

## Logamatic 4321/4322

For qualified technicians

Read carefully prior to  
commissioning and service

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# 1 Safety

## 1.1 Regarding these instructions

These service instructions contain important information on the safe and appropriate commissioning and servicing of the Logamatic 4321 and 4322 control units.

These service instructions are designed for installers who, due to their training and experience, are knowledgeable in handling heating systems and water installations.

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

## 1.2 Correct use

The Logamatic 4321 and 4322 control units are designed to regulate and control heating systems, for example in residential complexes and other types of commercial buildings.

## 1.3 Standards and guidelines

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

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

## 1.4 Symbol key

Signal words indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.



**WARNING!**

### RISK TO LIFE

Identifies possible dangers which might lead to serious injury or death if appropriate care is not taken.



**CAUTION!**

### RISK OF INJURY/ SYSTEM DAMAGE

Indicates a potentially dangerous situation which could lead to minor or moderate injury or to damage to property.



### USER INFORMATION

Notes contain important information in cases where there is no risk of personal injury or damage to property.

## 1.5 Observe this information

- Only operate the control unit as intended and when it is in perfect working order.
- Carefully read these service instructions before carrying out any work on the control unit.



**WARNING!**

### RISK TO LIFE

from electric shock.

- Ensure that all electrical work is carried out by an authorised electrician.
- Before opening the control unit: isolate all poles of the mains power supply and secure against unintentional re-connection.



**CAUTION!**

### RISK OF INJURY/ SYSTEM DAMAGE

from operator error.

Operator errors can result in injury and/or damage to property.

- Ensure that only personnel able to operate the appliance correctly have access to it.



**CAUTION!**

### SYSTEM DAMAGE

from frost.

Frost damage can occur when the heating system is switched off during cold weather.

- Drain your heating system and DHW pipework at the lowest point in the system to protect the system from frost damage.

**USER INFORMATION**

An isolator that disconnects all poles of the mains supply must be fitted.

**USER INFORMATION**

Only use original Buderus spare parts. Losses as a result of the use of spare parts not supplied by Buderus are excluded from the Buderus warranty.

**1.8 Disposal**

- Dispose of the control unit packaging in an environmentally responsible manner.
- Electronic components must not be disposed of with general domestic waste. Dispose of old control units in an environmentally responsible manner through an approved organisation.  
When disposing of the control unit, remove the lithium battery from the CM431 module inside the control unit and dispose of separately.

**1.6 Important notes on commissioning**

- Before switching the control unit ON, check that the switches and those on the function modules are set to AUT.
- The control unit operating instructions contain a setting record for the use of the operator. During commissioning, make a note in this record of all settings and heating circuit allocations.

**1.7 Cleaning the control unit**

- The control unit should only be cleaned with a damp cloth.

## 2 Product description and standard delivery

### 2.1 Product description

The digital Logamatic 4321 and 4322 control units can regulate any floorstanding Buderus oil/gas fired boiler with single stage, two-stage or modulating burner, and offer optimum control over modulating burners and boiler circuit pumps via the respective 0 – 10V interface as well as an external changeover facility for dual-fuel burners. These control units may be extended with four function modules to provide an optimum match to an individual heating system. Multi-boiler systems can be regulated with the strategy module FM458 integrated into the Logamatic 4321 control unit.

### 2.2 Standard delivery

- Digital Logamatic 4321 control unit with MEC2 programming unit or digital Logamatic 4322 control unit with boiler display
- FA outside temperature sensor (only Logamatic 4321)
- Boiler water temperature sensor FK
- FZ auxiliary temperature sensor for flow or return temperature
- Burner cable, stage 2
- Technical documentation



### 3 Setting instructions for high limit safety cut-out (STB)

#### Disassembly of casing and removal of the high limit safety cut-out

- The high limit safety cut-out (STB) (→ Fig. 1, [2]) must be removed from the casing to select the required temperature.
- Undo both screws (→ Fig. 1, [1]) to remove the high limit safety cut-out.
- Remove lid (→ Fig. 1, [3]).
- Remove protective cap (→ Fig. 1, [2]).
- Undo the screw connection.
- Remove the high limit safety cut-out and carry out the following adjustments.



#### USER INFORMATION

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



#### USER INFORMATION

The factory setting is 110 °C.

#### High limit safety cut-out setting

##### Fig. 2 Version A

- Undo screw (→ Fig. 2, [1]).
- Set the sheet steel part with the temperature scale (→ Fig. 2, [2]) to marking (→ Fig. 2, [3]).
- Retighten screw (→ Fig. 2, [1]).

##### Fig. 3 Type B

- Move lever (→ Fig. 3, [1]) to the corresponding temperature.

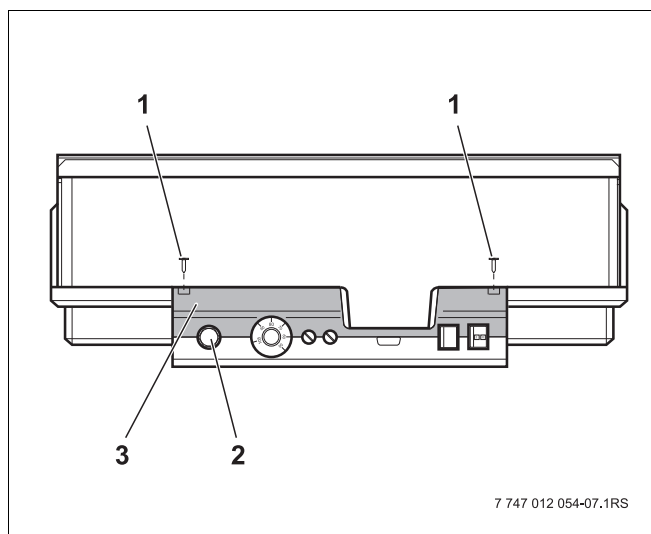


Fig. 1 Logamatic 4... control unit

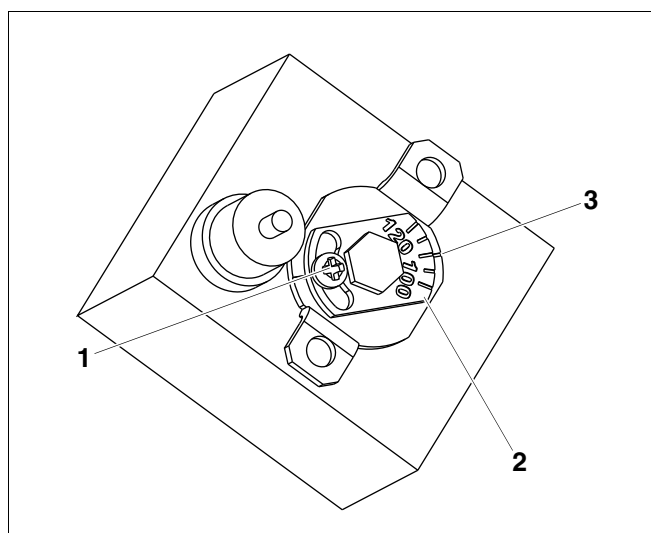


Fig. 2 Type A

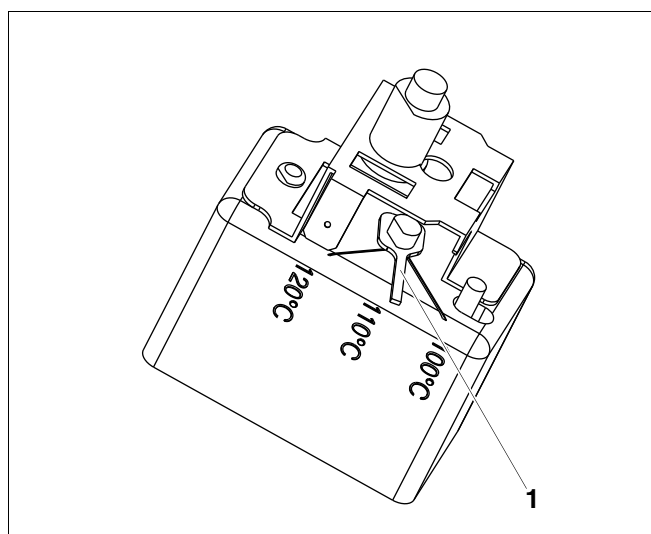


Fig. 3 Type B

## 4 Setting instructions – boiler water thermostat (TR)



### USER INFORMATION

Changing the boiler water thermostat from 90 °C to 105 °C (only with high limit safety cut-out setting 120 °C).

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

- Pull the rotary selector off.
- Break off end stop cams (→ Fig. 4, [1]).
- Reposition the rotary selector.



### USER INFORMATION

Logamatic control units can be operated with a maximum temperature of 99 °C (→ Chapter 14.3.4).

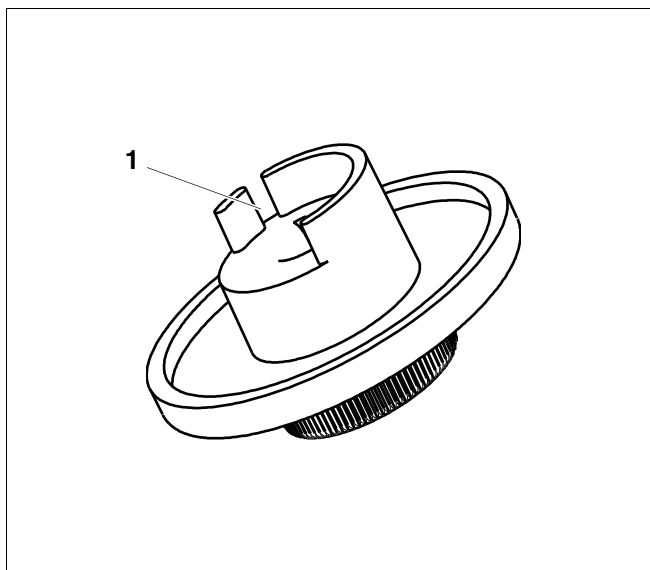


Fig. 4 Rotary selector

## 5 Controls and MEC2 programming unit

### 5.1 Control unit controls

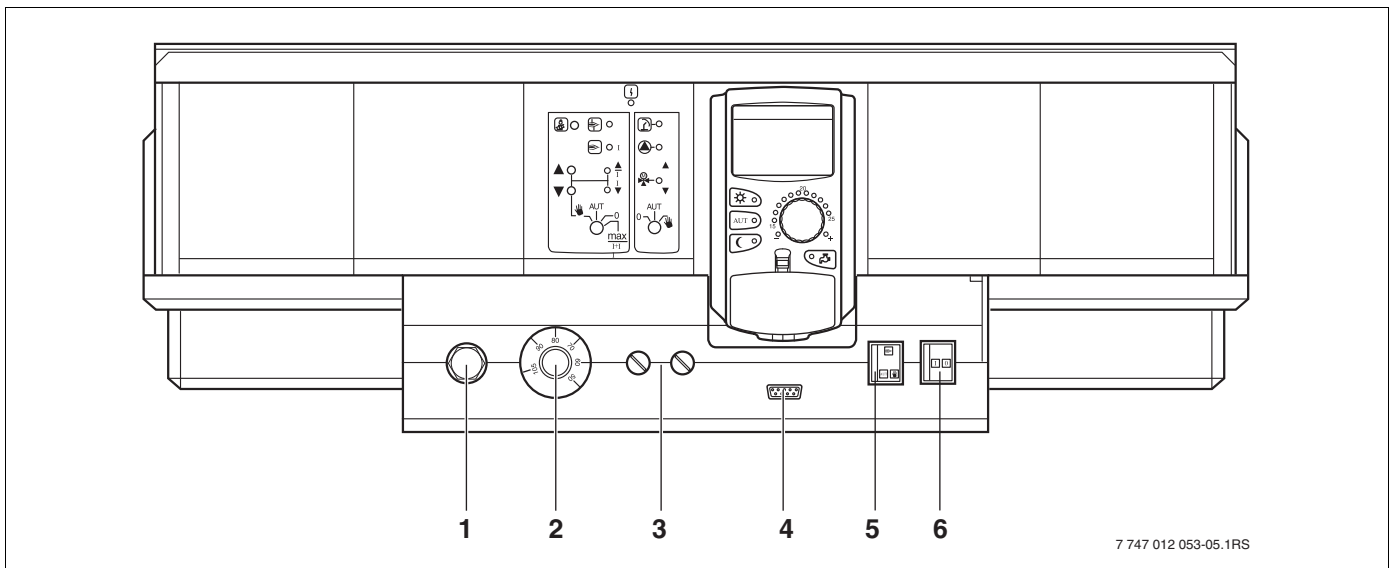


Fig. 5 Controls

- |                              |  |
|------------------------------|--|
| 1 Safety temperature limiter | 4 Connection for external service equipment and MEC2 |
| 2 Boiler control thermostat  | 5 Burner emergency operation switch                  |
| 3 F1, F2 Fuses               | 6 ON/OFF switch                                      |

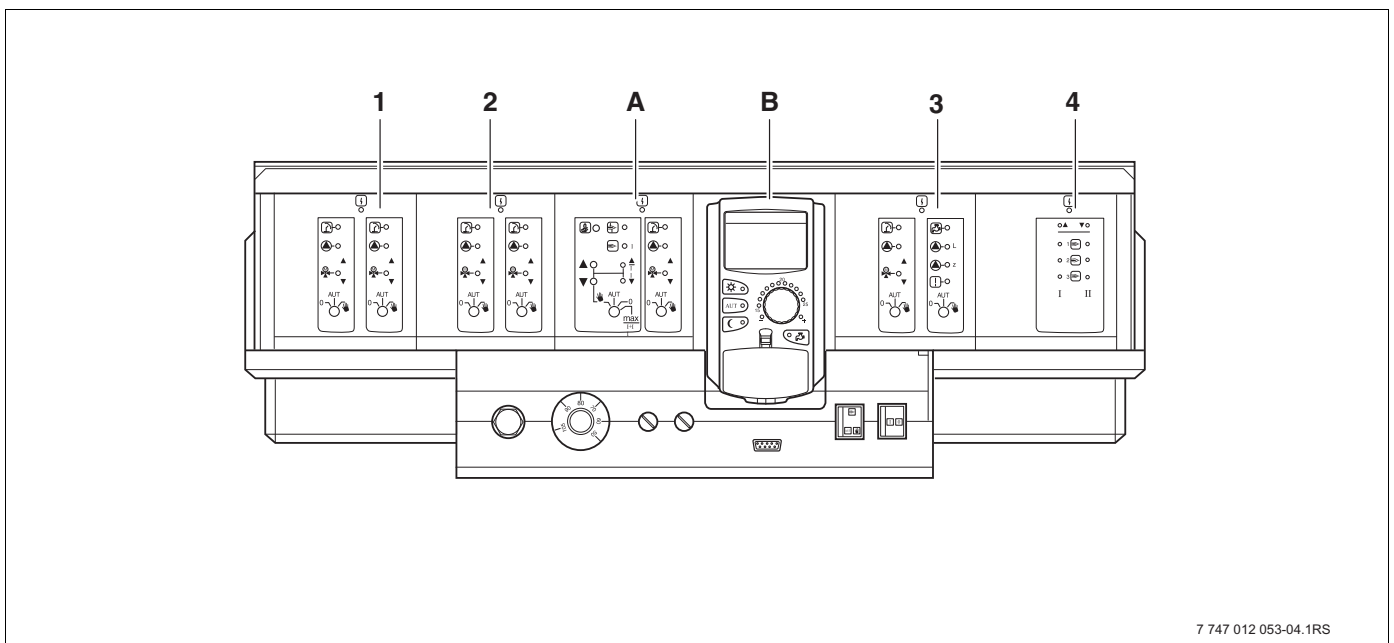
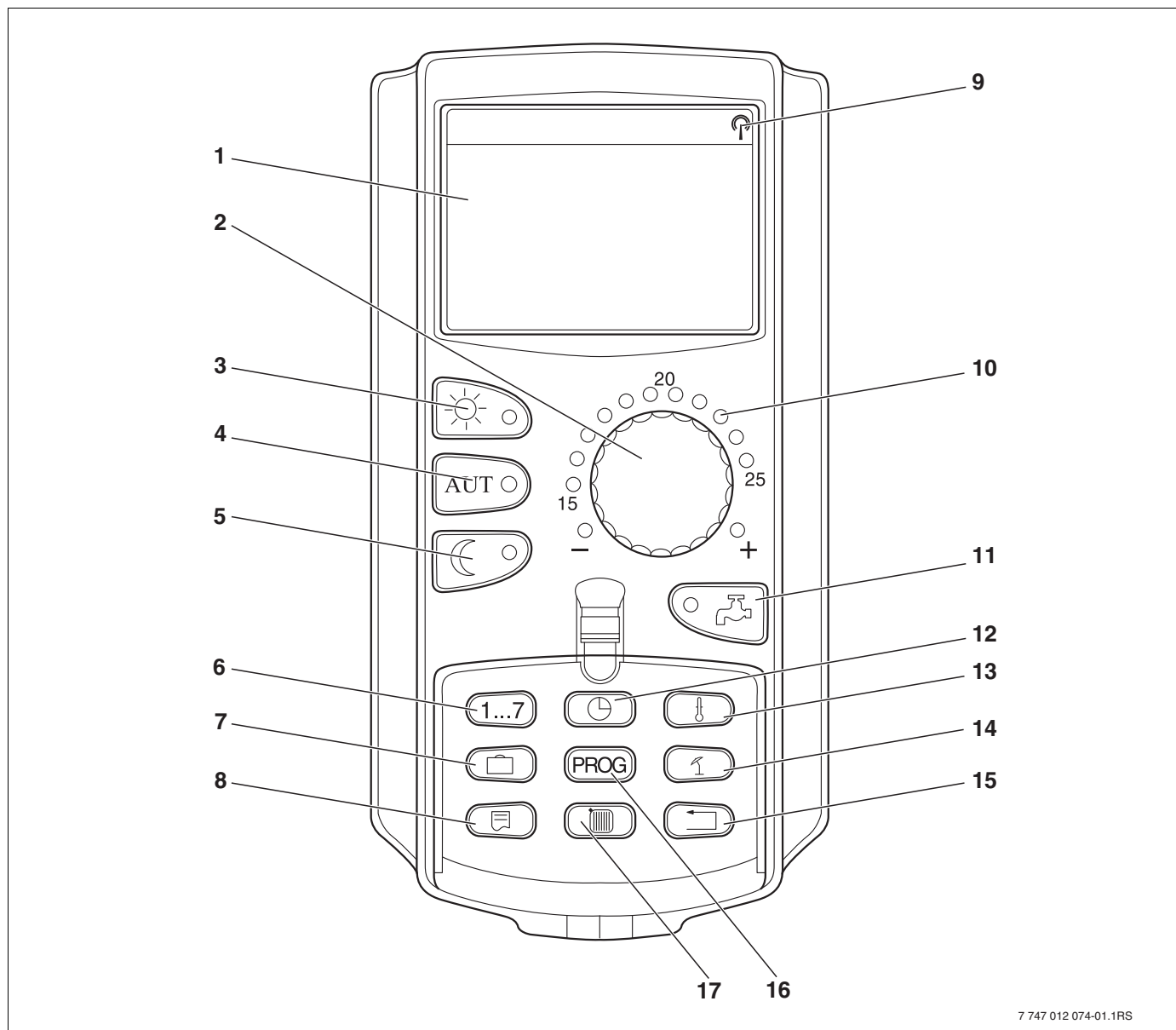


Fig. 6 Inserted modules

- |  |
|--|
| 1 Slot 1: e.g. FM442 (heating circuit 1, heating circuit 2)        |
| 2 Slot 2: e.g. FM442 (heating circuit 3, heating circuit 4)        |
| A Slot A: ZM434 (boiler circuit, burner)                           |
| B Slot B: CM431 module and MEC2 programming unit                   |
| 3 Slot 3: e.g. FM441 (heating circuit 5, DHW/DHW circulation pump) |
| 4 Slot 4: e.g. FM458 (strategy, for multi-boiler systems)          |

## 5.2 MEC2 programming unit



7 747 012 074-01.1RS

Fig. 7 MEC2 programming unit

- |   |   |
|---|---|
| 1 Display   | 9 Radio clock signal (only in Germany)                |
| 2 Rotary selector                                   | 10 Display for set room temperature                   |
| 3 Constant heating mode                             | 11 Entered DHW temperature/reloading                  |
| 4 Automatic heating mode in acc. with a time switch | 12 Set time   |
| 5 Constantly reduced heating mode                   | 13 Modify temperature values                          |
| 6 Enter weekdays                                    | 14 Summer/winter time adjustment                      |
| 7 Enter holidays                                    | 15 Back to the standard display                       |
| 8 Select standard display                           | 16 Select a time switch program                       |
|   | 17 Select heating circuits/domestic hot water circuit |

## 6 Setting parameters and display data

Some options are only displayed with certain modules and subject to prior settings.

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

## 7 Modules and their functions

The following lists all modules that are or can be fitted into the Logamatic 4321/4322 control units.

		Logamatic	
		4321	4322
Module	MEC2 programming unit	O	X
	Controller module CM431	O	O
	ZM434 central module Burner + boiler circuit functions	O	O
	FM441 function module* 1 heating circuit + 1 DHW circuit	X	X
	FM442 function module 2 heat. circuits	X	X
	FM443 function module Solar heating circuit	X	X
	FM444 function module Alternative heat source	X	X
	FM445* function module LAP/LSP (loading system)	X	X
	FM446 function module Interface EIB	X	X
	FM448** function module Central fault message	X	X
	ZM426 option module Additional STB	X	X
	FM458** function module Strategy module	X	X

Tab. 1 Modules and their functions

\* Only one DHW module per control unit

\*\* Only one of these two modules may be fitted into the respective control unit

O = Basic specifications

X = Optional equipment

## 7.1 Controller module CM431

### Setting the control unit address

For the address setting (→ Fig. 9, [1]) see module CM431 (behind the MEC2 programming unit) for Logamatic 4321/4322 control units.

- Remove the MEC2 programming unit.
- Select the control unit address with a screwdriver (→ Fig. 9).

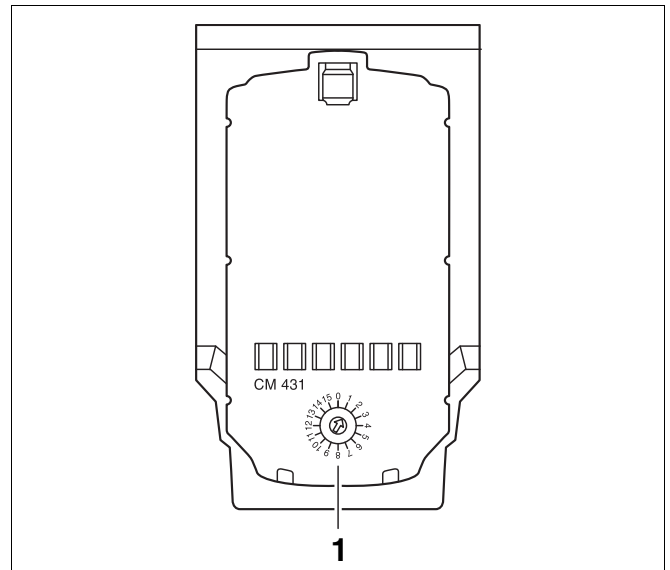


Fig. 9 Setting addresses

Address	Description
0	Stand-alone control unit: If a control unit operates as stand-alone unit, i.e. no other devices are connected to the ECOCAN-BUS, set the address to 0 (factory setting).
	Each connected device must be given a different address if several devices operate together. A fault message will be displayed by the MEC2 programming unit, when an address is allocated more than once.
1	Master (leading control unit): Address 1 has special significance, since the control unit with this address acts, in connection with several control units, as master device. The master controls the boiler. Always connect the outside temperature sensor to the master. The master monitors the ECOCAN-BUS that links the control units as well as possibly a telecontrol modem or other devices. The master recognises when an address has been allocated more than once. A fault message will be displayed by the MEC2. All control units transfer their set values to the master, which formulates the overall set value from these values. <b>Any chain must only include one master.</b>
2 – max. 15	Slave (subordinate control unit): All devices with these addresses are described as slaves. No slave may ever have address 1. Each address must only be allocated once.

Tab. 2 Control unit addresses

## 7.2 Mains supply module NM482

### Terminator when networking several control units



#### RISK TO LIFE

from electric shock.

#### WARNING!

- Ensure that all electrical work is carried out by an authorised electrician.
- Before opening the control unit: isolate all poles of the mains power supply and secure against unintentional re-connection.

To ensure fault free data transmission between several control units, fit a terminator to the two control units which are the furthest distance apart from each other.

The terminator is fitted to the component side of the NM482 power supply module, and is switched on by the gravity switch (→ Fig. 10, [2]).

The factory setting is:

Gravity switch S1 N/O = terminator not fitted

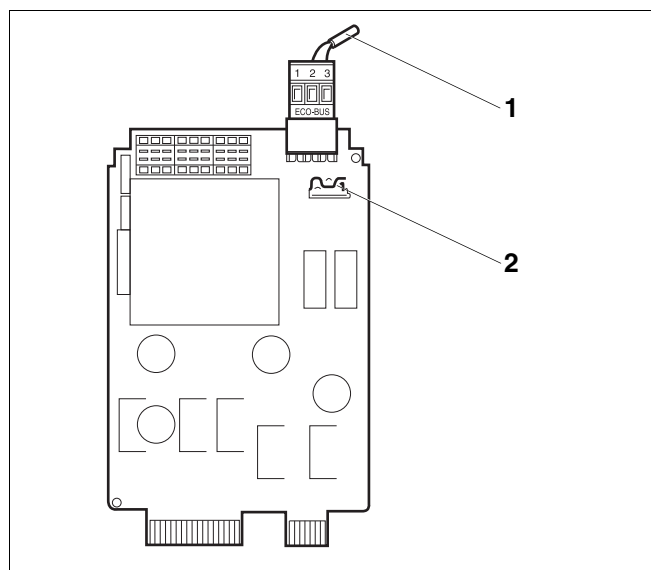
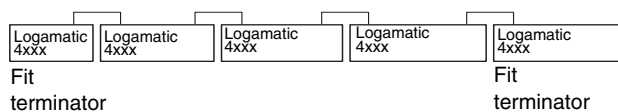


Fig. 10 Mains supply module NM482

1 ECO-CAN-BUS

2 Gravity switch S1 (for terminator) factory setting: N/O


Example of the terminator hook-up, in case of several Buderus control units are connected.





### 7.3 ZM434 burner and boiler circuit module



The ZM434 module is part of the standard equipment level of the Logamatic 4321 and Logamatic 4322 control units. The switches on the module are only provided for service and maintenance functions.

If the switches are not in automatic position, the MEC2 shows a message to this effect and the .

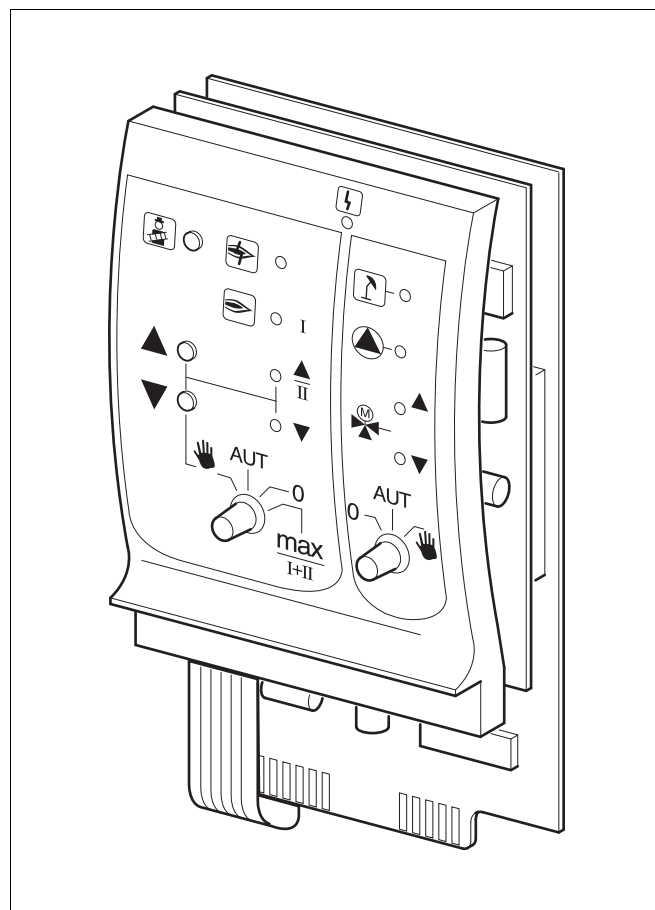
#### Burner function

"Flue gas test" button  for flue gas test

Press and hold "flue gas test" button for a few seconds. The central heating control operates for 30 minutes at a higher flow temperature.

During the flue gas test, the fault display  and  for summer mode will flash alternately. Press the "flue gas test" button again to cancel the flue gas test.

Switch for burner  



ZM434



#### USER INFORMATION

In standard mode, the switch should be set to "AUT".





0, Manual      max I + II







General fault e.g. site errors, sensor errors, external faults, Internal wiring fault Module error, manual mode.



These fault messages appear as plain text on the MEC2 programming unit.

#### LED for burner functions

Display		Burner fault
Display		Burner operational
Display		Modulation output is increased/ Stage 2 operational
Display		Reducing the modulating output

#### LED for boiler circuit functions

Display		Boiler circuit in summer mode
Display		Boiler pump active
Display		Mixer opens towards the boiler
Display		Mixer opens towards the heating circuit

- : As base load, only the first stage will be enabled for single and two stage burners. The second stage is at zero volts. For modulating burners, the burner output can be variably increased using ▲ and reduced using ▼.
- AUT: The burner operates in automatic mode.
- 0: The burner is switched OFF. Exception if the burner emergency switch is set to .
- Max I+II: The burner continuously operates at maximum output.

## Boiler circuit function


Switch for boiler circuit 



### USER INFORMATION

In standard mode, the switch should be set to "AUT".

The positions **0** and **Manual** are special settings that should only be operated by heating contractors in case of faults.

- : Any installed boiler pump will be switched ON. The boiler circuit servomotor can be manually operated.
- AUT: The boiler circuit operates in automatic mode.
- 0: Any installed boiler pump will be switched OFF. The boiler circuit servomotor can be manually operated.


LED indicate the current function status.

## 7.4 FM441 function module (accessory)

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

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

Only fit this module once into the control unit.

If the switches are not set to Auto, a corresponding message appears in the MEC2 programming unit, and the  fault illuminates.

The control functions remain operational in manual mode.

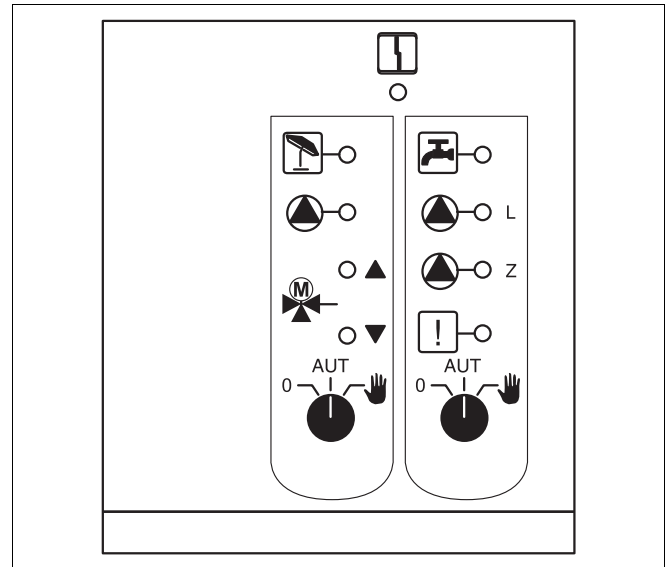


Fig. 12 FM441

Display



General faults, e.g. on-site faults, sensor faults, external faults, wiring faults, internal module faults, manual mode.  
Fault messages appear as plain text in the MEC2 programming unit.

### LEDs for the following functions:

Display



"Mixer opens" (hotter)

Display



"Mixer closes" (colder)

Display



Heating circuit in summer mode

Display



DHW in night mode below the set temperature

Display



Heating circuit pump operational

Display



Cylinder loading pump active

Display



DHW circulation pump active

Display



Thermal disinfection active

## Heating circuit function

Switch – heating circuit:  
(→ Fig. 13, [1])



### USER INFORMATION

In standard mode, set the switches to "AUT".

The positions **0** and **👤** (manual mode) are special settings reserved for heating contractors only.

- 👤** : The heating circuit pump is switched ON.  
The mixer is switched volt-free and can be manually operated.
- AUT**: The heating circuit operates in automatic mode.
- 0**: The heating circuit pump is switched OFF.  
The mixer is switched volt-free. The control functions continue to operate.

Current functions are indicated by LEDs.

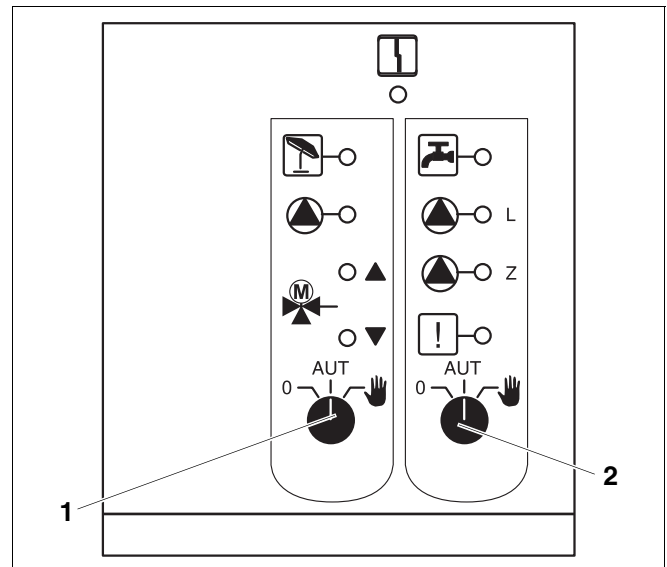


Fig. 13 FM441

- 1** Switch – heating circuit
- 2** Manual DHW switch

## DHW function

Switch for DHW heating:  
(→ Fig. 13, [2])



### USER INFORMATION

In standard mode, set the switches to "AUT".

The positions **0** and **👤** (manual mode) are special settings reserved for heating contractors only.


- 👤** : The DHW cylinder loading pump is switched ON.  
The DHW circulation pump is switched OFF.
- AUT**: The DHW circuit operates in automatic mode.
- 0**: The cylinder primary and the DHW circulation pump are switched off. The control functions continue to operate.

Current functions are indicated by LEDs.

## 7.5 FM442 function module (accessory)

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


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

If the switches are not set to Auto, a corresponding message appears on the MEC2 programming unit, and the fault indicator  illuminates.

The control functions remain operational in manual mode.

### Heating circuit function

Switch heating circuit


e.g. for heating circuit 1 and 2 



### USER INFORMATION

In standard mode, set the switches to "AUT".

The positions **0** and  (manual mode) are special settings reserved for qualified personnel only.

 The heating circuit pump is switched ON.  
The mixer is switched volt-free and can be manually operated.

**AUT:** The heating circuit operates in automatic mode.

**0:** The heating circuit pump is switched OFF.  
The mixer is switched volt-free and can be manually operated. The control functions continue to operate.

Current functions are indicated by LEDs.

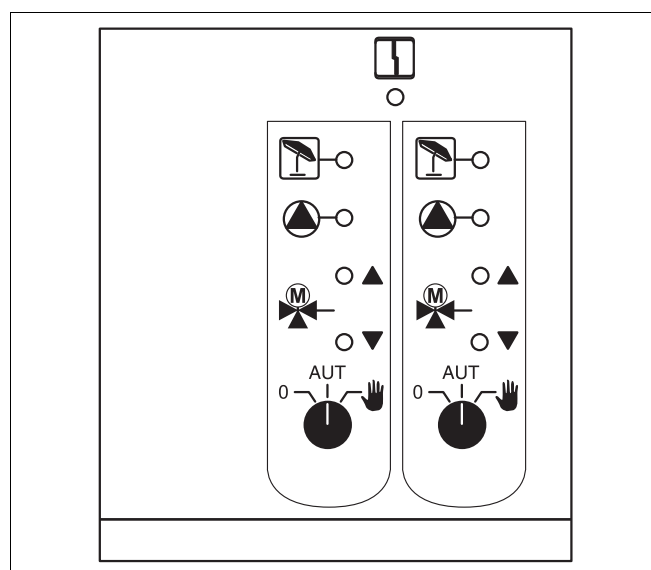


Fig. 14 FM442

Display



General faults, e.g. on-site faults, sensor faults, external faults, wiring faults, internal module faults, manual mode.  
Fault messages appear as plain text in the MEC2 programming unit.

### LEDs for the following functions:

Display



"Mixer opens" (hotter)

Display



"Mixer closes" (colder)

Display



Heating circuit in summer mode

Display



Heating circuit pump operational

## 8 Commissioning the MEC2 programming unit

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

The MEC2 programming unit can:

- be fitted directly into the control unit or
- be used as a remote control unit in a wall mounting retainer or
- connected with a separate power supply unit via an adapter.

The MEC2 commences the initialisation after connecting a power supply.

The display shows "MEC is initialised".

Then information is briefly displayed showing the control unit address.

MEC is  
initialised

Connection with  
Control unit  
Address      XX  
established

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

The information on display varies according to each individual application:

Monitor data  
will  
from ctrl unit  
taken

### Ex works MEC2 installed in a control unit

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

The display shows "Monitor data will from ctrl unit taken".

Unknown  
Control unit

### MEC2 installed in another control unit

If the MEC2 contains 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 it with an MEC2 with a suitable software version.

## Installing an MEC2 with set parameters into the control unit

MEC is  
initialised

After the MEC2 has been installed in the control unit, the two adjacent displays will initially be shown again.

Connection with  
Control unit  
Address      XX  
established

other  
Ctrl. unit type  
Night button  
receive

### a) Alternative control unit

Initially, only data from the control unit can be downloaded, if the type of control unit varies from that entered into the MEC2 programming unit. The message opposite will be displayed.



Press "Night mode".

Data are  
from ctrl unit  
taken

The display will then show the adjacent details.

NB  
Other  
Control unit

### b) Alternative control unit of the same type

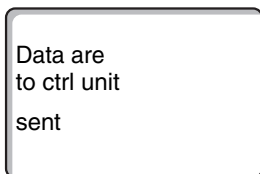
If the MEC2 is connected to a different control unit of the same type, the message opposite will be displayed for approximately three seconds.

Aut button  
transmit  
Night button  
receive

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.



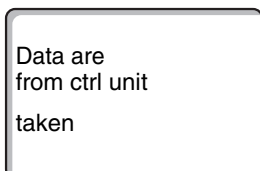
Press "AUT" = "Data are to ctrl unit sent".



The message opposite will be displayed.



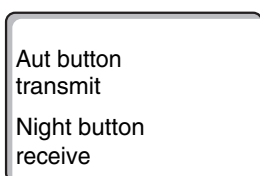
Press "Night mode" = "Data are from ctrl unit taken".



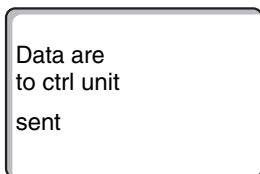
The message opposite will be displayed.

### c) 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 MEC2 is reinstalled into 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.



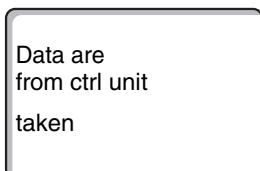
Press "AUT" = "Data are to ctrl unit sent".



The message opposite will be displayed.



Press "Night mode" = "Data are from ctrl unit taken".



The message opposite will be displayed.

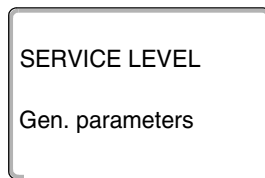
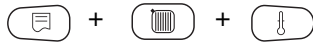
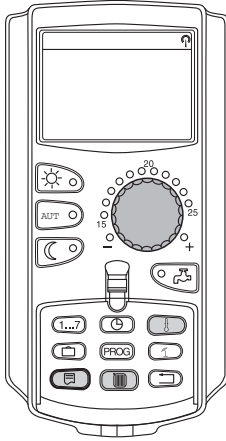


## 9 Calling up the service level

Access to the service level is password protected. The service level is intended for the installer only.

**Unauthorised access to the service level invalidates your guarantee!**

The controls marked in grey are used for this function.



Press the "Display" + "Heating circ." + "Temp" keys simultaneously and then release them.

The service level is now activated.

### Control system "Press and turn"

The service level is divided into several main menu levels. There are further submenus connected with the selected main menu, if the last line is left blank (without value entry).

### Calling up main menus

You can scroll through the main menu level by turning the rotary selector. The main menus are structured as a loop and re-commence after the last main menu.



- Gen. parameters
- Module selection
- ...
- ...
- Gen. parameters

### Calling up submenus

Select the main menu (see above), whose submenu you want to call up.



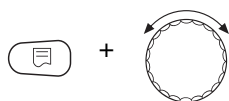
Press the "Display" button.



You can reach all submenus of the selected main menu by turning the rotary selector.

Example main menu: Gen. parameters.

- Min outdoor temp
- Type of building
- ...
- Min outdoor temp



Press and hold down "Display". You can modify the parameters of the selected submenu by turning the rotary selector. For example, you might select functions or temperatures.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

## 10 Calling up and modifying settings

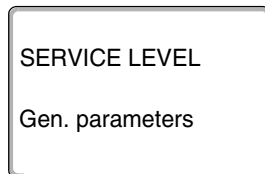


### USER INFORMATION

The menus displayed on the MEC2 programming unit of the control unit depend on which modules are fitted and on their respective settings. These service instructions only describe the menus of the standard Logamatic 4321/4322 control units incl. the ZM434 central module (standard equipment level) and those of the most commonly used FM441 and FM442 function modules (accessories). All other menus are explained in the separate technical module documentation of each respective module.



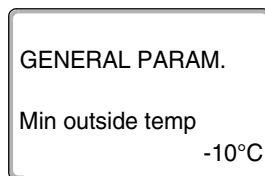
Call up the service menu.



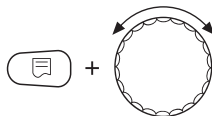
"Gen. parameters" is shown as the first main menu.



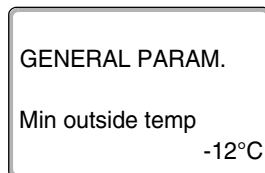
Press "Display" to call up a submenu (eg.: "Min outside temp").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "-12°C").



The display shows the set value.

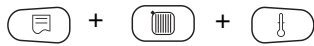
Release "Display" to store your input.



Press "Back" to return to the next higher level. Press "Back" several times to return to the standard display.

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

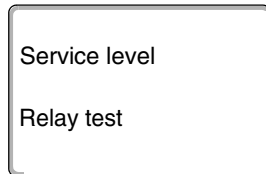
## 11 Checking the high limit safety cut-out (STB)



Call up the service level.



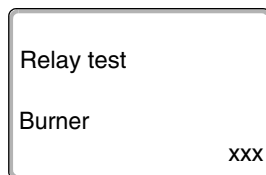
Turn the rotary selector until parameter "Relay test" appears.



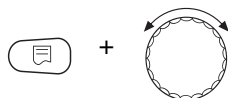
The display shows the selected submenu.



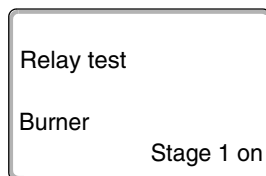
Press "Display" twice to call up a submenu (eg.: "Burner").



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "Stage 1 on").



The display shows the selected function.



Release "Display" to store your input.

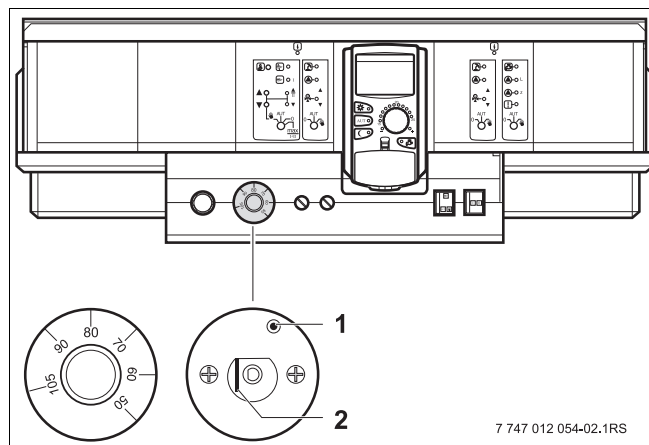
The burner starts up.

- Pull off the thermostat selector (TR).
- Push the lever or key (→ Fig. 15, page 29) (subject to controller type) back with a screwdriver and hold, until the high limit safety cut-out has responded.

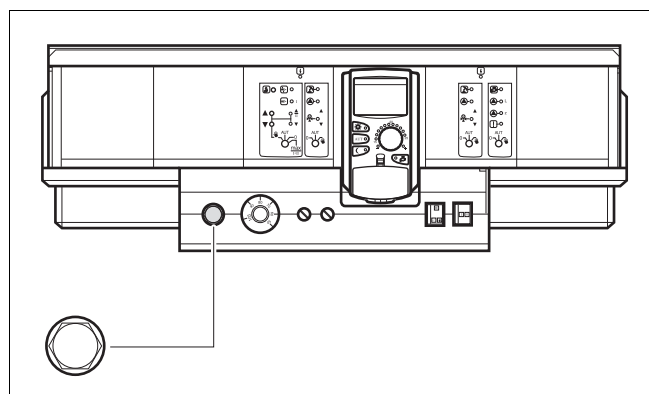
### Terminating or exiting the test



Press "Back" to interrupt or terminate the test.

**Trigger high limit safety cut-out***Fig. 15 Trigger high limit safety cut-out***1** Button**2** Lever

- Push the selector back onto the thermostat and turn it to "90".

**Reset high limit safety cut-out***Fig. 16 Reset high limit safety cut-out*

- To reset the high limit safety cut-out, pull off the cap nut and push the reset button beneath.

## 12 General parameters



### USER INFORMATION

In the main menu "Gen. parameters" you can adjust values for the submenus listed relating to the heating system and the characteristics of the house in question.

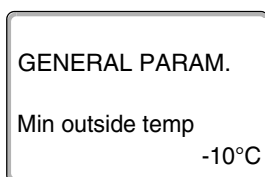
The following pages explain how to adjust values relating to the submenus.



Call up the service level. "Gen. parameters" is shown as the first main menu.



Press "Display" to call up a submenu (eg.: "Min outside temp").



The display shows the selected submenu.



You can scroll through the following submenus by turning the rotary selector:

- Min outside temp
- Type of building
- Summer/winter time adjustment
- Remote adjustment
- Switch fault message
- Automatic maintenance message

## 12.1 Minimum outside temperature

The minimum outside temperature is a statistically calculated average value of the respectively coldest outside temperatures over the past few years. It influences the gradient of the heating curve (colder: shallower heating curve; warmer: steeper heating curve).

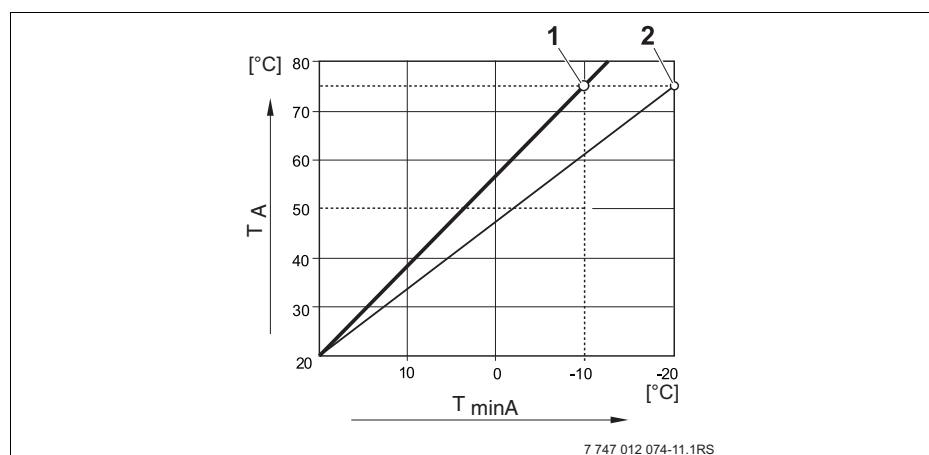


Fig. 17 Heating curve adjustment: Adjustment of gradient via design temperature and minimum outside temperature

**T<sub>minA</sub>** Minimum outside temperature

**T<sub>A</sub>** 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



### USER INFORMATION

Determine the minimum outside temperature for your region (average value) from Tab. 3, page 32.

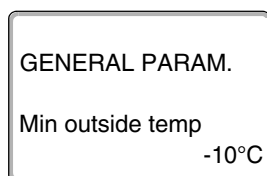
If your region is not included in the table, take the value from the heat demand calculation for your building.



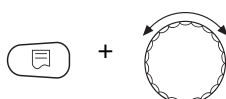
Call up the service level. "Gen. parameters" is shown as the first main menu.



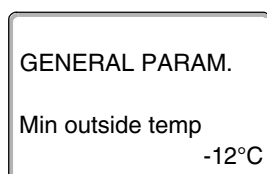
Press "Display" to call up a submenu (eg.: "Min outside temp").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "-12°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

#### Minimum outside temperatures for Europe

Town	Minimum outside temperature in °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
Marseille	-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. 3 Minimum outside temperatures for Europe



## 12.2 Type of building

Under building type, please enter the heat storage capacity of the building. 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:

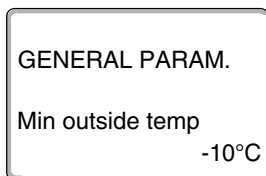
- light = low heat storage capacity, e.g. pre-fabricated houses, wooden-framed constructions,
- medium = medium heat storage capacity, e.g. house built with breeze blocks,
- heavy = high heat storage capacity, e.g. house built with bricks,



Call up the service level. "Gen. parameters" is shown as the first main menu.



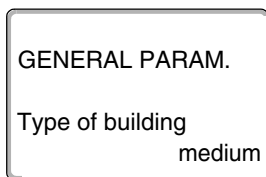
Press "Display" to call up a submenu (eg.: "Min outside temp").



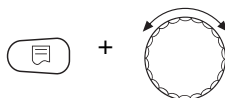
The display shows the selected submenu.



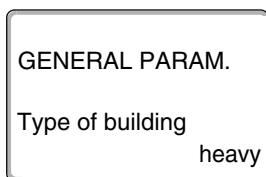
Turn the rotary selector until the submenu "Type of building" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "heavy").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Type of building	light medium heavy	medium

## 12.3 Summer/winter time adjustment

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

- Radio clock  
The adjustment is made completely automatically by the radio time signal. (The time given is not GMT. This feature only gives the correct time in Germany or other countries close to Germany on the same time zone)
- Automatic  
Date and time input via keypad. The change from summertime to winter time and vice versa is made automatically on the last weekend in March and October.
- Manual  
Date and time input via keypad. There will be no automatic summer/winter time adjustment.



### USER INFORMATION

The MEC2 contains a radio clock receiver, which constantly monitors and corrects the time switch inside the control unit. (Use outside Germany precludes the activation of the radio clock function.)




### USER INFORMATION

Use outside Germany precludes the activation of the radio clock function.

---

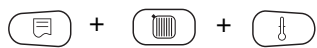
**When using the MEC2 as a remote control, the reception of the radio time signal depends on location and position.**

Reception of the radio time signal is indicated by symbol  on the display.

Generally, reception is possible within a radius of 1500 kilometers 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, in 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.



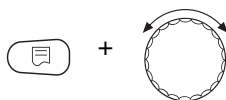
Call up the service level. "Gen. parameters" is shown as the first main menu.



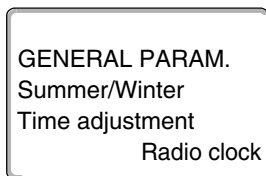
Press "Display" to call up a submenu (eg.: "Min outside temp").



Turn the rotary selector until the submenu "Summer/Winter Time adjustment" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Radio clock").



The display shows the selected submenu.

Release "Display" to store your input.



Press "Back" to return to the next higher level.



### USER INFORMATION

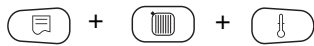
When "Radio clock" is not selected, radio time reception is disabled in all control units connected to a data line. This also applies to the radio time signals of the BFU/F remote control and other MEC2 programming units with radio time reception. The last input at a control unit in the system is valid.

	Input range	Factory setting
Summer/Winter Time adjustment	Radio clock automatic manual	automatic

## 12.4 Remote adjustment

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

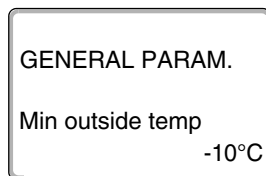
- yes = Optional remote adjustment, e.g. via the Logamatic telecontrol system,
- no = Remote adjustment is not possible, but system data can be downloaded and monitored.



Call up the service level. "Gen. parameters" is shown as the first main menu.



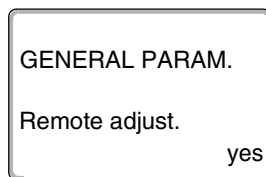
Press "Display" to call up a submenu (eg.: "Min outside temp").



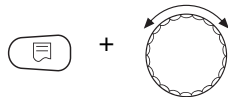
The display shows the selected submenu.



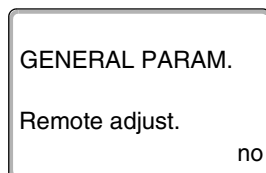
Turn the rotary selector until the submenu "Remote adjust." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.



### USER INFORMATION

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

	Input range	Factory setting
Remote adjust.	yes no	yes

## 12.5 Heat yield

You can calculate the heat yield (heat consumption).



### USER INFORMATION

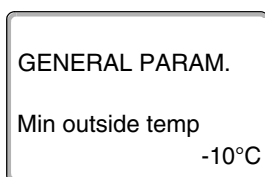
This setting is only available for single stage burners.



Call up the service level. "Gen. parameters" is shown as the first main menu.



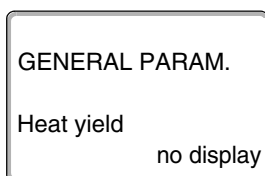
Press "Display" to call up a submenu (eg.: "Min outside temp").



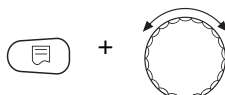
The display shows the selected submenu.



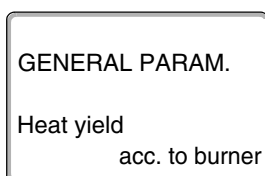
Turn the rotary selector until the submenu "Heat yield" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "acc. to burner").



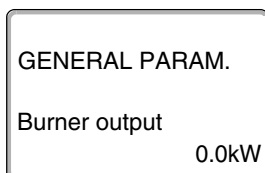
The display shows the set value.



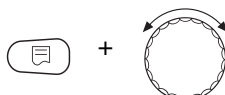
Release the display key.



Turn the rotary selector one increment clockwise, until the submenu "Burner output" appears.



The display shows the selected submenu.



Press and hold "Display". The value "0.0kW" flashes. Turn the rotary selector clockwise to the required burner output. The maximum setting is 100 kW.



Release the display key.



Press "Back" to return to the next higher level.




#### USER INFORMATION

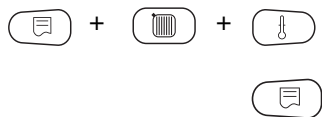
Never use the "Heat yield" setting for billing purposes. This display is only designed for comparisons. The accuracy of the display depends largely on the precise adjustment of the burner output. Changes of date and time falsify the heat yield display and may result in loss of data.

	Input range	Factory setting
Heat yield	no display acc. to burner	no display

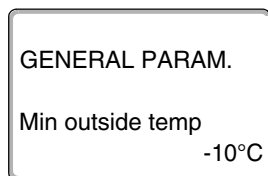
## 12.6 Switch fault message

You can show a fault message on the display of the MEC2 programming unit when a function module switch is on .

Call up the service level. "Gen. parameters" is shown as the first main menu.



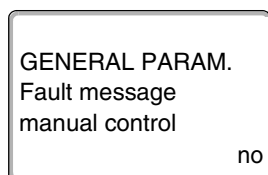
Press "Display" to call up a submenu (eg.: "Min outside temp").



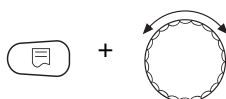
The display shows the selected submenu.



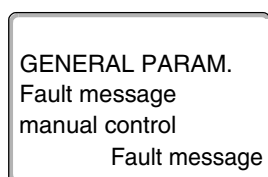
Turn the rotary selector until the submenu "Fault message manual control" appears.



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "Fault message").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.



### USER INFORMATION

In the case of "no", a warning notice appears if the flap is closed.

Fault messages also result in an entry into 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 zero volt contact e.g. via the FM448 function module.

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

## 12.7 Automatic maintenance message

You can generate an automatic maintenance message at the operator level on the MEC2 programming unit display.

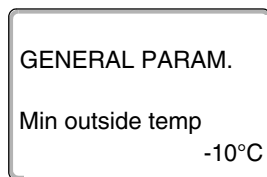
You can set the following:

- Maintenance message according to date. Enter the date of the next service.
- Maintenance according to hours run.



Call up the service level. "Gen. parameters" is shown as the first main menu.

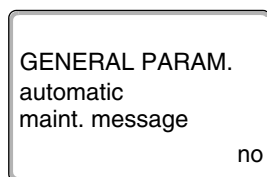
Press "Display" to call up a submenu (eg.: "Min outside temp").



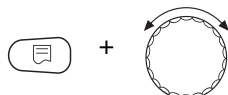
The display shows the selected submenu.



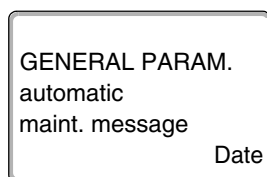
Turn the rotary selector until the "automatic maint. message" submenu appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Date").

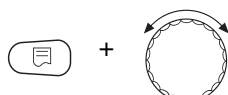


The display shows the set value.

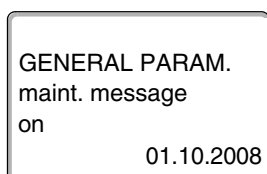
Release "Display" to store your input.



Turn the rotary selector one click clockwise.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "01.10.2008").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.





USER INFORMATION

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 scanned 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

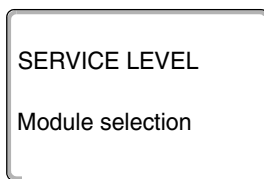
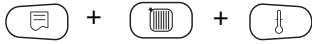
## 13 Module selection

On starting the Logamatic 4321/4322 control unit or after a system reset, the modules are automatically recognised and their information downloaded.

**Example:** Slot 1: FM442  
Slot 2, 3 and 4: N/A

However, these modules can also be set manually.

Call up the service level. "Gen. parameters" is shown as the first main menu.

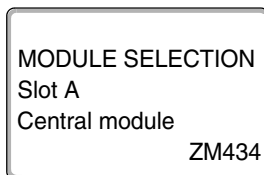


Turn the rotary selector until the main menu "Module selection" appears.

The display shows the selected main menu.



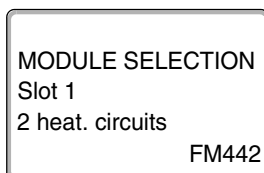
Press "Display" to call up a submenu (eg.: "Slot A Central module").



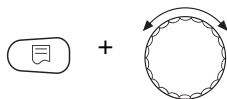
The display shows the selected submenu.



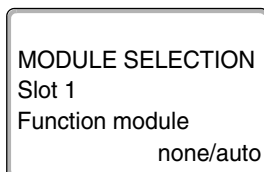
Turn the rotary selector until the submenu "Slot 1" appears.



The display shows the set value.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Function module none/auto"). We recommend this setting. These modules are automatically recognised and installed.



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Slot A boiler module	none/auto ZM432, ZM434	ZM434
Slot 1 – 4 function modules auxiliary modules	none/auto FM441, FM442, FM443, FM444, FM445, FM446, FM447, FM448, FM458	none/auto

## 14 Boiler parameters

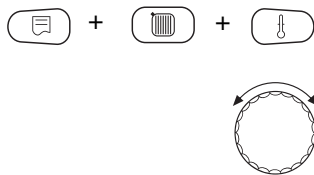
### 14.1 Select the boiler type

Specific setting options are shown depending on the selected boiler type (regarding the individual boiler types → Chapter 29).

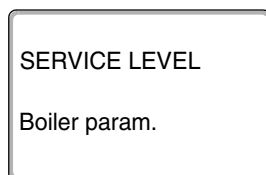
#### 14.1.1 Low temperature boiler

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

Call up the service level. "Gen. parameters" is shown as the first main menu.



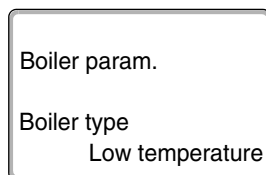
Turn the rotary selector until the main menu "Boiler param." appears.



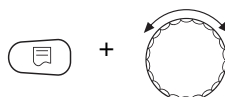
The display shows the selected main menu.



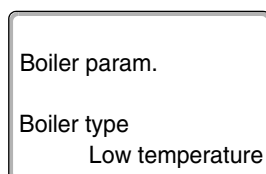
Press "Display" to call up a submenu (eg.: "Boiler type").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Low temperature").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

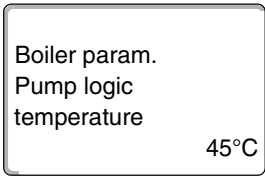
	Input range	Factory setting
<b>Boiler type</b>	Low temperature Low T/min.return Ecostream Condensing LT/base point temperature	Low temperature

Pump logic temperature

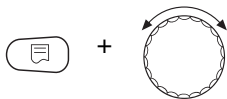
The heating circuit pumps and, if installed, the boiler circuit pump are switched on to maintain the boiler operating conditions subject to the pump logic temperature. The preset pump logic temperature only needs to be changed in special cases and is only adjustable in case of boiler type = low temperature.

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

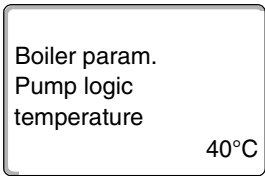
Turn the rotary selector until the submenu "Pump logic temperature" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "40°C").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Pump logic temperature	15 °C – 60 °C	single stage: 40 °C two-stage: 45 °C modulating: 50 °C

### 14.1.2 Low temperature boiler with minimum return temperature

The control unit calculates the minimum return temperature via the input of fuel and burner type.

Under "Return control via" you are asked, whether the return temperature should be controlled by a separate boiler circuit servomotor or by a higher control of the heating circuit servomotors.

The burner controller operates with an automatic start delay, enabling the on-site servomotors to reduce the flow rate to protect the boiler.

The circulation pumps are automatically switched OFF for short periods to support the boiler temperature control, when heavy loads are connected. The load hook-ups are recognised on the basis of the mixer control characteristics.

Connect a separate return sensor FZ for the control of the separate boiler servomotor or for the higher control of the heating circuit servomotors. Otherwise the system will issue a fault message.

For two-stage burners, the set minimum boiler flow temperature is 10 K higher and for modulating burners 20 K higher than the return temperature curve.

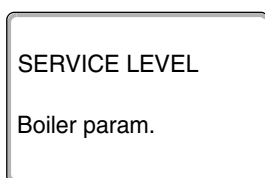
With the raising function enabled, the set return value is raised to 50 °C and the set flow temperature to 75 °C, if the return temperature falls 8 K below its set value.



Call up the service level. "Gen. parameters" is shown as the first main menu.



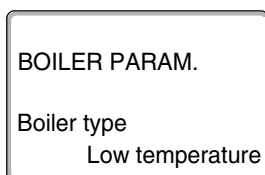
Turn the rotary selector until the main menu "Boiler param." appears.



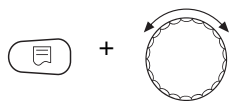
The display shows the selected main menu.



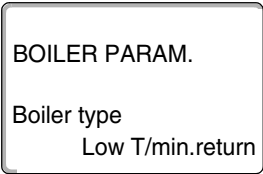
Press "Display" to call up a submenu (eg.: "Boiler type").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: Low T/min.return").



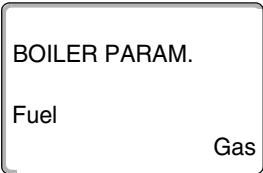
The display shows the set value.  
Release "Display" to store your input.

Return temperature control

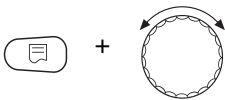
For boiler type "Low T/min.return" additional setting screens appear, where you can find an ideal match to the relevant boiler type. With the entry of the fuel type the control unit takes into consideration the various dew point temperatures of the respective flue gases for each fuel. The system regulates to a factory-set return temperature value via the fuel type.

Fuel type

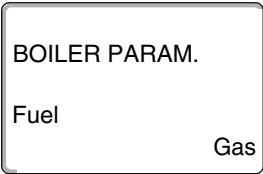
Turn the rotary selector until the submenu "Fuel" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Gas").



The display shows the set value.  
Release "Display" to store your input.



USER INFORMATION

For multi-boiler systems with low temperature boilers with minimum return temperature and different fuel types, generally select "Gas" as fuel type on control unit 1. The function "Seq. reversal" is not affected by this adjustment.

	Input range	Factory setting
Fuel type	Gas Oil	Gas

### Return actuator

The LEDs on the boiler circuit module ZM432 indicate, whether the boiler circuit actuator is opening or closing.

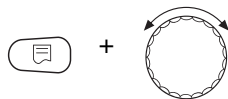
- ▲ = Mixer opens towards the boiler, i.e. the boiler is shut off from the consumer circuit. Cause may be, for example, that the boiler return is too cold.
- ▼ = Mixer opens towards the heating circuit if the boiler return is too hot.



Turn the rotary selector until the submenu "Return flow Control via" appears.

BOILER PARAM.  
Return flow  
Control via  
Boiler mixer

The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Boiler servomotor").

BOILER PARAM.  
Return flow  
Control via  
Boiler mixer

The display shows the set value.

Release "Display" to store your input.



### USER INFORMATION

For the setting "Act.heat.circ." all heating circuits must be equipped with a mixer (no unmixed heating circuits) and must be regulated by the Logamatic 4000 control system.

Identical boiler types are a requirement for the "Act.heat.circ." setting in multi-boiler systems. This setting must be chosen for every control unit if "Act.heat.circ." has been selected.

	Input range	Factory setting
Return flow Control via	Boiler mixer Act.heat.circ.	Boiler mixer

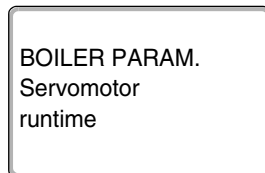


### Servomotor runtime

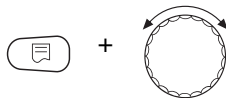
The actuator run time is preset and should generally not be changed.



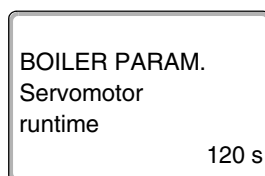
Turn the rotary selector until the submenu "Servomotor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120 s").



The display shows the set value.

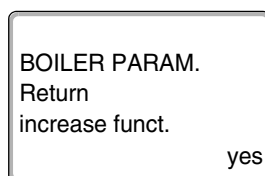
Release "Display" to store your input.

### Return increase function

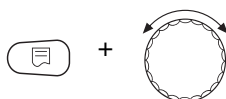
You can activate the return temperature raising facility to optimise the start-up phase for single boiler systems. When the start-up phase has been recognised, all set values for flow and return temperature are raised for a short time. This function is activated in the factory-set state.



Turn the rotary selector until the submenu "Return increase funct." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").

BOILER PARAM.  
Return  
increase funct.

yes

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Servomotor runtime</b>	10 – 600 s	120 s
<b>Return flow increase function</b>	yes no	yes

### 14.1.3 Ecostream boiler

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

Single boiler systems with Ecostream control via a separate three-way diverter in the boiler circuit require the FZ auxiliary function. This auxiliary sensor lets the control unit know, whether the heat demand from consumers is covered or whether a burner stage needs to be kept ON. The boiler operating temperature is safeguarded via the FK boiler sensor together with the boiler circuit servomotor.

The auxiliary sensor is superfluous for multi-boiler systems with Ecostream boilers. Its role is taken by the common FVS flow sensor (strategy).

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

At setting "Btfly vlv boiler", the heating circuit pumps are started when the boiler operating temperature is reached and are stopped 2 K below that value.

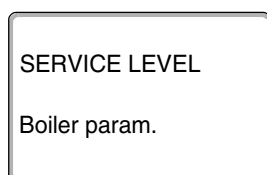
According to factory-set defaults and with the setting "Act.heat.circ.", the heating circuit pump starts 5 K below the boiler operating temperature and stops 7 K below.



Call up the service level. "Gen. parameters" is shown as the first main menu.



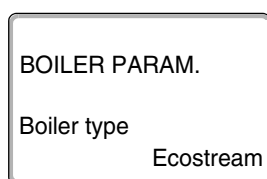
Turn the rotary selector until the main menu "Boiler param." appears.



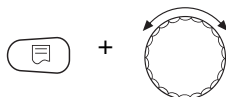
The display shows the selected main menu.



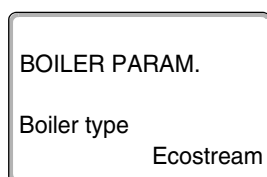
Press "Display" to call up a submenu (eg.: "Boiler type").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Ecostream").



The display shows the set value.

Release "Display" to store your input.

### Ecostream control via

This setting determines, via which actuator the preset operating flow temperature should be regulated. Make this setting in accordance with the existing or intended hydraulic conditions. It affects the control of the respective actuator and the pre-determined set values.

Select from the following options:

- "Boiler mixer", if the Ecostream should be regulated via a separate boiler actuator (three-way diverter)". The control function is designed for a runtime of 120 s.

**Special considerations for single boiler system:**

**Install the FZ auxiliary sensor downstream of the diverter on the heat consumer side and connect it to the control unit terminals provided.**

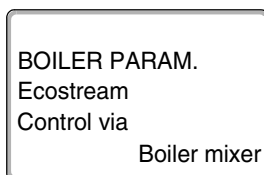
- "Btfly vlv boiler" if the Ecostream is to be regulated via a separate external motorised annular butterfly damper (two-way diverter).

Use butterfly valves with a maximum runtime of 20 s. Select the option "Boiler actuator", if annular butterfly valves with longer operating times are used or installed.

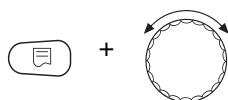
- "Act.heat.circ." if the Ecostream is to be regulated via higher control of the heating circuit actuators (three-way diverter). The heating circuits must be equipped with actuators that are controlled by heating circuit modules of the Logamatic 4000 series (never use third-party control units). The control function is designed for a runtime of 120 s.
- "Ext. control" if the Ecostream is regulated by an external control unit, i.e. Logamatic 4321/4322 does not need to meet operating conditions, such as dual-block boiler with integral control unit for regulating annular butterfly dampers in the boiler blocks.



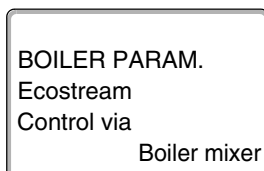
Turn the rotary selector until the submenu "Ecostream Control via" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Boiler servomotor").



The display shows the set value.

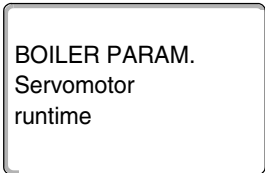
Release "Display" to store your input.

Servomotor runtime

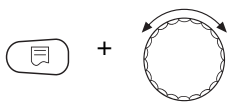
The servomotor runtime is preset and generally does not need to be adjusted. Please note that incorrect entries can lead to fluctuating operating flow temperature control.



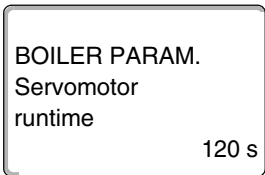
Turn the rotary selector until the submenu "Servomotor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120 s").



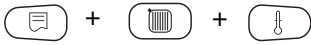
The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Ecostream Control via	Boiler mixer Act.heat.circ. Btfly vlv boiler Ext. control	Boiler mixer
Servomotor runtime	10 s – 600 s	120 s

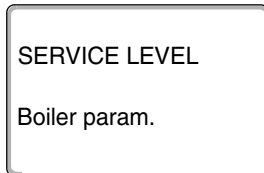
## 14.1.4 Condensing boiler

Select the boiler type "Condensing", if a condensing boiler has been installed. Operating conditions are not required for this type of boiler.

Call up the service level. "Gen. parameters" is shown as the first main menu.



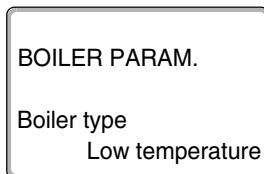
Turn the rotary selector until the main menu "Boiler param." appears.



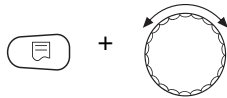
The display shows the selected main menu.



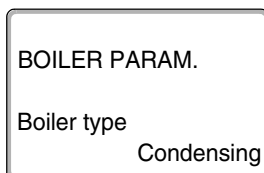
Press "Display" to call up a submenu (eg.: "Boiler type").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Condensing").



The display shows the set value.

Release "Display" to store your input.

### 14.1.5 Low temperature boiler with base point temperature

The boiler operating conditions for this type of boiler are factory-set and are automatically taken into account. The parameter "LT/low end temp. via" enables a check as to how the boiler operating temperature should be controlled.

An FZ auxiliary sensor must be installed in single boiler systems with LT/low end temperature control via a separate three-way diverter in the boiler circuit. This auxiliary sensor lets the control unit know, whether the heat demand from consumers is covered or whether a burner stage needs to be kept ON. The boiler operating temperature is safeguarded via the FK boiler sensor together with the boiler circuit servomotor.

The auxiliary sensor is not required in multi-boiler systems with LT/low end temperature boilers. Its role is taken by the common FVS flow sensor (strategy).

Factory settings default a boiler operating temperature of 70 °C (gas) or 65 °C (oil). The minimum set value for the boiler flow temperature is 4 K higher.

At setting "Btfly vlv boiler", the heating circuit pumps are started when the boiler operating temperature is reached and are stopped 2 K below that value.

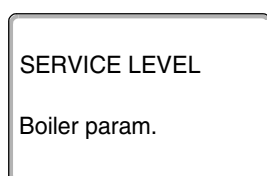
According to factory-set defaults and with the setting "Act.heat.circ.", the heating circuit pump starts 5 K below the boiler operating temperature and stops 7 K below.



Call up the service level. "Gen. parameters" is shown as the first main menu.



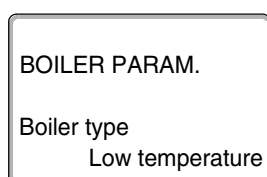
Turn the rotary selector until the main menu "Boiler param." appears.



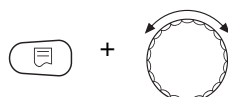
The display shows the selected main menu.



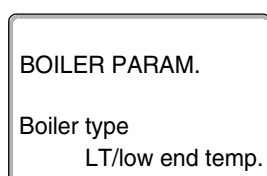
Press "Display" to call up a submenu (eg.: "Boiler type").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "LT/low end temp.").



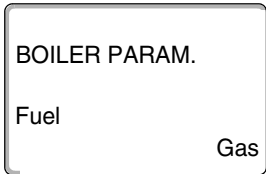
The display shows the set value.

Release "Display" to store your input.

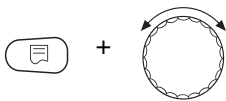
Fuel

Set the fuel to be used in this parameter. This setting influences the set value for the actuator and burner control. Factory settings default "Gas"; lower set values for the low end temperature apply when changing the setting to oil.

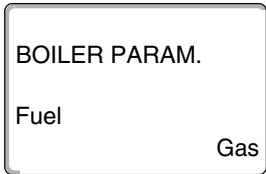
Turn the rotary selector until the submenu "Fuel" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Gas").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Fuel	Gas Oil	Gas



### LT/low end temperature control via

This setting determines, via which actuator the preset operating flow temperature should be regulated. Make this setting in accordance with the existing or intended hydraulic conditions. It affects the control of the respective actuator and the pre-determined set values.

Select from the following options:

- "Boiler mixer" if the LT/low end temperature is to be regulated via a separate boiler servomotor (three-way diverter). The control function is designed for a runtime of 120s.

**Special considerations for single boiler system:**

**Install the FZ auxiliary sensor downstream of the diverter on the heat consumer side and connect it to the control unit terminals provided.**

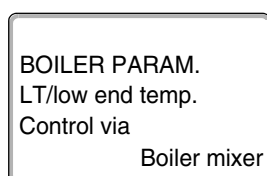
- "Btfly vlv boiler", if the LT/low end temperature is to be regulated via a separate external motorised annular butterfly damper (two-way diverter).

Use butterfly valves with a maximum runtime of 20 s. Select the option "Boiler mixer", if annular butterfly valves with longer operating times are used or installed.

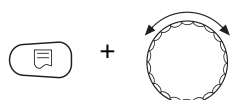
- "Act.heat.circ." if the LT/low end temperature is to be regulated via a higher control of the heating circuit actuators (three-way diverter). The heating circuits must be equipped with actuators that are controlled by heating circuit modules of the Logamatic 4000 series (never use third-party control units). The control function is designed for a runtime of 120 s.



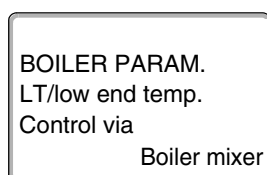
Turn the rotary selector until the submenu "LT/low end temp Control via" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Boiler mixer").



The display shows the set value.

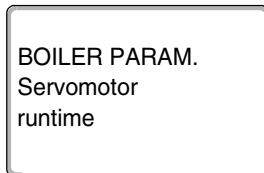
Release "Display" to store your input.

### Servomotor runtime

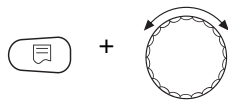
The servomotor runtime is preset and generally does not need to be adjusted. Please note that incorrect entries can lead to fluctuating operating flow temperature control.



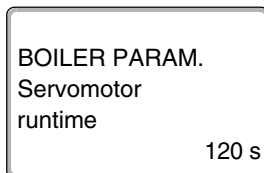
Turn the rotary selector until the submenu "Servomotor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120 s").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>LT/low end temp. Control via</b>	Boiler mixer Act.heat.circ. Btfly vlv boiler	Boiler mixer
<b>Servomotor runtime</b>	10 s – 600 s	120 s

## 14.2 Setting the burner type

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

The following burner types are available:

"single stage"

"two-stage"

"modulating"

"2 x single stage" is designed for the following cases:

- For a boiler sequence comprising two single stage boilers that are operated with only one Logamatic 4321 on boiler 1 and a constant temperature control unit on boiler 2.
- For certain dual block boilers, each equipped with two single stage burners, which operate independently of each other.

### 14.2.1 Determining the boiler output

For boiler output, see the commissioning report or the test report for your boiler or burner.

If these are not available, check the output on the boiler type plate of Unit burners.

If these details are not available, you can also determine the boiler output from its consumption, as shown in the following example.

#### Example: Checking the boiler output for a modulating gas fired boiler



#### USER INFORMATION

During the test ensure that the boiler can transfer its output (circulations pumps running) to prevent the burner shutting down.

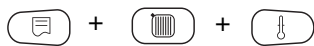
You can determine the maximum boiler output of a modulating gas fired boiler using the consumption as guide:

- Start the burner via the switch and hold down ▲ as long as the burner increases its output.
- When the burner has reached its maximum output (full load), check the meter reading on the gas meter and let the burner run for six minutes.
- Read the gas meter again and calculate the gas consumption (difference).
- Convert the amount of gas consumed in six minutes into consumption per hour (m<sup>3</sup>/h) and multiply the average calorific value of gas in operation (check with your local supply utility).

You can determine the minimum boiler output of a modulating gas fired boiler using the consumption as guide:

- Hold down ▼ as long as the burner reduces its output.
- When the burner has reached its minimum output (base load), check the meter reading on the gas meter and let the burner run for six minutes.
- Read the gas meter again and calculate the gas consumption (difference).
- Convert the amount of gas consumed in six minutes into consumption per hour (m<sup>3</sup>/h) and multiply the average calorific value of gas in operation (check with your local supply utility).

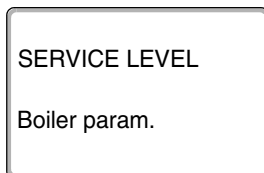
#### 14.2.2 Single stage burner



Call up the service level. "Gen. parameters" is shown as the first main menu.



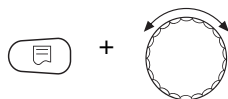
Turn the rotary selector until the main menu "Boiler param." appears.



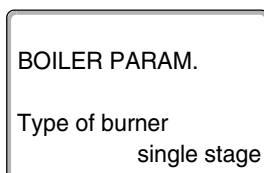
The display shows the selected main menu.



Turn the rotary selector until the submenu "Type of burner" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "single stage").



The display shows the set value.

Release "Display" to store your input.

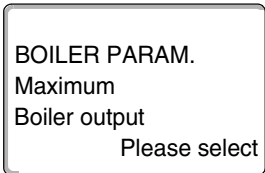
	Input range	Factory setting
Type of burner	single stage two-stage modulating 2 x single stage Dual-fuel burner	single stage

Maximum boiler output

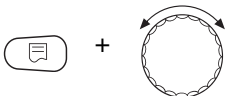
Selecting the output that the burner delivers in operation.



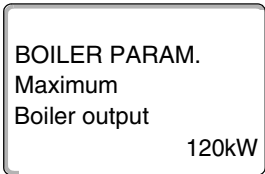
Turn the rotary selector until the submenu "Maximum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120kW").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Maximum Boiler output	Please select 1 kW – 9999 kW	Please select

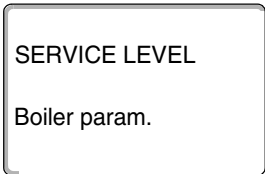
14.2.3 Two-stage burner



Call up the service level. "Gen. parameters" is shown as the first main menu.



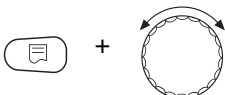
Turn the rotary selector until the main menu "Boiler param." appears.



The display shows the selected main menu.



Turn the rotary selector until the submenu "Type of burner" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "two-stage").

BOILER PARAM.

Type of burner  
two-stage

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Type of burner</b>	single stage two-stage modulating 2 x single stage Dual-fuel burner	single stage

**Maximum boiler output**

Select that output that the burner delivers when it operates with both stages (maximum output).

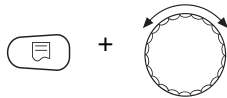


Turn the rotary selector until the submenu "Maximum Boiler output" appears.

BOILER PARAM.

Maximum  
Boiler output  
Please select

The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "160kW").

BOILER PARAM.

Maximum  
Boiler output  
160kW

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Maximum Boiler output</b>	Please select 1 kW – 9999 kW	Please select

Minimum boiler output

Select that output that the burner delivers when it operates with stage 1 (minimum output).

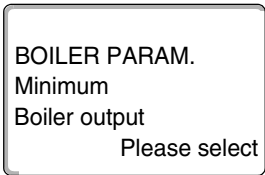


USER INFORMATION

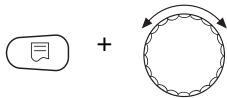
This option will only be available if maximum boiler output was previously selected.



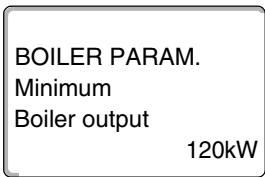
Turn the rotary selector until the submenu "Minimum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120kW").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Minimum Boiler output	Please select 1 kW – 9999 kW	Please select

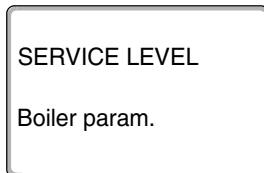
## 14.2.4 Modulating burner



Call up the service level. "Gen. parameters" is shown as the first main menu.



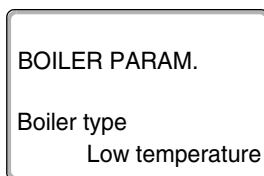
Turn the rotary selector until the main menu "Boiler param." appears.



The display shows the selected main menu.



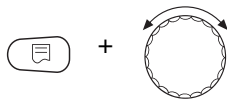
Turn the rotary selector until the submenu "Boiler type" appears.



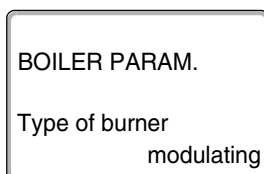
The display shows the selected submenu.



Turn the rotary selector until the submenu "Type of burner" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "modulating").



The display shows the set value.

Release "Display" to store your input.

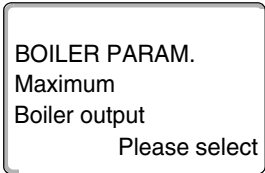
	Input range	Factory setting
Type of burner	single stage two-stage modulating 2 x single stage Dual-fuel burner	single stage



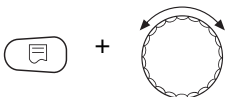
Maximum boiler output

Select that output that the burner delivers when it operates with maximum output (full load – burner cannot modulate any higher).

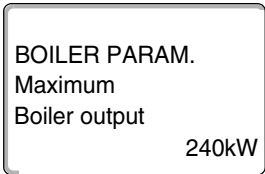
Turn the rotary selector until the submenu "Maximum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "240kW").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Maximum Boiler output	Please select 1 kW – 9999 kW	Please select

Minimum boiler output

Select that output that the burner delivers when it operates with minimum output (base load – burner cannot modulate any lower).

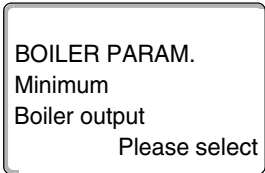


USER INFORMATION

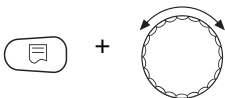
This option will only be available if maximum boiler output was previously selected.



Turn the rotary selector until the submenu "Minimum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "72kW").

BOILER PARAM.  
Minimum  
Boiler output  
72kW

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Minimum Boiler output	Please select 1 kW – 9999 kW	Please select

### Default modulation

Enter by what means the output of the modulating burner can be changed.

You can select the following:

- "3-point via BR"  
The burner modulation is adjusted via terminal BR11.
- "0-10V signal 0V = 0%"  
The burner modulation is defaulted via terminal  $U_{BR}$ . The entry curve of the combustion controller is linear and starts at a voltage that corresponds to the minimum output (→ Fig. 18).

The following linear curve is calculated from these values:

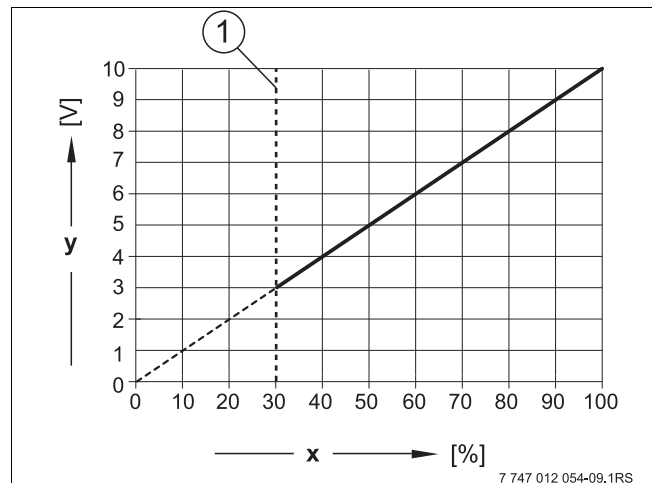


Fig. 18 Terminal  $U_{BR}$

- 1 Minimum output
- x Output modulation
- y Output voltage

- "0-10V signal 0V = low load"  
The burner modulation is defaulted via terminal  $U_{BR}$ . The entry curve of the combustion controller is linear and starts at 0V at minimum output (→ Fig. 19).

The following linear curve is calculated from these values:

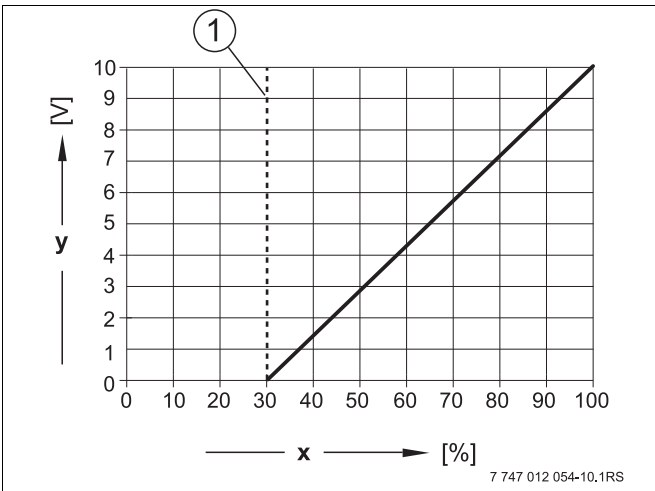
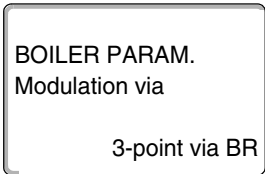


Fig. 19 Terminal  $U_{BR}$

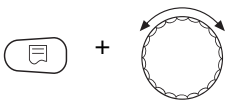
- 1 Minimum output
- x Output modulation
- y Output voltage



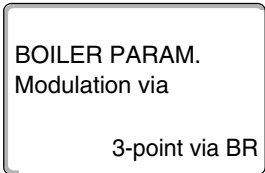
Turn the rotary selector until the submenu "Modulation via" appears.



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "3-point via BR").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Modulation via	3-point via BR 0-10V signal 0V = 0% 0-10V signal 0V = low load	3-point via BR

**Burner servomotor runtime**

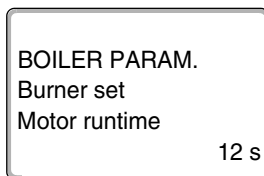
The control unit needs to be notified how long the servomotor takes from positions minimum output to maximum output.

**USER INFORMATION**

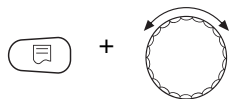
This option will only be shown if the burner modulation is adjusted via terminal BR11.



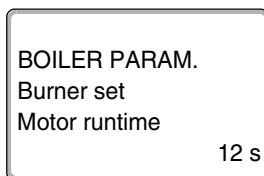
Turn the rotary selector until the submenu "Burner set Motor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "12 s").

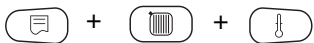


The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Burner set Motor runtime</b>	5 s – 60 s	12 s

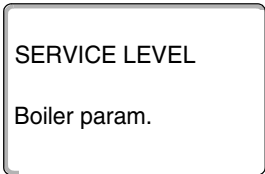
14.2.5 Two single stage burners



Call up the service level. "Gen. parameters" is shown as the first main menu.



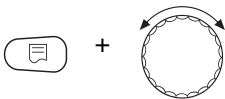
Turn the rotary selector until the main menu "Boiler param." appears.



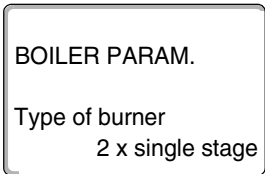
The display shows the selected main menu.



Turn the rotary selector until the submenu "Type of burner" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "2 x single stage").



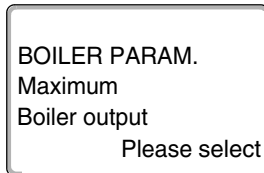
The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Type of burner	single stage two-stage modulating 2 x single stage Dual-fuel burner	single stage

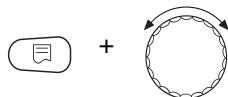
**Maximum boiler output**

Select that output that the burner delivers when it operates with both boilers (maximum output).

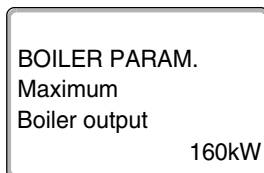
Turn the rotary selector until the submenu "Maximum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "160kW").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Maximum Boiler output</b>	Please select 1 kW – 9999 kW	Please select

**Minimum boiler output**

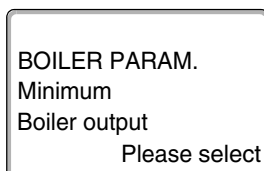
Select that output that the burner delivers when it only operates with boiler 1 (minimum output).

**USER INFORMATION**

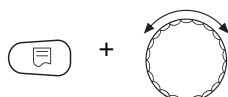
This option will only be available if maximum boiler output was previously selected.



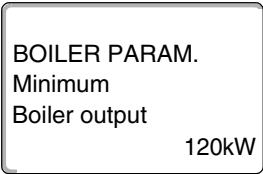
Turn the rotary selector until the submenu "Minimum Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120kW").

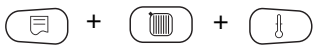


The display shows the set value.  
Release "Display" to store your input.

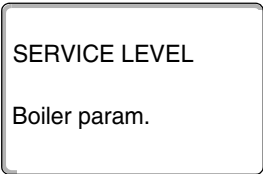
	Input range	Factory setting
Minimum Boiler output	Please select 1 kW – 9999 kW	Please select

Sequence reversal after ... hours

You can select the number of hours after which the sequence with the two 2 x single stage boiler blocks is reversed.  
Call up the service level. "Gen. parameters" is shown as the first main menu.



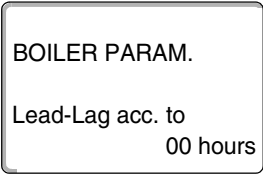
Turn the rotary selector until the main menu "Boiler param." appears.



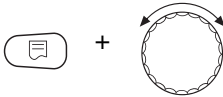
The display shows the selected main menu.



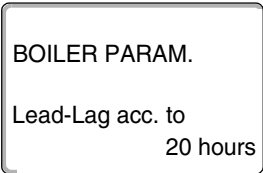
Turn the rotary selector until the submenu "Lead-Lag acc. to" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "20 hours").



The display shows the set value.  
Release "Display" to store your input.

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

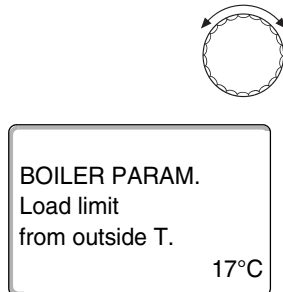
### Load limit

You can enter an outside temperature under parameter "Load limit", from which onwards stage 2 will be automatically blocked, if you have selected the "2 x single stage" burner type.

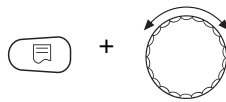
#### Example:

From a certain outside temperature upwards, DHW heating will be limited in summer mode to one boiler stage or one boiler block.

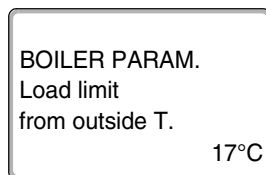
Turn the rotary selector until the submenu "Load limit from outside T." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "17°C").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Load limit from outside T.</b>	-31 °C – 30 °C none	17 °C

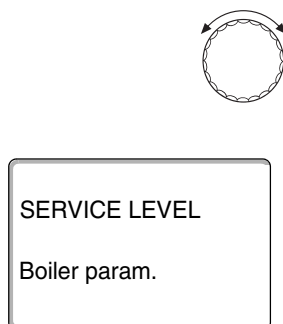
### 14.2.6 Dual-fuel burner

A dual-fuel burner comprises a modulating gas burner and a two-stage oil burner.

Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Boiler param." appears.

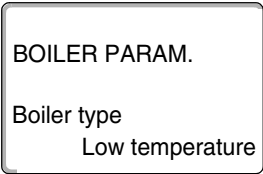


The display shows the selected main menu.

Turn the rotary selector until the submenu "Boiler type" appears.



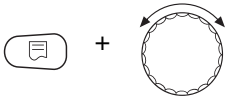




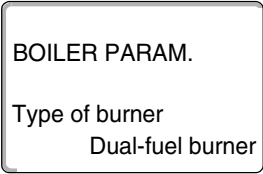
The display shows the selected submenu.



Turn the rotary selector until the submenu "Type of burner" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Dual-fuel burner").



The display shows the set value.

Release "Display" to store your input.

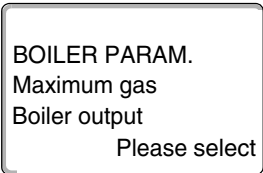
	Input range	Factory setting
Type of burner	single stage two-stage modulating 2 x single stage Dual-fuel burner	single stage

Maximum gas fired boiler output

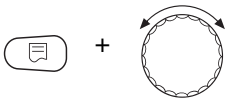
Select that output that the **gas** burner delivers when it operates with maximum output (full load – burner cannot modulate any higher).



Turn the rotary selector until the submenu "Maximum gas Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "240kW").

BOILER PARAM.  
Maximum gas  
Boiler output  
240kW

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Maximum gas Boiler output	Please select 1 kW – 9999 kW	Please select

### Minimum gas boiler output

Select that output that the **gas** burner delivers it operates with minimum output (base load – burner cannot modulate any lower).



### USER INFORMATION

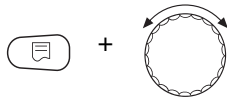
This option will only be available if maximum gas boiler output was previously selected.



Turn the rotary selector until the submenu "Minimum gas Boiler output" appears.

BOILER PARAM.  
Minimum gas  
Boiler output  
Please select

The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "72kW").

BOILER PARAM.  
Minimum gas  
Boiler output  
72kW

The display shows the set value.

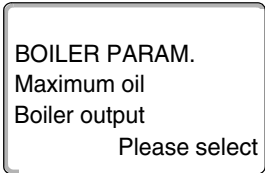
Release "Display" to store your input.

	Input range	Factory setting
Minimum gas Boiler output	Please select 1 kW – 9999 kW	Please select

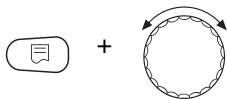
Maximum oil boiler output

Select that output that the **oil** burner delivers when it operates with both stages (maximum output).

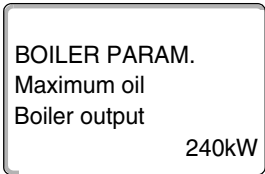
Turn the rotary selector until "Maximum oil Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "240kW").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Maximum oil Boiler output	Please select 1 kW – 9999 kW	Please select

Minimum oil boiler output

Select that output that the **oil** burner delivers when it operates with stage 1 (minimum output).

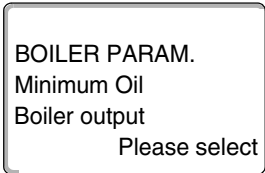


USER INFORMATION

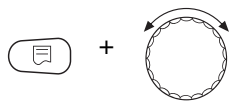
This option will only be available if maximum oil boiler output was previously selected.



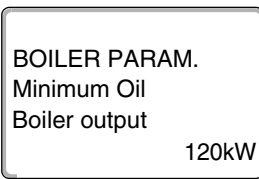
Turn the rotary selector until the submenu "Minimum oil Boiler output" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120kW").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Minimum oil Boiler output	Please select 1 kW – 9999 kW	Please select

### Default modulation

Enter by what means the output of the modulating burner can be changed.

You can select the following:

- "3-point via BR"  
The burner modulation is adjusted via terminal BRII.
- "0-10V signal 0V = 0%"  
The burner modulation is defaulted via terminal  $U_{BR}$ . The entry curve of the combustion controller is linear and starts at a voltage that corresponds to the minimum output (→ Fig. 20).

The following linear curve is calculated from these values:

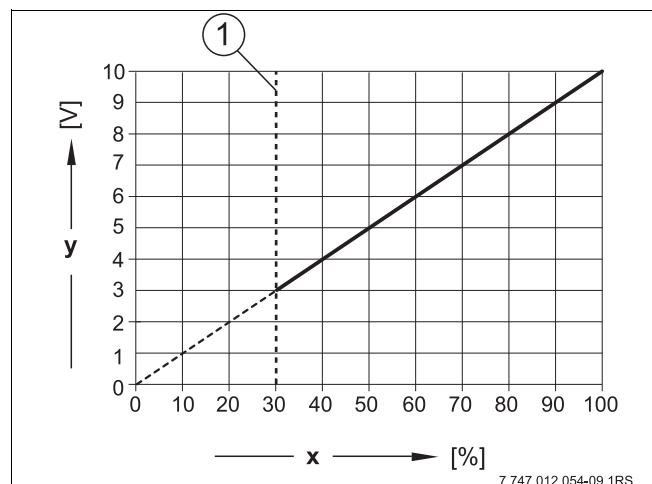


Fig. 20 Terminal  $U_{BR}$

- 1 Minimum output
- x Output modulation
- y Output voltage

- "0-10V signal 0V = low load"  
The burner modulation is defaulted via terminal  $U_{BR}$ . The entry curve of the combustion controller is linear and starts at 0V at minimum output (→ Fig. 21).

The following linear curve is calculated from these values:

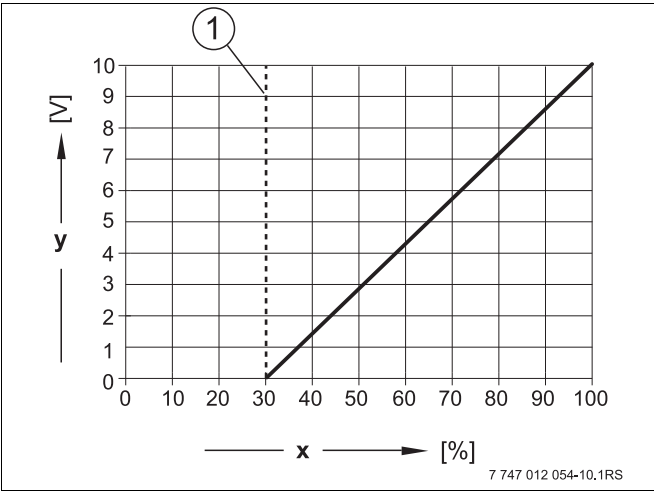
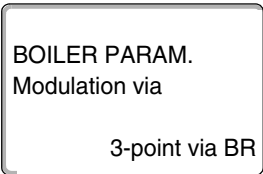


Fig. 21 Terminal  $U_{BR}$

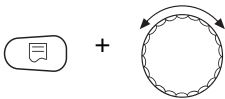
- 1 Minimum output
- x Output modulation
- y Output voltage



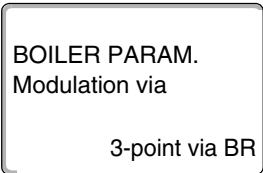
Turn the rotary selector until the submenu "Modulation via" appears.



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "3-point via BR").



The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Modulation via	3-point via BR 0-10V signal 0V = 0% 0-10V signal 0V = low load	3-point via BR

**Burner servomotor runtime**

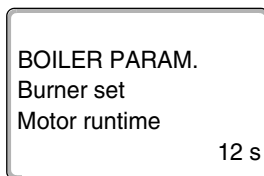
The control unit needs to be notified how long the servomotor takes from positions minimum output to maximum output.

**USER INFORMATION**

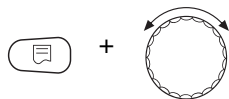
This option will only be shown if the burner modulation is adjusted via terminal BR11.



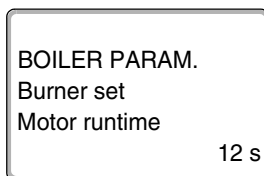
Turn the rotary selector until the submenu "Burner set Motor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "12 s").



The display shows the set value.

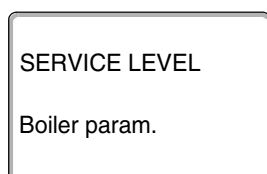
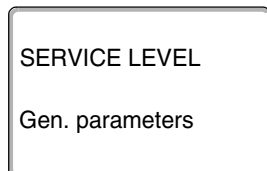
Release "Display" to store your input.

	Input range	Factory setting
<b>Burner set Motor runtime</b>	5 s – 60 s	12 s

## 14.3 General settings regarding boiler data

The following settings are independent of boiler type and burner type.

- Setting the pump function  
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.
- Boiler pump run-on time  
Enter a time, for which the pump should continue to run after the burner has been shut down to maximise the use of the heat stored in the boiler.
- Minimum burner operating time  
The minimum burner operating time tells the system the minimum length of time 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.
- Minimum start temperature  
The burner will be switched ON again no later than when the boiler flow temperature falls to the minimum start temperature when there is a heat demand.
- Maximum shutdown temperature  
The burner will be switched OFF no later than when the boiler flow temperature reaches the maximum shutdown temperature.
- Maximum flue gas temperature limit  
A flue gas temperature sensor must be installed to capture the flue gas temperature. A maintenance message is issued if the "Maximum flue gas temperature" is exceeded. The boiler should then be serviced.



Call up the service level. "Gen. parameters" is shown as the first main menu.

The display shows the selected main menu.

Turn the rotary selector until the main menu "Boiler param." appears.

The display shows the selected submenu.

Press "Display" to call up a submenu (eg.: "Boiler param.").

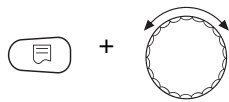
## 14.3.1 Pump function

The following pump functions are available:

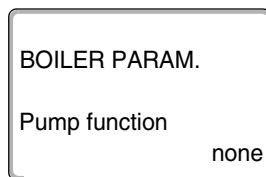
- Boiler circuit pump  
The control logic and the boiler circuit pump characteristics depend on the selected boiler type, i.e. the possible boiler operating conditions affect the boiler circuit pump control. In exceptional cases the run-on time of the boiler pump can be altered.
- Test point pump  
This 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 pump will be controlled independently of the set boiler type. If you make this selection, the boiler or the test point pump will not be subject to any boiler operating conditions. The operating conditions specified in worksheet K6 must be ensured at all times.
- None



Turn the rotary selector until the submenu "Pump function" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "none").



The display shows the set value.

Release "Display" to store your input.



### Control of the boiler circuit pump via 0 – 10 V

There is the option of connecting the boiler circuit pump (modulating) via a 0 – 10 V output (terminal  $U_{PU}$ ). This function can be used for condensing boilers with modulating burners.

The 0 – 10 V signal is subject to the currently required burner output:

- 100 % burner output = 10 V (maximum pump modulation)
- minimum burner output = 0 V (minimum pump modulation)

The boiler circuit pump must be sized to suit the system hydraulics to ensure perfect operation. For this, also observe the following:

- The minimum pump modulation level (signal = 0 V) should still be 50 %, i.e. at 0 V, the boiler flow rate should not fall below 50 %.
- The maximum pump rate must only be effective at 10 V and not before (< 10 V), i.e. set the maximum pump head to the maximum system pressure drop. This applies particularly to pumps that accept only a head value as set default.

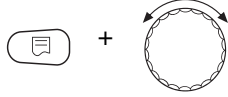
required temperature differential for boiler [K]	Output [kW]											
		50	75	100	150	200	300	500	750	1000	1500	2000
	5	8.6	12.9	17.2	25.8	34.4	51.6	86.0	129.0	172.0	258.0	343.9
	10	4.3	6.4	8.6	12.9	17.2	25.8	43.0	64.5	86.0	129.0	172.0
	15	2.9	4.3	5.7	8.6	11.5	17.2	28.7	43.0	57.3	86.0	114.6
	20	2.1	3.2	4.3	6.4	8.6	12.9	21.5	32.2	43.0	64.5	86.0

Tab. 4 Recommended flow rates for sizing the boiler circuit pump PK [m<sup>3</sup>/h]

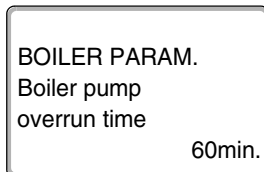
**Setting boiler pump run-on time**

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

Turn the rotary selector until the submenu "Boiler pump overrun time".



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "60min").



The display shows the set value.

Release "Display" to store your input.

**USER INFORMATION**

This parameter cannot be adjusted via this menu in multi-boiler systems (FM458 installed).

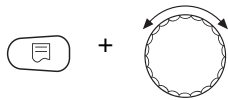
The parameter can then be adjusted in the main menu "Strategy".

	Input range	Factory setting
<b>Boiler pump function</b>	Boiler pump Sensor pump none	Boiler pump
<b>Boiler pump run-on time</b>	0 min – 60 min Const. operation	60 min

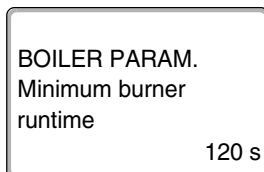
**14.3.2 Setting the minimum burner operating time (minimum burner operating time after burner start)**

Change the factory-set value only in exceptional cases.

Turn the rotary selector until the submenu "Minimum burner runtime" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "120 s").



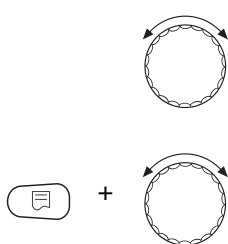
The display shows the set value.

Release "Display" to store your input.

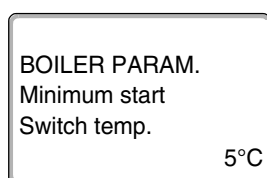
### 14.3.3 Setting minimum start temperature (boiler temperature limit from which the burner is started (not later))

Modify the minimum start temperature only if necessary.

Turn the rotary selector until the submenu "Minimum start Switch temp." appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "5°C").



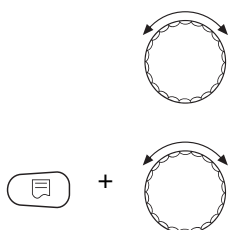
The display shows the set value.

Release "Display" to store your input.

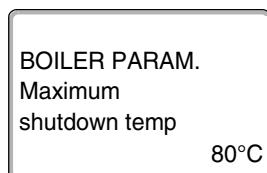
### 14.3.4 Selecting the maximum shutdown temperature

Modify the maximum cut-off temperature only if necessary.

Turn the rotary selector until the submenu "Maximum shutdown temp" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "80°C").



The display shows the set value.

Release "Display" to store your input.



#### USER INFORMATION

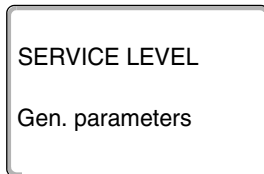
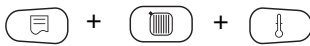
At setting > 75 °C adjust the thermostat to 90 °C.

	Input range	Factory setting
Minimum burner runtime	0 s – 300 s	120 s
Minimum start Switch temp.	5 °C – 65 °C	5 °C
Maximum shutdown temp	70 °C – 99 °C	85 °C

## 14.3.5 Enter maximum flue gas temperature limit

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

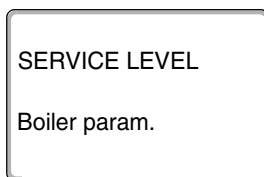
Call up the service level. "Gen. parameters" is shown as the first main menu.



The display shows the selected main menu.



Turn the rotary selector until the main menu "Boiler param." appears.



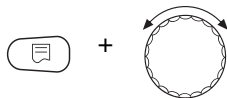
The display shows the selected submenu.



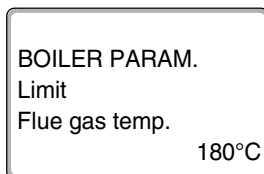
Press "Display" to call up a submenu.



Turn the rotary selector until the submenu "Limit Flue gas temp." appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "180°C").



The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
Maximum flue gas temperature limit	none 50 °C – 250 °C	none

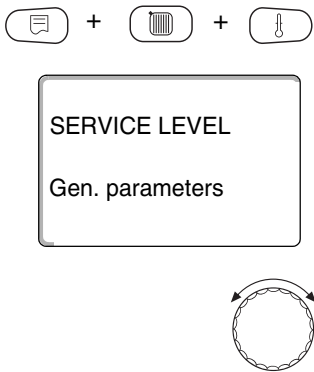
14.3.6 Entering the boiler curve

Generally, the boiler output is demanded subject to load, i.e. independent of the consumers that are regulated by the Logamatic 4321 or Logamatic 4322. However, are the consumers in a heating system wholly or partially regulated by a third party control unit, whilst the boiler is controlled by the Logamatic 4321 or Logamatic 4322. The burner control unit may be defaulted its own set value in the form of its own curve, to safeguard the supply of the consumers.

The curve is determined by connecting the base and design temperature with a straight line. A setback can be programmed for the boiler curve.

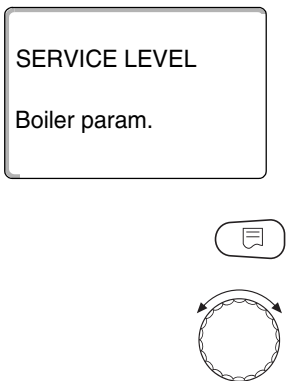
The summer time/winter time adjustment and the heating mode changeover functions can be used for the boiler curve.

Call up the service level. "Gen. parameters" is shown as the first main menu.



The display shows the selected main menu.

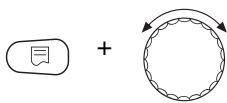
Turn the rotary selector until the main menu "Boiler param." appears.



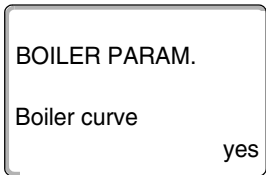
The display shows the selected submenu.

Press "Display" to call up a submenu.

Turn the rotary selector until the submenu "Boiler curve" appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").



The display shows the set value.

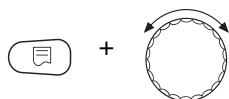
Release "Display" to store your input.

	Input range	Factory setting
Boiler curve	yes no	no

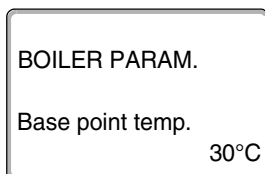
### Setting the low end temperature

The low end temperature provides the set value at an outside temperature of +20 °C. The low end temperature will only be displayed if you have selected "Boiler curve yes".

Turn the rotary selector until the submenu "Base point temp." appears.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "30°C").



The display shows the set value.

Release "Display" to store your input.

### Setting the design temperature

The design temperature provides the set temperature at a minimum outside temperature of, for example -10 °C.

The minimum outside temperature relates to the "Min. outside temp." under "General parameters" in accordance with the climate chart or the details of your local subsidiary.

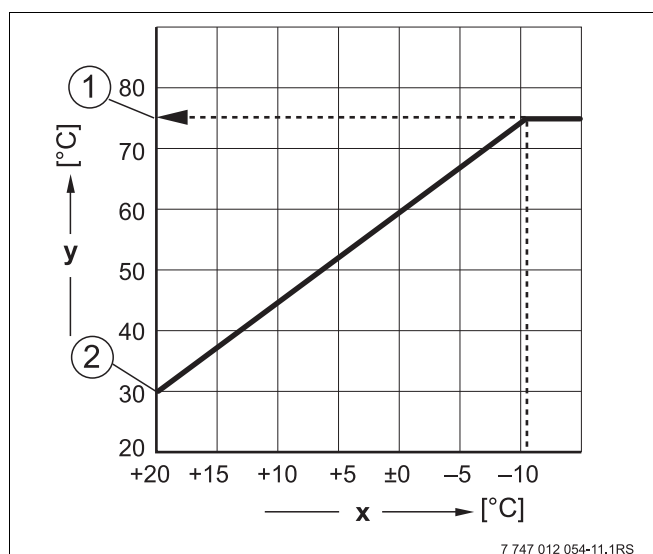





Fig. 22 Setting the design temperature (factory settings)

- x Outside temperature
- y Heating water temperature
- 1 Design temperature
- 2 Low end temperature



Turn the rotary selector until the submenu "Design temp." appears.

 + 

Hold down "Display" and turn the rotary selector until the required value appears (eg.: "75°C").


BOILER PARAM.  
Design temp.  
75°C

The display shows the set value.  
Release "Display" to store your input.



	Input range	Factory setting
Low end temp.	20 °C – 90 °C	30 °C
Design temp.	30 °C – 90 °C	75 °C

Setting the setback

Enter the temperature difference in K (Kelvin), by which the boiler curve should be set back during night mode as against the day mode.



Turn the rotary selector until the submenu "Setback by" appears.

 + 

Hold down "Display" and turn the rotary selector until the required value appears (eg.: "30K").

BOILER PARAM.  
Setback by  
30K

The display shows the set value.  
Release "Display" to store your input.

	Input range	Factory setting
Low end temp.	0 K – 90 K	30 K

## 15 Heating circuit data

### You may select the following heating systems:

- "none"  
The heating circuit function is not required. All subsequent submenu points relating to "Heat circ. data" no longer apply.
- "Radiators" or "Convactor"  
The heating curve is automatically calculated for radiators or convactor heaters, depending on 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"  
Use this system for controlling a swimming pool heating system or to pre-control ventilation circuits, if the heating must always provide the same, set flow temperature, independent of the outside temperature. You cannot install a remote control for this heating circuit if you have selected this system.
- "Room controller"  
The set flow temperature is only dependent on the actual room temperature. For this purpose, you must install a remote control inside the room. The heating system is switched OFF, if the room becomes too hot.



### USER INFORMATION

It is recommended to enable the "Underfloor" heating system only in conjunction with mixed heating circuits.

---

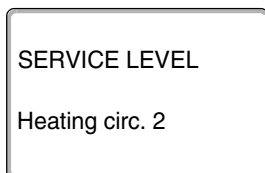
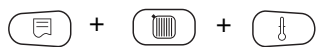


## 15.1 Heating system selection

### Example:

You want to set "Underfloor" for the submenu "Heating system" in the main menu "Heating circ. 2".

Call up the service level. "Gen. parameters" is shown as the first main menu.

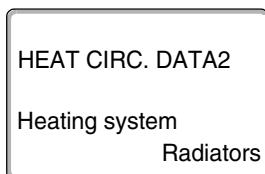


Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").

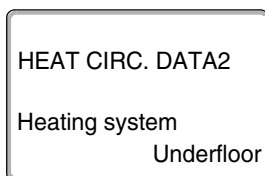
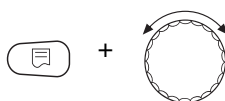
The display shows the selected main menu.



Press "Display" to call up a submenu (eg.: "Heating system").



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Underfloor").

The display shows the set value.

Release "Display" to store your input.



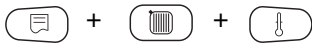
Press "Back" to return to the next higher level.

	Input range	Factory setting
Heating system	<div> <div>none</div> <div>Radiators</div> <div>Convector</div> <div>Underfloor</div> <div>Base point</div> <div>Constant</div> <div>Room controller</div> </div>	Radiators

## 15.2 Rename the heating circuit

You may, instead of the description "Heating circ. + no." select a different designation from the default list.

Call up the service level. "Gen. parameters" is shown as the first main menu.



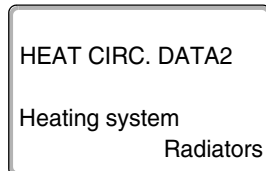
Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



Press "Display" to call up a submenu (eg.: "Heating system").



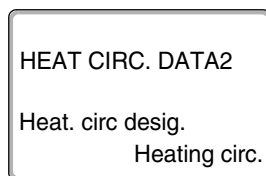
The display shows the selected submenu.



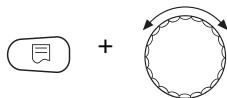
Turn the rotary selector until the submenu "Heat circ. design." appears.



The display shows the selected submenu.

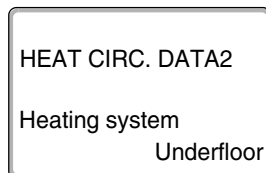


Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Underfloor").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.



	Input range	Factory setting
<b>Heat circ. design.</b>	Heating circ. Apartment Underfloor Bathroom Swimming pool Floor Cellar Building	Heating circ.

## 15.3 Setting the base point temperature

This function will only be displayed for "Low end" heating systems.

By setting the "Low end heating system" you have determined a straight heating curve using the low end and the design temperatures.

With the low end temperature, you determine the beginning of the heating curve. The low end temperature is applicable for an outside temperature of 20 °C.

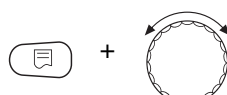
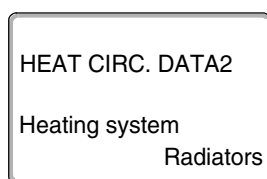
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").

Press "Display" to call up a submenu (eg.: "Heating system").

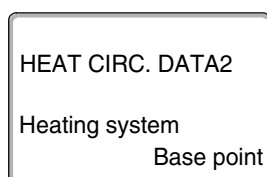
The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Base point").

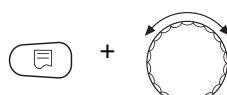
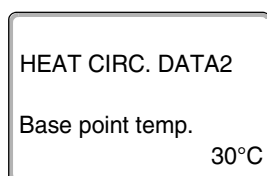
The display shows the set value.

Release "Display" to store your input.



Turn the rotary selector until the submenu "Base point temp." appears.

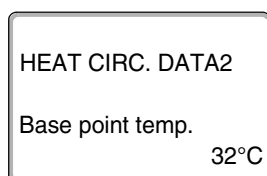
The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "32°C").

The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.4 Setting the design temperature

The design temperature is the flow temperature at the adjusted minimum outside temperature (→ Chapter 12).

**This parameter cannot be adjusted with heating system "Room controller".**



### USER INFORMATION

Changing the design temperature allows the heating system to operate with a flatter or steeper heating curve.

For the "Base point" heating systems set the design temperature at least 10 °C higher than the low end temperature.



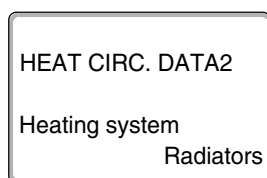
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



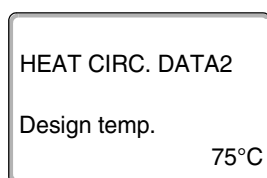
Press "Display" to call up a submenu (eg.: "Heating system").



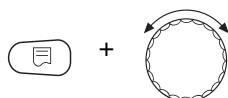
The display shows the selected submenu.



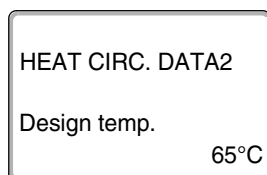
Turn the rotary selector until the submenu "Design temp." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "65°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.5 Minimum flow temperature

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

**This function will not be displayed with "Constant" heating system.**

Change value only if necessary.

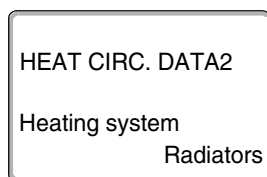
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



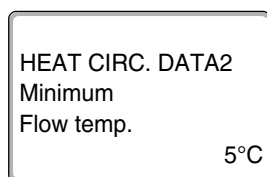
Press "Display" to call up a submenu (eg.: "Heating system").



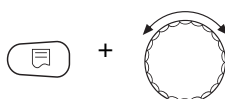
The display shows the selected submenu.



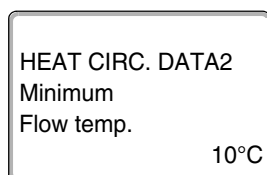
Turn the rotary selector until the submenu "Minimum Flow temp." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "10°C"). This value sets the temperature, below which the flow temperature must not drop.



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

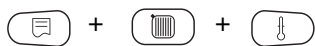
	Input range	Factory setting
Minimum Flow temp.	5 °C – 70 °C	5 °C

## 15.6 Maximum flow temperature

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

**This function will not be displayed with "Constant" heating system.**

Change value only if necessary.



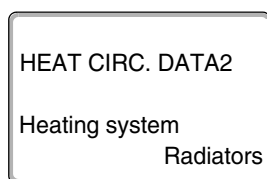
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



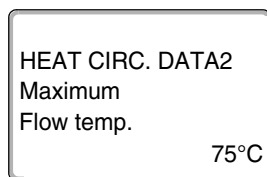
Press "Display" to call up a submenu (eg.: "Heating system").



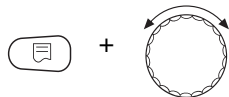
The display shows the selected submenu.



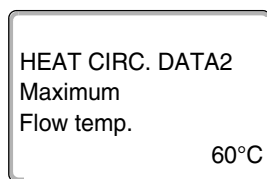
Turn the rotary selector until the submenu "Maximum Flow temp." appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "60°C"). This value sets the temperature, above which the flow temperature must not rise.



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.7 Select the remote control

Under this parameter, you can determine whether a remote control unit 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."  
If "Remote control with display" is selected for several heating circuits, these are grouped as "MEC heat. circ.".
- Remote control without display (BFU or BFU/F)



### USER INFORMATION

No remote control unit may be installed for "Constant" heating circuit systems or when "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 room setback
  - Max. room infl
  - Autom 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
- Setting summer/winter time change
- 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.



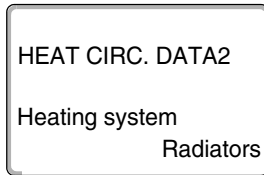
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



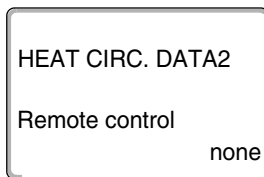
Press "Display" to call up a submenu (eg.: "Heating system").



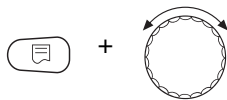
The display shows the selected submenu.



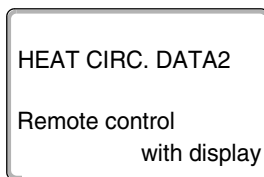
Turn the rotary selector until the submenu "Remote control" appears.



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "with display"). Turn the rotary selector to "with display", when the selected heating circuit has been assigned to the MEC2.



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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



## 15.8 Maximum ambient influence

**This function will only appear if a remote control has been selected but will not be shown for "Room controller" heating systems.**

The maximum room influence limits the influence of room temperature (room temperature hook-up) to the set flow temperature. This value determines the maximum possible room temperature setback in those rooms that are supplied via the currently selected heating circuit and where there are no remote control units installed.



### USER INFORMATION

Never expose the MEC2 programming unit or the BFU, BFU/F remote control units to alternative heat sources, such as lamps, TV sets, or other heat sources.



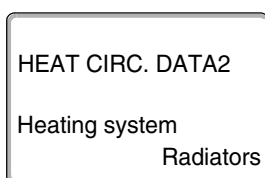
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



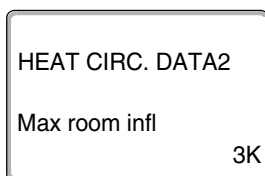
Press "Display" to call up a submenu (eg.: "Heating system").



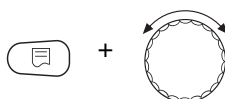
The display shows the selected submenu.



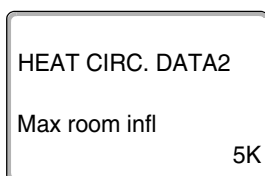
Turn the rotary selector until the submenu "Max room infl" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "5K").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Max room infl	0 K – 10 K	3 K

## 15.9 Select the type of setback

You can select the following functions for setback or night operation:

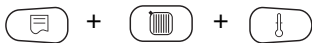
- The "Outside setback" determines the outside temperature limit.  
The heating circuit is switched OFF when this value is exceeded.  
Below this limit, the heating system heats to the set night temperature.
- With "Hold room temp" you determine a night temperature as room temperature.  
The heating circuit is switched OFF when this value is exceeded.  
Below this limit, the heating system heats to the set night temperature.  
This function requires that a remote control is located in the relevant room and that the heating circuit is assigned to it.
- In setback mode, the heating circuit is generally switched OFF at "OFF".
- In setback mode, the system heats to the set night temperature if "Reduced" is selected. The heating circuit pumps operate constantly.



### USER INFORMATION

You can only select "Reduced", "Outside setback" or "OFF", if you have selected "Constant" under the main parameter "Heating system".

- Setting the heating system to "Room controller" and setback type to "Reduced" achieves the same effect for temperature setback as "Room setback".



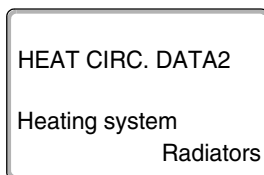
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



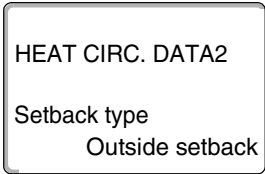
Press "Display" to call up a submenu (eg.: "Heating system").



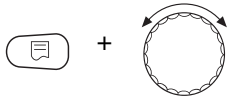
The display shows the selected submenu.



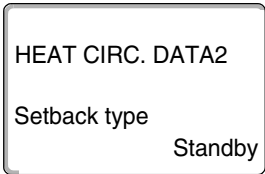
Turn the rotary selector until the submenu "Setback type" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Standby").



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Setback type	Outside setback Standby Reduced Hold room temp	Outside setback

## 15.10 Setting the outside stop temperature

Enter the outside temperature at which the heating operation should change over from "OFF" to "Reduced", if you have selected "Outside setback" as setback type.



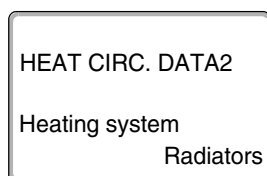
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



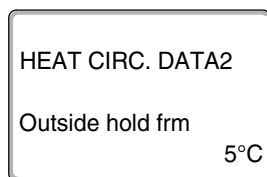
Press "Display" to call up a submenu (eg.: "Heating system").



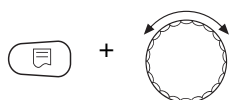
The display shows the selected submenu.



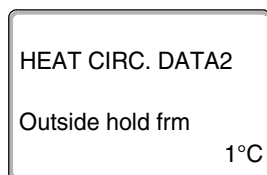
Turn the rotary selector until the submenu "Outside hold frm" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "1°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.11 Holiday setback type

A separate setback type can be set for the duration of the holiday.  
For explanations of possible settings, see → Chapter 15.9.



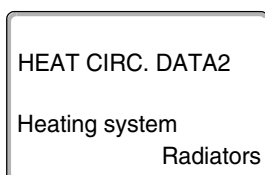
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



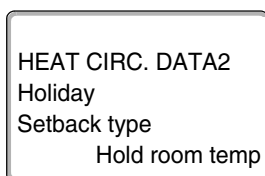
Press "Display" to call up a submenu (eg.: "Heating system").



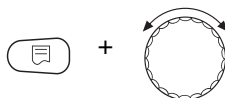
The display shows the selected submenu.



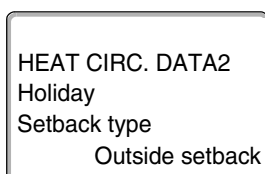
Turn the rotary selector until the submenu "Holiday setback type" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Outside setback").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>Holiday Setback type</b>	Hold room temp Outside setback* Standby Reduced	Hold room temp

\* At setting "Holiday Outside setback" the rotary selector takes you into the menu where you set the "Outside setback" temperature (between -20 °C and 10 °C).

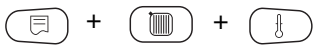
## 15.12 Stopping setback at low outside temperatures

DIN EN 12831 enables the stopping of setback when the actual temperature falls below a selected adjusted outside temperature to prevent the living space cooling down excessively.



### USER INFORMATION

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



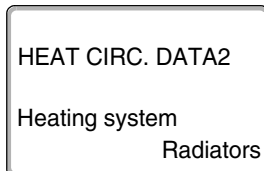
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



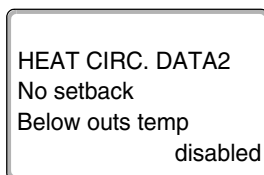
Press "Display" to call up a submenu (eg.: "Heating system").



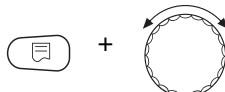
The display shows the selected submenu.



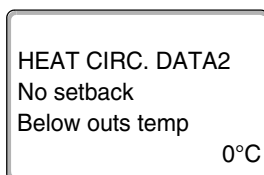
Turn the rotary selector until the submenu "No setback Below outs temp" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "0°C").



The display shows the set value.

Release "Display" to store your input.

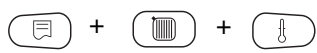


Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>No setback Below outside temp</b>	disabled -30 °C – 10 °C	disabled

### 15.13Setting flow setback

No set room temperature can be set with the "Constant" heating system, this submenu enables you to enter a setback value for the setback types "Reduced" and "Outside setback".



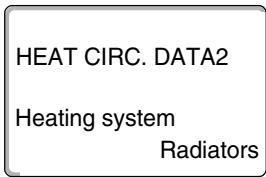
Call up the service level. "Gen. parameters" is shown as the first main menu.



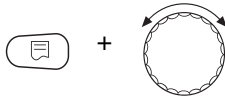
Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



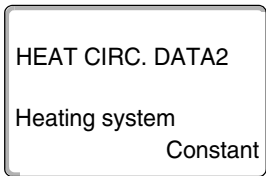
Press "Display" to call up a submenu (eg.: "Heating system").



The display shows the selected submenu.



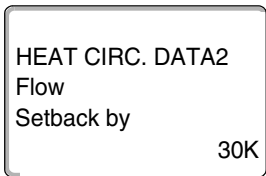
Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Constant").



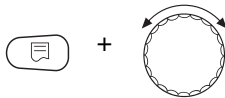
The display shows the set value.  
Release "Display" to store your input.



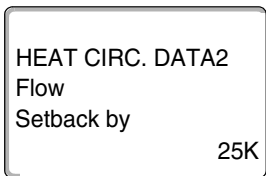
Turn the rotary selector until "Flow Setback by" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "25K").



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.14 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. Parallel offset through matching to the heating curve.

### Example:

Displayed set room temperature 22 °C

Actual room temperature 24 °C

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



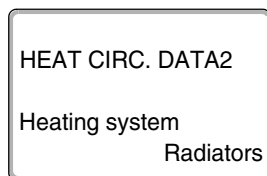
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



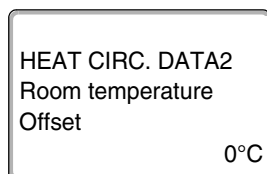
Press "Display" to call up a submenu (eg.: "Heating system").



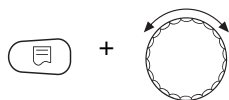
The display shows the selected submenu.



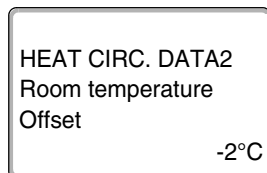
Turn the rotary selector until the submenu "Room temperature Offset" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "-2°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Offset	-5 °C – 5 °C	0 °C



## 15.15 Autom adaptation

**This function will only appear if a remote control has been selected but will not be shown for "Room controller" heating systems.**

"Autom adaptation" is not enabled 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 temperature.

Prerequisites are:

- A representative room with reference temperature,
- Fully opened valves in the room.
- No constantly fluctuating external heat influence.

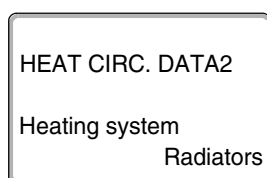
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



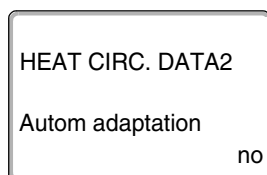
Press "Display" to call up a submenu (eg.: "Heating system").



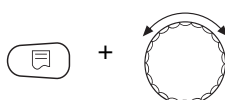
The display shows the selected submenu.



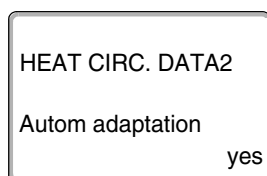
Turn the rotary selector until the submenu "Autom adaptation" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Autom adaptation	no yes	no

## 15.16 Setting switching optimisation

The function "Optimisation for" is not enabled in the factory.

**Install a remote control with room temperature sensor to enable the "Optimisation" function.**

The following variations are possible:

- Heat-up commences before the actual switching time, if "Start" has been selected. The control unit calculates the start time, so that the set room temperature is achieved at the set switching point.
- At "Stop" the system begins setback, where possible, prior to the actual setback time to save energy. If a room cools down unexpectedly and suddenly, the stop optimisation is terminated and heating continues normally up to the programmed setback time.
- Both optimisation variants are used when "Start/Stop" have been enabled.
- Switching optimisation is not implemented, if "none" is selected.



### USER INFORMATION

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



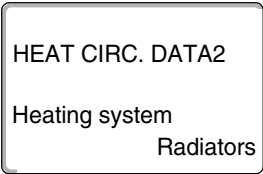
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



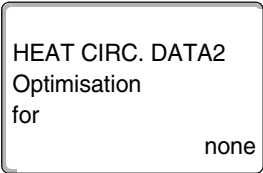
Press "Display" to call up a submenu (eg.: "Heating system").



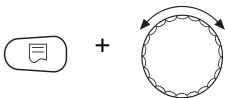
The display shows the selected submenu.



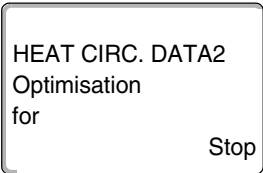
Turn the rotary selector until the submenu "Optimisation for" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Stop").



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Optimisation	<div>none</div> <div>Start</div> <div>Stop</div> <div>Start/Stop</div>	none

## 15.17 Set stop optimisation time

You may, if you have selected "Stop" or "Start/Stop" enter when the advanced setback operation should begin under Chapter 15.16. Change the setting only if necessary.



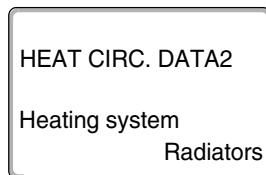
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



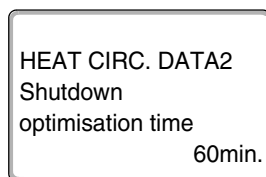
Press "Display" to call up a submenu (eg.: "Heating system").



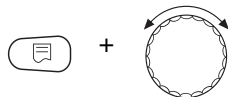
The display shows the selected submenu.



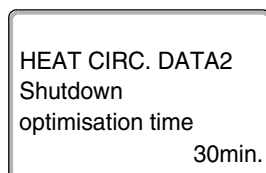
Turn the rotary selector until the submenu "Shutdown optimisation time" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "30min").



The display shows the set value.

Release "Display" to store your input.



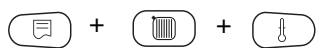
Press "Back" to return to the next higher level.

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

## 15.18 Set the frost protection temperature

Only change the frost protection value in special circumstances.

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



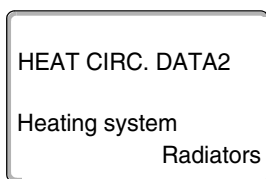
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



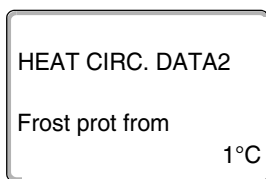
Press "Display" to call up a submenu (eg.: "Heating system").



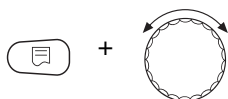
The display shows the selected submenu.



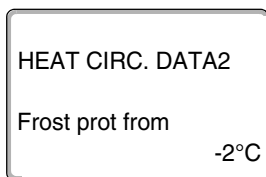
Turn the rotary selector until the submenu "Frost prot from" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "-2 °C").



The display shows the set value.

Release "Display" to store your input.



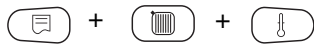
Press "Back" to return to the next higher level.

	Input range	Factory setting
Frost protection	-20 °C – 1 °C	1 °C

## 15.19 Setting the DHW priority

The circulation pumps of all heating circuits are switched OFF whilst DHW is being heated, if you enable the "DHW priority" function.

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



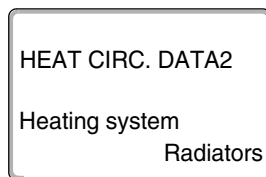
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



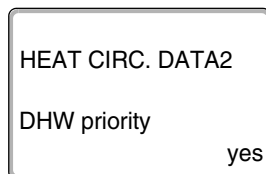
Press "Display" to call up a submenu (eg.: "Heating system").



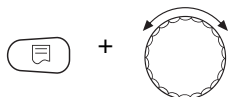
The display shows the selected submenu.



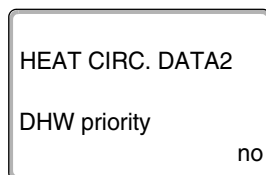
Turn the rotary selector until the submenu "DHW priority" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
DHW priority	yes no	yes

## 15.20 Entering the heating circuit actuator

You may determine via the "Servomotor" function, whether or not the system is equipped with a heating circuit actuator (mixer).

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

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



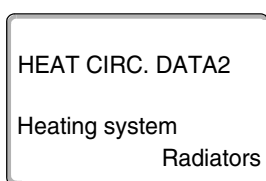
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



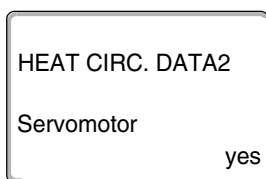
Press "Display" to call up a submenu (eg.: "Heating system").



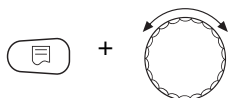
The display shows the selected submenu.



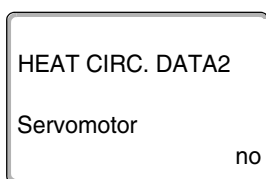
Turn the rotary selector until the submenu "Servomotor" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>Servomotor</b>	yes no	yes

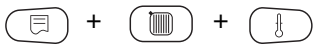
## 15.21 Enter actuator running time

Here you may enter the actuator running time of existing actuators. Generally, actuators have a run time of 120s.



### USER INFORMATION

If you notice a constant oscillation of the mixer, you can slow down the control characteristics by reducing the actuator running time. Then the constant cycling of the mixer will cease.



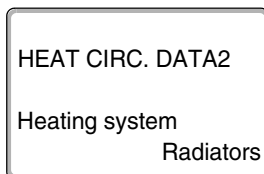
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



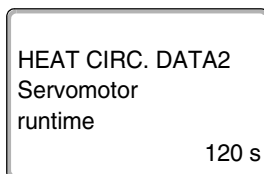
Press "Display" to call up a submenu (eg.: "Heating system").



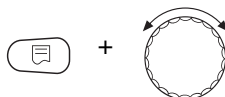
The display shows the selected submenu.



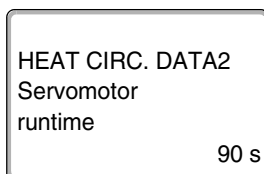
Turn the rotary selector until the submenu "Servomotor runtime" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "90 s").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

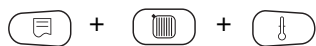
	Input range	Factory setting
<b>Servomotor runtime</b>	10 s – 600 s	120 s



## 15.22 Boiler raising

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

The value "Boil.raising" corresponds to the temperature differential between the set boiler temperature and the set heating circuit temperature.



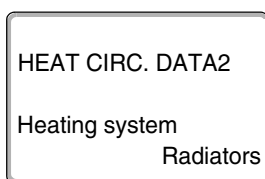
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



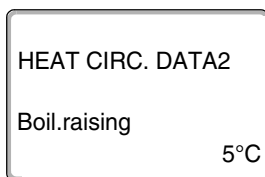
Press "Display" to call up a submenu (eg.: "Heating system").



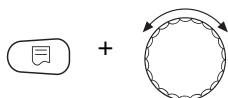
The display shows the selected submenu.



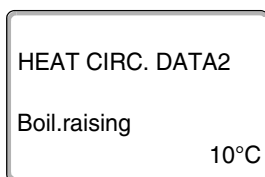
Turn the rotary selector until the submenu "Boil.raising" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "10°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>Boil.raising</b>	0 °C – 20 °C	5 °C

## 15.23 External changeover

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

The parameter "External changeover" will only be shown if "none" was selected at parameter "Remote control".

This parameter will also not be displayed, if the "Room controller" heating system has been selected, since this requires the installation of a remote control unit.

This function is turned OFF at the factory.

You may select from the following two changeover functions:

### Changeover 1 Day/night via terminals WF1 and WF3

Contacts WF1 and WF3 closed	= Day mode
Contacts WF1 and WF3 open	= Night mode

### Changeover 2 Day/night/Aut via terminals WF1, WF2 and WF3

This may only be enabled if terminals WF1 and WF2 are not assigned to "External fault message pump".

Contacts WF1 and WF3 closed	= Day mode
Contacts WF1 and WF2 closed	= Night mode
all contacts open	= Automatic mode



### USER INFORMATION

Day operation will be run constantly, if, by mistake, both contacts are simultaneously closed.



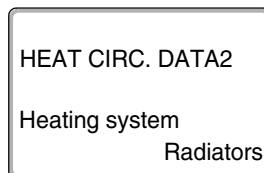
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



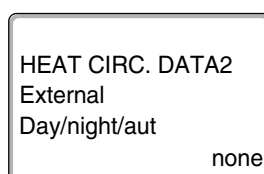
Press "Display" to call up a submenu (eg.: "Heating system").



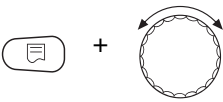
The display shows the selected submenu.



Turn the rotary selector until the submenu "External Day/night/aut" is displayed.



The display shows the selected submenu.




Hold down "Display" and select the required value with the rotary selector (eg.: "via WF1/2/3").

HEAT CIRC. DATA2

External

Day/night/aut

via WF1/2/3



Press "Back" to return to the next higher level.

The display shows the set value.

Release "Display" to store your input.

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

## 15.24 External fault message, pump

This function is turned OFF at the factory.

This parameter allows you to enter whether fault messages relating to a pump should be displayed.

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

Here you can select from the following:

1. "none"
2. "Pump fault message via WF1/2"

This parameter cannot be called up, if under this parameter "External Day/night/Aut via WF1/2/3" was entered, since the input contact is already allocated.

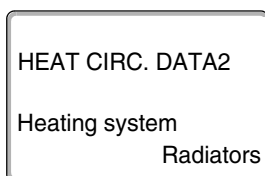
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



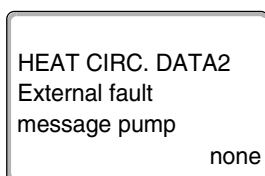
Press "Display" to call up a submenu (eg.: "Heating system").



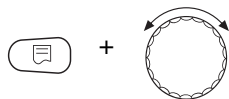
The display shows the selected submenu.



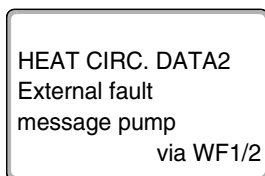
Turn the rotary selector until the submenu "External fault message pump" is displayed.



The display shows the selected submenu.



Hold down "Display" and select the required value with the rotary selector (eg.: "via WF1/2").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

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

## 15.25 Screed drying

With this control unit you can enter a screed drying program, if the heating system comprises underfloor heating. "Underfloor" must be set as heating system.



### USER INFORMATION

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

Screed drying continues after a power failure where screed drying was interrupted.

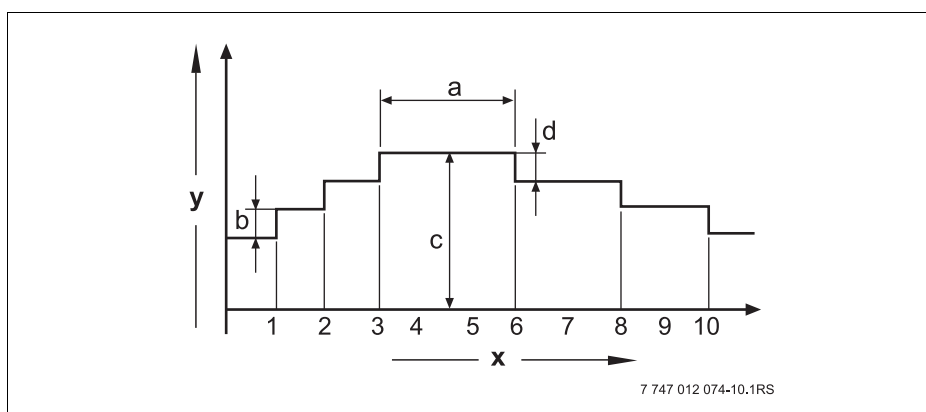


Fig. 23 Screed drying

- x** Time (days)
- y** Temperature
- a** 3 days dwell time
- b** Temp increase by
- c** Max. temperature
- d** Setback by



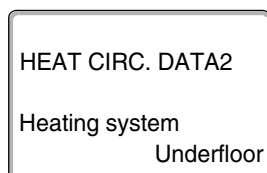
Call up the service level. "Gen. parameters" is shown as the first main menu.



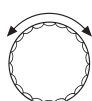
Turn the rotary selector until the main menu "Heating circ. + no." appears (eg.: "Heating circ. 2").



Press "Display" to call up a submenu (eg.: "Heating system").



The display shows the selected submenu.



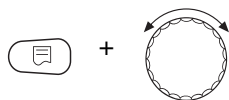
Turn the rotary selector until the submenu "Screed drying" appears.

HEAT CIRC. DATA2

Screed drying

no

The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").

HEAT CIRC. DATA2

Screed drying

yes

The display shows the set value.

Release "Display" to store your input.

	Input range	Factory setting
<b>Screed drying</b>	no yes	no



### USER INFORMATION

Parameters on the following pages enable you to select the temperatures and settings for the drying period.

The setting reverts automatically to "no", as soon as the drying process has been completed.

### Set temperature rise

Here you can select, in what steps the temperature should increase to dry out the screed.

The temperature rise begins at 20 °C.

Turn the rotary selector until the submenu "Screed drying Temp increase by" appears.



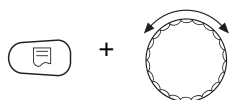
HEAT CIRC. DATA2

Screed drying

Temp increase by

5K

The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "10K").

HEAT CIRC. DATA2

Screed drying

Temp increase by

10K

The display shows the set value.

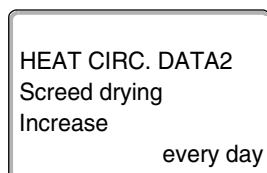
Release "Display" to store your input.

	Input range	Factory setting
<b>Temp increase by</b>	1 K – 10 K	5 K

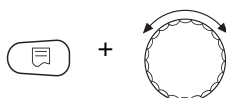
### Heat-up time

By setting the "Increase" parameter, you determine in which daily cycle the temperature should rise to dry out the screed.

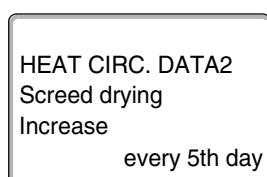
Turn the rotary selector until the submenu "Screed drying Increase" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "every 5th day").



The display shows the set value.

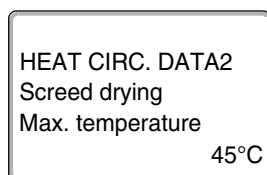
Release "Display" to store your input.

	Input range	Factory setting
<b>Increase in daily cycles</b>	every day – every 5th day	every day

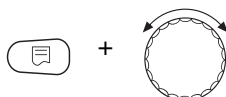
### Set maximum temperature

Here you may enter the maximum temp. for screed drying.

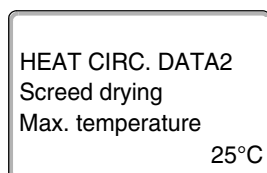
Turn the rotary selector until the submenu "Screed drying Max. temperature" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "25°C").



The display shows the set value.

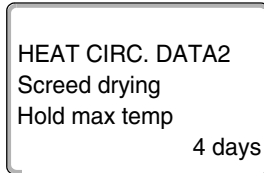
Release "Display" to store your input.

	Input range	Factory setting
<b>Max. temperature</b>	25 °C – 60 °C	45 °C

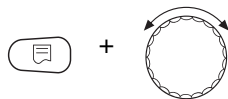
### Set the holding time

Here you can select a period of time, for which the maximum temperature shall be held to dry out the screed.

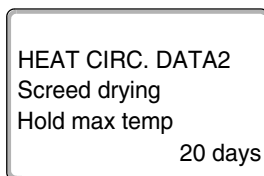
Turn the rotary selector until the submenu "Screed drying Hold max temp" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "20 days").



The display shows the set value.

Release "Display" to store your input.

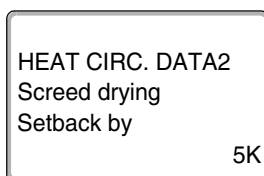
	Input range	Factory setting
<b>Hold max temp</b>	0 days – 20 days	4 days

### Setting the setback temperature

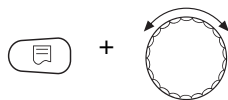
Here you can select, in what steps the temperature for drying out the screed should be setback.

The setback ends at 20 °C.

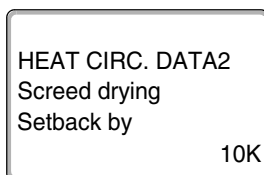
Turn the rotary selector until the submenu "Screed drying Setback by" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "10K").



The display shows the set value.

Release "Display" to store your input.

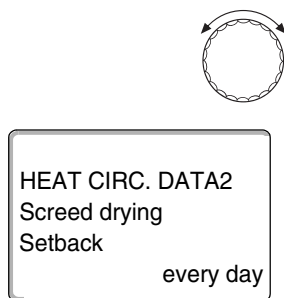
	Input range	Factory setting
<b>Setback by</b>	1 K – 10 K	5 K



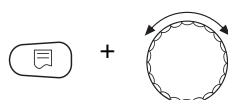
### Set setback time

By setting the "Setback" parameter you determine, in which daily cycle the temperature for drying the screed should be setback.

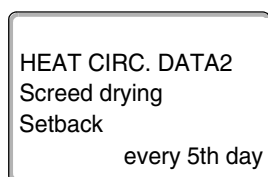
Turn the rotary selector until the submenu "Screed drying Setback" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "every 5th day").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.



### USER INFORMATION

Selecting "none" terminates screed drying at the end of the maximum hold time.

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

## 16 DHW data

The DHW function of FM441 function module is described in the following. If DHW is heated via a different function module (e.g. FM445), see the respective service instructions for a description.

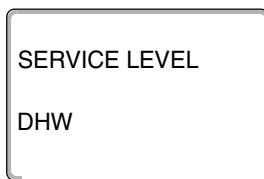
### 16.1 Selecting the DHW cylinder

Here, you can log in and log out the DHW cylinder if a DHW module is installed.

Call up the service level. "Gen. parameters" is shown as the first main menu.



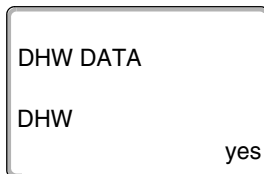
Turn the rotary selector until the main menu "DHW" appears.



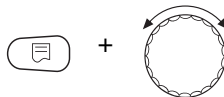
The display shows the main menu "DHW".



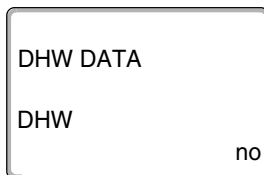
Press "Display" to call up a submenu (eg.: "DHW").



The display shows the submenu "DHW".



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").



The display shows the set value.

Release "Display" to store your input.




Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>DHW</b>	yes no	yes

16.2 Set temperature range

With this function you can set the upper limit for the required DHW temperature.






**WARNING!**


**RISK OF SCALDING**

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


- In such cases, only draw-off mixed water (hot and cold).



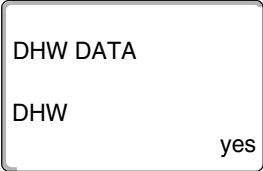
Call up the service level. "Gen. parameters" is shown as the first main menu.




Turn the rotary selector until the main menu "DHW" appears.



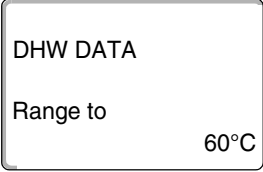
Press "Display" to call up a submenu (eg.: "DHW").





The display shows the selected submenu.



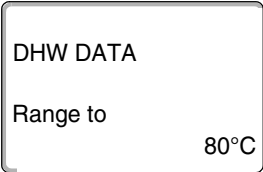
Turn the rotary selector until the submenu "Range to" appears.




The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "80°C").



The display shows the set value.  
Release "Display" to store your input.

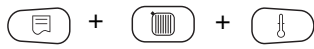


Press "Back" to return to the next higher level.

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

### 16.3 Select switching optimisation

If you select the "Optimisation" function, DHW will be heated prior to the actual switching point. The control unit calculates the starting time, taking into consideration the residual DHW cylinder heat and the commencement of the heating for the heating circuits, so that the DHW temperature is reached at the time you have selected (time switch).



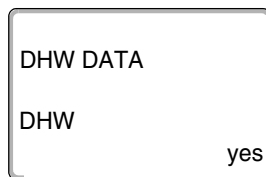
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



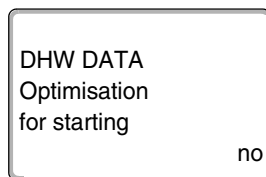
Press "Display" to call up a submenu (eg.: "DHW").



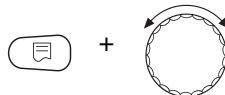
The display shows the selected submenu.



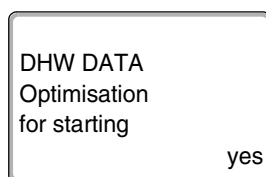
Turn the rotary selector until the submenu "Optimisation for starting" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Optimisation	yes no	no

16.4 Select the use of residual heat

If you select the "Resid. heat use" function, you may also utilise the residual boiler heat for heating the cylinder.

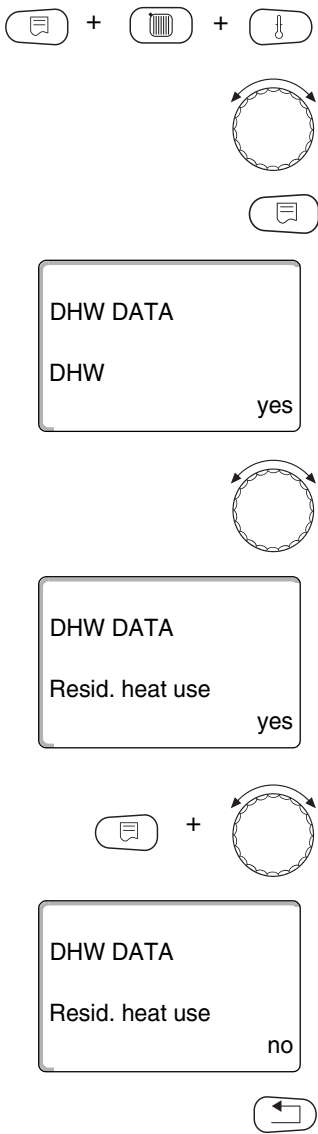
"Resid. heat use – yes"

If you select "Resid. heat use yes", the control unit calculates the shutdown temperature if the burner and the heating pump runtime until the cylinder is fully heated up using the residual boiler heat. The burner is switched OFF before the set DHW temperature is reached. The cylinder loading pump continues to operate. The control unit calculates the heating pump runtime (between 3 and 30 minutes) required to fully heat up the cylinder.

"Resid. heat use – no"

If you select "Resid. heat use no" you will only utilise a little residual heat. The burner runs until the required DHW temperature has been reached. The cylinder heating pump runs on for a fixed 3 minutes after the burner shuts down.

Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.

Press "Display" to call up a submenu (eg.: "DHW").

The display shows the selected submenu.

Turn the rotary selector until the submenu "Resid. heat use" appears.

The display shows the selected submenu.

Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").

The display shows the set value.

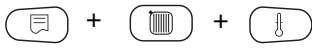
Release "Display" to store your input.

Press "Back" to return to the next higher level.

	Input range	Factory setting
Residual heat use	yes no	yes

## 16.5 Setting hysteresis

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



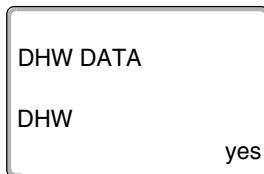
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



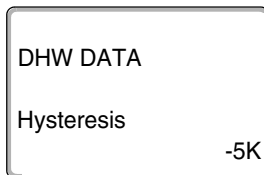
Press "Display" to call up a submenu (eg.: "DHW").



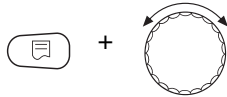
The display shows the selected submenu.



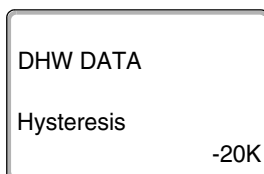
Turn the rotary selector until the submenu "Hysteresis" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "-20K").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

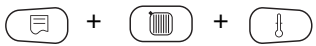
	Input range	Factory setting
<b>Hysteresis</b>	-20 K to -2 K	-5 K

16.6 Raising the boiler temperature

With the "Boiler t raising" function, you can determine the boiler water temperature during DHW heating.

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

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



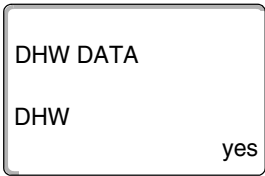
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



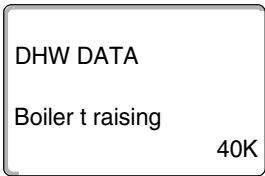
Press "Display" to call up a submenu (eg.: "DHW").



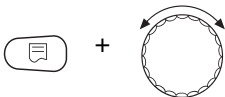
The display shows the selected submenu.



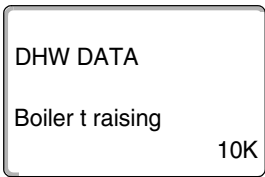
Turn the rotary selector until the submenu "Boiler t raising" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "10K").



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Boiler raising	10 K – 40 K	40 K

## 16.7 External fault message (WF1/2)

An external zero volt fault message contact of a DHW cylinder primary pump or an inert anode can be connected to terminals WF1 and WF2 of FM441 module.

- Contacts WF1 and WF2 closed = no fault
- Contacts WF1 and WF2 open = fault condition



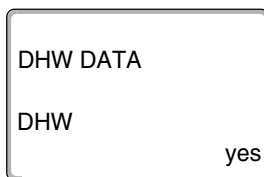
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



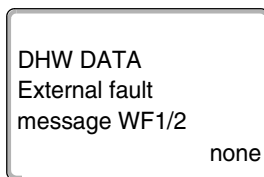
Press "Display" to call up a submenu (eg.: "DHW").



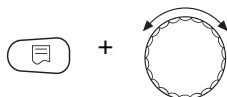
The display shows the selected submenu.



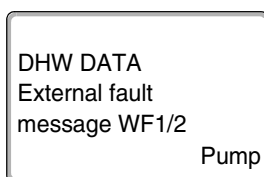
Turn the rotary selector until the submenu "External fault message WF1/2" is displayed.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Pump").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>External fault message</b>	none Inert anode Pump	none



## 16.8 External contact (WF1/3)

"Heating once" or "Therm. disinfect" can be initiated (subject to setting) if a zero volt pushbutton is connected to terminals WF1 and WF3 in module FM441.

### "Heating once"

You may, if the DHW heating has been switched OFF according to the switching times of the DHW program, start "Heating once" with the pushbutton. The DHW circulation pump starts simultaneously.

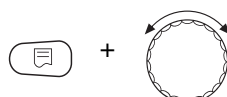
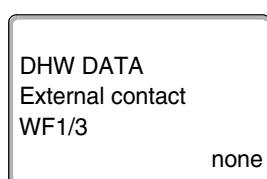
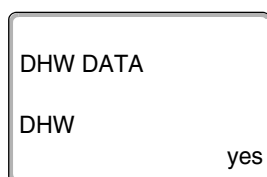
Unlike heating once via the MEC2 programming unit, the "Heating once" process cannot be cancelled.

The "Heating once" will only be stopped when the cylinder has been fully loaded.

### "Therm. disinfect"

You can start thermal disinfection with the above-mentioned zero volt pushbutton if you have assigned the external contact to "Therm. disinfect". Any existing thermal disinfection program will then become ineffective.

Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.

Press "Display" to call up a submenu (eg.: "DHW").

The display shows the selected submenu.

Turn the rotary selector until the submenu "External contact WF1/3" is displayed.

The display shows the selected submenu.

Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Heating once").

DHW DATA  
External contact  
WF1/3  
Heating once



The display shows the set value.

Release "Display" to store your input.

Press "Back" to return to the next higher level.

	Input range	Factory setting
External contact	Heating once Therm. disinfect none	none

## 16.9 Selection and setup of the thermal disinfection

If you select the "Therm. disinfect" function, the DHW is brought to a temperature (70 °C) once or several times a week. This is high enough to kill off germs (e.g. legionnaires bacteria).

The cylinder primary pump and the DHW circulation pump run constantly during the thermal disinfection process.

If you have selected "Therm. disinfect – yes", thermal disinfection commences according to factory settings or your own preferences.

Thermal disinfection is indicated by LED  on the FM441 module.

You may adjust the factory settings for thermal disinfection via additional menus.

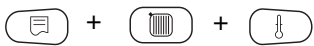


### USER INFORMATION

The "Therm. disinfect" function will not be displayed, if thermal disinfection was previously selected via the "external contact WF 1/3" function.

The system tried to reach the set disinfection temperature for three hours. If that fails, the fault message "Therm. disinfect failed" appears.

You may also set up thermal disinfection via your own individual program.



Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



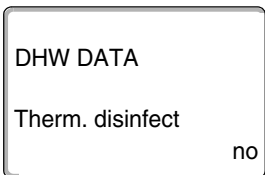
Press "Display" to call up a submenu (eg.: "DHW").



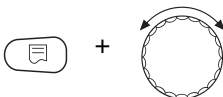
The display shows the selected submenu.



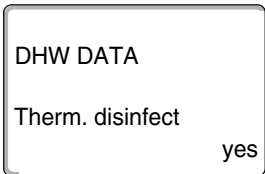
Turn the rotary selector until "Therm. disinfect" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "yes").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Thermal Disinfection	no yes	no

## 16.10 Setting the thermal disinfection temperature

You can select the thermal disinfection temperature via the "Temperature Therm. disinfect" (→ Chapter 16.9).

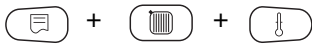


**WARNING!**

### RISK OF SCALDING

from hot water.

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



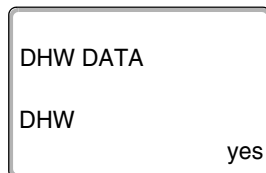
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



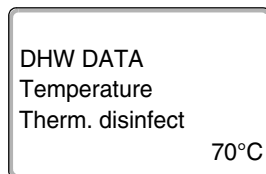
Press "Display" to call up a submenu (eg.: "DHW").



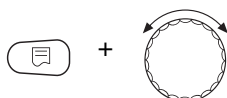
The display shows the selected submenu.



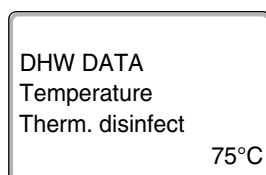
Turn the rotary selector until the submenu "Temperature Therm. disinfect" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "75°C").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Temperature Thermal disinfection	65 °C – 75 °C	70 °C

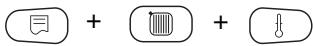
16.11 Setting the day of the week for thermal disinfection

You can set the day of the week when thermal disinfection should be carried out via the "Weekday Therm. disinfect" function.



USER INFORMATION

The "Weekday Therm. disinfect" function is not displayed if thermal disinfection was previously set using the "External contact WF 1/3" function.



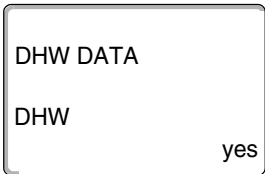
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



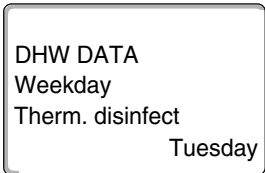
Press "Display" to call up a submenu (eg.: "DHW").



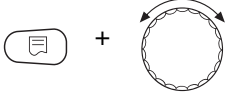
The display shows the selected submenu.



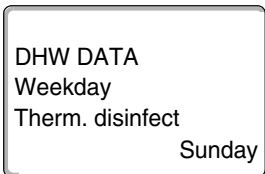
Turn the rotary selector until the submenu "Weekday Therm. disinfect" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "Sunday").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
Weekday Thermal disinfection	Monday – Sunday daily	Tuesday

## 16.12 Set the time of day for thermal disinfection

You can set the time of day when thermal disinfection should be implemented via the "time Therm. disinfect" function.



### USER INFORMATION

The "time Therm. disinfect" function is not displayed if thermal disinfection was previously set using the "External contact WF1/3" function.



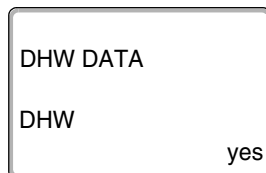
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



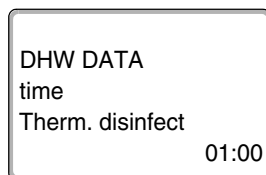
Press "Display" to call up a submenu (eg.: "DHW").



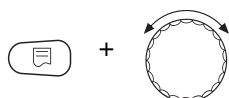
The display shows the selected submenu.



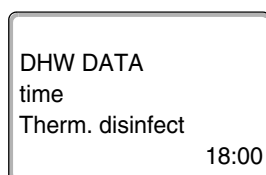
Turn the rotary selector until the submenu "time Therm. disinfect" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "18:00").



The display shows the set value.

Release "Display" to store your input.



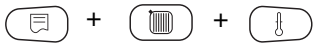
Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>time Thermal disinfection</b>	00:00 – 23:00	01:00

16.13 Daily heat-up

When daily heat-up is set the DHW (poss. including a solar cylinder, if installed) must be heated to 60 °C once a day to prevent legionella bacteria from multiplying in the DHW. This complies with the requirements of DVGW Code of Practice W551.

The time when the cylinder is heated can be adjusted.



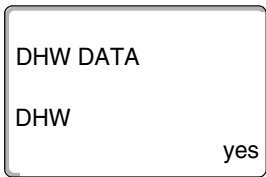
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



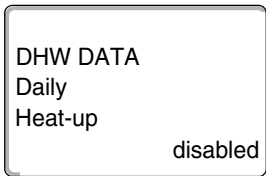
Press "Display" to call up a submenu (eg.: "DHW").



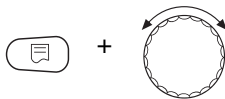
The display shows the selected submenu.



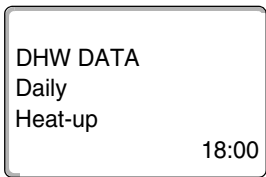
Turn the rotary selector until "Daily Heat-up" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "18:00").



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.



USER INFORMATION

DHW will not be heated if it was heated to 60 °C within the last 12 hours.

	Input range	Factory setting
Daily Heat-up	disabled 00:00 – 23:00	disabled

## 16.14 Selecting the DHW circulation pump

With the "DHW circulation" function you can indicate that a DHW circulation pump is installed which ensures that DHW is immediately available at the draw-off points.



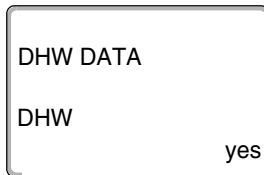
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



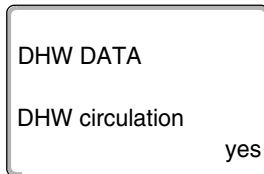
Press "Display" to call up a submenu (eg.: "DHW").



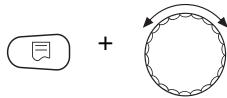
The display shows the selected submenu.



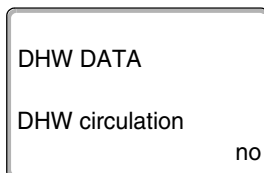
Turn the rotary selector until the submenu "DHW circulation" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "no").



The display shows the set value.

Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
<b>DHW circulation</b>	yes no	yes



## 16.15 Setting the DHW circulation pump intervals

You can reduce operating costs using the intermittent DHW circulation pump operation.

In function "DHW circulation per hour" you can select how often per hour the DHW circulation pump runs for three minutes.

The set interval applies during that time in which the time program enables the DHW circulation pump. This may be:

- the factory-set DHW circulation pump program
- your own DHW circulation pump program
- a connection to the heating circuit switching times

In permanent operation the DHW circulation pump operates all day and is switched OFF during night operation.

Example:

Your own time program was created that switches the DHW circulation pump on between 05:30 – 22:00 h with setting "DHW circulation per hour 2 times on".

The DHW circulation pump is switched ON respectively

- at 05:30 h for three minutes,
- at 06:00 h for three minutes,
- at 06:30 h for three minutes,
- etc. until 22:00 h in cycles.



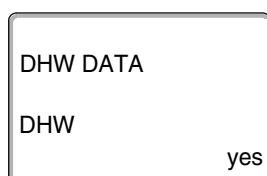
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "DHW" appears.



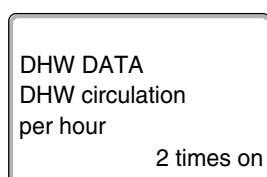
Press "Display" to call up a submenu (eg.: "DHW").



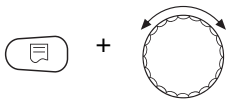
The display shows the selected submenu.



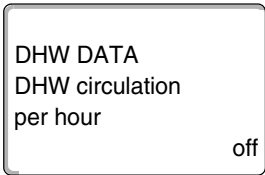
Turn the rotary selector until the submenu "DHW circulat per hour" appears.



The display shows the selected submenu.



Hold down "Display" and turn the rotary selector until the required value appears (eg.: "off"). The DHW circulation pump will now only operate during single loading.



The display shows the set value.  
Release "Display" to store your input.



Press "Back" to return to the next higher level.

	Input range	Factory setting
DHW circulation per hour	off 1 time on 2 times on 3 times on 4 times on 5 times on 6 times on Const. operation	2 times on

## 17 Special parameters

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

This level is reserved for trained technicians only and is described separately, because it must be set in code, not plain text.

This document "Special parameters Logamatic 4000" is available via the Buderus website.

## 18 Heating curve

Using the "Heat. curves" menu, you can display the current heating curves of the relevant heating circuits.

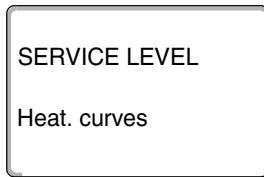
The flow temperatures (FL), which depend on the outside temperature (OT), are displayed.



Call up the service level. "Gen. parameters" is shown as the first main menu.



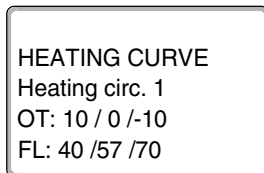
Turn the rotary selector until the main menu "Heat. curves" appears.



The display shows the selected main menu.



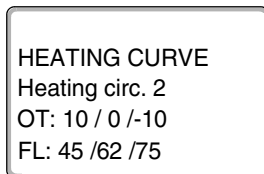
Press "Display" to call up a submenu (eg.: "Heating circ. 1").



The display shows the selected submenu.



Turn the rotary selector until the submenu "Heating circ. 2" appears.



The display shows the selected submenu.



Press "Back" to return to the next higher level.

## 19 Running relay test

You can check with the "Relay test" menu, whether you have correctly connected the external components (e.g. pumps).

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

from disabled functions.

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

- Leave this function after the relay test to prevent system damage.

You can call up the following relays with the most frequently used modules in the Logamatic 4321/22 control units:

#### Boiler

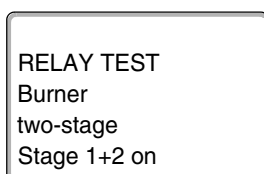
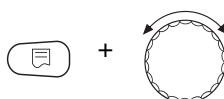
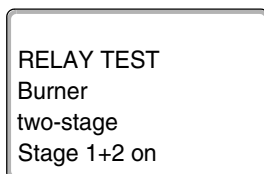
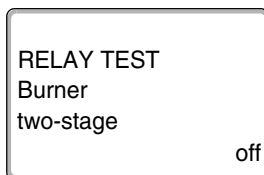
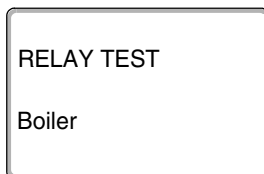
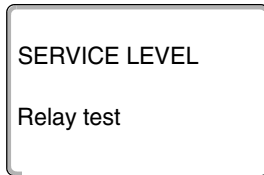
- Burner (incl. burner servomotor)
- Boiler servomotor
- Boiler circ. pump

#### Heating circuit 1 – 8

- Circ. pump
- Servomotor

#### DHW

- DHW cylinder loading pump
- DHW circulation pump



### Relay test example

Call up the service level. "Gen. parameters" is shown as the first main menu.

Turn the rotary selector until the main menu "Relay test" appears.

The display shows the selected main menu.

Press "Display" to call up a submenu (eg.: "Boiler").

The display shows the selected submenu.

Press "Display" to call up a further submenu (eg.: "Burner two-stage").

The display shows the selected submenu.

Turn the rotary selector until the submenu "Burner two-stage" appears.

The display shows the selected submenu.

Hold down "Display" and turn the rotary selector until the required value appears (eg.: "on").

The display shows the set value.

Release "Display" to store your input.

Press "Back" twice to return to the next higher levels.



### USER INFORMATION

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

## 20 Carrying out an LCD test

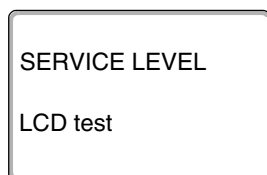
With the "LCD test" menu you can check whether all signs and symbols are fully displayed.



Call up the service level. "Gen. parameters" is shown as the first main menu.



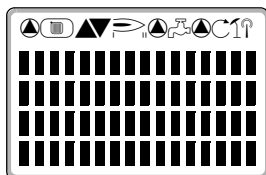
Turn the rotary selector until the main menu "LCD test" appears.



The display shows the selected main menu.



Press the "Display" button.



The LCD is OK, when all symbols are correctly displayed.



Press "Back" to return to the next higher level.

## 21 Fault log

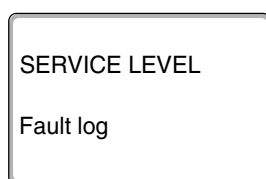
Using the "Fault log" menu, you can display the last four fault messages of your heating system. The MEC2 can only display the fault messages of the control unit, with which it is connected.



Call up the service level. "Gen. parameters" is shown as the first main menu.



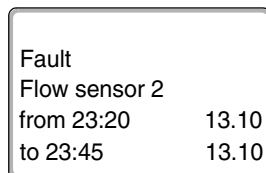
Turn the rotary selector until the main menu "Fault log" appears.



The display shows the selected main menu.



Press the "Display" button.



The fault message will then be displayed.

Fault messages recorded by the control unit will be displayed together with the time for the beginning and end of the fault.

The display will show "no fault" if the connected control unit has not recorded any faults.



Turn rotary selector and scroll through the recent fault messages.



Press "Back" to return to the next higher level.



## Fault displays

The following faults can be displayed on the Logamatic 4321/22 control unit, if the most commonly used FM441 and FM442 function models as well as the ZM434 are plugged in.

- Outside temperature sensor
- Flow sensors 1-8
- DHW sensor
- DHW warning
- DHW stays cold
- Thermal disinfection
- Remote control 1 – 8
- Communication B 1 – 8
- Boiler flow sensor
- Aux. boiler sensor
- Boiler cold
- Burner
- Safety chain
- Ext. fault ES
- Flue gas sensor
- Flue gas limit
- Ext. pump 1 – 8
- ECOCAN-BUS receive
- No master
- Bus address conflict
- Address conflict 1 – 4/A
- Incorrect module 1 – 4/A
- Unknown Module 1 – 4/A
- Return sensor
- Inert anode
- External fault input
- Control unit XY
- Unknown fault
- Strategy missing
- Manual mode XX
- Maintenance hours run/date
- Internal fault no. XX

## 22 Fault

Fault	Effect on control characteristics	Possible causes of the fault	Remedy
Outside temperature sensor	<ul style="list-style-type: none"> <li>Minimum outside temperature is assumed.</li> </ul>	<ul style="list-style-type: none"> <li>The outside 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>ZM434 boiler 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 (to control unit with address 1).</li> <li>Check the communication with address 1.</li> <li>Replace outside sensor or ZM434 boiler module.</li> </ul>
Flow sensor 1 – 8	<ul style="list-style-type: none"> <li>The mixer is fully open.</li> </ul>	<ul style="list-style-type: none"> <li>The sensor is incorrectly connected not connected at all or is faulty. If a servomotor/mixer has been selected in the MEC2, the control unit demands the assigned flow sensor.</li> <li>FM441/FM442 module or control unit faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection.</li> <li>If the heating circuit with a fault should be operated as unmixed heating circuit, check on the MEC2/service level/heating circuit, whether servomotor: "NO" was selected.</li> <li>Replace FM441/442 module.</li> </ul>
DHW sensor	<ul style="list-style-type: none"> <li>Heating of domestic hot water is stopped.</li> </ul>	<ul style="list-style-type: none"> <li>The sensor is incorrectly connected not connected at all or is faulty.</li> <li>The FM441 module or control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check sensor connection.</li> <li>Replace the sensor or the FM441 module.</li> <li>Check sensor connection on the DHW cylinder.</li> </ul>
DHW warning	<ul style="list-style-type: none"> <li>The system tries constantly to load the domestic hot water cylinder.</li> </ul>	<ul style="list-style-type: none"> <li>Thermostat/switch is not set to "AUT".</li> <li>Sensor incorrectly connected or faulty.</li> <li>Incorrect sensor arrangement.</li> <li>Primary pump incorrectly connected or faulty.</li> <li>The FM441 module or control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the thermostat or the switch is set to "AUT".</li> <li>Check function of sensor and primary pump.</li> <li>Replace the FM441 module.</li> <li>Check sensor connection on the DHW cylinder.</li> </ul>
DHW stays cold	<ul style="list-style-type: none"> <li>In spite of a further attempt to heat up DHW, the DHW temperature falls below 40 °C.</li> </ul>	<ul style="list-style-type: none"> <li>DHW pump is faulty.</li> <li>FM441 function module faulty.</li> <li>More DHW is removed than newly heated.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the thermostat or the switch is set to "AUT".</li> <li>Check function of sensor and primary pump.</li> <li>Replace the FM441 module.</li> <li>Check sensor connection on the DHW cylinder.</li> </ul>
Thermal Disinfection	<ul style="list-style-type: none"> <li>Thermal disinfection is stopped.</li> </ul>	<ul style="list-style-type: none"> <li>The boiler output is insufficient, for instance, because other heat consumers (heating circuits) demand heat during thermal disinfection.</li> <li>Sensor incorrectly connected or faulty.</li> <li>Primary pump incorrectly connected or faulty.</li> <li>The FM441 module or control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Select thermal disinfection at a time, when no other heat demand is made.</li> <li>Check the sensor and primary pump function and replace, if required.</li> <li>Replace the FM441 module.</li> </ul>
Remote control 1 – 8	<ul style="list-style-type: none"> <li>Because no actual room temperature is available, the effect of the following features are disabled: room influence, start and stop optimisation and automatic adaptation.</li> <li>The control unit works with the last values set on the remote control.</li> </ul>	<ul style="list-style-type: none"> <li>Remote control incorrectly connected or faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check function/connection of remote control. At the same time, check the remote control address.</li> <li>Replace remote control/function module.</li> </ul>

Tab. 5 Fault table

<b>Fault</b>	<b>Effect on control characteristics</b>	<b>Possible causes of the fault</b>	<b>Remedy</b>
Communication B 1 – 8	<ul style="list-style-type: none"> <li>– Because no actual room temperature is available, the effect of the following features are reduced: room influence, start and stop optimisation and automatic adaptation.</li> </ul>	<ul style="list-style-type: none"> <li>– An incorrect address was allocated to the remote control.</li> <li>– The remote control is incorrectly wired up.</li> <li>– The remote control is faulty.</li> <li>– The control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check function/connection of remote control. At the same time, check the remote control address.</li> <li>– Replace remote control/function module.</li> </ul>
Boiler sensor	<ul style="list-style-type: none"> <li>– The boiler is enabled with maximum output.</li> <li>– Emergency operation via thermostat is possible.</li> </ul>	<ul style="list-style-type: none"> <li>– The sensor is not or is incorrectly connected.</li> <li>– The sensor or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check sensor connection.</li> <li>– Replacing the boiler sensor or the ZM434 boiler module.</li> </ul>
Auxiliary boiler sensor	<ul style="list-style-type: none"> <li>– No return temperature control possible.</li> <li>– Mixers are fully open.</li> <li>– Ecostream control is impossible.</li> <li>– Boiler is enabled with maximum output.</li> </ul>	<ul style="list-style-type: none"> <li>– The sensor is incorrectly connected, not connected at all or is faulty.</li> <li>– The ZM434 boiler module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check sensor connection.</li> <li>– Replace the auxiliary boiler sensor or the ZM434 boiler module.</li> </ul>
Boiler cold	<ul style="list-style-type: none"> <li>– The boiler protection (frost and condensation protection) is not safeguarded.</li> <li>– Boiler is enabled with maximum output.</li> </ul>	<ul style="list-style-type: none"> <li>– Thermostat/switch is not set to "AUT".</li> <li>– There is no fuel supply.</li> <li>– Sensors incorrectly arranged.</li> <li>– The boiler sensor is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check whether the thermostat or the switch is set to "AUT".</li> <li>– Check amount of fuel and fuel supply.</li> <li>– Check sensor arrangement.</li> <li>– Replace the boiler sensor.</li> </ul>
Burner	<ul style="list-style-type: none"> <li>– Boiler protection (frost protection) is not safeguarded.</li> <li>– No DHW.</li> </ul>	<ul style="list-style-type: none"> <li>– Burner faulty, resulting in a 230V fault signal at terminal BR 9.</li> <li>– The ZM434 boiler module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Reset the burner as described in the boiler or burner documentation.</li> <li>– Checking the fault signal from the burner at terminal BR 9 (230V signal).</li> <li>– Fault signal: Check the burner function.</li> <li>– No fault signal: Replace the ZM434 boiler module.</li> </ul>
Safety chain	<ul style="list-style-type: none"> <li>– Boiler protection (frost protection) is not safeguarded.</li> </ul>	<ul style="list-style-type: none"> <li>– The STB has responded.</li> <li>– The control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Locate the cause for the high limit safety cut-out responding (possibly check control unit functions), then reset the high limit safety cut-out and press the reset button.</li> <li>– Check whether an external high limit safety cut-out has been connected.</li> </ul>
Ext. fault ES	<ul style="list-style-type: none"> <li>– There are no effects on the control characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>– Fault input of the ZM434 boiler module has been switched.</li> <li>– Externally connected components are faulty or a fault is pending.</li> </ul>	<ul style="list-style-type: none"> <li>– Check the function of the external components and repair or replace them.</li> </ul>
Flue gas sensor	<ul style="list-style-type: none"> <li>– The flue gas limit cannot be found.</li> </ul>	<ul style="list-style-type: none"> <li>– The sensor is not or is incorrectly connected.</li> <li>– The sensor or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check sensor connection.</li> </ul>
Flue gas limit	<ul style="list-style-type: none"> <li>– There are no effects on the control characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>– The boiler is contaminated with soot.</li> <li>– The flue gas sensor is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– The boiler must be cleaned.</li> <li>– Check the sensor connection and function.</li> </ul>
Ext. pump 1 – 8	<ul style="list-style-type: none"> <li>– There are no effects on the control characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>– Fault input WF 1/2 of the FM441/FM442 function module was opened.</li> <li>– Externally connected heating circuit pump is faulty or a fault is pending.</li> </ul>	<ul style="list-style-type: none"> <li>– Check the function of connected heating circuit pump.</li> <li>– Replacing the relevant module.</li> </ul>

Tab. 5 Fault table

Fault	Effect on control characteristics	Possible causes of the fault	Remedy
ECOCAN-BUS Reception	– No effect on the control characteristics.	<ul style="list-style-type: none"> <li>– The rotary encoder behind MEC2 in the CM431 controller module of the control unit has an incorrect address.</li> <li>– Fault example: System with a control unit and rotary encoder position &gt; 0.</li> </ul>	<ul style="list-style-type: none"> <li>– Check the position of the rotary encoder:</li> <li>– Position 0: Only 1 BUS subscriber present.</li> <li>– Position 1: Master control unit (other BUS subscriber is expected).</li> <li>– Position &gt; 0: Additional BUS subscribers.</li> </ul>
No master	<ul style="list-style-type: none"> <li>– Boiler protection is not guaranteed.</li> <li>– DHW priority is no longer possible.</li> <li>– Minimum outside temperature is expected.</li> </ul>	<ul style="list-style-type: none"> <li>– The master control unit (address 1) is switched OFF or no master (address 1) is available.</li> </ul>	<ul style="list-style-type: none"> <li>– Checking the addresses of all BUS subscribers. Address 1 must be allocated to the master control unit (rotary encoder behind the MEC2 in the CM431 of the control unit).</li> <li>– Checking the BUS connection to address 1.</li> </ul>
Conflicting BUS addresses	<ul style="list-style-type: none"> <li>– BUS communication is impossible.</li> <li>– All control functions requiring data exchange via the CAN-BUS can no longer be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>– Multiple identical addresses are present.</li> <li>– Each address must only be allocated once in the CAN-BUS network.</li> </ul>	<ul style="list-style-type: none"> <li>– Checking the addresses of all BUS subscribers (rotary encoder behind MEC2 in CM431 of the control unit).</li> </ul>
Address conflict 1 – 4/A	<ul style="list-style-type: none"> <li>– Functions of the module where the address conflict occurs cannot be executed. However, communication of all other modules and control units via the CAN-BUS is still possible.</li> </ul>	<ul style="list-style-type: none"> <li>– The module has been plugged into the wrong slot/control unit: Some modules can only be operated at specified CAN addresses.</li> <li>– Install the strategy module only into the master control unit with address 1.</li> <li>– The ZM434 boiler module must not have an address &gt; 3).</li> </ul>	<ul style="list-style-type: none"> <li>– Check module arrangement.</li> </ul>
Incorrect module 1 – 4/A	<ul style="list-style-type: none"> <li>– The module switches all outputs OFF and the corresponding error LED ON.</li> </ul>	<ul style="list-style-type: none"> <li>– Incorrect module default in MEC2.</li> <li>– An incorrect module is installed in the control unit.</li> <li>– The MEC2, the corresponding module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Checking module defaults at the MEC2 service level.</li> <li>– Checking the modules installed in the control unit.</li> <li>– Replace the MEC2/module.</li> </ul>
Unknown module 1 – 4/A	<ul style="list-style-type: none"> <li>– The module switches all outputs OFF and the corresponding error LED ON.</li> </ul>	<ul style="list-style-type: none"> <li>– The controller software is too old to use this module.</li> <li>– The module or control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check the control unit version at the MEC2.</li> <li>– Replace the module.</li> </ul>
Return sensor	<ul style="list-style-type: none"> <li>– No return temperature control possible.</li> </ul>	<ul style="list-style-type: none"> <li>– The sensor is incorrectly connected, not connected at all or is faulty.</li> <li>– The sensor or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Check sensor connection.</li> </ul>
Inert anode	<ul style="list-style-type: none"> <li>– No effects</li> </ul>	<ul style="list-style-type: none"> <li>– Voltage is present at the external input WF 1/2.</li> <li>– The module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Replace the inert anode.</li> <li>– Replace the FM441 module in the control unit.</li> </ul>
External fault input	<ul style="list-style-type: none"> <li>– No effects</li> </ul>	<ul style="list-style-type: none"> <li>– Voltage is present at the external input WF 1/2.</li> <li>– The module or the control unit is faulty.</li> </ul>	<ul style="list-style-type: none"> <li>– Checking the function of external components (DHW cylinder primary or DHW circulation pump) and their repair/replacement.</li> </ul>
Control unit XY			<ul style="list-style-type: none"> <li>– Fit the MEC2 to the control unit with the stated address. The fault will be displayed in detail.</li> </ul>

Tab. 5 Fault table

Fault	Effect on control characteristics	Possible causes of the fault	Remedy
Unknown fault	<ul style="list-style-type: none"> <li>– Subject to the type of error.</li> <li>– The MEC cannot recognise the error.</li> </ul>	<ul style="list-style-type: none"> <li>– New control unit or controller module replaced, but older MEC version.</li> </ul>	<ul style="list-style-type: none"> <li>– Check version.</li> <li>– Where necessary, use a newer version of MEC2.</li> </ul>
Strategy missing	<ul style="list-style-type: none"> <li>– Boiler 1 is started. All other boilers remain OFF.</li> </ul>	<ul style="list-style-type: none"> <li>– Several boiler control units are connected via the ECOCAN-BUS.</li> <li>– The strategy module is missing or was not recognised.</li> </ul>	<ul style="list-style-type: none"> <li>– Install the strategy module into the control unit with address 1.</li> </ul>
Manual mode XX	<ul style="list-style-type: none"> <li>– Controller operates in manual mode.</li> </ul>	<ul style="list-style-type: none"> <li>– Perhaps a function module switch has not been set to "AUT".</li> </ul>	<ul style="list-style-type: none"> <li>– Set the corresponding function module switch to "AUT".</li> </ul>
Maintenance Hours run/date	<ul style="list-style-type: none"> <li>– No influence on control characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>– The specified period before the next maintenance has expired.</li> </ul>	<ul style="list-style-type: none"> <li>– Perform maintenance and then reset maintenance message.</li> </ul>
Internal fault no. XX	<ul style="list-style-type: none"> <li>– Information may be lost.</li> </ul>	<ul style="list-style-type: none"> <li>– There may be a short-term data jam. This will, however, be remedied in a few minutes.</li> <li>– There is an EMC fault.</li> <li>– The control unit is faulty.</li> </ul>	<p>If this fault remains active for longer periods or recurs frequently:</p> <ul style="list-style-type: none"> <li>– the module or the control unit is faulty and must be replaced or</li> <li>– there is an EMC fault which must be removed.</li> </ul>

Tab. 5 Fault table

## 23 Monitor data

Using the "Monitor" menu you can display the set and actual values. The menus described in these instructions relate exclusively to the Logamatic 4321/4322 control unit and the most commonly used FM441 and FM442 modules.

Some display values are separated by a slash. The number in front of the slash determines the set value of each respective parameter and the figure behind the slash is the actual value.

You can display data for the following components (if installed):

- Boiler
- Heating circuits
- DHW
- Monitoring data of other installed modules

### 23.1 Boiler monitoring data

The monitoring screens are subject to the settings made.

Using the monitor menu "Boiler" you can display the boiler data.

Call up the service level. "Gen. parameters" is shown as the first main menu.

Turn the rotary selector until the main menu "Monitor" appears.

The display shows the selected main menu.

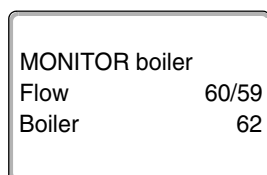
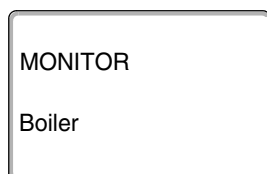
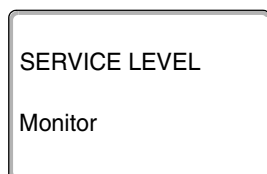
Press the "Display" button.

The display first shows the submenu "Boiler".

Turn the rotary selector until the required submenu appears (eg.: "Flow 60/59").

The display shows the selected submenu.

Press the "Display" button.



BOILER MONITOR			
Outside		10	
Adjusted		12	
Flue gas 0	Max 0		



Boiler data are shown on the display

The "Adjusted" value describes the outside temperature, taking the specified type of building into consideration, with which the heating curves were calculated.

Turn the rotary selector to scroll through additional boiler monitoring data.

BOILER MONITOR			
Burner		OFF	
Output		0%	

Burner control data are shown on the display.

Burner status: ON/OFF  
currently demanded output (in %)

BOILER MONITOR			
Boiler pump		OFF	
mixer		0%	

**Example: maint. message according to hours run (or according to date)**

The maintenance message will appear in the display.

BOILER MONITOR			
maint. message			
after		6000 h	
expired		2100 h	



Press "Back" to return to the next higher level.

## 23.2 Heating circuit monitoring data

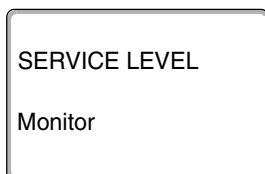
Using the monitor menu "Heating circ." you can display the data for one heating circuit.



Call up the service level. "Gen. parameters" is shown as the first main menu.



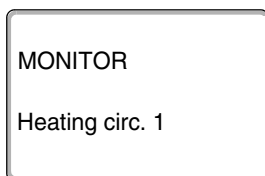
Turn the rotary selector until the main menu "Monitor" appears.



The display shows the selected main menu.



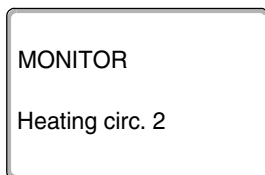
Press "Display" to call up a submenu (eg.: "Heating circ. 1").



The display shows the selected submenu.



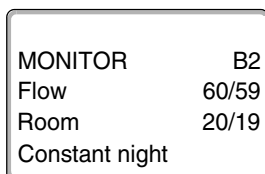
Turn the rotary selector until the submenu "Heat circ 2" appears.



The display shows the selected submenu.



Press the "Display" button.



The set and the actual value for the **flow and room temperature** 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 selector to scroll through the heating circuit monitoring data.

MONITOR	B2
Design adaptor	75
ON opt.	15min
OFF opt.	30min

### Design temperature adaptation

This value displays the design temperature calculated by adaptation.

### Switch-ON 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 switching time.

### Switch-OFF optimisation

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

Turn the rotary selector to scroll through the heating circuit monitor data.



MONITOR	B2
mixer	50%
Circ. pump	OFF

### Servomotor

Indicates the calculated regulating pulse in percent.

Example:

- 0 % = no control command
- 50 % = actuator is commanded in a cycle of 10 seconds for 5 seconds in the direction "Mixer opens" (hotter).
- -100 % = servomotor is controlled every 10 seconds for 10 seconds towards "Mixer close" (colder) (constant).

### Circ. pump

Indicates the operating condition of the circulation pump.



Press "Back" to return to the next higher level.

## 23.3 DHW monitoring data

Using the Monitor menu "DHW" you can display the data relating to the DHW settings.

The displays depend on the settings selected under the "DHW" function.



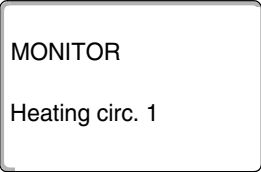
Call up the service level. "Gen. parameters" is shown as the first main menu.



Turn the rotary selector until the main menu "Monitor" appears.



Press "Display" to call up a submenu (eg.: "Heating circ. 1").

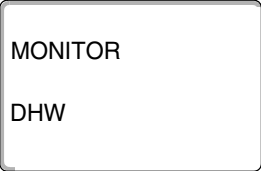


MONITOR  
Heating circ. 1

The display shows the selected submenu.



Turn the rotary selector until the submenu "DHW" appears.

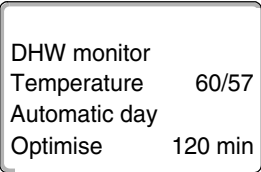


MONITOR  
DHW

The display shows the selected submenu.



Press the "Display" button.



DHW monitor  
Temperature 60/57  
Automatic day  
Optimise 120 min

The calculated set value and the actual value for the **DHW temperature** are displayed.

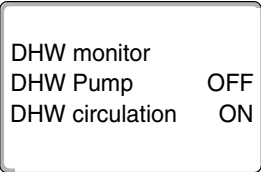
#### Possible operating modes:

- Off
- Constant operat
- Automatic night
- Automatic day
- Holiday
- Optimisation
- Thermal disinfection
- Reheating
- Daily heat-up

#### Optimise

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

Rotate selector to scroll through the DHW monitoring data.

DHW monitor  
DHW Pump OFF  
DHW circulation ON

#### DHW Pump

Indicates the operating condition of the DHW cylinder loading pump.

#### DHW circulation

Indicates the operating condition of the DHW circulation pump.



Press "Back" to return to the next higher level.



Turn the rotary selector to scroll through the substation monitoring data.

## 24 Display version

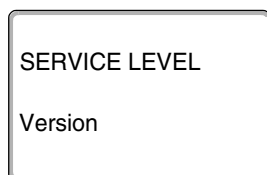
Using the "Version" menu you can display MEC2 programming unit version as well as that of the selected control unit.



Call up the service level. "Gen. parameters" is shown as the first main menu.



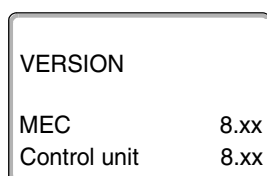
Turn the rotary selector until the main menu "Version" appears.



The display shows the selected main menu.



Press "Display" to call up a submenu.



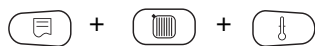
The version no. for the MEC2 programming unit and the control unit are displayed.



Press "Back" to return to the next higher level.

## 25 Selecting the control unit

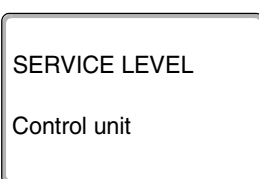
With the "Control unit" menu you can select a control unit, if the **MEC2** is operated "**offline**", i.e. without connected control unit or with a separate power supply unit.



Call up the service level. "Gen. parameters" is shown as the first main menu.



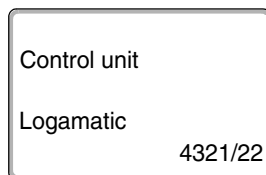
Turn the rotary selector until the main menu "Control unit" appears.



The display shows the selected main menu.



Press "Display" to call up a submenu (eg.: "Logamatic 4321/22").



The display shows the selected submenu.

## 26 Reset

With the "Reset" menu you can change all settings of the operator or service level to the factory settings.

### Possible resets:

- Control unit settings  
All settings of the operator or service level are reset to the factory settings.  
Exception: The time switch program is retained.
- Burner hours run  
The hours run by the burner and the number of burner starts are returned to 0.  
If the burner type was selected to be "2x single stage", both hours run and burner starts can be reset to 0 for both burners together or for each burner individually.
- Fault log  
All faults stored in the fault log are deleted.
- Maximum flue gas temperature  
This reset will only appear if a limit was set as maximum flue gas temperature.  
The maximum flue gas temperature is reset to the current flue gas temperature.  
The fault message "Flue gas limit" (maximum flue gas temperature exceeded) will only be deleted if the current flue gas temperature lies below the flue gas temperature limit.
- Heat yield  
This reset will only appear if a heat yield is to be captured.  
All heat yields captured at that time (day, week and annual values) will be deleted.
- Maintenance message  
This reset will only be shown if a maintenance message was triggered.  
This reset deletes the maintenance message or starts the next maintenance interval.

After maintenance is completed, the maintenance message must be reset. This restarts the maintenance interval.

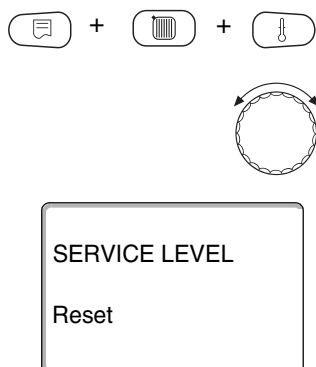
Note that with maintenance messages set according to date, the next maintenance date will be fixed one year into the future.

### Example: Reset fault log

Call up the service level. "Gen. parameters" is shown as the first main menu.

Turn the rotary selector until the main menu "Reset" appears.

The display shows the selected main menu.





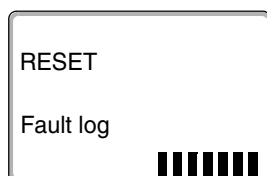
Briefly press "Display" to call up a submenu (eg.: "Factory settings Control unit"). All settings may be lost if you press too long.

The display shows the selected submenu.



Turn the rotary selector until "Fault log" appears.

The display shows the selected submenu.



Press and hold "Display".

The blocks in the last line disappear one after the other. The fault log will only be reset when all the blocks have disappeared. The reset operation will be terminated if you release the button before all the blocks have disappeared. After implementing a reset, the display automatically reverts to the next higher level.



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



## Sensing range

Sensor		lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FV	Flow temp. B	< -5	0	99	> 125
FB	DHW temp.	< -7	0	99	> 125

Tab. 9 Sensing range

## 27.3 FM442 function module

Operating voltage (at 50 Hz $\pm 4$ %)	V	230 $\pm 10$ %
Power consumption	VA	2
Maximum switching current	A	5
Output – heating circuit pump		
Heating circuit servomotor control	V	230
Servomotor runtime	s	120 (adjustable 10 – 600)

Tab. 10 Specification for FM442 function module

## Sensing range

Sensor		lower fault limit in °C	smallest display value in °C	highest display value in °C	upper fault limit in °C
FV1	Flow temp. B l.h.	< -5	0	99	125
FV2	Flow temp. B r.h.	< -5	0	99	125

Tab. 11 Sensing range



## 28 Typical sensor curves

- Isolate the heating system before taking any readings.

You can check using the diagram, whether temperature and resistance correlate.

### Fault test (without room temperature sensor)

- Remove the sensor terminals.
- Check the resistance at the sensor cable ends using an Ohmmeter.
- Check the sensor temperature with a thermometer.



#### USER INFORMATION

For all curves, the sensor tolerance is up to 3 %/25 °C

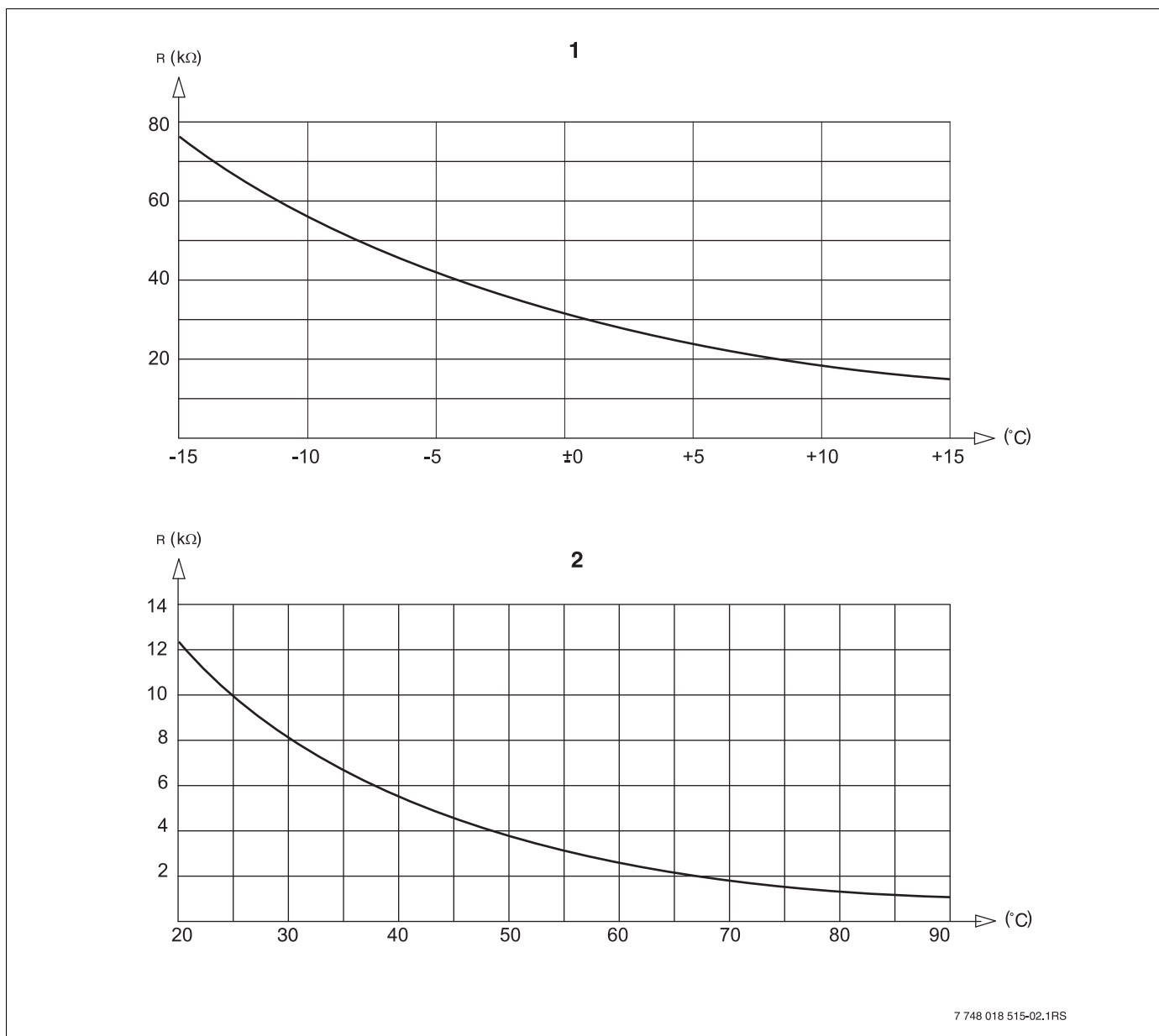
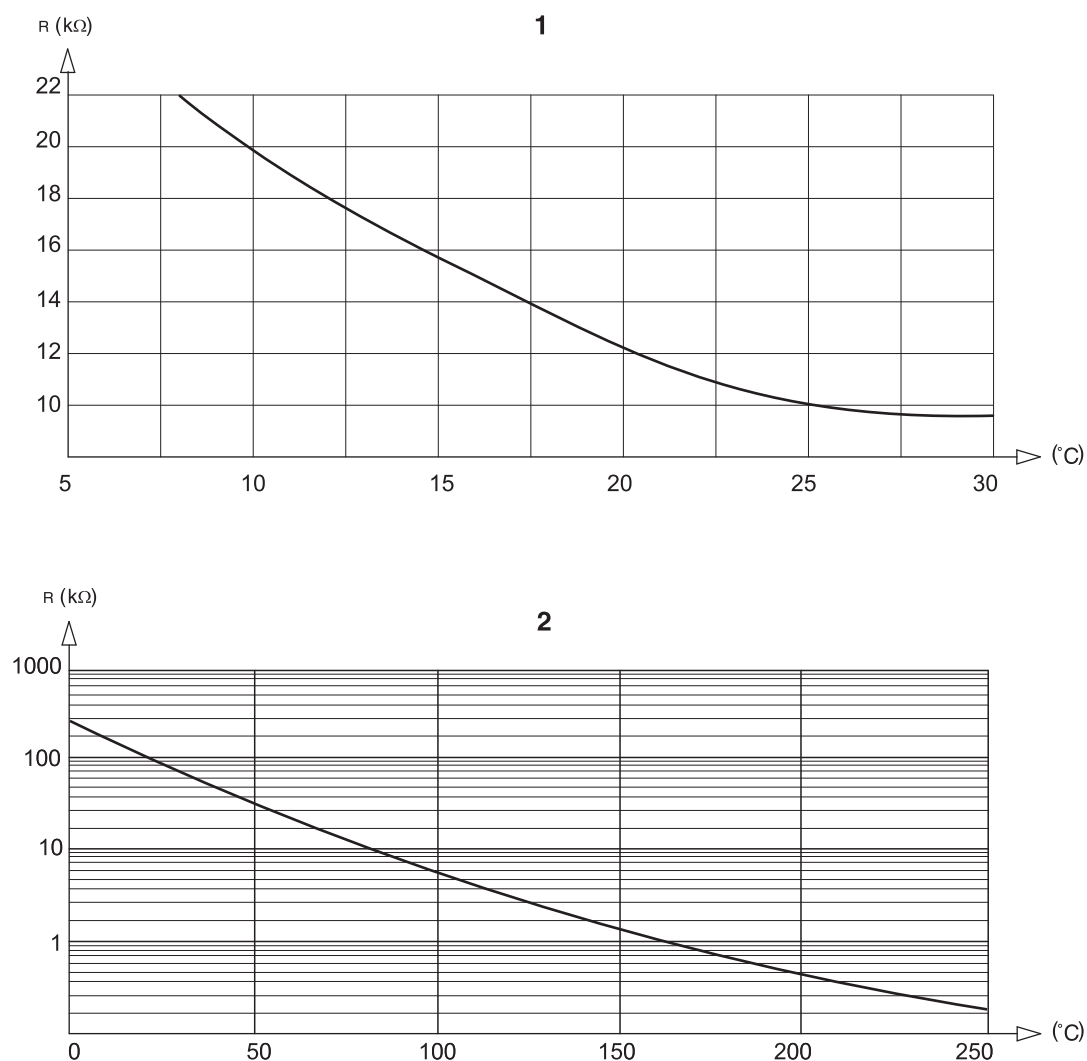


Fig. 24 Outside temperature sensor and boiler water, flow, DHW temperature sensors

- 1 Outside temperature sensor curve
- 2 Boiler water, flow, DHW, auxiliary temperature sensor curve



7 747 012 074-05.1RS

Fig. 25 Room temperature and flue gas temperature sensors

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

## 29 Setting specific boiler data

Assignment of boiler type to the corresponding Buderus boiler. You can adjust the boiler type on the service level under boiler parameters (→ Chapter 14).

- **Low temperature:**

to be activated for boiler series

Logano G125 ECO, G144 ECO, G215, S125 ECO

Logano G234, G334

Logano S325

- **LT/minimum return temperature:**

to be activated for boiler series

Logano SK425<sup>4)</sup>, SK635<sup>4)</sup>, SK735<sup>4)</sup>

- **Condensing:**

to be activated for boiler series:

Logano plus SB315, SB615, SB735

- **Ecostream:**

to be activated for boiler series

Logano GE315 <sup>1) 3)</sup>, GE515 <sup>1)</sup>, GE615 <sup>1)</sup>

Logano SE425 <sup>1) 3)</sup>, SE635 <sup>1)</sup>, SE735 <sup>1)</sup>

Logano GE434 <sup>2)</sup>, GB434



### USER INFORMATION

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

Logano plus GE315 <sup>1) 3)</sup>, GE515 <sup>1)</sup>, GE615 <sup>1)</sup>

Logano plus SE635 <sup>1)</sup>, SE735 <sup>1)</sup>

Logano plus GB434 <sup>2)</sup>

<sup>1)</sup> Operating flow temperature control via heating circuit actuators or separate boiler circuit servomotor.

<sup>2)</sup> Operating flow temperature control via external control unit.

<sup>3)</sup> Subject to hydraulic connection.

- **LT/base point temperature:**

to be activated for boiler series

Logano SK425<sup>4)</sup>, SK635<sup>4)</sup>, SK735 <sup>4)</sup>

for raised minimum boiler water temperatures

<sup>4)</sup> Minimum boiler water temperature control via heating circuit actuators or a separate boiler circuit servomotor.

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