



BOSCH

Installer Guide

Rego 1000

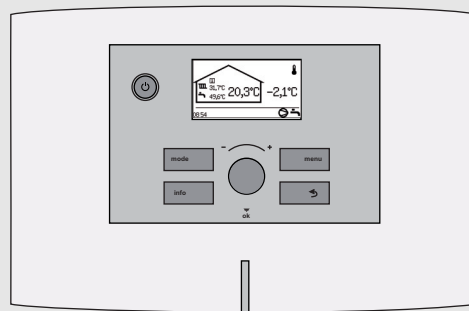


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1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings




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

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information



This symbol indicates important information where there is no risk to people or property.

Additional symbols

| Symbol | Explanation |
|--------|---|
| ▶ | Step in an action sequence |
| → | Cross-reference to another part of the document |
| • | List entry |
| – | List entry (second level) |

Table 1

1.2 General safety instructions

These installation instructions are intended for plumbers, installers and electricians.

- ▶ Carefully read all installation instructions (heat pump, controller, etc.) before carrying out the installation.
- ▶ Observe safety instructions and warnings.
- ▶ Observe national and regional regulations, technical ordinances and guidelines.
- ▶ Document all work carried out.

Determined use

This heat pump is intended for use in closed heating systems in residential buildings.

Any other use is an infringement of use for intended purpose. We take no responsibility for any damage caused through incorrect use.

Installation, commissioning and service

The heat pump may only be installed, brought into operation and maintained by authorised personnel.

- ▶ Use only original spare parts.

Electrical work

Electrical work must only be carried out by a qualified electrician.

- ▶ Before starting electrical work:
 - Isolate the mains electrical supply and secure against reconnection.
 - Make sure the appliance is actually de-energised.
- ▶ Also observe the connection diagrams of other system components.

Handover to the user

When handing over the heating system, explain the operation and operating conditions to the user.

- ▶ Explain the operation of the system - with particular emphasis on all safety-related actions.
- ▶ Explain that conversions and repairs must only be carried out by qualified installers.
- ▶ Point out the need for inspections and maintenance to ensure safe and environmentally-compatible operation.
- ▶ Hand over the installation and maintenance instructions.

2 Control panel

Settings for the control of the heat pump are made with the control unit's control panel, which also provides information about current status.

2.1 Panel overview

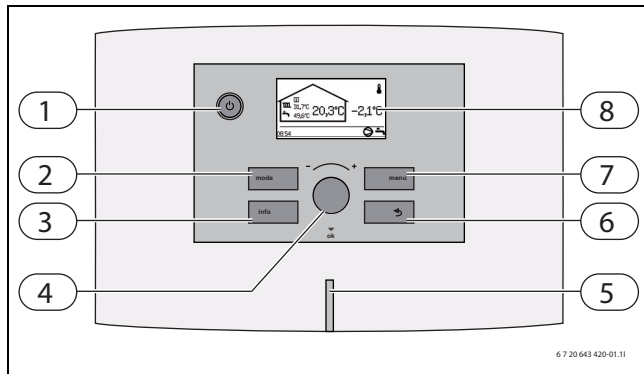


Fig. 1 Control panel

- [1] On/Off button
- [2] Mode button
- [3] Info button
- [4] Menu dial
- [5] Status lamp
- [6] Return button
- [7] Menu button
- [8] Menu display

2.2 On/Off button

Use the On/Off button to turn the heat pump on and off.

2.3 Status lamp

| | |
|---|--|
| The lamp lights green. | The heat pump is running. |
| The lamp flashes red. | There is an alarm which has not been acknowledged. |
| The lamp lights red. | The alarm has been acknowledged but the alarm cause remains. |
| The lamp flashes slowly green, menu window not lit. | The heat pump is in stand-by mode ¹⁾ . |
| The lamp and menu display not lit. | No voltage to the control unit. |

Table 2 Lamp functions


1) Stand-by means that the heat pump is running but no heating or hot water demand exists.

2.4 Menu display

Use the menu display in order to:

- See information from the heat pump.
- See available menus.
- Change set values.

2.5 Menu button and menu dial

Use  to get from *Initial menu* to the menus. Use the menu dial in order to:


- Navigate the menus and get to the setting displays.
 - Turn the dial to see more menus on the same level or change a set value.
 - Press the dial to change to a lower menu level or save a change.

2.6 Return button

Use  to:


- Go back to the previous menu level.
- Leave a setting display without changing the set value.


2.7 Mode button

Use  to change type of operation.


- Change type of operation.



The controller language can be changed with the  button.

- ▶ Press the  button in the initial menu for at least 5 s, then select the required language.

2.8 Info button

Use  to see information from the control unit about operating mode, temperature, program version, etc.

3 Start up

The first time the heat pump is started, a number of settings are displayed automatically so as to facilitate putting it in operation.

Before this stage, the heat pump should be installed in accordance with the previous sections. Collector circuits, heating circuits and hot water circuits should be filled and vented.

The settings are also available under ordinary installer menus.



Only functions which are identified by the control unit are displayed in the initial menu.


The start-up menus are available until **Yes** is entered in **Start-up completed**.

- ▶ Read the complete menus before start-up.
- ▶ A selection must be made in **Heat pump x capacity** and **Protective anode installed**.

Language, Country and Operating mode

- ▶ Select language for the menus of the control unit.
- ▶ Select **Country**.
- ▶ Select operating mode (**Electric additional heat**).



With the -button, reinstate the selection that applied to **Language, Country** or **Operating mode** prior to or during **Start-up**.

Start-up

Review and adjust, as required, the functions below. See the references for description of the functions.



The selected system solution would normally require a review of more settings than the ones in the start-up.

- ▶ Set **Hot water production** for each heat pump (compressor) (→ Chapter 6.2).
- ▶ Set the heat pump output for each heat pump in **Heat pump x capacity** (→ Chapter 6.7). See the type plate.
- ▶ **Output limitation electric heater in compressor mode**. Set the output permitted at the same time when the compressor is in operation.(→ Chapter 6.8).
- ▶ **Output limitation electric heater when additional heat only**. Set the output permitted at the same time when the compressor is in operation.(→ Chapter 6.8).

- ▶ Set **Minimum outdoor temperature** (→ Chapter 6.1).
- ▶ Specify if **Groundwater** are used.
- ▶ What type of **Circulation pump G2** is used.
- ▶ Set in **Circuit 1 Heating\ Type of heating system** (→ Chapter 6.1).
- ▶ Set **Circuit 1 Cooling** (if Cooling installed, option), see the option documentation.
- ▶ Set **Circuit 2, 3...** (→ Chapter 6.1) (option).
 - **Mixing valve mode**
 - **Type of heating system**
 - **Mixing valve running time**
- ▶ Select option in **Protective anode installed** (→ Chapter 6.2).
- ▶ Set value for **Pool** (if pool function is installed), see option documentation.
- ▶ Set **Date** (→ Chapter 6.10).
- ▶ Set **Time** (→ Chapter 6.10).
- ▶ **Start-up completed, Yes/No.**
The start-up menu will be available until **Yes** is specified.



Under **Protective anode installed** make the appropriate selection to prevent unnecessary alarm messages.

After the start-up menus, the Initial menu is shown in the display. All customer functions are accessible from this menu, whereas the installer menus are accessible only after change of access level.

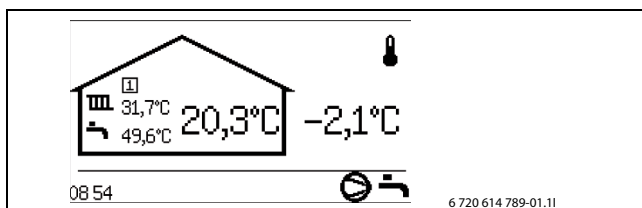


Fig. 2 Initial menu

4 Installer menus

4.1 Access to the functions on Installer level

A four digit access code is required to switch from Customer level to Installer level in the menus. The access code is the present date given as two digits for the month and two digits for the date (for example 0920).

- ▶ Go to **Access level** under **Menu** on Customer level.
- ▶ Enter the four digit access code using the menu dial. Press the menu dial after setting each digit.
Access = Installer shown in the menu window.
- ▶ Turn the menu dial to see the menus in the top level.
All functions at Customer level and Installer level can now be reached.



Changing to Customer level to the installer level can also be done to by holding down the info button and the menu button at the same time for at least three seconds.

The control unit returns automatically to Customer level:


- After 20 min (adjustable value, → Chapter 6.7).

4.2 CAN-bus LCD

Install/set room sensor for the respective circuit according to separate installer guide.

4.3 Compressor fast restart

During commissioning, manual operation, etc., you may need to quickly restart the compressor without waiting for the restart timer (10 min).

- ▶ Press on  for 5s in an optional installer menu (not a setting display).
The compressor starts after 20s.

4.4 Temperature sensor

The control unit controls the production of heat, hot water, etc., after signals from a great number of temperature sensors. Most signals that can appear in the display are listed here.



Complete component names are displayed in the control unit only when needed. If, for example, you are in a menu which refers only to circuit 2, the sensor names are indicated without E12. before the sensor name.
The complete name is always presented in alarm information so as to facilitate troubleshooting. Full names can also be found on drawings and in system solutions.

| | |
|----------------|--|
| T1 E11.T1 | Flow, circuit 1 |
| T2 E10.T2 | Out |
| T3 E41.T3 | Hot water (if hot water production) |
| T5 E11.TT | Room, circuit 1 (option, CAN-BUS sensor) |
| T6 E21.T6 | Hot gas |
| T8 E21.T8 | Heat transfer fluid out |
| T9 E21.T9 | Heat transfer fluid in |
| T10 E21.T10 | Collector circuit in |
| T11 E21.T11 | Collector circuit out |
| T1 E12.T1 | Flow, circuit 2 (if circuit 2 is used) |
| T5 E12.TT | Room, circuit 2 (option) |

Table 3 Temperature sensor

The sensors name in heat pump 2 is:

| | |
|---------|-------------------------|
| E22.T6 | Hot gas |
| E22.T8 | Heat transfer fluid out |
| E22.T9 | Heat transfer fluid in |
| E22.T10 | Collector circuit in |
| E22.T11 | Collector circuit out |

Table 4 Sensors, heat pump 2

The control unit recognizes which sensors are installed and acknowledges them automatically. An accessory sensor can be deacknowledged manually in the control unit. This makes it possible to remove the sensor from the control unit if it is not used.

Sensors for options

Circuits 3, 4 etc.

| | |
|--------|-----------------------------|
| E13.T1 | Flow, circuit 3 |
| E13.TT | Room, circuit 3 (accessory) |
| E14.T1 | Flow, circuit 4 |
| E14.TT | Room, circuit 4 (accessory) |

Table 5 Sensors, circuit 3, 4

The control unit recognizes which sensors are installed and acknowledges them automatically. An accessory sensor can be deacknowledged manually in the control unit. This makes it possible to remove the sensor from the control unit if it is not used.

5 Menu overview with factory settings

The top menu level for installers is:

- 1 Room temperature
- 2 Hot water
- 3 Holiday
- 6 Energy measurements
- 7 Timers
- 8 External control
- 9 Installer
- 10 Additional heat
- 11 Safety functions
- 12 General

- 13 Alarms
- 14 Access level
- 15 Return to factory settings
- 16 Program version

Factory value = F-value

Access level 0 = Customer

Access level 1 = Installer

HP x = Heat pump 1 or 2 / Compressor 1 or 2

The function **Return to factory settings** exists on both customer and installer level.. All levels available to the customer are restored on customer level. All levels on own level are restored on installer level. Customer level settings are not affected.

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|------------|--|---|---|--|--------------------------------------|--------------|
| 1 | Room temperature | | | | | 0,1 |
| 1.1 | Circuit 1 Heating | | | | | 0,1 |
| 1.1.2 | Type of heating system | Underfloor | | | Radiator/Underfloor | 1 |
| 1.1.3 | Highest permitted flow temperature T1 | 80,0 °C (Radiator)/ 45,0 °C (Underfloor) | Value set to 1.1.4 | 100,0 °C (Radiator)/ 45,0 °C (Underfloor) | | 1 |
| 1.1.4 | Lowest permitted flow temperature T1 | 10,0 °C (Radiator)/ 10,0 °C (Underfloor) | 10,0 °C (Radiator)/ 10,0 °C (Underfloor) | 80,0 °C (Radiator)/ 45,0 °C (Underfloor) | | 1 |
| 1.1.5 | Heat curve | | | | | 0,1 |
| 1.1.8 | Hysteresis, heat curve VP 1 | | | | | 1 |
| 1.1.8.1 | Maximum | 25.0K | Value set to 1.1.4 | 30.0K | | 1 |
| 1.1.8.2 | Minimum | 4.0K | 2.0K | Value set to 1.1.8.1 | | 1 |
| 1.1.8.3 | Time factor | 20,0 | 10,0 | 30,0 | | 1 |
| 1.1.9 | Hysteresis, heat curve VP 2 (see 1.1.8) | | | | | 1 |
| 1.1.10 | Room sensor | | | | | 0,1 |
| 1.1.10.1 | Room temperature influence | 3,0 | 0,0 | 10,0 | | 0,1 |
| 1.1.10.2 | Acknowledge room sensor | Yes Yes (if correctly installed) | | | No/Yes | 1 |
| 1.1.11 | Room temperature program | | | | | 0,1 |
| 1.1.11.1 | Active program | HP optimized | | | HP optimized/ Program 1/Program 2 | 0,1 |
| 1.1.11.2 | View/edit active program | | | | | 0,1 |
| 1.1.11.3 | Room temperature normal | 20,0 °C | 10,0 °C | 35,0 °C | | 0,1 |
| 1.1.11.4 | Temperature increase/decrease (no room sensor) | = | | | --/+/++ | 0,1 |
| 1.1.11.5 | Setting temp. increase/decrease (no room sensor) | | | | | 1 |
| 1.1.11.5.1 | Limit value for left or right end point | 0 °C | -10 °C | 15 °C | | 1 |
| 1.1.11.5.2 | Change when much colder/warmer | 8% | 1% | 20% | | 1 |
| 1.1.11.5.3 | Change when colder/warmer | 3% | 1% | 20% | | 1 |
| 1.1.11.6 | Room temperature influence | 3,0 | 0,0 | 10,0 | | 0,1 |
| 1.1.11.7 | Room temperature exception | 17 °C | 10 °C | 30 °C | | 0,1 |
| 1.1.11.8 | Copy to all heating circuits | No | | | No/Yes | 0,1 |
| 1.3 | Circuit 2 | | | | | 0,1 |
| 1.3.1 | Mixing valve mode | Off | | | Off/Heating | 1 |
| 1.3.2 | Type of heating system (see 1.1.2) | | | | | 1 |
| 1.3.3 | Highest permitted flow temperature T1 (see 1.1.3) | | | | | 1 |
| 1.3.4 | Lowest permitted flow temperature T1 (see 1.1.4) | | | | | 1 |
| 1.3.5 | Heat curve (see 1.1.5) | | | | | 0,1 |
| 1.3.7 | Room sensor (see 1.1.10) | | | | | 0,1 |
| 1.3.8 | Room temperature program (see 1.1.11) | | | | | 0,1 |
| 1.3.10 | Regulator settings | | | | | 1 |
| 1.3.10.1 | P constant | 1,0 | 0,1 | 30,0 | | 1 |
| 1.3.10.2 | I constant | 300,0 | 5,0 | 600,0 | | 1 |

Table 6 Room temperature menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|----------|--|------------|--------|--------|------------------|--------------|
| 1.3.10.3 | D constant | 0,0 | 0,0 | 10,0 | | 1 |
| 1.3.10.4 | Minimum PID signal | 0% | 0% | 100% | | 1 |
| 1.3.10.5 | Maximum PID signal | 100% | 0% | 100% | | 1 |
| 1.3.10.6 | Mixing valve running time | 300s/05:00 | | | | 1 |
| 1.3.10.7 | Mixing valve fully closed | 2.0K | 1.0K | 10.0K | | 1 |
| 1.3.10.8 | Mixing valve start closing | 2.0K | 1.0K | 10.0K | | 1 |
| 1.4 | Circuit 3 (option) (see 1.3) | | | | | 0,1 |
| 1.5 | Circuit 4 (option) (see 1.3) | | | | | 0,1 |
| 1.10 | General | | | | | 0,1 |
| 1.10.1 | Summer/winter operation | | | | | 0,1 |
| 1.10.1.1 | Winter operation | Automatic | | | On/Automatic/Off | 0,1 |
| 1.10.1.2 | Outdoor temperature limit for change over | 18 °C | 5 °C | 35 °C | | 0,1 |
| 1.10.1.3 | Delay before change over to winter operation | 4h | 1h | 48h | | 1 |
| 1.10.1.4 | Delay before change over to summer operation | 4h | 1h | 48h | | 1 |
| 1.10.1.5 | Direct start limit for winter operation | 13 °C | 5 °C | 17 °C | | 1 |
| 1.10.2 | Maximum operating time for heating at hot water demand | 20min | 0min | 120min | | 1 |
| 1.10.4 | Minimum outdoor temperature | -35 °C | -35 °C | -10 °C | | 1 |

Table 6 Room temperature menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|--------|--|-------------------------------------|---------|---------|--|--------------|
| 2 | Hot water | | | | | 0,1 |
| 2.1 | Acknowledge hot water sensor T3 | Yes Yes (if correctly installed) | | | No/Yes | 1 |
| 2.2 | Hot water mode | Economy | | | Comfort/Economy | 0,1 |
| 2.3 | Extra hot water | | | | | 0,1 |
| 2.3.1 | Extra hot water duration | 0h | 0h | 48h | | 0,1 |
| 2.3.2 | Extra hot water stop temperature | 65,0 °C | 50,0 °C | 65,0 °C | | 0,1 |
| 2.4 | Hot water peak | | | | | 0,1 |
| 2.4.1 | Day of the week | None | | | None/Day/All | 0,1 |
| 2.4.2 | Interval in weeks | 1 | 1 | 4 | | 0,1 |
| 2.4.3 | Start time | 3:00 | 0:00 | 23:00 | | 0,1 |
| 2.4.5 | Maximum time | 3.0h | 1.0h | 5.0h | | 1 |
| 2.4.6 | Time for warm-keeping | 1.0h | 1.0h | 2.0h | | 1 |
| 2.5 | Hot water program | | | | | 0 |
| 2.5.1 | Active program | Always hot water | | | Always hot water/ Program 1/Program 2 | 0,1 |
| 2.5.2 | View/edit active program | | | | | 0,1 |
| 2.6 | Hot water settings heat pump 1 | | | | | 1 |
| 2.6.1 | Hot water production | Yes | | | No/Yes | 1 |
| 2.7 | Hot water settings VP 2 | | | | | 1 |
| 2.7.1 | Hot water production | No | | | No/Yes | 1 |
| 2.10 | Block heating during hot water demand | No | | | No/Yes | 1 |
| 2.11 | Maximum operating time for hot water at heating demand | 30min | 5min | 60min | | 1 |
| 2.12 | Hot water circulation (option) | | | | | 1 |
| 2.12.1 | Hot water circulation pump active | No | | | No/Yes | 1 |
| 2.12.2 | Time settings | Start time 00:00/Stop time 24:00 | | | Start time 0:00-24:00/ Stop time 0:00-24:00 | 1 |
| 2.13 | Protective anode installed | Yes | | | No/Yes | 1 |

Table 7 Hot water menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-------|---------------------------|---------|------|------|-------------|--------------|
| 3 | Holiday | | | | | 0,1 |
| 3.1 | Circuit 1 and hot water | | | | | 0,1 |
| 3.1.1 | Activate holiday function | No | | | No/Yes | 0,1 |
| 3.1.2 | Start date | | | | | 0,1 |
| 3.1.3 | Stop date | | | | | 0,1 |

Table 8 Holiday menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-------|------------------------------|---------|--------|--------|-------------|--------------|
| 3.1.4 | Room temperature | 17,0°C | 10,0°C | 35,0°C | | 0,1 |
| 3.1.5 | Copy to all heating circuits | No | | | No/Yes | 0,1 |
| 3.1.6 | Block hot water production | No | | | No/Yes | 0,1 |
| 3.2 | Circuit 2 (see 3.1) | | | | | 0,1 |
| 3.3 | Circuit 3 (option) (see 3.1) | | | | | 0,1 |
| 3.4 | Circuit 4 (option) (see 3.1) | | | | | 0,1 |

Table 8 Holiday menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-------|--------------------------------------|---------|------|------|-------------|--------------|
| 6 | Energy measurements | | | | | 0,1 |
| 6.1 | Generated energy | | | | | 0,1 |
| 6.1.1 | Heating | | | | | 0,1 |
| 6.1.3 | Hot water | | | | | 0,1 |
| 6.2 | Consumption electric additional heat | | | | | 0,1 |
| 6.2.1 | Heating | | | | | 0,1 |
| 6.2.2 | Hot water | | | | | 0,1 |

Table 9 Energy metering menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|----------|---|-------------|-------------|--------|-------------|--------------|
| 8 | External control | | | | | 0,1 |
| 8.1 | Heat pump 1 | | | | | 0,1 |
| 8.1.1 | External input 1 | | | | | 0,1 |
| 8.1.1.1 | Invert input | No | | | No/Yes | 1 |
| 8.1.1.6 | Block additional heat 100% at triggered power guard | No | | | No/Yes | 1 |
| 8.1.1.8 | Max output additional heat at triggered power guard | Off (0.0kW) | Off (0.0kW) | 9.0kW | | 1 |
| 8.1.1.9 | Block compressor 1 | No | | | No/Yes | 0,1 |
| 8.1.1.10 | Block compressor 2 | No | | | No/Yes | 0,1 |
| 8.1.1.11 | Block additional heat | No | | | No/Yes | 0,1 |
| 8.1.1.12 | Block heating at tripped underfloor temperature limiter | No | | | No/Yes | 0,1 |
| 8.1.1.13 | Block heating | No | | | No/Yes | 0,1 |
| 8.1.1.14 | Room temperature | No (0,0°C) | 10,0°C | 35,0°C | | 0,1 |
| 8.1.1.15 | Block hot water production | No | | | No/Yes | 0,1 |
| 8.1.1.16 | Start collector circuit pump | No | | | No/Yes | 1 |
| 8.1.1.17 | Alarm at low pressure in collector circuit | No | | | No/Yes | 1 |
| 8.1.2 | External input 2 (see 8.1.1) | | | | | 0,1 |
| 8.2 | Heat pump 2 (see 8.1) | | | | | 0,1 |
| 8.5 | External input circuit 2 | | | | | 0,1 |
| 8.5.1 | Invert input | No | | | No/Yes | 1 |
| 8.5.2 | Block heating at tripped underfloor temperature limiter | No | | | No/Yes | 0,1 |
| 8.5.3 | Block heating | No | | | No/Yes | 0,1 |
| 8.5.6 | Room temperature | No (0,0°C) | 10,0°C | 35,0°C | | 0,1 |
| 8.6 | External input circuit 3 (see 8.5) | | | | | 0,1 |
| 8.7 | External input circuit 4 (see 8.5) | | | | | 0,1 |

Table 10 External control menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-------|--|---------|------|------|-------------|--------------|
| 7 | Timers | | | | | 0,1 |
| 7.1 | Extra hot water | | | | | 0,1 |
| 7.2 | Hot water peak time for warm-keeping | | | | | 1 |
| 7.3 | Alarm mode delay | | | | | 0,1 |
| 7.5 | Operating time for heating at hot water demand | | | | | 0,1 |
| 7.6 | Hot water, operating time at heating demand | | | | | 0,1 |
| 7.7 | Timer heat pump 1 | | | | | 0,1 |
| 7.7.1 | Compressor start delay | | | | | 0,1 |
| 7.7.2 | Compressor start delay groundwater | | | | | 1 |

Table 11 Timers

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|---------|--|---------|------|------|-------------|--------------|
| 7.7.4 | G2 heat carrier pump stop delay | | | | | 1 |
| 7.7.5 | Block low pressure switch | | | | | 1 |
| 7.7.7 | Compressor working area timers | | | | | 1 |
| 7.7.7.1 | Block after hot water production | | | | | 1 |
| 7.7.7.2 | Delay after temporary stop | | | | | 1 |
| 7.7.7.3 | Block after low outdoor temperature | | | | | 1 |
| 7.8 | Timer heat pump 2 (see 7.7) | | | | | 0,1 |
| 7.11 | Additional heat timers | | | | | 0,1 |
| 7.11.1 | Additional heat start delay | | | | | 0,1 |
| 7.11.2 | Delay mixing valve control after additional heat start | | | | | 0,1 |
| 7.11.4 | Additional heat program activation delay after low outdoor temperature | | | | | 1 |
| 7.11.5 | Additional heat start delay after high outdoor temperature | | | | | 1 |
| 7.12 | Delay before change over to summer operation | | | | | 1 |
| 7.13 | Delay before change over to winter operation | | | | | 1 |
| 7.15 | Shut down protection during change over from hot water to heating | | | | | 1 |
| 7.17 | Heating start delay | | | | | 1 |
| 7.18 | Heating stop delay | | | | | 1 |

Table 11 Timers

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|---------|--|---|---|---|---------------|--------------|
| 9 | Installer | | | | | 1 |
| 9.1 | General | | | | | 1 |
| 9.1.1 | Anti-seizure mode | | | | | 1 |
| 9.1.1.1 | Day of the week | Wednesday | | | Monday-Sunday | 1 |
| 9.1.1.2 | Start time | 12:00 | | | 0:00-23:00 | 1 |
| 9.1.3 | Highest permitted flow temperature T1 | 80,0 °C (Radiator)/ 45,0 °C (Underfloor) | 10,0 °C (Radiator)/ 10,0 °C (Underfloor) | 100,0 °C (Radiator)/ 100,0 °C (Underfloor) | | 1 |
| 9.1.4 | Operating mode | | | | | 1 |
| 9.1.5 | Groundwater | | | | | 1 |
| 9.1.5.1 | Groundwater | No | | | No/Yes | 1 |
| 9.1.5.2 | Compressor start delay | 15s | 0s | 600s | | 1 |
| 9.1.6 | Display light switch off delay | 5min | 1min | 240min | | 1 |
| 9.1.7 | Time for reset of access level | 20min | 1min | 240min | | 1 |
| 9.2/9.3 | Heat pump x capacity | | 6kw | 17kW | | 1 |
| 9.6 | Connected I/O boards | | | | | 1 |
| 9.7 | Compressor working area | No | | | No/Yes | 1 |
| 9.7.6 | Outdoor stop function activated | No | | | No/Yes | 1 |
| 9.8 | Generated energy | | | | | 1 |
| 9.8.1 | Heating | | | | | 1 |
| 9.8.3 | Hot water | | | | | 1 |
| 9.9 | Operating times and consumptions Displays the total operating times of the compressor and additional heat. Short term measurements can be made. | | | | | 1 |
| 9.10 | Temperatures All connected temperature sensors are displayed and can also be corrected. | | | | | 1 |
| 9.11 | Programmable outputs | | | | | 1 |
| 9.11.1 | E41.G6/E11.P2 | E11.P2 | | | E11.P2/E41.G6 | 1 |
| 9.12 | Inputs Shows the status of all connected inputs (pressostats, motor cut-out, external inputs, etc.) | | | | | 1 |
| 9.13 | Outputs Manual operation of and status of constituent components (pumps, valves, additional heat, alarm indication etc.) | | | | | 1 |
| 9.16 | Circulation pumps | | | | | 1 |
| 9.16.1 | Heating circuit pump G1 | | | | | 1 |

Table 12 Installer menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|------------|---|------------|---------|-------|--------------------------|--------------|
| 9.16.1.1 | Operation alternative | Continuous | | | Automatic/ Continuous | 1 |
| 9.16.2 | Heat carrier pump G2 | | | | | 1 |
| 9.16.2.1 | Operation alternative | Continuous | | | Automatic/ Continuous | 1 |
| 9.16.2.2 | Pump type | Standard | | | Low energy/ Standard | 1 |
| 9.16.2.3 | Pump speed E21 | | | | | 1 |
| 9.16.2.3.1 | Fixed pump speed | Auto | 0% Auto | 100% | | 1 |
| 9.16.2.3.2 | Temperature difference heat transfer fluid when heating | 7K | 3K | 15K | | 1 |
| 9.16.2.3.3 | Temperature difference heat transfer fluid when hot water | 5K | 3K | 15K | | 1 |
| 9.16.2.3.4 | Pump speed at no demand | 10% | 1% | 100% | | 1 |
| 9.16.2.4 | Pump speed E22 (see 9.16.2.3) | | | | | 1 |
| 9.16.2.5 | Regulator settings | | | | | 1 |
| 9.16.2.5.1 | P constant | 3,0 | 0,1 | 30,0 | | 1 |
| 9.16.2.5.2 | I constant | 300,0 | 5,0 | 600,0 | | 1 |
| 9.16.3 | Collector circuit pump G3 | | | | | 1 |
| 9.16.3.1 | Operation alternative | Automatic | | | Automatic/ Continuous | 1 |

Table 12 Installer menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|----------|--|-----------|----------|---------|-------------|--------------|
| 10 | Additional heat | | | | | 1 |
| 10.1 | Additional heat general | | | | | 1 |
| 10.1.1 | Start delay | 60min | 0min | 240min | | 1 |
| 10.1.3 | Additional heat only | No | | | No/Yes | 1 |
| 10.1.5 | Block additional heat | No | | | No/Yes | 1 |
| 10.1.6 | Maximum outdoor temperature for additional heat | 10,0 °C | -30,0 °C | 40,0 °C | | 1 |
| 10.2 | Electric additional heat | | | | | 1 |
| 10.2.2 | Electric heater connection | | | | | 1 |
| 10.2.2.1 | Connected output | | | | | 1 |
| 10.2.2.2 | Output limitation in compressor mode | 6.0kW | 0.0kW | 9.0kW | | 1 |
| 10.2.2.3 | Output limitation when additional heat only | 6.0kW | 0.0kW | 9.0kW | | 1 |
| 10.2.2.4 | Output limitation in hot water mode | 6.0kW | 0.0kW | 9.0kW | | 1 |
| 10.2.6 | Regulator settings | | | | | 1 |
| 10.2.6.1 | P constant | 4,0 | 0,1 | 30,0 | | 1 |
| 10.2.6.2 | I constant | 300,0 | 5,0 | 600,0 | | 1 |
| 10.2.6.3 | D constant | 0,0 | 0,0 | 10,0 | | 1 |
| 10.2.6.4 | Minimum PID signal | 0% | 0% | 100% | | 1 |
| 10.2.6.5 | Maximum PID signal | 100% | 0% | 100% | | 1 |
| 10.4 | Hot water electric heater | | | | | 1 |
| 10.4.1 | Acknowledge hot water additional heat | No | | | No/Yes | 1 |
| 10.5 | Additional heat program | | | | | 1 |
| 10.5.1 | Activate program | No | | | No/Yes | 1 |
| 10.5.2 | View/edit active program | | | | | 1 |
| 10.5.3 | Outdoor temperature limit for deactivation of time control | -26 °COff | -26 °C | 20 °C | | 1 |

Table 13 Additional heat menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|--------|--------------------------------------|---------------------------------|----------|---------|-------------|--------------|
| 11 | Safety functions | | | | | 1 |
| 11.1 | Setting collector circuit in T10 | | | | | 1 |
| 11.1.1 | Lowest permitted temperature E21.T10 | -6,0 °C/ 4,0 °C(Groundwater) | -10,0 °C | 20,0 °C | | 1 |
| 11.1.2 | Lowest permitted temperature E22.T10 | -6,0 °C/ 4,0 °C(Groundwater) | -10,0 °C | 20,0 °C | | 1 |

Table 14 Safety functions menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|--------|--------------------------------------|-------------------------------|---------|--------|-------------|--------------|
| 11.1.3 | Hysteresis alarm reset | 1.0K | 1.0K | 10.0K | | 1 |
| 11.1.4 | Number of warnings before alarm | 1 | 1 | 4 | | 1 |
| 11.2 | Setting collector circuit out T11 | | | | | 1 |
| 11.2.1 | Lowest permitted temperature E21.T11 | -8,0°C/ 2,0°C(Groundwater) | -10,0°C | 20,0°C | | 1 |
| 11.2.2 | Lowest permitted temperature E22.T11 | -8,0°C/ 2,0°C(Groundwater) | -10,0°C | 20,0°C | | 1 |
| 11.2.3 | Hysteresis alarm reset | 1.0K | 1.0K | 10.0K | | 1 |
| 11.2.4 | Number of warnings before alarm | 1 | 1 | 4 | | 1 |

Table 14 Safety functions menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|--------|---|-----------|------|------|------------------|--------------|
| 12 | General | | | | | 0,1 |
| 12.1 | Room sensor settings | | | | | 0,1 |
| 12.1.1 | Show outdoor temperature in room sensor | No | | | No/Yes | 0,1 |
| 12.2 | Set date | | | | yyyy-mm-dd | 0,1 |
| 12.3 | Set time | | | | hh:mm:ss | 0,1 |
| 12.4 | Summer/winter time | Automatic | | | Manual/Automatic | 0,1 |
| 12.6 | Display contrast | 50% | 20% | 100% | | 0,1 |
| 12.7 | Language | | | | | 0,1 |
| 12.8 | Country | | | | | 1 |

Table 15 General menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|----------|-------------------------------|--------------------------------------|------|---------------|--|--------------|
| 13 | Alarms | | | | | 0,1 |
| 13.1 | Information log | | | | | 0,1 |
| 13.2 | Delete information log | | | | | 0,1 |
| 13.3 | Alarm log | | | | | 0,1 |
| 13.4 | Delete alarm log | No | | | No/Yes | 0,1 |
| 13.5 | Alarm history | | | | | 1 |
| 13.7 | Alarm indication | | | | | 0,1 |
| 13.7.1 | Alarm buzzer signal | | | | | 0,1 |
| 13.7.1.1 | Interval | 2s | 1s | 3600s (60min) | | 0,1 |
| 13.7.1.2 | Blocking time | Start time 22:00/ Stop time 08:00 | | | Start time 0:00-23:45/ Stop time 0:00-23:45 | 0,1 |
| 13.7.2 | Alarm indication control unit | | | | | 0,1 |
| 13.7.2.1 | Block alarm buzzer | No | | | No/Yes | 0,1 |
| 13.7.3 | Alarm indication room sensor | | | | | 0,1 |
| 13.7.3.2 | Block alarm indicator lamp | No | | | No/Yes | 0,1 |
| 13.7.4 | General alarm level | | | | | 1 |
| 13.7.4.1 | Alarms and warnings | No | | | No/Yes | 1 |

Table 16 Alarm menus

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-----|--------------|---------|------|------|-------------|--------------|
| 14 | Access level | | | | | 0,1 |

Table 17 Access level menu

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-----|----------------------------|---------|------|------|-------------|--------------|
| 15 | Return to factory settings | | | | | 0,1 |


Table 18 Return to factory settings menu

| No. | Name | F value | Min. | Max. | Alternative | Access level |
|-----|-----------------|---------|------|------|-------------|--------------|
| 16 | Program version | | | | | 1 |

Table 19 Return to factory settings menu

6 Settings

6.1 Room temperature

Press the  button in the Initial menu to move to the top menu level. Select **1 Room temperature** to adjust the heating.

Under **1 Room temperature** there is:

- **1.1 Circuit 1 Heating**
- **1.3/1.4 Circuit 2, 3...** (option)
- **1.10 General**

1.1 Circuit 1 Heating


1.1.2 Type of heating system

► Select type of heating system, **Radiator** or **Underfloor**.

The factory settings for the **Radiator** have a curve value (flow temperature) of 22 °C at 20 °C an outdoor temperature, 37.4 °C at -2.5 °C and 60 °C at -35 °C at an outdoor temperature (the high point of the curve).

The factory settings for the **Underfloor** have a curve value (flow temperature) of 22 °C at 20 °C outdoor temperature, 27.2 °C at -2.5 °C and 35 °C at -35 °C outdoor temperature.


At a temperature higher than 20 °C, the same curve value applies as for 20 °C.

 The right point of the curve (-35 °C) can be changed in **1.10.4 Minimum outdoor temperature**. The set value applies to all heat curves. A change of the right point affects the flow line temperature for all outdoor temperatures that are lower than the set temperature.

1.1.3 Highest permitted flow temperature T1

1.1.4 Lowest permitted flow temperature T1

- Set the highest and lowest permitted temperature for T1. Ensure that the value corresponds with the selected curve and possible curve adjustments.
- Check also if the highest temperature T1 at **Underfloor** does not exceed the permitted value for the current type of floor.

 The heat curve forms the basis for set point value calculation of the flow temperature. Most other temperatures for heating that are set refer to room temperature. These values are transformed by the control unit into flow temperature values.

1.1.5 Heat curve

The heat curve constitutes the basis for the control unit's control of the temperature on the heating water to the circuit and indicates how high it needs to be in relation to the outdoor temperature. The control unit increases the temperature of the heating water when the outdoor temperature drops. The temperature of the heating water out to the circuit, i.e. the flow temperature is measured by sensor T1 for circuit 1 (full name E11.T1) and sensor T1 for circuit 2 (full name E12.T1).

Each circuit is controlled by its own heat curve. The installer sets the type of heating for each circuit, that is **Radiator** or **Underfloor**. The heat curve for **Underfloor** has lower values because the floors do not tolerate such high temperatures.

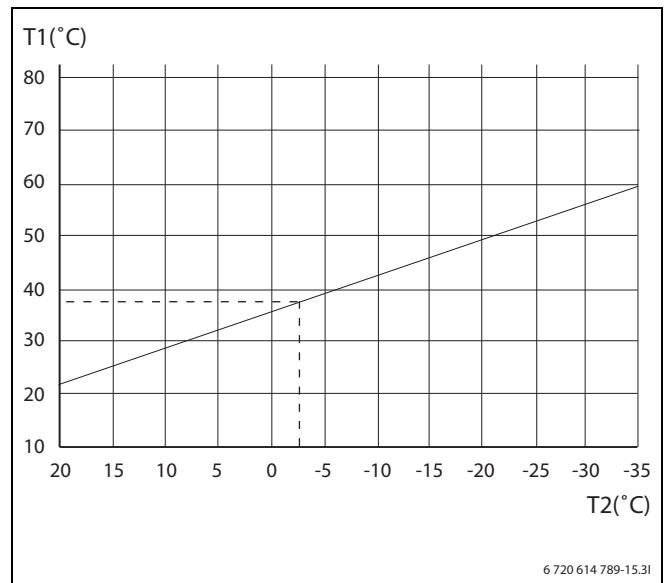


Fig. 3 Radiator

The figure indicates the factory setting curve for a radiator circuit. At -2.5 °C the flow set point is 37.4 °C.

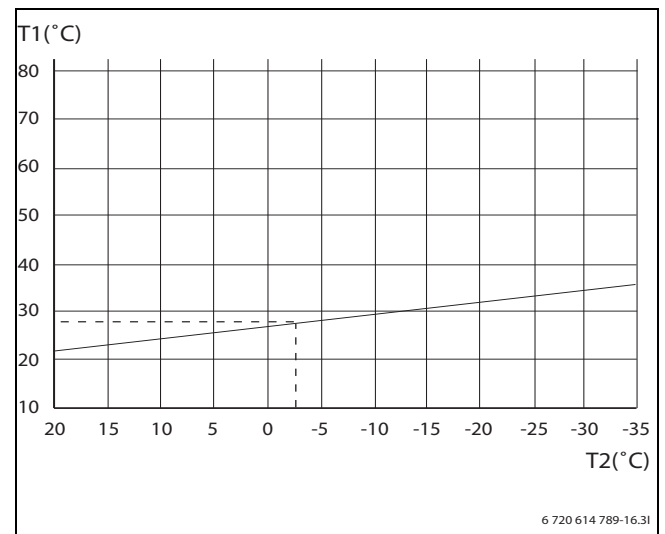



Fig. 4 Underfloor

The figure indicates the factory setting curve for an underfloor circuit. At -2.5 °C the flow set point is 27.2 °C.

Setting of heat curve

 If the heat curve has been set too high, the display will show the message **Too high heat curve setting**.

- Change the heat curve setting.

A heat curve is set for each circuit. If the room temperature is perceived to be too high or too low in the circuit, it is preferable to adjust the curve.

The curve can be changed in different ways. The slope of the curve can be changed by offsetting the flow temperature upwards or downwards on the left-hand side (the value at outdoor temperature 20 °C, factory value 22.0 °C) as well as the right-hand side (the value at outdoor temperature -35 °C, factory setting 60.0 °C). In addition, the curve can be affected by every 5th outdoor temperature degree.

The value at 0 °C is displayed above the curve's left-hand point, factory value 35.7 °C.

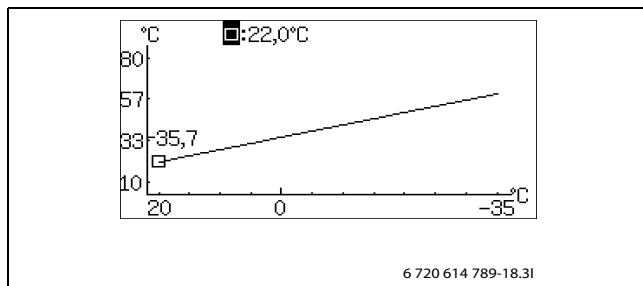


Fig. 5 Setting window Heat curve (radiator)

Change left point:

- ▶ Press the menu dial when the square is marked. The value is marked.

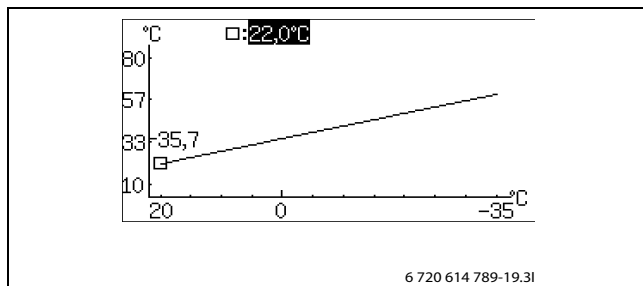



Fig. 6

- ▶ Turn the menu dial to change the value. Press the dial to save or use  to return without saving. In the window, the square is marked again and any changed values are displayed after the square. In addition, the curve is updated according to the new value.

Change the right point:

- ▶ Turn the menu dial when the square is marked. The upper square is changed to outdoor temperature with the corresponding curve value after the colon. The circle marks the relevant curve position.
- ▶ Continue to turn the dial until it shows a square before the colon.
- ▶ Press the dial to mark the value.

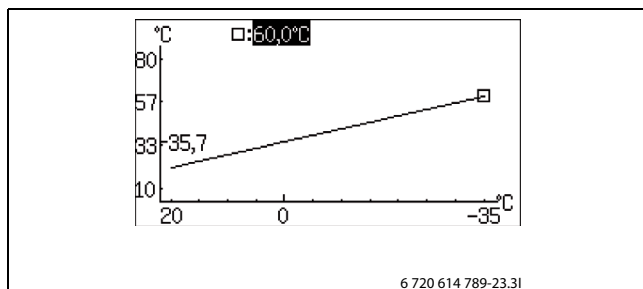



Fig. 7

- ▶ Turn the menu dial to change the value. Press the dial to save or use  to return without saving. In the window, the square is marked again and any changed values are displayed after the square. In addition, the curve is updated according to the new value.

Change a specific value, for example the value at an outdoor temperature of 0°C:

- ▶ Turn the menu dial when the square is marked until 0°C is marked (→ Figure 8).
- ▶ Press the dial to mark the value.

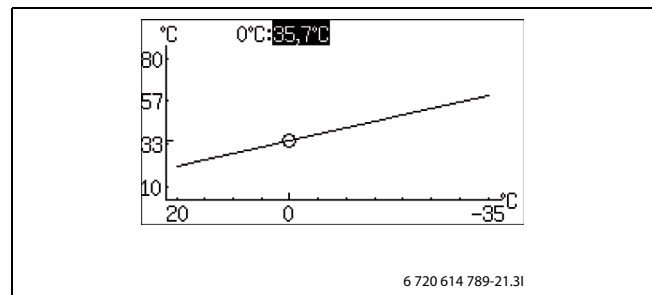


Fig. 8

- ▶ Turn the menu dial to change the value.

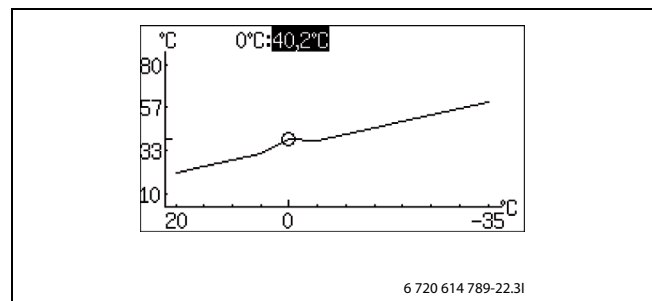


Fig. 9

- ▶ Press the dial to save or use  to return without saving.
- ▶ Use  to leave the curve setting window and return to the menu.



Recommendations:

- ▶ Increase the value of the right point if it feels too cold at low outdoor temperatures.
- ▶ Increase the value of curve at 0°C if it feels a little cold at outdoor temperatures around 0.
- ▶ Increase or decrease the value of the curve equally at the right and left points to fine adjust the heat (the curve is offset parallel).

1.1.8 Hysteresis, heat curve VP 1

1.1.8.1 Maximum

- ▶ Set how big the maximum hysteresis from the flow line can be.

1.1.8.2 Minimum

- ▶ Set how big the minimum hysteresis from the flow line can be.

1.1.8.3 Time factor

- ▶ Select how long the compressor should be on or off in heating mode. Higher set values result in fewer compressor starts and stops, which achieves higher economy. However, more pronounced temperature fluctuations in the heating system may result than with lower values.

1.1.10 Room sensor

1.1.10.1 Room temperature influence (with a room sensor)

- ▶ Set how much a 1 K (°C) difference in room temperature should influence the set point value for the flow line temperature. Example: at a 2 K (°C) deviation from the set room temperature, the set point value for the flow line temperature is changed by 6 K (°C) (2 K deviation * factor 3 = 6 K).

The menu is displayed only if a room sensor is installed.

1.1.10.2 Acknowledge room sensor

- ▶ Specify **No** only if the room sensor, even if it is installed, should not be included.

1.1.11 Room temperature program

- ▶ Choose if the circuit should be controlled with a program or not.

Optimised operation

This means that the control unit is only controlled by the flow set point value (→ Chapter 6.1.1), without programmed changes during the day. Optimised operation provides the best comfort and energy savings in the vast majority of cases.

Program 1 and 2

These selections provide an opportunity to define user programs for time control by adjusting the start and stop times, as well as a normal and an programmed temperature.

| Program | Day | Start | Stop |
|--------------|-----------|-------|-------|
| Program 1, 2 | Mon - Sun | 5:30 | 22:00 |

Table 20 Program 1 and 2

To set the desired time of day:

- ▶ Select **Program 1** or **Program 2**.
- ▶ Go to menu **1.1.11.2 View/edit active program**.
- ▶ Select day by turning the menu dial.

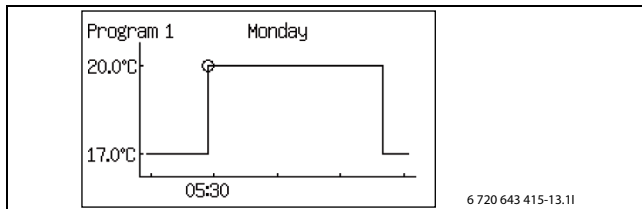


Fig. 10

- ▶ Press the menu dial to mark the value to be changed.

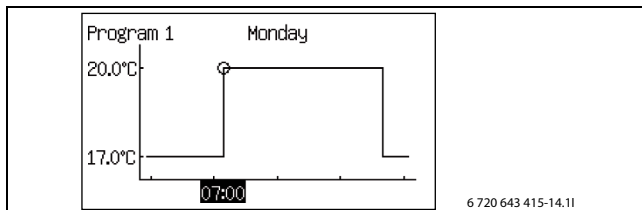



Fig. 11

- ▶ Turn the menu dial until the desired setting has been selected.
 - ▶ Then press the menu dial.
 - ▶ Turn the menu dial to be able to set additional values in the same way as above.
 - ▶ Go back one step with .
 - ▶ Select **Saving alternative**:
 - **Return without saving**
 - **Program 1**
 - **Program 2**
- The set changes are saved as a selected program or not at all.
- ▶ To adjust the normal temperature, proceed to menu **1.1.11.3 Room temperature normal**.
 - ▶ To adjust the exceptional temperature, proceed to menu **1.1.11.7 Room temperature exception**.

Room temperature program when there is a room sensor:

1.1.11 Room temperature program

1.1.11.1 Active program

If a program is selected, the following (if the menu button is turned) is displayed:

1.1.11.2 View/edit active program

1.1.11.3 Room temperature normal

- ▶ Set the desired set point for the room temperature.

1.1.11.6 Room temperature influence

- ▶ Set the values in the same way as for **1.1.10.1 Room temperature influence**.

1.1.11.7 Room temperature during time program

- ▶ Set the temperature that should apply as exceptional temperature in the program.
The menu is only displayed if **Program 1** or **Program 2** is selected.

1.1.11.8 Copy to all heating circuits

- ▶ Select **Yes** to have the same control for all installed circuits.
The menu is displayed only under **Circuit 1**.

Room temperature program when there is no room sensor:

1.1.11 Room temperature program

1.1.11.1 Active program

1.1.11.2 View/edit active program

The same as when there is a room sensor, see above.

1.1.11.3 Room temperature normal

- ▶ Set the measured value in the room.
The indicated value is used by temperature programs to calculate the difference between normal and exceptional temperature.

1.1.11.4 Temperature increase/decrease

- ▶ Use this function to adjust the room temperature so that the normal room temperature (see the previous menu) becomes the desired temperature.
- ▶ Use this function to simply increase or decrease the heat when there are no room sensors.
 - – gives approx 1 °C lower room temperature.
 - gives approx 0.5 °C lower room temperature.
 - + gives approx 0.5 °C higher room temperature.
 - ++ gives approx 1 °C higher room temperature.

1.1.11.5 Setting temp. increase/decrease

1.1.11.5.1 Limit value for left or right end point

- ▶ Set which outdoor temperature should be the limit value for the end point that should be adjusted when increase/decrease is requested.
At outdoor temperatures lower than the limit value, the flow line temperature in the right end point (-35 °C) of the heat curve is affected, with change indicated in %, see below.
At outdoor temperatures higher than the limit value, the flow line temperature in the left end point (+20 °C) of the heat curve is affected, with change indicated in %, see below.

1.1.11.5.2 Change when much colder/warmer

- ▶ Set how many % downward or upward flow line temperatures in the applicable end point of the heat curve should be changed when – – or ++ select in **1.1.11.4 Temperature increase/decrease**.

1.1.11.5.3 Change when colder/warmer

- ▶ Set how many % the flow line temperature in the applicable end point of the heat curve should be changed down or up when – or + is selected in **Temperature increase/decrease**

1.1.11.6 Room temperature influence

Set in the same way as in menu **Room sensor** (→ Chapter 6.1). The setting is used in the temperature program to calculate how the flow line temperature is affected when **Room temperature exception** is to apply.

1.1.11.7 Room temperature during time program

1.1.11.8 Copy to all heating circuits

The same as when there is a room sensor, see above.



It always takes some time for a change of a heating setting, e.g. an increase or decrease in room temperature, to apply. The same applies in the event of a quick change of the outdoor temperature. This is why you should always wait for at least 24 hours before making a new change.

1.3 Circuit 2

Make the settings for the first mixed circuit under **Circuit 2**. Other circuits are displayed only if they exist. The same functions apply to these as the functions for circuit 2.

1.3.1 Mixing valve mode

- ▶ Select **Off** if the circuit is not ready-built or needs to be turned off temporarily or should not be used.

1.3.2 Type of heating system

- ▶ Select type of heating system.

The factory settings for the **Radiator** have a curve value (flow temperature) of 22 °C at 20 °C an outdoor temperature, 37.4 °C at -2.5 °C and 60 °C at -35 °C at an outdoor temperature (the high point of the curve).

The factory settings for the **Underfloor** have a curve value (flow temperature) of 22 °C at 20 °C outdoor temperature, 27.2 °C at -2.5 °C and 35 °C at -35 °C outdoor temperature.

At a temperature higher than 20 °C, the same curve value applies as for 20 °C.



The right point of the curve (-35 °C) can be changed in **1.10.4 Minimum outdoor temperature**. The set value applies to all heat curves. A change of the right point affects the flow line temperature for all outdoor temperatures that are lower than the set temperature.

1.3.3 Highest permitted flow temperature T1

1.3.4 Lowest permitted flow temperature T1

- ▶ Set the highest and lowest permitted temperature for T1. Ensure that the value corresponds with the selected curve and possible curve adjustments.
- ▶ Check also if the highest temperature T1 at **Underfloor** does not exceed the permitted value for the current type of floor.

1.3.5 Heat curve

The settings are the same as for **Circuit 1**.

1.3.7 Room sensor

The settings are the same as for **Circuit 1**.

1.3.8 Room temperature program

The settings are the same as for **Circuit 1**, except that **Copy to all heating circuits** is not included.

1.3.10 Regulator settings

The mixing valve is controlled with PID regulator in order to reach the flow set point value when there is a need. The signal determines how much the opening of the mixing valve should change. It is calculated with short time intervals.

1.3.10 Regulator settings

1.3.10.1 P constant

1.3.10.2 I constant

1.3.10.3 D constant

1.3.10.4 Minimum PID signal

1.3.10.5 Maximum PID signal

1.3.10.6 Mixing valve running time

- ▶ Set the run time that is indicated on the mixing valve and indicate value in number of minutes.



If there is no time indication on the mixing valve, run it manually (→ Chapter 6.7) and measure how long it takes to go from fully closed to a fully open mixing valve (the mixing valve stops sounding and the endposition switch switches off).

1.3.10.7 Mixing valve fully closed

- ▶ Set how long the mixing valve is to be fully closed at the maximum permitted flow temperature T1. The maximum flow temperature is different depending on the type of heating system (radiator or underfloor). With an underfloor system, the mixing valve should be fully closed at 45 °C-2K=43 °C (with factory settings).

1.3.10.8 Mixing valve start closing

- ▶ Set how long during the value for fully closed mixing valve the closure of the mixing valve should begin. The result is 43 °C-2K=41 °C (with the factory settings for underfloor heating).

1.4 Circuit 3

- ▶ Set the values in the same way as for **1.3 Circuit 2**.

1.5 Circuit 4

- ▶ Set the values in the same way as for **1.3 Circuit 2**.

6.1.1 Set point value

The heating circuit's set point value is the temperature of the flow that the heat pump attempts to maintain. Sometimes, the measured actual value fluctuates a bit upward and downward depending on changes in the outdoor temperature or a large hot water demand.



The set point value specified by the customer/installer is most often the room temperature, which is recalculated by the control unit into a corresponding flow temperature set point value. Under normal conditions, 1 K (°C) in room temperature corresponds to approx. 3 K (°C) in flow temperature.

The set point value is normally based on:

- Current curve value (the low line temperature at the current outdoor temperature according to the applicable heat curve).
- Current curve influence through:
 - **Room sensor**
 - **Holiday**
 - **Active program**
 - **External control**

Set point value calculation

The set point value for the heating circuit is the current curve value adjusted with active curve influence, if any such exists.

Priority order for curve influence is:

- **External control**
- **Active program**
- **Holiday**

Only one of these can be active. How big the influence should be and when to exercise it is set in the respective function.

Fixed set point value

A fixed set point value (not curve-based) applies in the event of:

- External set point value. The set point value is determined according to input signal 0-10V where 1V is 10 °C and 10V is 80 °C (0V triggers an alarm).

Set point value limitation

The calculated set point value is always checked against the permitted temperature limits.

The applicable set point value T1 for **Circuit 1** and the measured actual value for T1 are used to activate and deactivate the heat demand.

The following applies to **Circuit 2, 3...:** When the actual value for the mixed circuit's T1 is low in relation to the set point value, more heating water is shunted into the circuit so as to maintain the set point value.

If the flow temperature has been below the set point value for a certain period of time, there is heat demand and the compressor produces heat before there is a too significant temperature reduction indoors. This happens until the flow temperature is a couple of degrees higher than the set point value. (Or because **Maximum operating time for heating at hot water demand** has passed.)

Heating demand is not active during summer operation.

1.10 General

1.10.1 Summer/winter operation

1.10.1.1 Winter operation

If **On** is selected, the heat pump is constantly in winter operation and heat and hot water are always produced. **Off** signifies constant summer operation; only hot water is produced. **Automatic** signifies change-over at the set outdoor temperature.

1.10.1.2 Outdoor temperature limit for change over

The menu is displayed only if **Automatic** has been selected in **Winter operation**.

1.10.1.3 Delay before change over to winter operation

1.10.1.4 Delay before change over to summer operation

1.10.1.5 Direct start limit for winter operation



In the event of change over between winter and summer operation and vice versa, there is a certain delay to prevent constant starting and stopping of the compressor when the outdoor temperature oscillates around the temperature limit.

Below the direct start limit, the control unit changes over to winter operation without delay.

1.10.2 Maximum operating time for heating at hot water demand

The menu is not displayed if **2.10 Block heating during hot water demand** be set to **Yes** (→ Chapter 6.2).

1.10.4 Minimum outdoor temperature

▶ Set the minimum outdoor temperature for the heat curve.

6.2 Hot water

Under **2 Hot water** there is:

- **2.1 Acknowledge hot water sensor T3**
- **2.2 Hot water mode**
- **2.3 Extra hot water**
- **2.4 Hot water peak**
- **2.5 Hot water program**
- **2.6 Hot water settings heat pump 1**
- **2.7 Hot water settings VP 2**
- **2.10 Block heating during hot water demand**
- **2.11 Maximum operating time for hot water at heating demand**
- **2.12 Hot water circulation**
- **2.13 Protective anode installed**

2.1 Acknowledge hot water sensor T3

2.2 Hot water mode

▶ Select hot water mode.

Economy means that the hot water is permitted to cool slightly before hot water production starts compared to **Comfort**. Heating stops at a slightly lower temperature.

▶ Change to **Comfort** if more or hotter hot water is required.

This setting must be used if electric additional heat is missing or if the hot water circulation is used, when the temperature in the hot water circulation is otherwise too low..

2.3 Extra hot water

2.3.1 Extra hot water duration

▶ Set the duration of extra hot water production.

2.3.2 Extra hot water stop temperature

▶ Set the stop temperature for extra hot water.

Additional amount of hot water is produced by temporarily increasing the temperature of the hot water during the set number of hours to the indicated stop temperature.

The heat pump starts the function directly and uses the compressor first and then the additional heat source to increase the temperature. When the desired number of hours have passed, the heat pump returns to normal hot water mode.



DANGER: Risk of burn injuries.

▶ Use a mixing valve when the hot water temperature exceeds 60 °C.

2.4 Hot water peak

Hot water peak means a temporary increase in the hot water temperature to approx. 65 °C for thermal elimination of bacteria (pasteurisation).

The **Hot water circulation pump** is controlled by the control unit during the hot water peak.

For the hot water temperature increase, the compressor is used first; the additional heat source then continues alone.

2.4.1 Day of the week

▶ Set the day on which the hot water peak should take place. **None** means that the function has been disabled. **All** means that a hot water peak takes place every day..

If hot water peak is deactivated comfort mode must be selected in the hot water operation menu.

▶ Select **None** if electric additional heat in the hot water heater is missing.

2.4.2 Interval in weeks

▶ Set how often a hot water peak should take place.

– 1 means a hot water peak every week.

– 2 means that a hot water peak takes place in all even weeks of the year, i.e., in week 2, 4, 6, etc.

– 3 means week 3, 6, 9, etc.

– 4 means week 4, 8, 12, etc.

2.4.3 Start time

▶ Set time for the hot water peak.

2.4.5 Maximum time

2.4.6 Time for warm-keeping

▶ Set in **2.4.5 Maximum time** and **2.4.6 Time for warm-keeping**.

The hot water peak is activated on the selected day and at the selected time. It continues until the stop temperature has been reached plus the time for warm-keeping The hot water peak cannot continue longer than is set in **2.4.5 Maximum time** If it is cancelled

because the maximum time has expired, a message is shown in the display and a new attempt is made after 24 hours.

2.5 Hot water program

Program 1 and **Program 2** enables you to block hot water production during the set time.

2.5.1 Active program

2.5.2 View/edit active program

The menu is only displayed if **Program 1** or **Program 2** is selected. Programs are changed in the same way as for **1.1.11 Room temperature program** (→ Chapter 6.1).

2.6 Hot water settings heat pump 1



In certain countries there are requirements regarding the lowest hot water temperature in buildings. Check that the settings in Economy and Comfort mode conform to the applicable regulations.

2.6.1 Hot water production

2.7 Hot water settings VP 2

Heat pump 2 has factory setting **No** for **Hot water production**. This value must not be changed.

2.10 Block heating during hot water demand

- ▶ Select **Yes** if the hot water demand must always be satisfied before the heat demand.
- ▶ Select **No** if the hot water production must be switched off after a certain time in case of heating needs.
- ▶ In case of **No** also set the duration that hot water production may occur for heating needs.

2.11 Maximum operating time for hot water at heating demand


2.12 Hot water circulation

A special circulation pump for hot water, E41.G6, can be installed. It is subject to time control, i.e., it can be activated during parts of the day. Due to the circulation, the hot water reaches the tapping place faster.

2.12.1 Hot water circulation pump active

- ▶ Indicate **Yes** if there is circulation pump. Time settings can then be made.
- ▶ In **Yes**, change hot water mode to comfort mode.

2.12.2 Time settings

- ▶ Set up to four separate intervals.
- ▶ To change time: turn the menu dial until the desired time appears. Push the menu dial to continue to the next setting field.
- ▶ Go back to the previous field by using .
- ▶ Press the menu dial in the last setting field to save settings. Hot water circulation takes place every day during the set periods.

2.13 Protective anode installed

Installed under **Start-up**

Change the value if there has been a change since start-up.

- ▶ Change to **No** if there is no electric anode. Normally, there is an anode in the hot water heater in order to protect it against corrosion. If the anode breaks, it must be fixed to prevent the hot water heater from being damaged. The control unit alerts when the anode is broken.

6.3 Holiday

During holidays (absence), the heating can, for example, be kept at a lower or higher level and hot water production can be switched off. *Start* and *Stop date*, *Room temperature* and *Block hot water production* are only displayed if the holiday function is activated.

3.1 Circuit 1 and hot water

3.1.1 Activate holiday function

3.1.2 Start date

3.1.3 Stop date

- ▶ Set start and stop date for the desired period. Format yyyy-mm-dd. The period starts and ends at 00:00. Both the start and end date are included in the period.
- ▶ Terminate the period prematurely by indicating **No** in menu **3.1.1 Activate holiday function**.

3.1.4 Room temperature

- ▶ Set the room temperature that should apply to the circuit during the period.

3.1.5 Copy to all heating circuits

3.1.6 Block hot water production

3.2 Circuit 2

- ▶ Set the values in the same way as for **3.1 Circuit 1 and hot water**.

3.3 Circuit 3 (option)

- ▶ Set the values in the same way as for **3.1 Circuit 1 and hot water**.

3.4 Circuit 4 (option)

- ▶ Set the values in the same way as for **3.1 Circuit 1 and hot water**.

6.4 Energy measurements



Energy is measured per compressor; the calculated results are added prior to being displayed.

6.1 Generated energy

This displays **6.1 Generated energy** in kWh divided into **6.1.1 Heating** and **6.1.3 Hot water**.

6.2 Consumption electric additional heat

This displays **6.2 Consumption electric additional heat** in kWh divided into **6.2.1 Heating** and **6.2.2 Hot water**.

6.5 Timers

The control unit shows the timers that are in operation. There are a number of timers for, e.g., delays of different types, but also for extra hot water, hot water peak, etc. A number of these times are set under

customer or installer, whereas others have a set factory value which cannot be changed. Level shows at what level the setting can be made. 0 = Customer, 1 = Installer, 3 = Factory.

| Timers | Setting | F value | Level |
|---|---|---------|-------|
| 7.1 Extra hot water | 2.3.1 Extra hot water duration | 0h | 0, 1 |
| 7.2 Hot water peak time for warm-keeping | 2.4.6 Time for warm-keeping | 1.0h | 1 |
| 7.3 Alarm mode delay | | 1.0h | 3 |
| 7.5 Operating time for heating at hot water demand | 1.10.2 Maximum operating time for heating at hot water demand | 20min | 1 |
| 7.6 Hot water, operating time at heating demand | 2.11 Maximum operating time for hot water at heating demand | 30min | 1 |
| 7.7 Timer heat pump 1 | | | |
| 7.7.1 Compressor start delay | | 10min | 3 |
| 7.7.2 Compressor start delay groundwater | 9.1.5.2 Compressor start delay | 15s | 1 |
| 7.7.4 G2 heat carrier pump stop delay | | 5min | 3 |
| 7.7.5 Block low pressure switch | | 150s | 3 |
| 7.7.7 Compressor working area timers | | | |
| 7.7.7.1 Block after hot water production | | 120s | 3 |
| 7.7.7.2 Delay after temporary stop | | 60min | 3 |
| 7.7.7.3 Block after low outdoor temperature | | 30min | 3 |
| 7.8 Timer heat pump 2 (see 7.7) | | | |
| 7.11 Additional heat timers | | | |
| 7.11.1 Additional heat start delay | 10.1.1 Start delay | 60min | 1 |
| 7.11.2 Delay mixing valve control after additional heat start | 10.3.1 Delay mixing valve control after additional heat start | 20min | 1 |
| 7.11.4 Additional heat program activation delay after low outdoor temperature | | 15min | 3 |
| 7.11.5 Additional heat start delay after high outdoor temperature | | 30min | 3 |
| 7.12 Delay before change over to summer operation | 1.10.1.4 Delay before change over to summer operation | 4h | 1 |
| 7.13 Delay before change over to winter operation | 1.10.1.3 Delay before change over to winter operation | 4h | 1 |
| 7.15 Shut down protection during change over from hot water to heating | | 300s | 3 |
| 7.17 Heating start delay ^{*)} | | 3min | - |
| 7.18 Heating stop delay ^{*)} | | 3min | - |

Table 21 Timers

^{*)} Between compressors/heat pumps

6.6 External control

When an external input is connected, the control unit performs functions which are set to **Yes** or is separated from 0 (**Room temperature**). When the external input is no longer connected, the control unit returns to normal mode. Only installed functions are displayed.

This is where the functions for the external inputs 1 and 2 per heat pump and the external inputs for circuits 2, 3, etc. are located.

8.1 Heat pump 1

8.1.1 External input 1

8.1.1.1 Invert input

- ▶ Select **Yes** if the input signal is to be reversed (i.e. activated with open contact).

8.1.1.6 Block additional heat 100% at triggered power guard

8.1.1.8 Max output additional heat at triggered power guard

8.1.1.9 Block compressor 1

8.1.1.9 Block compressor 2

8.1.1.11 Block additional heat

8.1.1.12 Block heating at tripped underfloor temperature limiter

8.1.1.13 Block heating

8.1.1.14 Room temperature

- ▶ Set the room temperature that should apply in the event of enabled external control.
- ▶ Value > 0 °C enables the function.

8.1.1.15 Block hot water production

8.1.1.16 Start collector circuit pump

8.1.1.17 Alarm at low pressure in collector circuit



This function requires the installation of a pressure switch in the collector circuit and its connection to the external input. In the event of incorrect pressure in the circuit, the external input closes, triggering a category A alarm (→ Chapter 7.7).

8.1.2 External input 2

- ▶ Set the values in the same way as for **8.1.1 External input 1**.

8.2 Heat pump 2

- ▶ Set the values in the same way as for **8.1 Heat pump 1**.

8.5 External input circuit 2

8.5.1 Invert input

- ▶ Select **Yes** if the input signal is to be reversed (i.e. activated with open contact).

8.5.2 Block heating at tripped underfloor temperature limiter

8.5.3 Block heating

8.5.6 Room temperature

- ▶ Set the room temperature that should apply in the event of enabled external control.
- ▶ Value > 0 °C enables the function.

The highest temperature is used if temperature changes have been set for a certain circuit at several external inputs.

8.6 External input circuit 3

- ▶ Set the values in the same way as for **8.5 External input circuit 2**.

8.7 External input circuit 4

- ▶ Set the values in the same way as for **8.5 External input circuit 2**.

6.7 Installer

This section includes:

- **9.1 General**
- **9.2 Heat pump x capacity**
- **9.6 Connected I/O boards**
- **9.7 Compressor working area**
- **9.8 Generated energy**
- **9.9 Operating times and consumptions**
- **9.10 Temperatures**
- **9.11 Programmable outputs**
- **9.12 Inputs**
- **9.13 Outputs**
- **9.16 Circulation pumps**

9.1 General

9.1.1 Anti-seizure mode

Anti-seizure mode operates differently in summer and in winter. This enables the duration of the anti-seizure operation to be reduced. Furthermore, during anti-seizure operation the entire system does not need to be switched off in winter.

Anti-seizure mode in summer mode



Anti-seizure mode starts only if there is no other type of demand. When there is a demand, the anti-seizure operation waits for one hour at the most for the demand to be satisfied. Otherwise, the anti-seizure operation has to wait until the next occasion.

Heat pump 1 runs first followed by heat pump 2, etc. 3-way valves and circulation pumps are run for 1 minute and mixing valves for the respective mixing valve's run time + 10s. A pause of 30s is made between components.

During anti-seizure mode, certain parts of the heating system become hot for a short period of time, which is completely normal.



The anti-seizure mode is not cancelled if hot water demand arises during the anti-seizure operation. The hot water temperature can thereby fall. A suitable time for anti-seizure operation is when the hot water consumption is low, e.g., at night.

Anti-seizure mode in winter mode



In winter mode, anti-seizure operation is executed on valves, mixers and pumps that normally do not operate in winter mode (refers to accessories such as cooling, pool and solar). Anti-seizure mode can occur during operation.

9.1.1.1 Day of the week

9.1.1.2 Start time

- ▶ Set date and time for anti-seizure operation of vital parts of the installation.
Anti-seizure mode ensures that vital components do not become clogged during periods when they are not used.

9.1.3 Highest permitted flow temperature T1

9.1.4 Operating mode



The set operating mode is indicated with the symbol > before the alternative. Operating mode is selected directly the first time the heat pump is started. Operating mode can be changed here. The control unit allows only the alternative(s) that can be achieved with the installed equipment.

Selection of operating mode leads to automatic setting of certain values in the control unit.

9.1.5 Groundwater

- ▶ Indicate if groundwater pump G33 exists or not.
G33 is normally run simultaneously with collector circuit pump G3.

In the event of **Yes**:

9.1.5.2 Compressor start delay

- ▶ Indicate the delay that is required until the groundwater circuit circulates. The compressor should not start before this has taken place.

9.1.6 Display light switch off delay

- ▶ Set the delay before the display backlighting is automatically switched off after the last display activity (navigating, setting, alarm display etc.).

9.1.7 Time for reset of access level

- ▶ Set how much time it should take for the control unit to return automatically from installer level to customer level.

9.2/9.3 Heat pump x capacity

- ▶ The total capacity is selected under **Start-up**. If an incorrect value was selected, make changes in line with the heat pump type plate.

9.6 Connected I/O boards

All boards and current version are displayed, if relevant.

9.7 Compressor working area

This defines a number of functions that make the compressor stop temporarily or change operating mode to avoid more serious alarms.

9.7.6 Outdoor stop function activated

- ▶ **Yes** Select Yes if the stop function should be active.
The compressor stops when the outdoor temperature falls below the lowest permitted outdoor temperature for the compressor (-20 °C). When the outdoor temperature rises to a value that is higher than the lowest permitted temperature and this continues for 60 minutes (factory value), the stop function is deactivated and the compressor starts automatically if there is a need for this.



The stop functions are always inactive at outdoor temperatures higher than 10 °C (factory value, not adjustable).

9.8 Generated energy


This displays **9.8 Generated energy** in kWh divided on **9.8.1 Heating** and **9.8.3 Hot water**.

9.9 Operating times and consumptions

The total operating time for the control unit, heat pump x and additional heat (active connection). It can also make short term measurements for compressor and additional heat.

9.10 Temperatures

All connected/acknowledged sensors present values. The set point value is also given for some. The opportunity to correct the sensors is also given.

Open circuits/short circuits/faults in sensors are indicated with a dash in the  display and under **Temperatures**. Alarms are triggered and stored in alarm log and alarm history.

| | |
|--------------------------|--|
| T2 Out | T2 display, correction, Attenuation |
| Temperatures heat pump x | T1 Start/stop limits compressor |
| | T6, T8, T9, T10, T11 display, correction |
| | T3 hot water start |
| | T8 hot water stop |
| Circuit x | T1 set point |
| | T1 display, correction |
| | T5 display, correction, Attenuation |
| | Room temperature set point value |
| Hot water | T3 display, correction |
| | Extra hot water stop temperature |
| | Hot water peak stop temperature |

Table 22 Temperature display

9.11 Programmable outputs

9.12 Inputs

The status of all inputs is displayed here. Pressure switches and motor cut-outs are shown for each heat pump. In addition, any alarms for shunted additional heat, status for external inputs and protective amode are shown.

Only connected inputs are displayed.

9.13 Outputs

All components can be manually operated individually here to check function.

9.13.1 Manual operation time

- ▶ Set the number of minutes for manual operation. Different vital components can be put into operation/turned off separately. Status is shown at 0 min, e.g. **On** or **Off**, for each component.



Use the manual operation function on commissioning in order to check if the installed components work.

Manual operation is possible for the following components (only the ones that are installed are displayed):

9.13.2 G1 Heating circuit pump

9.13.3 Heat pump x

9.13.3.4 Q21 Three-way valve (Heating/Hot water)

9.13.3.5 G2 Heat carrier pump

9.13.3.6 G2 Heat carrier pump speed

9.13.3.7 G3 Collector circuit pump

9.13.3.8 Compressor

9.13.5 Hot water electric heater

9.13.6 Hot water circulation pump

9.13.9 Circuit 2, 3...

9.13.9.1 Circulation pump

9.13.9.2 Mixing valve signal

9.13.9.3 Mixing valve open

9.13.9.4 Mixing valve close

9.13.16 Electric heater 1

9.13.17 Electric heater 2

9.13.20 Mixed additional heat

9.13.20.1 Mixed additional heat

9.13.20.2 Mixing valve signal

9.13.20.3 Mixing valve open

9.13.20.4 Mixing valve close

9.13.25 Alarm buzzer

9.13.26 General alarm

9.16 Circulation pumps

9.16.1 Heating circuit pump G1

9.16.1.1 Operation alternative

- ▶ Select if circulation pump G1 should run continuously or in optimised operation. The setting applies to G1 of all circuits.

Continuous means that G1 is always in operation during the heating season.

Automatic means that the circulation pump runs for approx. 10 min, stands idle for 10 min, and so on, if it is in winter operation and there has not been any heating demand for 40 min. Automatic operation is cancelled when heating demand arises or winter operation is disabled.

G1 stands idle (apart from anti-seizure operation) if it is summer operation.

9.16.2 Heat carrier pump G2

9.16.2.1 Operation alternative

- ▶ Select if heat carrier pump G2 should run continuously or start automatically when the compressor starts.

The setting applies to all heat pumps' G2. In automatic operation, G2 starts for heat pump 2 when compressor 2 starts.

9.16.2.2 Pump type

9.16.2.3 Pump speed E21

9.16.2.3.1 Fixed pump speed

- ▶ Set desired percentage to maintain a constant pump speed. Auto means the pump speed will be controlled by the control unit.

9.16.2.3.2 Temperature difference heat transfer fluid when heating

- ▶ Specify the temperature difference which the heat pump will aim to achieve. This is done by regulating the pump speed.

9.16.2.3.3 Temperature difference heat transfer fluid when hot water

- ▶ Specify the temperature difference which the heat pump will aim to achieve. This is done by regulating the pump speed.

9.16.2.3.4 Pump speed at no demand

- ▶ Set pump speed when there is no demand A low speed is used to keep the system operating when there is no demand for heat.

9.16.2.4 Pump speed E22

- ▶ Set the values in the same way as for **9.16.2.3 Pump speed E21**.

9.16.2.5 Regulator settings

9.16.2.5.1 P constant

9.16.2.5.2 I constant

9.16.3 Collector circuit pump G3

9.16.3.1 Operation alternative

- ▶ Select if collector circuit pump G3 should run simultaneously with the compressor or continuously.

6.8 Additional heat

The additional heat works together with the heat pump to maintain the right heating in the circuits. The additional heat can be selected to work alone.

Under **10 Additional heat** there is:

- **10.1 Additional heat general**
- **10.2 Electric additional heat**
- **10.4 Hot water electric heater**
- **10.5 Additional heat program**

10.1 Additional heat general

Under **10.1 Additional heat general** contains the functions that are common to electric additional heat and mixed additional heat.

10.1.1 Start delay

- ▶ Set what start delay should apply to the additional heat. When the need for additional heat arises, a timer with set time is started. It is first when this time has passed that the additional heat may start.

10.1.3 Additional heat only

- ▶ Change to Yes **Yesif** only the additional heat should work. This can be suitable if the heat pump should provide heat before, e.g., the collector circuit is ready.

10.1.5 Block additional heat

- ▶ Indicate if the additional heat should be blocked. In this case, the additional heat may not take part. The additional heat is, however, allowed to kick in in alarm mode and additional heat only mode if no other blocking function is enabled, e.g., type 1 energy supply cut-off.

10.1.6 Maximum outdoor temperature for additional heat

- ▶ Set the desired temperature limit. If the outdoor temperature exceeds this value, the additional heat may not work.

10.2 Electric additional heat

The control unit supports 1 additional heat unit.

The settings for connection capacity and regulator for the additional heat use are made under this menu.

10.2.2 Electric heater connection

10.2.2.1 Connected output

- ▶ Shows the actual output of the input electric additional heat.

10.2.2.2 Output limitation in compressor mode

- ▶ Set the output permitted at the same time when the compressor is in operation.



A low value can result in hot water peak failure.

10.2.2.3 Output limitation when additional heat only

- ▶ Set the output permitted when the compressor is not in operation.

10.2.2.4 Output limitation in hot water mode

- ▶ Set the output permitted during hot water production.

10.2.6 Regulator settings

10.2.6.1 P constant

10.2.6.2 I constant

10.2.6.3 D constant

10.2.6.4 Minimum PID signal

10.2.6.5 Maximum PID signal

10.4 Hot water electric heater

Under **Additional heat**, there are also settings for additional electric heat in hot water heaters.

10.4.1 Acknowledge hot water additional heat



Operating modes **Mixed additional heat: Extra hot water** and **Hot water peak** requires additional heat in the hot water heater

10.5 Additional heat program

This function can be used to set the times between which additional heat mode is blocked.

10.5.1 Activate program

10.5.2 View/edit active program

Only displayed if a program has been selected.

10.5.3 Outdoor temperature limit for deactivation of time control

Only displayed if a program has been selected.

- ▶ Set a suitable temperature for deactivation of time control. -26 °C = function **Off**.

If T2 is over set **Outdoor temperature limit for deactivation of time control** for 15 minutes, or if **Outdoor temperature limit for deactivation of time control** is set to **Off**, the additional heat will be blocked by time control as long as **Additional heat program** is activated.

If T2 is under set **Outdoor temperature limit for deactivation of time control** or if **Additional heat program** is deactivated the additional heat will not be blocked by time control.

6.9 Safety functions

- **11.1 Setting collector circuit in T10**
- **11.2 Setting collector circuit out T11**

The settings for collector circuit in/out are:

11.1 Setting collector circuit in T10

11.1.1 Lowest permitted temperature E21.T10

11.1.2 Lowest permitted temperature E22.T10

11.1.3 Hysteresis alarm reset

11.1.4 Number of warnings before alarm

The number of warnings is calculated during a time period of 180 min.

11.2 Setting collector circuit out T11

11.2.1 Lowest permitted temperature E21.T11

11.2.2 Lowest permitted temperature E22.T11

11.2.3 Hysteresis alarm reset

11.2.4 Number of warnings before alarm

The number of warnings is calculated during a time period of 180 min.

6.10 General

Among other things, settings for date and time are available here.

12.1 Room sensor settings

12.1.1 Show outdoor temperature in room sensor

12.2 Set date

12.3 Set time

- ▶ Check and change, if necessary, date and time. These are used by the control unit to manage the different clock settings, e.g., holiday and room temperature program.

12.4 Summer/winter time

- ▶ Select if there should be automatic change over between summer and winter time or not (dates according to EU standard).


12.6 Display contrast

- ▶ If necessary, change the background light of the control panel.

12.7 Language

► Change language, if desired.



Language change can also be brought about by holding down the -button in the standard display for at least 5 s.

12.8 Country

► Select country.
Here, a different country can be selected than was chosen as part of the pre-configuration (start-up).

6.11 Alarms

The different alarms that can occur are described in (→Chapter 7).

Under **13 Alarms** there is:

- **13.1 Information log**
- **13.2 Delete information log**
- **13.3 Alarm log**
- **13.4 Delete alarm log**
- **13.5 Alarm history**
- **13.7 Alarm indication**

13.1 Information log

The information log displays information from the heat pump. The control panel output mode displays the symbol for information log when the active information is available.

13.2 Delete information log

The information log is deleted here.

13.3 Alarm log

The alarm log shows the alarms and warnings that have occurred. Alarm category (→ Chapter 7.7) is displayed in the top left corner of the display and if the alarm is active, the alarm symbol is displayed both in the alarm log and the initial menu of the control panel.

13.4 Delete alarm log

The alarm log is deleted here.

13.5 Alarm history

Alarm history shows extensive information about the 20 most recent alarms that have occurred. For example actual and set point values of the temperature sensor and heat pump status at the time of the alarm. Limited information is displayed for older alarms.

13.7 Alarm indication

Under **13.7 Alarm indication** settings for alarm buzzer and status lamp are made here.

13.7.1 Alarm buzzer signal

13.7.1.1 Interval

► Set the length of the alarm interval.
The alarm buzzer sounds for one second and is silent during the rest of the interval. The setting applies to all alarm buzzers.

13.7.1.2 Blocking time

► Indicate the times between which the alarm buzzer may not give out a sound.
All alarm buzzers are silent during a set interval.

13.7.2 Alarm indication control unit

13.7.2.1 Block alarm buzzer

The setting applies only to the control unit's alarm buzzer.

13.7.3 Alarm indication room sensor

13.7.3.2 Block alarm indicator lamp

► Set if the indicator lamp should be off or not.

The setting applies to all room sensors.

13.7.4 General alarm level

13.7.4.1 Alarms and warnings

No means that alarms produce a signal on the general alarm output. **Yes** means that alarms as well as warnings produce a signal on the general alarm output.

6.12 Access level

Access level is **Customer** as standard: This level gives you access to all functions that the user requires. The installer also has access to the additional functions required at installation.

6.13 Return to factory settings

► Select **Return to factory settings** and **Yes** to reset all settings to factory values. Settings made by the customer are not affected.

6.14 Program version

Shows current program version.

7 Alarms

7.1 Alarms

This section includes:

- **Information log** (→ Chapter 6.11)
- **Delete information log** (→ Chapter 6.11)
- **Alarm log** (→ Chapter 6.11)
- **Delete alarm log** (→ Chapter 6.11)
- **Alarm history** (→ Chapter 6.11).

7.2 Control unit and room sensor alarm lamp

The status lamp on the control unit is used to show ON/OFF status for the heat pump but also to show possible alarms. The status lamp is therefore also called alarm lamp.

The room sensor alarm lamp can be blocked.

| Behaviour | Function |
|--|--|
| <i>The lamp lights green continuously.</i> | The heat pump is running. |
| <i>The lamp flashes red.</i> | There is an alarm which has not been acknowledged. |
| <i>The lamp lights red continuously.</i> | The alarm has been acknowledged but the alarm cause remains. |
| <i>The lamp flashes green slowly.</i> | The heat pump is in stand-by mode ¹⁾ . |

Table 23 Alarm lamp control unit

1) Stand-by means that the heat pump is running but no heating or hot water demand exists.

The room sensor display is used to indicate alarms for some alarm categories (→ 7.7). The display window slowly flashes red until the alarm has been acknowledged in the heat pump control unit, or been automatically reset.

The room sensor alarm display function is referred to as alarm lamp in this chapter.

The room sensor alarm lamp can be blocked.

7.3 Alarm display


When an alarm/warning occurs, the display shows information about what has happened. At the same time, information is saved in the alarm log and alarm history.

7.4 Alarm buzzer at alarm

At an alarm the alarm buzzer on the heat pump sounds for one second per alarm buzzer interval set. At certain times of the day the alarm buzzer can be blocked or blocked altogether.

In the event of a warning, the alarm buzzer does not sound.

7.5 Acknowledgement of alarms

Acknowledgement means that you have to press  to make the alarm window disappear. What happens after acknowledgement is described in the respective alarm description.

7.7 Alarm categories

The alarms are divided into different categories depending on the type and seriousness of the fault. Alarm category is displayed in the alarm window, alarm log and alarm history.

Categories A-H are alarms, categories I-J are warnings/information, categories K-M are warnings, category Z is information.

| Meaning | A | B | C | D | E | F | G | h | In | J | K | L | M | Z |
|---|----|----|--------|-------|----|----|----|----|----|----|----|----|----|----|
| Stops the compressor | X | X | X | X | X | | | | X | X | | | | |
| Stops additional heat | | | | | | X | X | | | | X | | | |
| Alarm lamp, alarm buzzer is activated | X | X | X | X | X | X | X | X | | | | | | |
| Alarm delay | 5s | 3s | 15 min | 1 min | 5s | 1s | 1s | 1s | 5s | 5s | 2s | 5s | 0s | 0s |
| Requires acknowledgement to restart | X | X | X | X | | X | | | | | | | | |
| Can be restarted before acknowledgement | | | | | X | | X | X | X | X | X | | X | |
| Menu display must be acknowledged | X | X | X | X | X | X | X | X | | | | X | X | |
| Placed in the information log | | | | | | | | | X | X | | | | X |

Table 24 Alarm categories

- [In] Temporary stop of compressor. The information may recur a number of times during a certain time period; if there are more during the period, a category A alarm is sounded.
- [J] Temporary stop of compressor. The information may recur a number of times during a certain time period; if there are more during the period, a category A alarm is sounded.
- [M] Used for board connection problems.

7.8 Alarm window

When an alarm/warning occurs, the display shows information about what has happened. At the same time, information is saved in the alarm log and alarm history.

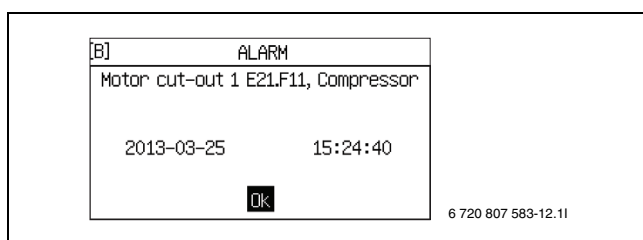


Fig. 12 Example

7.9 Alarm functions

The alarm text is indicated in the heading.

7.9.1 High hot gas temperature E2x.T6

Function: Compressor stops. Activated when the temperature on sensor T6 exceeds the applicable maximum hot gas temperature.

Alarm timer starts: Yes.

Reset condition: The hot gas temperature drops 5K below the alarm limit.

Category: A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

In most cases, warnings do not have to be acknowledged. The alarm window disappears by itself once the warning cause has disappeared. It is, however, possible to acknowledge the warning.

7.6 Alarm timer, alarm mode

In the event of an alarm that stops the compressor the control unit starts a timer at 1h. If the fault does not recur additional heat may start when the timer has counted down.

7.9.2 Tripped low pressure switch E2x.RLP

Function: The compressor is stopped because of too low pressure in the refrigerant circuit. Activated on open contact on the low pressure switch. The alarm is delayed with 150s after compressor start or alternation between hot water and heating production.

Alarm timer starts: Yes.

Reset condition: Closed signal over the pressure switch.

Category: A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.3 Tripped high pressure switch E2x.RHP

Function: The compressor is stopped because of too high pressure in the refrigerant circuit. Activated on open contact on the high pressure switch.

Alarm timer starts: Yes.

Reset condition: Closed signal over the pressure switch.

Category: A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.4 Low pressure collector circuit

Function: If **Alarm at low pressure in collector circuit** is selected and the external input closes, this alarm is triggered. The compressor stops (→ Chapter 6.6).

Alarm timer starts: Yes.

Reset condition: The pressure exceeds the set level. The setting is made on the pressure switch.

Category: A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.5 Low temperature collector circuit in E2x.T10

Function: Warning/alarm is given if the temperature of the collector circuit is too low. First, a warning is given. If the warning appears several times during a certain time period, the warning transforms into a category A alarm. For settings of T10: (→Chapter 6.9).

Alarm timer starts: Yes.

Reset condition: T10 exceeds the lowest permitted temperature T10 plus hysteresis.

Category: J which goes over into A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required in category A.

7.9.6 Low temperature collector circuit out E2x.T11

Function: Warning/alarm is given if the temperature of the collector circuit out is too low. First, a warning is given. If the warning appears several times during a certain time period, the warning transforms into a category A alarm. For settings of T11: (→Chapter 6.9).

Alarm timer starts: Yes.

Reset condition: T11 exceeds the lowest permitted temperature T11 plus hysteresis.

Category: J which goes over into A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required in category A.

7.9.7 Too high boot count I/O board BAS x

Function: Compressor stops. Is activated if the controller has executed more than three new starts after the alarm **Check CANbus cable connection**, (→ Chapter 7.9.46).

Alarm timer starts: Yes.

Reset condition: The CAN-BUS communication with the controller has been restored.

Category: A.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

► Contact the dealer if the alarm remains after acknowledgement.

7.9.8 Motor cut-out 1 E2x.F11, Compressor

Function: Activated when the compressor's motor cut-out has tripped because of high current or lost current phase resulting in undue strain on the compressor.

Alarm timer starts: Yes.

Reset condition: Motor cut-out reset.

Category: B.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.9 Phase error E2x.B1

Function: The compressor stops when the phase guard is triggered due to the lack of a phase, a phase sequence fault or if the voltage is outside the permitted values. A voltage difference > 15% between the phases also results in an alarm.

Alarm timer starts: Yes.

Reset condition: The error has been remedied and the phase guard is under voltage.

In the event of a voltage difference: The difference between phases has been reduced to < 15 %.

Category: E.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.10 Failure on sensor E2x.T6 hot gas

Function: The compressor stops because the hot gas cut-out cannot be guaranteed. Activated when the sensor's value indicates a temperature lower than -50 °C.

Alarm timer starts: Yes.

Reset condition: The value of the sensor indicates > -50 °C.

Category: E.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.11 Short circuit on sensor E2x.T6 hot gas

Function: The compressor stops because the hot gas cut-out cannot be guaranteed. Activated when the sensor's resistance value indicates a temperature higher than 150 °C.

Alarm timer starts: Yes.

Reset condition: The value of the sensor indicates < 150 °C.

Category: E.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.12 High flow temperature E1x.T1

Function: The compressor stops because the flow temperature is too high for the heating circuit. Activated when the sensor shows a value which is 5K higher than the highest set point value for the circuit. The factory setting for the highest set point value is 60 °C for radiator type of circuit and 35 °C for underfloor type of circuit. After hot water production, the alarm is delayed with 4 min.

Alarm timer starts: Yes.

Reset condition: The sensor's value falls below the temperature for beginning of the heating demand.

Category: E.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.13 Faulty electric heater E21.E2

Function: The electric heater is turned off. Activated by tripped overheat protection on the electric additional heat, high flow temperature or too high temperature in electric additional heat. The automatic trip fuse to the electric additional heat may have been tripped due to, for example, a short circuit.

Reset condition: Overheat protection reset.

Category: F.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.14 Faulty external additional heat E71.E1.E1.F21

Function: External additional heat refers to additional heat which is controlled as mixed additional heat or via 0-10V-signal. If the alarm signal from additional heat has been connected, the alarm may sound in the event of faults arising. The type of error depends on the connected unit.

Reset condition: The error in the external additional heat has been overcome and no alarm signal.

Category: F.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.15 Overheat protection tripped hot water electric heater

Function: The electric heater is turned off. If alarm output from the electric heater has been connected to the control unit, the alarm is given when an error occurs.

Reset condition: The error in the electric heater has been overcome and no alarm signal.

Category: F.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.16 Failure on sensor E31.T32 anti-freeze cooling

Function: Activated when the sensor's value indicates a temperature lower than -10 °C. The sensor is used in the collector circuit for cooling in order to prevent the heat exchanger from freezing. The mixing valve in the collector circuit is closed.

Reset condition: The value of the sensor indicates >-10 °C.

Category: G.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.17 Short circuit on sensor E31.T32 anti-freeze cooling

Function: Activated when the sensor's value indicates a temperature higher than 30 °C. The sensor is used in the collector circuit for cooling in order to prevent the heat exchanger from freezing. The mixing valve in the collector circuit is closed.

Reset condition: The value of the sensor indicates < 30 °C.

Category: G.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.18 Error dew point sensor E1x.TM

Function: Activated when voltage 0-10V for temperature falls below 0.5V or exceeds 8V. Also activated when voltage 0-10V for humidity falls below 0.5V or exceeds 9.8V. Cooling on current mixing valve is aborted. The alarm may appear after a power failure but the alarm cause normally disappears automatically and the only thing that has to be done is to acknowledge the alarm.

Reset condition: The sensor's value for temperature is 1V-7V and the sensor's value for humidity is 1-9.7V.

Category: G.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.19 Faulty protective anode E41.F31

Function: The alarm is activated when the anode in the hot water heater is broken or does not work. Presupposes that **Yes** is indicated in **Protective anode installed**.

Reset condition: The anode should be taken care of so as to prevent corrosion in the hot water heater.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Acknowledgement is required.

7.9.20 Failure on sensor E11.T1 flow

Function: The alarm is activated when the sensor's value indicates a temperature lower than 0 °C. The flow temperature T1 becomes identical to T8. If there are several heat pumps installed, T1 = T8 for the heat pump that does not produce hot water and has the highest value on T8. Additional heat mixing valve shut.

Reset condition: The value of the sensor indicates >0 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.21 Short circuit on sensor E11.T1 flow

Function: The alarm is activated when the sensor's value indicates a temperature higher than 110 °C. The flow temperature T1 becomes identical to T8. If there are several heat pumps installed, T1 = T8 for the heat pump that does not produce hot water and has the highest value on T8. Additional heat mixing valve shut.

Reset condition: The value of the sensor indicates < 110 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.22 Failure on sensor E12.T1, E13.T1... flow

Function: The alarm is activated when the sensor's value indicates a temperature lower than 0 °C. The mixing valve for the circuit is closed completely.

Reset condition: The value of the sensor indicates >0 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.23 Short circuit on sensor E12.T1, E13.T1... flow

Function: The alarm is activated when the sensor's value indicates a temperature higher than 110 °C. The mixing valve for the circuit is closed completely.

Reset condition: The value of the sensor indicates < 110 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.24 Failure on sensor T2 outdoor

Function: The alarm is activated when the sensor's value indicates a temperature lower than -50 °C. In the event of a failure on T2, the outdoor temperature is set to 0 °C.

Reset condition: The value of the sensor indicates > -50 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.25 Short circuit on sensor T2 outdoor

Function: The alarm is activated when the sensor's value indicates a temperature higher than +70 °C. In the event of a short circuit on T2, the outdoor temperature is set to 0 °C.

Reset condition: The value of the sensor indicates < 70 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.26 Failure on sensor T3 hot water

Function: The alarm is activated when the sensor's value indicates a temperature lower than 0 °C. The hot water production is terminated.

Reset condition: The value of the sensor indicates >0 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.27 Short circuit on sensor T3 hot water

Function: The alarm is activated when the sensor's value indicates a temperature higher than +110 °C. The hot water production is terminated.

Reset condition: The value of the sensor indicates < 110 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.28 Failure on sensor E1x.TT.T5 room

Function: The alarm is activated when the sensor's value indicates a temperature lower than -1 °C. In the event of a failure on sensor T5, the room temperature influence is set to 0.

Reset condition: The value of the sensor indicates > -1 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.29 Short circuit on sensor E1x.TT.T5 room

Function: The alarm is activated when the sensor's value indicates a temperature higher than +70 °C. In the event of a short circuit on sensor T5, the room temperature influence is set to 0.

Reset condition: The value of the sensor indicates < 70 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.30 Failure on sensor E31.TT.T5 room

Function: The alarm is activated when the sensor's value indicates a temperature lower than -1 °C. In the event of a failure on sensor T5, the room temperature influence is set to 0.

Reset condition: The value of the sensor indicates > -1 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.31 Short circuit on sensor E31.TT.T5 room

Function: The alarm is activated when the sensor's value indicates a temperature higher than +70 °C. In the event of a short circuit on sensor T5, the room temperature influence is set to 0.

Reset condition: The value of the sensor indicates < 70 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.32 Failure on sensor E2x.T8 heat transfer fluid out

Function: Activated when the sensor's value indicates a temperature lower than 0 °C. To be able to make hot water, T8 is set at a temperature calculated according to the following formula: $T8 = T9 + Compressor \times 7K + 0.07K \times current\ output\ in\ operation$.

The active compressor provides $Compressor = 1$ and $current\ output\ in\ operation$ means additional heat in %. Compressor operation and 50%

additional heat then give $T8 = T9 + 10.5K$. Compressor off ($Compressor = 0$) and no additional heat (0%) give $T8 = T9$.

Reset condition: The value of the sensor indicates >0 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.33 Short circuit on sensor E2x.T8 heat transfer fluid out

Function: Activated when the sensor's value indicates a temperature higher than 110 °C. T8 is calculated according to the same formula as in the event of a failure → Chapter 7.9.32).

Reset condition: The value of the sensor indicates < 110 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.34 Failure on sensor E2x.T9 heat transfer fluid in

Function: Activated when the sensor's value indicates a temperature lower than 0 °C. T9 is calculated according to the following formula: $T9 = T8 - Compressor \times 7K + 0.07K \times current\ output\ in\ operation$.

Reset condition: The value of the sensor indicates >0 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.35 Short circuit on sensor E2x.T9 heat transfer fluid in

Function: Activated when the sensor's value indicates a temperature higher than 110 °C. T9 is calculated according to the following formula: $T9 = T8 - Compressor \times 7K + 0.07K \times current\ output\ in\ operation$.

Reset condition: The value of the sensor indicates < 110 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.36 Failure on sensor E2x.T10

Function: Activated when the sensor's resistance value indicates a temperature lower than -20 °C. In the event of a failure, T10 is set at a temperature calculated according to the following formula: $T10 = T11 + Compressor \times 3K$.

Reset condition: The value of the sensor indicates > -20 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.37 Short circuit on sensor E2x.T10

Function: Activated when the sensor's value indicates a temperature higher than 70 °C. In the event of a short circuit, T10 is set to an estimated temperature using this formula: $T10 = T11 + Compressor \times 3K$.

Reset requirement: The value of the sensor indicates >70 °C.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.38 Failure on sensor E2x.T11

Function: Activated when the sensor's value indicates a temperature lower than -50 °C. In the event of a failure, T11 is set at a temperature calculated according to the following formula: $T11 = T10 - Compressor \times 3K$.

Reset condition: The value of the sensor indicates $> -50\text{ }^{\circ}\text{C}$.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.39 Short circuit on sensor E2x.T11

Function: Activated when the sensor's value indicates a temperature higher than $70\text{ }^{\circ}\text{C}$. In the event of a short circuit, T11 is set to an estimated temperature using formula:

$$T11 = T10 - \text{Compressor} \times 3K.$$

Reset requirement: The value of the sensor indicates $>70\text{ }^{\circ}\text{C}$.

Category: H.

Alarm lamp/buzzer: Yes.

Restart: Automatic once the alarm cause has disappeared.

7.9.40 Additional heat is now working at its highest temperature

Function: The electric additional heat begins to be stepped down. The warning is activated in additional heat mode if the sensor T8 approaches the highest temperature permitted for T8. The warning is blocked during hot water peaks or extra hot water.

Reset condition: The warning is deactivated when the sensor temperature falls sufficiently.

Category: K.

Alarm lamp/buzzer: No.

Restart: Automatic once the alarm cause has disappeared.

7.9.41 Electric additional heat shut down due to high temperature E2x.T8

Function: The electric heater is turned off. The warning is activated in additional heat mode if the sensor T8 exceeds $80\text{ }^{\circ}\text{C}$.

Reset condition: The warning is deactivated when T8 falls below $76\text{ }^{\circ}\text{C}$.

Category: K.

Alarm lamp/buzzer: No.

Restart: Automatic once the alarm cause has disappeared.

7.9.42 High temperature difference heat transfer fluid E2x

Function: The warning is activated when the difference between sensor E2x.T8 and E2x.T9 exceeds 13K. 10 min after compressor start and change of production mode, the temperature difference is measured and if it is too big, the warning is given after a delay of 3 min. The warning is not given when the compressor is inactive or when additional heat is allowed.

Reset condition: The warning does not shut down any function but is registered in the alarm log.

Category: L.

Alarm lamp/buzzer: No.

Restart: Deactivated on acknowledgement of the warning display.

7.9.43 High temperature difference collector circuit E2x

Function: The warning is activated when the difference between sensor E2x.T10 and E2x.T11 exceeds 6K. 30 min after compressor start and change of production mode, the temperature difference is measured and if it is too big, the warning is given after a delay of 15 min. The warning is not given when the compressor is inactive.

Reset condition: The warning does not shut down any function but is registered in the alarm log.

Category: L.

Alarm lamp/buzzer: No.

Restart: Deactivated on acknowledgement of the warning display.

7.9.44 The heat pump is now working in anti-freeze mode

Function: Activated when the flow temperature of a circuit falls below $8\text{ }^{\circ}\text{C}$ and the 10-min timer has counted down.

Reset condition: The circuit's flow temperature exceeds $25\text{ }^{\circ}\text{C}$.

Category: L.

Alarm lamp/buzzer: No.

Restart: Automatic once the alarm cause has disappeared.

7.9.45 Check connection to I/O board x

Function: Depends on the board.

Reset condition: Communication with the board is re-established.

Category: M.

Alarm lamp/buzzer: No.

Restart: Acknowledgement is required.

7.9.46 Check CANbus cable connection

Function: Communication with the controller has been interrupted. The controller executes a new start if the alarm is still active after two hours. If more than three new starts have been carried out within one hour, the alarm **Too high boot count I/O board BAS x** (category A), → Chapter 7.9.7.

Category: M.

Alarm lamp/buzzer: No.

Restart: Acknowledgement is required.

► Contact the dealer if the warning recurs often.

7.9.47 Check connection to room sensor E1x.TT

Function: Activated when communication with the room sensor is terminated.

Reset condition: Communication with the board is re-established.

Category: M.

Alarm lamp/buzzer: Yes/No.


Restart: Acknowledgement is required.

7.10 Alarm log

The alarm log shows the alarms, warnings and other information that has come up. Alarm category (→ Chapter 7.7) is displayed in the top left corner of the display and if the alarm is active, the alarm symbol is displayed both in the alarm log and the initial menu of the control panel.

7.11 Alarm history

The alarm history saves complete information about the latest 20 alarms/warnings. Older alarms are displayed with limited information. What happened latest is listed as number 1.

Press  and turn the dial to see all information about the alarm. Turn the dial to see more alarms.

The information shows the current values immediately after the appearance of the alarm but before action/cancellation.

| Information | Comment/Value |
|---------------------------------------|---|
| Alarm category | Letter (→ Table 24). Displayed in the top left corner of the display. |
| Alarm text | Displayed at the top of the display. Full component name is most often indicated. |
| Start date, Start time | Indicates when the alarm occurred |
| Stop date, Stop time | Indicates when the alarm was acknowledged/cancelled |
| ===== | |
| Heat pump x | On (%) / Off |
| Additional heat | % / Off / Blocked |
| ===== | |
| T1 Flow line | Current value |
| T1 Flow line set point value | Current set point value |
| T2 Out | Current outdoor temperature |
| Hot water | Calculated hot water temperature |
| Hot water set point value | |
| T5 Room | Current value if room sensor exists |
| Room | Current value if room sensor does not exist/is used |
| G1 Heat carrier pump | Off/On |
| ===== | |
| Heat pump E2x | |
| E2x.T6 Hot gas | Current value |
| E2x.T8 Heating medium out. | Current value |
| E2x.T9 Heating medium in | Current value |
| E2x.T10 Collector circuit in | Current value |
| E2x.T11 E2x.T10 Collector circuit out | Current value |
| E2x.RLP Low pressure switch | OK/Error |
| E2x.RHP High pressure switch | OK/Error |
| E2x.G2 Heat carrier pump | Off/On |
| E2x.G3 Collector circuit pump | Off/On |
| E2x.Q21 3-way valve | Off/On |

Table 25 Information in Alarm history

7.12 Information log

The information log displays information from the heat pump.

7.12.1 High flow temperature E2x.T8

Function: Compressor stops. Activated when the temperature on sensor T8 exceeds the maximum permitted temperature for T8.

Reset condition: Restarts when E2x.T9 falls below the saved temperature with hysteresis on 3K (not adjustable).

Category: I.

7.12.2 Temporary heat pump stop E21.RLP

Function: Activated when the pressure in the refrigerant circuit of the heat pump becomes too low. If the information appears several times during a certain time period, the information transforms into a category A alarm (→ Chapter 7.9.2).

Reset condition: The pressure goes back to the permitted level.

Category: I.

7.12.3 Temporary heat pump stop E21.RHP

Function: Activated when the pressure in the refrigerant circuit becomes too high. If the information appears several times during a certain time period, the information transforms into a category A alarm (→ Chapter 7.9.3).

Reset condition: The pressure goes back to the permitted level.

Category: I.

7.12.4 Low temperature collector circuit in E2x.T10

Function: The information is given if the temperature of the collector circuit in is too low. First, a information is given. If the information appears several times during a certain time period, the informations transforms into a category A alarm.

For settings of T10: (→ Chapter 6.9).

Alarm timer starts: Yes.

Reset condition: T10 exceeds the lowest permitted temperature T10 plus hysteresis.

Category: J which goes over into A.

7.12.5 Low temperature collector circuit out E2x.T11

Function: The information is given if the temperature of the collector circuit out is too low. First, a information is given. If the information appears several times during a certain time period, the warning transforms into a category A alarm.

For settings of T11: (→ Chapter 6.9).

Alarm timer starts: Yes.

Reset condition: T11 exceeds the lowest permitted temperature T11 plus hysteresis.

Category: J which goes over into A.

7.12.6 Hot water peak failure, new try within 24 hours

Function: The hot water has not come up at the right temperature. The hot water peak is repeated at the same time on the next day.

Reset condition: The correct hot water peak temperature is reached.

Category: Z.



The hot water peak should not be used if the added power is limited to 1 or 2 kW.

7.12.7 Temporary heat pump stop due to working area limits

Function: The information is displayed only if *Hot gas stop function activated* has been set to Yes. The compressor stops until the hot gas temperature falls below the set limit.

Reset condition: The hot gas temperature is within the range of the compressor.

Category: Z.

7.12.8 Temporary hot water stop due to working area limits

Function: The information is displayed only if *Hot gas stop function activated* has been set to Yes. Ongoing hot water operation is aborted and replaced with heating operation.

Reset condition: The hot gas temperature is within the range of the compressor.

Category: Z.

7.12.9 Additional heat is now working at its highest temperature

Function: The additional heat begins to be stepped down. The information is activated in additional heat mode if the outgoing temperature (T1 or T8) approaches the set maximum value. The information is blocked during hot water peaks or extra hot water.

Reset condition: The information is deactivated when the temperature falls.

Category: Z.

7.12.10 Temporary hot water stop E2x

Function: Ongoing DHW mode is temporarily interrupted; the system changes over to heating mode.

Reset condition: DHW temperature drops a few degrees.

Category: Z.

Notes

Notes

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