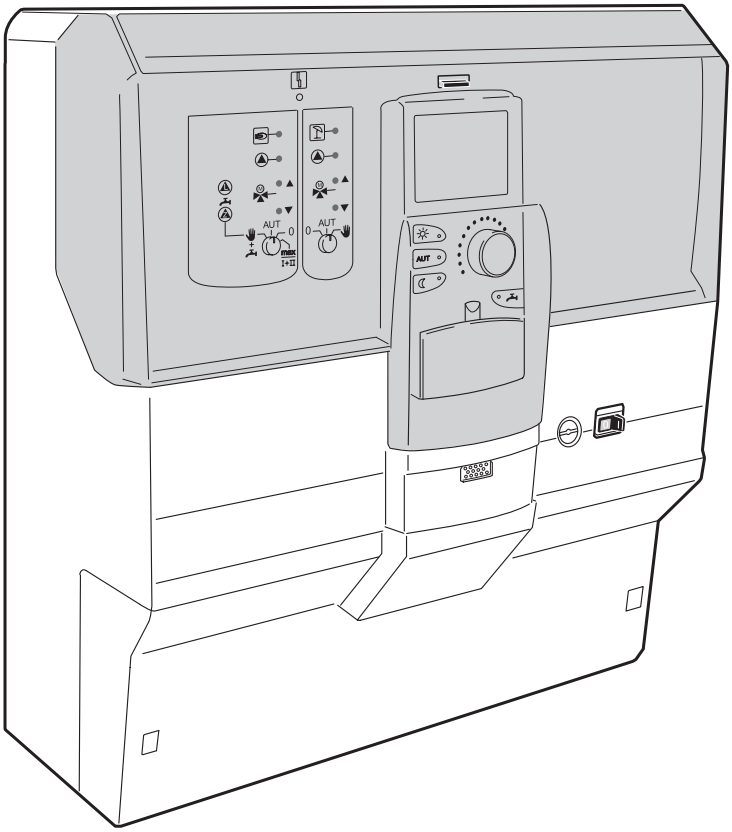
Service instructions

Logamatic 4121, 4122 and 4126 control unit



Buderus

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1 Safety

1.1 About this manual

These service instructions contain important information on the safe and appropriate commissioning and servicing of the Logamatic 4121, 4122 and 4126 control panels.

These service instructions are designed for installers who, due to their training and experience, are familiar with heating systems and water installations. Only carry out this service work if you possess these skills.

- Explain to the customer the function and operation of the related units.

1.2 Correct use

The Logamatic 4121, 4122 and 4126 control panels are only intended to control heating systems in houses, larger houses, apartments and commercial properties.

1.3 Please observe these notes

- Only operate the control panels as intended and only if they are in perfect working order.
- Carefully read these service instructions before commencing any work on the control panel.

WARNING!

RISK TO LIFE

from electric shock.

- Make sure that any electrical work is only carried out by authorised, trained personnel.
- Before opening the control panel: Isolate all poles of the control panel and secure against unauthorised re-connection.

CAUTION!

SYSTEM DAMAGE

through frost.

The heating system can freeze up in cold weather if it has been switched off.

- Protect your heating system against freezing by draining the heating system and domestic hot water (DHW) pipework at the lowest possible point.

USER NOTE

Make sure that you have isolated the mains power supply by switching the mains off.

USER NOTE

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

CE This unit meets all requirements of relevant European standards directives and guidelines.

Its conformity has been verified. All associated documents and the original Declaration of Conformity are available from the manufacturer.

1.4 Important notes on commissioning

- Before switching the control unit ON, check that its manual switches and those on the function modules are set to AUT (automatic).
- A setting record is provided as an information base for the system user in the operating instructions of the control panel. During commissioning, make a note in this record of all settings and heating circuit selected.

Switching ON: First switch ON the control panel and then the boiler.

Switching OFF: First switch OFF the boiler and then the control panel.

- Please ensure that the heat is transferred from the heat exchanger, otherwise the boiler will switch OFF and generate an error condition.

1.5 Cleaning the control

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

1.6 Disposal

- Dispose of the control panel packaging in an environmentally responsible manner.
- Dispose of old control panels in an environmentally responsible manner through an approved organisation. When disposing of the panel, remove the lithium battery (which is on the CM431 module) from the control panel and dispose of separately. This should be removed by your installer.

2 Setting parameters and display data

Some options are only displayed with certain modules and depending on prior settings.

- **General data**
  - Min outdoor temp.
  - Type of building
  - Clock ac.
  - Remote adjustment
  - Manual control fault message
  - Automatic maintenance message
- **Module selection**
  - Pos. A
  - Pos. 1
  - Pos. 2
- **Boiler data**
  - Number of boilers
  - Hydraulic
  - External heat source
  - Boiler type
  - Boiler output
  - Max. boiler temp.
  - Cascade mode (in service or parallel)
- **Heating circ 1**
  - Heating system
  - "Heat circ desc."
  - Base point temperature
  - Design temperature
  - Min. flow temp.
  - Max. flow temp.
  - Remote control
  - Max. room influence
  - Setback type
  - Outdoor temperature
  - Flow temp reduction
  - Room temperature offset
  - Automatic correction
  - Switching optimisation
  - Frost prot from
  - DHW priority
  - Valve
  - Valve running time
  - Increasing boil. temp.
  - External day/night/auto
  - Scree drying (underfloor heating)
  - Cement temperature rise
  - Cement heat-up time
  - Max. cement temp.
  - Cement temp. holding time
  - Cement setback temperature
  - Cement setback time
- **Heating circ. 2, see Heating circ. 1**
- **DHW**
  - DHW
  - Range in Deg
  - Switching optimisation
  - Rest heat use
  - Hysteresis
  - Switch-OFF hysteresis
  - Switch-ON hysteresis
  - LAP primary
  - Boiler increase
  - External fault message WF1/2
  - External contact WF1/3
  - Thermal disinfection
  - Disinfection temperature
  - Disinfection weekday
  - Disinfection time
  - DHW circulation pump
  - DHW circulat per hour
  - Circulation off during DHW loading
- **Heating curves**
  - Heating circ 1
  - Heating circ 2
- **Relay test**
  - Heating circ 1
  - Heating circ 2
  - DHW
  - Cascade
- **LCD test**
- **Error**
- **Monitor**
  - Low loss header
  - Boiler 1
  - Heating circ 1
  - Heating circ 2
  - DHW
- **Version**
- **Control panel**
- **Reset**
  - Control unit settings
  - Error
  - Consumption usage
  - Maintenance message

Fig. 1 Parameters and display data

3 Logamatic 412x control unit – controls

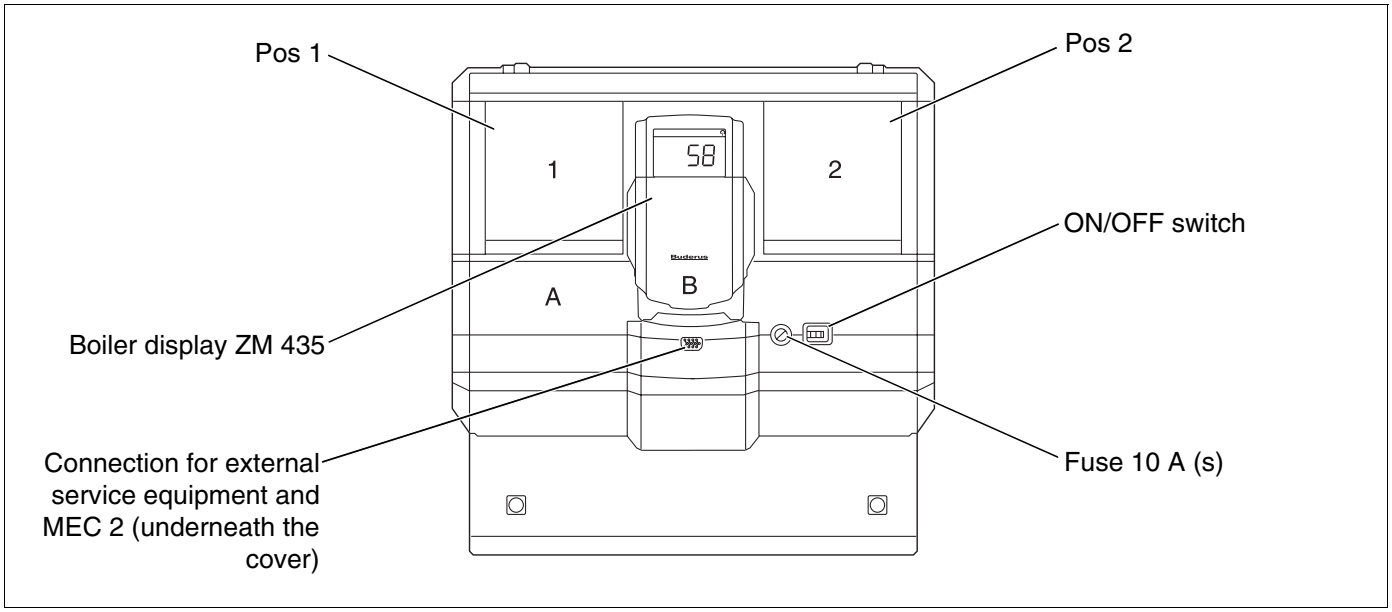


Fig. 2 Controls (Logamatic 4122 as example)

USER NOTE

The Logamatic 4122 control unit can also be supplied with the MEC 2.

USER NOTE

The system flow temperature is displayed on the boiler display.

Example of inserted modules

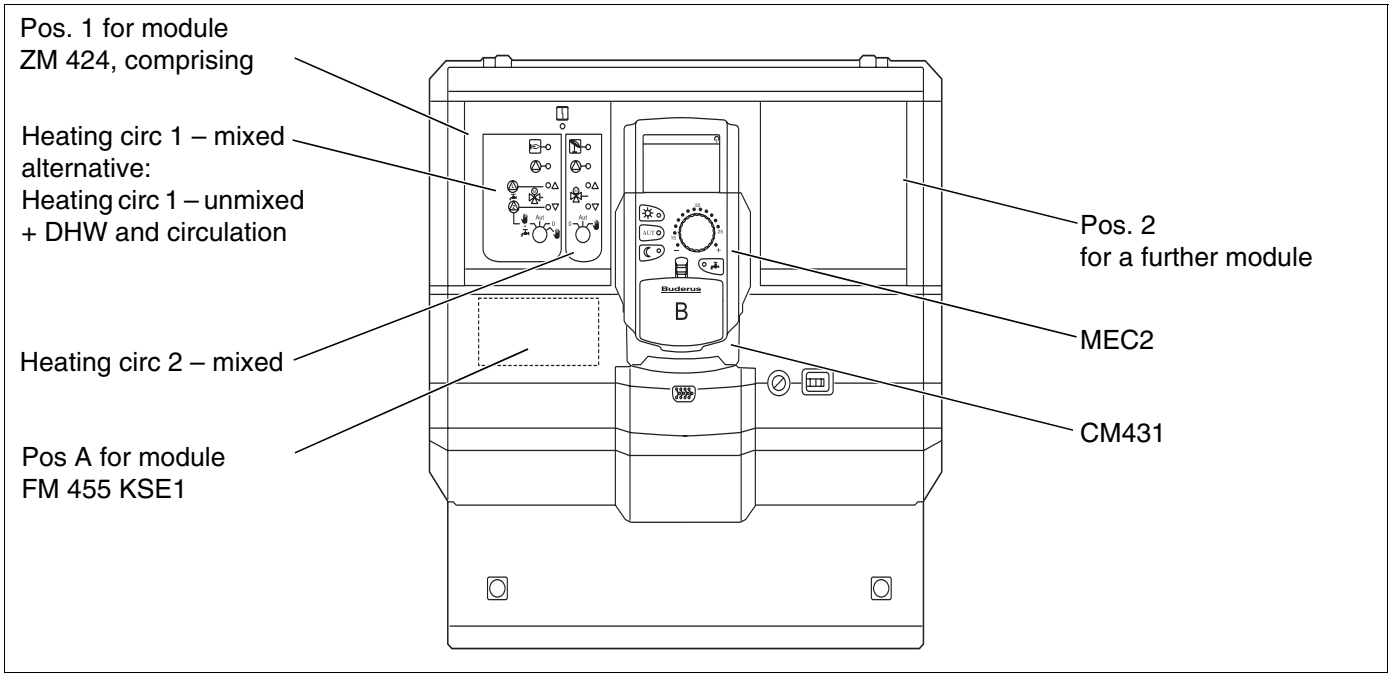


Fig. 3 Inserted modules (Logamatic 4121 as example)

4 Modules and their functions

All modules which are or can be fitted into your Logamatic 41xx control unit are shown here.

Module	Logamatic		
	4121	4122	4126
MEC 2 programming unit	O	●	O
Boiler display ZM 435	X	●	X
Controller module CM 431	O	O	O
Central module ZM 424 2 heating circuits + 1 DHW circuit	O	–	–
Function module FM 441 1 heating circuit + 1 DHW circuit	–	X	–
Function module FM 442 2 heating circuits	X	X	–
Function module FM 443 Solar heating circuit*	X	X	–
Function module FM 445 LAP/LSP (loading system)*	X	X	O
Function module FM 446 Interface EIB*	X	X	X
Function module FM 448 Central fault message	X	X	X
Function module FM 455 KSE 1 (only with ZM 424)*	O	–	–
Function module FM 456 KSE 2 (cascade - 2 boilers)	X	X	X
Function module FM 457 KSE 4 (cascade – 4 boilers)	X	X	X

Tab. 1 Modules and their functions

O = Basic equipment

● = Subject to version, either a MEC 2 or a boiler display ZM 435 may be fitted as standard equipment.

X = Optional equipment

– = Combination not possible

** Not currently available in the UK and Eire.*

USER NOTE

The menus displayed on the MEC 2 depend on which modules are fitted and on their respective settings.

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

The FM 443, FM 446 and FM 448 technical modules are described separately in the respective module documentation.

Module CM 431

Setting the control unit address for cascade systems

You can set the address on the Logamatic control unit behind the MEC 2 on module CM 431.

- Remove the MEC 2.
- Set the address number with a screwdriver. Each address must only be used once. A fault message is displayed if the same address is set more than once.

– 1 control unit
setting: factory setting = address 0

– 2 control units
setting for control unit 1: address 1
Module ZM 424 or FM 456 / FM 457 must be fitted into control unit 1 (master).
setting for control unit 2: address 2 (substation)

– 3 control units
setting for control unit 1: address 1
Module ZM 424 or FM 456 / FM 457 must be fitted into control unit 1 (master).
setting for control unit 2: address 2 (substation)
setting for control unit 3: address 3 (substation)

– Maximum settings: 15 addresses

USER NOTE

The boiler must be controlled by the control unit with address 1.

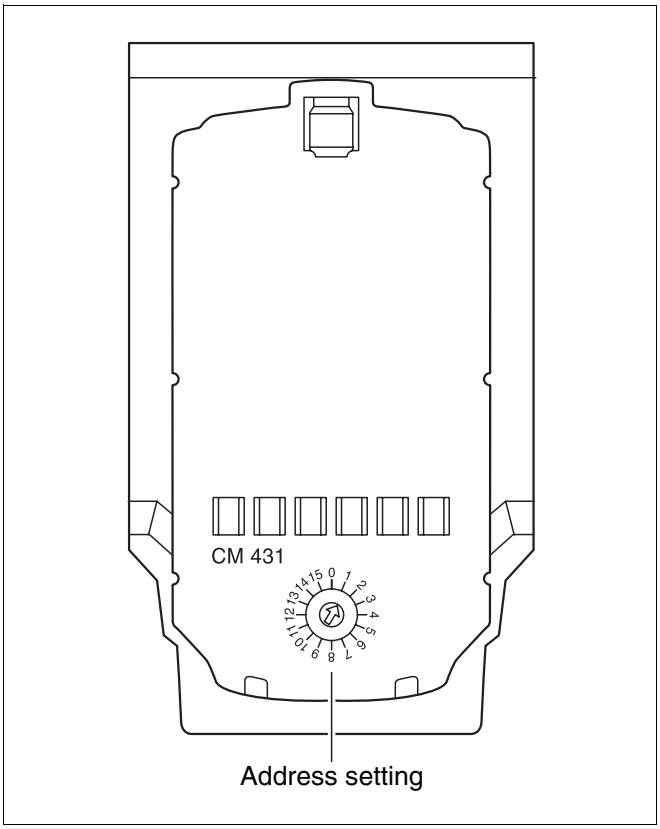


Fig. 4 Setting an address

Control units networked by an ECOCAN BUS.

There must only be one master control unit (lead control unit) if several control units are operated in an ECOCAN BUS network. All other networked control units are slaves.

Master (lead control unit)

The master control unit always controls the boiler, in other words, this control unit is always equipped with the boiler modules (ZM 424, FM 455, FM 456 or FM 457).

Set the master to control unit address 1.

Always connect the outdoor sensor to the master control unit. The master control monitors the ECOCAN BUS. It recognises, for example, if one address is allocated more than once. The master control unit collects the settings for all of control units in the network and creates an overall setting.

Slaves (subordinate control units)

All other controls in the ECOCAN BUS network are slaves (subordinate control units). None may ever have address 1. The slave control must all have different addresses > 1.

Each address must only be allocated once.

Shutting down the control units

WARNING!

CAUTION High Voltage!

Make sure that you have isolated the mains power supply by switching the mains off.

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

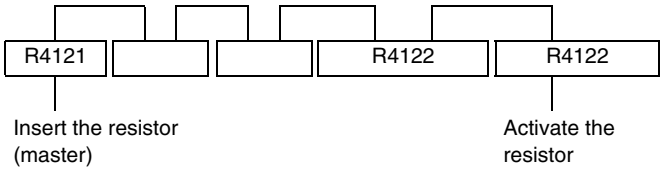
In the case of several controls being used, fit the resistor in both controls at the extremities of the chain.

The resistor is located at the rear of the power supply module NM 482 and is switched ON with a gravity switch.

The factory setting is:

gravity switch S1 open = resistor not fitted.

Resistor example on substations



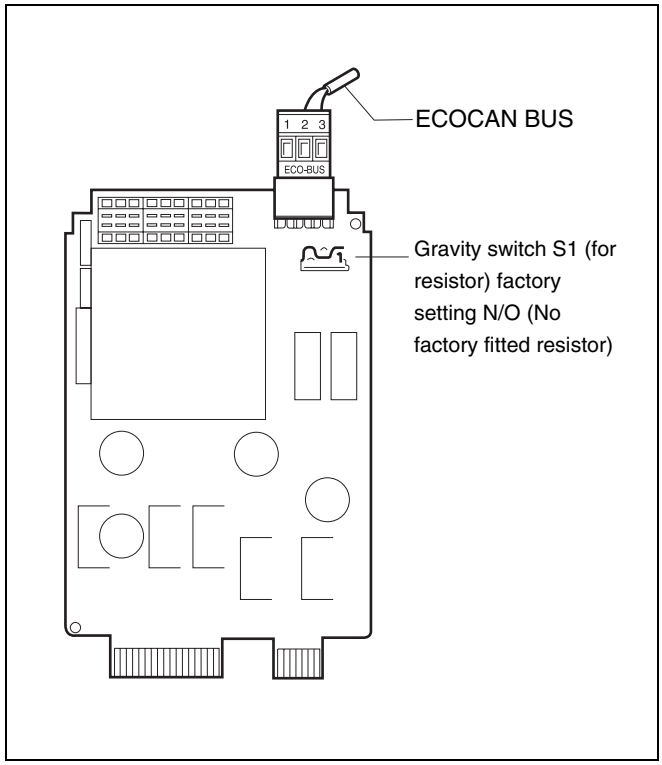


Fig. 5 Installing the resistor

Central module ZM 424

The module ZM 424, together with module FM 455 is part of the basic equipment of the **Logamatic 4121 control unit.**

Module ZM 424 must always be positioned in the l.h. slot 1. Module FM 455 must always be positioned below the ZM 424 in slot A.

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

If the manual switches are not set to Auto, a corresponding message appears on the MEC 2 and the fault indicator illuminates.

Use the holiday function for this purpose (see operating instructions for Logamatic 4121, 4122 and 4126).

The control functions continue to operate in manual mode.

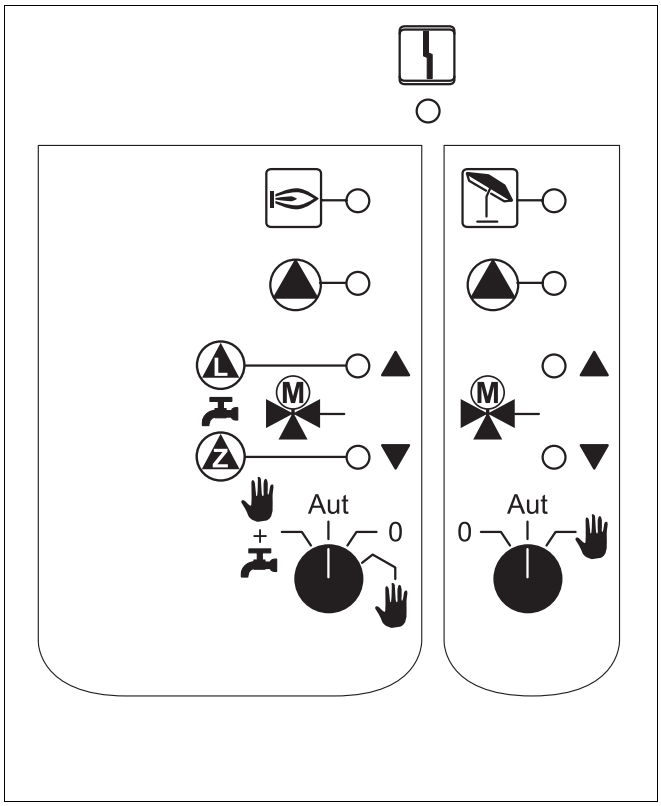


Fig. 6 ZM424

Display		General fault, e.g. site error, sensor error, external faults, internal wiring fault module error, manual mode. The fault messages appear as plain text in the MEC 2.

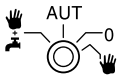
Indicators for the following functions:

Display		Operational burner
Display	▲	"3 way mixing valve opens" (hotter)
Display	▼	"3 way mixing valve closes" (colder)
Display		Heating 2 circuit in summer mode
Display		Heating circuit pump operational
Display		DHW Cylinder load pump active
Display		DHW circulation pump active

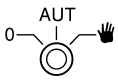
Heating circuit and hot water function

Manual switch heating circuit and DHW

for heating circuit 1:



for heating circuit 2:



USER NOTE

In standard mode, set the manual switch to "AUT".

The positions **0** and **manual** (✋) are special settings reserved for installer only.

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

AUT The central heating or the Domestic hot water (DHW) circuit operates in automatic mode.

0 The heating circuit pump or the DHW cylinder load pump as well as the DHW circulation pump are switched OFF.
The mixing valve is switched volt-free.
The control functions continue to operate.

✋+🚿 The heating circuit pump and the load pump are switched ON if "4000 cylinder" has been set in the "DHW" menu (see page 86).

Current functions are indicated by LED's.

Function module FM 441

The module FM 441 controls a heating circuit and a DHW supply.

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

Only fit this module into the Logamatic 4122 control unit.

If the manual switches are not set to Auto, a corresponding message appears on the MEC 2 and the fault indicator ϟ illuminates.

Never use the manual switches to switch OFF the system when you have to temporarily leave the installation.

Use the holiday function for this purpose (see operating instructions for Logamatic 4121, 4122 and 4126).

The control functions continue to operate in manual mode.

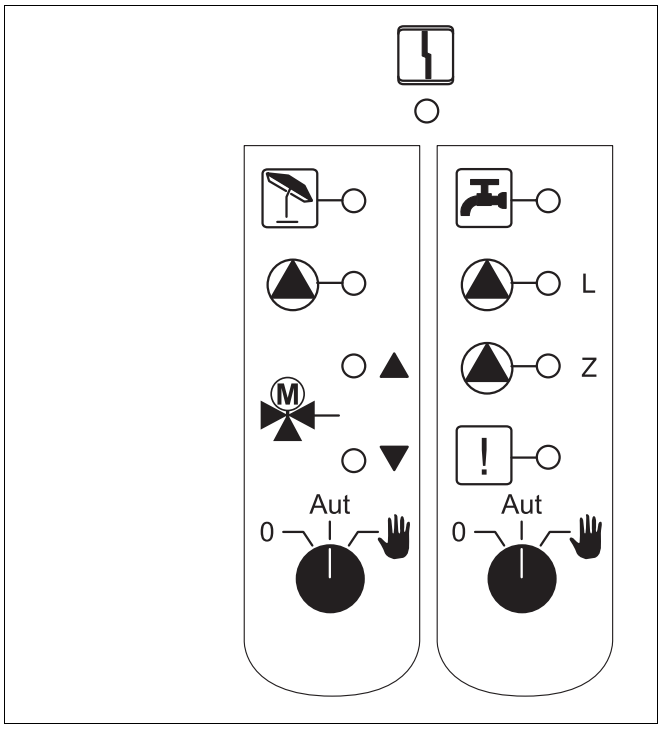


Fig. 7 FM441

Display	ϟ	General fault, e.g. site error, sensor error, external faults, internal wiring fault module error, manual mode. The fault messages appear as plain text in the MEC 2.

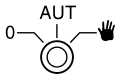
Indicators for the following functions:

Display	▲	"3 way mixing valve opens" (hotter)
Display	▼	"3 way mixing valve closes" (colder)
Display		Heating circuit in summer mode
Display		DHW is/remains below the set temperature in setback night mode
Display		Heating circuit pump operational
Display	– L	DHW Cylinder load pump active
Display	– Z	DHW circulation pump active
Display	!	Thermal disinfection

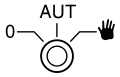
Heating circuit and hot water function

Manual switch heating circuit and DHW

for heating circuit 1:



for DHW flow:



USER NOTE

In standard mode, set the manual switch to "AUT".

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

✋ The heating circuit pump or the DHW cylinder load pump will be switched ON.
The mixing valve is switched volt-free and can be manually operated.

AUT The central heating or the DHW circuit operates in automatic mode.

0 Only the heating circuit pump or the DHW cylinder load pump, as well as the DHW circulation pump are switched OFF.
The mixing valve is switched volt-free.
The control functions continue to operate.

Current functions are indicated by LED's.

Function module FM 442

The module FM 442 controls two independent heating circuits with valve.

Two modules of this type can be utilised in one control unit.

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

If the manual switches are not set to Auto, a corresponding message appears on the MEC 2 and the fault indicator illuminates.

Never use the manual switches to switch OFF the system when you have to temporarily leave the installation.

Use the holiday function for this purpose (see operating instructions for Logamatic 4121, 4122 and 4126).

The control functions continue to operate in manual mode.

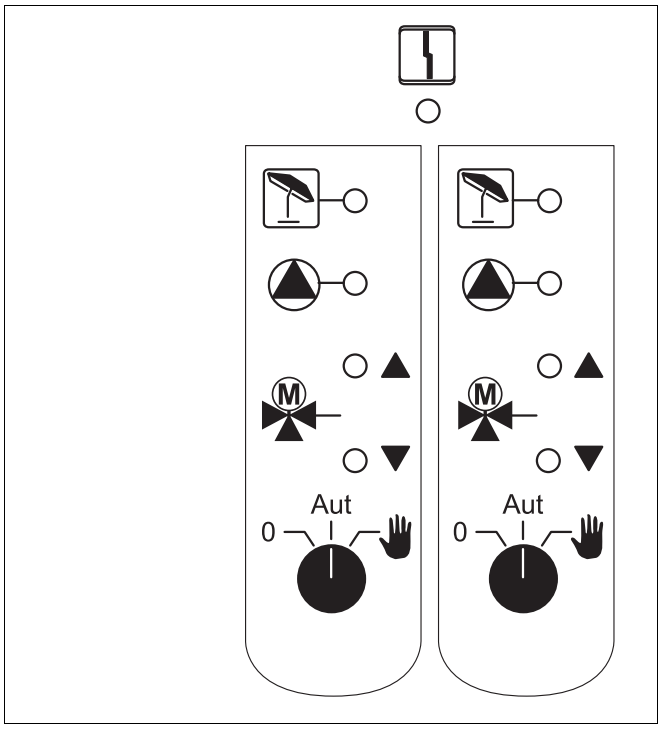


Fig. 8 FM442

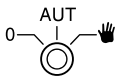
Display		General fault, e.g. site error, sensor error, external faults, internal wiring fault module error, manual mode. The fault messages appear as plain text in the MEC 2.

Indicators for the following functions:

Display	▲	"3 way mixing valve opens" (hotter)
Display	▼	"3 way mixing valve closes" (colder)
Display		Heating circuit in summer mode
Display		Heating circuit pump operational

Heating circuit function

Manual switch – heating circuit

for heating circuit 1 and heating circuit 2: 

USER NOTE

In standard mode, set the manual switch to "AUT".

The positions **0** and **manual** (✋) are special settings reserved for installer only.

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

AUT The heating circuit operates in automatic mode.

0 Only the heating circuit pump is switched OFF.
The valve is switched volt-free.
The control functions continue to operate.

Current functions are indicated by LED's.

Function module FM 445 - currently not available in the UK

The module FM 445 controls the DHW flow via an external heat exchanger.

Plug into the r.h. slot (slot 2) of the control unit; this ensures the power supply to all other modules. You can only use this module if no other FM 441 has already been installed in the control unit.

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

If the manual switches are not set to Auto, a corresponding message appears on the MEC 2 and the fault indicator illuminates.

Never use the manual switches to switch OFF the system when you have to temporarily leave the installation.

Use the holiday function for this purpose (see operating instructions for Logamatic 4121, 4122 and 4126).

The control functions continue to operate in manual mode.

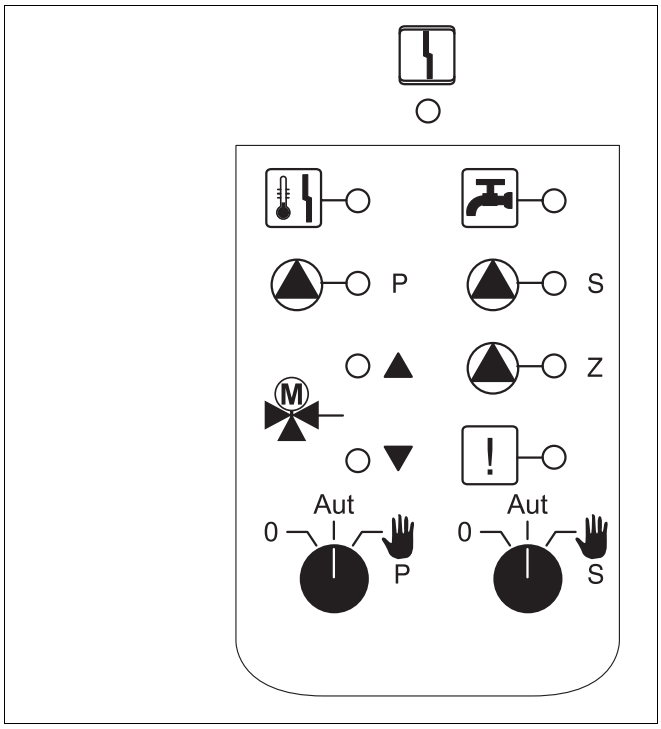


Fig. 9 FM445

Display		General fault, e.g. site error, sensor error, external faults, internal wiring fault module error, manual mode. The fault messages appear as plain text in the MEC 2.

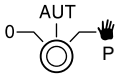
Indicators for the following functions:

Display		DHW is/remains below the set temperature in reduced night mode
Display	▲	" 3 way mixing valve opens" (hotter)
Display	▼	" 3 way mixing valve closes" (colder)
Display	– P	Primary cylinder charge pump active
Display	– S	Secondary cylinder charge pump active
Display	– Z	DHW circulation pump active
Display	!	Thermal disinfection
Display		Anti-scaling protection active, secondary pump cycles

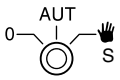
DHW function

Manual DHW switch

for primary circuit:



for secondary circuit:



USER NOTE

In standard mode, set the manual switch to "AUT".

WARNING!

RISK OF SCALDING

In the manual mode you are at risk from scalding. Always open the cold water tap and mix with hot water according to your requirements.

The positions **0** and **manual** (✋) are special settings reserved for installers only.

✋ The secondary/primary pump is switched ON. The valve is switched volt-free and can be manually operated.

AUT The DHW charging system operates in automatic mode.

0 The primary, secondary and DHW circulation pump are switched OFF. The valve is switched volt-free. The control functions continue to operate.

Current functions are indicated by LED's.

Function modules FM 456 and FM 457

A number of Buderus wall-mounted boilers with UBA 1.x or MS/UBA3 can be controlled using these KSE modules (FM456: up to 2 boilers; FM457: up to 4 boilers). These wall-mounted boilers may have different outputs.

Two of these modules may be fitted in the Logamatic 4122 control unit (for information on the ECOCAN BUS network of control units with FM456/FM457 see chapter Modules, CM 431).

Other module functions are:
The FM456 or FM457 are equipped with a heating circuit without a valve. You cannot connect a remote control unit for this heating circuit. The pump for this heating circuit is connected via the 230 V pump output.

The outdoor sensor or boiler sensor for this model is only activated if it is the first model (viewed from the left) with an outdoor or boiler sensor.

The 0 – 10 V input enables an external set point link. A voltage of 10 V on this input represents 90 °C. A voltage of 0.6 V on this input represents 10 °C (Fig. 11). This is a linear function.

Output for multiple fault messages:
All control unit faults cause this output to be switched. A lamp may, for example, be switched ON via the volt-free contacts of this output.

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

If the manual switches are not set to Auto, a corresponding message appears on the MEC 2 and the fault indicator illuminates.

Never use the manual switches to switch OFF the system when you have to temporarily leave the installation.

Use the holiday function for this purpose (see operating instructions for Logamatic 4121, 4122 and 4126).

The control functions continue to operate in manual mode.

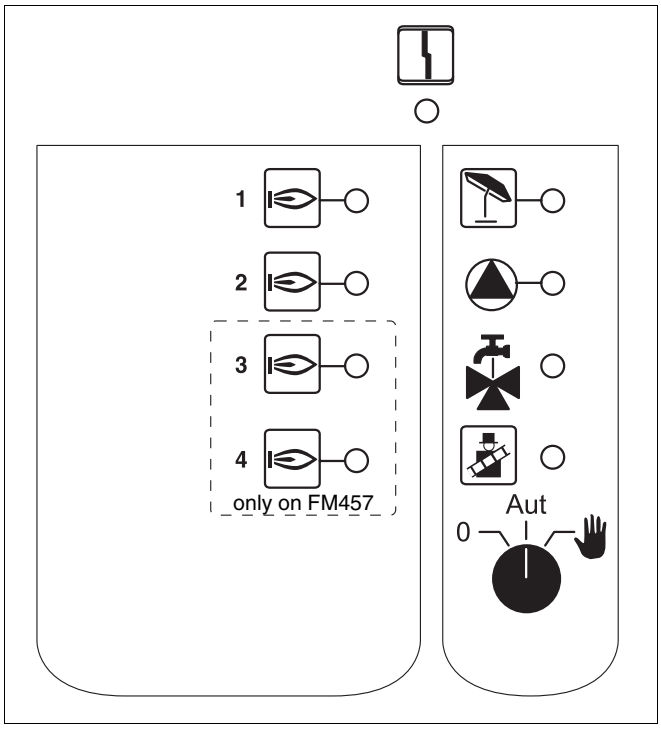


Fig. 10 FM457

Display — General fault, e.g. site error, sensor error, external faults, internal wiring fault module error, manual mode.
The fault messages appear as plain text in the MEC 2.

Indicators for the following functions:

Display — Operational burner

Display — Heating circuit without valve in summer mode

Display — Heating circuit pump active

Display — DHW operates via wall-mounted boiler

Display — Boiler in flue gas test mode

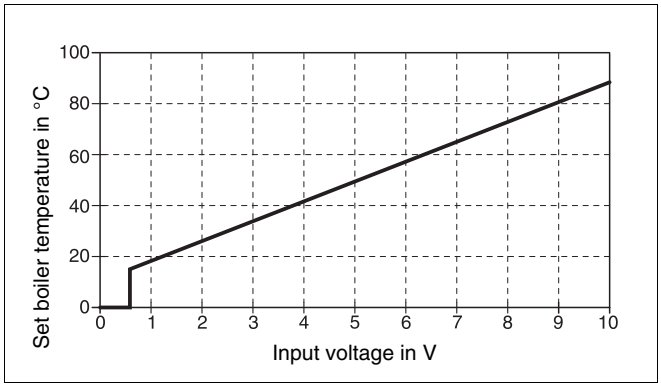
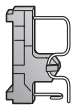


Fig. 11 Input 0 - 10V

Jumper block

The module is configured using the jumper block:

Setting		Function
	open (factory setting)	The module is registered as a new FM455/456/457 module
	closed	The module is registered as FM451/452/454. Only required if the module is used as replacement part.

USER NOTE

If used with EMS, the jumper block must be open.

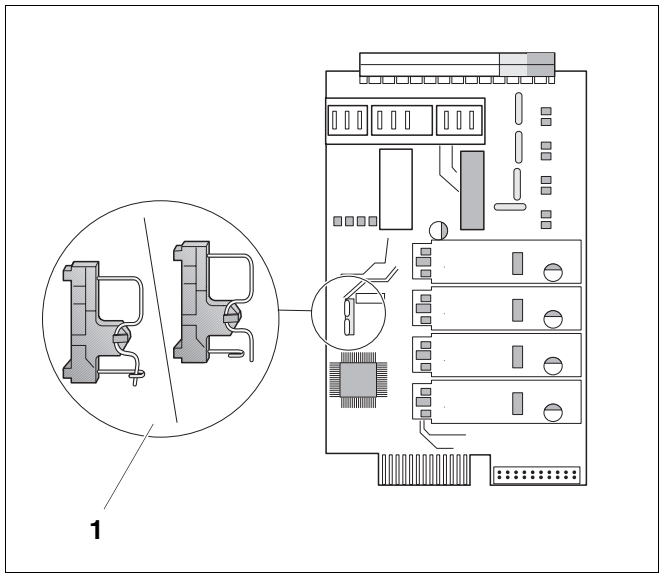
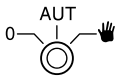


Fig. 12 Jumper block (e.g. FM457)

Heating circuit function

Manual switch – heating circuit

for heating circuit: 

USER NOTE

In standard mode, set the manual switch to "AUT".

The positions **0** and **manual** (✋) are special settings reserved for installers only.

✋ The heating circuit pump is switched ON.

AUT The heating circuit operates in automatic mode.

0 The heating circuit pump is switched OFF.
The control functions continue to operate.

Current functions are indicated by LED's.

5 Burner control and basic controls

Buderus wall-mounted boilers are fitted with a UBA 1.x or UBA 3 universal burner control. The UBA 1.x is equipped with an independent programming unit.

As with floor-standing boilers with EMS (Energy Management System), wall-mounted boilers with UBA 3 are operated the same via the BC10 base controller.

The table on the right you can see the description of boiler types and burner control units.

See page 94 for all the individual boiler types.

	Wall-mounted boiler without EMS	Wall-mounted boiler with EMS	Floor-standing boiler with EMS
Burner control	UBA 1.x	UBA 3	EMS burner control unit SAFe
Basic controls	UBA 1.x	BC10 base controller	
Code	"UBA"	"EMS/UBA 3"	"EMS/SAFe"

Tab. 2 Boiler type codes

5.1 Universal burner control (UBA 1.x)

The UBA 1.x is used in wall-mounted boilers which produce domestic hot water via a cylinder or an internal heat exchanger (combination boilers).

You can set both functions via the MEC2.

During normal operation (using the MEC2), setting the boiler water temperature on the UBA would be ineffective. If, however, the communication with the control panel is interrupted, the UBA returns to the temperature setting on the boiler water thermostat (see Fig. 13).

Therefore, select the thermostat setting so that neither the heating circuit nor the DHW overheat if an error occurs (see technical documentation for the UBA).

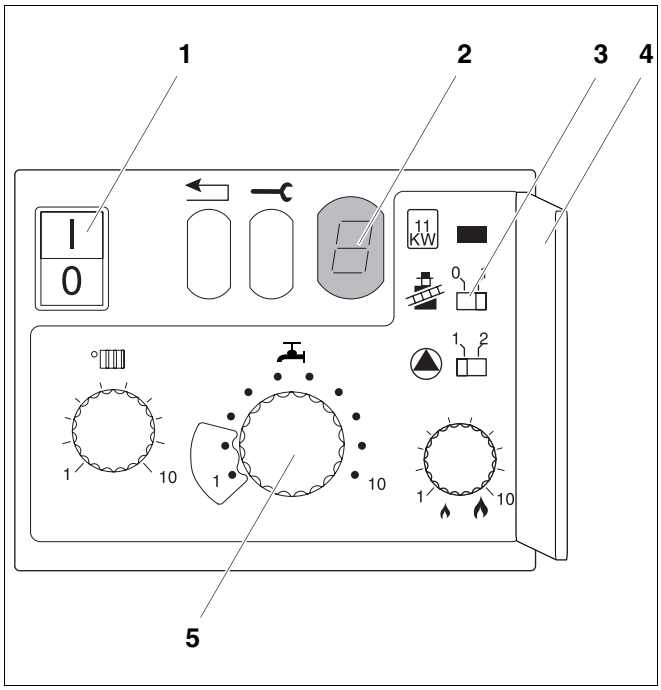


Fig. 13 UBA 1.x controls

Item 1: *ON/OFF switch*

Item 2: *Display*

Item 3: *Emissions test switch*

Item 4: *Cover for the second operating level*

Item 5: *Boiler water thermostat (DHW thermostat)*

5.2 BC10 (EMS) base controller

The BC10 base controller allows the user to operate the basic controls of boilers with EMS/UBA 3 or EMS/SAFe.

USER NOTE

You can set additional functions via the MEC2.

Both dials must be in the "Aut" (automatic) position (otherwise an error message is displayed).

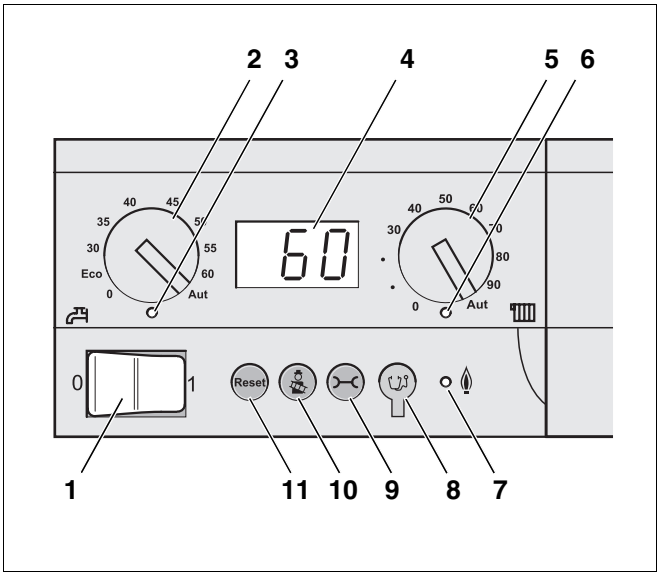


Fig. 14 Control layout on the BC10

Item 1: *ON/OFF switch*

Item 2: *Dial for setting DHW temperature*

Item 3: *"DHW Hot Water" LED*

Item 4: *Status display*

Item 5: *Dial for maximum boiler temperature when in heating mode*

Item 6: *"CH Heating" LED*

Item 7: *"Burner" (ON/OFF) LED*

Item 8: *Diagnostic plug*

Item 9: *Status display" button*

Item 10: *"Flue gas test" button*

Item 11: *"Reset" button*

Restricting output

The boiler output can be restricted to 11 kW (or 50 kW with higher boiler outputs) using a jumper on the rear of the base controller.

- Remove base controller.
- If necessary, remove jumper (Fig. 15, **Item 1**) if you want to restrict boiler output.

Jumper	Condition	Explanations
	Not inserted	Output restricted to 11 kW (50 kW) (only for boilers with UBA3)
	Inserted	Output unrestricted (factory setting)

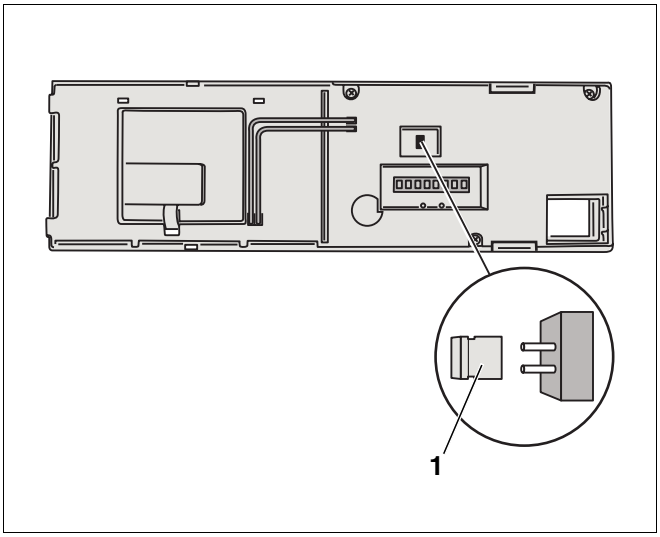


Fig. 15 Rear view of BC10 base controller

Item 1: *Jumper for restricting output*

6 MEC 2 programmer

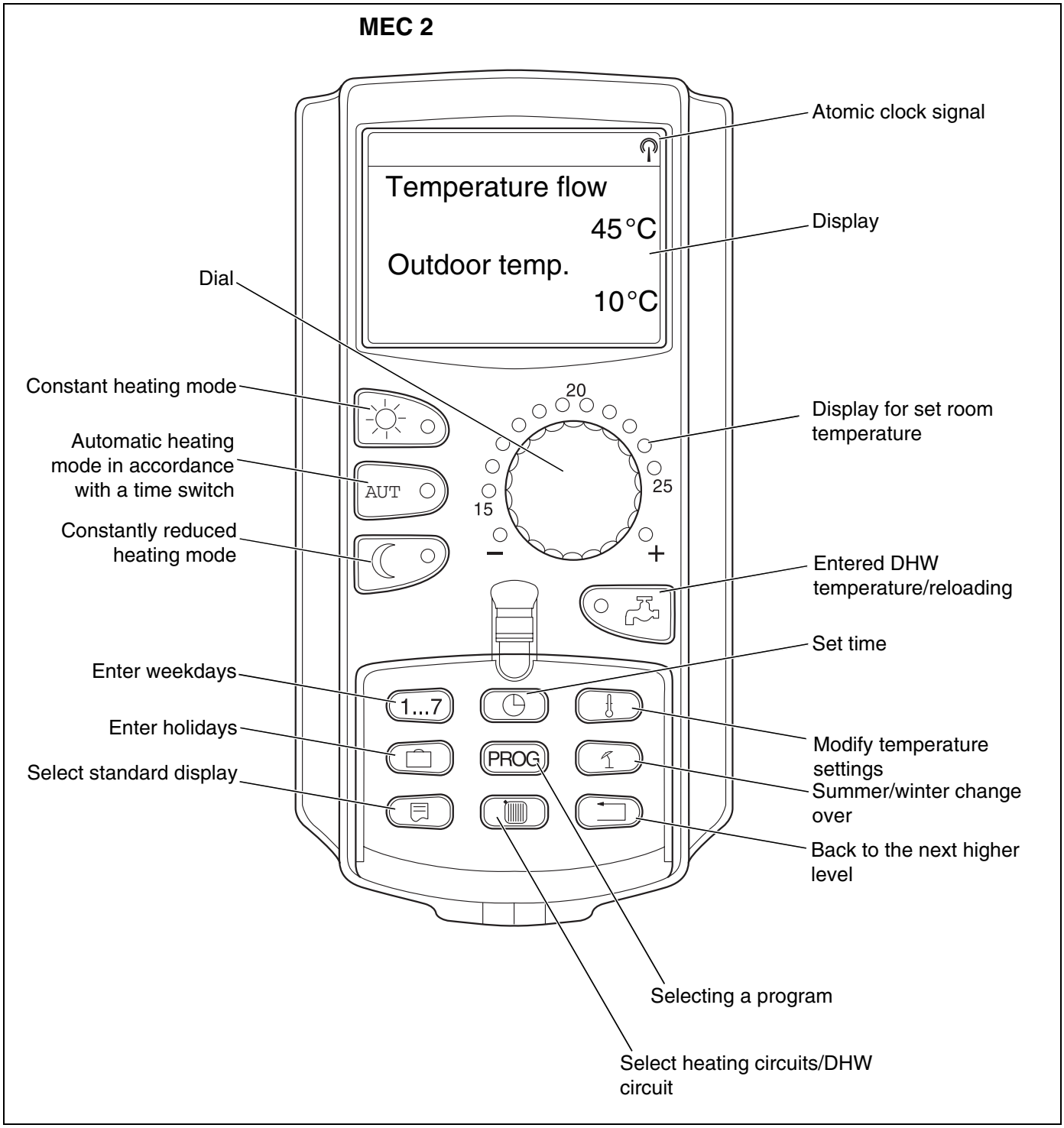
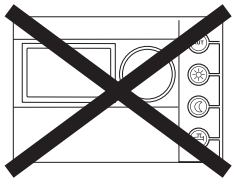


Fig. 16 MEC 2

USER NOTE

The MEC2 and RC30 must not be operated simultaneously.

- Use only MEC2 for heating systems with Logamatic 4000.



7 Commissioning the MEC 2 Programmer

You can use the MEC 2 for all Logamatic 4000 control units.

USER NOTE

If the control unit is equipped with a boiler display, use the MEC 2 as master control unit for setting up the other control units.

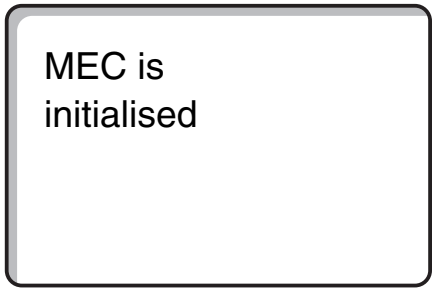
The MEC 2 can:

- be fitted directly into the control unit or
- be wall-mounted as a remote control unit or
- be connected to a separate power supply unit via an adapter.

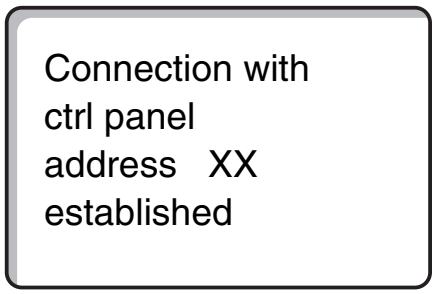
The MEC 2 commences the start up after a supply voltage is connected.

The display shows "MEC is initialised".

Then information is briefly displayed showing the control unit address.



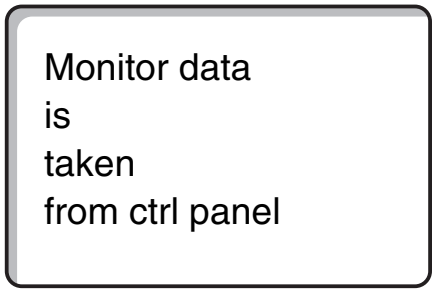
If the MEC 2 is fitted inside the control unit or a wall-mounting frame, it will automatically recognise with which control unit it is connected (automatic identification). You do not have to select the control.



The information on display varies according to each individual application:

Brand new MEC 2 installed in the control unit

If a brand new MEC 2 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 is taken from ctrl panel".



The MEC 2 was installed in another control unit

If the MEC 2 software is of a version, the display will show "Unknown ctrl panel".

- Remove the MEC 2 from the control unit and exchange for an MEC 2 of a suitable software version.

Unknown
ctrl panel

7.1 A MEC 2 with set parameters is installed in the control unit

After the MEC 2 has been installed in the control unit, the two adjacent displays will initially be redisplayed.

MEC is
initialised

Connection with
ctrl panel
address XX
established

a) Alternative control unit type

Initially, only data from the control unit can be downloaded, if the type of control unit varies from that entered into the MEC 2. The display will then show the adjacent details.

- Press button  .

Other
ctrl panel type
Night button
receive

The display will then show the adjacent details.

Data is
taken
from ctrl panel

b) Another control unit of the same type (e.g. Logamatic 4122 with boiler display ZM 435)

The display shows the adjacent details for approx. 3 seconds, if the MEC 2 is connected to another control unit of the same type.

NB
other
control panel

If the MEC 2 is separated from the control unit and data is also modified, the display shows "Aut button transmit, night button receive", when the unit is reinstalled into a control unit of the same type. The control unit enquires, whether the new data should be accepted or whether the old data in the control unit should be used again.

- Press AUT = "Data is sent to ctrl panel".

Aut button
transmit
Night button
receive

The display will then show the adjacent details.

Data is
sent
to ctrl. panel

- Press ☾ = "Data is taken from ctrl panel".

The display will then show the adjacent details.

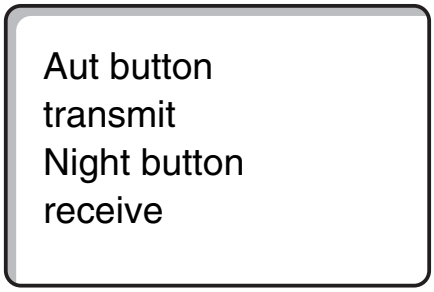
Data is
taken
from ctrl. panel

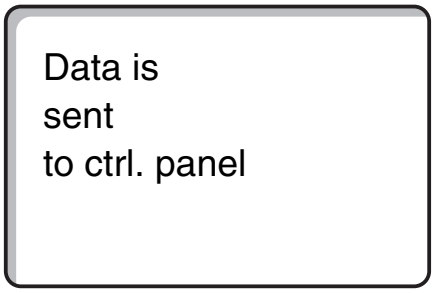
c) Identical control unit

If the MEC 2 is separated from the control unit and data is also modified, the display shows "Aut button transmit, night button receive", when the unit is reinstalled into the same control unit. The control unit enquires, whether the new data should be accepted or whether the old data in the control unit should be used again.

- Press AUT = "Data is sent to ctrl panel".

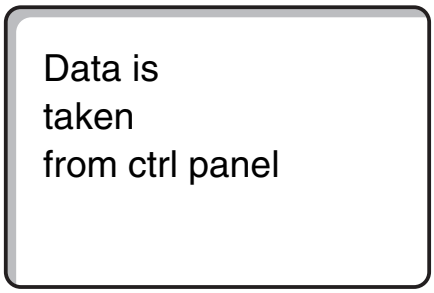
The display will then show the adjacent details.





- Press button = "Data is taken from ctrl panel".

The display will then show the adjacent details.

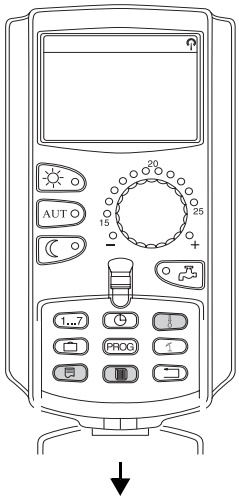


8 Calling up and modifying settings

8.1 Calling up the service level

Access to the service level is password protected. The service level must only be used by the installer.

Unauthorised access to the service level invalidates your guarantee!

Step	Display	Comments/Notes
Entering the password Press these buttons simultaneously and then release them.	 SERVICE LEVEL General data	**USER NOTE** The controls marked in grey are used for this function. This has activated the service level!

8 Calling up and modifying settings

Controls – press and turn

The service level covers several menu levels. There are further sub-menus connected with the selected menu item, if the last line is left blank (without setting entry).

Calling up menu items		
 Turn the dial.	– General data – Module selection – ... – Reset – General data	Scroll through menu levels. The menu items are structured as a loop and re-commence after the last menu item.
Call up sub-menu.	**Example: General data**	
 Press once and release.	– Min. outside temperature – ...	
 Turn the dial.	– automatic maintenance message – General data	You reach all sub-menus by turning the control dial.
 Press and hold down the button.		Modification of parameter settings. Select function/temperature.
 Press once and release.		Back to the next higher level.

USER NOTE

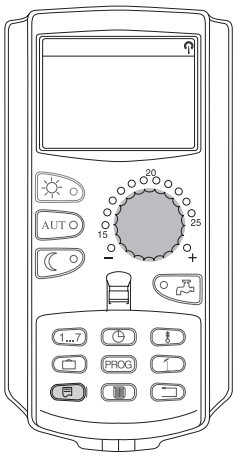
The menus displayed on the control unit depend on which modules are fitted and on their respective settings.

If menu entries contradict each other, the respective masks are, as far as possible, hidden.

Step	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
 Press button to call up menu item.	GENERAL DATA Min outdoor temp -10°C	The first menu item is "Minimum outdoor temp". The display shows the setting for individual menu items.

Step	Display	Comments/Notes
Press and hold down the button.		The setting (here: -10 °C) flashes.
Turn the dial to the required setting (here: -12 °C).	GENERAL DATA Min outdoor temp -12 °C	
Release the dial to store the setting.		
Press to reach the next higher menu level.	SERVICE LEVEL General data	Back to the next higher level: – General Data – Min. outside temperature – Type of building – Radio clock active (not available in the UK) – Remote adjustment – Manual control fault message – Automatic maintenance message
Press several times to reach the standard display.	Temperature flow 22 °C Outdoor temp. 10 °C	The control automatically reverts to standard display, if no button is pressed for a long period of time.

9 General data

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
Call up General Data.		**USER NOTE** The controls marked in grey are used for this function.
Press and then release the button.	GENERAL DATA Min outdoor temp -10°C	
Turn the dial. The adjacent settings are displayed in sequence!	– Minimum outdoor temp – Type of building – Summer/Winter clock ac. – Remote adjust. – Heat consumption – Manual control fault message – Automatic maintenance message	Under the heading "General Data", these settings may be set relating to the heating system and to the building characteristics.

The following pages list the sub-menus of the General Data.

9.1 Minimum outside temperature

The minimum outside temperature is a statistical mean setting and influences the flow temperature.

- Determine the minimum outside temperature for your region (average setting).

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
 Press and release the button.	GENERAL DATA Min outdoor temp -10°C	The first sub-menu item is "Minimum outdoor temp".
 Press and hold down the button.		The setting (here: -10 °C) flashes.
 Turn the dial to the required setting (here: -12 °C).	GENERAL DATA Min outdoor temp -12°C	
 Release the dial to store the setting.		
 Press once and realease.		Back to the next higher level.

	Input range	Factory setting	Own input
Minimum outside temperature	–30 °C to 0 °C	–10 °C	

9.2 Type of construction

The heat storage capacity of the building can be entered under "Building type". Different types of buildings store heat for different lengths of time. This function can be used to match the heating system to the specified construction type.

"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, or poorly insulated brick built house.

"HEAVY" – high heat storage capacity, e. g. well insulated house built with bricks.

Enter the building type.

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
Press and release the button.	GENERAL DATA Min outdoor temp -10°C	
Turn the dial until "Type of building" appears.	GENERAL DATA Type of building medium	
Press and hold down the button.		The setting (here: medium) flashes.
Turn the dial to the required type of building (here: heavy).	GENERAL DATA Type of building heavy	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Type of building	Light Medium Heavy	Medium	

9.3 Switching the radio clock ON and OFF

USER NOTE

The MEC 2 contains a radio clock receiver, which constantly monitors and corrects the time switch inside the control unit. You need never set the time during commissioning; after prolonged power failure, after the heating system has been switched off for longer periods by its mains electrical isolator or for changing from summer to winter time and vice versa. (User NOTE this facility has no function in GB.)

Well screened boiler rooms in cellars can restrict the reception of the radio clock signal, which makes it necessary for you to set the date and time manually.

When using the MEC 2 as remote control, the reception of the radio clock signal depends on each location and position.

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

Normally the reception is only possible within a radius of 940 miles around Frankfurt/Main.

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.

IMPORTANT NOTE

This feature does not function in the UK and Eire and should be switched off.

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
Press and release the button.	GENERAL DATA Min outdoor temp -10°C	
Turn the dial until "Atomic clock ac." appears.	GENERAL DATA Atomic clock ac. Yes	
Press and hold down the button.		The setting (here: Yes) flashes.
Turn the dial to "Yes" or "No".	GENERAL DATA Atomic clock ac. No	
Release the dial to store the setting.		
Press and release.		Back to the next higher level.

USER NOTE

If you select "No", the reception of the radio clock signal will be turned OFF for all control units networked on the ECOCAN BUS. This also applies to radio clock signals from the BFU/F remote control.

	Input range	Factory setting	Own input
Atomic clock ac.	Yes/No	Yes	

9.4 Remote adjustment

The remote adjustment offers the accessory of external data entry and adjustment via a remote system, e.g. the Logamatic remote system.

Yes = optional remote adjustment via the Logamatic telecontrol system,

No = remote adjust. not possible.
However, system data can be selected and monitored.

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
 Press and release the button.	GENERAL DATA Min outdoor temp -10 °C	
 Turn the dial until "Remote adjust." appears.	GENERAL DATA Remote adjust. Yes	
 Press and hold down the button.		The setting (here: Yes) flashes.
 Turn the dial to "Yes" or "No".	GENERAL DATA Remote adjust. No	
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Remote adjust.	Yes/No	Yes	

9.5 Manual control fault message

You can show a fault message on the display of the MEC2 when the function module manual control is on or when the dial on the BC10 is not on "Aut".

Step	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Call up the service level" on page 29 The first menu item displayed is "General Data".
Press and release the button.	GENERAL DATA Min. outdoor temp. -10 °C	
Turn the dial until "Manual control fault message" appears.	GENERAL DATA Fault message Manual control No	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial to the desired setting.	GENERAL DATA Fault message Manual control Fault message	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

USER NOTE

In the case of "No", a warning notice appears in MEC2 if the cover is closed.

If "Fault", an entry also appears in the error log. Automatic forwarding via the Logamatic telecontrol system is then possible.

In the case of "Central fault message", the output of a central fault message also appears via a volt-free contact e.g. via the FM448 or FM456/457 function module.

	Input range	Factory setting	Own input
Manual control fault message	No Fault message Central fault message	No	

9.6 Automatic maintenance message

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

Here you can choose between:

– Maintenance message according to hours run. Enter the number of operating hours after which you want the maintenance message to appear (100 – 6000 h).

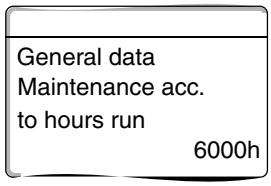
– Maintenance message according to date. Enter the next maintenance date.

– Buderus recommend Service interval is 12 months.

USER NOTE

The maintenance message "after hours run" is only applicable when number of boilers = 1.

Step	Display	Comments/notes
Call up the service level.	SERVICE LEVEL General data	See "Call up the service level" on page 29. The first menu item displayed is "General Data".
Press and release the button.	GENERAL DATA Min. outdoor temp. -10 °C	
Turn the dial until "Automatic maintenance message" appears.	GENERAL DATA Automatic maintenance mess. no	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial to the desired setting.	GENERAL DATA Automatic maintenance mess. Hours run	
Release the dial to store the setting.		
Turn the dial one click clockwise.		

Press and hold down the button. Turn to change the setting (date or operating hours). Release the dial to store the setting.		The setting (here: 6000 h) flashes.
Press and release.		Back to the next higher level.

USER NOTE

The maintenance message is recorded in the error 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.

USER NOTE

In systems with more than one boiler (cascade systems), we recommend a maintenance message according to "date".

	Input range	Factory setting	Own input
Automatic maintenance message	No Hours run Date	No	

10 Module selection

The modules are automatically recognised and their information downloaded on starting the Logamatic 41xx control unit or after resetting the unit.

However, these modules can also be set manually.

Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
Turn the dial until "Module selection" appears.	SERVICE LEVEL Module selection	
Press and release the button.	MODULE SELECTION Pos. A Boiler module FM 455	The display shows that boiler module FM 455 is installed in slot A.
Turn the dial until the next slot is displayed.	MODULE SELECTION Pos. 1 UBA/Heat./DHW ZM 424	
Press and hold down the button.		The setting (here: ZM 424) flashes.
Turn the dial to the required function module.	MODULE SELECTION Pos. 1 Function module none/auto	**USER NOTE** We recommend the setting "none/auto". These modules are automatically recognised and installed.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

11 Boiler data

You can, if the control unit contains a cascade module, e.g. KSE module FM 456 or FM 457, setup the boiler data with this menu.

11.1 Set the number of boilers

This function allows you to set the number or boilers in line with the module selection.

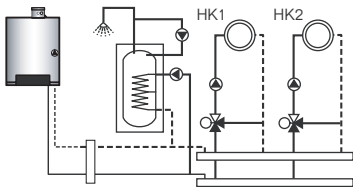
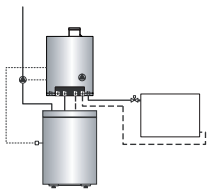
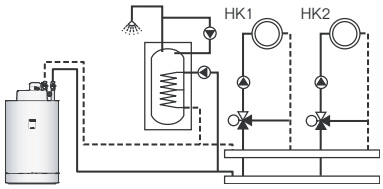
Remedy	Display	Comments/Notes
Call up the service level.	SERVICE LEVEL General data	See "Calling up the service level" page 29. The first menu item displayed is "General Data".
 Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
 Press and release the button.	BOILER DATA No. of boilers 1	The setting (here: 1) flashes.
 Turn the dial until the required setting is shown.	BOILER DATA No. of boilers 4	Here you set the number of boilers to be run. You may set the maximum number of boilers = 8, e.g. if two FM457 multi-boiler modules are used in one Logamatic 4122 control panel. If you set the number of boilers = 0, the control unit will operate as control 1 heating circuit.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Number of boilers (depending on module selection)	0 – 8	1	

11.2 Select Hydraulic design for single boiler

You may use this function, if the **no. of boilers 1**. You may choose, whether the boiler hydraulics operate with or without a boiler shunt P or low loss header.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
 Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers". At least one boiler must be displayed.
 Turn the dial until "Schematic" appears.	BOILER DATA Schematic with boiler shunt P. with low loss he	
 Press and hold down the button.		The setting (here: with boiler circ. P/with low loss he) flashes.
 Turn the dial until the required setting is shown.	BOILER DATA Schematic with boiler shunt P no low loss head	
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range		Factory setting	Own input
Hydraulic design options	with boiler shunt P/ low loss header		with boiler shunt P/ low loss header	
	with boiler shunt P/ without low loss header			
	without boiler shunt P/ without low loss header			

11.3 Select hydraulic design for cascade systems

This function allows you to set the temperature, using modulating EMS boilers.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers". Must be greater than 1.
Turn the dial until "Detection alt. ht off". heat sources from appears.	BOILER DATA Alt. ht off none	
Press and hold down the button.		The setting (here: none) flashes.
Turn the dial until the required setting is shown.	BOILER DATA Alt. ht off +10 °C	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

Example:

At a setting of 10°C the boiler(s) switch(es) off once the actual temperature is 10°C higher than the set flow temperature.

	Input range	Factory setting	Own input
Temperature for external heat source recognition	5 – 20 °C none	none	

11.4 Setting to alt. heat sources

This function allows you to set the temperature, at which alt. heat sources are rcognised.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers".
Turn the dial until "Detection alt. ht off". heat sources from appears.	BOILER DATA Alt. ht off none	
Press and hold down the button.		The settings (here: none) flashes.
Turn the dial until the required setting is shown.	BOILER DATA Alt. ht off 10 °C	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

Example:

At a setting of 10°C the boiler(s) switch(es) off once the actual temperature is 10°C higher than the set flow temperature.

	Input range	Factory setting	Own input
Temperature for external heat source recognition	5 – 20 °C none	none	

11.5 Select the boiler type

This function allows you to select from the various types of boilers.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
 Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers".
 Turn the dial until "Boiler type" appears.	BOILER DATA Boiler type Condensing boil.	
 Press and hold down the button.		The setting (here: Condensing boil) flashes.
 Turn the dial until the required type of boiler is shown.	BOILER DATA Boiler type Low temperature	**USER NOTE** In a cascade system, the "Low temperature" setting must be selected, provided that a non-condensing boiler has been installed.

		USER NOTE For boilers with integral three-way valves, electrically isolate this valve if DHW is not directly heated by the boiler.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Boiler type	Condensing Low-temperature	Condensing	

11.6 Limit boiler output

You may use this function, if the **number of boilers 1**.
You can enter the maximum boiler output as percentage of its rated output.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
 Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers". At least one boiler must be displayed.
 Turn the dial until "Boiler output" appears.	BOILER DATA Boiler output 100%	
 Press and hold down the button.		The setting (here: 100 %) flashes.
 Turn the dial until the required setting is shown.	BOILER DATA Boiler output 50 %	
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Boiler output	50 – 100 %	100 %	

11.7 Setting the maximum boiler temperature

This function allows you to select the maximum set boiler temperature.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
Press and release the button.	BOILER DATA No. of boilers 1	The display shows the first menu point "No. of boilers".
Turn the dial until "Maximum boiler temp" appears.	BOILER DATA Max. boiler temp 85 °C	
Press and hold down the button.		The setting (here: 85 °C) flashes.
Turn the dial until the required temperature is shown.	BOILER DATA Max. boiler temp. 50 °C	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Boiler temperature	50 – 90 °C	85 °C	

11.8 Selecting the type of sequence control

You may use this function, if the **number of boilers is at least 2**. This function allows you to set the type of Sequence control.

Remedy	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Boiler data" appears.	SERVICE LEVEL Boiler data	
 Press and release the button.	BOILER DATA No. of boilers 2	The display shows the first menu point "No. of boilers".
 Turn the dial until "Sequence contrl" appears.	BOILER DATA Sequence contrl Automatic	
 Press and hold down the button.		The setting (here: Automatic) flashes.
 Turn the dial until the required setting is shown.	BOILER DATA Sequence contrl Fixed	
 Release the dial to store the settings.		
 Press once and release.		Back to the next higher level.

The next page shows a summary of sequence control options.

	Input range	Factory setting	Own input
Sequence contrl	Automatic Fixed	Automatic	

Sequence contrl

If you select "Fixed", the boilers are controlled in the following order:

1 — 2 — 3 — 4

First, boiler no. 1 is switched ON, then boiler 2, etc.

If you select "automatic", the first boiler is selected according to date.

At the 1st of every month:	1 — 2 — 3 — 4
At the 2nd of every month:	2 — 3 — 4 — 1
At the 3rd of every month:	3 — 4 — 1 — 2
At the 4th of every month:	4 — 1 — 2 — 3
At the 5th of every month:	1 — 2 — 3 — 4

etc.

USER NOTE

If you have selected one of these settings: "UBA flow", "EMS flow", "UBA cylinder" or "EMS three-way valve", boiler 1 always appears last in the sequence:

At the 1st of every month:	2 — 3 — 4 — 1
At the 2nd of every month:	3 — 4 — 2 — 1
At the 3rd of every month:	4 — 2 — 3 — 1
At the 4th of every month:	2 — 3 — 4 — 1

etc.

12 Heating circuit data

12.1 Select the heating system

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 convector heater
The heating curve is automatically calculated for radiators or convector heaters, depending on the required curve.

– Under floor heating
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 Base point with a second point, which depends on the design temperature.

– Constant
Use this system for controlling a swimming pool heating system or to pre-control air conditioning. 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 level of the 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.

Example:

Select the heating system "Under-floor" for heating circuit 2:

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circuit + heating circ. no." appears (here: Heat circ 2).	SERVICE LEVEL Heating circ.2	
Press and release the button.	HEAT CIRC. Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Press and hold down the button.		The setting (here: Radiator) flashes.
Turn the dial to the required heating system (here: Under-floor).	HEAT CIRC. Heating system Under-floor	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Heating system	None Radiator Convector heater Under Floor Constant Base point Room controller	Radiator	

12.2 Rename the heating circuit

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ.2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until the submenu "Name heat circ" appears.	HEAT CIRC. DATA2 Name heat circ. Heating circ.	
 Press and hold down the button.		The setting (here: Heating circ.) flashes.
 Turn the dial until the required description is displayed (here: Under-floor).	HEAT CIRC. DATA2 Name heat circ. Under-floor	
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Name heat circ.	Heating circ. Apartment Under Floor Bath Swimming pool Floors Cellar Building	Heating circ.	

12.3 Set the Base point temperature

By setting the "Base point heating system" you have determined a straight heating line using the base point and the design temperatures.

With the base point temperature, you determine the start of the heating line.

The base point temperature is applicable for an outside temperature of 20 °C.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Press and hold down		The setting (here: Radiators) flashes.
 Turn the dial until "Base point" appears.	HEAT CIRC. DATA2 Heating system Base point	
 Release the dial to store the setting.		
 Turn the dial until the submenu "Base point temp." appears.	HEAT CIRC. DATA2 Base point temp. 30 °C	
 Press and hold down the button.		The setting (here: 30 °C) flashes.
 Turn the dial until the required setting (here: 32 °C) appears.	HEAT CIRC. DATA2 Base point temp. 32 °C	
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Base point temperature	20 – 80 °C	30 °C	

12.4 Set the design temperature

Set the design temperature at least 10° C higher than the base point temperature. Changing the design temperature allows the system to operate with a flatter or steeper heating line.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Design temp." appears.	HEAT CIRC. DATA2 Design temp. 75 °C	
Press and hold down the button.		The setting (here: 75 ° C) flashes.
Turn the dial and set the design setting relative to the minimum outside temperature.	HEAT CIRC. DATA2 Design temp. 65 °C	
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Design temperature	30 – 90 °C	75 °C for radiators 45 °C for under-floor heating	

12.5 Minimum flow temperature

The minimum flow temperature limits the heating curve to a minimum setting.

This function is not displayed for "Constant" heating systems.

Change this setting if necessary.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ.2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until the submenu "Min. flow temp." appears.	HEAT CIRC. DATA2 Min. flow temp. 5°C	
 Press and hold down the button.		The setting (here: 5 °C) flashes.
 Turn dial and set design temperature.	HEAT CIRC. DATA2 Min. flow temp. 10°C	This setting sets the temperature, below which the flow temperature must not drop.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

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

12.6 Maximum flow temperature

The maximum flow temperature limits the heating curve to a maximum setting.

This function is not displayed for "Constant" heating systems.

Change this setting if necessary.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until the submenu "Max flow temp." appears.	HEAT CIRC. DATA2 Maximum flow temp. 75 °C	
Press and hold down the button.		The setting (here: 75 °C) flashes.
Turn dial and set design temperature.	HEAT CIRC. DATA2 Maximum flow temp. 60 °C	The set design temperature determines the setting, above which the flow temperature must not rise.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

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

12.7 Select the remote control

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

– No remote control

– Remote control with display (MEC 2) "MEC heat. circ."

– Remote control without display (BFU or BFU/F; BFU/F currently not available in UK).

USER NOTE

Remote control units cannot be installed with "Constant" heating systems or where systems are "Ext. changeover" (as with modules FM 441 and 442).

Modules ZM 424, FM 456 and FM 457 cannot be subjected to external changeover.

Remote control units cannot be installed for the heating circuits of modules FM 456 and FM 457.

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

– Night setback with room stop

– Max room influence

– Automatic adjustment

– Optimisation

– Heating system "Room controller"

Explanations relating to "MEC heat. circ."

With the MEC 2 you can operate 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 setting

– Changeover between summer and winter

– 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.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Remote control" appears.	HEAT CIRC. DATA2 Remote control None	This function is not available for heating circuits from modules FM 456 and 457.
Press and hold down the button.		The settings (here: None) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Remote control with display	Turn the dial to "with display", when the selected heating circuit has been allocated to the MEC 2.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Remote control	None without display with display	None	

12.8 Maximum room influence

This function only appears, if remote control has been selected.

The "max room infl" limits the influence of the room temperature (room temperature connection) on the flow temperature setting. The setting determines the maximum room temperature reduction for those rooms, which are not equipped with remote controls.

USER NOTE

Do not expose the MEC 2 or the BFU remote control to alternative heat sources, such as lamps, TV sets, etc.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until the submenu "Max. room infl" appears.	HEAT CIRC. DATA2 Max. room infl 3 K	
Press and hold down the button.		The setting (here: 3 K) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Max. room infl 5 K	You set the temperature range with the dial.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

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

12.9 Select the Setback type

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

– The "Outdoor setback" determines the outside temperature limit.
  The heating circuit is switched OFF when this setting is exceeded.
  Below this setting the heating system heats up to the set night room temperature.

– With "Room setback" you determine a set night temperature as room temperature.
  The heating circuit is switched OFF when this setting is exceeded.
  Below this setting the heating system heats up to the set night room temperature.
  For this function a remote control must be located in the relevant room.

– In setback mode, the heating circuit is generally switched OFF at the "OFF".

– In setback mode, the system heats up to the set night room temperature when "reduced" is selected. The heating circuit pumps operate constantly.

USER NOTE

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

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until "Setback type" appears.	HEAT CIRC. DATA2 Set-back type Outdoor setback	
 Press and hold down the button.		The setting (here: Outdoor setback) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Set-back type OFF	You set the required type of setback with the dial.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Setback type	OFF Reduced Room setback Outdoor setback	Outdoor setback	

12.10 Set the Outdoor setback temperature

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until "Outdoor from" appears.	HEAT CIRC. DATA2 Outdoor from 5 °C	
 Press and hold down the button.		The setting (here: 5 °C) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Outdoor from 1 °C	You set the outside stop temperature with the dial.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Outdoor from	–20 °C to +10 °C	5 °C	

12.11 Setting system flow reduction

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Press and hold down the button.		The setting (here: Radiators) flashes.
Turn the dial until "Constant" appears.	HEAT CIRC. DATA2 Heating system Constant	
Release the dial to store the setting.		
Turn the dial until the submenu "Flow setback by" appears.	HEAT CIRC. DATA2 Flow setback by 30K	
Press and hold down the button.		The setting (here: 30 K) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Flow setback by 25 K	You set the amount of flow temperature reduction with the dial.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

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

12.12 Room temperature offset

This function is only practical where no programming unit has been installed in the apartment.

You can adjust settings with this function, if the actual temperature measured by the thermometer deviates from the setting.

This adjustment moves the heating curve in parallel.

Example:

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

The setting lies 2 °C below the actual setting.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until the submenu "Room temperature offset" appears.	HEAT CIRC. DATA2 Room temperature Offset 0 °C	
 Press and hold down the button.		The setting (here: 0 °C) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Room temperature Offset -2 °C	Correct the set room temperature by –2 °C.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Offset	–5 °C to +5 °C	0 °C	

12.13 Automatic correction

The "Automatic correction" is not activated in the factory.

USER NOTE

Where a remote control with room temperature sensor 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 room sensor,
- completely open thermostatic valves in the room,
- no constantly variable alternative heat influence.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Autom adaptation" appears.	HEAT CIRC. DATA2 Autom adaptation No	
Press and hold down the button.		The setting (here, No) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Autom adaptation Yes	Turn the dial to "Yes".
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Automatic correction	Yes/No	No	

12.14 Set switching optimisation

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

USER NOTE

You must install a remote control unit with room temperature sensor to enable the "Optimisation" function.

The following variations are available:

– With "Switch-ON", heating commences before the actual time designated by the timer.
  The control calculates the start time, so that the set room temperature is achieved at the set switch-ON time.

– When "Switch OFF" has been enabled, the system begins the setback, where possible, prior to the actual setback time to save energy. If a room cools down unexpectedly or suddenly, the shutdown optimisation is terminated and heating continues normally up to the programmed setback time.

Both optimisation variants are used when "Switch-ON/Switch OFF" have been enabled. Switching optimisation is not implemented, if "None" is selected.

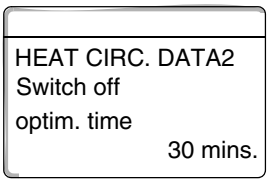
Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until the submenu "Optimisation for" appears.	HEAT CIRC. DATA2 Optimisation for None	
 Press and hold down the button.		The setting (here: None) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Optimisation for Switch OFF	Turn the dial until the required optimising variant appears (here: Switch OFF).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Optimisation	None Switch-ON Switch OFF Switch-ON/Switch OFF	None	

12.15 Set switch off optimisation time

You may, if you have selected "Switch off" or "Switch ON/OFF" enter as of when the setback operation should begin. Change the setting only if necessary.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until the submenu "Optimisation for" appears.	HEAT CIRC. DATA2 Optimisation for None	
Press and hold down the button.		The setting (here: None) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Optimisation for switch on/off	Turn the dial until the required optimising variant appears: Switch OFF or Switch ON/OFF (here: Switch ON/OFF).
Release the dial to store the setting.		
Turn the dial until "Switch off optim. time" appears.	HEAT CIRC. DATA2 Switch off optim. time 60 mins.	
Press and hold down the button.		The setting (here: 60 min) flashes.

 Turn the dial and set the required setting.  Release the dial to store the setting.  Press once and release.		Select a time up to 60 minutes. Back to the next higher level.

	Input range	Factory setting	Own input
Switch off optim. time	10 – 60 minutes	60 minutes	

12.16 Set the frost protection temperature

Only change the frost protection setting in special circumstances.

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Frost prot from" appears.	HEAT CIRC. DATA2 Frost prot from 1 °C	
Press and hold down the button.		The setting (here: 1 °C) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Frost prot from -2 °C	Change the frost protection temperature to -2 °C.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Frost protection	–20 °C to +1 °C	+1 °C	

12.17 Set DHW priority

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

In mixed heating circuits, the valve is moved towards "Valve closes" (colder).

This affects all heating circuits which are networked on an ECOCAN bus.

USER NOTE

This function cannot be carried out if you have selected "UBA cylinder", "UBA flow", "EMS three-way valve" or "EMS flow" in the "DHW data" menu (page 85).

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "DHW priority" appears.	HEAT CIRC. DATA2 DHW priority Yes	
Press and hold down the button.		The setting (here: Yes) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 DHW priority No	Turn the dial until "No" appears.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
DHW priority	Yes/No	Yes	

12.18 Input heating circuit mixing valve

You may determine via the "Valve" function, whether or not the system is equipped with a heating circuit valve.

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

The heating circuit is controlled via the boiler flow temperature, if the system is not equipped with an valve.

USER NOTE

This function cannot be carried out if you have selected the setting "4000 cylinder" in the "DHW data" menu (page 85).

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ.+ heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Actuator" appears.	HEAT CIRC. DATA2 Actuator Yes	
Press and hold down the button.		The setting (here: Yes) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Actuator No	Turn the dial until "No" appears.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Valve	Yes/No	Yes	

12.19 Enter valve running time

Here you may enter the valve running time of existing valves. Generally, actuators have a run time of 120 sec from fully open to fully closed.

USER NOTE

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
 Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
 Turn the dial until "Actuator running time" appears.	HEAT CIRC. DATA2 Actuator running time 120 sec	
 Press and hold down the button.		The setting (here: 120 s) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Actuator running time 90 sec	Turn the dial until the required setting appears (here: 90 s).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Valve running time	10 – 600 seconds	120 seconds	

12.20 Increasing boiler temperature

If a heating circuit is controlled with a valve, a higher design setting should be set for the boiler greater than the normal heating circuit setting.

The setting "Increasing boil." corresponds to the temperature differential between the set boiler temperature and the set heating circuit temperature.

USER NOTE

Where possible set the setting to "0 °C" for modulating wall-mounted boilers; higher for all other boilers. This causes the valve to open permanently (hotter), whilst the burner controls the flow temperature.

You must set the setting to "0 °C" is mandatory on wall-mounted boilers that do not have an internal boiler pump or low loss header.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Radiators	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Increasing boiler" appears.	HEAT CIRC. DATA2 Increasing boil. 5 °C	
Press and hold down the button.		The setting (here: 5 °C) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Increasing boil. 10 °C	Turn the dial until the required setting (here: 10 °C) appears.
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Increasing boil. temp	0 – 20 °C	5 °C	

12.21 Screed drying under floor heating

With this control unit you can enter a drying program for the screed, if the heating system includes underfloor heating.

USER NOTE

"Under-floor" must be set as heating system.

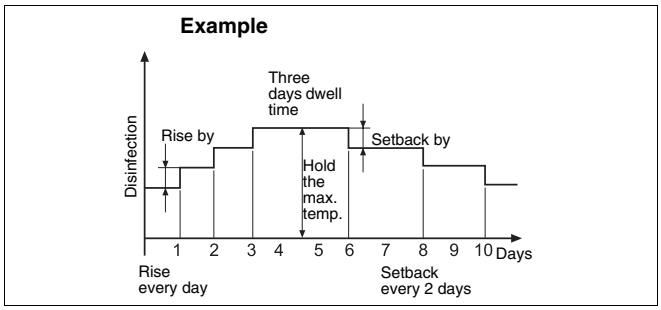


Fig. 17 Screed drying

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Heating circ. + heating circ. no." appears (here: Heat circ. 2).	SERVICE LEVEL Heating circ. 2	
Press and release the button.	HEAT CIRC. DATA2 Heating system Under-floor	The display shows the first menu point "Heating system" for the selected heating circuit.
Turn the dial until "Cement drying" appears.	HEAT CIRC. DATA2 Cement drying No	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial and set the required setting.	HEAT CIRC. DATA2 Cement drying Yes	Turn the dial until "Yes" appears.
Release the dial to store the setting.		

The menu items on the following pages enable you to select the temperatures and settings for the drying time.

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

USER NOTE

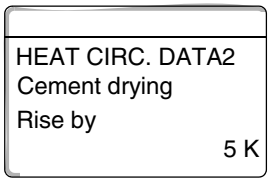
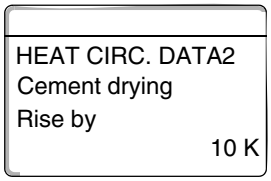
Screed drying only takes place on heating circuits with a valve.

	Input range	Factory setting	Own input
Screed drying	Yes/No	No	

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.

Step	Display	Comments/Notes
 Turn the dial until "Cement drying rise by" appears.		
 Press and hold down the button.		The setting (here: 5 K) flashes.
 Turn the dial and set the required setting.		Set the required setting (here: 10 K).
 Release the dial to store the setting.		

	Input range	Factory setting	Own input
Rise by	1 – 10 K	5 K	

Heat-up time

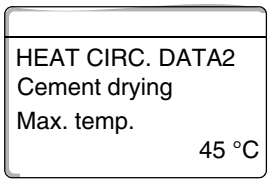
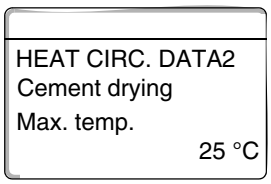
By setting the "Rise" parameter, you determine in which daily cycle the temperature should rise to dry out the screed.

Step	Display	Comments/Notes
 Turn the dial until "Cement drying + rise by" appears.	HEAT CIRC.DATA 2 Cement drying Rise every day	
 Press and hold down the button.		The setting (here: every day) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Cement drying Rise every 5 days	Set the required setting, (here: every 5th day).
 Release the dial to store the setting.		

	Input range	Factory setting	Own input
Rise in daily cycles	1 – 5 days	Every day	

Set max. temp.

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

Step	Display	Comments/Notes
 Turn the dial until "Cement drying rise by" appears.		
 Press and hold down the button.		The setting (here: 45 °C) flashes.
 Turn the dial and set the required setting.		Set the required setting (here: 25 °C).
 Release the dial to store the setting.		

	Input range	Factory setting	Own input
Maximum temp.	25 – 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.

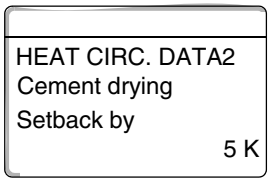
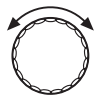
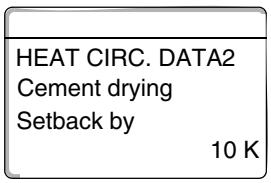
Step	Display	Comments/Notes
 Turn the dial until "Cement drying + hold max temp." appears.	HEAT CIRC. DATA2 Cement drying Hold max. temp. 4 days	
 Press and hold down the button.		The setting (here: 4 days) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Cement drying Hold max. temp. 20 days	Set the required setting, (here: 20 days).
 Release the dial to store the setting.		

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

Set setback temp.

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

The setback ends at 20 °C.

Step	Display	Comments/Notes
 Turn the dial until "Cement drying + setback by" appears.		
 Press and hold down the button.		The setting (here: 5 K) flashes.
 Turn the dial and set the required setting.		Set the required setting (here: 10 K).
 Release the dial to store the setting.		

	Input range	Factory setting	Own input
Setback by	1 – 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.

Step	Display	Comments/Notes
 Turn the dial until "Cement drying + setback" appears.	HEAT CIRC. DATA2 Cement drying Setback every day	
 Press and hold down the button.		The setting (here: every day) flashes.
 Turn the dial and set the required setting.	HEAT CIRC. DATA2 Cement drying Setback every 5 days	Set the required setting, (here: every 5th day).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Setback in daily cycles	None 1 – 5 days	Every day	

13 DHW data

The "DHW" menu will only be displayed, if a module with DHW function is installed in the control unit.

13.1 Select DHW cylinder

Here you can select the type of water connections - DHW cylinder.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	The first menu item "DHW" appears.
Press and release the button.	DHW DATA DHW 4000 cylinder	The first menu item "4000 cylinder" appears. Select this setting when DHW sensor and DHW cylinder load pump are connected to the Logamatic 4000 control panel.
Press and hold down the button.		The setting (here: 4000 cylinder) flashes.
Turn the dial.	DHW DATA DHW UBA cylinder	Select the required cylinder (here: UBA cylinder).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

USER NOTE

Depending on the boiler type, the settings are hidden when using UBA/EMS.
The settings are checked internally for plausibility and adjusted if necessary.

	Input range	Factory setting	Own input
DHW cylinder	No 4000 cylinder UBA cylinder UBA flow EMS three-way valve EMS load pump EMS flow	4000 cylinder	

13.2 Set temperature range

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

WARNING!

RISK OF SCALDING

Setting the design temperature above 60 °C creates a danger of scalding from hot water.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
 Press and release the button.	DHW DATA DHW 4000 cylinder	The first menu item "DHW" appears.
 Turn the dial until "Range to" appears.	DHW DATA Range to 60 °C	
 Press and hold down the button.		The setting (here: 60 °C) flashes.
 Turn the dial to the required setting.	DHW DATA Range to 80 °C	Set the required setting (here: 80 °C).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

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

13.3 Select switching optimisation

If you select the "Optimisation" function, the DHW will be heated prior to the actual switching point. The control unit calculates the timing of the start, taking into consideration the residual cylinder heat and the commencement of the heating for the heating circuits, so that the domestic hot water temperature is reached in good time.

USER NOTE

This function cannot be carried out if you have selected the "UBA flow" or "EMS flow" setting under the "DHW function" (see page 85).

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000 cylinder	The first menu item "DHW" appears.
Turn the dial until "Optimisation for switch-ON" appears.	DHW DATA Optimisation for switch-on No	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial.	DHW DATA Optimisation for switch-on Yes	Set the required setting (here: Yes).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Optimisation	Yes/No	No	

13.4 Heat over run to DHW cyclinder

If you select the "Heat over run" function, you can utilise the residual boiler heat for DHW cylinder loading.

The "Heat over run" function is not available for cascade systems. It is inappropriate for wall-mounted boilers as the low water content means hardly any residual heat is available. In such cases we recommend that you turn the "Residual heat utilisation" OFF.

"Heat over run, yes"

If you select "Heat over run, yes", the control calculates the shutdown temperature of the burner and the run-time of the load pump via the residual boiler heat, until the cylinder is fully loaded. The burner is switched OFF before the set domestic hot water temperature is reached. The cylinder load pump continues to operate. The control unit calculates the run-time of the load pump (between 3 and 30 minutes) to fully load the cylinder.

"Heat over run, no"

If you select "Heat over run, no", you will only utilise a small amount of residual heat. The burner runs until the set domestic hot water temperature is reached. The cylinder load pump runs on for 3 minutes after the burner is switched OFF.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Rest heat use" appears.	DHW DATA Rest heat use Yes	
Press and hold down the button.		The setting (here: Yes) flashes.
Turn the dial.	DHW DATA Rest heat use No	Set the required setting (here: No).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Heat over run	Yes/No	Yes	

13.5 Set hysteresis

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

USER NOTE

This function can only be carried out if you have selected the "4000 cylinder" setting under the "DHW" function (see page 85).

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Hysteresis" appears.	DHW DATA Hysteresis -5 K	
Press and hold down the button.		The setting (here: – 5 K) flashes.
Turn the dial.	DHW DATA Hysteresis -20 K	Set the required setting (here: – 20 K).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Hysteresis	–20 to –2 K	–5 K	

Set switch-off hysteresis (not currently available in the UK)

If you selected the LAP module FM 445, you can determine with the "Switch-OFF hysteresis" function, how close the temperature of the "Switch-OFF sensor" must be to the set DHW temperature to end loading.

The switch-off sensor is generally located in the lower part of the cylinder.

USER NOTE

Switch-OFF temperature = DHW setting – Switch-OFF hysteresis

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW Yes	The first menu item "DHW" appears.
Turn the dial until "Switch-OFF hysteresis" appears.	DHW DATA Switch off Hysteresis -5 K	
Press and hold down the button.		The setting (here: –5 K) flashes.
Turn the dial.	DHW DATA Switch off Hysteresis -15 K	Set the required setting (here: –15 K).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Hysteresis	–15 to –2 K	–5 K	

Set start-up hysteresis (currently not available in the UK)

If during module selection, you have selected the LAP module FM 445, you can determine with the "Switch-ON hysteresis" function, by what setting the temperature of the "Switch-ON sensor" can drop against the switch-OFF temperature (but not against the set DHW temperature), before reloading can begin.

USER NOTE

Switch-ON temperature = Switch-off temperature – Switch-ON hysteresis

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW Yes	The first menu item "DHW" appears.
Turn the dial until "Switch-ON hysteresis" appears.	DHW DATA Switch on Hysteresis -5 K	
Press and hold down the button.		The setting (here: –5 K) flashes.
Turn the dial.	DHW DATA Switch on Hysteresis -15 K	Set the required setting (here: –15 K).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Hysteresis	–15 to –2 K	–5 K	

13.6 Select the primary LAP circuit (currently not available in the UK)

If you selected the LAP module FM 445 during module selection, you can with the "LAP primary" function determine the type of primary circuit control.

WARNING!

RISK OF SCALDING

through overheating the system.
Only use the settings "UBA" or "EMS" if:

- the boiler used and the KIM number/BIM number are approved for this purpose (see page 85),
- the UBA 1.5 software is version 3.4 or higher.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW Yes	The first menu item "DHW" appears.
Turn the dial until "LAP primary" appears.	DHW DATA LAP primary via pump	
Press and hold down the button.		The selected primary circuit (here: pump) flashes.
Turn the dial.	DHW DATA LAP primary via UBC/EMS	Set the required primary circuit (here: UBC/EMS).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
LAP primary	Pump Valve UBC/EMS (see list on the following page)	Pump	

Approved boiler types

USER NOTE

Use the "UBA/EMS" setting for the "LAP primary" function only on the following boiler types.
Please note the KIM or BIM number.

setting	type	KIM-Nr.	Boiler type
setting „UBA / EMS“	UBA1 / UBA 1.5	74	Logamax plus GB112 - 11/s
		76	Logamax plus GB112 - 19/s
		81	Excellent HR 22
		83	Excellent HR 30
		84	Excellent HR 45
		85	Excellent HR 65
		91	Logamax plus GB112 - 24
		93	Logamax plus GB112 - 29
		94	Logamax plus GB112 - 43
		95	Logamax plus GB112 - 60/W AT
		96	Logamax plus GB112 - 60/W NL
		97	Logamax plus GB112 - 60 BE
		100	Logamax U112 - 19
		102	Logamax U114 - 19
		107	Logamax U122 - 20
		108	Logamax U122 - 24
		131	Logamax plus GB112 - 24 BE
		133	Logamax plus GB112 - 29 BE
		134	Logamax plus GB112 - 43 BE
	EMS / UBA3	1000	Logamax plus GB142 - 30
		1002	Logamax plus GB142 - 24
		1003	Logamax plus GB142 - 15
		1015	Logamax plus GB142 - 45
		1016	Logamax plus GB142 - 60
		1025	Logamax plus GB132 - 16
		1026	Logamax plus GB162 - 100
		1027	Logamax plus GB162 - 80
		1032	Logamax plus GB132 - 24

KIM numbers for boilers with UBA 1.x, EMS/UBA3 or EMS/SAFe

setting	type	BIM-Nr.	Boiler type
setting „UBA / EMS“ not possible	EMS / SAFe	5001	Logano G135 - 18
		5002	Logano G135 - 25
		5003	Logano G125 - 17/21/28/34
		5008	Logano G225 BE- 45
		5009	Logano G225 BE- 55
		5010	Logano G225 BE- 68
		5011	Logano G225 BZ- 85
		6001	Logano G144
		6011	Logano G244 -38
		6012	Logano G244 -44
		6013	Logano G244 -50
		6014	Logano G244 -55
		6015	Logano G244 -60
setting „UBA / EMS“		6031	Logamax plus GB312 - 80
		6032	Logamax plus GB312 - 120
		6033	Logamax plus GB312 - 160
		6034	Logamax plus GB312 - 200
		6035	Logamax plus GB312 - 240
		6036	Logamax plus GB312 - 280
		6037	Logamax plus GB312 - 90
		6041	Logamax plus GB312 - 80 / NL
		6042	Logamax plus GB312 - 120 / NL
		6043	Logamax plus GB312 - 160 / NL
		6044	Logamax plus GB312 - 200 / NL
		6045	Logamax plus GB312 - 240 / NL
		6046	Logamax plus GB312 - 280 / NL
		6047	Logamax plus GB312 - 90 / NL
setting „UBA / EMS“ not possible	type	KIM-Nr.	Combi Boiler
	UBA1 / UBA 1,5	92	Logamax plus GB112 - 29/T25
		111	Logamax U124 - 20K
		113	Logamax U124 - 24K
	EMS / UBA3	1006	Logamax plus GB132T - 19
		1007	Logamax plus GB132T - 11
		1033	Logamax plus GB132K - 24

Set the valve run-time (currently not available in the UK)

If you selected valve in the "LAP primary" menu, you can now set the valve run-time.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
 Press and release the button.	DHW DATA DHW Yes	The first menu item "DHW" appears.
 Turn the dial until "Actuator running time" appears.	DHW DATA Actuator running time 120 sec	
 Press and hold down the button.		The setting (here: 120 s) flashes.
 Turn the dial.	DHW DATA Actuator running time 10 secs	Set the required setting (here: 10 s).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Valve running time	10 – 600 s	120 s	

13.7 Increase boiler temperature

You will need the "Increase boiler" to determine the boiler water temperature during DHW heating.

The "Increase boiler", is added to the set domestic hot water temperature and results in the set boiler flow setting for domestic hot water heating.

The factory setting of 40 K is best suited to rapid DHW loading.

USER NOTE

This function can only be carried out if you have selected the "4000 cylinder" setting under the "DHW" function (see page 85)

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Increase boiler" appears.	DHW DATA Boiler increase 40 K	
Press and hold down the button.		The setting (here: 40 K) flashes.
Turn the dial.	DHW DATA Boiler increase 10 K	Set the required setting (here: 10 K).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Boiler increase	10 – 40 K	40 K	

13.8 External fault indication (WF1/WF2)

Depending on the domestic hot water cyclinder, you may connect an external, volt-free fault indicator contact from a load pump, a three-way valve or an inert anode to terminals WF1 and WF2 of modules ZM424, FM441 and FM445.

- Contacts WF1 and WF2 closed = no faults,
- contacts WF1 and WF2 open = faults.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "External fault WF1/2" is displayed.	DHW DATA External fault indicator WF1/2 None	
Press and hold down the button.		The fault indicator (here: None) flashes.
Turn the dial.	DHW DATA External fault indicator WF1/2 Pump	Set the required fault indication (here: Pump).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Fault message (subject to boiler type and module)	None Inert anode Pump Three-way valve	None	

13.9 External contact (WF1/WF3)

If a volt-free pushbutton is connected to terminals WF1 and WF3 of module ZM 424, either "Single load" or "Disinfection" can be triggered (subject to selection).

The timer will then be switched off automatically.

"Single load"

You may, if the DHW heating has been switched OFF according to the switching times of the DHW program, start "Single load" with the pushbutton (press once). The DHW circulation pump is switched ON simultaneously.

Contrary to single load via the MEC 2, the "Single load" process cannot be stopped via the MEC 2.

The "Single load" will only be stopped when the DHW cylinder has been fully loaded.

"Disinfection"

You can, if you have chosen "Disinfection" for the external contact, start the disinfection process with the above volt-free pushbutton. This disables any existing disinfection programs.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "External contact WF1/3" is displayed.	DHW DATA External contact WF1/3 None	
Press and hold down the button.		The setting (here: None) flashes.
Turn the dial.	DHW DATA External contact WF1/3 Single charge	Set the required contact (here: Single charge).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
External contact	Single charge Disinfection None	None	

13.10 Selection and set up of thermal disinfection

USER NOTE

This function cannot be carried out if you have selected the "UBA flow" or "EMS flow" setting under the "DHW" function (see page 85).

If you select the "Thermal disinfection", the DHW is brought to a temperature once a week, which is high enough to kill off germs (e.g. legionnaires' disease).

The DHW cylinder load pump and the DHW circulation pump run constantly during the disinfection process.

If you have selected "Thermal disinfection, yes", the disinfection commences according to factory settings or your own preferences:

Every Tuesday at 01.00 hrs to 70 °C.

On modules FM 441 and FM 445 display the disinfection process via the LED display [!].

You may adjust the factory settings for thermal disinfection via further menus.

USER NOTE

The "Thermal disinfection" function will not be displayed, if thermal disinfection has previously been set via the "External contact WF 1/3" function.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Thermal disinfection" appears.	DHW DATA Thermal disinfection No	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial.	DHW DATA Thermal disinfection Yes	Set the required setting (here: Yes).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Thermal disinfection	Yes/No	No	

Setting the disinfection temperature

You can set the disinfection temperature via the "Disinfection temperature" function.

WARNING!

RISK OF SCALDING

by hot water in the DHW circuit of the heating system if it is not equipped with a thermostatic mixing valve.

- **Inform your customer that during and immediately after thermal disinfection, DHW must not be turned on without mixing in cold water.**

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
 Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
 Turn the dial until "Thermal disinfection" appears.	DHW DATA Disinfection temperature 70 °C	
 Press and hold down the button.		The setting (here: 70 °C) flashes.
 Turn the dial.	DHW DATA Disinfection temperature 75 °C	Set the required setting (here: 75 °C).
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Disinfection temperature	60 – 75 °C	70 °C	

Set the day of the week for disinfection

You can set the day of the week when disinfection should be carried out via the "Disinfection weekday" function.

USER NOTE

The "Disinfection weekday" function will not be displayed, if thermal disinfection has previously been set via the "External contact WF 1/3" function.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Disinfection weekday" appears.	DHW DATA Disinfection Weekday Tuesday	
Press and hold down the button.		The setting (here: Tuesday) flashes.
Turn the dial.	DHW DATA Weekday Disinfection Sunday	Set the required day (here: Sunday).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Disinfection weekday	Monday – Sunday	Tuesday	

Set the time of day for disinfection

You can set the time of day when the disinfection should be carried out via the "Disinfection time" function.

USER NOTE

The "Disinfection time" function will not be displayed, if thermal disinfection has previously been set via the "External contact WF 1/3" function.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "Disinfection time" appears.	DHW DATA Disinfection time 1:00	
Press and hold down the button.		The fault indicator (here: 1.00) flashes.
Turn the dial.	DHW DATA Disinfection time 18:00	Set the required fault indication (here: 18.00 h).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Disinfection time	0 – 23:00 hrs	1 h	

13.11 Select the circulation pump

You can determine that DHW is immediately available at all tap via the "DHW circulat" function.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	
Press and release the button.	DHW DATA DHW 4000-cylinder	The first menu item "DHW" appears.
Turn the dial until "DHW circulat" appears.	DHW DATA DHW circulat No	
Press and hold down the button.		The setting (here: No) flashes.
Turn the dial.	DHW DATA DHW circulat Yes	Set the required setting (here: Yes).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
DHW circulation	Yes/No	Yes	

Setting the DHW circulation pump intervals

You can reduce operating costs of the DHW circulation pump using the intermittent operation.

You can determine that DHW is immediately available at the taps, using the "DHW circulat per hour" function.

The set interval applies during that time in which the time program enables the DHW circulation pump. This program may be:

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

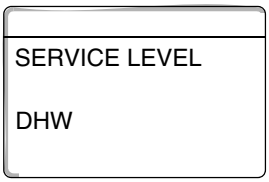
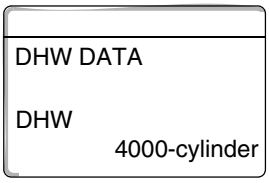
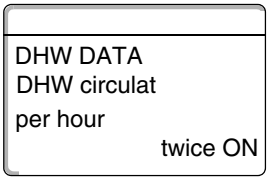
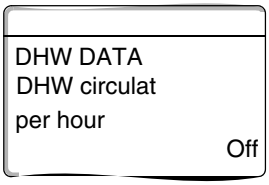
In "Perm. operation" the DHW circulat pump operates all day and is switched OFF during night operation.

Example:

Your own time program was entered, which switches the DHW circulation pump ON for the period from 5:30 – 22.00 h with the setting "Circulation per hour TWICE ON".

The DHW circulation pump is switched ON respectively in cycles

– at 05.30 h for 3 minutes,
– at 06.00 h for 3 minutes,
– at 06.30 h for 3 minutes,
– etc. until 22.00 h.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "DHW" appears.		
 Press and release the button.		The first menu item "DHW" appears.
 Turn the dial until "Circulation per hour" appears.		
 Press and hold down the button.		The setting (here: twice ON) flashes.
 Turn the dial.		Set the required setting (here: OFF). The DHW circulation pump will now only operate during single loading.
 Release the dial to store the setting.		
 Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
DHW circulation per hour	Off 1 to 6 times ON Constant operation	Twice ON	

13.12 Switching off the DHW circulation pump during DHW loading

If the LAP module FM445 is installed, you can switch the circulation on/off during DHW loading.

USER NOTE

The function "circulation OFF DHW charging" can only be used if the LAP module FM445 is installed.

Step	Display	Comments/notes
Call up the service level. Turn the dial until "DHW" appears.	SERVICE LEVEL DHW	See "Call up the service level" on page 29.
Press and release the button.	DHW DATA DHW yes	The first menu item "DHW" appears.
Turn the dial until "Circulation OFF DHW charging" appears.	DHW DATA Circulation OFF DHW charging yes	
Press and hold down the button.		The setting (here: Yes) flashes.
Turn the dial.	DHW DATA Circulation OFF DHW charging no	Set the required setting (here: No).
Release the dial to store the setting.		
Press once and release.		Back to the next higher level.

	Input range	Factory setting	Own input
Circulation OFF DHW loading	Yes/no	Yes	

14 Heating Parameters

Using the "Heating charact." menu you can display the current heating characteristics of the relevant heating circuit.

For explanations on the heating characteristic, see Chapter 22.2 "Heating curves", page 136.

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Heating charact." appears.	SERVICE LEVEL Heating charact.	
 Press and release the button.	Heating charact. Heating circ. 1 constant	The first menu item "Heating circ. 1" appears.
 Turn the dial until the required heating circuit appears.	Heating charact. Heating circ 2 AT: 10 / 0 / -10 VL: 45 / 62 / 75	The settings for the selected heating circuit are displayed.
 Press once.		Back to the next higher level.

15 Testing the relay

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 actual operating conditions, there may be a time-delay between request and display.

CAUTION!

SYSTEM DAMAGE

The system heat flow is not guaranteed whilst a relay test is being carried out. The control system deactivates all functions.

Leave this function after the relay test to prevent system damage.

Relay test example:

You may call up the following relays:

Heating circ. 1 – 4

– Heating circuit pump
– Valve

DHW

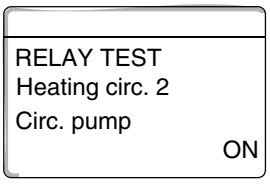
– Cylinder loading pump
– DHW circ. pump

FM 456/FM 457

– Fault indication relays

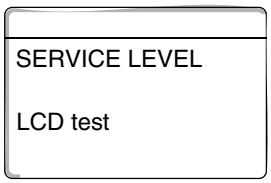
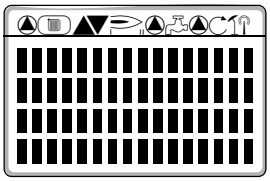
Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Relay test" appears.	SERVICE LEVEL Relay test	
 Press and release the button.	RELAY TEST Heating circ. 1	The first menu item "Heating circ. 1" appears.
 Turn the dial until the required menu item appears.	RELAY TEST Heating circ. 2	The first menu item appears (here: Heating circ. 2).
 Press until the required relay appears.	RELAY TEST Heating circ. 2 Circ. pump Off	
 Press and hold down.	RELAY TEST Heating circ. 2 Circ. pump Off	The first setting (here: OFF) flashes.

15 Testing the relay

 Turn the dial until the required setting appears.  Release the dial to store the setting.  Press once.  Press once.		The setting of the selected relay (here: ON) flashes. Back to the next higher level (relay test). Back to the next higher level (service level).  **USER NOTE** All relay test settings are cancelled at the end of the test.

16 Carrying out an LCD test

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "LCD test" appears.		
 Press and release the button.		The LCD is OK, when all symbols are correctly displayed.
 Press once.		Back to the next higher level.

17 Error

Using the "Error" menu you can display the last four fault messages for the heating system.

The MEC 2 can only display the fault messages of that control unit to which it is attached.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Error" appears.	SERVICE LEVEL Error	
 Press and release the button.	Fault Flow sensor 2 from 23:20h 13.10 until 23:45h 13.10	The fault message will then be displayed.
 Turn the dial and scroll through the last fault messages.		**USER NOTE** The display will show "No fault" if the connected control unit has not recorded any faults.
 Press once.		Back to the next higher level.

If the control unit has recorded fault messages, these will be displayed together with the time for the beginning and end of the fault.

17.1 Fault displays

The following faults can be displayed:

- Outs. temp. sensor
- Flow sensor x
- DHW sensor
- DHW cold
- DHW warning
- Disinfection
- Remote control x
- Communication HKx
- Burner x
- External fault ES
- ECOCAN BUS receive
- No master
- BUS addr confl
- Address confl x
- False module x
- Unknown module x
- Inert anode
- Ext. fault input
- DHW sensor WT (External Heat Exchange) (LAP)
- DHW sensor OFF
- Connection boiler x
- Sensor low loss header
- Valve
- Manual mode XX
- Solar calo. X man. op (only if using solar FM443 currently not available in the UK)
- Maintenance hours run
- Maintenance date
- EMS fault, boiler x
- EMS fault, DHW
- Maintenance, boiler x

Fault	Effects on the Control characteristics	Possible causes for the fault	Remedy
Outside sensor	– The minimum outside temperature is assumed.	– The outside sensor is either incorrectly connected, e.g. not to control unit with address 1 in cascade systems, not connected at all, or faulty. – The central module or control unit is faulty. – The communication to the control unit with address no. 1 is interrupted.	● Verify whether the outside sensor has been connected to the correct control unit (in cascade systems to the control unit with address no. 1). ● Check the communication with address 1. ● Replace the outside sensor or the central module.
Flow sensor x	– The valve is not being controlled.	– The sensor is incorrectly connected, not connected at all, or faulty. The control unit requires the appropriate flow sensor if an valve was selected in MEC 2. – The module or control unit is faulty.	● Check the sensor connection. ● If the faulty heating circuit should be operated without a valve, check in MEC 2 / Service Level / Heating circ., whether valve: "No" has been selected. ● Replace the module.
DHW sensor	– No domestic hot water is produced.	– The sensor is incorrectly connected, not connected at all, or faulty. – The module or control unit is faulty.	● Check the sensor connection. ● Replace the sensor or module. ● Check the sensor mounting on the DHW cylinder.
DHW stays cold	– The system tries constantly to load the domestic hot water cylinder.	– Thermostat/manual switch is not set to "AUT". – The sensor is incorrectly connected or faulty. – Incorrect sensor arrangement. – The loading pump is incorrectly connected or faulty. – The module ZM424 or control unit is faulty.	● Check whether the thermostat or the manual switch is set to "AUT". ● Check the sensor and loading pump functions. ● Replace the module ZM424. ● Check the sensor mounting on the DHW cylinder.
DHW cold	– No domestic hot water is produced. Current DHW temperature is below 40 °C.	– Load pump faulty. – Function module ZM424 faulty. – More DHW is removed than newly heated.	● Check whether the thermostat or the manual switch is set to "AUT". ● Check the sensor and load pump functions. ● Replace module ZM424. ● Check the sensor mounting on the DHW cylinder.
Disinfection	– Thermal disinfection was terminated.	– The boiler output is insufficient, for instance, because other heat consumers (heating circuits) demand heat during the thermal disinfection. – The sensor is incorrectly connected or faulty. – The loading pump is incorrectly connected or faulty. – The module or control unit is faulty.	● Select disinfection, so that no other heat demand is made at that time. ● Check the sensor and loading pump function and replace, if necessary.
Remote control x	– Because no actual room temperature is available, the effect of the following features are disabled: ambient influence, switch-ON and switch-OFF optimisation and automatic adaptation. – The control unit works with the last setting set via the remote control.	– Remote control incorrectly connected or faulty.	● Check the function and connection of the remote control. Check the remote control address. ● Replace the remote control / function module.

Tab. 3 Fault table

Fault	Effects on the Control characteristics	Possible causes for the fault	Remedy
Communication HKx	– Because no actual room temperature is available, the effect of the following features are disabled: ambient influence, switch-ON and switch-OFF optimisation and automatic adaptation.	– An incorrect address was allocated to the remote control. – The remote control is incorrectly wired up. – The remote control is faulty. – The remote control is faulty.	● Check the function and connection of the remote control. Check the remote control address. ● Replace the remote control / function module.
Boiler x	– The boiler protection (frost protection) is not assured. – No domestic hot water. – No heating.	– The UBC reports an interlocked error.	● Press the burner reset button. ● Check the UBA wiring. ● Check the wall-mounted boiler; see technical documentation for wall-mounted boilers.
Boiler x Status: Display code/ service code	– The boiler protection (frost protection) is not assured. – No domestic hot water. – No heating.	– EMS boiler reports a locking fault with display code and service code	● See the boiler documentation for a detailed description of the fault, and carry out the steps described there. ● Press "Reset" on the BC10.
Boiler x EMS fault	– The boiler protection (frost protection) is not assured. – No domestic hot water. – No heating.	– EMS boiler reports a locking fault.	● Read the display and service code from the BC10. ● See table 6 on page 117 for a detailed description of the fault, and carry out the steps described there ● Press "Reset" on the BC10.
DHW EMS fault	– No domestic hot water.	– EMS boiler reports a fault in the DHW function.	● Read the display and service code from the BC10. ● See table 5 on page 116 for a detailed description of the fault, and carry out the steps described there.
Boiler x Maintenance Hxx	– None – Service message, not a system fault	– e.g. maintenance interval expired	● Maintenance required, see boiler documentation or maintenance messages overview table.
Boiler x in manual mode	– No automatic functions, e.g. heating program..	– Not a fault.	● If you no longer need to use manual mode, set the dials on the BC10 base controller to "Aut".
Ext. Fault x	– The control behaviour remains unaffected.	– The fault input of the module was incorrectly activated. – Externally connected components are faulty or generate a fault signal.	● Check the function of external components and effect their repair / replacement.
ECOCAN BUS Reception	– The control behaviour remains unchanged.	– The rotary encoder behind the MEC 2 in the control unit (on CM 431) has an incorrect address. – Example: system with control unit and rotary encoder set to position > 0.	● Check the setting of the rotary encoder: ● Setting 0: only 1 bus user present. ● Setting 1: master control unit (other BUS users are expected!). ● Setting > 1: another bus user is expected.
No master	– The boiler protection is not assured. – DHW priority is no longer possible. – The minimum outside temperature is expected. – It goes cold.	– The master control unit (address 1) is switched OFF or no master (address 1) is available.	● Checking all bus user addresses. Address 1 must be allocated to the master control unit (rotary encoder behind the MEC 2 on CM 431 of the control unit). ● Checking the bus connection to address 1.

Tab. 3 Fault table

Fault	Effects on the Control characteristics	Possible causes for the fault	Remedy
BUS addr confl	– Bus communication is impossible. – All control functions requiring data exchange via the ECOCAN BUS can no longer be implemented.	– There is more than one identical address. – Each address must only be allocated once in the ECOCAN bus network.	● Check the addresses of all BUS users (rotary encoder behind the MEC 2 on the CM 431 of the control unit).
Address confl x	– The functions of the module, where the address conflict exists, can no longer be carried out. However, communication of all other modules and control units via the ECOCAN BUS is still possible.	– Module inside the wrong control unit: certain modules can only be used with specific ECOCAN addresses. – The boiler module ZM 424 and modules FM 456 and FM 457 must not be installed in any control unit with the address > 1.	● Check the control unit address.
False module x	– The module switches all outputs OFF and the corresponding error LED illuminates.	– False module default in the MEC 2. – The wrong module is installed in the control unit. – The MEC 2, the corresponding module or the control unit is faulty.	● Checking module defaults at the MEC 2 service level. ● Check the modules installed in the control unit. ● Replace the MEC 2 or the module.
Unknown module x	– The module switches all outputs OFF and the corresponding error LED illuminates.	– The controller software is too old to recognise the module. – The module/control unit is faulty.	● Checking the control unit version in the MEC 2. ● Replace the module.
Inert anode	– The control behaviour remains unchanged.	– Voltage is applied to the external input WF 1/2. – The module or the control unit is faulty.	● Replace the inert anode.
External fault input	– The control behaviour remains unchanged.	– Voltage is applied to the external input WF1/2. – The module or the control unit is faulty.	● Check external components (cylinder loading and DHW circulation pumps) and replace if necessary.
DHW sensor WT	– No domestic hot water is produced.	– The sensor is incorrectly connected, not connected at all, or faulty. – The module FM 445 or the control unit is faulty.	● Check sensors. ● Replace the sensor(s) or module FM 445. ● Check sensor fittings.
DHW sensor OFF	– No domestic hot water is produced.	– The sensor is incorrectly connected, not connected at all, or faulty. – The module FM 445 or the control unit is faulty.	● Check sensors. ● Replace the sensor(s) or module FM 445. ● Check sensor fittings.
Connection BRx	– The frost protection is not assured. – No domestic hot water is produced. – No heating output.	– UBC incorrectly connected. – UBC switched off. – UBC faulty. – Module faulty.	● Check connection. ● Switch on UBC. ● Replace UBC. ● Replace the KSE module.
Sensor low lossheader	– On single boiler systems: flow temperature can drop below setting. – On cascade systems: only one boiler operational.	– Sensor faulty. – Module ZM 424, FM 456 or FM 457 are faulty. – Sensor connected to the wrong module.	● Check sensors. ● Replace the module. ● Connect sensor to the module in slot 1.

Tab. 3 Fault table

Fault	Effects on the Control characteristics	Possible causes for the fault	Remedy
Manual mode XX	– Controller operates in manual mode.	– Perhaps a function module manual switch has not been set to "AUT".	● Set the corresponding function module manual switch to "AUT".
Solar calo. X man. op	– Solar calorifier X on solar module operating in manual mode.	– Perhaps the manual switch on function module FM443 has not been set to "AUT".	● Set the manual switch of function module FM443 to "AUT".
Maintenance hours run/date	– No effect on control behaviour.	– The specified period before the next maintenance has expired.	● Perform maintenance and then reset maintenance message.

Tab. 3 Fault table

17.2 Supplementary fault messages for boilers with EMS

Reading off status (display code) and service code

If a fault occurs, the status is displayed on the control panel. The display flashes when a disabling safety shut-down occurs.

- Press "Status display" to read off the service code.
- Press "Status display" several times to display other service information until the boiler's status is displayed once more.

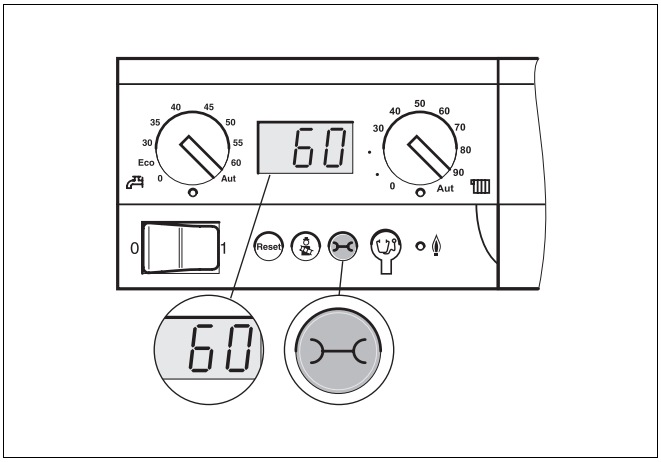


Fig. 18 Reading off display and service code (e.g. Logamatic MC10 control panel/BC10 base controller)

DHW EMS faults

DC: Display code (status)
SC: Service code

DC	SC	Fault	Effects on control characteristics	Possible causes of the fault	Remedy
A01	808	DHW sensor faulty	– No DHW being charged.	– Sensor incorrectly connected or faulty. – Sensor cable broken or short-circuited. – Old sensor.	● Check DHW sensor connection and change if necessary.
A01	810	DHW remains cold.	– The boiler keeps trying to charge the DHW cylinder. – The solar heating system does not start.	– Constant drawing or system leak. – Sensor incorrectly connected or faulty. – Sensor cable broken or short-circuited. – Old sensor. – Load pump connected incorrectly or faulty.	● Repair the leak. ● Check DHW sensor connection and change if necessary. ● Check the sensor and load pump functions. ● Check the sensor mounting on the DHW cylinder.

Tab. 4 Possible messages when DHW EMS faults occur

DC	SC	Fault	Effects on control characteristics	Possible causes of the fault	Remedy
A01	811	Thermal disinfection	– Thermal disinfection was stopped.	– Constant drawing or system leak. – Sensor incorrectly connected or faulty. – Sensor cable broken or short-circuited. – Old sensor. – Load pump connected incorrectly or faulty.	● Repair the leak. ● Check DHW sensor connection and change if necessary. ● Check the sensor and load pump functions. ● Check the sensor mounting on the DHW cylinder.

Tab. 4 Possible messages when DHW EMS faults occur

EMS faults

DC	SC	Fault	Effects on control characteristics	Possible causes of the fault	Remedy
AD 1	817	Air temperature sensor faulty.	– Fan speed cannot be properly adjusted.	– This fault message is generated if the air temperature sensor records a temperature that is too low (less than –30 °C) or too high (greater than +100 °C)	● Check the air temperature sensor incl. the plug-in connection on the SAFe and replace if necessary.
AD 1	818	The boiler remains cold.	– Not enough power reaching heating system.	– This fault message appears if the boiler stays below the pump logic temperature (47 °C) for a certain length of time, even though the burner is ON.	● Check the system design and the pump parameters and correct if necessary. ● Check the non-return valve is functioning properly and retrofit if necessary. ● Check whether gravity brakes are in working position..
AD 1	819	Continuous oil pre-heater signal	– The burner attempts to start.	– The oil pre-heater receives an enable signal, even though it is switched OFF.	● Check the pin assignment on the SAFe and the oil pre-heater and correct if necessary.
AD 1	820	Oil too cold.	– The burner attempts to start.	– The oil pre-heater does not transmit the signal within six minutes that the oil has reached its operating temperature.	● Check the electrical connection of the oil pre-heater; if OK, replace the oil pre-heater.

Tab. 5 Possible messages when EMS faults occur

USER NOTE

Other faults are described in the documents relating to the individual boiler.

17.3 Maintenance messages on boilers with EMS (only Oil)

DC: Display code (status)

SC	Maintenance	Possible cause	Remedy	EMS with boiler
H 1	Flue gas temperature too high	As soon as the flue gas temperature has exceeded a certain limit (110 °C), the burner is switched to stage 1, and this service message is generated. The message will only be cleared when the command "Reset service message" is issued.	● Clean the boiler. ● Check the position, equipment level and state of the turbulator insert and correct if necessary.	SAFe
H 2	The burner fan runs too slowly	The SAFe must generate an unusually high PWM signal for the required speed.	● Check the burner fan for contamination and clean or replace if necessary.	SAFe
H 3	Hours run expired	Does not occur with this control panel.		SAFe
H 4	Low flame probe current	The flame signal is only just above the SAFe shutdown threshold. – Flame sensor or holding bracket (on G135) is dirty. – Mixing system incorrectly oriented in relation to sight tube. – Faulty flame sensor/SAFe electrical connection. – Flame sensor or SAFe faulty.	● Check the flame sensor and holding bracket (mirror) for contamination and clean if necessary. ● Check the orientation of the mixing system in relation to the sight tube and correct if necessary. ● Check the mixing system for contamination and clean if necessary. ● Check the flame sensor plug-in connections on the SAFe. ● Check the burner adjustment and correct if necessary. ● Check the flame sensor signal for stage 1 and 2 using the RC30 . If not OK, replace the flame sensor.	SAFe
H 5	Long ignition delay	When the burner was last started, there was a long delay before ignition: – Faulty oil supply. – Faulty ignition system. – Faulty burner adjustment. – Faulty burner components.	● Check oil supply. ● Check the ignition using a relay test (RC30); check the ignition electrode for contamination or damage (electrode gap) and replace if necessary. ● Replace the oil nozzle. ● Replace the oil cut-off valve of the oil pre-heater. ● Check the mixing system and clean if necessary. ● Check and correct burner adjustment if necessary.	SAFe

Tab. 6 Maintenance messages

17 Only for Oil Boilers – Error

SC	Maintenance	Possible cause	Remedy	EMS with boiler
H 6	Frequent flame blow-off	During the previous burner starts, the flame frequently blew off. – Faulty oil supply. – Faulty ignition system. – Faulty burner adjustment. – Faulty burner components.	● Read out the fault memory of blocking faults to check in which phase the flame blew off. If only 6U/511 (no flame established) is present: ● Check oil supply. ● Check the flame sensor current using RC30 . ● Check the ignition via a relay test (RC30). ● Replace the oil nozzle. ● Replace the oil cut-off valve of the oil pre-heater. ● Check the mixing system and clean if necessary. ● Check and correct burner adjustment if necessary. If other blocking faults are present (flame blow-off after the flame was established successfully): ● Check the burner adjustment and correct if necessary. ● Check the oil supply equipment . ● Check the pin assignments of 1st/2nd solenoid valve (fault 6L/516). ● Check the flame probe current during operation. If signal < 50 µA, check the holding bracket (on G135) and clean if necessary or replace the flame sensor.	SAFe
H 7	System pressure	The operating pressure has fallen too low.	Top up heating water until the operating pressure > 1.0 bar.	UBA3
H 8	According to date	Does not occur with this control panel.		SAFe

Tab. 6 Maintenance messages

18 Low loss header monitor data

Using the "Monitor" menu you can display the set and actual settings. The display depends on which modules are installed.

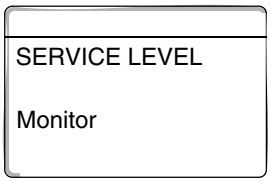
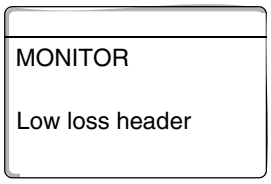
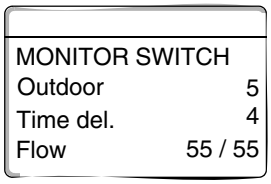
Some display settings are separated by a slash (/). The number in front of the slash determines the setting of each respective parameter and the figure behind the slash is the actual setting.

You can display data for the following components:

- Low loss header
- Boiler
- Heating circ.
- DHW

18.1 Low loss header monitor data

Using the Monitor menu "Low loss header" you can display the low loss header data.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Monitor" appears.		
 Press and release the button.		The first menu item "Low loss header" appears.
 Press and release the button.		The low loss header data are then displayed. The "Time del." setting describes the outdoor temperature, taking the type of building into consideration which has already been entered, and with which the heating curves were calculated.
 Press once.		Back to the next higher level.

18.2 Boiler monitor data

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

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Monitor" appears.	SERVICE LEVEL Monitor	
 Press and release the button.	MONITOR Low loss header	The first menu item "Low loss header" appears.
 Turn the dial until "Boiler 1" appears.	MONITOR Boiler 1	
 Press and release the button.	MONITOR BOILER 1 Outdoor 5 Time del. 4 ext. request. 0	The "Time del." setting describes the outdoor temperature, taking the type of building into consideration which has already been entered, and with which the heating curves were calculated.
 Turn the dial to scroll through the boiler monitor data.		Other boiler monitor data is displayed according to the boiler type. **See the following tables for descriptions.**
 Turn the dial again. Finally, any maintenance messages are displayed.	**Example:** Maintenance message according to hours run (or according to date) MONITOR BOILER 1 Maintenance message after 6000 h expired 2100 h	**USER NOTE** The maintenance message "after hours run" is only applicable when there is only one boiler. The maintenance message "according to date" is only displayed under boiler 1, but applies to all boilers.
 Press once.		Back to the next higher level.

Boiler monitor data for boilers with UBA 1.x

See page 121 for operating instructions.

Display	Explanation	Unit	Range
Outdoor	Outdoor temperature	°C	
time del.	adjusted outdoor temperature, taking the type of building which has been entered into consideration, to calculate the heating characteristic	°C	
ext. heat demand	setting for the boiler flow temperature, only with function module FM456 or FM457 (see page 20)	°C	
Flow	flow temperature set/actual setting	°C	
Return	return temperature/actual setting	°C	
Starts	number of burner starts		
Status	current operating status		
KIM no.	Boiler type (KIM = boiler identification module)		
UBA version	software version of the universal burner control units		
Output	current boiler output	%	0 – 100
Max. output	maximum approved boiler output	%	0 – 100
Pump	current output of the boiler pump for modulating pumps or switching state for single-stage pumps	%	% 0 – 100 or on/of

Tab. 7 Boiler monitor data for boilers with UBA 1.x

Boiler monitor data for boilers with EMS/UBA3

See page 121 for operating instructions.

Display	Explanation	Unit	Range
Outdoor	actual outdoor temperature	°C	
time del.	adjusted outdoor temperature, taking the type of building which has been entered into consideration, to calculate the heating characteristic	°C	
ext. heat demand	setting for the boiler flow temperature, only with function module FM456 or FM457 (see page 20)	°C	
Flow	flow temperature set/actual setting	°C	
Return	return temperature actual setting	°C	
Starts	number of burner starts		
Status	current operating status		
Service code	Service code for identifying the status message		
KIM	Boiler type and KIM version (KIM = boiler identification module)		
UBA3	software version of the universal burner control units		
Output	current boiler output	%	0 – 100
Max. output	maximum approved boiler output	%	0 – 100 or EMS DHW
Pump	current output of the boiler pump for modulating pumps or switching state for single-stage pumps	%	% 0 – 100 or on/of

Tab. 8 Boiler monitor data for boilers with EMS/UBA3

Maximum	maximum boiler output	kW	
Max. output	upper modulation limit	%	0 – 100
Min. output	lower modulation limit	%	0 – 100
Flue gas	actual flue gas temperature	°C	
Air	actual combustion air temperature	°C	
Pressure	actual heating system operating pressure	bar	
Flame current	actual flame current	µA	>100, if less change the flame ignition
Ignition	Ignition (Oil Boilers)		on/off
Flame	Flame (Oil Boilers)		on/off
Valve 1	Burner valve stage 1 (Oil Boilers)		open/closed
Valve 2	Burner valve stage 2 (Oil Boilers)		open/closed

Tab. 8 Boiler monitor data for boilers with EMS/UBA3

Boiler monitor data for boilers with EMS/SAFe

See page 122 for operating instructions.

Display	Explanation	Unit	Range
Outdoor	actual outdoor temperature	°C	
time del.	adjusted outdoor temperature, taking the type of building which has been entered into consideration, to calculate the heating characteristic	°C	
ext. heat demand	setting for the boiler flow temperature, only with function module FM456 or FM457 (see page 20)	°C	
Flow	flow temperature set/actual setting	°C	
Return	return temperature actual setting	°C	
Starts	number of burner starts		
Status	current operating status		
Service code	Service code for identifying the status message		
BIM	Burner type and BIM version (BIM = burner identification module)		
MC10	software version of the Logamatic MC10 control panel		
SAFe	Type and software version of the SAFe burner control units		
Output	current boiler output	%	0 – 100
Max. output	maximum approved boiler output	%	% 0 – 100 or EMS DHW
Pump	current output of the boiler pump for modulating pumps or switching state for single-stage pumps	%	% 0 – 100 or on/of
Maximum	maximum boiler output	kW	
Max. output	upper modulation limit	%	0 – 100
Min. output	lower modulation limit	%	0 – 100
Flue gas	actual flue gas temperature	°C	
Air	actual combustion air temperature	°C	
Pressure	actual heating system operating pressure	bar	
Flame current	actual flame current	µA	
Ignition	Ignition (Oil Boilers)		on/off
Flame	Flame (Oil Boilers)		on/off
Valve 1	Burner valve stage 1 (Oil Boilers)		open/closed
Valve 2	Burner valve stage 2 (Oil Boilers)		open/closed

Tab. 9 Boiler monitor data for boilers with EMS/SAFe

18.3 Heating circuit monitor data

Using the monitor menu "Heating circ" you can display the data for one heating circuit.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Monitor" appears.	SERVICE LEVEL Monitor	
 Press and release the button.	MONITOR Low loss header	The first menu item "Low loss header" appears.
 Turn the dial until the required "Heating circ" appears.	MONITOR Heating circ. 2	
 Press and release the button.	MONITOR HK2 Flow 30/ 29 Room 21/ 21 Perm. night	The setting and the actual setting for the flow room temperature are displayed. The last line displays one of the following operating modes: – Perm. night – Perm. day – Auto night – Auto day – Holiday – Summer – ON optimisation – OFF optimisation – Cement (screed) – DHW priority

 Turn the dial to scroll through the heating circuit monitor data.	MONITOR HK2 Design adapter 75 ON opt. 15 min OFF opt. 30 min	**Design temperature adaptation** This setting 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 start-up time. **Switch-OFF optimisation** A calculated period to commence an early setback to save energy.
 Turn the dial to scroll through the heating circuit monitor data.	MONITOR HK2 Actuator 50% Circ. pump OFF	**Valve** indicates the calculated regulating pulse in percent. Example: – 0% = no control command. – 50 % = valve is commanded in a cycle of 10 seconds, i.e. 5 seconds towards "Open valve" (hotter). – 100% = valve is commanded in a cycle of 10 seconds, i.e. 10 seconds towards "Close valve" (colder) (constant). **Pump** indicates the operating condition of the pump.
 Press once.		Back to the next higher level.

18.4 DHW monitor data

Using the Monitor menu "DHW" you can display the data relating to the DHW settings.

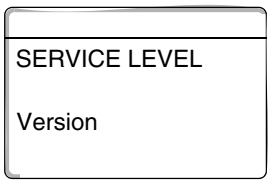
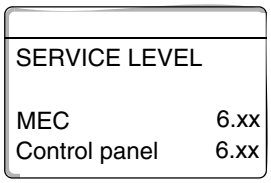
The displays depend on the settings selected under the "DHW" function.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Monitor" appears.	SERVICE LEVEL Monitor	
 Press and release the button.	MONITOR Low loss header	The first menu item "Low loss header" appears.
 Turn the dial until "DHW" appears.	MONITOR DHW	
 Press and release the button.	MONITOR DHW Temperature 60/57 Auto day Optimise 120 min	**Temperature** The calculated setting and the actual setting for the domestic hot water temperature are displayed. **Possible operating modes:** – Off – Perm operation – Auto night – Auto day – Holiday – Optimisation – Disinfection – Re-loading **Optimise** indicates the period, by which the system commences producing domestic hot water before the actual switching point, to achieve the domestic hot water setting in good time.

Turn the dial to scroll through the DHW monitor data.	MONITOR DHW Charging OFF DHW circulat. ON	**Charging** indicates the operating condition of the DHW cylinder load pump. **DHW circulation** indicates the operating condition of the DHW circulation pump.
Turn the dial to scroll through the DHW monitor data.	MONITOR DHW Sensor ON 50/48 Sensor OFF 55/30 Sensor WT 60/60	**USER NOTE** These DHW data are only displayed, if module FM 445 was selected under "Module selection". **ON = Temp sensor – central** **OFF = Temp sensor – bottom** **WT= Temp heat exchanger sensor**
Turn the dial to scroll through the DHW monitor data.	MONITOR DHW Primary pump 80% Second. pump 100% Mix. valve pos. 100%	The position of the valve indicates a setting between 0 % (closed) and 100 % (open). **USER NOTE** These DHW data are only displayed, if module FM 445 was selected under "Module selection".
Press.		Back to the next higher level.

19 Display version

Using the "Version" menu you can display version of the MEC 2 as well as that of the selected control unit.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Version" appears.		
 Press and release the button.		The version no. for the MEC and the control unit are displayed.
 Press once.		Back to the next higher level.

20 Selecting the control unit

With the "Control panel" menu you can select a control unit, if the **MEC 2 is operated offline**, i.e. without connected control unit or with a separate power supply unit.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
 Turn the dial until "Control panel" appears.	SERVICE LEVEL Control panel	
 Press button.	Control panel Logamatic 4211	The control unit will be displayed.
 Press and hold down		The setting (here: 4211) flashes.
 Turn the dial to the required control unit type.	Control panel Logamatic 41xx	
 Release the dial to store the setting.		
 Press once.		Back to the next higher level.

21 Reset

21.1 Resetting control unit parameters

With the menu "Reset factory settings" you can change all settings of the operator or service level to the factory default values.

All values are automatically reset.

USER NOTE

All control unit settings at the operator and service levels are reset to factory settings.

The time switch is not included in the reset. Any set variations remain unchanged, even after the reset.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Reset" appears.	SERVICE LEVEL Reset	
Press and hold down the button.	RESET Settings Control panel	The blocks in the last line disappear one after the other. All settings are reset after the final block has disappeared. The reset operation will be terminated if you release the button before all blocks have disappeared.
Release the button.		Back to the next higher level.

21.2 Reset the error

Using the "Reset error" function you can reset the whole fault memory. This deletes all entries into the error log.

Step	Display	Comments/Notes
Call up the service level.		See "Calling up the service level" page 29.
Turn the dial until "Reset" appears.	SERVICE LEVEL Reset	
Press button.	RESET Factory settings Control panel	Then the menu item "Reset factory settings" is displayed.
Turn the dial until "Reset Error" appears.	RESET Error	
Press and hold down the button.	RESET Error	The blocks in the last line disappear one after the other. The error log is reset after the final block has disappeared. The reset operation will be terminated if you release the button before all blocks have disappeared.
Release the button.		Back to the next higher level.

21.3 Resetting the maintenance message

After maintenance is completed, the maintenance message must be reset. This means that the maintenance message no longer appears if the flap is closed.

USER NOTE

Resetting the maintenance message restarts the maintenance interval.

Please note that with maintenance messages set according to date, the next maintenance date will be fixed at one year in the future.

Step	Display	Comments/Notes
Call up the service level. Turn the dial to "Reset".	SERVICE LEVEL Reset	See "Calling up the service level" page 29.
Press button.	RESET Settings	The menu item "Reset factory settings" is displayed
Turn the dial to "Reset Maintenance message"	RESET Maintenance message	
Press and hold down the button.	RESET Maintenance message	The blocks in the last line disappear one after the other. The maintenance message is reset after the final block has disappeared. The reset operation will be terminated if you release the button before all blocks have disappeared.
Release the button.		Back to the next higher level.

22 Sensor curves

22.1 Sensor curves

- Isolate the system before taking any readings.

Error checking (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.

You can check using the diagram, whether temperature and resistance correlate.

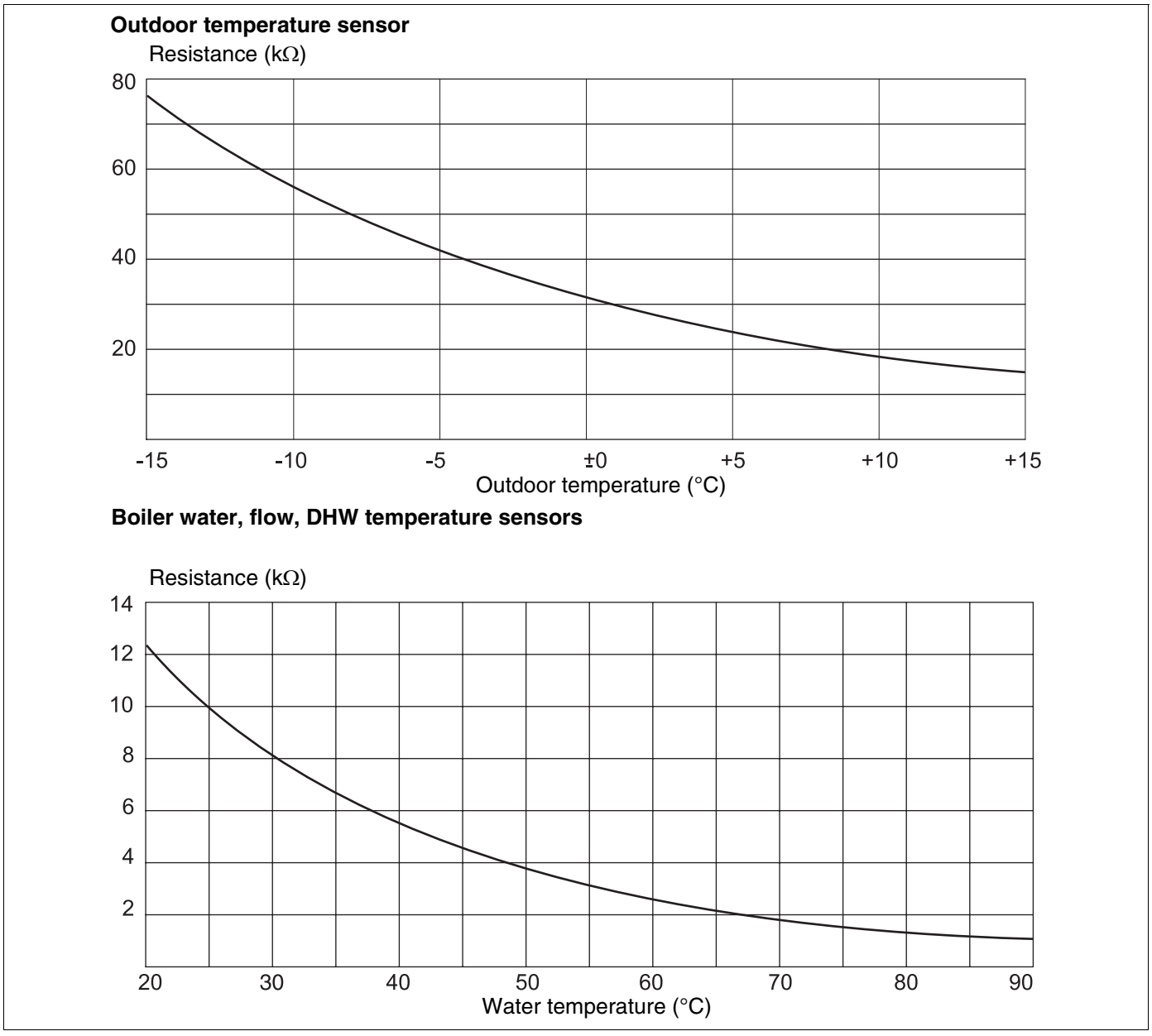
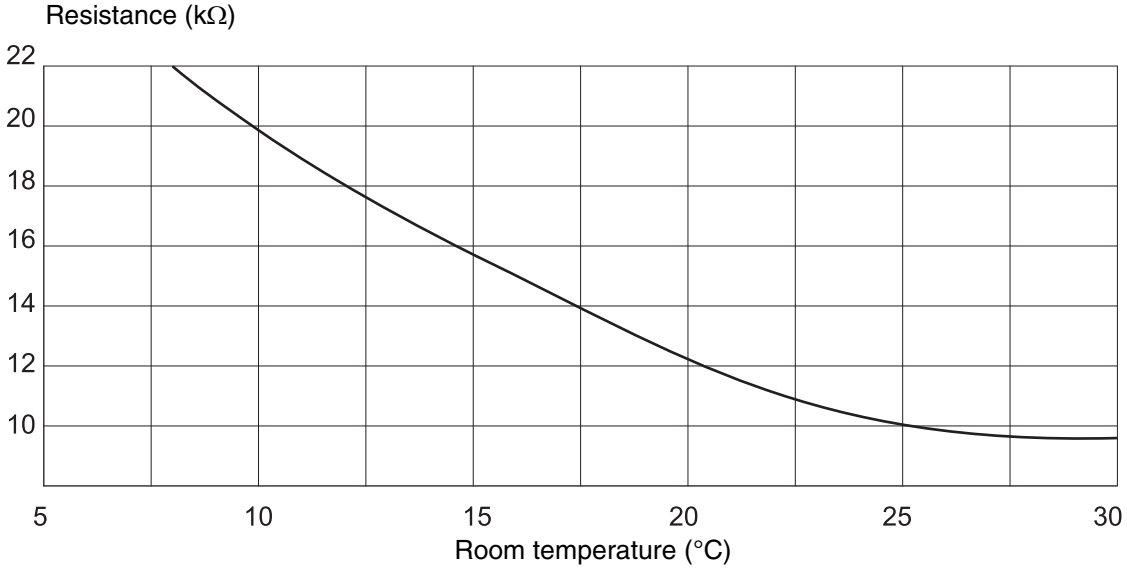


Fig. 19 Outside temperature sensor and boiler water, flow, DHW temperature sensors

Room temperature sensor



Flue gas temperature sensor

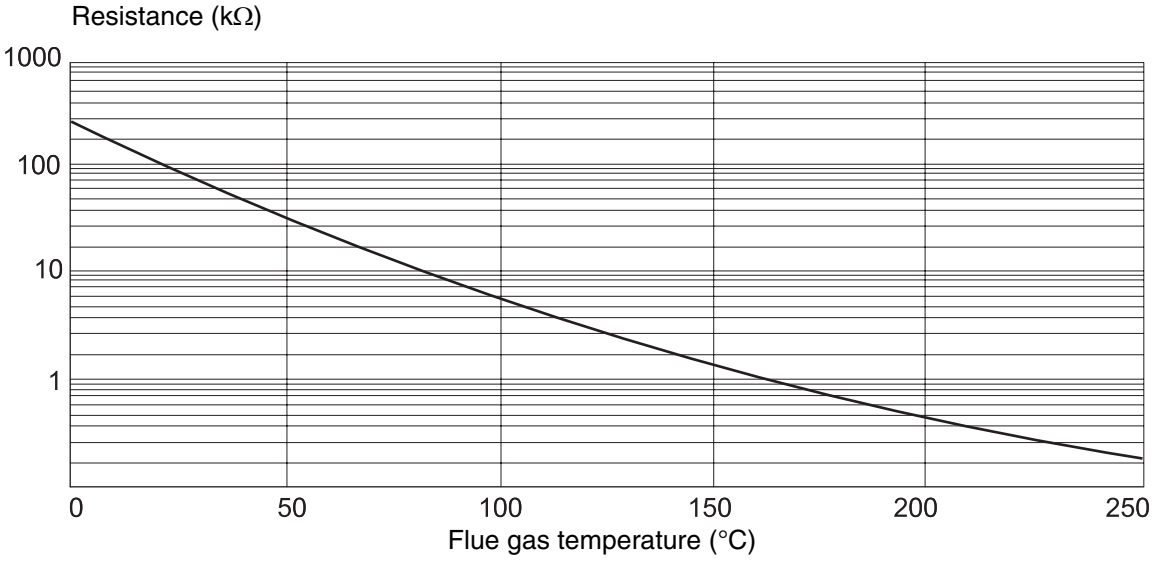


Fig. 20 Room temperature and flue gas temperature sensors

22.2 Heating curves

Notes on adjusting the heating curve:

You can adjust the heating curve gradient using the design point. The design point consists of the minimum outdoor temperature for the region and the design temperature of the selected heating system (e.g. radiators).

The heating curve moves in parallel as you adjust the required room temperature. If you change the room temperature by 1 K, the flow temperature changes by approx. 3 K.

Figure 21 shows how heating curve (1) for design point –10 °C/75 °C moves in parallel (2, 3 and 4) through various set room temperatures. Heating curves (5 and 6) show the changed gradient for other design points.

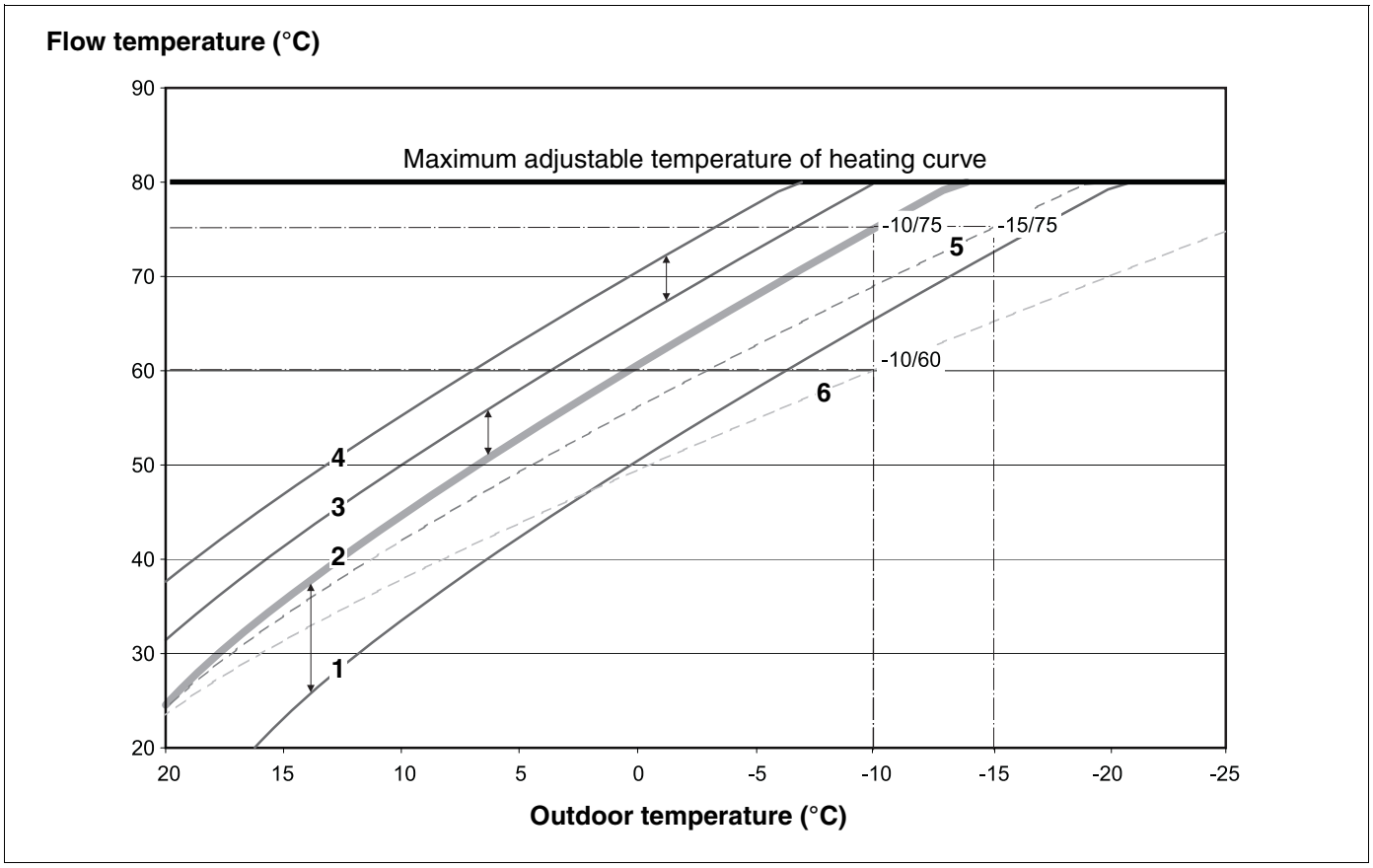


Fig. 21 Heating curve for a "radiator" heating system

Item 1: *Set room temperature 17 °C, min. outdoor temperature –10 °C, design temperature 75 °C*

Item 2: *Set room temperature 21 °C, min. outdoor temperature –10 °C, design temperature 75 °C*

Item 3: *Set room temperature 23 °C, min. outdoor temperature –10 °C, design temperature 75 °C*

Item 4: *Set room temperature 25 °C, min. outdoor temperature –10 °C, design temperature 75 °C*

Item 5: *Set room temperature 21 °C, min. outdoor temperature –10 °C, design temperature 75 °C*

Item 6: *Set room temperature 21 °C, min. outdoor temperature –10 °C, design temperature 60 °C*

23 Keyword Index

Notes

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