

## Logamatic 4211

Read carefully prior to  
installation and maintenance.

## Table of contents

<b>1</b>	<b>Key to symbols and safety instructions</b>	<b>4</b>	<b>8</b>	<b>General specification data</b>	<b>16</b>
1.1	Key to symbols	4	8.1	Minimum outside temperature	17
1.2	Safety regulations	4	8.2	Type of building	18
<b>2</b>	<b>Product information</b>	<b>4</b>	8.3	Summer/wintertime changeover	18
2.1	Determined use	4	8.4	Remote adjust.	19
2.2	EU Declaration of Conformity	4	8.5	Manual switch fault message	19
2.3	Notes on commissioning	5	8.6	Automatic maint. message	19
2.4	Cleaning the control unit	5	8.7	Module selection	20
2.5	Product description	5	<b>9</b>	<b>Boiler parameters</b>	<b>20</b>
2.6	Scope of supply	5	9.1	Select boiler type	20
2.7	Technical data	5	9.1.1	Low temperature boilers	20
2.7.1	Logamatic 4211 control unit	5	9.1.2	Ecostream boilers	21
2.7.2	FM442 function module	5	9.1.3	Condensing boiler	21
<b>3</b>	<b>Setting instructions</b>	<b>5</b>	9.1.4	Low-temperature boilers with base temperature	21
3.1	Setting instructions and replacement instructions for high limit safety cut-out (STB)	5	9.2	Setting the burner type	22
3.1.1	Setting and careful installation of the high limit safety cut-out	5	9.2.1	Modulating burner	22
3.1.2	Adjusting the high limit safety cut-out	6	9.2.2	2 x single stage burner	22
3.2	Setting instructions for boiler water thermostat (TR)	6	9.3	General settings regarding boiler parameters	23
<b>4</b>	<b>Controls and MEC2 programming unit</b>	<b>7</b>	9.3.1	Set up the pump function	23
4.1	Control unit controls	7	9.3.2	Setting boiler pump run-on time	23
4.2	MEC2 programming unit	8	9.3.3	Setting the minimum burner runtime	23
<b>5</b>	<b>Modules and their function</b>	<b>9</b>	9.3.4	Selecting the minimum start temperature	23
5.1	CM431 controller module	9	9.3.5	Selecting the maximum shutdown temperature	24
5.2	NM482 power supply module	10	9.3.6	Setting the maximum flue gas temperature limit	24
5.3	Central module ZM422	10	<b>10</b>	<b>Heating circuit data</b>	<b>24</b>
5.3.1	Burner function	11	10.1	Adjusting the heating system	24
5.3.2	Heating circuit and DHW functions	11	10.2	Rename the heating circuit	25
5.4	FM442 function module (accessory)	11	10.3	Setting the low end temperature	25
<b>6</b>	<b>Commissioning</b>	<b>12</b>	10.4	Setting the design temperature	25
6.1	Commissioning the MEC2 programming unit	12	10.5	Setting the Minimum flow temperature	26
6.1.1	Ex works MEC2 installed in a control unit	12	10.6	Setting the maximum flow temperature	26
6.1.2	MEC2 installed in another control unit	12	10.7	Select the remote control	26
6.1.3	MEC2 with set parameters installed in control unit	12	10.8	Maximum room influence setting	27
6.2	Checking the high limit safety cut-out (STB)	13	10.9	Select the type of setback	27
6.2.1	Triggering the high limit safety cut-out	13	10.10	Setting the outside stop temperature	28
6.2.2	Terminating or cancelling the test	13	10.11	Setting holiday mode	28
6.2.3	Resetting the high limit safety cut-out	14	10.12	Stopping setback at low outside temperatures	28
<b>7</b>	<b>Settings</b>	<b>15</b>	10.13	Setting flow setback	29
7.1	Adjustable parameters and display data	15	10.14	Setting the room temperature offset	29
7.2	Calling up the service level	16	10.15	Automatic adaptation setting	29
7.2.1	Control system "Press and turn"	16	10.16	Setting switching optimisation	30
7.2.2	Calling up main menus	16	10.17	Set switch off optimisation time	30
7.2.3	Calling up submenus	16	10.18	Setting frost protection temperature	31
7.3	Calling up and modifying settings	16	10.19	Setting DHW priority	31
			10.20	Setting the heating circuit actuator	31
			10.21	Set the actuator run-time	32
			10.22	Setting the boiler raising	32
			10.23	Setting the external changeover	32
			10.24	External fault message - pump	33
			10.25	Screed drying	33
			10.25.1	Setting the temperature rise	34
			10.25.2	Setting the heat-up time	34

10.25.3 Setting the maximum temperature .....	34		
10.25.4 Setting the hold time .....	35		
10.25.5 Setting the setback temperature .....	35		
10.25.6 Setting the setback time .....	35		
<b>11 DHW data .....</b>	<b>35</b>		
11.1 Select Domestic hot water .....	35		
11.2 Setting the temperature range .....	36		
11.3 Selecting switching optimisation .....	36		
11.4 Selecting residual heat use .....	36		
11.5 Setting hysteresis .....	37		
11.6 Raising the boiler temperature .....	37		
11.7 External fault indication (WF1/WF2) .....	37		
11.8 External contact (WF1/WF3) .....	37		
11.9 Thermal disinfection .....	38		
11.9.1 Setting thermal disinfection .....	38		
11.9.2 Setting the temperature .....	38		
11.9.3 Setting the weekday .....	39		
11.9.4 Setting the time .....	39		
11.10 Setting range Daily heat-up .....	39		
11.11 DHW circulation pump .....	40		
11.11.1 Selecting the DHW circulation pump .....	40		
11.11.2 Setting intervals .....	40		
<b>12 Special parameter .....</b>	<b>40</b>		
<b>13 Heating curve .....</b>	<b>41</b>		
<b>14 Relay test .....</b>	<b>41</b>		
<b>15 Carrying out an LCD test .....</b>	<b>41</b>		
<b>16 Fault log .....</b>	<b>42</b>		
<b>17 Monitor data .....</b>	<b>42</b>		
17.1 Boiler monitor data .....	42		
17.2 Heating circuit monitor data .....	43		
17.3 DHW monitor data .....	44		
<b>18 Display version .....</b>	<b>44</b>		
<b>19 Selecting the control unit .....</b>	<b>44</b>		
<b>20 Reset .....</b>	<b>45</b>		
<b>21 Environment / disposal .....</b>	<b>45</b>		
<b>22 Faults and fault remediation .....</b>	<b>46</b>		
<b>23 Appendix .....</b>	<b>48</b>		
23.1 Sensor curves .....	48		
23.2 Heating curves .....	50		
23.3 Setting specific boiler data .....	51		
<b>Keyword index .....</b>	<b>52</b>		

## 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.

- **NOTE** 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)

Tab. 1

### 1.2 Safety regulations

#### 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 flue gas 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 regarding the safe and appropriate commissioning and servicing of the Logamatic 4211 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 4211 control unit is only intended to control heating systems in homes, apartment buildings, 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, 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.
- ▶ Switch on the control unit first and then the boiler.
- ▶ To shut down, switch off the boiler first and then the control unit.
- ▶ Ensure that there is sufficient heat load, 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 4211 control unit is suitable for regulating a floor standing Buderus oil/gas fired boiler with single stage, two-stage or modulating burner.

As standard, the unit includes the DHW heating (cylinder system) and heating circuit control (one heating circuit without actuator) functions. It can be expanded by adding up to two function modules to suit the requirements of the heating system.

## 2.6 Scope of supply

Included in the standard delivery:

- Digital Logamatic 4211 control unit with MEC2 programming unit
- FA outside temperature sensor
- Boiler water temperature sensor FK

## 2.7 Technical data

### 2.7.1 Logamatic 4211 control unit

	Unit	4211
Dimensions B/H/L	mm	460/240/230
Operating voltage (at 50 Hz $\pm 4\%$ )	V	230 $\pm 10\%$
Power consumption	VA	5
Control unit fuse	A	10
Maximum switching current		
• Burner output	A	8
• Boiler or heating circuit pump output		5
Boiler circuit actuator control	V	230
Servomotor runtime, burner modulating	sec	120 (adjustable from 5 to 60)
Type of controller - burner and heating circuit actuator		Three-point stepper controller (PI characteristics)
Ambient temperatures		
• Operation	°C	+5...+50
• Transport		-20...+55

Tab. 2 Technical data for Logamatic 4211 controller

Sensor	lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FA	-50	-40	50	> 70
FK	< -5	0	> 108	> 125
FB	< -5	0	99	> 125

Tab. 3 Sensor measuring range

### 2.7.2 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)
Type of controller	–	Three-point stepper controller (PI characteristics)

Tab. 4 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
FB flow temp. HC right	< -5	0	99	125

Tab. 5 Sensor measuring range

# 3 Setting instructions

## 3.1 Setting instructions and replacement instructions for high limit safety cut-out (STB)

### 3.1.1 Setting and careful installation of the high limit safety cut-out



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

- ▶ Before opening the control unit, isolate all poles of the control unit and secure against unauthorised re-connection.

To be able to set the temperatures, the high limit safety cut-out (STB) must be removed from the control unit housing.

- ▶ Undo screws [1].
- ▶ Remove cover [2].
- ▶ Remove protective cap [3].
- ▶ Undo the screw connection.
- ▶ Remove the STB with its assembly plate and make the adjustments (→ chapter 3.1.2).

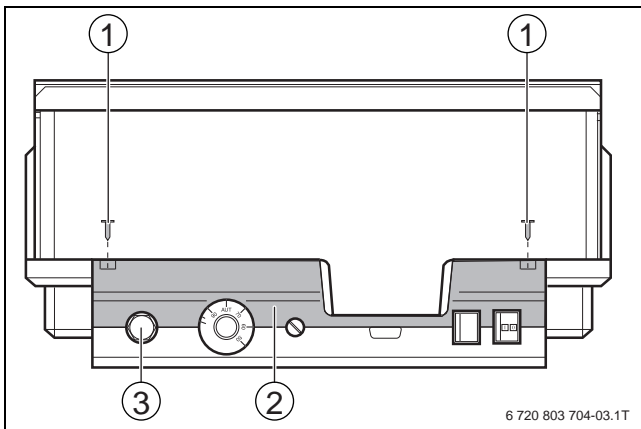


Fig. 1 Remove the high limit safety cut-out

- [1] Screws
- [2] Cover
- [3] STB protective cap



Set the high limit safety cut-out in accordance with local regulations, applicable standards and the boiler certificate to the maximum permissible heating system temperature.



The factory setting is 110 °C.

### 3.1.2 Adjusting the high limit safety cut-out



**CAUTION:** System damage due to incorrect installation of the STB at the boiler!

The sensor must be pushed into the sensor well as far as possible to ensure a reliable and fast shutdown in case of excess temperature. Ensure an optimum heat transfer from STB sensor to boiler. The sensors must be secured in the sensor wells by means of the sensor locks (standard delivery). The capillaries must not be damaged or kinked.

- ▶ Verify the function of the STB before commissioning.
- ▶ Regular checks must be performed in accordance with the boiler manufacturer's specifications



**DANGER:** Risk to life and of system damage through incorrect shutdown of the STB.

- ▶ Ensure that the STB is correctly shut down before commissioning the boiler.



Special regulations and standards apply to boilers with an STB setting of 120 °C. Boilers installed with an STB setting higher than 110 °C have to meet specific requirements.

#### Version A

- ▶ Undo the screw [3].
- ▶ Adjust the temperature scale [2] to setting [1].
- ▶ Re-tighten screw [3].

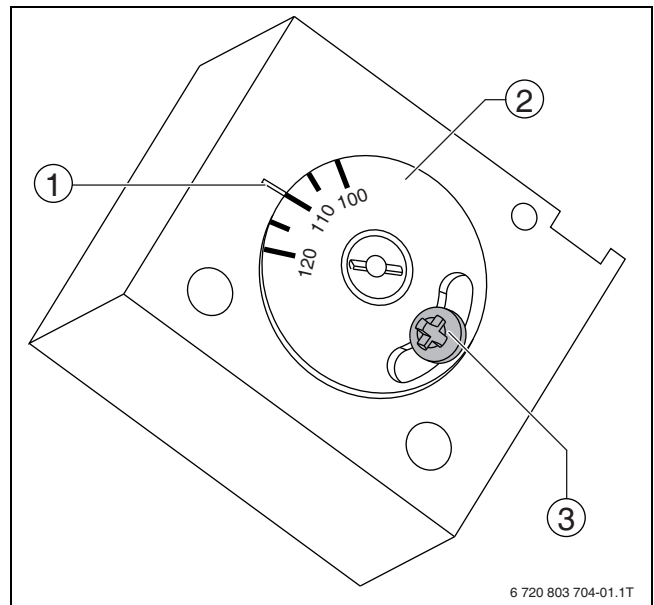


Fig. 2 Adjusting the high limit safety cut-out (STB) - variant A

- [1] Marking
- [2] Temperature scale
- [3] Screw

▶ Install STB into housing.

▶ Check the high limit safety cut-out (→ chapter 6.2, page 13).

#### Version B

- ▶ Set the temperature using a screwdriver.

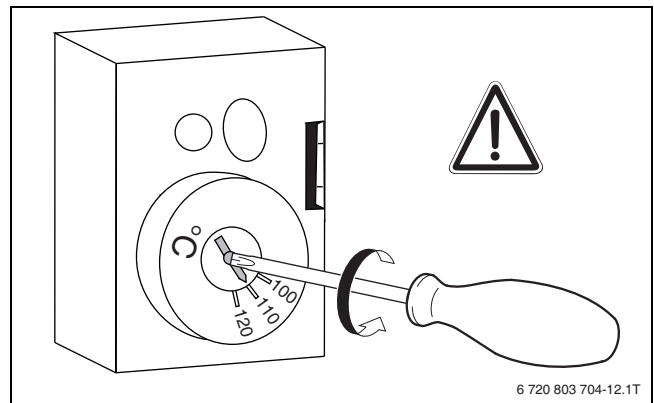


Fig. 3 Adjusting the high limit safety cut-out (STB) - variant B

▶ Install STB into housing.

▶ Check the high limit safety cut-out (→ chapter 6.2, page 13).

## 3.2 Setting instructions for boiler water thermostat (TR)



Changing the boiler temperature controller from 90 °C to 105 °C (STB setting 120 °C only).



Logamatic control units can be operated with a maximum flow temperature of 99 °C (→ chapter 9.3.5, page 24).

For systems requiring a boiler water temperature higher than 90 °C (observe the relevant notice), the boiler temperature controller can be changed from 90 °C to 105 °C.

- ▶ Pull off rotary dial.
- ▶ Break off the end stop tabs [1].

► Reposition rotary dial.

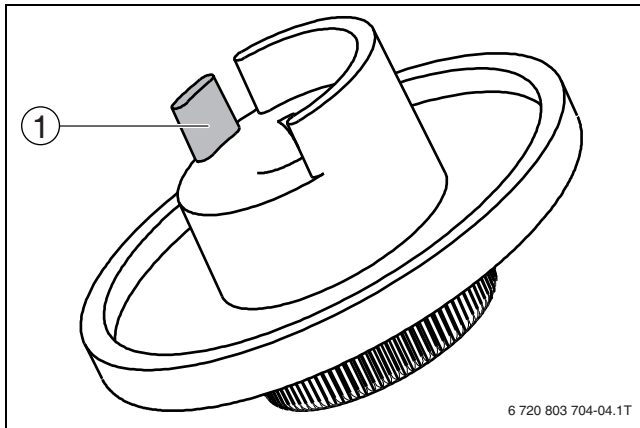


Fig. 4 Boiler water temperature controller

[1] End stop tabs

## 4 Controls and MEC2 programming unit

### 4.1 Control unit controls

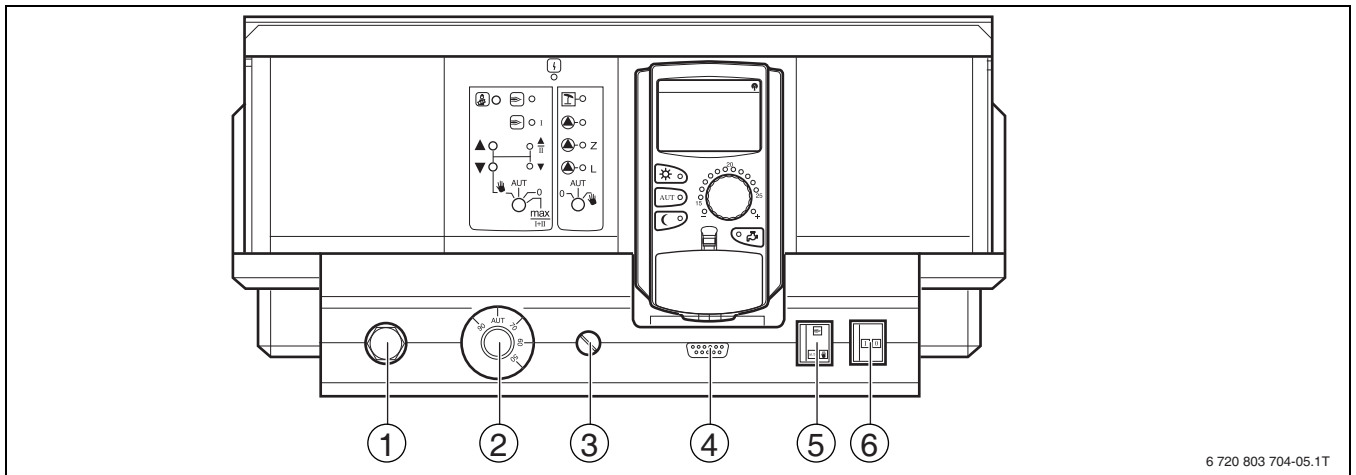


Fig. 5 Control unit controls (delivered condition)

- |   |  |
|---|--|
| [1] High limit safety cut-out           | [4] Connection for external service equipment and MEC2 |
| [2] Boiler water temperature controller | [5] Burner emergency operation switch                  |
| [3] Fuse F1                             | [6] On/Off switch                                      |

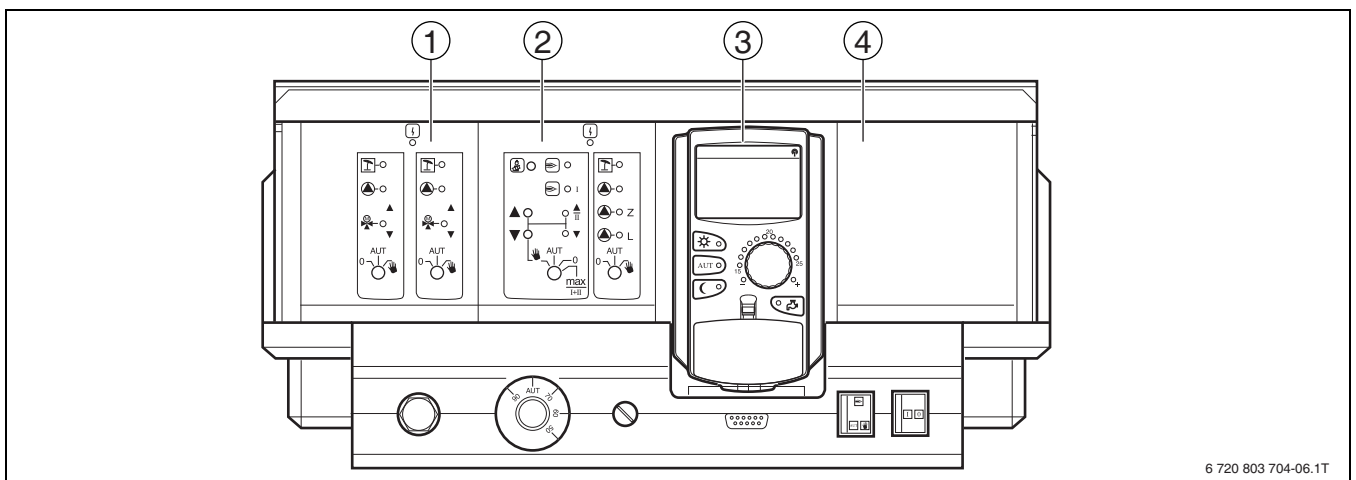


Fig. 6 Fitted modules

- |   |   |
|---|---|
| [1] Slot 1: e.g. FM442 - heating circuit 1, heating circuit 2         | [3] Slot B: MEC2 (CM431) - MEC2 programming unit              |
| [2] Slot A: ZM422 - feed for external heat sources, heating circuit 0 | [4] Slot 2: e.g. FM442 - heating circuit 3, heating circuit 4 |

## 4.2 MEC2 programming unit

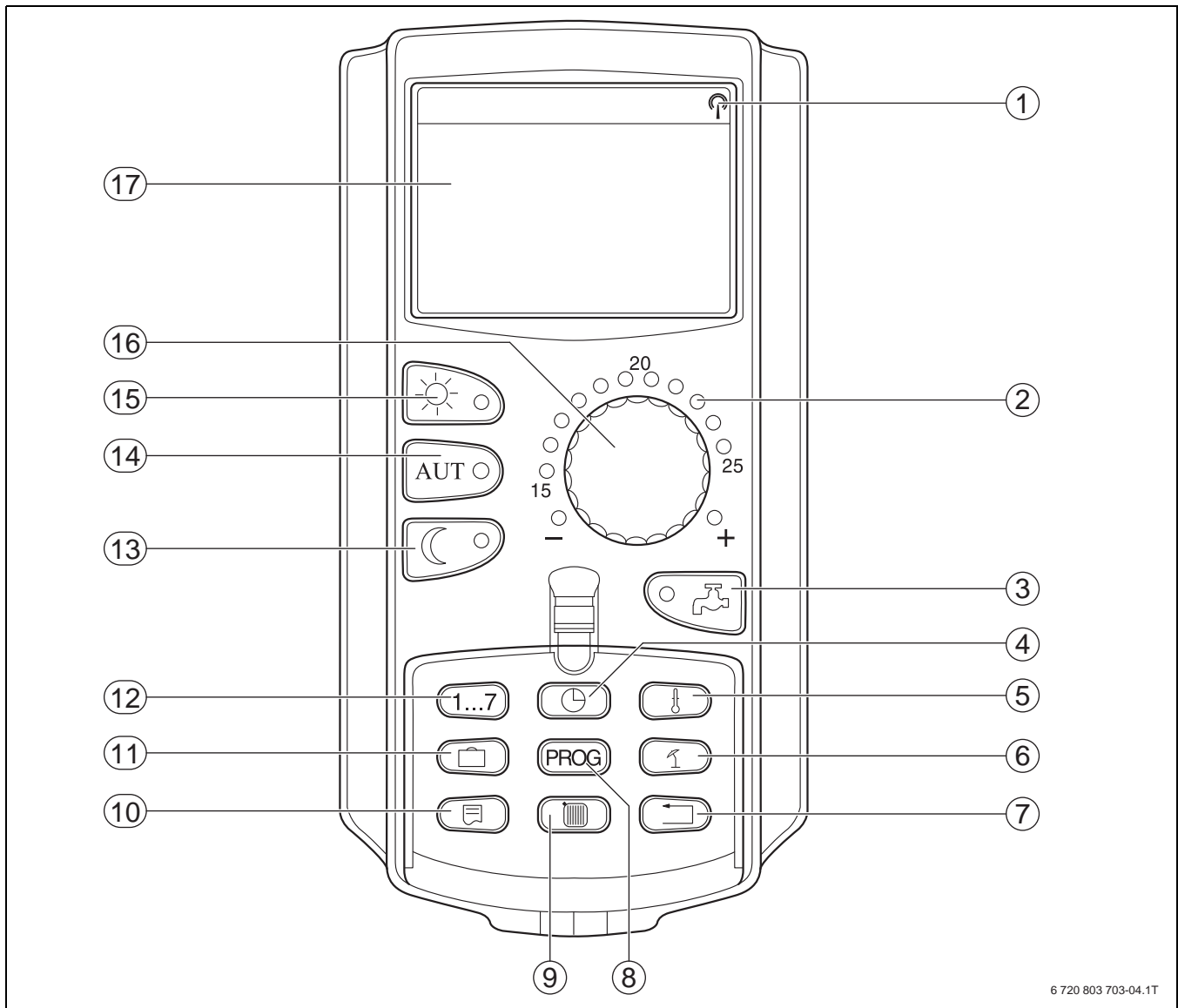


Fig. 7 MEC2 programming unit

- |  |  |
|--|--|
| [1] Radio clock signal (only in Germany)   | [10] Select standard display                           |
| [2] Display for set room temperature       | [11] Enter holidays                                    |
| [3] Input DHW temperature/heating          | [12] Enter the day of the week                         |
| [4] Setting the time                       | [13] Constant setback mode                             |
| [5] Change temperature values              | [14] Automatic heating mode in dial with a time switch |
| [6] Summer/wintertime changeover           | [15] Constant heating mode                             |
| [7] Back to the standard display           | [16] Rotary dial                                       |
| [8] Select a time switch program           | [17] Display   |
| [9] Selecting heating circuits/DHW circuit |  |



## 5 Modules and their function

All modules which are or can be fitted into your Logamatic 4211 control unit are shown here.

The following pages contain information regarding the most important modules you can use.

module	Logamatic 4211
MEC2	0
CM431 controller module	0
Central module ZM422 – burner control, 1 heating circuit + 1 DHW circuit	0
FM441 function module – heating circuit + 1 DHW circuit	–
FM442 function module – 2 heating circuits	X
FM443 function module – solar circuit	X
FM444 function module – alternative heat source	X
FM445 function module – LAP/LSP (primary system)	X
FM448 function module – central fault message	X
ZM426 additional module – additional STB	X
FM458 function module – strategy module	–

Tab. 6 Modules and their functions

- [O] Standard equipment  
[X] Optional equipment  
[–] Combination not possible

### 5.1 CM431 controller module

#### Setting the control unit address

Address settings [1] for the Logamatic 4211 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.

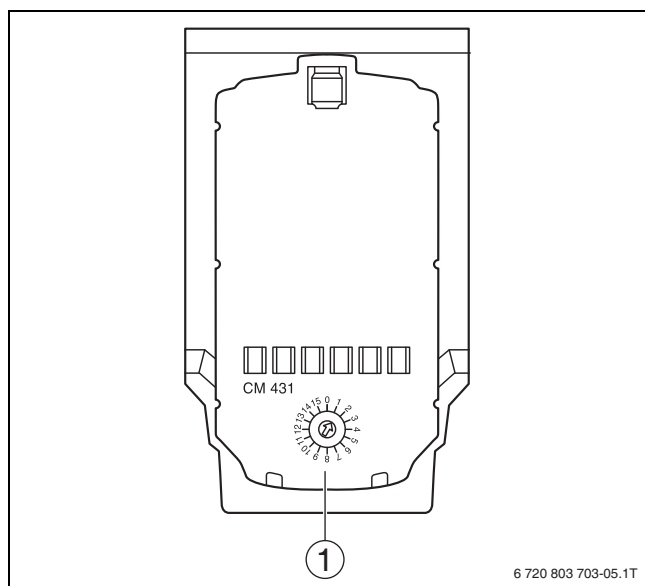


Fig. 8 Address setting

[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 device must be given a different address if several devices are connected to the network. 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 ambient 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 temperature setpoint. <b>Any network must only include one master.</b>
2 – 15	Not applicable to Logamatic 4211 control unit

Tab. 7 Control unit addresses

## 5.2 NM482 power supply module

### End connection when networking several control units



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

- Ensure that all electrical work is only carried out by a competent person.
- Before opening the control unit, isolate all poles of the control unit and secure against unauthorised re-connection.

To ensure fault free data transmission between several control units, fit the end connections to the two control units which are furthest apart.

The end connection is fitted to the component side of the NM482 power supply module, and is activated by the gravity switch (Fig. 9, [2]).

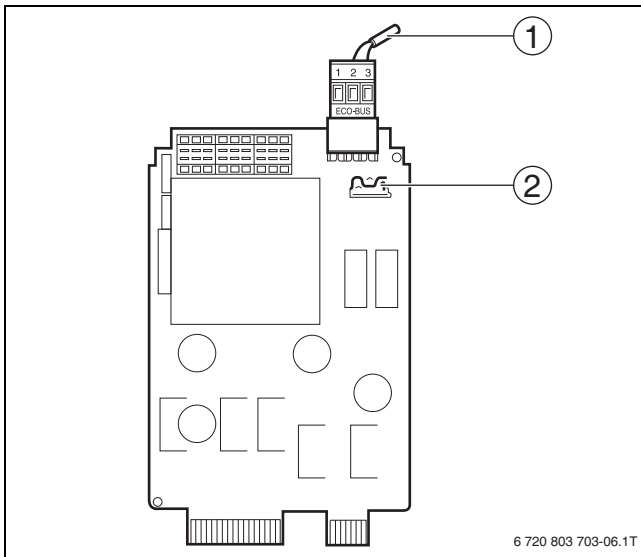


Fig. 9 NM482 power supply module

- [1] ECOCAN BUS
- [2] Gravity switch S1 (for end connection)  
factory setting: open

The factory setting is: Gravity switch S1 open = end connection not fitted.

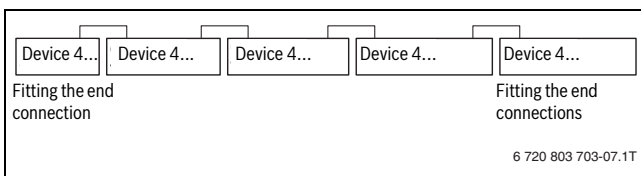


Fig. 10 Example of a fitted end connection, in case of several control units

## 5.3 Central module ZM422

The ZM422 module is part of the basic equipment of the Logamatic 4211 control unit. The manual switches on the module are only provided for service and maintenance functions.

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 (→ operating instructions for control unit).

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

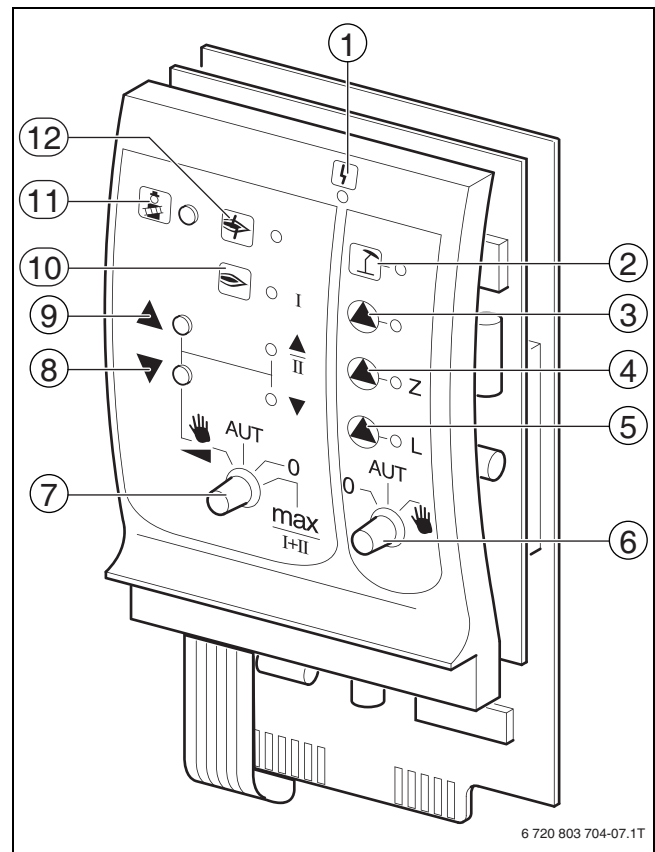


Fig. 11 ZM422

- [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] Boiler circuit 0 in summer mode
- [3] Heating circuit 0 or boiler pump operational
- [4] DHW circulation pump operational
- [5] Cylinder primary pump operational
- [6] Manual switch heating circuit and DHW
- [7] Manual burner switch
- [8] Modulating output is reduced
- [9] Modulation output is increased/2nd stage operation
- [10] Burner in operation
- [11] "Flue gas test" button
- [12] Burner fault

### 5.3.1 Burner function

#### Flue gas test

- Press and hold button **Flue gas test** (→ Fig. 11, [11], page 10) for a few seconds.

The heating control unit operates for 30 minutes at a higher flow temperature.

During the flue gas test, the indicators **Fault** and **Summer mode** flash alternately.

To terminate the flue gas test:

- Press button **Flue gas test** again.

#### Manual burner switch



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

Positions **0**, **Manual** and **max I + II** of the burner's manual switch are special settings (→ Fig. 11, [7], page 10) reserved for contractors.

The burner may be directly controlled with the manual switch.



Current functions are indicated by LEDs.

Position	Function
	As base load, only the first stage will be enabled for single and two stage burners. The second stage is at zero volts. The burner servomotor cannot be reversed. For modulating burners, the burner output can be increased using ▲ and reduced using ▼.
	The burner operates in automatic mode.
	The burner is switched OFF. Except when the burner emergency switch is set to <b>Manual</b> .
	The burner operates continuously at maximum output.

Tab. 8 Burner functions ZM422

### 5.3.2 Heating circuit and DHW functions



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

Positions **0** and **Manual** are special settings of the manual switch for the heating circuit and DHW (→ Fig. 11, [6], page 10) reserved for contractors.



Current functions are indicated by LEDs.

Position	Function
	The heating circuit 0 pump or boiler pump and the cylinder primary pump are switched on.
	Heating circuit 0 pump or the boiler circuit and DHW circuit operate in automatic mode.
	Heating circuit 0 pump or boiler pump, the cylinder primary pump and DHW circulation pump are switched off. The control functions remain active.

Tab. 9 Heating circuit and DHW functions ZM422

### 5.4 FM442 function module (accessory)

The FM442 module regulates two independent heating circuits with optional mixing valves. 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.

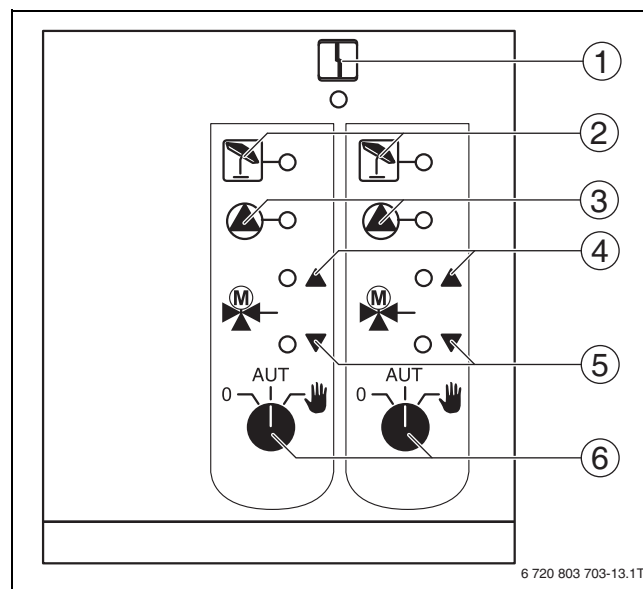


Fig. 12 FM442

- [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] "Mixing valve opens" (hotter)
- [5] "Mixing valve 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 mixing valve 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 mixing valve is switched volt-free. The control functions remain active.

Tab. 10 FM442 heating circuit functions

## 6 Commissioning

### 6.1 Commissioning the MEC2 programming unit

The MEC2 programming unit can be used 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 mounting plate, 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:

#### 6.1.1 New 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 will from ctrl unit taken**.

#### 6.1.2 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.

### 6.1.3 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 ctrl. unit address xx established** will initially be shown again.

#### 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 ctrl unit taken**.

#### 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 approximately 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 to ctrl unit sent**.

To adopt the data from the control unit:

- Press the **Night mode** button.  
The display shows **Data are from ctrl unit taken**.

#### Identical control unit

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 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 to ctrl unit sent**.

To adopt the data from the control unit:

- Press the **Night mode** button.  
The display shows **Data are from ctrl unit taken**.

## 6.2 Checking the high limit safety cut-out (STB)



**CAUTION:** System damage due to incorrect installation of the STB at the boiler!

The sensor must be pushed into the sensor well as far as possible to ensure a reliable and fast shutdown in case of excess temperature

- ▶ Ensure an optimum heat transfer from STB sensor to boiler.
- ▶ The sensor must be secured in the sensor well by means of the sensor locks (standard delivery).
- ▶ Ensure that capillaries are not damaged or kinked.
- ▶ Verify the function of the STB before commissioning.
- ▶ Regular checks must be performed in accordance with the boiler manufacturer's specifications.

During the STB test, the boiler temperature must be constantly monitored at the MEC2, on the ZM435 boiler display or at appropriate measuring points.

The burner must shut down automatically when the set cut-out temperature (chapter 3) of the STB + 2K (example 110 °C + 2K = 112 °C) is reached. If the burner does not shut down at this point, manually interrupt the checking procedure at once. To shut down, release the lever or button (depending on controller type) of the temperature controller.

After interrupting the checking procedure, check the correct routing of the capillaries and the temperature sensor head as well as the assembly and wiring of the boiler water temperature sensor. When in doubt, assume the STB to be broken. In this case the broken high limit safety cut-out must be replaced.

### 6.2.1 Triggering the high limit safety cut-out



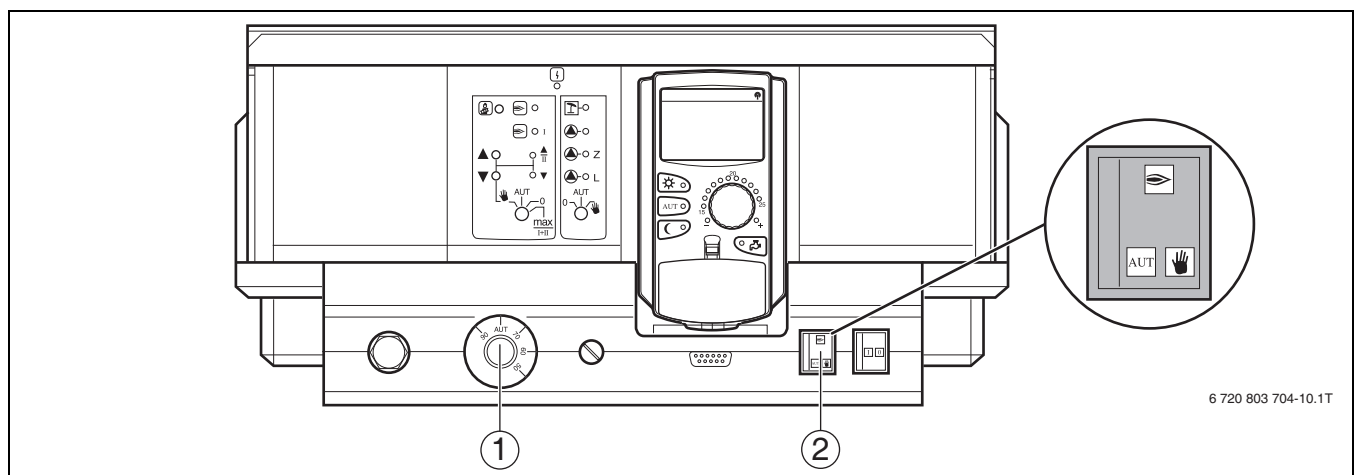
**DANGER:** Risk to life through boiler excess temperature! Never perform the STB test without supervision.

- ▶ Immediately interrupt the test if the set STB temperature is exceeded.
- ▶ Release the lever or button (depending on controller type) of the temperature controller.
- ▶ Set burner emergency switch to **AUT**.

- ▶ Set burner emergency switch [2] **Manual**. The burner starts.
- ▶ Pull off the thermostat dial [1].
- ▶ Depending on the type of controller, push the lever or button (→ Fig. 14) back with a screwdriver or similar tool and hold until the high limit safety cut-out has triggered.
- ▶ Continuously monitor the boiler temperature, and interrupt the test, if required.

### 6.2.2 Terminating or cancelling the test

- ▶ Set burner emergency switch (→ Fig. 13, [2]) to **AUT**.
- ▶ Depending on controller type, release the lever or button (→ Fig. 14, page 14).
- ▶ Push on the button of the temperature controller (→ Fig. 13, [1]).
- ▶ Set controllers, switches and thermostats to the equipment-specific conditions.
- ▶ Set the temperature controller to **AUT**.



6 720 803 704-10.1T

Fig. 13 Checking the STB using the burner emergency operation switch

- [1] Thermostat selector button
- [2] Burner emergency operation switch

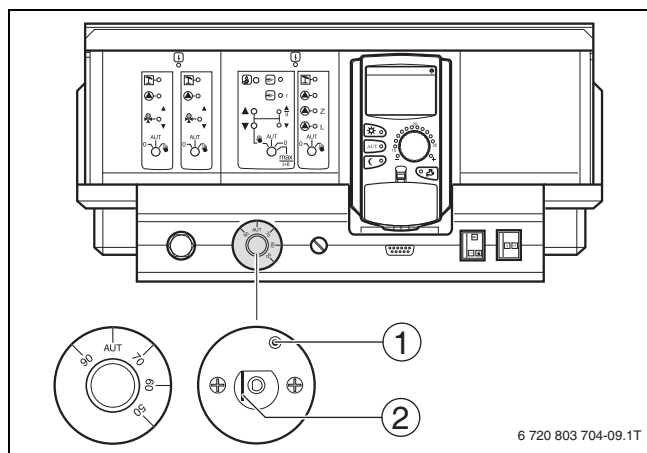


Fig. 14 Triggering the high limit safety cut-out

- [1] Key
- [2] Lever

### 6.2.3 Resetting the high limit safety cut-out

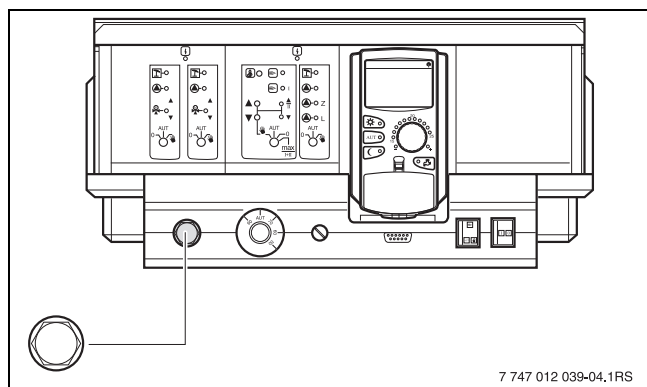


Fig. 15 Resetting the high limit safety cut-out

- Undo the cap.
- Push the reset button underneath.
- Refit the cap.

## 7 Settings

### 7.1 Adjustable parameters and display data

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

<ul style="list-style-type: none"> <li>General parameters           <ul style="list-style-type: none"> <li>Minimum outside temperature</li> <li>Type of building</li> <li>Summer/winter time adjustment</li> <li>Remote adjust.</li> <li>Heat yield</li> <li>Level limit transducer</li> <li>Fault message manual control</li> <li>Automatic maint. message</li> </ul> </li> <li>Module selection           <ul style="list-style-type: none"> <li>Slot A</li> <li>Slot 1</li> <li>Slot 2</li> </ul> </li> <li>Boiler param.           <ul style="list-style-type: none"> <li>Boiler type</li> <li>Fuel</li> <li>Ecostream control</li> <li>Type of burner</li> <li>Sequence reversal after ... Hours</li> <li>Minimum modulation output</li> <li>Burner set motor runtime</li> <li>Load limit from outside temperature</li> <li>Boiler pump function</li> <li>Boiler pump run-on time</li> <li>Minimum burner runtime</li> <li>Pump logic temperature</li> <li>Minimum start temperature</li> <li>Maximum shutdown temperature</li> <li>Flue gas temperature limit</li> </ul> </li> <li>Heating circ. 1           <ul style="list-style-type: none"> <li>Heating system</li> <li>Heat. circ. desig.</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>Outside hold frm.</li> <li>Holiday setback type</li> <li>No setback below ...</li> <li>Flow setback</li> <li>Room temperature offset</li> <li>Automatic adaptation</li> <li>Switching optimisation</li> <li>Stop optimisation</li> <li>Frost prot from</li> <li>DHW priority</li> <li>Servomotor (not on heating circuit 0)</li> <li>Servomotor runtime</li> <li>Boiler raising</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <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 xxxx</li> <li>Maximum screed time</li> <li>Screed setback temperature</li> <li>Screed setback time</li> <li>Heating circuit 0, 2, 3, 4 see heating circuit 1</li> <li>DHW           <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/WF3</li> <li>Thermal disinfection</li> <li>Thermal disinfection temperature</li> <li>Thermal disinfection weekday</li> <li>Thermal disinfection time</li> <li>Daily heat-up</li> <li>DHW circulation (start frequency per hour)</li> </ul> </li> <li>Special parameters           <ul style="list-style-type: none"> <li>Heating characteristics               <ul style="list-style-type: none"> <li>Heating curve heating circ. 0</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> </ul> </li> <li>Relay test               <ul style="list-style-type: none"> <li>Boiler</li> <li>Heating circ. 0</li> <li>Heating circ. 1</li> <li>Heating circ. 2</li> <li>Heating circ. 3</li> <li>Heating circ. 4</li> <li>DHW</li> </ul> </li> <li>LCD test</li> <li>Fault               <ul style="list-style-type: none"> <li>Monitor                   <ul style="list-style-type: none"> <li>Boiler</li> <li>Heating circ. 0</li> <li>Heating circ. 1</li> <li>Heating circ. 2</li> <li>Heating circ. 3</li> <li>Heating circ. 4</li> <li>DHW</li> </ul> </li> </ul> </li> <li>Version</li> <li>Control unit               <ul style="list-style-type: none"> <li>Reset                   <ul style="list-style-type: none"> <li>Control unit settings</li> <li>Burner Hours run</li> <li>Fault log</li> <li>Maximum flue gas temperature</li> <li>Heat yield</li> <li>Maint. message</li> </ul> </li> </ul> </li> </ul> </li> </ul>
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6 720 802 836-08.1TL

Fig. 16 Adjustable parameters and display data

## 7.2 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.

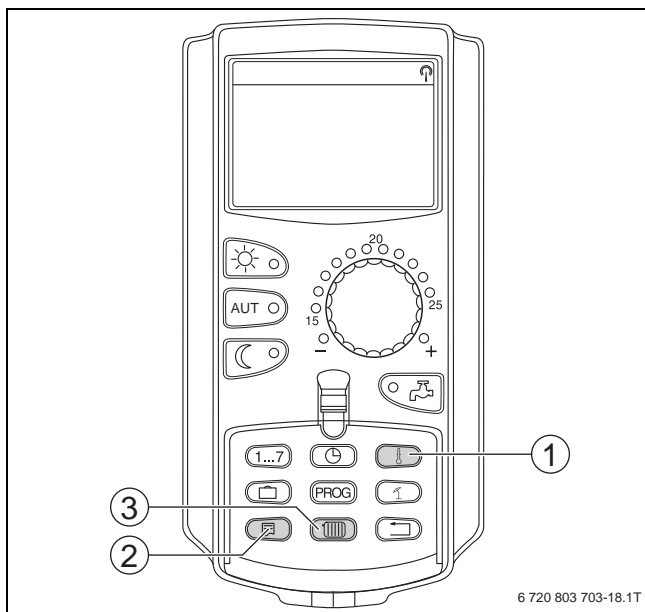


Fig. 17 Calling up the service level

- [1] Temperature key
- [2] Display key
- [3] Heating circuit key

The service level is enabled and the display shows:



Fig. 18 Service level

### 7.2.1 Control system "Press and turn"

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

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 to the main menu selected.

### 7.2.2 Calling up main menus

The rotary dial 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.

### 7.2.3 Calling up submenus

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

## 7.3 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 7.2, page 16).  
The first main menu is **General param.**
- Press **Display** to call up a submenu.  
The display shows the selected submenu.
- Press and hold **Display**.
- Turn the rotary dial 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.

## 8 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 dial until the required submenu is shown.

Turn the rotary dial to scroll through the following submenus:

- Minimum outside temperature
- Type of building
- Summer/wintertime changeover
- Remote adjust.
- Amount of heat
- Manual switch fault message
- Automatic maint. message
- Press button **Display** to call up a submenu.  
The display shows the selected submenu, and settings can be made.



## 8.1 Minimum outside temperature

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

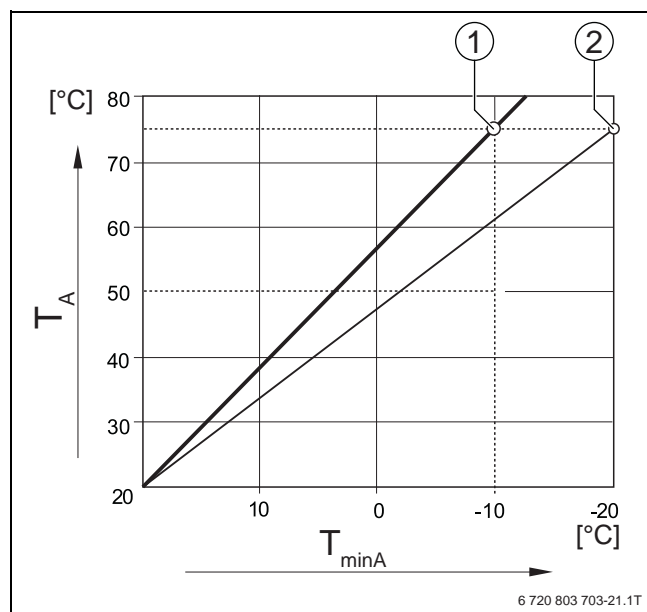


Fig. 19 Heating curve adjustment: Adjustment of gradient via design temperature and minimum outside temperature

[ $T_{\min A}$ ] 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. 12. 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 dial until submenu **Min outside temp** appears.

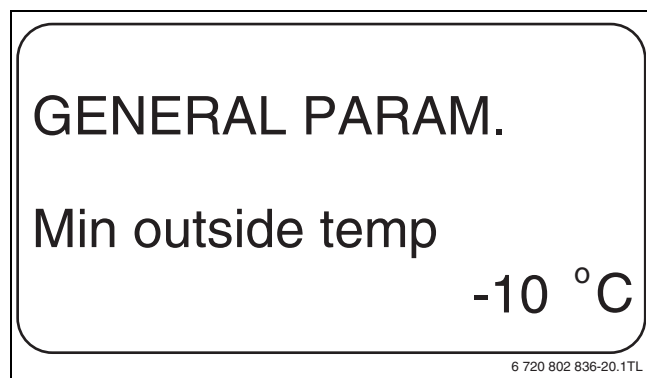


Fig. 20 Minimum outside temperature

- Hold down button **Display** and turn the rotary dial 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
Min outside temp	-30 °C – 0 °C	-10 °C

Tab. 11 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

Tab. 12 Minimum outside temperature in Europe

## 8.2 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. house built with breeze blocks
heavy	heat storage capacity e.g. brick house

Tab. 13 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 dial until submenu **Type of building** appears.
- Hold down button **Display** and turn the rotary dial 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

Tab. 14 Setting range Building type

## 8.3 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 winter time 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.

Tab. 15 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 winter time 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.



Do not 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. 7, [1], page 8). 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 dial until submenu **Summer/winter Time changeover** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.  
The display shows the set value.

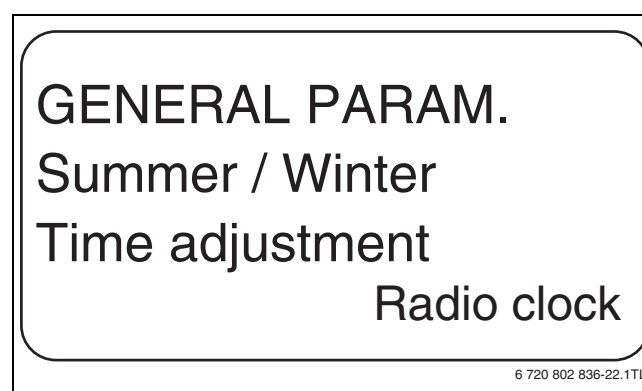


Fig. 21 Summer/winter time changeover

- 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

Tab. 16 Setting range Summer/winter time changeover

### 8.4 Remote adjust.

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	Remote adjustment possible, e.g. via Logamatic telecontrol system
no	Remote adjustment is not possible, but system data can be downloaded and monitored.

Tab. 17 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 dial until submenu **Remote adjust.** appears.
- Hold down button **Display** and turn the rotary dial 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.



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

	Input range	Factory setting
Remote adjust.	Yes No	yes

Tab. 18 Setting range Remote adjustment

### 8.5 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 dial until submenu **Fault message manual control** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.  
The display shows the set value.

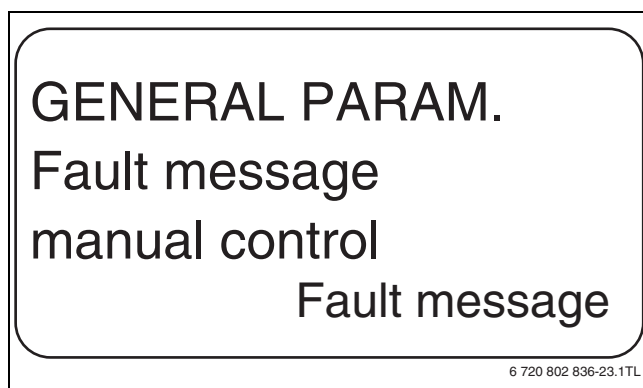


Fig. 22 Manual switch fault message

- 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 **cent. fault mess**, the output of a central fault message also appears via a volt free contact e.g. via the FM448 function module.

	Input range	Factory setting
Fault message manual control	No Fault message cent. fault mess	no

Tab. 19 Setting range Manual switch fault message

### 8.6 Automatic maint. message

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

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 dial until submenu **automatic maint. message** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.  
The display shows the set value.

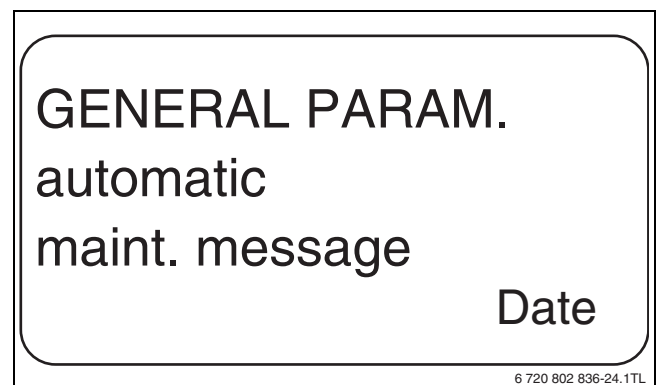


Fig. 23 Automatic maint. message

- Release **Display** to save your input.
- Turn the rotary dial one increment clockwise.

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

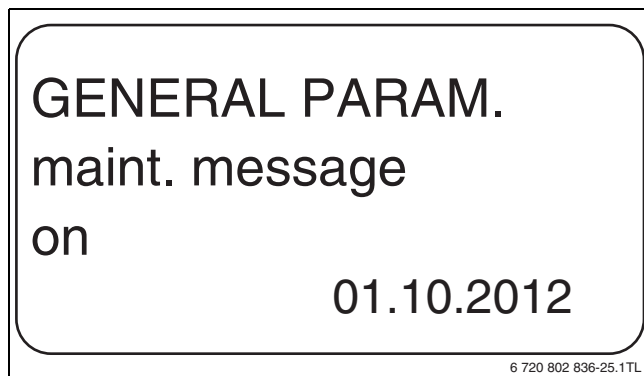


Fig. 24 Setting the automatic service date

- ▶ 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 Logamatic 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 maint. message	No Hours run Date	no

Tab. 20 Setting range Automatic maintenance message

## 8.7 Module selection

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

Example:

- Slot 1: ZM424
- Slot 2: free

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

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



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

MODULE SELECTION  
Pos. 1  
Function module  
none/auto

6 720 802 836-29.1TL

Fig. 25 Module selection

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

## 9 Boiler parameters

### 9.1 Select boiler type

Subject to the selected boiler type, special setting options will be displayed. For further information regarding the setting of boiler-specific parameters, see → chapter 23.3, page 51.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Boiler param.** appears.
- ▶ Press **Display** to call up a submenu.  
**Boiler type** is shown as the first main menu. The display shows the set value.
- ▶ Hold down button **Display** and turn the rotary dial 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
Boiler type	Low temperature Ecostream Condensing LT/Base line temperature	Low temperature

Tab. 21 Setting range Boiler type

#### 9.1.1 Low temperature boilers

The low temperature boiler is operated with a factory-set pump logic, which depends on the selected burner type.

##### Setting the pump logic temperature

The heating circuit circulation pumps and, if installed, the boiler circuit pump are switched on and off to maintain the boiler operating conditions subject to the pump logic temperature. The preset pump logic temperature only needs to be changed in special cases and is only adjustable in case of boiler type = low temperature.

The factory-set pump logic temperature is 5 K below the minimum shutdown temperature of the boiler.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Boiler param.** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Pump logic temperature** appears.
- ▶ Hold down button **Display** and turn the rotary dial 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
Pump logic temperature	15 °C – 60 °C	1-stage: 40 °C 2-stage: 45 °C modulating: 50 °C

Tab. 22 Setting range Pump logic temperature

### 9.1.2 Ecostream boilers

The boiler operating conditions for the Ecostream boilers are set at the factory and are automatically taken into account. Parameter **Ecostream control via** is used to ascertain how the boiler operating temperature should be controlled.

The factory setting provides a boiler operating temperature of 50 °C. The minimum set value for the boiler flow temperature is 4 K higher (54 °C).

According to factory-set defaults and with the setting **Act.heat.circ.**, the heating circuit circulation pump starts 5 K below the boiler operating temperature and stops 7 K below.

#### Ecostream control via

This setting determines via what mixing valve the preset operating flow temperature should be regulated. The setting must be made in accordance with the existing or planned hydraulic conditions. It affects the control of the respective mixing valve and the pre-determined set values.

Select from the following options:

- **Act. heat.circ.**  
must be selected if the Ecostream is to be regulated by superimposed actuation of the heating circuit actuators (three-way mixing valves). Heating circuits must be equipped with mixing valves that are regulated by heating circuit modules of the same Logamatic series (no third party controllers). The control function is designed for an actuator runtime of 120 s.
- **Ext. control**  
must be selected if the Ecostream control unit is to be regulated by an external control unit, i.e. if the Logamatic 4211 does not need to fulfil any operating conditions, for example in dual-block boiler systems with integral control unit for regulating the annular butterfly valves of the boiler blocks.

Setting the Ecostream control

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Ecostream control via** appears.
- Hold down button **Display** and turn the rotary dial 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
Ecostream control via	Act. heat.circ. Ext. Control	Act. circ.act.

Tab. 23 Setting range Ecostream control

### Set the actuator run-time

The actuator runtime is preset and should generally not be changed.



Incorrect entries may lead to fluctuating flow temperatures during operation.

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

The runtimes of the heating circuit actuators are entered separately under parameter **Heating circuit**. If the runtimes of the individual heating circuit actuators are different, a representative value (average) must be entered.

	Input range	Factory setting
Actuator runtime	10 s – 600 s	120 s

Tab. 24 Setting range Actuator runtime

### 9.1.3 Condensing boiler

Select the boiler type **Condensing** if a condensing boiler has been installed. No operating conditions need to be maintained for this type of boiler.

#### 9.1.4 Low-temperature boilers with base temperature

The respective factory-set operating conditions selected in the control unit automatically apply when selecting this boiler type. An actuator regulates the boiler operating temperature in the boiler flow. These set values always apply, if a load demand exists for the boiler via a consumer, irrespective of whether the burner is switched on or off. To support the operating temperature control, the heating circuit circulation pumps and the boiler circuit pump are switched off, if the actual temperature falls below the defined minimum temperature.



The LT/base point temp. must be controlled via the heating circuit actuators.

### Setting the fuel type

Set the fuel to be used in this parameter. This setting influences the set value for the servomotor and burner control. The fuel type is set to **Gas** at the factory. Lower set values for the low end temperature apply when changing the setting to oil.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Fuel** appears.
- Hold down button **Display** and turn the rotary dial 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
Fuel	Gas Oil	Gas

Tab. 25 Setting range Fuel

## 9.2 Setting the burner type

Additional setting masks will be displayed subject to the selected burner type.

Select from the following options:

- Single stage
- two-stage
- Modulating
- 2 x Single-stage

This setting must be used in the following cases:

- For a boiler sequence comprising two single stage boilers that are operated with only one Logamatic 4211 on the first boiler and a constant temperature control unit on the second boiler.
  - For certain dual block boilers, each equipped with two single stage burners, which operate independently of each other.
- ▶ Call up the service level.  
The first main menu is **General param.**
  - ▶ Turn the rotary dial until main menu **Boiler param.** appears.
  - ▶ Press **Display** to call up a submenu.
  - ▶ Turn the rotary dial until submenu **Type of burner** appears.
  - ▶ Hold down button **Display** and turn the rotary dial 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
Type of burner	single-stage two-stage modulating 2 x single-stage	Single stage

Tab. 26 Setting range Burner type

### 9.2.1 Modulating burner

#### Minimum modulation output setting

The **Minimum modulation output** is the part of the total output, down to which the burner can be modulated. The burner will be completely switched off if the demand falls below this set value. Incorrect settings can lead to control fluctuations.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Boiler param.** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Minimum modulation** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.
- ▶ Release **Display** to save your input.

	Input range	Factory setting
Minimum modulation	10%...60%	30%

Tab. 27 Setting range Minimum modulation

#### Burner set motor runtime setting

The setting Burner set motor runtime tells the control unit the time required by the burner servomotor for the movement between "closed" and "open".

- ▶ Turn the rotary dial until submenu **Burner sett. motor runtime** appears.
- ▶ Hold down button **Display** and turn the rotary dial 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
Burner sett. motor runtime	5 s – 60 s	12 s

Tab. 28 Setting range Burner set motor runtime

### 9.2.2 2 x single stage burner

#### Lead-lag acc. to ... Set Hours

This options allow the selection of the number of hours after which the sequence with the 2 x single stage boiler blocks is reversed.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Boiler param.** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Lead-Lag acc. To** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.
- ▶ Release **Display** to save your input.

	Input range	Factory setting
Lead-Lag acc. To... Hours	00, 10, 20, ... 1000 hours	00 hours

Tab. 29 Setting range Lead-lag/rotat after ... hours

#### Load limit

If burner type **2 x single-stage** is selected, an outside temperature can be specified under parameter Load limit, from which stage 2 will be automatically blocked.

**Example:** From a certain outside temperature upwards, operation will be limited to one boiler stage or one boiler block.

- ▶ Turn the rotary dial until submenu **Load limit from outside T.** appears.
- ▶ Hold down button **Display** and turn the rotary dial 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
Load limit from outside T.	–31 °C – 30 °C none	17 °C

Tab. 30 Setting range Load limit from outside temperature



### 9.3 General settings regarding boiler parameters

#### 9.3.1 Set up the pump function



The pump function can only be set when no heating circuit 0 was chosen.

Subject to the hydraulic system or the operating conditions of certain boilers, the boiler pumps will be utilised as feed, bypass or test point pumps.

The following pump functions can be selected:

Pump function	Explanation
Boiler circulation pump	The control logic and the boiler circuit pump characteristics depend on the selected boiler type, i.e. the possible boiler operating conditions affect the boiler circulation pump control. In exceptional cases the run-on time of the boiler pump can be altered.
Measuring point pump	This pump is primarily used to flood the boiler sensor in dual-boiler systems. The test point pump always operates in parallel with the operation of burner stage 1. The control of the pump depends on the boiler type selected. If you make this selection, the boiler or the test point pump will not be subject to any boiler operating conditions. The operating conditions for the boiler according to Code of Practice K6 must be fulfilled.
None	–

Tab. 31 Pump function

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

#### 9.3.2 Setting boiler pump run-on time

In order to maximise the use of the heat stored in the boiler, a time must be specified for which the pump should continue to operate after the burner has been shut down.

Change the factory-set value of 60 min. only in exceptional cases.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Boiler pump overrun time** appears.
- Hold down button **Display** and turn the rotary dial 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
Pump function	Boiler pump	none
Boiler pump	Test point pump	
	none	
Boiler pump overrun time	0 min – 60 min	60 min
	Constant operation	

Tab. 32 Setting range Boiler pump run-on time

#### 9.3.3 Setting the minimum burner runtime

This option determines the minimum burner runtime after a burner start.

The minimum burner operating time tells the system, for how long the burner continues to operate after the burner has been switched on, irrespective of the actual set value. This prevents the burner being frequently cycled on and off under certain system conditions.

Change the factory setting only in exceptional cases.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Minimum burner runtime** appears.
- Hold down button **Display** and turn the rotary dial 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
Minimum burner runtime	0 s – 300 s	120 s

Tab. 33 Setting range Minimum burner runtime

#### 9.3.4 Selecting the minimum start temperature

This setting determines the minimum limit for the cut-in temperature at which the burner starts.

The burner will be switched ON again no later than when the boiler flow temperature falls to the minimum start temperature when there is heat demand.

Modify the minimum start temperature only if necessary.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Minimum start temp** appears.
- Hold down button **Display** and turn the rotary dial 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
Minimum start temp	5 °C – 65 °C	5 °C

Tab. 34 Setting range Minimum start temperature

### 9.3.5 Selecting the maximum shutdown temperature

The burner will be switched OFF no later than when the boiler flow temperature reaches the maximum shutdown temperature.

Modify the maximum shutdown temperature only if necessary.

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



At setting >75 °C the thermostat must be set to 90 °C (→ chapter 3.1.2, page 6).

	Input range	Factory setting
Maximum shutdown temp	70 °C – 99 °C	85 °C

Tab. 35 Setting range Maximum shutdown temperature

### 9.3.6 Setting the maximum flue gas temperature limit

A flue gas temperature sensor must be installed to measure the flue gas temperature. A service message may be issued via a telecontrol system if the "maximum flue gas temperature" is exceeded. The boiler should then be serviced.

A fault message is issued if the temperature limit at the flue gas sensor (optional accessory) is exceeded.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Boiler param.** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Limit Flue gas temp.** appears.
- Hold down button **Display** and turn the rotary dial 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
Maximum Flue gas temp.	none 50 °C – 250 °C	none

Tab. 36 Setting range Maximum flue gas temperature

## 10 Heating circuit data

### 10.1 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.
Radiators, Convector	The heating curve is automatically calculated for radiators or convector heaters, subject to the required curve.
Underfloor	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 from the outside temperature. If this system is selected, it is not possible to install a remote control for this heating circuit.
Room controller	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.

Tab. 37 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 param.**
- Turn the rotary dial 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 dial until the required value is shown.

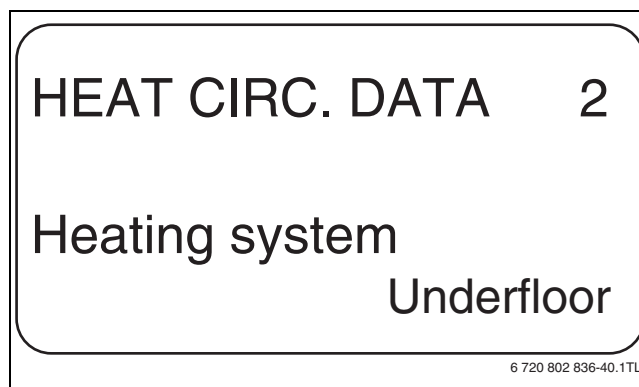


Fig. 26 Select the heating system

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



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

Tab. 38 Setting range Heating system

### 10.2 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 param.**
- ▶ Turn the rotary dial until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Heat. circ. desig.** appears.

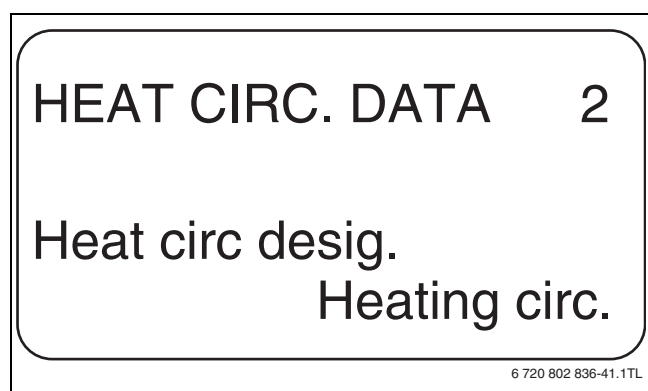


Fig. 27 Rename the heating circuit

- ▶ Hold down button **Display** and turn the rotary dial 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. desig	Heating circuit Apartment Underfloor Bathroom Swimming pool Floor Cellar Building	Heat.circuit

Tab. 39 Setting range Heating circuit name

### 10.3 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 param.**
- ▶ Turn the rotary dial until main menu **Heating circ.** + no. appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Heating system** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.

- ▶ Release **Display** to save your input.
- ▶ Turn the rotary dial until submenu **Base point temp.** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.

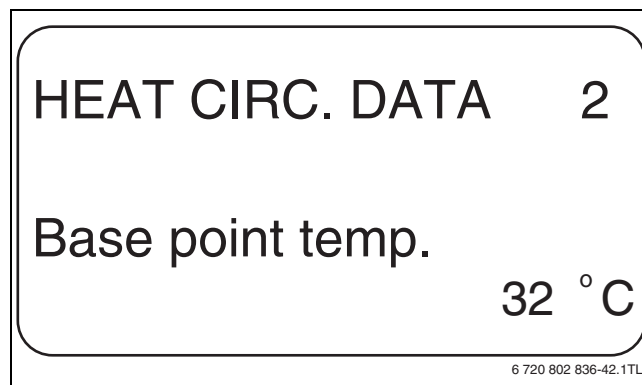


Fig. 28 Setting the low end temperature

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

	Input range	Factory setting
Base point temp.	20 °C – 80 °C	30 °C

Tab. 40 Setting range Low end temperature

### 10.4 Setting the design temperature

The design temperature is the flow temperature at the adjusted minimum outside temperature.



The instructions for setting the heating curves in → chapter 23.2, page 50 must be observed.

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

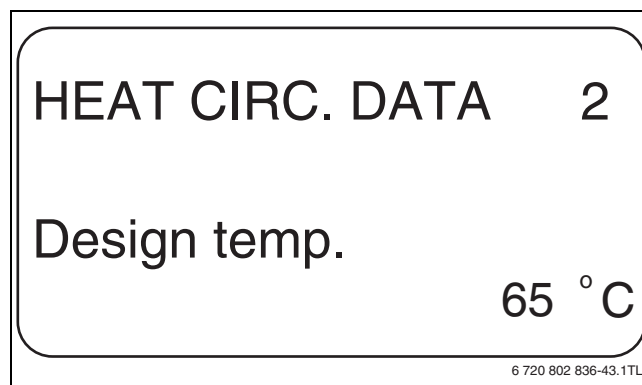


Fig. 29 Setting the design temperature

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

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

Tab. 41 Setting range Design temperature

### 10.5 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Minimum Flow temp.** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.



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

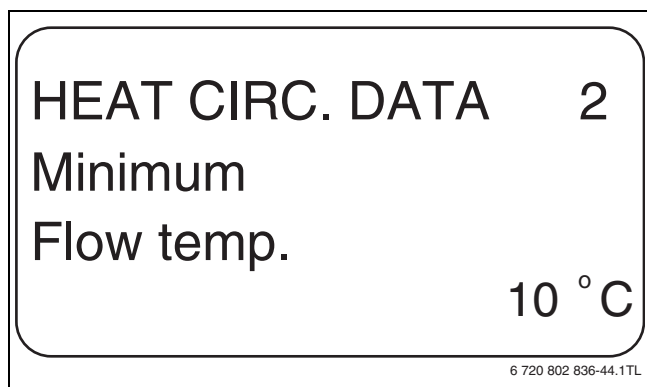


Fig. 30 Setting the Minimum flow temperature

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

	Input range	Factory setting
Minimum Flow temp.	5 °C – 70 °C	5 °C

Tab. 42 Setting range Minimum flow temperature

### 10.6 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.

## Buderus

- Turn the rotary dial until submenu **Maximum Flow temp.** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

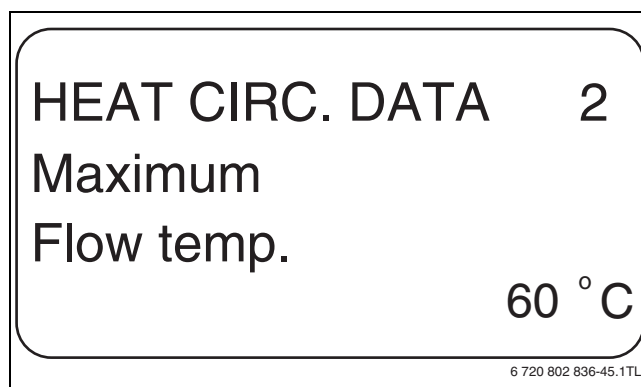


Fig. 31 Setting the maximum flow temperature

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

	Input range	Factory setting
Maximum Flow temp. for underfloor heating	30 °C – 60 °C	50 °C
Maximum Flow temp. for radiators, convector heaters, base point	30 °C – 90 °C	75 °C

Tab. 43 Setting range Maximum flow temperature



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

### 10.7 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 or BFU/F)



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



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

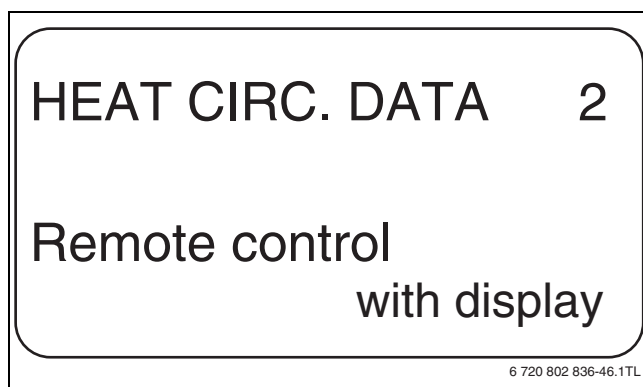


Fig. 32 Select the remote control

- 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

Tab. 44 Setting range Remote control

### 10.8 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Max room infl** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

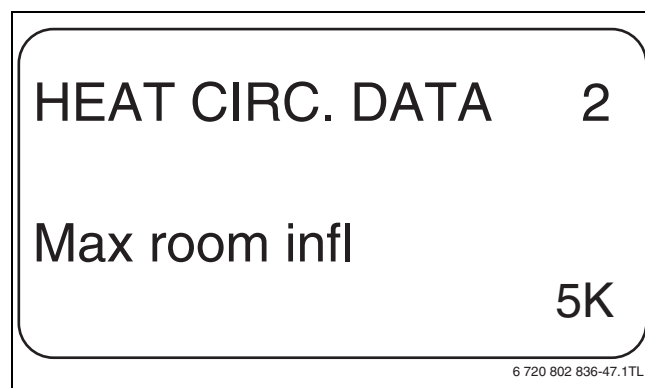


Fig. 33 Setting the Maximum room influence

- 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

Tab. 45 Setting range Maximum room influence

### 10.9 Select the type of setback

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

Reduction mode	Explanation
Outside 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.
Hold room temp	<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> .

Tab. 46 Reduction modes



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

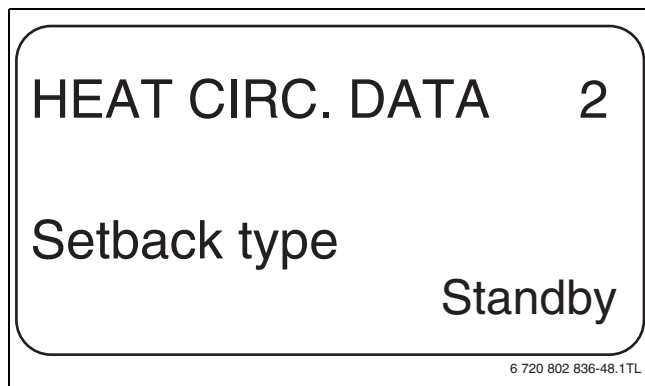


Fig. 34 Select the type of setback

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

	Input range	Factory setting
Set-back type	Outside setback Standby Reduced Hold room temp	Outdoor setback

Tab. 47 Setting range Reduction mode

### 10.10 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Outside hold frm** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

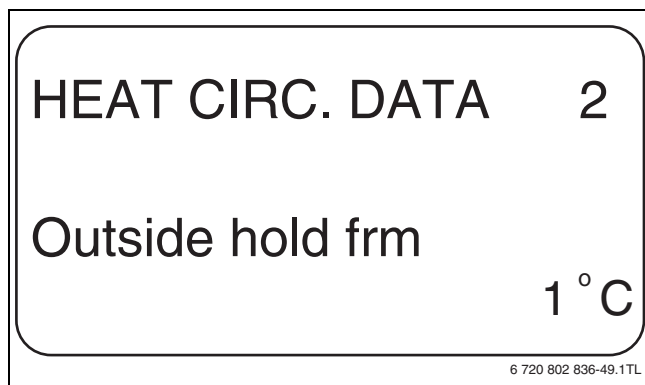


Fig. 35 Setting the outside stop temperature

- 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

Tab. 48 Setting range Reduction mode

### 10.11 Setting holiday mode

A separate setback type can be set for the duration of your holiday. (For explanations of setting options see → chapter 10.9, page 27).

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

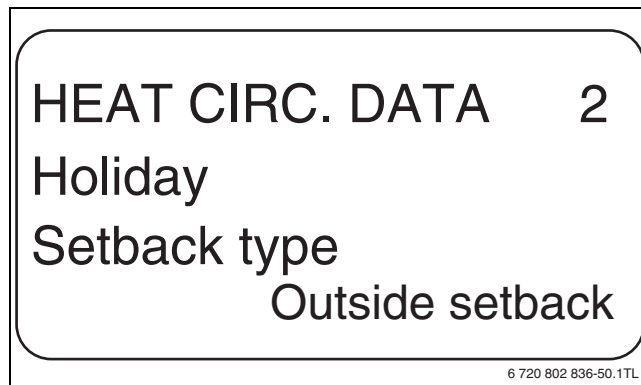


Fig. 36 Setting holiday mode

- 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

Tab. 49 Setting range Holiday reduction mode

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

### 10.12 Stopping setback at low outside temperatures

EN 12831 enables stopping the setback 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **No setback below outside t.** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

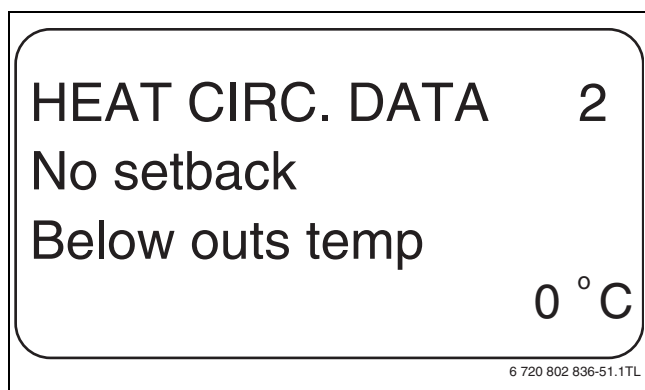


Fig. 37 Switching off the setback

- 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

Tab. 50 Setting range No setback below outside t.

### 10.13 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Heating system** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.
- Release **Display** to save your input.
- Turn the rotary dial until submenu **Flow setback by** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

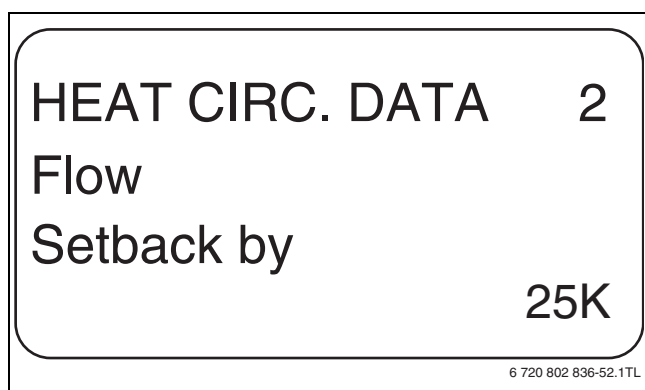


Fig. 38 Setting flow setback

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

	Input range	Factory setting
Flow Setback by	0 K – 40 K	30 K

Tab. 51 Setting range Flow setback

### 10.14 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.

**Example:**

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

Tab. 52 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Room temperature Offset** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

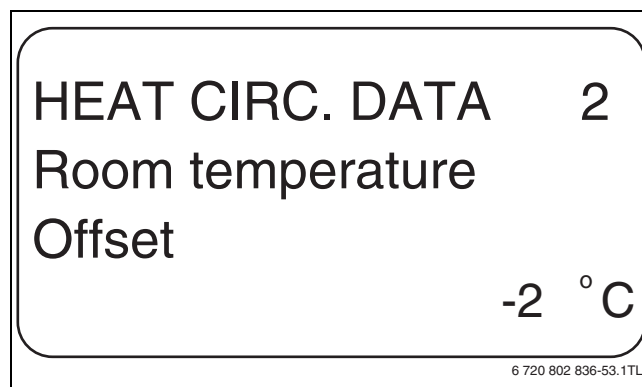


Fig. 39 Setting the room temperature offset

- 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

Tab. 53 Setting range Room temperature offset

### 10.15 Automatic adaptation setting



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



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

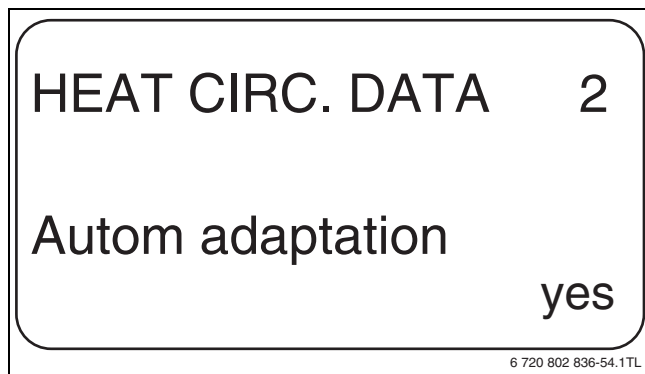


Fig. 40 Activating Automatic adaptation

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

	Input range	Factory setting
Autom adaptation	Yes No	no

Tab. 54 Setting range Automatic adaptation

### 10.16 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 in the factory.

The following variations are possible:

Optimisation	Explanation
Start	Heat-up commences before the actual switching time if "Start" has been selected. The control calculates the start-up time, so that the set room temperature is achieved at the set switching point.
Stop	When "Switch OFF" has been enabled, 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.
switch-on/off	Both optimisation versions are used when "Start/Stop" has been enabled.
none	Switching optimisation is not implemented if "none" is selected.

Tab. 55 Switching optimisation

**i** As the start optimisation is limited to 240 minutes, start optimisation is not suitable for systems with a long heat-up time.

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

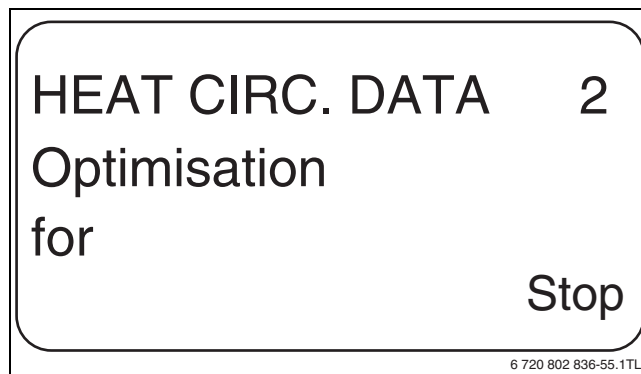


Fig. 41 Setting switching optimisation

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

	Input range	Factory setting
Optimisation	none Start Stop switch-on/off	none

Tab. 56 Setting range Optimisation

### 10.17 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Stop optim time** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

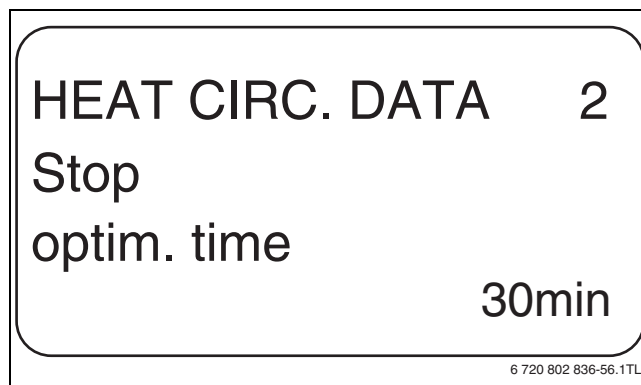


Fig. 42 Set switch off optimisation time

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

	Input range	Factory setting
Stop optim. time	10 min – 60 min	60 min

Tab. 57 Setting range Stop optimisation time



### 10.18 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Frost prot from** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

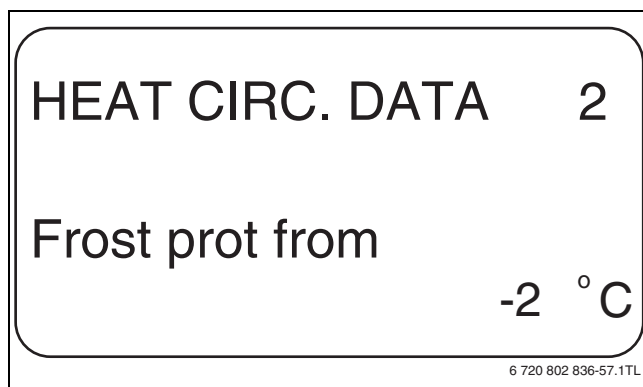


Fig. 43 Setting frost protection temperature

- 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

Tab. 58 Setting range Frost protection

### 10.19 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 mixing valve is moved towards "Mixer closes" (colder).

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

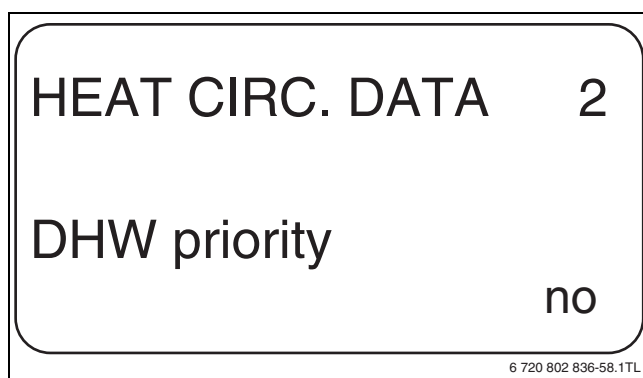


Fig. 44 Setting DHW priority

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

	Input range	Factory setting
DHW priority	Yes No	yes

Tab. 59 Setting range DHW priority

### 10.20 Setting the heating circuit actuator



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

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

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

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

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

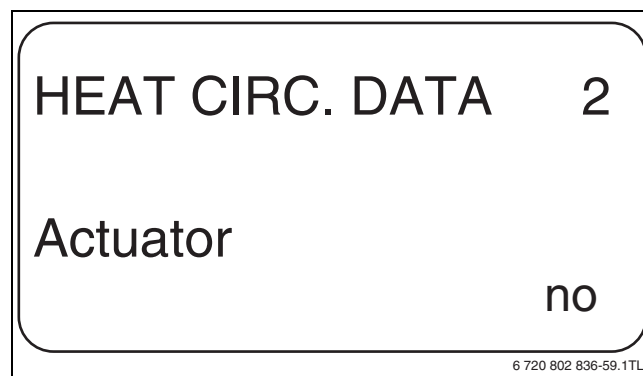


Fig. 45 Setting the heating circuit actuator

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

	Input range	Factory setting
Actuator	Yes No	yes

Tab. 60 Setting range Actuator

### 10.21 Set the actuator run-time

This parameter determines the runtime of the existing actuators. Most actuators have a runtime of 120 s.



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

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

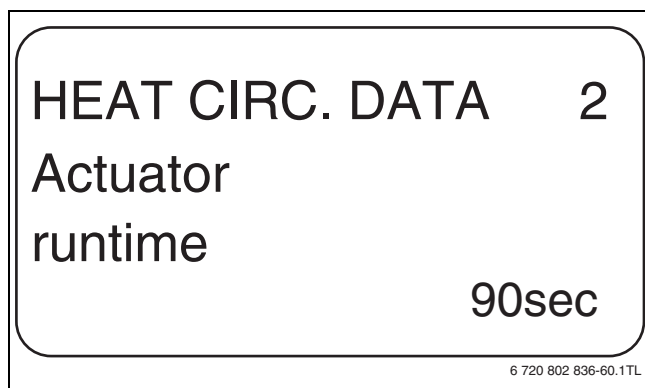


Fig. 46 Set the actuator run-time

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

	Input range	Factory setting
Actuator runtime	10 sec – 600 sec	120 s

Tab. 61 Setting range Actuator runtime

### 10.22 Setting the boiler raising

If the temperature in a heating circuit is controlled with a mixing valve, a higher set value should be set for the boiler, than the normal set value for the heating circuit.

The **Boiler 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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Boil. raising** appears.

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

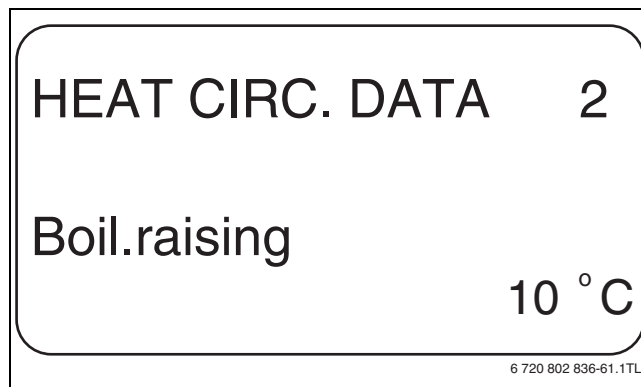


Fig. 47 Setting the boiler raising

- 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

Tab. 62 Setting range Boiler raising

### 10.23 Setting the external changeover



The **External changeover** menu item is only displayed if **none** was selected under menu item **Remote control** and the Logamatic 4211 control unit has been installed. 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.



Terminals WF1 / 2 / 3 of the control unit can be used in either of the areas DHW, heating circuit 1 or heating circuit 2.

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 run constantly if both contacts are simultaneously closed.

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **External day/night/aut** appears.



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

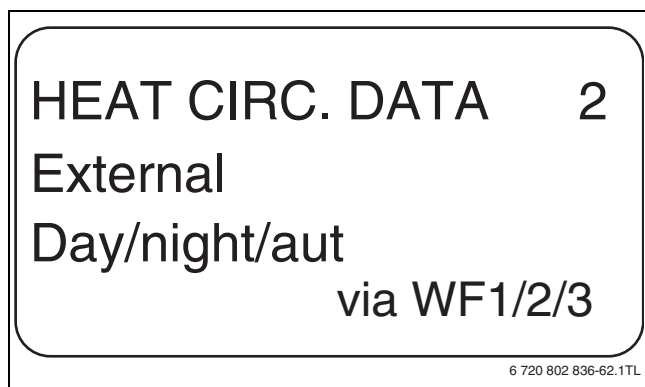


Fig. 48 Setting the external changeover

- 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

Tab. 63 Setting range External changeover

### 10.24 External fault message - pump

This function is turned off in factory setting.

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

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



Terminals WF1 / 2 / 3 of the control unit can be used in either of the areas DHW, heating circuit 1 or heating circuit 2.



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 param.**
- Turn the rotary dial until main menu **Heating circ.** + no. appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **External fault message - pump** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

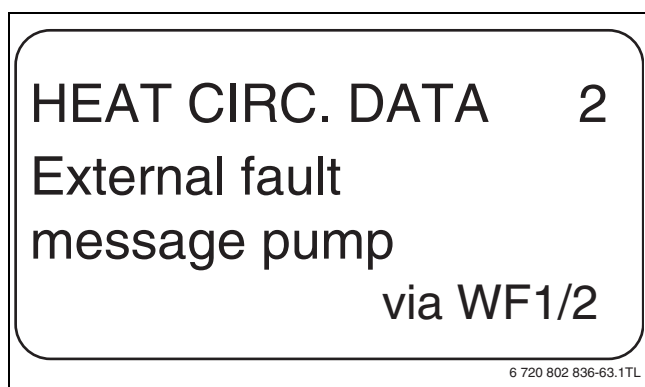


Fig. 49 External fault message - pump

- 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

Tab. 64 Setting range External fault message - pump

### 10.25 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.

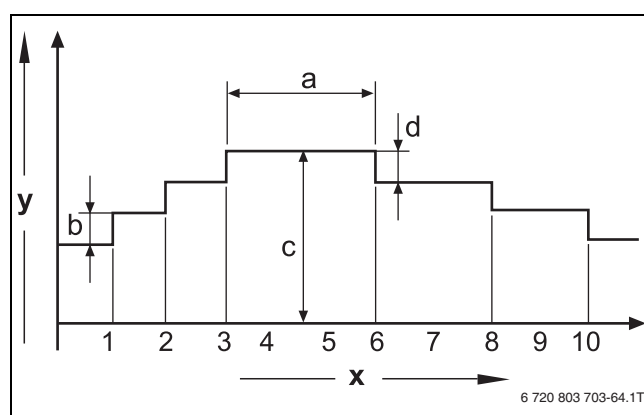


Fig. 50 Screed drying

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

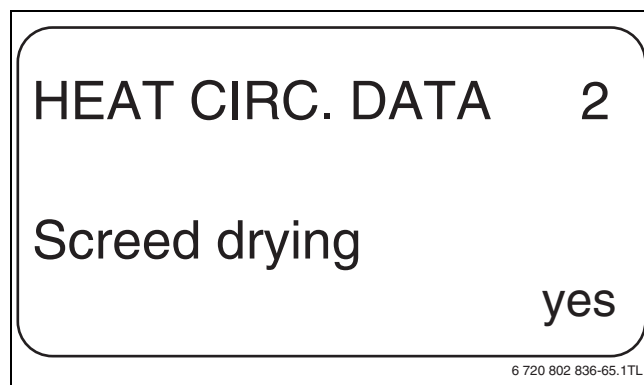


Fig. 51 Screed drying

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

	Input range	Factory setting
Screed drying	no yes	no

Tab. 65 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.

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

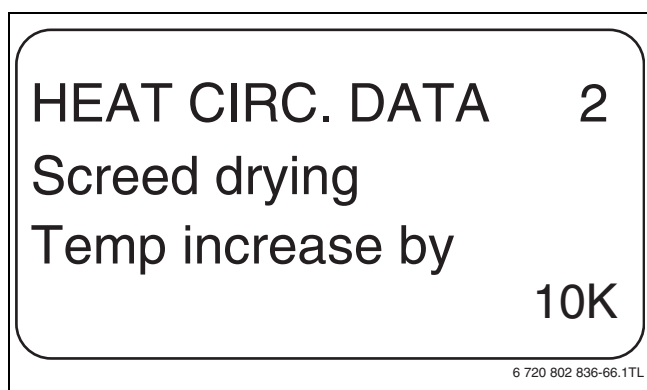


Fig. 52 Setting the temperature rise

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

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

Tab. 66 Setting range Temp increase by

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

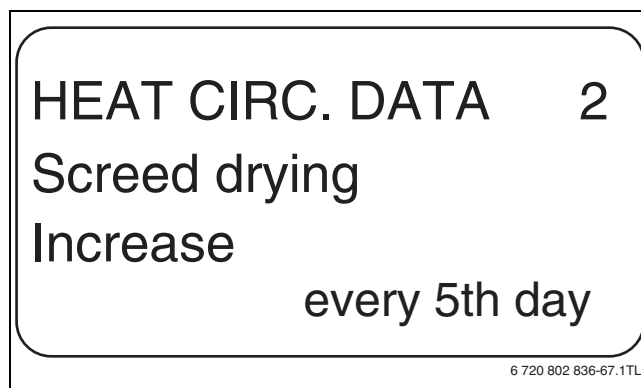


Fig. 53 Setting the heat-up time

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

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

Tab. 67 Setting range Increase in daily cycles

### 10.25.3 Setting the maximum temperature

This setting determines the maximum temperature for screed drying.

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

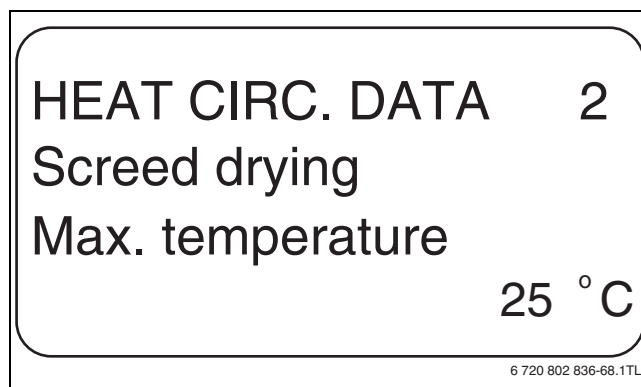


Fig. 54 Setting the maximum temperature

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

	Input range	Factory setting
Max. temperature	25 °C – 60 °C	45 °C

Tab. 68 Setting range Maximum temperature

#### 10.25.4 Setting the hold time

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

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

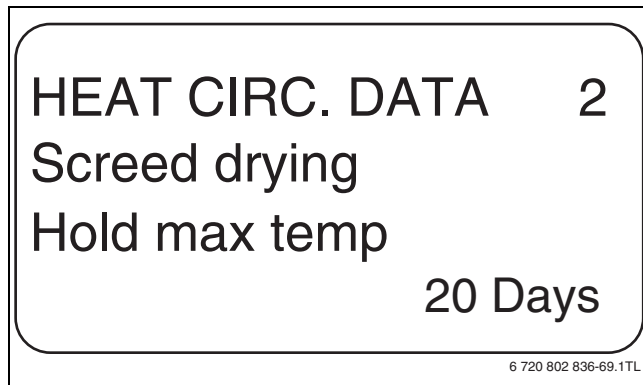


Fig. 55 Setting the hold time

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

	Input range	Factory setting
Hold max temp	0 days – 20 days	4 days

Tab. 69 Setting range Hold max temp

#### 10.25.5 Setting the setback temperature

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

- Turn the rotary dial until submenu **Screed drying T. setback by** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

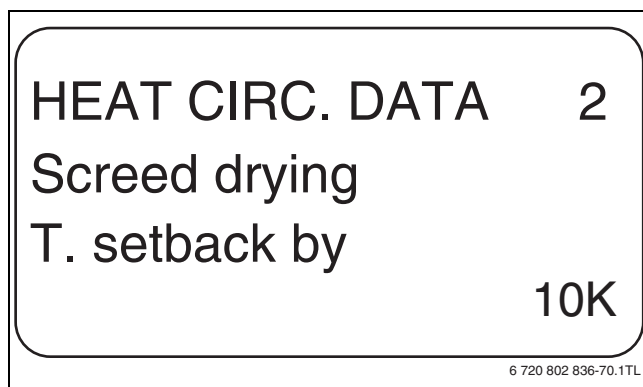


Fig. 56 Setting the setback temperature

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

	Input range	Factory setting
T. setback by	1 K – 10 K	5 K

Tab. 70 Setting range Setback by

#### 10.25.6 Setting the setback time

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

- Turn the rotary dial until submenu **Screed drying Setback** appears.
- Hold down button **Display** and turn the rotary dial 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

Tab. 71 Setting range Setback in daily cycles

## 11 DHW data

The **DHW** function is part of the basic equipment of this control unit.

### 11.1 Select Domestic hot water

- Call up the service level.  
The first main menu is **General param.**
- Turn the rotary dial 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 dial 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
DHW	Yes No	yes

Tab. 72 Setting range Domestic hot water

### 11.2 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 param.**

- Turn the rotary dial until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Range to** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

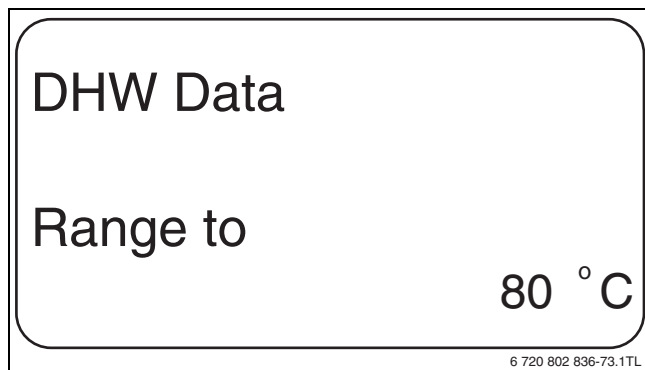


Fig. 58 Setting the temperature range

- 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

Tab. 73 Setting range Range to

### 11.3 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 heat within the cylinder and the lag 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 param.**
- Turn the rotary dial until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **Optimisation for starting** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

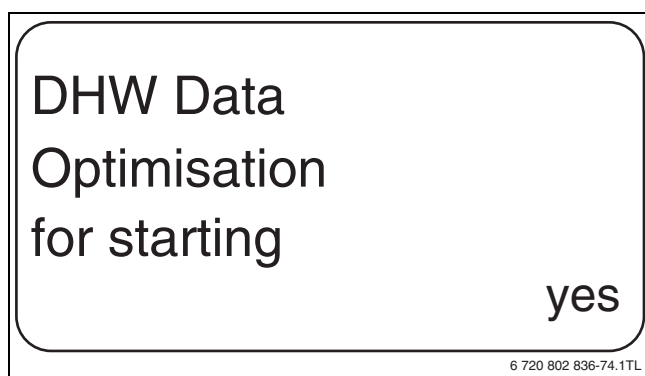


Fig. 59 Selecting switching optimisation

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

	Input range	Factory setting
Optimisation	Yes No	no

Tab. 74 Setting range DHW optimisation

### 11.4 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 "Resid. heat use yes" 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 "Resid. heat use no" 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.

Tab. 75 Residual heat utilisation

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

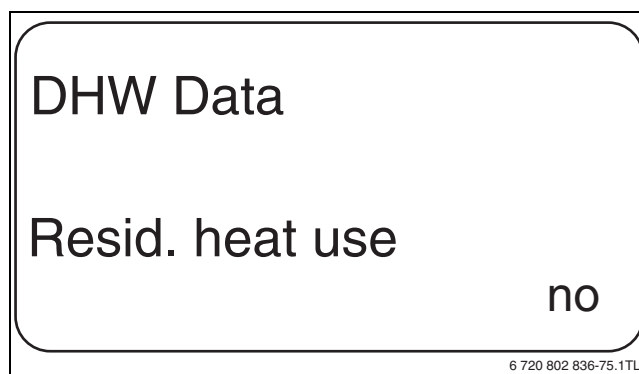


Fig. 60 Selecting residual heat use

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

	Input range	Factory setting
Resid. heat use	Yes No	yes

Tab. 76 Setting range Residual heat utilisation

### 11.5 Setting hysteresis

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



This function is only possible if **4000 cylinder** has been set in the **DHW** function (→ chapter 11.1, page 35).

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

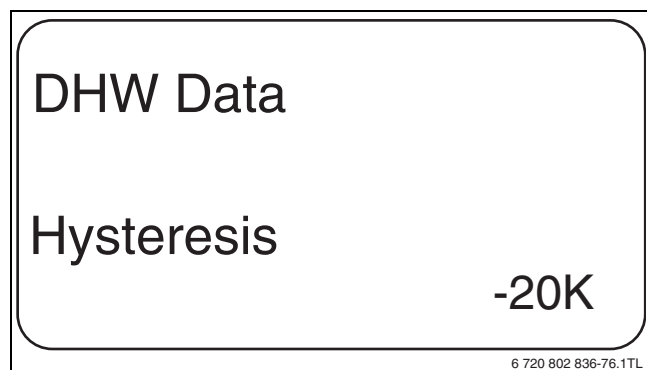


Fig. 61 Setting hysteresis

- 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

Tab. 77 Setting range Hysteresis

### 11.6 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 is best suited for quick DHW recovery.

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

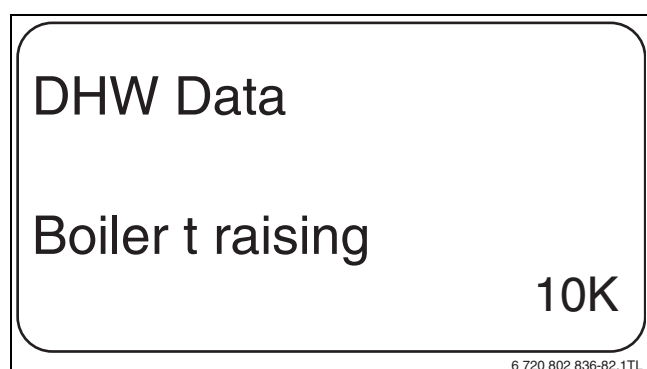


Fig. 62 Raising the boiler temperature

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

	Input range	Factory setting
Boiler t raising	0 K – 40 K	20 K

Tab. 78 Setting range Boiler temperature raising

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

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



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

- 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 param.**
- Turn the rotary dial until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **External fault message WF1/2** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

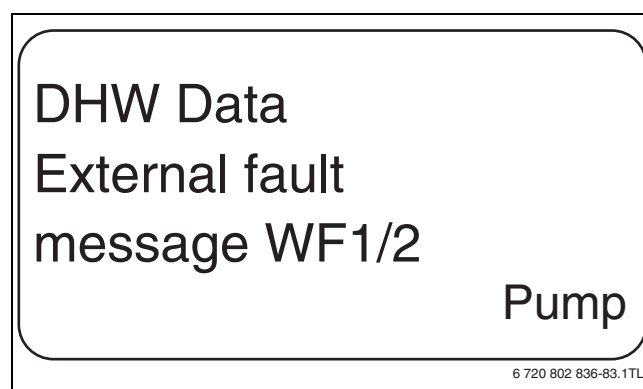


Fig. 63 External fault message

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

	Input range	Factory setting
External fault message	none Inert anode Pump	none

Tab. 79 Setting range External fault message - pump

### 11.8 External contact (WF1/WF3)

If a volt-free 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 used 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 pressing 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 once the cylinder has been fully heated.

#### Disinfection

If Thermal disinfection is enabled for the external contact, then the volt-free 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 param.**
- Turn the rotary dial until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **External contact WF1/3** appears.
- Hold down button **Display** and turn the rotary dial until the required value is shown.

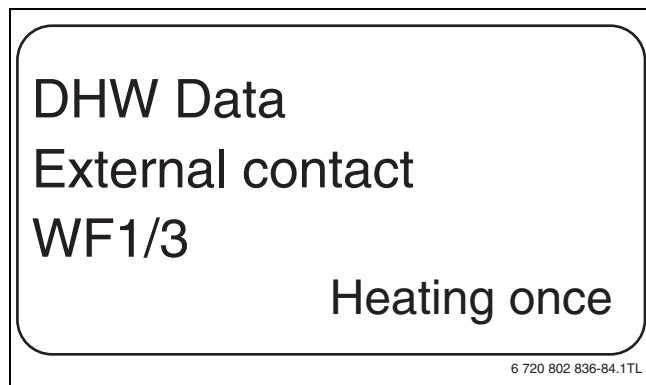


Fig. 64 Setting the External contact

- 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

Tab. 80 Setting range External contact

### 11.9 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 bacteria within the DHW system (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 Therm. disinfect 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 pasteurisation temperature for three hours. If it fails, the fault message **Therm. disinfect failed** appears.

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

#### 11.9.1 Setting thermal disinfection

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

DHW Data  
Therm.  
disinfect

yes

6 720 802 836-85.1TL

Fig. 65 Setting thermal disinfection

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

	Input range	Factory setting
Therm. disinfect	Yes No	no

Tab. 81 Setting range Thermal disinfection

#### 11.9.2 Setting the temperature

The **Temperature Therm. disinfect** function enables the disinfection temperature for thermal disinfection to be set (→ chapter 11.9, page 38).



**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 (i.e. without mixing in cold water) during or immediately after thermal disinfection.

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

DHW Data  
Temperature  
Therm. disinfect

75 °C

6 720 802 836-86.1TL

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 Therm. disinfect	65 °C – 75 °C	70 °C

Tab. 82 Setting range Thermal disinfection temperature

### 11.9.3 Setting the weekday

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



The **Weekday Therm. disinfect** 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 param.**
- ▶ Turn the rotary dial until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Weekday Therm. disinfect** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.

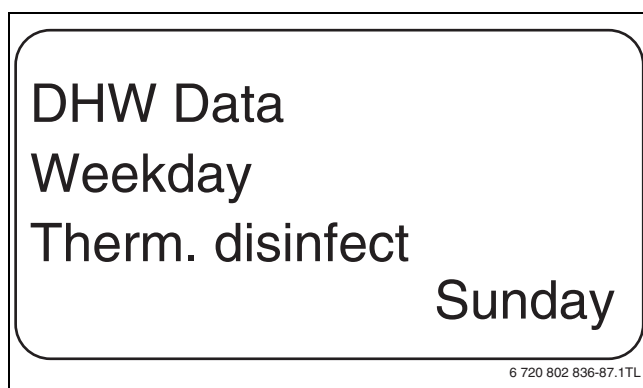


Fig. 67 Setting the weekday

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

	Input range	Factory setting
Weekday Therm. disinfect	Monday – Sunday daily	Tuesday

Tab. 83 Setting range Weekday Thermal disinfection

### 11.9.4 Setting the time

The **Time Therm. disinfect** function enables the time at which disinfection should be performed to be set.



The **Time Therm. disinfect** 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 param.**
- ▶ Turn the rotary dial until main menu **DHW** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **time Therm. disinfect** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.

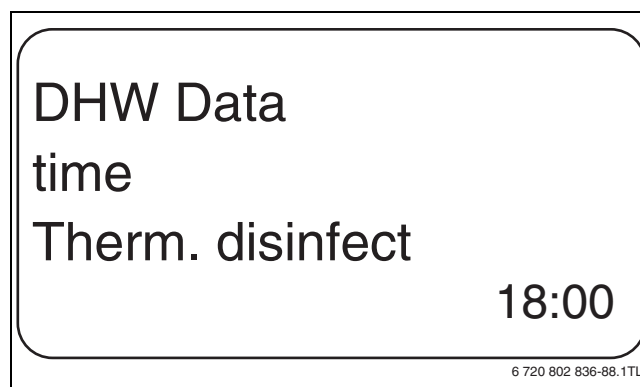


Fig. 68 Setting the time

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

	Input range	Factory setting
time Therm. disinfect	00:00 – 23:00 hours	01:00 hours

Tab. 84 Setting range Time of disinfection

### 11.10 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 developing in the DHW system.

The time when the cylinder is heated can be adjusted.

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

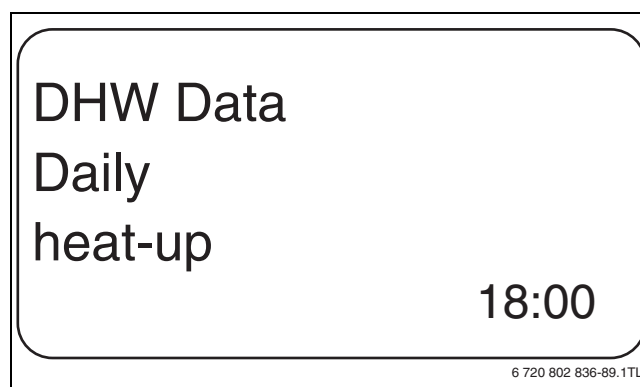


Fig. 69 Setting range Daily heat-up

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



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

Tab. 85 Setting range Daily heat-up



### 11.11 DHW circulation pump

#### 11.11.1 Selecting the DHW circulation pump

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

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

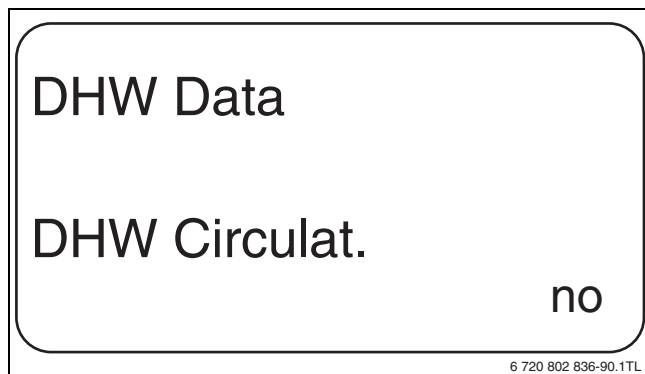


Fig. 70 Selecting the DHW circulation pump

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

	Input range	Factory setting
DHW circulat.	Yes No	yes

Tab. 86 Setting range DHW circulation

#### 11.11.2 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 param.**
- Turn the rotary dial until main menu **DHW** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial until submenu **DHW circulat. per hour** appears.

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

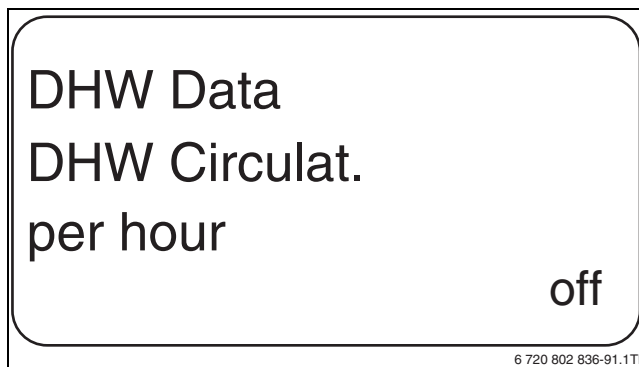


Fig. 71 Setting intervals

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

	Input range	Factory setting
DHW circulat. 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

Tab. 87 Setting range DHW circulation per hour

## 12 Special parameter

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

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

The "Logamatic 4000 special parameters" document can be viewed on the Internet.



## 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 param.**
- ▶ Turn the rotary dial until main menu **Heat. curves** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial to display the heating curves of all heating circuits.

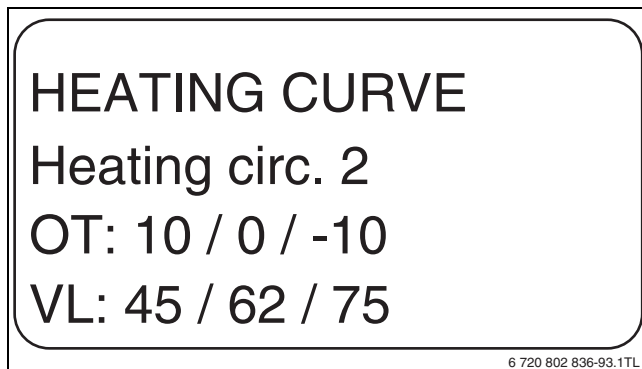


Fig. 72 Heating curve

- ▶ 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) are working 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 supply of heat to the heating system is not guaranteed 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, the following relays can be called up:

- Boiler
  - Burner
  - Actuator
  - Boiler pump (if enabled)
- Heating circuit 0 – 4
  - Circulation pump
  - Actuator (not on heating circuit 0)
- Domestic hot water
  - Cylinder primary pump
  - DHW circulation pump

### Relay test example

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Relay test** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Heating circ. 2** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Actuator** appears.
- ▶ Hold down button **Display** and turn the rotary dial until the required value is shown.

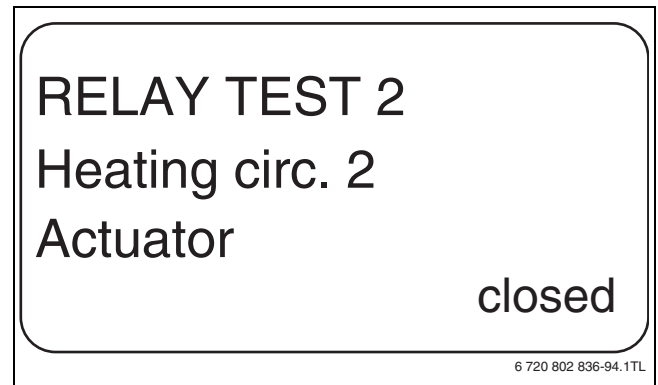


Fig. 73 Relay test

- ▶ Release **Display** to save your input.
- ▶ Press **Back** twice to return to the next higher level.  
The relay test is terminated.



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

## 15 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 param.**
- ▶ Turn the rotary dial 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.

## 16 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 param.**
- ▶ Turn the rotary dial 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.

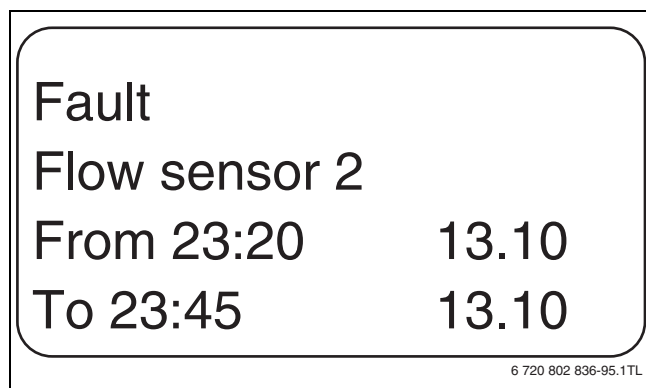


Fig. 74 Displaying the fault log

- ▶ Turn the rotary dial 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 temp. sensor
- DHW cold
- DHW warning
- Therm. disinfect
- Remote control x
- Communication HCx

ECO BUS receive

- No master
- BUS Addr confl
- Addr conflict x
- Incorr module x
- Unknown module x
- Inert anode
- External fault input
- Manual mode XX
- Maint. date

## 17 Monitor data

Using the **Monitor** menu you can display the set and actual settings. The display depends on which modules are installed. The menus described in these instructions relate exclusively to the control unit with the most commonly used module - 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

### 17.1 Boiler monitor data

Using the Monitor menu **Boiler** you can display the boiler data.

- ▶ Call up the service level.  
The first main menu is **General param.**
- ▶ Turn the rotary dial until main menu **Monitor** appears.
- ▶ Press **Display** to call up a submenu.
- ▶ Turn the rotary dial until submenu **Boiler** appears.

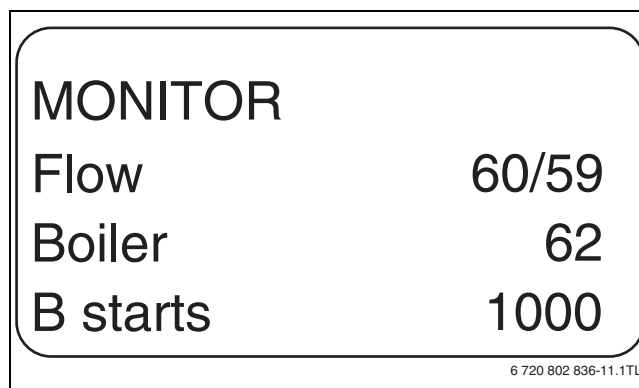


Fig. 75 Displaying monitor boiler data

- ▶ Press **Display** to call up a submenu.  
The data for the monitor are shown in the display.  
The **Adjusted** setting describes the outside temperature, taking the type of building into consideration which has already been entered, and with which the heating curves were calculated.

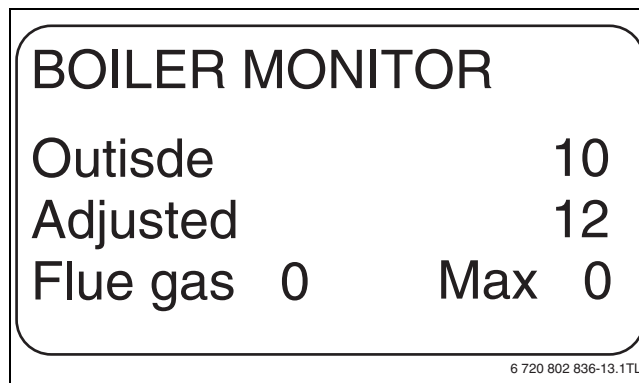


Fig. 76 Boiler monitor data

- ▶ Turn the rotary dial to scroll through the boiler monitor data.

The displays are subject to the burner type selected under **Boiler param.** The following are displayed:

- Burner ON/OFF
- 2nd stage
- Modulation
- Burner 1
- Burner 2

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

#### Example: Modulating burner

The modulation data is displayed.

Meaning of the display "Modulation...%"

- 0%  
no demand
- 20%  
Actuator of modulating burner is regulated in a cycle of 40 seconds for 8 seconds towards ▲ (modulation output is increased).
- 50%  
Actuator of modulating burner is regulated in a cycle of 40 seconds for 20 seconds towards ▼ (modulation output is decreased).

#### Example: Maintenance message according to hours run (or according to date)

The maintenance message appears on the display.

### 17.2 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 param.**
- Turn the rotary dial until main menu **Monitor** appears.
- Press **Display** to call up a submenu.
- Turn the rotary dial 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
- Screed
- DHW Priority
- No setback
- Turn the rotary dial 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.

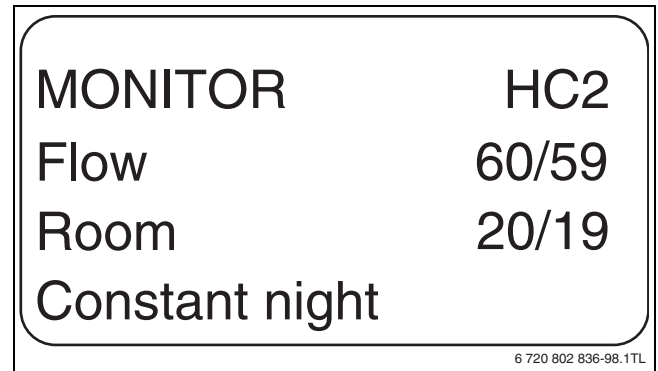


Fig. 77 Heating circuit monitor data

#### 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.

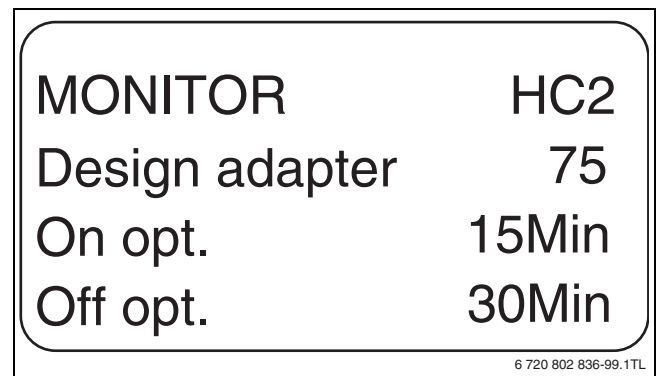


Fig. 78 Design temperature adaptation

#### Actuator

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

#### Circulation pump

Indicates the operating state of the circulation pump.

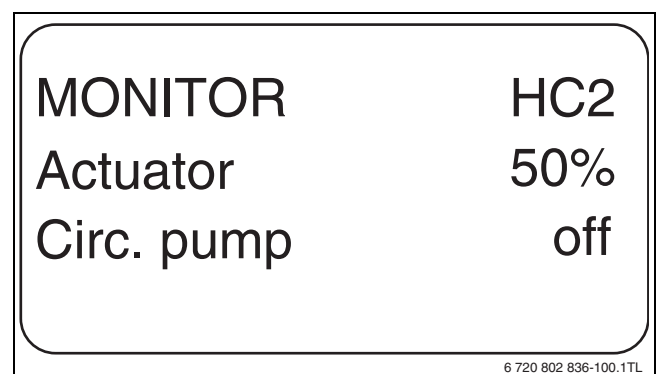


Fig. 79 Actuator

### 17.3 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 11, page 35ff.).

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

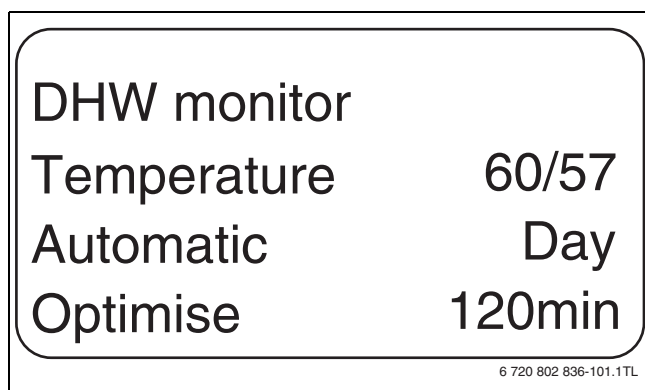


Fig. 80 DHW monitor data

- 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 sufficient time.

#### Heating

Indicates the operating condition of the cylinder primary pump.

#### DHW circulat.

Indicates the operating condition of the DHW circulation pump.

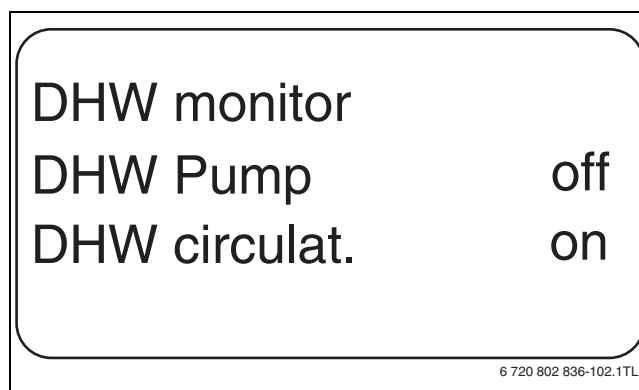


Fig. 81 DHW monitor data

## 18 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 param.**
- ▶ Turn the rotary dial 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.

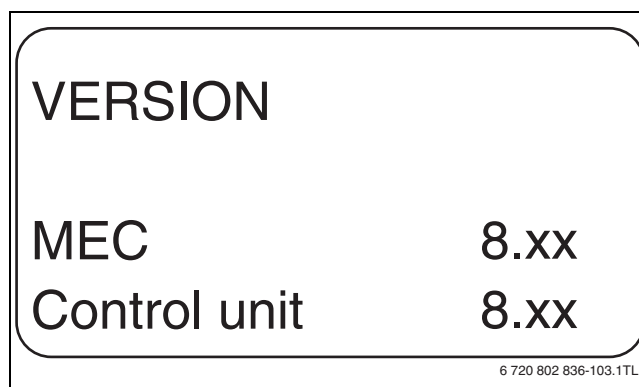


Fig. 82 Display version

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

## 19 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 param.**
- ▶ Turn the rotary dial until main menu **Control unit** appears.
- ▶ Press **Display** to call up a submenu.  
The display shows the selected submenu.
- ▶ Press **Back** to return to the next higher level.

## 20 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.

Possible resets:

- Control unit setting
- Burner hours run
- Fault log
- Maximum exhaust gas temperature
- Amount of heat
- Maint. message



After servicing has been completed, reset the maintenance messages. 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.

### Resetting all adjustments

All values are automatically reset.

- ▶ Call up the service level.  
The first main menu is **General param..**
- ▶ Turn the rotary dial until main menu **Reset** appears.
- ▶ Press **Display** briefly to call up a submenu.  
Control unit settings 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. 83 Resetting all adjustments

- ▶ Press **Back** to terminate the reset procedure and return to the next higher level.

## 21 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.

## 22 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 incorrectly connected, e.g. not to the control unit with address 1 in a multi-boiler system, is not connected at all, or is faulty.</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 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	Mixing valve is no longer being controlled.	<ul style="list-style-type: none"> <li>Sensor is faulty or not connected.</li> <li>An actuator (mixing valve) was selected for the heating circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection.</li> <li>If the faulty heating circuit should be operated without a mixer, check in MEC2/Service level/Heating circ., whether <b>Actuator No</b> has been selected (→ chapter 10.20, page 31).</li> </ul>
DHW temp. 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>Replace sensor or module.</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 11, page 35ff.).</li> </ul>
DHW warning	<ul style="list-style-type: none"> <li>There is a constant attempt at charging the DHW cylinder with hot water.</li> <li>DHW priority is switched off after this fault message is displayed.</li> </ul>	<ul style="list-style-type: none"> <li>Sensor faulty or not connected.</li> <li>Constant drawing or system leak.</li> <li>Manual switch not set to <b>AUT.</b></li> <li>Incorrect sensor arrangement.</li> <li>Primary pump incorrectly connected or faulty.</li> <li>Module or control unit faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection and values.</li> <li>Fix any leakages.</li> <li>Check whether the manual switch is to <b>AUT.</b></li> <li>Check primary pump function (e.g. with a relay test → chapter 14, page 41).</li> <li>Replace sensor or module.</li> </ul>
DHW cold	DHW heating was interrupted. Current DHW temperature is below 40 °C.	<ul style="list-style-type: none"> <li>Primary pump faulty.</li> <li>More DHW is removed than newly heated.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the temperature controller is set to a sufficiently high value (e.g. factory setting: 90 °C) or whether the manual switch is set to <b>AUT.</b></li> <li>Check function of sensor and cylinder primary pump.</li> <li>Check sensor connection on DHW cylinder.</li> </ul>
Therm. disinfect	Thermal disinfection was interrupted.	<ul style="list-style-type: none"> <li>Too much water drawn during thermal disinfection.</li> <li>Boiler output is temporarily insufficient due to heat drawn by other consumers (e.g. heating circuits).</li> <li>Sensor faulty or not correctly connected, or primary pump faulty.</li> <li>Module or control unit faulty.</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 necessary. (→ chapter 14, page 41, 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 or broken.</li> </ul>	<ul style="list-style-type: none"> <li>Check function/connection of remote control. Also check the address of the remote control.</li> <li>Replace remote control/function module.</li> <li>Also check the address of the remote control.</li> <li>Check connecting cables.</li> </ul>

Tab. 88 fault overview

Fault	Effect on control characteristics	Cause	Remedy
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 associated module is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check function/connection of remote control. Also check the address of the remote control.</li> <li>Select the correct remote control in the MEC2 under <b>Remote control</b> (→ chapter 10.7, page 26).</li> <li>Check remote control address (see remote control documentation).</li> <li>Replace remote control or module.</li> </ul>
ECO BUS receive	No effect on control characteristics.	<ul style="list-style-type: none"> <li>The rotary encoder behind the MEC2 in the control unit has an incorrect address.</li> <li>Gravity switch on NM482 is incorrectly positioned.</li> </ul>	<ul style="list-style-type: none"> <li>Check rotary encoder position (→ chapter 5.1, page 9).</li> <li>Check gravity switch (→ chapter 5.2, page 10).</li> </ul>
No master	System operates with minimum outside temperature.	<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 all BUS subscriber addresses. Address 1 must be allocated to the master control unit (rotary encoder behind MEC2).</li> <li>Check function of connecting cable.</li> <li>Check master control unit and replace if required.</li> </ul>
BUS Addr confl	<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 assigned once in the ECOCAN BUS network.</li> </ul>	<ul style="list-style-type: none"> <li>Check the addresses of all BUS subscribers (address settings, → chapter 5.1, page 9).</li> </ul>
Addr 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 ECOCAN BUS is still possible.	<ul style="list-style-type: none"> <li>Module has been installed in the incorrect control unit (e.g. FM447).</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the module may be used with this type of control unit (→ chapter 3.2, page 6).</li> </ul>
Incorr module x	Module switches all outputs off and corresponding fault LED on.	<ul style="list-style-type: none"> <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>Insert new module into MEC2 programming unit (→ chapter 8.7, page 20).</li> <li>Check module selected in the MEC2 programming unit (→ chapter 8.7, page 20).</li> <li>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 8.7, page 20).</li> <li>Replace CM431 and MEC if required.</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 connection.</li> <li>Replace inert anode.</li> <li>Replace module.</li> </ul>
ext. fault input		<ul style="list-style-type: none"> <li>An external component is incorrectly connected or faulty.</li> <li>The module or the control unit 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>
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 corresponding function module manual control to <b>AUT.</b></li> </ul>
Maint. 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>

Tab. 88 fault overview



## 23 Appendix

### 23.1 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.

Fault checking (without room temperature sensor)

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

Using the diagram, determine whether temperature and resistance correlate.



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

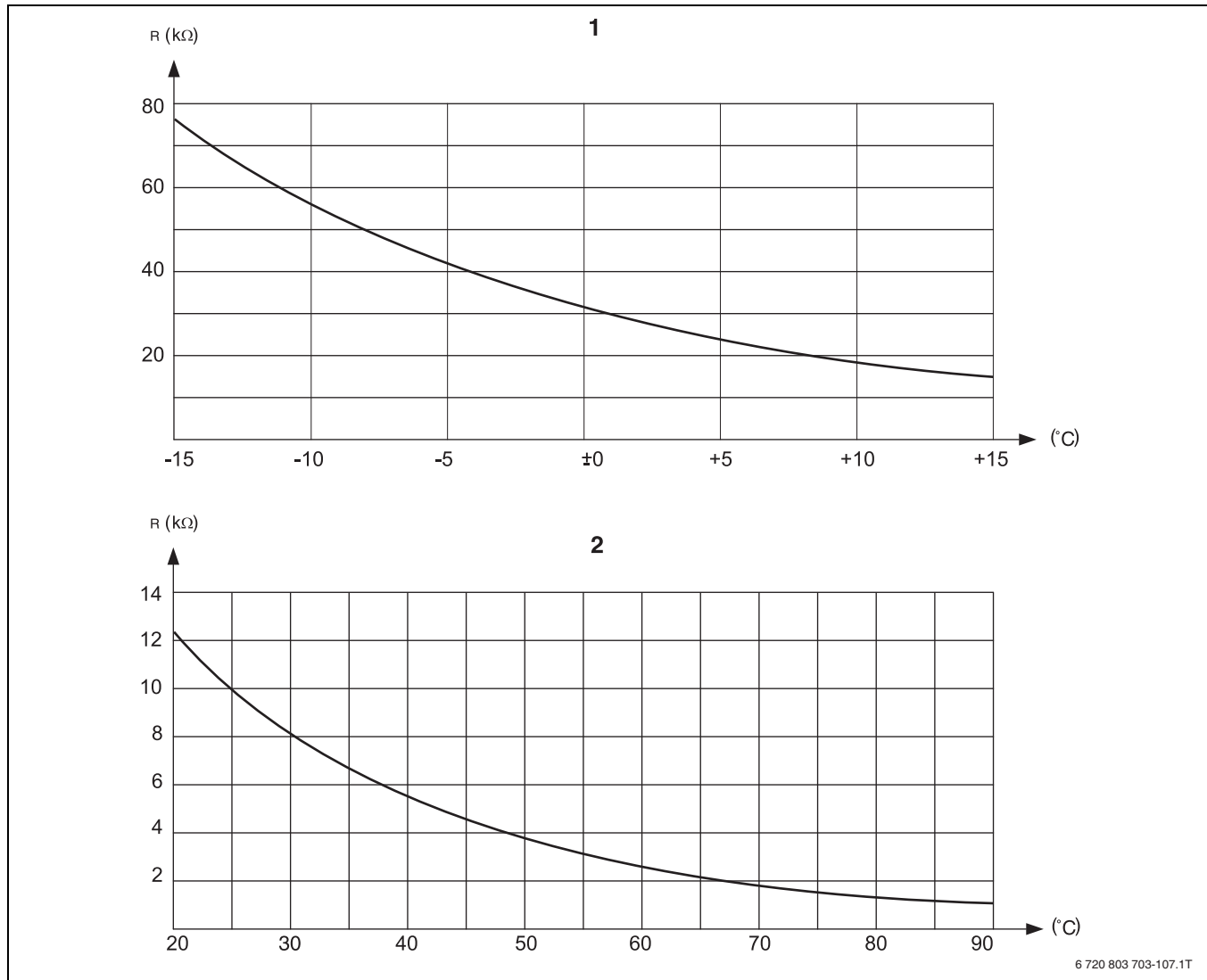


Fig. 84 Outside temperature sensor and boiler water, flow, and DHW temperature sensors

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

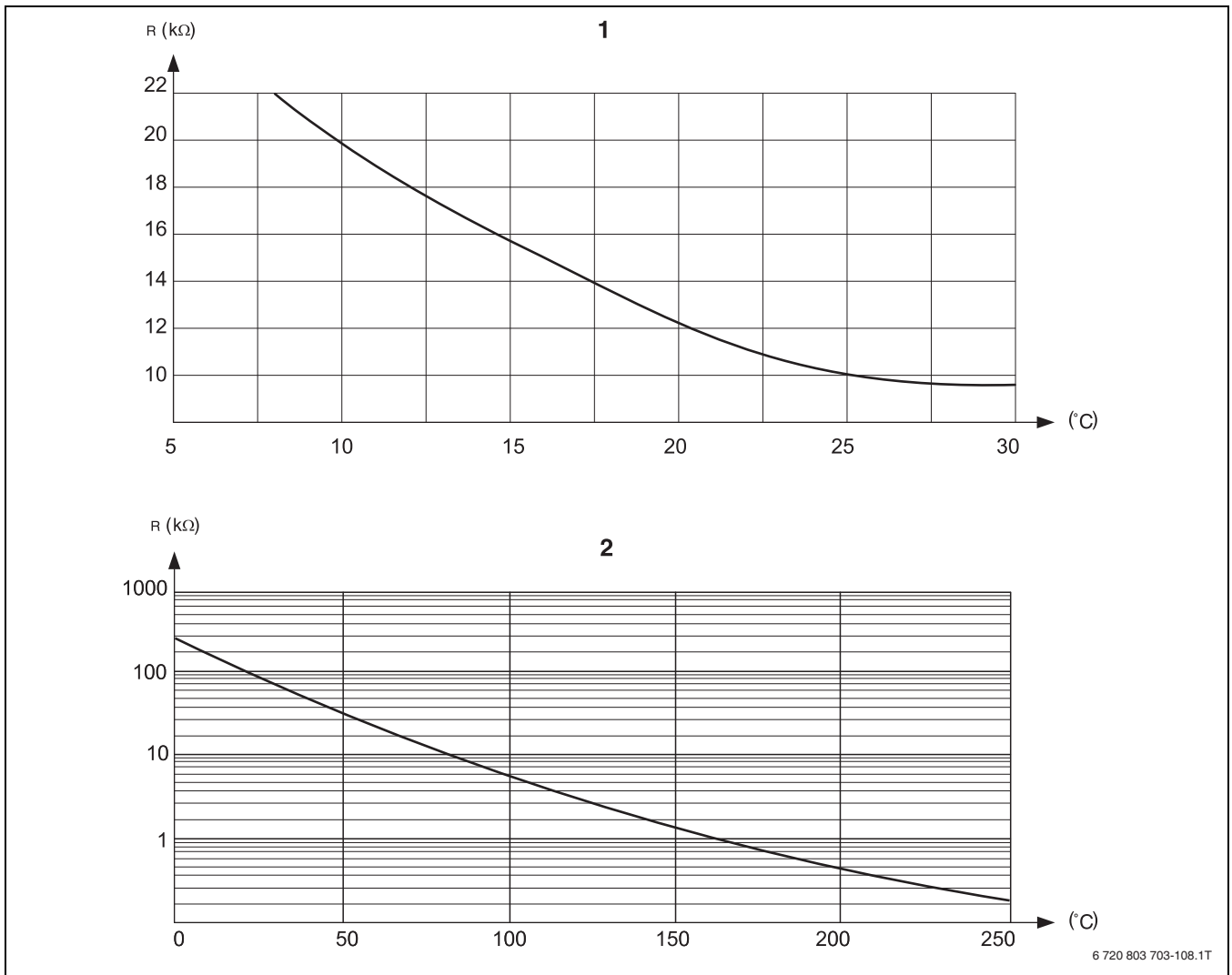


Fig. 85 Room temperature and flue gas temperature sensors

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

## 23.2 Heating curves

### Notes on adjusting the heating curve

You can adjust the heating curve slope using the design point. The design point consists of the minimum outside temperature for the region and the design temperature of the selected heating system (e.g. "Radiators").

Adjusting the set room temperature moves the heating curve in parallel. If you change the room temperature by 1 K, the flow temperature changes by approx. 3 K.

Fig. 86 shows how heating curve [a] for design point  $-10^{\circ}\text{C}/75^{\circ}\text{C}$  moves in parallel ([b], [c] and [d]) through various set room temperatures. The heating curves [e] and [f] show the changed slope for other design points.

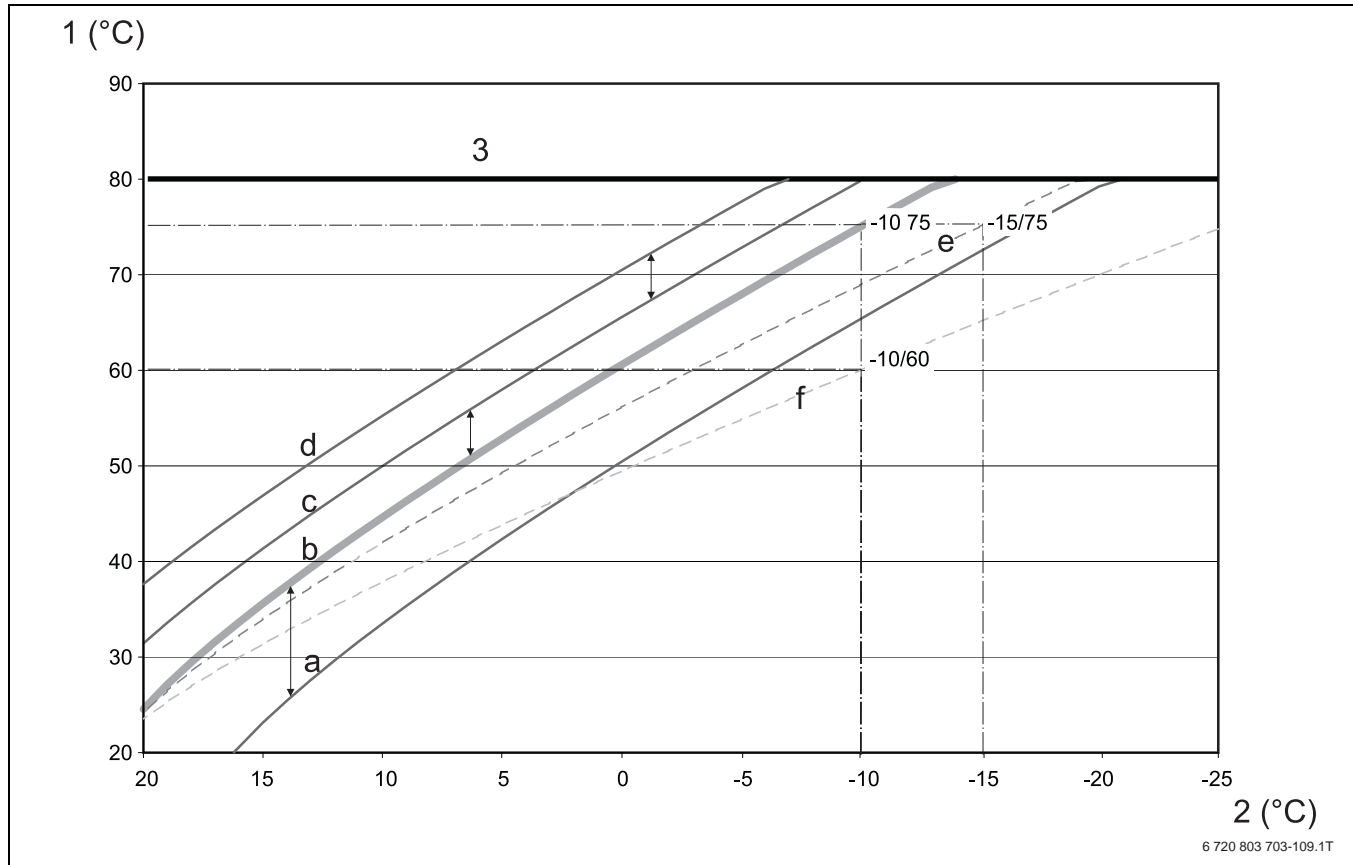


Fig. 86 Heating curve for a "radiator" heating system

- [1] Flow temperature in  $^{\circ}\text{C}$
- [2] Outside temperature in  $^{\circ}\text{C}$
- [3] Adjustable maximum heating circuit temperature
- [a] Set room temperature  $17^{\circ}\text{C}$ , min. outside temperature  $-10^{\circ}\text{C}$ , design temperature  $75^{\circ}\text{C}$
- [b] Set room temperature  $21^{\circ}\text{C}$ , min. outside temperature  $-10^{\circ}\text{C}$ , design temperature  $75^{\circ}\text{C}$
- [c] Set room temperature  $23^{\circ}\text{C}$ , min. outside temperature  $-10^{\circ}\text{C}$ , design temperature  $75^{\circ}\text{C}$
- [d] Set room temperature  $25^{\circ}\text{C}$ , min. outside temperature  $-10^{\circ}\text{C}$ , design temperature  $75^{\circ}\text{C}$
- [e] Set room temperature  $21^{\circ}\text{C}$ , min. outside temperature  $-15^{\circ}\text{C}$ , design temperature  $75^{\circ}\text{C}$
- [f] Set room temperature  $21^{\circ}\text{C}$ , min. outside temperature  $-10^{\circ}\text{C}$ , design temperature  $60^{\circ}\text{C}$

### 23.3 Setting specific boiler data

Assignment of boiler type to the corresponding Buderus boiler.

óThe boiler type can be selected at the service level under boiler parameters (→ chapter 9.1, page 20).

#### Low temperature (Not available in the UK)

To be enabled for boiler series:

- Logano G125 ECO
- Logano S125 ECO
- Logano G144 ECO
- Logano G215Logano G234
- Logano G334Logano S325

#### Condensing

To be enabled for boiler series:

- Logano plus SB315
- Logano plus SB615
- Logano plus SB735

#### Ecostream

to be enabled for boiler series:

- Logano GE315<sup>1)2)</sup>
- Logano GE515<sup>1)</sup>
- Logano GE615<sup>1)</sup>
- Logano SE425<sup>1)2)</sup>
- Logano SE635<sup>1)</sup>
- Logano SE735<sup>1)</sup>
- Logano GE434<sup>3)</sup>



The same control unit configuration applies to gas fired condensing boilers with an external condensing heat exchanger.

---

#### LT/low end temperature (Not available in the UK)

To be enabled for boiler series:

- Logano SK425<sup>4)</sup>
- SK635<sup>4)</sup>
- SK735<sup>4)</sup> for raised minimum boiler water temperatures.

---

1) Operating flow temperature control via heating circuit actuators.

2) Operating flow temperature control via external control unit.

3) Subject to hydraulic connection.

4) Minimum boiler water temperature control via heating circuit actuators.

## Keyword index

### A

Actuator .....	31, 43
Runtime .....	32
Actuator operating time .....	21
Adaptation .....	29, 43
Address settings .....	9

### B

Base temperature .....	51
Boiler temperature increase .....	37
Boiler type .....	
Condensing .....	21
Ecostream .....	21
Low temperature boilers .....	20
Low-temperature boilers with base temperature .....	21
Burner set motor runtime .....	22

### C

Circulation pump .....	43
Cleaning .....	
Control unit .....	5
Commissioning .....	
information .....	5
Condensing .....	51
Condensing boiler .....	21
Correct use .....	4

### D

Declaration of Conformity .....	4
Design temperature .....	25, 43
DHW circulat. ....	40, 44
Intervals .....	40
DHW circulation pump .....	40
Intervals .....	40
DHW monitor data .....	
DHW circulat. ....	44
Heating .....	44
Optimise .....	44
DHW priority .....	31
Disinfection .....	38
Domestic hot water .....	35

### E

Ecostream .....	51
Ecostream boilers .....	21
Environment / disposal .....	45
External changeover .....	32
External fault message .....	37
External switch .....	37

### F

Fault displays .....	42
Fault log .....	42
Flow .....	29
Flow temperature .....	26
Flue gas temperature .....	24
FM442 .....	11
Heating circuit function .....	12
Frost prot. ....	31
Frost protection temperature .....	31
Fuel .....	21

### H

Heat storage capacity .....	18
Heat.circuit .....	25
Heating circuit function .....	12
Heating once .....	37
Heating system .....	24
Holiday .....	28
Hysteresis .....	37

### I

Inert anode .....	37
-------------------	----

### L

Load limit .....	22
Low end temperature .....	25
Low temperature .....	51
Low temperature boilers .....	20
Lowering .....	28–29
Low-temperature boilers with base temperature .....	21

### M

Malfunctions .....	46
Maximum room influence .....	27
MEC2 .....	12
Commissioning .....	12
heating circuits .....	27
Version .....	44
Minimum modulation .....	22
Modulating burner .....	22
Modules .....	9

### O

Offset .....	29
ON temperature .....	23
Operation modes .....	43–44
Optimisation .....	30, 43
Optimise .....	44
Outside stop temperature .....	28

### P

Packaging .....	45
Party function .....	27
Password .....	16
Pause function .....	27
Pump function .....	23

### R

Raising .....	32
Recycling .....	45
Reduction mode .....	27–28
Relay test .....	41
Remote control .....	26
Reset .....	45
Residual heat utilisation .....	36
Room influence .....	27
Room temperature .....	29
Run-on time .....	23

**S**

Safety regulations .....	4
Screed .....	33
Heat-up time .....	34
Holding time .....	35
Maximum temperature .....	34
Setback temperature .....	35
Setback time .....	35
Temperature rise .....	34
Sequence switching .....	22
Service level .....	16
Shutdown temperature .....	24
Start optimisation .....	43
Stop optimisation .....	43
Stop optimisation time .....	30
Summer/wintertime changeover .....	27
Switching optimisation .....	30, 36

**T**

Terminator .....	10
Thermal disinfection .....	38
Clock time .....	39
Temperature .....	38
Weekday .....	39
Type of building .....	18
Type of burner .....	22

**U**

Used appliances .....	45
-----------------------	----

**Z**

ZM422 .....	10
Burner function .....	11
DHW function .....	11
Flue gas test .....	11
Heating circuit function .....	11



## Notes





## Notes

## **Buderus**

Cotswold Way, Warndon, Worcester WR4 9SW  
All Enquiries: 0844 892 3004

[www.buderus.co.uk](http://www.buderus.co.uk)

In the UK and IE, Buderus is a brand name  
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# **Buderus**