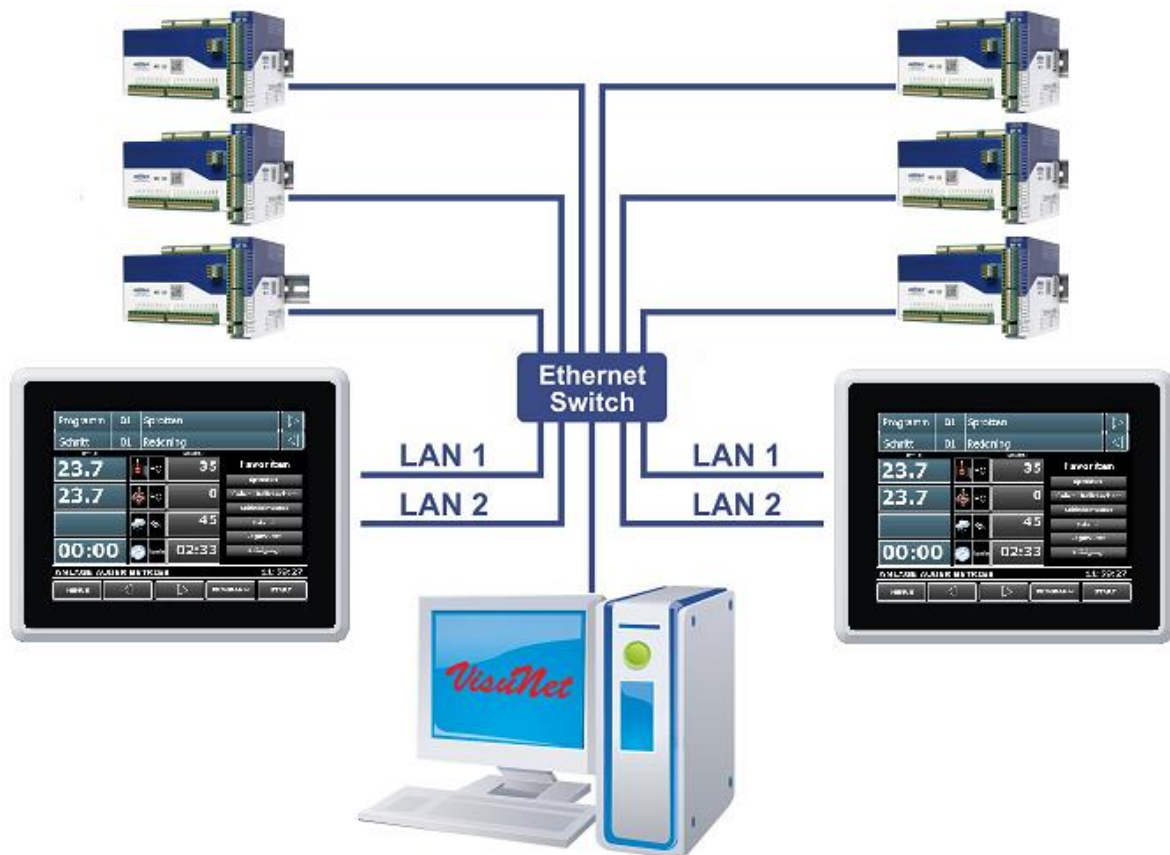


User Manual TP1020 / TP720

**Automation system for
climatic, cooking, smoking,
maturing and universal chambers**



Version V20.36

Issue 29.05.2024_00

Measurement and
Control technology
Hardware development
Software development
Specialised electronics
Food technology
Process visualisation




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Symbols used in this user manual

The following symbols are used in this user manual to emphasize important information:

Symbol	Description
	This is a hint or a tip.
	Please note! This symbol points out potential problems and what to do to avoid them.
	Shows a sequence of actions that should be executed one after the other.

1 Overview

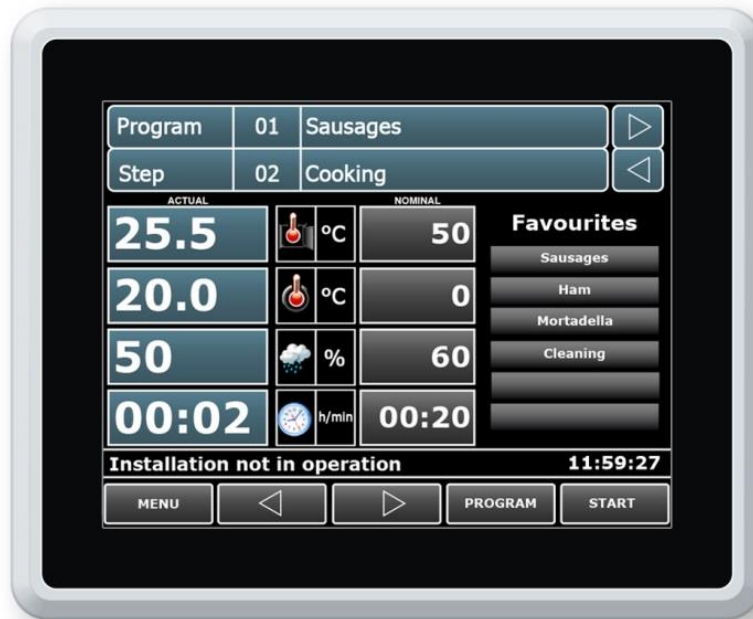


Figure: TP1020



Hint

The task bar at the bottom of TP720 is on the right side of the screen. The use of both touch panels is identical.

The industrial panel **TP1020/TP720** with touch screen surface 7,2"/10,4" TFT display, several interfaces and a housing conforming to industrial standard is designed to be use in **universal cooking and smoking chambers, as well as climatic smoke and maturing chambers.**



Hint

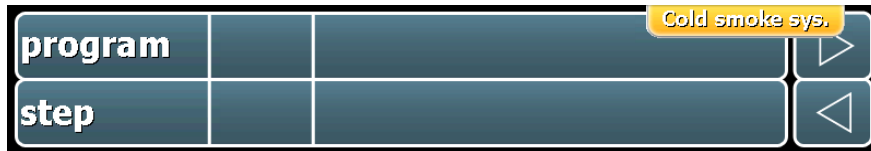
The aditec touch screen control panel (TPXX20) is used in connection with the freely programmable controllers (SPS/PLC) MS120 or MS220 respectively.

The **various interfaces allow you to transfer data between the touch panel TP1020/TP720** and a PC. Programming of the controller via a PC is easy because of the **aditec service programme**. The visualization program **aditec „VisuNet“** offers the possibility of linking the controller to a super-ordinate program for the monitoring and logging of temperature and humidity trends, processes etc. This ensures comprehensive quality control of the treated products in compliance with **HACCP and IFS (ISO 9000)**. Use the remote maintenance system/telecontrol system **aditec-control** to not only run and monitor **the VisuNet programme** but to also make changes to the system from anywhere you may happen to be (Internet).

2 Introduction

2.1 Operating several appliances

Up to six controllers can be registered with touch panel TP1020/TP720. Each of these controllers represents an independent production installation.



If at least one production installation is registered on positions 2 – 6, the description of the currently selected installation will be shown on the button in the top corner on the right. Press this button and a window will open where all six installations are shown as buttons. If you press the button again the window will be hidden.

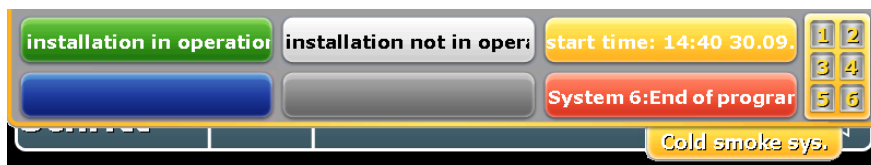


Figure 1: Window for selecting the installation

Each installation is shown as a button. The colour of the button shows the current operating status of the installation. The system status message is shown as running text on the relevant button.

Relevance of the colours:



There is no connection to the installation or no installation is registered.
(if the connection to the registered installation was disrupted there would be a message on the button)



Installation in standby
(no program is currently in operation)



Installation in waiting mode
(Installation will start automatically once the start time has been reached)



Installation in operating mode
(Program is running)



Installation in alarm mode
(Program has been paused, program has been terminated, program has finished)



Is blinking alternately in combination of one of the above colours.
Highlights the currently selected installation.

Press one of these buttons and you will skip to the overview for this installation.



Press the keypad to skip to the overview window, where you will see, at one glance, the most important nominal and actual values of all the registered installations.

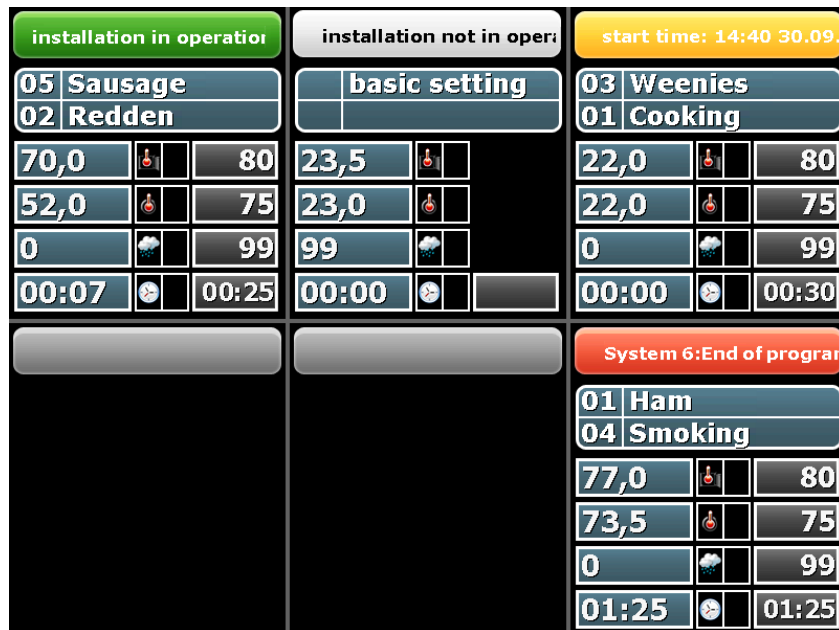



Figure 2: Overview window

Hint
 <p>It is not possible to change a nominal value on this overview page. The nominal values are displayed for information only. In order to change a nominal value, you have to change the display modus of the installation (Press the installation button).</p>

2.2 Functions of the on-screen keypad



Figure 3: Keypad

- | | |
|-------|---|
| « | - Deletes a single symbol |
| c | - Deletes the entire text |
| shift | - Upper and lower case letters |
| .?123 | - Numbers and special symbols |
| Enter | - Saves the new entry |
| Exit | - Cancels the action without changing the original settings |
| more | - More special symbols |

2.3 Entering values



- Deletes the value in the entry box
- Changes the leading sign (+/-)
- Closes the keypad. Changes made to the o are not saved
- Deactivates the nominal value
- Saves the entered value

Please note



The controller allows you to enter negative temperature values:


- In order to pre-program negative nominal values in a step, the installation manufacturer has to pre-set negative nominal value limits for chamber and core.
- „0“ can be entered as a nominal value, this is why the nominal value „Off“ is shown for chamber and core when a new program step is pre-programmed. . This means: nominal value is deactivated. As soon as a value is entered (even if it is „0“) the nominal value is regarded as activated. If you want to deactivate the nominal value later in the step, press the „Off“ button.

2.3.1 Value "Step time"

Value "00:00" means that no step time value has been entered, consequently there is no step time shut-down. Time is counted forward while a step is in operation.

3 Standby

After the touch panel has been connected to the mains it will boot up automatically. This can take up to 3 minutes. You will then see a blue screen or the company logo. Touch the screen anywhere and you will get to the standby screen.

Please note	
	Do not touch the screen with sharp implements i.e. pointed fingernails, pens/pencils, screwdrivers etc. Only use blunt soft implements i.e. fingers, rubber pens.

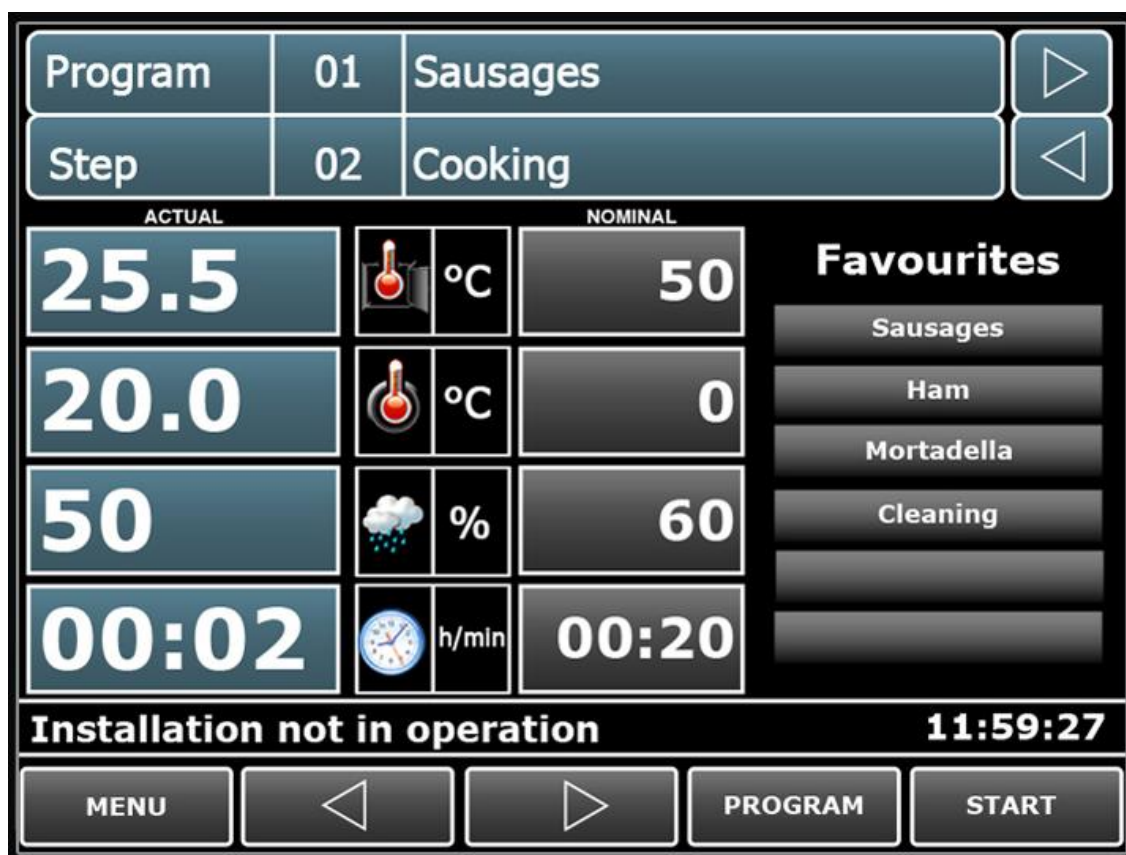


Figure 4: Standby

The standby screen will always show the current measured actual values, the list of pre-programmed favourite programs as well as the time of day. While you are in standby, no programs have been selected yet that is why no nominal value are shown. The current operational status of the system is displayed on the info bar. An interruption of the connection between the touch screen and the controller (i.e. during data transfer) will also be shown here.

3.1 Selecting a program

When you start from standby mode, there are three options of how to select a program:

1. Press the program number box:



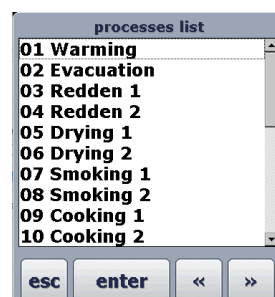
Use the on-screen keypad to enter the relevant program number, then confirm by pressing „Enter“.



2. Press the program name box:

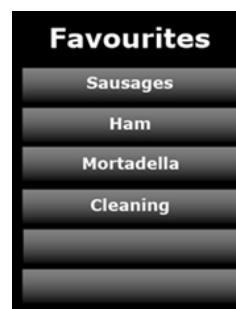


A list of all the available programs will open up. Select a program and confirm by pressing „Enter“.



3. Selecting a program straight from the favourites list:

Setting up the list of favourites, item 5.2, Page 21



Once you have selected a program, you can now control, and if necessary amend, all the relevant values for the processes by using the *arrow buttons* (see *Figure 5*). Press the „Program“ button (see *Figure 5*), to get to the program selection page (see „Program selection“, item.5.1, page 20). Select a program and press the „Process list“ button. Now you can amend the values (see „Process list“, item 5.3, page 21).

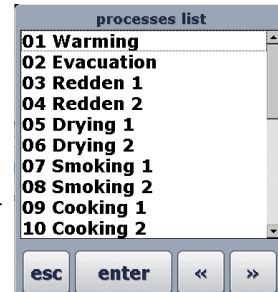


Figure 5: Task bar standby

3.2 Selecting a step

You can select steps on the standby page. This allows you to skip steps during operation or to repeat a step that has finished. Steps can also be selected in standby mode, e.g. to check entered nominal values or to start a program with the second or third step. When you are in standby mode, there are two options of how to change steps:

1. Press the box with the process name:



A list of all the steps will open up. Select a step and then confirm with „Enter“.

2. Use the arrow buttons on the task bar to browse through the program steps



3.3 Actual and nominal values

Actual	Symbol	Scale	Nominal	
IST			SOLL	
20		°C	65	Chamber temp.
20		°C	50	Core temperature
50		%		Humidity
00:00		h/m	00:15	Step time

Figure 6: Actual and nominal values

Actual value:

Currently measured sensor value or current step time

Symbol/Scale (one button):

Shows the measured value and the measuring scale.

When a maximum nominal value for the chamber temperature or max. humidity has been enabled, this button is used to alternate between the min/max nominal value. Which nominal value is currently shown, can be seen in the nominal value box (min./max.).



The step time button is used to alternate between the current step time (no arrow), elapsed program time (flashing arrow pointing to the left) and expected remaining runtime until the end of the program (flashing arrow pointing to the right). The expected remaining runtime until the end of a program can change if e.g. new nominal values are entered which are reached faster or you switch into the next step earlier. When a step has no pre-programmed step time the remaining runtime is shown as „00:00“.



Nominal value:

Only entry boxes for the nominal values that are active in the current process will be shown. In standby nominal values are not shown because neither a program nor a process has been selected. If you press the button „nominal value“ during operation and an entry box will open up, now you can then change the nominal value. This is only a transient change and the value will revert to the original setting at the end of the program.

3.4 Optional displays

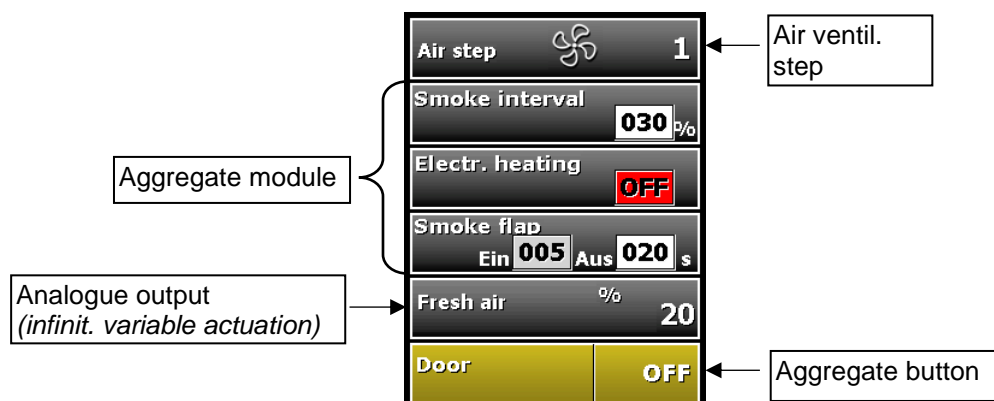
Once a program has been selected, you can use the arrow buttons at the top to browse through the enabled optional displays. Here you can for example check the relevant values for this process.



Figure 7: Switching nominal values

3.4.1 Optional nominal values

If additional nominal values have been enabled (e.g. FC value, Delta temperature, air ventilation) or if aggregate buttons have been enabled, they will be shown in this list "Optional displays" / "Optional nominal values". Here you can transiently change nominal values by pressing the relevant box.



Press the current nominal value to change it. (Switching from on/off or changing the numerical value)

With aggregate buttons and aggregate modules there are the different types of buttons.

- On/Off buttons
- Buttons with interval time. Here the „ON“ time is fixed in the programming by the installation manufacturer. The „OFF“ time in seconds can be entered in the program by the end user.
- Buttons with pulse interval. The base time is fixed in the programming by the installation manufacturer. The pulse interval in per cent (of the base time) can be entered in the program by the end user.

Please note	
	The newly entered nominal values are only valid for the current step. They will not be saved and are only valid until the end of the step. If you want to save nominal values permanently, make the changes under Programming mode“, item 5, page 20.

Hint	
	Unlike aggregate buttons, aggregate modules can be programmed permanently and saved. Also see item 5.7 „Editing“, page 27 The current status of the aggregates are shown under „Aggregate and relay display display“, item 3.4.3, page 14!

3.4.2 Process display

Nr	step
01	Cooking
02	Drying
03	Smoking
04	Pause
05	Ventilation
06	Shower
07	Evacuation
08	
09	
10	
11	
12	

In the process display you can see all the steps with the associated processes. The currently selected or currently running step is highlighted in blue. So it is easy to determine which processes have already run and which are still to come.

From Version V20.17: If "Display on main page" is enabled under optional displays, you can switch the process display to the following displays:

Two-line

no	processes	Kammer	Feuchte	Delta	
Zeit	Kern	Umluftstufe	Kammer max	Feuchte max	FcVal
1	Warming	60	0	0	
01:45	off	1	0	0,0	
2	Evacuation	25	0	0	
00:02	off	1	0	0,0	
3	Warming	62	0	0	
00:15	off	1	0	0,0	
4	Evacuation	61	0	0	
00:02	off	1	0	0,0	
5	Warming	25	0	0	
00:15	off	1	0	0,0	

Single-line

no	Kern	Zeit	processes	Feuchte	Kammer	Delta	FcVal	Umluftstufe
01	off	01:45	Warming	0-0	60	0	0,0	1
02	off	00:02	Evacuation	0-0	25	0	0,0	1
03	off	00:15	Warming	0-0	62	0	0,0	1
04	off	00:02	Evacuation	0-0	61	0	0,0	1
05	off	00:15	Warming	0-0	25	0	0,0	1
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								

Please also note point 7.4 "Transient changes to the nominal values – applicable to all steps (from V20.17)", page 37.

3.4.3 Aggregate and relay display

On this list you can see all the aggregates which have been configured for the current process and their operating status.

0 – Aggregate off
1 – Aggregate on

no	x	all relays	on
001		Heating	1
002		Cooling	0
003		Humidification	1
004		Dehumidificat.	0
005		Operation	1
006		Signal	0
007		Air circul. 1	1
008		Smoke interval	0
009		Electr. heating	1
010		Smoke flap	0
011		Door	1
012	x		0
013	x		0
014	x		0

Aggregate which have been configured in the selected process

Aggregate modules

Aggregate buttons

Outputs that are assigned to PLC applications

From V 20.16 onwards

In the aggregate list (and also in standby mode) all the relays that are controlled by the controller are displayed.

Be aware

Some relays will only appear on the list after they have been switched on for the first time. They will however remain on the list even after they have been switched off.

3.4.4 Digital Inputs - Alarms

Here all the alarms which have been configured for this process or program are shown with their operating status.

no	alarm list	on
02	Convect. motor	1
03	Emergency Stop	0

0 – Contact open
1 – Contact closed

(The lines indicating whether the contact is open or closed are highlighted in different colours)


3.4.5 Digital Inputs - Messages

Here all the messages which have been configured for this process or program are shown with their operating status.

no	message list	On
01	Door open	0
04	Pressure switch	1

0 – Contact open
1 – Contact closed


(The lines indicating whether the contact is open or closed are highlighted in different colours)

Hint	
	Messages are for information only and are not sent to the „VisuNet“ monitoring program.

3.4.6 Optional control loops

The installation manufacturer has the option of enabling additional control loops in each individual process. On this list all the optional control loops which are enabled for the current process are shown together with their actual values.

catalyst name	Wert
Smoke flap	0%
Exha. air flap	50%
Inlet flap	50%

Hint													
	<p>low – battery Battery of the wireless sensor has to be replaced (charge below 10%) If the charge is low this message will be shown before every program. Moreover an additional line will be shown in the „Opt. Regulator“ display, with a warning that the battery charge of the assigned sensor is “low”.</p> <table border="1"> <thead> <tr> <th>Opt.Regelkreise</th> <th>Wert</th> </tr> </thead> <tbody> <tr> <td>E81:Kerntemper</td> <td>3°C</td> </tr> <tr> <td>E82:Kerntemper</td> <td>3°C</td> </tr> <tr> <td>E83:Kerntemper</td> <td>3°C</td> </tr> <tr> <td>E84:Kerntemper</td> <td>3°C</td> </tr> <tr> <td>E81: C 3151</td> <td>low</td> </tr> </tbody> </table>	Opt.Regelkreise	Wert	E81:Kerntemper	3°C	E82:Kerntemper	3°C	E83:Kerntemper	3°C	E84:Kerntemper	3°C	E81: C 3151	low
Opt.Regelkreise	Wert												
E81:Kerntemper	3°C												
E82:Kerntemper	3°C												
E83:Kerntemper	3°C												
E84:Kerntemper	3°C												
E81: C 3151	low												

3.4.7 Program favourites

7 **ON** Program Favourites

Activation of favourites list. The configured program favourites are displayed in this list.

Favourites

- Sausages
- Ham
- Mortadella
- Cleaning

3.4.8 Graphic representation (from V20.20)

08 **on** Graphical 'Representation

 **Change to fullscreen**

Visualisation of installations

In order to facilitate the visual display of an installation and to monitor it, you can create your own customised graphic display in the control element and allocate different parameters of the system.

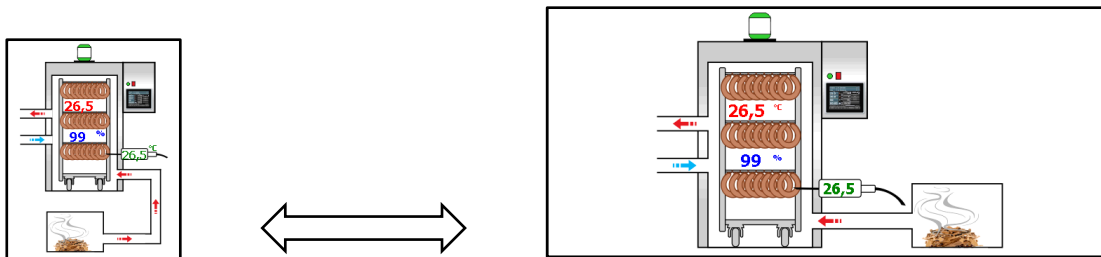
The following parameters can be used:

Measured variables (e.g. chamber temperature, core temperature),
Sensor values (individual values with multiple data capture of one measured variable),
Display of the operating status: digital inputs, relay status and analogue outputs

Trans-installation display

You can also display parameters from other systems. This allows you to integrate neighbouring systems/ installations into the visualisation.

From version 20.24 "Graphic representation" and "Change to full screen" are activated by default. For the first position in the TP the pictures below are stored. These images can be read out with the AsADBus service program and changed if necessary¹.



You can switch between normal view and full screen view by tapping the normal view or by using the "Exit" button in the task bar of the full screen view.

¹ From AsADBus version 02.01 – see „Graphic (GUI)“

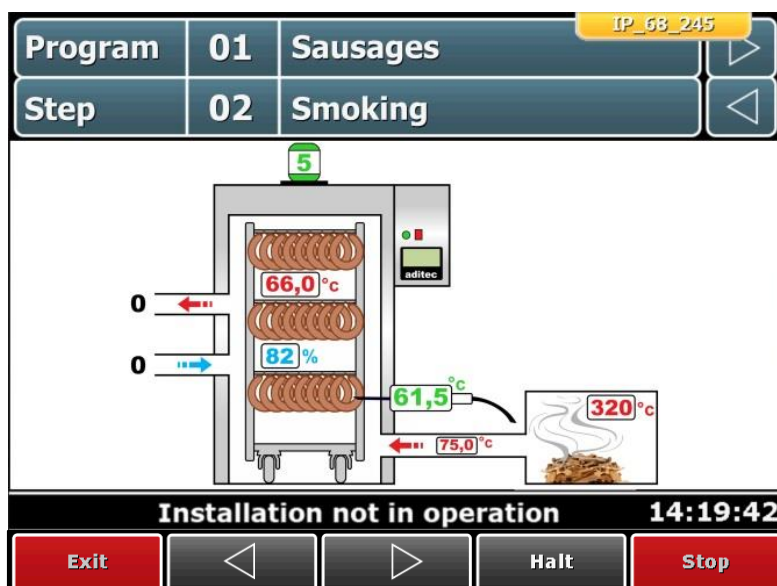


Figure 8: Graphic representation

3.4.9 Additional displays for actual values (from V20.24)

If the additional display has been enabled, the assigned measured variable is shown on the main page instead of the "Program" and "Step" fields.


Example:



9	off	Additional displays for actual values
	only for step overview	Display
	chamber temp.	Instead of position Prog
	humidity	Instead of position Step

Relevance of the settings:

- **Display:** Determines when the assigned values should be displayed:
 - **"always":** The measured values are displayed permanently
 - **"only for step overview":** The measured values are only displayed when the step overview is switched on.

	Be aware! Optional display no. 2 "Process display" must be "ON" and "Display on main page" must be activated.
---	---

- **"only in operating mode":** The measured values are only displayed during a running program.

3.5 Task bar



The task bar is sub-divided into 5 task buttons. When you have left standby by pressing one of the buttons, you can get back to it by pressing the „Standby” button on any of the other pages.

- Menu:** Press the "Menu" button to get to the menu page
(see „Menu“, item 4, page 19)
- Arrow buttons:** Use the arrow buttons right/left to skip backwards or forwards between steps.
- Program:** Press "Program" to get into programming mode
(see „**Programming** mode“, item 5, page 20)
- Start:** Starting a program (see "Program start", item 6, page 32)

4 Menu page

The „Menu“ page of the touch panel is structured as follows:

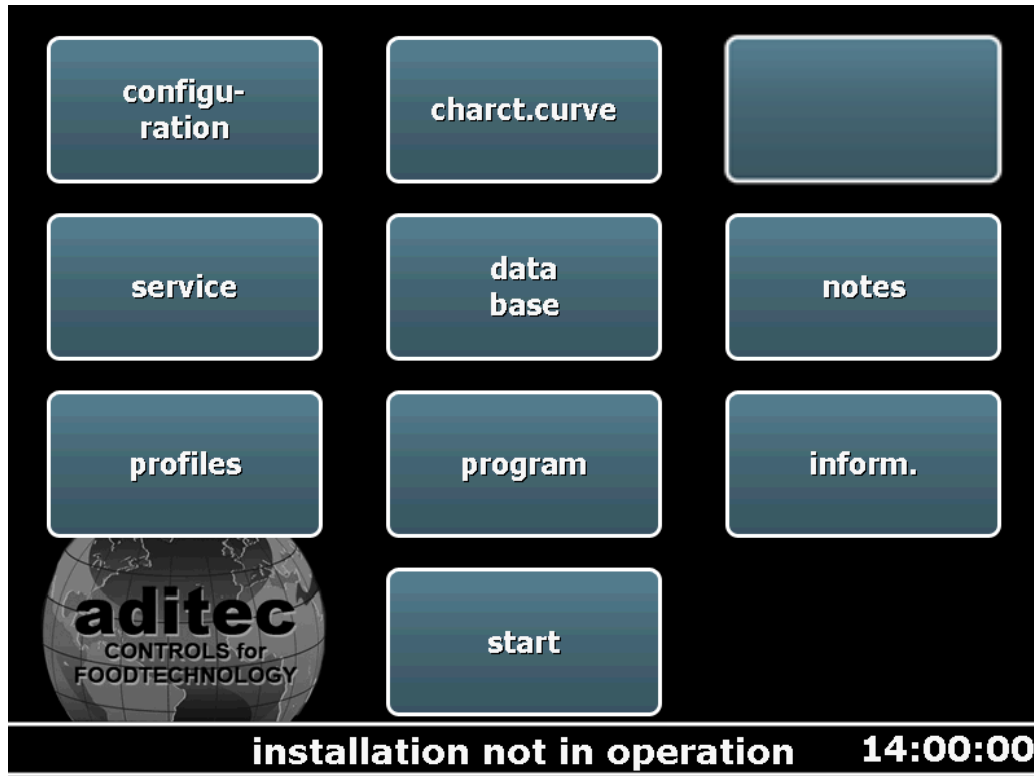



Figure 9: Menu

- **Configuration:**
Installation-specific settings of the controller. The settings can only be pre-programmed by a service technician and are protected by a password.
- **Characteristic line:**
Characteristic line and measuring values of programs that are currently in operation.
- **Service:**
Settings for the service personnel on site: initial start-up, service work etc. The settings can only be pre-programmed by a service technician and are protected by a password.
- **Data base:**
Characteristic line and measuring values of programs that have already run.
- **Notes:**
Opens a page where you can make your own notes (e.g messages).
- **Profiles:**
Settings for the operator /end user. These settings are not password-protected.
- **Programming:**
Opens the program selection page
- **Information:**
On the information page you can find different pre-set messages.
- **Standby:**
Return to standby

5 Programming mode

Press the „**Programs**“ button on the task bar at the bottom (or via „**Menu**“ button and then „**Programming**“). Select a program number from the list on the left hand side and you have selected a place for a new program or a program that you want to overwrite.

Hint
 <p>If a PIN entry is required it means that the function „<i>Administrators</i>“, item 9.6, page 46 has been enabled. Changes to the programming can therefore only be made by specific operators.</p>

5.1 Program selection

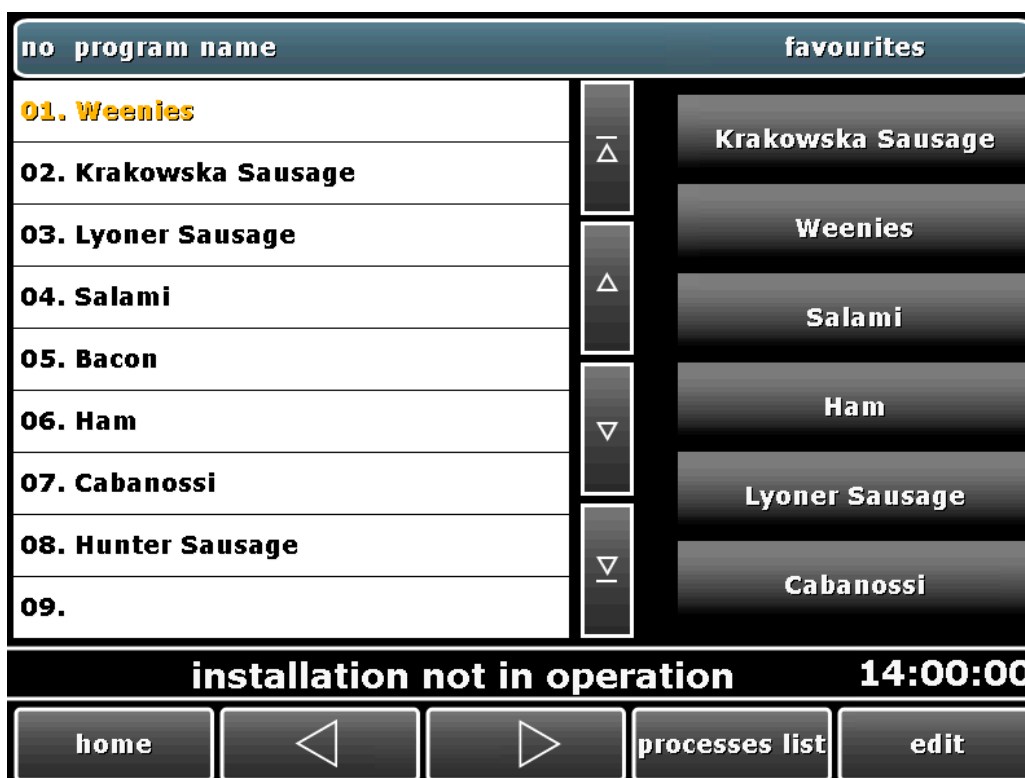





Figure 10: Programming mode


home	Back to standby
	Skip backwards in the program list, in blocks of 9 programs
	Skip forwards in the program list, in blocks of 9 programs
processes list	Opens the "Process list" page
edit	Editing, copying and deleting programs

Press the „**Process list**“ when you want to set up an entire program with all relevant steps/processes and to label your program.

Hint
 <p>You can only enter or change those nominal values that have been enabled in the configuration.</p>

5.2 Setting up favourites

Select a program from the left hand side of the program list. (see Figure 10). Press one of the lines on the favourites list and the program is added in this position. Now you can go to standby and select a favourite program from the list and start it by pressing the „Start“ button.

Please note	
	You can only overwrite an already existing program in the favourites list. You cannot delete a program here. If you want to create a blank space on the favourites list, overwrite a program with an empty program without program name. A blank line will now appear on the favourites list on the standby page.

5.3 Process list

1. Enter program name:

Press box „Program name“, enter the name via the on-screen keypad. (20 characters are possible) (see „Functions of the on-screen keypad“, item 2.2, page 7)

2. Select a process:

Press the box and select process from the list, confirm with enter

3. Enter nominal values:

Press the individual nominal value boxes and enter or change the relevant values (see „Value entry“, item 2.3, page 8).

4. Repetitive sequences:

Press the box below the step number and enter the repetitions.

We suggest that you proceed as follows on the „Process list“:

program		01		Weenies			
no	processes	Chamber	Humidity	Delta			
↻	Time	Core	Air step	Chamber max	Humidity max	FcVal	
1	→ Cooking	55		0			
1x	00:13	OFF	1			0,0	
2	Drying	55		0			
1x	00:18	OFF	3			0,0	
3	Smoking	60		0	0	0	
2x	00:18	OFF	2	OFF	0	0,0	
4	Pause						
2x	00:02						
5	Ventilation			0			
2x	00:02		3		0		
installation not in operation						14:00:00	
home		◀		▶		programs	
						edit	

Figure 11: Process list

If you would like to enter additional nominal values that are not available on the „Process list“ page, then you can edit the individual steps. Highlight the selected step by pressing on the box, then press the „edit“ button on the task bar.

5.4 Delta value entry

Cooking with the Delta-T process (*Delta temperature control*) is used to heat the goods slowly and evenly. In this process, the chamber temperature is always regulated to be by the Delta nominal value higher than the actual core temperature of the goods. This means the temperature difference between the surface and the core of the goods remains constant. The pre-programmed nominal chamber value is used as the upper limit for chamber temperature regulation.

A small nominal Delta value prolongs the cooking time, heating is gentler, a large nominal Delta value speeds up the cooking process.

Hint

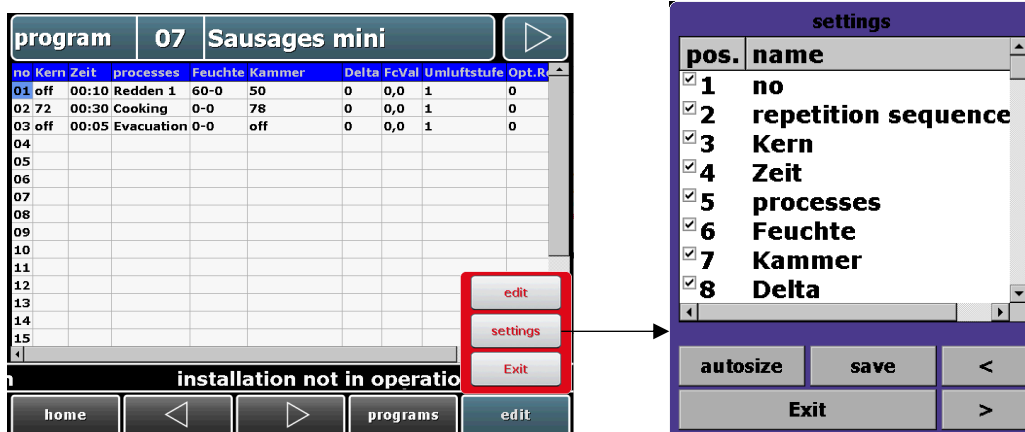
- Delta values from 0 to 99°C are possible. If you enter 0, the function is disabled.

- While a program is in operation, the nominal chamber temperature value is calculated as the actual core temperature plus the pre-programmed Delta temperature.

Example: *Actual core (Sensor temperature) = 50°C*
Delta temperature (pre-programmed value) = 5°C
50°C + 5°C = 55°C
When the core temperature exceeds 55°C, the heating will be switched off.

5.4.1 Single-line display of the process list

The single-line process list display¹ allows you to customise the display on the page for your needs. Press edit => settings:



- To show / hide individual values (click on the „tick“, or double click on the nominal value description)
- To change the order of the display on the page, highlight a nominal value and press the arrow buttons „<“ or „>“)
- To adjust the column width, click and drag

¹ Enable under Service\ Optional displays\ Proccess display\ graphic display

5.5 Air circulation level

The options of programming or changing air circulation levels depend on the settings of the configuration of the individual installation.

i	Hint
If your installation has infinitely variable air circulation, e.g. frequency converter, you can make entries to the air circulation via the analogue output.	

no	processes		
	Time	Core	Air circulation
1	Cooking		
1x	00:13	OFF	1
2	Drying		
1x	00:18	OFF	3

If this box is the same colour as the other nominal values, then intelligent air circulation has not been pre-programmed. A fixed level has been pre-programmed.

If the box „Air circulation“ is highlighted in green, it means that intelligent air circulation is active, therefore automatic operation is pre-programmed.

Figure 12: Air circulation level

i	Hint
Intelligent air circulation means that, depending on nominal and actual temperature values or humidity values, air circulation control will automatically switch into a higher or lower level. It is mainly used in climatic and maturing chambers. In semi-automatic mode, one air circulation level is always active. In fully-automatic mode there is a resting phase when air circulation does not run. For the automatic actuation, a soft start interval and a dwell time can be entered.	
When intelligent air circulation control has been enabled in the configuration, it can be disabled by entering a specific air circulation level.	

Press the box „Air circulation“ in the relevant process and a window will open where you can select the air circulation level:

Intelligent air circulation control has been enabled:

autom.	Intelligent air circulation control has been enabled and can be programmed.
1 2 3	De-activation of automatic operation by selecting a specific air circulation level. (grey air circulation level number means the level is not configured.)
esc Enter	Entry is saved
esc Enter	Entry is not saved.

Intelligent air circulation control has been disabled:

inactive	Intelligent air circulation control has not been enabled and cannot be programmed.
1 2 3	Select an air circulation level. (grey air circulation level number means the level is not configured. Green number shows the level which is currently in operation)
esc Enter	Entry is saved
esc Enter	Entry is not saved

5.6 Air circulation



Up to 10 air circulation sequences are available for program steps. These can either be pre-programmed in the configuration (button "Sequences"), or they can be set up in programming mode. Detailed instructions can be found in the service manual under "Air circulation sequences – Set up / Changes"


5.7 Flap movement

When you press the flap box the allocated flap times are shown.



5.7.1 Programming flap times

In programming mode¹ you can enter or change the flap position intervals for all the different sequences (up to 8) on this page

Hint
 <p>If the feature "Change of position intervals by operator" has been disabled for a specific flap in the configuration, sequence number „0“ will be shown. This means that neither the sequence number nor the position intervals for this flap can be changed.</p>

5.7.2 Display of the flap time intervals during operation


In operating mode the current status of the flap will be shown.

– Current position

The current position which is being approached and then held is highlighted in the corresponding text colour (red).

Once the flap has reached its position the pre-set time count will start, the flap position time is counted backwards (red).

¹ Page for setting up / changing programs

Hint	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Pulse: n: 10 a: 5 </div> <p>If an incremental encoder has been programmed for the flap (see configuration), then the number of impulses will be shown while the flap is approaching its position n (nominal¹) - a (actual²)</p>

- Mode

Display of the current operating status of a flap. The following operating modes can be shown:

Mode	Explanation
Ready	Flap is ready for operation <i>If the basic position feature is enabled , the condition must be TRUE in order for the flap movement to start</i>
Automatic sequence	Automatic operation: the displayed nominal position is just being approached.
Waiting for the next position	Flap is in a nominal position. The position time interval is counted down.
Approaching basic position	The basic position is just being approached. <i>The flap is actuated until the basic setting logic has the status "TRUE".</i>
Error	Flap movement has been paused, the condition for activation is not fulfilled. In addition the current error will be shown in the box „Message“.
Pause	The flap was paused <i>E.g. when the flap has not been programmed in the process³.</i>
No position feedback	Flap was paused because a nominal position could not be reached within the pre-defined time interval. <i>Movement will be resumed as soon as the limit switch has assumed the nominal status.</i>
Internal software error	Flap was paused because of an internal software error (try re-starting the controller).

- Status


Display of the motor status of the flap

Status	Meaning
Motor backwards	Motor run forwards
Motor forwards	Motor runs backwards
Motor stopped	Motor switched off
Motor busy	Motor is just being used by a different flap

- Message

A message is only shown when the release condition is not fulfilled. The number of the logical link is shown as message text.


5.7.3 Movement sequence – general information

Hint	
	<p>The position time intervals cannot be changed in operating mode.</p> <p>If you change the current sequence number during operation, the flap movement will be continued with the interval times from the new sequence. If the flap is in a nominal position, the new position interval is only applied after the position has changed.</p>

¹ Nominal = Code 1714: „Number of impulses until nominal position is reached“

² Actual = Number of impulses for the current movement.

³ The flap is not active in a process when the nominal flap value has not been enabled or when the hardware output of the flap (relay or analogue output) has not been allocated to the process.


Be aware - Movement sequence	
	<p>If a basic setting has been enabled, the flap will not be activated until the release condition for the basic setting has been met. (Mode: ready).</p>
	<p>The end position is only approached at the end of a program or in standby-by mode. When the end position is approached, the approach movement follows the settings for position 1. (<i>direction, output value at the analogue output</i>)</p>
	<p>If a program is paused or in processes where the flap has not been pre-programmed, the flap will remain in the position it previously approached. As soon as a process is running where the flap is pre-programmed, it will resume its movement.</p>

5.8 Setting up repetitive steps

If this function has been enabled, you can enter repetitions for individual steps or step combinations.

<table border="1" style="border-collapse: collapse; width: 100%;"> <tbody> <tr> <td style="text-align: center;">2</td> <td colspan="3" style="text-align: center;">Drying</td> </tr> <tr> <td style="text-align: center;">1x</td> <td style="text-align: center;">00:18</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">3</td> <td colspan="3" style="text-align: center;">Smoking</td> </tr> <tr> <td style="text-align: center;">2x</td> <td style="text-align: center;">00:18</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">4</td> <td colspan="3" style="text-align: center;">Pause</td> </tr> <tr> <td style="text-align: center;">2x</td> <td style="text-align: center;">00:02</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">5</td> <td colspan="3" style="text-align: center;">Ventilation</td> </tr> <tr> <td style="text-align: center;">2x</td> <td style="text-align: center;">00:02</td> <td></td> <td style="text-align: center;">3</td> </tr> </tbody> </table> <p style="margin-top: 5px;">Press the box below the step number.</p>	2	Drying			1x	00:18	OFF	3	3	Smoking			2x	00:18	OFF	2	4	Pause			2x	00:02			5	Ventilation			2x	00:02		3	<p>repetition steps</p> <p>from step <input style="width: 40px;" type="text" value="01"/></p> <p>to step <input style="width: 40px;" type="text" value="05"/></p> <p>repetition sequence <input style="width: 40px;" type="text" value="02"/></p> <p style="margin-top: 10px;"> <input type="button" value="Erase"/> <input type="button" value="Enter"/> </p>	<p>Enter which steps should be repeated and how often. Then confirm your entry by pressing „Enter“.</p> <p><i>Example 1:</i> If you want to repeat the 2. step 10 times, enter:</p> <p>from step : 2 to step : 2 repetitions : 10</p> <p><i>Example 2:</i> If you want to repeat steps 2 to 5, 2 times, enter:</p> <p>from step : 2 to step : 5 repetitions : 2</p>
2	Drying																																	
1x	00:18	OFF	3																															
3	Smoking																																	
2x	00:18	OFF	2																															
4	Pause																																	
2x	00:02																																	
5	Ventilation																																	
2x	00:02		3																															

Figure 13: Setting up repetitive steps

Hint	
	<p>If you enter „99“ repetitions it means that the sequence infinitely repeated.</p>

5.9 Editing

You can open the "Edit" page in two different ways.

- Starting on the "Process list" page, highlight the step you want to edit by pressing it. Then press the "Edit" button on the task bar.
- Starting on the "Program" page, highlight the program you want to edit by pressing it. Then press "Edit" on the task bar. In the following options window, press the "Edit" button a second time.



Press program or step in order to change it with the arrow buttons in the basic line. The current selection is shown in red.

In order to change the nominal values, press the relevant nominal value.

Press the program or step number to get to the entry box.	Entering a program name (25 characters possible)	Selecting a process from the list
---	--	-----------------------------------

program	01	Weenies
step	03	Smoking
Chamber °C	50	Air step 3
Core °C	OFF	Smoke interval 030 %
Humidity %	55	Electr. heating OFF
Humidity max %	75	Smoke flap on 005 off 020 s
Time h/m	00:25	Fresh air % 20

installation not in operation 14:00:00

home	◀	▶	menu	processes list
------	---	---	------	----------------

Air circulation level

Aggregate module

Infin. variable aggregate (via analogue output)

Back to the operation page

Skipping for wards/backwards through program or step numbers

Back to the process list


Figure 14: Editing programs

	Hint
	It is also possible to add, copy or delete programs and steps on the "Edit" page. Double click on the box "Program" or "Step" to get to the relevant sub-menu. See "Copying, deleting, adding programs/steps", item.5.11, page 28.

5.10 Linking programs

Every program has 20 programmable steps¹. If you need more than 20 steps, you can link several consecutive programs.

If the last program step has been pre-programmed and step 1 of the following program is also pre-programmed, the two programs will automatically be linked. If the last program step is not pre-programmed, the controller will end the program with the last pre-programmed step.

Hint	
	It is basically possible to change the controller settings to more than 20 steps, if you reduce the number of programs at the same time: → Service / Setting up program, step numbers

5.11 Copying, deleting, adding programs/steps


Box „Program“



If you press the "Program" box a second time, an options window will open. This allows you to copy or delete a program.



You can copy a selected program and insert it in the desired position.

Be aware!	
	A program is automatically inserted when you press the "Enter" button. The program that originally occupied that position is overwritten!

Box „Step“

Double click the „Step“ box to open the copy site.



¹ If the number of programs/steps have not been changed under Service/ Program, step number.

Copying

How to copy a selected step into another program or copying it into another position within the same program.



Please change in to the Process list menu. Select the required process by touching the process name.

program		01 Weenies			MS220		home
no	processes			Chamber	Humidity	Delta	home
↻	Time	Core	ir cicul.level	chamber ma	Humidity ma	FcVal	
1	Warming			90	20	0	home
	00:01	60	1		60	0,0	
2	Evacuation			90	0	0	home
	00:00	off	1		0	0,0	
3	Redden 2			off	0	0	home
	00:00	off	1		0	0,0	
4	Drying 1			off	0	0	home
	00:00	off	1		0	0,0	
5							home

programs
edit

installation not in operation 11:07:04

After repeated pressing the process name the following window appears:



Inserting

Let us assume you would like to add a new step 2 into a program. In this case, what was step 2 now becomes step 3, this means all existing steps are moved back by one position. The last step of the program is deleted.


Copying

Copy the selected step in to an other program or copy it within the same program to an other position. If the step is already used, this step will be overwritten.



Deleting

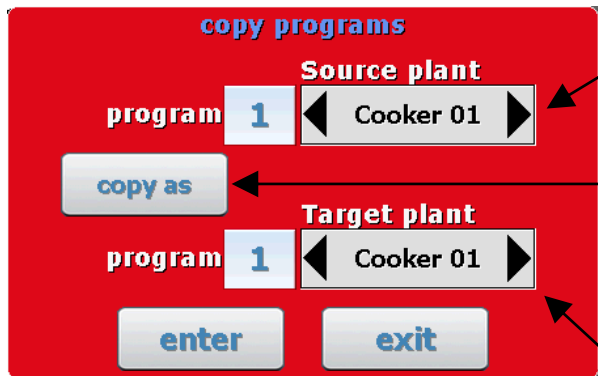
Delete the selected step. All subsequent steps move forward by one position.

	Be aware!
	<p>A program is automatically inserted when you press the "Enter" button. The program that originally occupied that position is overwritten! If you delete or add a step, it can inadvertently lead to a linking of programs or the break-up of a link between programs! (See „Linking programs“, item 5.10, page 28)</p>

5.12 Copy programs to another unit (from V20.21)

It is possible to copy programs if the units are operated with the same touch screen.

- You can:**
- Copy individual programs from one unit to another unit
 - transfer all programs from one unit to another

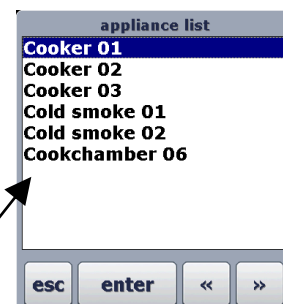



name of the current unit

When pressed, the heading changes between: "Copy as" and "All Progr."
If you select "All programs", the program numbers are hidden.

Here opens a selection box with all 6 units.

The current unit is pre-selected.



Pressing "Enter" the selected program of the current installation is copied to the target program of the selected installation.

If "All programs" is selected, all programs of the current installation are copied to the target installation.



5.13 Edit program steps

By touching the "Step" field a selection menu is opened.

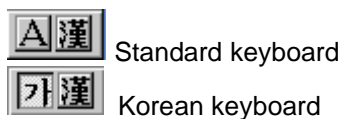
It is possible to insert, copy and delete steps. This function is corresponding to the page "Step overview".



5.14 Korean language support (from V20.22)

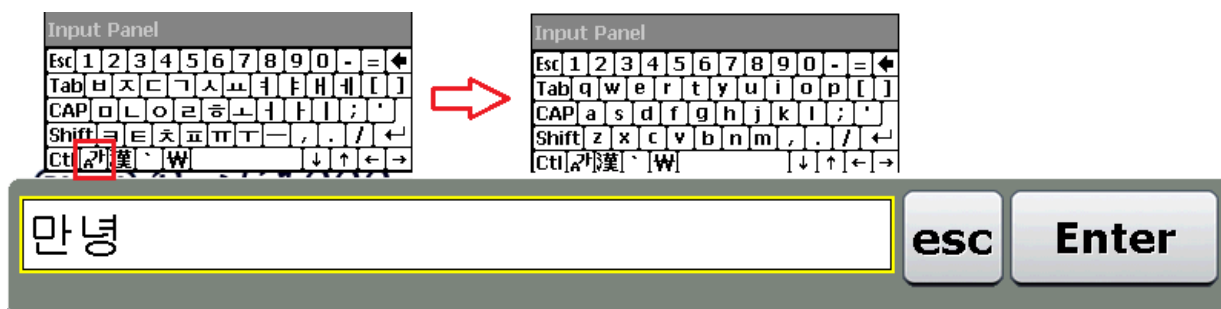


A switchover option is displayed. You can switch between Latin script and Hangul by touching it:



5.14.1 Input of Korean language


The Korean language can be entered via an on-screen keyboard. The button marked in red is used to switch between Latin script and Hangul.



Switchover korean / standard


Hint	
	The display of Korean designations and texts is supported from VisuNet V11.20.08. VisuNet with Korean operation is not available.


Hint	
	The display of Korean designations and texts is supported from Service Programme V02.02. For the input of Korean characters the Korean language support in Windows is necessary. Service Programme with Korean operation is not available.


Hint	
	The following requirements are necessary for Korean language support: <ul style="list-style-type: none">- TP Software version V20.22- TP image Rev15.

6 Program start

After you have selected the desired program as described under „*Selecting a program*“, *Item 3.1, Page 10*, the program can be started. At least one program step has to be pre-programmed.

Hint	
	You do not need to send the program to the controller manually. The programs on the touch panel and in the controller are compared at the start of every program and when a variance is recognised in the program it is resent automatically.

Hint	
	With linked programs ¹ the touch panel compares all the programs which are linked to each other, no matter which program within the linked chain is started. If any variances are recognised in any of the programs, the touch panel will send them to the controller.

Please note	
	If administrators have been nominated for the controller, you will be asked for a password before a program start. Only operators who are authorised to start a program can do so.

¹ Linked programs: when the last step in a program has been pre-programmed, the program is linked to the next program. This means: once the last step of a program is finished, the controller automatically starts the next program if there is a subsequent program.

6.1 Starting programs with batch number and waiting time

If the "Batch number" function is enabled, the touch panel will ask you for a batch description/ name.

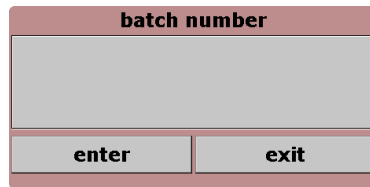



Figure 15: Entering a batch number

Press the top line in the batch no. box. An on-screen keypad will appear and you can enter the batch description (*50 characters are possible*). Then press "Enter" to confirm your entry and to apply the description to the current program.

	Hint
A batch no. has to be entered when this function was enabled. Without a batch number the program cannot be started.	

After you have entered and confirmed the batch number you can choose between: "**Start with time**" or "**Instant start**".

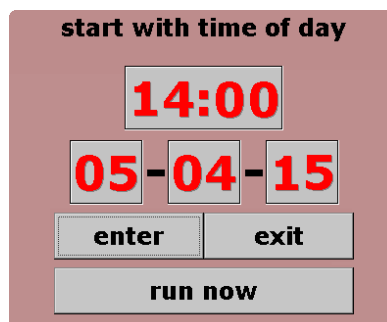



Figure 16: Entering a start time

6.1.1 Start with time of day

Press the date or the time box and enter the desired start time and the start date. Then confirm with "Enter".

If the entered start date and time have already passed, the controller will start immediately. If the entered start date and time are in the future, the waiting time interval will start. On the info bar you can see the pre-set start time. Once this time arrives the program will start and the display on the info bar will change to „Installation in operation“.

	Hint
While the waiting time is running the "Stop" button will be flashing on the task bar. If you press the "Stop" button, waiting mode will be interrupted and the controller will return to standby mode.	

Press the "Exit" button to terminate the starting process and return to standby.

6.1.2 Instant start

With "Instant start" the installation will automatically start operating, which will also be shown on the info bar.

6.2 Linking of installations / systems

Two systems/appliances can be linked. It is possible to start a specific program in installation 2 (rear part of the installation) as soon as a program in installation 1 (front part) has finished running.

If you press these buttons, the display will change

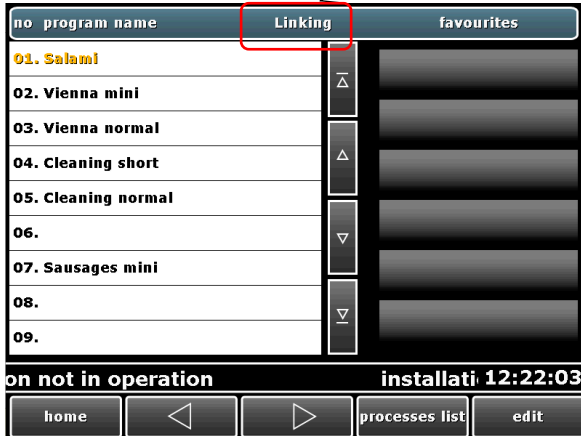


Figure A: Favourites



Figure B: Program list for the rear part of the installation

When you allocate numbers on the program list for the rear part of the installation (see Figure B) you can determine which program in the installation „Rear part“ is going to be started after a program of installation „Front part“ has finished running.

6.2.1 Starting a program in installation „Front part“ (Section 1)

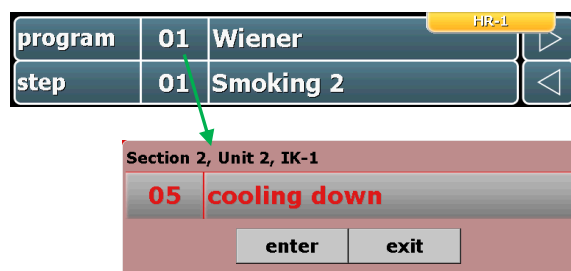
If two installations/systems are linked, then every time installation „Front part“ is started, an additional box for the entry of a follow- up program number for installation „ Rear part“ will appear.



Figure 17: Program start with linked installations/systems

Hint	
	Section 2 will only be shown, if an installation „rear side“ has actually been configured for the current installation under settings „Service/ Linking of installations“.

Selection of programs for hte automatic start in the 2. Section of installation „rear side“. The selected program can be changed during operation. (click on the program number



6.2.2 Sensor log on / off by the user

	Option
This option is only available when at least on sensor exists that has to be logged on at the start of a program (see settings Code 4422).	

Log on with program start

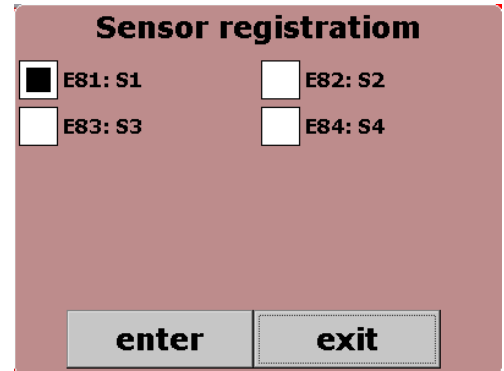
At the start of every program a window with all the sensors that can be activated will be shown. If you click on the corresponding box by the sensor description, the sensor can be **activated** („box is filled in“) or **deactivated** („box is empty“).

Manual log on

Once a program is started you can click on the box „Opt. Control loops“ (at any time during the program) to call up the window „Sensor log on“.

Sensor display

The „deactivated“ sensors are „highlighted“ (in grey).



	Be aware: [-] – error „no feedback“
If a measuring value has no assigned active sensor, the error message „no feedback“ is set for this measuring value.	

	Master – Slave
If two installations are linked (see item 6.2 „Linking of installations“, page 34), the logged on sensors are sent from master to slave when there is an automatic program start in the slave.	

catalyst name	value
E81:core temp.	10,4°F
E82:core temp.	10,4°F
E83:core temp.	10,4°F
E84:core temp.	10,4°F


7 Operating mode

The controller is in operation, this means a program is running.

Once a program has been started the button "Stop" on the task bar will be highlighted in red. On the info bar the scrolling text "Installation in operation" will be shown.



Figure 18: Operating mode

	Please note If administrators have been nominated for the controller, you will be asked for a password before a program start. Only operators who are authorised to start a program can do so.
---	--

7.1 Shut-down conditions


When at least one of the shut-down conditions has been met, the program step will be terminated. If a particular nominal value has not been pre-programmed (*zero or OFF*), then the attached shut-down condition is disabled.

Shut-down conditions are:

- The nominal step time has run out and is 00.00
- The nominal core temperature has been reached
- Negative core shut-down (*cooling , e.g. showering*)
- The nominal FC value has been reached
- Configuration- related settings (e.g. limit value alarms, digital inputs)

Unscheduled shut-down:

- Skipping into the next step or the previous step
- Pressing the „Stop“ button will terminate a program
- Chamber sensor defect generally terminates a program
- Core or humidity sensor defect will lead to a termination of the program if the relevant nominal value has been pre-programmed

	Please note An empty (<i>invalid</i>) program step will be terminated immediately or not even started. A program step is considered valid when at least on process has been pre-programmed.
---	---

7.1.1 Core shut-down

7.1.1.1 Negative core shut-down (*Showering/cooling*)

In order to pre-program cooling/showering (*negative core shut-down*) the nominal value for the chamber temperature which you enter, has to be lower than the entered nominal value for the core temperature.

The program step ends when the nominal core temperature value has been undercut. If an additional operating time has been entered the program step will end when the operating time has run out **or** when the core temperature value has been undercut. This means the step ends when at least one of the two shut down conditions has been met.

7.1.1.2 Disabling core shut-down

Functionality of MS 120 up to V20.32 of 03.09.2019

If the nominal chamber temperature is de-activated (OFF), the controller will not switch into the next step when the nominal core temperature has been reached.

Functionality of MS 120 from V20.32 of 16.09.2019 onwards

If the nominal chamber temperature is de-activated and no Delta value exists (it has not been pre-programmed for the step or has not been enabled under Code 1009), a positive core shut-down will happen (actual nominal core value is higher than the nominal value => step will be terminated).

If the nominal chamber temperature is de-activated, but a Delta value has been entered, the Delta value will be monitored. The core shut-down feature is disabled.

7.2 FC value


The F value is a measure of the kill rate for germs and bacteria through thermal impact within a fixed time interval. A mathematical formula can be applied to this kill rate process. Depending on the specific area of use, the installation manufacturer can configure different F value processes/calculation methods. For example:

- „FC70-10“ for pasteurising
- „FC121-10“ for sterilising
- User-defined

Please ask your installation manufacturer which F value has been pre-set in your installation!

The kill rate for germs also depends on the acidity. With acidic cans, fruit juices, pickled gherkins etc. a higher kill rate is achieved and therefore a different FC value table applies than for normal meat cans with a pH-value between 5 and 7.

In order to avoid mix-ups two further indicators can be added to the FC value, i.e. FC 70-10, this means that the FC-Wert = 1 at a core temperature of 70 °C maintained for one minute. If the temperature is increased by 10°C the FC value increases ten-fold

Hint	
	Every 60 seconds the Fc value is calculated from the actual core temperature and added up. Since temperatures below 55 degrees lead to an Fc value of zero, the adding up only starts from this temperature threshold.

Example for FC value 70:

$$FC70 = 10^{\left(\frac{T(\text{coretemperature}) - 70^{\circ}\text{C}}{10}\right)}$$


Example for FC value 121:

$$FC121 = 10^{\left(\frac{T(\text{coretemperature}) - 121.1^{\circ}\text{C}}{10}\right)}$$

7.3 Transient changes to the nominal values

In operating mode the nominal values can be transiently changed. This means the new nominal values are only valid for the current step and are not saved.

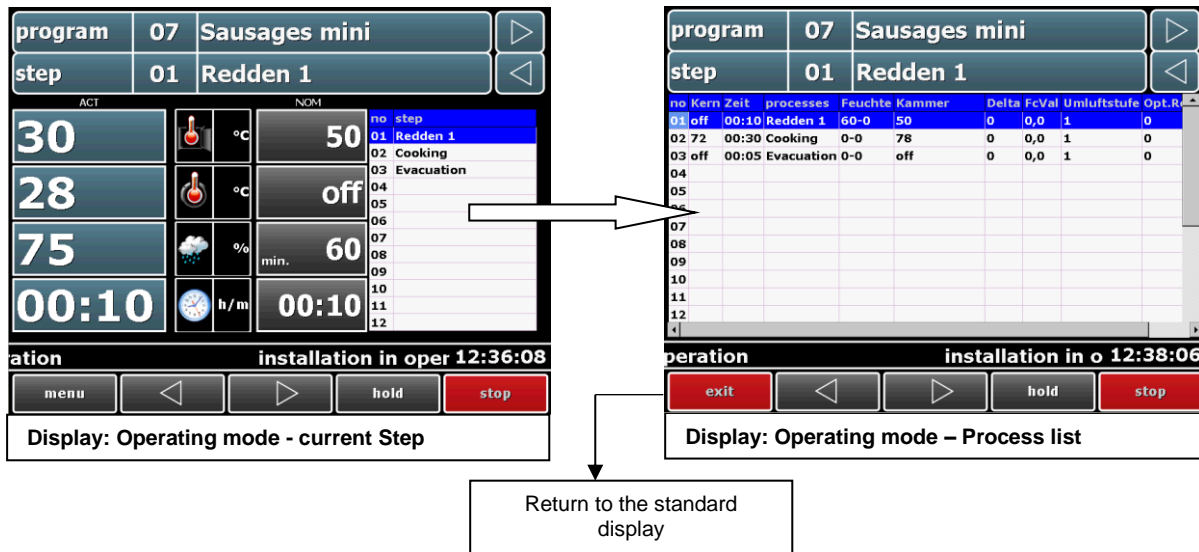
Press the relevant nominal value box and use the number keypad that will appear to enter the new value. Confirm with "Enter".

Hint	
	If a PIN entry is requested the function „Administrators“, item 9.6, page 46 has been enabled. This means that changes can only be made by specific operators.

7.4 Transient changes to the nominal values – applicable to all steps (from V20.17)

(If activated in code 5022)

If this feature has been enabled, the "Process list" display will be shown, when you press the "Step overview". All program steps of the currently running program and their respective nominal values can be seen.



In operating mode on the "Process list" display you can change nominal values in all program steps. These changes are transient and are only valid until **the end of the program**.

Be aware¹

You can only make changes to the nominal values on this page while you are in operating mode or in pause mode. You can only make changes to the nominal values in standby- and waiting mode or at the end of a program.

Changes to the nominal values made on the page "Operating mode – process list" are only valid until the end of the program. If you make changes to the current step these changes take effect immediately.

On the "Operating mode – process list" you can neither delete nor add steps. Moreover, it is not possible to change the current treatment type or a repetitive step sequence (*if it is enabled*).

Changes to the nominal values which were made on the "**Operating mode – current step**" page are only valid until the **end of this step** and are not shown on the "Operating mode-process list" page.

7.4.1 Two-line display of the process list

no	Zeit	processes	Kern	Umluftstufe	Kammer max	Feuchte max	Delta	FcVal
1	00:10	Redden 1	off	1	50	60	0	0,0
2	00:30	Cooking		1	78	0	0	0,0
3	00:05	Evacuation	off		off	0	0	0,0
4								
5								

On the two-line process list display² you can skip to the next 5 steps by pressing the arrow-buttons in the right upper corner of the display.

¹ Option only available from controller MS120/ MS220 Version 20.29. onwards

² Activation under Service\ Optional displays\ Process display\ Graphic description

7.5 Batch number

When the installation is in operation you can check on the batch number or change it. Press on the „Programm“ box on the operation page at the top on the left.



The batch description will be shown in the „Programm“ box. If you want to change the description, press this box. A keypad in the pre-set system language will appear and you can now rename the batch. Confirm with „Enter“.

Press the „Programm“ box again and the batch number will be hidden and the program name will appear instead.

i	Hint
If a PIN entry is requested the function „Administrators“, <i>item 9.6, page 46</i> has been enabled. This means that changes can only be made by specific operators.	

7.6 Switching into the next step or the previous step

Also see item 3.2 "Selecting a step", page 11.

i	Hint
If a PIN entry is requested the function „Administrators“, <i>item 9.6, page 46</i> has been enabled. This means that changes can only be made by specific operators.	

7.7 Pausing a program

With the "Hold" button in the lower task bar you can pause a program which is in operation.



Push the button "Hold":

- the "Hold" and "Stop" button will be flashing alternately
- on the info bar the message "Process paused" will be shown
- all relays are de-energised
- the operating time is paused

Push the button a second time and:

- the buttons stop flashing
- The relays are re-energised
- The operating time will resume running

i	Hint
If a PIN entry is requested the function „Administrators“, <i>item 9.6, page 46</i> has been enabled. This means that changes can only be made by specific operators.	

7.8 Single step control

As soon as a program step has finished the controller will automatically switch into the next step. If the nominal value „Process“ has been enabled in a process (*it has been configured by the service technician*) you can determine what is meant to happen at the end of the program step:

- "Process = **stop**" function: the controller switches into pause mode and the message „Process paused: single step active“ will appear on the status bar, the "Start" and „Stop“ button are flashing alternately.
 - If you want the current process to continue, raise the nominal value that was reached to lead to the end of the process. Confirm with the „Start“ button.
 - If you want the program to continue with the next process, either switch into the next process manually or change the nominal value „Process“ to „go“. Then confirm with the „Start“ button
 - If you want to terminate the program, press the „Stop“ button.
- "Process = **go**" function: Controller will automatically switch into the next step.

7.9 Step repetitions

It is possible to change the number of step repetitions in the current programme during operation.

repetition steps

from step

to step

repetition sequence

program	06	Wiener			
step	02	Evacuation			
repe no	processes	Time	Chambe	Humidit	
5x	01	Smoking 2	00:25	45	0-0
5x	02	Evacuation	00:01	off	0-0
5x	03	Redden 2	00:01	off	0-0
1x	04	Cooking 1	00:01	off	0-0
9x	05	Cooking 1	00:01	off	0-0
	06				

	Be aware
	Only the number of repetitions can be changed in operation mode! Only the existing sequences can be changed. It is not possible to create new step sequences in operating mode!

	Be aware
	Applies only in connection with MS120/MS220-Version 20.43.

7.10 Alarm signal

If an alarm incident has occurred, for example through digital inputs, limit value alarms or sensor failure, the „Step“ box and the loudspeaker symbol will be flashing alternately (*alarm, horn*). On the info bar you can see the alarm and the cause (*e.g. chamber sensor failure*). Press the box to acknowledge the alarm and to stop the horn.

program	02	Krakowska	▶
	03	Cooking	◀

	Please note
	Chamber sensor defect generally leads to program termination. Core- or humidity sensor defect will lead to a termination of the program if the relevant nominal value has been pre-programmed.

7.11 Program run time, operating time display in operating mode

Press the „Clock" button when you want to check on the program runtime and/or the remaining program runtime.

Current step time	
Program runtime: Duration of the current program (including all steps)	
Remaining program runtime: Time until the program ends (including all steps). Only steps with a pre-programmed step time are counted.	

8 Info page



The info page allows you to look at different messages that the installation manufacturer or the service engineer may have left. You cannot make changes to these messages. There are five pages that you can scroll through by clicking on the right or left edge of the screen respectively. Touch the centre of the screen to leave the page.

9 Profiles



Under "Profiles" all the functions are shown in the selected system language.

9.1 Loading programs



Already set-up programs can be saved on a USB stick and then transferred to a different device or backed-up. Put the USB stick in one of the USB ports at the bottom of the appliance.


	Please note
	Please note that the write-protection of the USB sticks has to be removed.

Starting from standby select „Menu“ on the task bar, then “Profiles“. In „Profiles“ select „Loading programs“.

In order to save programs on a USB stick, press the „Loading programs onto USB stick“ button. If you want to transfer programs from the USB stick to another appliance, press „Read out programs from a USB stick“.


Before the order is executed, a message on the screen will inform you that the appliance is searching for the USB stick. The following message „USB stick found“ has to be confirmed with o.k.

Hint

 We recommend that you backup your program regularly, especially when program changes have been made or new programs have been set up. This allows you to easily restore the original programming if necessary, e.g.in case the appliance has to be replaced.

All programs have to be saved as a whole on the USB-Stick and then transferred.

Please note


 If there are already programs saved on the USB stick, they will be overwritten when you „load on“ further programs.

Please check if the newly loaded programs can be executed properly with the existing configuration.

9.2 Date and time



Hint

 The current date and Central European Time are pre-set.

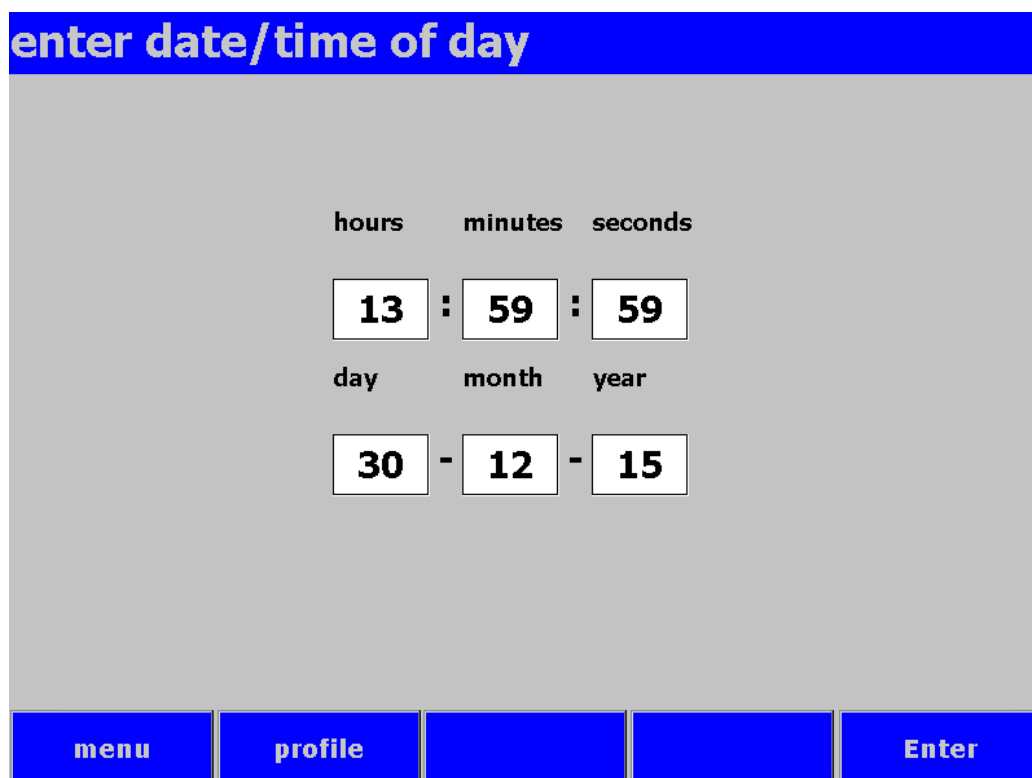


Figure 19: Setting date and time

If you want to make changes to the date and/or time, press the relevant box and use the on-screen keypad to enter the new date or time. Confirm with "Enter".
In order to confirm this change press the "Enter" button on the task bar. The amended time will now appear on the info bar.

9.3 Allocation diagram



The allocation diagram is for information only. It shows the allocation of the relays to the processes. You cannot make changes to this page.

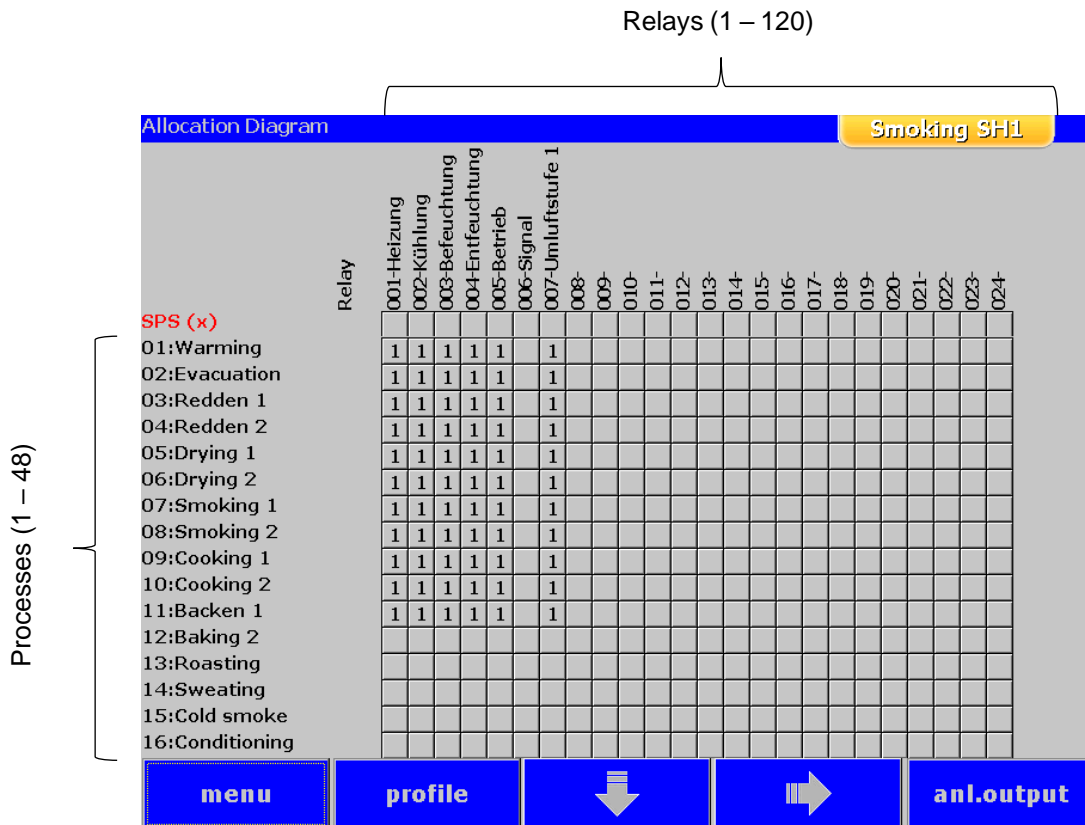


Figure 20: Allocation diagram

Task buttons:

menu	Opens the main menu of the controller
	Show additional processes
profile	Back to the profiles page
	Show additional relays
anl.output	Switch between allocation diagram and analogue outputs

9.4 Enabling and disabling signals



This function allows you to switch off the „Signal“ aggregate at specific times during the day or night. Select „Enabling signal“ from the „Profiles list“ and a button „ON“ or „OFF“ will appear.

„OFF“ = Signal is completely disabled.

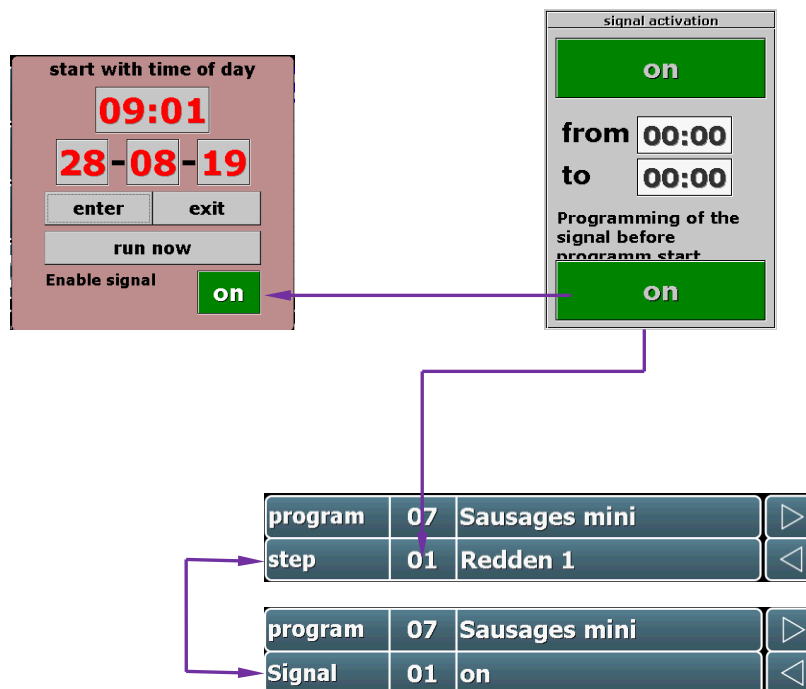
„ON“ = You can enter two additional times (from – to). During this time interval the signal will come on.

Hint	
	With setting „00.00“ to „00.00“ the signal will be active all day.

Please note	
	<p>If a signal event transgresses a pre-programmed time lock interval, its state remains unchanged.</p> <p>For example: the alarm signal is enabled from 7 a.m. to 5 p.m. Let’s assume the signal comes on at 4.50 p.m., then it will remain on even beyond the time lock set for 5 p.m. The same is true vice versa. If an alarm happens before 7 a.m. the signal will not come on and will remain off even after 7a.m.</p>

- **Programming a signal when a program is started¹**

If this feature is enabled, a signal can be activated/deactivated at the start of each program.



Furthermore you can make changes to the signal activation **while a program is running**. Please use the step box on the step display to make your changes.

¹ This feature is available from version TP 1020.12 / TP1011v96 onwards and for control unit MS120/220 from version 20.25 onwards

9.5 Version preview



The version of the touch panel and the controller are displayed here. Please include **the number of the device** and **the version number** every time you send us an enquiry!

Version Preview Appliance 1

Microsoft Windows CE 7.0.2848 CF unknown: 3.5.14223.0 Uptime: 0d 1h 25m 2020.10.20 09:06 Physical free: 363582,03kb Virtual free: 956812,5kb GC allocated: 3662,99kb Memory load: 8% Processes running (9): +NK.EXE (134) +udevice.exe (24) +udevice.exe (5) +GweUser.exe (4) +launcher.exe (1) +servicesd.exe (28) +WINVNC.EXE (2) +SmartDeviceProject1.exe (30) +WatchDogEVC.exe (1)	TP1020 v20.25 161020 S/N: T 726 103 Partner-TP: 192.168.1.245:6001 VN: 192.168.1.246:5001 LAN1-IP: 192.168.1.246 LAN1-Mask: 255.255.255.0 LAN1-Gateway: 0.0.0.0 LAN1-MAC: 00:14:2D:4D:25:F4 LAN2-IP: 192.168.68.246 LAN2-Mask: 255.255.255.0 LAN2-Gateway: 0.0.0.0 LAN2-MAC: 00:14:2D:5D:25:F4	MS120 20.37 121020 S/N: S 931 130 ADBus: 02.00.02260118 VN: Visunet ausgeschaltet Connection: TCP 192.168.68.84:5001 MASK=255.255.255.0 GATEWAY=0.0.0.0 MAC=70:B3:D5:3C:EE:73
--	--	---

Sicherung Prg.Daten Ok: 2020.10.08 07:58

Callouts:

- Touch panel type, version and Serial number (S/N)
- IP-addresses of the TP
- Controller type, version and Serial number (S/N)
- From V20.25: Display of the complete Ethernet settings of the connected controller. (MAC, GATEWAY, MASK can only be displayed from control unit version 20.36)
- From V20.25: Display of the current date and time

Bottom navigation: menu, profile, machine, Img ver.

Figure 21: Version preview

From version TP1020/720 V20.23, it is possible to display the so-called machine data.

Example:

Version Preview Appliance 1

Machine data

aditec
CONTROLS for
FOODTECHNOLOGY

Serial No. T743 105
Version 20.24

Bottom navigation: menu, profile, machine, Img ver. | Exit

9.6 Administrators



You can log on up to 50 users/administrators, who are authorised to operate the controller. The following settings are available for each administrator:

- Name: maximum length 10 digits
- PIN: 4-digit number

The administrator uses a PIN to log on with the controller.

Be aware - PIN specifications	
	<ul style="list-style-type: none"> • PIN = 0000 means that the administrator is deactivated. • Each administrator needs a different PIN.

9.6.1 Access rights

The access rights allow the user to execute specific, pre-defined controller operations. *A combination of different access rights is possible.*

Hint - Overview of the operations possible with access rights	
	Start / Stop / Pause Starting and stopping of programs, Entering and changing a batch number, Manual pausing and/or resuming of a running program.
	Changing the nominal value / Switching into the next step Transient changes to the nominal values during operation Manually switching into the next step
	Setting up / changing programs Setting up and changing programs in programming mode (permanent change to the program)

9.6.2 Security of the administrator settings

The administrator settings are password-protected.

Hint - Password for displaying or changing the administrator settings	
	Password 6800 : All users and their access rights are shown. Changes to the settings are not possible
	Password 7890: All users and their access rights are shown. Changes to the settings are possible, subject to the following conditions: <ul style="list-style-type: none"> - User PIN: Changes can only be made when a valid user PIN¹ is entered - User names, access rights, global administrator settings: Changes can only be made when a valid administrator password has been entered.

¹ Changing the user PIN "0000" is always possible

Password:
(Administrator password)
Enter the administrator password to enable user settings.
Once the password has been entered correctly, all heading will be shown in green (apart from PIN). All the settings can be changed. Even the administrator password can be changed if you press this button again.

Administrators:
Buttons "ON" and "OFF" allow you to switch the administrator settings on or off.

Automatic log-off
(Range of entries: 0 to 254 sec.)
Setting during operation:
Time interval has been entered:
The controller will automatically log off the current user if none of the buttons have been pressed for a time. This means the user has to log on again if he wants to make changes (e.g. switch into the next step, nominal value changes etc.).
No time interval has been entered:
The current user is not automatically logged off if no time interval has been entered. This means all actions allowed to the last user can be performed until he logs off manually.

administrators

password

administrators
ON

autom.logoff
015 s.

No.	name	PIN	start/stop	nom.values	to program
01	Miller	****	ON	ON	ON
02	Schmidt	****	ON	ON	OFF
03	Schneider	****	ON	OFF	OFF
04	Fischer	****	OFF	ON	OFF
05	Mayer	****	ON	OFF	OFF
06		0000	OFF	OFF	OFF


menu
profile

Name:
Here you can enter an individual name of a user or a group of people (e.g. supervisor, technician). An on-screen keypad will appear if you press the box (Up to 10 characters possible).

PIN:
The user needs this PIN to register with the controller. Every administrator needs his/her own PIN so that they can be told apart. (4 characters).

Figure 22: Administrators

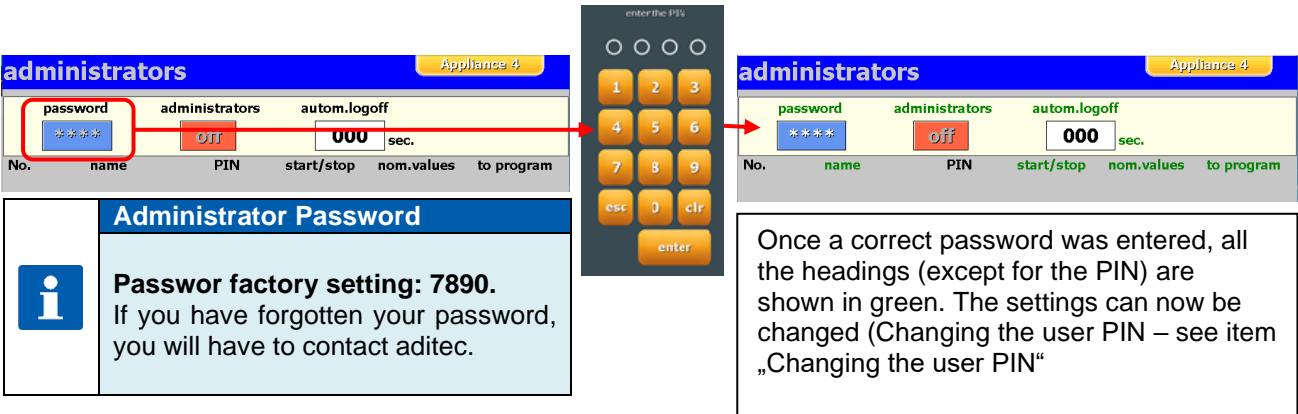
9.6.3 Configuration/ changes to the administrator settings

	Be aware - Administrator settings: Password 7890 required
Call up page: Menu/ Profiles/ Administrators / Password „7890“	

9.6.3.1 Changing user names, access rights, global administrator settings

Administrator password:

You will need to enter a valid password in order to configure or change the following user settings. This password can be set up individually for each installation. Factory setting is „7890“.



Administrator Password

Passwor factory setting: 7890.
If you have forgotten your password, you will have to contact aditec.

Once a correct password was entered, all the headings (except for the PIN) are shown in green. The settings can now be changed (Changing the user PIN – see item „Changing the user PIN“

Global settings:


- **Administrators**
Activating /deactivating the functionality of the administrators.
- **Automatic log-off** (Range of entries: 0 to 254 sec.)
Settings for operating mode

Time interval is pre-programmed:

If none of the keypad buttons are pressed, the controller will automatically log-off the current user after this time interval has elapsed. This means the user will have log on again with the controller if she/he would like to make further changes.(e.g. to switch into the next step, to make changes to the nominal values etc.).

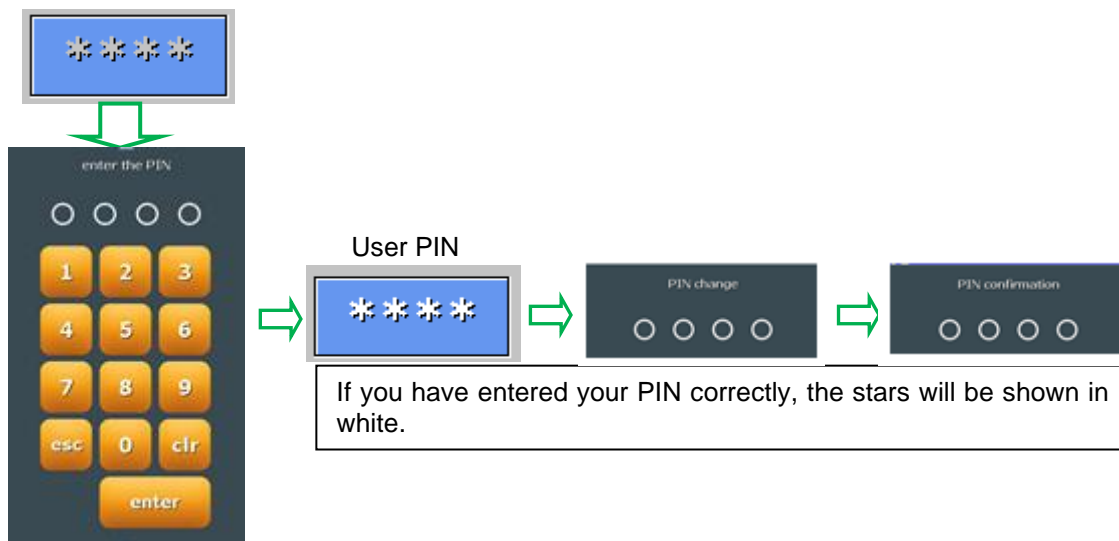
No time interval has been pre-programmed:

If you have not entered a time interval, the current user will not be logged off automatically. This means that further tasks of the latest user can be performed until he/she manually logs off him/herself.

	Manual log-off in operating mode
Menu / Profiles / „Admin.“ button	

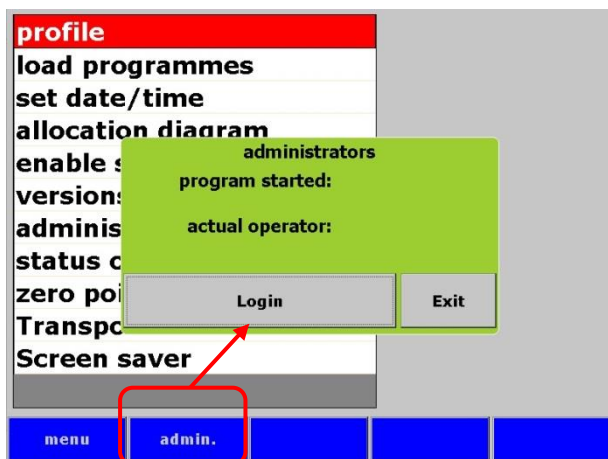
9.6.3.2 Changing a user PIN

This is how to enter or change a user PIN:



9.6.4 Display of the current user in operating mode


You can display the current (or the most recently logged on) user of the installation. See graphic on how to proceed:



9.7 Clock timer



Changes to the start time and the run time of the clock timer which are made by the user/administrator.

	<p>Be aware</p> <ul style="list-style-type: none"> Parameter changes are only possible with timers of change type = user (see Code 1102, p. Fehler! Textmarke nicht definiert.) Modification by an operator is also permitted during operation
---	---

For your information

If a user/administrator has pre-programmed the parameters „Counter type“, „Start“, „Duration“ and „Next scheduling“, they **will not be changed under Code 1102** in the current configuration. Furthermore the parameters that were changed by the user **will be retained**, even after the configuration has been sent to the controller.

counte numbe	type	start	duration	next date
01	monday	07:00	00:10 h:min	16 - 05 - 24
02	tuesday	06:30	10:00 min:sec	16 - 05 - 24
03	wednesday	07:00	10:00 min:sec	16 - 05 - 24
04	every_Day	12:00	00:30 min:sec	17 - 05 - 24
05	every_Week	09:30	05:20 min:sec	16 - 05 - 24
06	friday	09:30	05:00 min:sec	16 - 05 - 24
07	every_Day	09:07	00:40 min:sec	16 - 05 - 24
08	every_6_Month	09:30	00:10 h:min	16 - 05 - 24
09	inactive		min:sec	- - -
10	inactive		min:sec	- - -

Active counter is displayed in green

Figure 23: Clock timer

 Factory setting: inactive

9.8 Zero-point calibration (Tare)



zero point calibration (tare)

1,696 kg

Libra

calibration delete calibration

menu profile

Figure 24: Zero- point calibration

If your installation manufacturer has enabled the zero-point calibration for a measured variable, you can calibrate the measured variable here. E.g. this feature is used to determine the weight of the product.

- Press the „Calibration“ button and the current measured variable is re-set to zero.
- Press the „Delete calibration“ button and the pre-set correction factor is deleted. You can now see the actual measured value.

9.9 Screen saver

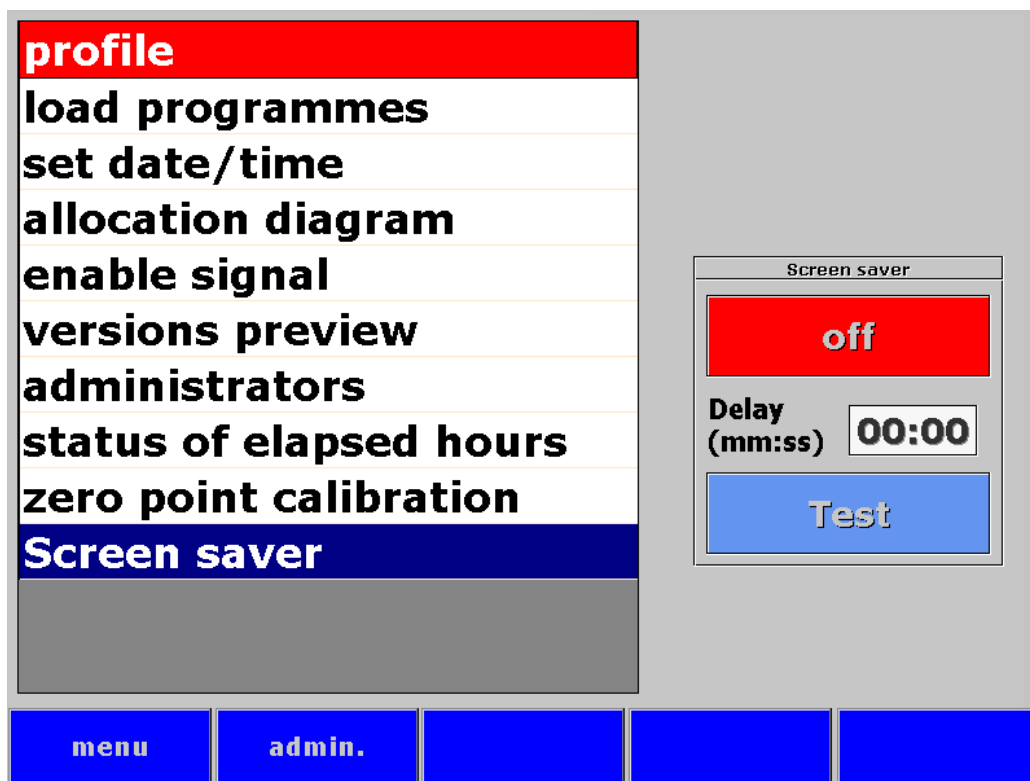


Figure 25: Screen saver

This setting allows you to enable a screen saver. This means that the screen saver will appear on the screen if there has not been any activity at the TP within the pre-set delay interval.

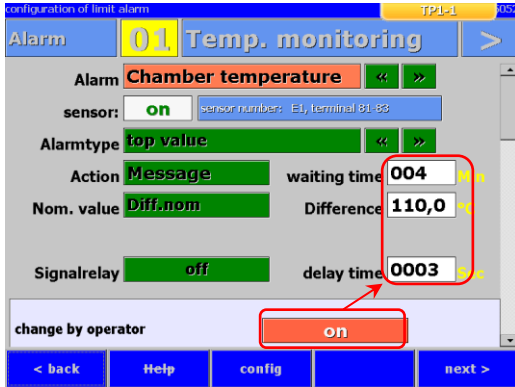
The delay time can be set from 00:00 to 99:59 (minutes: seconds).

9.10 Profile / Limit value alarms

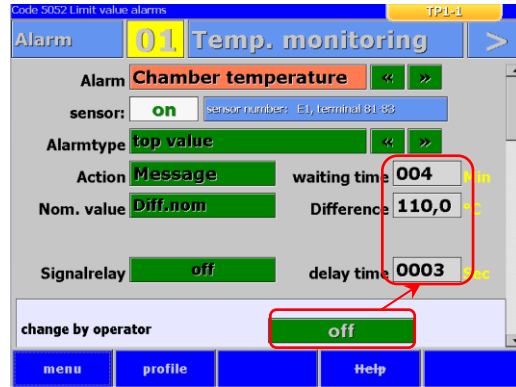


Display of all existing limit value alarms.

If „Changes by the user“ is activated (Code 5052, Item Fehler! Verweisquelle konnte nicht gefunden werden., p. Fehler! Textmarke nicht definiert.) some of the parameters¹ can be changed, in all other cases, changes are not possible.



Changes allowed: Parameter can be edited.



Changes not allowed: Parameter cannot be edited.

¹ Nur Parameter mit Zahleneingaben

10 Characteristic line

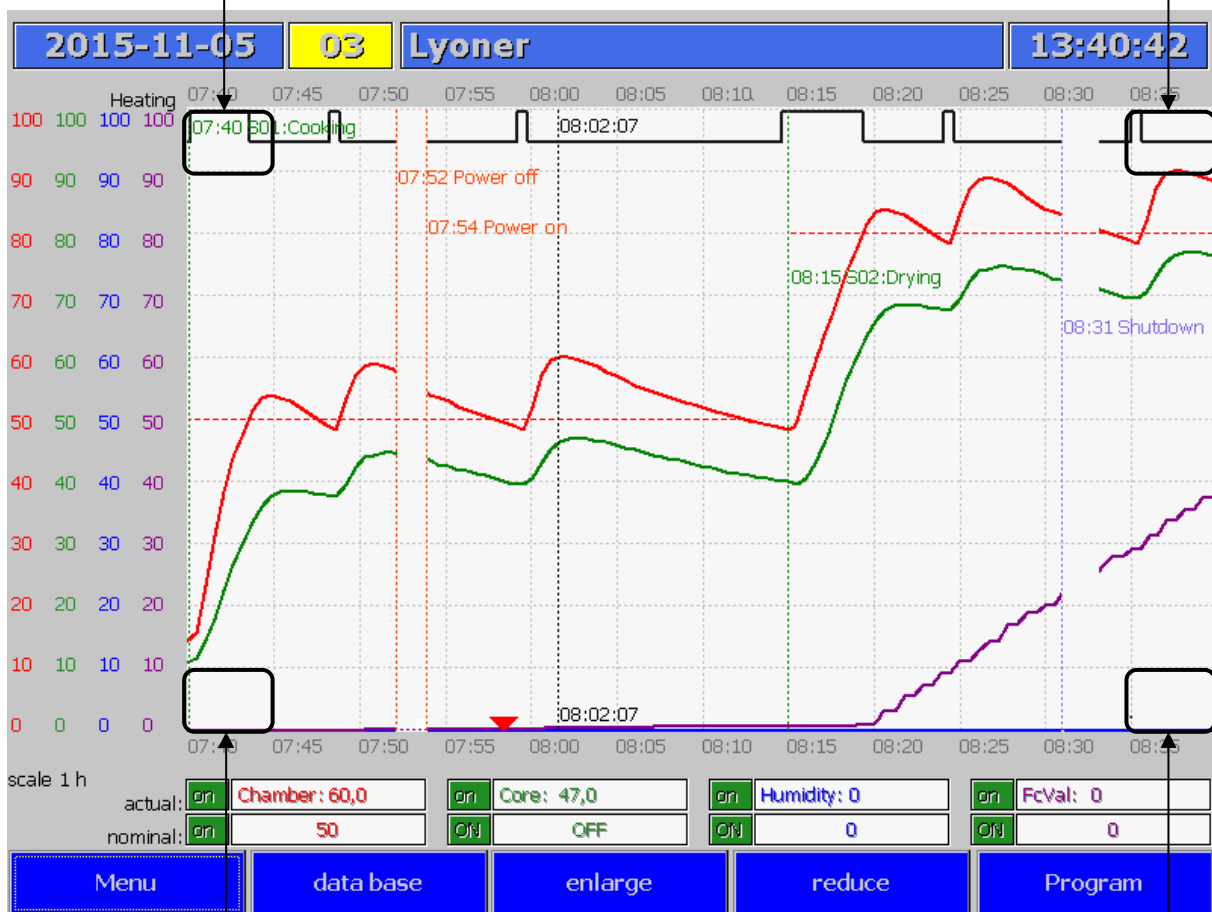


Here you can check on the temperature, time, humidity and Fc-value trends of the program that is currently running.

	Please note
	When the controller is not in operation, the „Charact. line“ button is without function! The programs that have already run can be seen under item 11 "Data base", page 56.


	Hint
	With longer processes, the display will take a bit of time to load. Please be patient!

◀	Click the left upper corner to skip to the beginning of the program.	▶▶
---	--	----



◀	Click the left corner at the bottom to scroll back to the first half of the displayed area.	▶
▶▶	Click the right corner at the bottom to scroll back to the second half of the displayed area.	▶▶

Figure 26: Characteristic line

Hint	
	Changes made to the settings of the characteristic line made under "Menu → Characteristic line" are only valid until the characteristic line window is closed. If you would like to customise the settings to your requirements on a permanent basis then make your changes under "Menu → Data base → Settings".

Description of the characteristic line:

Vertical, dotted green line:	Shows the exact time when the controller switched into the next step and when program ended. Next to it, on the right, the time of day, step number and process name are shown in the same colour.
Vertical, dotted orange line:	Shows the time interval when a power cut happened at the central processing unit MSx20 or when the LAN connection to MSx20 was interrupted.
Vertical, dotted blue line:	Shows the time interval during which the touch panel was switched off.
Vertical, dotted black line:	Press anywhere on the characteristic line and the next measurement will be shown. Underneath the characteristic line, the actual and nominal values of the selected point in time are displayed in the corresponding boxes.
Line in the colour of a measured variables:	Shows the actual value of the measured variable.
Dotted line in the colour of a measured variable:	Shows the nominal value of the measured variable
Black line in the upper or lower margin of the characteristic line:	Show the status of the selected relay.

Task buttons:

Menu	Opens the controller's main menu
data base	Opens the data base page (see page 56)
enlarge	Enlarges the current characteristic line
reduce	Reduces the size of current characteristic line
Program	Back to standby

Program characteristics:

Date of the currently displayed characteristic line	Program number	Program name By pressing the box and you can skip between the program name and the batch number (<i>if one was entered</i>).	Current time of day
↓	↓	↓	↓
2015-11-05	03	Lyoner	13:40:42

Selecting nominal values:



Press the scale value on the left of the characteristic line and the window „Settings characteristic line“ will open. The following settings can be changed.

Graph scale settings / data base

	range	
	from:	to:
chamber	0	100
core	0	100
hum	0	100
FC	0	100

Input display range time scale: **4 hours**

relays: **not active**
not active

Measurement frequency: **60s**

Chart division: **end of prog.**

Save settings **Exit**

Select the variable which you want to display on the characteristic line. Up to 4 variables can be displayed on the characteristic line. „free“ = no variable is displayed

Setting the display range for each variable.

Visible time window

Select the relays whose status you want to display on the upper or lower edge of the characteristic line. „Inactive“ = no relay was selected.

Time interval between the recording of new data.

This feature can be useful for the sustained recording of programs (e.g. in maturing chambers). For a detailed description see "split programs" at item "Data base"

Hint	
	Changes made to the settings of the characteristic line made under "Menu → Characteristic line" are only valid until the characteristic line window is closed. If you would like to customise the settings to your requirements on a permanent basis then make your changes under "Menu → Data base → Settings".

11 Data base



A list of the last 20 programs that have run is shown under „Data base“. The most recently run program is in the top line. If you want to check on the measured values or the characteristic line of a program, you first have to highlight it by pressing the relevant line.

Start date of the selected program

Program number of the selected program

Program name of the selected program

Current time of day

2016-04-20	10	Weenies	14:43:49				
program Name	batch No.	start date	start time	user name	end date	end time	alarm
P10:Weenies	Charge_10	20.04.2016	14:36	Mayer	20.04.2016	16:40	0
P09:Bockwurst	Charge_9	19.04.2016	14:29	Fischer	19.04.2016	16:30	0
P08:Hunter Sausage	Charge_8	18.04.2016	14:25	Schneider	18.04.2016	16:28	0
P07:Cabanossi	Charge_7	17.04.2016	14:23	Schmidt	17.04.2016	16:24	1
P06:Ham	Charge_6	16.04.2016	14:21	Müller	16.04.2016	16:22	0
P05:Bacon	Charge_5	15.04.2016	14:19	Mayer	15.04.2016	16:20	0
P04:Salami	Charge_4	14.04.2016	14:15	Fischer	14.04.2016	16:16	0
P03:Lyoner Sausage	Charge_3	13.04.2016	14:12	Schneider	13.04.2016	16:13	2
P02:Krakowska Sausage	Charge_2	12.04.2016	14:10	Schmidt	12.04.2016	16:11	0
P01:Weenies	Charge_1	11.04.2016	14:08	Müller	11.04.2016	16:09	0

Menu
Setup
Settings
curve
meas.values

Figure 27: Data base

Overview

These settings determine what the program overview page will look like. Press the ON/OFF boxes to show or hide certain info columns.

Columns	
<input type="checkbox"/>	program Name
<input type="checkbox"/>	batch No.
<input type="checkbox"/>	start date
<input type="checkbox"/>	start time
<input type="checkbox"/>	user name
<input type="checkbox"/>	end date
<input type="checkbox"/>	end time
<input type="checkbox"/>	alarms
<input type="button" value="Save"/>	

Settings

These settings determine what the "Measured values" and "Characteristic line" pages will look like. These settings are global and apply to all "newly recorded" programs of the installation

Graph scale settings / data base		
	range	
	from:	to:
chamber	0	100
core	0	100
hum	0	100
FC	0	100
Input display range time scale:	4 hours	
relays:	not active	
	not active	
Measurement frequency:	60s	
Chart division	end of prog.	
<input type="button" value="Save settings"/> <input type="button" value="Exit"/>		

This feature can be useful for the sustained recording of programs (e.g. in maturing chambers). For a detailed description see item "Split programs"

Split programs¹

When a program is recorded, the program data is written into the database of the TP unit according to the „Measurement frequency“ (how often the measurements are taken). The smaller the pre-set measurement intervals and the longer the duration of the program, the bigger the resulting recorded program data block will be. With very big data blocks² displaying the characteristic line of the program will take more time and the display will slow down. In order to avoid this, the recording of longer programs can be split up into several „Program data blocks“. When you do this, several program data blocks of the same program will be shown in the same colour in the data base overview list.


¹ Setting „Writing into the database“ is available from the following versions onwards: TP1020v12 / TP1011v96


² E.g. with recordings of the same program that last several days.


Example: Setting = „daily“


Program name	Batch	Start date	Start time	Operator	End date	End time	Alarm
		12.10.2020	00:00		12.10.2020	07:07	0
P02: Maturing 2		11.10.2020	07:58		12.10.2020	00:00	0
		10.10.2020	00:00		11.10.2020	07:21	0
		09.10.2020	00:00		10.10.2020	00:00	0
P01: Maturing 1		08.10.2020	07:29		09.10.2020	00:00	0

- Program **"Maturing 2"** was started on 11.10.2020 at 7:58 and continued running until 07:07 on 12.10.2020. Program was split into two blocks.
- Program **"Maturing 1"** was started on 08.10.2020 at 7:29 and continued running until 7:21 on 11.10.2020. Program was split into 3 blocks.

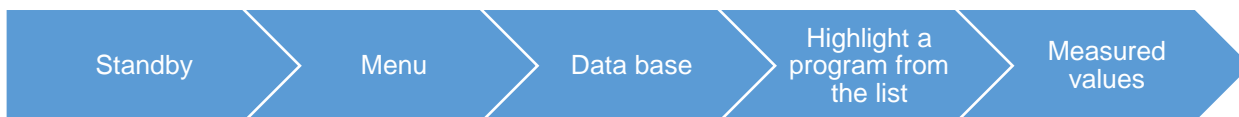
Hint - Split programs
 <p>At the end of the program: Program is only written into the database at the end of the program. Periodical (daily, every two days, etc.) Program is written into the database at the end of the program. Program is additionally saved (program is split) at „00:00“: Program is written into the database („00:00“ is shown as „End time“). The new program data block begins („00:00“ is shown as „Start time“).</p>

Be aware: Compatibility – deleting the old database recordings.
 <p>From version TP1020v12 / TP1011v96 the database recordings of the older versions cannot be split into blocks and are deleted. <i>If you want to do a back-up of the „old“ recordings of individual programs, you can go to program „Loading measuring values onto USB“ and save the data as a text document.</i></p>

Hint
 <p>A change made to the global settings while a program is running cannot be shown in the current characteristic line and will only be applied to the next program.</p>

Please note
 <p>Measurement frequency of the recording: Frequent data recording leads to a big volume in the data base. This may lead to an increased time delay when opening up the characteristic line or measurement data. With programs lasting 3 to 4 hours a measurement frequency of 30 seconds is recommended. With longer programs a longer time interval should be set. The setting „Measurement frequency“ can only be changed in standby mode.</p>

11.1 Displaying measured values



Here you can look at the history of actual and nominal values with the changes that were made. You can check on all nominal value changes that were made during operating mode, as well as on when a program was paused, any power cuts that happened and issued error messages.

When you want to display the measured values press the „Menu“ box and then „Data base“. Highlight the relevant program line and press „Measured values“.

Hint	
	<p>When you want to look at the measured values of the program that is currently running, highlight the first line of the data base!</p> <p>Every 30 seconds all measured values are automatically recorded.</p>

Start date of the shown program	Program number	Program name Press this box to alternately display the program name or the batch number <i>(if one has been entered)</i> .
---------------------------------	----------------	---

2015-11-05	03	Lyoner	14:04:40																																																																																																																						
<ul style="list-style-type: none"> [-] Lyoner [-] S01:Cooking <li style="padding-left: 20px;">nom: 15.11.05 07:44 [-] Shutdown [-] Startup <li style="padding-left: 20px;">nom: 15.11.05 07:44 <li style="padding-left: 20px;">alr: 15.11.05 07:40: <li style="padding-left: 20px;">nom: 15.11.05 07:44 [-] S02:Drying <li style="padding-left: 20px;">nom: 15.11.05 07:44 [-] Power off <li style="padding-left: 20px;">nom: 15.11.05 07:44 [-] Program end 	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Time</th> <th>St.time</th> <th>Chamber</th> <th>Core</th> <th>Humidity</th> <th>FcVal</th> </tr> </thead> <tbody> <tr style="background-color: #008000; color: white;"> <td colspan="6">S01:Cooking</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>50</td> <td>OFF</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>45,1</td> <td>32,1</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #800000; color: white;"> <td colspan="6">Shutdown</td> </tr> <tr style="background-color: #800000; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>45,8</td> <td>32,5</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #800000; color: white;"> <td colspan="6">Startup</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>50</td> <td>OFF</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>46,6</td> <td>32,9</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #ff0000; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>47,5</td> <td>33,3</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #ff0000; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>48,7</td> <td>33,7</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #008000; color: white;"> <td colspan="6">S02:Drying</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>80</td> <td>OFF</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>49,8</td> <td>34,1</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:02</td> <td>50,9</td> <td>34,7</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #800000; color: white;"> <td colspan="6">Power off</td> </tr> <tr style="background-color: #800000; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>53,0</td> <td>35,3</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>80</td> <td>OFF</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #0000ff; color: white;"> <td>15.11.05</td> <td>00:01</td> <td>54,1</td> <td>35,9</td> <td>0</td> <td>0</td> </tr> <tr style="background-color: #008000; color: white;"> <td colspan="6">Program end</td> </tr> </tbody> </table>	Time	St.time	Chamber	Core	Humidity	FcVal	S01:Cooking						15.11.05	00:02	50	OFF	0	0	15.11.05	00:02	45,1	32,1	0	0	Shutdown						15.11.05	00:02	45,8	32,5	0	0	Startup						15.11.05	00:01	50	OFF	0	0	15.11.05	00:01	46,6	32,9	0	0	15.11.05	00:01	47,5	33,3	0	0	15.11.05	00:01	48,7	33,7	0	0	S02:Drying						15.11.05	00:02	80	OFF	0	0	15.11.05	00:02	49,8	34,1	0	0	15.11.05	00:02	50,9	34,7	0	0	Power off						15.11.05	00:01	53,0	35,3	0	0	15.11.05	00:01	80	OFF	0	0	15.11.05	00:01	54,1	35,9	0	0	Program end					
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Menu	data base	<	>	load to USB																																																																																																																					

Figure 28: Measured values

Task buttons:

Menu	Opens the controller's main menu.
data base	Return to the data base page
<	Scrolls up by one page if the entire program cannot be displayed on one page.
>	Scrolls down by one page if the entire program cannot be displayed on one page
load to USB	Saves the data to a USB stick (see „Exporting measured values“, item 11.2, page 61)

Tables in the header:

Time	St.time	Chamber	Core	Humidity	FcVal
------	---------	---------	------	----------	-------

Headings of the measured values

Green line:

S01:Cooking					
-------------	--	--	--	--	--

Start of the new step with step number and process name.

Blue line:

15.11.05	00:02	50	OFF	0	0
----------	-------	----	-----	---	---

Nominal step values are shown at the beginning of a step, after changes were made to the nominal values, after pausing the program, after a power cut and after a shut-down.

White line:

15.11.05	00:02	45,5	32,5	0	0
----------	-------	------	------	---	---

Current nominal values.

Red line:

15.11.05	00:01	47,5	33,3	0	0
----------	-------	------	------	---	---

This line shows you when a message was issued, an alarm event happened or the program was paused.

Bordeaux line:

Power off					
-----------	--	--	--	--	--

This line shows that the MS controller was switched off = power cut or that the touch panel was switched off = shut-down.

Selected line:



The marker tells you which line is currently selected.

Overview of the program sequence:

Only the most important information is shown on the overview of the program sequence e.g. the new step, an alarm, a change to the nominal values.

Press the „+“, „-“ signs and further information will be shown or hidden.

Press a line on the overview e.g. step or nominal value change and the associate measured values are shown in the table on the right.



Figure 29: Overview of the program sequence

11.2 Exporting measured values

This function allows you to export the stored measured values of the current program to a USB to be printed on a PC. Since the data base only saves the last 20 programs, only the values of these programs can be exported.

Put the USB stick into one of the two USB slots on the bottom of the appliance. Press the „load onto USB“ button on the task bar and follow the on-screen instruction given.

A new file „Characteristic line“ is automatically created on the USB stick. Here you can find all the program data.

The file name is automatically created:

202008011204_Krakauer.txt

Start date	Start time	Program
(01.08.2020)	(12:04)	name

Hint

Any number of programs can be exported to the USB at the same time.

12 Tumbler (additional function)

Function for tumbler installations with vacuum and temperature control.

12.1 Standby

You can use the aggregate buttons in standby to perform certain task (see Figure 30 (if configured by the service technician)).



Figure 30: Overview of the aggregate buttons in standby

Drum control:

- The buttons „Drum right“ / „Drum left“ allow you to rotate the drum in different directions.

i	Hint
The speed of the rotation can be entered in position 2 (see Figure 30) as a fixed level or infinitely variable (depending on the setting in the configuration).	

- Use the „Drum up“ / „Drum down“ buttons to tilt or straighten the drum (e.g. to empty it).
- Use the „Cap open“ / „Cap closed“ buttons to open or close the lid for emptying.

12.2 In programming mode

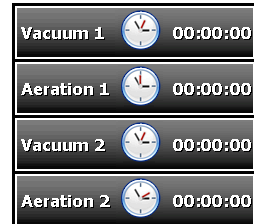
As a general rule, only nominal values that have been enabled for the processes by the service engineer are available to the operator when he is setting up individual program steps.

▪ Vacuum

If a nominal value has been entered for vacuum (*higher than "0"*), vacuum control will take place. There are two types of vacuum control:

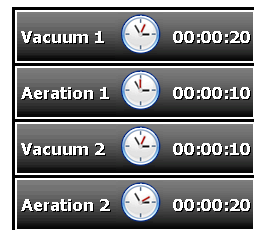
- **Continuous vacuum control**


This type of control takes place when a nominal vacuum value has been entered for a process but no aeration time (*see picture on the right*).



- **Time-controlled vacuum control**

This type of control takes place when a vacuum interval and an aeration interval has been entered in addition to the nominal vacuum value. During the respective alternating time intervals a vacuum is first built up in the drum and then it is aerated (*see picture on the right*).



Hint	
	Vacuum intervals „Vacuum 1“ and „Aeration 1“ take place during the on-interval of the drum („Massaging“), vacuum intervals „Vacuum 2“ and „Aeration 2“ take place during the pause interval of the drum („Pause“).

▪ Number of drum revolutions

The speed of the motor can either be entered as levels (1 to 3) or as a percentage (*variable actuation*).

- **Levels**

Enter level 1 to 3.

- **Variable**

Enter the number of revolutions as a percentage between 0 and 100%.



▪ Rotation direction (*actuation*) of the drum

You can enter the time of the actuation of the drum motor here.

If time interval have been set the drum will turn alternately "Drum right" → "Pause" → "Drum left" → "Pause" → "Drum right".

If no time interval has been pre-set for "Drum right", then the drum will alternate between "Drum left" → "Pause" → "Drum left". It is the other way around when no time interval has been pre-set for "Drum left".





Hint

If neither a time interval for „Drum right“ (or „ Drum left“) nor a „Pause“ interval has been set, the Drum will always rotate left (or right respectively).

▪ **Massaging / Pause**

These time interval determine when vacuum control is taking place and when aeration is allowed.

- "**Vacuum 1**"(during massaging) **or** "**Vacuum 2**" (during the pause interval)
Vacuum control takes place, but aeration is disabled.
- "**Aeration1**"(during massaging) **or** "**Aeration 2**" (during the pause interval)
Aeration takes place, but vacuum control is disabled.



▪ **Aeration at the end of the step**

- "**ON**" Venting takes place at the end of the step. This means the controller will only switch into the next step when the current vacuum value has been adjusted to correspond to the nominal vacuum value of the next step.

If the current step is the last step of a program, aeration continuous until a vacuum value of "0" is reached.
- "**OFF**" At the end of a step the controller will switch into the next step.

▪ **Aeration before cooling**

If a time interval has been entered here (*value > "0"*) this time will count down at the beginning of a step. While this interval is running, cooling is switched off and the aeration relay is switched on.



Hint

Vacuum control will not take place while this time interval is running.

▪ **Cooling while the drum is on**

- "**ON**" Temperature control will only take place while the drum is turning.
- "**OFF**" Temperature control always takes place.

12.3 In operating mode

All nominal values can be transiently¹ changed during operating mode.

Drum actuation (*drum right, drum left and pause*):

The marker always shows the current drum status and the current runtime of the drum (*Figure 31*). If you press the highlighted line, you can alternately display the actual and the nominal value.

Massaging (*vacuum / aeration*):

The marker always shows the current drum status and the current runtime of the massaging process (*see Figure 31*). If you press the highlighted line, you can alternately display the actual and the nominal value.



Figure 31: Drum operating mode

¹ Transient changes to the nominal values = the changes made to the nominal values are not saved. They are only valid until the end of the current step.

13 Compiling your own notes on the touch panel



Here you can compile your own entries e.g. addresses, telephone numbers or messages. These can be seen (e.g. when there is a shift change etc.) by other operating personnel.

When you want to add a message, touch the screen at many point.

A line, highlighted in grey, will appear. Press this line and the on-screen keypad will appear and you can enter your message. Confirm your entry with „Enter“.

On the task bar you can also select the font size (*small, CAPITAL*), font type (*standard, bold*) and font colour (*black, blue, red*). You have to highlight the relevant line to make changes.

Deleting one of your own messages


One individual lines can be deleted. Highlight the line by pressing it and press it a second time.

On the keypad you can press the following buttons:

ESC – to delete the entire line

Enter – confirm

Exit – leave the window without making changes.

Hint	
	There are 99 lines at 50 characters each for your messages.

14 Operating hours counter reading (elapsed hour) (Profiles)



This setting allows you to check on the current operating hours counter readings. If the option "reset=manually" has been pre-set for the meter (*please ask your service technician*), the operator can delete the current meter reading, or change the date for the next "Action".

delete elapsed hours meter							
No.:	counter naming	nominal	actual	interval	next date		
01	Operating mode	04200 h	01700	yearly	14	12	15
02	Heating operation			inactive			
03	Carry Out Cleanin	00016 h	00000	daily	30	11	15
04	Cooling defrost	01000 h	00250	half-yearly	31	12	15
05	Wet stocking	00200 flnk	00075	inactive	04	12	15
06	Smoke processes	00000 h	00020	weekly	04	12	15
07				inactive			
08				inactive			
09				inactive			
10				inactive			

Buttons: Menü, Profile

Figure 32: Display/delete operating hours counter

Hint	
	<ul style="list-style-type: none"> On this page the description of the meter is shown in the system language! The meter readings can only be deleted when "reset = manually" has been pre-programmed (<i>Configuration setting by the service technician</i>). See Figure 32, meter no.: 6

14.1 Operating hours messages on the operation pages

When the operating hours counter was exceed (limit value was reached or date exceed), the description of the meter is shown on the status bar. At the start of a program an additional window with the meter information is shown. If the meter was pre-programmed with the option "Reset = with PIN", a PIN number has to be entered



Figure 33: Operating hours display on the status bar

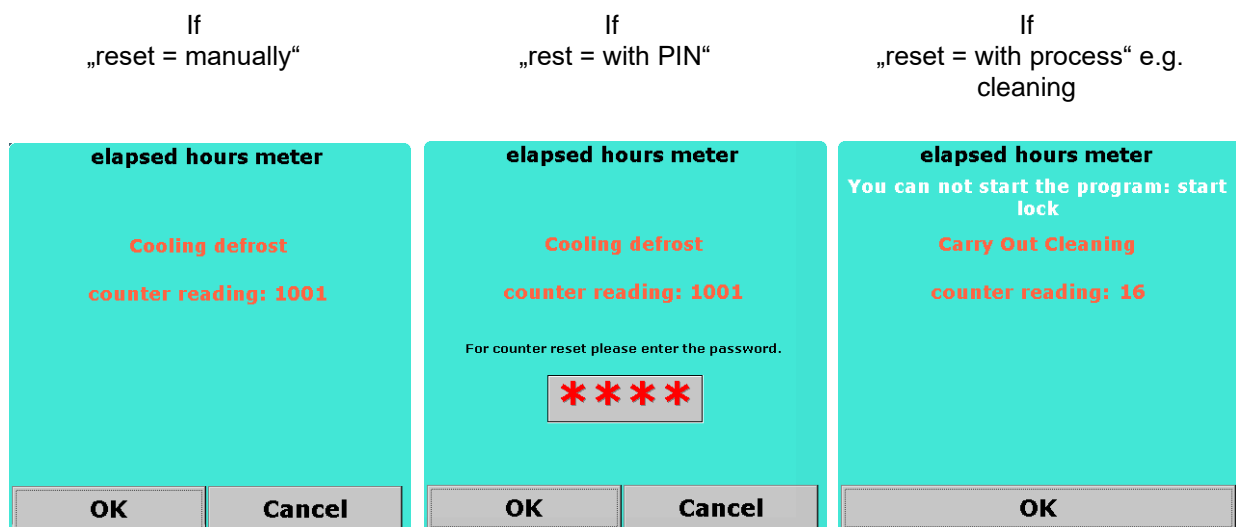


Figure 34: Operating hours (elapsed hours) counter – message before a program start

15 Button lock

To guard against a user unintentionally pushing a wrong button during operation (*i.e. unintentionally switching into the next step*) or tempering by an unauthorised person, you can activate a general keypad lock.

- How to proceed

For current versions from v20.04:

Push the box "Program" for about 5 seconds



Keypad lock active (*Writing is dark grey and lock symbol is shown*):



Keypad de-activated (*Writing is light grey and lock symbol is not shown*):



De-activation of the lock: proceed as shown above

- How to proceed

For older versions up to v20.03:

Push the box with the current step time for about 5 seconds.




De-activation of the lock: proceed as shown above

16 Power failure

If a program, which is currently in operation, is interrupted due to a power failure or because the device is switched off, the controller will resume the program as soon as power is restored

If there is a power failure, the touch panel will automatically detect the status of the controller and will show its status on the info bar

Please note
 <p>The behaviour of the device in case of a power failure (depending on a pre-set temperature difference, „always“ or „never“) can be configured by your service engineer under configuration/various settings!</p>

17 List of errors (possible problems)

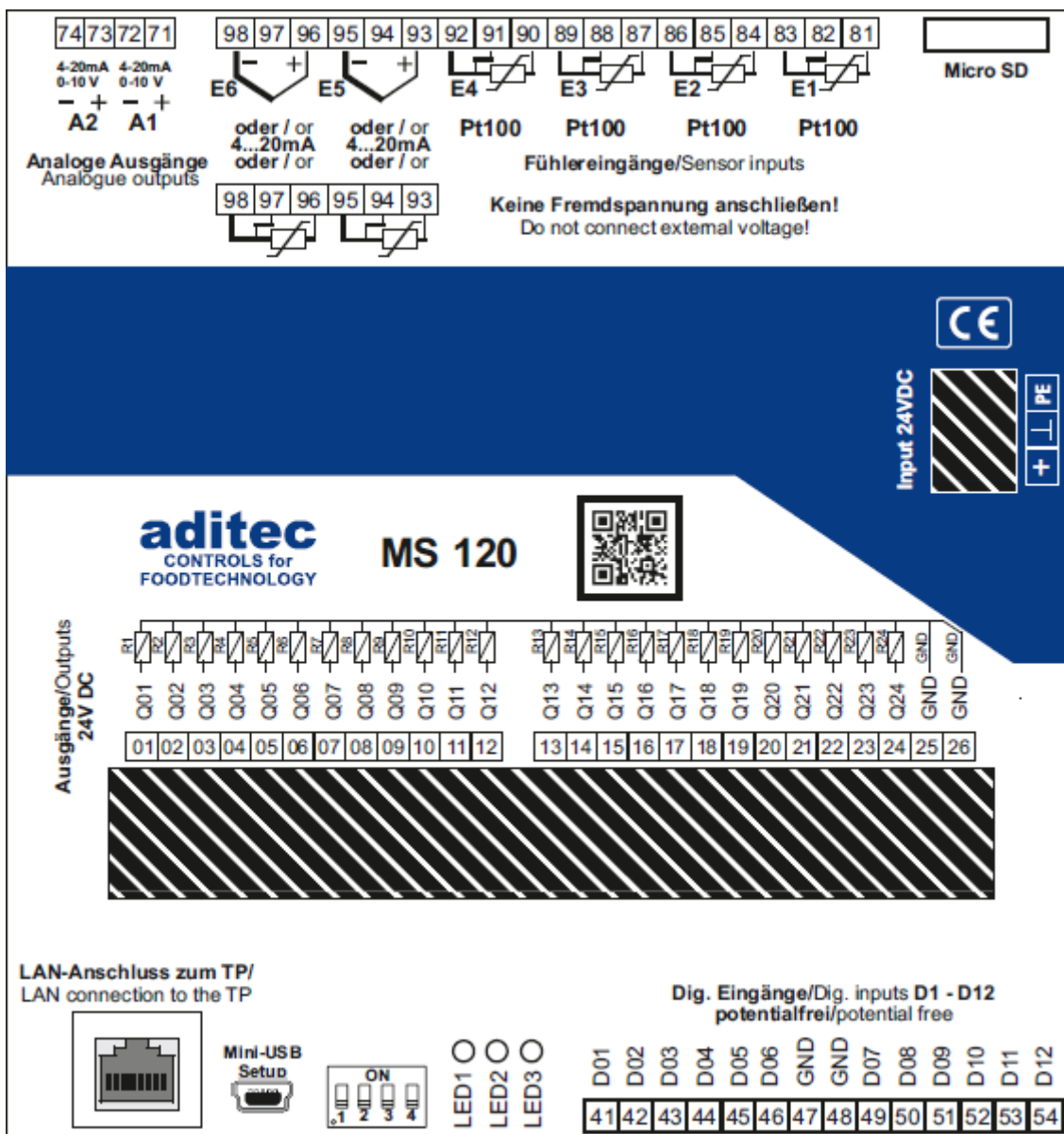
Problem that has arisen	Possible causes	Possible solutions
Program does not start	Program is empty	Set up a program and assign at least one process to the first step (See „Programming mode“ , item5, page 20).
	Waiting time has been pre-programmed („Start“ button will be flashing)	Press the „Start“ button.
	Door open (message is shown on the display)	Close the door.
Program is terminated immediately after the start	Possible defect of the chamber, core or humidity sensor, display shows „EEE“ for sensor break or „-“ for sensor short circuit	Replace the broken sensor or call your service technician. After it has been replaced the temperatures have to be checked and the controller may have to be Re-calibrated by the service technician .
Program runs quickly through all the steps and then ends	- the pre-set core temperature values was not reached - FC value was not reached	Check the pre-set values in this program.
	- nominal humidity value has been reached (humidity min.), - Nominal de-humidification value has been reached (humidity max.)	If it has been configured that way , ask your service technician
	Nominal core value is higher than the pre-set nominal chamber value (negative core shut-down, core temperature is below the nominal chamber temperature))	See „Core shut-down“ , item0, page 36
Program does not switch not the next step	Single step control is active	Manually switch into the next step, if you want to go onto the next step or increase the nominal value if you want to continue with the current process.
Program steps are repeated	Step repetition sequence is active	Push the „Stop“ button (See „Setting up repetitive steps“, item 5.8, page 26)
A program that has just finished automatically switches into the next program	Programs link active	Confirm with „Stop“ (See „Linking programs“, item 5.10, page 28)
Controller cannot be started	Power lead disruption or fault	Disconnect the controller from the power supply for at least one minute, then reconnect it and try operating it again.
Sensor error:		
- - -	Sensor short circuit	Check sensor
E E E	Sensor break	Check sensor
[-]	No sensor feedback - no connection - out of order - no sensor has been enabled	Check sensor

18 Connection diagram

18.1 Touch Panel



18.2 MS120



19 Technical data

19.1 Technical data TP 1020 / TP 720

See data sheet: Touchpanel TP720 / TP1020 » for universal cooking, smoking, climatic smoke and maturing chambers

http://www.aditec.net/TP720_TP1020_data-sheet_en.pdf

19.2 Technical data MS 120 / MS 220

See data sheet: Freely programmable controller MS120/MS220 » cooking, smoking, climatic, maturing + intensive cooling chambers

http://www.aditec.net/MS120_MS220_Datenblatt_en.pdf

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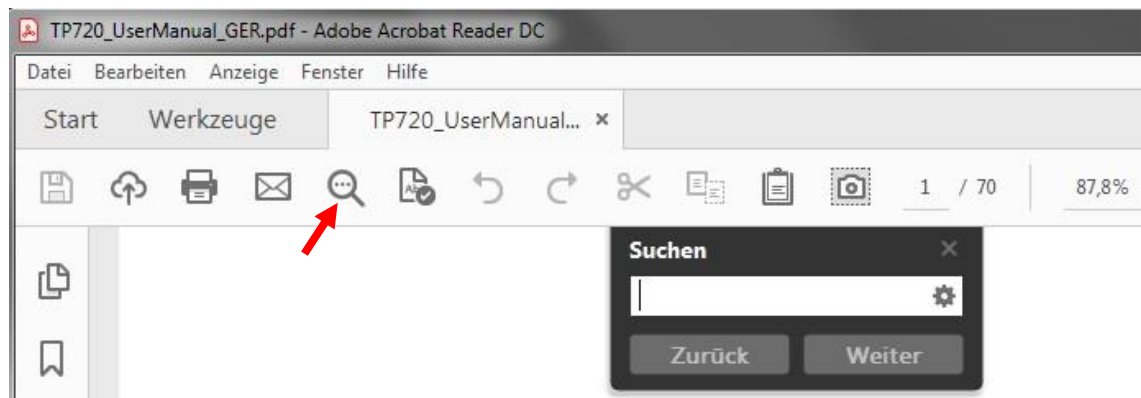
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Hint

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21 Safety instructions

To avoid any danger of electrocution, the housing must never be removed nor opened at the back. There are no parts inside that can be serviced by the user himself. Leave the servicing to the experts! To avoid any risk of fire or electrocution the appliance must not get wet nor be exposed to rain.

1. **Advice:** Read all safety instructions and all items in the user manual before using the controller for the first time! Keep the safety instructions and the user manual in a safe place in case you need to refer back to them at a later date!
2. **Installation instructions:** Always make sure that the appliance is installed by an authorized and experienced specialist. Please follow the specific safety instructions as well as the VDE guidelines during installation. The appliance should only be fitted in an approved and specifically designed waterproof switching cabinet (metal housing) and should only be used for the purpose it was designed for and within the limits of its technical data.

We recommend that any down-streamed inductors (relays, contactors, signal transmitters, valves etc.) with RC elements should be checked for interference. These are available on the retail market (e.g. Siemens 3 RT1916, Klöckner-Moeller, etc.).

With for 230V/AC devices (e.g. MIC900, MIC1100, MIC3000) particular attention must be paid to functional-equipotential bonding which must be checked and guaranteed when converting old devices.

3. **Analogue in- and outputs:** Do not apply separate source voltage o the in- and outputs (4-20mA / 0-10V and Pt100).

Sensor leads: The leads for the sensors should be run separately from any voltage carrying leads, this also includes control wires carrying separate source voltage. It is vitally important that the sensor leads have a metal shielding and that this shielding is connected to the sensor housing itself.

4. **Relay outputs:** The relay outputs are potential free and the maximal load of 250V AC and 4A must not be overshoot.
5. **Water and humidity:** Never use the unprotected appliance near water, e.g. near a bath tub, water basin, sink, washing machine, a damp cellar or near a swimming pool. The appliance is only waterproof on the front (according to the control IP65 or IP67). The back and side panels must not come into contact with water.
6. **Ventilation:** The appliance must have sufficient ventilation, the ventilation slits in the housing must never be covered up, or blocked by objects that may have been inserted into the slits.
7. **The effects of heat:** Keep the appliance away from heat sources, like radiators, heating conduits, ovens, and other elements that may radiate heat.
8. **Energy sources:** The appliance should only be connected to the power sources that are specified in the user manual or on the appliance housing itself.
9. **Cleaning:** Clean the display and the operator interface only with a damp, soft and clean cloth without any chemical or mechanical substances. Do not use sharp-edged tools or pointed objects or other mechanical aids.
10. **Appliance not in use:** When you know the appliance is not going to be used for a longer period of time, it should be disconnected from the mains.

11. **Contaminants:** You have to be extremely careful that neither liquids nor foreign objects can get into the appliance through the openings in the housing. If objects or liquids have contaminated the inside of the appliance, it has to be disconnected and sent in to the manufacturer immediately.
12. **Servicing after damage:** The appliance may only be serviced by a qualified specialist. The user should only do the servicing tasks he is meant to do according to the user manual. For servicing that exceeds his authority, he should always contract a specialist.
13. **Please note: Never make any technical alterations to the appliances,** unless they were specifically approved by aditec GmbH. **Unauthorized alterations will invalidate your warranty.**

For any questions, orders and repairs please contact our customer service team at the address below:

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