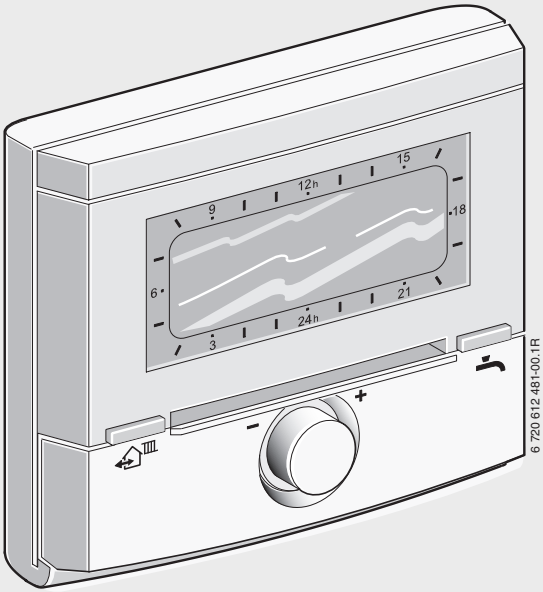


Weather-compensated controller with solar control

FW 100

for heating appliances with BUS-enabled Heatronic 3

BOSCH

Installation and operating instructions

6 720 645 349 (2010/09)

Overview of controls and symbols

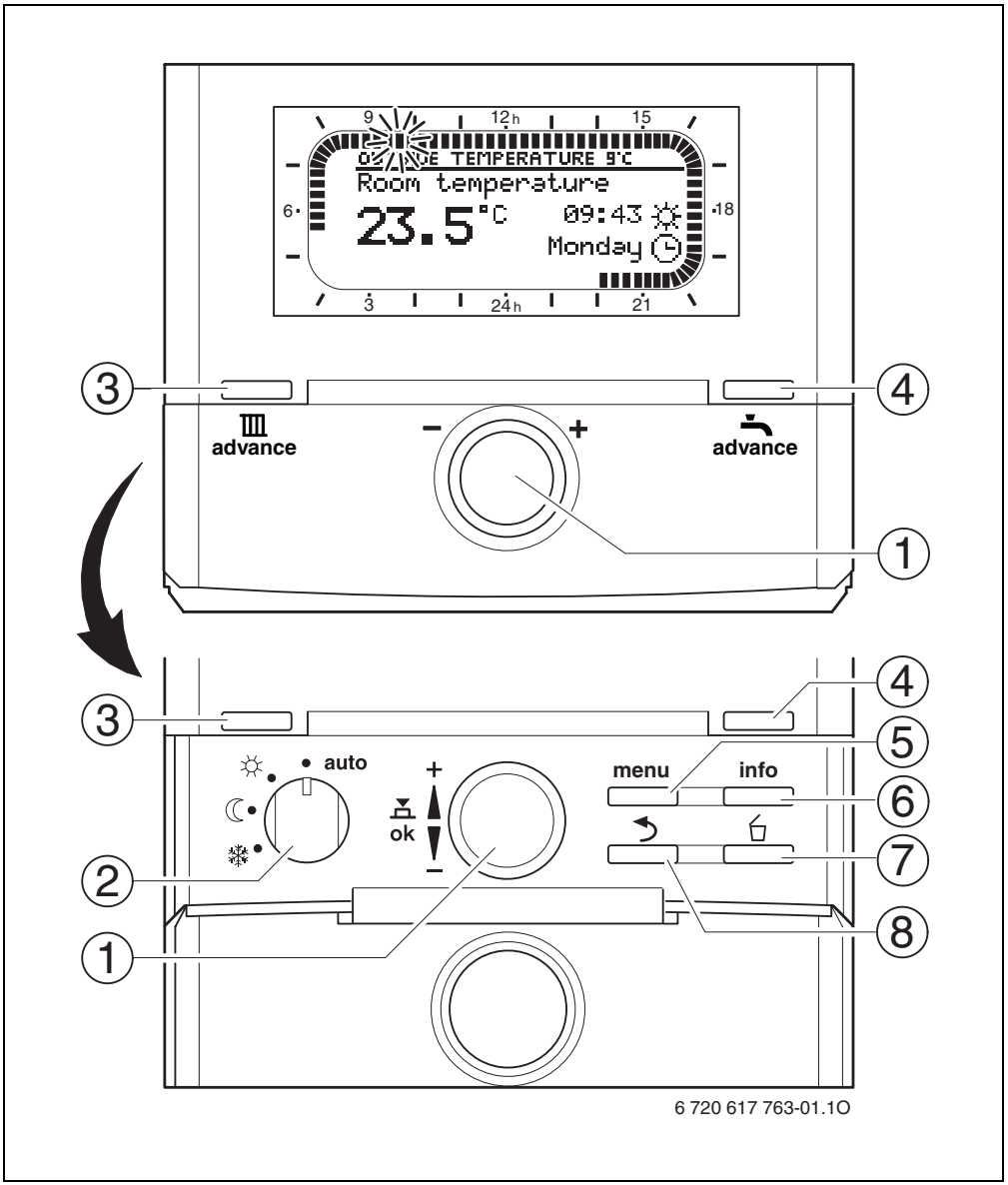


Fig. 1 Standard display

Controls		
1	Turning the rotary selector in **+** direction: Selects menu/information above or increases setting value	
	Turning the rotary selector in **–** direction: Selects menu/information below or decreases setting value	
	Pushing the rotary selector : Opens menu or confirms setting/value	
2	Operating mode selector for heating:	
	auto	Automatic mode
		Constant Comfort
		Constant Economy
		Constant Frost
3	Key : To bring the next switching time and the associated operating mode = Comfort = Economy = Frost1 for central heating forward to the current time.	
4	Key : To activate DHW heating immediately (the activated function cannot be switched off prior to expiry of the fixed time). The DHW cylinder is heated to the required temperature for 60 minutes or, with combi boilers, comfort mode is activated for 30 minutes.	
5	Key menu : Open/close menu INSTALLER SETTINGS open: hold down for approx. 3 seconds	
6	Key info : Display values	
7	Key : Delete/reset value	
8	Key : Return to next menu level up	

Tab. 1

To make the further description easier

- controls and operating modes are sometimes only depicted with symbols, e.g. or .
- menu levels are separated by the **>** symbol, e.g. **Holiday > Start**.

Symbols	
23.5°	Current room temperature (only with wall mounting)
	Flashing segment: Current time (**13:45** to **14:00**)
	Solid segments: Period for operating mode = Comfort today (1 segment = 15 min)
	Empty segments: Period for operating mode = Economy today (1 segment = 15 min)
	No segments: Period for operating mode = Frost today (1 segment = 15 min)
	Operating mode Comfort
	Operating mode Economy
	Operating mode Frost
	Automatic mode
	Holiday mode
	Burner operation in the display
+	Scroll menu/info text up or increase value
–	Scroll menu/info text down or decrease value
ok	Open menu, confirm setting/value
	Return to next menu up
	Delete/reset value
	Bring the next switching time and the associated operating mode = Comfort = Economy = Frost for central heating forward to the current time.
	Activate DHW heating immediately (the activated function cannot be switched off prior to expiry of the fixed time). The DHW cylinder is heated to the required temperature for 60 minutes or, with combi boilers, comfort mode is activated for 30 minutes.

Tab. 2

Contents

Chapters against a grey background are intended for installers. The pages concerned are identified by a grey vertical bar at the side of the page.

1 Key to symbols and safety instructions . 7
1.1 Explanation of symbols 7
1.2 Safety instructions 7

2 Technical data for the accessory item . . . 8
2.1 Standard delivery 8
2.2 Specification 9
2.3 Cleaning 9
2.4 Supplementary accessories 9
2.5 Sample system 10

3 Installation (for contractors only) 12
3.1 Installation 12
3.1.1 Installation in heating appliance . . 12
3.1.2 Wall mounting 14
3.1.3 Installation of outside temperature sensor 15
3.1.4 Fitting other accessories 16
3.1.5 Disposal 16
3.2 Electrical connections 16
3.2.1 Electrical connection in the heating appliance 16
3.2.2 Electrical connection for wall mounting 17

4 Commissioning (contractors only) 18

5 Operation 19
5.1 Changing the room temperature and operating mode 19
5.1.1 Changing the room temperature with (with time limit) 19
5.1.2 Changing the operating mode with (with time limit) 19
5.1.3 Changing the DHW mode with (with time limit) 20
5.1.4 Changing heating mode permanently 20
5.2 Menu control 21
5.2.1 Programming example 21
5.2.2 Deleting or resetting program details 24

6 Adjusting the MAIN MENU 26
6.1 Overview and adjustment of the MAIN MENU 26
6.1.1 MAIN MENU: Holiday 26
6.1.2 MAIN MENU: Heating 27
6.1.3 MAIN MENU: Domestic hot water . 28
6.1.4 MAIN MENU: General settings 30
6.1.5 MAIN MENU: Solar 30
6.2 Holiday program 31
6.3 Heating program 32
6.3.1 Time/Temperature level program . 32
6.3.2 Temperature for the operating modes and heat-up rate 33
6.4 DHW program 34
6.4.1 DHW program operating modes . . 34
6.4.2 Time/temperature level program for DHW via cylinder 35
6.4.3 Time program for DHW with combi boiler 35
6.4.4 Time program for DHW circulation pump (only with DHW cylinder) . . 36
6.4.5 Parameters for DHW 36
6.4.6 Thermal disinfection of DHW 37
6.5 General settings 38
6.5.1 Time and Date 38
6.5.2 Display formats 38
6.5.3 Key lock 38
6.5.4 Language 38
6.6 Solar settings 39

7 Viewing information 40

8 Menu settings INSTALLER SETTINGS (contractors only) 43
8.1 INSTALLER SETTINGS menu summary and settings 43
8.1.1 INSTALLER SETTINGS: System configuration 43
8.1.2 INSTALLER SETTINGS: Heating parameters 44
8.1.3 INSTALLER SETTINGS: Solar system config 44
8.1.4 INSTALLER SETTINGS: Solar sys parameters 45
8.1.5 INSTALLER SETTINGS: Fault history 45
8.1.6 INSTALLER SETTINGS: Cust service address 46
8.1.7 INSTALLER SETTINGS: System info 46
8.1.8 INSTALLER SETTINGS: Floor drying 46
8.2 Configuring the heating system . . . 47
8.3 Parameters for heating 47
8.4 Configuring the solar thermal system 51
8.5 Parameters for solar thermal system 52
8.5.1 Parameters for the standard solar thermal system 52
8.5.2 Parameters for thermal disinfection 53
8.5.3 Parameters for solar optimisation . 53
8.5.4 Commissioning the solar thermal system 55
8.6 Fault history 55
8.7 Viewing and entering the customer service address 55
8.8 Viewing system information 56
8.9 Screed drying function 56

9 Troubleshooting 58
9.1 Troubleshooting with display 58
9.2 Troubleshooting without display . 64

10 Energy saving tips 66

11 Environmental protection 67

12 Individual time program settings 68
12.1 Heating program 68
12.2 DHW program 71
12.3 DHW circulation program 72

Index 73

Information about this documentation

Guide to instructions

Hand all documentation enclosed to the user.

If you ...

- ... are looking for the safety instructions and a key to the symbols, refer to **chapter 1**.
- ... are looking for a summary of the layout and function of this accessory, refer to **chapter 2**. You will also find the specification there.
- ... are a HEATING CONTRACTOR and want to know to install, electrically connect and commission this accessory, refer to **chapters 3** and **4**.
- ... want to know how to operate and program this accessory, refer to **chapters 5**, **6** and **12**. There you will also find summaries of the factory settings and setting ranges for the menus. There are also tables for making a note of your settings.
- ... want to display information regarding the heating system, see **chapter 7**.
- ... are a HEATING CONTRACTOR and want to make expert level settings or view system information, refer to **chapter 8**. There you will also find summaries of the factory settings and setting ranges for the menus. There are also tables for making a note of your settings.
- ... are looking for troubleshooting tables, refer to **chapter 9**.
- ... are looking for tips on energy efficiency, see **chapter 10**.
- ... are looking for a particular reference in the document, have a look in the **Keyword index** on the last pages.

Supplementary documentation for contractors (not part of the standard delivery)

In addition to these instructions, the following documents are available:

- Spare parts list
- Service folder (for troubleshooting and function tests)

You can request these documents from the Bosch Info service. The contact address is printed on the back page of these instructions.

1 Key to symbols and safety instructions

1.1 Explanation of symbols

Warnings

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

If there is a danger due to electricity, the exclamation mark in the warning triangle is replaced by a lightning symbol.

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

- **NOTE** indicates that material losses may occur.
- **CAUTION** indicates that minor to medium injury may occur.
- **WARNING** indicates that severe injury may occur.
- **DANGER** indicates a risk to life.

Important information

Important information where there is no risk to people or property is indicated with the adjacent symbol. It is bordered by lines above and below the text.

Additional symbols

Symbol	Explanation
▶	Action step
→	Cross-reference to other parts of this document or to other documents
•	List/list entry
–	List/list entry (second level)

Tab. 3

1.2 Safety instructions

- ▶ These instructions must be observed to ensure correct operation.
- ▶ Install and commission the heating appliance and all accessories in accordance with the instructions provided.
- ▶ This accessory must only be installed by suitably qualified installers.
- ▶ Only use these accessories in conjunction with the heating appliances listed. Follow the connection diagram!
- ▶ Do not connect this accessory to the 230 V mains electricity supply.
- ▶ Prior to the installation of this accessory: Isolate the heating appliance and all other BUS subscribers from the power supply (220 to 240 V AC).
- ▶ For wall mounting: never install this accessory in wet areas.
- ▶ Instruct customers about the functions and operation of the accessories.
- ▶ Risk of scalding during thermal disinfection: Supervise short periods of operation with water temperatures over 60 °C or fit a thermostatic DHW mixer.
- ▶ When there is a risk of frost, leave the heating appliance switched on and follow the frost protection information.

2 Technical data for the accessory item

The FW 100 can only be connected to a heating appliance with BUS-enabled Heatronic 3.

- This controller is used to display appliance and system information and to change the settings shown.
- The controller is a weather-compensated controller for central heating and DHW heating with time programs:
  - Central heating : 3 seven-day heating programs with 6 switching times per day are available (one program is active).
  - Domestic hot water : weekly DHW program with 6 switching times per day.
- Options:
  - Remote control FB 100 or FB 10.
  - Module IPM 1 for controlling one mixed or non-mixed heating circuit.
  - ISM 1 module for solar DHW heating.
- The controller has a power reserve sufficient for at least 6 hours of operation. If the controller is without power for a period longer than the power reserve then the time and date will be deleted. All other settings are saved.
- Installation options:
  - In heating appliance with BUS-enabled Heatronic 3
  - Wall-mounted with BUS connection to heating appliance with BUS-enabled Heatronic 3

2.1 Standard delivery

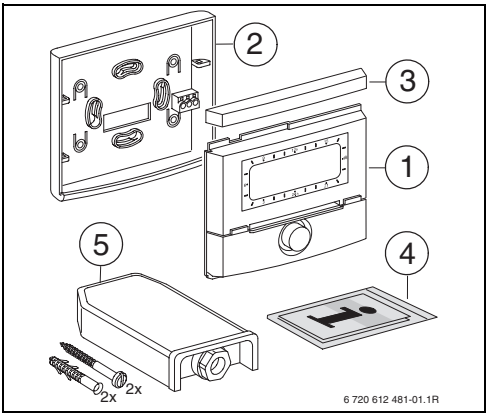


Fig. 2 Standard delivery

1 Controller top section
2 Base for wall mounting
3 Slide cover
4 Installation and operating instructions
5 Outside temperature sensor with fixing materials

2.2 Specification

Dimensions	Fig. 8, page 14
Rated voltage	10...24 V DC
Rated current (excluding illumination)	6 mA
Controller output	2-wire BUS
Permiss. ambient temp.	0 ... +50 °C
IP rating	III
Protection:	
- Built into the Heatronic 3	IPX2D
- Wall mounting	IP20

Tab. 4 Specification

°C	Ω_{AF}	°C	Ω_{AF}
– 20	2392	4	984
– 16	2088	8	842
– 12	1811	12	720
– 8	1562	16	616
– 4	1342	20	528
± 0	1149	24	454

Tab. 5 Actual values, outside temperature sensor

2.3 Cleaning

▶ If required, use a damp cloth to wipe the controller casing. Never use aggressive or acidic cleaning agents for this.

2.4 Supplementary accessories

See also the pricelist.

- **IPM 1**: Module for controlling one mixed or one non-mixed heating circuit.
- **ISM 1**: Module for controlling solar water heating.
- **IUM 1**: Module for controlling external safety equipment.
- **FB 10**: Remote control for the mixed or non-mixed heating circuit.
- **FB 100**: Remote control with plain text display for the mixed or non-mixed heating circuit.
- **No. 1143**: Cable set for fitting one module (e.g. IPM 1) inside the heating appliance.

2.5 Sample system

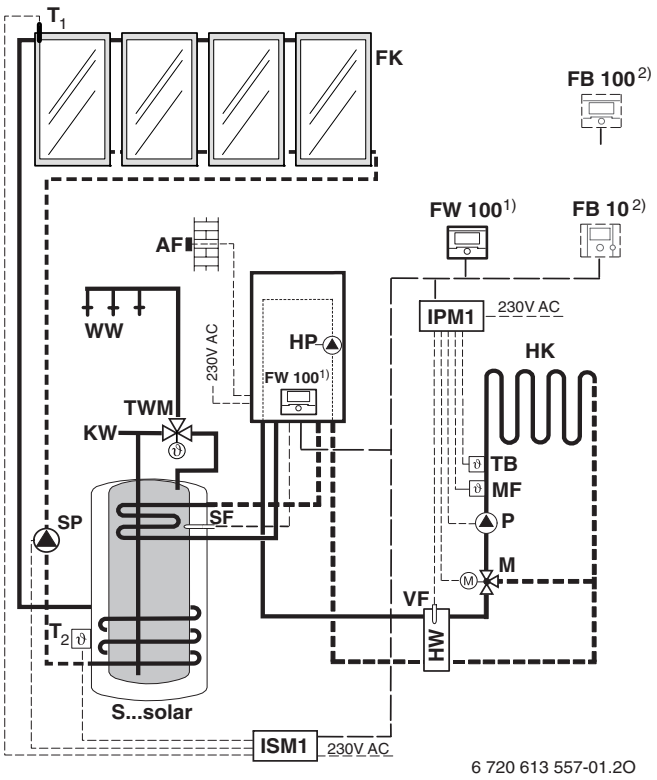


Fig. 3 Simplified system scheme (see technical guides for installation illustration and further options)

AF	Outside temperature sensor
FB 10	Remote control
FB 100	Remote control
FK	Flat-plate collector
FW 100	Weather-compensated controller with solar control
HK	Heating circuit
HP	Heating circuit pump
HW	Low loss header
IPM 1	Module for one heating circuit
ISM 1	Module for solar DHW heating
KW	Cold water connection
M	Mixer servomotor
MF	Flow temperature sensor, mixed heating circuit
P	Circulation pump for heating circuit
SP	Solar circuit pump
S...solar	Solar combi cylinder
SF	Cylinder temperature sensor (NTC)
T_1	Collector temperature sensor
T_2	Cylinder temperature sensor on the heating water side, bottom
TB	Temperature limiter
TWM	Thermostatic DHW mixer
VF	Common flow sensor
WW	DHW connection
1)	The FW 100 can be mounted in the heat source or on the wall.
2)	Either FB 10 or FB 100

3 Installation (for contractors only)

The detailed system scheme for installing the hydraulic components and associated control devices can be found in the technical guides or tender documentation.

DANGER: Risk of electric shock!

- Prior to the installation of this accessory:
  Isolate the heating appliance and all other BUS subscribers from the power supply (220 to 240 V AC).

3.1 Installation

3.1.1 Installation in heating appliance

- Detailed description of heating appliance components, see heating appliance installation instructions.
- Remove outer casing.

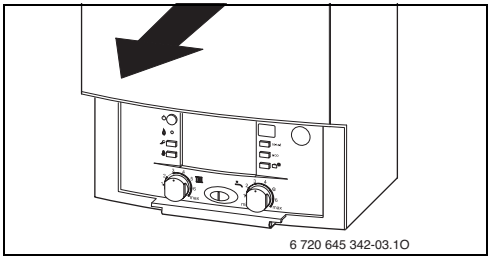


Fig. 4

- Remove cover and dummy cover.

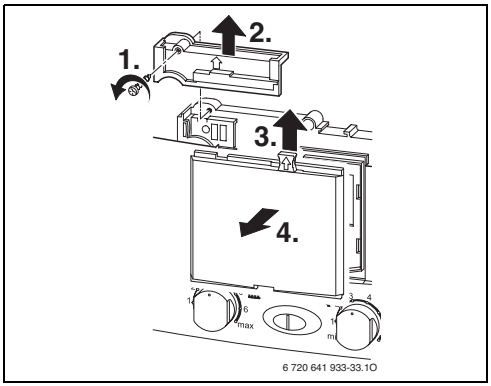


Fig. 5

- Insert top section into slots.

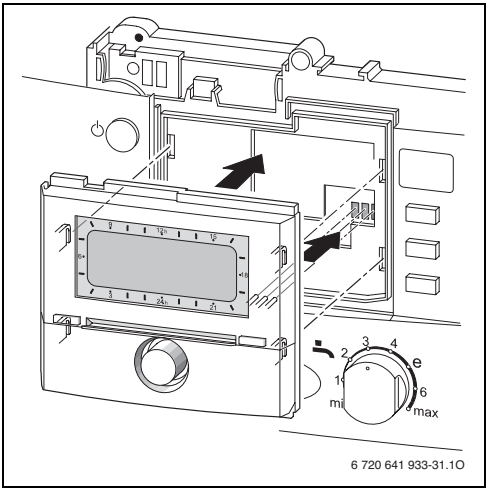


Fig. 6

- Click top section into place and mount cover.

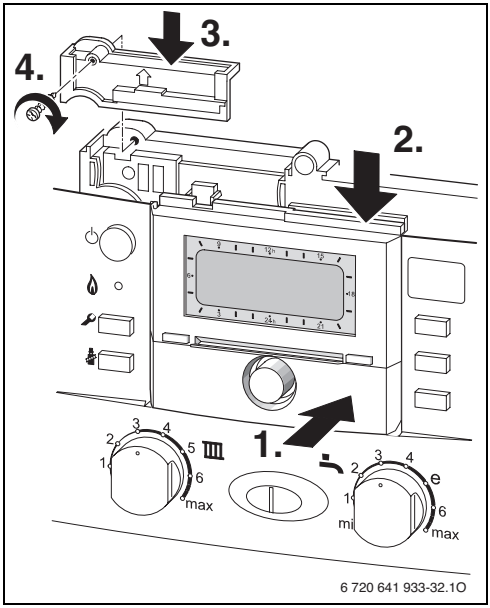


Fig. 7

3.1.2 Wall mounting

The control quality of the controller is dependent on where it is installed.

The installation location (= lead room) must be suitable for controlling the heating.

- Select the installation location.

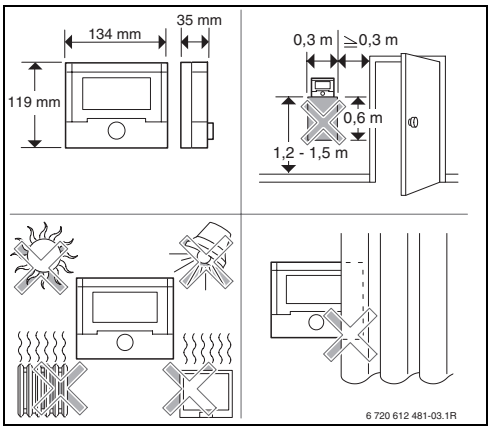


Fig. 8

The mounting surface on the wall should be level.

- Remove the top section and slide cover from the base.

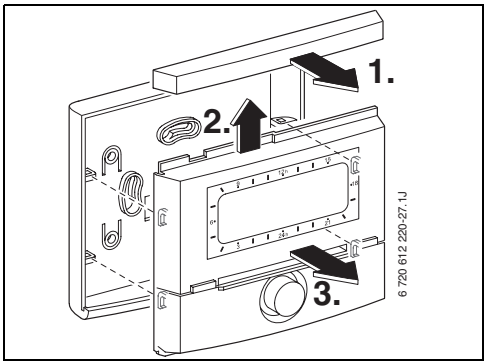


Fig. 9

- Fit the base.

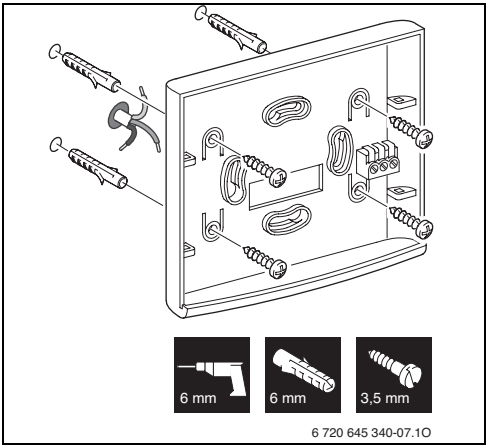


Fig. 10

- Make the electrical connections (→ Fig. 14 or 15 on page 17).
- Refit top section an slide cover on base.

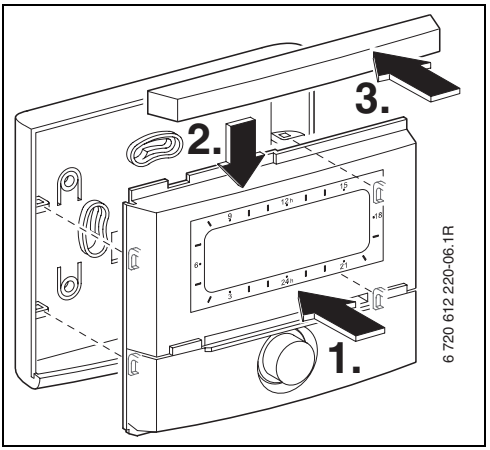


Fig. 11

3.1.3 Installation of outside temperature sensor

Control quality depends on installation location of outside temperature sensor AF.

▶ Select the installation location.

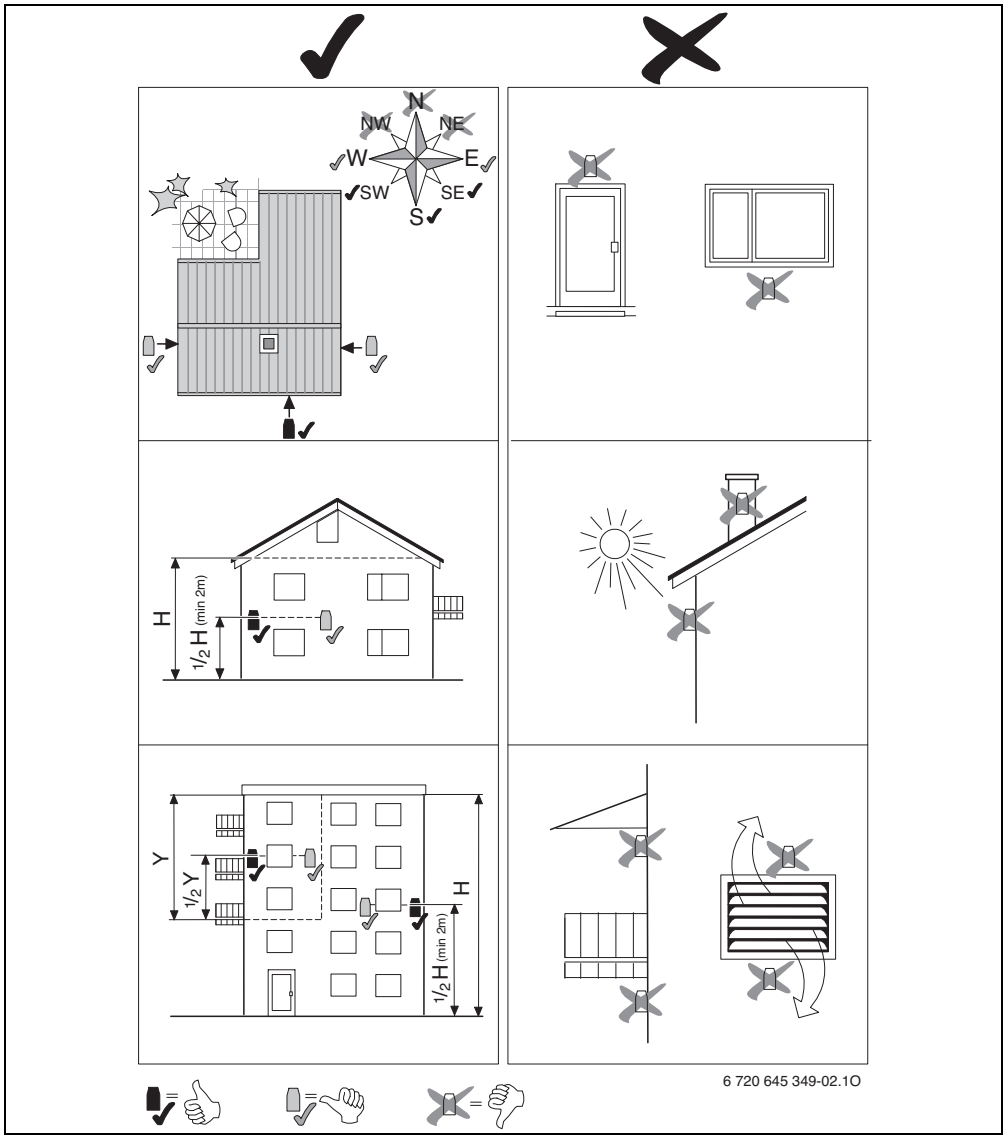


Fig. 12

- Remove cover.
- Fix sensor housing to external wall with two screws.

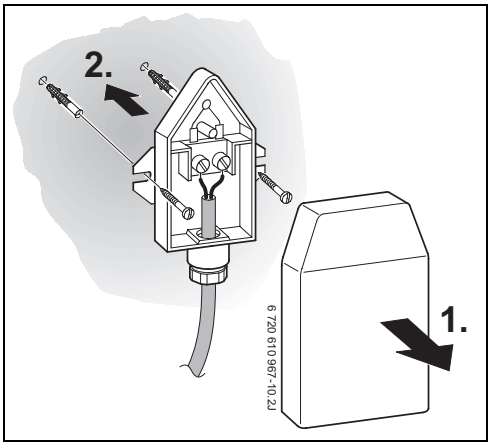


Fig. 13

3.1.4 Fitting other accessories

- Fit accessories according to the legal requirements and the installation instructions supplied with them.

3.1.5 Disposal

- Dispose of packaging in an environmentally responsible manner.
- When replacing components, dispose of the used components in an environmentally responsible manner.

3.2 Electrical connections

3.2.1 Electrical connection in the heating appliance

- Installation of the controller automatically produces BUS connection via the three contacts (→ Fig. 6 on page 12).

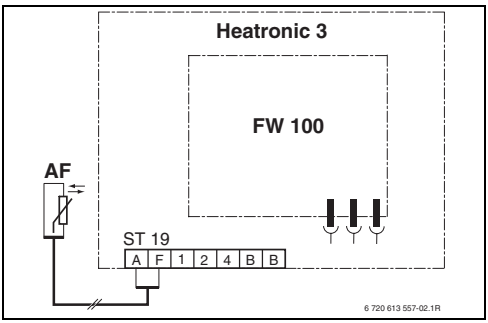


Fig. 14 Controller installed via BUS contacts in BUS-enabled Heatronic 3.

The controller recognises via the third contact that it is installed inside the heating appliance.

3.2.2 Electrical connection for wall mounting

- BUS connection from the controller to other BUS subscribers:
  Use electrical cable according to local codes and requirements.

Permissible cable lengths from the BUS-enabled Heatronic 3 to the controller:

Cable length	Cross-section
≤ 80 m	0.40 mm^2
≤ 100 m	0.50 mm^2
≤ 150 m	0.75 mm^2
≤ 200 m	1.00 mm^2
≤ 300 m	1.50 mm^2

Tab. 6

- To prevent inductive interference: Route all LV leads separately from cables carrying 220 to 240 V or 380 to 415 V (minimum separation 100 mm).
- In case of external inductive interference, shield the cables.
  This ensures that the cables are shielded from external interference (e.g. heavy current cables, overhead wires, transformer stations, radio and television set, amateur radio stations, microwave ovens etc).

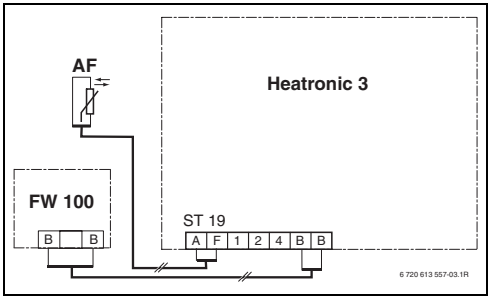


Fig. 15 Controller connected to BUS-enabled Heatronic 3.

If the BUS links feature different cross-sections:

- Connect BUS links via a branch box.

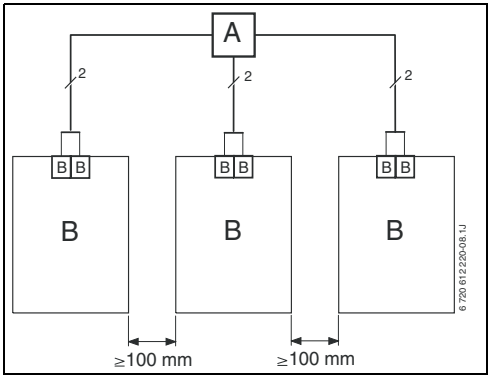


Fig. 16 BUS links connected via branch box (A)

Permissible cable lengths to outside temperature sensor:

Cable length	Cross-section
≤ 20 m	0.75 mm^2 ... 1.50 mm^2
≤ 30 m	1.00 mm^2 ... 1.50 mm^2
≥ 30 m	1.50 mm^2

Tab. 7

4 Commissioning (contractors only)

- Set DIP switch at IPM 1 to **1**.
- Switch ON the system.
- Set FB 10 or FB 100 to **1**.

Description of the controls
→ page 2.

During commissioning or after a global reset (resetting all settings), the language selected for the factory settings will be displayed.

- Select the language with  and confirm with  .

Set the date and time if the reserve power supply has run out.

- Select the hour with  and confirm with .
- Select the minutes with  and confirm with .
- Select the year with  and confirm with .
- Select the month with  and confirm with  .
- Select the day with  and confirm with  .
- The automatic system configuration starts during commissioning (wait for 60 seconds and then follow the instructions displayed).
- Switch off automatic **Auto switch between GMT - BST** → chapter 6.5.1 from page 38
- Adapting other settings to the current system, → chapter 6 from page 26 and chapter 8 from page 43.
- Fill and vent solar thermal system according to its documentation and prepare it for commissioning as described in chapter 8.4 on page 51.
- Adapting other settings to the current solar thermal system, → chapter 8.5 from page 52.
- Commission the solar thermal system, → chapter 8.5.4 on page 55.

5 Operation

The controller provides the option of setting the required room temperature for the operating mode concerned. The temperature given is not the actual room temperature. It is an orientation value that influences the required flow temperature.

5.1 Changing the room temperature and operating mode

5.1.1 Changing the room temperature with (with time limit)

You can also permanently change the required room temperature, → chapter 6.3.2 on page 33.

This function is only available if the heating system is not regulated via remote control FB 100:

- Set the required room temperature with .
  - If the operating mode selector is set to auto:
    The new temperature applies until the next switching point. Afterwards, the set temperature applies for the switching period.
  - If the operating mode selector is set to / / : The new temperature applies until the selector position is changed. Afterwards, the set temperature applies to the selected operating mode.

5.1.2 Changing the operating mode with (with time limit)

To permanently change the operating mode, → chapter 5.1.4 on page 20.

The function can be used in situations such as going to bed earlier, being away from home longer or returning early.

This function is only available if the heating system is not regulated via remote control FB 100 and automatic mode has been activated :

- Press briefly to bring forward the next switching time and the associated operating mode **Comfort** / **Economy** / **Frost** to the current time.
  The display shows the changed details.
- Press and hold and simultaneously turn the rotary selector to change the next switching point. As a maximum, the switching time can be changed between the current time and the switching time after next.
  If the next switching time of the heating program is exceeded, the function will be reset, and automatic mode will be active again.

Cancelling the function early:

- Press briefly again.

5.1.3 Changing the DHW mode with (with time limit)

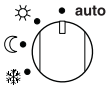
You can use this function if you need hot water outside the programmed switching times.

- Press briefly to activate DHW heating immediately (the activated function cannot be switched off prior to expiry of the fixed time):
  - The DHW cylinder is heated up to the maximum temperature set in the DHW program for 60 minutes.
  - With a combi boiler, comfort mode is activated for 30 minutes.

  The display shows the changed details. If the specified time is exceeded, the function will be reset, and automatic mode will be active again.

5.1.4 Changing heating mode permanently

DHW is heated independently of the position of the operating mode selector in accordance with the DHW program (→ chapter 6.4 from page 34).

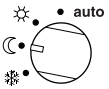


Automatic mode (factory setting)

Automatic change between **Comfort** ☼ / **Economy** ☾ / **Frost** ❄ according to the active heating program. The controller regulates to the room temperatures selected in submenu **Heating levels** (→ chapter 6.3.2 on page 33).

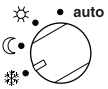
Constant heating

The controller constantly maintains the room temperature set for **Comfort** ☼ in submenu **Heating levels** (→ chapter 6.3.2 on page 33). The heating program is ignored.



Constant economy

The controller constantly maintains the room temperature set for **Economy** ☾ in submenu **Heating levels** (→ chapter 6.3.2 on page 33). The heating program is ignored.



Constant frost protection

The controller constantly maintains the room temperature set for **Heating levels** ❄ in submenu **Heating levels** (→ chapter 6.3.2 on page 33). The heating program is ignored.

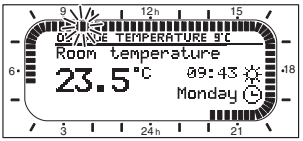
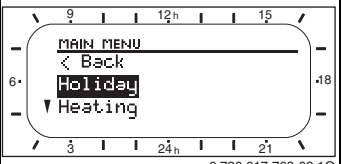
5.2 Menu control

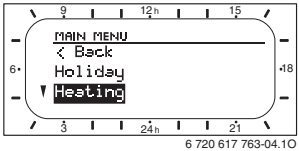
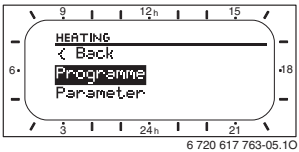
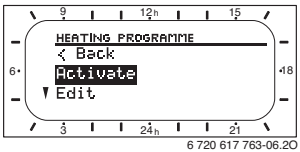
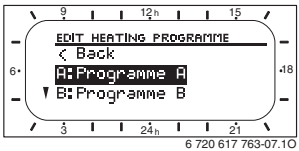
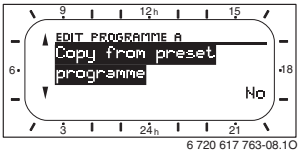
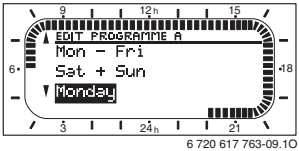
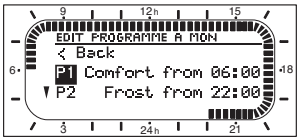
Main structure of menu prompts:

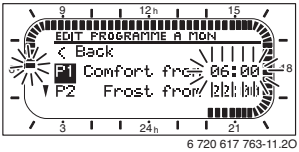
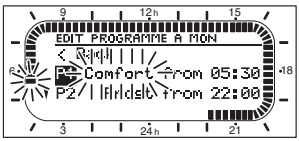
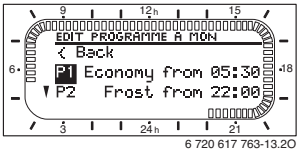
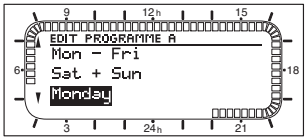
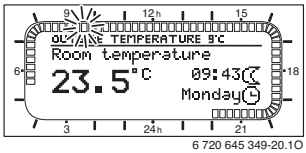
- The titles of variables or submenus are listed on the left.
- The selected title is displayed against a dark background.
- Variable values are displayed on the right, either adjacent to or below their titles.
- With ok, submenus are called up or the change mode is activated (the variable value flashes).
- As long as a title is displayed against a dark background, menus can be scrolled with menu / ↕ / ok / ↩ without changing any values.
- Arrows on the l.h. edge indicate whether there are more menu points.
- A flashing variable value can be changed with ↕.
- With ⌫, flashing variables can be returned to their factory settings.
- The change will become valid after pressing ok; the title will again be displayed against a dark background.
- If the change mode is cancelled with a different key than ok, the change will be cancelled and the original value remains valid.

5.2.1 Programming example

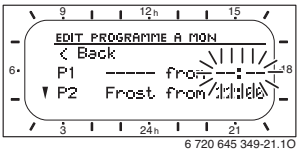
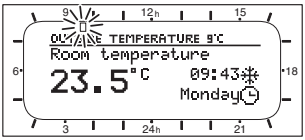
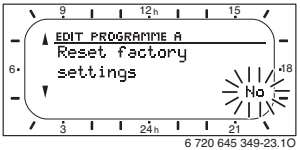
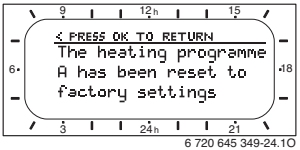
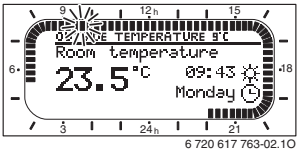
All programming steps follow the same pattern. The functions of controls and the meaning of symbols are explained on pages 2 and 3. If you want to enter a heating program, carry out the following programming steps.
A prompt will be displayed if a function has been locked. In such cases, follow the instructions shown.

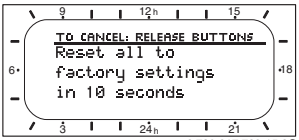
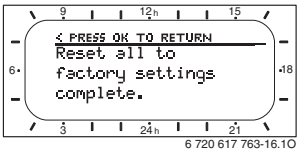
Operation		Display
Open the flap. The standard display continues to be shown.		 6 720 617 763-02.1O
Calling up the main menu:		
Press menu	The display lighting switches on and the main menu is displayed.	 6 720 617 763-03.1O

Operation		Display
Selecting the menu:		
Turn 	In this example, highlight menu point "Heating". Turning the rotary selector will show additional menus.	 6 720 617 763-04.1O
Press 	Confirm the selected menu point "Heating".	 6 720 617 763-05.1O
Press 	In this example, leave the highlighting on menu point "Programme" and confirm.	 6 720 617 763-06.2O
Turn 	In this example, highlight menu point "Edit".	 6 720 617 763-07.1O
Press 	Confirm menu point "Edit".	
Press 	In this example, leave the highlighting on menu point "A:Programme A" and confirm.	 6 720 617 763-08.1O
Turn 	In this example, highlight menu point "Monday". The segment ring for the heating program will only be displayed if all switching times for the selected days of the week are identical (e.g. all switching times for menu point "Mon - Fri" are identical).	 6 720 617 763-09.1O
Press 	Confirm the menu point "Monday". The next submenu showing the programmed switching times and operating modes P1 to P6 is displayed.	 6 720 617 763-10.3O

Operation		Display
Setting values:		
Press 	In this example, leave the highlight on menu point "P1" and confirm. The switching time and associated segment flash.	 6 720 617 763-11.2O
Turn 	In this example, set the switching time to 05:30 h. The associated segments change simultaneously.	 6 720 617 763-12.2O
Press 	The switching time is saved and the operating mode to be changed as well as the segment of the new switching time flash. If, for example, you change and save a switching time for menu point "Mon - Fri", that change is simultaneously applied to every day from "Monday" to "Friday".	
Turn 	In this example, set the operating mode to "Economy". The associated segments change simultaneously.	 6 720 617 763-13.2O
Press 	The operating mode is saved. Setting of P1 is now complete. The modified switching time, operating mode and segments are displayed. Set additional switching times and operating modes P2 to P6 as described.	
Select the next menu level up:		
Press 	Call up the next menu up.	 6 720 645 349-19.1O
-or-		
Turn 	Highlight menu point < Back .	
Press 	Confirm the selected menu point < Back . The next menu up is displayed.	
Ending programming:		
Press menu	The controller now operates with the new program details.	 6 720 645 349-20.1O

5.2.2 Deleting or resetting program details

Operation		Display
Deleting programmed values:		
Select the value to be deleted, for example the switching time in P1 as described in chapter 5.2.1 from page 21 and overwrite it. **-or-**		
Press 	The deleted switching time flashes, and the associated operating mode is also deleted. The associated segments change simultaneously.	 6 720 645 349-21.1O
Press  2x	The setting is saved.	 6 720 645 349-22.1O
Press menu	Leaving the menu and returning to the standard display.	
Resetting a program (for example heating program):		
As described in chapter 5.2.1 from page 21, select menu point "A:Programme A" and confirm.		
Turn 	In this example, highlight menu point "Reset factory settings".	 6 720 645 349-23.1O
Press 	Confirm menu point "Reset factory settings". The value to be changed flashes.	
Turn 	Set menu point "Reset factory settings" to "Yes".	 6 720 645 349-24.1O
Press 	Confirm the program reset. A prompt appears following the reset.	
Press 	Return to the menu.	 6 720 617 763-02.1O
Press menu	Leaving the menu and returning to the standard display.	

Operation	Display
Resetting all settings (for contractors only): This function returns all adjustments of the MAIN MENUand the INSTALLER SETTINGSto their factory settings. **Following such a reset, your contractor will need to recommission the system.**	
If the standard display is set: Hold down menu and ⏻ simultaneously, until the following warning is displayed together with a 10 second countdown:	 6 720 617 763-15.2O
If all previous adjustments are really to be reset: Continue to hold down menu and ⏻ simultaneously, until the following prompt appears:	 6 720 617 763-16.1O
Press ok to finalise the reset. All adjustments have now been returned to their factory settings, and the system must be re-commissioned by a contractor.	

6 Adjusting the MAIN MENU

Detailed instructions on navigating through the menu structure, programming, deleting settings and resetting to the factory settings are provided in chapter 5.2 starting on page 21.

6.1 Overview and adjustment of the MAIN MENU

The tables set out below provide:

- An overview of the menu structure (column 1). The menu depth is identified by various shades of grey.
  For example, in menu **Heating > Programme** submenus **Edit** and **View** are on the same level.
- An overview of the factory settings (column 2), e.g. for the purposes of resetting individual menu point to their factory settings.
- An overview of the setting ranges of the individual menu points (column 3).
- Space for making a note of your personal settings (column 4).
- A way to locate detailed descriptions regarding the individual menu points (column 5).

The menu points are only shown if the system components are present and/or active, and if no remote control is accessing them. Some menu points are not shown because they are switched off by a setting for another menu point.

▶ Always set or skip menu points in order. In that way, subsequent menu points will be automatically adjusted or not shown.

6.1.1 MAIN MENU: Holiday

Menu structure Holiday	Factory setting	Setting range	Personal setting	Description frompage
Start	– –.– –.– – – –	Today ... 31.12.2099 (in year/month/day steps)		31
End	– –.– –.– – – –	Start date ... 31.12.2099 (in year/month/day steps)		
Heating	Frost	Frost | Economy | Comfort | Auto		
Domestic hot water	Off[1)]	Off | Auto | On[1)]		
	15 °C[2)]	15 °C ... 60 °C | Auto[2)]		
DHW circulation pump	Off	Off | Auto | On		
Thermal disinfection	Off	Off | On		

1) DHW heating with combi boiler

2) DHW heating via DHW cylinder

6.1.2 MAIN MENU: Heating

Menu structure Heating	Factory setting	Setting range	Personal setting	Description frompage
Programme	–	–	–	32
Activate	A:Programme A (switching times of program Home all day)	A:Programme A ...C:Programme C (program title can be changed)	–	
Edit	–	–	–	
A: Programme A ... C: Programme C	–	–	–	
Copy from preset programme	No	No | A:Programme A ... C:Programme C (program title can be changed) | AM weekday worker | PM weekday worker | Full weekday worker | AM+PM weekday worker | Home all day | Home all day, early | Home all day, late | Senior citizens	–	
All days	→ Table on page 68			
P1, P2 ... P6				
Mon - Fri				
P1, P2 ... P6				
Sat + Sun				
P1, P2 ... P6				
Monday, Tuesday ... Sunday				
P1, P2 ... P6				
Reset factory settings	No	No | Yes		
Programme name	As selected in Edit menu, e.g. Programme A	Changing the program title		
View	–	–	–	
A: Programme A ... C: Programme C AM weekday worker PM weekday worker Full weekday worker AM+PM weekday worker Home all day Home all day, early Home all day, late Senior citizens	All days	All days Mon - Fri Sat + Sun Monday, Tuesday ... Sunday	–	

Menu structure Heating	Factory setting	Setting range	Personal setting	Description frompage
Parameter	–	–	–	33
Heating levels	–	–	–	
Comfort	21.0 °C	0.0 °C ... 30.0 °C (not lower than Economy)	°C	
Economy	15.0 °C	0.0 °C ... 30 °C (not lower than Frostand not higher than Comfort)	°C	
Frost	5.0 °C	0.0 °C ... 30 °C (not higher than Economy)	°C	
Heating up speed	Normal	Economy | Normal | Fast		

6.1.3 MAIN MENU: Domestic hot water

Menu structure Domestic hot water	Factory setting	Setting range	Personal setting	Description from page
DHW and DHW circulation pump	Separate programmes	Separate programmes | As heating programme		34
DHW programme[1)]	–	–	–	
Edit	–	–	–	
All days	→ Table on page 71			
P1, P2 ... P6				
Mon - Fri				
P1, P2 ... P6				
Sat + Sun				
P1, P2 ... P6				
Monday, Tuesday... Sunday				
P1, P2 ... P6				
Reset factory settings	No	No | Yes		
View	–	–	–	
All days | Mon - Fri | Sat + Sun | Monday, Tuesday... Sunday	–	–	–	

Menu structure Domestic hot water	Factory setting	Setting range	Personal setting	Description from page
DHW circ pump prog [1]	–	–	–	36
Edit	–	–	–	
All days	→ Table on page 72			
P1, P2 ... P6				
Mon - Fri				
P1, P2 ... P6				
Sat + Sun				
P1, P2 ... P6				
Monday, Tuesday ... Sunday				
P1, P2 ... P6				
Reset factory settings	No	No | Yes		
View	–	–	–	
All days | Mon - Fri | Sat + Sun | Monday, Tuesday... Sunday	–	–	–	
Parameter	–	–	–	36
Cylinder temp at heating level Comf.	60 °C	15 °C ... 60 °C	°C	
Cylinder temp at heating level Eco	50 °C	15 °C ... 60 °C	°C	
DHW priority	Priority	Priority | Conditional priority		
DHW circ pump cycles	4/h	1/h ... 7/h	/h	
Thermal disinfection	–	–	–	37
Operating mode	Manual	Manual | Auto		
Operating status	Not running	Not running | Start now		
	Running	Running | Stop		
Time	01:00 h	00:00 h ... 23:45 h	h	
Time interval	7 d	1 d ... 30 d	d	

1) Only for Separate programmes

6.1.4 MAIN MENU: General settings

Menu structure General settings	Factory setting	Setting range	Personal setting	Description from page
Time and date	–	–	–	38
Time	– – : – –	00:00 ... 23:59 (in hour/minute steps)	–	
Date	– – . – – . – – – –	01.01.2005 ... 31.12.2099 (in day/month/year steps)	–	
Auto switch between GMT - BST[1)]	Yes	Yes | No		
Time adjustment	0.0 sec/week	– 60.0 sec/week... +60.0 sec/week	sec/week	
Display format	–	–	–	38
Date	DD.MM.YYYY	DD.MM.YYYY or MM/DD/YYYY		
Display contrast	According to factory test	25 % ... 75 %	%	
Information at top of display	Without ISM or cylinder: Outside temperature	Outside temperature | Date		
	Without ISM, with cylinder: Outside temperature	Outside temperature | Date | Cylinder temperature		
	With ISM and cylinder: Solar pump status	Solar pump status | Solar yield | Outside temperature | Date | Cylinder temperature		
	With ISM but without cylinder: Solar pump status	Solar pump status | Solar yield | Outside temperature | Date		
Key lock	Off	Off | On		38
Language	English	English | Deutsch | Francais | Nederlands		38

1) Auto switch between GMT - BST always switch off (select No)

6.1.5 MAIN MENU: Solar

Menu structure Solar	Factory setting	Setting range	Personal setting	Description frompage
T2: Max. solar cylinder temperature	60 °C	15 °C ... 95 °C	°C	39
Optimizing influence DHW	0 K	0 K (= function off) ... 20 K	K	
CH circuit optimizing influence	0 K	0 K (= function off) ... 5 K	K	

6.2 Holiday program

Main menu: Holiday

For menu structure and setting ranges → page 26.

Use this menu if you want to operate a special program for several days without changing your personal settings in the individual programs and parameters.

With the holiday program, central heating and DHW heating operate according to the operating mode set in the holiday program (frost protection is ensured).

- **Start**:
  - The holiday program starts immediately if you select the current date as **Start**.
  - The holiday program starts at **00:00** on the selected day if you select the tomorrow's date or later as **Start**.
- **End** The holiday program ends at **23:59** h on the selected day.
- **Heating**: Operating mode for central heating during the holiday program.
- **Domestic hot water**: Operating mode for DHW heating during the holiday program.
- **DHW circulation pump**: Operating mode for DHW circulation pump during the holiday program.
- **Thermal disinfection**: Operating mode for thermal disinfection of the DHW during the holiday program.

When the holiday program is active, the standard display shows  and, for example, **HOLIDAY UNTIL** - **30.09.2010**.

Terminating the holiday program early:

▶ Select menu **Holiday > Start** and press  . The display shows **--:--:----**.

▶ Press rotary selector to store the setting.

6.3 Heating program

Main menu: Heating

For menu structure and setting ranges
→ page 27.

Set the flow temperature controller on the heating appliance to the maximum required flow temperature.

6.3.1 Time/Temperature level program

Set the programs for the most important usage (e.g. early shift, late shift, holiday at home etc.) once, so that the appropriate program can be activated quickly later on.

Menu: Heating > Programme

Use this menu if you want to adapt a heating program with personalised time/temperature level profile.
The heating program is only active if the mode selector is set to ⏲.

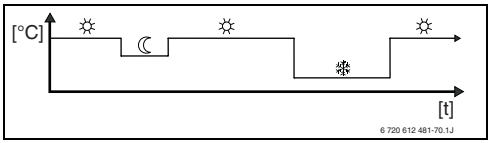


Fig. 17 Example heating program with time/ temperature level profile

Menu: Heating > Programme > Activate

▸ Select and activate heating program.

Menu: Heating > Programme > Edit

Setting options:

- Up to six switching times per day with three different operating modes (**Comfort** ☼ / **Economy** ☾ / **Frost** ❄).
- Option of different times for every day or the same times for:
  - Every day (**All days**)
  - Monday to Friday (**Mon - Fri**)
  - Saturday and Sunday (**Sat + Sun**)
- The shortest switching interval is 15 minutes (= 1 segment).

Copying and adjusting 3 personal heating programs:

▸ Copy a preset heating program.

▸ Set personal switching times and associated operating modes:

  – Disable switching points that are not required by deleting them.

  – **All days**: Starting the selected operating mode at the same time every day.

  – **Mon - Fri**: Starting the selected operating mode at the same time Monday to Friday.

  – **Sat + Sun**: Starting the selected operating mode at the same time Saturday and Sunday.

  – Individual days of the week (e.g. **Thursday**: starting the selected operating mode at the same time every Thursday).

  – Skip switching points and operating modes that are not to be changed with OK or ⏲.

If, for example, the programming for **Thursday** differs from the other days of the week, the options **All days** and **Mon - Fri** show **----- from --:--** for all values. That is, there are no common switching times and operating modes for this selection.

- Return the heating program to its factory settings → page 24.
- Change the title of the heating program with ◯ and ◯. The 18 characters displayed can be individually replaced by selecting the letters and numbers offered.

To enter spaces:

- If the selected character is shown with a dark background, delete by pressing ⌴ (space = _)

Menu: Heating > Programme > View

- Show switching points and associated heating program operating modes for **All days**, **Mon - Fri**, **Sat + Sun** or the individual day of the week as a segment ring.

6.3.2 Temperature for the operating modes and heat-up rate

Menu: Heating > Parameter

Use this menu to permanently set the temperature levels for the 3 operating modes (**Comfort** ☼ / **Economy** ☾ / **Frost** ❄) and the heat-up rate to suit your personal preferences and your home.

Menu: Heating > Parameter > Heating levels

- Setting the required room temperature for the operating modes:
  - **Comfort** ☼ = maximum temperature required (e.g. when the living space is occupied and occupants require a comfortable room temperature).
  - **Economy** ☾ = average temperature required (e.g. if a low room temperature is adequate or if everyone is away or asleep and the house should not cool down excessively).
  - **Frost** ❄ = minimum temperature required (e.g. when the home is unoccupied or everyone is asleep and it is OK for the house to cool down). Consider any pets and plants.

Menu: Heating > Parameter > Heating up speed

- Set required heat-up rate:
  - **Economy** = The building is heated up slowly, thus saving energy.
  - **Normal** = The building is heated up at the “normal” rate.
  - **Fast** = The building is heated up quickly, thus providing maximum comfort.

6.4 DHW program

Main menu: Domestic hot water

For menu structure and setting ranges → page 28.

Set the DHW temperature controller on the heating appliance to the maximum required DHW temperature. If a DHW cylinder is connected to the IPM downstream of a low loss header, turn the flow temperature controller on the heating appliance fully clockwise.

6.4.1 DHW program operating modes

Menu: Domestic hot water > DHW and DHW circulation pump

With this menu you can optionally

▸ activate your individual DHW program

-or-

▸ or combine the DHW program with your heating program. That is useful if you frequently switch between different heating programs. The DHW program is then automatically adapted to suit.

As heating programme (Automatic mode together with the heating program):

- With DHW cylinder:
  - In accordance with the DHW temperature selected under **Cylinder temp at heating level Comf.**[1)], if the heating system operates in **Comfort** ☼ mode or switches to **Comfort** ☼ mode within the next hour.
  - Otherwise according to the DHW temperature selected under **Cylinder temp at heating level Eco**[1)], if the heating system operates in **Economy** ☾ mode.
  - Otherwise DHW **Frost** (15 °C fixed value).
- With combi boiler:
  - DHW **On**, if the heating system operates in **Comfort** ☼ mode or has operated in **Comfort** ☼ mode within the last hour.
  - Otherwise DHW **Off**
- With DHW circulation pump for DHW cylinder:
  - DHW circulation pump **On** and DHW circulation pump starts according to setting (→ chapter 6.4.5 on page 37), if the heating system operates in **Comfort** ☼ mode.
  - Otherwise DHW circulation pump **Off**.

Separate programmes (independent time programs):

- Automatic changeover between DHW **On**[2)] / **Off**[2)] or different DHW temperatures [3)]and DHW circulation pump **On** / **Off** according to programs entered.
- DHW circulation pump starts according to setting (→ chapter 6.4.5 on page 37).

1) Setting the DHW temperature → chapter 6.4.5 on page 36.

2) DHW with combi boiler

3) DHW via cylinder

6.4.2 Time/temperature level program for DHW via cylinder

Menu: Domestic hot water > DHW programme

Use this menu if you want to use a DHW program with user-defined time/temperature profile.
The time/temperature level program is only adjustable and active if **Domestic hot water > DHW programme > Separate programmes** is set.

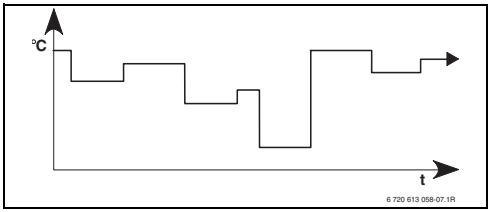


Fig. 18 Example DHW program with time/ temperature profile

Setting options

- Up to six switching times per day with DHW temperatures between 15 °C and 60 °C.
- Optionally the same times or different times for every day for **All days** / **Mon - Fri** / **Sat + Sun**.
- The shortest switching interval is 15 minutes (= 1 segment).

Setting the switching times and DHW temperature

Disable switching points that are not required by deleting them.

Enter or view days of the week, switching times and associated DHW temperatures, as described in chapter 6.3 on page 32.

6.4.3 Time program for DHW with combi boiler

Menu: Domestic hot water > DHW programme

Use this menu if you want to use a time program for DHW heating.
The time program is only programmable and active if **Domestic hot water > DHW programme > Separate programmes** is set.

- Automatic changeover between DHW **On**/ **Off** in accordance with the time program entered.
- **On**: DHW will be available immediately if the ECO key has not been pressed on the heating appliance.
- **Off**: The heat exchanger inside the heating appliance will remain unheated.
  Consequently, hot water will only be available after drawing lots of water from a hot tap.

Setting options

- Up to six switching times per day with two different operating modes (**On** / **Off**).
- Optionally the same times or different times for every day for **All days** / **Mon - Fri** / **Sat + Sun**.
- The shortest switching interval is 15 minutes (= 1 segment).

Setting switching times and the operating mode

Disable switching points that are not required by deleting them.

Enter or view days of the week, switching times and associated operating modes (**On** / **Off**), as described in chapter 6.3 on page 32.

6.4.4 Time program for DHW circulation pump (only with DHW cylinder)

Menu: Domestic hot water > DHW circ pump prog

Use this menu if you want to use a time program for the DHW circulation pump.
The time program is only programmable and active if **Domestic hot water > DHW programme > Separate programmes** is set.

- Automatic changeover between DHW circulation pump **On** / **Off** in accordance with the time program entered.
  - **On**: DHW circulation pump starts as per setting (→ chapter 6.4.5 on page 37).
  - **Off**: The DHW circulation pump is stopped.

Setting options

- Up to six switching times per day with two different operating modes (**On** / **Off**).
- Optionally the same times or different times for every day for **All days** / **Mon - Fri** / **Sat + Sun**.
- The shortest switching interval is 15 minutes (= 1 segment).

Setting switching times and the operating mode

Disable switching points that are not required by deleting them.

Enter or view days of the week, switching times and associated operating modes (**On** / **Off**), as described in chapter 6.3 on page 32.

6.4.5 Parameters for DHW

Menu: Domestic hot water > Parameter > Cylinder temp at heating level Comf.

This menu point is only active if **Domestic hot water > DHW programme > As heating programme** is set (→ chapter 6.4.1 on page 34). This is where you set the required DHW temperature for your DHW cylinder.

Menu: Domestic hot water > Parameter > Cylinder temp at heating level Eco

This menu point is only active if **Domestic hot water > DHW programme > As heating programme** is set (→ chapter 6.4.1 on page 34). This is where you set the required reduced DHW temperature for your DHW cylinder.

Menu: Domestic hot water > Parameter > DHW priority

This menu point is only active if **Domestic hot water configuration** in the system configuration has been set to **Cyl on IPM ident.3...10** (→ chapter 8.1.1 on page 43). Use this menu if your heating is to be left operational during cylinder heating (e.g. for buildings with limited insulation and low outdoor temperatures).

- **Priority**: Central heating stops during cylinder heating. The pump stands still and the mixer is closed.
- **Conditional priority**: If a mixer is installed, central heating continues during cylinder heating ; the pump runs and the mixer regulates to the required heating temperature. If no mixer is installed, central heating will be switched off to prevent rooms getting too hot. Cylinder heating takes longer with **Conditional priority**.

Menu: Domestic hot water > Parameter > DHW circ pump cycles

This menu point is only active if a DHW circulation pump is available.

This menu point specifies how many times per hour the DHW circulation pump will start during the DHW circulation pump **On** phase. With the setting:

- **1/h** to **6/h**, each DHW circulation pump cycle lasts for 3 minutes.
- **7/h**, the DHW circulation pump runs continuously during the **On** phase.

The DHW circulation pump stops during the DHW circulation pump **Off** phases.

6.4.6 Thermal disinfection of DHW

Menu: Domestic hot water > Thermal disinfection

This menu is only active if your domestic hot water is provided by a DHW cylinder. We recommend that you carry out thermal disinfection at regular intervals.
If you have a combi boiler, observe the information in the boiler documentation.

WARNING: Risk of scalding!

Hot water can lead to severe scalding.

- ▶ Only carry out thermal disinfection at times when the system is not normally in use.
- ▶ Inform occupants of the building of the risk of scalding and always monitor the thermal disinfection process.

- **Operating mode**:
  - **Auto** Thermal disinfection starts automatically in accordance with the set start conditions. Thermal disinfection can be started and stopped manually.
  - **Manual**: Thermal disinfection can be started respectively once under **Operating status**.
- **Operating status**:
  - **Not running**: No thermal disinfection in progress at present. Once-only thermal disinfection can be started by selecting **Start now**.
  - **Running**: Thermal disinfection currently in progress. Thermal disinfection can be stopped by selecting **Stop**.
    If **Solar sys option E Thermal disinfection** is switched on (→ chapter 8.4 on page 51) and thermal disinfection is stopped by selecting **Stop**, a fault is indicated for 5 minutes if the disinfection temperature in the solar cylinder has not been reached (fault 54, → chapter 9.1 from page 58).
- **Time**: Start time for automatic thermal disinfection.
- **Time interval**: Period until next start time for automatic thermal disinfection.

6.5 General settings

Main menu: General settings

For menu structure and setting ranges
→ page 30.

6.5.1 Time and Date

Menu: General settings > Time and date

Use this menu if you want to correct the date and time.

- **Time**: Resetting the time, if the power supply has been interrupted for more than 12 hours.
- **Date**: see above **Time**.
  The current day of the week (e.g. **Mo**) is calculated automatically.

Auto switch between GMT - BST

- ▸ Switch automatic summer/ wintertime changeover off.

- **Time adjustment**: Sets the adjustment factor for the time. The adjustment is carried out once a week.
  Example:
  - If the time is out by approximately – 3 minutes a year
  - – 3 minutes a year is equal to – 180 seconds a year
  - 1 year = 52 weeks
  - – 180 seconds ÷ 52 weeks = – 3.46 seconds a week
  - Correction factor = **+3.5 sec/week**

6.5.2 Display formats

Menu: General settings > Display format

Use this menu if you want to customise the display formats to suit your personal preferences.

- **Date**: Selects either **DD.MM.YYYY** or **MM/DD/YYYY** as date display format (D = number for day, M = number for month, Y = number for year).
- **Display contrast**: Sets display contrast to between **25 %** and **75 %**.
- **Information at top of display**: Sets the required information to be shown on the top line of the standard display.

6.5.3 Key lock

Menu: General settings > Key lock

Use this menu if you want to prevent unauthorised use of the key functions, e.g. by children.

The corresponding information will be displayed if **Key lock** is active and a locked key on the standard display is pressed.

Changes of the operating mode selector to a different mode only become active when **Key lock** is reset.

Reset **Key lock**:

- ▸ Hold down and simultaneously until the corresponding message appears.

6.5.4 Language

Menu: General settings > Language

Use this menu if you want to change the language for the display texts.

6.6 Solar settings

Main menu: Solar

For menu structure and setting ranges
→ page 30.

Use this menu if you want to limit the cylinder temperature or optimise the set DHW temperature and the set flow temperature based on the available solar energy in your geographical region.

Limiting cylinder temperature

Storing as much solar energy as possible requires a high cylinder temperature.

Limiting the cylinder temperature prevents overheating of the DHW. The temperature setting is transmitted by the ISM module during commissioning.

WARNING: Risk of scalding!If the cylinder temperature is higher than 60 °C.

- ▶ If the cylinder temperature limit is set to > 60 °C, fit the thermostatic DHW mixerTWM 20 (accessory) in the DHW line.
- ▶ Set TWM 20 to max. 60 °C.

T2: Max. solar cylinder temperature: Cylinder temperature > 60 °C only in systems if the DHW outlet temperature is limited by thermostatic DHW mixer.

Solar optimisation

The utilisation of as much solar energy as possible makes it appropriate to reduce the set temperatures called for by the heating appliance. The controller enables this reduction automatically subject to the available solar energy with **Optimizing influence DHW** and with **CH circuit optimizing influence**.

For more information for contractors, see
→ chapter 8.5.3 on page 53.

- **Optimizing influence DHW**: Maximum reduction of set DHW temperature by effect of solar thermal system.
  Example:
  - Set DHW temperature = 60 °C
  - **Optimizing influence DHW** = 15 K
  - Set DHW temperature for the heating appliance = 60 °C – 15 K
  - Provided there is sufficient solar output available, the maximum reduction is set and the heating appliance heats the DHW to 45 °C, with the remaining 15 K being provided by the solar yield.
- **CH circuit optimizing influence**: Influence of solar output on heat input fed into the heating circuit. At a high value, the heating curve flow temperature is reduced at a correspondingly greater rate (further information for contractors → chapter 8.3 from page 47) to enable greater passive solar energy input through the building's windows. At the same time this reduces a temperature overshoot in the building and increases the comfort level.
  - Increase **CH circuit optimizing influence** if the heating system heats rooms that have large areas of south-facing windows.
  - Do not increase **CH circuit optimizing influence** if the heating system heats rooms that have small areas of north-facing windows.

Optimizing influence DHW and **CH circuit optimizing influence** do not start until a calibration phase of at least 30 days has been completed after commissioning of the solar thermal system.

7 Viewing information

Menu: INFO

This menu allows you to view various items of system information.

Detailed instructions on navigating through the menu structure are provided in chapter 5.2 starting on page 21.

The menu points are only shown if the system components are present and/or active, and if no remote control is accessing them. Some menu points are not shown because they are switched off by a setting for another menu point.

INFO menu overview

The table below provides:

- An overview of the menu structure (column 1). The menu depth is identified by various shades of grey.
  For example, menu **Instruction manual** and **Boiler** are on the same level.
- An overview of the various display options (column 2).
- Descriptions of the individual information items (column 3).

Menu structure INFO	Variable display (examples)	Description
Instruction manual	–	–
To set new temp: turn selector knob ...	–	Various items of operating information
Boiler	–	–
Outside temperature	10.0 °C	Current outside temperature.
Heating mode possible	Yes | No	Shows whether heating appliance is ready for operation.
Current CH flow temperature	55.0 °C	Current heating appliance flow temperature.
Burner	On | Off	Burner status.
Heating pump	On | Off	Status of pump in heating appliance.
Maximum CH flow temperature	75.0 °C	Maximum flow temperature set on heating appliance.
Maximum domestic hot water temperature	60.0 °C	Maximum DHW temperature set on heating appliance.
Service required	Yes | No	Shows whether a heating appliance service/ inspection is due.

Menu structure INFO	Variable display (examples)	Description
Heating system	–	–
Operating mode	Auto – Comfort | Auto – Economy | Auto – Frost | Comfort | Economy | Frost | Holiday – Auto | Holiday – Comfort | Holiday – Economy | Holiday – Frost | Floor drying waiting | Floor drying running	Current operating mode or special mode for the heating system.
Required room temp	25.0 °C	Room temperature called for by the controller or the remote control FB 10 (only if "Room influence" is active).
Current room temperature	22.0 °C	Room temperature measured at the controller (only with wall mounted controllers).
Room temperature FB10	23.0 °C	Room temperature captured by the remote control FB 10.
Required CH flow temperature	75.0 °C	Flow temperature calculated and requested by controller.
Current CH flow temperature	47.0 °C	Flow temperature captured in the heating circuit.
Heating pump	On | Off	Heating circuit pump switching state.
Current mixer setting	85 % open	Current level of opening of the heating circuit mixer.
Domestic hot water	–	–
Operating mode	Immediate DHW | Auto On | Auto Off | Holiday – Auto | Holiday On | Holiday Off	Current operating mode or special mode for DHW with combi boiler.
	Immediate DHW | Thermal disinfection | Auto | Holiday – Auto | Holiday 15 °C	Current operating mode or special mode for DHW cylinder.
Required DHW temperature	60.0 °C	DHW temperature required by controller.
Current DHW temperature	40.0 °C	Current measured DHW temperature.
Domestic hot water status	Running | Off	Current status of DHW heating.
Last thermal disinfection	Completed | Cancelled | Running	Result of the last thermal disinfection.
Customer service		
Phone number	(Telephone number)	Telephone number of heating contractor (system installer).
Name	(Name)	Name of heating contractor (system installer).

Menu structure INFO	Variable display (examples)	Description
Solar	–	–
Standard system	–	Menu for basic system component of solar thermal system.
T1: Temperature of collector group 1	80.0 °C	Temperature measured by collector temperature sensor (T_1).
T2: Temp at bottom of solar cylinder	55.7 °C	Temperature measured by bottom cylinder temperature sensor (T_2) in solar cylinder.
SP: Collector grp 1 solar pump status	Running | Off	Status of solar circuit pump (SP).
Collector group 1 shut down	Yes | No	Shows whether safety shutdown of solar circuit pump (SP) due to overheating of the collectors (T_1) has occurred.
Solar cylinder status	Fully charged | Partially charged	Charge status of solar cylinder.
SP: Coll grp 1 solar pump running time	12463 h	Hours run of solar circuit pump (SP) since commissioning.
Thermal disinfection	–	Menu for thermal disinfection part of the system.
Thermal disinfection status	Running | Off	Current status of thermal disinfection.
PE: Therm disinfect pump status	Running | Off	Status of thermal disinfection pump (PE).
Solar optimisation	–	Menu for optimisation of conventional heating system with solar backup.
Solar yield in last hour	120 Wh	Solar energy yield in the last hour (a figure is only shown if correct parameters have been set in the solar optimisation menu, → chapter 8.5.3 on page 53).
Solar yield today	2.38 kWh	Solar energy yield for the current day.
Solar yield overall	483.6 kWh	Total solar energy yield since commissioning.
DHW temperature reduced by	4.7 K	Current reduction of the set DHW temperature required by the heating appliance as a result of the available solar energy. Only starts 30 days after commissioning.
Required room temperature reduced by	1.3 K	Current reduction of required room temperature based on the available solar energy. Only starts 30 days after commissioning.
Faults	40 Solar system 03 FW 100 EA Boiler ...	List of current faults. More detailed information can be obtained by selecting with i and confirming with ok.

8 Menu settings INSTALLER SETTINGS (contractors only)

The **INSTALLER SETTINGS** menu is intended only for contractors.

- ▶ To open **INSTALLER SETTINGS**: press and hold menu for approx. 3 seconds.

Detailed instructions on navigating through the menu structure, programming, deleting settings and resetting to the factory settings are provided in chapter 5.2 starting on page 21.

8.1 INSTALLER SETTINGS menu summary and settings

The tables set out below provide:

- An overview of the menu structure (column 1). The menu depth is identified by various shades of grey.
  For example, in menu **Solar sys parameters** submenus **1. Standard system** and **Solar optimisation** are on the same level.
- An overview of the factory settings (column 2), e.g. for the purposes of resetting individual menu point to their factory settings.
- An overview of the setting ranges of the individual menu points (column 3).
- Space for making a note of your personal settings (column 4).
- A way to locate detailed descriptions regarding the individual menu points (column 5).

The menu points are only shown if the system components are present and/or active, and if no remote control is accessing them. Some menu points are not shown because they are switched off by a setting for another menu point.

- ▶ Always set or skip menu points in order. In that way, subsequent menu points will be automatically adjusted or not shown.

8.1.1 INSTALLER SETTINGS: System configuration

Menu structure System configuration	Factory setting	Setting range	Personal setting	Description from page
Start automatic system configuration	No	No | Yes		47
Domestic hot water configuration	Combi boiler	No | Combi boiler | Cyl conn to boiler | Cyl on IPM ident.3 ... 10		
DHW circulation pump	No	No | Present		
CH system configuration	Unmixed without IPM	Unmixed without IPM | Unmixed with IPM | Mixed		
Remote control	No	No | FB 10 | FB 100		
ISM 1	No	No | Present		
ISM 2	No	No | Present		

8.1.2 INSTALLER SETTINGS: Heating parameters

Menu structure Heating parameters	Factory setting	Setting range	Personal setting	Description from page
Heating circuit type	Radiators	Foot point/End point | Underfloor heating | Radiators | Convectors		47
Foot point	25 °C	10 °C ... 85 °C	°C	49
End point	75 °C	30 °C ... 85 °C	°C	49
Design flow temp.	75 °C	30 °C ... 85 °C	°C	49
Maximum CH flow temperature	80 °C	30 °C ... 85 °C	°C	49
Room influence	30 %	0 % ... 100 %	%	49
Room influence enabled for levels	Eco/Frost	Eco/Frost | Comfort/Eco/Frost		49
Sensor(s) used for room influence	Lower temperature	Sensor on FB10 | Internal sensor | Lower temperature (only with FB 10)		49
Room temperature offset	0.0 K	– 5.0 K ... 5.0 K	K	50
Heating off until lower level reached	Yes	No | Yes		50
Heating off at outside temperature	20.0 °C	10.0 °C ... 25.0 °C, 99.0 °C (= function off)	°C	50
Freezing risk at outside temperature	3.0 °C	– 5.0 °C ... 10.0 °C	°C	50
Calibrate room temp sensor on FB10	0.0 K	– 3.0 K ... 3.0 K (only with FB 10)	K	51
Mixer running time	140 s	10 s ... 600 s	s	51
Minimum outside temperature	– 15 °C	– 30 °C ... 0 °C	°C	51
Building storage capacity	50 %	0 % ... 100 %	%	51
Calibrate internal room temp sensor	0.0 K	– 3.0 K ... 3.0 K	K	51

8.1.3 INSTALLER SETTINGS: Solar system config

Menu structure Solar system config	Factory setting	Setting range	Personal setting	Description from page
Solar sys option E Thermal disinfection	No	No | Yes		53

8.1.4 INSTALLER SETTINGS: Solar sys parameters

Menu structure Solar sys parameters	Factory setting	Setting range	Personal setting	Description from page
1. Standard system	–	–	–	52
SP: ON temperature difference	8 K	3 K ... 20 K (not lower than "SP: OFF temperature difference" +1 K)	K	
SP: OFF temperature difference	4 K	2 K ... 19 K (not higher than "SP: ON temperature difference" – 1 K)	K	
T2: Max. solar cylinder temperature	60 °C	15 °C ... 95 °C	°C	
Maximum collector temperature	130 °C	90 °C ... 135 °C	°C	
SP: Collector grp 1 pump mode	Auto	Auto | Manual On | Manual Off		
PE: Therm disinfect pump mode	Auto	Auto | Manual On | Manual Off		53
Solar optimisation				53
Collector group 1 area	0.0 m^2	0.0 m^2 ... 150.0 m^2	m^2	
Collector group 1 type	Flat plate collector	Flat plate collector | Vac tube collector		
Climate zone	90	0 ... 255		
Optimizing influence DHW	0 K	0 K (= function off) ... 20 K	K	
CH circuit optimizing influence	0.0 K	0.0 K (= function off) ... 5.0 K	K	
Run solar system	No	No | Yes		55

8.1.5 INSTALLER SETTINGS: Fault history

Menu structure Fault history	Factory setting	Setting range	Personal setting	Description from page
01.01.2010 16:11 Fault EA (example for last fault)	–	–	–	55
25.09.2010 18:45 FAULT 44 - IPM IDENT. 10 (up to a maximum of 19 previous faults)	–	–	–	

8.1.6 INSTALLER SETTINGS: Cust service address

Menu structure Cust service address	Example	Setting range	Personal setting	Description from page
Telephone number	012345 6789	Max. 20 characters		55
Name	Heating contractor	Max. 20 characters		

8.1.7 INSTALLER SETTINGS: System info

Menu structure System info	Example	Setting range	Personal setting	Description from page
Installation date	22.10.2010 (activated on commissioning)	–	–	56
Boiler part number	7 777 777 777 (data from heating appliance)	–	–	
Boiler date of manufacture	27.06.2010 (data from heating appliance)	–	–	
Controller part number and model	7 777 777 777 FW 100 (fixed factory setting)	–	–	
Controller date of manufacture	27.06.2010 (fixed factory setting)	–	–	
Controller software version	JF11.12 (fixed factory setting)	–	–	

8.1.8 INSTALLER SETTINGS: Floor drying

Menu structure Floor drying	Factory setting	Setting range	Personal setting	Description from page
Cancel floor drying[1)]	No	No | Yes		56
Maximum CH flow temperature	25 °C	25 °C ... 60 °C	°C	
Maintain max CH flow temp for	1 d	1 d ... 20 d	d	
Total floor drying time	calculated	calculated... 60 d (not lower than "Maintain max CH flow temp for")	–	
Start date	– – . – – . – – – –	Today ... 31.12.2099 (in year/month/day steps)		
Start time	– – : – –	00:00 ... 23:59 (in hour/minute steps)		

1) Only available if "Floor drying" is active.

8.2 Configuring the heating system

Installer settings: System configuration

For menu structure and setting ranges → page 43.

For system examples, see the IPM manual. For further systems, see the technical guides.

Use this menu if you want to configure the system automatically or manually. For example, during commissioning or when altering the system.

- Set DIP switch at IPM 1 to **1**.
- Switch ON the system.
- Set FB 10 or FB 100 to **1**.
- Start automatic configuration.
- Check the other menu points under **System configuration** and, if necessary, adjust manually to suit the current system.

8.3 Parameters for heating

Installer settings: Heating parameters

For menu structure and setting ranges → page 44.

Set the flow temperature controller on the heating appliance to the maximum required flow temperature.

Use this menu if you want to adjust the parameters for the heating system. For example, the heating curve can be calculated with these parameters.

Menu: Heating parameters > Heating circuit type

- Selecting the heating type:
  - **Foot point/End point**: Default settings for a level heating curve are used according to the classic base point/end point method.
  - **Underfloor heating**: Default settings for an uneven heating curve as in an underfloor heating circuit are used.
  - **Radiators**: Default settings for an uneven heating curve as in a radiator heating circuit are used.
  - **Convectors**: Default settings for an uneven heating curve as in a convector heating circuit are used.

Parameters not used in a particular type of heating system are not shown.

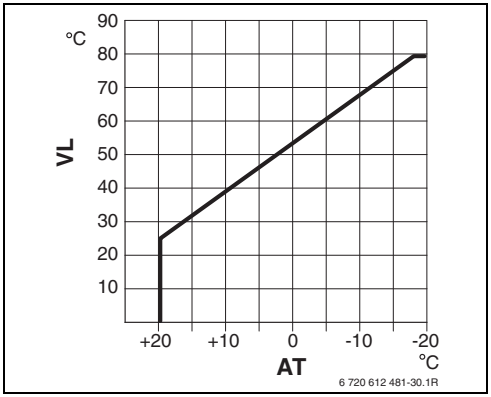


Fig. 19 Default basic setting of heating curve for base point/end point

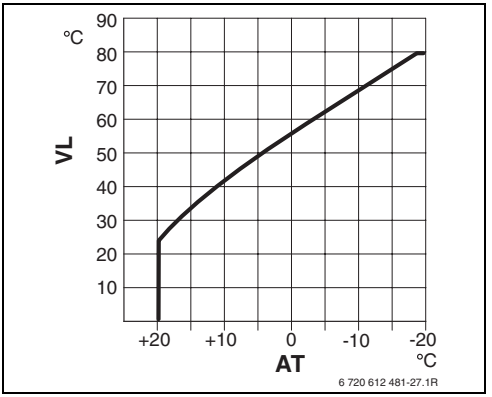


Fig. 21 Default setting for heating curve in radiator heating system

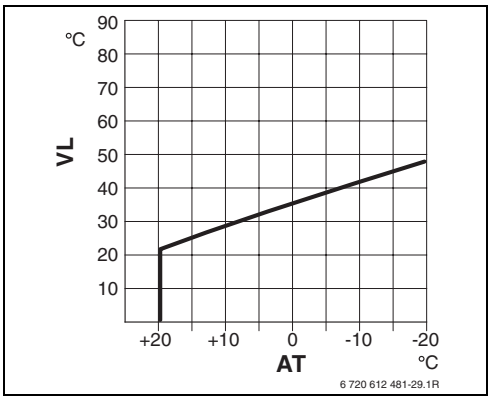


Fig. 20 Factory setting for heating curve for underfloor heating systems

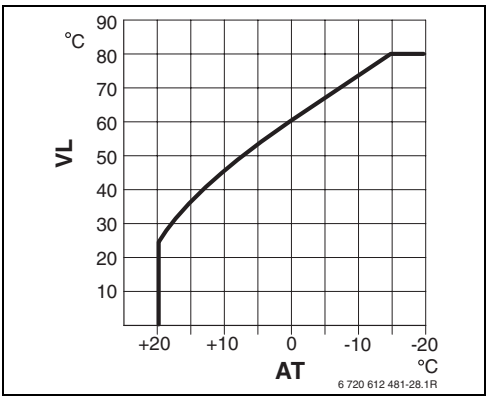


Fig. 22 Default setting for heating curve in convector heating system

AT Outside temperature
VL Flow temperature

Default setting of parameters for heating curve	Foot point/End point	Underfloor heating	Radiators	Convectors
Heating surface exponent (fixed value), curvature of heating curve	–	1.1	1.3	1.4
Minimum outside temperature	–	– 15 °C	– 15 °C	– 15 °C
Foot point	25 °C	–	–	–
End point	75 °C	–	–	–
Design flow temp.	–	45 °C	75 °C	80 °C
Maximum CH flow temperature	80 °C	55 °C	80 °C	80 °C
Room temperature offset	0.0K	0.0K	0.0K	0.0K
Heating off at outside temperature	20 °C	20 °C	20 °C	20 °C

Tab. 8

Menu: Heating parameters > Foot point

- Set the base point of the heating curve according to the classic base point/end point method.

Menu: Heating parameters > End point

- Set the end point of the heating curve in line with the classic base point/end point method.

Menu: Heating parameters > Design flow temp.

- Set the design flow temperature to suit the type of heating system:
  - For **Underfloor heating** e.g. 45 °C set flow temperature.
  - For **Radiators** e.g. 75 °C set flow temperature.
  - For **Convectors** e.g. 80 °C set flow temperature.

Menu: Heating parameters > Maximum CH flow temperature

- Set the maximum flow temperature to suit the type of heating system:
  - For **Underfloor heating** e.g. 55 °C maximum set flow temperature.
  - For **Radiators** e.g. 80 °C maximum set flow temperature.
  - For **Convectors** e.g. 80 °C maximum set flow temperature.

Menu: Heating parameters > Room influence

Room influence only appears if the controller is wall mounted.

- Set the room temperature influence on the heating curve:
  - **0 %**: No room temperature influence
  - **100 %**: Maximum room temperature influence

Menu: Heating parameters > Room influence enabled for levels

- Select the operating modes during which room temperature influence should be active:
  - **Eco/Frost**: Room temperature influence is only active in these operating modes.
  - **Comfort/Eco/Frost**: Room temperature influence is always active.

Menu: Heating parameters > Sensor(s) used for room influence

Sensor(s) used for room influence only appears if a remote control FB 10 is connected.

- Select **Sensor(s) used for room influence**:
  - **Lower temperature**: Of the temperature sensors fitted in FW 100 and in FB 10, the one with the lower captured temperature is used.
  - **Internal sensor**: The temperature sensor fitted inside the controller FW 100 is used.

– **Sensor on FB10**: The temperature sensor fitted inside the remote control FB 10 is used.

Menu: Heating parameters > Room temperature offset

▸ Set the constant raising of the required room temperature, e.g. to correct deviations due to the system.

Menu: Heating parameters > Heating off until lower level reached

▸ Select the cool-down phase:
  – **No**: Heating mode corresponds to the heating curve.
  – **Yes**: Heating operation according to the heating curve, however no heating operation during the cool-down phase until the current room temperature (e.g. **Comfort** = 21.0 °C) reaches the required room temperature of the next operating mode down for the first time (e.g. **Economy** with 15.0 °C). Afterwards, heating commences in accordance with the next operating mode down (e.g **Economy** with 15.0 °C).

Menu: Heating parameters > Heating off at outside temperature

▸ Set the outside temperature at which the heating system should switch off:
  – **10 °C** ... **25 °C**: Outside temperature at which the heating system switches off.
  – **99 °C**: Function switched off, i.e. the heating system can switch on at any outside temperature.

Menu: Heating parameters > Freezing risk at outside temperature

NOTICE: Heating water pipework may freeze if the frost threshold is set too low and there are long periods of outside temperatures below 0 °C.
- ▸ Factory setting of the frost threshold (3 °C) must only be adjusted to the system by a heating contractor.
- ▸ Don't set the frost threshold too low.
  Damage caused by the frost threshold being set too low is not covered by the warranty.

- If the outside temperature exceeds the set frost threshold temperature by 1 K (°C) and there is no heat demand, then the heating circuit pump switches off.
- If the outside temperature does not reach the frost threshold temperature, then the heating circuit pump switches on (system frost protection).

▸ Set the frost threshold temperature at which the heating system should switch on.

Menu: Heating parameters > Calibrate room temp sensor on FB10

Calibrate room temp sensor on FB10 only appears if a remote control FB 10 is assigned.

Use this menu if you want to correct the displayed room temperature.

- Position a precision instrument near FB 10. The precision instrument must not transfer any heat to the FB 10.
- Keep away from heat sources such as sunlight, body heat, etc. for 1 hour.
- Adjust the displayed room temperature correction value.

Menu: Heating parameters > Mixer running time

- Set the **Mixer running time** to the runtime of the fitted mixer servomotor.

Menu: Heating parameters > Minimum outside temperature

- Set the minimum outside design temperature for the heating system (standard value → table 9).
  A low outside temperature results in a flat heating curve.

Location	Minimum outside temperature in °C
Brisbane	4
Canton	15
Chongqing	3
Hong Kong	6
Melbourne	0
Shanghai	-1
Sydney	5

Tab. 9 Minimum outside temperatures for China and Australia

Menu: Heating parameters > Building storage capacity

- Set the factor for the thermal storage capacity of the building.
  - ≥ **50 %**: Building of solid construction (e.g. well insulated brick house).
  - ≤ **50 %**: Building of light construction (e.g. wood or steel frame structure).

Menu: Heating parameters > Calibrate internal room temp sensor

Calibrate internal room temp sensor only appears if the controller is wall mounted.

Use this menu if you want to correct the displayed room temperature.

- Position a precision instrument near FW 100. The precision instrument must not transfer any heat to the FW 100.
- Keep away from heat sources such as sunlight, body heat, etc. for 1 hour.
- Adjust the displayed room temperature correction value.

8.4 Configuring the solar thermal system

Installer settings: Solar system config

For menu structure and setting ranges → page 44.

Use this menu if you want to set the thermal disinfection function for the solar thermal system.

- In addition to the **1. Standard system** set option **Solar sys option E Thermal disinfection**.
  The pump (PE) is switched via menu **Thermal disinfection** (→ chapter 6.4.6 on page 37), and the entire cylinder volume is heated to the required thermal disinfection temperature.

8.5 Parameters for solar thermal system

Fill and vent the solar thermal system according to its documentation and prepare it for commissioning as described this chapter.

Installer settings: Solar sys parameters

For menu structure and setting ranges → page 45.

The factory settings of the parameters in this menu are generally suitable for most common system dimensions. Use this menu if you want to finely adjust the parameters to suit the installed solar thermal system.

Details shown in brackets are positions that are also used in the connection diagrams with system examples in the installation instructions of the ISM.

8.5.1 Parameters for the standard solar thermal system

Menu: Solar sys parameters > 1. Standard system > SP: ON temperature difference

For the solar circuit pump (SP):

- Set a higher value if the pipe runs between the collector array and the solar cylinder are very long (e.g. ≥ 30 m single length).

-or-

- Set a lower value:
  - If the pipe runs between the collector array and the solar cylinder are very short (e.g. attic installations).
  - If the thermal connection of the collector temperature sensor (T_1) is unfavourable (e.g. installation of T_1 outside the collector at the collector flow outlet).

Menu: Solar sys parameters > 1. Standard system > SP: OFF temperature difference

- Same procedure as for the last menu point **SP: ON temperature difference**.

Menu: Solar sys parameters > 1. Standard system > T2: Max. solar cylinder temperature

Detailed description regarding **T2: Max. solar cylinder temperature** → page 39.

Menu: Solar sys parameters > 1. Standard system > Maximum collector temperature

At temperatures above 140 °C and system pressures < 4 bar, the heat transfer fluid in the collector evaporates. The solar circuit pump remains blocked until the collector has cooled to a temperature at which there is no more vapour in the solar circuit.

Measuring point, temperature sensor (T_1):

- Set a higher value if the installed pipe runs, pumps etc. can operate with an operating pressure ≥ 6 bar and are suitable for higher temperatures.

-or-

- Set a lower value if the installed pipe runs, pumps etc. can only operate with a very low operating pressure and are only suitable for lower temperatures.

Menu: Solar sys parameters > 1. Standard system > SP: Collector grp 1 pump mode

- Select the operating mode of the solar circuit pump (SP):
  - **Auto**: Automatically controlled operation according to the set parameters.
  - **Manual On**: Switches the pump permanently on (e.g. for venting the solar thermal system during commissioning).
  - **Manual Off**: Switches the pump permanently off (e.g. for servicing the solar thermal system without having to interrupt heating operation).

8.5.2 Parameters for thermal disinfection

Menu: Solar sys parameters > PE: Therm disinfect pump mode

- Select the operating mode for the pump (PE) for thermal disinfection:
  - **Auto**: Automatically controlled operation according to the set parameters.
  - **Manual On**: Switches the pump permanently on (e.g. for function test during commissioning).
  - **Manual Off**: Switches the pump permanently off (e.g. for servicing the pump without having to interrupt heating operation).

8.5.3 Parameters for solar optimisation

Solar optimisation is performed automatically according to the available solar output. Calculation of the solar output requires a specification of the installed collector area, the collector type and the climate zone where the system is installed.

Menu: Solar sys parameters > Solar optimisation > Collector group 1 area

- Set the installed surface area of the collector array.

Collector type	Gross area per collector in m^2
FK 210	2.1
FK 240	2.4
FK 260	2.6
VK 180	1.8
FKT-1	2.4
FKC-1	2.4
FKB-1	2.4

Tab. 10 Gross collector areas

Menu: Solar sys parameters > Solar optimisation > Collector group 1 type

- Select the installed collector type for the collector array.

Menu: Solar sys parameters > Solar optimisation > Climate zone

- Set the value for the climate zone of the installation location.

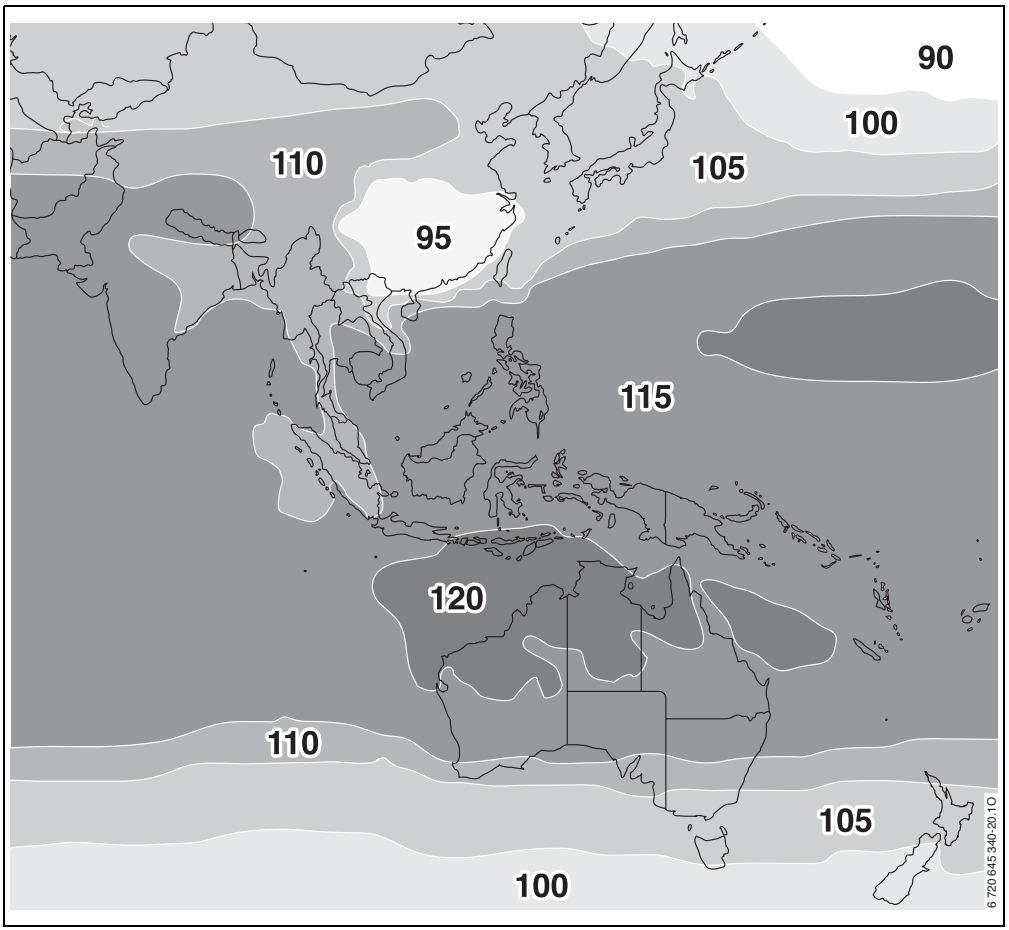


Fig. 23 Map with the climate zones

If the location where the system is installed cannot be found on the climate zone map (→ Fig. 23):

- Do not change the factory-set value for solar optimisation.

-or-

- Use the climate zone value that is closest to the location where the system is installed.

Menu: Solar sys parameters > Solar optimisation > Optimizing influence DHW

Detailed description regarding **Optimizing influence DHW** → page 39.

Menu: Solar sys parameters > Solar optimisation > CH circuit optimizing influence

Detailed description regarding **CH circuit optimizing influence** → page 39.

8.5.4 Commissioning the solar thermal system

Menu: Solar sys parameters > Run solar system

- ▸ Fill and vent the solar thermal system.
- ▸ Check the parameters for the solar thermal system and, if necessary, finely adjust them to suit the installed system.
- ▸ Take the solar thermal system into use:
  - **Yes**: Solar thermal system is active. The ISM control outputs are enabled for automatic control purposes.
  - **No**: Solar thermal system is not active. The ISM control outputs are disabled for automatic control purposes but can be switched on manually.

8.6 Fault history

Installer settings: Fault history

For menu structure → page 45.

Contractors can use this option to view the last 20 faults that may have occurred on the system (fault date, source, code and description). The faults shown first may still be active.

8.7 Viewing and entering the customer service address

Installer settings: Cust service address

For menu structure and setting range → page 46.

Contractors can enter their telephone number and address here.

To enter spaces:

- ▸ If the selected character is shown with a dark background, delete by pressing  (space = _)

8.8 Viewing system information

Installer settings: System info

For menu structure → page 46.

To show various items of system information:

- **Installation date** (automatically activated during commissioning)
- **Boiler part number** (fixed value from the heating appliance)
- **Boiler date of manufacture** (fixed value from the heating appliance)
- **Controller part number and model** (fixed factory-set value)
- **Controller date of manufacture** (fixed factory-set value)
- **Controller software version** (fixed factory-set value)

8.9 Screed drying function

Installer settings: Floor drying

For menu structure and setting range → page 46.

NOTICE: Screed destruction!

- Connect any non-mixed heating circuit directly to the heating appliance. For this, the heat drawn via the screed to be dried must be greater than the minimum output of the heating appliance.
- Program screed drying function in accordance with screed manufacturer's instructions.
- In spite of the screed drying function, visit the system daily and make the prescribed reports.

The screed drying function allows fresh screed on underfloor heating to be dried in accordance with the screed manufacturer's instructions.

DHW heating is not possible from programming to completing the screed drying function.

Menu: Floor drying > Cancel floor drying

- This function can be switched off with **Yes** if the screed drying function is activated.

Menu: Floor drying > Maximum CH flow temperature

- Enter the maximum flow temperature (1) for the screed drying function.

Menu: Floor drying > Maintain max CH flow temp for

- Set period (2) for the maximum flow temperature.

Menu: Floor drying > Total floor drying time

The total duration is automatically calculated. For this, the flow temperature increases by no more than 10 K per day. If this temperature rise is incompatible with the specific screed, extend the total duration. This produces a corresponding reduction in the daily increase. The first and last stages of the flow temperature are 25 °C (fixed value).

Example:

Maximum flow temperature (1) = 50 °C

Duration of maximum flow temperature (2) = 7 days

Max. increase/decrease in temperature per day = 5 K

$$2\,d \times \frac{50\,°C - 25\,°C}{5\,K} + 7d = 17d$$

Total duration of screed drying (3) = 17 days

- Set the total duration (3) for the screed drying function.

Menu: Floor drying > Start date

- Set the start date (4) for the screed drying function.

Menu: Floor drying > Start time

- Set the start time (4) for the screed drying function.

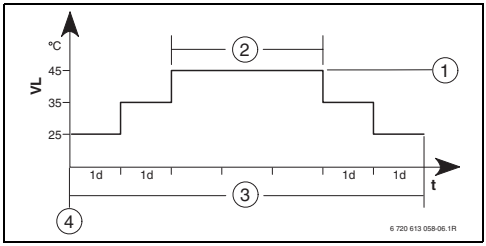


Fig. 24

1d 1 day (fixed value)
1 Maximum flow temperature
2 Duration of max. flow temperature
3 Total duration of screed drying
4 Start date and start time
t Time
VL Flow temperature

9 Troubleshooting

BUS device faults are indicated.

A heating appliance fault (e.g. EA fault) is displayed with the relevant advice.

- Contact your installer.

For the contractor:

- Remedy the fault in accordance with the heating appliance documentation.

9.1 Troubleshooting with display

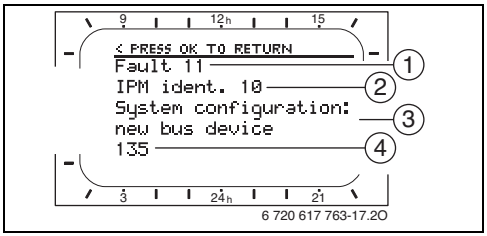


Fig. 25 Fault display

1 Fault number
2 BUS subscriber which detected the fault and reported it to the controller
3 Description of fault
4 Code or additional information about fault

The current fault is displayed on the controller and on the remote control (on FB 10 without text):

- Determine the BUS subscribers concerned with the current fault. The fault can only be rectified on the BUS subscriber from which the fault originates.

Information displayed (→ items 1, 3 and 4 in Fig. 25) Text	Code	Cause	Remedy (by contractor)
Fault 01 BUS communication fault	10	BUS subscriber FB 100 assigned to IPM no longer responds.	Check BUS subscriber, BUS connection and repair circuit break if necessary.
	200	Heating appliance no longer reporting.	
	201	Incorrect BUS subscriber connected.	Identify and replace incorrect BUS subscriber.
Fault 02 Internal fault	40	Incorrect BUS subscriber connected.	Identify and replace incorrect BUS subscriber.
	41	Two identical codes entered at IPM.	Switch system off and correct coding.
	42	DIP switch on IPM in intermediate position.	
	50	Thermal disinfection via IPM failed.	Turn flow temperature controller on heating appliance fully clockwise.
	100	ISM not responding.	Check BUS connection and repair circuit break if necessary.
	254	Fault message overflow.	–
Fault 02 Internal fault Some parameters reset to factory settings due to EEPROM problem	205	See display text. [1]	Check parameter settings and readjust as necessary. Identify and replace faulty controller/ remote control.
Fault 02 Internal fault FW100/FB100 can no longer control CH system	255	See display text. [1]	Identify and replace faulty controller/remote control.
Fault 03 Room temp sensor faulty	20	Room temperature sensor built into FW 100/FB 100/FB 10 has suffered a break.	Identify and replace faulty controller or remote control.
	21	Short circuit on room temperature sensor built into FW 100/FB 100/FB 10.	
Fault 10 System configuration: invalid Remote control detected or set for non-existent heating circuit. Check identification.	195	See display text. [1]	Check system layout, check system configuration, and modify if necessary.

1) The display text is shown at the BUS subscriber (e.g. remote control) that has identified the fault. The other BUS subscribers will instead display the code that corresponds to the display text.

Information displayed (→ items 1, 3 and 4 in Fig. 25) Text	Code	Cause	Remedy (by contractor)
Fault 11 System configuration: new BUS device New ISM detected. Power up all ISMs simultaneously and start automatic system configuration.	131 132	See display text. [1]	
Fault 11 System configuration: new BUS device New remote control detected. Check and modify system configuration.	134		
Fault 11 System configuration: new BUS device New IPM detected. Check and modify system configuration.	135 137 139		
Fault 12 System configuration: BUS device missing ISM1/ISM2not detected. Check connection.	170 171	See display text. [1]	
Fault 12 System configuration: BUS device missing Previously present IPM for cylinder downstream of low loss header not detected. Check identification.	172	See display text. [1]	Check and correct code. With IPM isolated from power supply.
Fault 12 System configuration: BUS device missing IPM for cylinder downstream of low loss header not detected. Check connection and identification.	173	See display text. [1]	
Fault 12 System configuration: BUS device missing Remote control with identification 1 not detected. Check connection and identification.	175	See display text. [1]	
Fault 12 System configuration: BUS device missing IPM with identification 1 not detected. Check connection and identification.	178 179	See display text. [1]	
Fault 13 System configuration: BUS device changed or replaced Check system configuration for DHW or start automatic system configuration.	157	See display text. [1]	

1) The display text is shown at the BUS subscriber (e.g. remote control) that has identified the fault. The other BUS subscribers will instead display the code that corresponds to the display text.

Information displayed (→ items 1, 3 and 4 in Fig. 25) Text	Code	Cause	Remedy (by contractor)
Fault 13 System configuration: BUS device changed or replaced Check system configuration for heating circuit x and connections on IPM for heating circuit x.	159	See display text. [1]	
Fault 14 System configuration: incompatible BUS device DHW controlled by boiler. IPM control of DHW has no effect.	117	See display text. [1]	Identify incompatible BUS subscriber and remove from system.
Fault 14 System configuration: incompatible BUS device IPM for cylinder must be set to identification 3 or higher.	119	See display text. [1]	
Fault 15 Outside temperature sensor not connected Outside temperature is not available.	30	See display text. [1]	Check outside temperature sensor and repair any lead break.
Fault 19 Unable to save parameter settings	202	BUS subscriber configured but not available at present.	Check system layout, check system configuration, modify if necessary and reset parameter.
Fault 20 System configuration: invalid	193	Invalid code in remote control for heating circuit.	In conjunction with FW 100 only code 1 is possible in the remote control.
Fault 21 System configuration: new BUS device	135 137 139	See display text on remote control.	
Fault 22 System configuration: BUS device missing	178 179	IPM not recognised on remote control with code 1.	Check IPM connection and code and adjust if required.
Fault 23 System configuration: BUS device changed or replaced	159	System configuration on remote control for heating circuit 1 and IPM connections for heating circuit 1 not permissible.	Check system configuration for heating circuit 1 and IPM connections for heating circuit 1.
Fault 24 System configuration: incompatible BUS device	119	See display text on remote control.	
Fault 28 Remote control is fitted on heat source	155	Remote control fitted inside heating appliance.	Install remote control in living space.

1) The display text is shown at the BUS subscriber (e.g. remote control) that has identified the fault. The other BUS subscribers will instead display the code that corresponds to the display text.

Information displayed (→ items 1, 3 and 4 in Fig. 25) Text	Code	Cause	Remedy (by contractor)
Fault 29 Unable to save parameter settings	202	BUS subscriber configured but not available at present.	Check system structure, check system configuration, adjust as necessary and reset parameters on remote control.
Fault 30 Mixer temperature sensor faulty	7	Mixer temperature sensor (MF) connected to IPM faulty.	Check mixer temperature sensor (MF) and replace if necessary.
Fault 31 External CH flow temperature sensor faulty	6	Common temperature sensor (VF) connected to the IPM faulty.	Check common temperature sensor (VF) and replace if required.
Fault 32 Cylinder temperature sensor faulty	8	Cylinder temperature sensor (SF) connected to the IPM faulty.	Check cylinder temperature sensor (SF) and replace if required.
Fault 33 Temperature sensors incorrectly connected	20	Cylinder temperature sensor (SF) and mixer temperature sensor (MF) are connected to the IPM.	Remove one of the temperature sensors (SF or MF).
	21	Two common temperature sensors (VF) are connected to the IPM.	Remove one of the common temperature sensors (VF).
	22	Temperature sensor connected to IUM.	Remove temperature sensor and insert a coding plug if necessary.
Fault 34 Temperature sensors connected and mode of operation do not match	23	Temperature sensor connected to IPM and associated operating mode do not match.	Check temperature sensor and associated operating mode and adjust if necessary.
Fault 40 Temperature sensor T1 on collector group 1 faulty	101	Short circuit on sensor lead (T_1).	Check temperature sensor (T_1) and replace if necessary.
	102	Break in sensor lead (T_1).	
Fault 41 Temperature sensor T2 at bottom of solar cylinder faulty	103	Short circuit on sensor lead (T_2).	Check temperature sensor (T_2) and replace if necessary.
	104	Break in sensor lead (T_2).	
Fault 50 Solar pump jammed or air in system	121	Solar circuit pump (SP) sticking due to physical blockage.	Unscrew and remove slotted screw on pump head and use a screwdriver to release pump shaft. Do NOT strike the pump shaft with the screwdriver.
		Air in solar thermal system.	Vent solar thermal system and top up with heat transfer fluid if necessary.

Information displayed (→ items 1, 3 and 4 in Fig. 25) Text	Code	Cause	Remedy (by contractor)
Fault 51 Incorrect temperature sensor type connected	122	Collector temperature sensor type used as cylinder temperature sensor (T_2).	Use correct type of temperature sensor. → Specification in ISM installation instructions.
	123	Cylinder temperature sensor type used as collector temperature sensor (T_1)	
	132	Temperature sensor type PTC 1000 used as cylinder temperature sensor (T_2).	
	133	Temperature sensor type PTC 1000 used as collector temperature sensor (T_1).	
Fault 52 Temperature sensors reversed	124	Temperature sensors (T_1 and T_2) reversed.	Check temperature sensors and swap connections if necessary.
Fault 53 Temperature sensor fitted in wrong location	125	Collector temperature sensor (T_1) fitted on collector array inlet.	Fit collector temperature sensor (T_1) close to collector array outlet.
Fault 54 Temperature for thermal disinfection not reached in solar cylinder	145	Maximum temperature for solar cylinder too low.	Set higher maximum temperature for solar cylinder.
		Pump rate of disinfection pump (PE) too low.	Select higher pump stage on disinfection pump (PE) or, if possible, open butterfly valve further.
		Thermal disinfection terminated manually before required temperature was reached in solar cylinder.	This is not a fault.Message is shown only for 5 minutes.
Fault 55 Solar system not yet commissioned	146	Solar thermal system is not yet in operation.	Fill and vent solar thermal system according to its documentation and prepare it for commissioning. Then start up solar thermal system.
Fault 56 At least one pump/valve in manual mode	147	Pump (SP) in manual mode.	Reset pump parameter to "Auto".
	154	Pump (PE) operated manually.	

9.2 Troubleshooting without display

Problem	Cause	Remedy
Required room temperature not achieved.	Thermostatic valve(s) set too low.	Set thermostatic valve(s) higher.
	Heating curve set too low.	Set "Heating levels" for "Comfort" higher or arrange for your contractor to correct the heating curve.
	Flow temperature controller on heating appliance set too low.	Set flow temperature controller higher.
		Reduce influence of solar optimisation if necessary.
	Air lock in heating system.	Bleed radiators and vent heating system.
Heating lasts too long.	"Heating up speed" set too low.	Set "Heating up speed", for example, to "Fast".
Required room temperature greatly exceeded.	Radiators become too hot.	Set thermostatic valve(s) lower.
		Set "Heating levels" for "Comfort" lower or arrange for your contractor to correct the heating curve.
	Installation location of FW 100 unfavourable, e.g. external wall, close to window, in a draught, ...	Select a better installation location for FW 100 and ask your heating contractor to reposition it.
Excessive room temperature fluctuations.	Temporary influence of external heat on the room, e.g. through solar radiation, lighting, TV, fireplace etc.	Arrange for your contractor to increase "Room influence".
		Select a better installation location for FW 100 and ask your heating contractor to reposition it.
Temperature rises instead of falling.	Time incorrectly set.	Check time setting.
Room temperature too high during "Economy" and/or "Frost" mode.	Building retains a lot of heat.	Set an earlier switching time for "Economy" and/or "Frost".
Incorrect or nocontrol.	BUS connection of BUS subscribers faulty.	Ask your heating contractor to check the BUS connection against the wiring diagram and correct it if required.
Controller can only be set to automatic mode.	Operating mode selector faulty.	Have FW 100 replaced by your contractor.
DHW cylinder does not heat up.	DHW temperature controller on heating appliance set too low.	Set DHW temperature controller higher.
		Reduce influence of solar optimisation if necessary.
	Flow temperature controller on heating appliance set too low.	Turn flow temperature controller on heating appliance fully clockwise.

If the fault persists:

- Call an authorised contractor or the customer service department and inform them of the fault, quoting the appliance details (from type plate inside flap).

Appliance details

Type:
.....

Part number:
.....

Date of manufacture (FD...):
.....

10 Energy saving tips

- With weather-compensated control, the flow temperature is controlled in accordance with the set heating curve: The colder the outside temperature, the higher the flow temperature. Save energy: Set the heating curve as low as possible in accordance with the building's insulation and the system conditions (→ chapter 8.3 from page 47).
- Underfloor heating:
  Never set the flow temperature higher than the maximum flow temperature recommended by the manufacturer (e.g. 60 °C).
- Make effective use of the temperature levels and switching points by setting them to suit the preferences of the occupants.
  - **Comfort** ☼ = Comfortable living environment
  - **Economy** ☾ = Active living environment
  - **Frost** ❄ = Away from home or asleep
- Set the thermostatic valves in all rooms so that the required room temperature can be achieved. Only increase the temperature levels if the temperature has not reached after some time (→ chapter 6.3.2 on page 33).
- Much energy can be saved by reducing the room temperature via economy phases. Reducing the room temperature by 1 K (°C) enables up to 5 % energy to be saved.
  It is not recommended to let the room temperature of heated rooms fall below +15 °C during the daytime, otherwise the cooled-down walls continue to radiate cold and the room temperature rises higher, leading to higher energy consumption than if an even heat supply is applied.
- Good thermal insulation of the building: the set temperature for **Economy** is never reached. Nevertheless energy is being saved as the heating system stays off.In that case set the switching point for **Economy** to an earlier time.
- Don't keep windows slightly open for ventilation. This leads to a constant extraction of heat from the room without noticeably improving the ambient air in the room.
- Vent briefly but intensively (open window fully).
- When ventilating, turn off the thermostatic valve or set the mode selector to **Frost**.
- Make effective use of the temperature levels and switching times for DHW heating by setting them to suit the preferences of the occupants.

Solar optimisation

Activate the **Optimizing influence DHW** by setting a value between 1 K and 20 K → chapter 6.6 on page 39. If the influence of the **Optimizing influence DHW** is too great, reduce the value in stages.

Activate the **CH circuit optimizing influence** by setting a value between 1 K and 5 K → chapter 6.6 on page 39. If the influence of the **CH circuit optimizing influence** is too great, reduce the value in stages.

11 Environmental protection

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling.
All packaging materials are environmentally compatible and can be recycled.

Used appliances

Used appliances contain materials that should be recycled.
The components are easy to separate and the types of plastic are identified. This allows the various assemblies to be appropriately sorted for recycling or disposal.

12 Individual time program settings

The factory settings and personal settings for the time programs are summarised below.

12.1 Heating program

How to set the central heating program is described in chapter 6.3 on page 32.

Fixed pre-defined heating programs (for copying)

	P1		P2		P3		P4		P5		P6	
AM weekday worker												
Mo - Th	☼	06:00	☾	08:00	☼	12:00	❄	22:00	–	–	–	–
Fr	☼	06:00	☾	08:00	☼	12:00	❄	23:30	–	–	–	–
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	22:00	–	–	–	–	–	–	–	–
PM weekday worker												
Mo - Th	☼	07:00	☾	12:00	☼	17:00	❄	22:00	–	–	–	–
Fr	☼	07:00	☾	12:00	☼	17:00	❄	23:30	–	–	–	–
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	22:00	–	–	–	–	–	–	–	–
Full weekday worker												
Mo - Th	☼	06:00	☾	08:00	☼	17:00	❄	22:00	–	–	–	–
Fr	☼	06:00	☾	08:00	☼	17:00	❄	23:30	–	–	–	–
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	22:00	–	–	–	–	–	–	–	–
AM+PM weekday worker												
Mo - Th	☼	06:00	☾	08:00	☼	12:00	☾	13:00	☼	17:00	❄	22:00
Fr	☼	06:00	☾	08:00	☼	12:00	☾	13:00	☼	17:00	❄	23:30
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	22:00	–	–	–	–	–	–	–	–

	P1		P2		P3		P4		P5		P6	
Home all day (factory settings)												
Mo - Th	☼	06:00	❄	22:00	–	–	–	–	–	–	–	–
Fr	☼	06:00	❄	23:30	–	–	–	–	–	–	–	–
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	22:00	–	–	–	–	–	–	–	–
Home all day, early												
Mo - Th	☼	04:00	❄	22:00	–	–	–	–	–	–	–	–
Fr	☼	04:00	❄	23:00	–	–	–	–	–	–	–	–
Sa	☼	07:00	❄	23:00	–	–	–	–	–	–	–	–
Su	☼	07:00	❄	22:00	–	–	–	–	–	–	–	–
Home all day, late												
Mo - Th	☼	06:00	❄	23:30	–	–	–	–	–	–	–	–
Fr	☼	06:00	❄	23:30	–	–	–	–	–	–	–	–
Sa	☼	07:00	❄	23:30	–	–	–	–	–	–	–	–
Su	☼	08:00	❄	23:30	–	–	–	–	–	–	–	–
Senior citizens												
Mo - Th	☼	07:00	☾	23:00	–	–	–	–	–	–	–	–
Fr	☼	07:00	☾	23:00	–	–	–	–	–	–	–	–
Sa	☼	07:00	☾	23:00	–	–	–	–	–	–	–	–
Su	☼	07:00	☾	23:00	–	–	–	–	–	–	–	–

	P1		P2		P3		P4		P5		P6	
Personal settings Heating program												
All days												
Mon - Fri												
Sat + Sun												
Monday												
Tuesday												
Wednesday												
Thursday												
Friday												
Saturday												
Sunday												

12.2 DHW program

How to set the DHW program is described in chapter 6.4 on page 34.

	P1		P2		P3		P4		P5		P6	
	°C		°C		°C		°C		°C		°C	
Factory settings												
Mo - Th	60	05:00	15	23:00	–	–	–	–	–	–	–	–
Fr	60	05:00	15	23:00	–	–	–	–	–	–	–	–
Sa	60	06:00	15	23:00	–	–	–	–	–	–	–	–
Su	60	07:00	15	23:00	–	–	–	–	–	–	–	–
Personal settings DHW program												
All days												
Mon - Fri												
Sat + Sun												
Monday												
Tuesday												
Wednesday												
Thursday												
Friday												
Saturday												
Sunday												

12.3 DHW circulation program

How to set the DHW circulation program is described in chapter 6.4 on page 34.

	P1		P2		P3		P4		P5		P6	
	On/ Off		On/ Off		On/ Off		On/ Off		On/ Off		On/ Off	
Factory settings												
Mo - Th	On	06:00	Off	23:00	–	–	–	–	–	–	–	–
Fr	On	06:00	Off	23:00	–	–	–	–	–	–	–	–
Sa	On	07:00	Off	23:00	–	–	–	–	–	–	–	–
Su	On	08:00	Off	23:00	–	–	–	–	–	–	–	–
Personal settings DHW circulation program												
All days												
Mon - Fri												
Sat + Sun												
Monday												
Tuesday												
Wednesday												
Thursday												
Friday												
Saturday												
Sunday												

Index

A
Accessories 9, 16

B
Being away from home 19
BUS cables 17
BUS subscribers 47, 58

C
Change heating program 32
Changing room temperature 19, 33
Colder
- Heating 19, 32–33
Commissioning (contractors only) 18
Contractor level 56
- Solar thermal system parameter 52
Control quality 14
Controller messages 58
Controls 3
Cooler
- DHW 34
Customer service address 46, 55

D
Default settings 43
Deleting 24
DHW circulation 36
DHW program 28, 34
Dimensions 14
Disposal 67

E
Electrical connections 16
- Connecting BUS subscribers 17
Encoding the BUS subscribers 47

F
Factory settings 25–26, 40, 43, 52
Fault display 58
Fault location 58
Faults 45, 55, 58
- Heating appliance 58
Fitting
- Accessories 16

G
General settings 30, 38

H
Heating appliance
- Equipment 8
- Fault 58
- Settings 32, 34, 47
Heating circuit
- Mixed 9, 36, 56
- Non-mixed 9, 36
Heating program 27, 32
Holiday program 26, 31
Hotter
- DHW 34
- Heating 19, 32–33

I
Individual time programs (table) 68
Info 40
Information regarding these instructions 6
Installation 12
- Accessories 16
- FW 100 in the heating appliance 12
- FW 100 wall mounting 14
- Outside temperature sensor 15
Installation location
- FW 100 14
- Outside temperature sensor 15
Installer settings 43
- Configuring solar thermal system 44, 51
- Customer service address 46, 55
- Heating parameters 44, 47
- Screed drying 46
- Solar thermal system parameters 45
- System configuration 43, 47
- System faults 45, 55
- System info 46, 56

K
Key 3, 21
Key lock 38

L
Leaving the apartment 19
Leaving the house 19

M

Main menu
- DHW 28
- General settings 30
- Heating 27, 32
- Holiday 26
- Solar 30

Menu
- Info 40
- Installer settings 43
  - Configuring solar thermal system ...44, 51
  - Customer service address 46, 55
  - Heating parameters 44, 47
  - Screed drying 46
  - Solar thermal system parameters 45
  - System configuration 43, 47
  - System faults 45, 55
  - System info 46, 56
- Main menu
  - DHW 28, 34
  - General settings 30, 38
  - Heating 27, 32
  - Holiday 26, 31
  - Solar 30, 39
- Scrolling through the levels 21

Menu structure 26, 40, 43
Mixed heating circuit 9, 36, 56

N

Night mode (economy) 33
Non-mixed heating circuit 9, 36

O

Operating modes 20
Operation 19
- Changing DHW mode 20
- Changing room temperature 19, 33
- Changing the operating mode for heating ..20
- Menus 21
- Programming 21
- Setting heating temperature 33

Outside temperature 51, 66
Outside temperature sensor 15

P

Packaging 67
Power reserve
- Mains power failure 8

Product details
- Standard package 8

Programming
- Deleting 24
- Installer settings 43
- Resetting to factory settings
  - A program 24
  - All settings 25
- Set fast heat-up 33
- Set heating program 32
- Setting a holiday program 31
- Setting DHW program
  - Times for DHW heating 34
- Setting language 38
- Setting the date 38
- Setting the time 38
- Setting time programme for DHW circulation pump 36
- Switching off summer/wintertime 38

R

Reset
- A program 24
- All settings 25

Resetting
- A program 24
- All settings 25

Resetting previous adjustments 25
Room temperature sensor 51
Rotary selector 3, 21

S
Safety precautions 7
Screed drying 56
Scrolling through menu levels 21
Set heating level higher/lower 32
Set heating start 32
Set screed drying 56
Setting constant economy 20
Setting constant frost protection 20
Setting constant heating 20
Setting economy mode 20
Setting frost protection mode 20
Setting heating mode 20
Setting heating temperature 33
Setting language 38
Setting the date 38
Setting the time 38
Setting up automatic mode 20
Solar program 30, 39
Standard package 8
Switching off summer/wintertime 38
Symbols 3
System faults 45, 55

T
Technical data 9
Thermal disinfection 31, 37, 53
Thermostatic valves 66
Troubleshooting 58

U
Underfloor heating system 66
Used appliances 67

V
Venting 66

W
Wall mounting 14

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