

## Logamatic 4323

Read carefully prior to installation and maintenance.

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## 1 Key to symbols and safety instructions

### 1.1 Key to symbols

#### Warnings



Warnings in this document are framed and identified by a warning triangle printed against a grey background.

Keywords at the start of a warning indicate the type and severity of the ensuing risk if measures to prevent the risk are not taken.

- **NOTICE** indicates that material losses may occur.
- **CAUTION** indicates possible minor to medium personal injury.
- **WARNING** indicates possible severe injury.
- **DANGER** indicates that severe personal injury may occur.

#### Important information



Important information in cases where there is no risk of personal injury or material losses is identified by the symbol shown on the left. It is bordered by horizontal lines above and below the text.

#### Additional symbols

Symbol	Meaning
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents
•	a list entry
–	a list entry (second level)

Table 1

### 1.2 Safety instructions

#### General safety instructions

Failure to observe the safety instructions can result in serious injuries and a risk to life as well as material losses and damage to the environment.

- ▶ Ensure that only a qualified contractor carries out installation, connection of exhaust system, commissioning, maintenance and service.
- ▶ Carry out maintenance at least once a year. As part of this, check that the entire system is working correctly. Immediately remedy all defects found.
- ▶ Read the safety instructions carefully prior to commissioning the system.

#### Original spare parts

Losses caused by the use of spare parts not supplied by the manufacturer are excluded from the manufacturer's warranty.

- ▶ Use only original spare parts and accessories from the manufacturer.

#### Risk of scalding

There is a risk of scalding if the required DHW temperature is set higher than 60 °C.

- ▶ Do not draw off DHW unmixed.

#### Damage due to operator error

Operator errors can result in injury and damage to property.

- ▶ Ensure that children never operate this appliance unsupervised or play with it.
- ▶ Ensure that only personnel who can operate this appliance correctly have access to it.
- ▶ Installation and commissioning as well as servicing and maintenance must only be carried out by a qualified contractor.
- ▶ Before unpacking the device touch a radiator or an earthed metal water pipe to discharge any electrostatic charge in your body.

#### Risk to life from electric shock

- ▶ Ensure that any electrical work is only carried out by an approved electrician.
- ▶ Observe the relevant requirements when working on electrical installations.
- ▶ Ensure that a circuit breaker in accordance with applicable standards is present to disconnect all poles from the mains power supply. If there is no circuit breaker, you will need to install one.
- ▶ Before opening the control unit, isolate all poles of the heating system via the circuit breaker. Secure against unintentional reconnection.

#### System damage through frost

When the heating system is switched off, it can freeze up if there is frost.

- ▶ Protect your heating and water system against freezing by draining the heating system and hot water pipes at the lowest point.

## 2 Product information

These service instructions contain important information on the safe and appropriate commissioning and servicing of the Logamatic 4323 control unit.

These service instructions are designed for heating contractors, who, due to their vocational training and experience, – are knowledgeable in handling heating systems and water installations. Only carry out servicing if you have such specialist knowledge and skills.

Explain to the customer the function and operation of the appliance.

### 2.1 Determined use

The Logamatic 4323 control unit is designed to control heating systems in multi-occupancy dwellings, housing complexes and other buildings.

### 2.2 EU Declaration of Conformity

The design and operation of this product conforms to the European Directives and the supplementary national requirements. Its conformity is confirmed by the CE designation.

You can view the product Declaration of Conformity on the Internet at [www.buderus.de/konfo](http://www.buderus.de/konfo) or request a copy from your local Buderus sales office.

## 2.3 Notes on commissioning



**DANGER:** Risk to life and of system damage through excessively high temperatures.

All parts directly or indirectly subject to high temperatures must be designed for use at such temperatures.

- ▶ Ensure that wiring and other lines are routed at a safe distance from hot boiler parts.
- ▶ Route wiring and other lines, if at all possible, in the wiring ducts provided or above the boiler insulation.

- ▶ Before switching the control unit on, check that its manual switches and those on the function modules are set to **AUT**.
- ▶ Enter the settings made during commissioning and the allocation of the heating circuits into the commissioning report in the operating instructions of the control unit.
- ▶ First switch on the control unit and then the boiler.
- ▶ To shut down, first switch off the boiler and then the control unit.
- ▶ Ensure that heat is transferred, otherwise the boiler will switch off and generate a fault condition.

## 2.4 Cleaning the control unit

- ▶ Only clean the control unit with a damp cloth.

## 2.5 Product description

The digital Logamatic 4323 control unit can be used as a stand-alone heating circuit controller with monitoring of the heat provision from a manually or externally heated buffer cylinder or, as a substation, for the demand-dependent control of a feed pump.

As standard, the unit includes the heating circuit control function (one heating circuit with actuator). It can be expanded by the addition of four function modules to suit the requirements of the heating system. For function extension, it can also be combined with other digital control units (e.g. Logamatic 4122) in an ECOCAN-BUS connection. In such cases, the Logamatic 4323 (as a stand-alone heating circuit controller) acts as a master control unit that monitors the manually or externally regulated heating of a buffer cylinder, and makes the stored heating energy available to connected consumers. As the substation in an ECOCAN BUS connection, the Logamatic 4323 control unit can communicate with a master boiler control unit that is part of a Logamatic 4000 control system.

## 2.6 Scope of supply

Included in the standard delivery:

- Digital Logamatic 4323 control unit with
  - CM431 controller module
  - Central module ZM433
  - MEC2 programming unit or boiler display and safety components
- FA outside temperature sensor
- Feed temperature sensor FZB

## 2.7 Technical data

### 2.7.1 Logamatic 4323 control unit

	Unit	4323
Dimensions B/H/L	mm	660/240/230
Operating voltage (at 50 Hz $\pm$ 4 %)	V	230 $\pm$ 10 %
Power consumption	VA	5
Control unit fuse	A	2 x 10
Maximum switching current		
• Heating circuit pump output	A	5
• Feed pump output		
Boiler circuit servomotor control	V	230
Servomotor runtime	sec	120 (adjustable 10 to 600)
Type of controller		Three-point stepper controller (PI characteristics)
Ambient temperatures		
• Operation	°C	+5...50
• Transport		-20...55

Table 2 Technical data for Logamatic 4323 controller

Sensor	lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FA outside temp.	-50	-40	50	> 70
FZB system flow temp.	< -5	0	99	> 125
FV flow temp. HC 0	< -5	0	99	> 125

Table 3 Sensor measuring range

### 2.7.2 FM441 function module

	Unit	Value
Operating voltage (at 50 Hz $\pm$ 4 %)	V	230 $\pm$ 10 %
Power consumption	VA	2
Control unit fuse	A	10
Maximum switching current	A	5
• Cylinder primary pump output		
• Circulation circuit pump output		
• Heating circuit pump output		
Heating circuit actuator control	V	230
Servomotor runtime	sec	120 (adjustable 10 – 600)
Type of controller	–	Three-point stepper controller (PI characteristics)

Table 4 Technical data for FM441 function module

Sensor	lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FV flow temp. HC left	< -5	0	99	> 125
FB flow temp. HC right	< -7	0	99	> 125

Table 5 Sensor measuring range

## 2.7.3 FM442 function module

	Unit	Value
Operating voltage (at 50 Hz $\pm$ 4 %)	V	230 $\pm$ 10 %
Power consumption	VA	2
Maximum switching current - heating circuit circulation pump output	A	5
Heating circuit actuator control	V	230
Servomotor runtime	sec	120 (adjustable 10 – 600)

Table 6 Technical data for FM442 function module

Sensor	lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FV1 flow temp. HC left	< -5	0	99	125
FV2 flow temp. HC right	< -5	0	99	125

Table 7 Sensor measuring range

## 3 Controls and MEC2 programming unit

## 3.1 Control unit controls

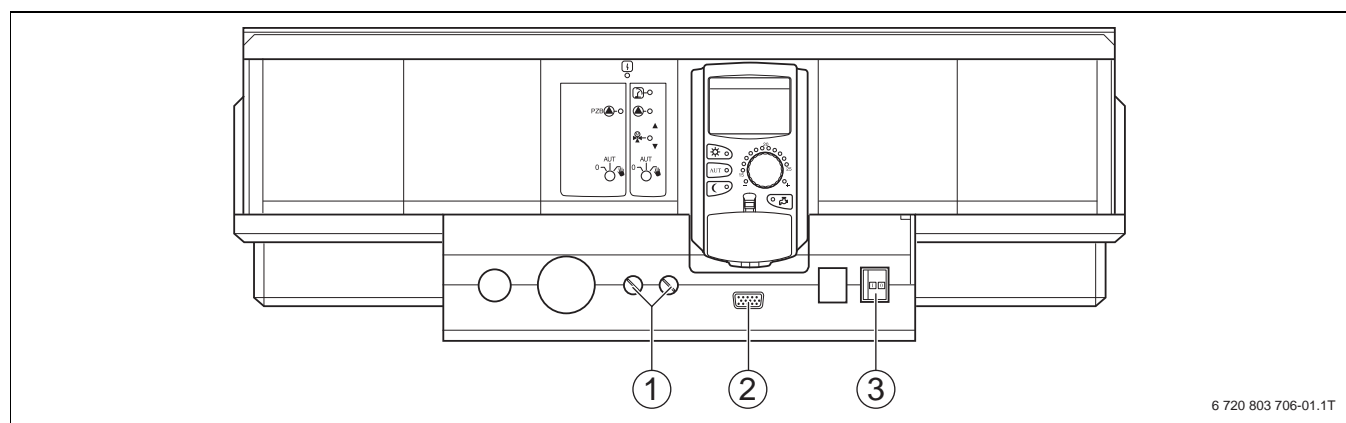


Fig. 1 Control unit controls (delivered condition)

- [1] F1, F2 Fuse
- [2] Connection for external service equipment
- [3] On/Off switch

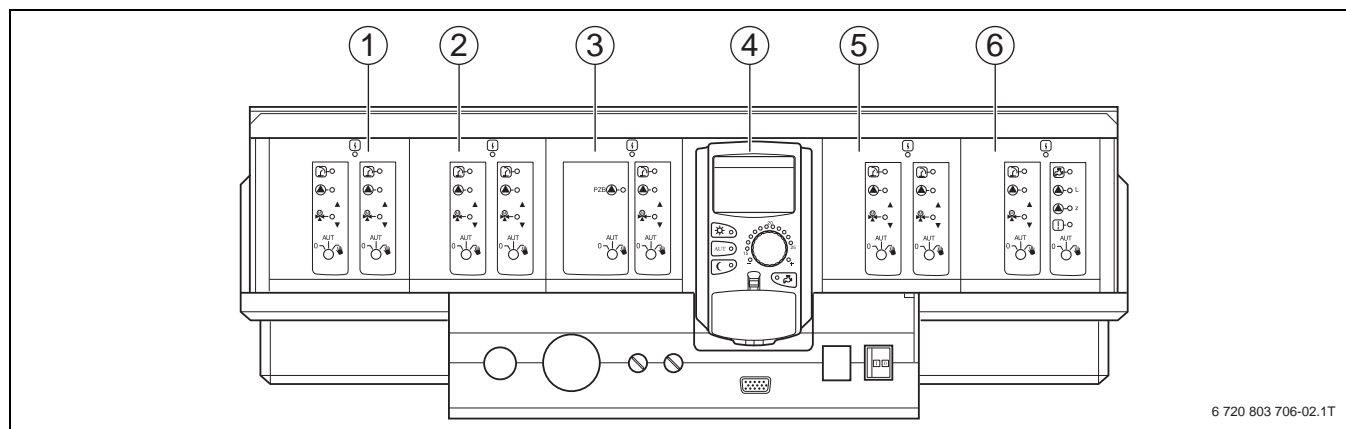


Fig. 2 Fitted modules

- [1] Slot 1: e.g. FM442 - heating circuit 1, heating circuit 2
- [2] Slot 2: e.g. FM442 - heating circuit 3, heating circuit 4
- [3] Slot A: ZM433 - feed for external heat sources, heating circuit 0
- [4] Slot B: CM431 module and MEC2 programming unit
- [5] Slot 3: e.g. FM442 - heating circuit 5, heating circuit 6
- [6] Slot 4: e.g. FM441 - heating circuit 7, DHW/DHW circulation pump or heating circuit 7, heating circuit 8 (with module FM442 in slot 4)



## 4 Modules and their function

All modules which are or can be fitted into the Logamatic 4323 control units are shown here.

module	4323
MEC2 programming unit	O
CM431 controller module	O
ZM433 central module – feed for external heat sources + heating circuit	O
FM441 function module <sup>1)</sup> – 1 heating circuit + 1 DHW circuit	X
FM442 function module – 2 heating circuits	X
FM443 function module – solar circuit	X
FM444 function module – alternative heat source	X
FM445 function module <sup>1)</sup> – LAP/LSP (primary system)	X
FM446 function module – EIB interface	X
FM448 function module <sup>2)</sup> – central fault message	X
FM456 function module <sup>3)</sup> – KSE2 (cascade- 2 boilers)	
FM457 function module <sup>3)</sup> – KSE4 (cascade- 4 boilers)	X
FM458 function module <sup>2)3)</sup> – strategy module	X

Table 8 Modules and their functions

- 1) Only one DHW module is permitted per control unit.  
 2) Module FM458 must not be fitted together with module FM448 in one control unit.  
 3) Module FM458 must not be fitted together with module FM456/FM457.

- [O] Standard equipment  
 [X] Optional equipment

### 4.1 CM431 controller module

#### Setting the control unit address

Address settings [1] for the Logamatic 4323 control unit are made on the CM431 module (behind the MEC2 programming unit).

- Remove the MEC2 programming unit.
- You can now set the control unit address using a screwdriver or similar tool.

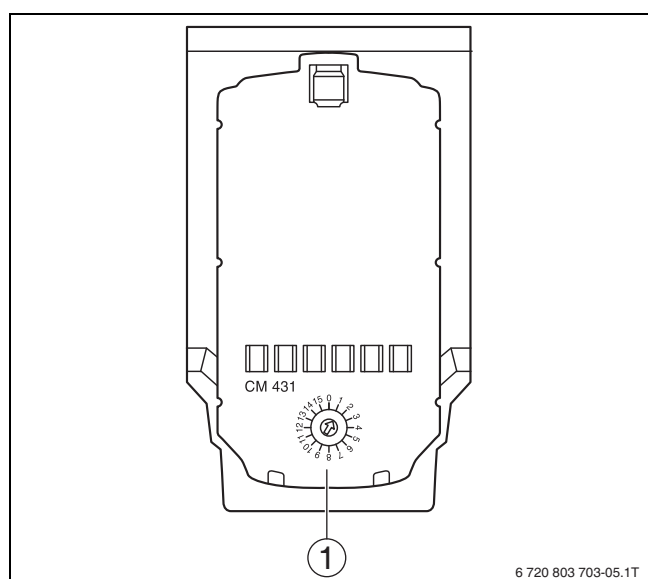


Fig. 4 Address setting

[1] Address setting

Address	Description
0	Stand-alone control unit: Set the address to 0 if the control unit operates as stand-alone equipment (factory setting).
	Each connected device must be given a different address if several devices are networked. A fault message is displayed by the MEC2 programming unit if the same address is allocated more than once.
1	Master (lead control unit): Address 1 is a special setting since the device with this address acts as the master device. The master controls the boiler. The outside temperature sensor must always be connected to the master. The master monitors the ECOCAN BUS, which links the control units. The master recognises if an address has been allocated more than once. A fault message is displayed by the MEC2. All networked control units transfer their set values to the master, which uses them to formulate the overall set value. <b>Any network must only include one master.</b>
2 – 15	Slave (subordinate control unit): All devices with these addresses are described as slaves. No slave may ever have address 1. Each address must only be allocated once. Not applicable to Logamatic 4323 control unit.

Table 9 Control unit addresses

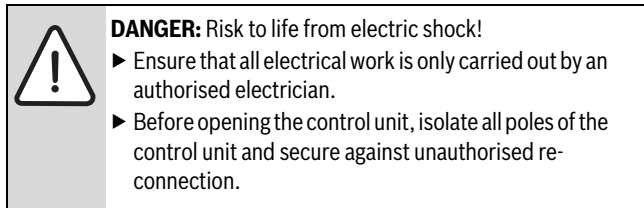


The outside temperature sensor (FA) and the system flow sensor (FK) in conjunction with the Logamatic 4323 control unit must always be connected to the left-hand FM456, FM457 or FM458 cascade module (if installed). If there is no cascade module installed, plug both sensors into the ZM433 central module (system flow sensor at the FZB).



## 4.2 NM482 power supply module

### Jumper settings when networking several control units



To ensure fault free data transmission between several control units, close the jumper to the two control units which are furthest apart. The jumper is fitted to the component side of the NM482 power supply module, and is switched on by closing the jumper [2].

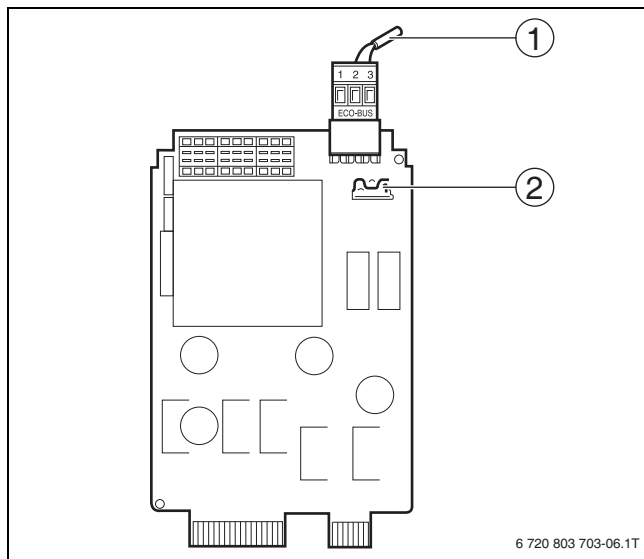
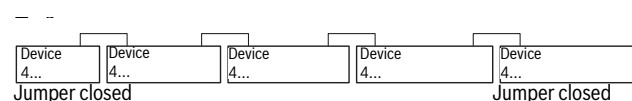


Fig. 5 NM482 power supply module

- [1] ECOCAN BUS
- [2] Jumper S1  
factory setting: open

The factory setting is: jumper S1 open = not an end node.



6 720 803 703-07.1T

Fig. 6 Example of jumper settings in case of several control units

## 4.3 ZM433 burner and boiler circuit module

The ZM433 module regulates one feed pump to transfer heat, in case of demand, from the external heat sources to the heating system. This module also controls one heating circuit with mixer.

The manual switches on the module have service and maintenance functions and only affect 230 V outputs.

If the manual switches are not set to automatic, a corresponding message appears on the MEC2 programming unit and the Fault indicator [1] illuminates.



Never use the manual switch to shut down the heating system during temporary absence. Use the holiday function for this purpose (→ operating instructions for control unit).

The control functions continue to operate in manual mode with restricted functionality.

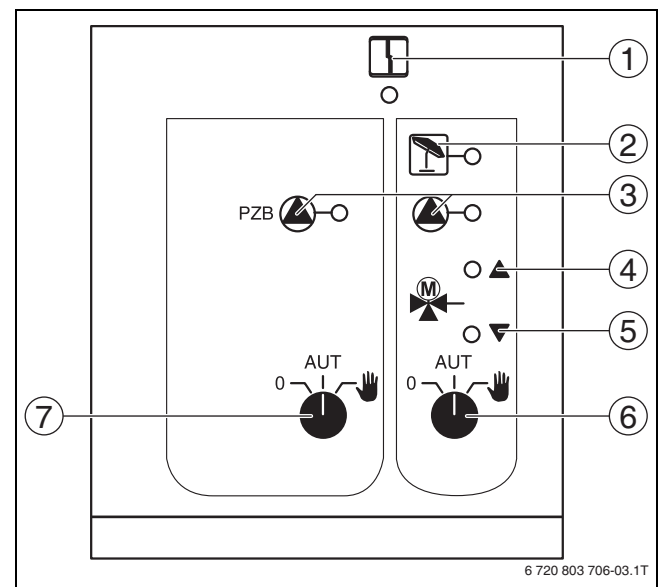


Fig. 7 ZM433

- [1] General fault, e.g. on-site faults, sensor faults, external faults, wiring faults, internal module faults, manual mode. The fault messages appear as plain text on the MEC2 programming unit.
- [2] Heating circuit in summer mode
- [3] Feed or heating circuit pump active
- [4] "Mixer opens" (hotter)
- [5] "Mixer closes" (colder)
- [6] Manual switch – heating circuit 0
- [7] Manual feed pump switch



For information regarding the sensor connection, see → chapter 4.1, page 8.

## 4.3.1 Feed function



In normal operation, the manual switch is set to **AUT.**

Positions **0** and **Manual** are special settings of the manual switch for the feed pump (→ fig. 7, [6], page 9) reserved for contractors.



Current functions are indicated by LEDs.

Position	Function
	The feed pump is switched on.
	The feed pump operates in automatic mode.
	The feed pump is switched off. The control functions remain active.

Table 10 ZM433 feed functions

## 4.3.2 Heating circuit functions



In normal operation, the manual switch is set to **AUT.**

Positions **0** and **Manual** are special settings of the manual switch of the boiler circuit (→ fig. 7, [6], page 9) reserved for contractors.



Current functions are indicated by LEDs.

Position	Function
	The heating circuit pump is switched on. The mixer is switched volt-free and can be manually operated.
	The heating circuit operates in automatic mode.
	The heating circuit pump is switched off. The mixer is switched volt-free. The control functions remain active.

Table 11 ZM433 heating circuit functions

## 4.3.3 U terminals 1 – 4

External set values can be received or issued via the U terminals of the ZM433 central module.



To avoid generating undefined input values, voltages greater than 10 V must not be applied to the 0 – 10 V input.

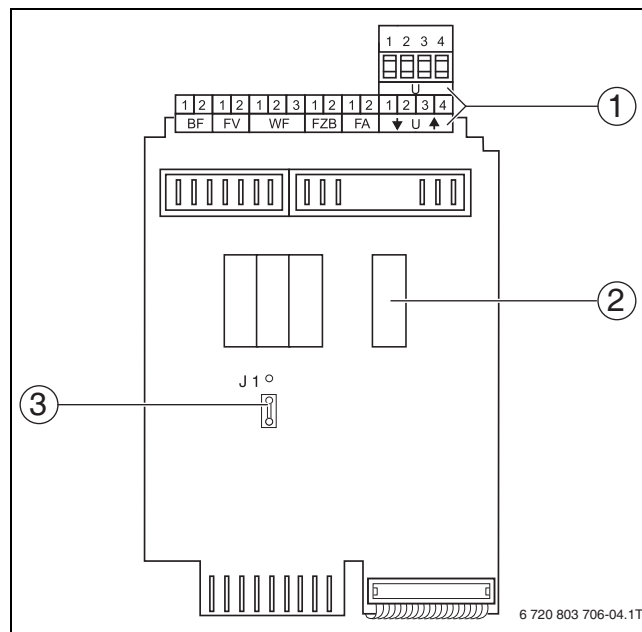


Fig. 8 ZM433 (view from the back)

- [1] U terminals
- [2] Relays
- [3] J1 strapping plug (factory setting 0 – 10 V)

**U terminals 1 and 2 (+), 0 – 10 V input**

Via terminals U 1 and U 2 on the ZM433 central module, a 0 – 10 V signal can be externally applied to provide a set value.

This set value represents a further external heat demand. Higher set values, e.g. from heating circuits, continue to be taken into consideration.



Where required, the curves can be adapted (→ chapter 7.7, page 19).

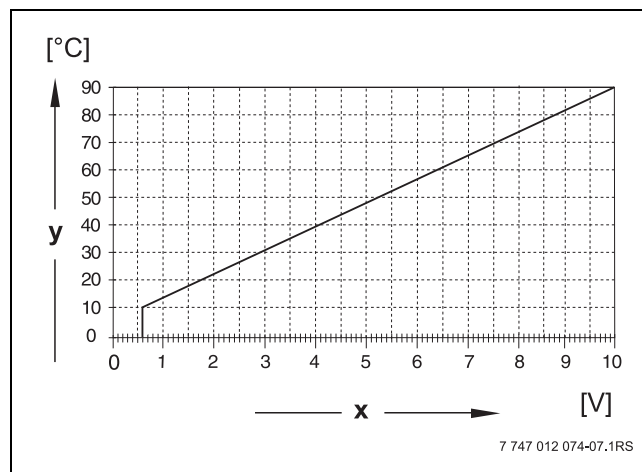


Fig. 9 U terminals 1 and 2

- [x] 0 – 10 V input in V (factory setting)
- [y] Set flow temperature in °C

### U terminals 3 (-) and 4 (+), 0 – 10 V output

Via terminals U 3 and U 4 on the ZM433 central module, a 0 – 10 V signal can be supplied externally to provide a set value. This would be the maximum system flow temperature for all connected heating circuits.

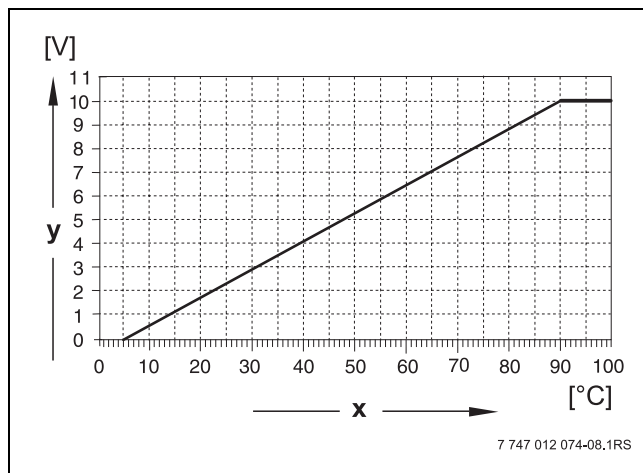




Fig. 10 U terminals 3 and 4

[x] Set flow temperature in °C (factory setting)

[y] 0 – 10 V input in V

### Strapping plug J1

Alternatively, the set value can also be issued as 0 – 20 mA signal. The J1 strapping plug (jumper) should then be repositioned from  to .

### 4.4 FM441 function module (accessory)

The FM441 module regulates one heating circuit and one DHW heating facility.

The manual switches on the module only have service and maintenance functions and only affect 230 V outputs.

Only fit this module in the control unit once.

If the manual switches are not set to automatic, a corresponding message appears on the MEC2 programming unit and the **Fault** indicator (→ fig. 11, [1]) illuminates.



Never use the manual switch to shut down the heating system during temporary absence. Use the holiday function for this purpose (→ see operating instructions for control units).

The control functions remain operational in manual mode without any restrictions.

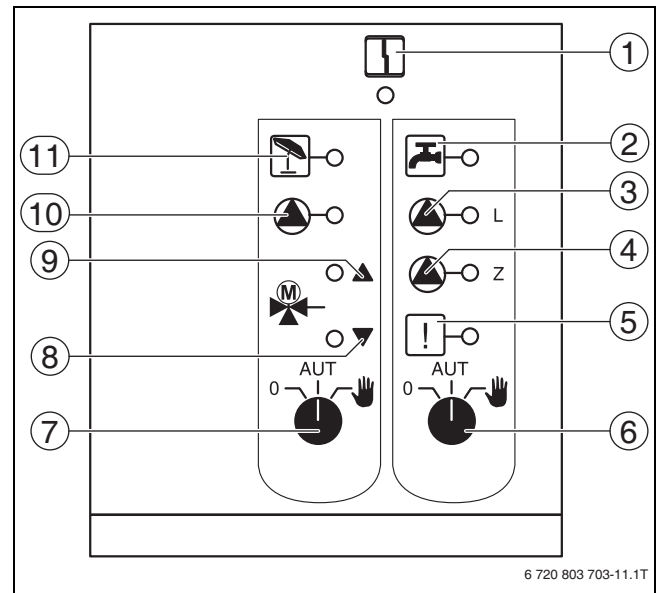


Fig. 11 FM441

- [1] General fault  
The error messages appear as plain text in the MEC2 programming unit.
- [2] DHW in night mode below the set temperature.
- [3] Cylinder primary pump operational
- [4] DHW circulation pump operational
- [5] Thermal disinfection enabled
- [6] DHW manual switch
- [7] Manual heating circuit switch
- [8] "Mixer closes" (colder)
- [9] "Mixer opens" (hotter)
- [10] Heating circuit pump operational
- [11] Heating circuit in summer mode

### Heating circuit and DHW function



In normal operation the manual switch should be in the **AUT** position.



Current functions are indicated by LEDs.

Positions **0** and **Manual** are special settings of the heating circuit manual switch (→ fig. 11, [7], page 11) and DHW manual switch (→ fig. 11, [7], page 11) reserved for contractors.

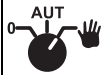
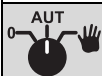

Position	Function
	The heating circuit pump or primary pump is switched on. The mixer is switched volt-free and can be manually operated. The circulation pump is switched OFF.
	The heating circuit/DHW circuit operates in automatic mode.
	The heating circuit pump or cylinder primary pump as well as the DHW circulation pump are switched off. The mixer is switched volt-free. The control functions remain active.

Table 12 Heating circuit and DHW functions FM441

### 4.5 FM442 function module (accessory)

The FM442 module regulates two independent heating circuits with mixer. Several of these modules can be used in one control unit.

The manual switches on the module only have service and maintenance functions and only affect 230 V outputs.

If the manual switches are not set to automatic, a corresponding message appears on the MEC2 programming unit and the **Fault** indicator illuminates.



Never use the manual switch to shut down the heating system during temporary absence. Use the holiday function for this purpose (→ see operating instructions for control units).

The control functions remain operational in manual mode without any restrictions.

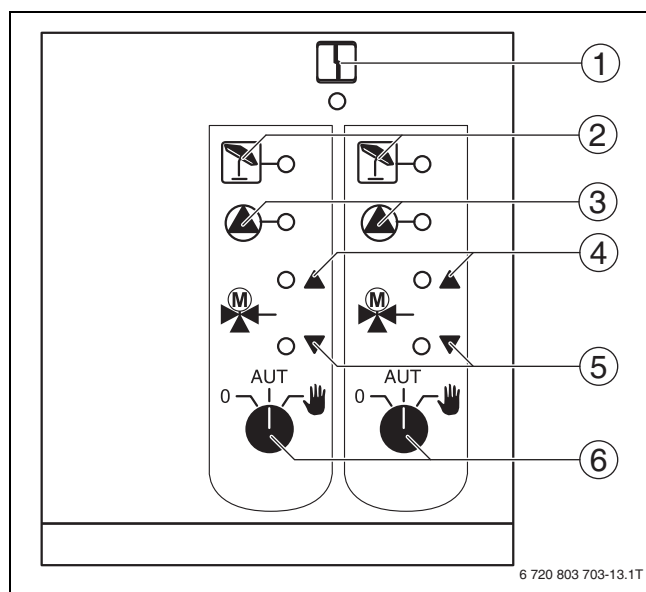


Fig. 12 FM442

- [1] General fault,  
e.g. on-site faults, sensor faults, external faults, wiring faults,  
internal module faults, manual mode. The fault messages appear  
as plain text on the MEC2 programming unit.
- [2] Heating circuit in summer mode
- [3] Heating circuit pump operational
- [4] "Mixer opens" (hotter)
- [5] "Mixer closes" (colder)
- [6] Manual heating circuit switch  
e.g. for heating circuit 1 and 2

### Heating circuit function



In normal operation the manual switch should be in the **AUT** position.

Positions **0** and **Manual** are special settings of the manual switch for the heating circuit (→ fig. 12, page[6]) reserved for contractors.



Current functions are indicated by LEDs.

Position	Function
	The heating circuit pump is switched on. The mixer is switched volt-free and can be manually operated.
	The central heating or the DHW circuit operates in automatic mode.
	The heating circuit pump is switched off. The mixer is switched volt-free. The control functions remain active.

Table 13 FM442 heating circuit functions

## 5 Commissioning the MEC2 programming unit

You can use the MEC2 programming unit for all Logamatic 4000 control units.

The MEC2 programming unit can be installed as follows:

- directly in the control unit
- wall-mounted as remote control unit or
- in an adapter with separate power source.

The MEC2 commences initialisation after a power supply has been connected. The display shows **MEC is initialised**.

The control unit address is then briefly displayed.

The display shows **Connection with control unit address XX established**.



If the MEC2 is fitted in the control unit or wall retainer, it automatically detects the control unit to which it is connected (automatic detection). You do not have to select the control unit.

Depending on the individual application, the display shows various information:

### 5.1 Ex works MEC2 installed in a control unit

If a brand new MEC2 has been installed in the control unit and the connections with the control unit have been established, data is immediately downloaded from the control unit.

The display shows **Monitor data are taken from ctrl unit**.

### 5.2 MEC2 installed in another control unit

If the MEC2 is programmed with a software version that is not able to recognise this type of control unit, the display shows **Unknown control unit**.

- Remove the MEC2 from the control unit and replace by an MEC2 with a suitable software version.

### 5.3 MEC2 with set parameters installed in control unit

After the MEC2 has been installed in the control unit, the two displays **MEC is initialised** and **Connection with control unit address XX established** will initially be shown again.

#### 5.3.1 Alternative control unit type

Initially, only data from the control unit can be downloaded, if the type of control unit varies from that entered in the MEC2 programming unit. The display shows **Other Ctrl. unit type, Night button receive**.

- Press the **Night mode** button.

The display shows **Data are from control unit take**.

#### 5.3.2 Alternative control unit of the same type

If the MEC2 is connected to a different control unit of the same type, the display will show the message **NB Other control unit** for approx. 3 seconds.

If the MEC2 programming unit is separated from the control unit and data is modified, the display shows **Aut button transmit, Night button receive**, when the unit is reinstalled into a control unit of the same type. The control unit scans whether the new data should be accepted or whether the old data from the control unit should be used again.

To adopt the new data:

- Press **AUT**.

The display shows **Data are sent to ctrl unit**.

To adopt the data from the control unit:

- Press the **Night mode** button.

The display shows **Data are from control unit take**.

#### 5.3.3 Identical control unit

If the MEC2 programming unit is separated from the control unit and data is also modified, the display shows **Aut button transmit, Night button receive**, when the unit is reinstalled in the same control unit. The control unit scans whether the new data should be accepted or whether the old data from the control unit should be used again.

To adopt the new data:

- Press **AUT**.

The display shows **Data are sent to ctrl unit**.

To adopt the data from the control unit:

- Press the **Night mode** button.

The display shows **Data are from control unit take**.

## 6 Settings

### 6.1 Adjustable parameters and display data

Some options are only displayed subject to the installed modules and prior settings.

<b>Gen. parameters</b> <ul style="list-style-type: none"> <li>Minimum outside temperature</li> <li>Type of building</li> <li>Summer/winter time adjustment</li> <li>Remote adjustment</li> <li>Heat yield</li> <li>Level limit transducer</li> <li>Switch fault message</li> <li>Automatic maintenance message</li> </ul>	<b>Heating circ. 1</b> <ul style="list-style-type: none"> <li>Heating system</li> <li>Heat circ. design</li> <li>Low end temp.</li> <li>Design temperature</li> <li>Minimum flow temperature</li> <li>Maximum flow temperature</li> <li>Remote control</li> <li>Maximum room infl.</li> <li>Setback type</li> <li>Hold if cold</li> <li>Holiday setback type</li> <li>No setback below ...</li> <li>Flow setback</li> <li>Room temperature offset</li> <li>Autom. adaptation</li> <li>Switching optimisation</li> <li>Shutdown optimisation</li> <li>Frost prot. from</li> <li>DHW priority</li> <li>Servomotor</li> <li>Servomotor runtime</li> <li>Boil. raising</li> <li>External Day/Night/Aut</li> <li>External fault message, pump</li> <li>Screed drying</li> <li>Screed temperature rise</li> <li>Screed heat-up time</li> <li>Maximum screed temperature</li> <li>Maximum screed time</li> <li>Screed setback temperature</li> <li>Screed setback time</li> </ul>	<b>Special parameters</b> <ul style="list-style-type: none"> <li><b>Heating characteristic curve</b> <ul style="list-style-type: none"> <li>Heating curve boiler p.circuit</li> <li>Heating curve heating circ. 1</li> <li>Heating curve heating circ. 2</li> <li>Heating curve heating circ. 3</li> <li>Heating curve heating circ. 4</li> <li>Heating curve heating circ. 5</li> <li>Heating curve heating circ. 6</li> <li>Heating curve heating circ. 7</li> <li>Heating curve heating circ. 8</li> </ul> </li> <li><b>Relay test</b> <ul style="list-style-type: none"> <li>Boiler</li> <li>Heating circ. 1</li> <li>Heating circ. 2</li> <li>Heating circ. 3</li> <li>Heating circ. 4</li> <li>Heating circ. 5</li> <li>Heating circ. 6</li> <li>Heating circ. 7</li> <li>Heating circ. 8</li> <li>DHW</li> <li>Strategy</li> </ul> </li> <li><b>LCD test</b></li> <li><b>Error</b></li> <li><b>Monitor</b> <ul style="list-style-type: none"> <li>Boiler</li> <li>Heating circ. 1</li> <li>Heating circ. 2</li> <li>Heating circ. 3</li> <li>Heating circ. 4</li> <li>Heating circ. 5</li> <li>Heating circ. 6</li> <li>Heating circ. 7</li> <li>Heating circ. 8</li> <li>DHW</li> </ul> </li> <li><b>Version</b></li> <li><b>Control unit</b></li> <li><b>Reset</b> <ul style="list-style-type: none"> <li>Setting for control unit</li> <li>Burner operating hours</li> <li>Fault log</li> <li>Maximum flue gas temperature</li> <li>Heat yield</li> <li>maint. message</li> </ul> </li> </ul>
<b>Module selection</b> <ul style="list-style-type: none"> <li>Slot A</li> <li>Slot 1</li> <li>Slot 2</li> <li>Slot 3</li> <li>Slot 4</li> </ul>	<b>Boiler param.</b> <ul style="list-style-type: none"> <li>Boiler type</li> <li>Fuel</li> <li>Return control</li> <li>Servomotor runtime</li> <li>Return increase funct.</li> <li>EcoStream control</li> <li>Type of burner</li> <li>Maximum boiler output</li> <li>Minimum boiler output</li> <li>Maximum boiler output, oil fired</li> <li>Minimum boiler output, oil fired</li> <li>Sequence change after ... Hours</li> <li>Minimum modulation output</li> <li>Modulation via ...</li> <li>Burner set Motor runtime</li> <li>Communication burner control</li> <li>Load limit from outside temperature</li> <li>Boiler pump function</li> <li>Boiler pump overrun time</li> <li>Minimum burner operating time</li> <li>Pump logic temperature</li> <li>Minimum starting temperature</li> <li>Maximum cut-off temperature</li> <li>Flue gas temperature limit</li> <li>Reset maximum flue gas temperature</li> <li>Boiler curve</li> <li>Low end temp.</li> <li>Design temperature</li> <li>Setback by</li> </ul>	<b>Heating circuits 2, 3, 4, etc. see heating circuit 1</b>
	<b>DHW</b> <ul style="list-style-type: none"> <li>DHW Yes/No</li> <li>DHW range to</li> <li>Switching optimisation</li> <li>Residual heat use</li> <li>Hysteresis</li> <li>Boiler raising</li> <li>External fault message WF1/WF2</li> <li>External contact WF1/WF2</li> <li>Thermal Disinfection</li> <li>Temperature thermal disinfection</li> <li>Weekday thermal disinfection</li> <li>Time thermal disinfection</li> <li>Daily heat-up</li> <li>DHW circulation (switch-on frequency per hour)</li> </ul>	

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Fig. 13 Adjustable parameters and display data

## 6.2 Calling up the service level



Access to the Service level is password protected. The Service level is only intended for heating contractors.



Unauthorised access to the service level invalidates your warranty.

- ▶ Press buttons **Display**, **Heating circuit** and **Temp** simultaneously and release.

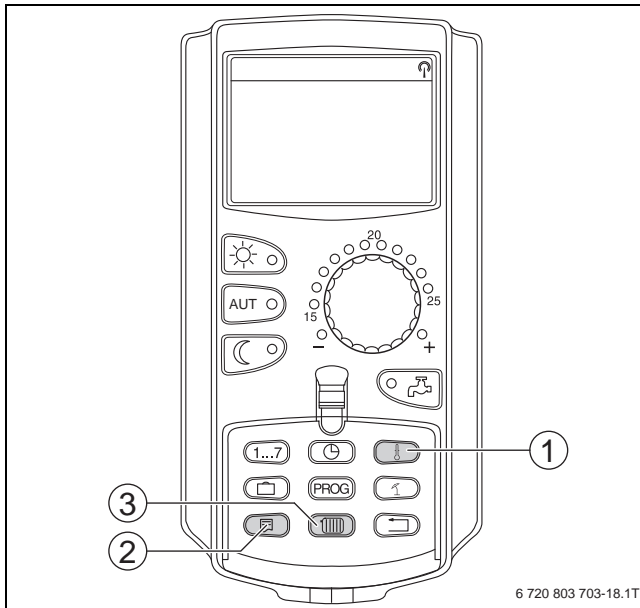


Fig. 14 Calling up the service level

- [1] Temp. key
- [2] Display key
- [3] Heating circuit key

The service level is enabled and the display shows:



Fig. 15 Service level

### 6.2.1 Control system "Press and turn"

The control unit is operated by pressing the buttons and turning the rotary selector.

The Service level is split over several main menu levels. If the last line is left blank (without value entry), there are further submenus connected with the main menu selected.

### 6.2.2 Calling up main menus

The rotary selector is used to scroll through the main menu. The main menus are structured as a loop and recommence after the last main menu.

- General param.
- Module selection
- ...
- General param.

### 6.2.3 Calling up submenus

- ▶ Turn the rotary selector until the main menu containing the submenu is highlighted.
- ▶ Press button **Display**.  
The submenu is shown.
- ▶ Turn the rotary selector to access all submenus of the main menu.

## 6.3 Calling up and modifying settings



The menus shown on the MEC2 programming unit of the control unit depend on the modules that have been installed and the settings that have been made.

- ▶ Calling up the service level (→ chapter 6.2, page 15).  
The first main menu is **General data**.
- ▶ Press **Display** to call up a submenu.  
The display shows the selected submenu.
- ▶ Press and hold **Display**.
- ▶ Turn the rotary selector to the required value.  
The display shows the set value.
- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

To return to the standard display:

- ▶ Press **Back** several times.



The control unit automatically reverts to the standard display if no key is pressed for some time or if the flap is shut.

## 7 General specification data



In the **General param.** main menu, values can be adjusted for the submenus listed above and the building characteristics. The following pages explain how to adjust values relating to the submenus.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until the required submenu is shown.  
Turn the rotary selector to scroll through the following submenus:
  - Minimum outside temperature
  - Type of building
  - Summer/wintertime changeover
  - Remote adjust.
  - Manual switch fault message
  - Automatic maint. message
  - 0 – 10 V input
- ▶ Press button **Display** to call up a submenu.  
The display shows the selected submenu, and settings can be made.

### 7.1 Minimum outside temperature

The minimum outdoor temperature is an average value of the lowest outdoor temperatures of the past years and characterises together with the design temperature the end point of the heating curve.

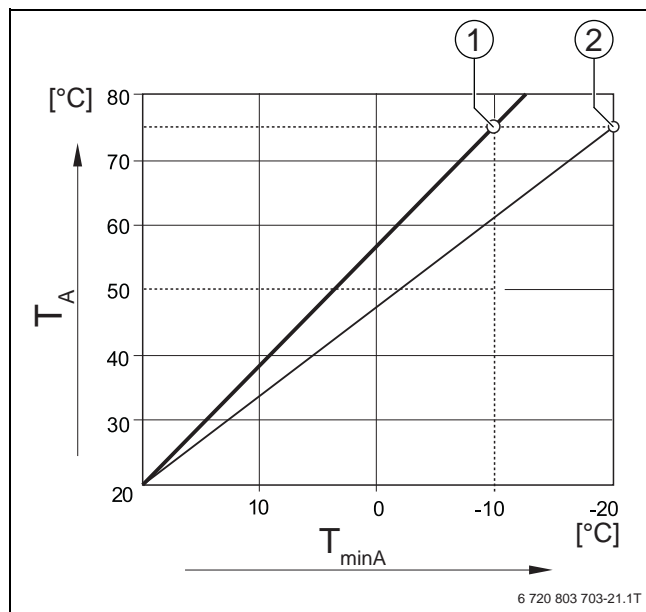


Fig. 16 Heating curve adjustment: Adjustment of gradient via design temperature and minimum outside temperature

[ $T_{\min A}$ ] Minimum outside temperature

[ $T_A$ ] Design temperature (flow temperature that should be achieved at min. outside temperature)

- [1] Adjustment: Design temperature 75 °C, minimum outside temperature -10 °C (standard curve)
- [2] Adjustment: Design temperature 75 °C, minimum outside temperature -20 °C



The minimum outside temperature for your region (average value) is stated in tab. 15. If your particular region is not shown in the table, set an average value between the two cities closest to you or take the value from the heat demand calculation for your building.

- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Min. outdoor temp** appears.

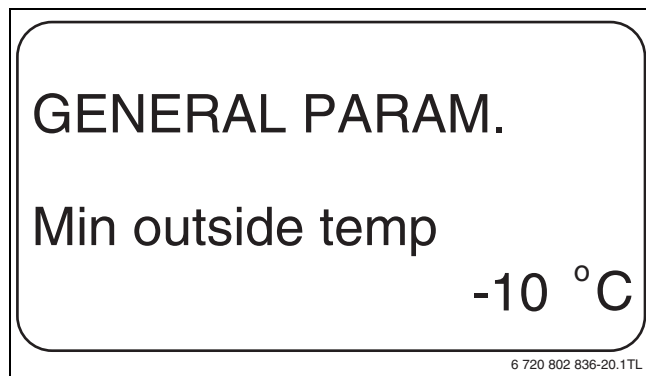


Fig. 17 Minimum outdoor temperature

- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.
- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Minimum outside temperature	-30 °C – 0 °C	-10 °C

Table 14 Setting range Minimum outside temperature

Town	Minimum outside temperature in C °C
Athens	-2
Berlin	-15
Brussels	-10
Budapest	-12
Bucharest	-20
Frankfurt/M	-14
Hamburg	-12
Helsinki	-24
Istanbul	-4
Copenhagen	-13
Lisbon	0
London	-1
Madrid	-4
Marseilles	-6
Moscow	-30
Munich	-16
Naples	-2
Nice	0
Paris	-10
Prague	-16
Rome	-1
Sevastopol	-12
Stockholm	-19
Valencia	-1
Vienna	-15
Zurich	-16

Table 15 Minimum outside temperature in Europe



## 7.2 Type of building

In the **Type of building** submenu, the heat storage capacity of the building is entered. Different types of construction have different heat storage capacities. This function sets the heating system to the specified construction type.

The heat storage capacity is divided into three categories.

Class	Explanation
light	heat storage capacity e.g. prefabricated building, wood-frame construction
medium	medium heat storage capability, e.g. building built with breeze blocks
heavy	heat storage capacity e.g. brick building

Table 16 Heat storage capacity

- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Type of building** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.
- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Type of building	medium heavy light	medium

Table 17 Setting range Building type

## 7.3 Summer/wintertime changeover

Three different date and time setting options are available for all connected control units:

Setting options	Explanation
Radio clock	The adjustment is made completely automatically by the radio time signal.
Automatic	Date and time input with keypad. The change from summer to wintertime and vice versa is made automatically on the last weekend in March and October.
Manual	Single date and time input via keypad. There will be no automatic summer/wintertime adjustment.

Table 18 Setting options Date and time



The MEC2 contains a radio clock receiver, which constantly monitors and corrects the time switch inside the control unit. You never need to set the time during commissioning, after prolonged power failure, after the heating system has been switched off for longer periods on its mains electrical isolator or for changing from summer to wintertime and vice versa.  
Well screened boiler rooms in cellars can restrict the reception of the radio clock signal, which makes it necessary for you to set the date and time manually.



Never enable the "Radio clock" function outside Germany.

When using the MEC2 as a remote control, the reception of the radio time signal depends on location and position. Reception of the radio clock signal is indicated by a symbol on the display (→ fig. 3, [1], page 7). Normally, reception is possible within a radius of approx. 1000 miles around Frankfurt/Main [Germany].

In case of reception problems, please observe the following:

- The radio reception is weaker in rooms surrounded by steel-reinforced walls, cellars, high-rise buildings etc.
  - Maintain a minimum distance of 1.5 m from sources of interference, such as computer monitors and TV sets.
  - The radio reception tends to be better at night than during the day.
- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Summer / Winter Time changeover** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

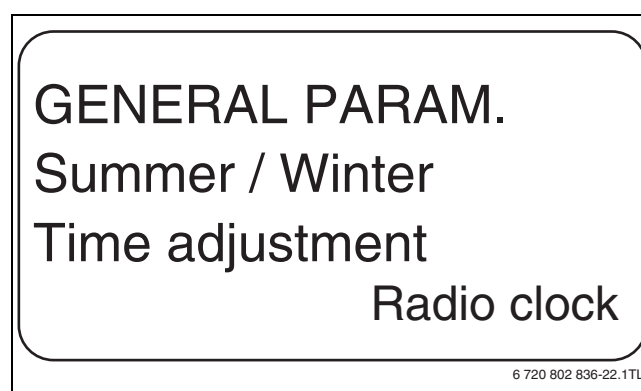


Fig. 18 Summer/wintertime changeover

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.



If **Radio clock** is not selected, the reception of the atomic clock signal will be turned off for all networked control units. This also applies to the radio time signals of the BFU/F remote control and other MEC2 programming units with radio clock reception. The last input at a control unit in the network is valid.

	Input range	Factory setting
Summer/winter Time changeover	Radio clock automatic manual	Automatic

Table 19 Setting range Summer/wintertime changeover

## 7.4 Remote adjustment

The remote adjustment offers the option of external data input or modification via telecontrol systems, such as the Logamatic telecontrol system.

Setting options	Explanation
yes	Optional remote adjustment e.g. via Logamatic telecontrol system.
no	Remote adjustment is not possible, but system data can be downloaded and monitored.

Table 20 Setting options Remote adjustment

- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Remote adjust.** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.
- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

**i** This parameter cannot be adjusted via the telecontrol system; it is only intended to be used in situ.

	Input range	Factory setting
Remote adjust.	Yes No	yes

Table 21 Setting range Remote adjustment

## 7.5 Manual switch fault message

A fault message can be shown in the display of the MEC2 programming unit if a manual switch of a function module is set to **Manual**.

- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Fault message manual control** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

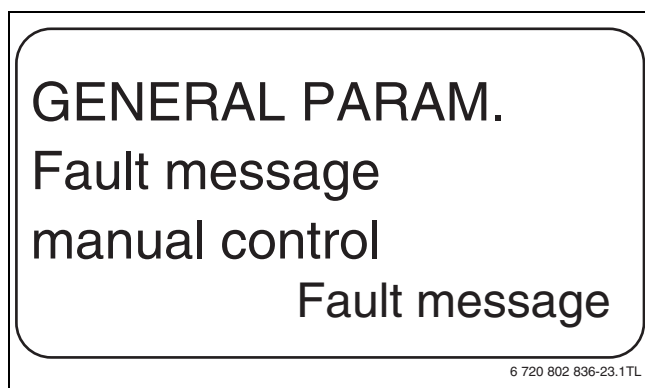


Fig. 19 Manual switch fault message

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.



If **No** is shown, a warning notice appears if the flap is closed.

If **Fault message** is shown an entry also appears in the fault log. Automatic forwarding via the Logamatic telecontrol system is then possible.

In the case of **Central fault message**, the output of a central fault message also appears via a zero volt contact e.g. via the FM448 function module.

	Input range	Factory setting
Manual switch fault message	No Fault message central fault message	no

Table 22 Setting range Manual switch fault message

## 7.6 Automatic maintenance message

At the user level an automatic maintenance message can be made to appear on the MEC2 programming unit display.

The following settings are possible:

- Maintenance message by date. Entry of the next service date (01.01.2000 – 31.12.2088).
- Maintenance after hours (only for control units with direct boiler control).



The maintenance message "after hours run" is not possible with this control unit.

- Call up the service level.  
The first main menu is **General param.**
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **automatic maint. message** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

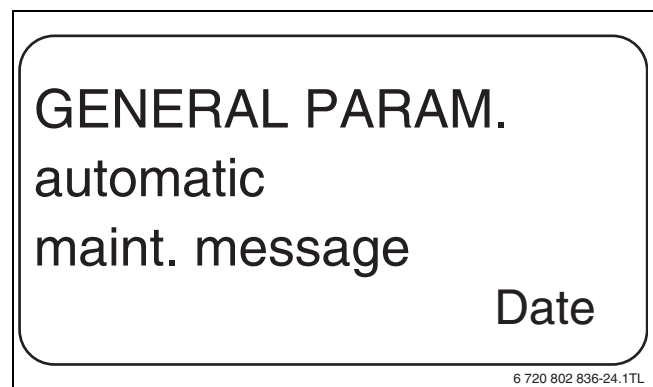


Fig. 20 Automatic maint. message

- Release **Display** to save your input.
- Turn the rotary selector one increment clockwise.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

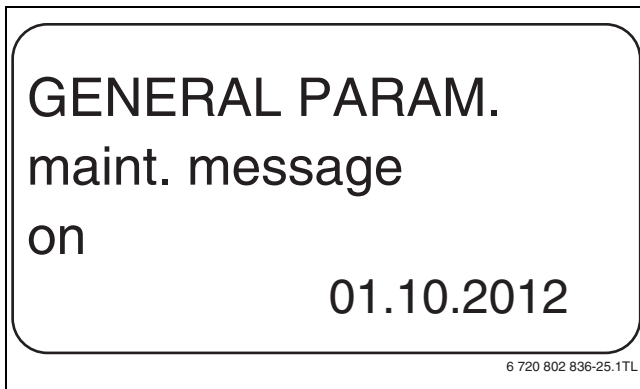


Fig. 21 Setting the automatic service date

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.



The maintenance message is recorded in the fault log and can be transferred via the telecontrol system.

The status of the maintenance message can be checked in the **Monitor** menu. The maintenance message can be reset using the **Reset** menu.

	Input range	Factory setting
automatic maintenance message	No Operating hours Date	no

Table 23 Setting range Automatic maintenance message

### 7.7 0 – 10 V input

As soon as a module with 0 – 10 V input has been fitted in the control unit, the following masks appear as listed in the table below:

module	Name	Temperature-based control	Output-based control
FM447	Strategy module	X	
FM448	Fault message module	X	
FM452	KSE 2 (UBA 1)	X	X (CM431 V6.xx or higher)
FM454	KSE 4 (UBA 1)	X	X (CM431 V6.xx or higher)
FM456	KSE 2 (EMS)	X	X (CM431 V6.xx or higher)
FM457	KSE 4 (EMS)	X	X (CM431 V6.xx or higher)
FM458	Strategy module	X	X (CM431 V8.xx or higher)
FM433	Substation	X	

Table 24 Masks for 0 – 10 V input module



This manual only describes temperature control.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Module selection** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **0 – 10 V input** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
0 – 10 V input	off Temp. control	Temp. control

Table 25 Setting range for 0 – 10 V input

### 7.8 Temperature control 0 – 10 V input

If you have selected "Temp. contr" for the 0 – 10 V input, you can adapt the start and stop point, if required, for the external 0 – 10 V input.

The following settings can be made:

- The set value in °C for 0 V (**Temp control 0V equiv to**)
- The set value in °C for 10 V (**Temp control 10V equiv to**).

The following linear curve is calculated from these values.

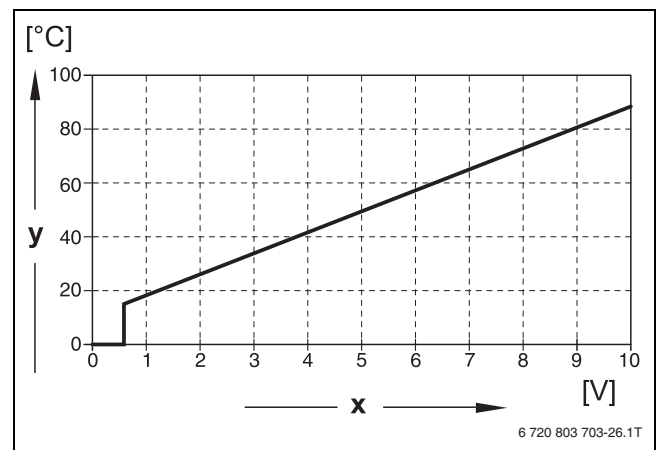


Fig. 22 U terminals 3 and 4

- [x] Input voltage in V (factory setting)
- [y] Set boiler temperature in °C

The start value (start point) of the curve is set to 0.6 V for a positive curve; fig. 22 shows the factory setting.

- Call up the service level.  
The first main menu is **General data**.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Temp control 0V equiv to** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

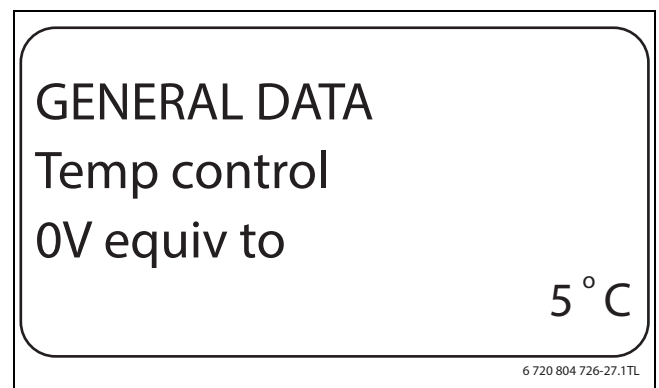


Fig. 23 Temperature control 0 V input

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.
- Turn the rotary selector until submenu **Temp control 10V equiv to** appears.

- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.  
The display shows the set value.

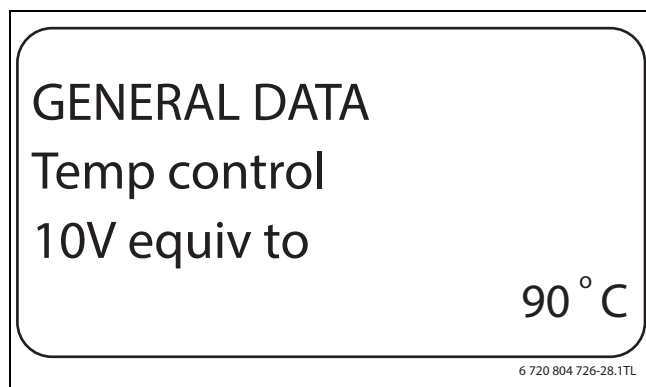


Fig. 24 Temperature control 10 V input

- ▶ Release **Display** to save your input.

	Input range	Factory setting
Temperature control 0 V	5 °C – 99 °C	5 °C
Temperature control 10 V	5 °C – 99 °C	90 °C

Table 26 Setting range for temperature control 0 – 10 V input



If a curve with a negative incline is programmed, e.g. 0 volt = 90 °C, ensure that all 0 – 10 volt inputs of a control unit are controlled. An open input corresponds to 0 V and thus to a heat demand of e.g. 90 °C. The demand should be set parallel at all inputs of a control unit, if applicable.

## 8 Module selection

On starting the control unit or after a system reset, the modules are automatically recognised and their information downloaded.

Example:

- Slot 1: FM442
- Slot 2, 3 and 4: free

However, these modules can also be set manually if required.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Module selection** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Pos. 1** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.



We recommend the setting **Function module none/auto**. The modules are automatically recognised and installed.

## MODULE SELECTION

Pos. 1

Function module

none/auto

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Fig. 25 Module selection

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

## 9 Heating circuit data

### 9.1 Adjusting the heating system

The following heating systems can be selected:

Heating system	Explanation
None	The heating circuit function is not required. All subsequent submenu points relating to <b>Heat circ. data</b> no longer apply.
Radiator, convector heater	The heating curve is automatically calculated for radiators or convector heaters, subject to the required curve.
Under-floor	A flatter heating curve is automatically calculated for lower design temperatures.
Base point	The level of the flow temperature is a linear consequence of the outside temperature. The resulting heating curve connects as a straight line the low end with a second point that depends on the design temperature.
Constant	This system must be used for the controlling of a swimming pool heating system or to pre-control ventilation circuits, if the heating must always provide the same, set flow temperature, independent of the outside temperature. If this system is selected, it is not possible to install a remote control for this heating circuit.
Room thermostat	The required CH flow temperature is dependent only on the measured room temperature. For this, you must install a remote control inside the room. The heating system is switched off if the room becomes too hot.

Table 27 Heating systems



We recommend only enabling the **Underfloor** heating system in conjunction with mixed heating circuits.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ. + no.** appears.
- ▶ Press **Display** to call up a submenu.  
Heating system is shown as first main menu.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

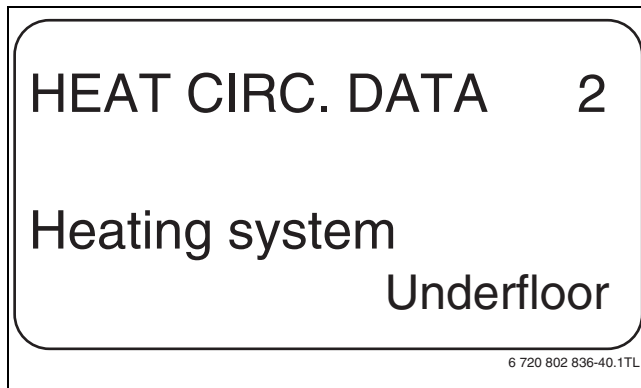


Fig. 26 Select the heating system

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Heating system	none Radiator Convactor Underfloor Constant Base point Room controller	Radiator

Table 28 Setting range Heating system

## 9.2 Rename the heating circuit

Instead of the designation **Heating circ.** + no., another name can be selected from a default list.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Name heat. circ.** appears.

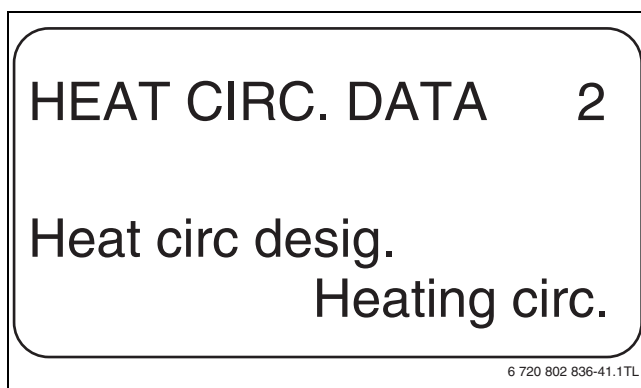


Fig. 27 Rename the heating circuit

- Hold down button **Display** and turn the rotary selector until the required value is shown.
- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
"Heat circ. design"	Heating circuit Apartment Underfloor Bathroom Swimming pool Floor Cellar Building	Heat.circuit

Table 29 Setting range Heating circuit name

## 9.3 Setting the low end temperature

This function will only be displayed for "Base point" heating systems.

With the **Base point heating system** setting, you have determined a straight heating curve using the base point temperature and the design temperature.

The base point [Low end] temperature determines the start of the heating curve. The low end temperature is applicable for an outside temperature of 20 °C.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Heating system** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.
- Release **Display** to save your input.
- Turn the rotary selector until submenu **Base point temp.** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

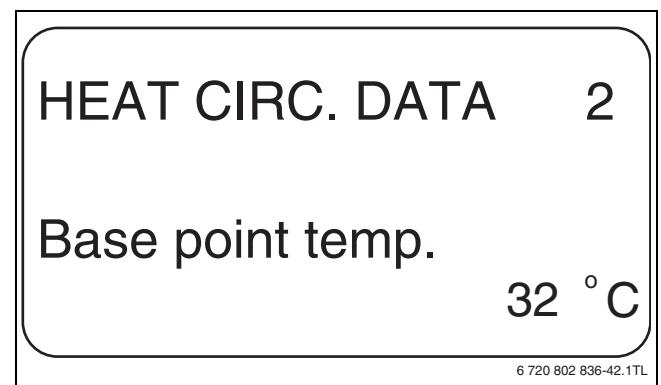


Fig. 28 Setting the low end temperature

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Low end temperature	20 °C – 80 °C	30 °C

Table 30 Setting range Low end temperature

### 9.4 Setting the design temperature

The design temperature is the flow temperature at the adjusted minimum outside temperature. If **Room controller** has been selected as the heating system, this parameter cannot be set.

The following applies for the **Base point** heating system:

- Set the design temperature at least 10 °C higher than the low end temperature.
- Changing the design temperature allows the heating system to operate with a flatter or steeper heating curve.
- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Design temp.** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

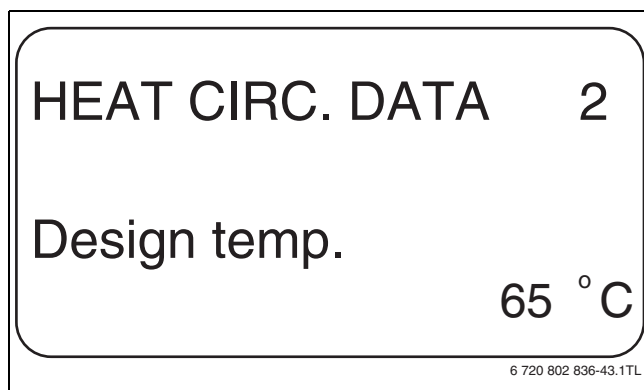


Fig. 29 Setting the design temperature

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Design temperature	30 °C – 90 °C	75 °C for radiator/ convector/low end/ constant 45 °C for underfloor heating

Table 31 Setting range Design temperature

### 9.5 Setting the Minimum flow temperature

The minimum flow temperature limits the heating curve to a minimum set value.



If **Constant** has been selected as the heating system, this parameter cannot be set.

Change value only if necessary.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Minimum Flow temp.** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.



This value sets the temperature below which the flow temperature must not drop.

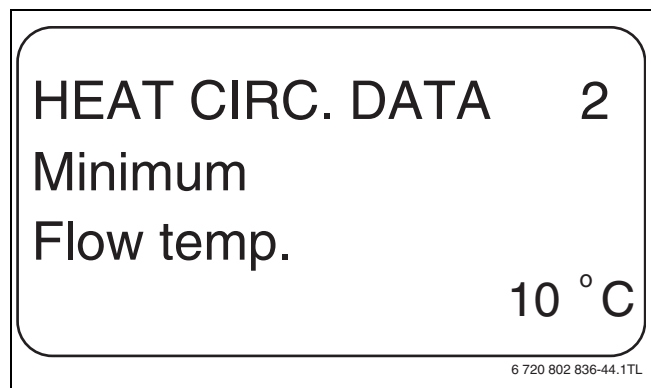


Fig. 30 Setting the Minimum flow temperature

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Minimum flow temperature	5 °C – 70 °C	5 °C

Table 32 Setting range Minimum flow temperature

### 9.6 Setting the maximum flow temperature

The maximum flow temperature limits the heating curve to a maximum set value.



If **Constant** has been selected as the heating system, this parameter cannot be set.

Change value only if necessary.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Maximum Flow temp.** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

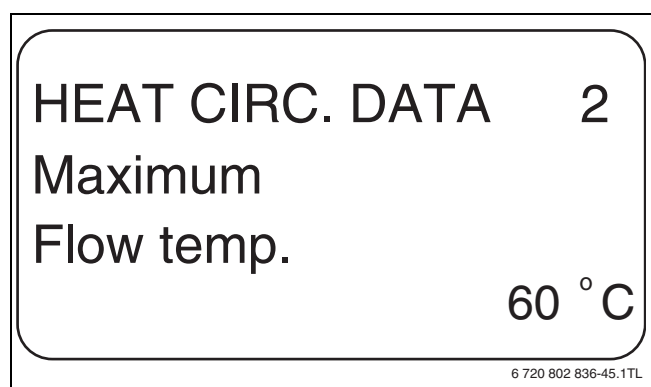


Fig. 31 Setting the maximum flow temperature

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.



	Input range	Factory setting
Maximum flow temperature for underfloor heating	30 °C – 60 °C	50 °C
Maximum supply temperature for radiators, convector heaters, base point	30 °C – 90 °C	75 °C

Table 33 Setting range Maximum flow temperature



This value sets the temperature above which the flow temperature must not rise.

## 9.7 Select the remote control

Under this menu item, it can be determined whether a remote control will be installed for the heating circuit concerned. Here you can select the following:

- No remote control
- Remote control with display (MEC2) "MEC heat. circ."
- Remote control without display (BFU)



A remote control cannot be installed for the **Constant** heating circuit system or if **External changeover** has been activated.

A remote control unit must be installed to enable the following functions, which monitor the room temperature:

- Night setback with hold room temperature
- Max. room influence
- Automatic adaptation
- Optimisation
- **Room controller** heating system

### Explanations relating to "MEC heating circuits"

With the MEC2 you can control several heating circuits simultaneously. These are grouped together under the term "MEC heat. circ.".

The following functions can be carried out for "MEC heat circ":

- Changing the operating mode
- Adjusting the set value
- Summer/wintertime changeover
- holiday function
- Party function
- Pause function

The heating circuits grouped together under "MEC heat. circ." can, for specific settings, also be selected as "Single heat circ".

The timer program **PROG** function is only available for each individual heating circuit.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Remote control** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.



Turn the rotary selector to **with display** when the selected heating circuit has been assigned to the MEC2.

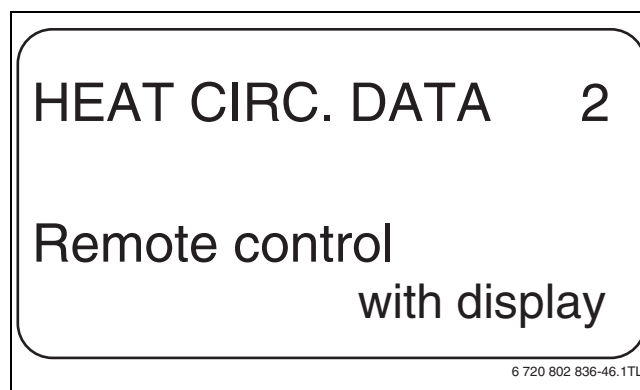


Fig. 32 Select the remote control

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Remote control	none without display with display	none

Table 34 Setting range Remote control

## 9.8 Maximum room influence setting



This function only appears if a remote control has been selected, but not if the **Room controller** heating system has been set.

The maximum room [ambient] influence limits the influence of the room temperature (room temperature hook-up) on the set flow temperature. The value determines the maximum room temperature setback for rooms which are not equipped with remote controls.



Ensure that the MEC2 programming unit and BFU remote control are not exposed to the influence of external heat sources, such as lamps, TV sets or other heat sources.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Max room infl** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

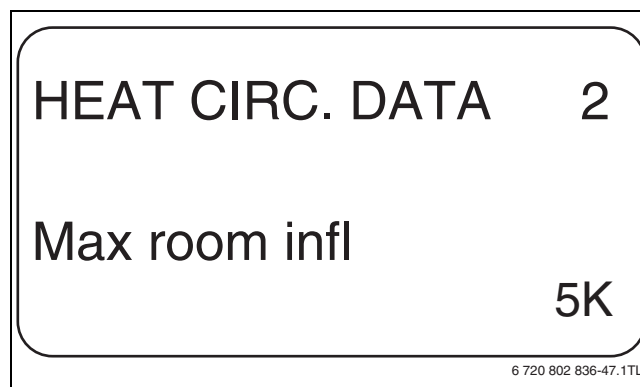


Fig. 33 Setting the Maximum room influence

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Max. room influence	0 K – 10 K	3 K

Table 35 Setting range Maximum room influence

## 9.9 Select the type of setback

The following functions are available for setback mode or night mode:

Reduction mode	Explanation
Outdoor setback	<b>Outside setback</b> determines the outside temperature limit. The heating circuit is switched off when this value is exceeded. Below this limit, the heating system heats to the set night temperature.
Room setback	<b>Hold room temp</b> determines a night temperature as the room temperature. The heating circuit is switched off when this value is exceeded. Below this limit, the heating system heats to the set night temperature. For this function a remote control must be located in the relevant room.
Off	In <b>Standby</b> mode, the heating circuit is generally switched off in standby.
Reduced	In <b>Reduced</b> mode, the system heats to the set night temperature if setback mode is selected. The heating circuit pumps operate constantly.
Room thermostat	Setting the heating system to <b>Room controller</b> and setback type to <b>Reduced</b> achieves the same effect for temperature setback as <b>Hold room temp</b> .

Table 36 Reduction modes

**i** If **Constant** has been selected under the Heating system menu item, only setback types **Reduced**, **Outside setback** or **Off** can be selected.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Set-back type** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

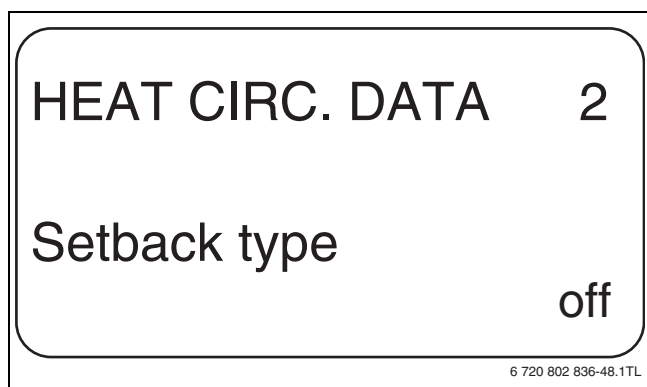


Fig. 34 Select the type of setback

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Reduction mode	Outside setback Standby Reduced Hold room temp	Outdoor setback

Table 37 Setting range Reduction mode

## 9.10 Setting the outside stop temperature

If **Outside setback** has been selected as the setback type, the outside temperature must be entered at which the heating operation should change over from **Off** to **Reduced**.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Outside hold frm** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

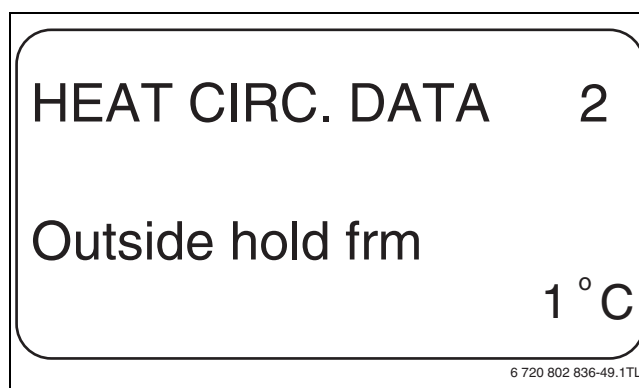


Fig. 35 Setting the outside stop temperature

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Outside hold frm	-20 °C – 10 °C	5 °C

Table 38 Setting range Reduction mode

## 9.11 Setting holiday mode

A separate setback type can be set for the duration of your holiday. (For explanations of setting options see → chapter 9.9, page 24).

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Holiday Set-back type** appears.



- Hold down button **Display** and turn the rotary selector until the required value is shown.

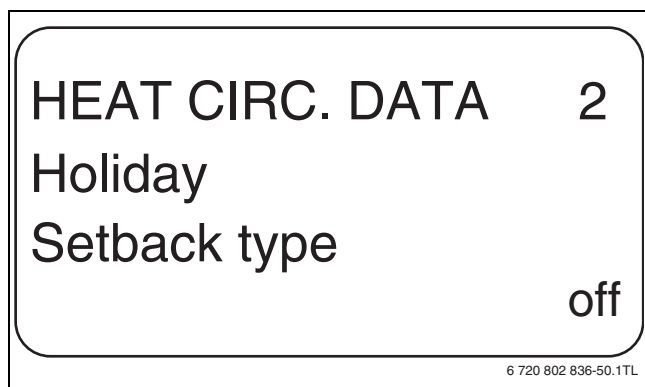


Fig. 36 Setting holiday mode

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Holiday reduction mode	Hold room temp Outside setback <sup>1)</sup> Standby reduced	Room setback

Table 39 Setting range Holiday reduction mode

1) In setting Holiday outside setback the rotary selector can be used to call the additional menu the temperature setting (between -20 °C and 10 °C).

### 9.12 Stopping setback at low outside temperatures

In extreme weather conditions the setback can be stopped when the actual temperature falls below a selected adjusted outside temperature, to prevent the living space cooling down excessively.



Setback will not be blocked in manual or in holiday mode.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **No setback below outside t.** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

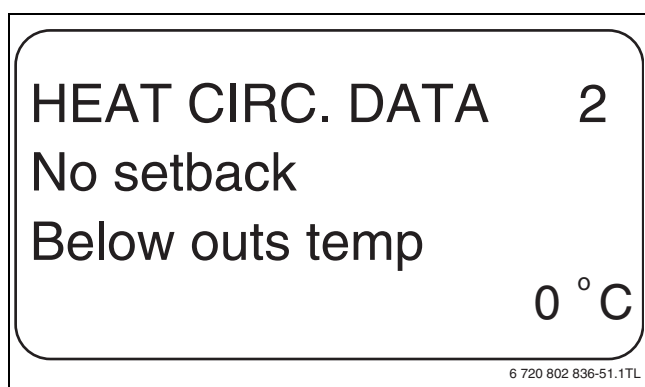


Fig. 37 Switching off the setback

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
No setback below outside t.	inactive -30 °C – 10 °C	Inactive

Table 40 Setting range No setback below outside t.

### 9.13 Setting flow setback

Since you cannot connect a remote control to heating systems set to **Constant**, you may enter a setback setting for the **Reduced** and **Outside setback** types.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Heating system** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.
- Release **Display** to save your input.
- Turn the rotary selector until submenu **Flow Setback by** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

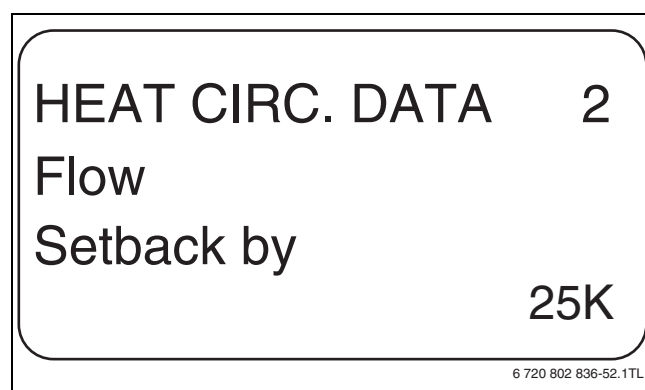


Fig. 38 Setting flow setback

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Flow setback	0 K – 40 K	30 K

Table 41 Setting range Flow setback

### 9.14 Setting the room temperature offset

This setting is only recommended if no remote control has been installed inside the living space.

If the average actual temperature measured with a thermometer deviates from the selected temperature, this function enables a matching of both values.

This adjustment moves the heating curve in parallel. The changes take effect after a time delay.

#### Example:

Displayed set room temperature	22 °C
Actual room temperature	24 °C

Table 42 Example: room temperature offset

The set value lies 2 °C below the actual value.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Room temperature Offset** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

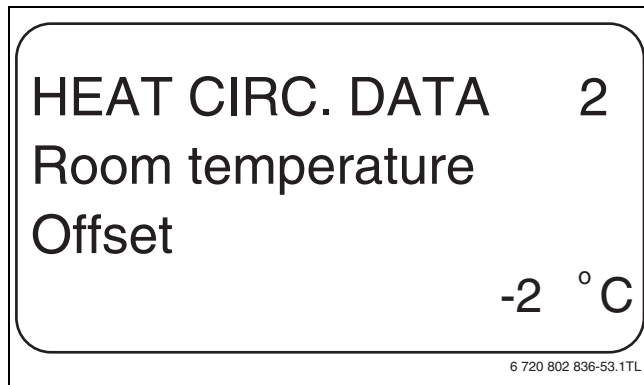


Fig. 39 Setting the room temperature offset

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Room temperature offset	-5 °C – 5 °C	0 °C

Table 43 Setting range Room temperature offset

### 9.15 Automatic adaptation setting

**i** This function can only be selected if **Radiator/Convactor/Underfloor** has been set as the heating system.

**i** **Autom adaptation** is not activated at the factory.

Where a remote control is installed in the room, the heating curve is automatically adjusted to the building by constantly monitoring the room and flow temperatures.

Conditions are:

- A representative room with reference temperature.
- Fully opened thermostatic valves in the room.
- No constantly fluctuating external heat influence.
- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Autom adaptation** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

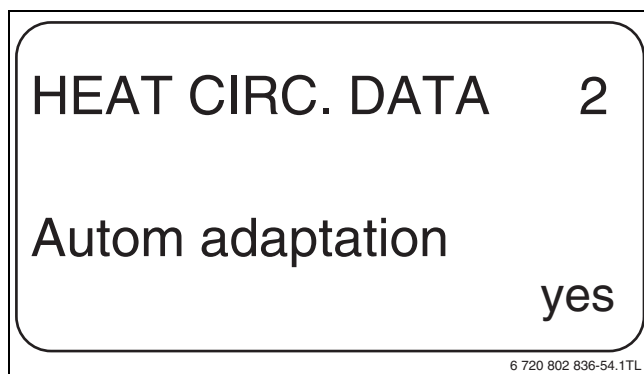


Fig. 40 Activating Automatic adaptation

- Release **Display** to save your input.

- Press **Back** to return to the next higher level.

	Input range	Factory setting
Automatic adaptation	Yes No	no

Table 44 Setting range Automatic adaptation

### 9.16 Setting switching optimisation

**i** A remote control with a room temperature sensor must be installed for the **Optimisation** function.

**i** The function **Optimisation for** is not activated at the factory.

The following variations are possible:

Optimisation	Explanation
Start Up	If <b>Start-up</b> is selected, heat-up commences before the actual switching time. The control calculates the start-up time, so that the set room temperature is achieved at the set switching point.
Switching off	If <b>Stop</b> is selected, the system begins the setback, where possible, prior to the actual setback time to save energy. If a room cools down unexpectedly or suddenly, the stop optimisation is terminated and heating continues normally up to the programmed setback time.
Start/Stop	If <b>Start/Stop</b> is selected, both optimisation versions are used.
none	If <b>none</b> is selected, no switching optimisation is performed.

Table 45 Switching optimisation

**i** As the start optimisation is limited to 240 minutes, start optimisation is frequently inappropriate for systems with a long heat-up time.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Optimisation for** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

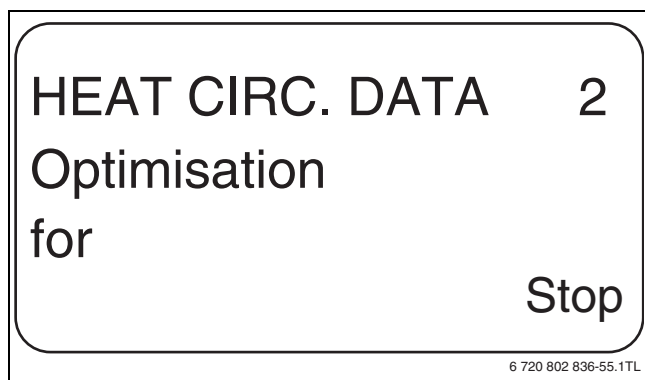


Fig. 41 Setting switching optimisation

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Optimisation	none Start Stop Start/Stop	none

Table 46 Setting range Optimisation

### 9.17 Set switch off optimisation time

If switching optimisation is set to **Stop** or **Start/Stop**, you can enter when the setback operation should begin. The setting must only be changed if so required.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Stop optim. time** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

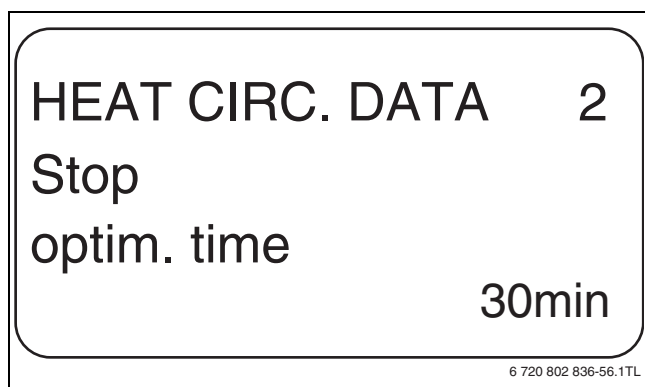


Fig. 42 Set switch off optimisation time

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Stop optimisation time	10 min – 60 min	60 min

Table 47 Setting range Stop optimisation time

### 9.18 Setting frost protection temperature

Only change the frost protection temperature in special circumstances.

The circulation pump is automatically switched on as soon as a set outside temperature threshold is reached.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Frost prot from** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

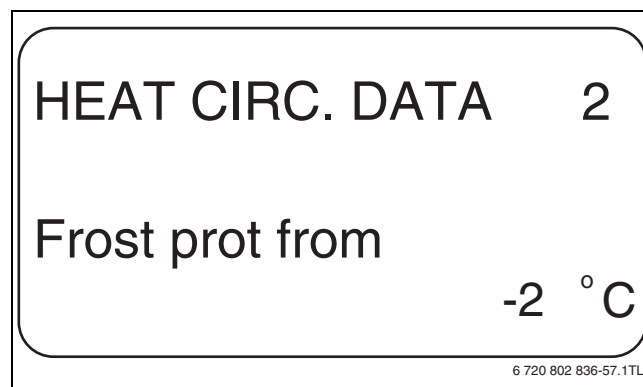


Fig. 43 Setting frost protection temperature

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Frost prot.	-20 °C – 1 °C	1 °C

Table 48 Setting range Frost protection

### 9.19 Setting DHW priority

If you activate the function **DHW priority**, the circulation pumps of all heating circuits are switched off whilst DHW is being heated.

In mixed heating circuits, the mixer is moved towards "Mixer closes" (colder).

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **DHW priority** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

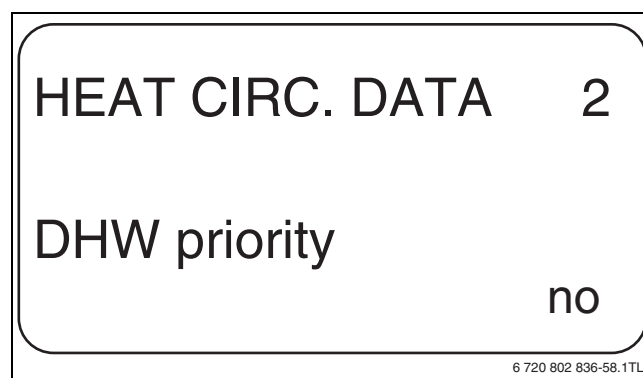


Fig. 44 Setting DHW priority

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
DHW priority	Yes No	yes

Table 49 Setting range DHW priority

## 9.20 Setting the heating circuit actuator



No actuator (mixer) can be entered for heating circuit 0.

The **Actuator** function enables you to enter whether a heating circuit actuator (mixer) is installed or not.

The control unit drives the actuator if it is installed in the heating circuit (mixer).

The heating circuit is regulated via the boiler flow temperature if no heating circuit actuator is installed.

- Call up the service level.

The first main menu is **General data**.

- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Actuator** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

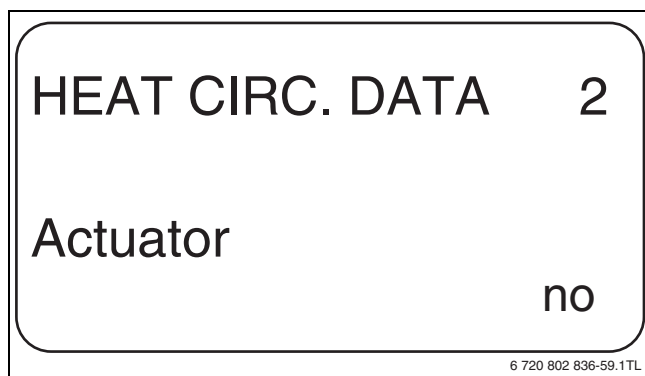


Fig. 45 Setting the heating circuit actuator

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Actuator	Yes No	yes

Table 50 Setting range Actuator

## 9.21 Set the actuator run-time

This parameter determines the runtime of the existing actuators. Generally, servomotors have a runtime of 120 s.



If a constant oscillation of the mixer is noticeable, slow down the control characteristics by reducing the actuator runtime. Then the constant cycling of the mixer will stop.

- Call up the service level.

The first main menu is **General data**.

- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Actuator run time** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

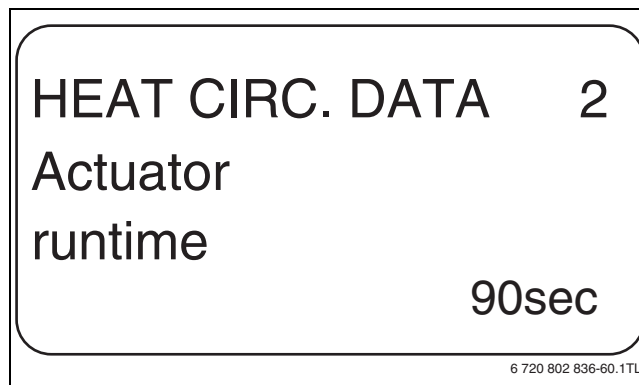


Fig. 46 Set the actuator run-time

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Actuator operating time	10 sec – 600 sec	120 s

Table 51 Setting range Actuator runtime

## 9.22 Setting the boiler raising

If a heating circuit is controlled with an actuator, a higher set value should be set for the boiler than the normal set value for the heating circuit.

The **Boil. raising** setting corresponds to the temperature differential between the set boiler temperature and the set heating circuit temperature.

- Call up the service level.

The first main menu is **General data**.

- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Boil. raising** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

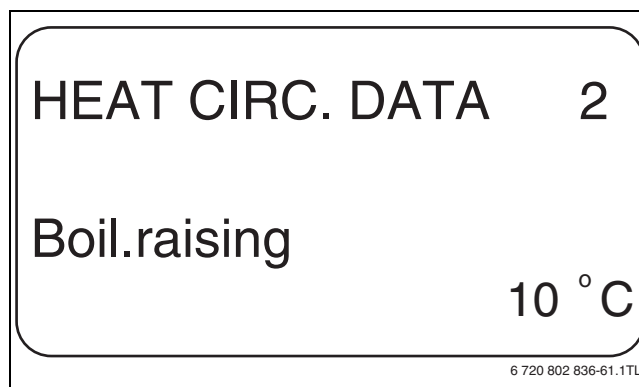


Fig. 47 Setting the boiler raising

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Boil. raising	0 °C – 20 °C	5 °C

Table 52 Setting range Boiler raising

### 9.23 Setting the external changeover

This function is turned off at the factory.

Using the "External changeover" function, you can use an on-site switch at terminals WF123 (pink) to change the operating mode of a heating circuit. This is where you configure this control unit input.



The **External changeover** menu item is only displayed if **none** was selected under menu item **Remote control**. The menu item also does not appear if the **Room controller** heating system has been selected, as this requires a remote control to be installed.

Either of the following two changeover functions can be selected:

- **1. changeover** Day/night via the terminals WF1 and WF3
  - Contact WF1 and WF3 closed = day mode
  - contact WF1 and WF3 open = night mode
- **2. changeover** day/night/aut via terminals WF1, WF2, WF3
  - Contact WF1 and WF3 closed = day mode
  - Contact WF1 and WF2 closed = night mode
  - all contacts open = automatic mode



Activation of **2. changeover** is only possible if terminals WF1 and WF2 are not assigned via the **External fault message - pump**.



Day mode will be run constantly if both contacts are simultaneously closed.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **External Day/night/aut** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

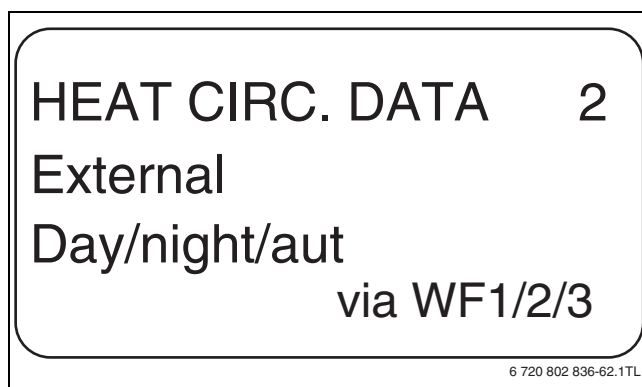


Fig. 48 Setting the external changeover

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
External Day/night/aut	none day via WF1/3 via WF1/2/3	none

Table 53 Setting range External changeover

### 9.24 External fault message - pump

This function is turned off at the factory.

This menu item determines whether fault messages relating to a pump should be displayed.

You may connect an external zero volt fault relay to terminals WF1 and WF2. A fault message will be displayed if the contact is open.



If an entry was made under menu item **External Day/night/aut via WF1/2/3**, this menu item cannot be called up as the input contacts are already assigned.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **External fault message pump** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

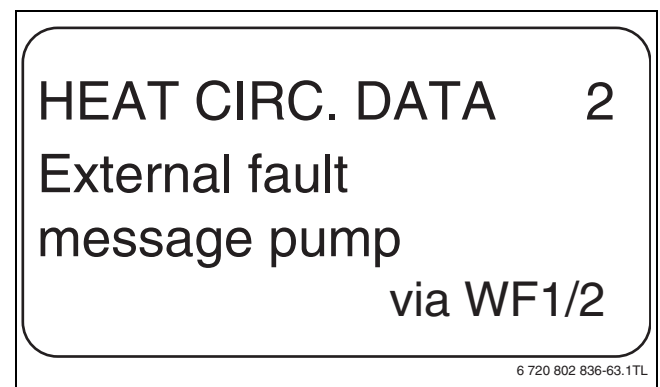


Fig. 49 External fault message - pump

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
External fault message pump	none via WF1/2	none

Table 54 Setting range External fault message - pump

### 9.25 Screed drying

If the heating system comprises underfloor heating, this control unit a drying program for the screed can be entered. The heating system must be set to **Underfloor**.



Check with your screed contractor for special requirements for screed drying prior to enabling this function.

After a power failure, screed drying continues from where it was interrupted.

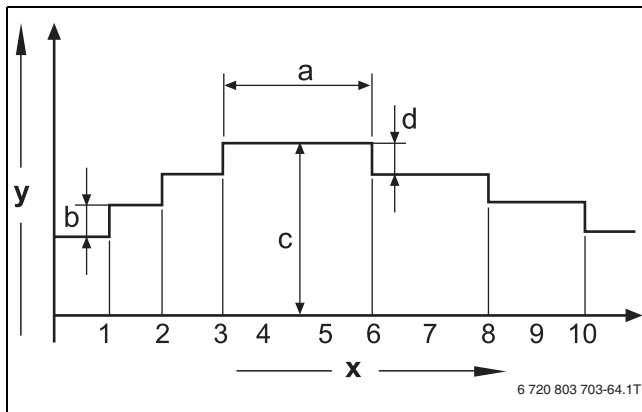


Fig. 50 Screed drying

- [x] Time (days)  
 [y] Temperature  
 [a] 3 days' hold time  
 [b] Temp increase by  
 [c] max. temperature  
 [d] Setback by

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Screed drying** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

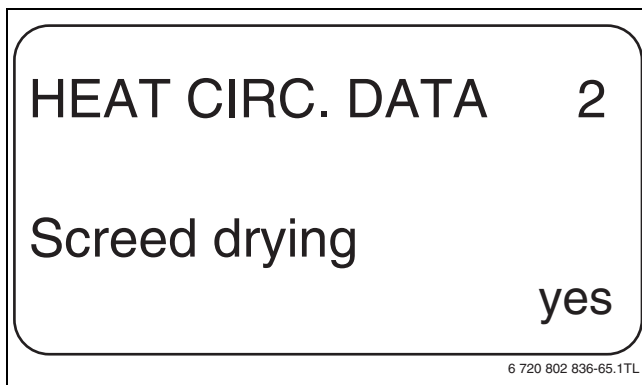


Fig. 51 Screed drying

- Release **Display** to save your input.

	Input range	Factory setting
Screed drying	no yes	no

Table 55 Setting range Screed drying



The menu options on the following pages enable the selection of temperatures and settings for the drying period. The setting reverts automatically to **No** as soon as the drying process has been completed.

### 9.25.1 Setting the temperature rise

This option determines the steps in which the temperature should increase to dry out the screed.

Temperature rise begins at 20 °C.

- Turn the rotary selector until submenu **Screed drying Temp increase by** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

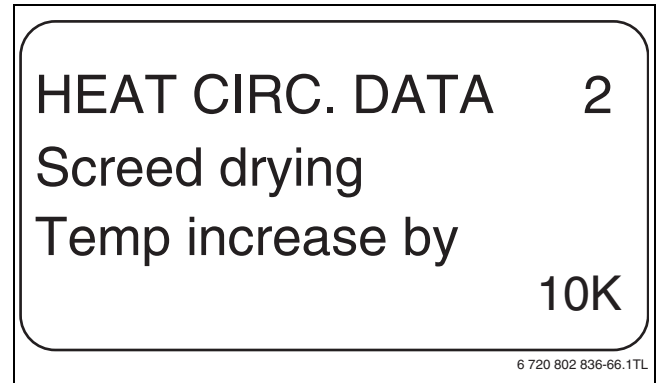


Fig. 52 Setting the temperature rise

- Release **Display** to save your input.

	Input range	Factory setting
Screed drying Temp increase by	1 K – 10 K	5 K

Table 56 Setting range Temp increase by

### 9.25.2 Setting the heat-up time

By setting the **Increase** parameter, you can determine in which daily cycle the temperature should increase to dry out the screed.

- Turn the rotary selector until submenu **Screed drying Increase** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

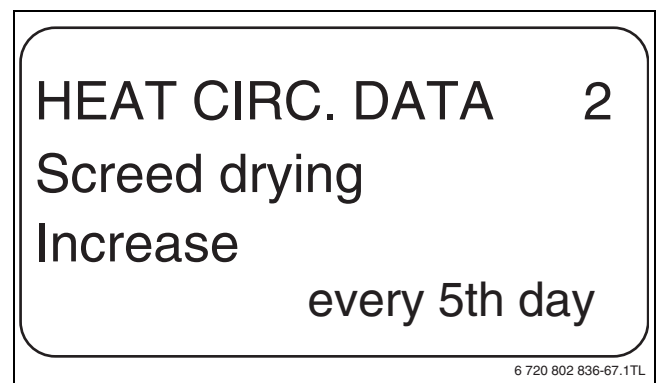


Fig. 53 Setting the heat-up time

- Release **Display** to save your input.

	Input range	Factory setting
Increase in daily cycles	every day – every 5th day	every day

Table 57 Setting range Increase in daily cycles

### 9.25.3 Setting the maximum temperature

This setting determines the maximum temperature for screed drying.

- Turn the rotary selector until submenu **Screed drying Max. temperature** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

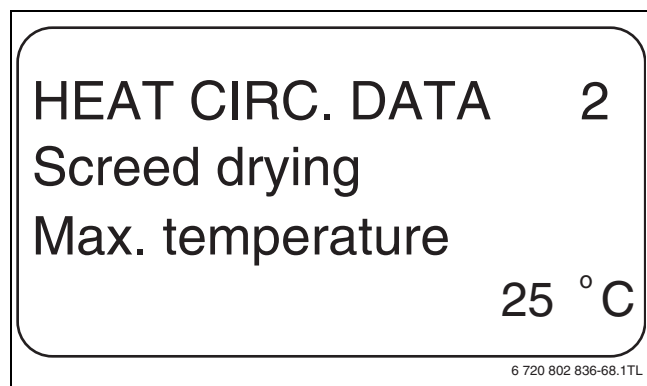


Fig. 54 Setting the maximum temperature

- Release **Display** to save your input.

	Input range	Factory setting
Maximum temperature	25 °C – 60 °C	45 °C

Table 58 Setting range Maximum temperature

### 9.25.4 Setting the hold time

This setting determines the holding period of the maximum temperature for screed drying.

- Turn the rotary selector until submenu **Screed drying Hold max temp** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

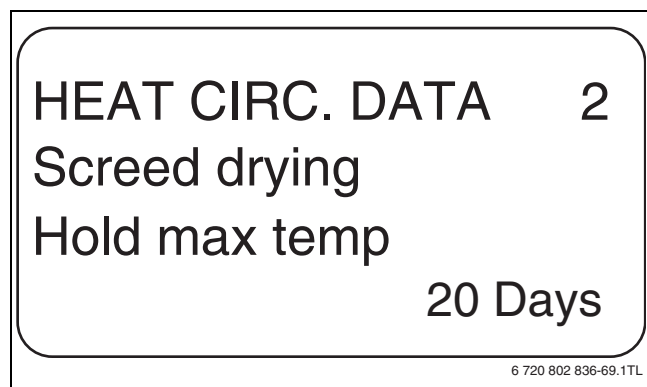


Fig. 55 Setting the hold time

- Release **Display** to save your input.

	Input range	Factory setting
Hold maximum temperature	0 days – 20 days	4 days

Table 59 Setting range Hold max temp

### 9.25.5 Setting the setback temperature

This option determines the steps in which the temperature should decrease to dry out the screed.

- Turn the rotary selector until submenu **Screed drying T. setback by** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

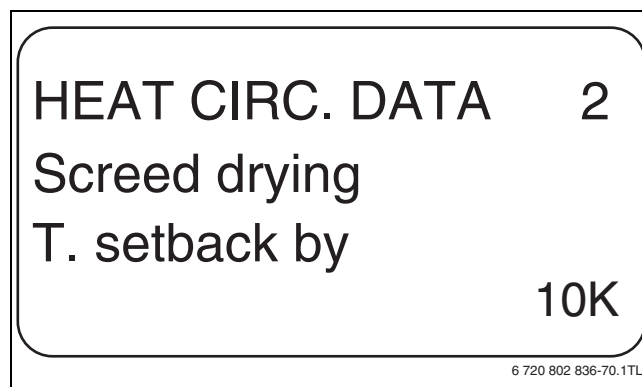


Fig. 56 Setting the setback temperature

- Release **Display** to save your input.

	Input range	Factory setting
Setback by	1 K – 10 K	5 K

Table 60 Setting range Setback by

### 9.25.6 Setting the setback time

This option determines in which daily cycle the temperature should fall to dry out the screed.

- Turn the rotary selector until submenu **Screed drying Setback** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

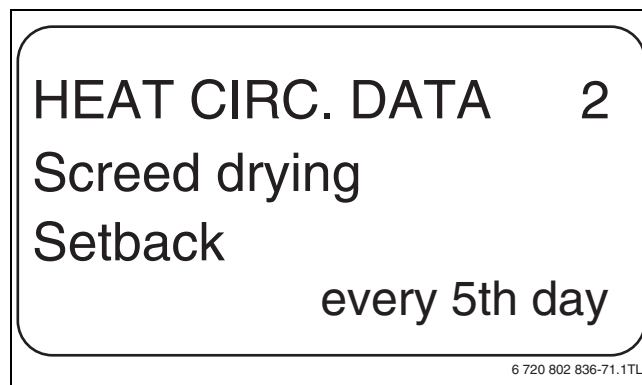


Fig. 57 Setting the setback time

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.



By setting **None**, screed drying will be completed at the end of the maximum hold time.

	Input range	Factory setting
Setback in daily cycles	none every day – every 5th day	every day

Table 61 Setting range Setback in daily cycles



## 10 DHW data

In its standard version, the Logamatic 4323 control unit is not equipped with any DHW heating function. The following details regarding DHW data refer to the FM441 function module (accessory).

### 10.1 Select domestic hot water


- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.  
**DHW** is shown as the first main menu.
- Hold down button **Display** and turn the rotary selector until the required value is shown.
- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Domestic hot water	Yes No	yes

Table 62 Setting range Domestic hot water

### 10.2 Setting the temperature range

This function determines the upper limit for the set DHW temperature.



**WARNING:** Risk of scalding through hot water.  
Setting the temperature above 60 °C creates a risk of scalding.

- Do not draw off DHW unmixed.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Range to** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

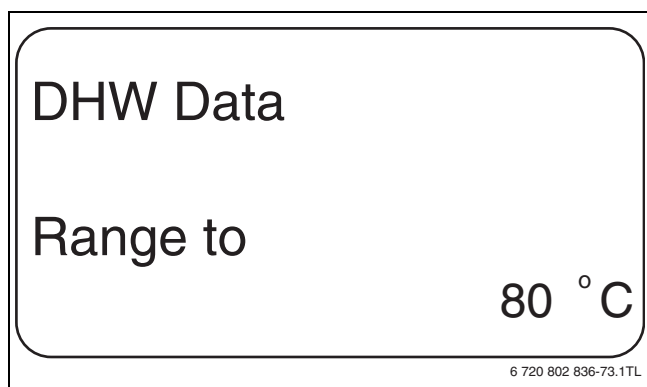


Fig. 58 Setting the temperature range

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Range to	60 °C – 80 °C	60 °C

Table 63 Setting range Range to

### 10.3 Selecting switching optimisation

If the **Optimisation** function has been selected, the DHW starts to heat up before the actual start point. The control unit calculates the start time, taking into consideration the residual cylinder heat and the commencement of heating for the heating circuits, so that the DHW temperature is reached at the set time.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Optimisation for starting** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

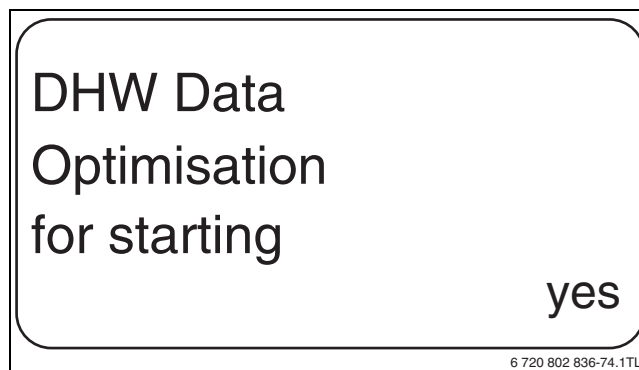


Fig. 59 Selecting switching optimisation

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Optimisation	Yes No	no

Table 64 Setting range DHW optimisation

### 10.4 Selecting residual heat use

If the **Resid. heat use** function has been selected, the residual heat from the boiler can be used to heat the cylinder.

Residual heat utilisation	Explanation
yes	If <b>Resid. heat use yes</b> is selected, the control unit calculates the shutdown temperature of the burner and the runtime of the primary pump via the residual boiler heat, until the cylinder is fully heated. The burner is switched OFF before the set domestic hot water temperature is reached. The cylinder primary pump continues to operate. The control unit calculates the runtime of the primary pump (between 3 and 30 minutes) to heat the cylinder.
no	If <b>Resid. heat use no</b> is selected, only little residual heat is used. The burner runs until the set DHW temperature is reached. The cylinder primary pump runs on for 3 minutes after the burner has been switched off.

Table 65 Residual heat utilisation

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Resid. heat use** appears.



- Hold down button **Display** and turn the rotary selector until the required value is shown.

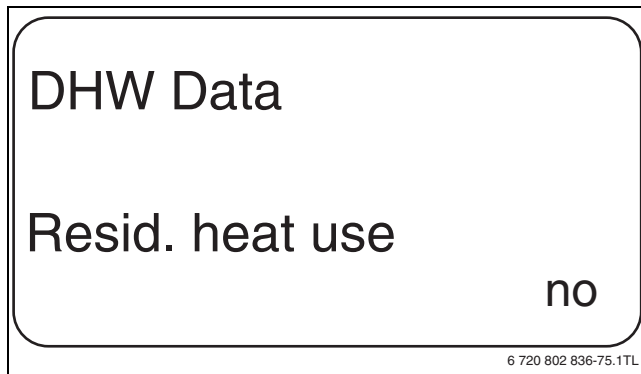


Fig. 60 Selecting residual heat use

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Residual heat utilisation	Yes No	yes

Table 66 Setting range Residual heat utilisation

### 10.5 Setting hysteresis

With the **Hysteresis** function you can determine, at how many Kelvin (K) below the set DHW temperature the reheating of the cylinder begins (1 K equals 1 °C).

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Hysteresis** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

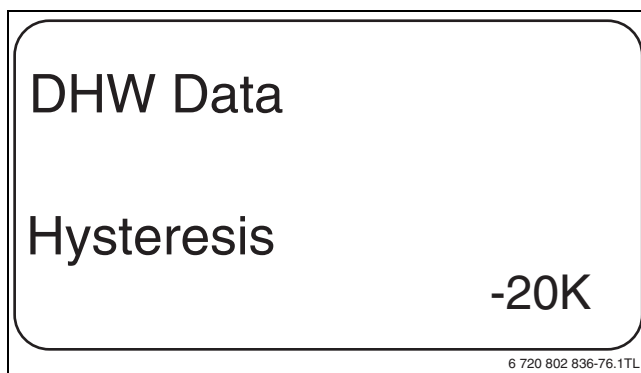


Fig. 61 Setting hysteresis

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Hysteresis	-20 K – 2 K	-5 K

Table 67 Setting range Hysteresis

### 10.6 Raising the boiler temperature

The **Boiler temperature raising** function allows you to specify the boiler water temperature while the DHW is heating up.

The boiler water temperature raising value is added to the required DHW temperature, and results in the required boiler flow temperature for DHW heating.

The factory setting of 40 K (1 K equals 1 °C) is optimised for rapid DHW heating.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Boiler t increase** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

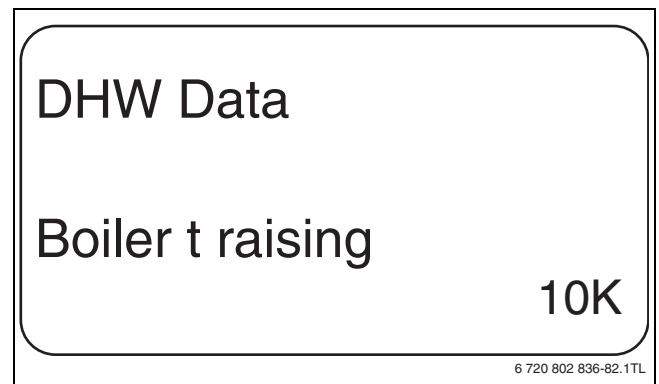


Fig. 62 Raising the boiler temperature

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Boiler temperature increase	0 K – 40 K	20 K

Table 68 Setting range Boiler temperature raising

### 10.7 External fault indication (WF1/WF2)

An external zero-volt fault relay for a charging pump or inert anode can be connected to terminals WF1 and WF2 of the control unit.

- Contacts WF1 and WF2 closed = no fault
- Contacts WF1 and WF2 open = fault condition
- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **External fault Indicator WF1/2** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

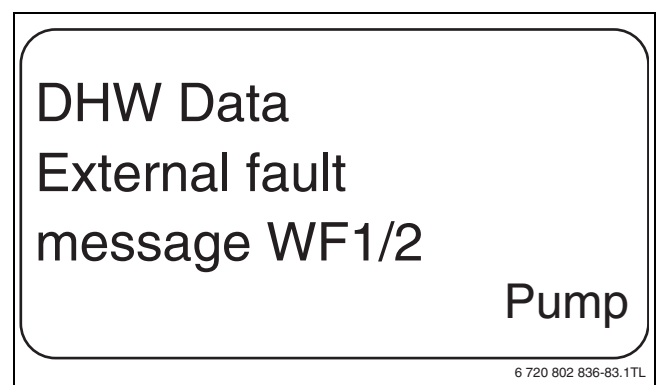


Fig. 63 External fault message

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
External fault message (subject to heat source and module)	none Inert anode Pump	none

Table 69 Setting range External fault message - pump

### 10.8 External contact (WF1/WF3)

If a zero volt pushbutton is connected at terminals WF1 and WF3 in module ZM424, either **Heating once** or **Therm. disinfect** can be triggered, depending on the setting.



This function is only available if the WF inputs are not required for heating circuit 0.

#### Heating once

If DHW heating has been switched off according to the switching times of the DHW program, Single loading can be started by pushing the pushbutton. The DHW circulation pump starts simultaneously.

Contrary to heating once via the MEC2 programming unit, the heating once process cannot be stopped.

Heating once will only be stopped when the cylinder has been fully heated.

#### Disinfection

If Thermal disinfection is enabled for the external contact, then the zero-volt pushbutton stated above can be used to start thermal disinfection. This disables any existing pasteurisation programs.

#### Setting the External contact

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **External contact WF1/3** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

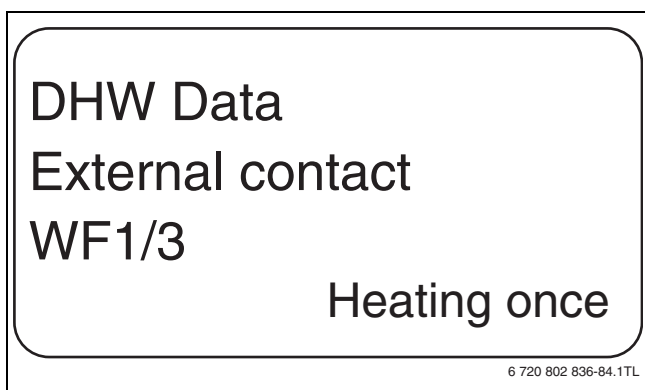


Fig. 64 Setting the External contact

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
External switch	Heating once Disinfection none	none

Table 70 Setting range External contact

### 10.9 Thermal disinfection

If the Thermal disinfection function is selected, the DHW is brought to a temperature (70 °C) once or several times a week which is high enough to kill off germs (e.g. legionella bacteria).

Both the cylinder charging pump and the DHW circulation pump run constantly during the thermal disinfection process.

If **Therm. disinfect yes** has been selected, disinfection starts according to the factory settings or individual settings that have been made.

Operation of thermal disinfection will be shown via the LED display **Therm. disinfect Active** on the FM441 module.

The factory settings for thermal disinfection can be changed in further menus.



The **Thermal disinfection** function will not be displayed if thermal disinfection was previously set via the **External contact WF 1/3** function.

The system tries to reach the set thermal disinfection temperature for three hours. If it fails, the fault message **Therm. disinfect failed** appears.

The thermal disinfection function can also be set via a proprietary control programme.

#### 10.9.1 Setting thermal disinfection

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Thermal Disinfection** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

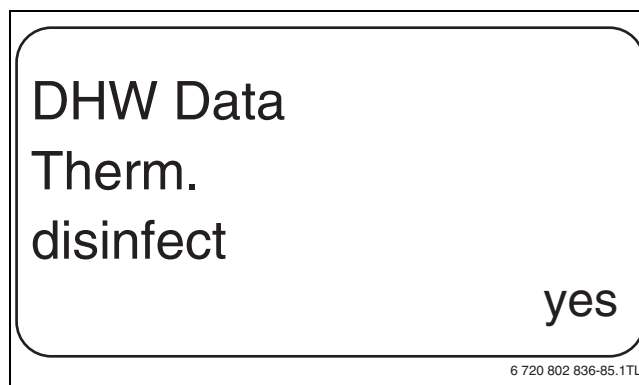


Fig. 65 Setting thermal disinfection

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Thermal disinfection	Yes No	no

Table 71 Setting range Thermal disinfection

#### 10.9.2 Setting the temperature

The **Temperature Disinfection** function enables the disinfection temperature for thermal disinfection to be set (→ chapter 10.9, page 34).



**WARNING:** Risk of scalding through hot water.

- ▶ If the DHW circuit is not equipped with a thermostatic mixer, never open the hot water taps/valves on their own (i.e. without mixing in cold water) during or immediately after thermal disinfection.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Temperature Disinfection** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

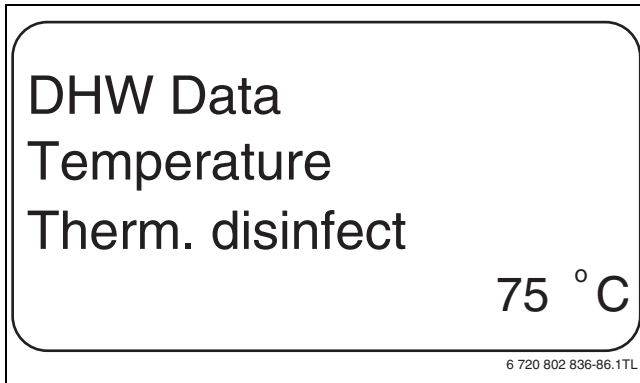


Fig. 66 Setting the pasteurisation temperature

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Temperature Disinfection	65 °C – 75 °C	70 °C

Table 72 Setting range Thermal disinfection temperature

### 10.9.3 Setting the weekday

The **Weekday Disinfection** function enables the weekday on which disinfection should be performed to be set.



The **Weekday Disinfection** function will not be displayed if thermal disinfection was previously set via the **External contact WF 1/3** function.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Weekday Disinfection** appears.

- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

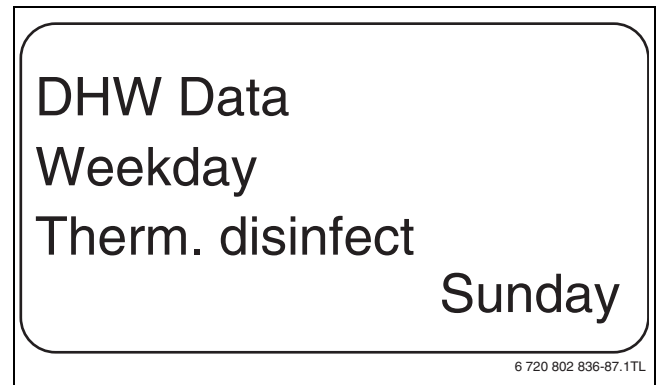


Fig. 67 Setting the weekday

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Weekday Disinfection	Monday – Sunday daily	Tuesday

Table 73 Setting range Weekday Thermal disinfection

### 10.9.4 Setting the time

The **time Disinfection** function enables the time at which disinfection should be performed to be set.



The **time Disinfection** function will not be displayed if thermal disinfection was previously set via the **External contact WF 1/3** function.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **time Disinfection** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

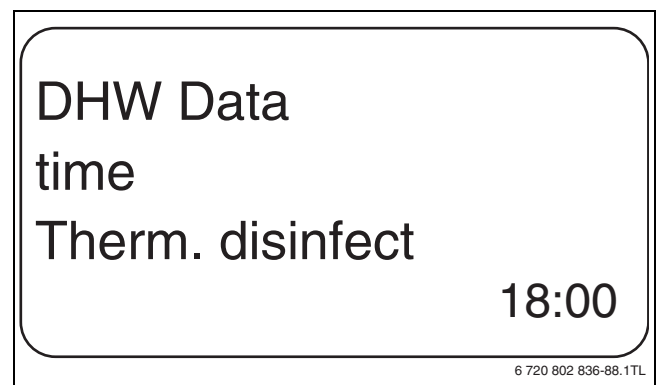


Fig. 68 Setting the time

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
Time of disinfection	00:00 – 23:00 hours	01:00 hours

Table 74 Setting range Time of disinfection

### 10.10 Setting range Daily Heat-up

When daily heat-up is set, the DHW (which may include a solar cylinder, if installed) is heated to 60 °C once a day to prevent legionella bacteria from multiplying in the DHW.

The time when the cylinder is heated can be adjusted.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Daily Heat-up** appears.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

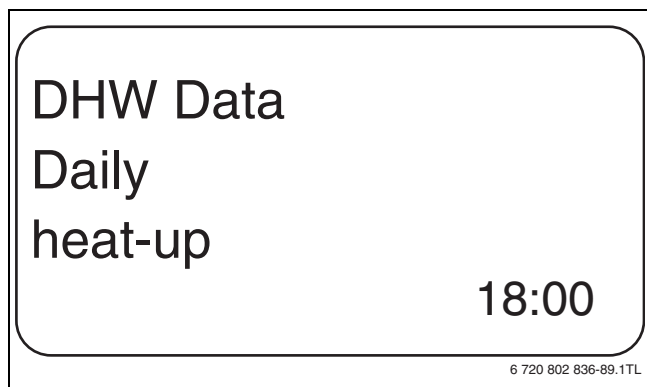


Fig. 69 Setting range Daily heat-up

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

**i** If the DHW was heated to 60 °C within the last 12 hours, it is not heated at the specified time.

	Input range	Factory setting
Daily Heat-up	inactive 00:00 – 23:00 hours	Inactive

Table 75 Setting range Daily heat-up

### 10.11 DHW circulation pump

#### 10.11.1 Selecting the DHW circulation pump

The **DHW Circulat.** function enables DHW to be used immediately at the taps.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **DHW Circulat.** appears.

- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

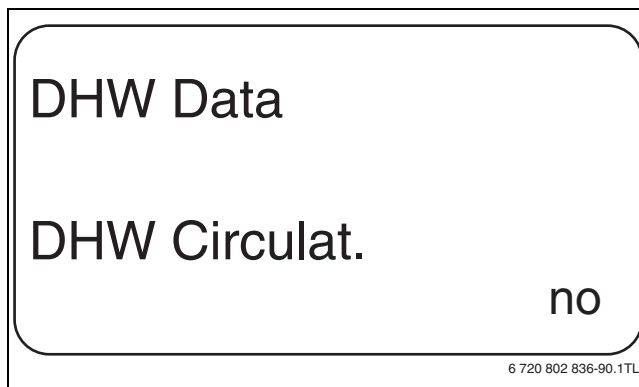


Fig. 70 Selecting the DHW circulation pump

- ▶ Release **Display** to save your input.
- ▶ Press **Back** to return to the next higher level.

	Input range	Factory setting
DHW circulat.	Yes No	yes

Table 76 Setting range DHW circulation

#### 10.11.2 Setting intervals

Operation in intervals saves operating costs for the circulation pump. The **DHW circulat. per hour** function enables DHW to be used immediately at the taps.

The set interval applies during the period when the time program enables the DHW circulation pump. This comprises:

- The factory-set DHW circulation pump program
- Your own DHW circulation pump program
- A connection to the heating circuit switching times.

In constant mode the DHW circulation pump operates continuously when in day mode, and is switched off in night mode.

#### Example

An individual time program has been entered which switches the DHW circulation pump on for the period between 05:30 and 22:00 with the setting **DHW Circulat. per hour 2 times on**.

The circulation pump is enabled in cycles:

- at 05:30 h for 3 minutes
- at 06:00 h for 3 minutes
- at 06:30 h for 3 minutes
- etc., until 22:00 hours

#### Setting intervals

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **DHW Circulat. per hour** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

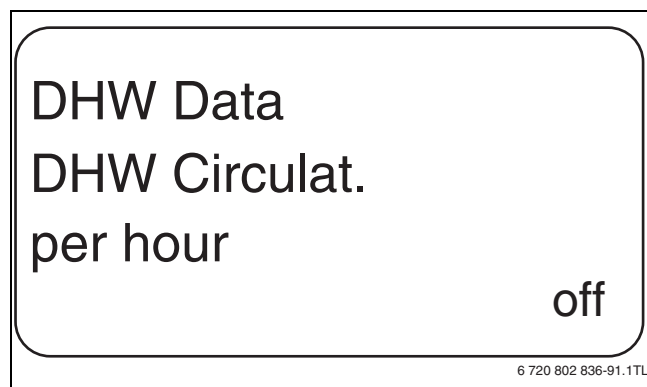


Fig. 71 Setting intervals

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
DHW circulation per hour	Off 1 time on 2 times on 3 times on 4 times on 5 times on 6 times on Constant operation	2 times on

Table 77 Setting range DHW circulation per hour

## 11 Substations

The control unit with ZM433 central module can be operated with:

- Address 0 (stand-alone)
- Address 1 (linked to a master, i.e. the control unit that provides externally generated heat)
- Address > 1 (as substation linked to other Logamatic 4000 control units).

### Operation with address 0 (stand-alone) or address 1 (as master)

An external heat source, such as a solid fuel boiler, solar thermal system or an external boiler, supplies heat, with priority to a buffer cylinder, which contains the feed sensor. The feed sensor measures the buffer temperature. If this exceeds the minimum heat-up temperature, the feed pump (if installed) and other pumps will be switched on.

### Operation with address > 1 (substation)

The feed sensor is only required if the substation is physically far from the heat source. Otherwise, the system flow temperature will be transferred by the master control unit via the ECOCAN BUS.

Line losses are compensated if the substation is physically far from the heat source, by setting a boiler temperature rise against the set control unit value. To support the other supply pumps, the feed pump may also be connected in case of long line runs.



If a cascade or strategy module (FM456, FM457, FM458) is fitted in the control unit, that module will regulate the boiler system (address 0 or 1).

- Set the **Min. heat-up temp.** to **off**.

### 11.1 Setting the min.heat-up temp.

This menu will only be displayed by the control unit if address 0 or 1 has been selected. The heat consumers will only be supplied with heat if the set temperature has been exceeded, or no later than after the time set up under "Maximum. heat-up time" has expired.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Substation** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Minimum Heat-up temp.** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

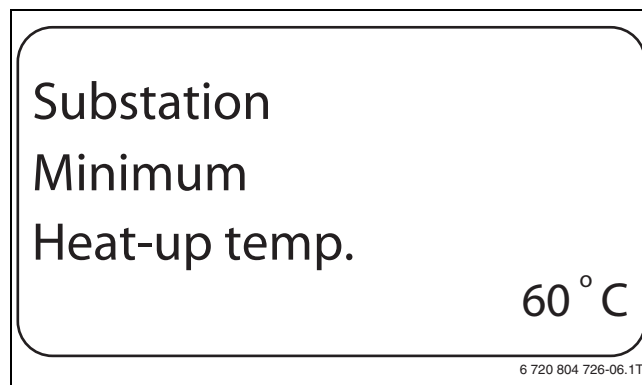


Fig. 72 Setting the Minimum Heat-up temp.

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.



If **off** has been selected, any possibly installed buffer or the existing start-up time of a heat source not regulated by the control unit will then not be taken into consideration.

	Input range	Factory setting
Minimum heat-up temperature	off 1 °C – 60 °C	50 °C

Table 78 Setting range for minimum heat-up temperature

### 11.2 Setting the maximum heat-up time

This menu will only be displayed by the control unit if address 0 or 1 has been selected, and the minimum heat-up temperature and therefore also the heat-up time have been enabled.

Here, set the maximum time after which the heating circuit pumps are started, even if Minimum Heat-up temp. has not been achieved within Maximum Heat-up time.

In addition, the temperatures at the FB and FZB sensors are evaluated for control of the PS cylinder primary pump.

Sensor temperature:

- FB hotter than FZB: Cylinder primary pump PS on
- FB colder than FZB: Cylinder primary pump PS off.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Substation** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Maximum Heat-up time** appears.

- Hold down button **Display** and turn the rotary selector until the required value is shown.

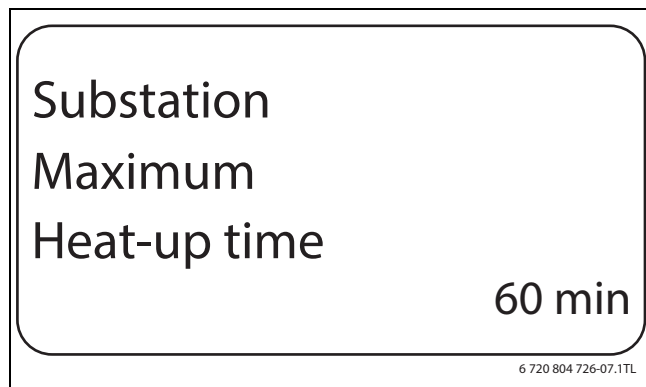


Fig. 73 Setting the maximum heat-up time

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Maximum heat-up time	10 – 60 minutes	30 minutes

Table 79 Setting range for maximum heat-up time

### 11.3 Setting boiler raising



This menu will only appear when operating the control unit as a substation (address > 1)!

The value entered here will be added to the heat demand of the control unit and thereby increases the demand temperature. This setting is recommended for compensating temperature losses in systems with long supply lines.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Substation** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until submenu **Boiler t raising** appears.
- Hold down button **Display** and turn the rotary selector until the required value is shown.

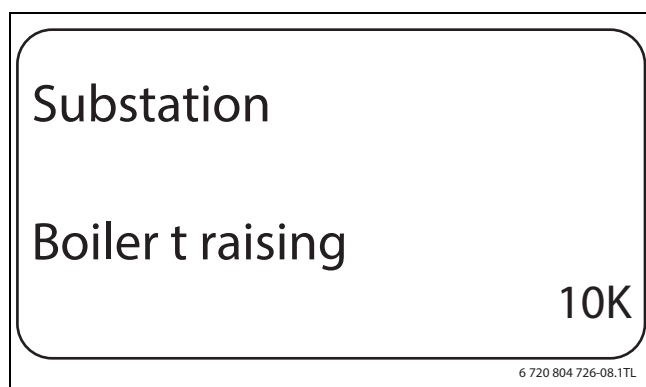


Fig. 74 Setting boiler raising

- Release **Display** to save your input.
- Press **Back** to return to the next higher level.

	Input range	Factory setting
Boiler temperature increase	Off 1 K – 20 K	Off

Table 80 Setting range for boiler temperature raising

## 12 Special parameter

This parameter enables experts to optimise the system beyond the standard parameters by fine-tuning the sub-parameters.

This level is reserved for trained contractors. Therefore, settings are not made in plain text but in code. These are explained in a separate document.

The "Logamatic 4000 special parameters" document is available on request.

## 13 Heating curve

Using the **Heat. curves** menu you can display the current heating curves of the relevant heating circuit.

The flow temperatures (VL), which depend on the outside temperature (AT), are displayed.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Heat. curves** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector to display the heating curves of all heating circuits.

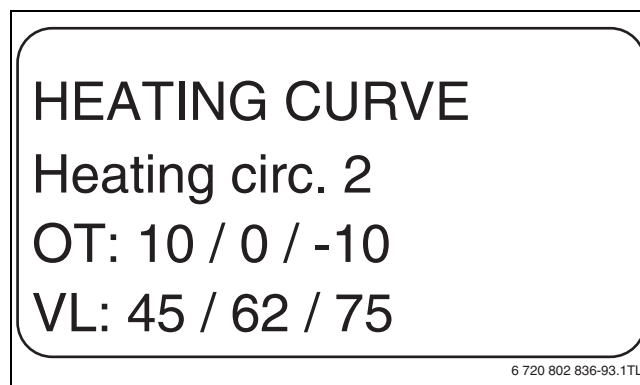


Fig. 75 Heating curve

- Press **Back** to return to the next higher level.

## 14 Relay test

With the **Relay test** menu, you can check whether the external components (e.g. pumps) have been connected correctly.

The display depends on which modules are installed. Depending on the current operating conditions, there may be a time delay between demand and display.



**CAUTION:** System damage through disabled functions!

The heat supply of the heating system is not assured during the relay test. The control system disables all functions.

- Quit the **Relay test** function once the test has been completed to prevent damage to the system.



With the modules used most commonly in the control units – FM441 and FM442 –, the following relays can be called up:

- Heating circuit 0 – 9
  - Circulation pump
  - Actuator
- Domestic hot water
  - Cylinder primary pump
  - DHW circulation pump
- Substation
  - Feed pump

#### Relay test example

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Relay test** appears.
- ▶ Press **Display** to call up a submenu.  
**Boiler** is shown as the first submenu.
- ▶ Press **Display** to call up a further submenu.  
**Burner two-stage** is shown at the first submenu.
- ▶ Hold down button **Display** and turn the rotary selector until the required value is shown.

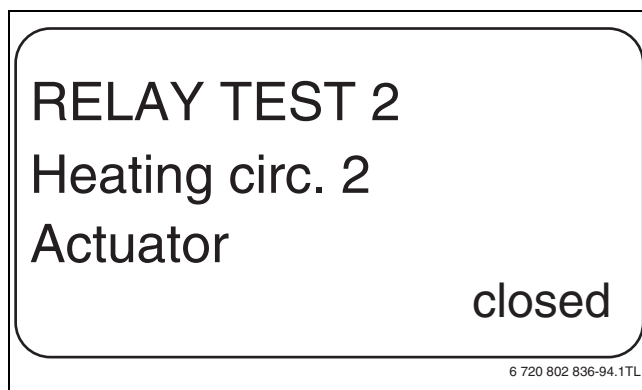


Fig. 76 Relay test

- ▶ Release **Display** to save your input.
- ▶ Press **Back** twice to return to the next higher level.  
The relay test is terminated. This will also be the case when you close the flap.



At the end of the Relay test, all adjustments are cancelled.

## 15 Multi boiler systems

The control unit, together with modules FM456 / 457/458, can regulate multi-boiler systems (cascades).

For a description of this function, see the technical documentation of the relevant module.

## 16 Carrying out an LCD test

Using the **LCD test** menu, you can check whether all characters and symbols are fully displayed.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **LCD test** appears.
- ▶ Press button **Display**.  
The LCD is OK, when all symbols are correctly displayed.
- ▶ Press **Back** to return to the next higher level.

## 17 Fault log

Using the **Fault log** menu you can display the last four fault messages for the heating system. The MEC2 can only display the fault messages of the control unit with which it is connected.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Fault log** appears.
- ▶ Press button **Display**.  
The fault message is displayed.  
If the control unit has recorded fault messages, these will be displayed together with the time for the beginning and end of the fault.  
The **No fault** message is shown if the connected control unit has not recorded any faults.

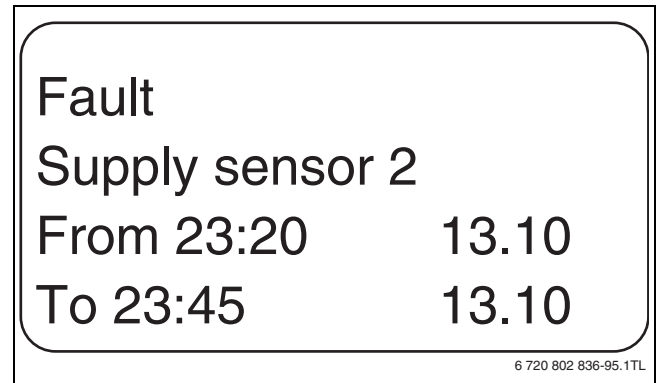


Fig. 77 Displaying the fault log

- ▶ Turn the rotary selector and scroll through recent fault messages.
- ▶ Press **Back** to return to the next higher level.

#### Fault displays

The following faults can be displayed on the control unit if alongside the ZM424, the most commonly used function module FM442 has been installed.

- Outs.temp.sensor
- Flow sensor x
- DHW sensor
- DHW is cold
- DHW warning
- Thermal disinfection
- Remote control x
- Communication HCx
- ECOCAN BUS reception
- No master
- Conflicting BUS addresses
- Address confl x
- Incorrect module x
- Unknown module x
- Inert anode
- External fault input
- Insuff. supply
- Flow sensor FZB
- Manual mode XX
- Maint. date

## 18 Monitor data

Using the **Monitor** menu you can display the set and actual settings. The menus described in these instructions relate exclusively to the control units with the most commonly used modules - FM441 and FM442.

Some display values are separated by a slash. The number in front of the slash specifies the set value of each corresponding parameter and the figure after the slash is the actual value.

The data for the following components (if installed) is displayed:

- Boiler
- heating circuits
- Domestic hot water
- Monitor data of other installed modules

### 18.1 Heating circuit monitor data

Using the Monitor menu **Heating circ.** you can display the data for one heating circuit.

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Monitor** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **Heating circ. 2** appears.
- ▶ Press **Display** to call up a submenu.  
The set and actual values for the flow and room temperatures are displayed.

The last line displays one of the following operating modes:

- Constant night
- Constant day
- Automatic night
- Automatic day
- Holiday
- Summer
- Start optimising
- Stop optimising
- Scream
- DHW Priority
- No setback
- ▶ Turn the rotary selector to scroll through the heating circuit monitor data.
- ▶ Press **Back** to return to the next higher level.

#### Design temperature adaptation

This value displays the design temperature calculated by adaptation.

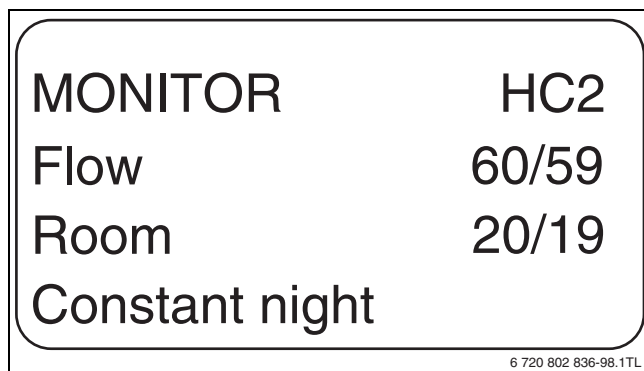


Fig. 78 Heating circuit monitor data

#### Start optimisation

A calculated period, by which the heating system starts its heating operation prior to the actual switching point, so that the set room temperature is reached by the actual start time.

#### Stop optimisation

A calculated period to commence an early setback to save energy.

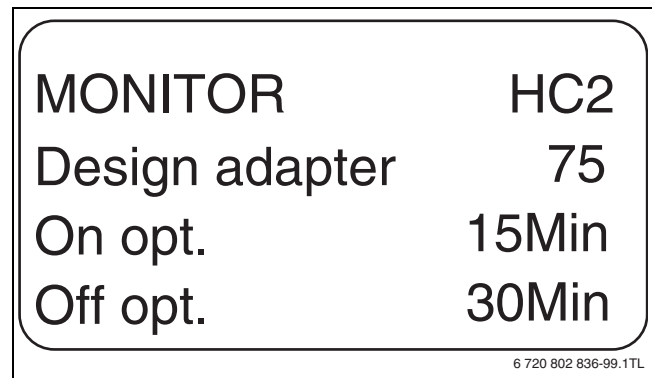


Fig. 79 Design temperature adaptation

#### Actuator

- 0%  
no control
- 50%  
Actuator is regulated in a cycle of 10 seconds for 5 seconds towards p "Mixer closes" (hotter).
- 100%  
Actuator is constantly regulated in a cycle of 10 seconds for 10 seconds towards q "Mixer closes" (colder).

#### Circulation pump

Indicates the operating state of the circulation pump.

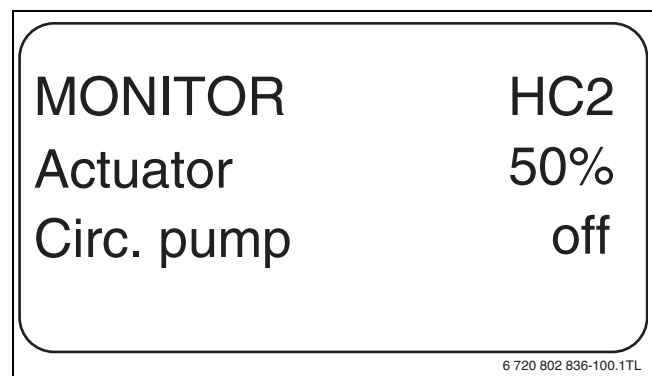


Fig. 80 Actuator

### 18.2 DHW monitor data

Using the Monitor menu **DHW** you can display the data for the DHW settings.

The displays depend on the settings selected under the **DHW** function (→ chapter 10, page 32ff.).

- ▶ Call up the service level.  
The first main menu is **General data**.
- ▶ Turn the rotary selector until main menu **Monitor** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary selector until submenu **DHW** appears.
- ▶ Press **Display** to call up a submenu.  
The calculated set value and the actual value for the **DHW temperature** are displayed.
- ▶ Turn the rotary selector to scroll through the DHW monitor data.



► Press **Back** to return to the next higher level.

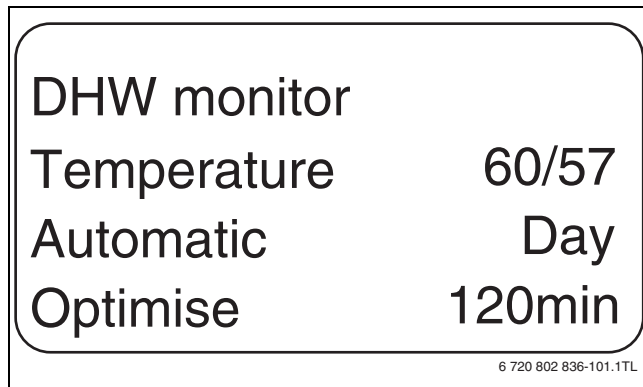


Fig. 81 DHW monitor data

- Possible operating modes:
  - Off
  - Constant operation
  - Automatic night
  - Automatic day
  - Holiday
  - Optimisation
  - Disinfection
  - Reheating
  - Daily heat-up

#### Optimise

Indicates the period during which the system commences DHW heating before the actual switching point, to achieve the set DHW temperature in good time.

#### DHW Pump

Indicates the operating condition of the cylinder primary pump.

#### DHW Circulat.

Indicates the operating condition of the DHW circulation pump.

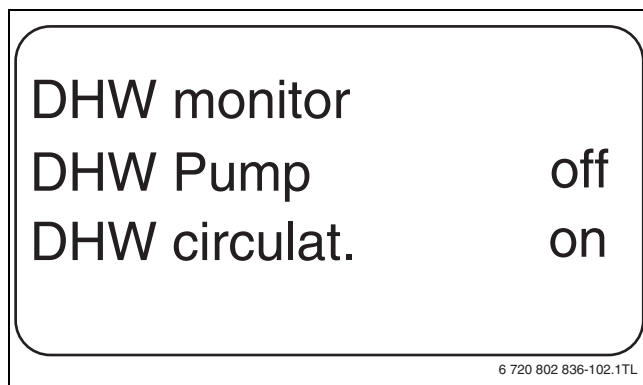


Fig. 82 DHW monitor data

### 18.3 Substation monitor data

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Monitor** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector until main menu **Substation** appears.
- Press **Display** to call up a submenu.
- Turn the rotary selector to scroll through the substation monitor data.
- Press **Back** to return to the next higher level.

#### Outdoor

The value indicates the current outside temperature.

#### Adjusted

The value describes the outside temperature, taking the specified type of building into consideration, with which the heating curve was calculated.

#### Flow

The value indicates the flow temperature (set value/actual value) that is captured by the master via the feed sensor, and that is transmitted by a substation via the ECOCAN BUS.

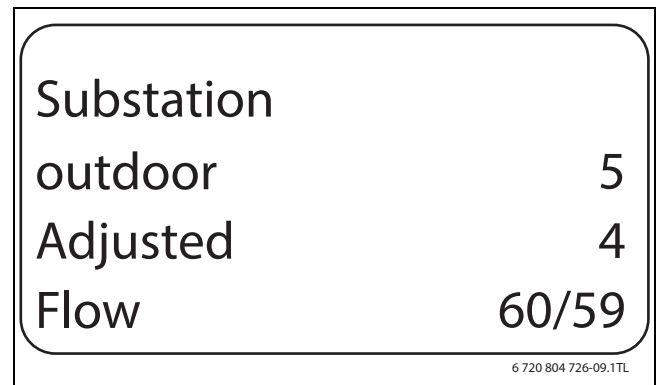


Fig. 83 Substation monitor data

#### System flow (set value/actual value)

The system flow of the control unit network is indicated.

#### Ext. requirement

The value indicates a further heat demand in °C via terminal U (connection 1 and 2) in accordance with the diagram on page 16.

#### Pump

The value indicates the status of the feed pump.

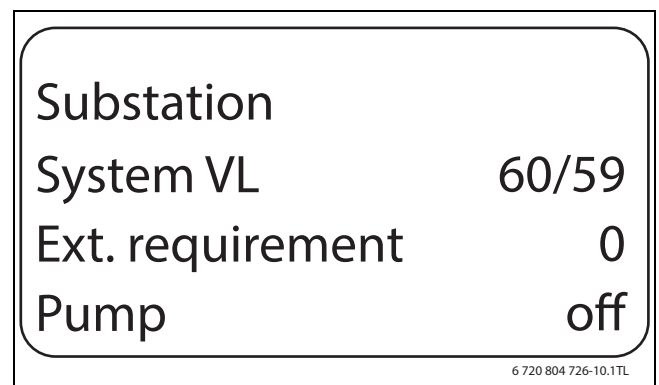


Fig. 84 Substation monitor data

## 19 Display version

Using the **Version** menu, the version of the MEC2 programming unit and the selected control unit can be displayed.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Version** appears.
- Press **Display** to call up a submenu.  
The versions for the MEC2 programming unit and the control unit are displayed.

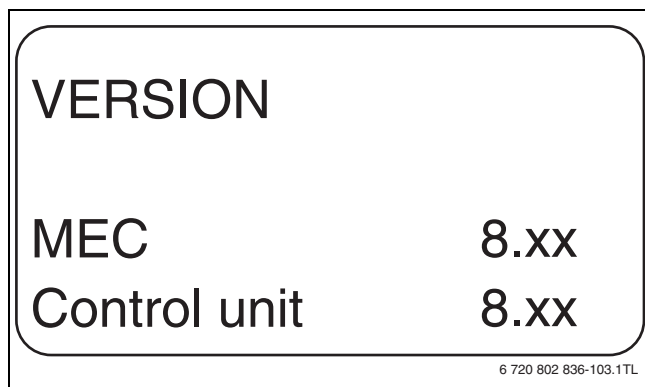


Fig. 85 Display version

- Press **Back** to return to the next higher level.

## 20 Selecting the control unit

Using the **Control unit** menu, a control unit can be selected if the MEC2 is operated **offline**, i.e. without a connected control unit or with a separate power supply unit.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Control unit** appears.
- Press **Display** to call up a submenu.  
The display shows the selected submenu.
- Hold down button **Display** and turn the rotary selector until the required value is shown.
- Press **Back** to return to the next higher level.

## 21 Reset



With the **Reset** menu, all settings of the operator or service level are reset to the factory settings.  
Exception: The timer programme remains in place.

### 21.1 Resetting all adjustments

All values are automatically reset.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Reset** appears.
- Press **Display** briefly to call up a submenu.  
Factory setting Control panel is shown as first submenu.



All settings may be lost if you press for too long.

- Press and hold button **Display**.

The blocks in the last line disappear one after the other. The settings are reset when no further blocks are displayed. If the button is released while a block is still being displayed, then the reset will be terminated. After implementing a reset, the display automatically reverts to the next level up.



Fig. 86 Resetting all adjustments

- If the reset is terminated, press **Back** to return to the next higher level.

### 21.2 Resetting the fault log

Using the **Reset Error** function you can reset the whole fault memory. This deletes all entries in the fault log.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Reset** appears.
- Press **Display** briefly to call up a submenu.  
The display shows the selected submenu.



All settings may be lost if you press for too long.

- Turn the rotary selector until submenu **Error** appears.
- Press and hold **Display**.  
The blocks in the last line disappear one after the other. The fault log is reset after the final block has disappeared. If the button is released before all blocks have disappeared, then the reset will be terminated. After implementing a reset, the display automatically reverts to the next level up.



Fig. 87 Resetting the fault log

- If the reset is terminated, press **Back** to return to the next higher level.

### 21.3 Resetting the maintenance message

After servicing has been completed, reset the maintenance message. This means that the maintenance message no longer appears if the flap is closed.



Resetting the maintenance message restarts the maintenance interval. Note that with maintenance messages set according to date, the next maintenance date will be fixed one year in the future.

- Call up the service level.  
The first main menu is **General data**.
- Turn the rotary selector until main menu **Reset** appears.
- Press **Display** briefly to call up a submenu.  
The display shows the selected submenu.



All settings may be lost if you press for too long.

- Turn the rotary selector until submenu **maint. message** appears.
- Press and hold **Display**.  
The blocks in the last line disappear one after the other. The maintenance message is reset after the final block has disappeared. If the button is released before all blocks have disappeared, then the reset will be terminated. After implementing a reset, the display automatically reverts to the next level up.



Fig. 88 Resetting the maintenance message

- If the reset is terminated, press **Back** to return to the next higher level.

## 22 Environment / disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.

The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.

We use the best possible technology and materials for protecting the environment taking account of economic considerations.

### Packaging

We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling.

All of our packaging materials are environmentally compatible and can be recycled.

### Used appliances

Used appliances contain valuable materials that should be recycled.

The various assemblies can be easily dismantled and synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling or disposal.

## 23 Faults and fault remediation

Fault	Effect on control characteristics	Cause	Remedy
Outs.temp. sensor	The minimum outside temperature is applied.	<ul style="list-style-type: none"> <li>The outside temperature sensor is either faulty, not connected or is not plugged into the control unit at the control unit with address 1, or is contacted at the wrong module.</li> <li>Central module or control unit faulty.</li> <li>Communication to control unit with address 1 is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Check the outside temperature sensor.</li> <li>Check whether the outside temperature sensor has been connected to the correct control unit (in multi-boiler systems to the control unit with address 1).</li> <li>Check communication with address 1.</li> <li>Replace outside temperature sensor or central module.</li> </ul>
Flow sensor x	The mixer is always fully open.	<ul style="list-style-type: none"> <li>Sensor is faulty or not connected.</li> <li>An actuator (mixer) was selected for the heating circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection.</li> <li>If the heating circuit is to be operated without an actuator, enter <b>No</b> under actuator in the appropriate menu of the MEC2 (→ chapter 9.20, page 28).</li> </ul>
DHW sensor	DHW heating has stopped.	<ul style="list-style-type: none"> <li>Sensor faulty or not connected.</li> <li>DHW has been selected.</li> <li>Module or control unit faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection.</li> <li>Check sensor connection on DHW cylinder.</li> <li>If DHW heating is no longer required, deselect DHW in the MEC2 under DHW data (→ chapter 10, page 32).</li> <li>Replace sensor or module.</li> </ul>
DHW is cold	DHW heating has stopped. Current DHW temperature is below 40 °C.	<ul style="list-style-type: none"> <li>Primary pump faulty.</li> <li>Function module FM441 faulty.</li> <li>More DHW is removed than newly heated.</li> </ul>	<ul style="list-style-type: none"> <li>Check that temperature control or hand switch is set to <b>AUT</b>.</li> <li>Check function of sensor and tank primary pump.</li> <li>Replace FM441 module.</li> <li>Check sensor connection on DHW cylinder.</li> </ul>
DHW warning	<ul style="list-style-type: none"> <li>There is a constant attempt to fill the DHW cylinder.</li> <li>DHW priority is switched off after this fault message is displayed.</li> </ul>	<ul style="list-style-type: none"> <li>Constant drawing or system leak.</li> <li>Manual switch not set to <b>AUT</b>.</li> <li>Sensor faulty or not connected. Sensor incorrectly mounted.</li> <li>Primary pump incorrectly connected or faulty.</li> <li>Module or control unit faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Stop any leaks.</li> <li>Check whether the manual switches are set to <b>AUT</b>.</li> <li>Check sensor connection and values.</li> <li>Check the primary pump function, e.g. with a relay test (→ chapter 14, page 38).</li> <li>Replace sensor or module.</li> </ul>
Thermal disinfection	Thermal disinfection has been interrupted.	<ul style="list-style-type: none"> <li>The boiler output is insufficient because e.g. other heat consumers (heating circuits) demand heat during pasteurisation.</li> <li>Sensor faulty or not connected.</li> <li>Primary pump incorrectly connected or faulty.</li> <li>Module or control unit faulty.</li> <li>Too much water drawn during thermal disinfection.</li> </ul>	<ul style="list-style-type: none"> <li>Select pasteurisation at a time when no other heat demand is made.</li> <li>Check sensor and primary pump function, and replace if required (→ chapter 14, page 38; chapter 2.7, page 5).</li> <li>Replace module or control unit if required.</li> </ul>
Remote control X	Because no actual room temperature is available, the effect of the following features is disabled: Room influence, start and stop optimisation, and automatic adaptation.	<ul style="list-style-type: none"> <li>The remote control unit is incorrectly connected or faulty.</li> <li>Incorrect address allocated to remote control.</li> <li>Remote control cable damaged by a drill or is broken.</li> </ul>	<ul style="list-style-type: none"> <li>Check function/connection of remote control.</li> <li>Also check the addressing of the remote control.</li> <li>Check connecting cables.</li> <li>Replace remote control or module.</li> </ul>
Communication HCX	Because no actual room temperature is available, the effect of the following features is disabled: Room influence, start and stop optimisation, and automatic adaptation.	<ul style="list-style-type: none"> <li>Remote control incorrectly connected or defective.</li> <li>Neither a BFU remote control nor an MEC2 was selected for this heating circuit in the MEC2.</li> <li>Incorrect address allocated to remote control.</li> <li>Remote control or module is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check function/connection of remote control.</li> <li>Select the correct remote control in the MEC2 under <b>Remote control</b> (→ chapter 9.7, page 23).</li> <li>Also check the addressing of the remote control.</li> <li>Replace remote control or module.</li> </ul>

Table 81 fault overview

Fault	Effect on control characteristics	Cause	Remedy
ECOCAN BUS Reception	No effect on control characteristics.	<ul style="list-style-type: none"> <li>Rotary encoder behind MEC2 on CM431 is incorrectly addressed.</li> <li>Gravity switch on NM482 is incorrectly positioned.</li> </ul>	<ul style="list-style-type: none"> <li>► Check setting of rotary encoder (→ chapter 4.1, page 8).</li> <li>► Check gravity switch (→ chapter 4.2, page 9).</li> </ul>
No master	<ul style="list-style-type: none"> <li>Minimum outside temperature is expected.</li> </ul>	<ul style="list-style-type: none"> <li>There is no master control unit (address 1) in the network.</li> <li>Connecting cable to master control unit broken.</li> <li>Master control unit (address 1) is switched off or faulty.</li> </ul>	<ul style="list-style-type: none"> <li>► Check addresses of all control units. Address 1 must be allocated to the master control unit (rotary encoder behind MEC2 on CM431 of the control unit) (→ chapter 4.1, page 8).</li> <li>► Check function of connecting cables.</li> <li>► Check master control unit and replace if necessary.</li> </ul>
Conflicting BUS addresses	<ul style="list-style-type: none"> <li>BUS communication no longer possible.</li> <li>All control functions requiring data exchange via the ECOCAN BUS can no longer be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Multiple identical addresses are present.</li> <li>Each address must only be allocated once in the ECOCAN BUS network.</li> </ul>	<ul style="list-style-type: none"> <li>► Check the addresses of all BUS subscribers (rotary encoder behind MEC2 in CM431 of the control unit, → chapter 4.1, page 8).</li> </ul>
Address conflict X	The functions of the module with the address conflict can no longer be carried out. However, communication of all other modules and control units via the CAN-BUS is still possible.	<ul style="list-style-type: none"> <li>Module must not be installed into this control unit (e.g. 2 x FM441 in one control unit or FM447 in control unit).</li> </ul>	<ul style="list-style-type: none"> <li>► Check whether the module may be used with this type of control unit (→ chapter 4, tab. 8, page 8).</li> </ul>
Incorrect module X	Module switches all outputs off and corresponding fault LED on.	<ul style="list-style-type: none"> <li>An incorrect module has been selected for this slot in the MEC2.</li> <li>Different module installed in one slot of control unit (e.g. FM442 was replaced with FM441).</li> <li>The MEC2, corresponding module or control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>► Check module defaults at the MEC2 service level (→ chapter 8, page 20).</li> <li>► Insert new module into MEC2 programming unit (→ chapter 8, page 20).</li> <li>► If necessary, replace MEC2 or module.</li> </ul>
Unknown module X	Module switches all outputs off and corresponding fault LED on.	<ul style="list-style-type: none"> <li>The controller software is too old to recognise the module.</li> <li>The module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>► Check the version of the control unit in the MEC2 (→ chapter 19, page 42).</li> <li>► Replace module or control unit if required.</li> </ul>
Inert anode	No effects on control characteristics.	<ul style="list-style-type: none"> <li>Inert anode incorrectly connected or faulty.</li> <li>Module is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>► Check the connection and replace inert anode if necessary.</li> <li>► Replace module.</li> </ul>
External fault input	No effects on control characteristics.	<ul style="list-style-type: none"> <li>External components incorrectly connected or faulty.</li> <li>Module is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>► Check connection.</li> <li>► Check connection and function of external components (cylinder primary and DHW circulation pumps).</li> <li>► Replace module if required.</li> </ul>
Insuff. supply	<ul style="list-style-type: none"> <li>Pump logic will be cancelled.</li> <li>System may be insufficiently supplied.</li> </ul>	<ul style="list-style-type: none"> <li>Boiler sensor incorrectly positioned. Sensor must always be installed in the heat source.</li> <li>Heat supply insufficient or non-existent.</li> </ul>	<ul style="list-style-type: none"> <li>► Fit boiler sensor in the heat source or buffer cylinder.</li> <li>► Recharge a wood burning boiler, for example.</li> </ul>

Table 81 fault overview

Fault	Effect on control characteristics	Cause	Remedy
Flow sensor FZB	Pump logic will be cancelled.	<ul style="list-style-type: none"> <li>• Sensor is faulty or not connected.</li> <li>• Sensor should not be required, but is needed because control unit has been incorrectly set up.</li> <li>• Module or control unit faulty.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Check sensor connection and replace the sensor if necessary.</li> <li>▶ Check control unit address: <ul style="list-style-type: none"> <li>– Sensor is required for address 0 or 1 at the CM431.</li> <li>– With a CAN address &lt; 1, a boiler system is regulated by this control unit, then parameter Minimum Heat-up temp (→ chapter 11.1, page 37) is set to <b>off</b>.</li> <li>– Sensor will only be required for control unit addresses higher than 1 if boiler rise (→ chapter 9.22, page 28) higher than 0 has been entered.</li> </ul> </li> <li>▶ Replace module or control unit if required.</li> </ul>
Manual mode XX	Control unit operates in manual mode.	<ul style="list-style-type: none"> <li>• It is possible that the manual switch of a function module has not been set to <b>AUT</b>.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Set the manual switch of the corresponding function module to <b>AUT</b>.</li> </ul>
Maintenance/ date	No effect on control characteristics.	<ul style="list-style-type: none"> <li>• The specified period before the next service has expired.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Perform maintenance and then reset maintenance message.</li> </ul>

Table 81 fault overview

## 24 Sensor curves



**DANGER:** Danger to life from electric shock!

- Before opening the appliance, isolate all poles of the mains power supply and secure against unauthorised re-connection.

Using the diagram, determine whether temperature and resistance correlate.



The sensor tolerance for all curves is  $\pm 3\%/25\text{ }^{\circ}\text{C}$ .

Fault checking (without room temperature sensor)

- Remove sensor terminals.
- Check the resistance at the sensor lead ends using an ohmmeter.
- Check the temperature of the sensor with a thermometer.

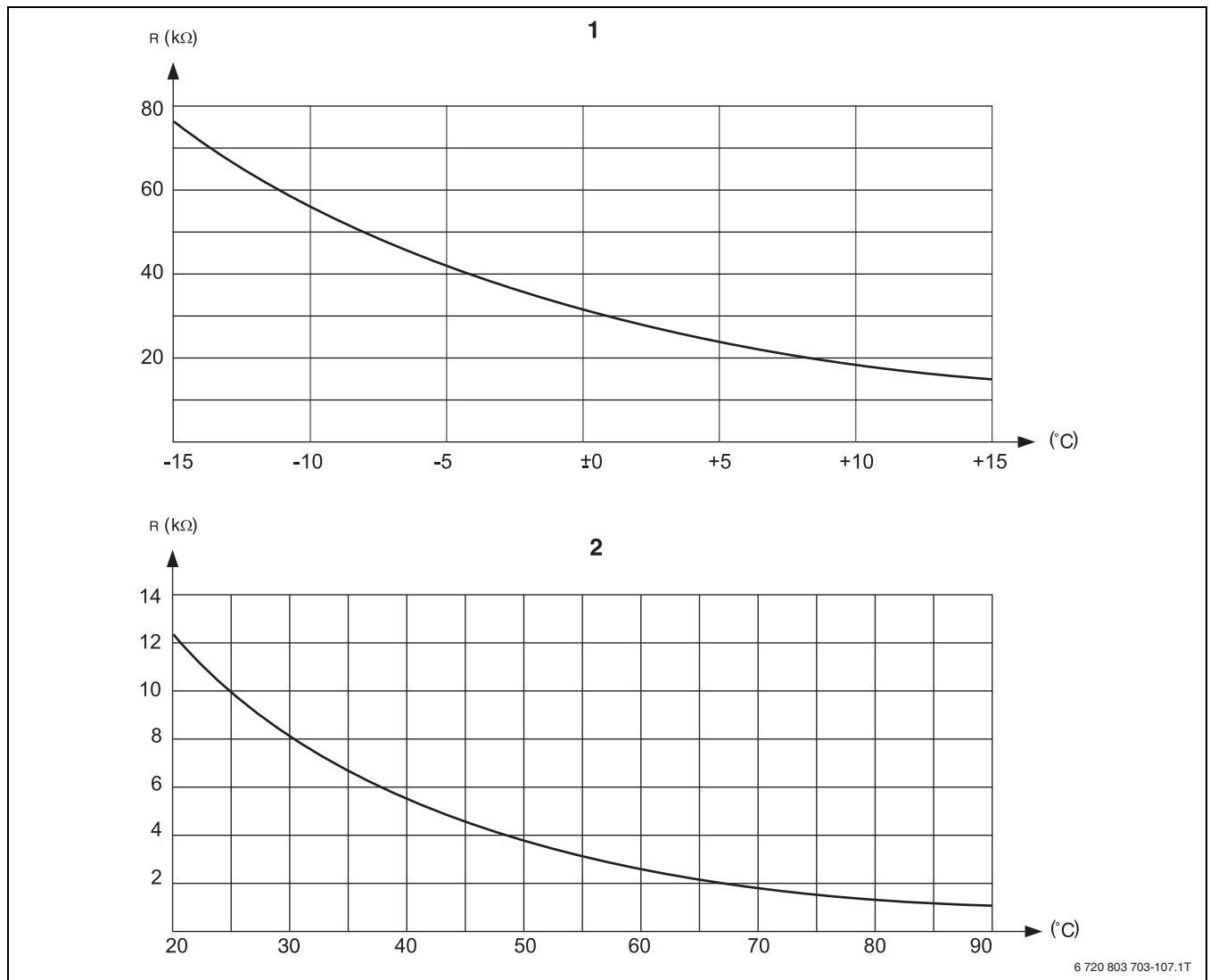


Fig. 89 Outside temperature sensor and boiler water, flow, and DHW temperature sensors

- [1] Outside temperature sensor curve
- [2] Sensor curves - boiler water, flow and DHW temperature



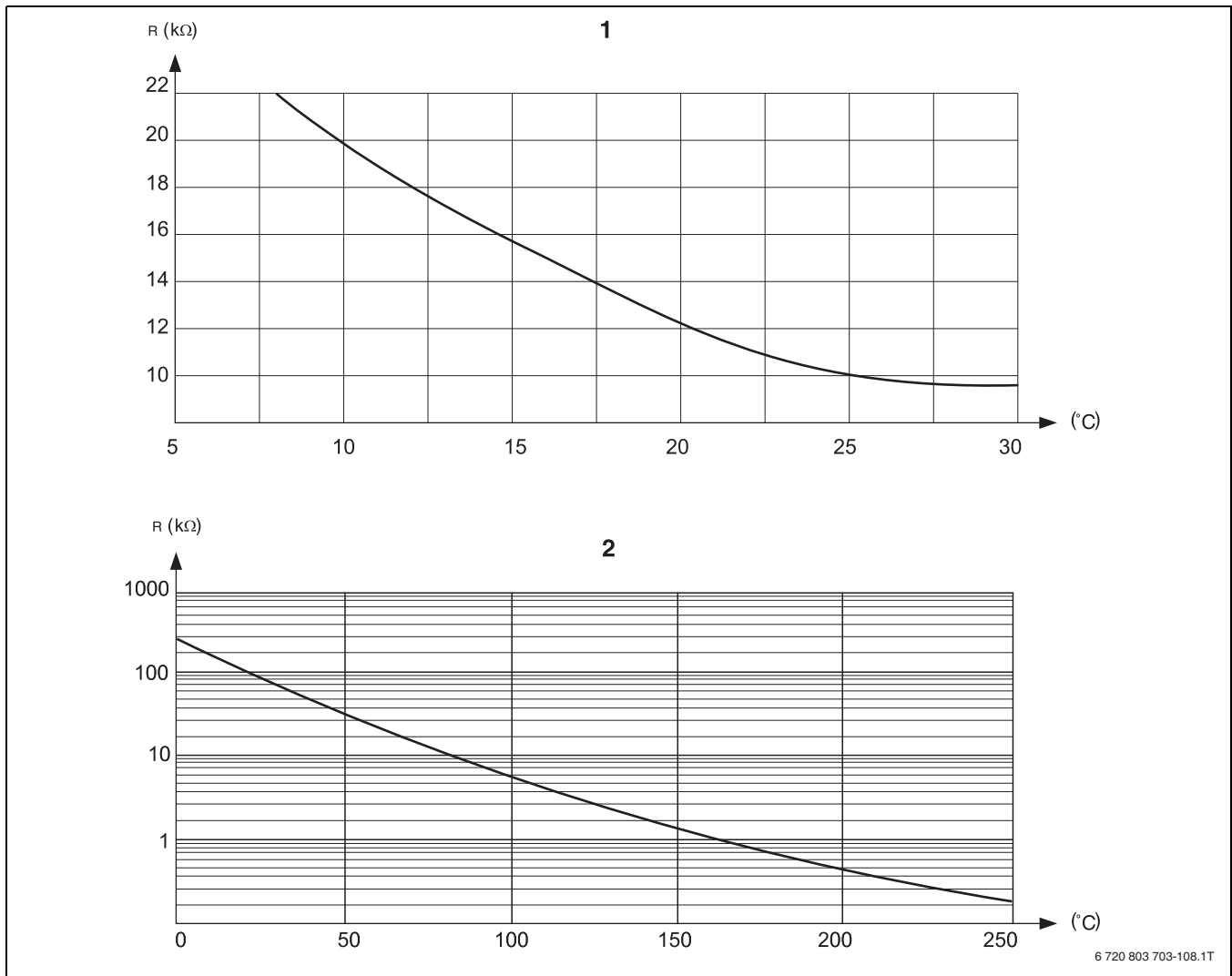


Fig. 90 Room temperature and flue gas temperature sensors

- [1] Room temperature sensor curve
- [2] Flue gas temperature sensor (FG) curve

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## Notes

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