memmert

Software manual

AtmoCONTROL

Software Manual

www.memmert.com

Table of Contents

1. About this Manual

Purpose and target audience

This user manual describes the installation and use of the MEMMERT programming software AtmoCONTROL. It is intended for use by trained personnel of the operator, who have the task of programming/operating MEMMERT appliances.

If you intend to work with the software, please read this manual carefully before starting. Familiarise yourself with the software and simulate various tests before transferring programs to the appliance. Incorrect use could result in damage to the appliance and/or to the chamber load.

If there is something you do not understand, or certain information is missing, ask your superior or contact the manufacturer. Do not do anything without authorisation.

Further applicable documents

In addition to this manual, please observe the following documents:

- Operating manual for the appliance:
  Acquaint yourself with the operating manual for the appliance that is to be operated with AtmoCONTROL.

Retaining and passing on this manual

This manual should always be kept in a place where those working with the software have access to it. It is the responsibility of the operator to ensure that persons who work with or will work with the software are informed as to the whereabouts of this user manual.

We recommend that it is always stored in a protected location close to the computer on which the software is installed. Make sure that the manual is not damaged by heat or damp.

Update

The current version of AtmoCONTROL and this manual are available for download at **www.memmert.com**.

Address and Customer Service

Manufacturer's address

Memmert GmbH + Co. KG
Äußere Rittersbacher Straße 38 | D-91126 Schwabach | Germany
Tel. +49 9122 925-0
E-mail: **sales@memmert.com**
www.memmert.com

International After Sales

Memmert GmbH + Co. KG
Willi-Memmert-Straße 90-96 | D-91186 Büchenbach | Germany
Tel. +49 9171 9792 911
E-mail: **service@memmert.com**
www.memmert.com
If you have any queries, please always quote the product number on the nameplate.

Shipping address for repairs

Memmert GmbH + Co. KG
Willi-Memmert-Straße 90-96 | D-91186 Büchenbach | Germany
Please contact our customer service before sending appliances for repair or before making returns, otherwise, we have to refuse acceptance of the shipment.

2. Introduction

2.1 Description

AtmoCONTROL is a software for programming and logging Memmert appliances of the generation 2012 of appliances with Ethernet and/or USB interface and corresponding equipment.

With AtmoCONTROL, you can:

- graphically create, modify and save programs on your computer with various parameters and transfer these to the appliance
  (see ▸5 Program)
- read out, organise and document the internal log memory of appliances
  (siehe ▸6 Protocol)
- configure user authorisations on USER-ID-USB sticks, with which the manual adjustment of individual or all parameters on the appliance can be prevented
  (see ▸8.3 USER-ID)

See also

- Program [▸ 17]
- Protocol [▸ 34]
- USER-ID [▸ 48]

2.2 Supported Appliances and Parameters

i

For all other MEMMERT appliances of the generation 2012 of appliances, protocols can only be read out using AtmoCONTROL via Ethernet (siehe); parameters can only be set on the appliance itself.

Using AtmoCONTROL, programs can be created and transferred, protocols read out and USER IDs configured for the following appliances of the generation 2012 of appliances:

Appliance	Programmable main parameter								
	Temperature	Humidity	Pressure	CO_2	O_2	Fan speed	Air flap	Inert gas	Light*
UNplus	✓	-	-	-	-	-	✓	-	✓
UFplus	✓	-	-	-	-	✓	✓	-	✓
INplus	✓	-	-	-	-	-	✓	-	✓
IFplus	✓	-	-	-	-	✓	✓	-	✓
UFTS	✓	-	-	-	-	-	✓	-	-
HPP | HPPeco	✓	✓	-	-	-	-	-	-	✓
IPPplus | IPPecoplus	✓	-	-	-	-	-	-	-	✓
ICP | ICPeco	✓	-	-	-	-	✓	-	-	✓
ICH | ICHeco	✓	✓	-	✓*	-	✓	-	-	✓
ICO	✓	✓*	-	✓	✓*	-	-	-	-
HCP	✓	✓	-	-	-	-	-	-	-
VO	✓	-	✓	-	-	-	-	✓	-

* additional option

3. Installation

3.1 System Requirements

Category	Minimum system requirements
Processor	Pentium 1 GHz
Main memory	1 GB
Available free space on hard drive	4 GB
Graphics	Colour monitor with at least 1200 x 800 px resolution
Interfaces	An available USB or Ethernet interface
Operating system	Windows 7, Windows 8, Windows 10, Windows 11

3.2 Installation AtmoCONTROL

i	You must have administrator rights to be able to install AtmoCONTROL.
	1. Start the installation file**AtmoControlSetup.exe** from the USB storage medium provided. ⇨ You are now guided through the installation process step by step.

4. First Steps

4.1 Starting the Program

NOTICE

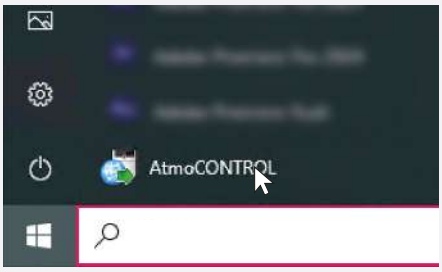
Uncontrolled behaviour of the program

Using AtmoCONTROL with several parallel instances can lead to uncontrolled behaviour.

- AtmoControl may only be started in one instance.
- Parallel operation by several Windows users on the same computer is not permitted.

The Programme can be started in two ways:

1. Start **AtmoCONTROL** by double-clicking on the shortcut created on the desktop.

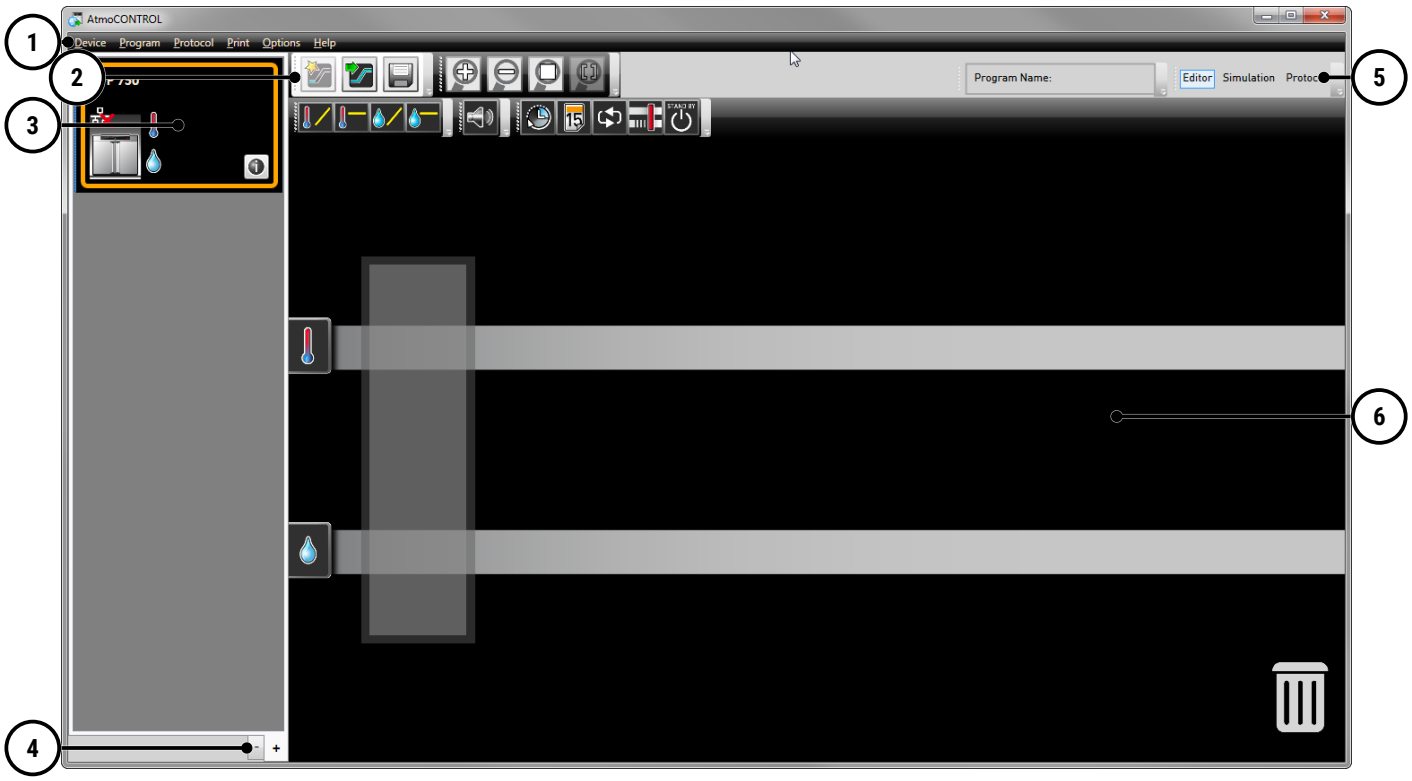


1. Click on **Start**.
2. Click on**Program**.
3. Start **AtmoCONTROL**.

2. | 4. Log in using your user name and password.

4.2 Program User Interface

The Main Program Interface Window of AtmoCONTROL is divided into the following Areas::



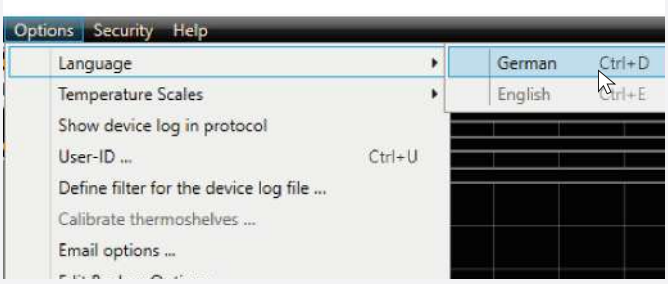
1	Menu bar	2	Toolbar (quick access to most important functions)
3	Status bar (provides an overview of available appliances)	4	Show/hide status bar
5	Programming mode switch (for editor/simulation/ protocol)	6	Editor, simulation and protocol window | Protocol window

Editor, Simulation and Protocol Window:

i	About 7: Editor, simulation and log windows only appear for the devices listed under: ▸2.2 Supported Appliances and Parameters

Setting the Language:

i	You may change the language of the program interface at any time. Both German and English are available.



1. Click on **Options**.
2. Select the required language under **Language**.

4.2.1 Menu Bar

Device

1	Connect device via Ethernet	2	Connect device using USB storage medium
3	Connect device using database file	4	Disconnect selected device
5	Disconnect all devices	6	Recently registered devices

Program

1	Create new program	2	Load a saved program
3	Save program	4	Save program under a new name
5	Transfer program to device via Ethernet	6	Export program to USB storage medium
7	Show most recently used programs		

Protocol

1	Import protocol from USB storage medium	2	Export protocol data
3	Show temperature statistics		

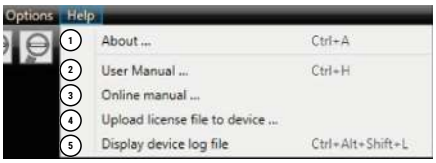
Print

1	Print displayed document	2	Print displayed document as table

Options

1	Change program language	2	Change the temperature unit
3	Display device log file in the protocol window	4	Configure USER-ID
5	Filter log file	6	Calibrate thermoshelves (vacuum oven VO)
7	Automatic sending of emails	8	Set up data backup

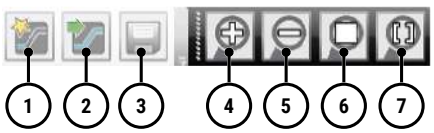
Help



1	Program information	2	Open this manual in PDF format
3	Open this manual online	4	Install device licence
5	Display the log file of the appliance		

4.2.2 Toolbar

The toolbar provides quick access to the most important menu functions:

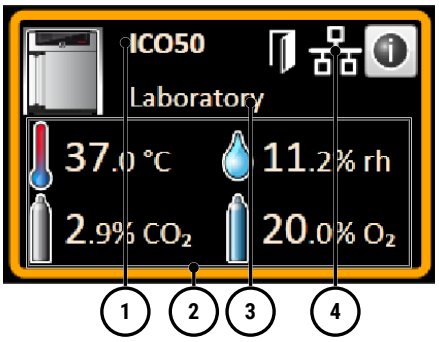


1	Create a new program	2	Load program from the data medium
3	Save new program	4	Enlarge view (zoom in)
5	Reduce view (zoom out)	6	Show full program
7	Select time range to display		

4.2.3 Status bar

The status bar gives an overview of the appliances logged on to AtmoCONTROL. Appliances can be added and removed again.

A device connected to your PC via Ethernet is detected automatically after a single login. The current operating state (temperature, alarms) is displayed.

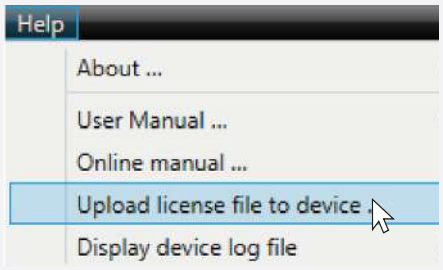


1	Appliance type	2	Current operating status
3	Custom name	4	Connection type (Ethernet)

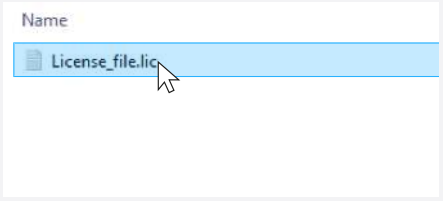
4.3 Installing the device licence via Ethernet (Single-Display Appliances)

NOTICE

How to set the IP address is provided in the operating manual of your appliance.



1. Click on **Help**.
2. Select **Upload license file to device**.



3. Select the license file (*.lic).
   ⇨ The licence file opens in a window on your desktop.
4. Click on **OK**.

5. Enter the IP address of the appliance.
6. Click on **Upload**.

⇨ The licence will be transferred.

⇨ The appliance can now be registered in AtmoCONTROL. (see ▸4.4 Appliance Registration)

4.4 Appliance Registration

Adding Device connected via Ethernet

NOTICE

How to set the IP address is provided in the operating manual of your appliance.

1. Click on **Device**.
2. Click on **Connect online via Ethernet**.

⇨ A window opens. The default setting is the standard IP address of all devices supplied (192.168.100.100).

The IP address entered here must correspond to that of the appliance.

3. Enter the IP address of the appliance.
4. Click on **Connect**.

⇨ The device is added to the status bar.

Now you can:

- Create programmes (see ▸5 Program).
- Read out protocols (see ▸6 Protocol).

See also

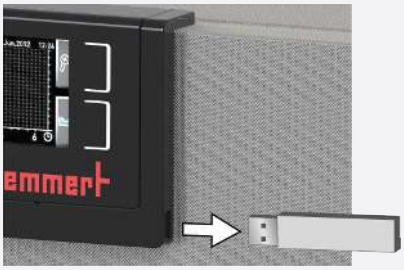
- Program [▸ 17]
- Protocol [▸ 34]

Connecting a Device using a USB Storage Medium

NOTICE

A description of how to export protocol data from a device is provided in the user manual of the corresponding device.

If several USB data carriers are connected, you must first select the one of which you want to import device data.



1. Export protocol data from the device to a USB storage medium.

2. Connect the USB storage medium to your computer/laptop.

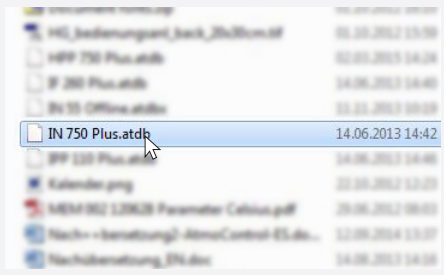
3. Click on **Device**.
4. Click on **Connect offline from USB device**.
   ⇨ All devices from which there is log data on the selected USB data carrier are displayed.

By holding down the Ctrl key, you can select several of the listed devices or click on **Select all** to register all listed devices.

5. Select the device you want to register.
6. Click on **Connect**.

Connecting a Device using Database File

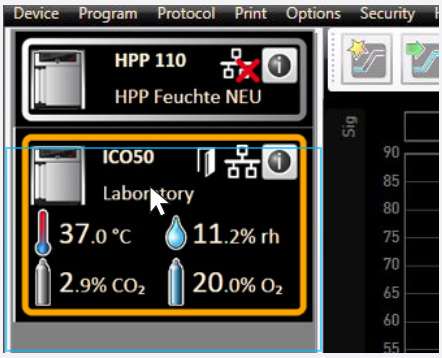
1. Click on **Device**.
2. Click on **Connect offline from database**.
   ⇨ A window opens.



3. Open the device database file of the `*.atdbxxx` type.

4.5 Appliance Deregistration

To remove a device from the status bar:



1. Select the corresponding device.

Disconnect Device

1. Click on **Device**.
2. Click on **Disconnect device**.

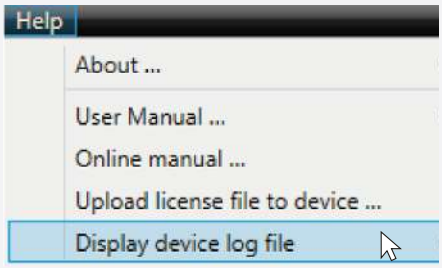
Disconnect all Devices

1. Click on **Device**.
2. Click on **Disconnect all devices**.

4.6 Log File

When a device is added or a protocol is imported, the log file is also transferred from the device controller. It does not matter whether the transfer is carried out via USB stick or Ethernet.

Displaying the Log File



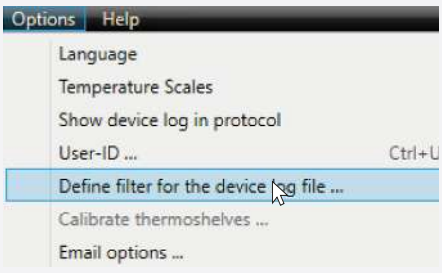
1. Click on **Help**.
2. Click on **Display device log file**.

The log file is structured as shown:

A	B	C	D
08.07.2015 08:07:15	i	211	Restauration Failed
08.07.2015 08:07:20	i	111	Restart 02.01.11
08.07.2015 08:07:41	+	303	Temp Limiter 28.5
08.07.2015 08:07:41	+	303	Temp Limiter 1000
08.07.2015 08:07:45	+	306	Com Err: 0100
08.07.2015 08:08:58	i	111	Restart 02.01.11
08.07.2015 08:09:19	+	303	Temp Limiter 28.4
08.07.2015 08:09:19	+	303	Temp Limiter 1000
08.07.2015 08:09:23	+	306	Com Err: 0100
08.07.2015 08:28:35	i	111	Restart 02.01.11
08.07.2015 08:28:56	+	303	Temp Limiter 28.2

A	Date and time of events	
B	+	Beginning of the event
	-	End of the event
	i	Information
C	Alarm / event code	
D	Alarm / event description	

A detailed list of all event codes is given in .



3. Click on **Options**.
4. Click on **Define filter for the device log file**.

5. Define which entries of the log file should be displayed.

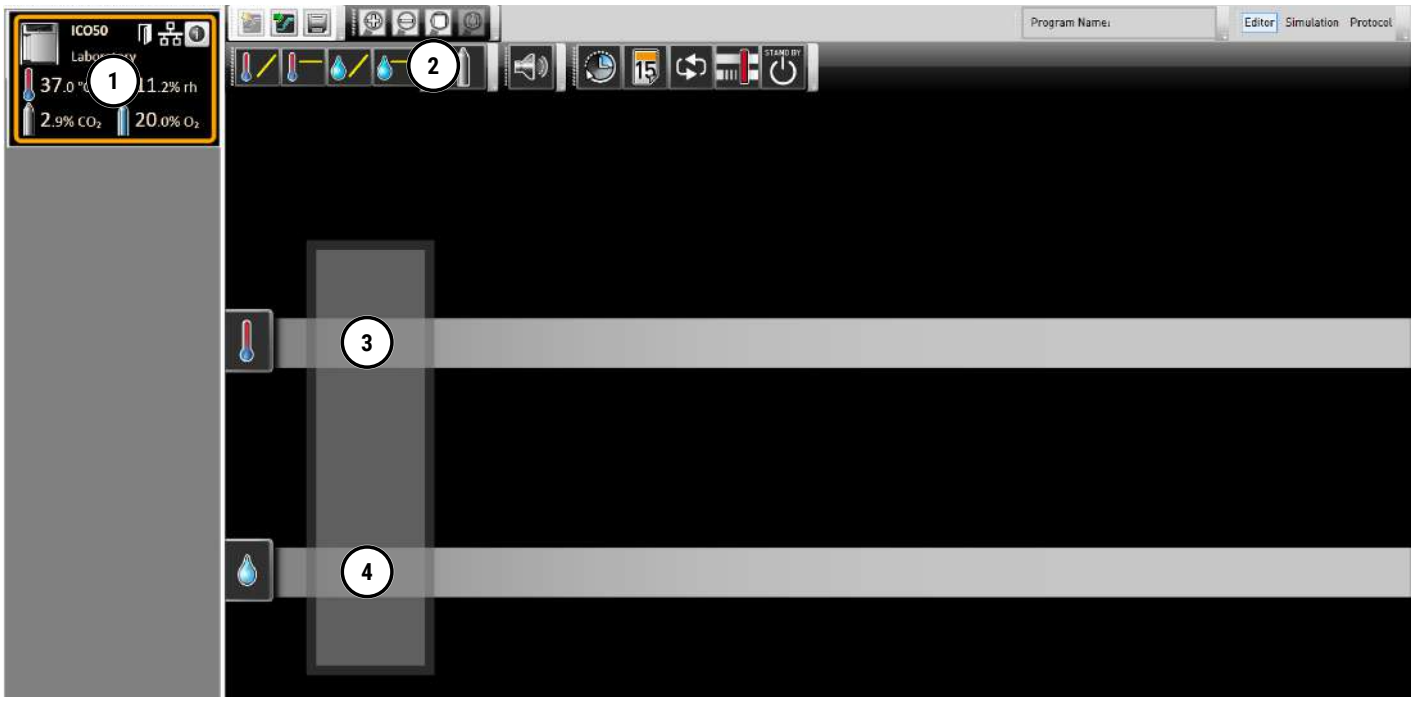
5. Program

5.1 Editor window

In the Editor window, programs can be created:

Sequences of various parameters (e.g. temperature, pressure and humidity), which the appliance then implements from a definable point in time.

To be able to create a program in AtmoCONTROL, the appliance which is to perform the program must be listed in the status bar and selected (clicked on). The appliance can, but does not have to, be connected to the computer via the network. If the appliance is not yet listed in the status bar, it must be added.
(see 4.2.3 Status bar)



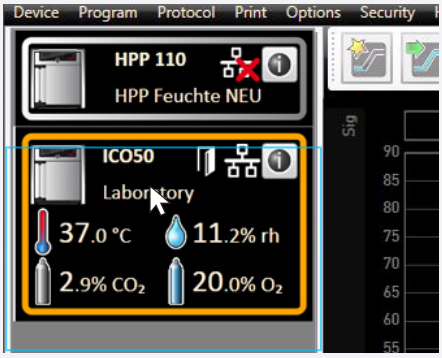
1	Appliance selected	2	Available parameters (functions)
3	Editor thread	4	Additional editor thread for appliances with humidity or pressure control

5.1.1 Creating a Program

Two editor threads are always shown for appliances with humidity or pressure control, and one editor thread for all others.

Bear in mind that the two editor threads are not synchronised. This means that the parameters between two strands do not match in terms of time. If you want to see the parameter values for a specific point in time, you must change to the simulation mode (see ▸5.2 Simulating the Program Sequence).

Select a Device

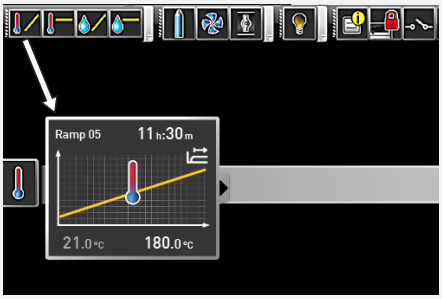


1. Click on the appliance in the status bar that you want to run the programme on later.
⇨ An icon bar with the available parameters (functions) for this appliance is shown (②, for a description refer to ▸5.1 Editor window).
⇨ Additionally, one or two editor threads (③ and ④) are displayed. The program sequence is determined on these.

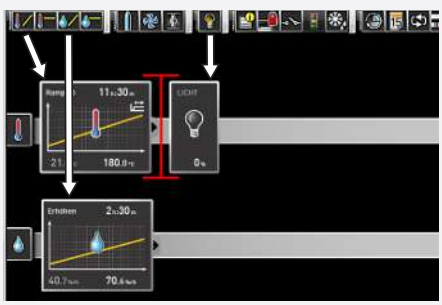
If you want to create a time correlation to a specific point, use the **Sync** function (see ▸5.1.3 Available Parameters).

Creating a Program

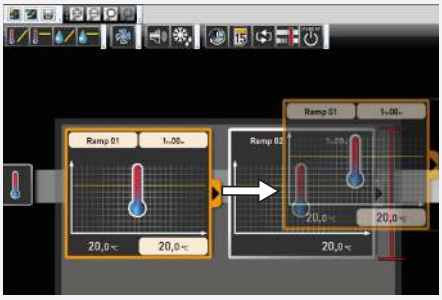
1. Zoom in/out of the display by using the zoom icons (and) in the toolbar (see ▸4.2.2 Toolbar) or the mouse wheel.



2. Drag the individual parameter icons onto the editor string in the desired order.
⇨ To help with correct placement, a red insertion marker is displayed at the insertion position.
⇨ You can also display the complete programme.



3. Drag other parameters onto the editor thread.
⇨ A red insertion mark helps you to find the correct position.



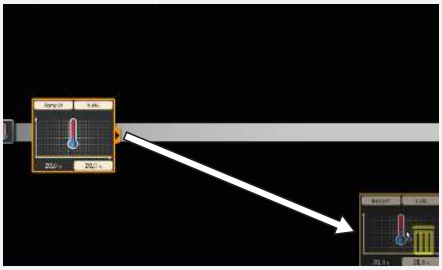
4. Hold down the mouse button and move the already placed symbol to another position on the respective line.

⇨ A red insertion mark helps you to find the correct position.

The temperature icons (change/hold temperature) may only be placed on the upper editor thread, humidity and pressure icons only on the lower one.

The meaning of the individual icons and the adjustment options are described in ▸5.1.2 Setting Parameters. You can find some simple program examples in ▸5.4 Program Examples.

Removing a Parameter Icon



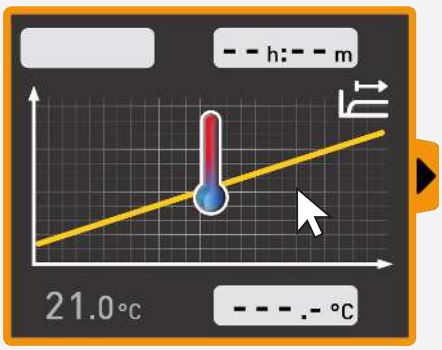
1. Drag the icon with the mouse button pressed to the recycle bin icon on the lower right.

5.1.2 Setting Parameters

The adjustment range depends on the appliance for which the program is created.

When entering the ramp name (herinafter *Ramp 01*) the following special characters cannot be used: **&**, **"**, **<** and **>**.

Select Parameter

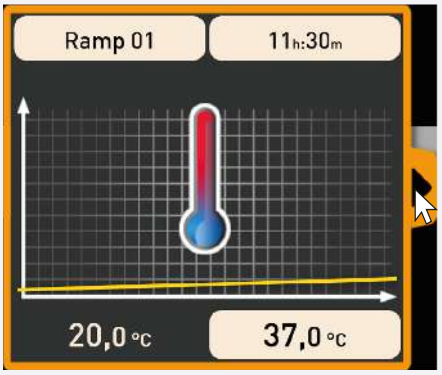


1. Select a parameter icon on an editor string.
   ⇨ The parameter symbol is framed in orange.
   ⇨ The adjustable values are highlighted in grey.

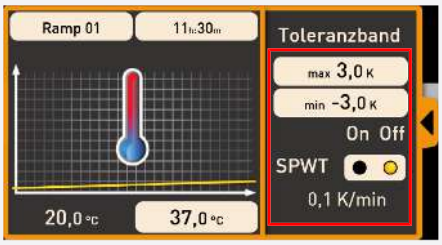
Set Parameter

1. Click on the settings field.
   ⇨ The value is highlighted in colour.
2. Now set the value by entering the key or clicking on the arrow symbols.

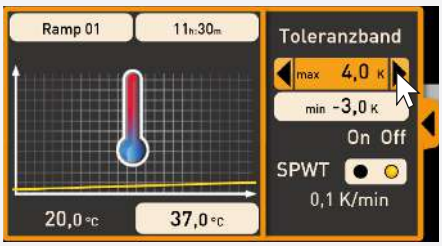
Additional Adjustment Options



1. Click on the fold down icon.



The additional adjustment options are displayed. You can set adjustable values (e.g. the tolerance band) here.

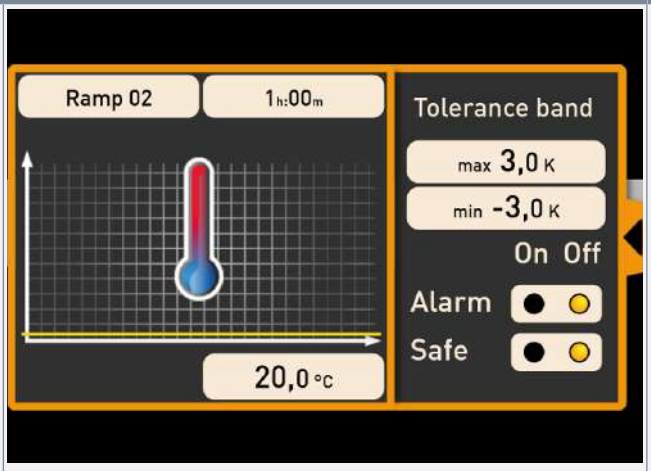
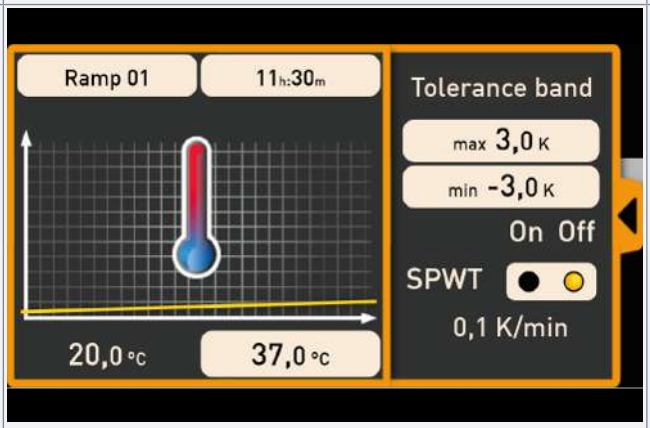
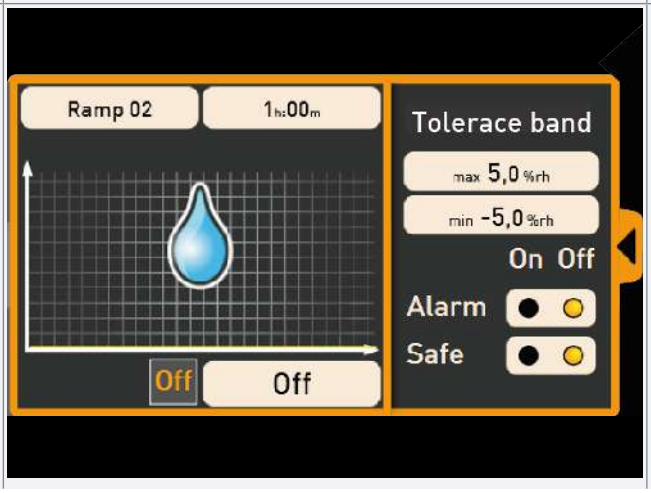


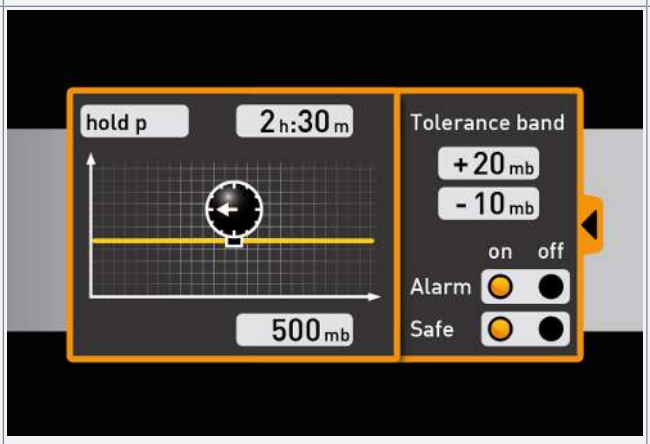
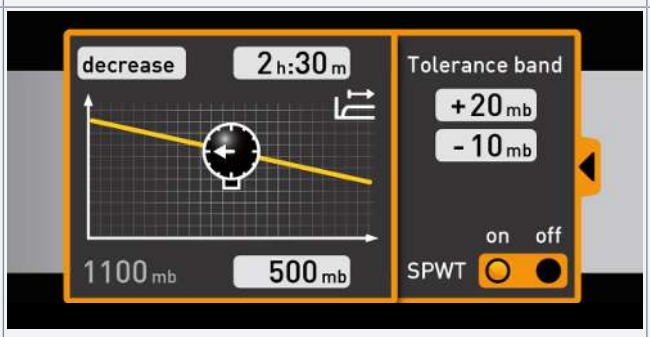
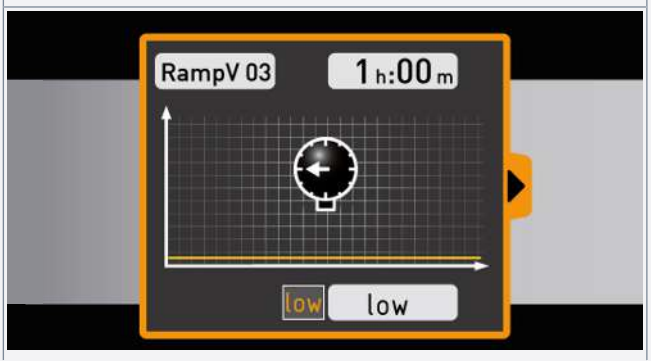
2. Now set the desired value by clicking on the arrow symbols.

5.1.3 Available Parameters

Which parameters are available to adjust the program depends on the appliance for which a program is to be created. Only those parameters are available that the appliance is able to implement. For appliances without humidity regulation, for example, no humidity icon is available. The respective adjustment options (temperature ranges etc.) are appliancespecific.

Broad Parameter Representation

Depiction in icon bar	Depiction on editor thread	Function and adjustment options
		**Function** Maintains a set temperature for a specific time. **Adjustment options** ■ Name of program segment[1] ■ Duration (time or infinite ∞) ■ Temperature to be maintained ■ Tolerance value above/below ■ Alarm if limits are exceeded ■ Safe[2] (For program examples, see ▸5.4 Program Examples)
		**Function** Increases or decreases temperature over a specific time to a set value. **Adjustment options** ■ Name of program segment[1] ■ Duration ■ Target (setpoint) temperature ■ Tolerance value above/below ■ SPWT[3] (For program example, see ▸5.4 Program Examples)
		**Function** Maintains a specific humidity for a specific time. **Adjustment options** ■ Name of program segment[1] ■ Duration (time or infinite ∞) ■ Humidity value to be maintained ■ Tolerance value above/below ■ Alarm if limits are exceeded ■ Safe[2] ■ Humidification and dehumidification switch off (**Off**)

Depiction in icon bar	Depiction on editor thread	Function and adjustment options
		**Function** Increases or decreases humidity over a specific time to a specific value. **Adjustment options** ■ Name of program segment[1] ■ Duration ■ Target (setpoint) humidity ■ Tolerance value above/below ■ SPWT[3]
		**Function** Maintains a specific pressure for a specific time. **Adjustment options** ■ Name of program segment[1] ■ Duration (time or infinite ∞) ■ Pressure to be maintained ■ Tolerance value above/below ■ Alarm if limits are exceeded ■ Safe[2]
	 	**Function** Increases or decreases pressure over a specific time to a specific value. **Adjustment options** ■ Name of program segment[1] ■ Duration ■ Target (setpoint) pressure ■ Tolerance value above/below ■ SPWT[3] ■ Low[4]

[1] When run, this is displayed in the status bar of the appliance

[2] When Safe is **on**, it is ensured that the value really is maintained within the tolerance band as long as specified, and only then is the program continued (this is sensible for sterilisers, for example). If the actual values leaves the tolerance band, the clock timer starts again from the beginning.

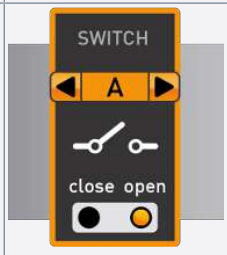
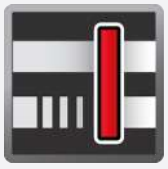
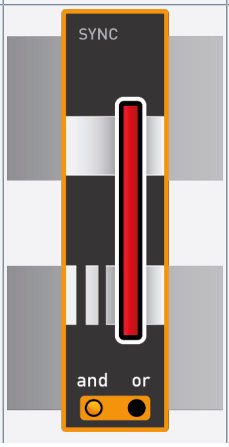
[3] SPWT: Setpoint wait. If this is **on**, the program sequence is not continued before the setpoint value is reached, even if the set time has already expired. If this is "off", the program sequence is continued after the set time has expired, irrespective of whether the setpoint value was reached or not.

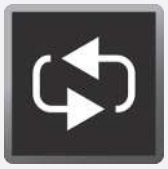
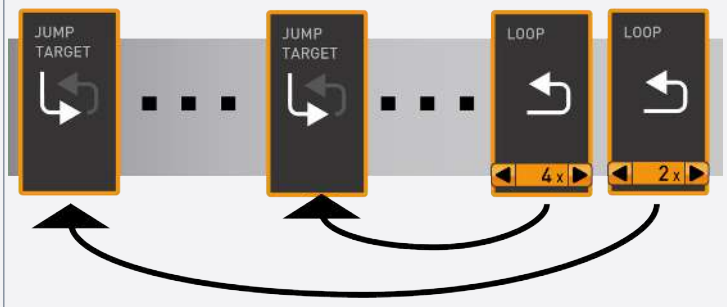
[4] Low: When setting a pressure value below the appliance-specific minimum, Low mode is activated, i.e. the vacuum pump operates continuously and reaches the maximum possible vacuum.

Narrow Parameter Representation

With the narrow parameter representation, no time progression can be set, in contrast to broad parameter representation. The setting made immediately becomes active at the respective position – and remains active until it is changed by the insertion of a new parameter icon of the same type.

Depiction in icon bar	Meaning	Depiction on editor thread	Adjustment options/comments
	CO_2		**0** to **20** percent For a setpoint ≠ 0.0, the fan is automatically set to 50 %.
	O_2		**1** to **20** percent
	Fan speed		**0** to **100** percent in steps of 10 % (Program example, see ▸5.4 Program Examples)
	Air flap position		**0%** (closed, recirculating operation) to **100%** (opened completely, fresh air operation) in steps of 10% (Program example, see ▸5.4 Program Examples)
	Interior lighting		depends on appliance type ■ **0** or **100%** (off/on) ■ **0** to **100%** in steps of 1%
	UV light		**on/off**
	Horn		Adjustment options: none Appliance emits an acoustic signal at the position in the program at which the icon was inserted, for example if a specific setpoint value is reached or the program is finished.

Depiction in icon bar	Meaning	Depiction on editor thread	Adjustment options/comments
	Door		Adjustment options: **open/close** Close/open door at the position in the program at which the icon was inserted. (Program example, see ▸5.4 Program Examples)
	Switch		Switches a switching contact (**A**, **B** or **C**) on or off at the insertion position.
	Defrost		Activates the defrosting function of the appliance at the insertion position
	Clock timer		Here, the day(s) and the time at which the program is to be performed, can be adjusted. The program is repeated each week at the specified times. (Program example, see ▸5.4 Program Examples)
	Calendar		Here, the date and time at which the program is to be performed, can be adjusted. In contrast to the clock timer, the program is run only once.
	Synchronising		■ Setting **und**: The program is only continued when the preceding ramps are finished on both editor threads. ■ Setting **oder**: The program is continued as soon as one of the preceding ramps is finished.

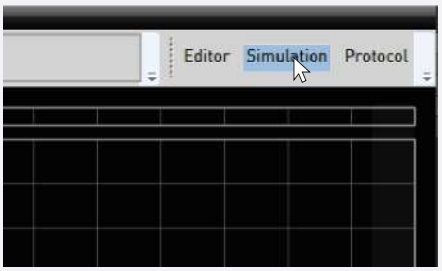
Depiction in icon bar	Meaning	Depiction on editor thread	Adjustment options/comments
	Loop		The program jumps back from the insertion position to a position that can be freely selected and repeats the sequence between n times (adjustable). When inserting a loop function, an icon for the jump target is automatically inserted at the program start. Holding the mouse key down, move it to the beginning of the range that is to be repeated. Loops may be embedded inside one another:  (Program example, see ▸5.4 Program Examples)
	Standby		Switches all appliance functions off at the insertion position.
	Inert gas/ Fresh air		Switching between fresh air supply and inert gas (vacuum oven VO).

5.2 Simulating the Program Sequence

While creating the program, you can display the prospective progression of all parameters as a diagram at any time.

In simulation mode, no changes can be made to the program, as this mode is just for information purposes.

Change to the editor window by clicking on the **Editor** button if you want to alter the program.



1. Click on **Simulation**.

⇨ Depending on the complexity of the program, it may take a few seconds for the simulation to be calculated and displayed.

Working in the Preview Window

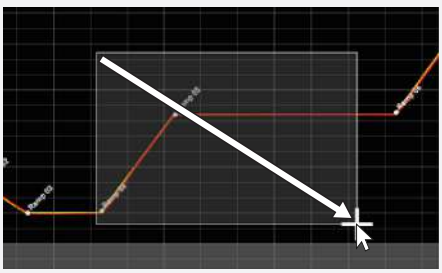
There are various ways to enlarge, reduce or move an area of the preview window. You have two options to enlarge or reduce the display evenly:

1. Click on the zoom icon in the toolbar or .

or

1. Use the mouse wheel to scroll through a line graph area (e.g. temperature, humidity).

Zoom in on a Time Section

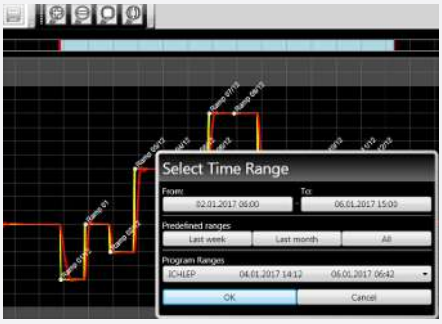


1. Press and hold the left mouse button.
2. Draw a rectangle over the section you want to see.

If the selection is shown in red, the section is too small to be shown.

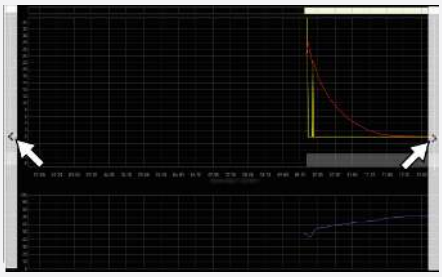
In this case, make the rectangle larger until its colour changes to light grey.

Show Time Range longer than two Days



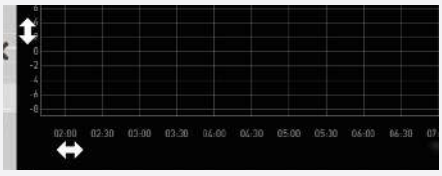
1. Click on the **-Icon** in the top toolbar.
   ⇨ A window opens.**Zeitbereich wählen**.
2. Select the time range.
3. Confirm your selection with**OK**.

Moving the displayed Time Range (x Axis)



1. Move the mouse pointer to the left or right edge of the graphics window.
   ⇨ Two clickable arrows appear.
2. Move the displayed area to the left or right as required.

Scale the Time Axis (x Axis) or the Value Axis (y Axis)



1. Move the mouse pointer over the number labelling of the respective axis.
   ⇨ The mouse pointer becomes a double arrow.
2. Use the mouse wheel to scroll.

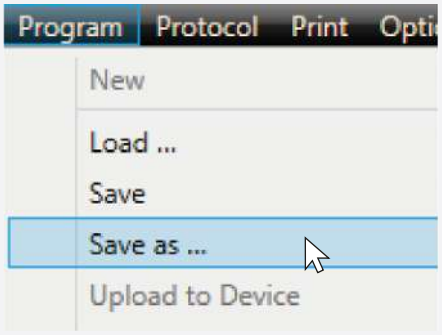
⇨ The respective axis is now scaled.

5.3 Program Transmission

Save Program

The name under which you save the program will be shown in the program selection view on the display of the appliance once it was transferred to the appliance (file name in the example to the right: `Test 023.atpro`).

A program file that has digital signatures of the AtmoCONTROL FDA edition cannot be overwritten with a file version that has fewer or no signatures later on.

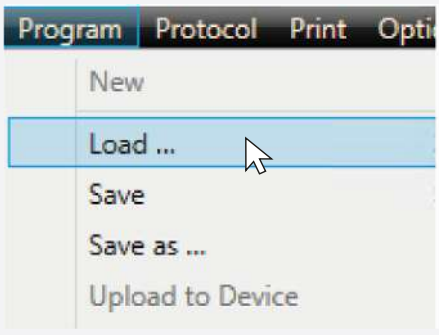


1. Click on **Program**.
2. Click on **Save as**.
3. Type in a name for the program.
4. Click on **Save**.

Loading a saved Program

Once a program has a digital signature, it cannot be edited.
(see Signing a Document)

In this case, a red lock icon will be shown on the top left corner of the editor window. However, it is possible to add more signatures.

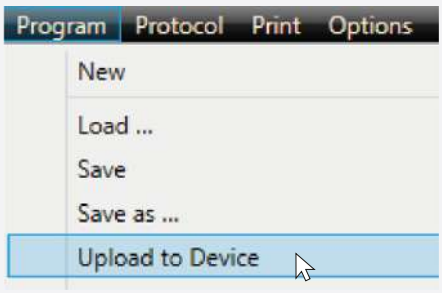


1. Click on **Program**.
2. Click on **Load** to reopen and continue editing the saved programs.

Transferring Program via Ethernet

To be able to transfer a program via Ethernet, the appliance and computer must be connected via Ethernet, the correct IP address set (see ▸ Adding Device connected via Ethernet) and the appliance switched on.

If a program with the same name already exists on the controller, it will be overwritten.



1. Click on **Program**.
2. Click on**Upload to device**.

⇨ The program is uploaded to the appliance and can be started there.

Transferring a Program via USB Storage Medium

If a program with the same name already exists on the controller, it will be overwritten unless it is write-protected.

1. Click on **Program**.
2. Click on **Export to USB drive**.

   ⇨ The programme is saved on the connected USB data carrier.
3. Connect the USB data medium to the appliance which is to run the program.

Selecting and starting a Program on the Appliance

If the program was transferred to the appliance via Ethernet or USB data medium, it can be selected and started there.

NOTICE

How programs are selected and started on the appliance is described in the user manual for the appliance.

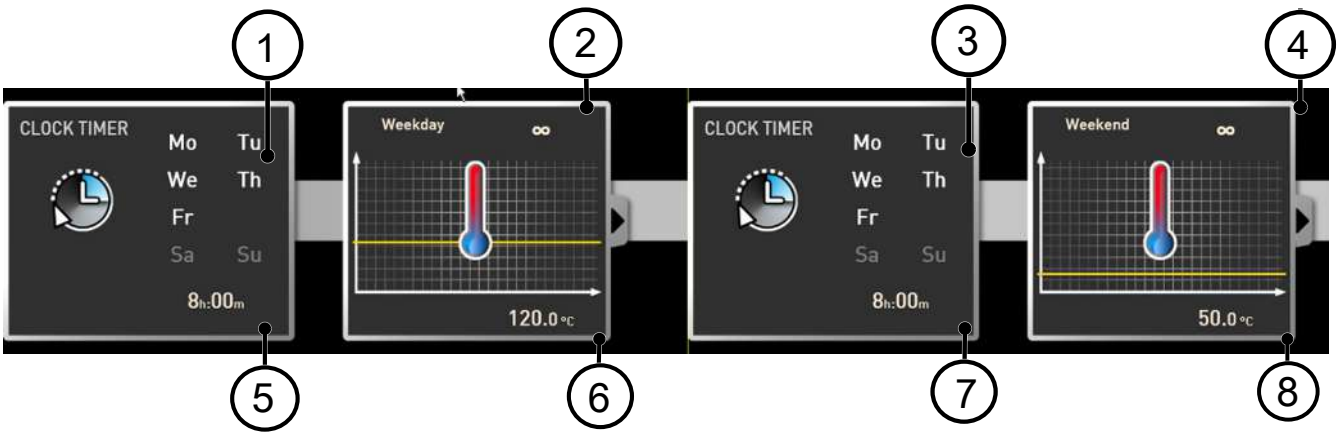
With appliances that have humidity control, make sure that the water supply tank of the appliance is filled before the program start. Check the level of the tank at regular intervals, especially for programs that run for long periods. The same applies for appliances with gas supply.

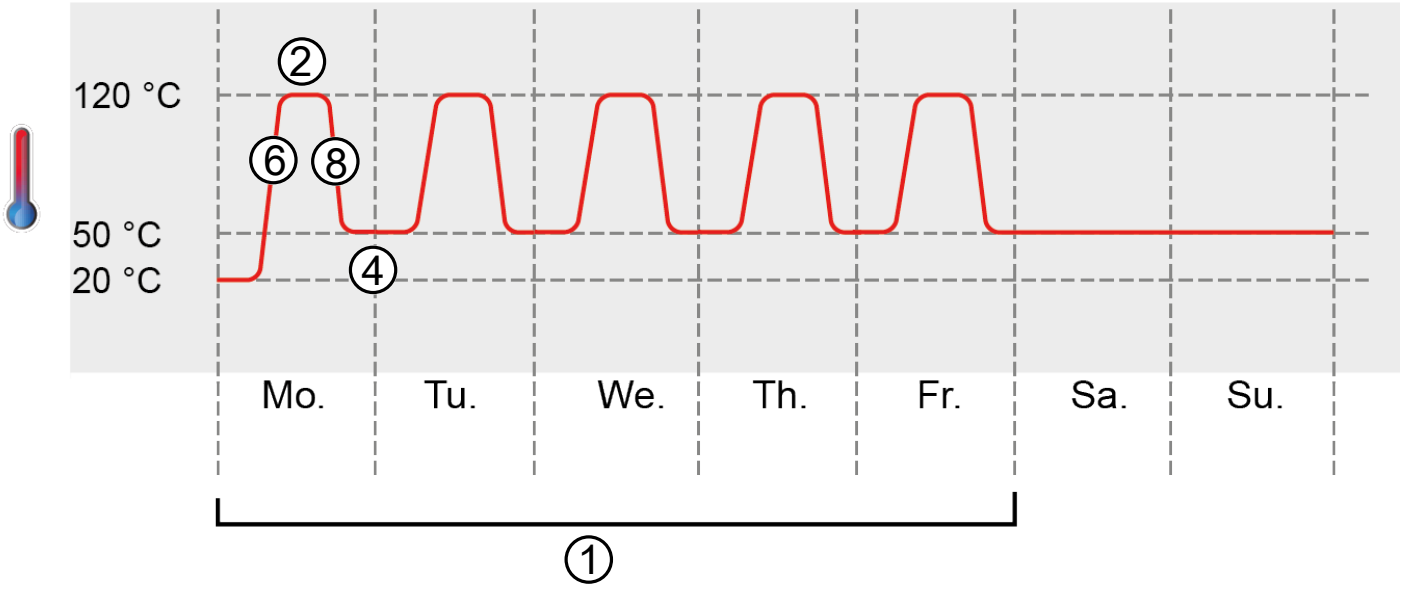
If the appliance is connected to the computer via the network, the respective current operating status can be monitored in the status bar of AtmoCONTROL
(see ▶4.2.3 Status bar).

5.4 Program Examples

i	For reasons of space, it is not possible to present program examples with all the available parameters for all Memmert appliances here. Instead, a number of simple example programs will be presented to familiarise you with how a program is structured.
i	It is important that you run through a number of program examples to get to know AtmoCONTROL before you actually transfer and run programs on the appliance.

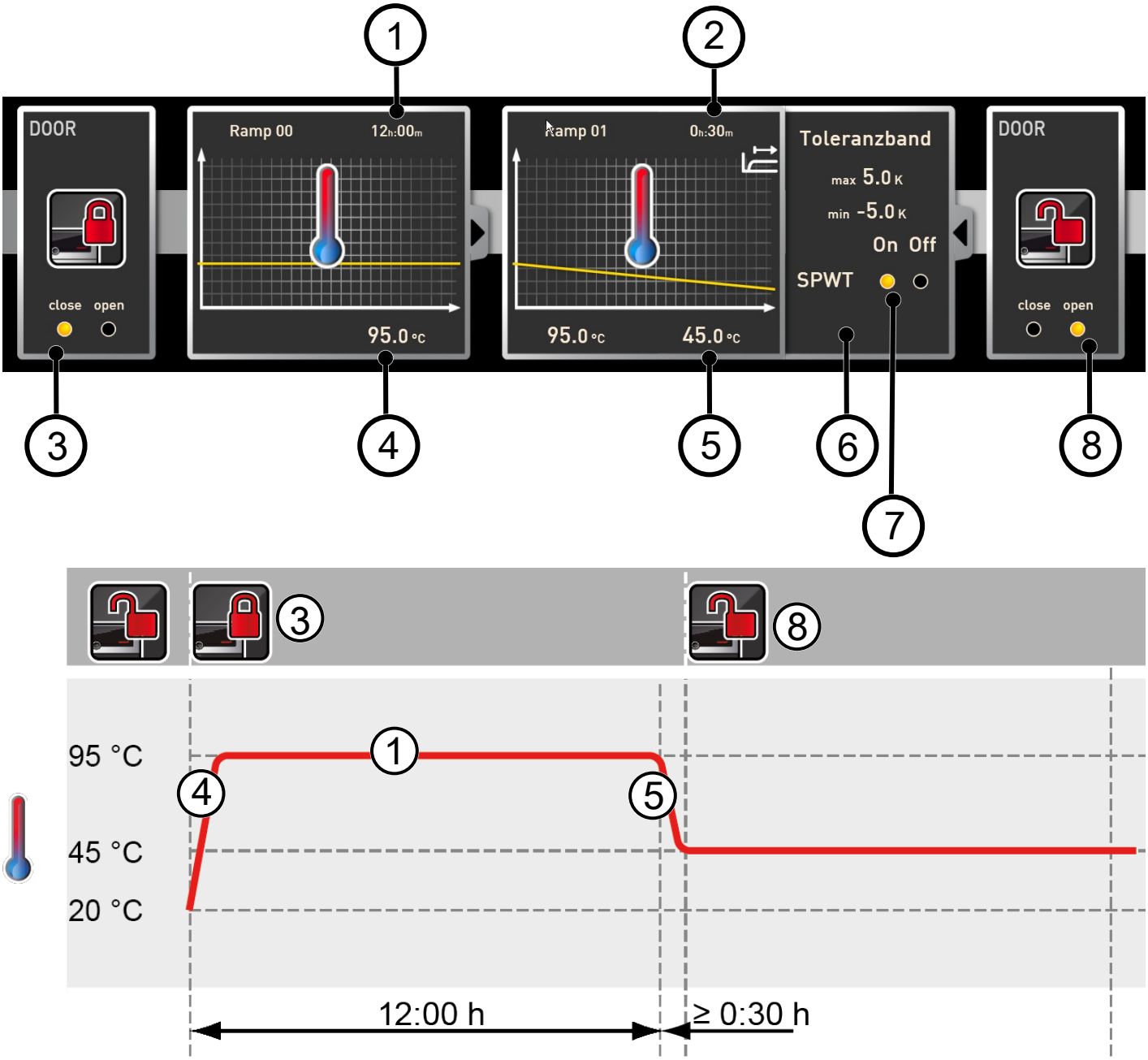
Program Example with Clock Timer





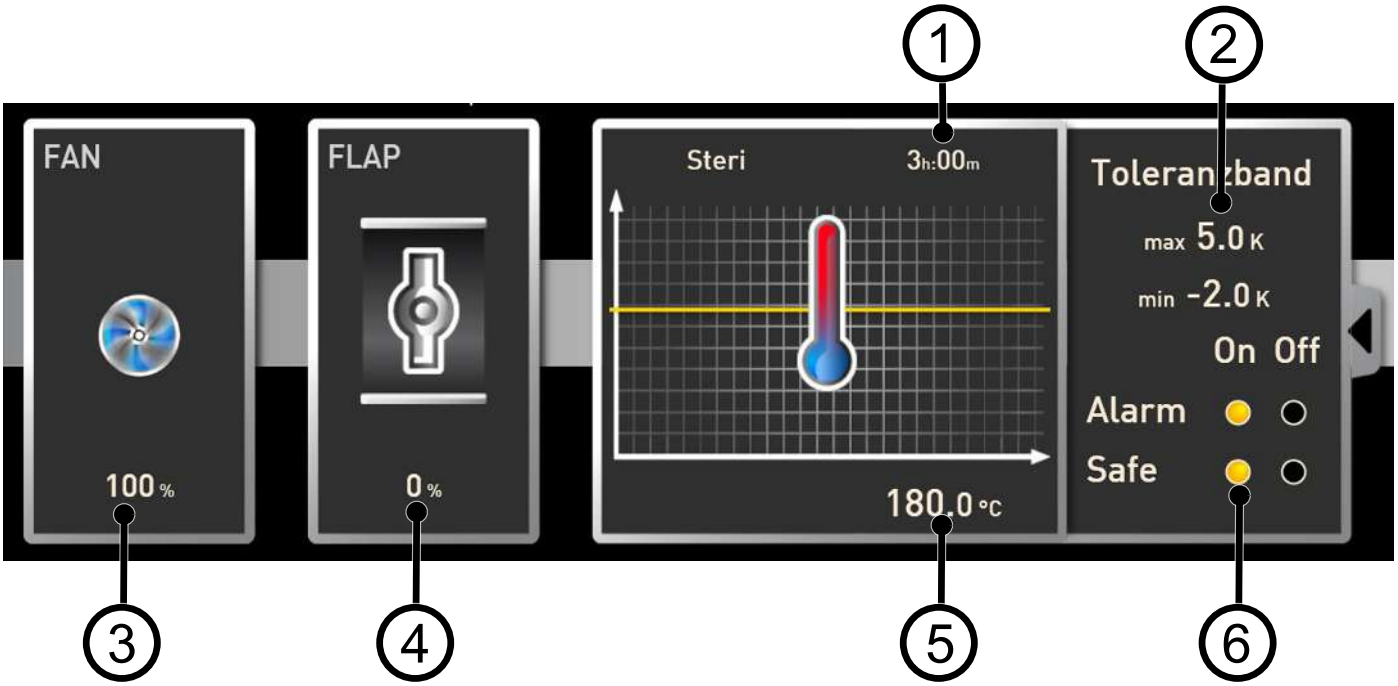
The appliance heats up from Monday to Friday ① at 8 am ⑤ to 120 °C ⑥ and continues to maintain this temperature (infinitely ∞) ②until it is changed: also Monday to Friday ③ at 6 pm ⑦ to 50 °C ⑧ – again continued (infinitely ∞) ④ until it is changed again in the morning at 8 am ⑤.

Program Example with Door Locking



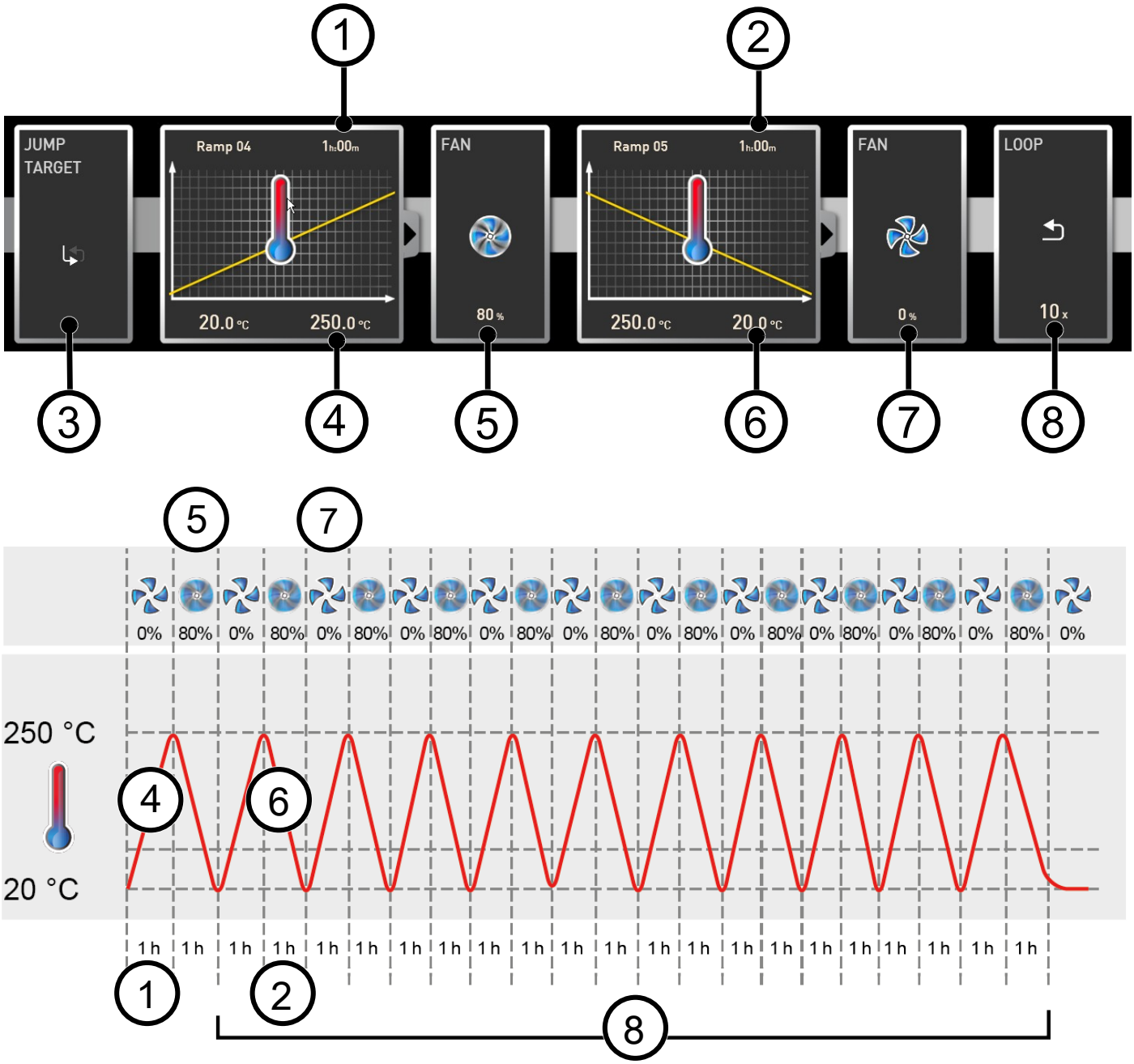
The door is locked at the beginning of the program ③. Then, the appliance heats up to 95.0 °C ④ and maintains this temperature for 12 hours ①. Subsequently, the temperature is lowered ⑤ for 30 minutes ② to 45.0 °C and then, the door is opened ⑧. The setting **SPWT on** ⑦ ensures that the door is opened only when the temperature really has dropped to 45.0 °C, even if this takes longer than 30 minutes. Below the temperature change is shown in K/min ⑥.

Program Example Sterilisation



At the beginning, the fan is switched on to 100% ③ and the air flap is closed (0%) ④. Then, the appliance heats up to 180.0 °C ⑤ and maintains this temperature for 3 hours ①. The setting **Safe** ⑥ ensures that the sterilisation time does not start ⑦ before the set tolerance band ② is reached and is restarted if it is exceeded.

Program Example Loop



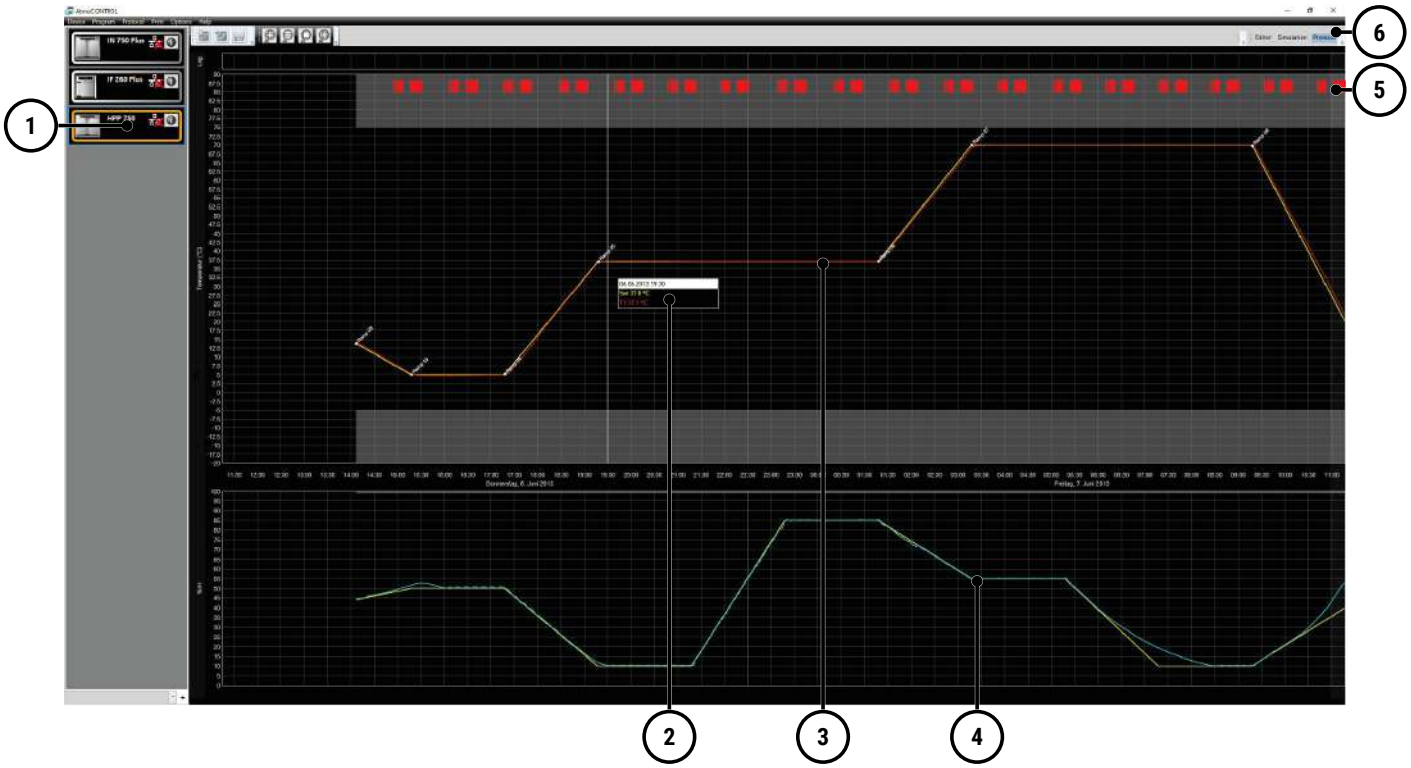
First, the appliance heats up to 250.0 °C ④ for one hour ①. Then, the fan begins to run at 80 % power ⑤ and the temperature is lowered for one hour ② to 20.0 °C ⑥. Subsequently, the fan is switched off ⑦. This sequence is repeated from the jump target ③ ten times ⑧.

6. Protocol

In the protocol window, you can now see a graphic representation of the chronological sequence of set and actual values of the device highlighted in the status bar (temperature, humidity, fan, etc.). The information displayed may vary depending on the functions of the respective device.

In the protocol window, you will find the same functions (zoom, etc.) as in the program simulation (see 5.2 Simulating the Program Sequence).

Measured values that are too small to be shown and seen normally, are represented as small circles. They are shown normally as you zoom in.

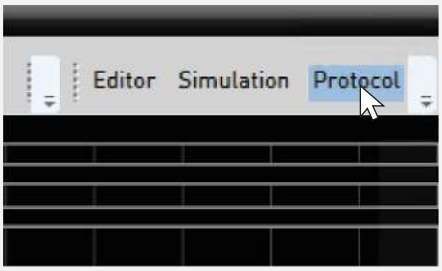


1	Device of which the protocol is being displayed	2	Set value (yellow) and actual value (other colour) at the cursor position
3	Chronological sequence of the set temperature values (yellow) and actual temperature values (other colour)	4	Chronological sequence of other device functions (e.g. humidity)
5	Entries in the log file of the appliance and program sections	6	Open protocol view

6.1 Importing Protocols

Importing Protocol from Network

To be able to import a protocol via network, the appliance and computer must be connected to the network, the correct IP address set (see ▸ Adding Device connected via Ethernet) and the appliance switched on and logged in to AtmoCONTROL.



1. Click on the **Protocol** button.

⇨ The protocol data of the appliance are transferred and displayed.

⇨ They can be further processed – e.g. exported to a spreadsheet file format (see ▸ 6.3 Export Protocol).

Import Protocol from USB Data Medium

At the device, protocols can be exported to a USB storage medium and imported in AtmoCONTROL.

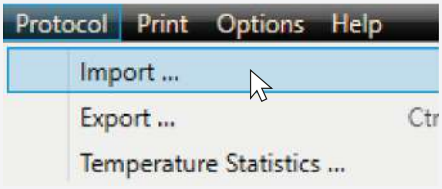
NOTICE

How protocols on the device are exported to USB storage media is described in the user manual of the appliance.

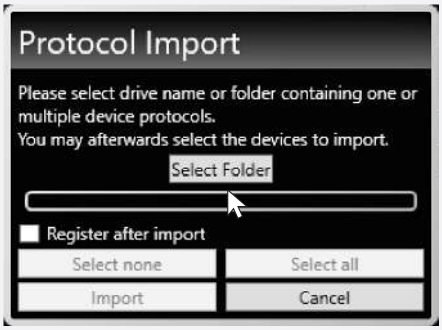
If the entire log period is not saved to the USB stick, data gaps may occur in AtmoCONTROL under certain circumstances. This can be remedied by saving the log of the current year or the entire log of the device to a USB stick again and importing it into AtmoCONTROL, depending on the size of the gap.

Die Seriennummer eines Geräts finden Sie auf dessen Typenschild.

1. Connect the USB storage medium with the exported protocols to your computer/ laptop.



2. Click on **Protocol**.
3. Click on**Import**.



4. Select the data medium or directory where the protocols are saved.
   ⇨ All devices (serial numbers) from which log data is located on the data carrier are listed, including in the subdirectories.

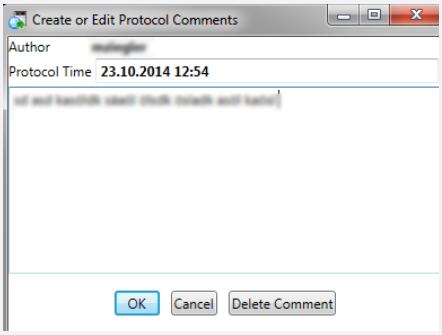
5. Select the appliance or the appliances for which you want to import the protocols.
6. Click on **Import**.

If you activate **Register after import**, the selected appliance will be automatically registered in AtmoCONTROL once the data has been imported. Otherwise, you will have to register the appliance manually (see ▸ Connecting a Device using a USB Storage Medium), to view and analyse the imported protocol data in AtmoCONTROL.

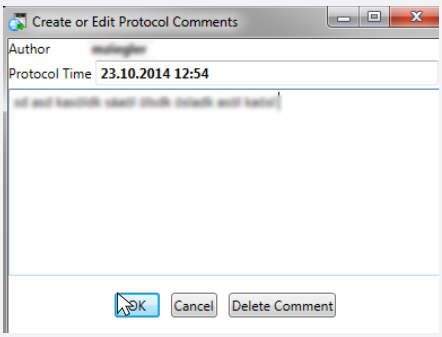
6.2 Comment Protocol

Comments can be added anywhere at a protocol's data curves.

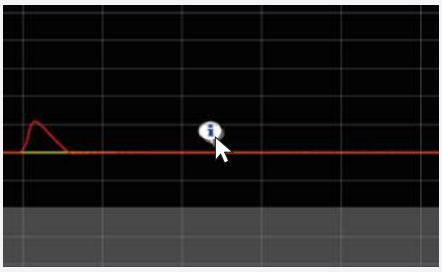
1. Right-click on any position.
   ⇨ A window opens.



2. Enter your comment.



3. Click **OK** to close the window.
   ⇨ Annotated passages are labelled with a ⓘ.



4. Right-click to open the comment if you want to change or delete it.

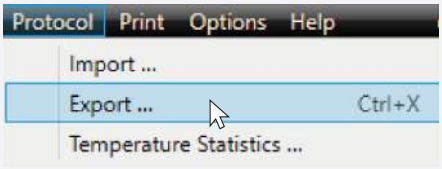
⇨ Comments are automatically saved with the protocol and included in the PDF export (see ▸6.3 Export Protocol) .

6.3 Export Protocol

When exporting log files, you can choose program sections . Program sections are periods of processed programs (profiles) or running times of the „Simple Timers“.

Each program area contains the name of the program and its duration (for example, Test Program, 09:30 - 12:30).

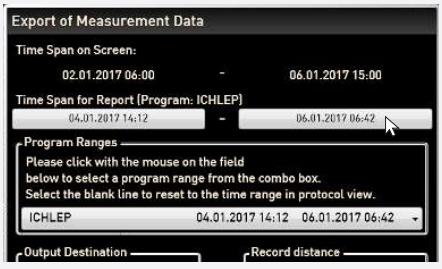
If you select the blank field in the list displayed in the export dialog, the time shown in the log window is used.



1. Click on **Protocol**.
2. Click on **Export**.
   ⇨ The export window opens.

PDF/A Export

When selecting the PDF/A export, the additional output option **Device Log** is offered. The device log table is listed on the last pages of your exported PDF.



1. Define the protocol time span.

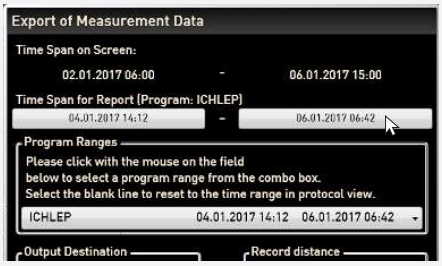
2. Select the Output Destination **PDF/A**.

⇨ The created PDF file is a standard PDF/A for long-term archiving.

3. Optionally tick the output option by clicking on **Device-Log**.

   ⇨ The device log is also discharged in the drainage system.
4. Enter the **GLP-Data**.
5. Click on **OK**.

Excel-, CSV Export



1. Define the protocol time span.

2. Select the file type into which the data is to be converted
   Either *.csv or *.xlsx (Excel) formats are available.

   ⇨ You can use these in table processing programmes.

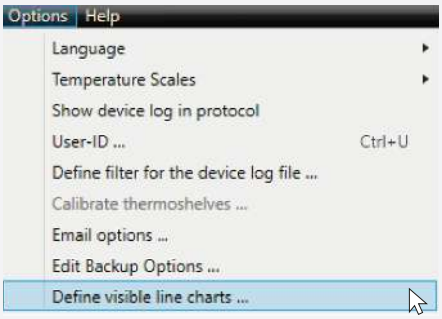
   ⇨ Measured values that have exceeded the alarm limits are displayed in red.
3. Enter the **GLP-Data**.
4. Click on **OK**.

6.3.1 Export in PDF Format

General notes on the table below:

- Temperature units are in °C or °F depending on the setting and are displayed in the title bar.
- All values can in principle be undefined and are displayed as an empty field.
- Only columns that correspond to device properties are displayed.

To display the Temperature Measurement Values 2 to 4 and the Alarm Temperature:



1. Click on **Options**.
2. Activate these under **Define visible line charts**.

Column name	Meaning
Date	Date and time
T Set	Temperature set point, if defined, otherwise empty
T	Actual temperature value
Al Low	Lower temperature alarm value
Al High	Upper temperature alarm value
Al T Real	Actual temperature value of the second PT100 sensor for the actually measured monitoring (= alarm) temperature or, in the case of vacuum devices, the temperature of the second heating plate
T2	2. temperature value or 2. heating plate
T3	3. temperature value or 3. heating plate
T4	4. temperature value or 4. heating plate
RH Set	Humidity set point
RH Real	Humidity measurement value or undefined
Al RH Low	Lower humidity alarm value
Al RH High	Upper humidity alarm value
Vac Set	Vacuum set point in mb
Vac	Vacuum measurement value
AlVac Low	Lower alarm value for vacuum
AlVac High	Upper alarm value for vacuum
CO2 Set	Set point for CO_2 in per cent
CO2	CO_2 measurement value
AlCO2 Low	Lower alarm value for CO_2
AlCO2 High	Upper alarm value for CO_2
O2 Set	Set point for O_2 in per cent
O2	O_2 measurement value
AlO2 Low	Lower alarm value for O_2
AlO2 High	Upper alarm value for O_2
Fan	Fan set point in per cent from **0** to **100**
Flap	Flap position in 10% steps from **0** to **100**, **0** = closed, **100** = fully open

Column name	Meaning
Sw A	Switch **A, 0** or **1**
Sw B	Switch **B, 0** or **1**
Sw C	Switch **C, 0** or **1**
Sw D	Switch **D, 0** or **1**
DL	Illumination cassette for daylight, **0** or **100%**
UV	Illumination cassette for UV light, **0** or **100%**
LED	LED intensity in whole per cent
Inert Gas	Gas currently used, **0** = fresh air, **1** = inert gas
Door Open	Door status, **0** = closed, **1** = open
Door lock	Door lock, **1** = locked
Info T	Current ramp name for temperature during program sequence
Info RH	Current ramp name for humidity during program sequence
Info Vac	Current ramp name for vacuum during program sequence
Chck OK?	If empty, data set is OK, otherwise “Error”

6.3.2 Export in Excel Format

Column name English	Column name German	Meaning
Date	**Datum**	Date and time
Temp. Set	**Temp. Set**	Temperature set point, if defined, otherwise empty
Temp. / Shelf1	**Temp. / Shelf1**	Actual temperature value or, in the case of vacuum devices, the temperature of the first heating plate
Alarm Low	**Alarm Low**	Lower temperature alarm value
Alarm High	**Alarm High**	Upper temperature alarm value
Alarm Temp	**Alarm Temp**	Actual temperature value of the second PT100 sensor for the actually measured monitoring (= alarm) temperature or, in the case of vacuum devices, the temperature of the second heating plate
Temp2 / Shelf2	**Temp2 / Shelf2**	2. temperature value or 2. heating plate
Temp3 / Shelf3	**Temp3 / Shelf3**	3. temperature value or 3. heating plate
Temp4 / Shelf4	**Temp4 / Shelf4**	4. temperature value or 4. heating plate
Humidity Set	**Feuchte Set**	Humidity set point
Humidity Real	**Feuchte Real**	Humidity measurement value or undefined
Al. Hum. Low	**Al. Feuchte Low**	Lower humidity alarm value
Al. Hum. High	**Al. Feuchte High**	Upper humidity alarm value
Vacuum Set	**Vacuum Set**	Vacuum set point in mb
Vac.	**Vak.**	Vacuum measurement value
Al. Vac. Low	**Al. Vak. Low**	Lower alarm value for vacuum
Al. Vac. High	**Al. Vac. High**	Upper alarm value for vacuum
CO2 Set	**CO2 Set**	Set point for CO_2 in per cent
CO2	**CO2**	CO_2 measurement value
Al. CO2 Low	**Al. CO2 Low**	Lower alarm value for CO_2
Al. CO2 High	**Al. CO2 High**	Upper alarm value for CO_2
O2 Set	**O2 Set**	Set point for O_2 in per cent
O2	**O2**	O_2 measurement value
Al. O2 Low	**Al. O2 Low**	Lower alarm value for O_2
Al. O2 High	**Al. O2 High**	Upper alarm value for O_2
Fan	**Lüfter**	Fan set point in per cent from **0** to **100**
Flap	**Klappe**	Flap position in 10% steps from **0** to **100, 0** = closed, **100** = fully open
Switch A	**Schalter A**	Switch **A, 0** or **1**
Switch B	**Schalter B**	Switch **B, 0** or **1**
Switch C	**Schalter C**	Switch **C, 0** or **1**
Switch D	**Schalter D**	Switch **D, 0** or **1**

Column name English	Column name German	Meaning
Daylight	**Daylight**	Illumination cassette for daylight, **0** or **100%**
UV	**UV**	Illumination cassette for UV light, **0** or **100%**
LED	**LED**	LED intensity in whole per cent
Inert Gas	**Inert Gas**	Gas currently used, **0** = fresh air, **1** = inert gas
Door Open	**Tür offen**	Door status,, **0** = closed, **1** = open
Door Lock	**Türsperre**	Door lock, **1** = locked
Info Temp	**Info Temp**	Current ramp name for temperature during program sequence
Info Humidity	**Info Feuchte**	Current ramp name for humidity during program sequence
Info Vacuum	**Info Vakuum**	Current ramp name for vacuum during program sequence

Column name English	Column name German	Meaning
Checksum OK?	**Prüfsumme OK?**	If empty, data set is OK, otherwise “Error”
Unit	**Feld**	Window or graphic type where a comment is located. Possible values: Temp, humidity, vacuum, O_2, CO_2.
Comment	**Kommentar**	Comment text

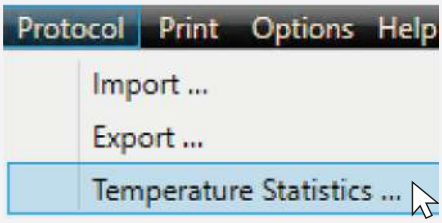
6.3.3 Export in CSV Format

There are no language variants for Export-CSV.

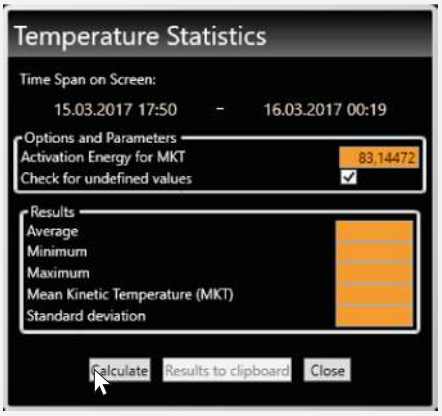
Column name	Meaning
Time	Date and time
Temp Set	Temperature set point, if defined, otherwise empty
Temp / Shelf1	Actual temperature value or heating plate 1
AlTempLo	Lower temperature alarm value
AlTempHi	Upper temperature alarm value
AlTempReal	Actual temperature value of the second PT100 sensor for the actually measured monitoring (= alarm) temperature or, in the case of vacuum devices, the temperature of the heating plate 2
Temp2 / Shelf2	2. temperature value or 2. heating plate
Temp3 / Shelf3	3. temperature value or 3. heating plate
Temp4 / Shelf4	4. temperature value or 4. heating plate
TolTMIn	Temperature tolerance, minimum
TolTMax	Temperature tolerance, maximum
rH Set	Humidity set point
rH	Humidity measurement value or undefined
AlRHLow	Lower humidity alarm value
AlRHHi	Upper humidity alarm value
TolrHin	Humidity tolerance, minimum
TolrHax	Humidity tolerance, maximum
Vac Set	Vacuum set point in mbar
Vac	Vacuum measurement value
AlVacLo	Lower alarm value for vacuum
AlVacHi	Upper alarm value for vacuum
TolVacMIn	Vacuum tolerance, minimum
TolVacMax	Vacuum tolerance, maximum
CO2 Set	Set point for CO_2 in per cent
CO2	CO_2 measurement value
AlCO2Lo	Lower alarm value for CO_2
AlCO2Hi	Upper alarm value for CO_2
O2 Set	Set point for O_2 in per cent
O2	O_2 measurement value
AlO2Lo	Lower alarm value for O_2
AlO2Hi	Upper alarm value for O_2
Fan	Fan set point in per cent from **0** to **100**
Flap	Flap position in 10% steps from **0** to **100**, **0** = closed, **100** = fully open
Sw A	Switch **A**, **0** or **1**
Sw B	Switch **B, 0** or **1**
Sw C	Switch **C, 0** or **1**
Sw D	Switch **D, 0** or **1**
DayL	Illumination cassette for daylight, **0** or **100%**
UV	Illumination cassette for UV light, **0** or **100%**
LED	LED intensity in whole per cent
Inert Gas	Gas currently used, **0** = fresh air, **1** = inert gas
Door open	Door status, **0** = closed, **1** = open

Column name	Meaning
Door lock	Door lock, **1** = locked
Info T	Current ramp name for temperature during program sequence
Info H	Current ramp name for humidity during program sequence
Info V	Current ramp name for vacuum during program sequence
Location	Window or graphic type where a comment is located. Possible values: Temperature, humidity, vacuum, O_2, CO_2. Only for windows with line graphics.
Author	Author of a comment
LastChange	Date on which the comment was produced or last amended
Comment	Comment text

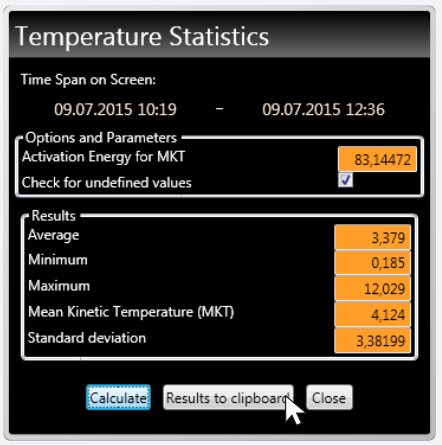
6.4 Statistics



1. Click on **Protocol**.
2. Click on **Temperature Statistics**.



3. Click on **Calculate**.
   ⇨ The temperature statistics are calculated for the log period displayed on the screen.
   ⇨ The temperature statistics for the results minimum, maximum, average, mean kinetic temperature [MKT] etc. are displayed.

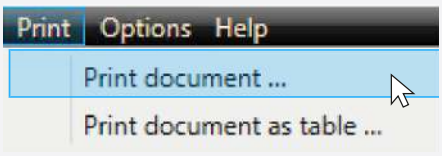


4. Click on **Results to clipboard**.
   ⇨ The data can be inserted via the clipboard, e.g. in a text editor.

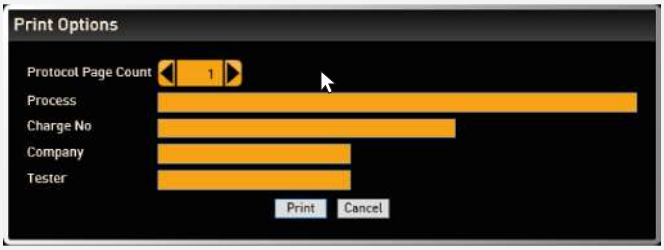
7. Printing

You can print programmes in the editor window as well as simulations and protocols - depending on what is displayed under **Print**.

Print Document as Graphic



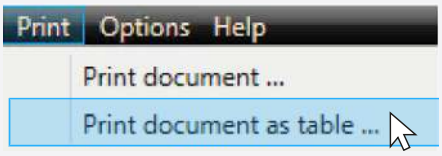
1. Click on **Print**.
2. Click on **Print document**.



3. Select the page number of the log printout.
4. Fill in all other entry fields for operation, batch no., company and inspector.
5. Click on **Print**.

⇨ You will be directed to the print options of your local printer.

Print Document as Table



1. Click on **Print**.
2. Click on **Print document as table**.

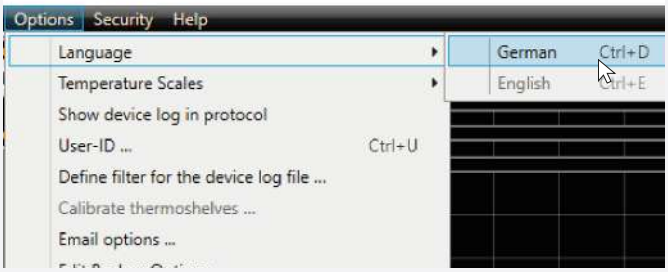
⇨ You will be directed to the print options of your local printer.

8. Options

8.1 Set Language and Temperature Unit

Set Language

You may change the language of the program interface at any time. Both German and English are available.

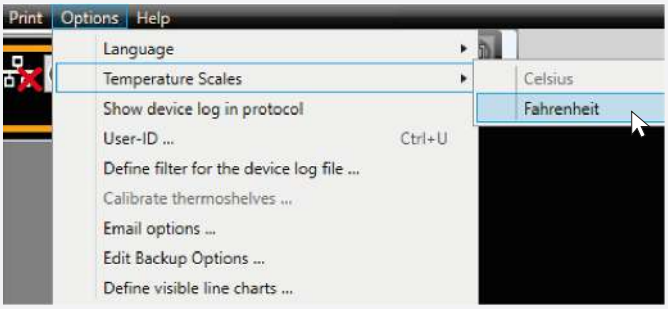


1. Click on **Options**.
2. Select the required language under **Language**.

Set Temperature Unit

You can change the unit of the temperature display on the programme interface at any time. Celsius and Fahrenheit are available.

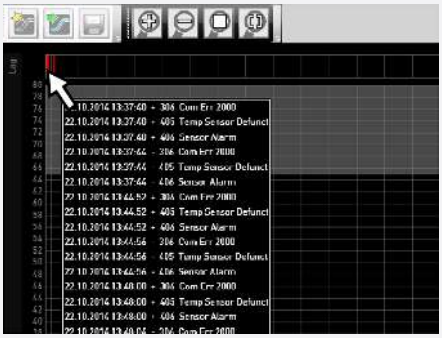
After changing the temperature scale, AtmoCONTROL must be restarted.



1. Click on**Options**.
2. Click on **Temperature Scales**.
3. Restart AtmoCONTROL.

8.2 Display Device Log File in the Log Window

i	If you activate this function, the periods for which there are entries in the device log file are marked with red indicators above the protocol view.



1. Move the mouse cursor over them to see the corresponding entries and program areas.

8.3 USER-ID

AtmoCONTROL cannot generate a USER-ID file, but only change the authorisations of a purchased USER-ID file on a USER-ID data medium. If there is no valid USER-ID file on the USB data medium, configuration in AtmoCONTROL is also not possible.

With the appliances listed in the table in ▸2.2 Supported Appliances and Parameters, it is possible, with the help of an encrypted "USER-ID" file on a special USB stick, to lock functions of the appliance or to restrict them in their operation. You can configure which parameters are to be prevented from being adjusted when the USER-ID USB stick is removed.

There can be only one USER-ID on a USER-ID USB stick. The settings in this file then apply for all appliances configured.

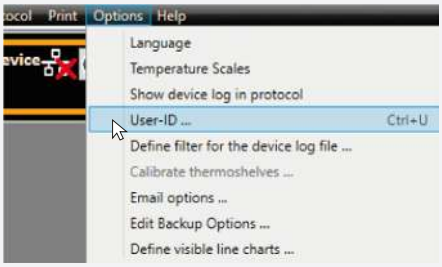
A USER-ID identifier on a USER-ID USB stick for one (or several) serial numbers can be purchased. This data medium contains a file with keys for one or more appliances. With the help of AtmoCONTROL, the function of the USER-ID key can be changed.

NOTICE

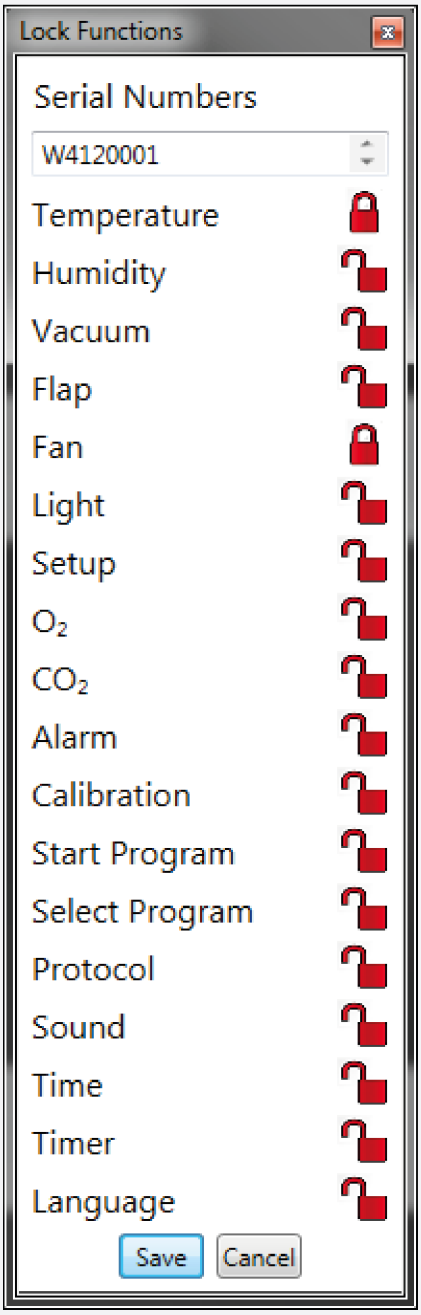
How USER IDs are activated and deactivated on the device is described in the operating manual for the device.

If access to the **Delete program** controller function is to be blocked, this can be done by blocking **Select program**.

1. Insert the USER-ID USB stick with the USER-ID file into the computer with AtmoCONTROL.



2. Click on **Options** in the menu bar.
3. Click on **USER-ID**.
   ⇨ A window appears with the functions of the registered device that can be locked (depending on the device type).



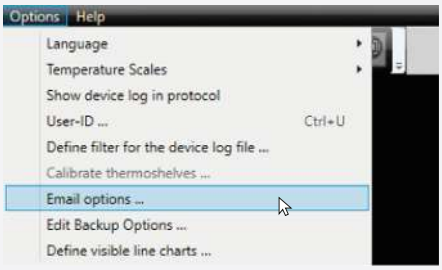
4. Click on the lock icon next to the functions that should be blocked or released, and confirm this with **OK**.

5. Eject the USER ID USB stick from the PC / laptop.
6. Remove the USB stick.

7. Insert the USB stick in the appliance.
8. Activate the USB stick.

8.4 Sending Emails

The PC/laptop must have Internet access. You can obtain most of the required settings from your Internet service provider (ISP).



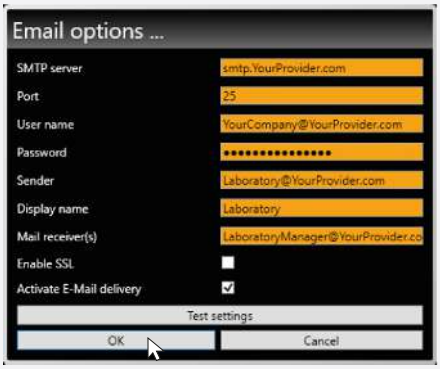
1. Click on **Options**.
2. Click on **Email options**.

⇨ You can adjust the settings for sending emails there.

AtmoCONTROL kann automatisch eine E-Mail an einen bzw. mehrere frei definierbare Empfänger senden, wenn – z.B. bei Temperaturüberschreitung – ein Alarm ausgelöst wird. Der Inhalt der E-Mail kann nicht geändert werden und bezieht sich immer auf den ausgelösten Alarm.

Sample e-mail text:

```
Device ICO150 (INCO2, O7170104) Temperature alarm: current
temperature = 37.1 °C alarm limit = 9 °C
```



3. Fill in all other entry fields for SMTP server, port, user name, password, sender, display name and mail receiver.
4. Enable / disable **Enable SSL**.
5. Activate / deactivate **Activate E-Mail delivery**.
6. Confirm your selection with **OK**.

The Parameters mean:

Parameters	Description
SMTP Server	Outgoing mail server. Usually this address begins with "smtp." Example: `smtp.memmert.com`
Port	IP port number of the SMTP server; Number greater than `0` and less than `65536`. Usually port `25`, may also be `587`. You will receive the information from your ISP. Port number `465` is out of date.
User name	Login name for the SMTP server. Provided by the ISP. This is not the login for the operating system nor the user name for Atmo- CONTROL FDA. It is often an email address.
Password	Password for the SMTP server. Provided by the ISP, but may have been changed in a password change dialog box.
Sender	"From" or "Sender" of an e-mail. Possibly your ISP is expecting an e-mail address here.
Display name	User-friendly name, or short name for the "Sender". Often appears in e-mail programs instead of the sender's e-mail address. Example:Sender = **atmocontrol@myISP.com**, display name = `AtmoCONTROL`
Mail receiver	E-mail address(es) of the recipient(s) of AtmoCONTROL alarm messages. Multiple addresses can be specified, separated by a comma. Example: `fred@mycompany123.com`, `control@cccompab.com`
Enable SSL	SSL = Secure Sockets Layer. This is a cryptographic protocol to ensure data integrity and security between sender and receiver. Tick if possible.
Activate E-Mail delivery	Forwarding can be activated and disabled.
Test settings	When the button is clicked, a pseudo-e-mail will be sent.

Sequence

After receiving a log record online, the temperature, humidity, CO_2 and O_2 (if available), and alarm types are displayed or updated in the appliance list on the left side of AtmoCONTROL for the corresponding appliance. The system then checks whether e-mail forwarding is activated (tick box in the e-mail settings).

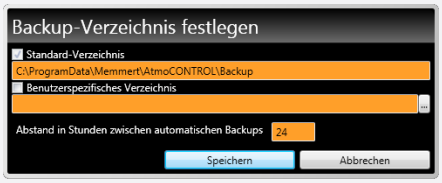
Then, if more than 10 minutes have passed since the last e-mail was sent, e-mail delivery is started. The 10-minute delay to prevent too many emails being sent. If the alarm disappears within 10 minutes, no email is sent.

8.5 Backup Options

Backup of the Protocol Data/Device Database

You can specify a backup directory where AtmoCONTROL stores backup copies of programs, logs and user data.

Without an online connection, there is no backup! When the online connection is reestablished, the system checks whether the set time window has been exceeded since the last backup. If so, the backup is performed.



1. Click on **Options**.
2. Click on **Edit Backup options**.

You can use the preset standard directory and create a user-defined directory.

A device database is backed up as soon as an online connection to the cabinet is established. Whenever AtmoCONTROL has contact with the device, all new protocol data is transferred. During the online connection, the protocol data is backed up at the set interval. A backup is always created during the first online access.

Backup of the Program Profiles *.atpro

Programs are not stored in the database, since they have no direct device reference. They are stored separately in the directory of the Windows user.

If an existing program is edited by the user and the previous version is overwritten by saving, the previous status is saved in the preset and, if necessary, also in the user-defined backup directory. The backup of the program profiles is not part of the automatic backup function.

Method

The log databases are backed up automatically in the backup directory at set intervals (in the above example every 24 hours, so daily). This is done after a multi-stage multi-generation backup process, which is also known as “Towers of Hanoi”. This results in only a few copies, but there are always backup copies, which are at the most 1, 2, 4, 8, 16,... intervals apart - so days old in the above example.

In this way, backup copies can be used for a basically arbitrary point in time, so that recovery is possible even for errors that have not been discovered for a long time. The database copies are identified by the appliance serial number and -L00 for level 1 (level L00).

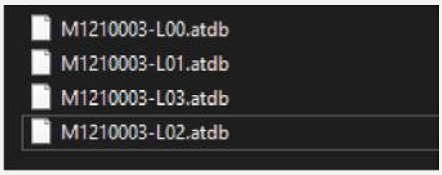
Example:

B3120001-L00.atdb. The next copy receives the identifier L01, the third -L00 again, etc.

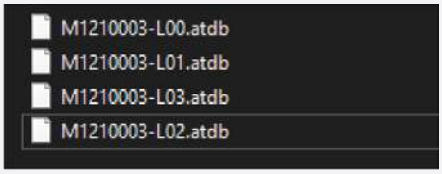
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L00		L00		L00		L00		L00		L00		L00		L00	
	L01				L01				L01				L01		

			L02								L02				
							L03								
															L04
[…]															

Restore

i	When recovering database files (*.atdbx), no appliance with the same serial number may be logged in, either online or offline.
i	A direct backup of the log databases by copying the *.atdbx files may only be performed if the associated appliances are not logged in - either online or offline - otherwise the consistency of the databases is not guaranteed. However, integrated automatic data backup is only performed during online connections and ensures the consistency of the database copies.
	1. Make backup copies in the backup directory in chronological order (sort by date modified). 2. Select the backup copy of the day that is to be restored. ⇨ This will normally be the last backup copy that was created before the period in which the error presumably occurred.
	3. Backup copy log into AtmoCONTROL offline. 4. Check the data.

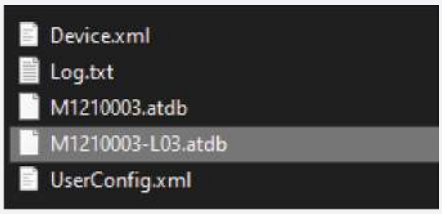
If the backup is not the one required:



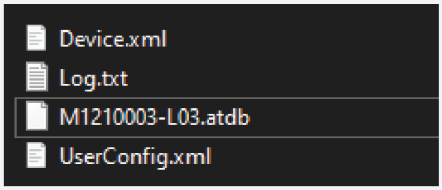
5. Select the next older one and check it in AtmoCONTROL.

If the appropriate backup has been found:

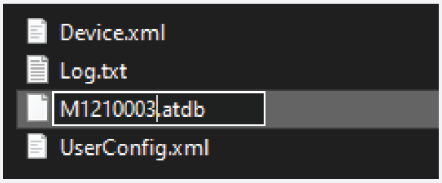
6. Log back out of the database in AtmoCONTROL.



7. Copy the backup copy into the subfolder of the same name `C:\ProgramData\Memmert\AtmoCONTROL\`.
   (Beispiel: Sicherungskopie `B3120001-L03.atdb` in the directory `C:\ProgramData\Memmert\AtmoCONTROL\B3120001`).



8. Delete the faulty original database file in the subfolder - i.e. the file that is named as the backup copy, but without the suffix “-Lxx”.



9. Rename the backup copy:Delete the “-LXX” suffix.
10. It is advisable to register the appliance online, if sensible and possible, in order to reload the log data that has accumulated since it was backed up from the appliance.

Example:

On 27/11 an error is detected on appliance B3120001. The error probably happened on or after 24/11.

Backup files sorted by modification date (newest first):

`B3120001-L01.atdb 26.11.`

`B3120001-L02.atdb 25.11.`

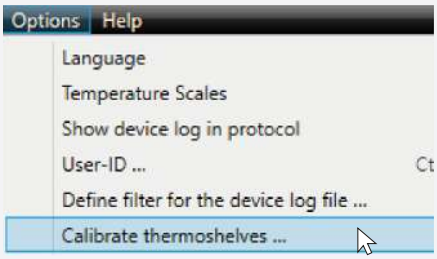
`B3120001-L03.atdb 23.11.`

`B3120001-L04.atdb 19.11.`

...

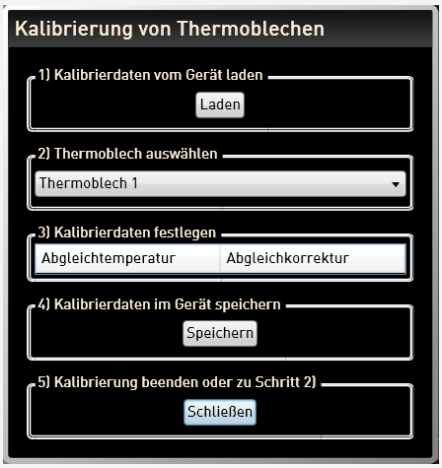
8.6 Calibrating Thermoshelves

The following information only applies to the VO vacuum oven.



1. Click on **Options**.
2. Click on **Calibrate thermoshelves**.
   ⇨ A new dialogue window appears.

The thermoshelves of the VO vacuum oven can - if available and plugged in - be individually calibrated. The appliance to be calibrated must be registered online.



3. Download the calibration settings from the device.
4. Specify the corrections for each thermoshelf if a flage socket is available.
5. Finally, send the data to the device.
6. Restart the device for the changes to take effect.

9. Event Codes of the Log File

See ▸4.6 Log File.

Error code / status code		Description.
101		Error in window management.
102		Error in the file system.
103		Error in the USB driver.
104		GUI error.
105		Error in the Internet Protocol.
106		Error on the I2C bus.
107		Error in the realtime clock (e.g. battery low or no battery).
108		RamDisk error; error in the power supply, voltage too low.
109		Controller internal monitoring routine has triggered a restart (watchdog reset).
110		Power supply error. The power supply is back in the allowed range.
111		The appliance control has been restarted.
112		Main memory overflow. No more heap available.
113		Unspecified operating system error.
114		An application task has been hung up and the operating system has been restarted.
201		Appliance configuration incorrect or missing.
202		Custom-specific calibration data missing or incorrect.
203		Factory calibration data missing or incorrect.
204		PID control parameters missing or incorrect.
205		User settings missing or incorrect.
206		No battery or battery empty.
207		Storage space on the SD card is running out; warning when used storage reaches 95%.
208		SD card full
209		SD card missing or incorrectly inserted.
210		Failed to copy the system and log files.
211		Error restoring the last system state (file 'Restore.bin').
212		The maximum number of programs/profiles on the SD card plus on the USB stick (currently 50) has been exceeded.
213		Note:The appliance log file has been archived because it has exceeded the maximum size under one date/time stamp.
214		The time zone has been changed.
215		The time has changed between summer and winter time.
216		Date and/or time have been adjusted.
301		Fan has not reached desired speed.
302		Heating control error.
303		Temperature limiter has triggered.
304		Door opened.
305	Heating error on power module. Details:	
	200000	*"Optocoupler"* component defect on heating module 1, power module 1.
	020000	*"Optocoupler"* component defect on heating module 2, power module 1.
	002000	*"Optocoupler"* component defect on heating module 1, power module 2.
	000200	*"Optocoupler"* component defect on heating module 2, power module 2.
	000020	*"Optocoupler"* component defect on heating module 1, power module 3.
	000002	*"Optocoupler"* component defect on heating module 2, power module 3.

Error code / status code		Description.
	100000	*"Triac"* component defect on heating module 1, power module 1.
	010000	*"Triac"* component defect on heating module 2, power module 1.
	001000	*"Triac"* component defect on heating module 1, power module 2.
	000100	*"Triac"* component defect on heating module 2, power module 2.
	000010	*"Triac"* component defect on heating module 1, power module 3.
	000001	*"Triac"* component defect on heating module 2, power module 3.
306	Error communicating with the power module. Details:	
	1000	Power module 1 not responding.
	0100	Power module 2 not responding.
	0010	Power module 3 not responding.
	0001	Humidity power module not responding.
	2000	Communication error (incorrect checksum) with power module No. 1.
	0200	Communication error (incorrect checksum) with power module No. 2.
	0020	Communication error (incorrect checksum) with power module No. 3.
	0002	Communication error (incorrect checksum) with humidity power module.
307		Door locking via servo.
401		Humidity sensor defective.
402		Humidity below minimum value.
403		Humidity maximum value exceeded.
404		Water tank empty.
405		Temperature sensor defective.
406		Monitoring sensor defective.
407		Temperature below minimum value.
408		Temperature maximum value exceeded.
409		Temperature tolerance band violated.
410		Automatic light shut-off at high temperature.
411		PTC power of the steam generator too low or no voltage.
501		CO_2 sensor is defective.
502		CO_2 supply interrupted or CO_2 gas bottles empty.
503		Note that appliance has switched to 2ndgas cylinder.
504		CO_2 alarm limit undershot.
505		CO_2 alarm limit exceeded.
506		O_2 sensor defective.
507		N_2 supply interrupted or N_2 gas bottles empty.
508		O_2 alarm limit undershot.
509		O_2 alarm limit exceeded.
510		CO_2 configuration error.
601		Pressure sensor defective.
602		No shelf inserted.
603		Pressure alarm limit undershot.
604		Pressure alarm limit exceeded.
650		Pressure when first operating the appliance (R744).
651		Temperature on the power module No. 1 (R744).
700		Voltage below minimum limit.
701		Time of the power failure/switching off.

Error code / status code	Description.
702	Time of restart.
703	Power failure; UPS (uninterruptible power supply) active.
801	Program start with timestamp.
802	Program aborted.
803	End of program.
804	Program not consistent with cabinet data.
805	Temperature tolerance band exceeded[1]
806	Humidity tolerance band exceeded[1]
807	Vacuum tolerance band exceeded[1]
808	Temperature below tolerance band[1]
809	Humidity below tolerance band[1]
810	Vacuum below tolerance band[1]
811	Inner tolerance range temperature reached; start set ramp duration[1]
812	Inner humidity tolerance range reached; start of set ramp duration[1]
813	Inner tolerance range vacuum reached; start set ramp duration[1]

[1] Only for constant ramps with safe function in the current programme run

See also

Log File [▶ 16]

Notes

Software Manual

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English