For the heating engineer

Installation instructions

BM Programming Module

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Document no.: 3062612_201509 Subject to modifications

GB

Contents

1 Notes concerning the documentation

1.1 Other applicable documents

Operating Instructions for the BM programming module
Operating instructions for the boiler
Installation instructions for the boiler

The instructions for all the accessory modules used and other accessories may also be applicable.

1.2 Safe-keeping of the documents

The operator or the user of the system is responsible for the safe-keeping of all manuals and instructions.

- ▶ These installation instructions and all other applicable instructions should be handed to the operator or the user of the system.

1.3 Applicability of the instructions

These installation instructions apply to the BM programming module with and without outside sensor.

1.4 Symbols and warning notices used

Symbol for additional information

▶ Symbol for a required action

Warning notices in the text provide a warning of potential dangers before an action is started. The warning instructions provide you with an indication of the potential severity of the danger by using a pictogram and a signal word.

Pictogram	Signal word	Explanation
	**Danger!**	Danger to life or danger of severe injury
	**Danger!**	Danger to life or risk of severe injury from electric shock
	**Warning!**	Risk of minor injury
	**Caution!**	Potential material damage

Tab. 1.1 Meaning of warning notices

1.4.1 Structure of warning instructions

The warning notices in this manual can be recognised by the pictogram, a top line and a bottom line. The warning notices are structured according to the following principle:

Signal word
Type and source of the danger.
Explanation of the danger.
▶ Instructions for action to avert the danger.

2 Safety and regulations

Always observe the general safety instructions.

2.1 Intended use

The Wolf BM programming module is used exclusively in connection with Wolf boilers and Wolf accessories.
The Wolf BM programming module is used to control central heating systems and central heating systems with hot water generation.
Intended use includes the observance of the operating instructions and all other applicable documents.
Any other use in addition to this is considered to be non-intended. The manufacturer/supplier shall not be liable for damage resulting from this. The risk is borne entirely by the operator.

2.2 General safety instructions

The BM programming module must be installed and started up by a qualified heating engineer.
Electrical installation must only be carried out by qualified electricians.

- Make sure to disconnect the boiler and all connected components before starting to work on the electrical installation.
- Please note that mains voltage will still be present on the electrical system even if the mains switch is turned off.
- Replace damaged or faulty components only by genuine Wolf replacement parts.
- Do not remove, bridge out or deactivate any safety or monitoring devices.
- Only operate the system if it is in a technically perfect condition.
- You must rectify faults and damage that impair safety immediately.

- If the hot water temperature is set in excess of 60 °C, then you must fit a thermostatic water mixer unit.
- The mains connection cables carrying 230 V and the eBUS lines must be run spatially separated from each other.

2.3 Regulations

- EN 60335-1 Household and similar electrical appliances - Safety
- DIN EN 50110-1, Operation of electrical installations
- DIN EN 50165 Electrical equipment of non-electric appliances for household and similar purposes
- DIN VDE 0100, Erection of power installations with rated voltages up to 1000 V
- DIN VDE 0105-100 Operation of electrical installations
- Regulations of the energy supply company (EVU)

2.4 CE Marking

CE

With the CE mark we, as the manufacturer, confirm that the BM programming module fulfils the fundamental requirements of the Electromagnetic Compatibility Directive (Directive 2004/108/EEC of the Council). The BM programming module fulfils the fundamental requirements of the Low Voltage Directive (Directive 2006/95/EEC of the Council).

3 Equipment description

The BM programming module is a control unit for controlling heating and hot water generation.
Six operating modes are available:

- **Automatic timer mode**
  Heating at programmed times
  Hot water generation at programmed times
  Circulation pump at programmed times
- **Summer mode**
  Heating not in operation
  Hot water generation at programmed times
  Frost protection active
  Pump standstill protection active
- **Continuous mode**
  24 hour heating
  24 hour hot water generation
  Circulation pump at programmed times
- **Setback mode**
  Heating at reduced temperature
  Hot water generation at programmed times
  Circulation pump at programmed times
- **Stand-by mode**
  Heating not in operation
  Hot water generation not in operation
  Frost protection active
  Pump standstill protection active
- **Flue gas test** (BM programming module installed in boiler)
  Full load operation for emissions measurement

The BM programming module also offers the following special functions:

- **Heating**
  Heating over a period of up to 30 days

- **Reduce**
  Reduce mode over a period of up to 30 days

- **1x DHW**
  One-off cylinder charging for one hour

- **Key lock**
  Prevents inadvertent alteration of the settings
- **Switch times**
  Times for the automatic timer mode
- **Room influence** (programming module as remote control)
  Correction function to compensate for temperature influences
- **Winter/summer changeover**
  Optimisation of the heating times
- **ECO-RED (ECO reduction)**
  Optimisation of heating times in the setback mode

4 Installation

The programming module can be mounted in the control system of the boiler, as a remote control unit or in an extension module, as required.
The BM programming module is pre-installed in the R2 and R3 boiler control systems.

4.1 Checking scope of supply

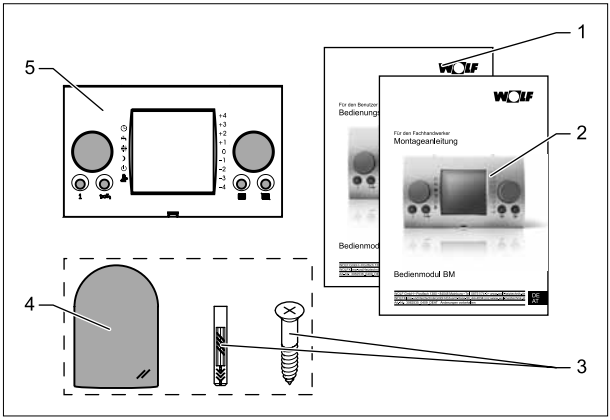


Fig. 4.1 Scope of supply of BM programming module without/with outside sensor

No.	Designation	BM without outside sensor	BM with outside sensor
1	Operating instructions	1	1
2	Installation instructions	1	1
3	Screw and plug	-/-	1 of each
4	Outside sensor	-/-	1
5	BM programming module	1	1

Tab. 4.1 Scope of supply of BM programming module

▶ Check the scope of supply with the aid of the illustration and the table.

4.2 Requirements for the installation location

The installation location must be dry and consistently frost-free.

BM programming module as a remote control unit
- The installation location must be in a reference room (e.g. the living room).
- A room temperature sensor should be mounted at a height of 1.5 m.
- The BM programming module and the room temperature sensor should not be exposed to draughts or direct thermal radiation.
- The BM programming module must not be covered by curtains or cabinets.
- All radiator valves in the room must be fully open.
- An outside sensor or a room sensor can be connected to the wall plinth.

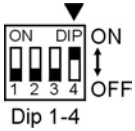
BM programming module in the boiler
The requirements concerning the installation site for the boiler apply.
▶ Observe the instructions in the installation manual for the boiler.

BM programming module in extension modules
The requirements concerning the installation location for the extension module apply.
▶ Observe the instructions in the installation manual for the extension module.

4.3 Setting the eBUS address

The BM programming module is set in the factory with the eBUS address set to 0, so that all connected components of the heating system can be operated from the BM programming module.
The miniature DIP switches for setting the eBUS address are located on the back of the BM programming module.

Setting eBUS	
Address 0 (Factory setting)	
Address 1	
Address 2	
Address 3	
Address 4	
Address 5	
Address 6	
Address 7	



Dip 1-4

- ▶ Make sure that at least one BM programming module with eBUS address 0 is fitted in the system.

You can use the BM programming module as a remote control in a mixer circuit.

- ▶ Set the same eBUS address on the BM programming module as on the associated MM mixer module.
- ▶ Make sure that each eBUS address is only allocated once in the system (BM and MM same eBUS address).

4.4 Installing the outside sensor

Installation site
The installation location for the outside sensor should be on the north or north-east wall of the building at a height of 2 to 2.5 m.

Caution!
Material damage as a result of penetrating dampness!
Incorrect installation can lead to the outside wall becoming damp or damage to the outside sensor.

- Use an existing empty pipe or wiring provided by the customer for ducting the cable through.
- If there is no empty pipe, use the radio outside sensor.
- Route the connecting cable with a drip loop.
- Make sure that the casing of the outside sensor is water and gas-tight.

- The outside sensor should preferably be connected to the boiler.
  You can also connect the outside sensor to the wall plinth.
- Before installing the radio-controlled clock module with outside sensor, provisionally test the reception of the DCF time signal*.
- Route the eBUS lines and mains cables so that they are spatially separated from each other.

* The DCF time signal broadcasts the exact time and the current date.

Connection configuration for the outside sensor

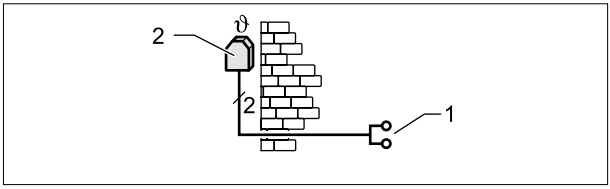


Fig. 4.2 Connecting the outside sensor to the boiler

1 Connection to the boiler
2 Outside sensor

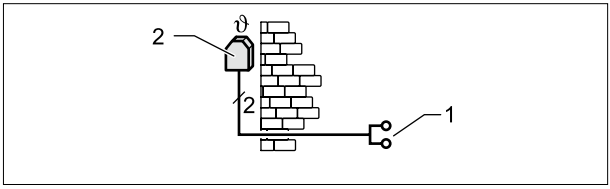


Fig. 4.3 Radio-controlled clock module with outside sensor (accessories) - connecting

1 eBUS connection
2 Outside sensor

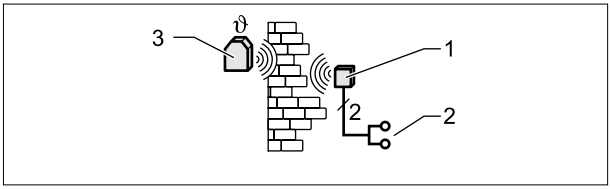


Fig. 4.4 Connecting a radio outside sensor (accessory)

1 Radio receiver
2 eBUS connection
3 Radio outside sensor

4.5 BM programming module as a remote control unit

In order to install the BM programming module as a remote control you will need the wall plinth (accessory).

Installation overview:
- Switch off the power supply
- Installing the wall plinth
- Carrying out the electrical installation
- Inserting the BM programming module

Installing the wall plinth
The wall plinth is used to mount and retain the BM programming module.

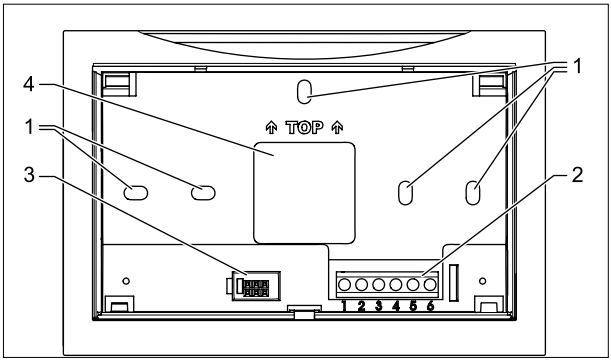


Fig. 4.5 Wall plinth installation

1 Fixing holes
2 Terminal strip
3 Interface to programming module
4 Cable ducting

▶ Fix the wall plinth on a flush-mounting socket (Ø 55 mm).

OR

▶ Fix the wall plinth to the wall with screws and plugs.

4.6 Carrying out the electrical installation

Danger!
Improper installation can cause danger to life!
Improper electrical installation can cause danger to life.
- ▶ Make sure that only a qualified electrician carries out the electrical installation.
- ▶ All electrical work should be carried out in accordance with recognised regulations and guidelines.

Danger!
Danger to life from electric shock!
Mains voltage remains on the connection terminals even when the switch is turned off.
- ▶ Switch the power supply to the equipment off.
- ▶ Make sure that the power supply cannot be switched on again.

- ▶ Switch the boiler off.
- ▶ Switch the power supply to the equipment off.
- ▶ Make sure that the power supply cannot be switched on again.
- ▶ Set the rotary dial for heating temperature selection to the middle position (5).
- ▶ Set the rotary dial for hot water temperature selection to the middle position (5).

4.6.1 Connect the outside sensor

- Switch the boiler off.
- Switch the power supply to the equipment off.
- Make sure that the power supply cannot be switched on again.
- Connect the connection cable from the outside sensor to the plug provided on the boiler.
- Insert the plug in the marked position on the connector strip on the boiler control system.
- Secure the cable with a strain relief clamp.
- Pass the connecting cable through the cut-out in the boiler casing.

4.6.2 Connecting the wall plinth

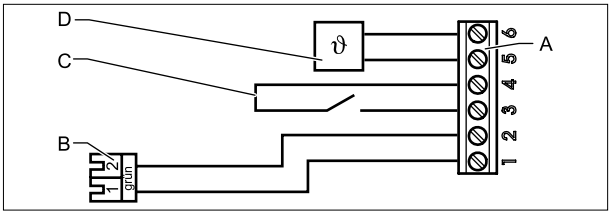


Fig. 4.6 Wall plinth terminal block assignment

A Wall plinth terminal block
B eBUS plug to the boiler
C Remote switching contact
D Outside sensor or room temperature sensor

Remote switching contact
With a floating remote switching contact you have the facility for enabling the heating system permanently for heating and for hot water generation.
If the remote switching contact remains open, the heating system operates in the set operating mode.

- ▶ Connect the connecting cable to the boiler to contacts **1** and **2**.
- ▶ Connect the green plug to the connecting cable to the boiler.
- ▶ Insert the green plug in the connection for the BM programming module on the boiler.
- ▶ Connect the remote switching contact to connections **3** and **4** (optional).
- ▶ Connect the outside sensor to connections **5** and **6** (optional).

OR

- ▶ Connect the room sensor to connections **5** and **6** (optional).

If you want to connect several remote controls or a radio-controlled clock module, then connect all accessories to the control system eBUS in parallel.

- ▶ Check that the polarity is correct (+, -).

Inserting the BM programming module

- Check the eBUS address of the BM programming module.

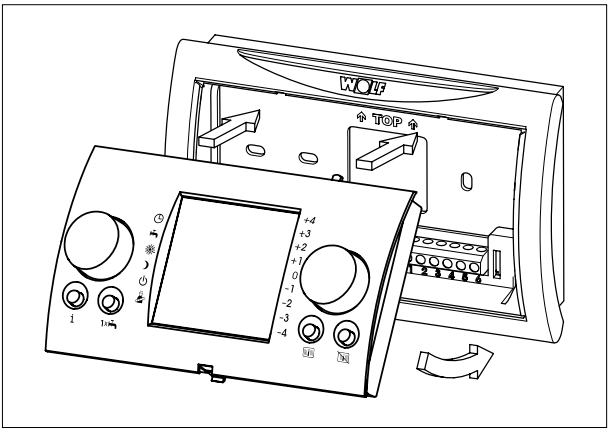


Fig. 4.7 Inserting the BM programming module into the wall plinth

- Insert the BM programming module into the wall plinth.
- Switch the power supply to the equipment on.
- Switch the boiler on.

If the correct eBUS address is set and the communication between all connected participants is functioning correctly, then the symbol appears in the display of the BM programming module after approx. one minute, or the LED lights up in the extension module.

4.7 BM programming module in the heat generator

You can fit the BM programming module directly in the boiler.

Installation overview
- Switch off the power supply
- Connect the outside sensor
- Remove the front panel
- Inserting the BM programming module

4.7.1 Removing the front panel

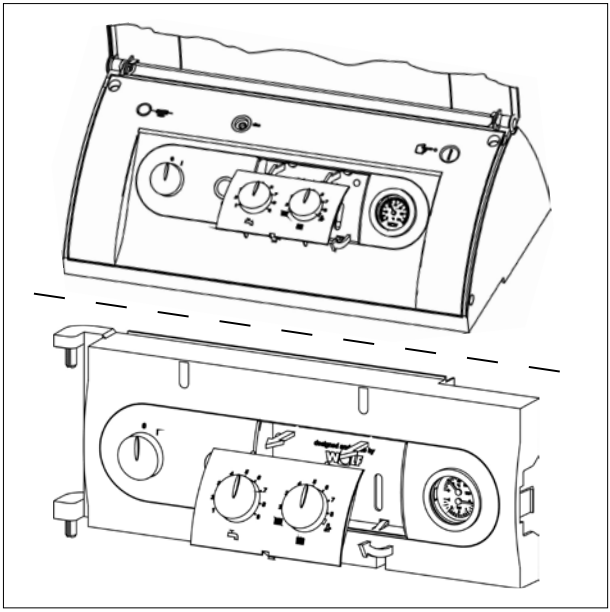


Fig. 4.8 Removing the front panel

- ▶ Set the rotary dial for heating temperature selection to the middle position (5).
- ▶ Set the rotary dial for hot water temperature selection to the middle position (5).
- ▶ Remove the front panel (**Fig. 4.9**)

4.7.2 Inserting the programming module

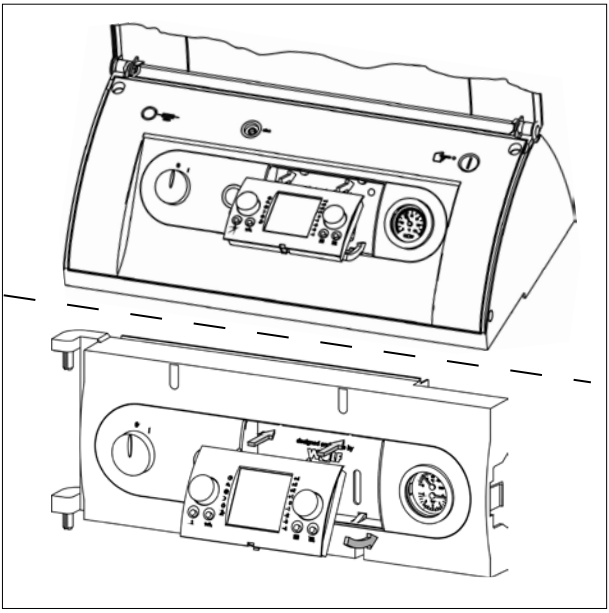


Fig. 4.9 Inserting the BM programming module

- ▶ Insert the BM programming module.
- ▶ Switch the power supply to the equipment on.
- ▶ Switch the boiler on.

If the correct eBUS address is set and the communication between all connected participants is functioning correctly, then the ⏍ symbol appears in the display of the BM programming module after approx. one minute, or the ⏍ LED lights up in the extension module.

4.8 BM programming module in extension modules

You can fit the BM programming module in extension modules (e.g. cascade module KM, mixer module MM, solar module SM).

Installation overview

- Switch off the power supply
- Remove the front panel
- Connect the outside sensor
- Inserting the BM programming module

▶ Switch the boiler off.
▶ Switch the power supply to the equipment off.
▶ Make sure that the power supply cannot be switched on again.
▶ Remove the front panel.

4.8.1 Inserting the BM programming module

- Check the eBUS address of the BM programming module.

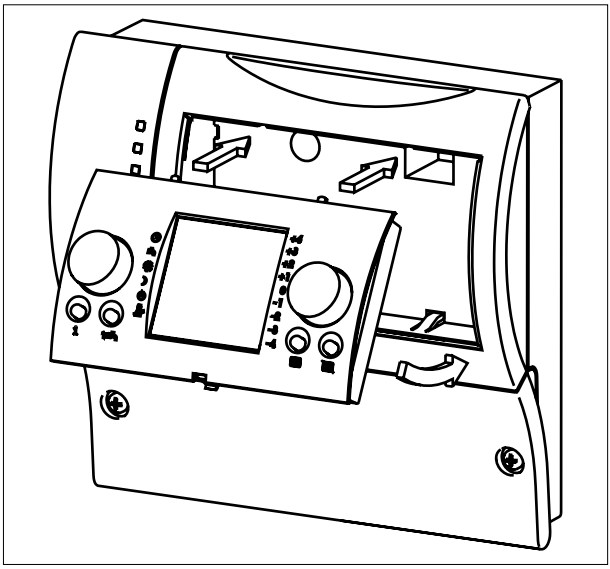
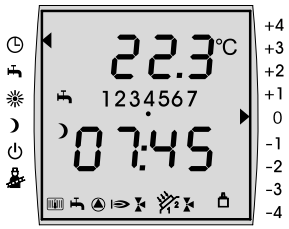


Fig. 4.10 Inserting the BM programming module into the extension module

- Insert the BM programming module into the extension module.
- Switch the power supply to the equipment on.
- Switch the boiler on.



If the correct eBUS address is set and the communication between all connected participants is functioning correctly, then the symbol appears in the display of the BM programming module after approx. one minute, or the LED lights up in the extension module.

5 Overview of the BM programming module

5.1 Overview of the programming module

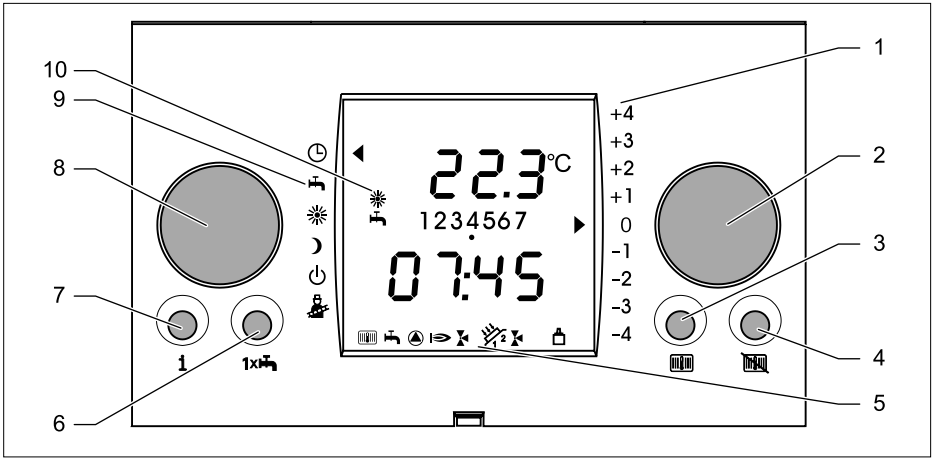
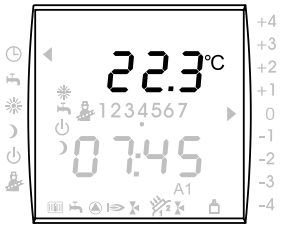


Fig. 5.1 BM programming module

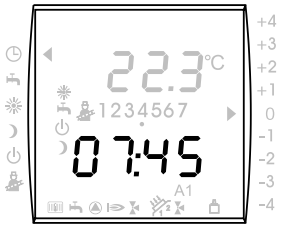
1 Temperature correction
2 Right-hand dial
3 **Heating** button
4 **Reduce** button
5 Function displays
6 **1x DHW** button
7 **Info** button
8 Left-hand dial
9 Operating mode
10 Status display

5.2 Display overview

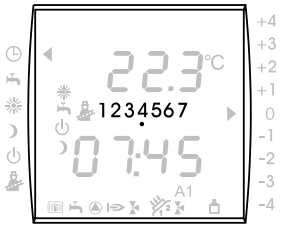


Room temperature, boiler temperature, mixer circuit temperature or solar system hot water temperature
The display on the BM programming module shows the following temperatures, depending on the installation location:

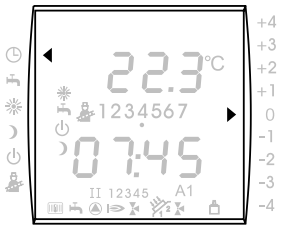
Room temperature	- remote control
Boiler temperature	- boiler
Mixer circuit temperature	- mixer module
Solar system hot water temperature	- solar module



Time and outside temperature
The display on the BM programming module shows the time and the outside temperature alternately (if an outside sensor is connected).

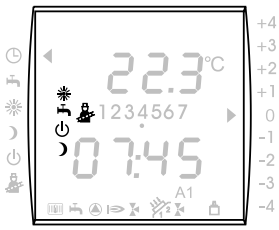


Day
The display on the BM programming module shows the currently set day.
1 = Monday
2 = Tuesday
…
7 = Sunday



◀ **Left-hand arrow**
operating mode set

▶ **Right-hand arrow**
room temperature correction set



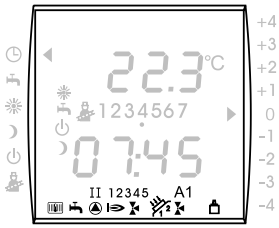
Status display

The display on the BM programming module shows the current operating mode of the heating system.

- Heating mode
- Hot water generation enabled
- Heating OFF, frost protection active
- Setback mode
- Exhaust measurement active

Symbols flashing

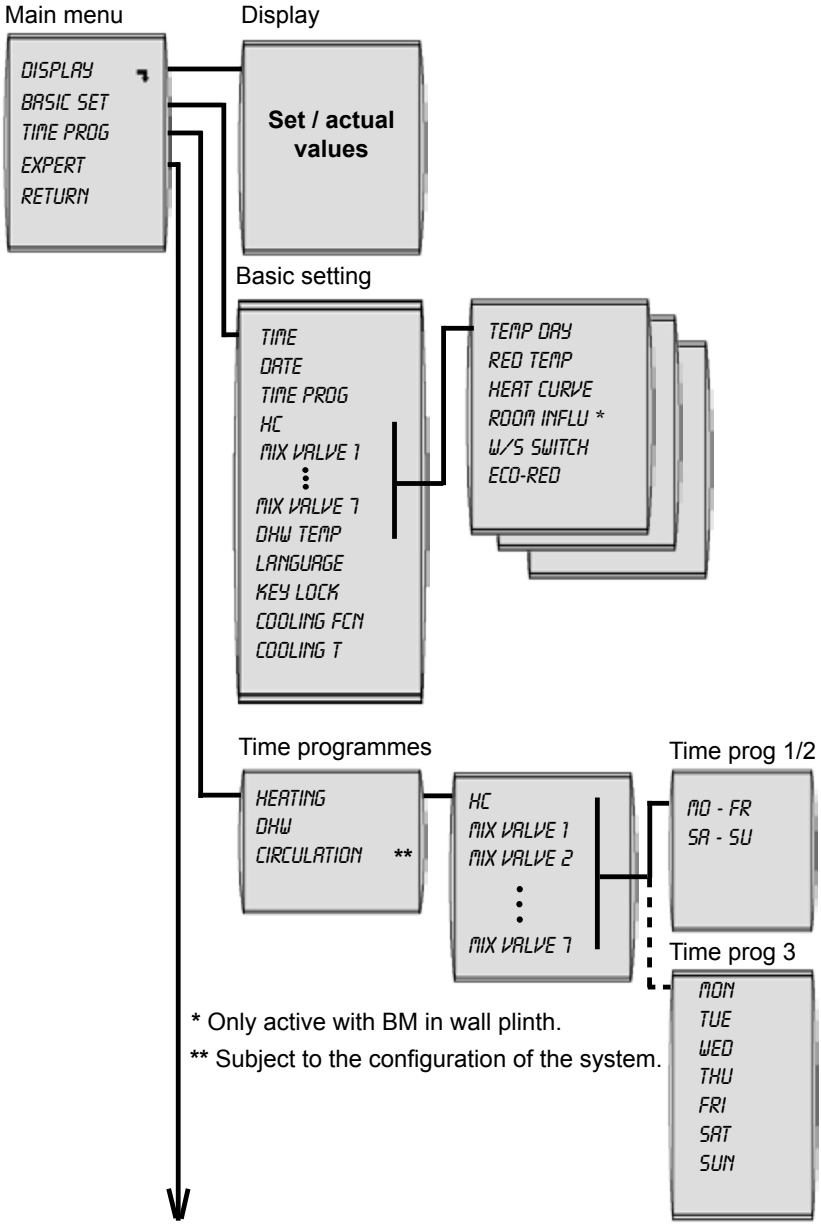
- **Heating** button has been pressed
- **1x DHW** button has been pressed
- **Reduce** button has been pressed



Function displays

The display on the BM programming module shows the current function of the heating system.

- Boiler in heating mode
- Boiler in hot water mode
- Pump on the boiler ON
- Burner ON
- Mixer circulation pump for Mixer 1 ON
- Mixer circulation pump for Mixer 2 ON
- **A1** Programmable output ON
- Solar circuit pump 1 active
- Solar circuit pump 2 active
- eBUS connection active
- I Burner stage 1 active
- II Burner stage 2 active
- 12345 Number of boilers


Main menu
Display
DISPLAY
BASIC SET
TIME PROG
EXPERT
RETURN
Set / actual values
Basic setting
TIME
DATE
TIME PROG
HC
MIX VALVE 1
MIX VALVE 7
DHW TEMP
LANGUAGE
KEY LOCK
COOLING FCN
COOLING T
TEMP DAY
RED TEMP
HEAT CURVE
ROOM INFLU *
W/S SWITCH
ECO-RED
Time programmes
HEATING
DHW
CIRCULATION **
HC
MIX VALVE 1
MIX VALVE 2
MIX VALVE 7
Time prog 1/2
MO - FR
SA - SU
Time prog 3
MON
TUE
WED
THU
FRI
SAT
SUN
* Only active with BM in wall plinth.
** Subject to the configuration of the system.

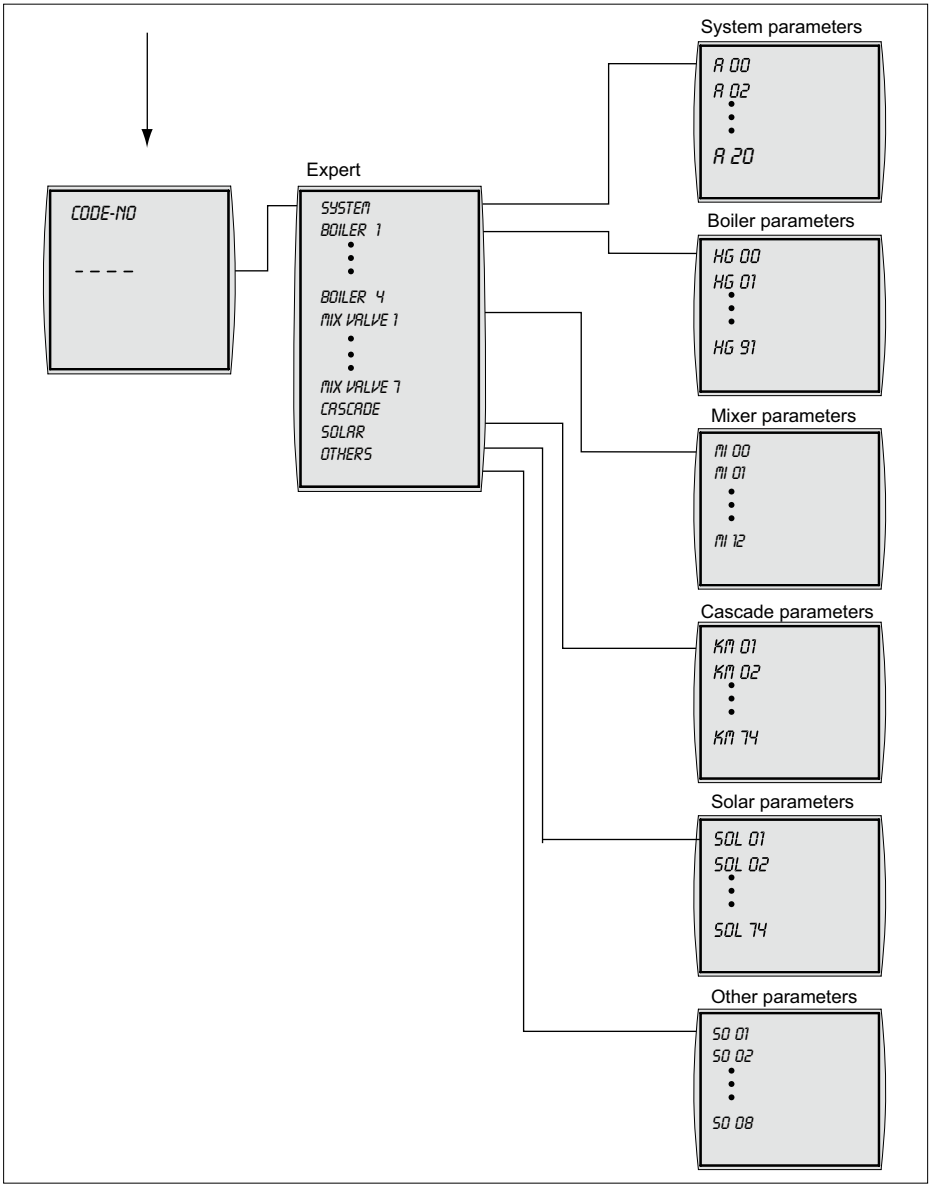
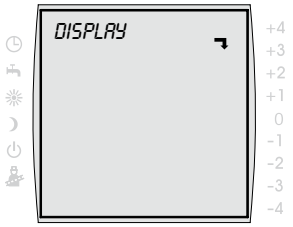
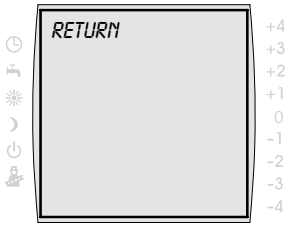


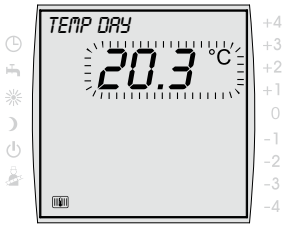
Fig. 5.2 Menu structure of the BM programming module



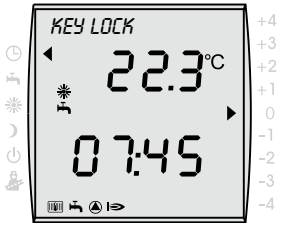
If this arrow ↴ appears in the display then there is a sub-menu.



If you press the right-hand dial when at the *RETURN* menu point, you will return to the calling menu.



If a value can be set then the adjustable value flashes in the display.



If the display shows *KEY LOCK*, then the key lock is activated.

- ▶ You can temporarily deactivate the key lock by pressing the right-hand dial for about two seconds.

6 Commissioning

Basic settings

- Language
- Time
- Date
- Time programme
- Heating circuit
  - Day temperature (room set temperature)
  - Setback temperature (reduced temperature)
  - Heating curve
  - Room influence*
  - Winter/summer changeover
  - ECO-RED
- Mixer circuit 1 to 7 (if fitted)
  - Temp day
  - Reduced temperature
  - Heating curve
  - Room influence*
  - Winter/summer changeover
  - ECO-RED
- Hot water temperature
- Key lock
- Cooling function
- Cooling temperature
- Operating mode

* The room influence parameter is only active if the BM programming module is fitted as a remote control.

Expert level

- System
- Boiler
- Mix Valve (if fitted)
- Cascade (if fitted)
- Solar (if fitted)
- Others

In order to commission the controller fully, make the basic settings in conjunction with discussions with the

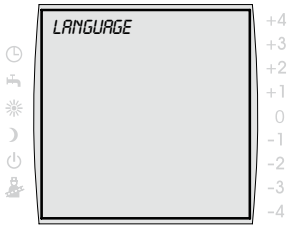
user. The user can then adapt these basic settings to his requirements at a later date.

After the system has been switched on, the start configuration begins. "Start" is displayed in the BM while the start configuration is running. Commissioning cannot be performed until the start configuration has finished.

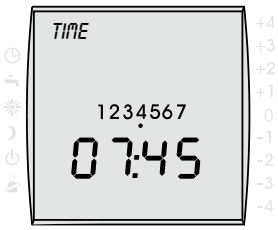
Summer/wintertime changeover
The time is automatically changed over to summer or wintertime; see also system parameter A20.

6.1 Making the basic settings

- Press the right-hand dial.
- Turn the right-hand dial to the *BASIC SET* menu.
- Confirm the selection by pressing the right-hand dial.
- Turn the right-hand dial to the *XYZ* menu.
- Press the right-hand dial.
- Adjust the parameter by turning the right-hand dial.
- Confirm the entry by pressing the right-hand dial.



Setting the language
You can select from the following:
English, French, Dutch, Spanish, Portuguese, Italian, Czech, Polish, Slovakian, Hungarian, Russian, Greek, Turkish, Bulgarian, Croatian, Latvian, Lithuanian, Romanian, Swedish, Serbian, Slovenian, Danish, Estonian



Setting range: 0 to 23:59

Setting the time

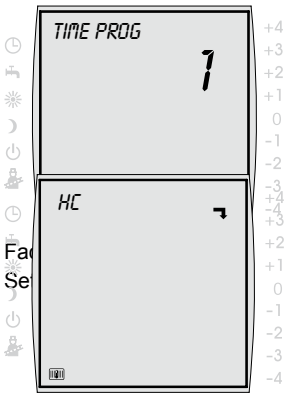
The BM programming module only sets the time and day automatically if a radio-controlled clock module is connected.

Turn slowly = change the minutes
Turn quickly = change the hours

Factory setting: ---
Setting range: 01/01/2011 to 31/12/2099

Setting the date

This setting always follows the same pattern: first select the day, then the month, and finally the year.



Fa
Se

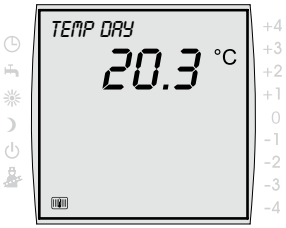
Setting timer programmes

If several heating circuits are connected, you can select the heating circuit to which the timer programme is to apply.

1 = times adjustable for day blocks Mon-Fri; Sat-Sun
2 = times adjustable for day blocks Mon-Fri; Sat-Sun
3 = times individually adjustable for each day

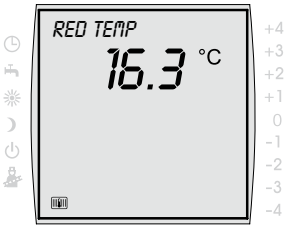
Heating circuit

You can define the parameters for the individual heating circuits in the *HC, MIX VALVE 1 ... 7* menu.



Factory setting: 20 °C
Setting range: 5 to 30 °C

Setting the daytime temperature (room temperature)
You set the desired room temperature within the switching times with the daytime temperature parameter. Unless the room influence parameter is active (programming module installed as a remote control), the daytime temperature set only represents an approximate value.



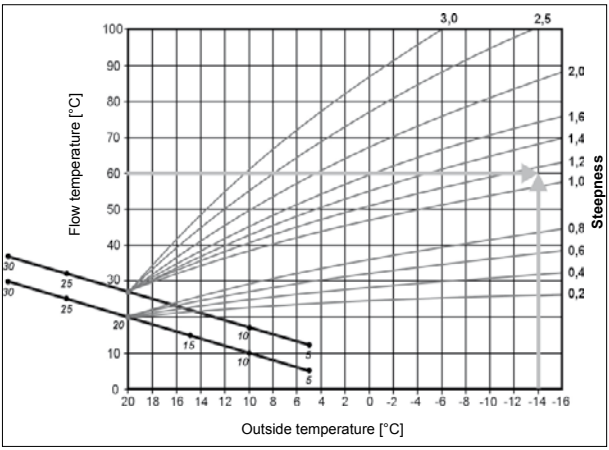
Factory setting: 16 °C
Setting range: 5 to 30 °C

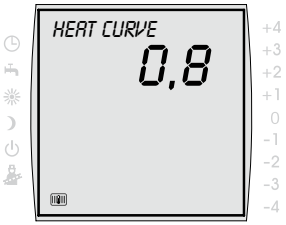
Setting the reduced temperature (setback temperature)
The setback temperature is the temperature to which the heating circuit/ room temperature is heated outside the switching times (→ Programme the switching times, heating times), e.g. at night or when you are away or in setback mode.
Unless the room influence parameter is active (programming module installed as a remote control), the reduced temperature set only represents an approximate value.

Setting the heating curve
The *HEAT CURVE* sub-menu is only displayed in systems with an outside sensor connected.

Caution!
Danger of damage caused by high flow temperatures!
Flow temperatures in excess of 40 °C can lead to material damage to underfloor heating.

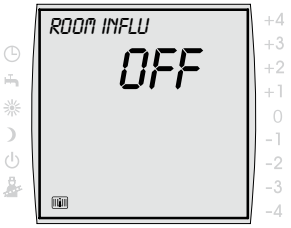
- ▶ Set the heating curve so that the flow temperature does not rise above 40 °C.





- ▶ Turn the right-hand dial to the *HEAT CURVE* sub-menu.
- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the desired heating curve.
- ▶ Confirm the entry by pressing the right-hand dial.

Factory setting:
Heating circuit: 1.2
Mixer circuit: 0.8
Setting range: 0 to 3.0

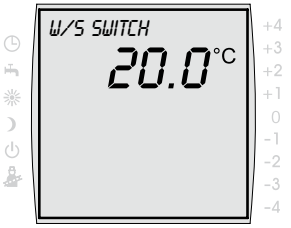


Factory setting: OFF
Setting range: ON/OFF

Setting the room influence

The **Room influence** is only active if the BM programming module is installed as a remote control and you have set the **Room influence** function.
The room influence function is used to compensate for room temperature changes caused by extraneous heat or cold (e.g. direct sunlight, stoves or open windows).

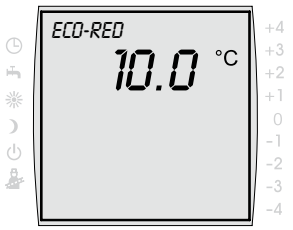
ON = room influence switched on
OFF = room influence switched off



Factory setting: 20 °C
Setting range: 0 to 40 °C

Setting the winter/summer changeover

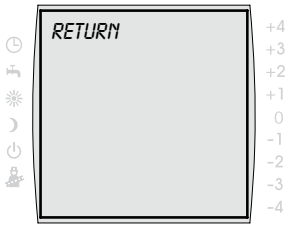
The **winter/summer changeover** function is only active if an outside sensor is connected.
The winter/summer changeover should only be changed in consultation with your heating engineer.
The winter/summer changeover function optimises the times at which the heating heats to the day temperature.
If the average outside temperature is in excess of the set winter/summer temperature, then the heating switches to the Stand-by mode.
If the average outside temperature is below the set winter/summer temperature, then the heating switches to the Automatic timer mode.
The period for calculation of the average outside temperature is set by your heating engineer.



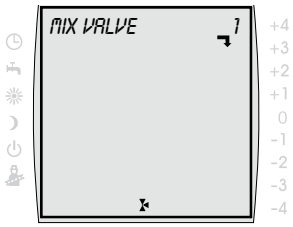
Factory setting: 10 °C
Setting range: -10 to 40 °C

Setting ECO-RED

Using the ECO-RED temperature you can stipulate an outside temperature from which the heating is switched on or off in the Setback mode.
The ECO-RED setting should only be changed in consultation with your heating engineer.



- ▶ Turn the right-hand dial to the *RETURN* entry.
- ▶ Confirm the selection by pressing the right-hand dial.

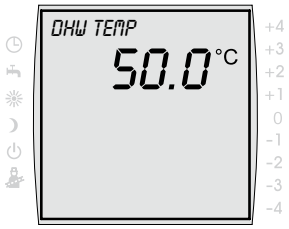


Mixer circuit

- ▶ Proceed with the mixer circuits, *MIX VALVE 1* to *MIX VALVE 7* (if fitted), in the same way as for the settings for the heating circuit, *HC*.

Setting the hot water temperature
The *DHW TEMP* menu is displayed on systems with a cylinder sensor connected.

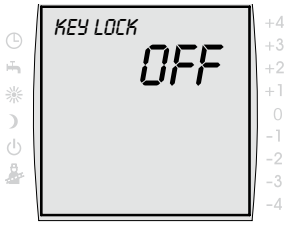
Danger!
Danger of scalding by hot water!
Hot water temperatures in excess of 65 °C can cause scalding.
- ▶ Do not set the hot water temperature above 65 °C.



Factory setting: 50 °C
Setting range: 15 to 60 °C

- ▶ Turn the right-hand dial to the *DHW TEMP* menu.
- ▶ Press the right-hand dial.
- ▶ Adjust the hot water temperature by turning the right-hand dial.
- ▶ Confirm the entry by pressing the right-hand dial.

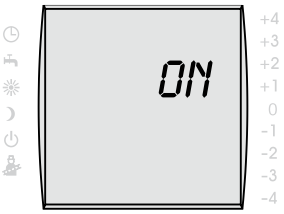
Setting the key lock
The key lock prevents inadvertent adjustment of the heating system (e.g. by children or when dusting).
If the key lock is switched on, the key lock is automatically activated one minute after the last adjustment.



Factory setting: OFF
Setting range: ON/OFF

ON = key lock switched on
OFF = key lock switched off

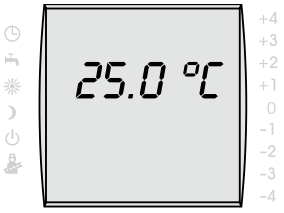
- ▶ You can temporarily deactivate the key lock by pressing the right-hand dial for about 1 second.



Factory setting: OFF
Setting range: ON/OFF

Selecting the cooling function with heat pump
If linked to a Wolf heat pump and BKM cooling module, the BM can be used to enable a cooling function for a heating circuit. The cooling function only applies to heating circuits which have a separate programming module allocated to them via the address. Cooling is enabled for a heating circuit if none of the heating circuits in the system calls for heating energy, the relevant programming module is in summer mode and the actual room temperature is ≥ the set room temperature for cooling (= cooling temperature). In addition, the symbol "☼" is displayed in the programming module. In automatic timer mode, a time program or programmed switching time for heating must be active.

ON = cooling function switched on
OFF = cooling function switched off



Factory setting: 25 °C
Setting range: 5 to 35 °C

Setting the cooling temperature
Set the boiler operating mode using the left hand dial until the arrow points to the required operating mode.

Setting the operating mode

- Set the boiler operating mode using the left hand dial until the arrow points to the required operating mode.

Automatic timer mode
Heating at programmed times
Hot water generation at programmed times
Circulation pump at programmed times

- **Summer mode**
  Heating not in operation
  Hot water generation at programmed times
  Frost protection active
  Pump standstill protection active
- **Continuous mode**
  24 hour heating
  24 hour hot water generation
  Circulation pump at programmed times
- **Setback mode**
  Heating at reduced temperature
  Hot water generation at programmed times
  Circulation pump at programmed times
- **Stand-by mode**
  Heating not in operation
  Hot water generation not in operation
  Frost protection active
  Pump standstill protection active
- **Flue gas test** (BM programming module installed in boiler)
  Full load operation for emissions measurement

6.2 Switch times

The switch times are available in the automatic time operating mode and Summer mode.
You can set the times at which the heating system heats to the desired room temperature (day temperature).
You can programme times at which the DHW cylinder is heated to a specific hot water temperature.
You can programme times at which the circulation pump (if fitted) is switched on.

The switch times for the heating, hot water generation and the circulation pump (if fitted) are set in two steps.

First decide whether the switch times are to be programmed for the day blocks Mo-Fr and Sa-Su or for each day individually.
You can then programme the switch times to meet your wishes.

Three switch times are available for each day block or day.

You can programme individual switch times for the heating circuit, each additional mixer circuit, the hot water generation and the circulation pump.

Three switch time programmes are pre-programmed in the factory.

6.2.1 Pre-programmed switch times

Time pro-gramme	Block	Switch time	HC		Mix valve		Hot water (DHW)		Circulation	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF
Time prog 1	Mo-Fr	1	6:00	22:00	5:00	21:00	5:30	22:00	6:00	6:30
		2							17:00	18:30
		3								
	Sa-Su	1	7:00	23:00	6:00	22:00	6:30	23:00	6:30	7:00
		2							11:00	12:00
		3							17:00	18:30
Time prog 2	Mo-Fr	1	6:00	8:00	5:00	7:00	5:00	6:00	6:00	6:15
		2	15:00	22:00	14:00	21:00	17:00	18:00		
		3								
	Sa-Su	1	7:00	22:00	6:00	21:00	6:00	7:00	6:30	6:45
		2					16:00	21:00	16:30	17:00
		3								
Time prog 3	Mon	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Tue	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Wed	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Thu	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Fri	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Sat	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								
	Sun	1	5:30	21:00	4:30	20:00	5:00	7:00	6:00	6:30
		2					15:00	21:00	17:00	17:30
		3								

Table A.2 Pre-programmed switch times

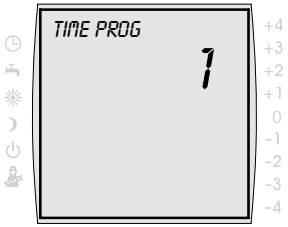
6.2.2 Selecting the timer programme

Using the timer programme you specify whether the switch times are to be programmed for the day blocks Mo-Fr and Sa-Su or for each day individually.

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *BASIC SET* menu.
- ▶ Press the right-hand dial.

If a heating circuit and one or more mixer circuits are connected (e.g. radiator and underfloor heating) then first select the relevant heating or mixer circuit.

- ▶ Turn the dial to the *HC* or *MK1 … MK7* sub-menu.
- ▶ Press the right-hand dial.



Factory setting: 1
Setting range: 1/2/3

- ▶ Turn the right-hand dial to the *TIME PROG* entry.
- ▶ Press the right-hand dial to change the timer programme.
- ▶ Select the timer programme by turning the right-hand dial.
  - *1* = Mo-Fr and Sa-Su
  - *2* = Mo-Fr and Sa-Su
  - *3* = Mon, Tue, Wed, Thu, Fri, Sat, Sun
- ▶ Confirm the timer programme by pressing the right-hand dial.

You go back to the basic display by pressing the **Info** button.

6.2.3 Programming heating times

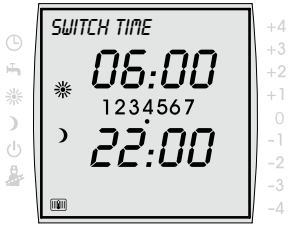
The heating times are used to stipulate when the heating is switched on and off in the Automatic time mode.

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *TIME PROG* menu.
- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *HEATING* menu.

If a heating circuit and one or more mixer circuits are connected (e.g. radiator and underfloor heating) then first select the relevant heating or mixer circuit.

- ▶ Turn the dial to the *HC* or *MK1 … MK7* sub-menu.
- ▶ Press the right-hand dial.

- ▶ Select the day/day block by turning the right-hand dial.
- ▶ Press the right-hand dial.
- ▶ Select the switch time by turning the right-hand dial.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Set the start time ☼ by turning the right-hand dial.
- ▶ Confirm the start time by pressing the right-hand dial.
- ▶ Set the end time ☽ by turning the right-hand dial.
- ▶ Confirm the end time by pressing the right-hand dial.



Setting range: 00:00-00:00
in 15 min steps

You go back to the basic display by pressing the **Info** button.

Always programme the switch times one after the other.
Switch time 1: 06:00 – 10:00
Switch time 2: 15:00 – 22:00

Times which include midnight must be programmed in time programmes 1 and 2 per the following example: The heating should run from 16:00 to 03:00 on the following day in time programme 1. This means that you should set the following times:
Switch time 1: 00:00 – 03:00
Switch time 2: 16:00 – 24:00

You go back to the basic display by pressing the **Info** button.

6.2.4 Programming hot water times

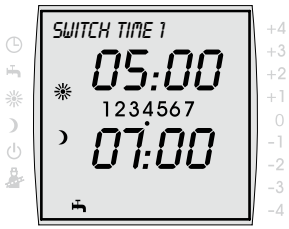
Using the hot water times you can specify at which times the hot water is available at the set hot water temperature.
The DHW cylinder is not heated up by the boiler outside the switch times.

If you have a heating system with solar assistance, then the DHW cylinder is also heated up outside the switch times, provided that solar energy is available.

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *TIME PROG* menu.
- ▶ Press the right-hand dial.

- ▶ Turn the right-hand dial to the *HOT WATER (DHW)* menu.

- ▶ Select the day/day block by turning the right-hand dial.
- ▶ Press the right-hand dial.
- ▶ Select the switch time by turning the right-hand dial.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Set the start time ☼ by turning the right-hand dial.
- ▶ Confirm the start time by pressing the right-hand dial.
- ▶ Set the end time ☽ by turning the right-hand dial.
- ▶ Confirm the end time by pressing the right-hand dial.



Setting range: 00:00-00:00
in 15 min steps

You go back to the basic display by pressing the **Info** button.

6.2.5 Programming the circulation pump times

Using the circulation pump times, you can stipulate at which times the circulation pump (if fitted) circulates the hot water in the pipes.

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *TIME PROG* menu.
- ▶ Press the right-hand dial.

- ▶ Turn the right-hand dial to the *CIRCULATION* menu.

- ▶ Select the day/day block by turning the right-hand dial.
- ▶ Press the right-hand dial.
- ▶ Select the switch time by turning the right-hand dial.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Set the start time ☼ by turning the right-hand dial.
- ▶ Confirm the start time by pressing the right-hand dial.
- ▶ Set the end time ☽ by turning the right-hand dial.
- ▶ Confirm the end time by pressing the right-hand dial.

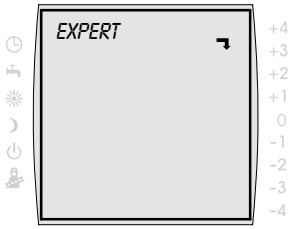
Setting range: 00:00-00:00
in 15 min steps

You go back to the basic display by pressing the **Info** button.

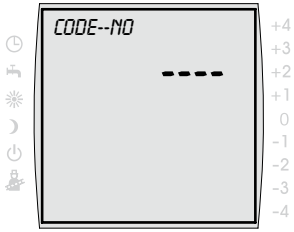
6.3 Expert level

In the expert level you can set the system-specific parameters.

6.3.1 Setting system parameters



- Press the right-hand dial.
- Turn the right-hand dial to the *EXPERT* menu.
- Confirm the selection by pressing the right-hand dial.
- Activate the code input by pressing the right-hand dial.



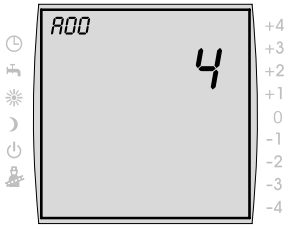
Code no: 1

- Turn the right-hand dial to enter the code (**1**).
- Confirm the entry by pressing the right-hand dial.

- Turn the right-hand dial to the *SYSTEM ...* parameter.
- Press the right-hand dial.
- The parameter is changed by turning the right-hand dial to the desired value.
- Confirm the entry by pressing the right-hand dial.

Parameters		Setting range	Factory setting
A00	Room influence factor	1 to 20 K/K	4 K/K
A01	Heat-up optimisation	0/1	0
A02	Maximum heat-up time	0 to 180 min	0
A03	Required heat-up time	-	-
A04	Outside sensor averaged	0 to 24 h	3 h
A05	Room sensor matching	-5 to +5 K	0 K
A06	External sensor	0 to 1	1
A07	Anti-legionella function	0 to 8	0
A08	Service message	0 to 104 weeks	0
A09	Frost protection limit	-20 to +10 °C	+2 °C
A10	Parallel DHW mode	0/1	0
A11	Room temperature dependent Winter/Summer changeover	OFF/ON	ON
A12	Setback stop	OFF, -39 to 0 °C	-16 °C
A13	DHW minimum temperature	15 to 65 °C	45 °C
A14	DHW maximum temperature	60 to 80 °C	65 °C
A15	Outside temperature correction factor	-5 to +5	0
A16	PI room temperature controller	OFF/ON	ON
A17	PI room temperature controller Kp	5 to 50	30
A18	PI room temperature controller Tn	1 to 40	10
A19	Do not alter the factory setting	20 to 95 °C	
A20	Winter/summertime changeover	OFF/ON	ON

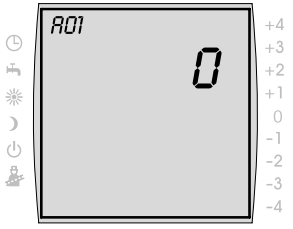
Tab. 6.1 System parameters



Factory setting: 4 K/K
Setting range 1 to 20 K/K

Setting the room influence factor (A00)
The Room influence function is only active if the BM programming module is installed as a remote control and you have set the Room influence in the user level.
The room influence function is used to compensate for room temperature changes caused by extraneous heat or cold (e.g. direct sunlight, stoves or open windows). The integrated room temperature sensor compares the room temperature with the set value (day temperature or setback temperature). The deviation from the set value is multiplied by the heating curve value and the room influence factor, and the flow temperature is increased by this amount.

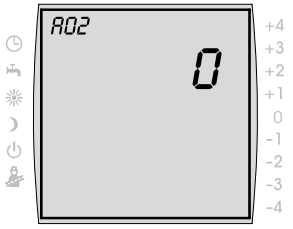
Small room influence factor = small effect on flow temperature
Large room influence factor = large effect on flow temperature



Factory setting: 0
Setting range: 0/1/2

Setting heat-up optimisation (A01)
The heat-up optimisation specifies the required heat-up time in setback mode so that the room temperature will already have been reached by the time set according to the time programme.
The heat-up optimisation is switched on with the *A02* parameter.

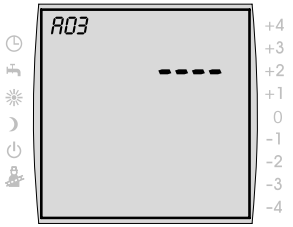
- *0* = heat-up optimisation off
- *1* = outside temperature dependent heat-up optimisation
- *2* = room temperature dependent heat-up optimisation



Factory setting: 0
Setting range: 0 to 180 min

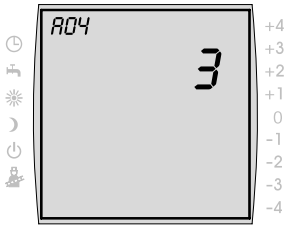
Setting up the maximum heat-up time (A02)
Using the maximum heat-up time parameter, you can specify the time that is to be used as the basis for the calculation to ensure that the heating system starts heating at the correct time for the room temperature to be reached at the desired time.
The heating starts within the maximum heat-up time before the set switch time, so that the room temperature is achieved at the switch time.

0	= heat-up optimisation off
Max. *180* min.	= heat-up optimisation on



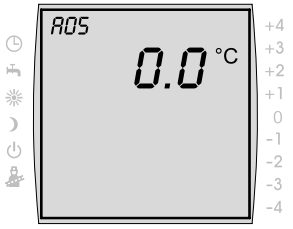
Display value

Displaying the required heat-up time (A03)
The last required heat-up time is displayed. This value is a display value and cannot be changed.



Factory setting: 3 h
Setting range: 0 to 24 h

Setting the outside sensor average (A04)
For certain automatic functions (e.g. winter/summer changeover, ECO-RED), the BM programming module calculates an average outside temperature based on the current outside temperature over a period of several hours. You can set the calculation period using the "Outside sensor average" parameter.
If the setting is 0 hours, the BM programming module does not calculate an average and the average is always the same as the current outside temperature.
The outside temperature display is not averaged.

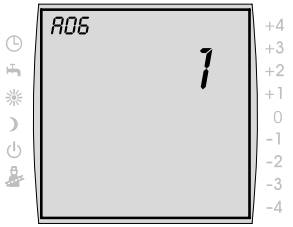


Factory setting: 0
Setting range: -5 to +5 K

Setting the room sensor matching (A05)
Using the room sensor matching parameter you can match the temperature display to the installation conditions. The corrected display value is used in the calculation for all relevant functions.

Example:
The display shows 20 °C; 22 °C is measured in the room.

- ▶ Set the parameter to 2 °C in order to show 22 °C in the display.



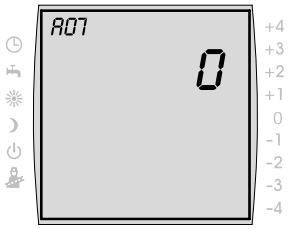
Factory setting: 1
Setting range: 0/1

Setting the external sensor (A06)
If the BM programming module is installed as a remote control then you can connect an external temperature sensor (outside sensor or room sensor) at the wall plinth.

0 = room sensor
1 = outside sensor

Setting the anti-legionella function (A07)

Danger!
Danger of scalding by hot water!
The anti-legionella function causes the hot water to be heated to 65 °C for an hour and can cause scalding.
- ▶ Inform the user of the times when the anti-legionella function will be operating.

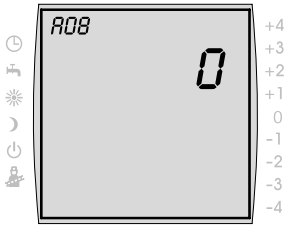


Factory setting: 0
Setting range: 0 to 8

System without solar module
The DHW cylinder is heated to 65 °C during the first heating up of the day.

Systems with solar module
The anti-legionella function is guaranteed by the boiler or the solar system.
- **Anti-legionella function via solar system**
  If the hot water temperature is held in excess of 65 °C by the solar output for an hour then the anti-legionella function of the boiler is blocked.
- **Anti-legionella function via the boiler**
  If the solar output is not able to hold the hot water temperature over 65 °C for an hour, then the boiler will perform the anti-legionella function for an hour at 18:00.

0 = OFF
1-7 = once per week
1 = on Monday … *7* = on Sunday
8 = daily



Factory setting: 0
Setting range: 1 to 104 weeks

Setting the service message (A08)

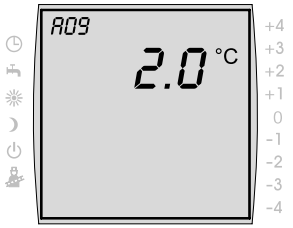
If you activate the service message parameter (set value > 0), then the *SERVICE* message is shown in the display after the set number of weeks has elapsed.

- ▶ Inform the user of the set service message.
- ▶ Reset the service message by pressing the **Reduce** button.
  The cycle up to the next *SERVICE* message starts again.

Setting the frost protection limit (A09)

Caution!
Material damage caused by frost!
Frost can cause the heating system to freeze up and cause material damage to the system and the rooms.

- ▶ Observe the frost protection setting for the boiler.
- ▶ Ensure adequate frost protection of the system.
- ▶ Inform the user of the frost protection measures that have been taken.
- ▶ Make sure that the boiler is constantly supplied with power.



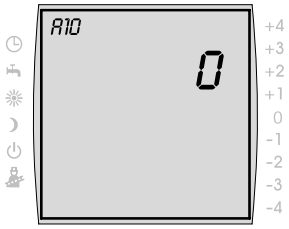
Factory setting: 2 °C
Setting range: -20 to +10 °C

If the outside temperature falls below the set value then the heating pump will run continuously.
If the boiler water temperature falls below the fixed value of +5 °C, then the burner switches on and heats up to the minimum boiler water temperature.

Setting the parallel DHW mode (A10)

Caution!
Material damage caused by high flow temperatures!
The parallel DHW mode can make the flow temperature in the heating circuit higher than the setting and can lead to material damage.

- ▶ With underfloor heating without a separate mixer, set the hot water priority switch on.



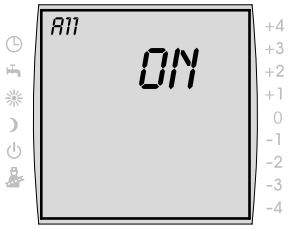
Factory setting: 0
Setting range: 0/1

Hot water priority switch
Hot water generation has priority over the heating mode. The heating mode does not operate as long as the hot water is being generated. If the boiler water temperature is 5 °C higher than the DHW cylinder water temperature, the DHW cylinder charging pump starts up. When the set hot water temperature has been reached, the burner switches off and the heating circuit pump switches on. The cylinder pump will run on for the time set in parameter *HG19* (cylinder charging pump run-on time).

Parallel DHW mode
Heating and hot water generation operate simultaneously. As a result of the simultaneous operation, the heating circuit can be heated to higher temperatures than required or set.

0 = hot water priority switch
1 = parallel DHW mode

On wall-mounted boilers with a priority changeover valve for hot water generation, this parameter has no function.



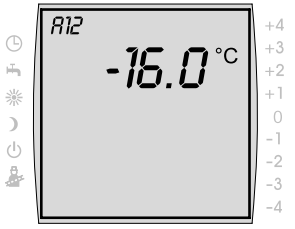
Factory setting: ON
Setting range: ON/OFF

Setting the room temperature dependent winter/ summer changeover (A11)
If the BM programming module is used as a remote control and the room influence function is switched on, then the room temperature dependent winter/summer changeover is active.
The room influence function is used to compensate for room temperature changes caused by extraneous heat or cold (e.g. direct sunlight, stoves or open windows).

OFF = winter/summer changeover OFF
(e.g. stove in the room)
ON = winter/summer changeover ON

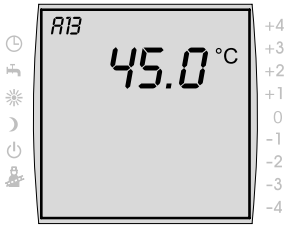
Example 1
If, with the room influence function switched on, the living area is heated only by the boiler, the winter/summer changeover (*ON*) prevents overheating of the area.

Example 2:
If, with the room influence function switched on, the room in which the programming module is installed (e.g. living room) is heated with a second heat source (e.g. a stove), this can lead to a winter/summer changeover. Other rooms will cool down as a result.
Remedy: Switch off room temperature dependent winter/ summer changeover (*OFF*).



Factory setting: -16 °C
Setting range: OFF, -39 to 0 °C

Setting setback stop (A12)
If the average outside temperature falls below the set value, then the BM programming module switches the heating from Setback mode to heating mode.



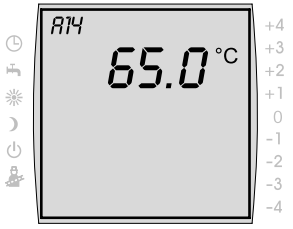
Factory setting: 45 °C
Setting range: 15 to 60 °C

Setting the minimum DHW temperature (A13)
The minimum DHW temperature parameter *A13* is only active when a solar extension module is connected.

If the DHW cylinder can be heated up above the set hot water temperature by the solar system, solar charging has been successful.
With successful solar charging, the boiler does not heat the DHW cylinder as long as the temperature of the hot water does not fall below the minimum temperature or the set hot water temperature has not been reached by 14:00 on the following day.
If the hot water temperature falls below the minimum value, the DHW cylinder is heated up by the boiler.

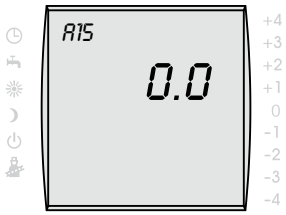
Setting the maximum DHW temperature (A14)

Danger!
Danger of scalding by hot water!
Water temperatures in excess of 65 °C can cause scalding.
- ▶ Do not set the maximum hot water temperature above 65 °C.
- ▶ If temperatures in excess of 60 °C are to be set, then fit a thermostatic water mixer.



Factory setting: 65 °C
Setting range: 60 to 80 °C

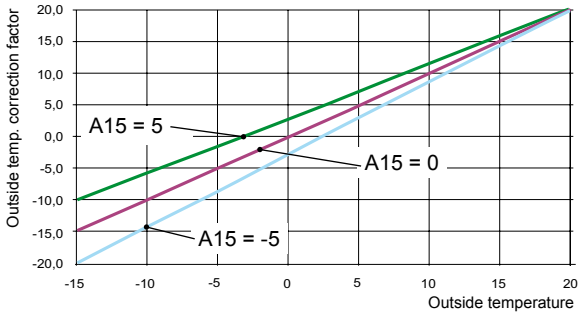
The maximum DHW temperature is set with the *A14* system parameter.
The maximum DHW temperature is the maximum temperature that the user can set for the hot water.

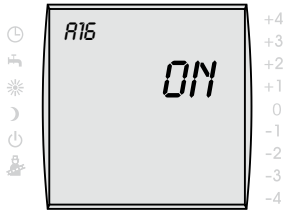


Factory setting: 0
Setting range: -5 to +5

Setting the outside temperature correction factor (A15)
To adapt the outside temperature indicator to the installation conditions of the sensor or other thermometers, the measured value can be adjusted by a correction factor (+/-5); see graph. The correction factor is influenced by the outside temperature. The corrected display value will be applied to all calculations and displays of relevant functions. All other connected remote control units (e.g. AFB) use this value.

Example:
Graph with various correction factors. To calculate the straight lines, the correction factor is applied to the outside temperature at -15 °C.
At 20 °C and above, no correction is applied to the outside temperature sensor.

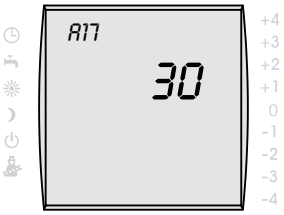




Factory setting: ON
Setting range: ON/OFF

Setting the PI room temperature controller (A16)
To activate the PI room temperature controller, the heating curve in the relevant heating circuit must be set to 0. If the heating curve parameter is not displayed, no outside temperature sensor is available.

ON = PI room temperature controller switched on
OFF = PI room temperature controller switched off

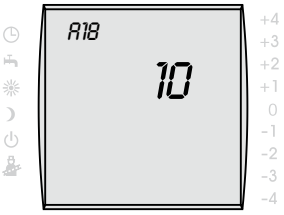


Factory setting: 30 °C
Setting range: 5 to 50 °C

Setting Kp for the PI room temperature controller (A17)
With A17, the Kp proportion of the PI controller is set.

Kp = Proportional gain factor

Increase Kp → PI controller responds more quickly
Reduce Kp → PI controller responds more slowly

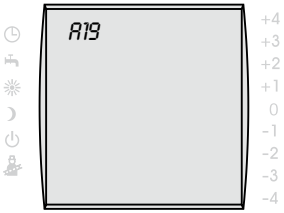


Factory setting: 10 °C
Setting range: -1 to 40 °C

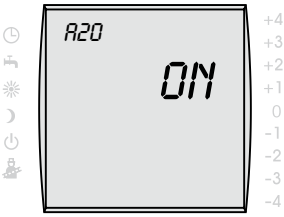
Setting Tn for the PI room temperature controller (A18)
With A18, the Tn proportion of the PI controller is set.

Tn = Integral action time

Increase Tn → PI controller responds more slowly
Reduce Tn → PI controller responds more quickly



Do not alter the factory setting.



Factory setting: ON
Setting range: ON/OFF

Winter/summertime changeover

OFF = automatic winter/summertime changeover OFF
ON = automatic winter/summertime changeover ON

6.4 Boiler

You can set the boiler parameters from the BM programming module (e.g. burner cycle block, input **E1**, output **A1**).

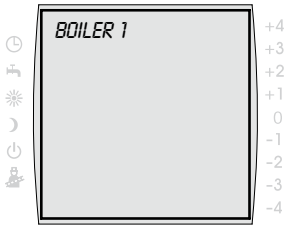
6.4.1 Setting the boiler parameters

The boiler parameters can vary depending on the version.

Caution!
Damage to the boiler possible!
Incorrect setting of the boiler parameters can result in damage to the boiler.

- ▶ Observe the instructions and setting options for the parameters in the boiler installation manual.

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *EXPERT* menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Activate the code input by pressing the right-hand dial.
- ▶ Turn the right-hand dial to enter the code (**1**).
- ▶ Confirm the entry by pressing the right-hand dial.



- Turn the right-hand dial to the *BOILER 1* entry.
- Turn the right-hand dial to the *HG …* sub-menu.

After approx. 5 seconds the display shows the set parameter value.

- Press the dial.
- Set the parameter value by turning the right-hand dial.
- Confirm the entry by pressing the right-hand dial.

- **Observe also the data in the boiler installation manual.**

If a parameter is not available, four dashes are shown in the display.

Boiler parameters	
HG00	Pipe length matching
HG01	Burner switching differential
HG02	Lower burner output, heating
HG03	Upper burner output, DHW
HG04	Upper burner output, heating
HG06	Pump operating mode
HG07	Heating circuit pump run-on time
HG08	Maximum limit heating circuit TV-max
HG09	Burner cycle block
HG10	eBUS address
HG11	DHW quick start
HG12	Gas type
HG13	Programmable input E1
HG14	Programmable output A1
HG15	Cylinder hysteresis
HG16	Pump output HC minimum
HG17	Pump output HC maximum
HG19	Cylinder charging pump run-on time
HG20	Maximum cylinder charging time
HG21	Boiler minimum temperature TK-min
HG22	Boiler maximum temperature TK-max
*HG23**	DHW maximum temperature
HG24	DHW sensor operating mode
HG25	Boiler over-temperature during cylinder charging
HG26	Boiler soft start
HG27	Burner stage during cylinder charging
HG28	Burner operating mode
HG29	Modulation block
HG30	Modulation dynamics

Tab. 6.2 Boiler parameters

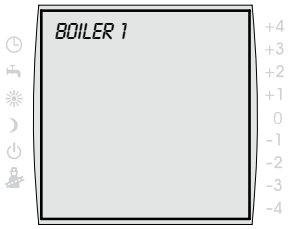
Boiler parameters	
HG31	Blocking time, burner stage 2
HG32	Return temperature increase
HG33	Hysteresis time
HG34	eBUS supply
HG35	0 - 5 V Input for remote control system
HG36	Modulation running time (only required in combination with KM module)
HG50	Test functions
HG70	Analogue input E1
HG71	Analogue input for boiler sensor
HG72	Analogue input for flow sensor
HG73	Actual ionisation current value
HG74	Fan speed
HG75	DHW throughput
HG80 to *HG89*	Display of the last ten error messages
HG90	- Burner operating hours in conjunction with KM module: Burner operating hours 1st and 2nd stage
HG91	- Burner starts in conjunction with KM module:
HG92	- Burner operating hours in conjunction with KM module: Burner operating hours 2nd burner stage

Table 6.2 Boiler parameters (continued)

6.4.2 Boiler error history

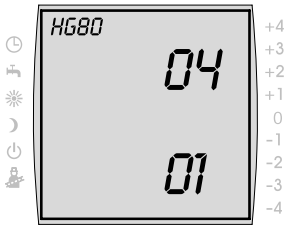
You can also display the last ten (*HG80*-*HG89*) errors arising on the boiler.

- Press the right-hand dial.
- Turn the right-hand dial to the *EXPERT* menu.
- Confirm the selection by pressing the right-hand dial.
- Activate the code input by pressing the right-hand dial.
- Turn the right-hand dial to enter the code (**1**).
- Confirm the entry by pressing the right-hand dial.



- Turn the right-hand dial to the *BOILER ...* sub-menu.
- Turn the right-hand dial to the *HG …* sub-menu.

After approx. 5 seconds the display shows the set parameter value.



The upper value is the error code.
The lower value is the number of mains hours since the fault has arisen.

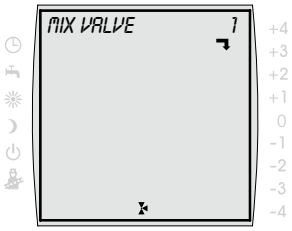
6.5 Mix Valve

The Mix Valve menu is only displayed if a mixer module, a cascade module or R3 is connected.
Using the BM programming module you can set the parameters for the mixer circuit (e.g. configuration, heating curve gap).

- ▶ Observe the instructions and setting options for the parameters in the installation manual for the mixer module.

6.5.1 Setting the mixer circuit parameters

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *EXPERT* menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Activate the code input by pressing the right-hand dial.
- ▶ Turn the right-hand dial to enter the code (**1**).
- ▶ Confirm the entry by pressing the right-hand dial.



- ▶ Turn the right-hand dial to the *MIX VALVE 1* sub-menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Turn the right-hand dial to the *MI …* sub-menu.

After approx. 5 seconds the display shows the set parameter value.

- Press the dial.
- Set the parameter value by turning the right-hand dial.
- Confirm the entry by pressing the right-hand dial.

Mixer parameters	
MI01	Minimum limit mixer circuit TV-min
MI02	Maximum limit mixer circuit TV-max
MI03	Heating curve gap
MI04	Screed floor drying
MI05	Configuration
MI06	Mixer circuit pump run-on time
MI07	Mixer P range
MI08	Return set temperature
MI09	Max. cylinder charging time
MI10	eBUS supply (1 = ON)
MI11	Hysteresis of by-pass sensor
MI12	Charging pump block
MI13	Charging pump run-on time
MI14	Constant temperature
MI15	dToff (switch off difference)
MI16	dTon (switch on difference)
MI17	Boiler over-temperature during cylinder charging
MI18	Burner block with return boost
MI50	Relay test
MI70	Analogue input E1
MI71	Analogue input E2
MI72	Analogue input for flow sensor

Tab. 6.3 Mixer parameters

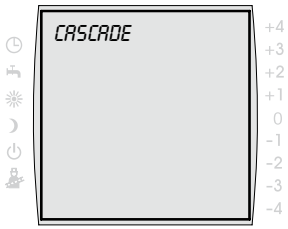
6.6 Cascade

The cascade menu is only displayed if a cascade module is connected.
You can set the parameters for the cascade module (e.g. configuration, mode) from the BM programming module.

- ▶ Observe the instructions and setting options for the parameters in the cascade module installation manual.

6.6.1 Setting the cascade parameters

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *EXPERT* menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Activate the code input by pressing the right-hand dial.
- ▶ Turn the right-hand dial to enter the code (**1**).
- ▶ Confirm the entry by pressing the right-hand dial.



- ▶ Turn the right-hand dial to the *CASCADE*.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Turn the right-hand dial to the *KM …*

After approx. 5 seconds the display shows the set parameter value.

- Press the dial.
- Set the parameter value by turning the right-hand dial.
- Confirm the entry by pressing the right-hand dial.

Cascade parameters	
KM01	Configuration
KM02	Mode (1-stage = 1; 2-stage = 2; modulating = 3)
KM03	Maximum header temperature
KM04	Maximum heating flow temperature
KM05	Minimum header temperature
KM06	Header temperature hysteresis
KM07	Blocking time
KM08	Hours until boiler sequence change
KM09	1/Kp header temperature control switch-on
KM10	1/Kp header temperature control switch-off
KM11	Tn header temperature control
KM12	Selection of boiler sequence
KM13	Boiler sequence A
KM14	Boiler sequence B
KM15	Modulation level switch-off
KM16	Modulation level switch-on
KM17	Circulation pump
KM18	Pump control management unit
KM19	Modulation stop
KM20	Modulation stop hysteresis

Tab. 6.4 Cascade parameters

Cascade parameters	
KM21	Output forcing during cylinder charging
KM22	Parallel mode hysteresis
KM23	----
KM24	----
KM25	----
KM 26	----
KM27	Boiler set value
KM28	Boiler set value hysteresis
KM29	Buffer set value
KM30	Buffer set value hysteresis
KM31	Operating mode of 0-10 V input
KM50	Test function
KM60	Control deviation
KM61	Total modulation level
KM62	Modulation level of boilers
KM70	Input E1
KM71	Input E2
KM72	Flow sensor VF
KM73	Header sensor SAF
KM74	Input 0-10 V

Table 7.4 Cascade parameters (continued)

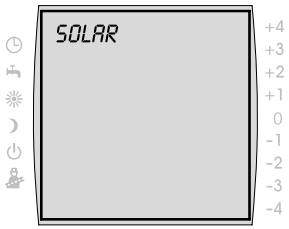
6.7 Solar

The solar menu is only displayed if a solar module is connected.
You can set the parameters for the solar module (e.g. switch-on differential, switch-off differential) from the BM programming module.

- ▶ Observe the instructions and setting options for the parameters in the solar module installation manual.

6.7.1 Setting the solar parameters

- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *EXPERT* menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Activate the code input by pressing the right-hand dial.
- ▶ Turn the right-hand dial to enter the code (**1**).
- ▶ Confirm the entry by pressing the right-hand dial.



- ▶ Turn the right-hand dial to the *SOLAR* sub-menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Turn the right-hand dial to the *SOL …*sub-menu.

After approx. 5 seconds the display shows the set parameter value.

- ▶ Press the dial.
- ▶ Set the parameter value by turning the right-hand dial.
- ▶ Confirm the entry by pressing the right-hand dial.

Parameter BM	Parameter BM-Solar	Explanation
SOL 01	P 01	Start differential solar cylinder 1
SOL 02	P 02	Stop differential solar cylinder 1
SOL 03	P 03	Collector cooling function
SOL 04	P 04	Critical collector temperature
SOL 05	P 05	Maximum collector temperature
SOL 06	P 06	Maximum temperature, solar cylinder 1
SOL 07	P 07	Assignment, solar cylinder 1
SOL 08	P 08	Heat amount capture
SOL 09	P 09	*P 08* = 0 → *P 09* not adjustable *P 08* = 1 → Pulse value, pulse generator *P 08* = 2 → Constant flow rate *P 08* = 3 or 4 → Pulse value external heat meter
SOL 10	P 10	Glycol selection: 0 = Water 1 = Tyfocor L (Anro) 2 = Tyfocor LS (Anro LS) 3 = Propylene glycol 4 = Ethylene glycol
SOL 11	P 11	BUS feed
SOL 12	P 12	**Configuration**
SOL 13	P 13	Speed control, solar circuit pump **(In connection with "high efficiency pumps", never change the factory setting of parameter SOL13.)**
SOL 14	P 14	Start differential solar cylinder 2
SOL 15	P 15	Stop differential solar cylinder 2

Parameter BM	Parameter BM-Solar	Explanation
SOL 16	P 16	Maximum temperature, solar cylinder 2
SOL 17	P 17	Assignment, solar cylinder 2
SOL 18	P 18	Burner blocked during return temperature raising
SOL 19	P 19	Start differential, return temp. raising
SOL 20	P 20	Stop differential, return temp. raising
SOL 21	P 21	Priority solar cylinder 1
SOL 22	P 22	Start differential, parallel cylinder operation
SOL 23	P 23	Differential temperature, bypass
SOL 24	P 24	Function output A4
SOL 25	P 25	Start temperature Thermostat function 1/2
SOL 26	P 26	Stop differential, thermostat function 1/2
SOL 27	P 27	Tube collector function
SOL 28	P 28	Frost protection function
SOL 29	P 29	Start differential solar cylinder 3
SOL 30	P 30	Stop differential solar cylinder 3
SOL 31	P 31	Maximum temp., solar cylinder 3
SOL 32	P 32	Assignment, solar cylinder 3
SOL 33	P 33	Hysteresis, solar cylinder 1
SOL 34	P 34	Hysteresis, solar cylinder 2
SOL 35	P 35	Hysteresis, solar cylinder 3
SOL 36	P 36	Solar cylinder emergency shutdown 1
SOL 37	P 37	Solar cylinder emergency shutdown 2
SOL 38	P 38	Solar cylinder emergency shutdown 3
SOL 39	P 39	Minimum collector limit
SOL 40	P 40	Minimum buffer limit
SOL 41	P 41	Function check, flow rate
SOL 42	P 42	Function check Gravity brake
SOL 43	P 43	Lower pump rate
SOL 44	P 44	Reverse cooling function
SOL 45	P 45	Selection cylinder thermostat function

Parameter BM	Parameter BM-Solar	Explanation
SOL 46	P 46	Priority solar cylinder 2
SOL 47	P 47	Cylinder operating mode
SOL 48	P 48	Cyclical heating time
SOL 49	P 49	Idle time
SOL 50	P 50	Blocking time, solar circuit pump or electrical valve
SOL 51	P 51	Proportion of glycol in water *P 10* = 0 → *P 51* not adjustable *P 10* = 1 : Tyfocor L (Anro) *P 10* = 2 → *P 51* not adjustable *P 10* = 3 → *P 51* not adjustable *P 10* = 4 → Ethylene glycol
SOL 52	P 52	Cylinder control with external cylinder heating
SOL 53	P 53	----
SOL 54	P 54	----
SOL 55	P 55	Upper pump rate
SOL 6O	P 60	Relay test
SOL 70		Analogue input SFS1
SOL 71		Analogue input SFK1
SOL 72		Analogue input E1
SOL 73		Analogue input E2 (DFG)
SOL 74		Analogue input E3

SOL12 to *SOL28*: These parameters are only present in conjunction with the SM2 solar module.
SOL70 to *SOL74*: Display of the actual values at the connected sensors. Allocation of the inputs E1 and E3 according to the system configuration.

6.8 Other parameters

You can set other parameters (e.g. screed floor drying out) from the BM programming module.

Other parameters	
SO01	not used
SO02	not used
SO03	not used
SO04	not used
SO05	not used
SO06	not used
SO07	Screed floor drying, direct heating circuit
SO08	Screed floor temperature

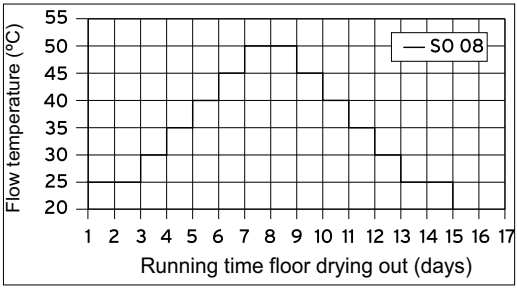
Tab. 6.5 Other parameters

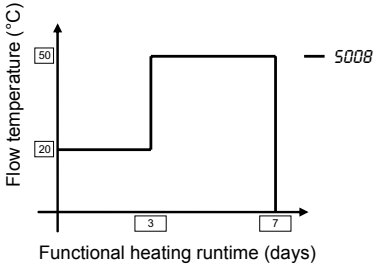
6.8.1 Setting the screed floor drying

Caution!
Damage to the screed floor possible!
Incorrect flow temperatures and an incorrect time sequence for the floor drying programme can result in damage to the floor.

- ▶ Discuss the time sequence and the maximum flow temperature with the floor layer.
- ▶ Ensure that the power supply is continuous.

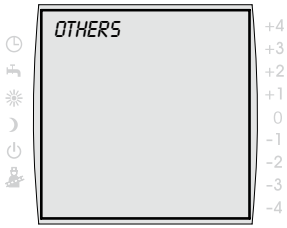
With the help of the underfloor heating system, you can control screed drying with a constant flow temperature, an automatic screed drying program or functional heating.



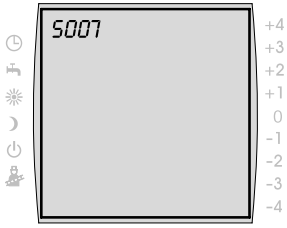


Progress over time of automatic screed drying program/functional heating (parameter *SO08* = 50 °C)

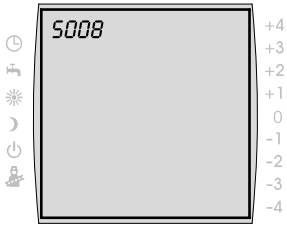
- ▶ Press the right-hand dial.
- ▶ Turn the right-hand dial to the *EXPERT* menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Activate the code input by pressing the right-hand dial.
- ▶ Turn the right-hand dial to enter the code (**1**).
- ▶ Confirm the entry by pressing the right-hand dial.



- ▶ Turn the right-hand dial to the *OTHERS* sub-menu.
- ▶ Confirm the selection by pressing the right-hand dial.



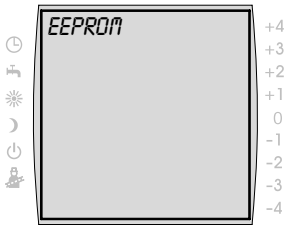
- ▶ Turn the right-hand dial to the *SO07* sub-menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Set the floor drying out programme by turning the right-hand dial.
  - *0* = no function or terminate the floor drying out programme prematurely
  - *1* = constant flow temperature
  - *2* = automatic floor drying programme
  - *3* = functional heating
- ▶ Confirm the entry by pressing the right-hand dial.
- ▶ Turn the right-hand dial to the *SO08* sub-menu.
- ▶ Confirm the selection by pressing the right-hand dial.
- ▶ Set the constant or maximum flow temperature by turning the right-hand dial.
- ▶ Confirm the entry by pressing the right-hand dial.



6.9 Resetting to factory settings

You can reset the individual parameter settings of the BM programming module to the factory setting.

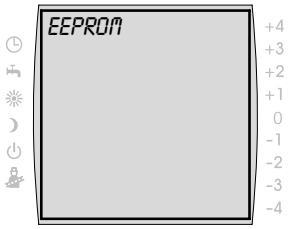
6.9.1 BM programming module in the heat generator



- ▶ Switch the operating switch on the boiler controller to OFF.
- ▶ Press the right-hand dial.
- ▶ Hold down the right-hand dial.
- ▶ Switch the operating switch on the boiler controller to ON.
- ▶ Keep the right-hand dial held down for at least another 2 seconds.

The display shows the information *EEPROM* for approx. 3 seconds.

6.9.2 BM programming module in the wall plinth



- ▶ Unclip the BM programming module from the wall plinth using a screwdriver.
- ▶ Press the right-hand dial.
- ▶ Hold down the right-hand dial.
- ▶ Insert the BM programming module into the wall plinth.

Keep the right-hand dial held down for at least another 2 seconds. The display shows the information *EEPROM* for
approx. 3 seconds.

7 Handover to the user

The user of the heating system must be instructed in the handling and function of his heating system.

- ▶ Hand over all applicable documents to the system operator or the system user
- ▶ Point out to the system user that the instruction manuals should be kept in the vicinity of the equipment.
- ▶ Point out to the system user that he must hand over the relevant documents to the next occupant (e.g. when moving house).

Instruction in the heating system

- ▶ Show the system user how to set the temperatures and the thermostatic valves in an energy-saving manner.
- ▶ Instruct the system operator or the system user in the maintenance of the heating system.

8 Messages and faults

8.1 Acknowledging the service message

▶ The service message is acknowledged by pressing the **Reduce** button.

8.2 Fault messages

No.	Fault	Cause
1	TB excess temperature	The external temperature sensor has switched off
4	No flame formation	No flame formation when burner starts
5	Flame failure in operation	Flame failure during flame stabilisation
6	TW excess temperature	The boiler temperature has exceeded the limit for the TW (e.g. 95 °C)
7	STBA excess temperature	The temperature monitor has switched off
8	Flue gas damper not switching	Flue gas damper or flue gas damper feedback faulty
11	False flame indication	A flame is detected before the burner start
12	Boiler sensor faulty	The boiler temperature sensor or sensor lead is faulty
13	Flue gas temperature sensor faulty	The flue gas sensor or sensor lead is faulty
14	Cylinder sensor faulty	The sensor for the DHW temperature or the sensor lead is faulty
15	Outside temperature sensor	The sensor for the outside temperature is faulty (short circuit or fracture, radio reception interference, battery of radio outside sensor is flat), mains voltage missing on boiler or fuse on boiler blown
16	Return sensor faulty	The return sensor or the sensor lead is faulty

Tab. 8.1 Fault messages

No.	Fault	Cause
17	Modulation current fault	The modulation current is outside the set range
20	Faulty gas valve V1	The gas valve is faulty
21	Faulty gas valve V2	The gas valve is faulty
22	Lack of air	The air pressure monitor does not switch on
23	Fault with air pressure monitor	The air pressure monitor does not switch off
24	Faulty gas blower	The blower does not reach the pre-flushing speed
25	Faulty gas blower	The blower does not reach the ignition speed
26	Faulty gas blower	The blower does not come to a standstill
27	Hot water sensor WWF faulty	Hot water sensor on the stratified cylinder faulty
30	CRC fault, boiler	Internal equipment fault
31	CRC fault, burner	Internal equipment fault
32	Voltage fault 24 V	24 V supply faulty
33	CRC fault, factory setting	Internal equipment fault
34	CRC fault, BCC	Fault with parameter plug
35	BCC missing	Parameter plug has been removed
36	CRC fault, BCC	Fault with parameter plug
37	Incorrect BCC	The parameter plug is not compatible with the control PCB
38	BCC No. invalid	Fault with parameter plug
39	BCC system fault	Fault with parameter plug
40	Faulty flow monitor	The flow monitor does not switch off or on. The system pressure is too low
41	Faulty flow monitor	Return temperature is at least 12 K greater than the flow temperature
42	Faulty condensate pump	Condensate pump faulty, mains power missing Drain line blocked
43	Burner starts > 20 per hour	Boiler throughput too low, heat transfer during cylinder heating too low, heat exchanger scaling, header sensor poorly positioned

No.	Fault	Cause
50	Parameter plug activation	Press the reset button on the boiler control system in order to activate the newly plugged-in parameter plug
52	Max. cylinder charging time exceeded	The cylinder charging takes longer than permitted
60	Blockage in the siphon	The siphon or the flue gas system is blocked
61	Blockage in flue gas system	The flue gas system is blocked
62	Function check Volume flow	Too little or no throughput
63	Function check Gravity brake	Faulty gravity brake
64	Pulse generator faulty	The pulse generator in the solar module is faulty or there is no flow through the solar thermal system
70	Mixer circuit sensor faulty	The mixer circuit sensor or the sensor lead is faulty
71	Sensor faulty	The cylinder sensor of the solar module or the multi-function sensor input E1 of the mixer module or cascade module is faulty
72	Sensor faulty	The return sensor on the SM1 solar module or the sensor on the SM2 solar module connected to input E1 is faulty
73	Sensor faulty	The sensor on the SM2 solar module connected to input E3 is faulty
74	No DCF reception	Connection (eBUS) to the DCF receiver was interrupted for longer than 10 min or no DCF reception for longer than 50 hours
76	Cylinder sensor faulty	The cylinder sensor or the sensor lead is faulty
78	Header sensor faulty	The header sensor or the sensor lead is faulty
79	Sensor faulty	The multi-function sensor input E1 of the boiler control systems R1, R2, R3 or the multi-function sensor input E2 of the mixer module, the cascade module or the collector sensor of the solar module is faulty

No.	Fault	Cause
80	Outside temp. sensor on accessory controller faulty	The outside sensor or the lead to the accessory controller is faulty
81	Faulty EEPROM	Internal equipment fault on the accessory controller
82	Oil level fault	The oil tank is empty or check the oil level transducer
91	Faulty eBUS identification	An eBUS address has been allocated more than once
97	By-pass pump faulty	The by-pass pump on the mixer module is faulty
98	Faulty resistance plug R21	The resistance plug is faulty or has been removed.
99	System fault, boiler controller	A system fault has occurred on the boiler controller
	LED (light ring on boiler) continuous red	Short circuit on the ionisation line

Tab. 8.1 Fault messages (continued)

9 De-commissioning and disposal

9.1 De-commissioning

- ▶ The de-commissioning of the BM programming module should be carried out in the reverse order to the installation (→ Chap. **4, Installation**).
- ▶ Dispose of the BM programming module in a proper manner.

9.2 Disposal and recycling

Appliance

The programming module must not be disposed of in the household waste at the end of its working life.

- ▶ Make sure that the BM programming module and any accessories used are handed to a proper disposal organisation.

Packaging

- ▶ Make sure that the packaging of the BM programming module and any accessories used are handed to a proper disposal organisation.

10 Technical data

Designation	
eBUS supply voltage	15-24 V
Power consumption	max. 0.5 W
Wall plinth protection rating	IP 30
Boiler protection rating	per control system protection rating
Running reserve	> 48 hours
Ambient temperature	0 - 50 °C
Data retention	EEPROM permanent

Tab. 10.1 Technical data

Appendix

NTC sensor resistances
Boiler sensor, cylinder sensor, solar cylinder sensor, outside sensor, return sensor, flow sensor, header sensor.

Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω
-21	51393	7	11508	35	3265	63	1117
-20	48487	8	10961	36	3133	64	1078
-19	45762	9	10442	37	3007	65	1041
-18	43207	10	9952	38	2887	66	1005
-17	40810	11	9487	39	2772	67	971
-16	38560	12	9046	40	2662	68	938
-15	36447	13	8629	41	2558	69	906
-14	34463	14	8233	42	2458	70	876
-13	32599	15	7857	43	2362	71	846
-12	30846	16	7501	44	2271	72	818
-11	29198	17	7162	45	2183	73	791
-10	27648	18	6841	46	2100	74	765
-9	26189	19	6536	47	2020	75	740
-8	24816	20	6247	48	1944	76	716
-7	23523	21	5972	49	1870	77	693
-6	22305	22	5710	50	1800	78	670
-5	21157	23	5461	51	1733	79	670
-4	20075	24	5225	52	1669	80	628
-3	19054	25	5000	53	1608	81	608
-2	18091	26	4786	54	1549	82	589
-1	17183	27	4582	55	1493	83	570
0	16325	28	4388	56	1438	84	552
1	15515	29	4204	57	1387	85	535
2	14750	30	4028	58	1337	86	519
3	14027	31	3860	59	1289	87	503
4	13344	32	3701	60	1244	88	487
5	12697	33	3549	61	1200	89	472
6	12086	34	3403	62	1158	90	458

Table A. 1 NTC sensor resistances

Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω	Temp. °C	Resist-ance Ω
91	444	98	360	105	294	112	241
92	431	99	349	106	285	113	235
93	418	100	339	107	277	114	228
94	406	101	330	108	270	115	222
95	393	102	320	109	262	116	216
96	382	103	311	110	255	117	211
97	371	104	302	111	248	118	205

Tab A. 1 Sensor resistances (continued)

Record of basic parameter settings

Parameters		Setting range	Factory setting	Individual setting
Time		0 to 24 h		
Day		1 (Mon) to 7 (Sun)		
Time programme		1/2/3	1	
Temp day	Heating circuit	5 to 30 °C	20 °C	
	Mixer circuit 1	5 to 30 °C	20 °C	
	Mixer circuit 2	5 to 30 °C	20 °C	
	Mixer circuit 3	5 to 30 °C	20 °C	
	Mixer circuit 4	5 to 30 °C	20 °C	
	Mixer circuit 5	5 to 30 °C	20 °C	
	Mixer circuit 6	5 to 30 °C	20 °C	
	Mixer circuit 7	5 to 30 °C	20 °C	
Reduced temperature	Heating circuit	5 to 30 °C	16 °C	
	Mixer circuit 1	5 to 30 °C	16 °C	
	Mixer circuit 2	5 to 30 °C	16 °C	
	Mixer circuit 3	5 to 30 °C	16 °C	
	Mixer circuit 4	5 to 30 °C	16 °C	
	Mixer circuit 5	5 to 30 °C	16 °C	
	Mixer circuit 6	5 to 30 °C	16 °C	
	Mixer circuit 7	5 to 30 °C	16 °C	

Table A.3 Record of basic parameter settings

Parameters		Setting range	Factory setting	Individual setting
Heating curve	Heating circuit	0 to 3.0	1.2	
	Mixer circuit 1	0 to 3.0	0.8	
	Mixer circuit 2	0 to 3.0	0.8	
	Mixer circuit 3	0 to 3.0	0.8	
	Mixer circuit 4	0 to 3.0	0.8	
	Mixer circuit 5	0 to 3.0	0.8	
	Mixer circuit 6	0 to 3.0	0.8	
	Mixer circuit 7	0 to 3.0	0.8	
Room influence	Heating circuit	ON/OFF	OFF	
	Mixer circuit 1	ON/OFF	OFF	
	Mixer circuit 2	ON/OFF	OFF	
	Mixer circuit 3	ON/OFF	OFF	
	Mixer circuit 4	ON/OFF	OFF	
	Mixer circuit 5	ON/OFF	OFF	
	Mixer circuit 6	ON/OFF	OFF	
	Mixer circuit 7	ON/OFF	OFF	
Winter/summer changeover	Heating circuit	0 to 40 °C	20 °C	
	Mixer circuit 1	0 to 40 °C	20 °C	
	Mixer circuit 2	0 to 40 °C	20 °C	
	Mixer circuit 3	0 to 40 °C	20 °C	
	Mixer circuit 4	0 to 40 °C	20 °C	
	Mixer circuit 5	0 to 40 °C	20 °C	
	Mixer circuit 6	0 to 40 °C	20 °C	
	Mixer circuit 7	0 to 40 °C	20 °C	

Table A.3 Record of basic parameter settings

Parameters		Setting range	Factory setting	Individual setting
ECO / RED	Heating circuit	-10 to 40 °C	10 °C	
	Mixer circuit 1	-10 to 40 °C	10 °C	
	Mixer circuit 2	-10 to 40 °C	10 °C	
	Mixer circuit 3	-10 to 40 °C	10 °C	
	Mixer circuit 4	-10 to 40 °C	10 °C	
	Mixer circuit 5	-10 to 40 °C	10 °C	
	Mixer circuit 6	-10 to 40 °C	10 °C	
	Mixer circuit 7	-10 to 40 °C	10 °C	
Hot water temperature	Free-standing boiler	15 to 65 °C	50 °C	
	Wall-mounted boilers with cylinders	15 to 65 °C	50 °C	
	Wall-mounted combi-units	40 to 65 °C	50 °C	
Language			English	

Table A.3 Record of basic parameter settings

11 Composite system data sheet according to EU regulation no. 811/2013

Product group: Controller

Supplier's name or trade mark	Supplier's model identifier	Class of the temperature control	Contribution of the temperature control to seasonal space heating energy efficiency
Wolf GmbH	BM		
	Unit control	II	2,0
	BM operating module with outside sensor (outside temperature sensor, EBUS external sensor or radio clock with outside sensor)		
	Unit control	VI	4,0
	BM operating module with outside sensor (outside temperature sensor, EBUS external sensor or radio clock with outside sensor)		
	AFB analogue remote control (wired variant or wireless variant)		
	Unit control	V	3,0
	BM operating module without outside sensor (setting as room temperature controller)		
	Wall base for BM		
	Unit control	V	3,0
	BM operating module without outside sensor (setting as room temperature controller)		
	AFB analogue remote control (wired variant or wireless variant)		

Product group: Controller

Supplier's name or trade mark	Supplier's model identifier	Class of the temperature control	Contribution of the temperature control to seasonal space heating energy efficiency
Wolf GmbH	WPM-1		
	WPM-1 heat pump manager with BM control module	III	1,5
	Outside sensor (outside temperature sensor, EBUS external sensor or radio clock with outside sensor)		
	WPM-1 heat pump manager with BM control module	VII	3,5
	Wall base for BM		
	Outside sensor (outside temperature sensor, EBUS external sensor or radio clock with outside sensor)		
	WPM-1 heat pump manager with BM control module	VII	3,5
	AFB analogue remote control (wired variant or wireless variant)		
	Outside sensor (outside temperature sensor, EBUS external sensor or radio clock with outside sensor)		
	WPM-1 heat pump manager with BM control module	I	1,0
	Room thermostat		
	WPM-1 heat pump manager with BM control module	IV	2,0
	Wall base for BM		
	WPM-1 heat pump manager with BM control module	IV	2,0
	AFB analogue remote control (wired variant or wireless variant)		

12 Notes

Notes

11 Alphabetical index

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Installation Instructions Programming Module BM – 3062612_201509
Subject to modifications