on an existing program module allows you to replace that module. Dropping the program module or double-clicking on a dropped program module automatically displays dialogue for programming the module.

11.2.3 Configuring a profile

Profile selection

Use the context menu of the start module to select the profiles to be displayed and to define their start values.

Description → *»Profile selection« (page 108)*

Profile settings

You get the → *»Profile settings« (page 99)* menu for entering the appropriate start values via the context menu or by double-clicking on the start module.

Start value

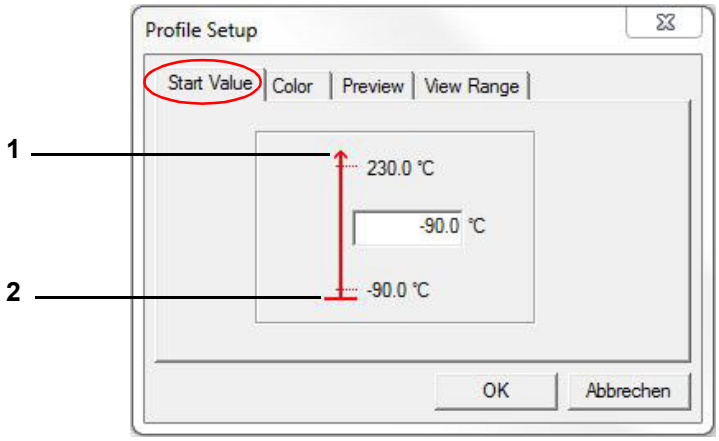


Fig. 11-2 Start value

1 Upper limit of the test system.

2 Lower limit of the test system.

Used to set the start value of a profile (within test system limits). Please note that the test system needs an appropriate amount of time to set this value. Take this time into account during programming.

The start value for all control variables, control values and digital channels is pre-set with the minimum value (within the range of the test system limit) by default. If a particular start value is to apply to every program to be created in the same system, then it has to be set in Profile selection as the standard (description under item D).

Colours

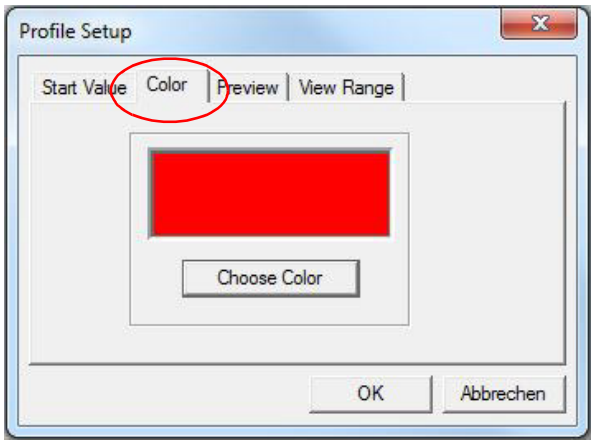


Fig. 11-3 Colour

When creating a new test program, the default colour settings of the configuration will be assigned to the profile. The colour settings can be individually adapted and saved as the default settings → *»Profile selection« (page 108)*.

11.2.4 Test

Preview

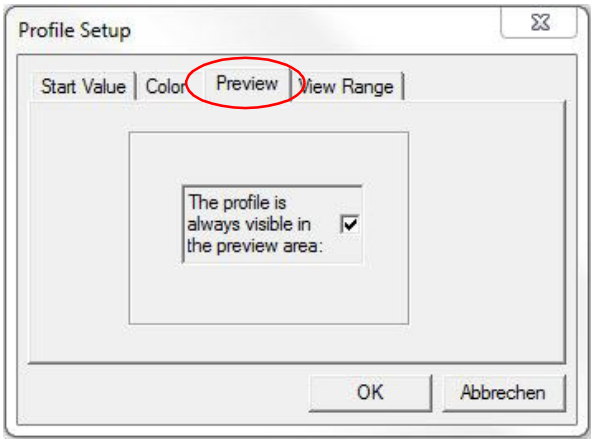


Fig. 11-4 Preview

The preview of the symbol editor will always show the profile you selected. When activated, this function will accept this channel into the preview and add to the current profile. To reduce the unsteadiness when building up the preview, you are recommended to just show as many profile as necessary for programming.

Viewing range

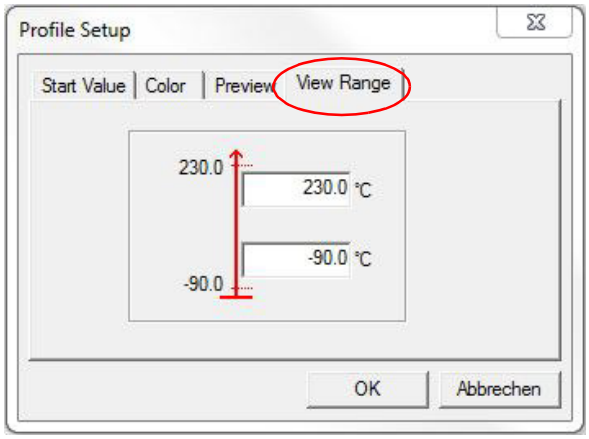


Fig. 11-5 Viewing range

Within the time axis, the preview automatically adjusts to the nominal values. This screen lets you adjust the Y axis to your personal preferences by entering a value between − 100,000 to +100,000.

11.2.5 Working with program modules

Placing or double-clicking on a program module displays the associated configuration screen. A preview will be displayed only if data has been stored for the program module.

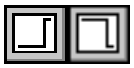
Selection module

The only way to activate a program module in a profile is with the selection symbol. After each programming operation, the program module used is automatically no longer active and the selection module becomes available again. If this needs to be disabled, use the → *»Lockout function« (page 107)*.

By pressing the Ctrl key, several modules can be selected by clicking or using a rubber band line.

Time module

The constant module defines how long the previously set value should be held (shown as a level in the preview). Use this function for control variables, control values and digital channels.



Nominal value jump up/down

A jump allows you to increase or decrease a nominal value as quickly as possible. Use this function for control variables and control values.

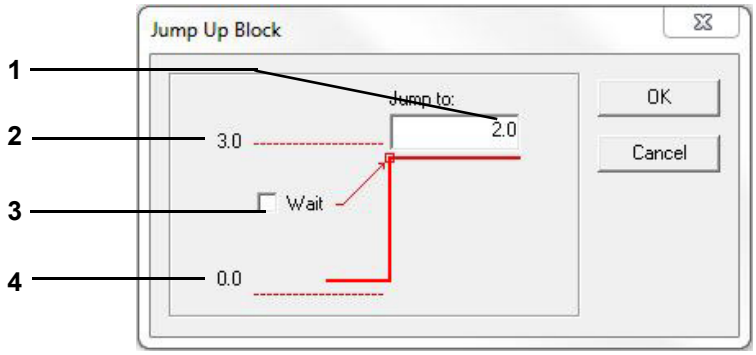


Fig. 11-6 Nominal value jump

1 Enter jump target (nominal value).

2 Maximum jump target (channel limit).

3 Enable Wait function at the jump target.

4 Current nominal value before the jump.

You can enable the Wait function when reaching the jump target. The Wait function causes the program runtime to be paused until the actual value is located within the Wait range defined.

Enabling the Wait function opens a dialogue for entering the values.

The example is for a jump up. If there is a jump down, the current value is at Item 2 and the value of the test system lower limit is at Item 4.

Wait function

The upper and lower Wait value is transferred to the configuration dialogue.

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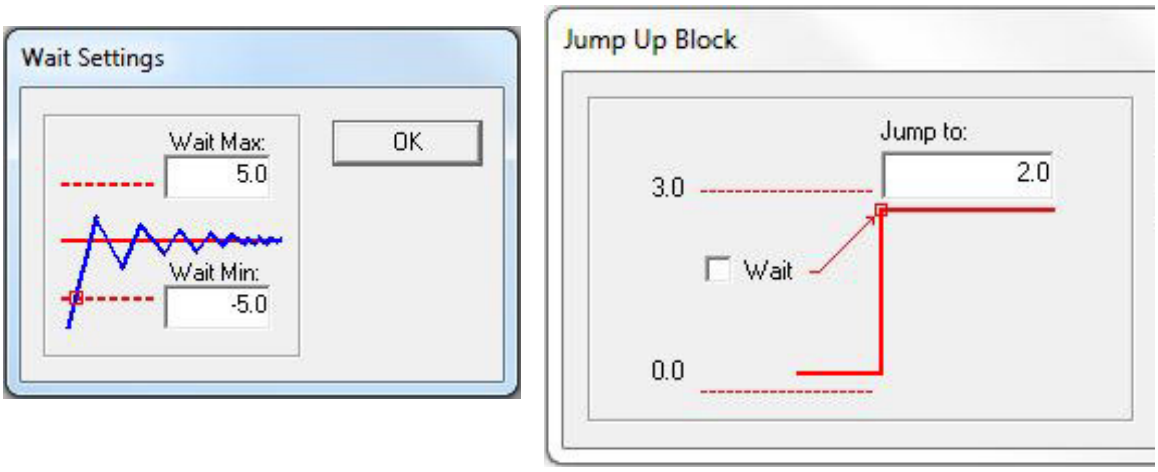
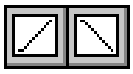


Fig. 11-7 Wait function

Programming a nominal value jump down is carried out in a similar manner.



Nominal value ramp up/down

A ramp is a guided increase or decrease of a nominal value. Use this function for control variables and control values.

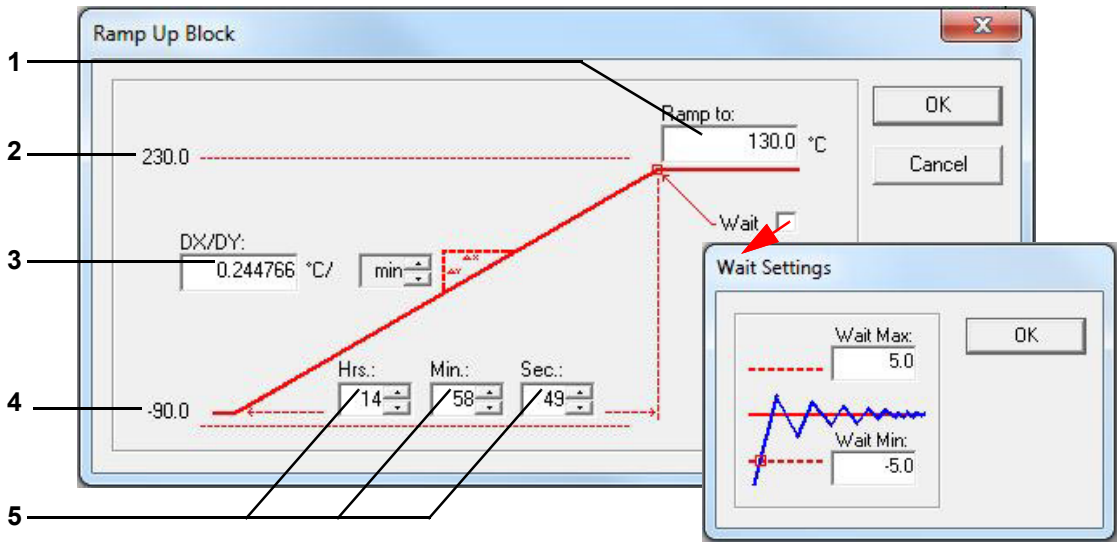


Fig. 11-8 Nominal value ramp

1 Enter the ramp target (nominal value).

2 Maximum ramp target (limit of the test system).

3 Speed of ramp change.

4 Current nominal value before the ramp.

5 Ramp time.

The example is for an upward ramp. If the ramp is down, the current value is at Item 2 *(page 103)* and the value of the lower test system limit. is at Item 4 *(page 103)*.

E-function

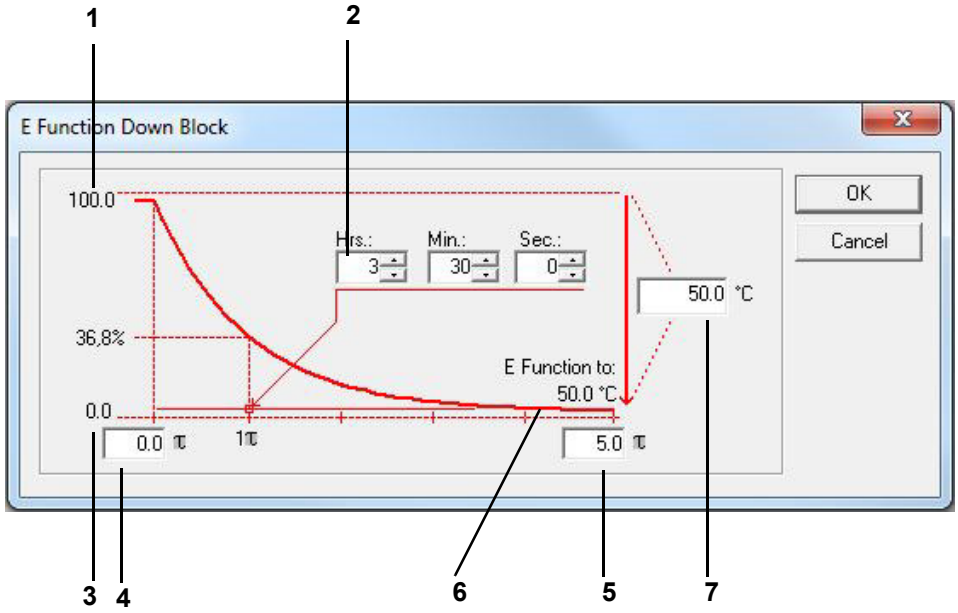


Fig. 11-9 E-function

1 Current value.

2 Time needed for 1 τ

3 Lower limit of the test system.

4 Applicable τ range, 1 τ to 5 τ

5 Applicable τ range, 1 τ to 5 τ

6 E-function final value.

7 Difference between initial and final value.

The example is for a downward E-function slope. If the E-function is rising, the current value is at Item 3 *(page 104)* and the test system upper limit value is at Item 1 *(page 104)*.

Loop

A loop can be used to define an area in the program that is to be run through several times. The area must contain a program module with which a time is explicitly specified. Jumps and ramps are not suitable because they are completed in time »X«. The number of passes can only be entered once the start and end of the loop have been defined.

First paste a program module for the loop start and for the loop end. Then the menu where you can enter the loop repeat factor appears.

Conditional program jump

This function is only available for test systems with Mincon/Simcon control from Flash version 00.17.

Depending on the state of the digital channel, you can use this function to make the program go to another point in the program to continue from there. Like with loops, first select the jump module, and then define two distinct positions:

Module that causes the program to determine the status of the corresponding digital channel.

Module that defines the destination to which the program should jump when the appropriate conditions have been met.

The jump is made if the state of the digital channel is the same as the one defined at this point.

Starting another test program (sub-program)

This function is only available for test systems with Mincon/Simcon control from Flash version 00.17.

With this function, another test program can be started and run as a sub-program whilst the test program is running. As a precondition this test program was first transferred to a program slot in the test system controller.

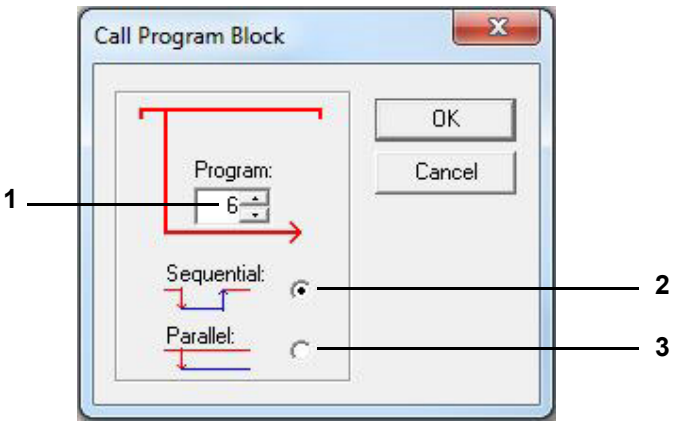


Fig. 11-10 Example: sub-program

1 Number of sub-program.

2 If the sub-program is called in sequence, the current test program is exited, and the sub-program is processed. After this, the test program that made the call continues to be processed.

3 If the sub-program is to run in parallel, it runs at the same time as the main program. Make sure that only those profiles from the sub-program are processed for which the preview is active.

→ *»Preview« (page 100)*

When test programs are to be executed in parallel, take into account that like profiles cannot be processed at the same time.

Program stop of a different test program (sub-program)

This function is only available for test systems with Mincon/Simcon control from Flash version 00.17.

Use it to stop a sub-program running in parallel.

Digital channel ON/OFF

These functions are used to switch a digital channel on or off.

Eraser function

This function enables a program module to be deleted from a profile.

Select the eraser symbol, and double-click on the module that is not required. Answer the security prompt to actually delete the icon. Another method is to use the keyboard or the tasks menu to delete the selected module.

Lockout function

After each programming operation, the program module used is automatically no longer active and the selection module becomes available again. If this needs to be disabled in order to use the active program module several times in succession, select the lockout function. It remains active until you toggle it off again.

»Undo/redo« function (»Undo/redo«)

You can undo/redo at most the last 19 steps.

11.2.6 »File« menu function

Open

Use this item to run a test program created in the symbol editor (*.bxx) or the graphical editor (*.pxx). Select the appropriate file type.

Save/save as

This function is used to save the test program with its own name or with a new test program name. The test program can be saved in the format of the graphical editor (*.pxx) or in the format of the symbolic editor (*.bxx). Set the file type accordingly. Use only letters, numbers and the understroke key for the test program name.

Because the functions of the graphical and the symbolic editor are not exactly the same, you must review and manually modify the test program in the graphical editor. This may lead to some loss in the import file.

Print/page view

Depending on the display, the program list or the preview is printed as it appears in the print preview (»Print Preview«).

Printer setting

Used to set the printer properties. The printer properties can be separately selected and saved for the program list and for the preview.

List/comment

Shows a code list of the test program. Any comment you enter appears at the top of the list. This function does not let you modify the test program.

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11.2.7 »Edit« menu function

Profile selection

Via the menu and the context menu of the start module, you can select the control variables, digital channels or control values for which a profile is to be displayed and processed in the menu window.

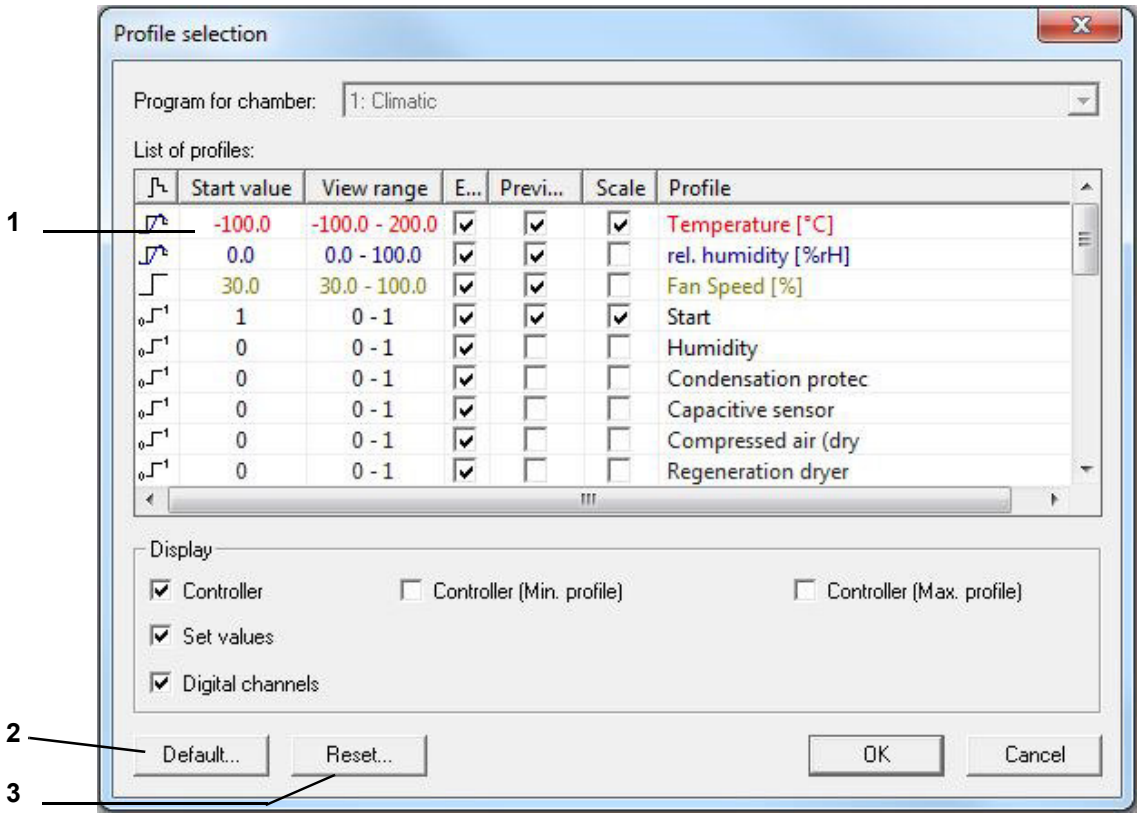


Fig. 11-11 Profile selection

1 Select the profile setting to be changed (double-click). This setting is only valid for this test program.

2 The settings are specified for each new test program.

3 Resets all settings.

Copy profiles

This function is used to save the test program under another file name, for the current test system or another test system. If the test program is to be saved for another test system, define which profile properties of the current test system are to be assigned to the controlled variables, digital channels or actuating values of the destination test system.

- ► To do this, activate the display for all control variables, digital channels and control values for the current test system.
- ► Check the profiles that are to be copied; otherwise, the profile will not be copied.
  The original profile and the corresponding destination profile must be side-by-side in the same row.
- ► Place the mouse pointer in the Destination test system column in the row with the control variables, digital channels or control values that are to be newly assigned. Right-click in this row. You receive the complete selection of all control variables, control values and digital channels for the destination test system.
- ► From this list, select which control variable, digital channel or control value should correspond to the profile in the left of this row.

Wrongly assigned profiles may provoke malfunctions. You may find that customer outputs are used differently or that a test system provides options.

Profiles that are not selected will appear as inactive on the control unit and will not be taken into account by the test system controller.

- ► Make sure that all of the profiles required for operation of the test system are entered correctly.

Inactive values in Simpac controllers:

When changing from climatic to temperature mode the value for the humidity has to be manually set to zero % because otherwise the previous humidity value is retained.

Example:

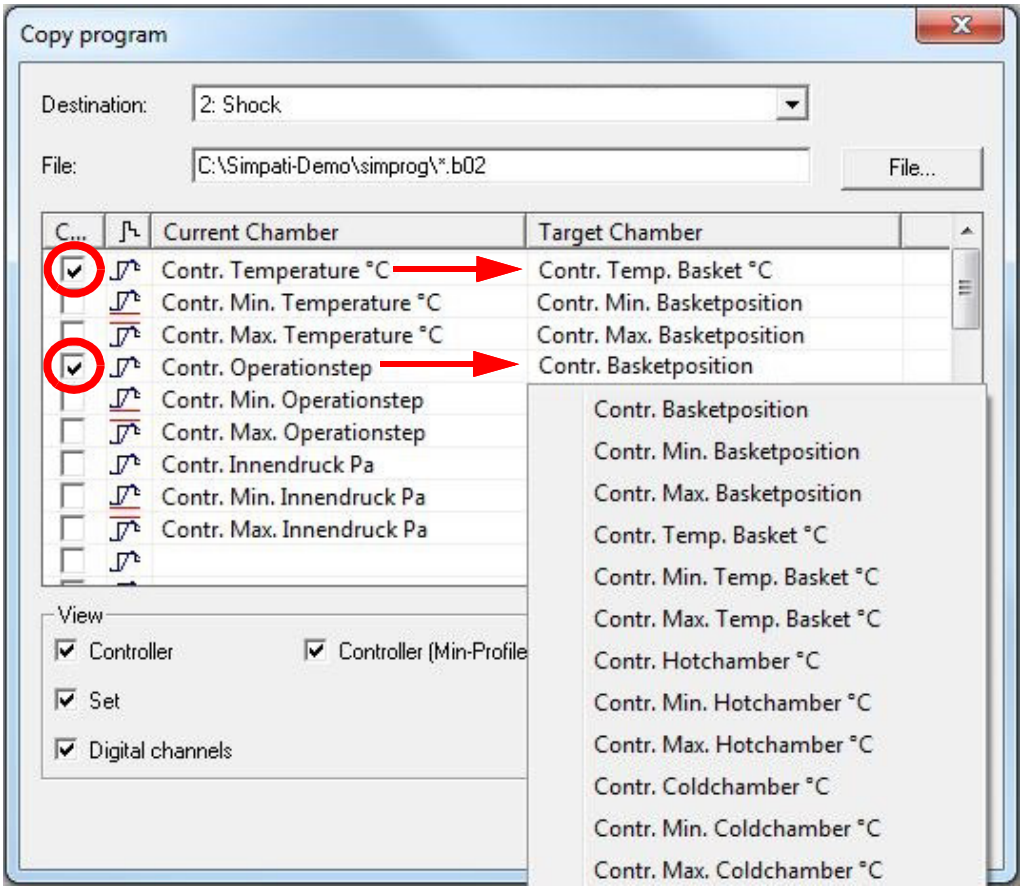


Fig. 11-12 Copy program

The control variable **Contr. Temp. Basket** now accepts all the settings of the control variable **Contr. Temperature**.

The control variable **Contr. Basketposition** is assigned all the settings of the control variable **Contr. Operationstep**.

Apart from the control variables, you can specify profiles for the upper and lower warning limit (min profile and max profile). These profiles are needed whenever the set tolerance is not symmetrical to the nominal value (e.g. during the cooling phase of the IEC 68230).

Copying preview

Copies a bitmap image of the preview to the clipboard.

Synchronising

A loop or jump added to a profile (reference profile) has to be considered in all other profiles. This is best achieved by also adding the loop or jump to the other profiles.

The → *»Synchronising« (page 110)* function adapts all profiles to the loop/jump settings of the reference profile in accordance with the default settings in the **Loops and Jumps** menu if this is not already activated and synchronisation was carried out automatically.

Cut/copy/paste

Program modules can be moved, copies and pasted into any profile. The settings will be copied along with the program module. Settings transferred to another profile may have to be modified (synchronised).

By pressing the Ctrl key you can select multiple modules; alternatively, you can select them with the aid of a rubber band line in order to copy, move or delete them.

11.2.8 »View« menu function

Icon bar	File	Shows/hides the bar with the function icons.
	Program	Shows/hides the bar with the programming icons.
Status bar		Shows/hides the bar underneath the symbol editor. The bar shows details explaining the current function.
	Split Lock	If activated, the function stops you from changing the size of the programming panel or the preview by moving the horizontal scrollbar to the left or right using the mouse or your finger.

11.2.9 »Extras« menu function

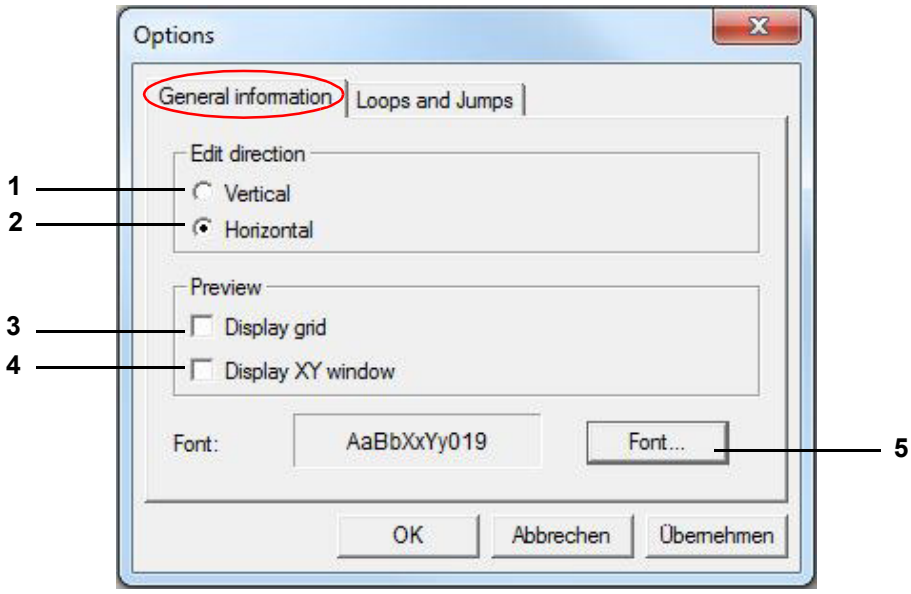


Fig. 11-13 Extras

1 Align display vertically
2 Align display horizontally
3 Show grid lines
4 Show XY display
5 Change font for the profiles, the preview and the program list

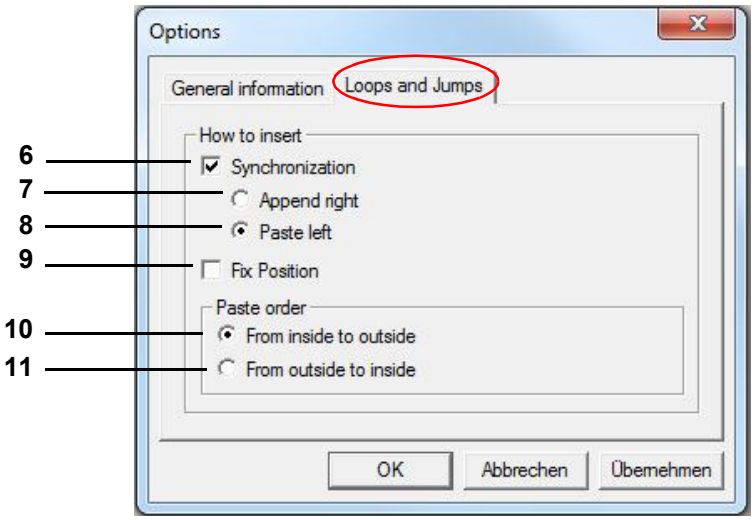


Fig. 11-14 Loops and jumps

6 Synchronising

If the synchronisation function is activated, the remaining profiles are automatically adapted after placing a loop/jump in a profile.

We recommend that the status of the Synchronisation function should not be switched between “active” and “inactive” during programming.

When pasting a loop/jump into the rest of the profiles, all the program modules including time allowances are incorporated. Here you have to define whether the loop start should be pasted to the left or to the right of the program modules without a time allowance.

7 The start/end is pasted to the right of the last program module without a time allowance.

8 The start/end is pasted to the left of the first program module without a time allowance.

Time modules reflecting the progress over time of the reference profile are added to profiles not containing program modules with time settings.

9 The loop/jump is constant in terms of time (i.e. the time of the program section cannot be extended in the loop/jump). Everything that goes beyond the original length is moved outside the loop. If this is not desired, deactivate this function and/or reset the loop.

Pasting order

The paste order of the program modules for the loops/jumps must be observed if several loops/jumps are pasted into a profile; this prevents the start and end of different loops/jumps from overlapping.

10 Program modules for the loops/jumps can only be placed from the inside to the outside; subsequent pasting of a loop/jump into an existing loop/jump is not possible when this function is active.

11 Program modules for the loops/jumps can only be placed from the outside to the inside; subsequent pasting of a loop/jump around an existing loop/jump is not possible when this function is active.

11.2.10 »Program« menu function

Alternative to the icon bar for selecting program modules.

11.3 Create test program with graphical editor

You can access the menu via the context menu of the test system and the **Program-Editor > graphical** entry.

The graphical editor is not available for all test systems. If the graphical editor is not available for a test system, the **Program-Editor > graphical** entry is not displayed.

The pharma variant does not include this editor.

Further information on installation for operation in pharmaceutical environments → *1.5 »Additional documents«* (page 11).

The graphical editor shows a graphical image of the test program you are creating or modifying.

A: “File” menu function

B: “Edit” menu function

C: “View” menu function.

C: “Options” menu function

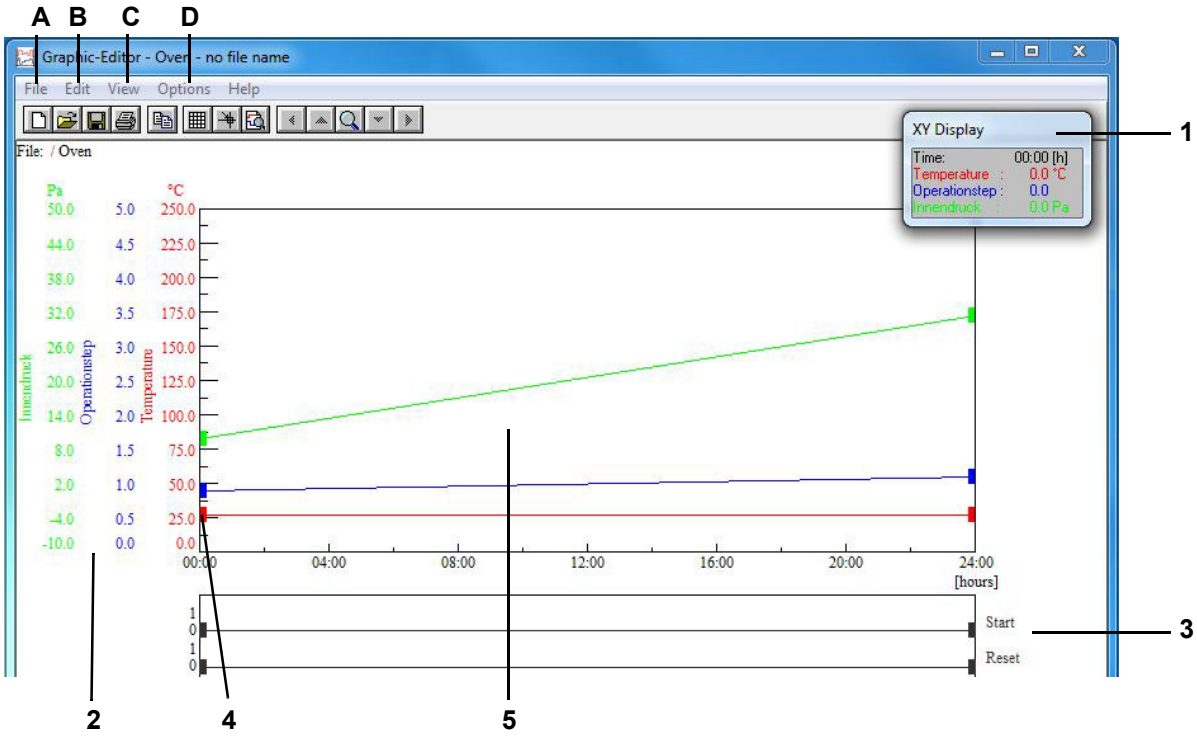


Fig. 11-15 Program preview

1 Movable XY display

2 Scale for control variables

3 Scale for digital channels

4 Profile data points

5 Working panel

Double-click on the graph to set or remove profile data points. To move a profile data point, click on it, and drag it to another place.

The “Start” digital channel must always be set for a test program to start.

11.3.1 »File« menu item

New

This function is used to create a new test program.

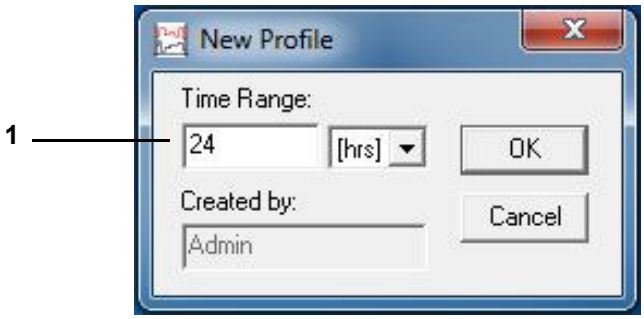


Fig. 11-16 New profile

1 Enter the test program duration; this can be changed.

Open

A menu window for opening a test program appears.

If you open a test program that was imported from the symbolic editor, you must check the profile history in the graphical editor. The functions of the graphical and symbolic editors do not entirely coincide; the import may be lossy as a result.

Save

File name

→ Appendix: »Glossary and tips« (page 220), → »Test program name / Program number« (page 221)

Save As

Use this function to copy a test program and save it under a different name.

Delete

Used to delete test programs.

Copy program

Used to copy the current test program to another test system . The test program you copy will be given another name. You cannot copy profiles to existing test programs.

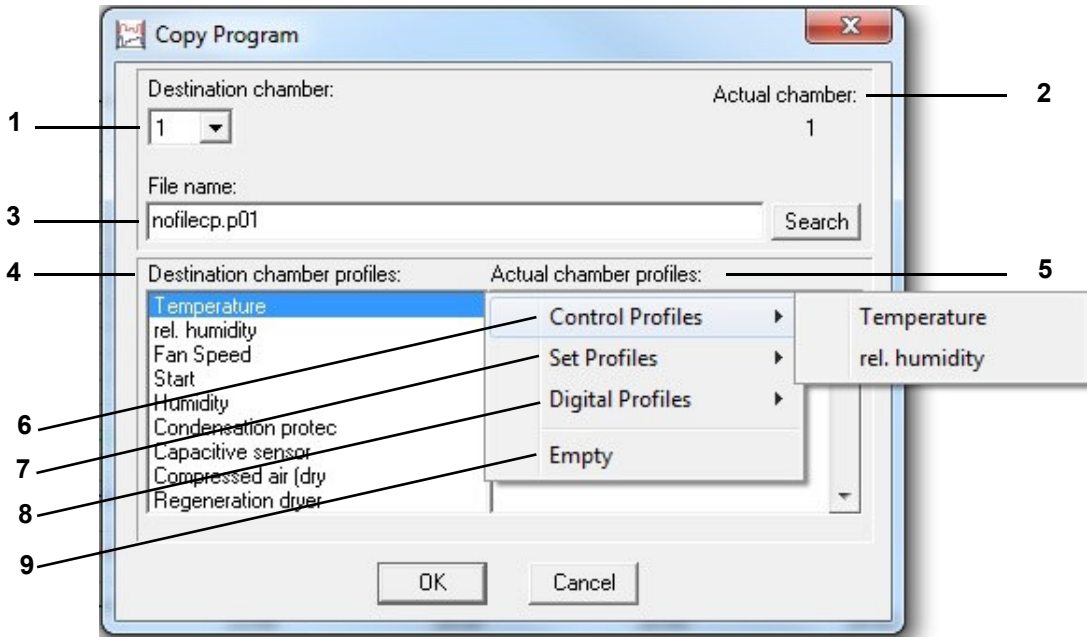


Fig. 11-17 Copying test programs

1 available test systems, select number of the target test system

2 Number of the current test system whose test program is to be copied

3 Upon selecting the destination test systemthe directory for storage is specified automatically. The file name is the same as for thecurrent test system with **cp** (copy) appended. The extension is the number of the destination test system.

4 Channels available in the destination test system (Item 1). These channels need to be assigned to the profiles.

5 Profiles of the current test system (Item 2)

6 Control variables of the current test system

7 Control value of the current test system

8 Digital channels of the current test system

9 Empty item

Profile assignment:

- Select the channel of the destination test system.
- Double-click on the black bar in the list box Item 5.
- Select the profile with a single click.

If the range of a control variable of the current test system is larger than that of the destination test system, this profile is automatically adapted to the limits of the destination test system.

11.3.2 »Edit« menu function

Copy

Use this function to copy a bitmap image of the current view to the clipboard and makes it available for further handling in another application.

11.3.3 »View« menu function

Grid

Used to show grid lines on the working panel.

Show XY values

The XY values are the coordinates of the mouse pointer on the working panel.

Data point calculation

Moving the mouse pointer to a profile data point and left-clicking on it shows the speed of change per minute and the time between this, the previous and the next profile data point.

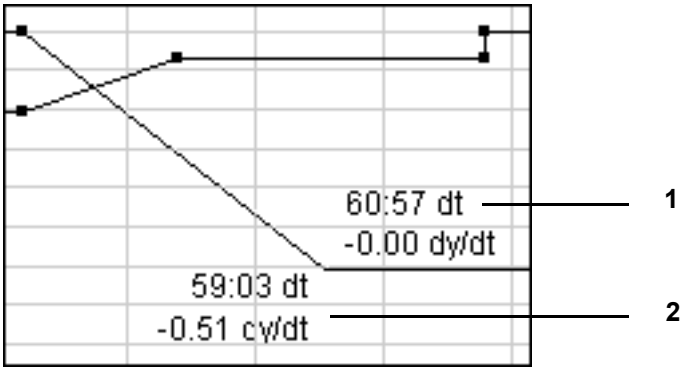


Fig. 11-18 Data point calculation

1 Time and rate of temperature change (per minute) with reference to the next profile data point

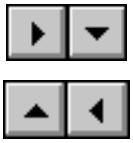
2 Time and rate of temperature change (per minute) with reference to the previous profile data point

Cross-hairs

Displays cross-hairs. When the function → *»Data point calculation« (page 116)* is active, the cross-hair display can be disabled by pressing the left mouse button.

Enlarge XY

Used to select and zoom into an X/Y section. To define the section to be zoomed, single-click at the beginning, move the cross-hairs and single-click again at the end.



Move zoomed section

Used to move the zoomed-in section.

Show all

Displays the entire test program.

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Time range

This function lets you change the length at the beginning and end of the test program.

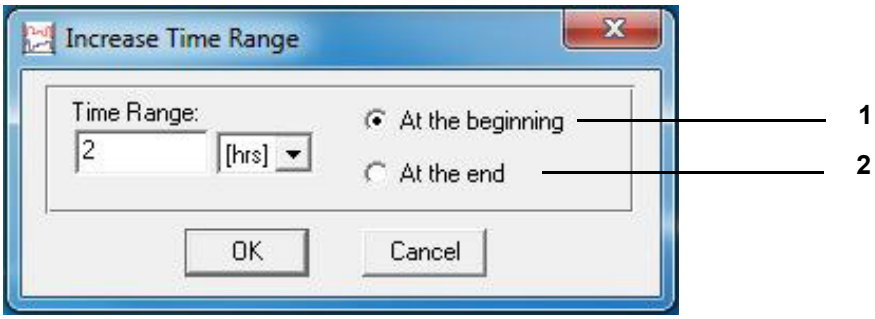


Fig. 11-19 Enlarging time range

1 Lengthens or shortens the beginning of the test program.

2 Lengthens or shortens the end of the test program.

Pasting/deleting time segments within the test profile: context menu command »Revise time«.

Preview

The graph reflects the actual course of the test.

List

Displays the test program as a code list. The program list can be edited via the context menu but you cannot modify the actual test program.

Redraw

Used to refresh the screen. Discrepancies in the hardware and drivers may lead to pixel noise in any drawing program, which can be removed by refreshing the display.

If many useless pixels are generated, the acceleration options of the graphics card should be switched off by the driver software.

11.3.4 »Options« menu function

Snap function

This function is used to specify a grid so that the profile data points can be located in the snapped positions only.

Entering coordinates without a grid → context menu command → *»Value« (page 122)*.

Profiles

Analogue channels (control variables)

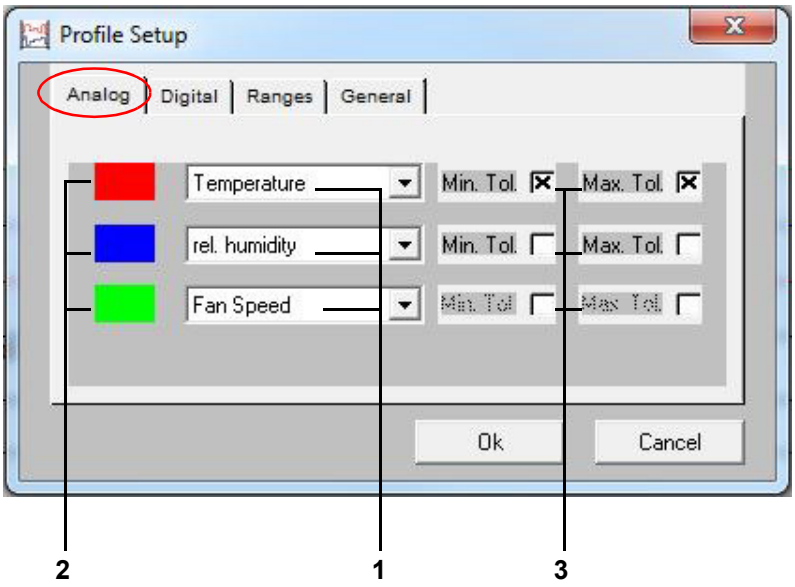


Fig. 11-20 Analogue channels

1 Select the analogue channels that are to be displayed (control variables)

2 Colour allocation for the analogue channel activated (control variable)

3 Select the tolerance band display.

You can select and display up to three analogue profiles. A twin display is not supported. Analogue profiles not picked for display are retained. Single-click on the coloured box to allocate the colour to the analogue channel.

Entering tolerance ranges → context menu command → *»Tolerance« (page 123)*.

Digital channels

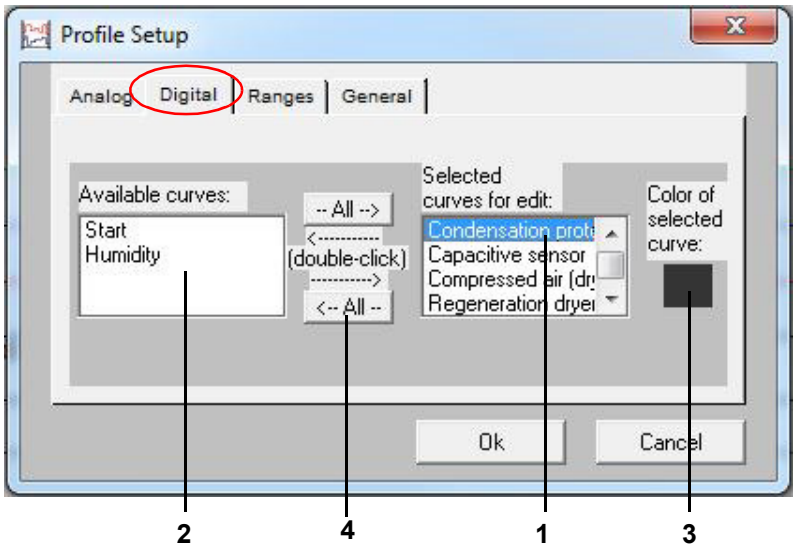


Fig. 11-21 Digital channels

1 Select digital channels to be displayed.

2 Box listing the available digital channels.

3 Colour allocated to the selected digital channel.

4 Move all digital channels.

The digital channel display can be activated by double-clicking on the corresponding digital channel in the list box (Item 2). The digital channel appears in the list box (Item 1).

Single-click on the coloured box to allocate the colour to the digital channel.

The “Start” digital channel must always be displayed so that it can be set in the test program. The “Start” digital channel must be set in the test program for a test program to start.

Working panel

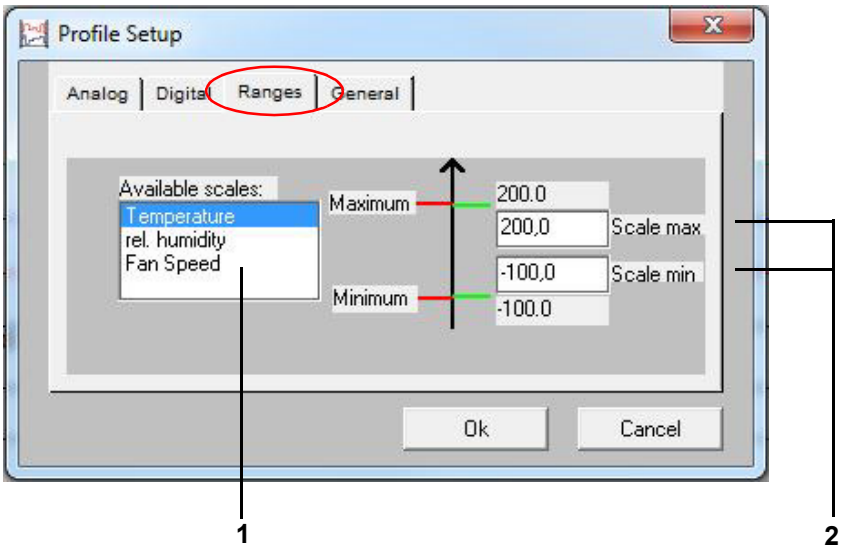


Fig. 11-22 Working panel

1 From this box, pick the analogue channels (control variables) to be shown as scales.

2 Specify the scale range displayed for analogue channels (control variables).

Used to set the scale size. Depending on the range setting, existing graphs may be outside the working range specified and therefore cannot be viewed.

Test systems with a Mincon, Simcon, Simpac, MOPS, CTC or TC controller will import these scale limits for use as alarm limits by the controller when the program starts. You can stop this by changing the start file (..\simpati\system\SIMPATI.str) as follows:

- Include an additional parameter (\NOALARMLIMIT) after the entry for the driver.

  Old entry: 20:01: simmops::
  New entry: 20:01 : simmops:\NOALARMLIMIT:

General profile settings

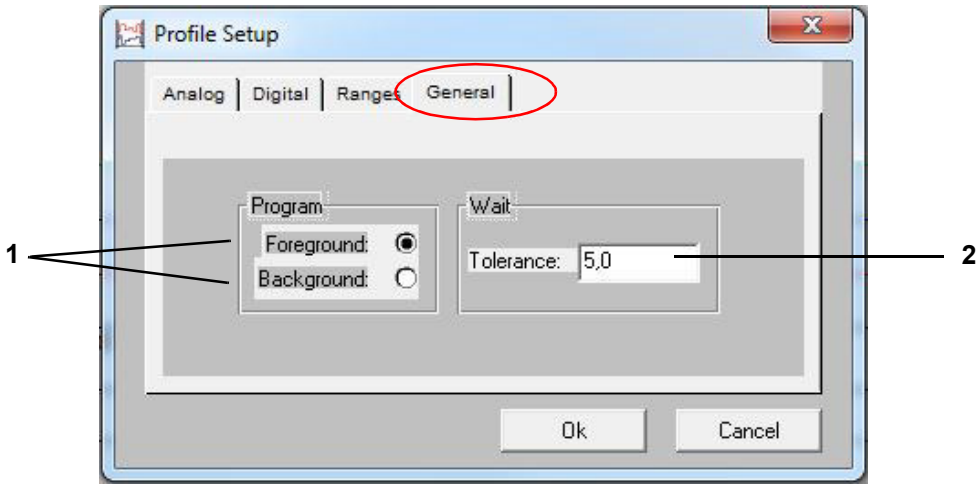


Fig. 11-23 Profile setting

1 Foreground/background program.

→ Context menu commands: **Wait** → *»Wait«* (page 126), **CallProgramm** → *»Call Program«* (page 127)

2 Wait function.

The wait function disallows the test program (and, thus, its time) to progress until the difference between the nominal and actual value equals the value entered in this box. This value applies to all wait functions of this test program. Enter an absolute value.

Grabber settings

Use this dialogue to modify the size of the profile data points irrespective of their grabbable range.

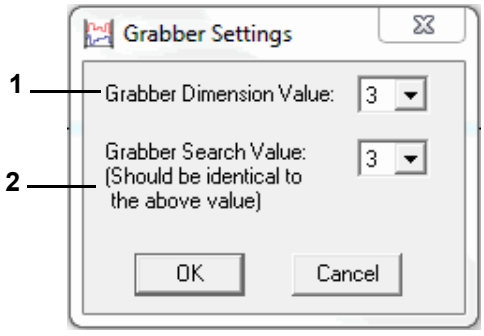


Fig. 11-24 Grabber setting

1 Changes the visible size of the profile data points.

2 Changes the area around a profile data point that the mouse pointer is able to grab (should be the same as the value above).

File comment

Dialogue for entering a comment on the test program. The comment will be saved with the test program. Line break: Ctrl + enter

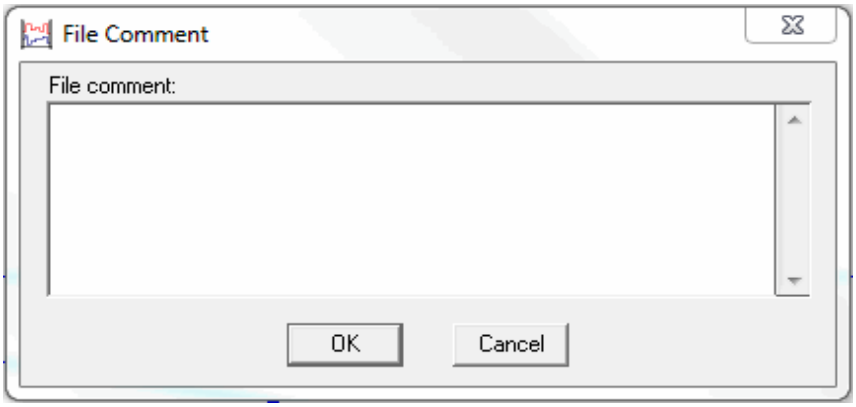


Fig. 11-25 Comment

Comments concerning each profile data point→ Context menu command: **Comment** → *»Comment«* (page 124).

Font

The font can be changed for the graphical editor window only.

The font size will scale up and down with the window size.

No other formatting options are available.

A changed font will not be stored with the measurement file. Changing a font makes it the graphical editor font until it is changed again.

Context menu items

Value

Use this item to immediately enter the coordinates of a profile data point.

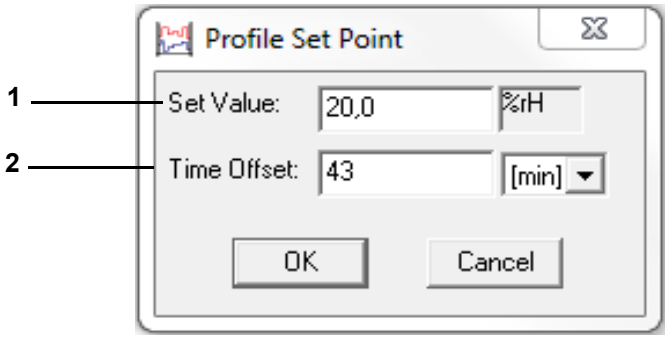


Fig. 11-26 Nominal value

1 Position of the profile data point on the scale of the analogue channels (control variables).

2 Difference in time to the previous profile data point.

Tolerance

Enter tolerance band boundaries

The tolerance bands display must be activated → *»Analogue channels (control variables)« (page 118)*.

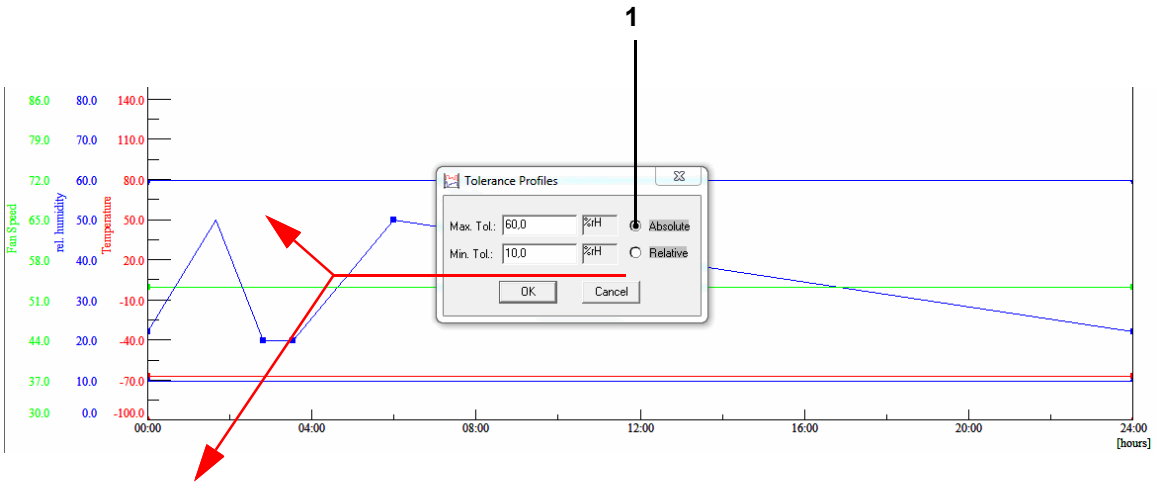


Fig. 11-27 Absolute tolerance band

The tolerance band remains steady at the nominal value specified. This function is only active with a DMR-, Mincon, Simcon or Simpac control system. The tolerance band is within the specified distance from the nominal value. Do not enter the minus sign until you have entered the numeral.

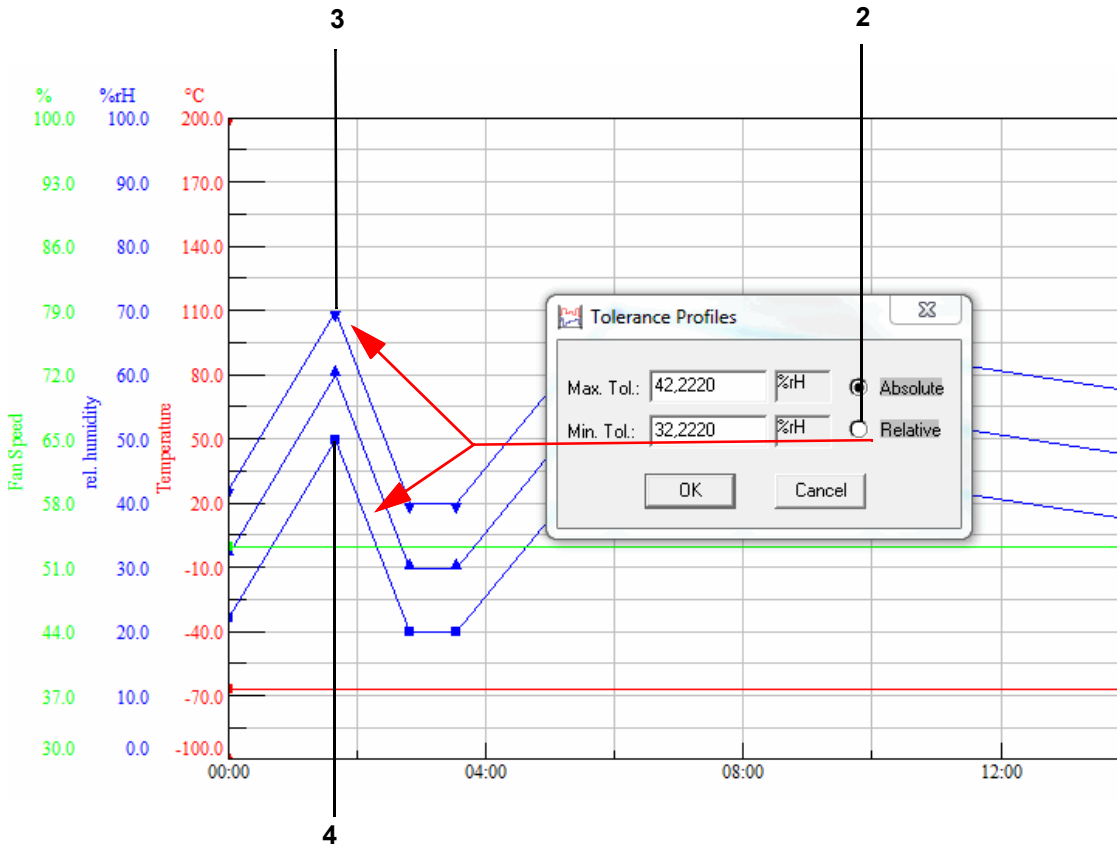
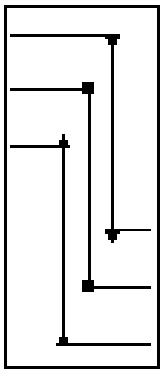


Fig. 11-28 Relative tolerance band

The upper (Item 3) and lower (Item 4) tolerance bands have to be distinguished by way of variable profile data points.

A set distance is given for a jump; otherwise, lines may cross over and give rise to a controller error message. You will therefore have to manually adapt the tolerance band of jumps.



Comment

You may add a comment to every profile data point.

Loop

A loop can be used to define an area in the program that is to be run through several times. The number of passes (loop count value) can only be entered once the start and end of the loop have been defined.

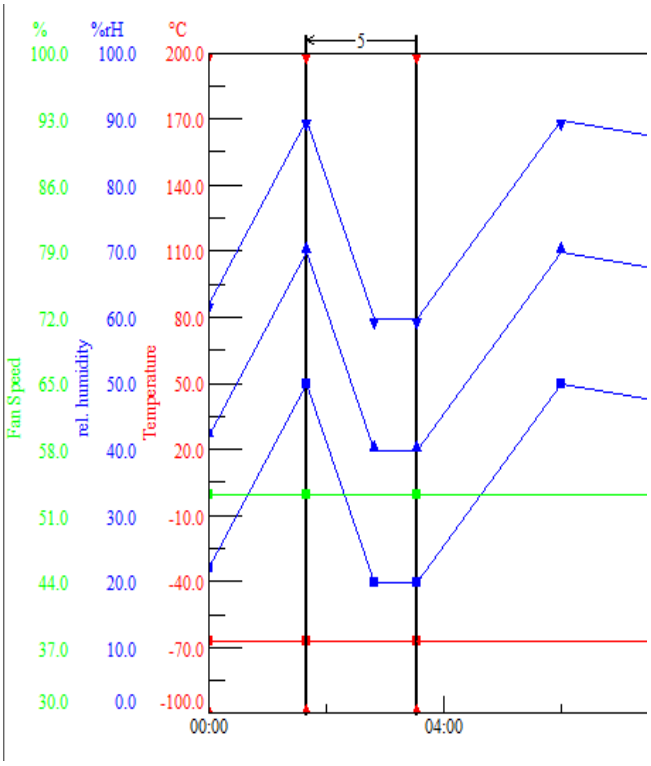


Fig. 11-29 Loops

Mind that the beginning of a loop must always be to the right of its end.

Delete loop:

- Double-click on the beginning or end of the loop.
- Move beginning or end of loop

If you want to import the test program to the symbolic editor, please take the following into account when you program a loop so that the test program converts properly:

- Enter a short dwell time (1 - 60 sec. depending on the test program) between the loop end of the first loop and the loop start of the second loop.

  Otherwise the loop start of the second loop might be shifted in front of the loop end of the first loop.

Jump

Jumps to the specified target profile data point if the condition of this dialogue is met.

The second profile data point is set by left-clicking on it.

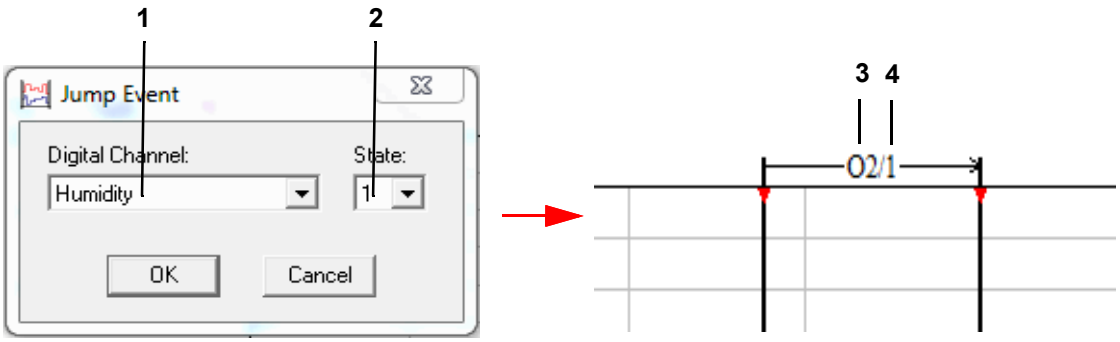


Fig. 11-30 Jump

1 Box listing all digital channels.

2 Status of the channel selected, 0: channel inactive, 1: channel active.

3 Channel number (Item 1).

4 Status (Item 2).

Delete jump – double-click on the profile data point.

Wait

If activated, this function will not allow the test program to continue until the actual value is within the specified tolerance limits. The tolerance is set once for every test program.

→ *»Tolerance« (page 123)*.

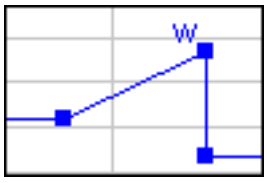


Fig. 11-31 Active Wait function

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Call Program

Another test program (foreground or background program) is to start at this point.

Define a test program as a foreground/background program.

→ *»General profile settings« (page 121)*

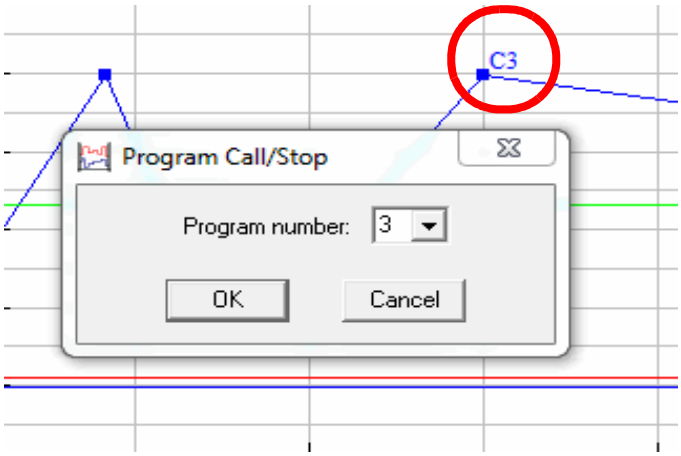


Fig. 11-32 Profile data points

The profile data point is indicated by »C« and the test program number. To disable this function click on its item again on the context menu.

Stop program

A test program is to be stopped at this point. The profile data point is indicated by »S« and the test program number. To disable this function click on its item again on the context menu.

Edit time

This function is used to extend (Item 1) or shorten (Item 2) the length of the test program.

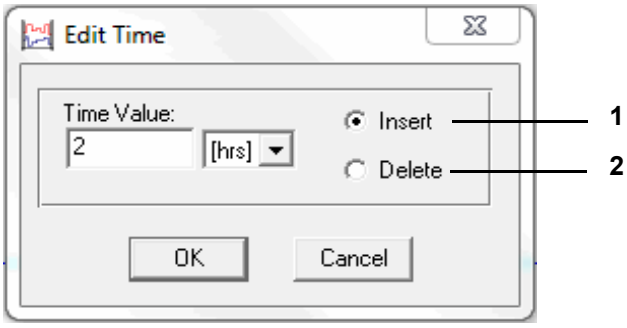


Fig. 11-33 Edit time

The value entered applies to the right side of the profile data point selected.

11.4 Create test program with tabular editor

You can access the menu via the context menu of the test system and the **Program-Editor > tabular** entry.

The tabular editor is immediately usable for test systems with Simpac control system from software version 2.6. Test programs are converted to symbolic editor format prior to processing. As a result, virtually any test system can be operated using this format.

If you want to use the tabular editor for test systems involving other controllers, then specific configurations need to be made for this purpose.

► Contact our service center.

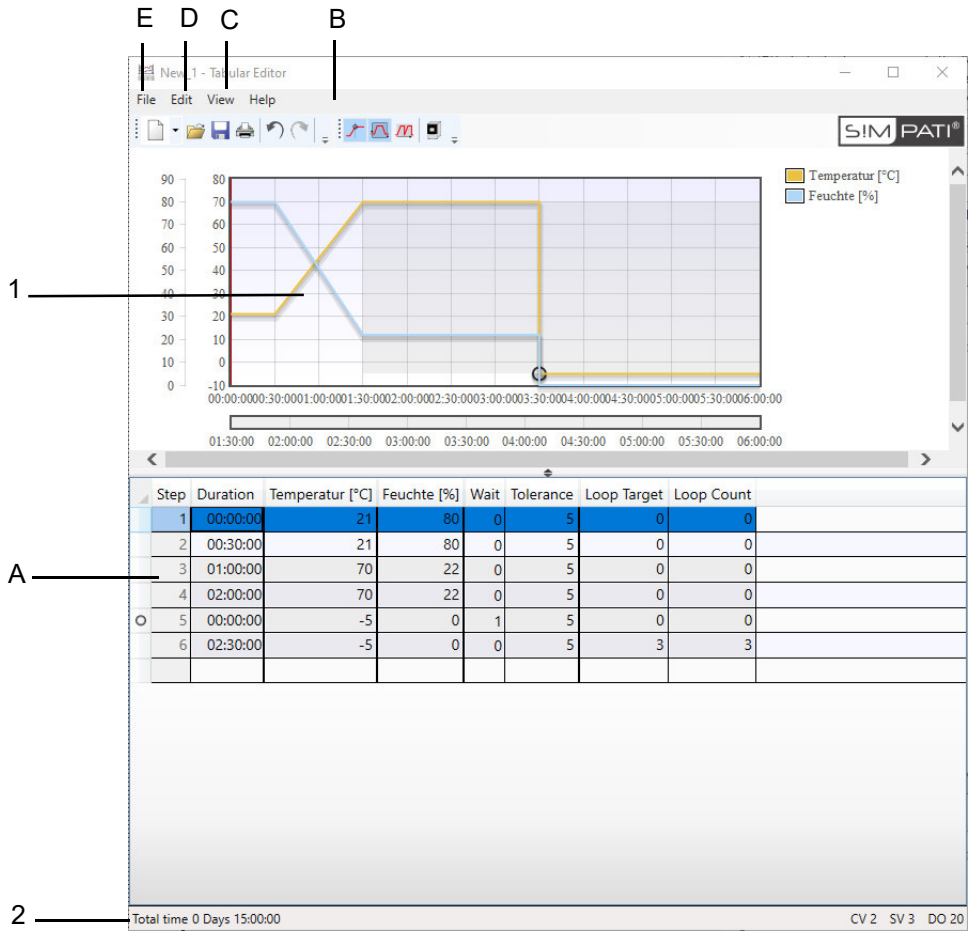


Fig. 11-34 Overview

1 Preview

2 Status bar

A: Test program table

B: Function extension

C: “View” menu function.

D: “Edit” menu function.

E: “File” menu function.

11.4.1 Test program table

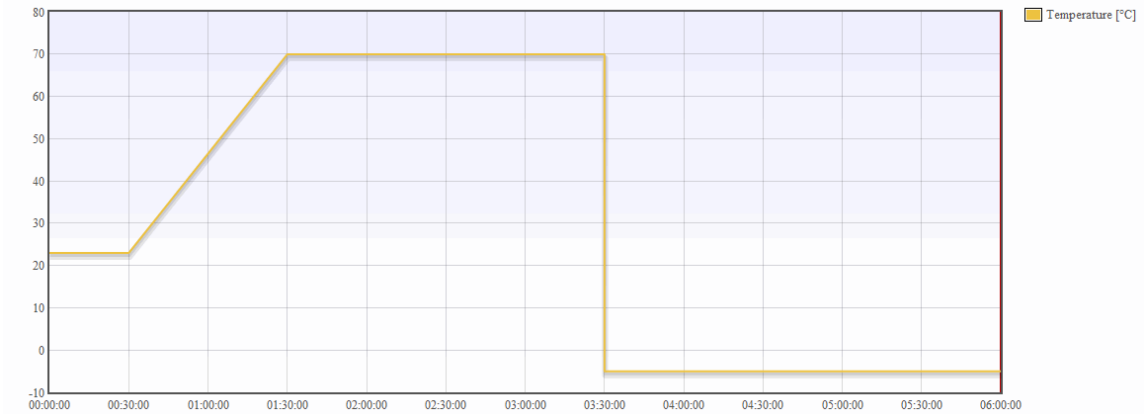
The test program consists of a table. Here each row is a test program segment and each column represents a process variable. To program, values for the particular process variable have to be entered in the table.

Setting the duration, a Wait function or a loop function in the first segment is not allowed. This can be done in the proximate segments.
→ *»Function extensions« (page 130)*

The duration of a segment is expressed in hours, minutes, seconds format separated by a colon (hh:mm:ss). When entering the duration this format does not have to be strictly adhered to.

- If just one colon is entered, hours and minutes are assumed as the input (hh:mm).
- If no colon is entered, then the input is expressed as minutes.

Example



Step	Duration	Temperature [°C]
1	00:00:00	23
2	00:30:00	23
3	01:00:00	70
4	02:00:00	70
5	00:00:00	-5
6	02:30:00	-5

Fig. 11-35 Sample program

Appending a new segment

To append a new segment, a value has to be entered in the blank row at the end of the table.

Attaching a new segment

To attach a new row, menu item Attach has to be selected via the context menu in the table. A new segment is thereupon added in front of the segment currently selected.

Copy segment(s)

Segments selected can be copied via the menu item of the context menu of the table or via the keyboard short-cut →»Ctrl+C«.

Paste segment(s)

Segments copied can be pasted via the menu item of the context menu of the table or via the keyboard short-cut →»Ctrl+V«.

► Open the context menu of the table with a right-click on the table.

Function extensions

Wait function

The Wait function causes the program runtime to be paused until the actual value is located within the tolerance defined. Two columns are displayed by activating the button.

The »Wait« column indicates which control variable is to be expected in the segment. The control variable index has to be referenced here.

The »Tolerance« column indicates how big the maximum deviation may be in order for the program runtime to be able to continue. The tolerance value in the control variable unit has to be checked here.

Wait functions are displayed by a circle in the preview dealing with their control variables set, provided the control variable and waits are viewable. If a wait function is set in the segment, a circle is always displayed to the left of the row in the table

Loop functions

The loop function is used to repeat a section of the test program several times. Two columns are displayed by activating the button.

The »Loop target« indicates the segment number from which the loop begins. This means the end of the loop is the segment in which the loop target is indicated. The loop target must be at least smaller by two than the segment number in which the loop is specified.

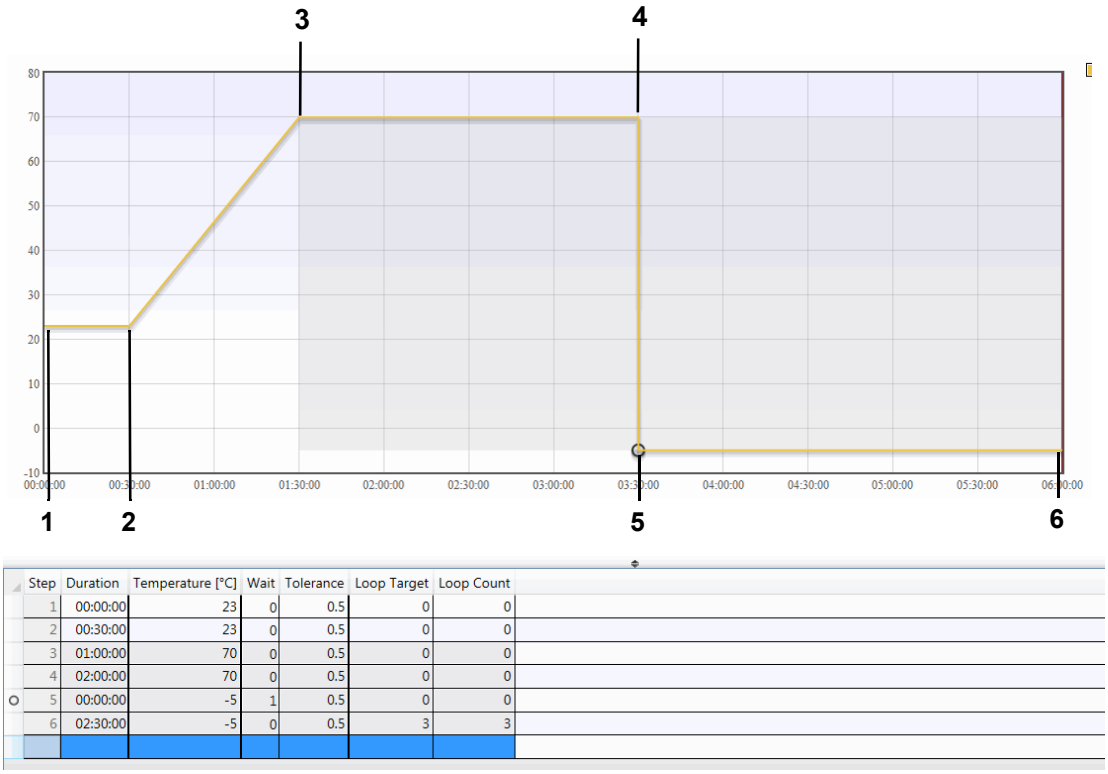
The »Loop number« column indicates how often the section defined in the test program is repeated.

The loop functions areas is displayed in the preview as a shaded rectangle provided that loops are viewable. The rows in the table whose segments are associated with loop functions are always coloured. In case of nested loops, the inner loops are coloured darker than the outer ones.

Extended preview

By activating the extended preview, any loop programmed is expanded in the preview. As a result, the test program can be viewed in the overall duration.

Example:



Step	Duration	Temperature [°C]	Wait	Tolerance	Loop Target	Loop Count
1	00:00:00	23	0	0.5	0	0
2	00:30:00	23	0	0.5	0	0
3	01:00:00	70	0	0.5	0	0
4	02:00:00	70	0	0.5	0	0
5	00:00:00	-5	1	0.5	0	0
6	02:30:00	-5	0	0.5	3	3

Fig. 11-36 Sample extended view

1 Start value for the program sequence.

2 No change in temperature, a constant temperature is used for the specified time.

3 Change in temperature with concurrent input of a duration. Ramp travel from the previous to the newly set temperature within the time set under Duration.

4 See point 2.

5 Change in temperature with a duration of 0 and activation of a wait function. Jump from the previously set temperature to the newly set temperature. Thanks to the wait function, the continuation of the program run is stopped until the actual value of the test system has reached the new nominal value less the tolerance set.

6 Once the constant has been started, the program sequence returns via the input of a loop number and a loop target to the program point entered. This is repeated as often as it has been input under loop number.

11.4.2 »View« menu function

Preview

Showing/hiding the preview: all process data of the current test program shown for programming is displayed here.

Column selection

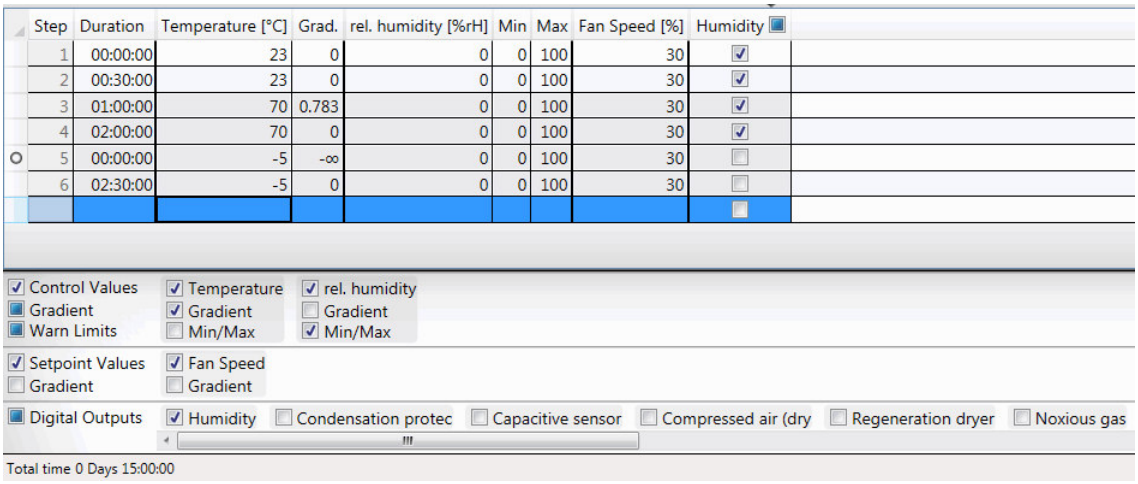


Fig. 11-37 Column selection

Showing/hiding the column selection. Here, process data in columnar form can be shown and hidden. In the case of control variables, the gradient and the warning limits can be shown and edited in addition to each control variable. The gradient is also available for any control value.

Status bar

Showing/hiding the status bar. The status bar indicates the total duration and displays a profile overview of the test program. The profile overview indicates the number of control variables, control values and digital outputs in short form.

11.4.3 »Edit« menu function

Undo/redo

Changes in the test program can be undone and redone too. This does not include changes in the configuration.

All undo and redo steps are inoperative in respect of changes in the configuration.

Cut/copy/paste

Segments can be cut, copied and pasted into any other tabular test program.

Program configuration

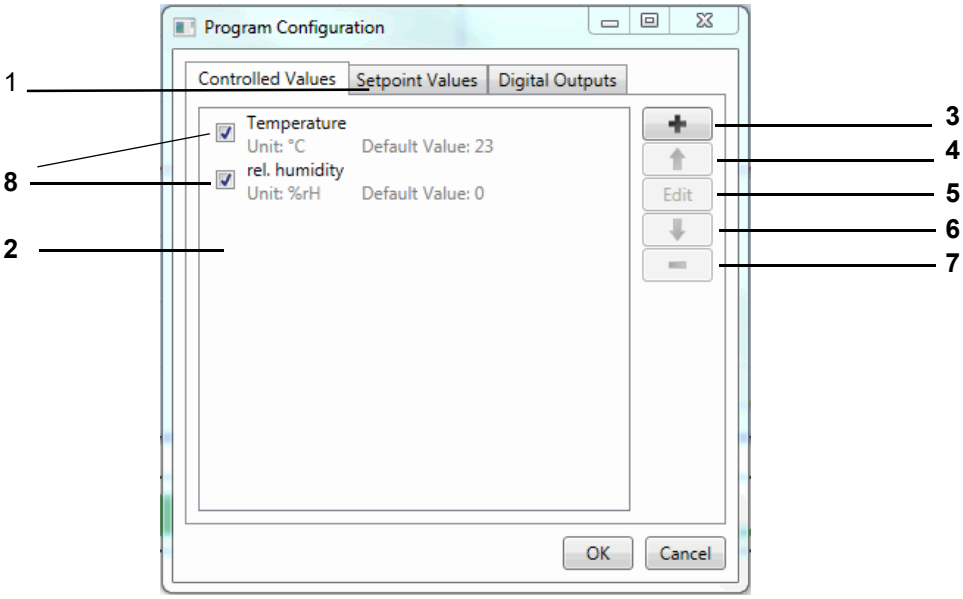


Fig. 11-38 Program configuration

1 Process data selection.

2 Process data list.

3 Add process variable (available for service personnel only).

4 Move process variable up.

5 Edit process variable.

6 Move process variable down.

7 Remove process variable.

8 Activate/deactivate process variable.

Only activated process variables are transferred on converting to the symbolic program format; all other process variables are constrained to standard values or the last value set (can be decided on export).

Settings

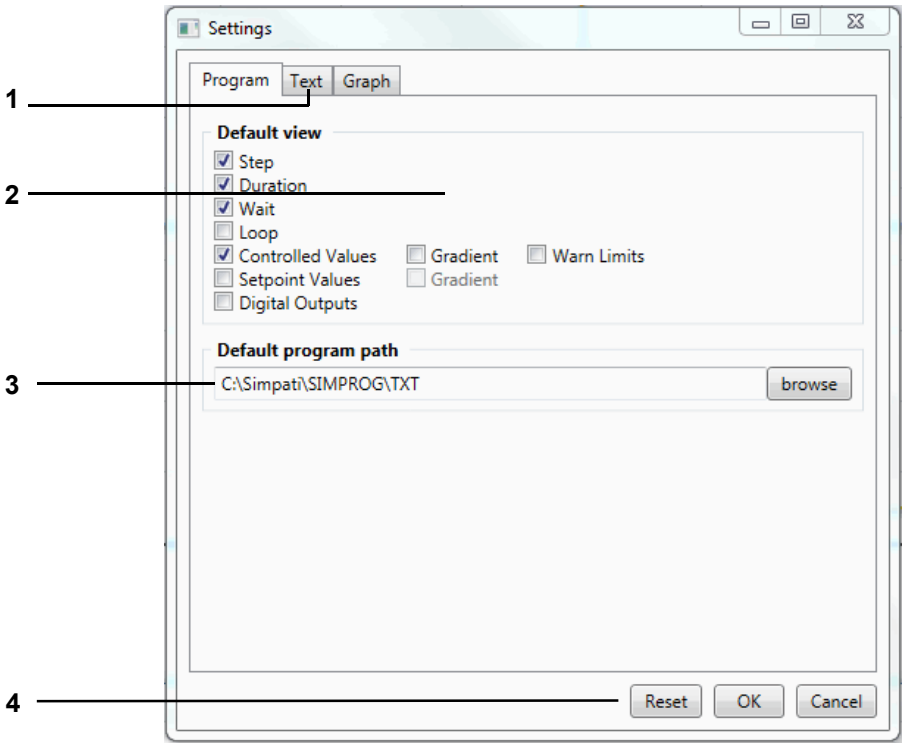


Fig. 11-39 Program settings

1 Select context of setting.

2 Default view of new and open test programs.

3 Suggested default path for saving.

4 Reset all settings.

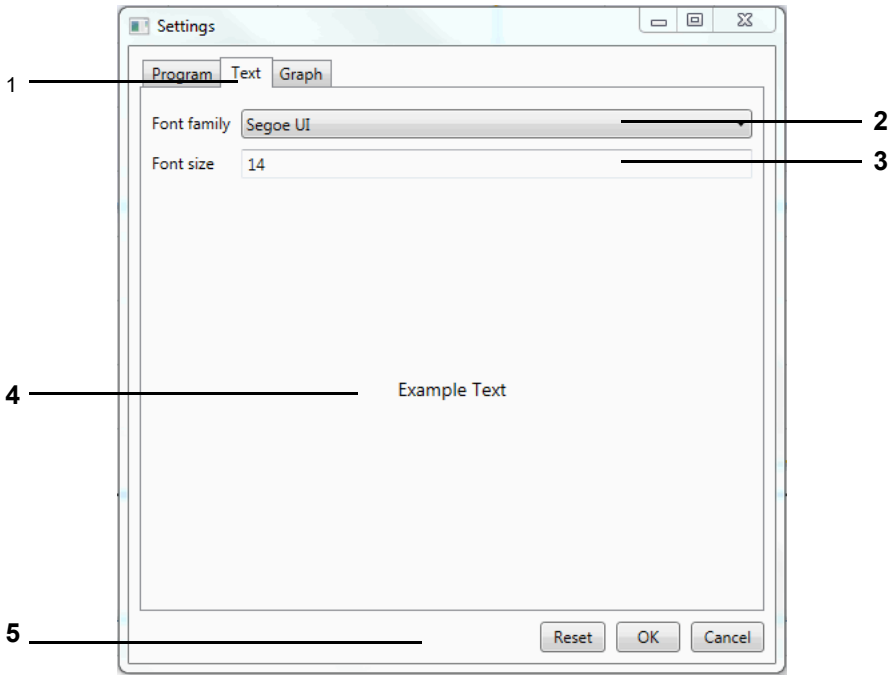


Fig. 11-40 Settings Text

1 Select context of setting.
2 Select an editor font.
3 Select an editor font size.
4 Preview of text settings.
5 Reset all settings.

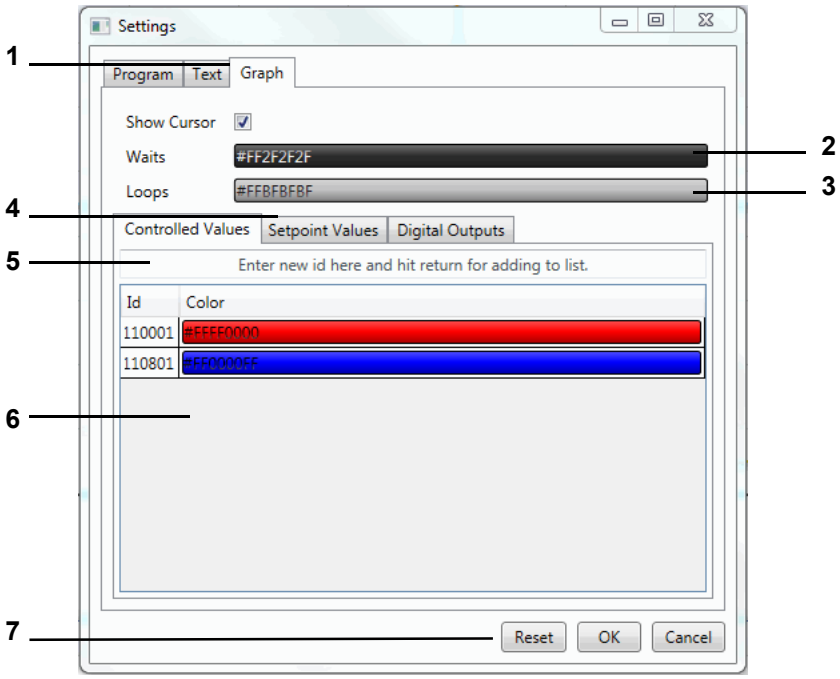


Fig. 11-41 Settings Graph

1 Select context of setting.
2 Colour of waits in the test program (set by clicking).
3 Default colour of loops in the test program (set by clicking).
4 Process data selection.
5 Selects a distinct process variable assignment for the colour assignment list.
6 Colour assignment list (set colours by double-clicking).
7 Reset all settings.

11.4.4 »File« menu function

New

On the basis of a selected chamber

A new test program is created on the basis of the chamber for which the tabular editor was opened.

On the basis of another chamber

A new test program is created on the basis of a chamber that was selected from a selection list.

On the basis of a profile

A new test program is created on the basis of a profile (of a program configuration) that was read from a file.

On the basis of a user-defined chamber

A new test program is created on the basis of a program configuration that was defined by a user.
→ See program configuration → *11.2.7 »»Edit« menu function«* (page 108)

Open

A test program created with the tabular editor or a converted test program can be opened here.

Save/save as

These functions are used to save the test program with its own name or with a new test program name.

Use only letters, numbers and the understroke key for the test program name.

If Simpati is used for Simpati serviceinstallation (Windows Service), the error message “File path cannot be reached” appears on opening or saving a file because Windows attempts by default to navigate to the desktop of the user logged in whilst the navigation pane in the folder view is activated.

► To prevent this, remove the check in the Windows Explorer folder view under Organise --> Layout --> Navigation pane.

Export

Template

The profile (the program configuration) of the test program is saved in a file that can be used as a template for other programs.

Symbolic program

The test program for the destination test system selected is converted to the symbolic program format with the assist of a selection menu.

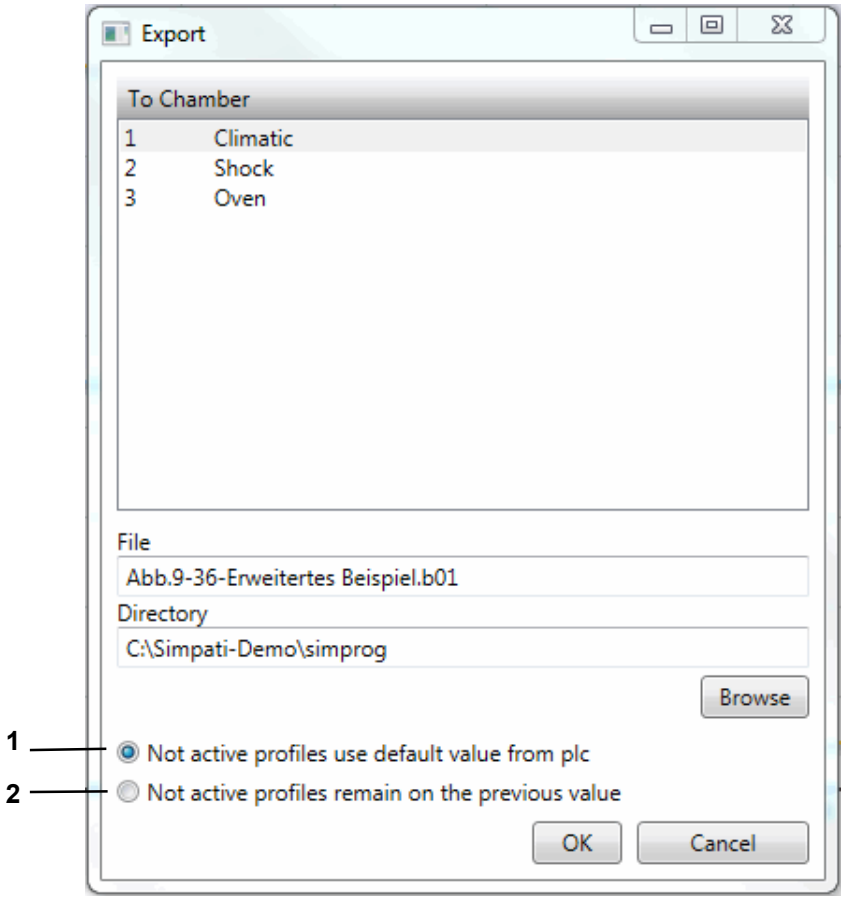


Fig. 11-42 Test program – export

1 Inactive profiles are switched to their standard values and displayed in the symbolic editor.

2 Inactive profiles are switched to the previous value set and not displayed in the symbolic editor.

For digital channels, the specification in the test system controller is authoritative. This may deviate from the specification made here.

Print

The full test program is printed from the preview, provided displayed, in list form.

11.5 Create test program for damper shock test chamber

You can access the menu via the context menu of the test system and the **Program-Editor > ShockEvent D** entry. For damper shock test chambers there is a separate program editor. The program editor of the Webseason software opens.

11.6 Creating test programs for a shock test chamber

You can access the menu via the context menu of the test system and the **Program-Editor > ShockTest** entry.

11.6.1 Test program creation for shock cabinet with DMR control system

You can run the text editor for writing test programs for shock chambers with a DMR controller only if a DMR control system is actually attached.

The test program is stored in two formats: as a *.pxx (file for the graphical editor) and as a *.cfg file (for the shock chamber editor). It is possible to display a program file created using the shock chamber editor in the graphical editor and further edit it.

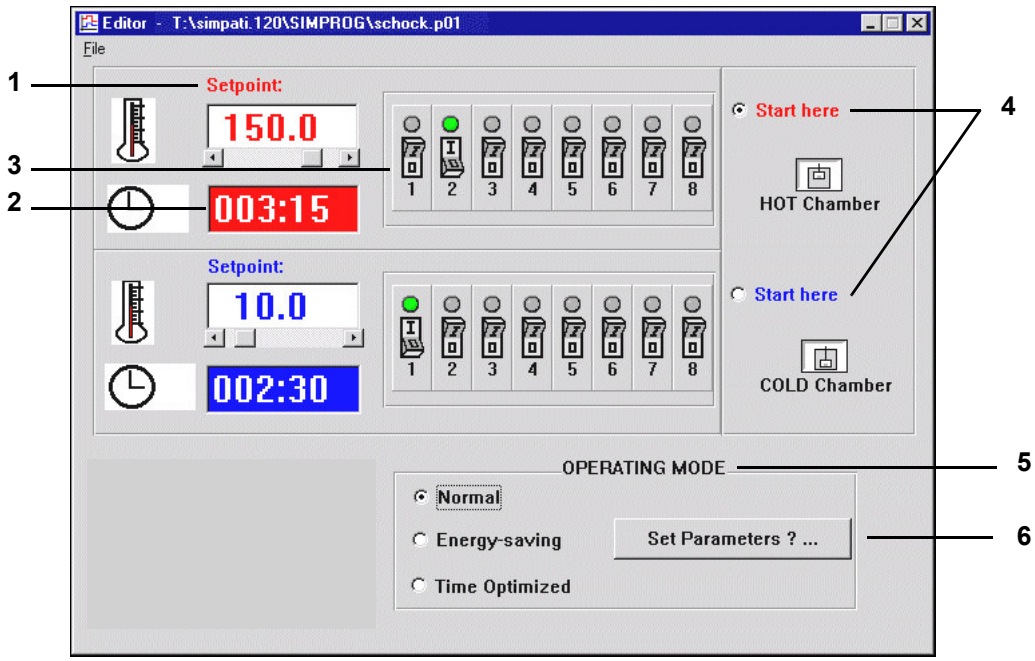


Fig. 11-43 Editor

1 The nominal values for the hot/cold chamber can be set directly via the keyboard or the scroll bar. If a value that exceeds the range limits is entered, it is automatically reset to the upper or lower limit.

2 The time the basket will stay in the hot or cold chamber is set using the keyboard and the following format: XXX:YY; X = hours, Y = minutes). Only hours (up to 999) and minutes (up

to 59) are allowed. A minute value ≤ 60 will be reset to 59 minutes on saving (i.e. invalid values are not saved).

3 In addition to the chamber temperature and the chamber dwell time, up to eight customer outputs can be programmed. The status of the channels can be changed by simply clicking on the eight switch symbols for the hot/cold chamber.

4 Another click lets you decide whether to start the program in the hot or cold chamber.

5 You can choose from various operating modes. The following differences exist between the operating modes:

Normal

Nominal temperatures are set and controlled in normal mode.
To achieve a quicker temperature change in the test specimen when changing chambers, the chamber in which the lifting basket is not present can be pre-heated/-cooled to a higher or lower nominal value (inactive nominal value). Once the basket has moved into the pre-heated or cooled chamber, the active nominal value is reset.

Use the dialogue below to modify the inactive nominal value (default: ±5°C) by selecting the text box and entering the value.

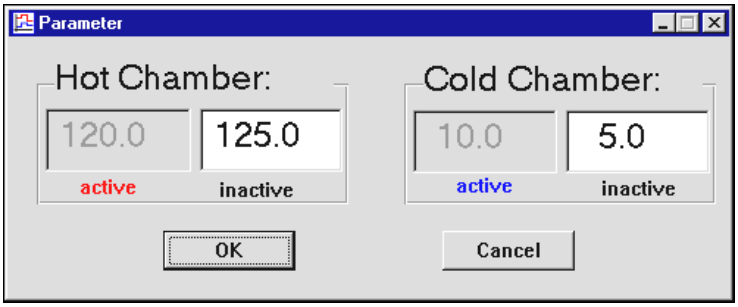


Fig. 11-44 Normal

Energy saving mode

In the case of long cycle times, the temperature of the chamber in which the lifting basket is not present has a nominal value of 23°C.

Use the Item 6 function → *Fig. 11-43 »Editor« (page 139)* to enter a warm-up time; during this time, the active nominal value is set before the lifting basket is moved so that the 23°C is overwritten.

Time-optimised mode

In time-optimised mode, it is possible to specify an inactive nominal value just as in normal mode; this means that the chamber in which the lifting basket is not located is pre-heated or super-cooled in this mode as well.

In time-optimised mode the temperature change is further accelerated by specifying absolute nominal value adaptation for the active nominal value. This adapted nominal value is maintained until the temperature at the lifting basket temperature sensor reaches a definable tolerance range (absolute with respect to the active nominal value). Then the active nominal value is set automatically. This mode guarantees that the test specimen is in the chamber at the nominal value required for the entire dwell time (cycle time).

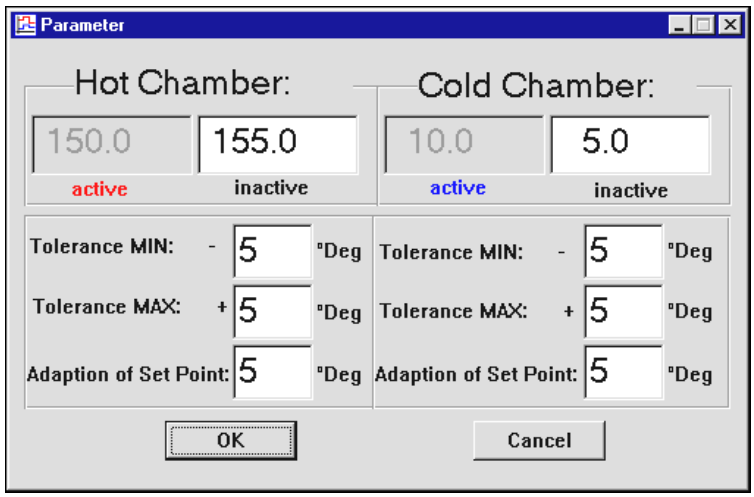


Fig. 11-45 Time-optimised

Enter the inactive nominal value as you entered the normal mode. Again, a wrong entry will provoke error messages.

Example: → *3 »Example program for a shock chamber with a DMR control system« (page 214)*

11.6.2 Creating test programs for shock chambers with a CTC control system

Text editor for writing test programs for two-compartment and three-fold shock chambers with a CTC control system. This test program can only be called up when the control system is a CTC and the configuration has the type set to two-compartment/three-compartment shock chamber.

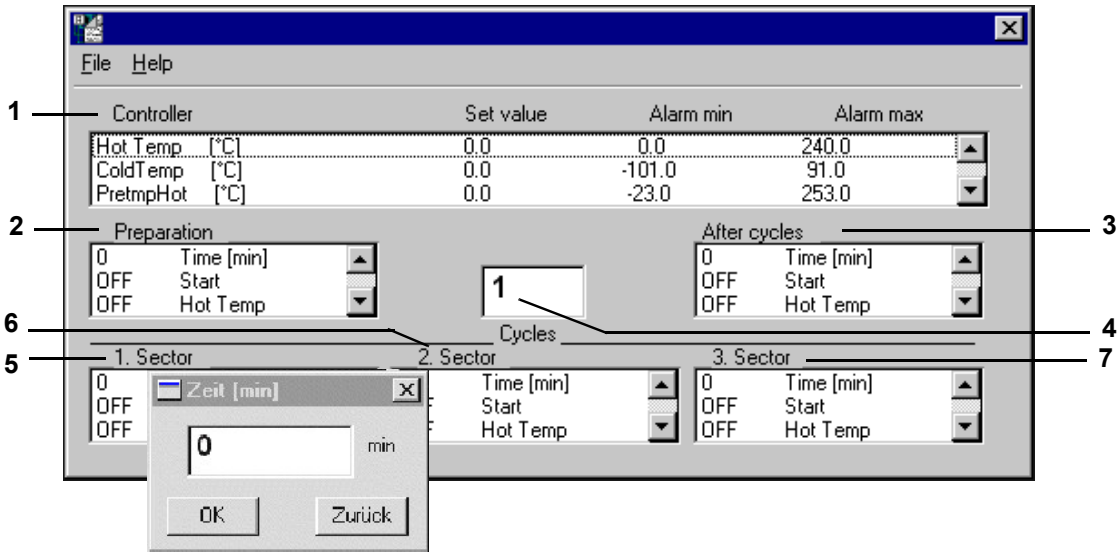


Fig. 11-46 Creating a test program

Double-click on a line to change the settings. A shock chamber test program is divided into three sub-test areas:

– Pre-conditioning (before the loop).
– Cycles (actual test program).
– Post-conditioning (after the loop).

After saving, the test program can be checked or if necessary modified using the preview in the graphical editor (e.g. subsequent addition of wait functions in the temperature profile of the hot/ cold chamber).

Description of the settings

1 List box of all control variables with nominal values and alarm limits.
Double-click on the corresponding line to open a window to modify the nominal values or alarm limits. Try not to make the alarm limits too tight because the offset of the basket may briefly cause significant discrepancies between nominal and actual values.

2 before the loop (pre-conditioning)

Allows you to settle the test specimen to a defined initial temperature before starting the actual test, as appropriate.

Enter the status of the digital channels as required before the start of the loop execution (cycles). The status can be changed by double-clicking on a channel name. The default time setting is 1 minute. The time is set by double-clicking on Time [min] and entering the required time in the time input window. The minimum time of 1 minute is required to correctly execute the test program.

3 after the loop (post-conditioning)

Allows you to settle the test specimen to a defined final temperature after completing the test cycles, as appropriate.

Here, the status of the digital channels as required after the execution of all the loops (cycles) must be entered (e.g. 10 min Defrost = ON).

The status can be changed by double-clicking on a channel name.

Again, the default time is 1 minute. The time is set by double-clicking on Time [min] and entering the required time in the time input window. The minimum time of 1 minute is required to correctly execute the test program.

4 Completes the cycles at the temperatures set in the various sections. Enter the number of cycles (number of loops) required.

5 1st section

Here, enter the dwell time for the particular chamber (e.g. hot chamber) and the status of the digital channels (e.g. Basket up = ON).

The status can be changed by double-clicking on the channel name. Set the time by double-clicking on Time [min] and entering the time required in the time input box. Assignment of a section to a specific chamber is executed via the digital channels Lifting Basket UP (hot chamber), Lifting Basket MIDDLE (middle chamber, in three-compartment shock chambers only), Lifting Basket DOWN (cold chamber). Only one of the three digital channels may be set in any one section. If the cycle time set is only to be executed when the nominal/actual deviation is within the wait tolerances (± 5 K), use the graphical editor to enter a data point with the wait function → *»General profile settings« (page 121)* in the corresponding nominal value curve → *Appendix: »Examples« (page 205)*. It makes sense in this instance to only activate the wait function for approx. 3 minutes after the lifting basket is moved so that the temperature in the lifting basket (and therefore the actual temperature value) can match the new ambient temperature. If the dwell time is 0, this section is skipped.

6 2nd section

Here, enter the dwell time for the particular chamber (e.g. middle chamber) and the status of the digital channels (e.g. Basket MID = ON).

The status can be changed by double-clicking on the channel name. Set the time by double-clicking on Time [min] and entering the time required in the time input box. Assignment of a section to a specific chamber is executed via the digital channels Lifting Basket UP (hot chamber), Lifting Basket MIDDLE (middle chamber, in three-compartment shock chambers only), Lifting Basket DOWN (cold chamber). Only one of the three digital channels may be set in any one section. If the cycle time set is only to be executed when the nominal/actual deviation is within the wait tolerances (± 5 K), use the graphical editor to enter a data point with the wait function in the corresponding nominal value curve → *Appendix: »Examples« (page 205)*. It makes sense in this instance to only activate the wait function for approx. 3 minutes after the lifting basket is moved so that the temperature in the lifting basket (and therefore the actual temperature value) can match the new ambient temperature.
If the dwell time is 0, this section is skipped.

7 3rd section

Section 3 is required only for the three-compartment shock chamber.
In this chamber, the hot chamber is programmed in section 1, the middle chamber in section 2 and the cold chamber in the section 3.

Here, enter the dwell time for the particular chamber (e.g. cold chamber in the three-compartment shock chamber) and the status of the digital channels (e.g. Lifting Basket DOWN = ON). The status can be changed by double-clicking on the channel name. Set the time by double-clicking on Time [min] and entering the time required in the time input box. Assignment of a section to a specific chamber is executed via digital channels Lifting Basket UP (hot chamber), Lifting Basket MIDDLE (middle chamber) and Lifting Basket DOWN (cold chamber). Only one of the three digital channels may be set in any one section. If the cycle time set is only to be executed when the nominal/actual deviation is within the wait tolerances (± 5 K), use the graphical editor to enter a data point with the wait function in the corresponding nominal value curve → *Appendix: »Examples« (page 205)*. It makes sense in this instance to only activate the wait function for approx. 3 minutes after the lifting basket is moved so that the temperature in the lifting basket (and therefore the actual temperature value) can match the new ambient temperature. If the dwell time is 0, this section is skipped.

11.6.3 »File« menu function

New

Enter a new test program name.

Open

Loads a test program. If a shock test program is not involved, then this program is treated like a shock test program (before the loop, Section 1, Section 2, and so on after the loop).

Save/save as

Save the input shock test program under the current name. The DMR format is used as the save format.
If a test program is saved, in which section 2 is skipped with a dwell time of 0, then section 3 (if this has been programmed) is automatically assigned to section 2 when the program is re-opened. The same applies to »Save as«.

Print

Print test program.

Sample program → *Appendix: »Examples« (page 205)*,

11.6.4 Creating a test program for shock chambers with a Simcon or Simpac control system

Editor for creating test programs for shock chambers with a Simcon or Simpac control system. Programming for shock chambers with two or three chambers differs only in that the middle chamber is not displayed for two-chamber shock chambers.

Two formats are available for saving the test program:
*.pxx (graphical editor file) and *.bxx (shock chamber editor file).

It is possible to display a program file created using the shock chamber editor in the graphical editor and further edit it. Test programs modified in the graphical editor can be reimported to the shock chamber editor.

Control value during program creation:

If the control value is not programmed (target value = 0), this leads to error message »A031: Wait function time exceeded« immediately after the program starts.

- If control value 3 “Max. Temp.ChangeTime” enter a nominal value of at least 15 minutes.

Further information for the operation of a shock cabinet type TS130 with Simcon/32 controller: → *1.5 »Additional documents«* (page 11).

Chamber configuration for a shock chamber:

- Make sure that the type is set to a two- or three-compartment shock chamber in the chamber configuration → *9.1 »Configure general settings for the test system« (page 83)*.

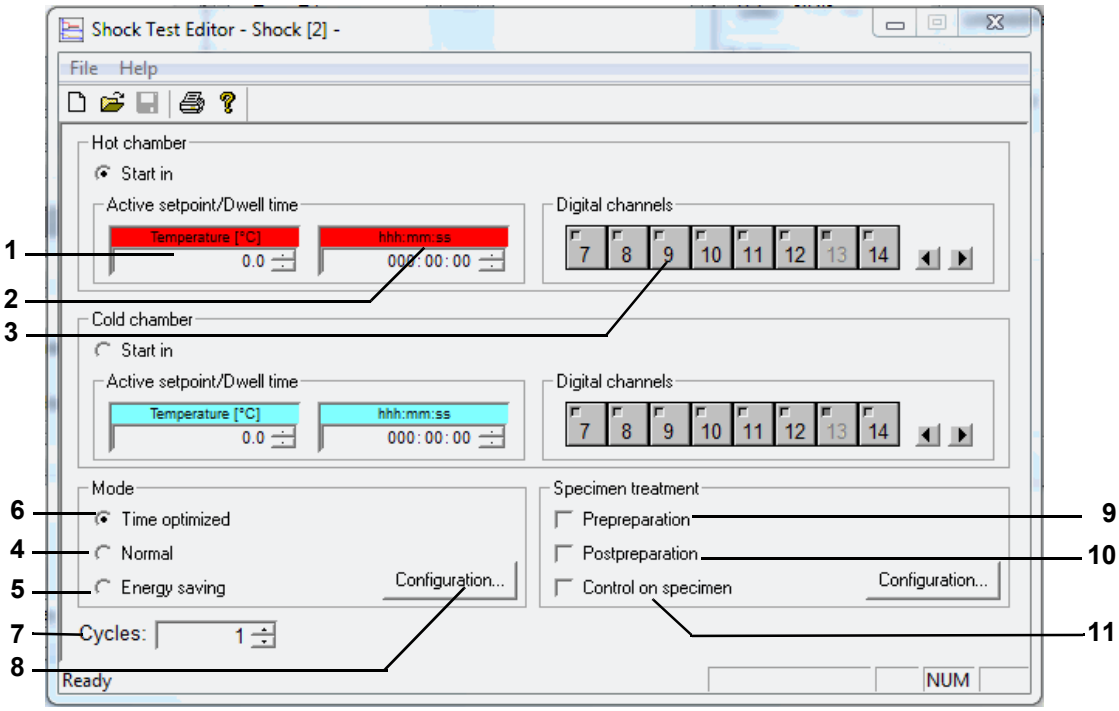


Fig. 11-47 Shock chamber editor (Simcon, Simpac)

1 The test takes place at the temperature entered here. If a nominal value that exceeds the range limits is entered, it is automatically reset to the upper or lower limit.

2 If the chamber has reached the configured nominal value, the basket remains in this chamber for the period of time entered here.

3 A single click on the switch icons of the digital channels changes the state of the digital channels. Digital channels that appear inactive (light grey) are set indirectly (i.e. via other menu windows).

3-chamber shock chamber

When the dwell time has timed out once in every chamber, the cycle ends in the middle chamber if further cycles are to be completed. If this is not the case, the lifting basket moves into the hot chamber, provided nothing else has been specified for the end chamber in the menu window → *»Test specimen treatment« (page 151)*.

Operating mode

You can choose from various operating modes. The differences described below exist between the operating modes.

Inactive nominal value

To achieve a quicker temperature change in the test specimen when changing chambers, the chamber in which the lifting basket is not present can be pre-heated/-cooled to a higher or lower nominal value (inactive nominal value). Once the basket has moved into the pre-heated or cooled chamber, the active nominal value is reset. The inactive nominal value depends on the mode selected.

4 In normal mode the desired temperature nominal values are set and controlled regardless of the position of the lifting basket.

5 For long cycle times, the temperature of the chamber in which the lifting basket is not located is not controlled.

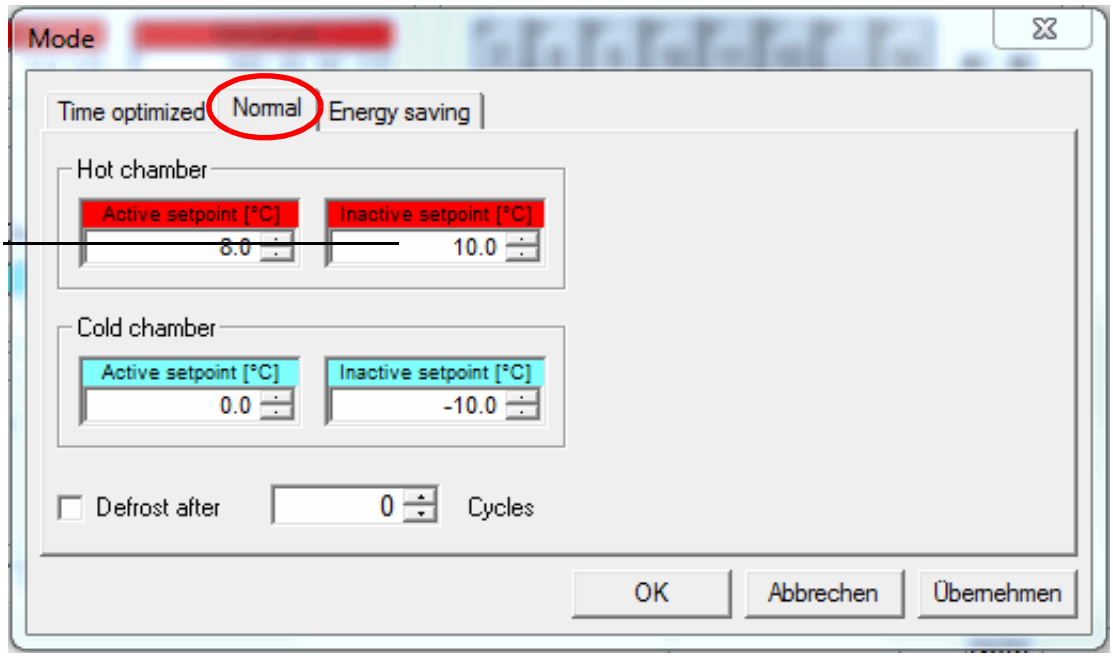
6 In time-optimised mode, it is possible to specify an inactive nominal value just as in normal mode; this means that the chamber in which the lifting basket is not located is pre-heated or super-cooled in this mode as well.

In time-optimised mode the temperature change is further accelerated by specifying absolute nominal value adaptation for the active nominal value. This adapted nominal value is maintained until the temperature at the lifting basket temperature sensor reaches a definable tolerance range (absolute with respect to the active nominal value). Then the active nominal value is set automatically. This mode guarantees that the test specimen is in the chamber at the nominal value required for the entire dwell time.

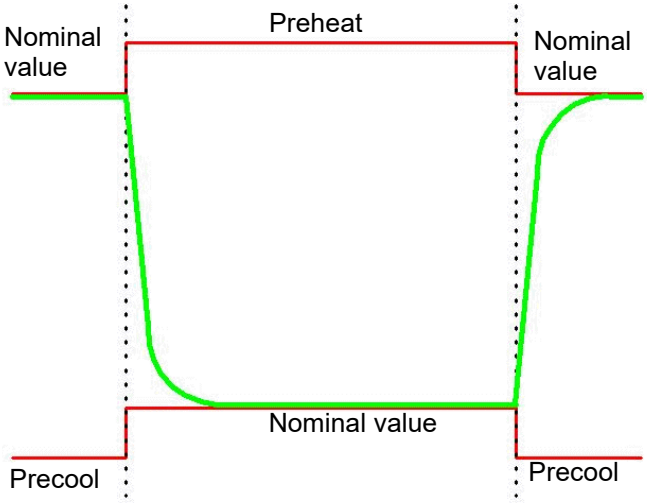
7 The number of chamber changes required is specified.
Once the number of cycles has been processed, the lifting basket automatically moves into the hot chamber.

8 Configuration of the operating mode selected → *»"Normal" operating mode« (page 148)*, → *»"Energy-saving" operating mode« (page 149)*, → *»"Time-optimised" operating mode« (page 150)*

“Normal” operating mode



Hot chamber



Cold chamber

Fig. 11-48 Normal operation

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“Energy-saving” operating mode

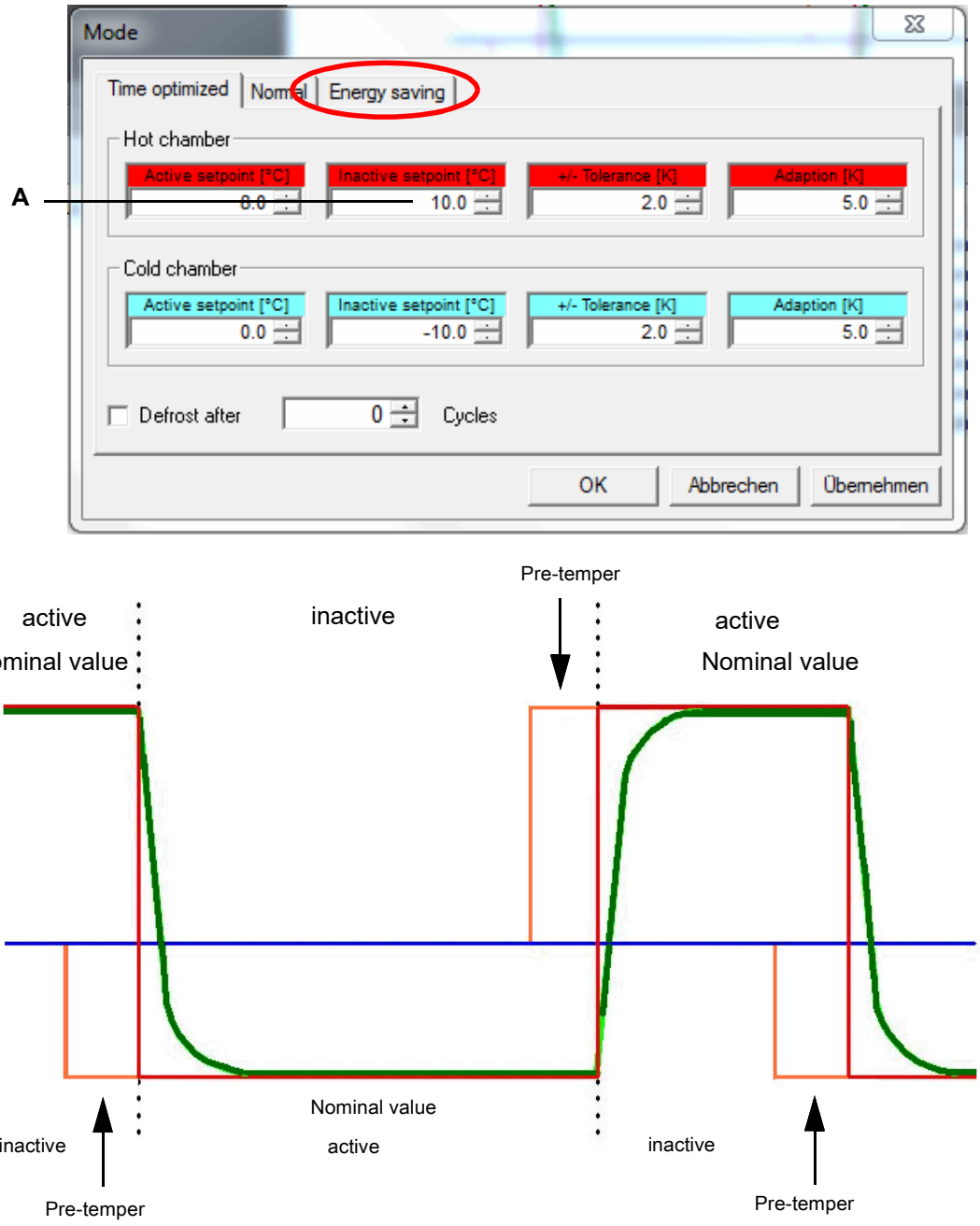

Fig. 11-49 Energy saving mode

“Time-optimised” operating mode

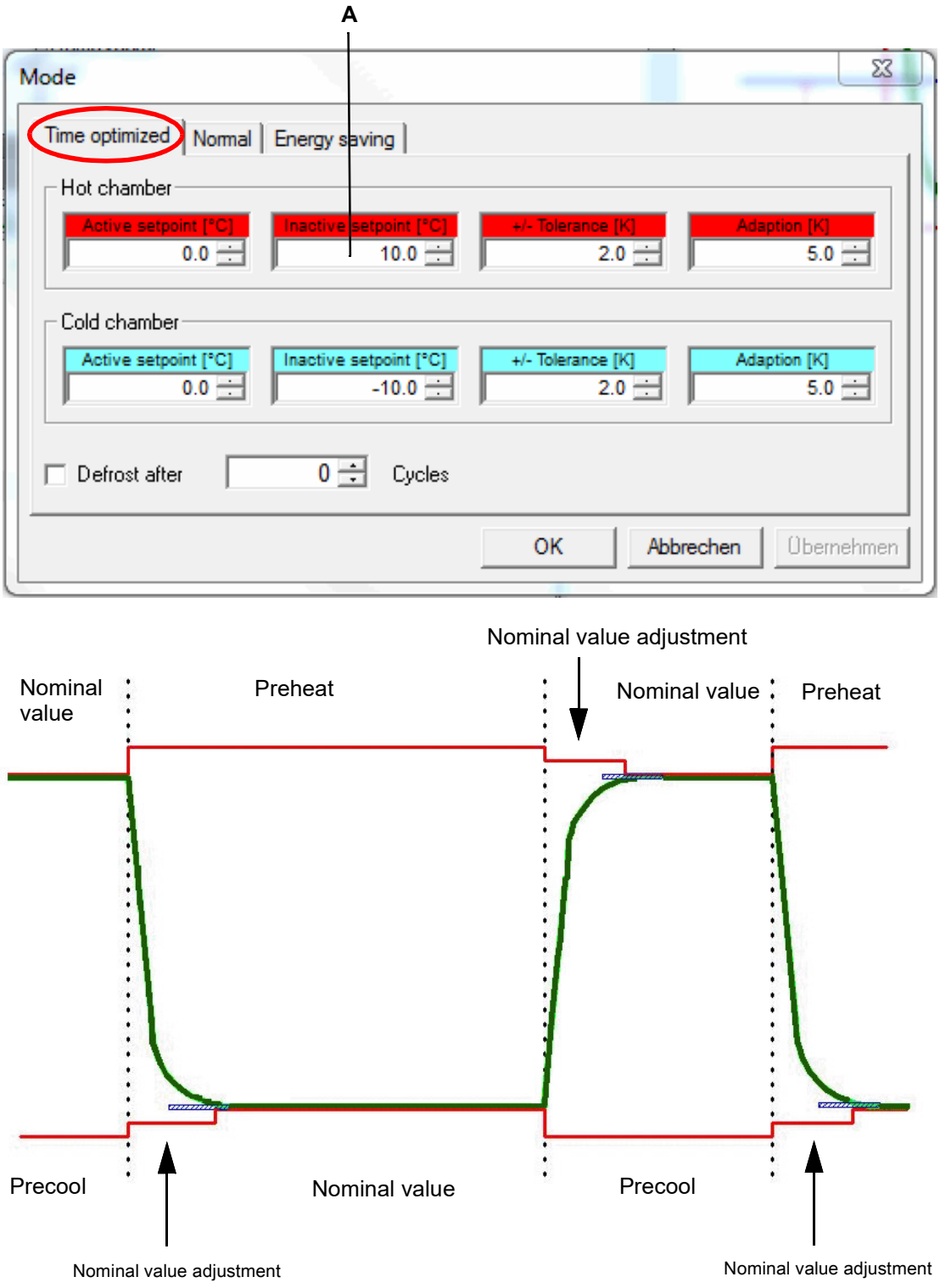

Fig. 11-50 Time-optimised mode

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Test specimen treatment

9 The test specimen may exhibit a significant temperature difference with respect to the nominal value configured for this chamber once placed in the lifting basket. This is compensated for by settling the test specimen temperature before starting the dwell time.

10 After completion of a test, the test specimen temperature is changed as desired, for instance, to prevent burns when removing the test specimen.

11 The active nominal value is controlled via the temperature sensor exposed on the test specimen.

You can define in which chamber the test should start and end.

12 TRANSFER TEST PROGRAM BETWEEN TEST SYSTEM AND SIMPATI

You can access the menu via the context menu of the test system and the **Program Transfer entry** entry.

In order to be able to start a test program, the test program must be saved in the control system of the test system. This means that if it is not stored in the test system controller at the factory, you must transfer the program to the test system controller.

In the case of test systems for the pharmaceutical technology and biotechnology sectors, only test programs created in the symbolic editor format (*.b*) can be transferred. If you have any questions, please contact our service hotline.

If you use the → *14 »Starting/stopping a test program«* (page 158) function to start a test program, you can also transfer the program from the computer to the test system there.

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12.1 Transfer test programmes from Simpati to test system

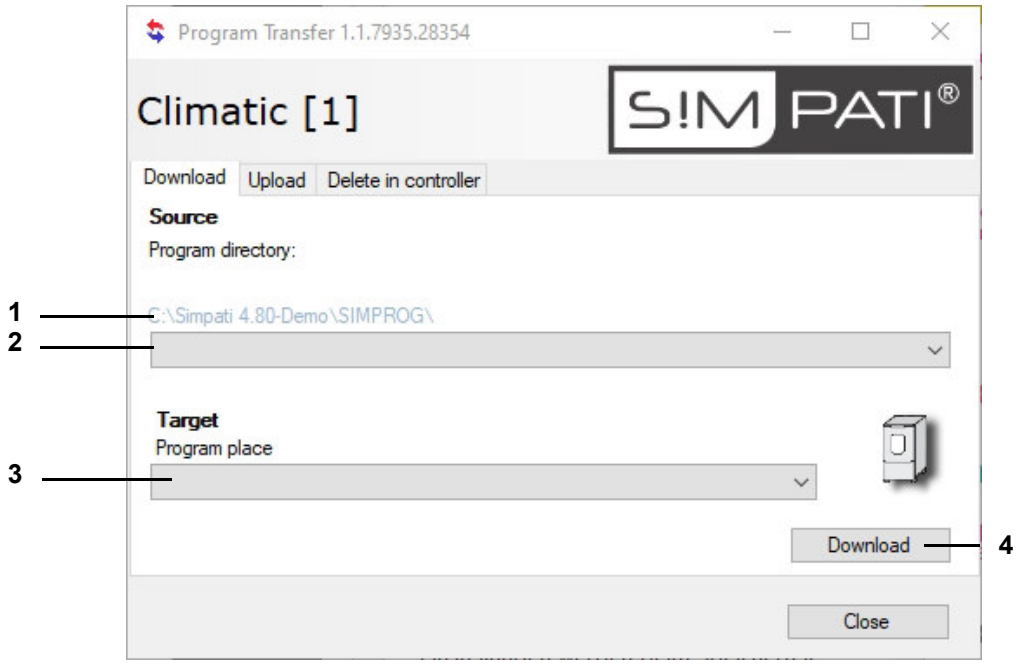

Fig. 12-1 Test program download

1 All test programs stored in the directory above appear in this list.
→ *9.1 »Configure general settings for the test system«* (page 83)

2 Select the test program from the list.

3 Select the program location in the control system of the test system.

NOTICE

Data loss on account of overwriting existing test programs

Existing test programs are overwritten on confirmation of a message.

► Do not overwrite test programs carelessly.

4 Transfer the test program to the test system controller.

12.2 Transfer test programs from the test system to Simpati

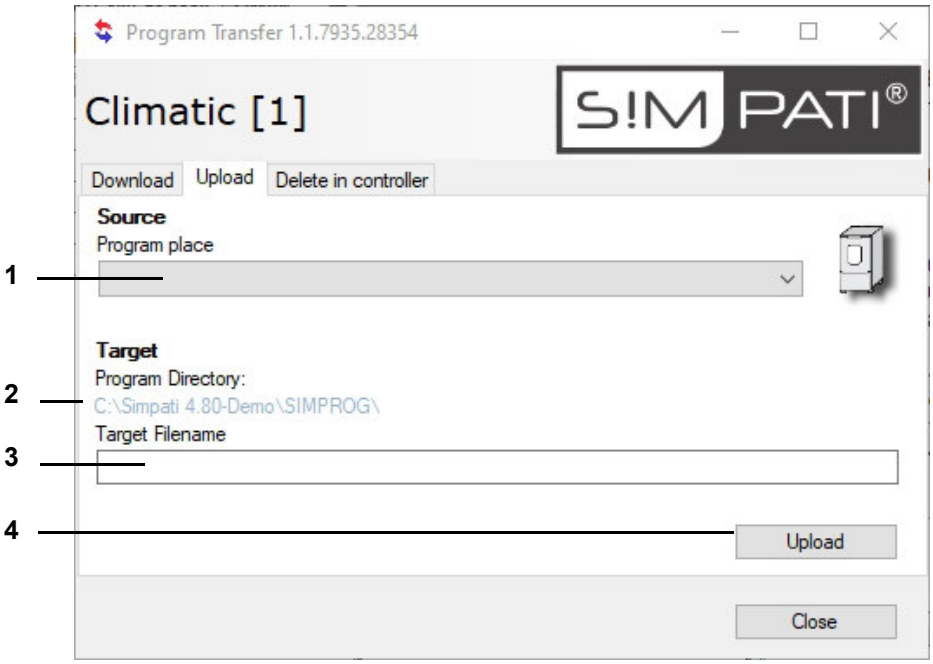

Fig. 12-2 Test program upload

1 All test programs stored in the test system controller (up to program slot 100) are listed.

2 Destination directory for saving the program. Change the destination directory: → *9.1 »Configure general settings for the test system«* (page 83).

3 Enter the file name under which the test program is to be saved. Do not enter a file extension. If a file with this name already exists, a message will be displayed.

4 Save test program.

13 CONVERT TEST PROGRAMS FROM THIRD-PARTY MANUFACTURERS

13.1 Description of the program converter

With the program converter, you can make test programs of test systems of other manufacturers usable for your test system from Weiss Technik GmbH. To do this, the program converter converts the format of the test programme into the text format for the tabular program editor of Simpati. Ramps, jumps, plateaus, and loops of the control curves are taken from the test program. For the jumps, jump steps with a duration of 0 s are created. Digital channels and other parameters are not converted. You can also convert several test programs (files) at the same time. Manual rewriting of test programs is no longer necessary.

Possible source formats include:

– **JSON Format 1** (JSON = JavaScript Object Notation)
  Independent data format in readable text form and for exchanging data between systems.
– **PGM Format 1**
  Proprietary format for describing programs.

You can request further possible source formats via our Service Center → *19 »Contact«* (page 204).

The source formats can be converted into the following test programs of Weiss Technik GmbH:

– **Temperature**: test program contains only temperature values and no humidity values.
– **Climate**: test program contains temperature values and humidity values.

NOTICE

Damage to or destruction of the test item as a result of faulty test program

► Before starting a converted test program, check the test program in the tabular editor.

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13.2 Convert test program

Procedure:

- Select the entry **Program Conversion** in the Simpati folder in the start menu of the computer.
  - ✓ The **SimProgramConverter** window is displayed.
- In the first drop-down list, select the source format in which the test program is available.
- Select the program type in the second drop-down list.
- Select test programs to be converted:
  - In order to select the test programmes individually, activate the Files option.
  - To select all the test programmes that are in a folder, activate the Directories option.
  - Select [**Add**].
  - ✓ The window for selecting a file or folder is displayed.
  - Depending on the option selected, select the individual test program or folder and select [**OK**].
  - ✓ File name/folder name and path are displayed in the table.
  - In order remove files or folders from the table, select files or folders and select [**Remove**] (multiple selection with pressed Ctrl key).
  - In order to change the target directory for the converted files, select the […] button in the **Target directory** section, and select the desired target directory.
- Select [**Convert]**.
  - ✓ The **Results** section shows how many files were converted correctly.
  - ✓ The correctly converted files are stored in the target directory.
- In order to create a detailed results report, select [**Export results**].

14 STARTING/STOPPING A TEST PROGRAM

You can access the menu via the context menu of the test system and the **Automatic Start/Stop** entry.

This function is used to set the start and stop for a test program.

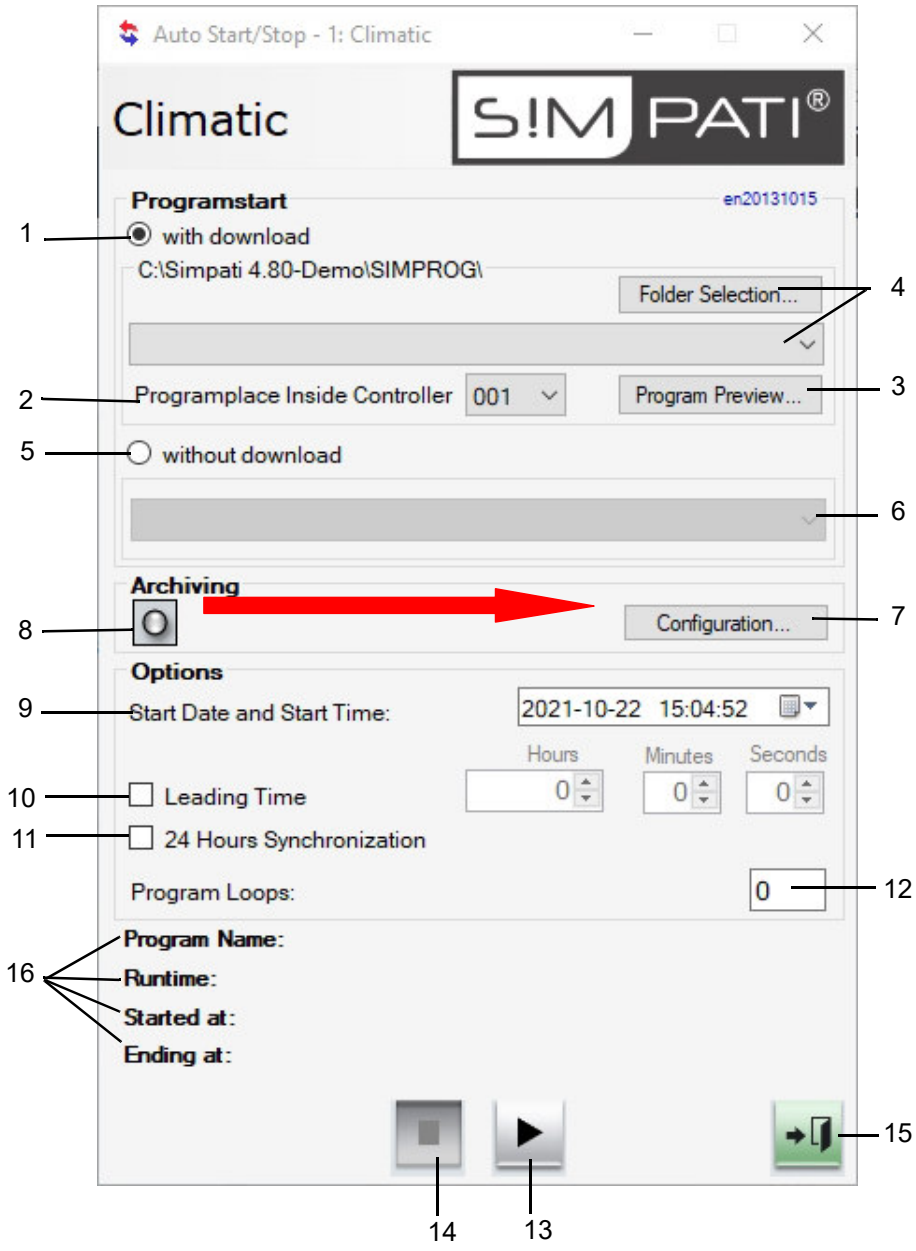

Fig. 14-1 Starting/stopping a test program

1 Including transfer of program.

The test program is transferred from the computer to the controller and started there.

2 Program number in the control system; the test program is uploaded to this program location.

3 Graphical program preview of the test program selected.

4 Selection of the path in which the test program is located and select test program.

5 No transfer of program.

The test program stored in the control system of the test system will start. A program will not be transferred.

6 Select the test program to be started from the control system of the test system.

7 Change archiving settings → *15 »Archiving«* (page 160).

8 Archive name (if not specified, the start date is used).

9 Test program start date and time.

If the day entered is in the past, the test program is started immediately.
If the time entered is in the past, the test program is started immediately.

10 Enter the time for a program advance. The program is not processed from the beginning but rather only from the specified time in the program.
For test systems built before 2015, the lead time should not be longer than the simple program runtime (without program repetitions). In general, before starting a program with a lead time, you must check whether the start time is correct.

11 Start with 24 h synchronisation.

The requirement for this function is that both the test program to be started and the loop, foreground and background programs have a length of 24 h.
If this function has been activated, the test program advances up to the current time; only then is it started, and it runs parallel to the current time.
→ *4 »Test program example with program advance«* (page 215)

12 Number of program repeats: can be input with Simcon, Mincon and Simpac controllers only.

The start of a program will be ignored if it is in a line after the beginning of the loop.

13 The test program is started. Before starting the test program, make sure that the adjustable temperature limiter of the test system is set to a suitable temperature for your test specimen. The test program can also be interrupted or continued with this button. These functions are only available for certain controllers, however.

NOTICE

Damage to or destruction of the test item as a result of faulty test program

► Before starting a converted test program, check the test program in the tabular editor.

14 The test program is stopped.

15 Close the menu window, the test program will continue to run.

16 Display of the current program with program name, running time, start and end time.

15 ARCHIVING

You can access the menu via the context menu of the test system and the **Archiving** entry.

Use this function to save the test process.

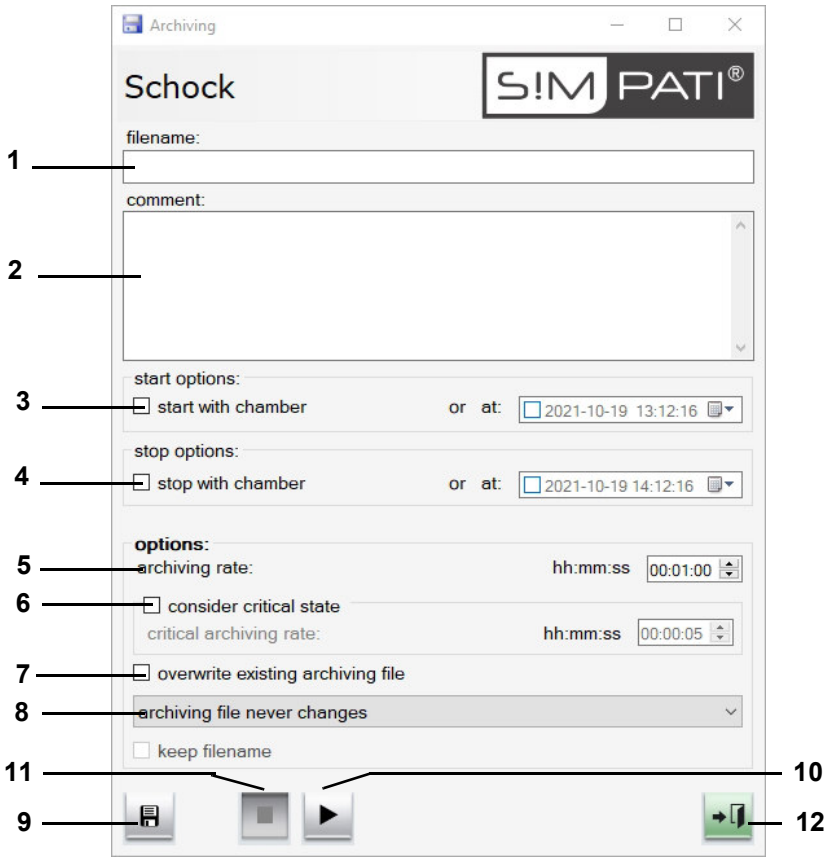

Fig. 15-1 Archiving

1 Archive name – if no archive name is input, an archive name will be automatically issued (current date).

2 Comments on recordings (appears in the graphical evaluation).

3 Time/date for starting the recording or the recording begins at the start of the test.

4 Time/date for stopping the recording or the recording stops at the end of the test or if there is a fault in the test system.

5 The status of the test system is recorded at these intervals.
Because the archiving module in the standard version operates with a 5 s rhythm, only values of 5 s or a multiple of 5 s make sense.*

6 You can define the intervals for the recording in the event of a malfunction, 5 s or a multiple of 5 s.*

* In case of high utilization of the Simpati computer by Windows processes running at the same time, it is possible that the recording interval cannot be observed for individual values.

16 GRAPHICAL EVALUATION (SIMVIEWER)

Click on this icon in the Simpati main menu to open the “SimViewer” module for graphical evaluation. “SimViewer” replaces the “SimKoord” and “VisuWin” modules. “SimKoord” will still be supported up to and including Simpati version 4.80.x.

16.1 Graphical evaluation screen – panels

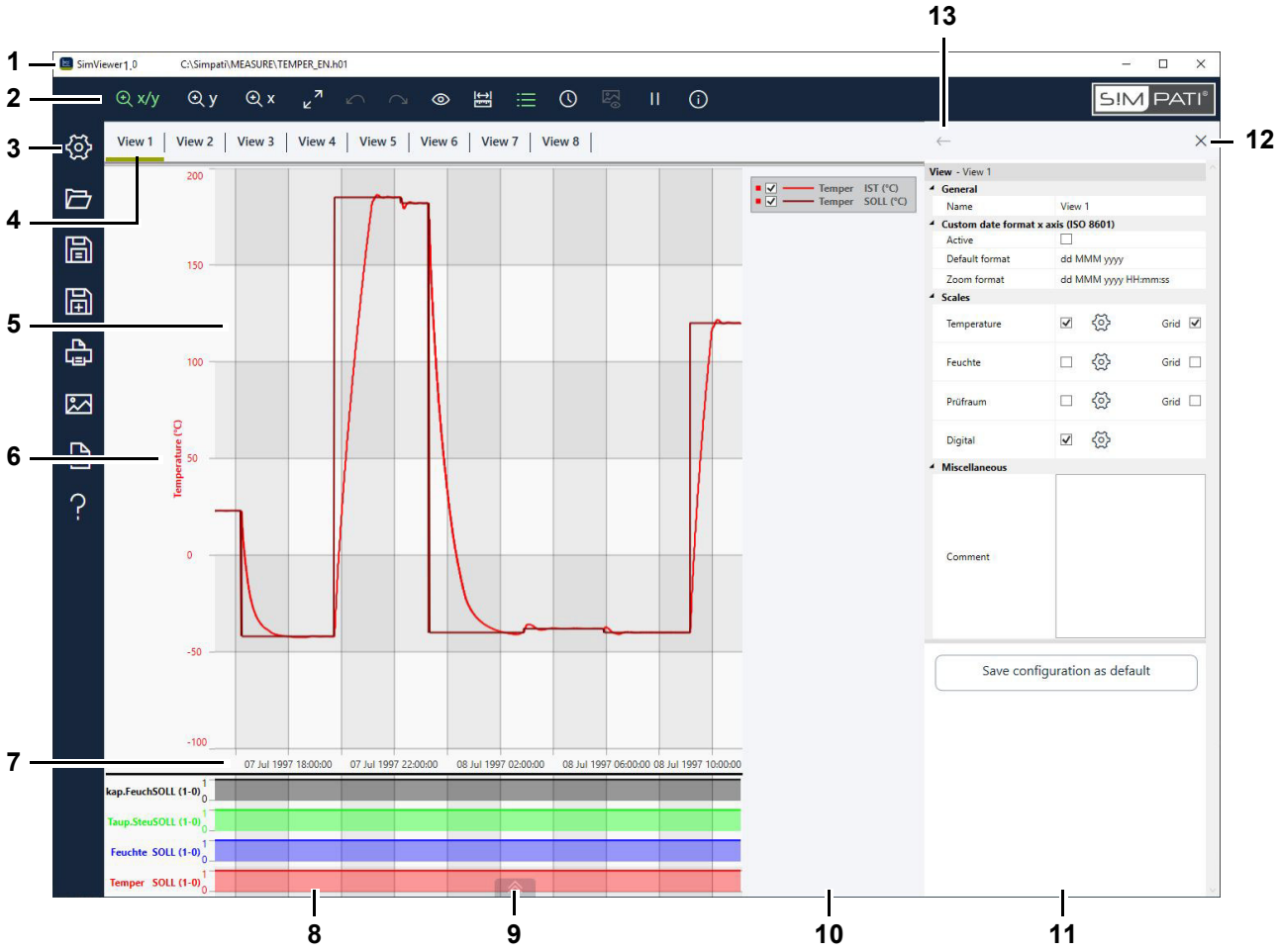

Fig. 16-1 Graphical evaluation – screen panels (Example illustration)

1 Program release as well as the directory and name of the measurement file displayed.

2 Header menu with tools for a graphical evaluation of measured data.

→ *16.2 »Graphical evaluation screen – header menu«* (page 162)

3 Page menu with tools for configuring, loading, saving and exporting the views → *16.3 »Graphical evaluation screen – side menu«* (page 165).

4 Tab of views You can define up to eight views → *16.13 »View menu«* (page 182).

5 View (i.e. a user-defined graphical representation of the data measured during a test).

6 Scales of control variables. You can set up to three scales.

Double-clicking on a scale displays the “Axis” dialogue where you can set the scale labels and value ranges and assign profiles to a scale.

→ *16.14 »Control variables axis menu«* (page 185)

To view another value range, use the mouse to move the scale up or down.

7 Time axis.

Double-clicking on the time axis displays the “Time range” dialogue where you can manually set an interval of the view or decide to show test data by days, weeks or months.

→ *16.10 »Time range menu«* (page 178)

To view another interval, use the mouse to move the time axis to the left or right.

8 Digital channels.

Shows which digital channels were active at which time during the test (0 = OFF, 1 = ON).

Double-clicking on the name of a digital channel displays the “Axis” dialogue where you can enable the display of digital channels as well as the channels to be displayed.

→ *16.15 »Digital channels axis menu«* (page 187), “Active”

9 Show/hide the panorama view of the test. The panorama is a miniature representation of the profiles across the entire time of the test.

→ *16.6 »Panorama view of test process«* (page 168)

10 Key to the control variables shown in the view. The legend may appear separately or as a part of the view.

→ *16.4 »Legend«* (page 166)

11 Menu panel. The following menus are available:

→ *16.8 »Measurements menu«* (page 174)
→ *16.10 »Time range menu«* (page 178)
→ *16.11 »Show images menu«* (page 180)
→ *16.12 »Info menu«* (page 181)
→ *16.13 »View menu«* (page 182)
→ *16.14 »Control variables axis menu«* (page 185)
→ *16.15 »Digital channels axis menu«* (page 187)
→ *16.17 »Export data menu«* (page 193)
→ *16.18 »Help menu«* (page 194)

Menus are accessed by clicking on the controls in the header or the side menu.

12 Close menu panel.

13 Show preceding menu.

Error messages are shown in a bubble. You may copy error details to the clipboard and send them to the Service Dept. via email.

→ *16.19 »Error message«* (page 195)

16.2 Graphical evaluation screen – header menu

Overview of the header menu of the graphical evaluation.

Use the tools in the header for a graphical evaluation of the measured values.

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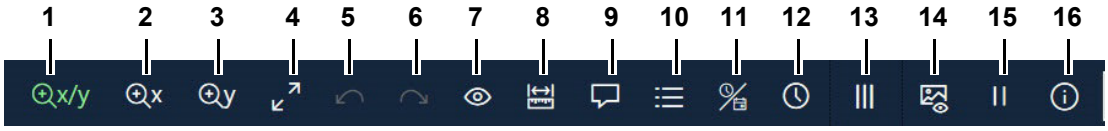

Fig. 16-2 Graphical evaluation – header menu

1 Enable X/Y zoom mode (green marks the active mode) → *16.7 »Zoom function«* (page 169)

2 Enable Y zoom mode

3 Enable X zoom mode

4 Undo all zooming and restore the complete view. Another method is to double-click on the view.

5 Undo last zoom.

6 Repeat the undone zoom.

7 Show/hide values (the active mode is displayed in green). The bar along the view defines the position on the time axis. It can be moved using the mousing.

8 Measure graph or perform an unrestricted measurement.

→ *16.8 »Measurements menu«* (page 174)

9 Insert comment on a measured value of the curve.

→ *16.9 »Comment menu«* (page 177)

10 Show legend as part of the view or separately (the active mode is displayed in green).

→ *16.4 »Legend«* (page 166)

11 Toggle time line and time data between relative and absolute time.

Absolute time is the respective time stamp of the measured value (date/time). You can set an offset for the absolute time → *16.13 »View menu«* (page 182).

Relative time is the elapsed time (duration) from the start of recording to the time of the measured value.

12 User-defined interval of the view or test data shown by days, weeks or months.

→ *16.10 »Time range menu«* (page 178)

13 Only in workbook mode: mark the beginning of the individual recording files with a dashed vertical line (the active mode is shown in green).

14 Simpati TimeLabs Show/hide images (the active mode is displayed in green).

This function is only active if camera images were saved using Simpati TimeLabs during the inspection process.

→ *16.11 »Show images menu«* (page 180)

15 Stop/continue monitoring (button display depends on the function selected in each case). This function is only active when the test system is working.

Monitoring shows a live view of the control variable profiles; this view refreshes the profiles every time data are recorded. When the profiles arrive at the right edge of the view, the measuring points will start inching to the left of the view to be able to display the most up-to-date measurements.

You can stop monitoring to measure a chart. Data recording will continue in the background. When you resume monitoring, the view will be updated and return to showing the live data.

16 Show the software release and any comments entered whilst recording data.

→ *16.12 »Info menu«* (page 181)

16.3 Graphical evaluation screen – side menu

Use the tools on the side menu to configure, load, save and export your views.

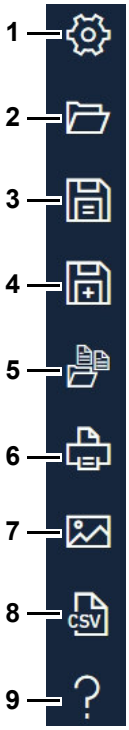

Fig. 16-3 Graphical evaluation – side menu

1 Opens the view configuration screen.

→ *16.13 »View menu«* (page 182)

2 Open single measurement file(*.h*), including the views. Or open a workbook (*.simwrk) including the views. Alternatively, you can drag the individual measurement file or the workbook with the mouse from the file manager into the graphical evaluation.

Tip: in order to achieve good performance, open the evaluation data from a local drive.

3 Saves the views. Measured data will remain unchanged. The workbook can be saved in the workbook mode.

4 Saves the view under a new name. Measured data will remain unchanged. In workbook mode, the workbook can be saved under a new name.

5 Workbook mode: view, evaluate and save several measurement files (archive files) in one view.

→ *16.16 »Workbook menu«* (page 189)

6 Prints the view. The default orientation is landscape.

7 Save view as image file.

8 Exports measured data of views to a CSV-format file.

→ *16.17 »Export data menu«* (page 193)

9 Shows a list of keyboard short-cuts or opens the manual (PDF).

→ *16.18 »Help menu«* (page 194)

16.4 Legend

Clicking on this icon displays the legend either separately or as part of the view.

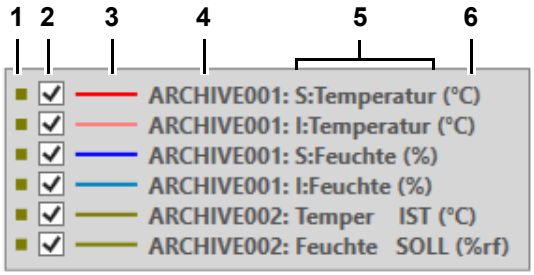

Fig. 16-4 Graphical evaluation – legend (Example illustration)

1 Colour of scale

2 Show/hide profile in view

Your choice of displayed/hidden profiles is lost when you go to another view.

3 Colour of profile

4 Only for workbook: short name of the archive file (can be changed in the menu section of the workbook)

5 Name of profile

6 Physical unit of profile

16.5 Explanation of the abbreviations of the profile designations

Abbreviation	Abbreviation written out (English)	Explanation
Work preparation	Actual Value	Actual value
NV	Nominal value	Nominal value
CT	Counter	Counter
TU	Tolerance Upper	Upper tolerance band
TL	Tolerance Lower	Lower tolerance band
DO	Digital Output	Digital Output
DI	Digital Input	Digital Input

Abbreviation				Explanation
German	Italian	French	English and other languages	
I	E	R	A	Actual value
S	I	D	N	Nominal value
Z	C	C	C	Counter
+.LM	+.LM	+.LM	+.LM	Upper warning limit to nominal value
-.LM	-.LM	-.LM	-.LM	Lower warning limit to nominal value

16.6 Panorama view of test process

Click on this icon to show a panorama view of the test process.

Click on this icon to hide the panorama view of the test process.

Use the panorama view on long test processes to help you find you way around the measurement file and to set an interval for the view.

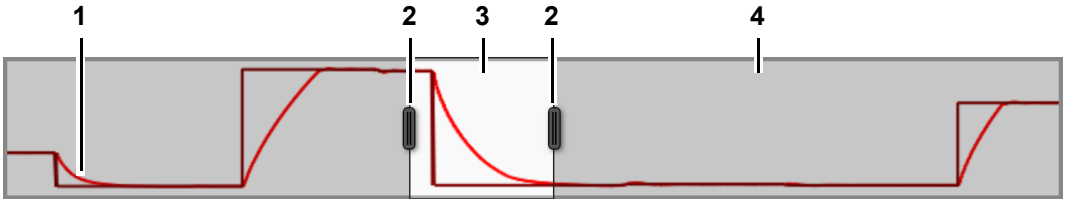

Fig. 16-5 Graphical evaluation – panorama view of test process

1 Profiles

2 Slide for zooming in/out of the interval displayed. The view as such is refreshed instantly as you move the slide.*

3 Section shown in the view.*

4 Section not shown in the view (grey).*

*Function not available if the data of the archive files are displayed on top of each other in a workbook.

16.7 Zoom function

The following zoom modes are available for graphical evaluation:

Zoom mode	Explanation
X	Zooms an interval to cover the entire width of the view.
Y	Zooms a range of values on the Y axis to cover the entire height of the view.
X/Y	Zooms a section of the view to cover the entire width and height of the view.

Fig. 16-6 Graphical evaluation – zoom modes

16.7.1 Zoom controls

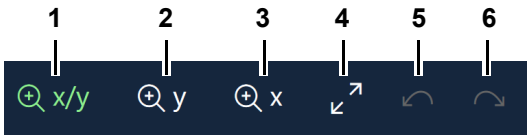

Fig. 16-7 Graphical evaluation – header menu – zoom controls

1 Enable X/Y zoom mode (green marks the active mode).
Or: press F6.

2 Enable Y zoom mode.
Or: press F7.

3 Enable X zoom mode.
Or: press F8.

4 Undo all zooming and restore the original view.
Another method is to double-click on the view.

5 Undoes the last zoom step.

6 Redo the zoom step you just undid.

There is no limit to how often you zoom in any of the modes.

Press Ctrl++ or Ctrl+ − for inching the zoom factor in the current mode.

16.7.2 Zoom view

Proceed as follows to zoom a view:

→ *»To zoom an X/Y section«* (page 170)
→ *»To zoom a Y section«* (page 171)
→ *»To zoom a X section«* (page 172)
→ *»To zoom using the scroll wheel«* (page 172)

To zoom an X/Y section

- Click on x/y.
  - ✓ The icon turns green, X/Y zoom mode is activated.
- Go to the view, click on a corner of the section you wish to zoom and keep the mouse button pressed.
- Drag the mouse until all of the section to be zoomed is within the rubber band frame.

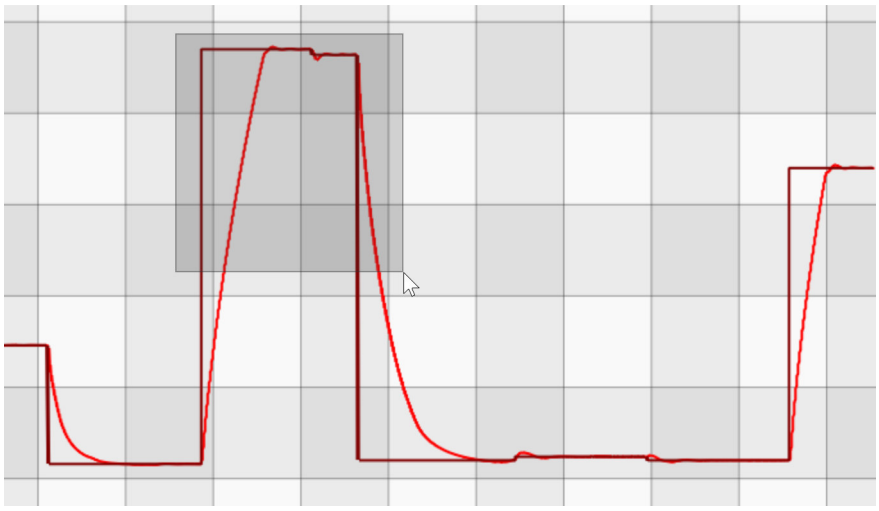

Fig. 16-8 Graphical evaluation – zoom X/Y section

- Release the mouse button.
  - ✓ The selected section is zoomed.

You can use any of the three zoom modes to further zoom the already zoomed section.

To zoom a Y section

- Click on  .
  - ✓ The icon turns green, Y zoom mode is activated.
- Go to the view, click on the height of the Y value from where you wish to zoom and keep the mouse button pressed.
- Drag the mouse until all of the section to be zoomed is within the rubber band frame.

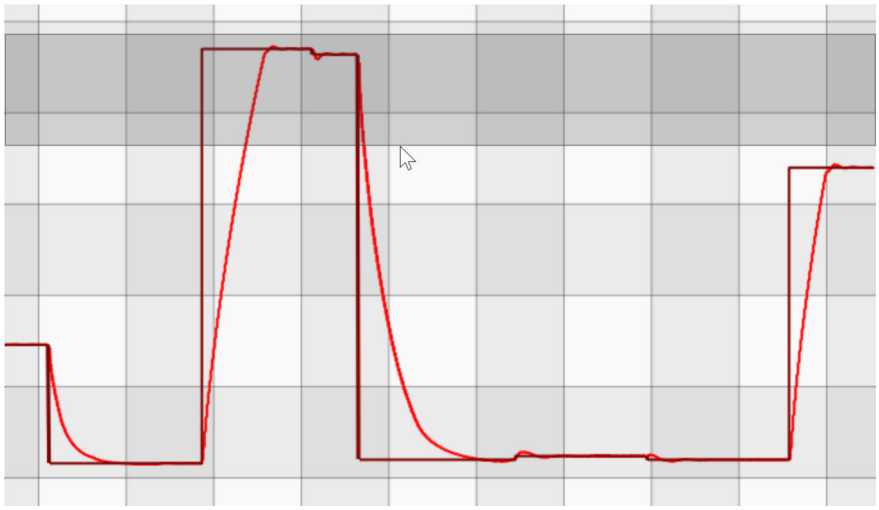

Fig. 16-9 Graphical evaluation – zoom Y section

- Release the mouse button.
  - ✓ The selected section is zoomed.

You can use any of the three zoom modes to further zoom the already zoomed section.

To zoom a X section

- Click on X.
  - ✓ The icon turns green, X zoom mode is activated.
- Go to the view, click on the value on the X axis from where you wish to zoom and keep the mouse button pressed.
- Drag the mouse until all of the section to be zoomed is within the rubber band frame.

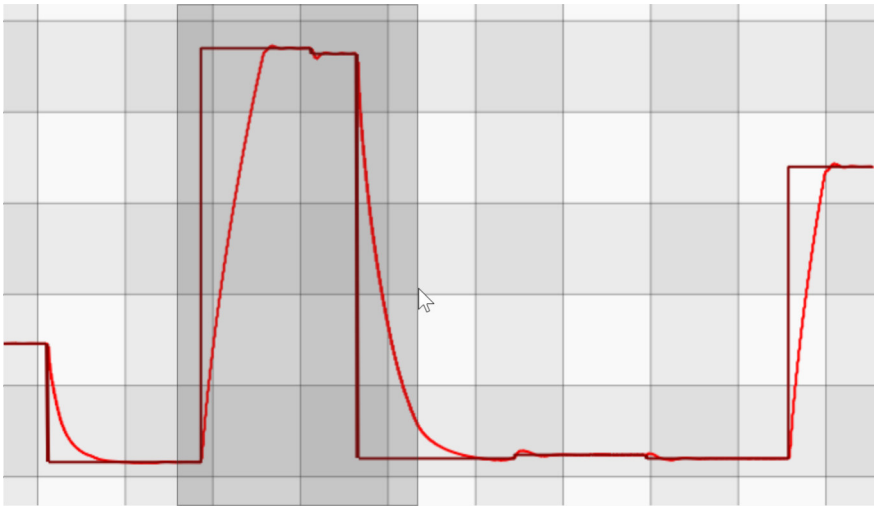

Fig. 16-10 Graphical evaluation – zoom X section

- Release the mouse button.
  - ✓ The selected section is zoomed.

Another method is to drag the time axis to the left or right using the mouse.

To zoom using the scroll wheel

- Choose one of the zoom modes (e.g. x/y).
- Go to the view and place the mouse pointer to where you wish the zoom focus to be.
- Turn the scroll wheel.
  - ✓ This will continuously zoom the view whilst keeping the mouse pointer at the centre.

Zooming will move along the X or Y or both axes, depending on the zoom mode you selected.

16.7.3 Moving the zoom section

Proceed as follows to move a zoom section:

Moving the zoom section freely

- ► Place the mouse pointer on the view.
- ► Press and hold the right mouse button.
- ► Move the mouse pointer across the view.
  - ✓ The zoomed section can be moved in any direction. The size of the zoom window is retained.

Moving the zoom section along the X axis

- ► Press and hold the shift key.
- ► Turn the scroll wheel.
  - ✓ The zoomed section moves in the X direction. The size of the zoom window is retained.

Moving the zoom section along the Y axis

- ► Press and hold the Ctrl key.
- ► Turn the scroll wheel.
  - ✓ The zoomed section moves in the Y direction. The size of the zoom window is retained.

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16.8 Measurements menu

Click on this icon to measure two point on a graph and to perform a free measurement.

A free measurement is not limited by profiles.

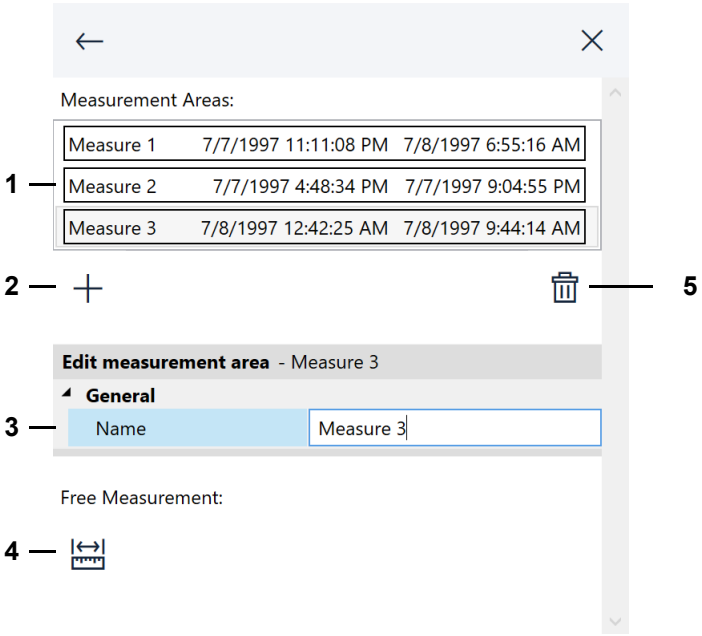

Fig. 16-11 Graphical evaluation – measurements menu

1 List of the created measurement bands.

2 Measure graph.

→ *»To measure a graph«* (page 175)

Set the name of the measurement band. By default, measurements are numbered consecutively by view.

3 Perform a free measurement.

→ *»To perform a free measurement«* (page 176)

4 Delete the measurement selected on the list (Item 1).

Measurement bands are saved with the view, free measurements are not saved.

To measure a graph

- Click on  .
  - ✓ The measurements menu is displayed.
- Click on  .
  - ✓ The icon turns green.
- Go to the view and click on the graph you wish to measure.
  - ✓ The graph shows as a bold line.
- Click on the starting point on the graph.
- Click on the end point on the graph.
  - ✓ The coordinates of both points (X1|Y1) and (X2|Y2), their distance (Δx,Δy) and the inclination per minute (Δy/min) are displayed.

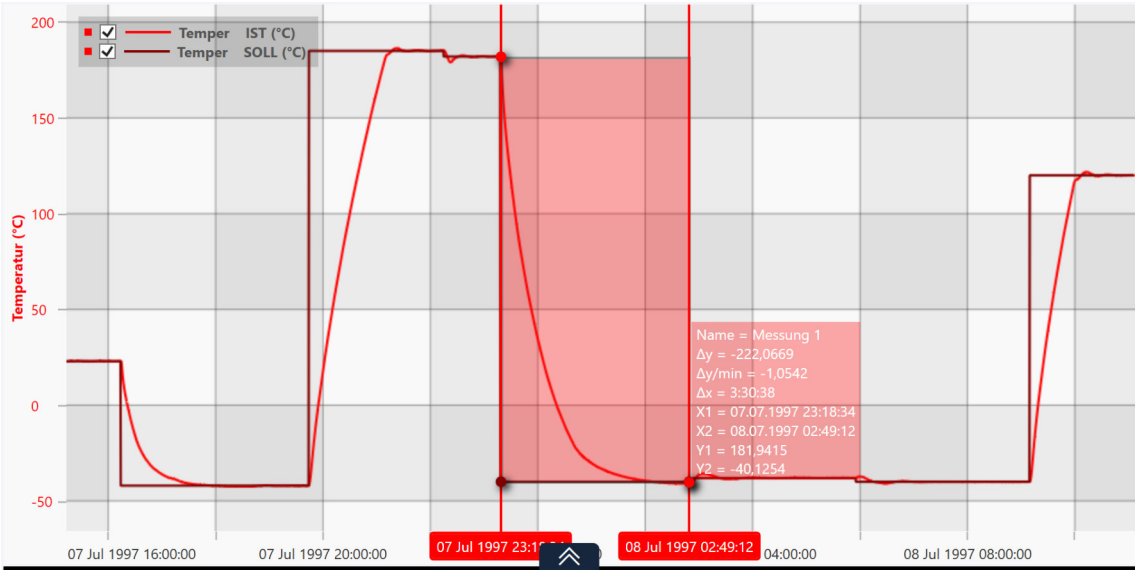

Fig. 16-12 Graphical evaluation – measure graph

To change the measuring interval, drag the bars at the interval borders with the mouse.

- Enter a descriptive name of the measurement in the box next to “Name”.

To perform a free measurement

Procedure:

- Click on  .
  - ✓ The measurements menu is displayed.
- Click on  .
  - ✓ The icon turns green.
- Go to the view, click on the starting point of measuring and keep the mouse button pressed.
- Move the mouse pointer to the end point of your free measurement and release the mouse button.
  - ✓ The coordinates of points, their distance and the inclination per minute are displayed.

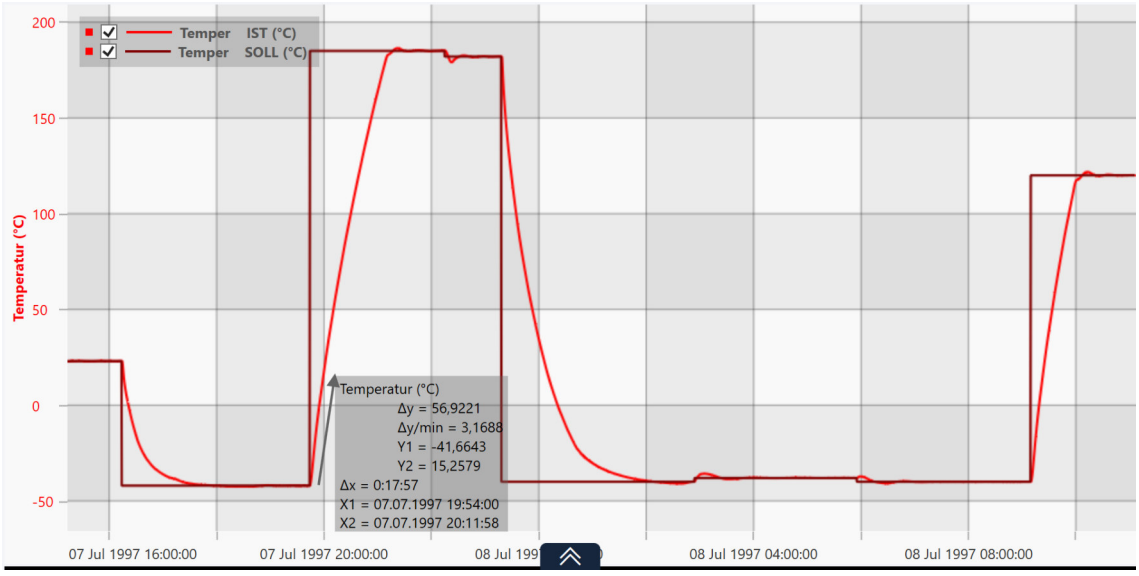

Fig. 16-13 Graphical evaluation – free measurement

If a view has several scales, the coordinates of points, their distance and the inclination per minute are displayed for every scale.

If you move the scale with the mouse, the free measurement values will adapt.

16.9 Comment menu

Click on this icon to insert a comment at a measured value of the curve.

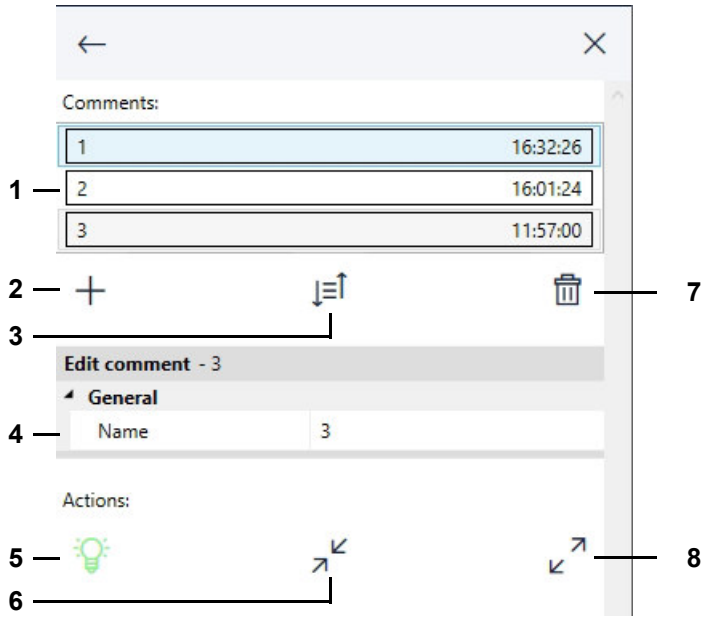

Fig. 16-14 Graphical evaluation – comment menu

1 List of inserted comments.

2 Insert new comment.

3 Sort comments in the list in ascending/descending order by name or date.

4 Set the name of the selected comment. By default, comments are numbered consecutively by view.

5 Show/hide comments in the view.

Green light bulb = comments are currently displayed.

Black light bulb = comments are currently hidden.

6 Collapse comments in the view.

7 Delete selected comment.

8 Expand comments in the view.

16.10 Time range menu

Click on this icon to manually set an interval of the view or decide to show test data by days, weeks or months.

The menu lets you view and analyse long test processes.

On the **Benutzerdefinierter Zeitraum** panel, you can manually define the interval to be shown in the view.

On the Zeitraum panel you can set the interval to a whole day, a whole week or a whole month. On the Verschieben panel, you can then move the test data by day, week or month, depending on how long the test process is.

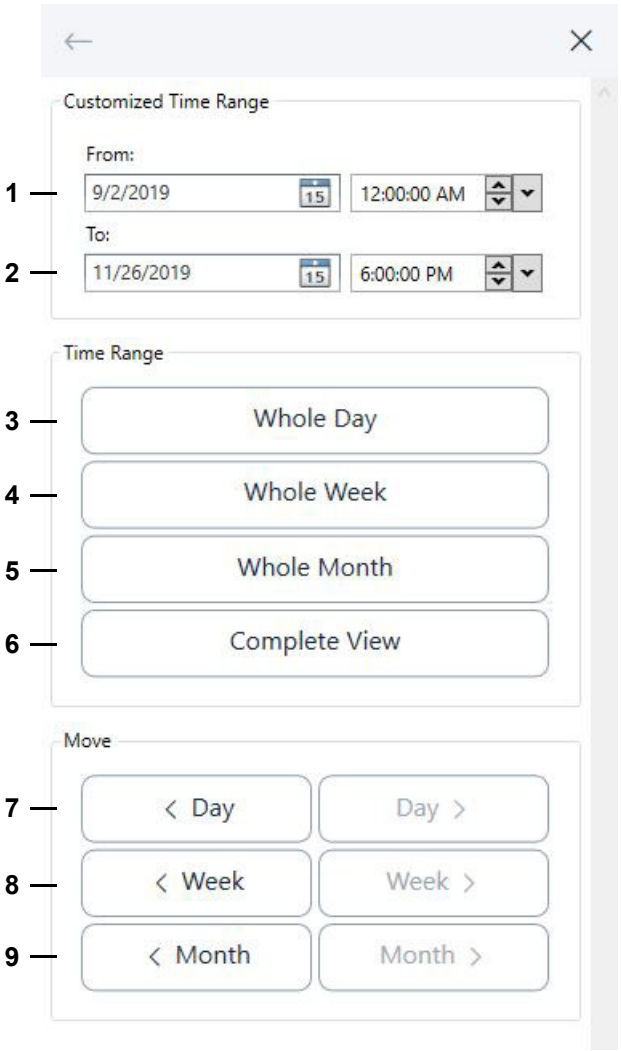

Fig. 16-15 Graphical evaluation – time range menu

1 Start of customised time range.

Enter the date in the box or pick it from the calendar.

Then proceed to entering the time. Or you may highlight the hour, minutes or seconds and use the arrow buttons to increase or decrease them. The drop-down list on the right lets you set the time to the full hour.

Remember to press Enter every time you enter or select a date or time.

2 End of customised time range.

For entering the date and time (cf Item 1).

3 Click to display whole days.

4 Click to display whole weeks.

5 Click to display whole months.

6 Restore original view.

7 Move the view a whole day forward or backward.

8 Move the view a whole week forward or backward.

9 Move the view a whole month forward or backward.

Moving the view a day, week or month forward or backward will work only if you set the appropriate interval on the Zeitraum panel.

Whilst data are being recorded (monitoring), a customised time range will change automatically to ensure that you will see the most recent measurements.

16.11 Show images menu

Click on this icon to show the images Simpati TimeLabs took whilst testing was in progress. The icon turns green when the image view is activated. Click on the icon again to close the image view.

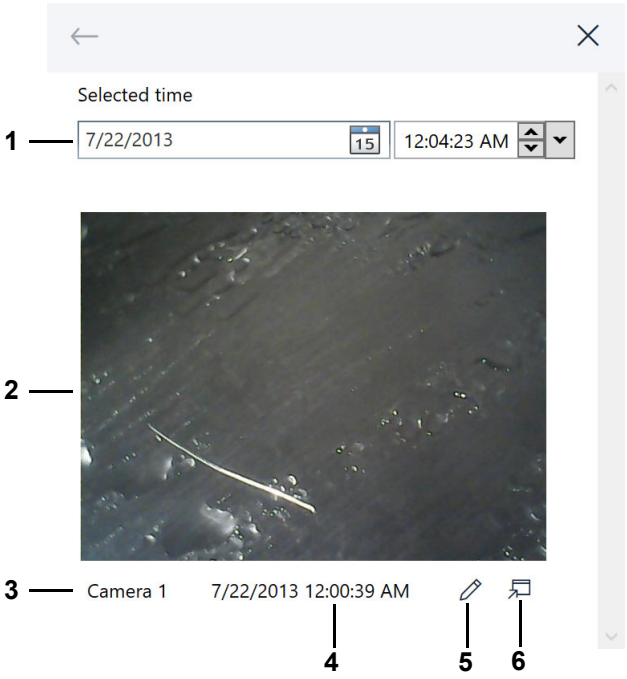

Fig. 16-16 Graphical evaluation – show images menu

1 Select the time a Simpati TimeLabs image is to be shown for. Enter the date in the box or pick it from the calendar.

Then proceed to entering the time. Or you may highlight the hour, minutes or seconds and use the arrow buttons to increase or decrease them. The drop down list on the right lets you set the time to the full hour.

Remember to press Enter every time you enter or select a date or time. Or use the vertical bar in the view to select a time.

Simpati TimeLabs saves camera images at regular intervals. The view displays the picture last taken before the set time.

2 Simpati TimeLabs image.

3 Name of camera. Simpati TimeLabs supports up to six cameras.

4 Time at which the Simpati TimeLabs picture was taken.

5 Open the Simpati TimeLabs image with the standard image editor, e. g. to document events during the test process with images.

Notice: the image editor shows the original file. Deleting the file also deletes the picture.

6 Open the Simpati TimeLabs image in a separate window, e. g. to display it on a second screen. The picture will be the same as that on the menu.

16.12 Info menu

Click on this icon to display the software release and any comments entered whilst recording data.

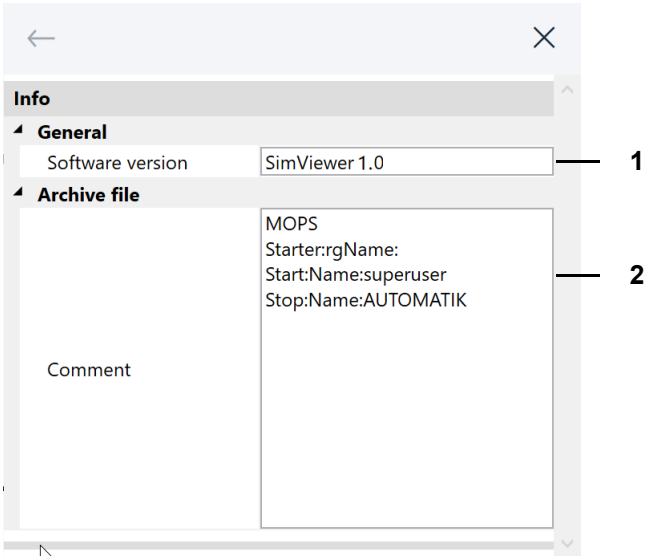

Fig. 16-17 Graphical evaluation – info menu

1 Software module for graphical evaluation.

2 Details of the displayed recording file (system designation, program name, file name, start and stop time of the recording) and comments entered when recording the test procedure.

→ *15 »Archiving«* (page 160).

16.13 View menu

Click on this icon to set up a view.

A view is a user-defined graphical representation of the data measured during a test. You can set up eight different views.

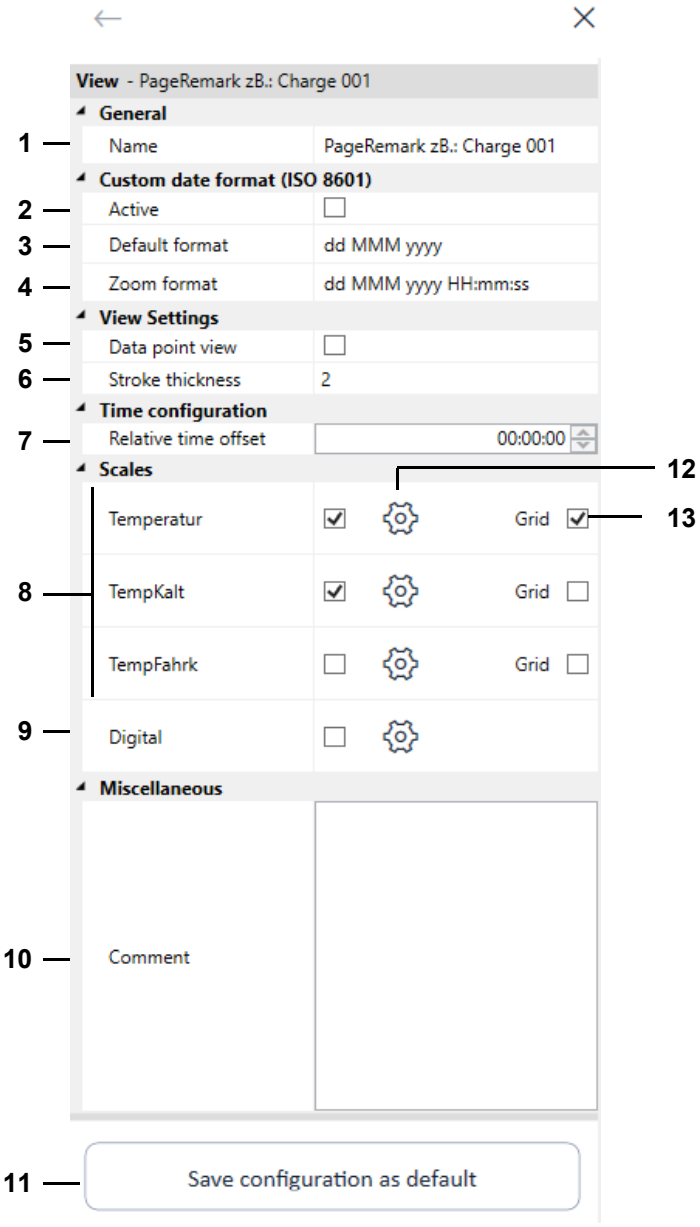

Fig. 16-18 Graphical evaluation – view menu

1 Name of view. The name appears on the tab of that view.
→ *16.1 »Graphical evaluation screen – panels«* (page 161)

2 Enable the custom date formats of the time axis (items 3 and 4).

3 Define a custom standard format of the time axis. Use the abbreviations displayed to define a date and time format.
Default setting: dd MMM yyyy.

Format	Explanation
dd	d is the abbreviation for “day” - d: the day is indicated as a one- or two-digit number (e.g. 5) - dd: the day is indicated as a two-digit number (e.g. 05) - ddd: abbreviation of the name of the weekday is indicated (e.g. Wed for Wednesday). - dddd: name of the day of the week is indicated (e.g. Wednesday).
MMM	M is the abbreviation for “month” - M: month is indicated as a one- or two-digit number (e.g. 8 for August and 12 for December). - MM: month is indicated as a two-digit number (e.g. 08 for August). - MMM: abbreviation of the name of the month is indicated (e.g. Jun for June). - MMMM: name of the month is indicated (e.g. June).
yyyy	y is the abbreviation for “year” - yy: last two digits of the year are indicated (e.g. 18 for 2018). - yyyy: year is indicated with four digits (e.g. 2018)
HH	H is the abbreviation for “hour” - H: hour is indicated as a one- or two-digit number. - HH: hour is indicated as a two-digit number.
mm	m is the abbreviation for “minute” - m: minute is indicated as a one- or two-digit number. - mm: minute is indicated as a two-digit number.mm:
ss	m is the abbreviation for “second” - s: second is indicated as a one- or two-digit number. - ss: s is indicated as a two-digit number:

4 Define a custom zoom format of the time axis. The zoom format is used to zoom the view intervals less than a day long. Use the abbreviations displayed to define a date and time format. Default setting: dd MMM yyyy HH:mm:ss.

5 Show/hide data points

6 Set the line thickness for all profiles displayed.

7 Set the offset for the relative time. You can switch time axis to relative time via the header menu → *16.2 »Graphical evaluation screen – header menu«* (page 162).

8 Show/hide scales of the recorded parameters. Up to three scales can be shown in the view.

9 Show/hide digital channels.

10 Comment on the view. You can enter a separate comment for every view.

11 Save the current configuration of the view as the default of future archive files.

12 Configure the scale or choose digital channels to be displayed.

→ *16.14 »Control variables axis menu«* (page 185)

→ *16.15 »Digital channels axis menu«* (page 187)

13 Show horizontal grid lines for the scale concerned. You can show a separate grid for every scale. Grid lines will move along with the scale when you move the scale up or down using the mouse.

If you switch to another view, double-click on its tab to output the details of the new view to the **Ansicht** menu.

Single-clicking to change views will not refresh the **Ansicht**menu.

In this case, click , to refresh the menu.

16.14 Control variables axis menu

Click on this icon next to a scale on the “View” menu to define the labels and the value range of a scale and to assign profiles to the scale.

→ *16.13 »View menu«* (page 182)

Or double-click on a scale in the view.

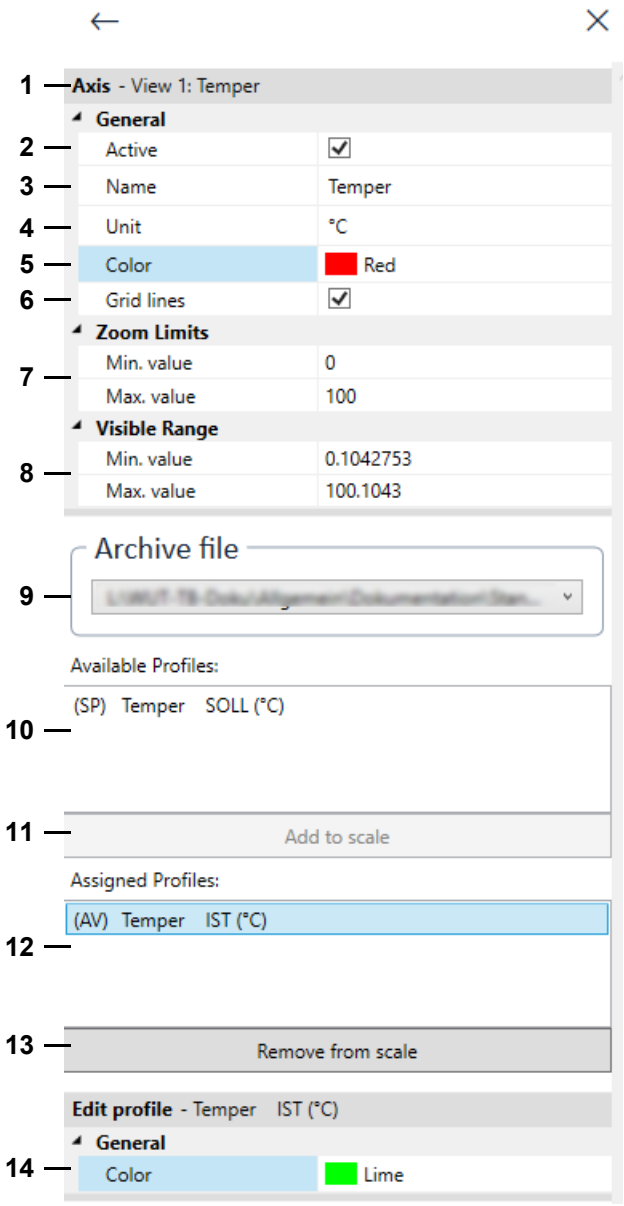

Fig. 16-19 Graphical evaluation – control variables axis menu

1 Names of the view and the scale.

2 Show/hide scale on the view.

3 Physical unit of control variable shown together with the names of the scale (Item 4) as scale label.

4 Name of scale.

5 Colour of scale.

6 Show horizontal grid lines for the scale. Grid lines will move along with the scale when you move the scale up or down using the mouse.

7 Value range of the scale that will be restored when undoing a zoom process.

8 Value range of the scale initially shown in the view. The value range in the view changes as you zoom or scroll the scale.

9 Drop-down list for selecting the archive file for which profiles are to be added to or removed from the scale.

10 Profiles you can assign to the scale.

11 Control to click on to assign an available profile to a scale. Remember to first select the profile on the list (Item 7). Or just double-click on the profile.

12 Profiles assigned to the scale.

13 Control to click on to remove a profile from the scale. Remember to first select the profile on the list (Item 10). Or just double-click on the profile.

14 Change the colour of the profile The section is displayed only if you select the desired profile in the area of added profiles.

Proceed as follows to select and assign/remove several profiles at once:

- Select a profile, press and hold the shift key, and then select another profile. This will select all profiles between the two profiles you selected first.
- Select a profile, press and hold the Ctrl key, then select other profiles. This will select all profiles you click on.

16.15 Digital channels axis menu

Click on this icon next to the digital channels shown on the “View” menu to select the digital channel to be displayed.

→ *16.13 »View menu«* (page 182)

Or double-click on the name of a digital channel in the view.

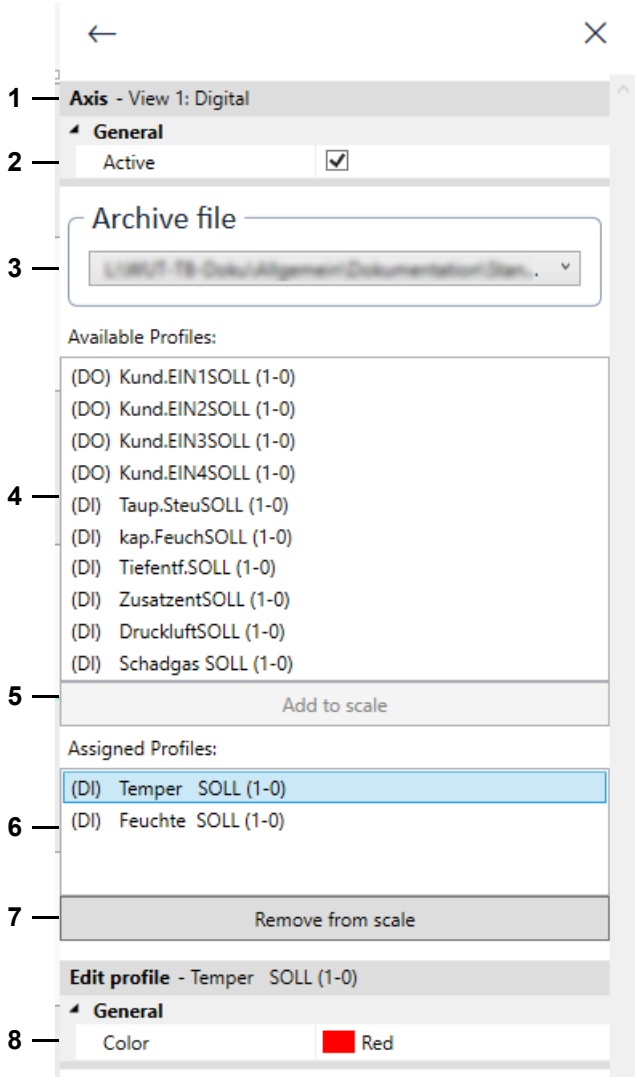

Fig. 16-20 Graphical evaluation – digital channels axis menu

1 Name of view.

2 Show/hide digital channels on the view.

3 Digital channels you can assign to the view.

4 Drop-down list for selecting the archive file for which profiles are to be added to or removed from the scale.

5 Control to click on to assign an available digital channel to the view. Remember to first select the digital channel on the list (Item 3). Or just double-click on the digital channel.

6 Digital channels assigned to the view.

7 Control to click on to remove a digital channel from the view. Remember to first select the digital channel on the list (Item 5). Or just double-click on the digital channel.

8 Select a colour to mark a digital channel. Remember to select the digital channel on the list (Item 5).

16.16 Workbook menu

16.16.1 Workbook overview

With the workbook function you can view, evaluate and save several archive files in one view. This allows you to line up several consecutive day files in one view. You can also superimpose archive files in the view and thus compare them.

Click on this icon to create a workbook. You can save workbooks using the save function in the page menu in the following format: simwrk (Simpati Workbook).

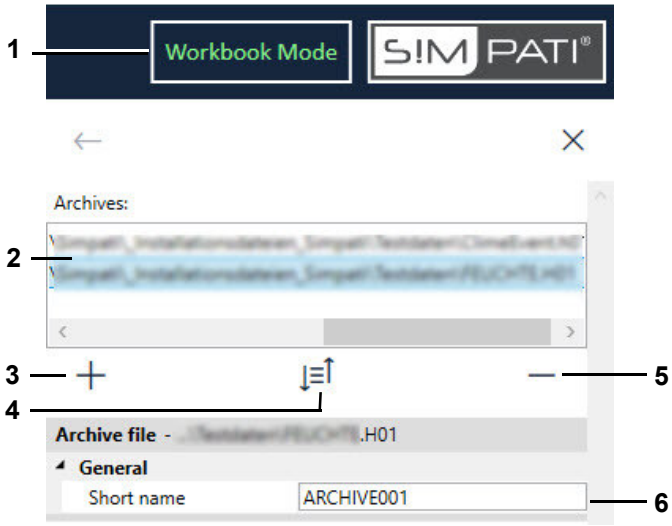

Fig. 16-21 Graphical evaluation – workbook menu section

1 In the header menu, this designation is displayed if at least two archive files have been added to the workbook.

2 List of rchive files that are in the workbook.

3 Add archive file to theworkbook.

4 Sort archive files in the list in ascending/descending order by name or date.

5 Remove selected archive file from the workbook (multiple selection with the Ctrl key pressed).

6 Field for changing the short name for the selected archive file. The short name is displayed in the legends.

16.16.2 Comparing archive files

Archive files with different profiles are automatically superimposed in the view. If the archive files contain the same profiles, when adding the archive files to the workbook, you can choose whether the files are to be lined up or superimposed in the view. With superimposed archive files, you can align the time axes with each other and thus compare the archive files

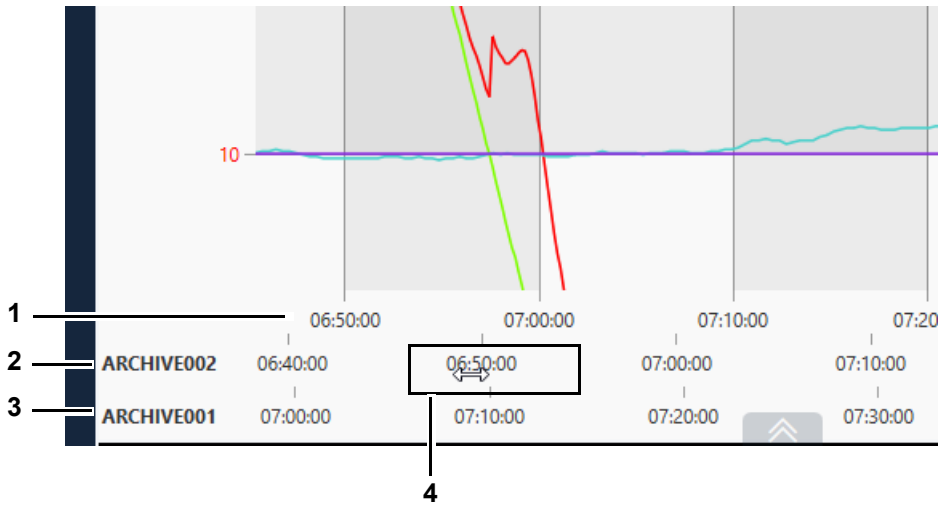

Fig. 16-22 Graphical evaluation – shift time axis in comparative view

1 Reference time axis
2 Time line of the archive file “ARCHIVE002”
3 Time line of the archive file “ARCHIVE002”
4 Icon of the cursor whilst moving the time axis

16.16.3 Create and save workbook

Procedure:

- Open an archive file that is to be part of the workbook.
-  Click.
  - ✓ The archive file is listed in the menu section of the workbook.
- Select [+] in the menu section.
  - ✓ The window for opening a file is displayed.
- Open required files (multiple selection by holding down the Ctrl key).
  - ✓ If the archive files are not compatible (different profiles), the data of the archive files are automatically displayed consecutively. All added archive files are listed in the menu section of the workbook.
  - ✓ If the archive files are compatible (same profiles), a prompt to add the archive files is displayed.
- If a prompt to add the archive files is displayed, proceed as follows:
  - If the data are to be displayed consecutively, select **Consecutive**.
  - If the data are to be displayed on top of each other, select **Overlapping**.
  - ✓ All added archive files are listed in the menu section of the workbook.
- If the superimposed view was selected during the query, make the following settings:
  - Assign short names to the archive files in the menu section of the workbook.
  - Select the index of the view that is to be set.
  - Select  in the page menu.
  - ✓ The Ansicht menu is displayed.
  - Set which profiles of the added archive files are displayed on the scales. To do this, activate the desired scale and select behind the desired scale  .
  - ✓ The menu for setting the axis for the scale is displayed.
  - In the **Archive file** drop-down list, select the archive file for which profiles are to be added.
  - Add desired profiles and set the colour of the profiles.
  - If necessary, click on the time axis of the respective archive file and move it.
- To delete an archive file from the workbook select the archive file in the menu section of the workbook, and select [–].
- If necessary, click and move the Y-axes.
- Set one or more views as desired.
- To save the workbook with all the views set, select the save icon in the page menu.

16.16.4 Open an existing workbook

Procedure:

-  click.
  - ✓ The window for opening a file is displayed.
- Select **Simpati workbook** file type.
- Open the desired workbook (file type: simwrk).

16.16.5 Export measurement data of the workbook as a CSV file

Procedure:

- Open existing workbook or create new workbook.
-  click.
  - ✓ The menu panel for exporting as a table is displayed in the menu panel.
- Adjusting settings and exporting data → *16.17 »Export data menu«* (page 193).

16.17 Export data menu

Click on this icon to set delimiters for the measured data displayed in a view and export the data to a CSV file.

You can afterwards open and further analyse the exported data using Excel or any other suitable application. When exporting, the system suggests to name the export file as the measurement file plus the name of the view.

If the data of the archive files are displayed on top of each other in a workbook, no CSV export is possible.

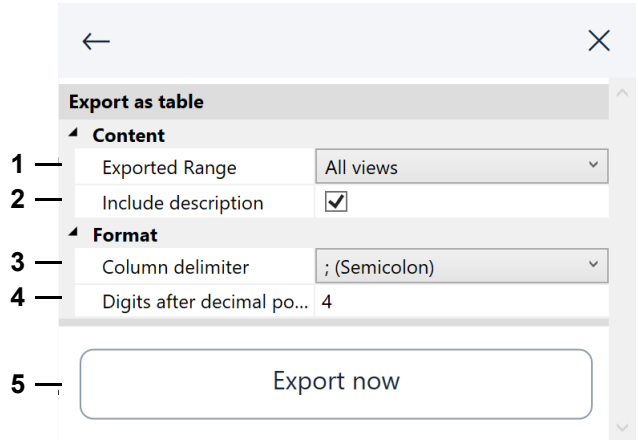

Fig. 16-23 Graphical evaluation – export data menu

1 Say to export just the current or all views.

2 Say whether to export the meta data.

Ticking this option will add the serial number of your Simpati licence, the name of the test system, and the export date to the export file.

3 Select a character to delimit every piece of measured information.

4 Set the number of decimal places the measured data will be exported with.

5 Start the export process.

16.18 Help menu

Click on this icon to show a list of keyboard short-cuts or to load the manual.

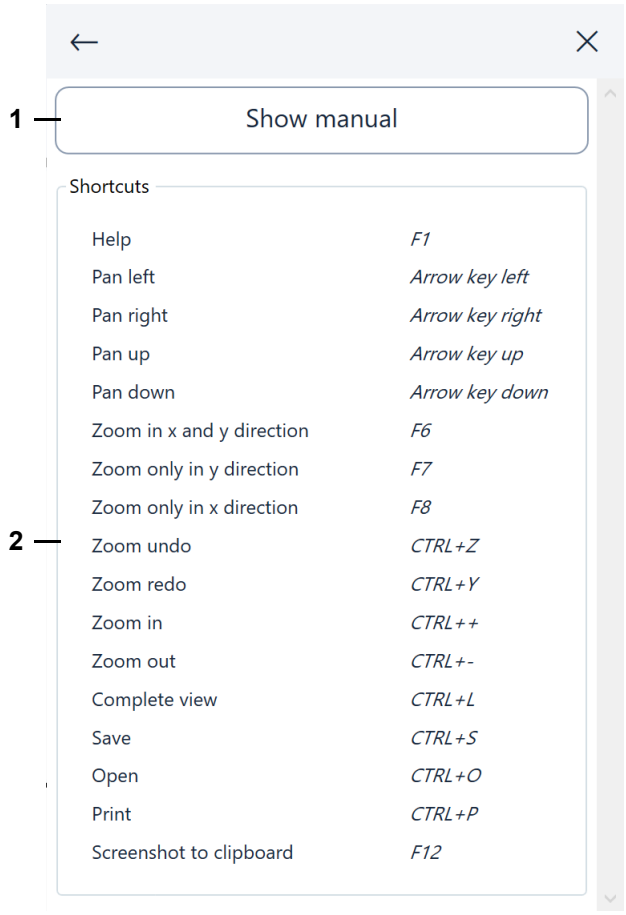

Fig. 16-24 Graphical evaluation – help menu

1 Click to load the manual (PDF).

2 List of keyboard short-cuts.

16.19 Error message

You will see the following prompt whenever an error occurs.

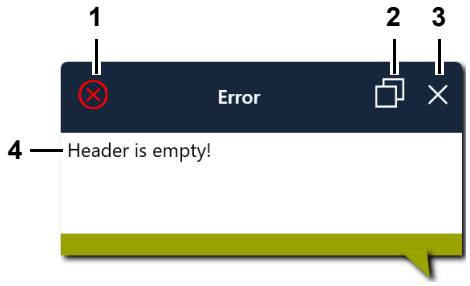

Fig. 16-25 Graphical evaluation – error message

1 Severity of the error message (e.g. red = command cannot be executed).

2 Copy details of the error message to the clipboard.

You may paste the details from the clipboard in an email and send it to the Service Dept. to report a more detailed context of the error.

3 Close the error prompt.

4 Error message text.

17 REPORTS AND MESSAGES (SIMREPORT)

You can access the menu via the Simpati main menu.

Run »SimReport« to display reports and messages of the test systems. Reports and messages can be filtered by various criteria.

Entries with the addition “control unit” indicate that the action was triggered either by an operation directly on the control unit on the test system or by an operation via the web browser.

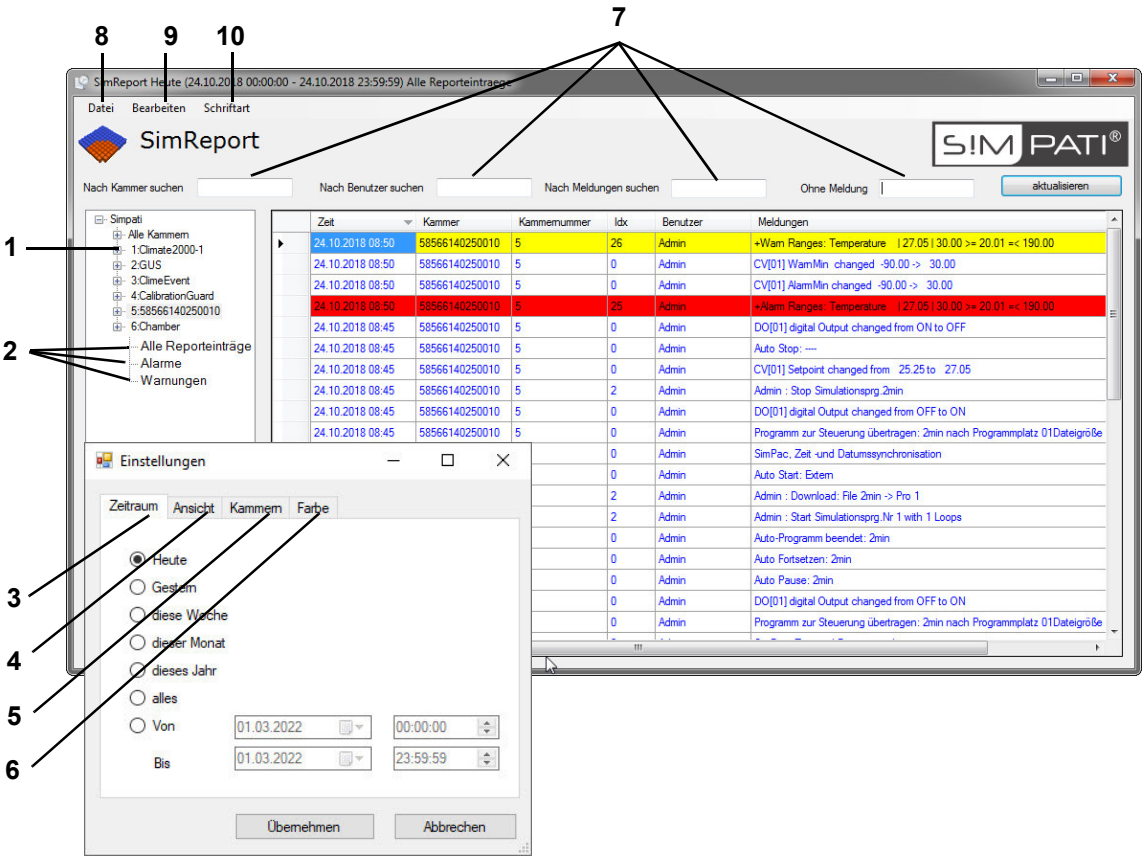

Fig. 17-1 SimReport

1 Show the messages and reports of all or single test systems.

2 For each test system, you can display the following:

- All report entries.
- Alarms only.
- Warnings only.

3 Filter by creation date. Opens the “Edit” menu (Item 10) to display the “Settings” dialogue.

4 Filter by message type.

5 Filter by test systems.

6 Select colours for the message types.

7 Filter messages by: test system, user and messages. Or exclude particular messages by filtering.

8 Print messages, export to PDF or exit the application.

9 Open the “Settings” dialogue.

10 Select a font for the messages.

18 SET UP AUTOMATIC SENDING OF EMAIL

Simpati continuously monitors all error states of the connected test systems. If a change in status is detected, the corresponding error message or other messages can be sent as an email to any valid email address.

18.1 System requirements for automatic sending of email

You need an SMTP server. The SMTP server is not a part of the Simpati software.

18.2 Start SimMailer

Procedure:

- Select the letter symbol in the main menu.

or:

- In the task bar of the computer, select the symbol for the **SimpatiMailer** tool (double-click).

Fig. 18-1 Icon of the SimpatiMailer tool in the task bar

or:

- Right-click on the **SimpatiMailer** tool icon in the task bar of the computer.
  - ✓ The context menu is displayed.
- Select **Show** in the context menu.

18.3 Set the SimMailer to start automatically

You can set the SimMailer tool to start automatically when Simpati is started.

Procedure:

- Insert the following entry into the start file Simpati.str:

98:01:simmailer:-start:

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18.4 General settings

The basic settings for the SMTP server and general message features are set via this menu.

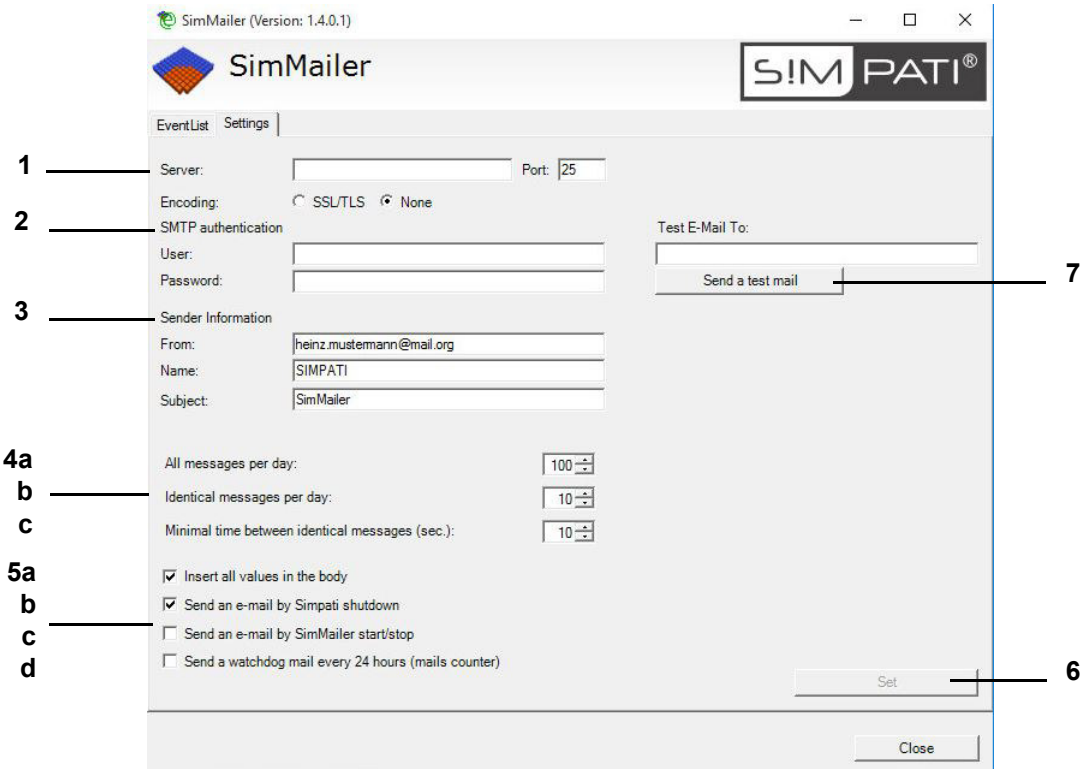

Fig. 18-2 Configuring mail settings

1 Server: name or IP address of SMTP server.
Port: port to be used for sending emails.
Encryption: send emails via an encrypted network connection (SSL-connection).

2 SMTP: authentication; do not fill in these fields if the server does not require authentication.

3 Sender information: sender's email address, user name, and subject.

4 Set the frequency of messages.

- a: Number of messages per day.
  To avoid overloading the server, you can set a maximum number of messages within a 24 hour period.
- b: Number of identical messages within 24 h (max.)
  Messages recurring within 24 h will not be sent more often than set in this box. This does not apply to the messages that can be selected under 5b and 5c.
- c: Time between identical messages (s)
  Time to be left between identical messages; messages sent within that period will be ignored.

5 Select other types of messages.

- a: Include all values in body.
  The current status of the values of the selected test system is also sent.
- b: Sending an email when quitting Simpati.
  When Simpati is closed, an email is sent.

– c: Send email when starting/stopping SimMailer.
  An email is sent upon starting or stopping SimMailer.
– d: Send watchdog email every 24 h.
  Every 24 h, all active users are sent a collective message with the total number of emails sent.

6 The settings are saved by clicking on »Accept«.

7 The SMTP configuration can be tested via »Send test report«.

18.5 Starting/stopping SimMailer

In order for emails to be sent via the SimMailer, it must be activated in the task bar with the right mouse button and “Start Mailer”. If SimMailer is activated, the symbol in the task bar appears in green.

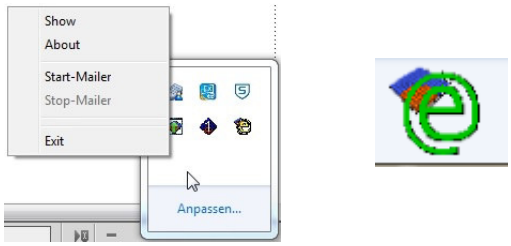

Fig. 18-3 Starting/stopping SimMailer

18.6 Configure email-messages

To configure, you must be logged into Simpati and have the appropriate user rights. Various profiles can be used to configure which messages are to be sent from which test system to which recipients. A profile is composed of a message list (2) and a recipient list (4).

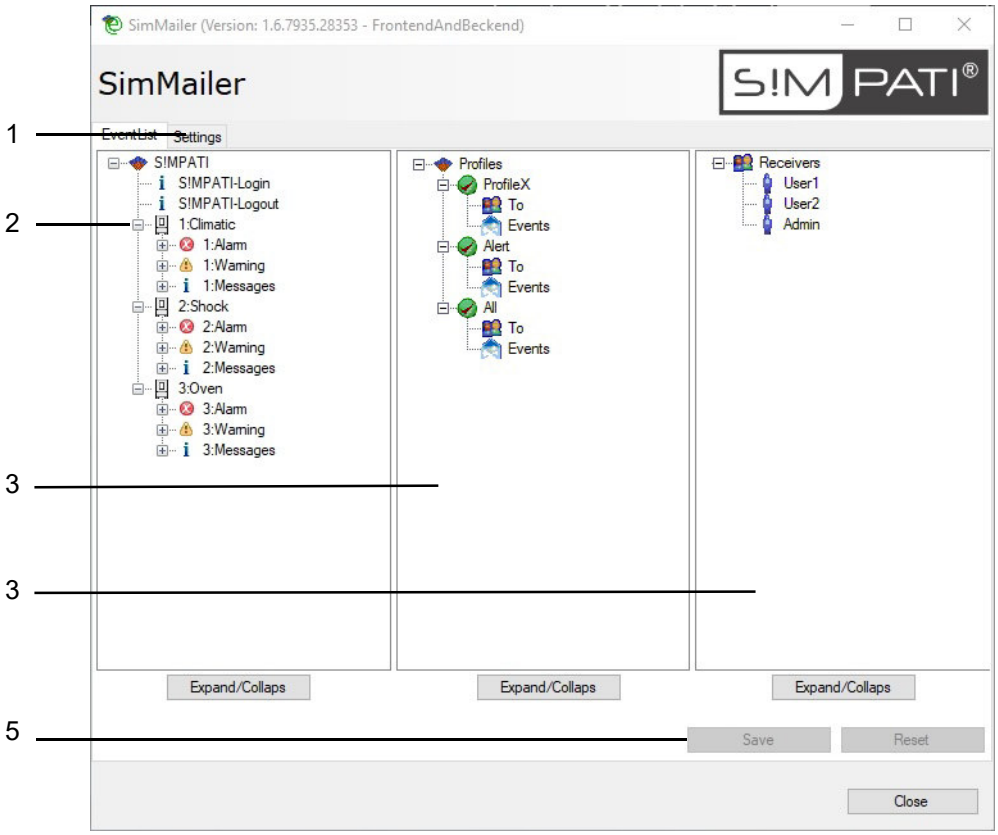

Fig. 18-4 SimMailer base menu

1 Settings → *18.4 »General settings«* (page 199)

2 List of messages: select test system and type of message.

3 Here, profiles can be created and configured and which messages are to be sent to which recipients.

4 List of recipients: select recipients.

5 »Accept« or »Reset« your changes.

Profile features are applied by dragging and dropping the relevant messages and users into the profile.

18.6.1 Setting up recipients

New users can be added by right-clicking on »Recipient«.

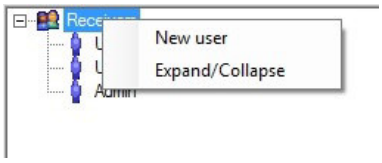

Fig. 18-5 Setting up recipients

The settings for the recipient can be opened by right-clicking on the particular user.

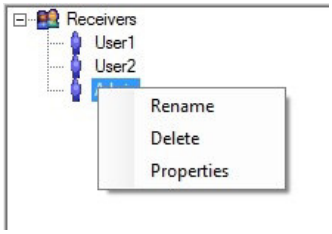

Fig. 18-6 Settings Recipient

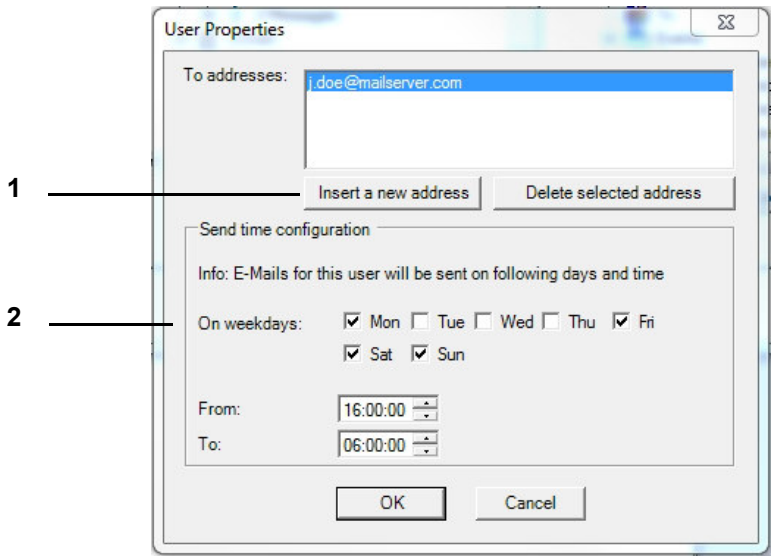

Fig. 18-7 Setting up an email address

1 Enter email address. A recipient may have one or several addresses.

2 Set the reception time (i.e. on which days and at what times messages will be sent to the above email addresses).

18.6.2 Configure profile

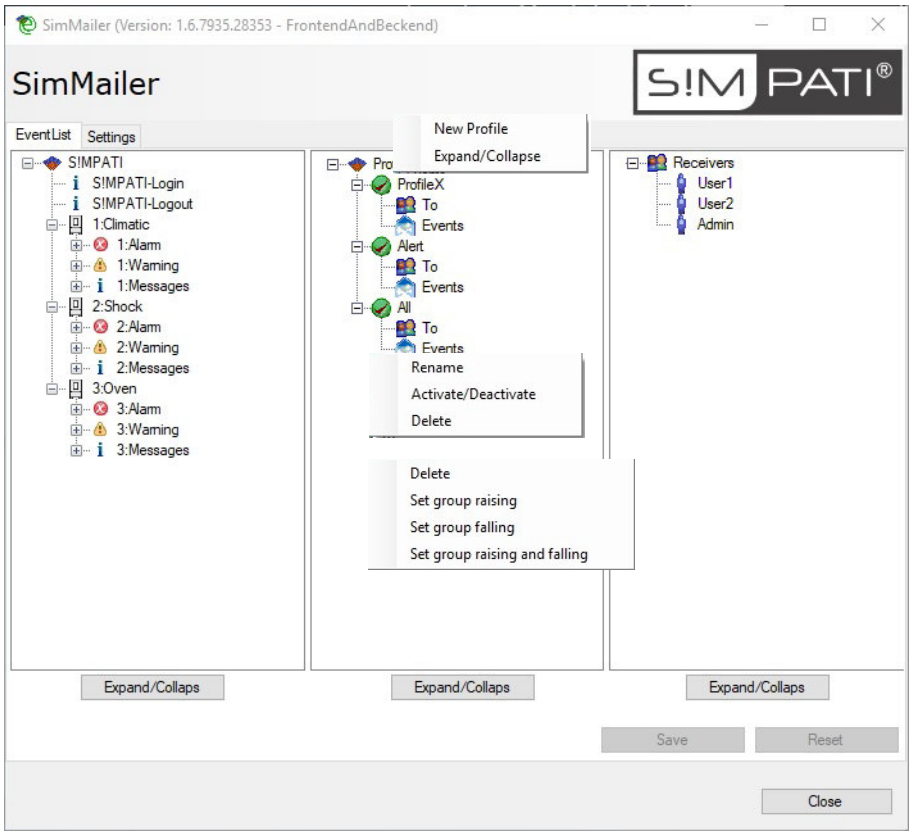

Fig. 18-8 Setting up events

The events can be configured in groups or individually.

incoming	Only incoming messages are sent.
outgoing	Only outgoing messages are sent.
incoming and outgoing	All messages are sent.

New profiles can be created and deleted; individual profiles can be activated and deactivated. If a profile is deactivated, no messages are sent to this profile.

19 CONTACT

If you have any technical problems with our product, please contact our service hotline:
+49 180 5666556

APPENDIX: EXAMPLES

1 Example program for a thermal and climatic test chamber with a Simcon control system

This example contains step-by-step explanation of how to create thermal and climatic program using the symbol editor.

General descriptions of the basic editor functions can be found in Chapter → *11.2 »Create test program with symbolic editor«* (page 96).

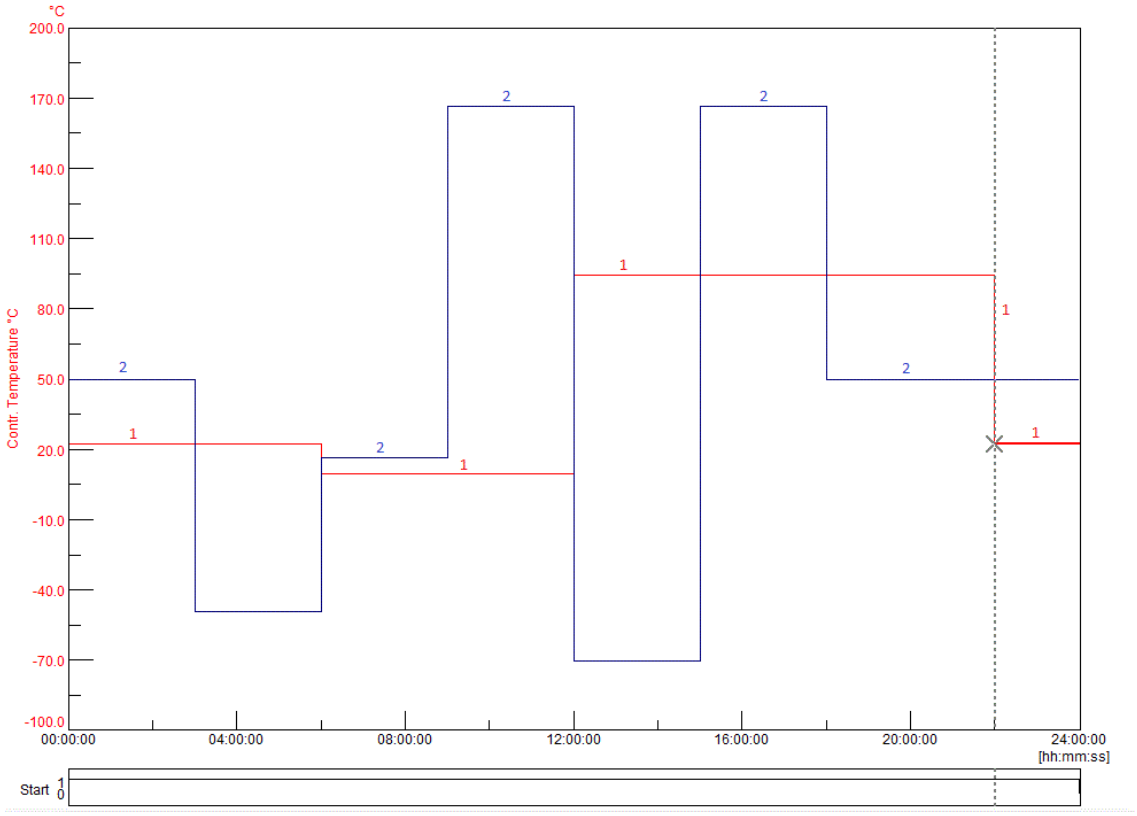

Fig. 1-1 Program preview

1 Control variable, rel. humidity % r.h.

2 Control variable, temperature °C

Programming of the »start« digital channel

Program module/input → Program module explanation		Explanation
	Start value: 1	Setting this digital channel starts the chamber.
	24 h constant	The previously set status of the digital channel is retained for 24 h.
	Insert this program module in the symbol chain to deactivate the digital channel.	

Programming of the »humidity« digital channel

Program module/input → Program module explanation		Explanation
	Start value: 1	Setting this digital channel turns on humidity control.
	24 h constant	The previously set status of the digital channel is retained for 24 h.
	Insert this program module in the symbol chain to deactivate the digital channel; the humidity is no longer controlled.	

Programming of the control variable »humidity«

Program module/input → Program module explanation		Explanation
	Start value: 50% → *»Programming of the »start« digital channel« (page 206)*	Sets relative humidity to 50%.
	3 h constant → *»Nominal value jump up/ down« (page 102)*	For this time, the previously set nominal value will be retained.
	17% → *»Nominal value jump up/ down« (page 102)*	There will be a jump down to 17% r.h., the humidity is reduced as quickly as possible.
	3 h constant	For this time, the previously set nominal value will be retained.
	39%	There will be a jump up to 39% r.h., the humidity is increased as quickly as possible.
	3 h constant	For this time, the previously set nominal value will be retained.

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Program module/input → Program module explanation		Explanation
	89%	There will be a jump up to 89% r.h., the humidity is increased as quickly as possible.
	3 h constant	For this time, the previously set nominal value will be retained.
	10%	There will be a jump down to 10% r.h., the humidity is reduced as quickly as possible.
	3 h constant	For this time, the previously set nominal value will be retained.
	89%	There will be a jump up to 89% r.h., the humidity is increased as quickly as possible.
	3 h constant	For this time, the previously set nominal value will be retained.
	50%	There will be a jump down to 50% r.h., the humidity is reduced as quickly as possible.
	6 h constant	The previously set nominal value (50% r.h.) is retained until the end of the program.

Programming of the control variable »temperature«

Program module/input → Program module explanation		Explanation
	Start value: 23 °C → *11.2.3 »Configuring a profile«* (page 99)	Sets the temperature to +23°C
	6 h constant → *»Nominal value jump up/ down« (page 102)*	For this time, the previously set nominal value will be retained.
	Jumps down to 10 °C → *»Nominal value jump up/ down« (page 102)*	The temperature changes to +10°C, the nominal value is approached as quickly as possible.
	6 h constant	For this time, the previously set nominal value will be retained.
	Jumps up to 95°C → *»Nominal value jump up/ down« (page 102)*	Increases the temperature to +95°C, the nominal value is approached as quickly as possible.
	10 h constant	For this time, the previously set nominal value will be retained.
	Jumps down to 23 °C → *»Nominal value jump up/ down« (page 102)*	The temperature changes to +23°C, the nominal value is approached as quickly as possible.

1 Example program for a thermal and climatic test chamber with a Simcon control system

Program module/input → Program module explanation		Explanation
	2 h constant	For this time, the previously set nominal value will be retained.

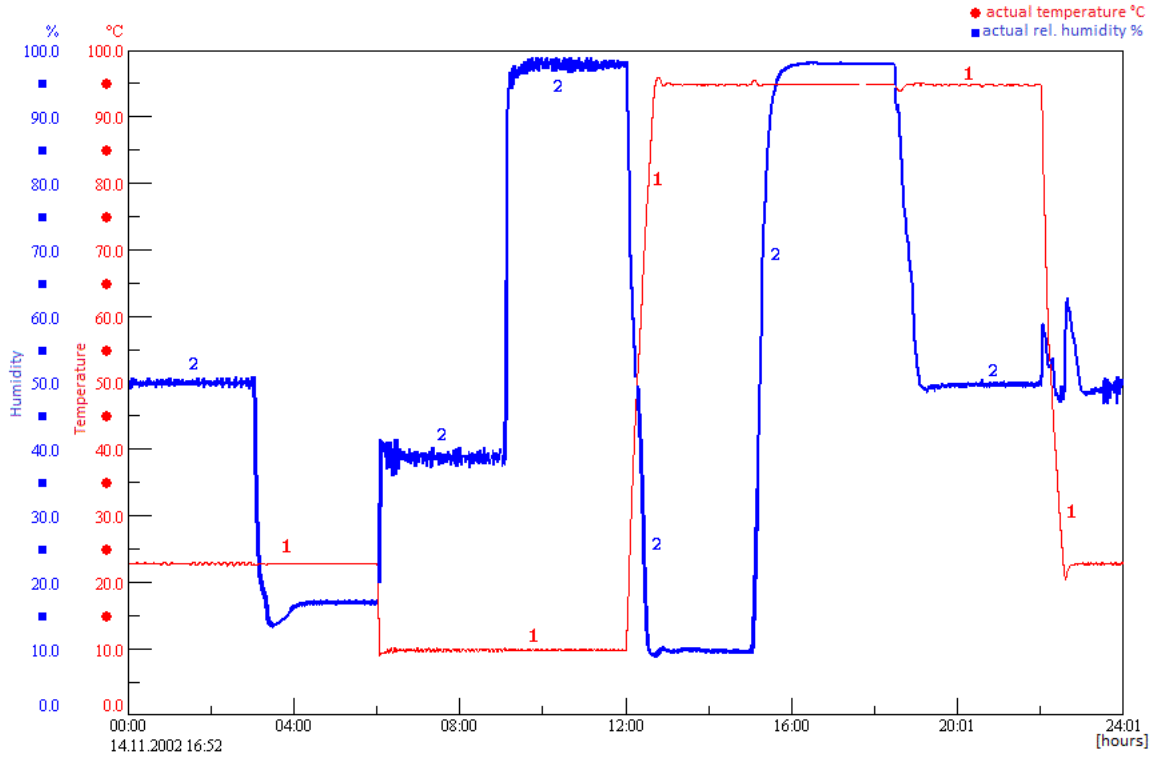

Fig. 1-2 Program sequence

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2 Example program for a humidity salt spray chamber with a Simcon control system

The following example explains a climate alternating test in accordance with VDA 621-415.

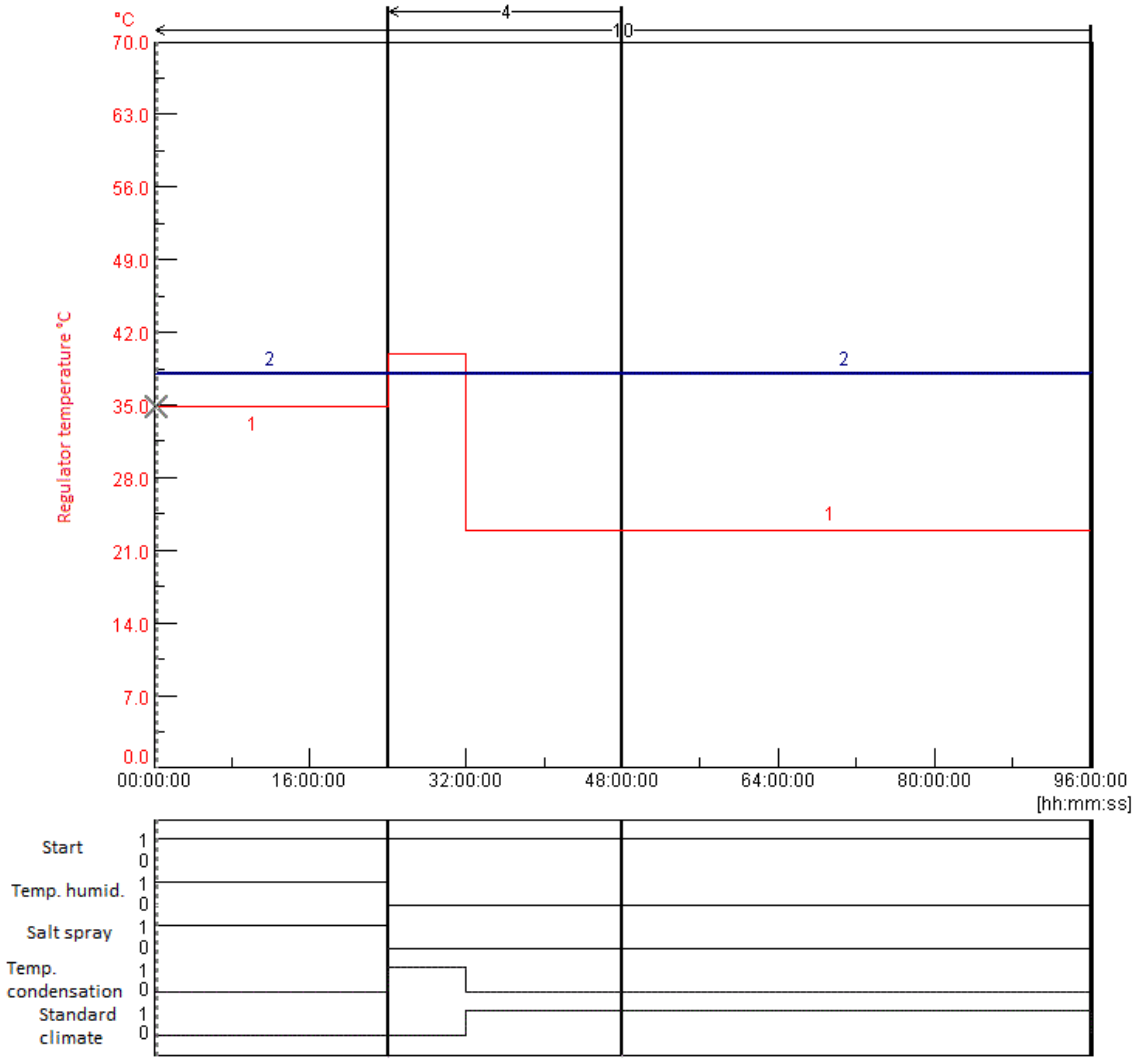

Fig. 2-1 Program preview

Programming of the »start« digital channel

Program module/input → Program module explanation		Explanation
	Start value: 1 → *»Selection module«* (page 102)	Setting this digital channel turns on the chamber.
	24 h constant → *»Time module«* (page 102)	The previously set status of the digital channel is retained for 24 h.
	24 h constant	The previously set status of the digital channel is retained for 24 h; this module must be set repeatedly within the loop because the first »constant« module is not taken into account when jumping to the start of the loop.
	48 h constant	The previously set status of the digital channel is retained for 48 h.

Programming of the »humidifier temp.« digital channel

Program module/input → Program module explanation		Explanation
	Start value: 1 → *»Selection module«* (page 102)	Setting this digital channel enables the nominal humidifier temperature.
	24 h constant → *»Time module«* (page 102)	The previously set status of the digital channel is retained for 24 h.
	Insert this program module in the symbol chain to deactivate the digital channel.	
	24 h constant	The digital channel has no effect on the test sequence for the next 24 h.
	48 h constant	The digital channel remains disabled for another 48 h.

Programming of the »salt spray« digital channel

Program module/input → Program module explanation		Explanation
	Start value: 1 → *»Selection module«* (page 102)	Setting this digital channel starts the salt spray test.
	24 h constant → *»Time module«* (page 102)	The previously set status of the digital channel is retained for 24 h.
	Insert this program module in the symbol chain to deactivate the digital channel.	

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Program module/input → Program module explanation		Explanation
	24 h constant	The digital channel has no effect on the test sequence for the next 24 h.
	48 h constant	The digital channel remains disabled for another 48 h.

Programming of the »condensed water« digital channel

Program module/input → Program module explanation		Explanation
	0 → *»Selection module«* (page 102)	Setting this digital channel starts the condensed water test.
	24 h constant → *»Time module«* (page 102)	The digital channel has no effect on the test sequence for the next 24 h.
	Insert this program module in the symbol chain to reactivate the digital channel.	
	8 h constant	The digital channel is enabled for 8 h.
	Insert this program module in the symbol chain to deactivate the digital channel.	
	16 h constant	The digital channel has no effect on the test sequence for the next 16 h.
	48 h constant	The digital channel remains disabled for another 48 h.

Programming of the »standard climate« digital channel

Program module/input → Program module explanation		Explanation
	0	Setting this digital channel starts the standard climate test
	24 h constant	The digital channel has no effect on the test sequence for the next 24 h.
	8 h constant	The digital channel is enabled for 8 h.
	Insert this program module in the symbol chain to reactivate the digital channel.	
	16 h constant	The digital channel is enabled for 16 h.
	48 h constant	The digital channel remains enabled for another 48 h.
	Insert this program module in the symbol chain to deactivate the digital channel.	

Programming of the control variable »controller temperature«

Program module/input → Program module explanation		Explanation
	Start value: 35 °C → *»Selection module«* (page 102)	Sets the temperature to +35°C
	24 h constant → *»Time module«* (page 102)	For this time, the previously set nominal value will be retained.
	Jumps up to 40°C → *»Nominal value jump up/ down« (page 102)*	The temperature is increased to +40°C; the nominal value is approached as quickly as possible.
	8 h constant	For this time, the previously set nominal value will be retained.
	Jumps down to 23 °C → *»Nominal value jump up/ down« (page 102)*	There is a temperature change to +23°C; the nominal value is approached as quickly as possible.
	16 h constant	For this time, the previously set nominal value will be retained.
	48 h constant	For this time, the previously set nominal value will be retained.

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Programming of the control variable »controller humidifier«

Program module/input → Program module explanation		Explanation
	Start value: 49 °C → *»Selection module«* (page 102)	Sets the nominal humidifier temperature to 49 °C.
	Cycles 10	Loop start, all program steps following the beginning of this loop will be executed 10 times. To be able to enter the number of cycles, set the program module for the end of the loop. The loop is automatically transferred to every profile.
	24 h constant	During this time, the previously set nominal value will be retained.
	Cycles 4	Loop start; all program steps after the start of this second loop are executed four times. To be able to enter the number of cycles, set the program module for the end of the loop. The loop is automatically transferred to every profile.
	24 h constant	For this time, the previously set nominal value will be retained.
	Cycles 4	At the end of the loop, a jump to the start of the loop is made three times before the test program is processed further.
	48 h constant	For this time, the previously set nominal value will be retained.
	Cycles 10	At the end of the loop, a jump to the start of the loop is made nine times at this point, and the test program is executed again.

3 Example program for a shock chamber with a DMR control system

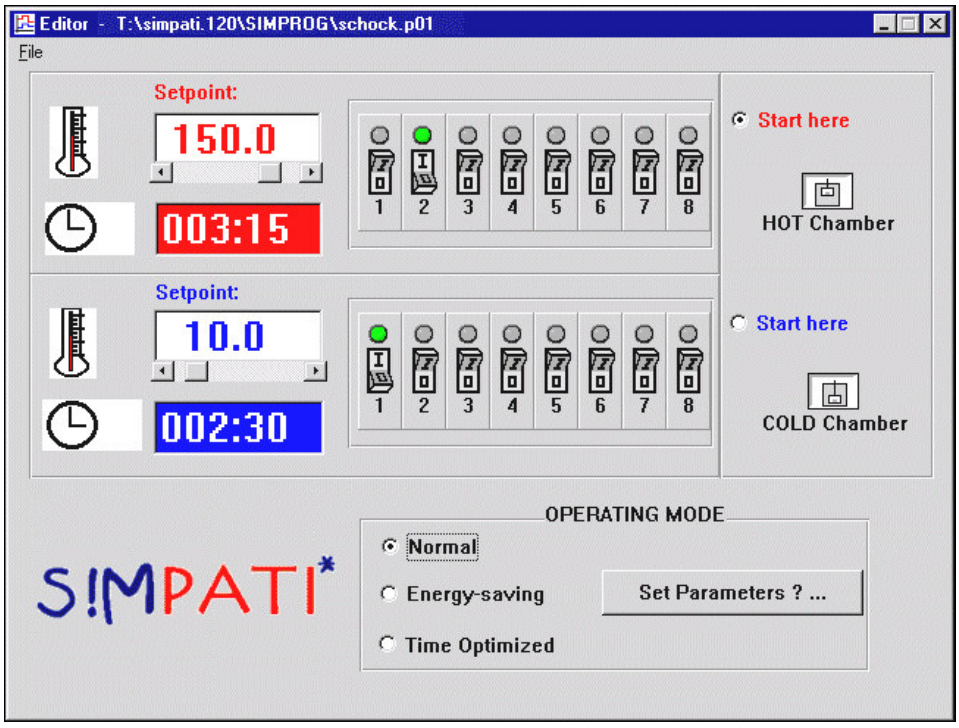

Fig. 3-1 Example: shock chamber editor with DMR control system

In the example above, the lifting basket is to stay in the hot chamber for 3 h and 15 minutes and in the cold chamber for 2 h and 30 minutes. The test program starts in the hot chamber and is to run in normal mode.

In addition, the 2nd customer outlet is set in the hot chamber and the 1st customer outlet in the cold chamber.

4 Test program example with program advance

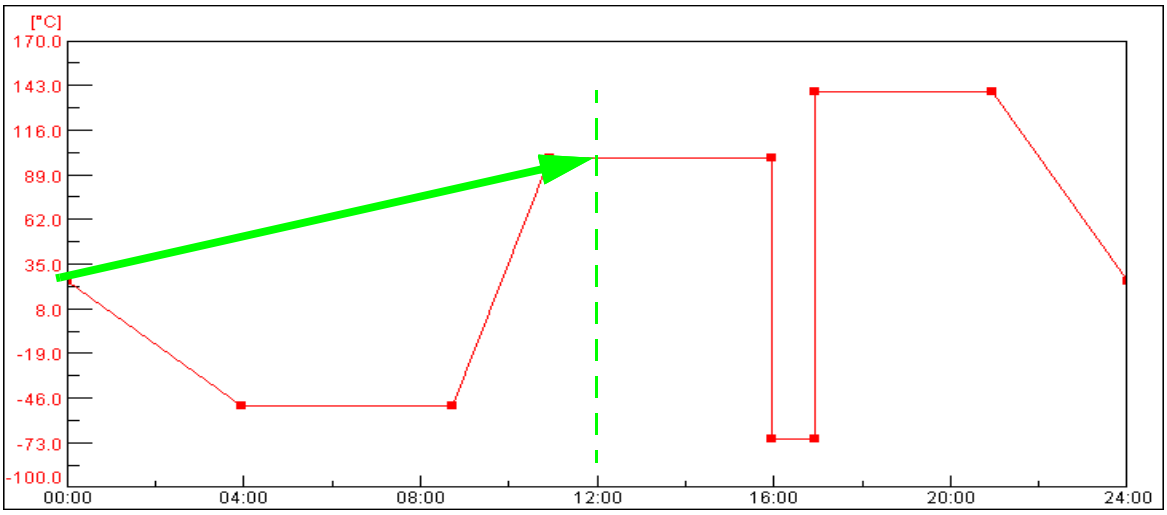

Fig. 4-1 Example »Program advance«

Start time: 12:00 o'clock

The → *14 »Starting/stopping a test program«* (page 158) function is active; after start-up, the test program immediately goes to the status that would be reached after 12 h according to the test program.

5 Shock chamber editor program example for a shock chamber with CTC control system

Control variable				
		Nominal value	Lower alarm limit	Upper alarm limit
TempHot	°C	120.0	−90.0	230.0
TempCold	°C	−40.0	−90.0	230.0
TemperHot	°C	130.0	0.0	240.0
TemperCold	°C	−50.0	−90.0	80.0
TempFahrk	°C	0.0	−100.0	250.0
Pt100Move	°C	0.0	−100.0	250.0

Before the loop		
Time [min]	1	A one-minute interval is completed before the start of the loops (cycles).
Start	ON	System status = ON

Before the loop		
TempHot	ON	Temperature control of hot chamber is active.
TempCold	ON	Temperature control of cold chamber is active.
Fahrk.Up	ON	Lifting basked in hot chamber at first.
Fahrk.Dn	OFF	Lifting basket not in cold chamber.
Defrosting	OFF	Cold chamber not to defrost.
Pretemper	ON	When the chamber is not in use, set its temperature to pretempering temperature.
Start Interr	OFF	Test program not to start in cold chamber.
WaitEnabled	OFF	This digital channel has no function. If the test program is to be run with the wait function, this function has to be added in the graphical editor later. → *»General profile settings«* (page 121)
CO2/LN2	OFF	CO2 or LN2 cooling is disabled.
Contr/Fahrk	OFF	Control from the lifting basket disabled.
LampTest	OFF	Lamp test if off.
CustOFF1	OFF	Customer output 1 is off.
CustOFF2	OFF	Customer output 2 is off.

Cycles		
Cycles	100	In total, 100 cycles (i.e. 100 times sections 1-3 or 1-2) are executed.

After the loop		
Time [min]	30	A 30-min interval is completed after the loops (cycles).
Start	ON	System status = ON
TempHot	OFF	Temperature control of hot chamber disabled.
TempCold	OFF	Temperature control of cold chamber disabled.
Fahrk.Up	ON	Lifting basket in hot chamber at the end.
Fahrk.Dn	OFF	Lifting basket not in cold chamber.
Defrosting	ON	Cold chamber defrosts.
Pretemper	OFF	When not in use, the chamber is not pre-tempered.

Start Interr	OFF	Test program not to start in cold chamber.
WaitEnabled	OFF	This digital channel has no function. If the test program is to be run with the wait function, this function has to be added in the graphical editor later. → *»General profile settings«* (page 121)
CO2/LN2	OFF	CO2 or LN2 cooling is disabled.
Contr/Fahrk	OFF	Control from the lifting basket disabled.
LampTest	OFF	Lamp test if off.
CustOFF1	OFF	Customer output 1 is off.
CustOFF2	OFF	Customer output 2 is off.

1st section		
Time [min]	60	60 min dwell time in hot chamber.
Start	ON	System status = ON
TempHot	ON	Temperature control of hot chamber is active.
TempCold	ON	Temperature control of cold chamber is active.
Fahrk.Up	ON	Lifting basket in hot chamber.
Fahrk.Dn	OFF	Lifting basket not in cold chamber.
Defrosting	OFF	Cold chamber not to defrost.
Pretemper	ON	When the chamber is not in use, set its temperature to pretempering temperature.
Start Interr	OFF	Test program not to start in cold chamber.
WaitEnabled	OFF	This digital channel has no function. If the test program is to be run with the wait function, this function has to be added in the graphical editor later. → *»General profile settings«* (page 121)
CO2/LN2	OFF	CO2 or LN2 cooling is disabled.
Contr/Fahrk	OFF	Control from the lifting basket disabled.
LampTest	OFF	Lamp test if off.
CustOFF1	OFF	Customer output 1 is off.
CustOFF2	OFF	Customer output 2 is off.

2nd section		
Time [min]	60	60 min dwell time in hot chamber.
Start	ON	System status = ON
TempHot	ON	Temperature control of hot chamber is active.
TempCold	ON	Temperature control of cold chamber is active.
Fahrk.Up	OFF	Lifting basket not in hot chamber.
Fahrk.Dn	ON	Lifting basket in cold chamber.
Defrosting	OFF	Cold chamber not to defrost.
Pretemper	ON	When the chamber is not in use, set its temperature to pretempering temperature.
Start Interr	OFF	Test program not to start in cold chamber.
WaitEnabled	OFF	This digital channel has no function. If the test program is to be run with the wait function, this function has to be added in the graphical editor later. → *»General profile settings«* (page 121)
CO2/LN2	OFF	CO2 or LN2 cooling is disabled.
Contr/Fahrk	OFF	Control from the lifting basket disabled.
LampTest	OFF	Lamp test if off.
CustOFF1	OFF	Customer output 1 is off.
CustOFF2	OFF	Customer output 2 is off.

3rd section		
Time [min]	0	This section is skipped because it involves a program example for a double shock chamber that no program is entered for.

Shock test program representation in the graphical editor:

Wait function added to TempHot and TempCold nominal value profile in the graphical editor.

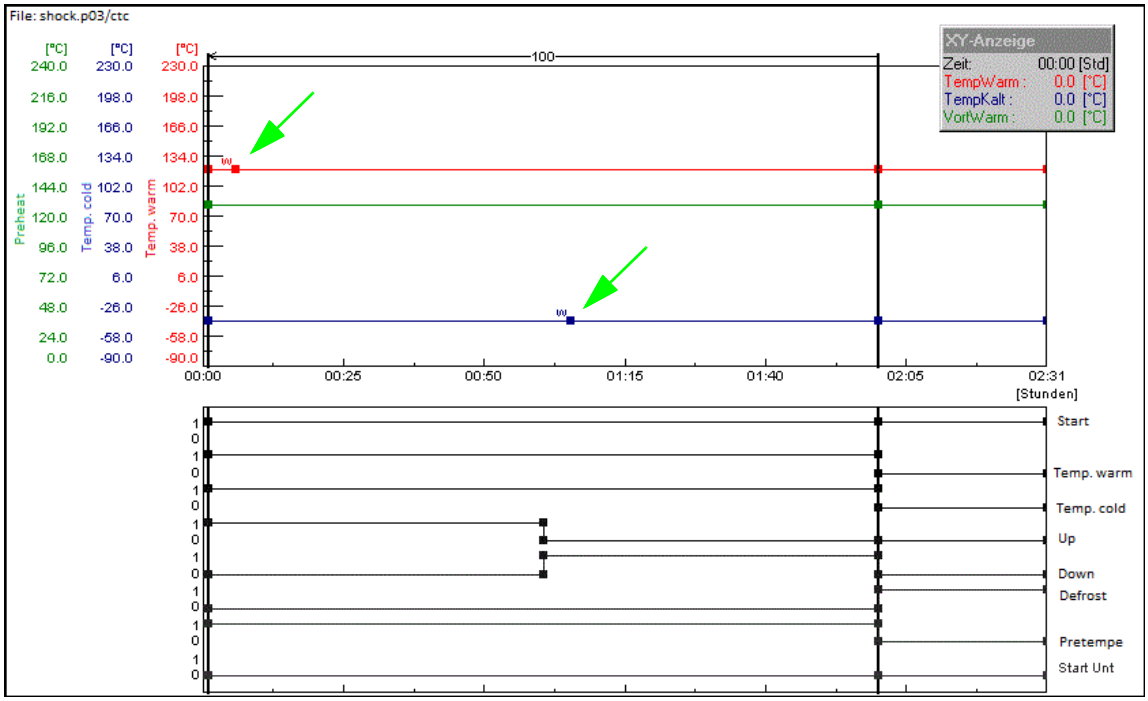

Fig. 5-1 Graphical shock test program representation

Adding the wait function ensures that the set cycle time will not start until the temperature of the lifting basket is within the adjustable wait tolerance limits (e.g. ± 5 K or factory-set default).

Set the data point »Hot Temp« or »Cold Temp« approx. 1 minute after moving the lifting basket and then activate the Wait function.

APPENDIX: GLOSSARY AND TIPS

Alarm limit

Depending on the test system, limit values can be set to specific values (controlled variables, measured values, counters), such as temperature, humidity and pressure. Limit values are used to monitor maximum and minimum values.

If, for example, the measured actual temperature value exceeds the entered maximum value of the temperature alarm limit, a message is displayed and, for example, the test is stopped. How the test system reacts when an alarm limit is exceeded is specified in the operating manual of the test system. Depending on the test system, it is possible to set alarm limits and warning limits. The warning limit is the pre-warning level. The alarm limit is the higher warning level.

Archive name

The name of the measured data log is referred to as archive name. If an archive name is not assigned, Simpati automatically uses the date of the start of recording (year, month, day).

Automatic / program mode

The test sequence is based on a test program.

Background program → Foreground program

Context menu

To display the context menu, right-click once on the object concerned.

Different context menu commands are available depending on the test system controller.

Control variables

Analog channel. Contains a measured value (actual value) and a control value (nominal value). Normally, the temperature is the first control variable and humidity the second.

Control value

Analog output.

Counter

Displays the counter readings.

EPROM version

After the start, the EPROM version no. briefly lights up at the E4 terminal.

At the C terminal, press the »SYSTEM PARAM.« softkey in the start menu.

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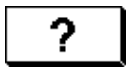
Flash version

For test systems with Mincon/Simcon controller, you can read the flash version of the controller on the touch panel: menu window »CHAMBER INFORMATION« in the second line.

It can be reached from the main menu via the following icons.



Foreground / background program

A background program may run at the same time as another test program.
Several foreground programs run successively. A total of at most 3 test programs can run simultaneously.

These settings only affect the test sequence if the wait function and the → *Call Program* function are being used.

→ *11.3.4 "»Options« menu function"* (page 118)

Take heed of the instructions for the different types of controllers in chapter
.
→ *Appendix: "Other controls, controllers, third-party devices"* (page 223).

Holding time

The holding time specifies how long a certain actual value (e.g. temperature of +30 °C) is to be held as soon as it is reached. The actual value is not changed during the holding time. With a desired actual value of +30 °C, for example, the test system regulates the temperature so that the temperature remains constant at +30 °C during the holding time.

Manual mode (hand mode)

Selection of nominal and control values as well as the switching on and off of digital channels, without the test sequence being based on a test program.

Measured value

Actual value, analog input.

Test program name / Program number

Every test program has its own test program name used for saving by Simpati. The test program is given a number when it is downloaded. The test programme is loaded and stored in the control system of the test system under this test programme number.

Use only letters, numbers and the understroke key for the test program name.

Test program slots 0 to 99 (DMR control 1-100) are available in the control system of the test system. In chambers with CTC / TC / MOPS controllers, test program slots 100 to 120 are assigned standard programs (→ chamber operating manual).

***** = any number of characters, **xx** = chamber number.

– Type *.cfg

  Names of test programs written for shock chambers with a DMR controller in the text editor are extended by *.cfg and saved as type *.pxx.

– Type *.pxx

  Test programs created using the graphic editor
  → *11.3 “Create test program with graphical editor”* (page 113) are saved as type *.pxx.

– *cp.pxx

  If a test program is copied from another chamber and the file name is not manually changed by the user, »cp« is added to the original file name and the number of the destination chamber is changed.

– Type *.bxx

– Programs created in the symbol editor → *11.2 “Create test program with symbolic editor”* (page 96) or in the shock chamber editor → *11.6 “Creating test programs for a shock test chamber”* (page 139) are saved as type *.bxx.

– Type *.rpt

  Report files are saved as type *.rpt. The report files store daily reports.
  File names set by Simpati are made up of the date in the following format:
  year/month/day.

– Type *.rptb

  Encrypted report file.

– type *.hxx / *.rxx

  A measurement file consists of a header file (*.hxx) and a body file (*.rxx).
  The header file contains data on the configuration and structure of the measurement file.

  The body file contains the measured values. When a measurement file is loaded, the header file is loaded and the measured values in the corresponding body file are accessed at the same time.
  If the body file cannot be accessed, the loading process is interrupted with a message. In all processes, the program will automatically edit both the header file and the body file.

– Format *.dxx

The test program can be displayed step by step, printed and saved in a written format as a program list (*.dxx). However, you cannot manipulate the test program at this point.

Tolerance band

The tolerance band indicates the deviation permitted between actual value and nominal value.

Warning limit

Depending on the test system, limit values can be set to specific values (controlled variables, measured values, counters), such as temperature, humidity and pressure. Limit values are used to monitor maximum and minimum values.

If, for example, the measured actual temperature value exceeds the maximum value entered for the temperature warning limit, a message is displayed. Depending on the test system, it is possible to set warning limits and alarm limits. The warning limit is the pre-warning level. The alarm limit is the higher warning level.

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APPENDIX: OTHER CONTROLS, CONTROLLERS, THIRD-PARTY DEVICES

1 General notes on configuring other controls, controllers, third-party devices

The controllers and third-party devices listed in this appendix cannot be configured in the simsetup.

For configuration, a CD with configuration files and installation instructions is included with the Simpati software package. Be sure to follow the instructions given in this appendix and the following points:

– Download function and upload function (test programme transfer: test system → computer or computer → test system) are not supported. Only online mode is possible. The computer must be permanently connected to the test system.
– Error messages from the testing system are not displayed in Simpati. Exceptions: Prodicon Plus control system, rod controller.
– Pin assignment for the interface cables: → *1.5 "Additional documents"* (page 11).

2 Configure other controls, controllers, third-party devices

2.1 MOPS-, CTC-, TC control system

Manually enabling/disabling test material protection by software is supported by EPROM version 1.73 or higher.

2.2 Gateway with CTC control system

– Automatic test programs cannot be uploaded
– Background programs are not supported
– No fast program advance possible
– Test material protection by software cannot be enabled/disabled manually

2.3 ISAR control system

- Simsetup reads the configuration of the test system via the init file. This means that if a test system is found, this is not proof that the communication between the test system and the software is working.
- Some digital channels (corrosive gas, radiation, moistening) cannot be set manually.
- Acknowledging errors is not supported
- Advancing programs is not supported
- Uploading test programs is not supported
- Background programs are not supported
- Test material protection by software cannot be enabled/disabled manually
- The status of the test system can be asynchronised by operating it with Simpati and on the control panel of the test system. Recommendation: In general, the test system should therefore be controlled from the control panel or only via Simpati.
- The wait function can only be assigned to one channel
- Protocol: transparent

2.4 Mincon / Simcon control system

Flash version 00.18 or higher supports the upload of test programs.

► Only use the symbolic editor for programming.

2.5 DMR control system

► Test programs can only be uploaded with DMR version R2-38 or higher → *12 "Transfer test program between test system and Simpati"* (page 152)

2.6 Prodicon control system

Adjust the following settings:

► Activate the **ON** and **EXT** buttons (both lamps need to light up).

► Set the address 0 to 31 on the 6-pin DIP switch on the rear of the Prodicon (standard = addr. 1).

2.7 Dicon 50x/100x controller and Imago 500

Adjust the following settings on the controller:

- Protocol: Modbus
- Parity: none
- Stop bit: 1
- Baud rate: 9600
- Address:1-32 (standard: 1)

2.8 Rotronic Hygroflex 3

Adjust the following settings on the controller:

- Baud rate: 19200
- Data bits: 7
- Even parity
- Stop bit: 1
- Address: 0

2.9 Testa FID2000MP

You will need the interface cable and a special software version from Testa.

Adjust the following settings on the controller:

- Baud rate: 9600
- Data bits: 8
- Odd parity
- Stop bit: 1
- Address: 0

2.10 Stange SE-4xx and 5xx

► Adjust the PLC of the test system for operation with Simpati:
– Baud rate: 19200
– Data bits: 8
– No parity
– Stop bit: 1
– Address: 1

2.11 Prodicon Plus control system

Adjust the following settings:

► External operation settings:
  – Baud rate: 9600
  – Data bits: 8
  – Parity: none
  – Stop bit: 1

  The adjusted address corresponds to the address in Simpati.
► Press **START**. Graphic screen is switched on.

2.12 2/3 channel process interface

Adjust the following settings:

► Left DIP switch: 8 = OFF (RS232 active)
► Right DIP switch: 1, 2, 3 = ON (9600 baud)

2.13 QNX control system

Adjust the following settings:

► Start external operation (display = External OFF).

2.14 Anaprog controller

Adjust the following settings:

- ► Set baud rate to **2400.**
- ► Set address **1**.
- ► You may have to delete the working program at program slot **0**.

2.15 SBC control system

Adjust the following settings:

- – Baud rate: 9600
- – Data bits: 8
- – Parity: none
- – Stop bit: 1
- – Address: any
- ► After switching on the master switch, press the »EXT« button on the controller.

2.16 Eurotherm 900 EPC

Adjust the following settings:

- – Baud rate: 9600
- – Data bits: 7
- – Parity: odd
- – Stop bit: 1
- – Address:

2.17 Data logger 8590-9C, 8990-6C and 8390-1, 8990-1

Further information on the support of the data logger type 8990-6C → *1.5 "Additional documents"* (page 11).

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