



# Hot runner diagnosis device **profiTEMP TM**

## Manual



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**meusburger**



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# 1 INTRODUCTION

## FEATURES & FUNCTIONS

- » The profiTEMP TM is designed to meet the requirements of mould makers and maintenance workers.
- » It is used for complete and professional diagnosis of the condition of the heaters and sensors, as well as the wiring of a hot runner.
- » Easy to operate, the user interface is in 15 languages.
- » No specialist electrical knowledge is required to carry out a MoldCheck.
- » The MoldCheck is documented as a PDF file on a USB flash drive.
- » It can also be used for heating and preheating the hot runner in three operation modes (controlled, manual, guided).

## INCLUDED IN THE DELIVERY

- » profiTEMP TM, manual, circuit diagrams

## 1.1 READ FIRST, THEN START UP

### TRANSPORT

The profiTEMP TM is supplied in shockproof packaging in a stable cardboard box. This ensures sufficient protection under normal circumstances. To avoid transport damage, the device must be transported **STANDING UPRIGHT**.

### UNPACKING

Check the device for any transport damage. Do not connect devices that have been damaged during transport! If necessary, complaints can be made to the transport company.

### LIFTING AND CARRYING

The device must be carried by the handles provided, which are mounted on the two side parts.

### STORAGE

If the device is unpacked but not used immediately, it must be stored protected from dirt and moisture. The permissible temperature limit is -20...70 °C, relative humidity limit < 95% annual average, no condensation.

### INTENDED USE

The diagnosis device for the mould maker and maintenance technicians is exclusively intended for error diagnosis (MoldCheck) and temperature-dependent control of electric heaters (e.g. in injection moulds) within the technical specifications. The user is responsible for the parametrisation of the functions that they require. Use for any other purpose than those listed above is considered improper use, and excludes the liability of the manufacturer/supplier for any related damage to persons or property and any consequential damage.

When using the MoldCheck on a hot runner, make sure that the heating elements and sensors are connected correctly. The tool cannot replace user attention when checking a mould for errors!



### DISCLAIMER

Observing this operating manual is required for operating this device safely and for achieving the specified product characteristics and performance features. Meusburger assumes no liability for personal injury, property damage or financial loss resulting from failure to observe the operating manual. Liability for material defects is excluded in such cases.

We have safely built and designed this device and it has left our factory in perfect safety condition. To maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this operating manual and the safety instructions.

As compliance with safety regulations is beyond our control, no liability can be assumed for damage resulting from failure to comply with one or more of these regulations. The list of safety regulations cannot be exhaustive. Failure to mention any of these provisions does not mean that they are not valid.

Start-up, maintenance, and service work may only be carried out by persons who are recognised as specialist according to regulations (VDE regulations, machine safety code, accident prevention regulations of the trade associations, etc.).

### WARRANTY

This product is subject to the statutory warranty periods for manufacturing defects or deficiencies.

If a malfunction occurs due to a manufacturing fault, the manufacturer/supplier will repair or replace the defective product at their own discretion.

The following repairs are not covered by the warranty and are subject to a charge:

- » Malfunctions after the legal deadlines have expired
- » Malfunctions caused through operating error and/or incorrect parametrisation by the user (if the device is not operated as described in the Manual)
- » Malfunctions caused by other devices
- » Changes or damage to the device which do not originate from the manufacturer/supplier

If you want to claim services under this warranty, please contact the manufacturer/supplier.

### LIMITATION OF THE WARRANTY

This manual has been carefully prepared and reviewed.

Meusburger is not liable for any damage resulting from errors or mistakes in this manual. All data and facts given are not legally guaranteed.

Meusburger reserves the right to make changes to this manual or the product described in it without prior notice if these serve to improve the product and/or technical progress.

We are grateful for any suggestions for improvements that will help to make our devices even more efficient products in the future.

### SERVICE

We can help you quickly and cost-effectively at any time. Please send us the device well-packaged with a repair order and a carefully detailed description of the error. We will prepare a cost estimate and carry out the repair after your approval or notify you as soon as possible.

### DISPOSAL

Electronic waste and electronic devices and components are subject to hazardous waste treatment and may only be disposed of by authorised specialist companies. Meusburger as the manufacturer in accordance with ElektroG (Electrical and Electronic Equipment), which implements the European WEEE directive 2002/96/EC into German law, is registered under the WEEE registration DE 66448978DE 64958116. This includes all components of this device.

### SYMBOLS AND TYPOGRAPHICAL CONVENTIONS

In this Manual the following safety-related and informative symbols and conventions are used.



Danger

This safety-relevant symbol indicates an immediate imminent danger. Failure to comply may result in damage to the device, personal injury or death.



Warning / Caution!

This safety-relevant symbol warns of a possible malfunction or danger. Failure to comply may result in personal injury or serious damage to property.



Information / notes

This symbol indicates important information and explanations, which serve to provide better understanding.



Operation instructions / examples

This symbol explains the operating steps for a function.



Reference

This symbol refers to information in another document.



Installation / assembly

With this informative symbol, instructions are given for assembly, electrical installation or settings.



## 2 SAFETY INSTRUCTIONS

All instructions must be read and followed completely.



Everyone involved in the mounting, start-up, operation, maintenance and service of the device must be appropriately qualified to read and understand this Manual and must

- » pay close attention,
- » consider it to be part of the product,
- » keep for the entire service life of the product,
- » pass it on to all successive owners or operators of the product,
- » make sure that any additional amendment received is integrated into this Manual.

Please observe the following safety instructions for protection against electric shock, injuries and fire.



Local safety regulations and instructions must be strictly adhered to during start-up.

In commercial establishments, the accident prevention regulations of the union of commercial trade associations for electrical systems and operating equipment must be observed.

Protect the device from moisture. The permissible range of climatic ambient influences must not be exceeded or be fallen short of during operation. The ingress protection of the device must be taken into account when selecting the operating conditions and environmental influences.

This unit can not be used in potentially explosive atmospheres.

Check for sufficient mechanical stability. Provide protection against slipping off the installation surface.

Check that the specified voltage on the label is identical with the mains voltage on site.

Ensure that the power cord and the connecting cables are not damaged by running them over, squeezing or pulling them or the like. Protect the cables from oil, sharp edges and temperatures above 70 °C.

Do not touch the mains plug with wet hands.

Secure the contacted mating connectors on the back of the device against unintentional disconnection with the locking clips.

The connecting cables

- » are only to be connected when the power is off.
- » must be arranged in a way that ensures there is no risk of tripping over them.

Make sure that, for example, the connected injection mould is connected to the protective conductor.

Do not place any containers filled with liquid on the device. Otherwise, a dangerous situation may arise. Avoid any ingress of foreign bodies, liquids, dust or vapours. Risk of short circuit, fire or electric shock!

Before cleaning, disconnect the appliance from the mains by pulling out the mains plug.

The device must be set up in such a way that the main switch is easily accessible, so that the device can be shut down quickly in an emergency.

The feet of the device may not be removed. Make sure that there is sufficient clearance (at least 5 cm) at the back wall of the housing to allow the waste heat to escape. Around and below the bottom of the device, air is drawn in to cool the heat sink.

Work like e.g. maintenance and repair may only be carried out by authorised and qualified professionals. The device may only be used by qualified personnel who are familiar with it and have been instructed about its risks. The relevant accident prevention regulations as well as other general occupational health and safety rules must be observed. Unauthorised modifications of the device exclude liability of the manufacturer/supplier for resulting damages.

Before working on this device, disconnect it from the supply voltage or make sure that the power is off. Secure the supply

voltage from being switched on again.

The warranty claim is void for personal injury and damage to property caused by ignoring this start-up, service and operating manual or not following these safety instructions. The manufacturer assumes no liability for such damage.



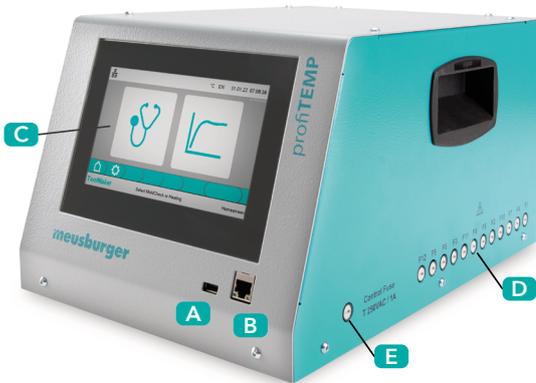
In all cases where the adjacent symbol can be seen on the device, it is absolutely necessary to follow the safety instructions for the profiTEMP TM identified by the symbol/sign/label. In all cases, refer to this manual for advice.

Do not leave the packaging material lying around carelessly - plastic film/styrofoam parts etc. may be dangerous.



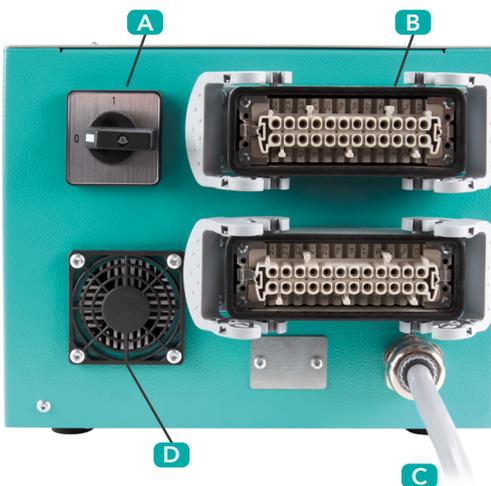
## 3 DESIGN AND CONNECTIONS

### 3.1 FRONT/SIDE VIEW



- A USB port
- B Network connector
- C Operating screen (7" touch screen)
- D Heater fuses
- E Control fuse

### 3.2 BACK VIEW

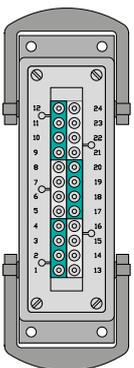


- A Main switch
- B Mould connection
- C Network connector
- D Air vent

### 3.3 MOULD CONNECTION

The mould connection plugs on the device are designed in accordance with the Meusburger/PSG specification sheet.

Each plug (24 contacts, size HAB B, surface-mounted housing with double locking latches) is provided for 6 zones. The profiTEMP TM has 12 zones so it has 2 mould connection plugs.



XA1	Sensor		Heater	
	-	+	L	N
Zone 1	1	2	3	4
Zone 2	5	6	7	8
Zone 3	9	10	11	12
Zone 4	13	14	15	16
Zone 5	17	18	19	20
Zone 6	21	22	23	24

XA2	Sensor		Heater	
	-	+	L	N
Zone 7	1	2	3	4
Zone 8	5	6	7	8
Zone 9	9	10	11	12
Zone 10	13	14	15	16
Zone 11	17	18	19	20
Zone 12	21	22	23	24

The connection diagram on the device must be compared with the connection diagram of the plug on the mould.



Improper connection can destroy the controller, heater and thermal sensor.

### 3.4 MAINS CONNECTION

The device may only be operated with the mains voltage indicated on the label. The 32 A CEE power outlet intended for connection must be checked for sufficient permissible fuse protection.



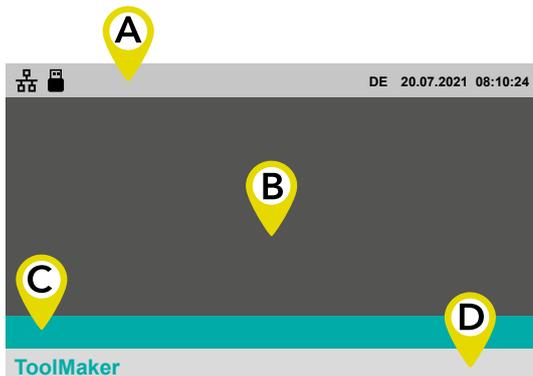
## 4 OPERATION

After making all the necessary connections for the start-up of the device, set the main switch on the back of the device to the ON position.

### 4.1 OPERATING SCREEN

This diagnostic device is operated via the 7" touch screen. For better readability of the screen, the front panel of the housing is tilted.

#### SCREEN LAYOUT



The screen is divided into four sections.

**A** Header (↗ 7.1 Header)

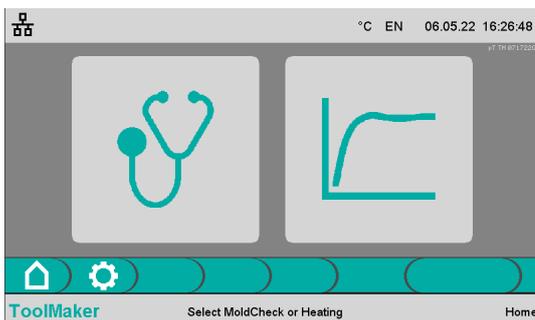
**B** Content area

**C** Menu bar

**D** Footer (↗ 7.2 Footer)

The content in all four areas may differ depending on the screen masks.

#### HOME SCREEN



The home screen is the starting point for all touch screen operation functions. It appears immediately after the unit is switched on.



The home screen can be accessed from any screen via the home button, which can always be found on the far left of the menu bar.

When the home screen is active, all heaters are switched off.



The operating mode is selected via the two buttons on the home screen.



↗ 5 MoldCheck operating mode (diagnosis)



↗ 6 Heating mode

## 4.2 SYSTEM SETTINGS



Setting	Value
Maximum residual current:	60 [mA]
Mains voltage:	230 [V]
Current limit SPL L1/L2/L3:	32.0 [A]
Sensor type:	J (FE-J)



Select the settings button in the menu bar.

The following system settings, which are valid for the whole device, can be made:

**Maximum residual current** defines from which measured residual current (heater insulation problems) heating outputs are switched off or a corresponding error is generated during diagnosis.

**Mains voltage** in V. This information is used to calculate the power of the heater in watts.

**Current limit SPL L1/L2/L3** defines the maximum power per phase that is drawn at the mains connection.

If necessary (for example, when all zones of the hot runner are heated simultaneously), the controller reduces the output of the heating pulses in such a way that the current limit SPL is not exceeded, thus preventing the mains fuse from tripping.

If a CEE adapter to CEE 16A is used, this setting must be adjusted.

**Sensor type** defines the design of the thermal sensor in the hot runner and the compensating cables from the hot runner to the controller. If Fe CuNi type J deviating thermal sensors and compensating cables are used, the setting can be adjusted. However, the accuracy specifications ([↗ 9.1 Technical specifications](#)) then no longer apply.



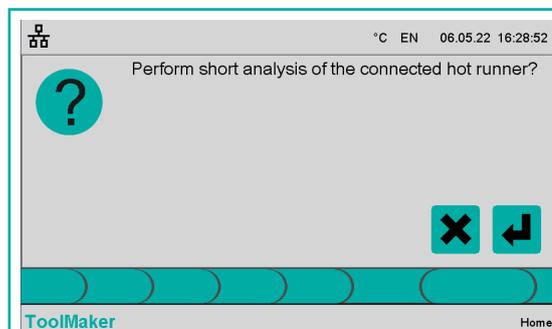
After entering the input, return to the home screen.



## 5 MOLDCHECK OPERATING MODE (DIAGNOSIS)

### 5.1 MOLDCHECK - STEP BY STEP

The MoldCheck checks the wiring and condition of all heating elements and thermal sensors (phase 1: electrical check). In addition, the correct allocation to the same zone is checked (phase 2: dynamic check). The inspection of every zone (its heating element and thermal sensor) is carried out continuously during operation, malfunctions are immediately signalled in the zone as an alarm.



After selecting the MoldCheck operating mode on the home screen, you are asked whether a brief analysis of the connected hot runner system should be carried out. During the short analysis, the controller checks at which zones a heater and a sensor are connected.

To detect a heating current, the heating output of all zones is switched on for a short moment and a low voltage is output.

The short analysis takes about 5 seconds for all 12 zones.



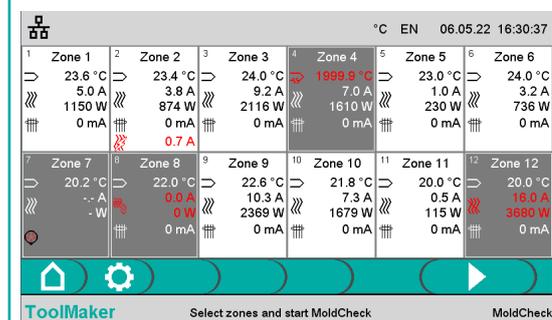
Click, if you want to start the short analysis. A progress bar is displayed during the short analysis.

The zones where something is detected at the heating outputs and sensors inputs are activated for the MoldCheck.



Click if no short analysis is to be carried out.

Then all zones for the MoldCheck are activated.



The screen mask with 12 zone fields appears.

The zones selected for the MoldCheck are brightly marked, no MoldCheck is carried out for the darkly marked zones.

The zones can be selected and deselected (➔ 7.4 Conveniently select and deselect zones).

#### KEYS IN THE MENU BAR



Accessing and deselecting the screen mask for entering setting parameters for the MoldCheck.



Displays when heaters are not switched on and MoldCheck is not active.  
Switches on the heating outputs and starts the MoldCheck.

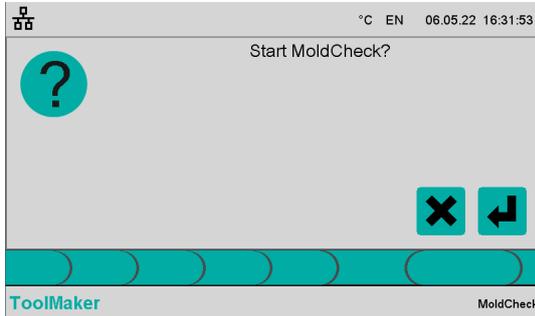


Displays when heaters are switched on and the MoldCheck is active.  
Ends the MoldCheck and switches off the heating outputs.

## START MOLDCHECK



Start the MoldCheck ...



and confirm to start the query.



The inverted start button indicates that a MoldCheck is running. The MoldCheck can be cancelled at any time by clicking the start button again.

Once MoldCheck is started, the device does not require any input and MoldCheck can run unattended.

At the beginning, the device checks whether external influences are affecting the temperature values.

Then in ascending order, a low-power heating pulse is applied to each individual zone and then the expected temperature increase is checked on the assigned thermal sensor. This test should be carried out at low temperatures. As all connected zones have to be tested in several steps one after the other, the complete mould diagnosis can take a longer time.

Zone	Temp (°C)	Current (A)	Power (W)	Status
1	66.9	5.0	1150	0 mA
2	20.0	3.8	874	0 mA
3	50.0	9.2	2116	0.7 A
4	1999.9	7.0	1610	0 mA
5	20.0	1.0	230	0 mA
6	20.0	3.2	736	0 mA
7	20.0	-	-	-
8	20.0	0.0	0	0 mA
9	20.0	10.3	2369	0 mA
10	20.0	7.3	1679	0 mA
11	20.0	0.5	115	0 mA
12	20.0	16.0	3680	0 mA

During the MoldCheck, the status of the zone can be recognised by the colouring of the header.



This zone is currently being checked.



This zone was checked, no error was detected.



This zone was checked, at least one error was detected.



This zone is selected for checking.



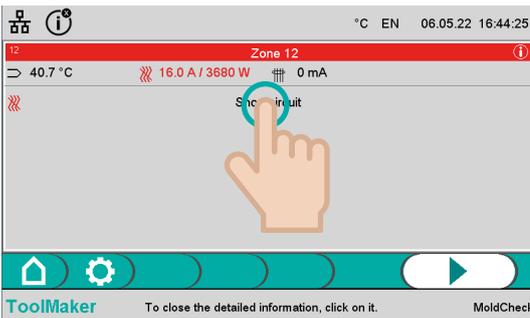
This zone will not be checked.

Zone	Temp (°C)	Current (A)	Power (W)	Status
1	56.2	5.0	1150	0 mA
2	20.0	3.8	874	0 mA
3	29.0	9.2	2116	0.7 A
4	1999.9	7.0	1610	0 mA
5	20.0	1.0	230	0 mA
6	20.0	3.2	736	0 mA
7	20.0	-	-	-
8	20.0	0.0	0	0 mA
9	64.4	10.3	2369	0 mA
10	68.8	7.3	1679	0 mA
11	71.7	0.5	115	0 mA
12	45.5	16.0	3680	0 mA

After all the zones have been checked, the result of the MoldCheck can be seen.

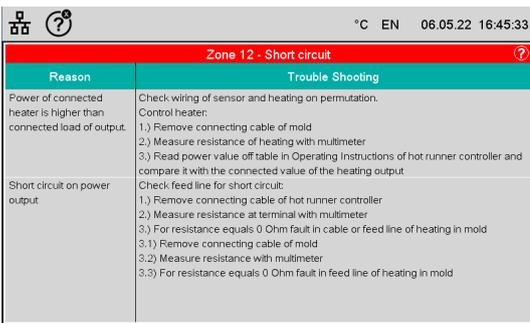
Click on a zone (here: zone 12) to view the detailed result of the zone check. However, it is also possible to take a look at the status or the test result before the MoldCheck is completed without influencing the MoldCheck process.

(➔ 9.3 Symbols used)



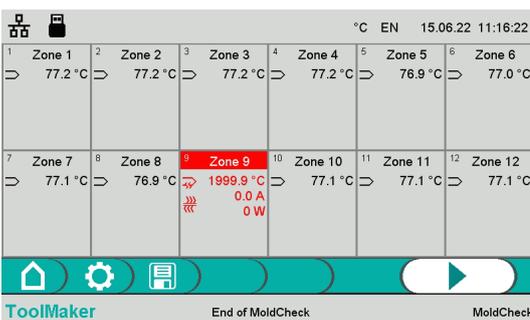
Clicking on the row with the listed error leads to a zone error page describing the cause and detailed instructions for correcting the error. (➔ 9.3 Symbols used).

Clicking in the other area of the screen takes you back to the overview page with the result of the MoldCheck.



After reviewing causes and troubleshooting tips, click on the screen to return to the previous screen.

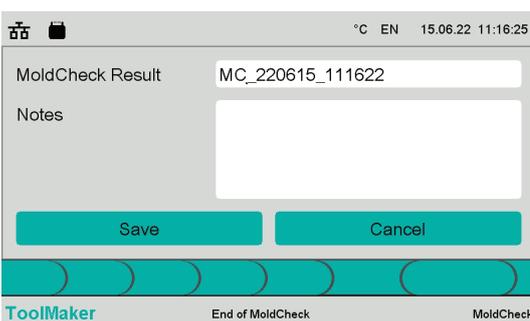
If a USB flash drive is inserted (indicated by the icon in the header), the MoldCheck result can be saved on it.



In this case, a button for saving the MoldCheck data can be selected in the menu bar.



Click button in the menu bar.



The MoldCheck file name to be saved can be defined in the screen mask. A file name containing the date and time is automatically created. This can be changed, and a comment can also be added. To do this, click in the input fields and enter data using the screen keyboard.

## 5.2 MOLDCHECK SETTINGS



Setting	Value
MoldCheck End temperature:	70.0 [°C]
MoldCheck rapid test:	Off
Nozzle/manifold current limit:	5.0 [A]
MoldCheck max. waiting time nozzle:	0.5 [min]
MoldCheck max. waiting time manifold:	3.0 [min]

Setting	Value
MoldCheck End temperature:	70.0 [°C]
MoldCheck rapid test:	Off
Nozzle/manifold current limit:	5.0 [A]
MoldCheck max. waiting time nozzle:	0.5 [min]
MoldCheck max. waiting time manifold:	3.0 [min]



Select the settings button in the menu bar.

The following settings can be made:

**MoldCheck end temperature** sets the maximum adjustable set point value for zones in control mode.

**MoldCheck rapid test** If activated, then there is no check of the heater and sensor assignment.

**Nozzle/manifold current limit** is used for automated differentiation of the zone type (nozzle or manifold). The heating current is used for this purpose. If the heating current is below the current limit, the zone is classified as a nozzle; if the heating current is above, it is classified as a manifold.

**MoldCheck max. waiting time nozzle** defines the time period within which a temperature rise must be detected in a zone classified as a nozzle when checking the assignment of sensor and heater.

**MoldCheck max. waiting time manifold** defines the time period within which a temperature rise must be detected in a zone classified as a manifold when checking the assignment of sensor and heater.

Click in the corresponding input field **A** for the entry and enter the new value in the input field **B** and confirm.



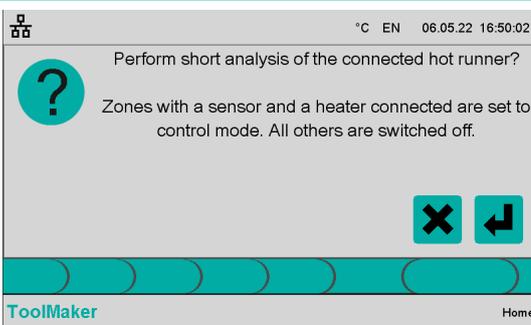
After completing the settings, return to the MoldCheck screen.



## 6 HEATING MODE

The heating operating mode is used to subject the hot runner to a function test or to preheat it for use in production (reduces set-up time). There are three modes to choose from ([↗ Control mode](#), [↗ Manual mode \(user mode\)](#), [↗ Leading zone mode](#)).

### 6.1 HEATING - STEP BY STEP



After selecting the heating operating mode on the home screen, you are asked whether a brief analysis of the connected hot runner system should be carried out. During the short analysis, the controller checks at which zones a heater and a sensor are connected.

To detect the connected heaters, the heater output of all zones is switched on for a short moment and a low voltage is output to detect a current flow, even though the heaters are still switched off in this step.

This process takes about 5 seconds for all 12 zones.

After the short analysis has been carried out, a short analysis is only offered again after the device has been restarted or if a sensor break is detected in at least one zone (e.g. if a sensor has been replaced or a mould plug has been removed during operation). Otherwise, it can be assumed that the constellation has not changed and therefore no further short analysis is required.



Click, if you want to start the short analysis.

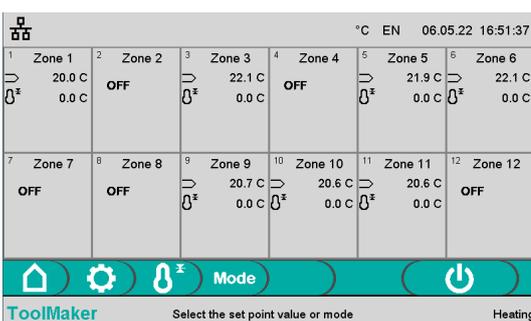
Zones that have something connected to the heating outputs and sensor inputs are set to control mode, the other zones are deactivated.



Click if no short analysis is to be carried out.

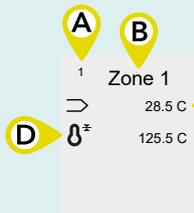
The settings of all zones (heating mode, temperature set point values, output levels, leading zones, etc.) remain unchanged compared to the last time the heating mode was accessed.

A progress bar is displayed during the short analysis.



The screen mask with 12 zone fields appears. The heaters are still switched off.

The symbols and data in the zone fields provide information about which mode the zone is in (➤ 9.3 Symbols used).



#### CONTROL MODE

The zone is controlled to the adjusted set point value (here 125.5 °C).

- A Zone number
- B Zone name
- C Actual temperature value
- D Temperature set point value

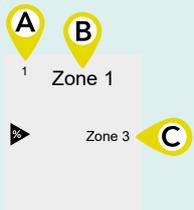


#### MANUAL MODE (USER MODE)

For the zone, a constant output level (here 15%) is output regardless of a temperature value. In this mode, a zone can be heated up if the thermal sensor is defective or not provided (actual value 1999.9 °C).

- A Zone number
- B Zone name
- C Actual temperature value (display of actual temperature value in case of sensor break)
- D Heating power output (output value) in manual mode

As the actual temperature value is not usually known in this operating mode, only qualified personnel may enter the output level, as incorrect setting of the output level can lead to overheating and damage to the mould.



#### LEADING ZONE MODE

For a guided zone (here: zone 1), the heating output is connected in parallel to the heating output of a leading zone (here: zone 3). A zone as similar as possible should be chosen as the leading zone. In this mode, a zone can be heated in a controlled manner in the event of a defective or non-existent thermal sensor.

- A Zone number
- B Zone name
- C Leading zone

As the actual temperature valve is not usually known in this operating mode, only qualified personnel may select the leading zone, as incorrect setting of the leading zone can lead to overheating and damage to the mould.



### THE BUTTONS IN THE MENU BAR



Access the screen mask for entering system settings for the heating mode.



Access the screen mask for entering the temperature set point values for the zones that are in control mode.



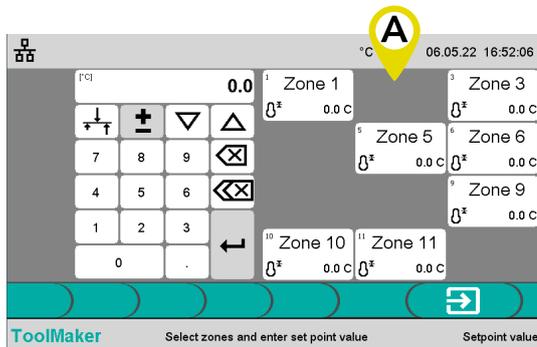
Access the screen mask for selecting the heating mode of the zones.



Switch on the heating outputs on the device and start heating.



## SET POINT VALUE INPUT



Select the set point value button in the menu bar.



Area **A** shows the zones that are in the control mode. Now select the zones whose set point values are to be changed.

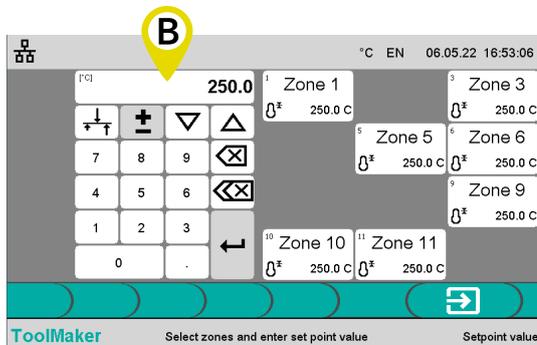


The zone is selected for set point input.



The zone is deselected and is not taken into account in the set point value specification.

For simple zone selection and deselection, please refer to the instructions [7.4 Conveniently select and deselect zones](#).



Change the set point value via input field **B** and confirm. The changed set point value is displayed for the zones in area **A**.

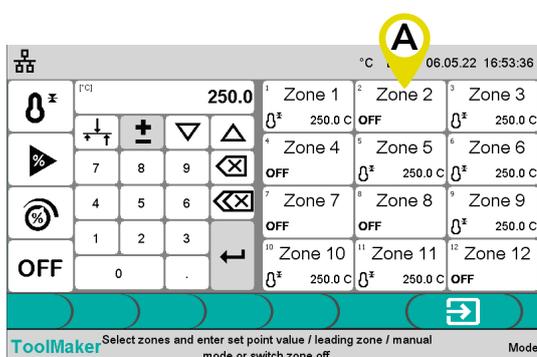
To make the input easy, please follow the instructions under [7.3 Edit values easily](#).



Close set point value input.

## SELECT HEATING MODE

In the event that zones should not or cannot be heated in a controlled manner, two further modes are available for selection.



**Mode**

Select the set point button in the menu bar.

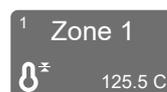
The screen is divided into three areas.



In section **A** select the zones whose heating mode is to be changed.

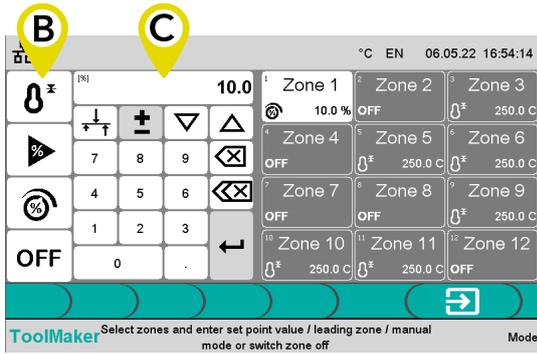


The zone is selected for changing the heating mode.



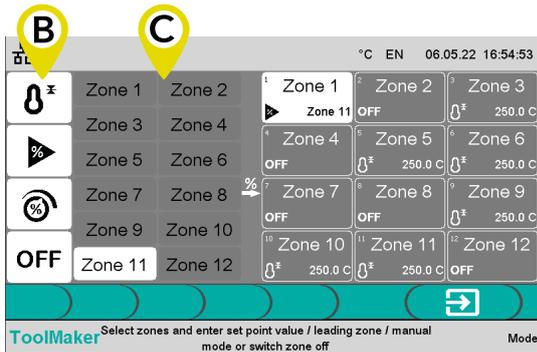
The zone is deselected and is not taken into account when changing the heating mode.

For simple zone selection and deselection, please refer to the instructions [7.4 Conveniently select and deselect zones](#).



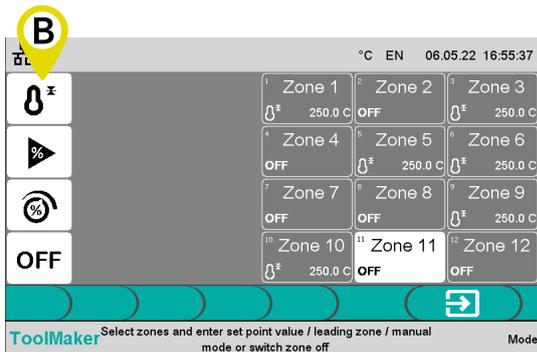
Set the selected zones (here: zone 1) to manual mode (user mode) by clicking on the function button (area **B**) .

Then enter the output value for the zones in the keyboard box (area **C**) (here: 10%) and confirm.



Alternatively, set the selected zones (here: zone 1) by clicking on the function button (area **B**) in the leading zone mode.

Then select the leading zone in the keyboard box (area **C**) (here: zone 11) and confirm.



If a zone cannot be heated, it must be deactivated.

To do this, deactivate selected zones (here: zone 11) by clicking on the function button (area **B**) .

The heating output for this zone is switched off.

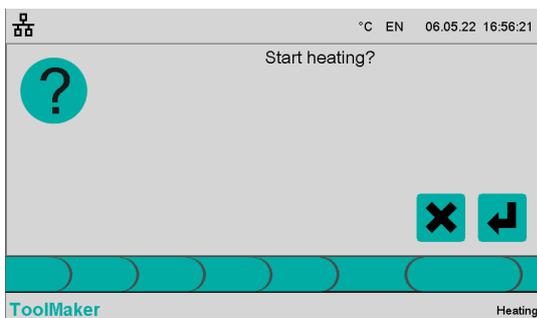


After entering the inputs, close the select heating mode screen.

### SWITCH ON THE HEATING



Select switch on heating outputs button in the menu bar.



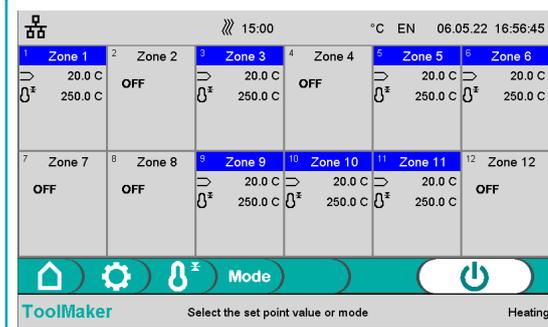
Confirm the input, start heating or cancel the process.



The heating process can be followed in the screen mask.

When all zones in the control mode reach the set temperature set point value, a 15 minute timer begins. The timer is displayed in the middle of the header.

After the time is up, all the heaters are switched off.



### ZONE FIELDS WITH HEATING SWITCHED ON

The colour information in the upper area of the zone field provides information about the status of the zone (➔ 9.3 Symbols used).

**Zone 1** (Green header)  
 The zone is in control mode, the actual temperature value is within the specified tolerance band, there is no error.

➤ 125.0 C  
 ⚙️ 125.5 C

**Zone 1** (Grey header)  
 The zone is in manual mode (user mode) or in leading zone mode.

If a thermal sensor is detected for the zone, the measured temperature value is displayed in the zone field (here: 125 °C).

➤ 125.0 C  
 🌡️ 15.0 %

**Zone 1** (Blue header)  
 The zone is in control mode, the actual temperature value is below the set tolerance limit for the set point value.

➤ 35.0 C  
 ⚙️ 125.5 C

**Zone 1** (Red header)  
 Regardless of the operating mode, there is an error. For example, even if the currently measured temperature value of a zone in control mode is above the tolerance limit of the set point value.

➤ 1999.9 C  
 🌡️ 15.0 %

## 6.2 HEATING SETTINGS



☰ 15:00 °C EN 06.05.22 16:57:13

Upper relative limit value: 5.0 [°C]

Lower relative limit value: -5.0 [°C]

Upper setpoint value limit: 500.0 [°C]

ToolMaker Settings

☰ 15:00 °C 06.05.22 16:57:36

5.0 [°C]

5.0 [°C]

-5.0 [°C]

500.0 [°C]

ToolMaker Settings



Select the settings button in the menu bar.

The following settings can be made

**Upper relative limit value** defines the tolerance band above the set point value. If the actual temperature value for a zone in control mode is above this value, an alarm is issued for this zone.

**Lower relative limit value** defines the tolerance band below the set point value. If the actual temperature value for a zone in control mode is below this value, an alarm is issued for this zone.

**Upper setpoint limit value** sets the maximum adjustable set point value for a zone in control mode.

For the input, click in the corresponding input field (**A**) and enter the new value in the input field (**B**) and confirm.



After completing the settings, return to the heating display screen.



## 7 OPERATING ASSISTANCE

### 7.1 HEADER

#### NETWORK

The status of the network interface can be recognised by the colour of the network symbol.



The unit is not connected to any network.



The unit is connected to a network, no data is being communicated.



The unit is connected to a network and data is being communicated.

After clicking on the network symbol, the network interface can be configured (IP address, subnet mask, gateway).

Click on the input field, make your entry and confirm.

#### USB



The icon is visible when a USB flash drive is plugged into the designated USB port.

#### LANGUAGE

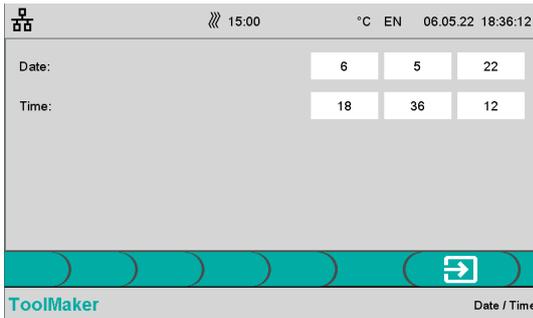
The two-digit country code indicates the selected language of the user interface (DE = German, EN = English, PL = Polish, etc.).

Deutsch / German	Nederlands / Dutch	Magyar / Hungarian
English / English	Türkçe / Turkish	Português / Portuguese
Français / French	Polski / Polish	Български / Bulgarian
Italiano / Italian	Čeština / Czech	Ελληνικά / Greek
Español / Spanish	中文 / Chinese	

After clicking on the country code in the header, the screen for selecting the language is displayed. Select the desired language and exit the screen. The selected language will be directly used.

#### DATE AND TIME

The current date and time are displayed at the top right.



Clicking on the time/date in the header displays the screen for setting the date and time. Click on the desired input field, make the entry and confirm.

## TIMER

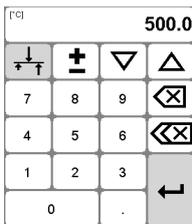


In the heating mode, a timer is displayed in the middle of the header (➔ *Switch on the heating*).

## 7.2 FOOTER

In the centre of the footer, notes on the displayed screen mask or notes on the next operating step are displayed, and the name of the displayed screen mask is shown on the right-hand side.

## 7.3 EDIT VALUES EASILY



**Numerical values** are entered via an input field. The keys inside have the following meaning:



The back key deletes the last digit of the number.



The clear key deletes the entire number.



The number is increased by 1 per click.  
The value is not automatically accepted but must be confirmed.



The number is reduced by 1 per click.  
The value is not automatically accepted but must be confirmed.

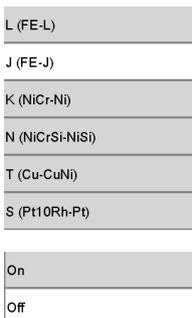


If this button is visible, the values of all selected zones are increased or decreased **by** the same value. The difference between the old and new value is specified. For reduction, please change the sign using the +/- key.



If this button is visible, the values of all selected zones are increased or decreased **to** the same value.

## SELECTION FROM A LIST



For parameters with a predefined list of values (here: sensor type) the selection is made directly in the list.

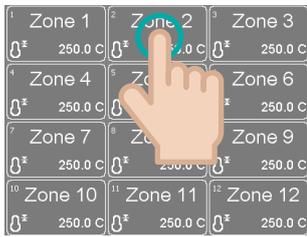
A special type of value list is the selection with two setting values (here: MoldCheck quick check).



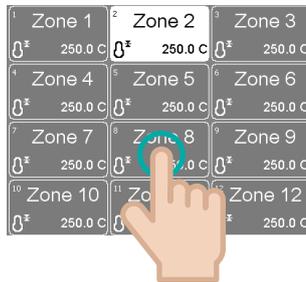
## 7.4 CONVENIENTLY SELECT AND DESELECT ZONES

### SELECT AND DESELECT ZONES INDIVIDUALLY

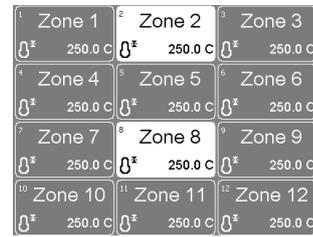
By clicking on the zones, they can be selected or deselected.



Click zone 2



Click zone 8

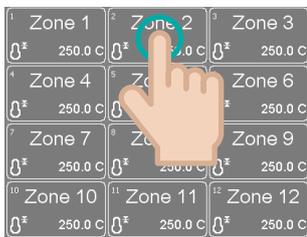


Zone 2 and Zone 8 are selected.

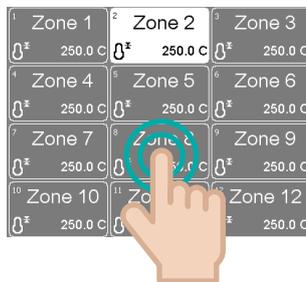


### BLOCK SELECTION

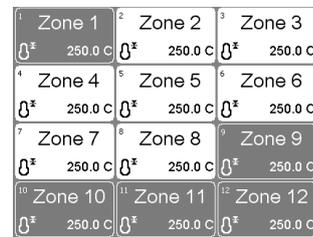
A click on one zone followed by a double click on another zone selects or deselects all zones in between.



Click zone 2



Double click zone 8

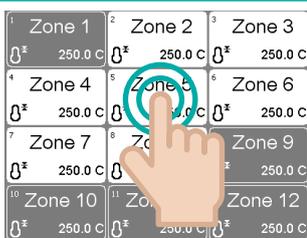


Zone 2 to zone 8 are selected.

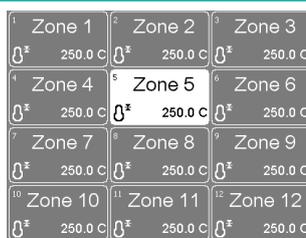


### SELECT INDIVIDUAL ZONE

Double-clicking on a zone selects it, the remaining zones are deselected.



Double click zone 5



Zone 5 is selected.



## 8 SERVICE



It is essential to follow the instructions in the ↗ 2 *Safety instructions* .

### 8.1 FUSE REPLACEMENT

All fuses are accessible from the outside and are located on the right side wall when looking at the device from the front.



**A** Heater fuses

**B** Control fuse

Each zone fuse is marked with the zone number.

#### HEATER FUSES

Each heater fuse is marked with the zone number.



Only use type SIBA FF 16A fuses (RHZ 5000 / 500/ 16/FF) i!

**Step 1** Disconnect the device from the power supply.

**Step 2** Remove the safety cap.

The retaining ring is locked in the bayonet fitting with a fuse holder. To remove, press the safety cap in slightly with a screwdriver and turn it 90 degrees counter clockwise.

**Step 3** Remove the fuse from the safety cap and replace with a new fuse (SIBA FF 16A).

**Step 4** Insert the safety cap into the fuse holder.

Slightly press in the safety cap with a screwdriver and turn it 90 degrees clockwise.

#### CONTROL FUSE

The procedure for replacing the control fuse is identical to that for the ↗ *Heater fuses*.



When selecting the fuse, observe the specification printed on the housing.



## 9 APPENDIX

### 9.1 TECHNICAL SPECIFICATIONS

#### MAINS SUPPLY

400 VAC (~N = 230 VAC) 3~/N/PE, 50/60 Hz

#### MAINS CONNECTION

CEE 32 A, 3 m

#### OPERATION AND DISPLAY

7" IPS panel with capacitive touch screen, integrated in the front of the device

#### SENSOR INPUTS

Thermocouple Fe/CuNi type J (-35...500°C) with internal reference measuring junction

Measuring precision < 1K

Cable length to thermal sensor < 30 m

#### HEATING OUTPUTS

Quantity: 12

230 VAC / 15 A (3450 W) at 20 °C environment

230 VAC / 14.5 A (3335 W) at 45 °C environment (derating fuse)

Fuse protection with super-fast fuses FF 16 A, 6.3 x 32 mm (SIBA type 7012540.16 FF)

Cable length to heaters < 30 m

The heating outputs of zones 1, 4, 7, 10 and 2, 5, 8, 11 and 3, 6, 9, 12 are each assigned to a phase L1/ L2/L3.

#### MOULD CONNECTION

Connector: Wieland WI 70.300.2440.0

Assignment: Meusbürger Standard (001)

#### CURRENT MEASURING

Measuring range 0 to 16 A per power output

Resolution 0.1 A (accuracy +/- 0.1A)

#### LEAKAGE CURRENT MEASUREMENT

Measuring range 0...100 mA

Resolution 1 mA

#### INTERFACES

1 x USB type A (for data export, firmware update)

1 x Ethernet RJ45, IP address adjustable (for service)

#### ELECTR. SAFETY / EMC

Electrical safety EN 61010-1:2010 + A1:2019 + AC:2019

EMC emitted interference according to EN 61000-6-4, interference immunity according to EN 61000-6-2

Over-voltage category II

Ingress protection class I

Ingress protection type IP20

#### AMBIENT TEMPERATURE

Operation at 0... 45 °C

Transport and storage -20...70 °C

#### CLIMATE APPLICATION CLASS

Relative Moist < 75% annual average, no condensation

## MECHANICS

Dimensions: 215 x 260 x 400 (H x W x D in mm)

Weight: 9.8 kg

## 9.2 DECLARATION OF CONFORMITY

All products have been developed and manufactured in compliance with applicable European standards and directives.

A declaration of conformity can be requested from Meusburger .

The manufacturer of the product, Meusburger, has a certified quality assurance system according to ISO 9001.

## 9.3 SYMBOLS USED

Icons are displayed in several screens to indicate the status of the zone or system. Their significance, as well as the reaction of the device to them, is explained below for the two operating modes MoldCheck and Heating.

Symbols	Meaning
	Temperature sensor OK
	Temperature rise detected in another zone not assigned to the heater. <b>MoldCheck</b> When the error is detected, the heating output of the zone is de-energised. <b>Heating</b> The error cannot be determined automatically when heating up several zones at the same time.
	Interruption in the thermal sensor cable (sensor break) <b>MoldCheck</b> The heating output of the zone is switched off after measuring the heater. <b>Heating</b> In control mode, the heating output of the zone remains switched off. In the leading zone mode or manual, the heating output remains switched on.
	Thermal sensor connected with wrong polarity (reverse polarity) <b>MoldCheck/Heating</b> The heating output of the zone is switched off when the error is detected.
	The temperature measured by the device does not correspond to the temperature at the thermal sensor (sensor short-circuit). <b>MoldCheck</b> The heating output of the zone is switched off if no temperature rise of 10 K is detected after the MoldCheck waiting time (↗ 5.2 <i>MoldCheck settings</i> ) applicable to the zone has elapsed.
	Thermal sensor potential error. An impermissible voltage is measured at the measuring input. <b>MoldCheck/Heating</b> The heating output of the zone is switched off after measuring the heater.
	Actual temperature value is above the maximum set point limit (↗ 6.2 <i>Heating settings</i> ). <b>Heating</b> The heating output of the zone is switched off after measuring the heater. The heating is switched on again when the actual temperature value falls below the maximum set point limit again.
	Actual temperature value is above the tolerance limit (↗ 6.2 <i>Heating settings</i> ).
	Actual temperature value is below the tolerance limit (↗ 6.2 <i>Heating settings</i> ).
	Heater OK
	Heater has an error.
	No heating current is measured. Interruption in the heating circuit <b>MoldCheck</b> The heating output of the zone is switched off.
	The measured heating current exceeds the measuring range (16 A). For example, in the event of a short circuit in the heating circuit or when a thermal sensor is connected to the heating output. <b>MoldCheck/Heating</b> The heating output of the zone is switched off.



Symbols	Meaning
	<p>Internal device error. Defect of the thyristor (power controller), the heating output is switched on permanently due to an error.</p> <p><b>MoldCheck</b> The heating output of the zone is switched off.</p> <p><b>Heating</b> The heating outputs of all zones belonging to the main phase failure in which the error was detected are switched off.</p>
	<p>Phase error (phase is missing)</p> <p><b>MoldCheck/Heating</b> The heating outputs of the zones belonging to the missing phase (<a href="#">↗ 9.1 Technical specifications</a>) remain switched off.</p>
	<p>Heat sink temperature exceeded (safety shutdown if heat sink temperature exceeds 100 °C)</p> <p><b>Heating</b> The heating outputs of all zone are switched off. They are switched on again after falling below the limit value.</p>
	<p>The leakage current is below the set limit value (<a href="#">↗ 4.2 System settings</a>).</p>
	<p>The leakage current is too high. The measured leakage current is above the set limit value (<a href="#">↗ 4.2 System settings</a>).</p> <p><b>MoldCheck/Heating</b> The heating outputs of the zones that have a degree of operation greater than 0% when the error is detected are switched off.</p>

## 9.4 VERSION HISTORY DOCUMENTATION

Date	Version	Modification
03/03/2022	1.00.00	First edition
09/03/2022	1.00.01	Chapter <a href="#">↗ 9.3 Symbols used</a> revised (2203_V3)
11/04/2022	1.00.02	Corrections throughout the entire document (2204_V1)





Rev. 1.00.02  
Technical changes reserved

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