Operating instructions

RoCon+ HP

EHSX(B)04P30D	EHSX(B)08P30D
EHSX(B)04P50D	EHSX(B)08P50D
EHSH(B)04P30D	EHSH(B)08P30D
	EHSH(B)08P50D

Operating instructions
RoCon+ HP

English

07/2018

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1 General safety precaution

1.1 Particular safety instructions

⚠ WARNING

Heating devices that are not set up and installed correctly can impair the function of the heating device and/or cause serious or fatal injuries to the user.

- Work on the heat generator (such as set-up, servicing, connection and initial commissioning) must only be carried out by persons who are authorised and who have successfully completed qualifying technical or vocational training and who have taken part in advanced training sessions recognised by the relevant responsible authorities for the specific activity. These include, in particular, certified heating engineers, qualified electricians and HVAC specialists who, because of their professional training and their expert knowledge, have experience in the professional installation and maintenance of heating systems, oil and gas installations and hot water storage systems.
- Only operate the heat generator in perfect condition with the protective hood closed.

⚠ WARNING

Disregarding the following safety instructions can result in serious physical injury or death.

- This device may only be used by children aged 8 and above and by persons with restricted physical, sensory or mental capabilities or with a lack of experience and knowledge if they are under supervision or if they have been instructed in the safe use of the equipment and understand the dangers arising from it. Children must not play with the device. Cleaning and user maintenance must not be carried out by children without supervision.
- The power supply must be established in accordance with IEC 60335-1, via a separator device which exhibits contact separation in all poles with a contact opening distance that provide full disconnection in accordance with overvoltage category III.
- All the electrical work must only be carried out by electrically qualified experts and taking into account the local and national regulations as well as the instructions in this manual. Check that a suitable electrical circuit is being used. Inadequate capacity of the power circuit or improperly executed connections can cause electrocution or fire.

1.1.1 Observing the instructions

- The original documentation is written in German. All other languages are translations.
- Please read this manual carefully and thoroughly before starting installation or modification of the heating system.
- The precautionary measures described in this document cover very important topics. Follow them meticulously.
- The installation of the system and all activities described in this manual and the applicable documents for the installer must be carried out by an approved installer.

This manual provides all the necessary information for installation, commissioning and maintenance as well as basic information on operation and settings. Please see the attached documents for a detailed description of operation and control.

All heating parameters needed for smooth operation are already factory-set. Please refer to other relevant documents for information on setting the control.

Relevant documents

- Daikin Altherma EHS(X/H) :
  - Installation instructions
  - Commissioning checklist
  - Heat pump operating manual
- Outdoor unit:
  - Installation instructions
  - Operating instructions
- Room station EHS157034 and mixer module EHS157068: Operating instructions
- Other optional accessories and optional system components: Associated installation and operating instructions

The guides are included in the scope of supply for the individual devices.

1.1.2 Meaning of warnings and symbols

Warnings in this manual are classified according to their severity and probability of occurrence.

DANGER

Indicates an immediate danger.

Disregarding this warning can lead to serious injury or death

WARNING

Indicates a potentially dangerous situation

Disregarding this warning may result in serious physical injury or death.

CAUTION

Indicates a situation which may cause possible damage

Disregarding this warning can cause damage to property and the environment, and result in minor injuries.

This symbol identifies user tips and particularly useful information, but not warnings or hazards

Special warning signs

Some types of danger are indicated by special symbols:


Electric current


Risk of burning or scalding

General description

1 Handling instructions are shown as a list. Actions for which the sequential order must be maintained are numbered.

➔ Results of actions are identified with an arrow.

[Operating mode]: Parameters are shown in square brackets.

[→ Main Menu]: The position of menus and functions is shown in square brackets with →.

1.2 Safety instructions for installation and operation

1.2.1 General

- For any work on the equipment, which extends above and beyond the operation of the regulating system, the details provided in the supplementary documents must be observed, particularly with regard to safety instructions.

Avoiding danger

The Daikin Altherma EHS(X/H) is state of the art and is built in accordance with all recognised technical regulations. However, improper use may result in serious physical injuries or death, as well as property damage.

To avoid hazards, only operate the Daikin Altherma EHS(X/H):

- as stipulated and in perfect condition,
- with an awareness of safety and the dangers involved.

This assumes knowledge and use of the contents of this manual, all applicable documents, the relevant accident prevention regulations as well as the recognised safety-related and occupational health rules.

Display of the RoCon+ controller

Certain screen displays or menu items may deviate from those shown in these instructions depending on the national or equipment variant of the Daikin Altherma EHS(X/H) or the user status logged onto the controller.

1.2.2 Intended use

The RoCon+ HP controller must only be used in Daikin Altherma EHS(X/H) heat pumps that are approved for the regulating system. The RoCon+ HP control unit must only be operated in accordance with the specifications of this manual.

Any other use outside the intended use is considered improper use. The operator alone shall bear responsibility for any resulting damage.

For any work on the equipment, which extends above and beyond the operation of the regulating system, the details provided in the supplementary documents must be observed, particularly with regard to safety instructions.

Documentation

The technical documentation included in the scope of supply is a constituent part of the equipment. It must be stored in such a way that it can be consulted at any time by the operator or technicians.

2 Product description

INFORMATION

The RoCon+ HP controller is part of the Daikin Altherma EHS(X/H).

It consists of the RoCon BM2C switching panel PCB, to which actuators and sensors as well as other components of the control system are connected and the control panel RoCon+ B1.

In this instruction manual we only explain the functions and setting possibilities of the control unit. More information on the boiler control panel and other equipment components can be found in the supplementary documents.

The electronic, digital control unit is able to automatically control all heating and hot water functions for a direct HC, a storage loading circuit and also further HCs via optionally connectible mixer modules, depending on the heating device.

It undertakes all safety management for the Daikin Altherma EHS(X/H). This executes a safety switch-off in the event of a water shortage or undefined operating states. A corresponding error message shows the operator all the information for fault causes.

All function settings for the Daikin Altherma EHS(X/H) and the optional RoCon devices that are connected via the data bus are undertaken with the controls of the integrated RoCon+ B1 control panel and shown on the plain text display with coloured backlighting.

The following additional, optional devices can be connected to the Daikin Altherma EHS(X/H) via the controller data bus:

- Room controller EHS157034
- EHS157068 mixer module

In addition, the RoCon+ HP controller has a frost protection function for the direct HC and the storage tank charging circuit as well as an automatic function for heating support (integration of an additional heat source such as a wood-burning boiler or solar system).

The potential-free AUX switching contact can be used to carry out different control functions in conjunction with external devices (demand from an external heat generator, switching to bivalent operating mode, external status display, etc.).

In addition, it also has several inputs for assessing external control contacts (external operating mode switching or heat demand, Smart Grid and low-tariff EVU functions[1].

The optional external temperature sensor installed on the north side of the building can be used to further optimise the weather-dependent feed temperature control.

If the optional EHS157056 gateway is installed and connected to the Internet, the Daikin Altherma EHS(X/H) can be conveniently monitored and operated by remote control using a mobile phone (app).

The RoCon+ HP control unit contains a timer that can be used to set:

- 2 individually-adjustable timer programs [2]for room heating and cooling ❄ (direct HC),
- 2 individually-adjustable timer programs for domestic hot water generation,
- 1 individually-adjustable timer program for an optional circulation pump.

Initial commissioning of the heating system is described in the installation instructions for the Daikin Altherma EHS(X/H).

Certain menu items of the RoCon+ HP control unit are only accessible to the heating expert. This security measure ensures that no undesirable malfunctions arise during operation of the system through incorrect settings.

All settings for the allocated HC can be carried out in the same way as the operating unit. If the terminal function is activated, all operating possibilities that are available on the integrated operating unit are available, with the exception of certain special functions (e.g. manual operation).

After corresponding assignment, a connected EHS157068 mixer module is also operated using the RoCon+ B1 control panel and/or the EHS157034 room station.

[1] The energy supply company (EVU) sends signals that are used for controlling the power mains loading and that have an influence on the cost of the power and availability.

[2] Use of the timer programs for room cooling only in combination with a connected room thermostat

3 Operation

3.1 General

DANGER: RISK OF ELECTROCUTION

If electrical components come into contact with water, this can cause an electric shock as well as cause potentially fatal burns or injuries.

- The displays and keys of the control unit must be protected against the effects of moisture.
- To clean the control unit, use a dry cotton cloth. The use of aggressive cleaning agents and other fluids can cause damage to devices or lead to an electric shock.

INFORMATION

The Daikin Altherma EHS(X/H) makes the most effective use of energy at the lowest possible return and hot water temperature setpoints.

If an external heat generator (e.g. the optional backup heater) is activated at feed temperature setpoints above 50 °C, the efficiency (COP) of the Daikin Altherma EHS(X/H) can deteriorate (depending on the external temperature).

3.2 Display and operating elements

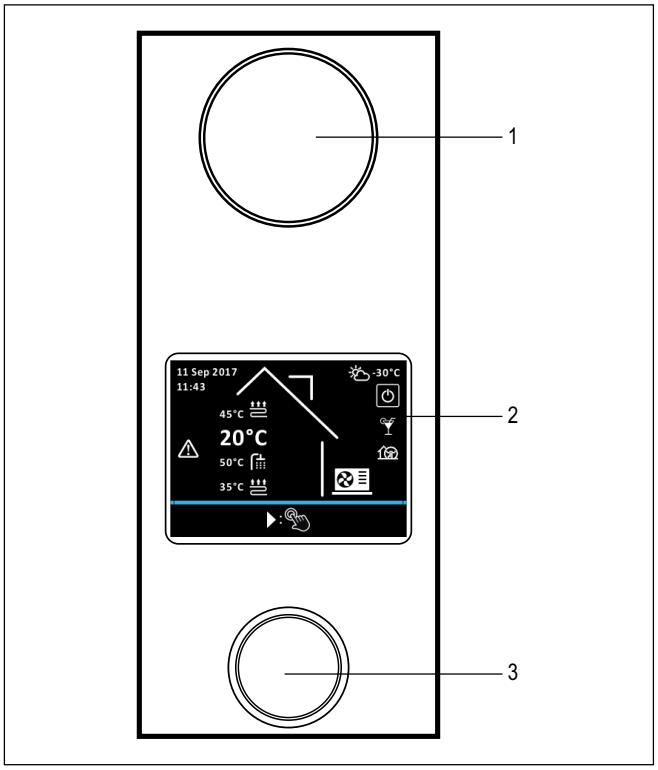

Fig. 3-1 RoCon+ HPDisplay and operating elements

Item	Designation
1	Status display
2	Display
3	Rotary button

Tab. 3-1 RoCon+ HPDisplay and operating elements

3.2.1 Status display

The LEDs of the status indicator light up or flash to indicate the operating mode of the device.

LED	Mode	Description
Flashes blue	STANDBY	The device is not in operation.
Lights up blue	Operation	The device is in operation.
Flashes red	Error	A malfunction occurred. For further details, seeChap. 8.

Tab. 3-2 Status display

3.2.2 Display

During normal operation the display is deactivated (completely dark). The activity of the system is indicated by the status display. Each press of the rotary button (turn, press or hold) activates the display with the start screen.

If the start screen is active and no user input is made for 60 seconds, the display is deactivated. If no input is made by the user at any other point in the menu for 120 seconds, the system returns to the start screen.

3.2.3 Rotary button

CAUTION

Never operate the operating elements of the control unit with a hard, pointed object. This can cause damage and can cause the control to malfunction.

The rotary button can be used to navigate in the respective level, to select or change the setting value and to accept this change with a short key press.

Action	Result
Turning	Select menu, select setting, make setting
Press 	Confirm selection, accept setting, execute function.
Press for 2 sec. 	Exit menu

Tab. 3-3 Function of the rotary button

3.2.4 Start screen

The start screen provides an overview of the current operating status of the system. From the start screen, any operation of the rotary switch (turn, press or hold down) leads to the main menu.

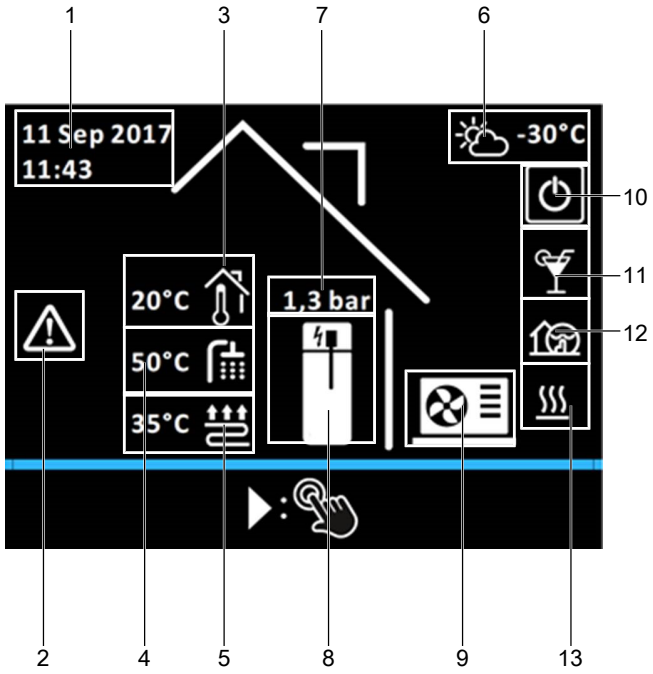

Fig. 3-2 Display position on the start screen

Item	Icon	Explanation
1		Date and time
2		Error message
3		Only with connected room unit: Room temperature
4		Hot water temperature
5		Floor heating feed temperature
		Convector heating feed temperature
		Radiator heating feed temperature
6		External temperature
7		Pressure in the HC
8		Storage tank without heating rod
		Storage tank with connected heating rod (off)
		Storage tank with connected heating rod (on)

Item	Icon	Explanation
9		No outdoor unit detected
		Outdoor unit present, compressor off
		Outdoor unit present, compressor on
10		Mode: Standby
		Mode: Reducing
		Mode: Heating
		Mode: Cooling
		Mode: Summer
		Mode: Automatic 1
		Mode: Automatic 2
11		Special program: Party
		Special program: Away
		Special program: Vacation
		Special program: Holiday
		Special program: 1x Hot Water
		Special program: Screed
		Special program: Venting
12		Quiet mode on

Item	Icon	Explanation
13		Mode: Heating
		Mode: Cooling
		Mode: Hot water
		Mode: Defrost
		Mode: No request

Tab. 3-4 Display icons on the start screen

INFORMATION

If the local control panel is used as a remote control for a mixer module, both the standard screen and the menu structure are changed (see Chap. 9).

3.3 Operating concept

The operating concept of the controller enables fast navigation in the menu, clear display of information and convenient selection of parameters as well as the setting of setpoints and programs.

The basics of the operating concept are described in detail below using a few examples. The operation of special functions follows the same principle and is described in the corresponding sections if required in Chap. 4.

3.3.1 Navigating in the menu

From the start screen, any operation of the rotary switch (turn, press or hold down) leads to the main menu. The menu view consists of an upper area for the menu icons of the various submenus and the lower menu bar. Use the rotary button to switch between the icons (including the icons in the menu bar). Multi-page menus are indicated by the page break arrow. Use the rotary button to switch between the menu icons on the different menu pages.

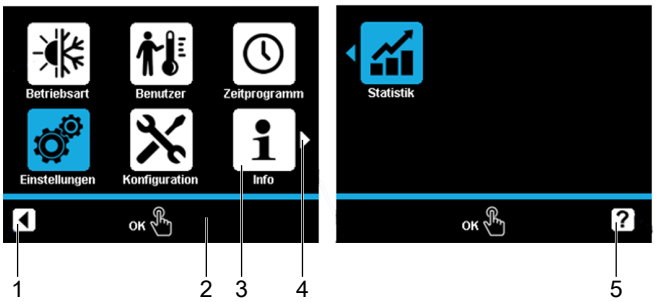

Fig. 3-3 Example: Elements in a two-page menu

Item	Designation
1	Back icon
2	Menu bar
3	Menu icon
4	Page change arrow (for multi-page menus)
5	Help icon

Tab. 3-5 Elements in the menu display

Example: Switch to the "Statistics" menu [→ Main menu]:

1 Turn the rotary button clockwise until the "Statistics" icon (on the second menu page) turns blue.

2 Briefly press the rotary button to confirm ("Ok").

➔ The "Statistics" submenu is called up

3.3.2 Help function

A help text is available for each menu icon.

Fig. 3-4 Help function

Example: Call up help text for the "Hot water" menu and exit the help function [→ Main menu → User]:

1 Turn the rotary button clockwise until the help icon in the menu bar turns blue.

2 Briefly press the rotary button to confirm ("Ok").

➔ The help function becomes active, the "?" symbol is displayed on the last menu icon.

3 Turn the rotary button anticlockwise until the "?" symbol appears on the "Hot water" icon.

4 Briefly press the rotary button to confirm ("Ok").

➔ The help text for the "Hot water" menu is displayed.

5 Briefly press the rotary button to confirm ("Ok").

➔ Exits the help text level.

6 Turn the rotary button clockwise until the help icon in the menu bar turns blue.

7 Briefly press the rotary button to confirm ("Ok").

➔ The help function is terminated.

3.3.3 Navigating in lists and selecting list entries

Lists exist as pure information lists or can be used to select a list entry. Turning the rotary button switches between the list entries. Multi-page lists are indicated by the page break arrow. Turn the rotary button to switch between the list entries of the different pages.

In the case of selection lists, the currently selected list entry is indicated by a tick. Click "OK" to select another list entry. The corresponding setting is then accepted and the list is exited.

Fig. 3-5 List with selected list entry

Example: Switching the operating mode to "Cooling" [→ Main menu → Mode]

1. Turn the rotary button clockwise until the "Cooling" list entry is displayed in blue.
2. Briefly press the rotary button to confirm ("Ok").
   ➔ Tick the box in the "Cooling" list entry.
3. Turn the rotary button anticlockwise until the Back icon turns blue.
4. Briefly press the rotary button to confirm ("Ok").
   ➔ The setting is saved and the setting level is exited.

3.3.4 Setting setpoints

The setpoint of a parameter can be changed within the displayed scale. Press "OK" to save the new value. Press and hold the rotary button to exit the setting level without saving. For some parameters the "Off" setting exists in addition to values on the scale. This setting can be selected by turning the rotary button anticlockwise after the minimum value of the scale has been reached.

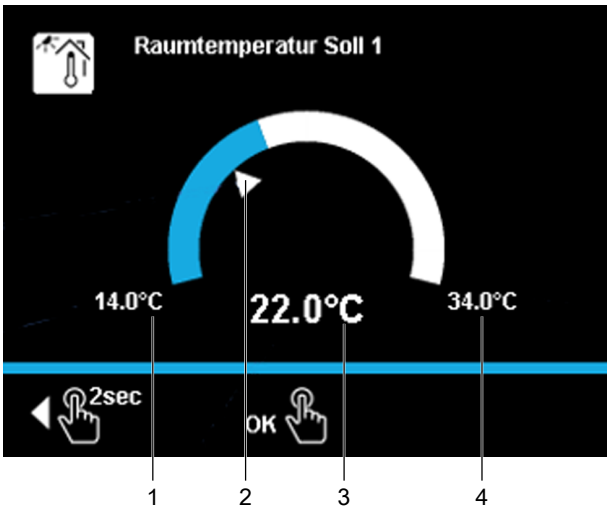

Fig. 3-6 Display of the parameter setting

Item	Designation
1	Minimum value
2	Default value
3	Currently selected value
4	Maximum value

Tab. 3-6 Elements in the parameter setting display

Example: [Room temperature setpoint 1] Setting to 22 °C [→ Main menu → User → Room → Room temperature setpoint 1]:

1. Turn the rotary button clockwise until 22 °C is displayed.
2. Briefly press the rotary button to confirm ("Ok").
   ➔ The setting is saved and the setting level is exited.

3.3.5 Setting the times

The clock function is used to set the current time or the "Party" and "Absent" time programs.

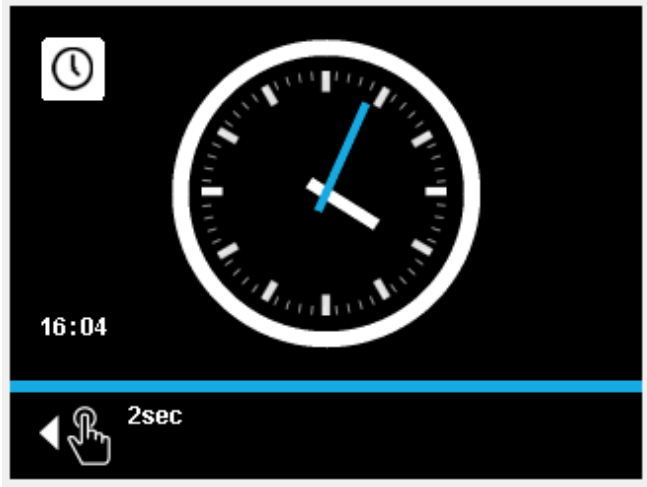

Fig. 3-7 Setting the times

Example: Setting the time to 4:04 pm [→ Main menu → Settings → Display → Time]:

1. Turn the rotary button clockwise until the circle is displayed in blue.
2. Briefly press the rotary button to confirm ("Ok").
   ➔ The hour hand is displayed in blue.
3. Turn the rotary button clockwise until 16:00 is displayed.
4. Briefly press the rotary button to confirm ("Ok").
   ➔ The minute hand is displayed in blue.
5. Turn the rotary button clockwise until 16:04 is displayed.
6. Briefly press the rotary button to confirm ("Ok").
   ➔ The Confirm icon in the menu bar is displayed in blue.
7. Briefly press the rotary button to confirm ("Ok").
   ➔ The setting is saved and the setting level is exited.

3.3.6 Calendar function

The calendar function is used to set the current date or the [Vacation] and [Holiday] time programs. The calendar function allows the selection of a time period for the time programs.

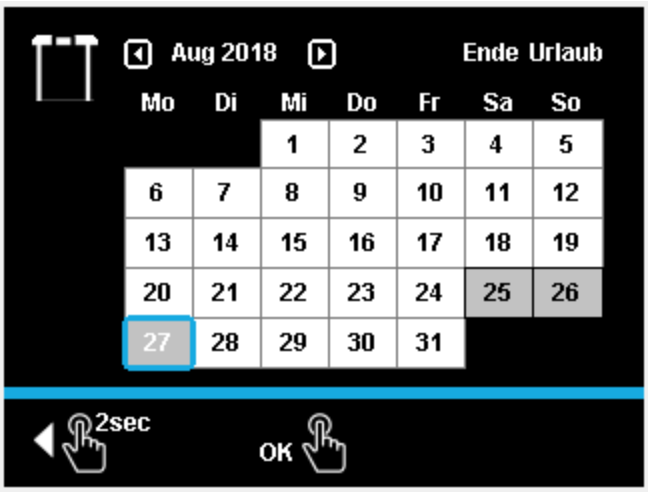

Fig. 3-8 Setting the period with the calendar function

Example: [Vacation] Setting from 25th August, 2018 - 2nd September, 2018 [→ Main menu → Time program → Vacation]:

1 Turn the rotary button clockwise until the month selection is Aug 2018.

2 Briefly press the rotary button to confirm ("Ok").
➔ August 1 is shown with a blue border.

Turn the rotary button clockwise until 25th August is highlighted in blue.

1 Briefly press the rotary button to confirm ("Ok").
➔ August 25 is shown on a grey background.

2 Turn the rotary button clockwise until 2nd September is highlighted in blue.

3 Briefly press the rotary button to confirm ("Ok").
➔ The setting is saved and the setting level is exited.

When a new holiday period is set, the previously set holiday period is automatically deleted. Alternatively, the holiday setting can also be reset.

Example: Reset holiday setting [→ Main menu → Time program → Vacation]:

1 Turn the rotary button clockwise until the month selection is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").
➔ The last selected day of the holiday is displayed with a blue border.

3 Turn the rotary button anticlockwise until all days are shown in white.

4 Briefly press the rotary button to confirm ("Ok").
➔ The holiday setting is reset and the setting level is exited.

3.3.7 Setting the time programs

The time program function is used to set permanent time programs (see Chap. 4.3.2).This allows the daily setting of 3 switching cycles. The times can be entered separately for each individual weekday or in blocks of "Monday to Friday", "Saturday to Sunday" and "Monday to Sunday". The selected switching cycles are highlighted in grey (Fig. 3-9) in the overview level of the respective program.

Time period	Switching cycle
Single day of the week (Monday, Tuesday ...)	1. 06:00 to 22:00 2. xx:xx to xx:xx 3. xx:xx to xx:xx
Working week (Monday to Friday)	1. 06:00 to 22:00 2. xx:xx to xx:xx 3. xx:xx to xx:xx
Weekend (Saturday to Sunday)	1. 06:00 to 22:00 2. xx:xx to xx:xx 3. xx:xx to xx:xx
Entire week (Monday to Sunday)	1. 06:00 to 22:00 2. xx:xx to xx:xx 3. xx:xx to xx:xx

Tab. 3-7 Structure of the permanent time programs

INFORMATION

Time settings for a switching cycle in a weekday or block program will also be accepted for other time periods as long as they are for the same weekdays.

- The starting time in the first switching cycle is changed from 06:00 am to 05:00 am for the individual weekday "Monday". In the period " Monday to Friday" and " Monday to Sunday" the first switching cycle is automatically changed from 06:00 to 05:00.

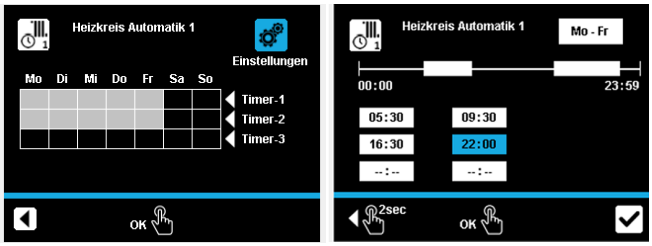

Fig. 3-9 Time program function with overview level (left) and setting level (right)

Example: For the [Heating circuit automatic 1] program, set the switching cycles 1 and 2 for Monday to Friday [→ Main menu → Time program → Automatic 1]:

1 Turn the rotary button clockwise until the Setting icon turns blue.

2 Briefly press the rotary button to confirm ("Ok").
➔ Display changes to setting level with blue flashing period selection.

3 Turn the rotary switch clockwise until the required time period is displayed.

4 Briefly press the rotary button to confirm ("Ok").
➔ The display changes to the input window for the start time of the first switching cycle.

5 Briefly press the rotary button to confirm ("Ok").
➔ Input window for start time of the first switching cycle flashes blue.

6 Turn the rotary button clockwise until the required start time is displayed.

7 Briefly press the rotary button to confirm ("Ok").
➔ The display changes to the input window for the end time of the first switching cycle.

8 Turn the rotary button clockwise until the required end time is displayed.

9 Briefly press the rotary button to confirm ("Ok").
➔ The display changes to the input window for the start time of the second switching cycle.

10 Turn the rotary button clockwise until the required start time is displayed.

11 Briefly press the rotary button to confirm ("Ok").

➔ The display changes to the input window for the end time of the second switching cycle.

12 Briefly press the rotary button to confirm ("Ok").

➔ Input window for start time of the second switching cycle flashes blue.

13 Turn the rotary button clockwise until the required end time is displayed.

14 Briefly press the rotary button to confirm ("Ok").

➔ The display changes to the input window for the start time of the third switching cycle.

15 Turn the rotary button clockwise until the Confirm icon turns blue.

➔ The display changes to the Confirm icon.

16 Briefly press the rotary button to confirm ("Ok").

➔ Programming is saved.

17 Press and hold the rotary button ("Back").

➔ -The setting level is exited. Selected switching cycles are highlighted in grey.

18 Turn the rotary button anticlockwise until the Back icon turns blue.

19 Briefly press the rotary button to confirm ("Ok").

➔ The menu is exited

3.3.8 External operation

In addition to operation via the integrated RoCon+ HP control system, the system can also be adjusted and operated via external devices.

Operation via the Internet

An optional gateway (EHS157056) can be used to connect the control unitRoCon+ HP to the Internet. This enables remote control of the RoCon+ HP by mobile phones (by app).

Operation via the room station

It can also be operated via the optional EHS157034 room controller. For this purpose, observe the operating instructions enclosed with the device.

4 Function

The system fully automatically controls the operation of the room heating, room cooling and domestic hot water generation on the sanitary side on the basis of the specifications set in the RoCon+ HP control system. The functions that can influence system operation are described below.

Some of the functions and parameters described are restricted by access privileges and can only be set by a heating specialist (see Chap. 4.5.1).

4.1 Mode

[→ Main menu → Mode]

This menu is used to select the mode for operating the device. The current mode is indicated by a corresponding symbol on the start screen.

Standby operating mode

NOTICE

A heating system that is not protected against frost can freeze in the event of frost and thus be damaged.

- Drain the heating system on the water side if there is a danger of frost.
- If the heating system is not drained, the power supply must be ensured and the mains switch must remain switched on if there is a risk of frost.

In this mode, the Daikin Altherma EHS(X/H) is switched to standby mode. The frost protection function remains unchanged. In order to maintain this function, the system may not be disconnected from the mains.

All controllers integrated in the RoCon system via the CAN bus are primarily also switched to the "Standby" operating mode.

INFORMATION

In the [Standby] mode, the heat pump and the optionally connected backup heater are disconnected from the power supply (energy-saving mode) if the following conditions are met:

- the external temperature sensor is connected and correctly parametrised in the system configuration,
- the external temperature is more than 8 °C
- there is no heating requirement,
- the frost protection function is not active in any connected HC and
- the Daikin Altherma EHS(X/H)has been switched on for at least 5 minutes.

ModeReducing

Reduced heating operation (lower room setpoint temperature) according to the set reduction temperature in the [Room temperature reduced] parameter (see Chap. 4.2).

Domestic hot water generation according to the temperature setpoints and switching cycles in the [Hot water automatic 1] hot water time program (see Chap. 4.2).

ModeHeating

Heating, cooling mode according to the room temperature setpoint set in the [Room temperature setpoint 1] parameter (see Chap. 4.2).

A connected external temperature sensor (weather-dependent feed temperature control unit) or a connected room control unit also influence the temperature setpoint.

Domestic hot water generation according to the feed temperature setpoints and switching cycles in the [Hot water automatic 1] hot water time program (see Chap. 4.2).

ModeSummer

Only domestic hot water is generated according to the set temperature setpoints and switching cycles in the [Hot water automatic 1] hot water time program (see Chap. 4.2).

All controllers integrated in the RoCon system via the CAN bus are also switched to the higher-level [Summer] mode.

Mode Automatic 1 (time program)

Automatic heating and setback mode according to the permanent time programs (see Chap. 4.3):

- [Heating circuit automatic 1]
- [Hot water automatic 1]

Mode Automatic 2 (time program)

Automatic heating and setback mode according to the permanent time programs (see Chap. 4.3):

- [Heating circuit automatic 2]
- [Hot water automatic 2]

INFORMATIONSWITCHING CONTACT FOR EXTERNAL OPERATING MODE CHANGEOVER

Switching can also be performed from an external device (e.g. modem,...) via a floating switching contact connected to terminal J8 of the Daikin Altherma EHS(X/H)"EXT" terminals and wired with a resistor. see Tab. 4-1.

In this case, the switching contact functionality is dependent on the parameter [Func. burner blocking contact]:

- [Func. burner blocking contact] = 0 (default setting): evaluation of the resistance values.
- [Func. burner blocking contact] = 1: evaluation as a burner blocking contact. If the switching contact is closed, the external heat generator has priority.

Mode	Resistance	Tolerance
Standby	< 680 Ω	±5%
Heating	1200 Ω	
Reducing	1800 Ω	
Summer	2700 Ω	
Automatic 2	4700 Ω	
Automatic 2	8200 Ω	

Tab. 4-1 Resistance values for evaluating the EXT signal

INFORMATION

The resistances specified in Tab. 4-1 function in a tolerance field of 5%. Resistances outside this tolerance field are interpreted as an open input. The heat generator switches back to the previously active operating mode.

The input is not considered for resistance values greater than the value for "Automatic 2".

If several switching contacts are connected to the Daikin Altherma EHS(X/H) (e.g. smart grid, room thermostat), the associated functions may have a higher priority than the external mode switching. The mode requested by the EXT switching contact is then possibly not activated or is only activated later.

Besides these operating modes, different temporary time programs (see Tab. 4-2) are available that are carried out with priority after activation.

Temporary heating program	Setting/activation in the menu	Information
Party	Time Program	Chap. 4.3
Away		
Holiday		
Vacation		
Screed	Configuration	Chap. 4.5.7

Tab. 4-2 Overview of temporary time programs

INFORMATION

If a temporary heating program (Party, Away, Holiday, Vacation, Screed) is started during the selected operating mode, control is carried out primarily according to the settings for this time program.

4.2 User

[→ Main menu → User]

The most important temperature setpoints and functions are set for the user in this menu.

4.2.1 Room temperature setpoint setting

[→ Main menu → User → Room]

The room temperature setpoints for room heating in Heating mode are defined in this menu. The available setpoints (1-3) belong to the respective cycle (1-3) of the [Heating circuit automatic 1] and [Heating circuit automatic 2] time programs.

Further explanations and possible settings for this menu can be found in Chap. 7.3.

4.2.2 Room temperature reduced setting

[→ Main menu → User → Reduced]

The room temperature setpoints for room heating in Reduced mode are defined in this menu. The reduced operation is carried out by the "Reduced" mode or by the [Heating circuit automatic 1] and [Heating circuit automatic 2] time programs.

Further explanations and possible settings for this menu can be found in Chap. 7.3.

4.2.3 Room temperature absence setting

[→ Main menu → User → Absence]

The room temperature setpoints for room heating in Absence mode are defined in this menu. The absence operation is carried out by the [Away] or [Vacation] time programs.

Further explanations and possible settings for this menu can be found in Chap. 7.3.

4.2.4 Hot water temperature setpoint setting

[→ Main menu → User → Hot water]

The hot water temperature setpoints for domestic hot water generation are defined in this menu. The available setpoints (1-3) belong to the respective cycle (1-3) of the [Hot water automatic 1] and [Hot water automatic 2] time programs.

Further explanations and possible settings for this menu can be found in Chap. 7.3.

4.2.5 Unscheduled domestic hot water generation

[→ Main menu → User → 1x Load]

By starting this function, the hot water can be heated up to the [Hot water temp. setpoint 1] temperature setpoint at any time. The heating up is carried out with priority and independent of other heating programs. After this temporary function has elapsed, the control unit automatically jumps back to the previously active operating mode.

Possible settings for this menu can be found in Chap. 7.3.

4.3 Time Program

[→ Main menu → Time program]

Various freely adjustable permanent time programs are available for convenient and individual room and hot water temperature control. Temporary time programs are also available which override the permanent time programs or the currently set mode for the duration of their validity.

4.3.1 Temporary time programs

INFORMATION

The following temporary time programs can be cancelled at any time due to the manual changing of the operating mode.

Party

[→ Main menu → Time program → Party]

The program runs from activation until the set time. During this time, the HC is controlled to the temperature set in the [Room temperature setpoint 1] parameter. If the time programs [Automatic 1] or [Automatic 2] are active, the heating cycle is extended or started prematurely. The domestic hot water generation is not affected.

Away

[→ Main menu → Time program → Absence]

The program runs from activation until the set time. During this time, the HC is controlled to the room temperature setpoint in the [Room temperature absence] parameter. The domestic hot water generation is not affected.

Vacation

[→ Main menu → Time program → Vacation]

A calendar function can be used to enter a time period of absence. During this time, the HC is continuously controlled (24 h per day) to the room temperature setpoint set in the [Room temperature absence] parameter. This program is not started if the [Standby] mode is active on the set start date.

Holiday

[→ Main menu → Time program → Holiday]

A calendar function can be used to enter a time period of presence. During this time, regulation is carried out exclusively according to the settings for "Sunday" in [Heating circuit automatic 1] and [Hot water automatic 1].

4.3.2 Permanent time programs

For the connected HCs and the storage tank charging circuit, time programs control the HC and hot water temperatures or the operating times of the circulation pump according to the specified switching cycles. The switching cycles are saved in time blocks for which different temperature setpoints can be set.

The saved time program can be changed at any time. For a better overview, it is recommended to write down and safely store the programmed switching cycles (Chap. 11.1).

HC automatic 1 and 2

[→ Main menu → Time program → HC Auto 1 / HC Auto 2]

The time programs for the HC can be parametrised in these menus. Three switching cycles can be set per day, to which the [Room temperature setpoint 1/2/3] parameters are assigned. Outside the switching cycles, it is controlled to the [Room temperature reduced] setpoint. The entry can be made separately for each individual weekday or in week segments.

Hot water automatic 1 and 2

[→ Main menu → Time program → DHW Auto 1 / DHW Auto 2]

The time programs for the domestic hot water generation can be parametrised in these menus. Three switching cycles, to which the [Hot water temp. setpoint 1/2/3] parameters are assigned, can be set per day.

Circulation program

[→ Main menu → Time program → Circulation]

A time program for an optionally connected circulation pump can be parametrised in this menu. 3 switching cycles per day can be set.

INFORMATION

Use of circulation lines not permitted in France!

Factory settings

The permanent time programs are preset according to Tab. 4-3.

	Switching cycle 1		Switching cycle 2		Switching cycle 3	
Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Room heating						
Temperature setting	[Room temperature setpoint 1]: 20 °C		[Room temperature setpoint 2]: 20 °C		[Room temperature setpoint 3]: 20 °C	
	[Room temperature reduced]: 10 °C					
"Heating circuit automatic 1"						
Monday - Friday	06:00	22:00	- - : - -	- - : - -	- - : - -	- - : - -
Saturday, Sunday	07:00	23:00	- - : - -	- - : - -	- - : - -	- - : - -
"Heating circuit automatic 2"						
Monday - Friday	06:00	08:00	16:00	22:00	- - : - -	- - : - -
Saturday, Sunday	07:00	23:00	- - : - -	- - : - -	- - : - -	- - : - -
Domestic hot water generation						
Temperature setting	[Hot water temp. setpoint 1]: 60 °C		[Hot water temp. setpoint 2]: 60 °C		[Hot water temp. setpoint 3]: 60 °C	
"Hot water automatic 1"						
Monday - Sunday	05:00	21:00	- - : - -	- - : - -	- - : - -	- - : - -
"Hot water automatic 2"						
Monday - Friday	05:00	21:00	- - : - -	- - : - -	- - : - -	- - : - -

	Switching cycle 1		Switching cycle 2		Switching cycle 3	
Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Saturday, Sunday	06:00	22:00	--:--	--:--	--:--	--:--
"Circulation program"						
Monday - Friday	05:00	21:00	--:--	--:--	--:--	--:--
Saturday, Sunday	06:00	22:00	--:--	--:--	--:--	--:--

Tab. 4-3 Factory setting of the permanent time program

4.3.3 Time program reset

[→ Main menu → Time program → Reset]

The time programs can be reset to factory settings in this menu. To do this, select the respective time programs and then confirm the selection.

4.4 Setting

[→ Main menu → Settings]

The basic settings of the controller and the system are made in this menu. This includes the integration of optional and external components. Depending on the access authorisation (user or expert), different parameters are available.

4.4.1 Display settings

[→ Main menu → Settings → Display]

In this menu the following parameters can be adjusted: Language, date, time, LCD brightness and LCD illumination time.

Further explanations and possible settings for this menu can be found in Chap. 7.5.

INFORMATION

Increasing the brightness of the LCD display beyond the factory-set value will reduce the life of the display.

4.4.2 System

[→ Main menu → Settings → System]

This menu combines basic parameters of the heating system.

Further explanations and possible settings for this menu can be found in Chap. 7.5.2.

4.4.3 Additional heat generators

[→ Main menu → Settings → Add. Heat]

In this menu the integration of an optional external heat source can be adjusted.

The heat supplied by an alternative WEZ must be fed to the unpressurised storage tank water in the Daikin Altherma EHS(X/H) hot water storage tank.

- When using the optional BUxx backup heater, this is carried out due to the design installation situation.
- If an alternative WEZ (e.g. gas- or oil-fired boiler) is used, this can be hydraulically integrated
  - unpressurised via the connections (solar feed and solar return) of the hot water storage tank or
  - in the case of Daikin Altherma EHS(X/H) ...B device types, via the integrated pressurised solar system heat exchanger

.

The setting of the [Config. of external heat source] parameter is used to define whether any additional heat generator (WEZ) is available for domestic hot water generation and heating support, and which.

- No add. heat generator
- Optional backup heater
- Add. heat generator HW and HZU: Alternative WEZ provide domestic hot water generation and backup heating. To request the WEZ, relay K3 on printed circuit board RTX-EHS is switched.
- Add. heat generator HW or HZU: Alternative WEZ 1 (optional BUxx backup heater) undertakes domestic hot water generation and alternative WEZ 2 undertakes heating support. To request WEZ 1, relay K3, and to request WEZ 2, relay K1, on printed circuit board RTX-EHS is switched respectively. Heed warning notice! The operation of an additional alternative WEZ is also influenced by the settings of the [Equilibrium function] and [Equilibrium temperature] parameters.

Further explanations and possible settings for this menu can be found in Chap. 7.5.3.

4.4.4 Inputs/Outputs

[→ Main menu → Settings → Inputs/Outputs]

In this menu parameters for inputs and outputs of the controller PCB can be adjusted to optimise the heat pump control individually.

Smart Grid

WARNING

There is a danger of scalding at hot water temperature setpoints over 65 °C. This is possible because the utility company (EVU) is entitled to control current draw optimised according to supply and demand in the definitions for Smart Grid.

Due to such forced charging, the hot water temperature setpoint in the hot water storage tank can exceed 65 °C.

This storage tank charging is carried out even when "Standby" mode is set.

- Install scald protection in the hot water distribution line.

To use this function, a special electricity meter with SG receiver to which the Daikin Altherma EHS(X/H) must be connected is required.

Once the function is activated by the [Smart Grid] parameter, the heat pump is switched to a mode of operation depending on the energy supply company's signal according to Tab. 4-4.

Signal[3]		Electricity costs	Effect on	
EVU	SG		Domestic hot water	Heating installations
1	0	---	No operation[4]	No operation[4]
0	0	Normal	Normal operation	Normal operation
0	1	Low	Switch-on recommendation and storage tank temperature setpoint is increased depending on the [Mode Smart Grid] parameter.	Switch-on recommendation and flow temperature setpoint are increased depending on the [Mode Smart Grid] parameter.
1	1	Very low	Switch-on command and storage tank temperature setpoint is set to 70 °C.	Switch-on command for storage tank charging.

Tab. 4-4 Use of the SG signal

AUX switching function

By setting the [AUX switching function] parameter, the switching conditions for the potential-free AUX switching contact (toggle switch output A). This switching contact can be used to control an external heat generator, for example.

If one of the switching conditions is fulfilled, the potential-free switching contact is switched after the time set in the [AUX delay time] parameter.

AUX switching contact (toggle switch output **A**) is **not switched** if setting is deactivated.

AUX switching contact (toggle switch output **A**) is **switched**, if setting

- Storage tank temperature (T_{dhw}) ≥ [TDHW switching threshold] parameter value.
- if an error is pending.
- External temperature < [Equilibrium Temp] parameter value.
- Heat requirement for domestic hot water generation.
- Heat requirement for room heating.
- Heat requirement for room heating or domestic hot water generation.

Interlink function

Setting the [Interlink function] parameter = On offers the possibility that the Daikin Altherma EHS(X/H) two different feed temperature setpoints are included in the control.

This applies both to weather-dependent control and to control according to a fixed feed temperature setpoint (see Chap. 4.5).

One possible application is, for example, the additional integration of an HP convector in a surface heating and cooling system.

Prerequisite: 2 switching contacts are connected to Daikin Altherma EHS(X/H) plug connection J16 (e.g. room thermostats).

- [Interlink function] parameter = Off: Deactivated
- [Interlink function] parameter = On: evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM2C PCB. Activate cooling mode only by changing the mode to [Cooling] (see Chap. 4.1). Setting of the [Room thermostat] parameter is no longer evaluated.
  - Open switching contacts: only frost protection active
  - [Heating] or [Automatic 1] / [Automatic 2] mode active during daytime switching cycles.
  - Closed switching contact Heating = IL1
  - It is controlled to the normal feed temperature setpoint according to the parameter settings for [Heating].
  - Closed switching contact = IL2
  - It is controlled to the increased feed temperature setpoint (normal feed temperature setpoint + value of the [Interlink temperature rise] parameter). Priority if both switching contacts are closed!
- [Cooling] mode active.
  - Closed switching contact Heating = IL1
  - It is controlled to the normal feed temperature setpoint according to the parameter settings in [HC Configuration] level > [Cooling].
  - Closed switching contact = IL2
  - The system is regulated to the reduced feed temperature setpoint (normal feed temperature setpoint - value of the [Interlink temperature reduction] parameter. Priority if both switching contacts are closed!

Further explanations and possible settings for this menu can be found in Chap. 7.5.

4.4.5 Intelligent storage tank management

[→ Main menu → Settings → ISM]

If the storage temperatures are high enough, the energy in the storage tank can be used for room heating. This can either increase comfort ([Continuous heating] function) or make it possible to use energy from an additional heat generator, e.g. solar, when heating is required ([Backup heating] function).

Continuous heating

This function enables uninterrupted heating even during evaporator defrosting. This enables high comfort to be guaranteed even with rapidly reacting emitter types (e.g. convectors).

Heating support

If the heating support function (parameter [Heating support (HZU)] = On) is activated, the energy in the Daikin Altherma EHS(X/H)'s integrated storage tank is used to undertake the heating function. If the storage temperature is sufficiently high, the burner remains inactive.

The minimum value (T_{HZUmin}) is calculated as follows: T_{HZUmin} = currently active hot water temperature setpoint [Hot water temperature setpoint] + [HZU hysteresis] parameter.

Switch-on condition:

Tdhw > T_{HZUmin} + 4 K **and** Tdhw > [Hot water temperature setpoint] info parameter + 1 K

If the switch-on condition is fulfilled, heat is taken from the storage tank and this is used to supply the heating system.

[3] Switching contacts at input J8 of the RoCon BM2C PCB closed (1) or open (0).

[4] No frost protection function

Switch-off condition:

Tdhw < T_{HZUmin} **or** Tdhw < [Feed temperature setpoint] parameter (see Chap.)

If the switch-off condition is fulfilled, the heating support from the hot water storage tank is set and the burner takes over the heating operation.

The [Power BIV] parameter limits the maximum power that can be removed. The [HZU max. temperature] parameter limits the maximum temperature that can enter the heating system.

Further explanations and possible settings for the parameters in this menu can be found in Chap. 7.5.5.

4.4.6 Special functions

[→ Main menu → Settings → Special]

Special functions influence the power consumption of the heat pump. Quiet mode means that the heat pump outdoor unit operates at reduced output for example. This reduces the operating noise generated by the heat pump outdoor unit.

Quiet mode

CAUTION

During active quiet mode, the output in room heating and room cooling mode decreases such that it may no longer be possible to achieve pre-set target temperature values.

- With external temperatures below freezing, there is a risk of material damage caused by frost.

When the function is activated, the heat pump operates in low-noise mode. The [Quiet level] parameter can be used to select three noise levels.

Further explanations and possible settings for this menu can be found in Chap. 7.5.

4.5 Configuration

[→ Main menu → Configuration]

In this menu, the operating characteristics of the system can be optimally adjusted to the system structure and the needs of the users. Additional programs facilitate commissioning. Depending on the access authorisation (user or expert), different parameters are available.

4.5.1 Access privileges (technician code)

[→ Main menu → Configuration → Access]

Certain functions and parameters in the controller are restricted by access privileges and are not visible to the user. To gain access to it, the specialist code must be entered.

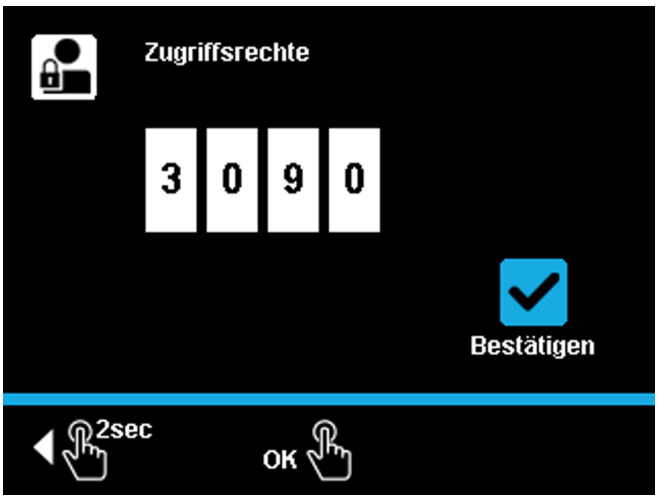

Fig. 4-1 Setting the access code

Example: Setting code 3090 (example only, this is not a valid access code) [→ Main menu → Configuration → Access]:

1. Turn the rotary button clockwise until the first input field is displayed in blue.
2. Briefly press the rotary button to confirm ("Ok").
   ➔ The first input field flashes blue.
3. Turn the rotary button clockwise until 3 is displayed.
4. Briefly press the rotary button to confirm ("Ok").
   ➔ The second input field is displayed in blue.
5. Turn the rotary button clockwise until the third input field is displayed in blue.
6. Briefly press the rotary button to confirm ("Ok").
   ➔ The third input field flashes blue.
7. Turn the rotary button clockwise until 9 is displayed.
8. Briefly press the rotary button to confirm ("Ok").
   ➔ The fourth input field is displayed in blue.
9. Turn the rotary button clockwise until the Confirm icon turns blue.
10. Briefly press the rotary button to confirm ("Ok").
    ➔ The code is checked and the setting level is exited.

4.5.2 Sensors

[→ Main menu → Configuration → Sensors]

(Optional) sensors are activated and configured in this menu. Pressure setpoints for the water side can be defined.

Further explanations and possible settings for the parameters in this menu can be found in Chap. 7.6.1.

4.5.3 HC configuration

[→ Main menu → Configuration → HC Config]

In this menu the basic functionality of the HC is adjusted.

Further explanations and possible settings for the parameters in this menu can be found in Chap. 7.6.2.

Weather-dependent feed temperature control

If the weather-dependent feed temperature control is active, the feed temperature ([Feed temperature setpoint] parameter) is determined automatically depending on the external temperature according to the set heating/cooling curve.

This function is activated in delivery condition. It can only be deactivated (fixed value control) or reactivated with a technician code.

If the room controller is also connected (EHS157034) to the RoCon+ HP, the temperature setpoints are controlled according to the weather and room temperature ([Room Influence] parameter).

This function can only be configured using the technician code. Contact your heating expert in this regard.

This function is activated or deactivated via the [Weather-dependent] parameter in the "Configuration" menu.

- [Weather-dependent] parameter = On: Weather-dependent feed temperature control
- [Weather-dependent] parameter = Off: Control according to temperature setpoint
  - For heating mode: [Feed temperature heating mode] parameter or [Feed temperature reducing mode] parameter
  - For cooling mode: [Feed temperature cooling mode] parameter

INFORMATION

The weather-dependent feed temperature control has no influence on the feed temperature setpoint in the case of a hot water circuit request.

With connected mixer module M1

Setting of the heating/cooling curves and the activation of the weather-dependent feed temperature control for the assigned HC are carried out in the same way as described above.

The assigned HC can be operated as a:

- Mixer add-on
  The external temperature of the outdoor temperature sensor connected to the Daikin Altherma EHS(X/H) external temperature sensor is transmitted to the mixer module via the CAN bus.

or as a

- Mixer add-on with Zone control
  A separate external temperature sensor must be connected to the mixer module. The assigned HC is controlled according to the external temperature relevant for this zone.

If the terminal function is activated, the mixer module can be operated and the settings for the assigned HC undertaken via the RoCon + B1 control panel of the Daikin Altherma EHS(X/H).

In conjunction with the EHS157034 room control, the mixer module can also control the assigned HC completely autonomously and independent of the heat generator.

INFORMATION

If the "n.a." message is displayed in the "Terminal" menu, no valid terminal address has been assigned to the control unit.

If the "n.a." message is still displayed, it may be necessary to update the device software in order to use the terminal function. Contact the Service Team for this.

Further explanations and possible settings for this menu can be found in Chap. 7.6.

Frost protection function

The integrated heating circulation pump is switched on at an external temperature below the [Frost protection temperature] parameter value in order to prevent the heating system from freezing.

In addition, the flow, storage and connected room temperature sensors are also constantly monitored. If the temperature measured by one of these sensors falls below 7 °C (below 5 °C at room temperature), the antifreeze function is also activated.

If the heating flow temperature falls below 7 °C, the Daikin Altherma EHS(X/H) heats until the heating flow temperature reaches at least 12 °C.

The function is ended if the external temperature rises above the set [Frost protection temperature] parameter value + 1 K and also there is no other activation condition.

INFORMATION

If off-peak functions are activated;

[HT/NT function] parameter = 3

or

[Smart Grid] parameter = 1,

operation of the heat pump can be shut off completely for a limited period of time by the utility company. In these cases, regulation is not possible even in frost protection conditions, and the device's internal heating circulation pump is not switched on.

These situations can be seen when the "HT" or "SG1" value is displayed in the "Info" menu in the operating data field: "Ext".

4.5.4 Heating

[→ Main menu → Configuration → Heating]

In this menu heating times and set feed temperatures can be adjusted.

Heating curve

WARNING: FLAMMABLE MATERIAL

In the event of malfunction or during manual operation, the floor heating, the screed or the floor structure could be damaged due to overheating.

- Prior to initial commissioning, set the maximum temperature limit in the RoCon+ HP control unit ([Max. feed temperature] parameter) to the maximum permitted system temperature prior to starting the emission measurement.
- Connect an overheating protection switch (in the building) at the "EXT" plug connection to external mode switch-over so that the Daikin Altherma EHS(X/H) is switched to "Standby" or "Summer" mode. If the [Room thermostat] parameter = On or the [Interlink function] parameter = On, the overheating protection switch must be connected so that the room thermostat's switching contact is interrupted..
- If the floor heating is also used for room cooling, the connection notes in the above point also apply to the connection of a moisture protection switch in the building.

The heating curve is used to adjust the feed temperature to the characteristics of the building independent of the respective external temperature (weather-dependent feed temperature control, see Chap. 4.5). Generally speaking, the steepness of the heating curve describes the ratio of the feed temperature change to the external temperature change.

The heating curve is valid within the limits of the minimum and maximum temperatures set for the respective HC. The room temperature measured in the occupied area may differ from the required room temperature; these deviations can be kept to a minimum by installing a room thermostat or a room control.

The **control unit** is set at the **factory** in such a way that the **heating curve** does **not independently adjust itself** during operation.

The **automatic heating curve adjustment** can be activated ([Heating curve adaptation] parameter) **if** the **external temperature sensor** and the **room controller** (EHS157034) are **connected** (see Chap. 4.5).

Start conditions for automatic heat slope adjustment:

- External temperature < 8 °C
- Mode is [Automatic (I or II)]
- Duration of the setback period is at least 6 h

If **no automatic heating curve adjustment** is activated, the heating curve can be **manually** adjusted by **adjusting** the [Heat-Slope] **parameter**).

INFORMATION: MANUALLY ADJUSTING THE HEATING CURVE

Do not make any corrections to the set values for 1 - 2 days, and then only make them in small increments.

- Deactivate the external heat sources (e.g. stoves, direct sunlight, open windows).
- Fully open any radiator thermostat valves or actuators.
- Activate "Heating" operating mode. Approximate setting values:

  Radiators and System 70: 1.4 to 1.6.

  Floor heating: 0.5 to 0.9.

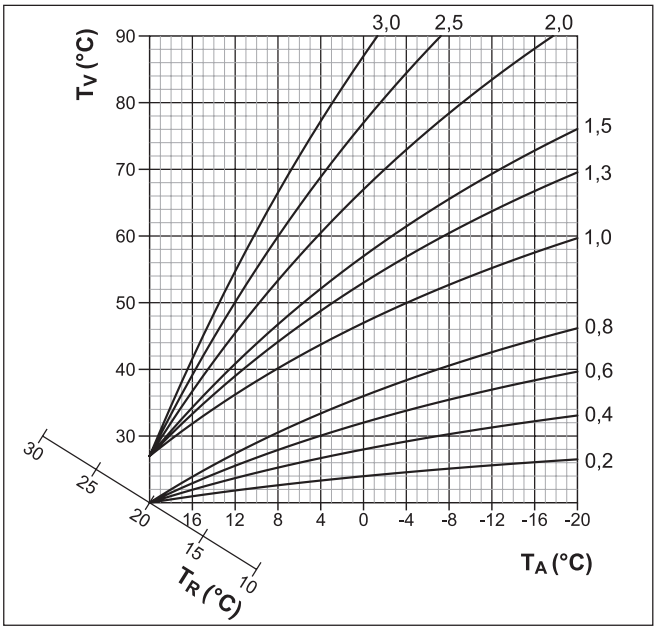

Fig. 4-2 Heating curves

Item	Designation
T_A	External temperature
t_R	Room temperature setpoint
T_V	T-HS

Tab. 4-5

Comfort Heating

If the heat pump cannot cover the heating demand at very low external temperatures, heat is extracted from the storage tank and used for room heating. In rare cases (in systems with high required feed temperatures and low required hot water temperatures) the required feed temperature can be higher than the storage tank temperature setpoint. In order to avoid short-term loss of comfort in heating mode for these systems, the [Comfort Heating] parameter can be set to "On". At corresponding external temperatures, the storage tank temperature is raised above the storage tank temperature set for the hot water requirement.

INFORMATION

If [Comfort Heating] is set to "On" the power consumption of the heat pump may increase. [Comfort Heating] is set to "Off" in the default setting.

Detailed explanations and possible setting values of this function can be found in Chap. 7.6.

4.5.5 Cooling

[→ Main menu → Configuration → Cooling]

In this menu the settings for cooling operation are adjusted..

CAUTION: DANGER OF CONDENSATION

In the event of malfunction or incorrect parameter settings, the floor heating, the screed or the floor structure could be damaged due to condensation.

- Before initial start-up and activation of cooling operation, set the minimum temperature limit in the RoCon controller ([Feed temperature lower limit] parameter) to the minimum permissible system temperature.

Prerequisites for cooling mode:

- External temperature > set value of room temperature setpoint
- External temperature > set value of the [Start T-Out Cooling] parameter
- [Cooling] mode activated.
  - via "Mode" menu or
  - via room thermostat function (cooling switching contact closed)
- No heat request active in the RoCon system of the heating system

INFORMATION

If the average external temperature falls below 4 °C when the "Cooling" mode is active, the mode automatically switches to "Heating".

Renewed automatic mode switching to "Cooling" only takes place:

- if a room thermostat is connected to plug connection J16 (cooling) and
- the room thermostat's switching contact is closed and
- the mean external temperature increases to over 10 °C again.

Cooling curve

[→ Main menu → Configuration → Cooling → Cooling curve]

The cooling curve determines the flow temperature setpoint in cooling mode depending on the respective external temperature. (for the weather-dependent feed temperature control, see Chap. 4.5.3). Warmer external temperature result in a colder feed temperature setpoint and vice versa. The cooling curve can be adjusted to the condition of the building by four parameters (see Fig. 4-3).

1 [Start T-Out Cooling]
2 [Max T-Out Cooling]
3 [T-Flow Cooling start]
4 [T-Flow Cooling max]

Cooling parameters

[→ Main menu → Configuration → Cooling → Parameters]

This menu combines further parameters to adjust the feed temperature setpoint in cooling mode.

During weather-dependent feed temperature control, the user can increase or decrease the feed temperature setpoint by a maximum of 5 K with the [Cooling setpoint adjustment] parameter. A temperature reduction is limited by the [Feed temperature lower limit] parameter.

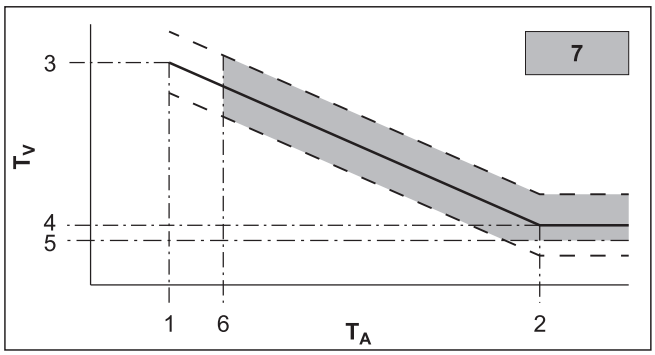

Fig. 4-3 Cooling curve parameter dependency

Item	Designation
1	[Start T-Out Cooling] parameter
2	[Max T-Out Cooling] parameter
3	[T-Flow Cooling start] parameter
4	[T-Flow Cooling max] parameter
5	[Feed temperature lower limit] parameter
6	Room temperature setpoint
7	Cooling mode possible
T_A	External temperature
T_V	T-HS
-------	Cooling curve
- - - -	Possible parallel cooling curve shift

Tab. 4-6

Further explanations and possible settings for the parameters in this menu can be found in Chap. 7.6.4.

4.5.6 Domestic hot water

[→ Main menu → Configuration → Hot water]

The domestic hot water generation can be individually adjusted to the behaviour and requirements of the users in this menu. This minimises energy consumption and increases comfort.

Settings for optional circulation pump

Depending on the [Circulation pump control] parameter, an optional circulation pump can be controlled synchronously with the selected time program for domestic hot water generation or with the time program for the circulation pump (see Chap. 4.3). During the release times of the selected time program, the circulation pump can be operated either continuously or cycled. This is defined with the [Circulation pump control] parameter.

Anti-legionella protection

This function serves to prevent bacterial contamination in the hot water tank by thermal disinfection. To do so, the hot water tank is heated 1× daily or 1× weekly to the disinfection temperature [Thermal disinfection temp.] depending on the [Thermal disinfection day] parameter. Disinfection starts at the specified start time [Thermal disinfection start time] and is active for one hour. An optionally connected circulation pump is automatically switched on during this time.

Detailed explanations and possible setting values of this function can be found in Chap. 7.6.5.

4.5.7 Additional program

[→ Main menu → Configuration → Add-on]

This menu combines programs which simplify initial set-up of the system.

Air purge function

[→ Main menu → Configuration → Add-on → Air purge]

By activating the air purge function, the controller starts a fixed defined sequence program with start/stop operation of the integrated heating circulation pump and various positions of the integrated 3-way switching valves. Existing air can escape during operation via the automatic air purge valve.

INFORMATION

The activation of this function does not replace correct venting of the HC.

The HC must be completely full before activating this function.

Relay Test

[→ Main menu → Configuration → Additional programs → Relay test]

This program allows testing of internal switching relays. This may be necessary in the event of malfunctions, error messages or as part of annual maintenance. When the menu is opened, all relays are deactivated. Selecting one or more relays activates them. When exiting the menu, all relay tests are terminated.

The relay test menu is operated in the same way as list entries (see Chap. 3.3.3). However, several relays can be activated in parallel in the relay list for testing. To do this, select the corresponding relay with "OK". Activated relays are indicated by a tick.

Floor screed dryout

[→ Main menu → Configuration → Add-on → Screed]

The floor screed dryout is started in the menu according to the settings in [Screed Program]. The program is used exclusively for the prescribed drying of newly created screed for floor heating systems. The first day of the floor screed program begins after activation of the program at the change of day at 00:00.

Floor screed dryout is a special function and is not interrupted by any other mode. It can only be activated by the heating expert for the direct HC and/or optionally connected mixed HCs. It must be activated separately for each HC.

INFORMATION

Before starting the Floor screed dryout, the [Room thermostat] and [Interlink function] parameters must be deactivated. During a short-term power failure, a previously activated Floor screed dryout is continued at the point of the interruption.

After activation of the Floor screed dryout, all weather-dependent control functions of the respective HC are switched off. The respective HC works as a constant temperature control regardless of the mode and switching times.

An already activated Floor screed dryout can be deactivated at any time. After ending the Floor screed dryout, the parameter is automatically set to "Off" and the HC works according to the currently set mode again.

Floor screed program

[→ Main menu → Configuration → Add-on → Program]

This menu allows the individual adjustment of the factory settings for the duration and feed temperature setpoints of the floor screed dry-out. Changes can only be made after entering the specialist code.

Changing the Floor screed program

A separate feed temperature setpoint can be set for each day for a maximum duration of 28 days. The end of the Floor screed program is defined by the first day without a preset flow temperature setpoint.

Day	Factory setting	Day	Factory setting
1 - 3	25 °C	10 - 19	55 °C
4 - 7	55 °C	20	40 °C
8	25 °C	21	25 °C
9	40 °C	22 - 26	-

Tab. 4-7 Default settings of the Floor screed program

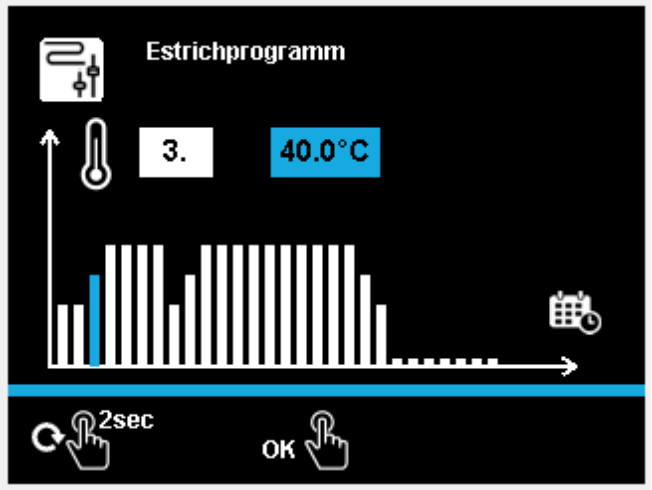

Fig. 4-4 Changing the Floor screed program

Example: Increase the feed temperature of the 3rd day to 40 °C and end the program on the 8th day [→ Main menu → Configuration → Add-on → Program]:

1. Turn the rotary button clockwise until the day selection is set to 3.
2. Briefly press the rotary button to confirm ("Ok").
   ➔ The temperature field is displayed in blue.
3. Turn the rotary button clockwise until the temperature selection is 40 °C.
4. Briefly press the rotary button to confirm ("Ok").
   ➔ Temperature selection of the next day is shown in blue
5. Briefly press the rotary button several times until the day selection is set to 8.
6. Turn the rotary button anticlockwise until the temperature selection is set to "OFF".
7. Briefly press the rotary button to confirm ("Ok").
   ➔ Day 8 to day 28 are set to "OFF", Confirm icon is shown in blue
8. Briefly press the rotary button to confirm ("Ok").
   ➔ The programming is saved and the menu is exited.

Typical floor screed programs

Function heating

The function heating serves as proof of the production of defect free work for the heating engineer. A prefabricated heating protocol relating to floor heating systems can be found on the manufacturer's Internet portal.

In this sense, the function heating (identical with "Heating" in EN 1264, section 5.2) is not considered as a heating process to achieve workability of the screed. Generally, a special screed curing heating and/or mechanical drying is required for this.

The heating of cement screeds should be carried out after 21 days at the earliest and of anhydrite screeds after 7 days at the earliest in accordance with the specifications of the manufacturer. The first heating begins with a feed temperature of 25 °C that must be maintained for 3 days. Afterwards, the heating is carried out with the maximum set feed temperature for the HC (limited to max. 55 °C), which must be maintained for a further 4 days.

Due to the insulating effect of the DUO heating pipe for the System 70, the screed function must be carried out at higher temperatures. The temperature profile must be adjusted in the [Screed Program] parameter for this use case. For system 70, the heating begins at a temperature of 38 °C which is maintained for 3 days. The set maximum HC temperature (limited to 70 °C) is then maintained for 4 days.

After the described heating process, it is not yet assured that the screed has reached the required moisture content for workability of the screed.

The moisture content in the screed must be checked by measurement prior to laying the surface covering.

INFORMATION

Procedure in accordance with EN 1264 Part 4:

For anhydrite and cement screeds, the HCs must be leak tested by a water pressure test after completion. The leak-tightness must be ensured immediately before and during the laying of the screed. The height of the test pressure is at least 1.3 x the maximum permitted operating pressure.

Suitable measures must be taken if there is a risk of freezing, e.g. use of antifreeze agents or heating the building. If antifreeze agents are no longer necessary for the intended operation of the system, the antifreeze agent must be removed by draining and rinsing the system with at least 3 changes of the water.

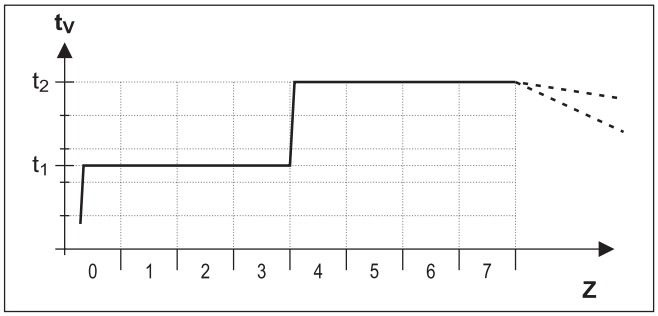

Fig. 4-5 Chronological sequence of the floor screed program during the function heating

Item	Designation
t_1	Start temperature 25 °C (38 °C with system 70)
t_2	Maximum HC temperature
T_V	T-HS
Z	Duration of the screed function in days after starting the function

Tab. 4-8

Screed curing heating

The drying process for the screed cannot be exactly predicted. If there is a high degree of humidity, sometimes it can stop completely. The drying process can be speeded up by activating the floor heating (screed curing heating) or measures such as mechanical drying.

Each screed curing heating must be ordered separately by the client as an extra service in accordance with German construction contract procedures (VOB). The workability of the screed is a prerequisite for the top floor installer to start work so that he can produce defect free work.

With standard settings, the combined function and screed curing heating program can be activated to achieve the required residual moisture in the screed for workability of the screed (see Figure 3-20). However, the residual moisture of the screed must basically be checked metrologically before the flooring can be laid.

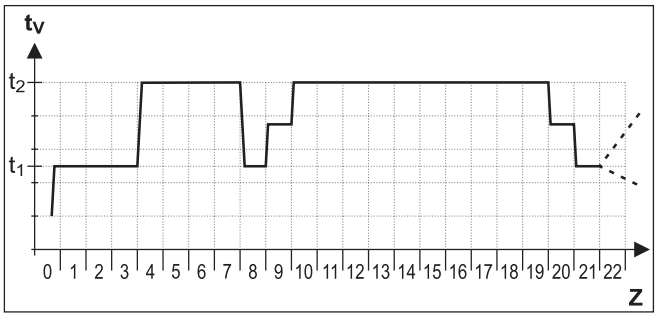

Fig. 4-6 Chronological sequence of the floor screed program during the combined function and screed curing heating (for legend, see Tab. 4-8)

Detailed explanations and possible setting values of this function can be found in Chap. 7.6.

4.5.8 Configuration wizard

[→ Main menu → Configuration → Wizard]

The Configuration wizard can be started manually in this menu. After the start, the menu navigation of the Configuration wizard must be followed. See Chap. 5.1.

4.5.9 CUI Reset

[→ Main menu → Configuration → CUI Reset]

The system configuration can be reset to the factory settings in this menu. Subsequently, a complete reconfiguration of the system is necessary. This reset may be necessary for software updates or fundamental changes to the RoCon system.

4.5.10 Parameter Reset

[→ Main menu → Configuration → Parameter reset]

All customer-specific parameter settings can be reset to factory settings in this menu. This can be useful if the Daikin Altherma EHS(X/H) no longer functions properly and no other causes of malfunction can be identified.

4.6 Info

[→ Main menu → Info]

This menu displays all system temperatures, the heat generator type, various software information and the operating states of all system components. The number of displayed parameters depends on which components are connected. No adjustments can be made to these values.

4.6.1 Current

[→ Main menu → Info → Current]

This menu shows the hydraulic diagram of the system. The first and second pages show sensors and the assigned, current values. The third page shows the compressor, pump and heating rod in white if they are inactive and blue if they are active. The current valve position is shown for both mixing valves.

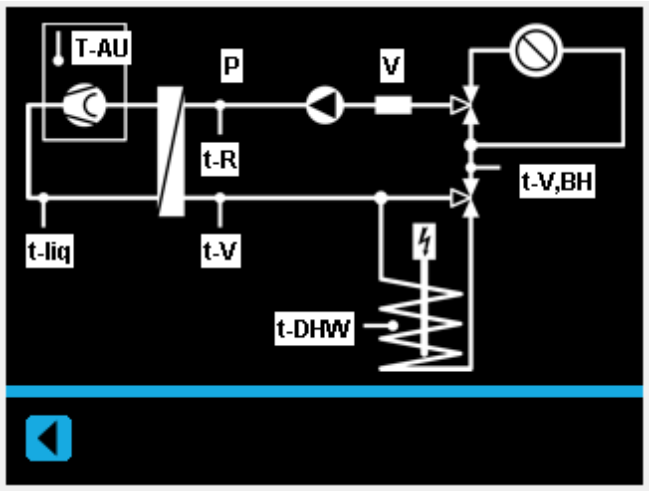

Fig. 4-7 Hydraulic circuit diagram - first page

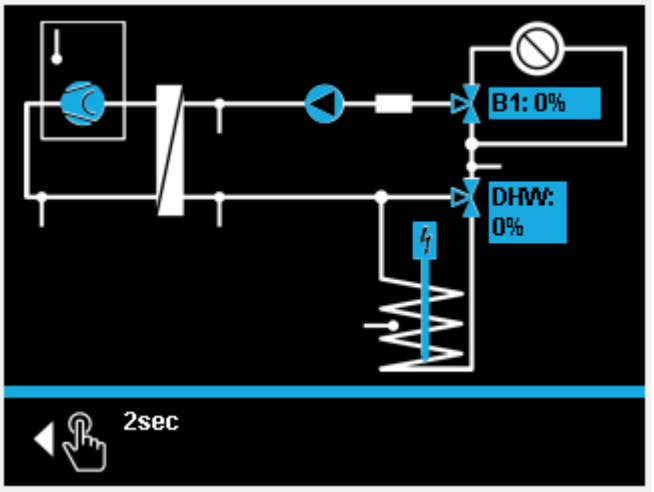

Fig. 4-8 Hydraulic circuit diagram - second page

Item	Designation
t-AU	External temperature sensor
P	Pressure
V	Flow rate
t-R	Heating return flow temperature
t-V,BH	Heating flow temperature, if necessary after heating support heat exchanger
t-liq	Refrigerant temperature
t-V	Feed temperature after the plate heat exchanger
T-DHW	Temperature in the hot water storage tank
B1	Current position of mixing valve 3UVB1 (0%: heating network; 100%: internal bypass)
DHW	Current position of the mixing valve 3UV DHW (0%: heating network; 100%: hot water tank)

Tab. 4-9 Legend to the hydraulic circuit diagrams

4.6.2 Overview

[→ Main menu → Info → Overview]

This menu lists the current operating states and sensor values of the heat pump.

Further explanations of the parameters in this menu can be found in Chap. 7.7.

4.6.3 Values

[→ Main menu → Info → Values]

This menu lists temperature setpoints and actual temperatures as well as the current status of the actuators and the system.

Further explanations of the parameters in this menu can be found in Chap. 7.7.

4.6.4 Water pressure

[→ Main menu → Info → Water pressure]

The current water pressure is displayed in large font in this menu. This makes it easier to read during the installation of the system.

4.7 Error

[→ Main menu → Error]

The error handling of the Daikin Altherma EHS(X/H) takes place in this menu. The electronics of the Daikin Altherma EHS(X/H) signal an error by red illumination of the status display and show an error code on the display. An integrated error memory stores up to 15 error messages.

INFORMATION

A list of all error codes can be found in the Daikin Altherma EHS(X/H) installation and maintenance instructions, chapter "Errors, malfunctions, messages".

Troubleshooting: Error code E90XX

An error reset can be performed. This can be started from the currently displayed error display. If the error display has been exited, it can be recalled by [→ Main menu → Error → Display].

If the same error is displayed again shortly, the cause of the error must be found and rectified by a specialist. In the meantime, emergency operation may be maintained. Emergency operation can be permitted via [→ Main menu → Error → Emergency operation], see Chap. 4.7.2. If emergency operation has not been permitted, it can be started from the current error display.

Troubleshooting: Other error codes

The cause of the error must be found and rectified by a specialist. In the meantime, emergency operation may be maintained. Emergency operation can be permitted via [→ Main menu → Error → Emergency operation], see Chap. 4.7.2. If emergency operation has not been permitted, it can be started from the current error display.

4.7.1 Manual Operation

[→ Main menu → Error → Manual operation]

In manual operation, the heat pump is controlled to a fixed feed temperature. Manual operation should only be used for diagnostic purposes. Manual operation is started by setting the [Manual operation status] parameter to "Active". The required feed temperature is set by the [Temperature manual operation] parameter.

With hydraulically controlled priority operation for domestic hot water generation, it must be ensured that the feed temperature setpoint set in manual mode is sufficient to achieve the stored hot water temperature setpoint ([Hot water temp. setpoint 1] parameter).

4.7.2 Emergency operation

[→ Main menu → Error → Emergency operation]

If the heat pump fails, the backup heater or another external heat generator can be used as an emergency heater. If [Emergency Operation] is set to "On", emergency operation is automatically activated in the event of a fault. Otherwise, emergency operation can only be started in the event of an error via the error display.

INFORMATION

Activation of emergency automatic operation ensures that heating and hot water requirements are reliably met even if the heat pump fails. However, there is a danger that the user will only notice the system malfunction after a certain time, and that this increases electricity consumption. The default setting for emergency operation is "Off".

4.7.3 Error protocol

[→ Main menu → Error → Protocol]

The error protocol can be read in this menu. The most recent error message comes first. All previous messages are moved backwards with each new entry in the position. The 16th error message is deleted if a new error message arrives. The error protocol can only be deleted by Service.

4.7.4 Error display

[→ Main menu → Error → Display]

This menu allows the error display of an acutal error to be opened.

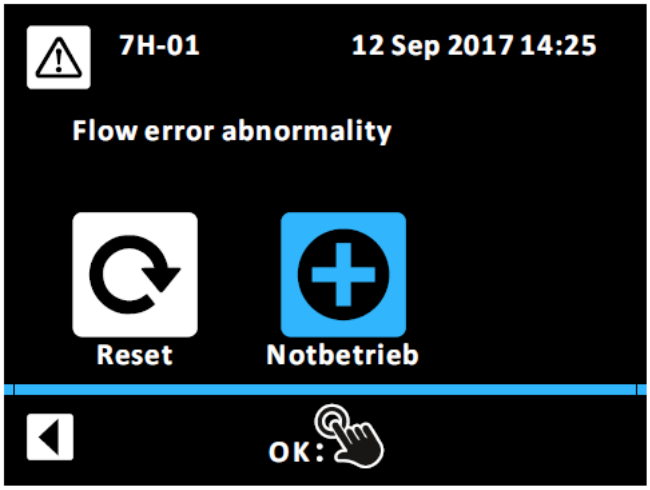

Fig. 4-9 Error display

4.8 Terminal

[→ Main menu → Terminal]

In this menu other RoCon equipment (mixing module or added heat generators) can be controlled and parametrised. This requires these devices to be integrated via CAN-Bus and the local control panel to have the required access rights.

Functional IDs

The RoCon system offers a very wide range of application and extension options. The individual RoCon system components communicate via the CAN data bus. For this purpose, the RoCon BM2C PCBs and the RoCon+ B1 control panels of the Daikin Altherma EHS(X/H) as well as the optional RoCon U1 room station system components and RoCon M1 mixer module are connected to each other via data bus lines. These system components must be allocated unique functional IDs, so that the data exchange and assignment within the system functions without any problems.

The easiest way to assign the functional identifiers is to use the Configuration Wizard. This is executed automatically during the initial commissioning or can be started manually in case of extensions in the heating system in [Main menu → Configuration → Wizard]. In addition, most identifiers can also be adjusted to the RoCon system by parameter settings in this menu.

ID / Function	System components	Parameters	Comments
HC ID Unique numbering of a HC in the heating system in the RoCon system. A maximum of 16 HCs can be controlled.	Daikin Altherma EHS(X/H) (RoCon BM2C)	[Unmixed Circ Config] See Chap. 7.11	Factory setting = 0 Should not normally be changed. (5)
	EHS157034 room station	[Heating circuit assignment] see RoCon U1/M1 instructions	Factory setting = Off Adaptation required if there are different HCs in the system and/or the [Master-RoCon] parameter = On
	EHS157068 mixer module	[Heating circuit assignment] see RoCon U1/M1 instructions	Factory setting = Off Must always be adjusted to the setting of the address switch.
Heat generator ID Unique numbering of a heat generator in the RoCon system.	Daikin Altherma EHS(X/H) (RoCon BM2C)	[BUS ID HS] See Chap. 7.11	Factory setting = 0 Should not normally be changed. (5)
	EHS157068 mixer module	[Boiler Assignment] see RoCon U1/M1 instructions	Factory setting = 0 Should not normally be changed. (5) Defines the heat generator that supplies the assigned HC with heat.
Terminal ID Unique numbering of a RoCon+ B1 or EHS157034 control panel from which a heat generator and/or mixer module can be remote controlled in the RoCon system. The authorisation for remote control can be allocated to up to 10 control panels in the RoCon system. If remote control in the RoCon system is to be possible, the control panel must be allocated the ID "0".	Daikin Altherma EHS(X/H) (RoCon BM2C)	[Terminaladress] See Chap. 7.9	Factory setting = Off The value should be set to "0" if at least 1 mixer module is connected in the RoCon system and the mixer circuit is to be operated from the heat generator.
	EHS157034 room station	[Terminaladress] See Chap. 7.9	Factory setting = Off The value must be set to a unique numerical value in the RoCon system if the room station system components are to be remotely controlled using a valid device ID.
Device ID Unique numbering of a heat generator or mixer module in the RoCon system. Up to 16 device numbers can be allocated. These device numbers are detected during a [Bus - Scan] and are displayed for identification of a remotely controlled device.	Daikin Altherma EHS(X/H) (RoCon BM2C)	[BUS ID HS] See Chap. 7.11	Identical to heat generator detection. The value must not be the same as the HC ID of a mixer module in the RoCon system.
	EHS157068 mixer module	[Heating circuit assignment] See Chap. 9	Identical to the HC ID. The value must not be the same as the heat generator ID of the Daikin heat generator in the RoCon system. The value must be the same as the setting of the address switch.

Tab. 4-10 Functional IDs in the RoCon system

4.8.1 Bus-Scan for terminal function

[→ Main menu → Terminal → Bus-Scan]

After activating the "Bus-Scan", the display shows a list of recognised devices (with assigned terminal address) for selection, including the local device. After selecting and confirming an external device, the terminal function for this device is activated. The control panel is then in terminal operation.

The local control panel acts as a remote control for the external device and the corresponding standard display is shown on the display. In this case, all the control functions are performed and saved 1:1 in the same way as on the external device. The displayed values and symbols are always taken over by the selected device.

To operate the local device, it must be reactivated in the selection list.

INFORMATION

To perform the Bus-Scan, a valid terminal address must be assigned to the RoCon+ B1 control panel of the Daikin Altherma EHS(X/H) or the EHS157034 room station. This can only be done with a specialist code. Contact your heating expert in this regard.

If the terminal function is to be used in the heating system, the terminal ID = 0 must be allocated to a control panel.

INFORMATION

If the "n.a." message is displayed in the "Terminal" menu, the control panel has not yet been assigned a valid terminal identification.

If the "n. A." message is still displayed, it may be necessary to update the device software before the terminal function can be used. Contact the Service Team for this.

(5) A maximum of 8 heat generators can be connected in the RoCon system via the CAN data bus. Several heat generators integrated in the heating installation must be regarded as a special application. If necessary, contact a service technician.

Example: Activate terminal operation for the heat generator with bus ID 2 [→ Main menu → Terminal →ƒ Bus-Scan]:

Bus-Scan is carried out. The overview of all devices that are found is displayed.

1 Turn the rotary switch clockwise until the BM1/BE1 #2 controller is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

➔ The local control panel acts as a remote control for the heat generator with bus ID 2.

To end terminal operation and switch back to operating the assigned device, the [Local (No selection)] parameter must be selected and confirmed in the "Bus-Scan" menu.

INFORMATION

If the local control panel is used as a remote control for a mixer module, both the standard screen and the menu structure have been changed (see Chap. 9).

4.8.2 Selecting the terminal address

[→ Main menu → Terminal → Address]

Setting of the terminal ID of the control panel for system access. The set value must be unique throughout the entire system. Confirmation of this parameter with the rotary button effects new initialisation of the control unit.

All settings, except "Off", authorise the user of the control panel to activate the terminal function and thus to operate all RoCon system components with a valid device ID.

4.8.3 System configuration

[→ Main menu → Terminal → Configuration System]

This menu contains the system configuration of the device, consisting of sensor configuration and data bus configuration. If this parameter is set to "Inactive" or "Delete", the control is reinitialised. An error message follows and the displayed menu navigation must be operated.

If the prompt regarding use of the standard configuration is answered with "Yes" when the device is first started, the basic configuration appropriate to the installed heat generator is automatically activated.

4.9 Statistics

[→ Main menu → Statistics]

This menu lists the actual (summed-up) values for capacities and running times of the heat pump and its components.

5 Initial commissioning

INFORMATION

In addition to the commissioning instructions listed in this chapter, the specific commissioning instructions listed in the respective installation instructions for the Daikin Altherma EHS(X/H) must be observed.

5.1 Configuration Wizard

The Configuration Wizard simplifies system configuration during installation. It appears automatically during initial commissioning and guides the user through defined selection pages. As long as the entire system setting is not confirmed, the Configuration Wizard is called up again each time it is switched on. Only after confirmation of the system setting can the heat generator switch to normal operation. In normal operation, the Configuration Wizard can be called manually [→ Main menu → Configuration → Wizard].

The different selection pages of the Configuration Wizard are operated according to the screens described in Chap. 3.3. The Back icon can be selected in the menu bar of each selection page. "Back" leads to the previous selection page as does press and hold. Confirming a selection with "OK" leads directly to the next selection page. The modified parameter is applied directly.

5.2 Menu navigation in the Configuration Wizard

→ Language

1 Turn the rotary button clockwise until the required language is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

→ Default configuration

If no optional RoCon system components are connected:

1 Turn the rotary button clockwise until "Yes" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

When optional RoCon system components such as EHS157034 and/or EHS157068 are connected:

1 Turn the rotary button clockwise until "No" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

Select and set the following list elements as required:

- ConfigDirectCircuit (see Chap. 4.8)
- WEZ bus ID (see Chap. 4.8)
- Time Master (see Chap. 7.11)

When all settings have been made as required:

1 Turn the rotary button clockwise until "Configuration System" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

3 Turn the rotary button clockwise until "Yes" is displayed in blue.

4 Briefly press the rotary button to confirm ("Ok").

→ Date

1 Setting the date (see Chap. 3.3.6).

→ Time

1 Setting the time (see Chap. 3.3.5)

→ Outdoor unit

1 Turn the rotary button clockwise until the installed outdoor device type is shown in blue.

2 Briefly press the rotary button to confirm ("Ok").

→ Indoor unit

1 Turn the rotary button clockwise until the installed outdoor device type is shown in blue.

2 Briefly press the rotary button to confirm ("Ok").

→ System parameters

Select and set the following list elements as required:

- [Room thermostat] available? (see Chap. 7.5.4)
- [Heating support] required? (see Chap. 7.5.5)
- [Continuous heating] required? (see Chap. 7.5.5)

When all settings have been made as required:

1 Turn the rotary button clockwise until the Confirm icon in the menu bar turns blue.

2 Briefly press the rotary button to confirm ("Ok").

→ Heating limit

Select and set the following list elements as required:

- [Heating operation limit] (see Chap. 7.5.3)
- [Heat limit reducing mode] (see Chap. 7.5.3)

When all settings have been made as required:

1 Turn the rotary button clockwise until the Confirm icon in the menu bar turns blue.

2 Briefly press the rotary button to confirm ("Ok").

→ Weather-dependent

Weather-dependent control is required:

1 Turn the rotary button clockwise until "0" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").
   - [Room temperature setpoint 1] setting (see Chap. 7.5.1)
   - [Heat-Slope] setting (see Chap. 4.5.4)
   - Only with reversible device type: Setting of the cooling curve (see Chap. 4.5.5)

Weather-dependent control is not required:

1 Turn the rotary button clockwise until "1" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").
   - [Feed temperature heating mode] setting (see Chap. 7.6.3)
   - Only with reversible device type: Setting [Feed temperature cooling mode] (see Chap. 7.6.4)

→ Hot water temperature

1 [Hot water temp. setpoint 1] setting (see Chap. 7.3.4)

→ Hot water hysteresis

1 [Hot water hysteresis] setting (see Chap. 7.6.5)

→ External heat generator

No external heat generator available:

1 Turn the rotary button clockwise until "0" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

Optional backup heater available:

1 Turn the rotary button clockwise until "1" is displayed in blue.

2 Briefly press the rotary button to confirm ("Ok").

Select and set the following list elements as required:

- [Add. power hot water] (see Chap. 7.5.3)
- [Add. power stage 1] (see Chap. 7.5.3)
- [Add. power stage 2] (see Chap. 7.5.3)
- Emergency operation (see Chap. 4.7.2)

When all settings have been made as required:

1 Turn the rotary button clockwise until the Confirm icon in the menu bar turns blue.

2 Briefly press the rotary button to confirm ("Ok").

Alternative external heat generator available:

1 Turn the rotary button clockwise until "2" or "3" is displayed in blue (see Chap. 7.5.3)

2 Briefly press the rotary button to confirm ("Ok").

Select and set the following list elements as required:

- [Add. power hot water] (see Chap. 7.5.3)
- [Add. power stage 1] (see Chap. 7.5.3)
- Emergency operation (see Chap. 4.7.2)

When all settings have been made as required:

1 Turn the rotary button clockwise until the Confirm icon in the menu bar turns blue.

2 Briefly press the rotary button to confirm ("Ok").

→ **Emitter type**

1 [Emitter type] setting (see Chap. 7.5.2)

6 Parameter overview

6.1 Menu: Mode

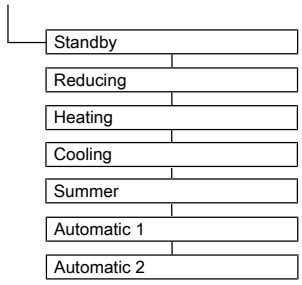

Fig. 6-1 Parameters in the "Mode" menu

6.2 Menu: User

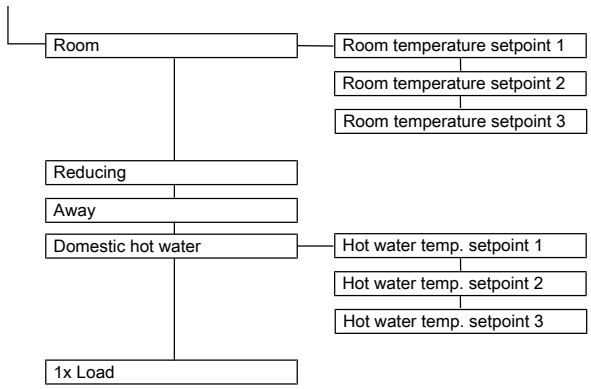

Fig. 6-2 Parameters in the menu: "User"

6.3 Menu: Time program

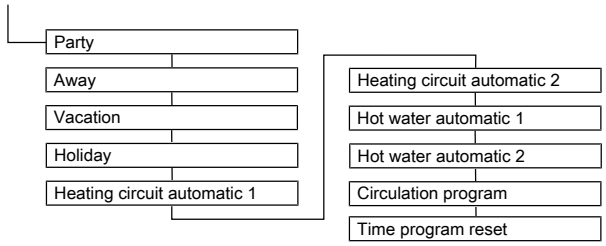

Fig. 6-3 Parameters in the menu: "Time program"

6.4 Menu: Settings

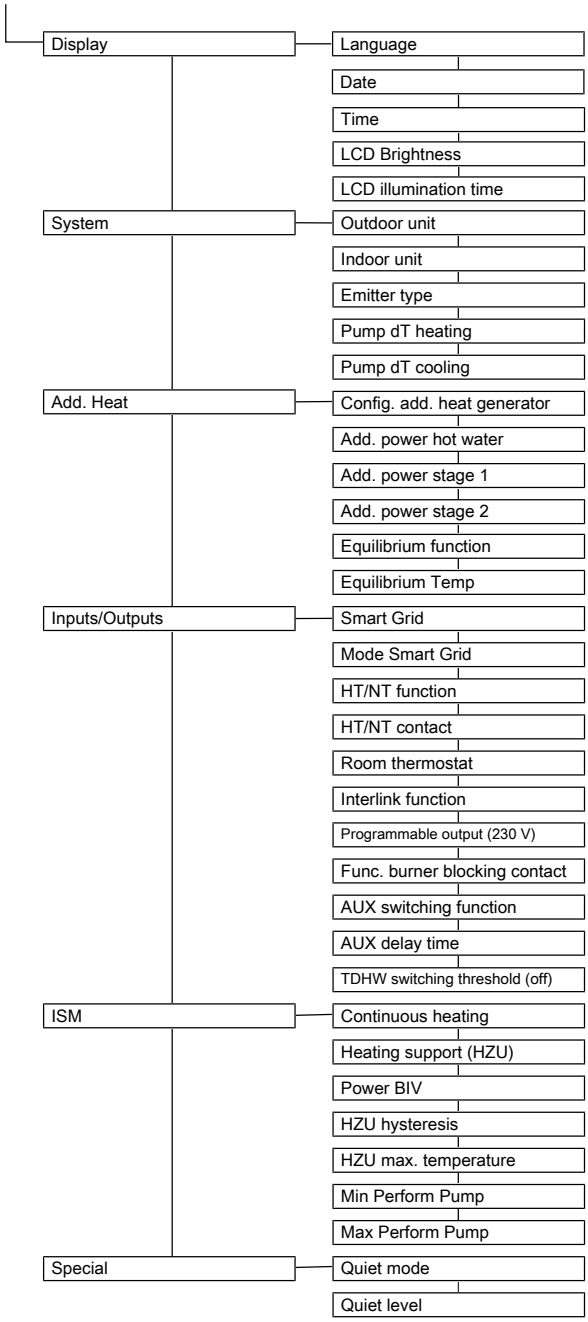

Fig. 6-4 Parameters in the menu: "Settings"

6.5 Menu: Configuration

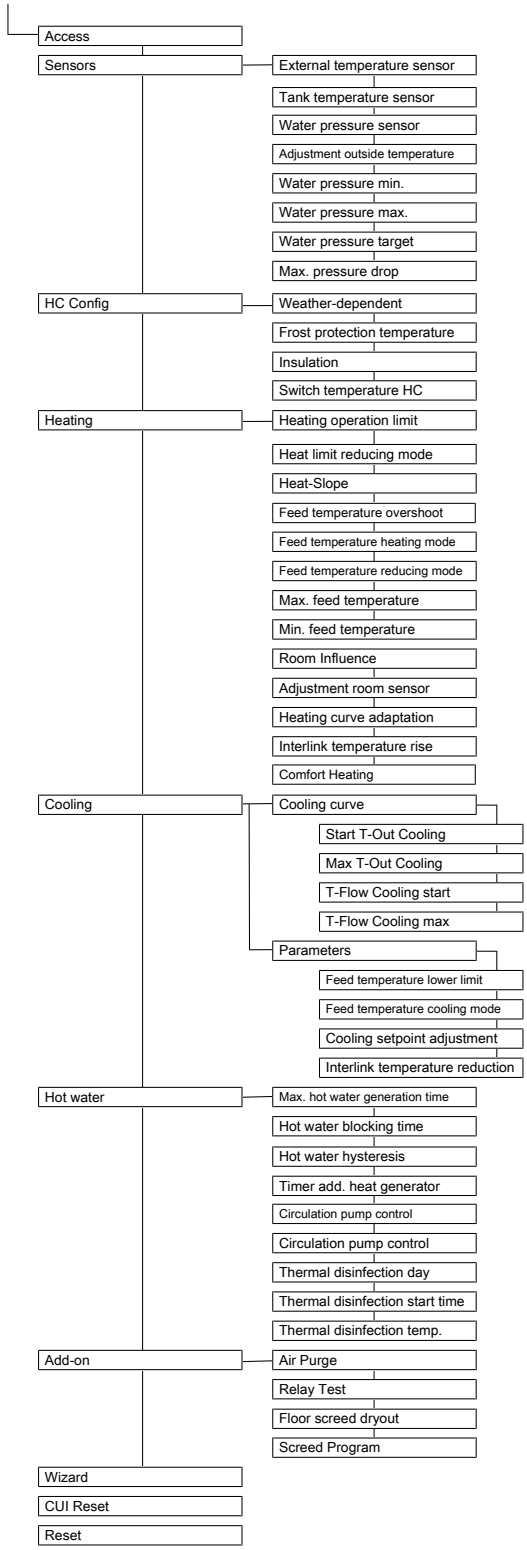

Fig. 6-5 Parameters in the menu: "Configuration"

6.6 Menu: Info

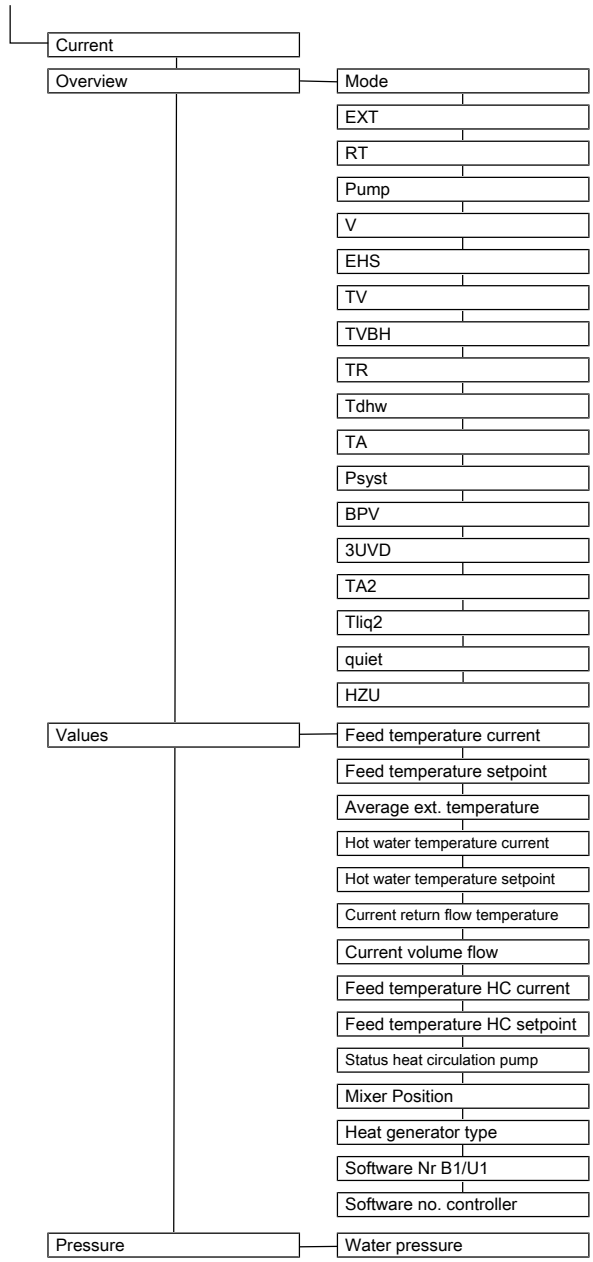

Fig. 6-6 Parameters in the menu: "Info"

6.7 Menu: Error

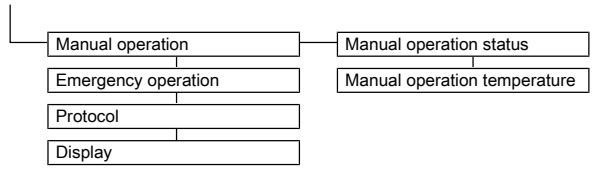

Fig. 6-7 Parameters in the menu: "Error"

6.8 Menu: Terminal

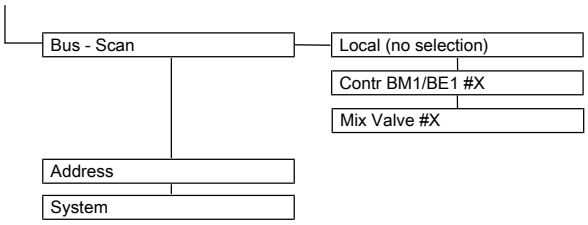

Fig. 6-8 Parameters in the menu: "Terminal"

INFORMATION

If the local control panel is used as a remote control for a mixer module, both the standard screen and the menu structure have been changed (see Chap. 9).

6.9 Menu: Statistics

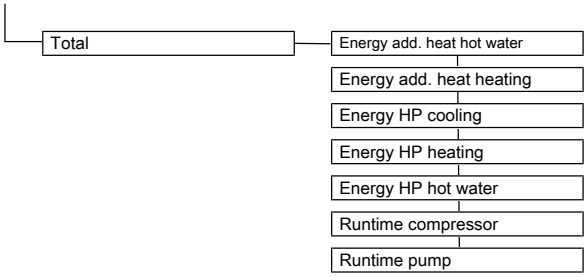

Fig. 6-9 Parameters in the menu: "Statistics"

7 Parameter settings

7.1 Explanation of the parameter tables

The parameter tables listed in Chap. 7.2 to Chap. 7.10 contain compact information on all parameters that are available in the respective menus and submenus of the controller (1st menu level, 2nd menu level).

In addition to the parameter designations, the tables contain information on setting ranges, factory settings, setting options or adjustment steps and brief explanations of the function.

In addition, they provide an explanation of the access rights for operation of the control unit. The following abbreviations are used for corresponding labelling:

BE Access right for the operator

HF Access right with technician code

If different entries are made in the BE and HF columns, the technician must be logged in before selecting the parameter level in order to obtain the status entered in the HF column (see Chap. 4.5).

Status:

N Not visible

E Visible and configurable

S Visible

INFORMATION

Changing some parameters requires a restart of the device. This takes a few minutes. No further settings can be made during this time. The restart can be delayed by 5 minutes by selecting "Later" in response to the prompt "Restart required. Execute now?".

Parameters that require a restart are marked with (*) in the following tables

7.2 Mode

[→ Main menu → Mode]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Standby	In this operating mode all internal functions are switched off. Frost protection remains active and a blocking protection for the pump is guaranteed. All controllers integrated in the RoCon system via the CAN bus are primarily also switched to the operating mode if this setting is selected. Outputs are not always completely free of voltage.	E	E	☐ / ☑	☑	-
Reducing	The internal HC continuously regulates to the required reduced feed temperature according to the [Heat-Slope] or [Feed temperature reducing mode] parameters or to the room temperature [Room temperature reduced] when the room thermostat is connected. Domestic hot water generation is carried out according to [Hot water automatic 1].	E	E	☐ / ☑	☐	-
Heating	The internal HC continuously regulates to the required feed temperature according to the [Heat-Slope] or [Feed temperature heating mode] parameters or to the room temperature [Room temperature setpoint 1] when the room thermostat is connected. Domestic hot water generation is carried out according to [Hot water automatic 1].	E	E	☐ / ☑	☐	-
Cooling	The internal HC continuously regulates to the required feed temperature according to the parameters in the menu [→ Main menu → Configuration → Cooling] or to the room temperature [Room temperature setpoint 1] when the room thermostat is connected. Domestic hot water generation is carried out according to [Hot water automatic 1]. Frost protection remains active and a blocking protection for the pump is guaranteed.	E	E	☐ / ☑	☐	-
Summer	The internal HC is switched off. Frost protection remains active and a blocking protection for the pump is guaranteed. Domestic hot water generation is carried out according to [Hot water automatic 1]. All controllers integrated in the RoCon system via the CAN bus are primarily also switched to the operating mode if this setting is selected.	E	E	☐ / ☑	☐	-
Automatic 1	The internal HCs regulate with the respective room target temperatures according to the set [Heating circuit automatic 1] time program. Domestic hot water generation is carried out according to [Hot water automatic 1].	E	E	☐ / ☑	☐	-
Automatic 2	The internal HCs regulate with the respective room target temperatures according to the set [Heating circuit automatic 2] time program. Domestic hot water generation is carried out according to [Hot water automatic 2].	E	E	☐ / ☑	☐	-

Tab. 7-4 Parameters in the menu: "Mode"

7.3 User

[→ Main menu → User]

7.3.1 Menu: Room temperature setpoint

[→ Main menu → User → Room]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Room temperature setpoint 1	Target value of the room temperature in °C, which is valid for the 1st switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	5 - 40 °C	20 °C	0.5 °C
Room temperature setpoint 2	Target value of the room temperature in °C, which is valid for the 2nd switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	5 - 40 °C	20 °C	0.5 °C
Room temperature setpoint 3	Target value of the room temperature in °C, which is valid for the 3rd switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	5 - 40 °C	20 °C	0.5 °C

Tab. 7-6 Parameters in the menu: "Room temperature setpoint"

7.3.2 Menu: Room temperature reduced

[→ Main menu → User → Reduced]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Room temperature reduced	Target value of the reduced room temperature in °C, which is valid for the [Automatic 1] and [Automatic 2] time programs.	E	E	5 - 40 °C	15 °C	0.5 °C

Tab. 7-7 Parameters in the menu: "Room temperature reduced"

7.3.3 Menu: Room temperature absence

[→ Main menu → User → Absence]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Room temperature absence	Target value of the reduced room temperature in °C, which is valid for the [Away] + [Vacation] time programs.	E	E	5 - 40 °C	15 °C	0.5 °C

Tab. 7-8 Parameters in the menu: "Room temperature absence"

7.3.4 Menu: Hot water temperature setpoint

[→ Main menu → User → Hot water]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Hot water temp. setpoint 1	Target value of the hot water temperature in °C, which is valid for the 1st switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	35 - 70 °C	48 °C	1 °C
Hot water temp. setpoint 2	Target value of the hot water temperature in °C, which is valid for the 2nd switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	35 - 70 °C	48 °C	1 °C
Hot water temp. setpoint 3	Target value of the hot water temperature in °C, which is valid for the 3rd switching time cycle of the [Automatic 1] and [Automatic 2] time programs.	E	E	35 - 70 °C	48 °C	1 °C

Tab. 7-9 Parameter menu: "Hot water temperature" setpoint

7.3.5 Menu: 1x Hot water

[→ Main menu → User → 1x Load]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
1x Hot Water	Start of a one-time domestic hot water generation to the set target value [Hot water temp. setpoint 1] without time limit, independent of the heating programs.	E	E	Off On	☑ ☐	-

Tab. 7-10 Parameter menu: "1x Hot water"

7.4 Time Program

[→ Main menu → Time program]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Party	This operating mode can be used to set a one-off time for the temporary heating time extension of the internal HC (format hh:mm).	E	E	00:00 - 06:00	00:00	1 h
Away	This operating mode can be used to set a one-off time for temporary regulation to the parametrised absence temperature.	E	E	00:00 - 06:00	00:00	1 h
Vacation	The internal HC provides continuous (24 h per day) regulation to the parametrised absence temperature ([Room temperature reduced] parameter). A calendar function can be used to enter a time period of absence.	E	E	Date 1st day - Date last day	-	1 Day
Holiday	A calendar function can be used to enter a time period of presence.	E	E	Date 1st day - Date last day	-	1 Day
Heating circuit automatic 1	In this menu, the 1st time program can be parametrised for the internal HC. 3 switching cycles with a resolution of 15 minutes can be set. A separate entry for each weekday is possible. Format: (on) hh:mm - hh:mm (off) Also, the cycles from Monday to Friday, Saturday to Sunday and Monday to Sunday can be parametrised.	E	E	See Chap. 4.3	See Tab. 4-3	15 min
Heating circuit automatic 2	In this menu, the 2nd time program for the internal HC can be parametrised. 3 switching cycles with a resolution of 15 minutes can be set. A separate entry for each weekday is possible. Format: (on) hh:mm - hh:mm (off) Also, the cycles from Monday to Friday, Saturday to Sunday and Monday to Sunday can be parametrised.	E	E	See Chap. 4.3	See Tab. 4-3	15 min

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Hot water automatic 1	In this menu the 1st time program for domestic hot water generation can be parametrised. 3 switching cycles with a resolution of 15 minutes can be set. A separate entry for each weekday is possible. Format: (on) hh:mm - hh:mm (off) Also, the cycles from Monday to Friday, Saturday to Sunday and Monday to Sunday can be parametrised.	E	E	See Chap. 4.3	See Tab. 4-3	15 min
Hot water automatic 2	In this menu the 2nd time program for domestic hot water generation can be parametrised. 3 switching cycles with a resolution of 15 minutes can be set. A separate entry for each weekday is possible. Format: (on) hh:mm - hh:mm (off) Also, the cycles from Monday to Friday, Saturday to Sunday and Monday to Sunday can be parametrised.	E	E	See Chap. 4.3	See Tab. 4-3	15 min
Circulation program	In this menu a timer program for the circulation pump can be parametrised. 3 switching cycles with a resolution of 15 minutes can be set. A separate entry for each weekday is possible. Format: (on) hh:mm - hh:mm (off) Also, the cycles from Monday to Friday, Saturday to Sunday and Monday to Sunday can be parametrised.	E	E	See Chap. 4.3	See Tab. 4-3	15 min
Time program reset	In this menu the time programs can be reset to factory settings. To do this, select the respective time programs and then confirm the selection.	E	E	Party Away Vacation Holiday Heating circuit automatic 1 Heating circuit automatic 2 Hot water automatic 1 Hot water automatic 2 Circulation program	-	-

Tab. 7-11 Parameters in the menu: Time Program

7.5 Settings

[→ Main menu → Settings]

7.5.1 Menu: Display settings

[→ Main menu → Settings → Display]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Language	National language of the display texts on the control panel	E	E	Deutsch English Français Nederlands Espanol Portugués italiano	☑ ☐ ☐ ☐ ☐ ☐ ☐	-
Date	Current date in day/month/year format. The current day of the week is calculated automatically from the date.	E	E			
Time	Time in hours/minutes format.	E	E			
LCD Brightness	Brightness of the display	E	E	0 – 100 %	80 %	10 %
LCD illumination time	Lighting duration of the display	E	E	5 - 120 s	30 s	1 s

Tab. 7-13 Parameters in the menu: "Display settings"

7.5.2 Menu: System

[→ Main menu → Settings → System]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Outdoor unit	Heat pump outdoor unit type	N	E	4 kW 6 kW 8 kW 11 kW 14 kW 16 kW	-	-
Indoor unit	Indoor unit heat pump type Adaptation of the set value important, as the device types have different defrosting logics.	N	E	R/EHS(B)(X/H)04P30/50D R/EHS(B)(X/H)08P30D R/EHS(B)(X/H)08P50D R/EHS(B)(X/H)16P50D	-	-
Emitter type (*)	Heat exchanger type in the emitter type. If "Radiator" is selected and high feed temperatures are required, it may make sense to increase the [Max. feed temperature] parameter to 65 °C ([→ Main menu → Configuration → Heating]).	N	E	Floor heating Radiator Convector	☑ ☐ ☐	-
Pump dT heating (*)	Heating: Required temperature difference between return and feed temperature. If a minimum temperature difference is required for good heat distribution system operation in heating mode.	N	E	3-10	5	1
Pump dT cooling (*)	Cooling: Required temperature difference between return and feed temperature. If a minimum temperature difference is required for good heat distribution system operation in cooling mode.	N	E	3-10	5	1

Tab. 7-14 Parameters in the menu: "System"

7.5.3 Menu: Additional heat generator

[→ Main menu → Settings → Add. Heat]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Config. of external heat source	Setting of whether there is an additional external heat generator for domestic hot water generation and/or heating support (HZU).	N	E	No add. heat generator Optional backup heater Add. heat generator HW and HZU Add. heat generator HW or HZU	☐ ☑ ☐ ☐	-
Ext. hot water power	Heat output of the electric heater booster for domestic hot water generation	N	E	1 - 40 kW	3 kW	1 kW
Ext. power level 1 (*)	Heat output of the electric heater booster for heating support stage 1 See operating instructions for the BUxx heating element.	N	E	1 - 40 kW	3 kW	1 kW
Ext. power level 2 (*)	Heat output of the electric heater booster for heating support stage 2 See operating instructions for the BUxx heating element.	N	E	1 - 40 kW	3 kW	1 kW
Equilibrium function (*)	The equilibrium function is only relevant to operation of the optional heater booster due to a backup requirement (room heating mode). ▪ Off: Operation of the backup heater is always possible. ▪ On: Backup heater is only enabled if the temperature set in the [Equilibrium Temp] parameter is undercut.	N	E	Off On	On	-
Equilibrium Temp	Setting influences the effect of the potential-free AUX switching contact (toggle switch output A) defined in the [AUX switching function] parameter. Only if [Equilibrium function] parameter = On: External temperature as of which the optional heater booster is activated to support room heating. The equilibrium temperature is relevant to operation of the optional heater booster due to a backup requirement (room heating mode). The temperature of the temperature sensor (info value T_A) integrated in the heat pump outdoor unit is used for this.	N	E	-15 °C - +35 °C	0 °C	1 °C

Tab. 7-15 Parameters in the menu: "Additional heat generator"

7.5.4 Menu: Inputs/Outputs

[→ Main menu → Settings → Inputs/Outputs]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Smart Grid	Evaluation of the SG signal (see Chap. 4.4). Off: Smart Grid function not active, SG signal is not evaluated. On: Depending on utility company signal, the heat pump is shut off (no frost protection function) or operated at higher temperatures.	N	E	Off On	Off	-
Mode Smart Grid	Only if the [Smart Grid] parameter = On: Serves for a possible temperature setpoint increase with a Smart Grid switch-on command. ▪ Comfort (hot water temperature setpoint increase by 5 K) ▪ Standard (feed temperature setpoint increase by 2 K and hot water temperature setpoint increase by 5 K) ▪ Standard (feed temperature setpoint increase by 5 K and hot water temperature setpoint increase by 7 K)	N	E	Comfort Standard Eco	Standard	-
HT/NT function	Setting of which heat sources are turned off when the high tariff signal output by the utility is received at a low tariff connection. 0: Deactivated (no effect)	N	E	Inactive Switch off compressor Switch off compressor + BUH Switch all off	☑ ☐ ☐ ☐	-
HT/NT contact	Definition of whether the HT/NT input is evaluated as a normally closed contact or a normally open contact. Normally open contact: Switching contact closed at high tariff. Normally closed contact: Switching contact closed at low tariff.	N	E	Normally open contact Normally closed contact	☑ ☐	-
Room thermostat	Configuration of a room thermostat with potential-free contacts connected to Daikin Altherma EHS(X/H) connection J16. ▪ Off: Deactivated ▪ On: (only if [Interlink function] parameter = Off) Evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM2C PCB (only if none of the "Standby", "Reducing", "Summer", "Vacation", "Holiday" or "Screed" modes is active): ▪ Closed heating switching contact: Mode is switched to "Heating". Priority if both switching contacts are closed. ▪ Closed cooling switching contact: Mode is switched to "Cooling". ▪ Open contacts: Only frost protection active.	N	E	Off On	☑ ☐	-

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Interlink function	Configuration for systems that are operated with 2 different feed temperature setpoints (see Chap. 4.4.4). One possible application is, for example, the additional integration of an HP convector in a surface heating and cooling system. Prerequisite: 2 room thermostats are connected to Daikin Altherma EHS(X/H) plug connection J16. ▪ Off: Deactivated ▪ On: Evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM2C PCB. Activation of cooling mode only by switching the mode to "" (see Chap. 4.1). Setting of the [Room thermostat] parameter is no longer evaluated. ▪ Open switching contacts: Only frost protection active ▪ "Heating" and "Automatic 1" / "Automatic 2" operating mode active during the switching cycles in day mode. ▪ Closed switching contact Heating = IL1: ▪ The system is regulated to the normal feed temperature setpoint as per the parameter settings in the "HC Configuration" > "Heating" level. ▪ Closed switching contact = IL2: ▪ The system is regulated to the increased feed temperature setpoint (normal feed temperature setpoint + value of the parameter [Interlink temperature rise]). Priority if both switching contacts are closed! ▪ "" operating mode active. ▪ Closed switching contact Heating = IL1: ▪ The system is regulated to the normal feed temperature setpoint as per the parameter settings in the "HC Configuration" > "" level. ▪ Closed switching contact = IL2: ▪ The system is regulated to the reduced feed temperature setpoint (normal feed temperature setpoint - value of the [Interlink temperature reduction] parameter. Priority if both switching contacts are closed!	N	E	Off On	☑ ☐	-
Programmable output (230V)	Configuration of the multi-function output (230 V, J14 connection): ▪ Inactive: The output has no function. ▪ HC request: Receiver pump – The output becomes active as soon as a HC of the system reports a HC request to the heat generator. ▪ Circulation pump request: Circulation pump – Depending on the parameter setting, the output is activated either according to the time program of the circulation pump or according to the time program of the domestic hot water generation (see Chap. 4.3). ▪ Direct HC request: Feeder pump – The output becomes active as soon as a heating request is made for the direct HC of the heat generator.	N	E	Inactive HC request Circulation request Direct HC request	☐ ☐ ☑ ☐	-

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Func. burner blocking contact	Selection of the functionality of the switching contact EXT (J8) (see Chap. 4.1)	N	E	Resistance values Burner blocking contact	☑ ☐	-
AUX switching function	Setting assigns the switching conditions for the potential-free AUX switching contact (toggle switch output A, see Chap. 4.4.4). Inactive: Function deactivated. AUX switching contact switches; Switching threshold TDWH: If storage temperature (Tdhw) is ≥ value of the [TDHW switching threshold] parameter. Heating/cooling request: If a cooling or heating request exists. BUH request: If there is a hot water request to the backup heater (BUxx) or the configured backup heater is requested to support the heating system. Error: If an error is present. TVBH > 60 °C: If the sensor value (TVBH) is > 60 °C. External temperature: If the external temperature is < parameter value [Equilibrium Temp]. ▪ Heat pump continues to operate = parallel equilibrium mode. External temperature + Hot Water/Heating: If the external temperature is < parameter value [Equilibrium Temp] + a heating request or a hot water request exists. ▪ Heat pump does not continue to operate = alternative equilibrium mode. DHW request: If a hot water request is present.. External temperature + heating: If the outside temperature is < parameter value [Equilibrium Temp] + heat request "Room heating" (not for hot water request). Heat pump no longer operates in room heating mode below the value set in the [Equilibrium Temp] parameter - only in hot water mode. Application: Alternative room heating equilibrium mode if the boiler is hydraulically integrated so that it directly heats the unpressurised storage tank water of the Daikin Altherma EHS(X/H) (connection via solar connections). Multi-Oil: "Multi-oil" - if the external temperature is < parameter value [Equilibrium Temp] + heat request "room heating" (not for hot water request). Heat pump no longer operates in room heating mode below the value set in the [Equilibrium Temp] parameter - only in hot water mode. Application: Alternative room heating equilibrium mode if the boiler is hydraulically integrated in the heat pump feed. For this application type, the frost protection function must be deactivated on the Daikin Altherma EHS(X/H) ([Frost protection temperature] parameter = Off). Cooling mode: If the heat pump is in the "" mode.	N	E	Inactive TDHW switching threshold Heating/ cooling request BUH request Error TVBH > 60 °C External temperature External temp. + DHW/heating DHW request External temperature + heating Multi-Oil Cooling mode	☑ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	-
AUX delay time	AUX switching contact (A) only switches after a delay if the switching condition (see [AUX switching function] parameter) is present for longer than the set time.	N	E	0-600 s	120 s	5 s
TDHW switching threshold (AUX)	Storage tank temperature (Tdhw) switching threshold for AUX switching contact (see [AUX switching function] parameter).	N	E	20 - 85 °C	50 °C	1 °C

Tab. 7-16 Parameters in the menu: "Inputs/Outputs"

7.5.5 Menu: Intelligent storage tank management

[→ Main menu → Settings → ISM]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Continuous heating	This function enables uninterrupted heating even during evaporator defrosting. This enables high comfort to be guaranteed even with rapidly reacting emitter types (e.g. convectors). Off: No uninterrupted heating ON: Uninterrupted heating. During evaporator defrosting, heat for heating is taken from the storage tank.	N	E	Off On	☑ ☐	-
Heating support (HZU)	Heating support from hot water storage tank if minimum temperature is exceeded (see Chap. 4.4 and [HZU hysteresis] parameter). ▪ Off: No heating support ▪ On: Heating support function active	N	E	Off On	☐ ☑	-
Heating support output	The setting limits the heating support output.	N	E	3 - 40 kW	15 kW	1 kW
HZU hysteresis	Only if [Heating support (HZU)] parameter = On. Heating support is activated if Tdhw > THZUmin + 4 K and Tdhw > [Feed temperature setpoint] + 1 K. Heating support is deactivated if Tdhw < THZUmin or Tdhw < [Feed temperature setpoint]. THZUmin = currently active hot water temperature setpoint [Feed temperature setpoint] + set parameter value [HZU hysteresis]. Tdhw = current hot water storage tank temperature [Feed temperature setpoint] = currently active feed temperature setpoint (see Chap. 4.5)	N	E	2-15	5	1
HZU max. temperature	The setting limits the feed temperature setpoint (measured against t_V, BH) when the heating support function is active.	N	E	5-85 °C	60 °C	1 °C
Min. pump power	Lower limit for pump operation. Only used when heating support is active or heat is generated by an additional heat generator.	N	E	60-80 %	80 %	1 %
Max. pump power	Upper limit for pump operation. Only used when heating support is active or heat is generated by an additional heat generator.	N	E	40-80 %	50 %	1 %

Tab. 7-17 Parameters in the menu: Intelligent storage tank management"

7.5.6 Menu: Special functions

[→ Main menu → Settings → Special]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Quiet mode	Mode for quiet operation at reduced output (see Chap. 4.4). ▪ Inactive ▪ Active ▪ Active at night: Only operated in whisper mode at night from 22:00 to 6:00 hours.	N	E	Inactive Active Active at night	☑ ☐ ☐	-
Quiet level	If low-noise operation is selected, three quiet levels can be set. ▪ Less quiet: The output can decline in colder ambient conditions. ▪ Medium quiet: Reduced output is possible under all conditions. ▪ Quietest: The output is reduced under all conditions.	N	E	Less quiet Medium quiet Quietest	☑ ☐ ☐	-

Tab. 7-18 Parameters in the menu: "Special functions"

7.6 Configuration

[→ Main menu → Configuration]

7.6.1 Menu: Sensors

[→ Main menu → Configuration → Sensors]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
External temperature sensor (*)	Selection of whether the sensor integrated in the outdoor unit or an optional external temperature sensor is used to determine the feed temperature setpoints	S	E	Integrated sensor Optional sensor	☑ ☐	-
Tank temperature sensor	Configuration of the domestic hot water generation: Inactive: No function for domestic hot water generation. Sensor: Function for domestic hot water generation is activated. A storage temperature sensor is evaluated for domestic hot water generation (if no storage temperature sensor is connected, an error message is generated). Thermostat: Function for domestic hot water generation is activated. A thermostatic switch (ON/OFF) is evaluated for domestic hot water generation, where an "open terminal" is evaluated as "not required".	N	E	Inactive Sensor Thermostat	☐ ☑ ☐	-
Water pressure sensor	Configuration of the sensor for detection of the water pressure of the system. Off: No sensor evaluation On: Sensor evaluation activated (if no pressure sensor is connected, an error message is generated.)	N	E	Off On	☐ ☑	-
Adjustment outside temperature	Individual adjustment for the measured value of the external temperature relevant for the control unit.	N	E	-5.0 to +5.0 kW	0.0 K	0.1 K
Water pressure min.	Defines the minimum water pressure. Pressure monitor function (only with activated pressure sensor, [Water pressure sensor]=On): If the measured value falls below the set value, the Daikin Altherma EHS(X/H) is shut off and an error message is generated.	N	E	0.1 - 5.0 bar	0.5 bar	0.1 bar
Water pressure max.	Defines the maximum water pressure. Pressure monitoring function (only with activated pressure sensor, [Water pressure sensor]=On): If the measured value exceeds the set value, a warning message is generated.	N	E	0.1 - 5.0 bar	3,0 bar	0.1 bar
Water pressure target	Defines the target water pressure. Pressure monitoring function (only with activated pressure sensor, [Water pressure sensor]=On): If the measured value undercuts the value set in the [Max. pressure loss] parameter by more than the set value, a warning message is generated.	N	E	0.1 - 5.0 bar	0.9 bar	0.1 bar
Max. pressure drop	Defines the maximum acceptable pressure loss in the heating system. Pressure monitoring function (only with activated pressure sensor, [Water pressure sensor]=On): If the measured value undercuts the value set in the [Water pressure target] parameter by more than the set value, a warning message is generated.	N	E	0.1 -5.0 bar	0.5 bar	0.1 bar

Tab. 7-20 Parameters in the menu: "Sensors"

7.6.2 Menu: HC configuration

[→ Main menu → Configuration → HC Config]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Weather-dependent	Selection of the method for determining the feed temperature setpoint. Inactive: Control to a fixed flow value (depending on mode) Active: Weather-dependent control based on the heating curve.	N	E	Inactive Active	☐ ☑	1
Frost protection temperature	Off: No frost protection of the HC Otherwise: If the external temperature drops below the set value, the system switches to frost protection operation (the pumps are switched on). The function is ended if the external temperature rises above the set value +1 K.	E	E	Off, -15 - 5 °C	0 °C	1 °C
Insulation	Setting the building insulation standard. This influences the averaged external temperature and the automatic adaptations of the heating curve and the heating times.	E	E	Off low Normal Good very good	☐ ☑ ☐ ☐ ☐	-
Switch temperature HC	Automatic activation of cooling mode. Off: Deactivated 10 - 40: if the external temperature exceeds the set value, the system is switched to "Cooling" mode. If the external temperature falls 2 K below the set value, the system automatically switches back to the previously activated operating mode.	N	E	Off, 10 - 40 °C	Off	1 °C

Tab. 7-21 Parameters in the menu: "HC configuration"

7.6.3 Menu: Heating

[→ Main menu → Configuration → Heating]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Heating operation limit	Setting of the automatic summer switch-off of the heating operation. If the external temperature measured and averaged by the controller exceeds the set value by 1 K, the HC is switched off. The heating is released again if the external temperature undercuts the set heating limit.	E	E	Off, 10 - 40 °C	19 °C	0.5 K
Heat limit reducing mode	Setting the heating limit for the "switch-off" of the HC during the setback time (functioning as in [Heating operation limit] parameter).	E	E	Off, 10 - 40 °C	10 °C	0.5 K
Heat-Slope	Only if [Weather-dependent] parameter = active: Setting of the heating curve. The heating curve reflects the dependence of the feed temperature setpoint of the HC on the external temperature (see Chap. 4.5).	E	E	0.0 - 3.0	0.5	0.1
Feed temperature overshoot (*)	This function defines how far the water temperature may exceed the feed temperature setpoint before the compressor is stopped. The compressor resumes operation when the feed temperature falls below the feed temperature setpoint. This function ONLY applies to heating mode.	N	E	1-4	3	1
Feed temperature heating mode	Only if [Weather-dependent] parameter = active Setting of the feed temperature setpoint for the HC during the heating time in operating mode: "Automatic 1", "Automatic 2", "Heating".	E	E	20 - 90 °C	40 °C	1 °C
Feed temperature reducing mode	Only if [Weather-dependent] parameter = active Setting the feed temperature setpoint for the HC during the setback time for the operating mode: "Automatic 1", "Automatic 2", "Reducing".	E	E	10 - 90 °C	10 °C	1 °C

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Max. feed temperature	The setting limits the feed temperature (measured at tV2) with active heating support function. The determined feed temperature setpoint of the HC is limited to the maximum value set here. If an optionally connected mixed HC requests a higher temperature of the heat generator, this is taken into account. Thus, the internal circulation pump of the heat generator always runs if it is switched on. If the direct HC supplies the floor heating, a mechanical temperature limiter must be installed to prevent any overheating of the screed.	N	E	20 - 90 °C	55 °C	1 °C
Min. feed temperature	The determined feed temperature setpoint of the HC is limited to the minimum value set here.	N	E	10 - 90 °C	28 °C	1 °C
Room Influence	Only with room control connected and assigned to the HC: The setting, what influence the deviation of the room temperature measured by EHS157034 from the current target value (see Chap. 4.2) has on the feed temperature. Off: Purely weather-dependent feed temperature control 0: Purely weather-dependent feed temperature control, but internal circulation pump continues running until the next heating cycle after a heat requirement during the setback cycle. 1-20: Causes a correction of the feed temperature setpoint (parallel shift of the heating curve) by the set factor. If the measured temperature lies 2 K below the target value, the feed temperature setpoint is increased by 2x the set value.	E	E	Off, 1 - 20 K	Off	1 K
Adjustment room sensor	Only with room control connected and assigned to the HC. Individual adjustment of the room temperature relevant to the control unit. If a systematic deviation of the room temperature measured by the EHS157034 to the actual temperature in the occupied area of this room is determined, the measured value can be corrected by the set value.	E	E	-5 - +5 K	0.0 K	1 K
Heating curve adaptation	The function can only be carried out for a room controller connected and assigned to the HC: Off: Deactivated On: Activated = start of a one-time automatic heating curve adaptation. Prerequisites: - External temperature < 8 °C - Setting of the mode: "Automatic 1" or "Automatic 2" - Duration of the setback period is at least 6 h Function: At the start of the setback time, the current room temperature is set as the target value for the following 4 hours. The heating curve that is required to maintain this room temperature is determined from the feed temperature setpoint by the control unit. If the automatic heating curve adaptation is interrupted, the function pauses until the adaptation is successfully carried out or ended the next day (setting the parameter to "Off" or changing the current operating mode). Domestic hot water generation and automatic heating curve adaptation is locked during the heating curve adaptation.	N	E	Off On	☐ ☑	-
Interlink temperature rise	Only if [Interlink function] parameter = On: Feed temperature setpoint is increased by the set value when the cooling RT switching contact is closed. Request, e.g. by HP convector.	N	E	0 - 50 K	5 K	1 K
Comfort Heating	If the heat pump cannot cover the heating demand at very low external temperatures, heat is extracted from the storage tank and used for room heating (see Chap. 4.5.4) On: Corresponding external temperatures, the storage tank temperature is raised above the storage tank temperature set for the hot water requirement.	N	E	Off On	☑ ☐	

Tab. 7-22 Parameters in the menu: "Heating"

7.6.4 Menu: Cooling

[→ Main menu → Configuration → Cooling]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Start T-Out Cooling	Only if [Weather-dependent] parameter = 0: Setting of the external temperature at which cooling mode starts with the highest cooling feed temperature setpoint [T-Flow Cooling start] (setting condition: "Cooling" mode).	E	E	15-45 °C	24 °C	1 °C
Max T-Out Cooling	Only if [Weather-dependent] parameter = 0: Setting of the external temperature at which the lowest cooling feed temperature setpoint [T-Flow Cooling max] is specified (setting condition: "Cooling" mode).	E	E	20-45 °C	35 °C	1 °C
T-Flow Cooling start	Only if [Weather-dependent] parameter = 0: Setting of the cooling feed temperature setpoint at the start of cooling mode (external temperature = parameter [Start T-Out Cooling])	E	E	5-25 °C	18 °C	1 °C
T-Flow Cooling max	Only if [Weather-dependent] parameter = 0 Setting of the minimum cooling feed temperature setpoint. This is held constant as of the external temperature ([Max T-Out Cooling] parameter).	E	E	5-25 °C	8 °C	1 °C
Feed temperature lower limit	Only if [Weather-dependent] parameter = 0: Setting of the absolute lower limit of the cooling feed temperature setpoint. Limitation acts if a lower cooling feed temperature setpoint is determined from other parameter settings.	N	E	5-25 °C	18 °C	1 °C
Feed temperature cooling mode	Only if [Weather-dependent] parameter = 1: Setting of the cooling feed temperature setpoint (fixed value) for active cooling mode.	E	E	5-30 °C	18 °C	1 °C
Cooling setpoint adjustment	Parallel shift of the cooling characteristic curve by the set value.	N	E	-5.0 - +5.0 K	0.0 K	1 K
Interlink temperature reduction	Only if [Interlink function] parameter = On: Cooling feed temperature setpoint is reduced by the set value when the cooling RT contact is closed (see [Interlink function] parameter). Request, e.g. by HP convector.	N	E	0-50 K	5 K	1 K

Tab. 7-23 Parameters in the menu: "Cooling"

7.6.5 Menu: Hot water

[→ Main menu → Configuration → Hot water]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Max. hot water generation time	Setting of the maximum duration of a domestic hot water generation cycle. Then cancellation of domestic hot water generation if the current hot water temperature does not reach the set target value in the [Hot water temp. setpoint 1] parameter.	N	E	10 – 240 min	60 min	10 min
Hot water blocking time	Setting of the blocking time after completion or cancellation of a domestic hot water generation cycle. The repeat request for domestic hot water generation is operated after this blocking time has elapsed at the earliest.	N	E	0 – 180 min	30 min	10 min
Hot water hysteresis	Hot water charging switching threshold Setting of the temperature difference by which the temperature in the hot water storage tank may fall in comparison with the currently valid hot water temperature setpoint [Hot water temperature setpoint] before the heat pump for hot water charging is to be activated.	E	E	2-20 K	7 K	1 K
Timer add. heat generator	Delay time as of which the additional heat generator may support the heat pump in hot water charging (see Chap. 4.5).	E	E	20-95 min	50 min	1 min
Circulation pump control	Setting for the control of a circulation pump. Use in France not permitted! Off: Optional circulation pump is synchronously controlled to the active switching time program for domestic hot water generation. On: Optional circulation pump is controlled according to the [Circulation program] switching time program.	E	E	Off On	Off	-

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Circulation pump control	Setting of the interval control for an optional circulation pump. Use in France not permitted! Off: Deactivated. The circulation pump runs permanently during the release times of the assigned switching time program ([Circulation pump control] parameter). Otherwise: The circulation pump runs clocked (clock cycle ratio: pump runtime = setting value each 15 min).	E	E	Off, 1 - 15 min	Off	1 min
Thermal disinfection day	Setting of the day for thermal disinfection of the hot water storage tank. Off: No thermal disinfection Monday - Sunday: Day of thermal disinfection Mon - Sun: Daily thermal disinfection	E	E	Off, Monday ... Sunday, Mo - Su	Off	-
Thermal disinfection start time	Setting of the start time for thermal disinfection of the hot water storage tank (format hh:mm).	N	E	00:00 - 23:45	03:30	15 min
Thermal disinfection temp.	Setting of the hot water temperature setpoint during thermal disinfection of the hot water storage tank.	N	E	60 - 70 °C	65 °C	1 °C

Tab. 7-24 Parameters in the menu: "Hot water"

7.6.6 Menu: Additional programs

[→ Main menu → Configuration → Add-on]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Air Purge	Activation of automatic air purge of the Daikin Altherma EHS(X/H) and the connected HC. Off: Deactivated On: Start of the air purge function	N	E	Off On	☑ ☐	-
Relay Test	Manual control of individual relays for test purposes. After confirmation of this parameter with the rotary button, the list of relays 1 - 9 is displayed with a checkbox on the display. For selection and confirmation of a relay with the rotary button, a tick is placed in the checkbox and the respective relay is activated. Multiple selection is possible. Output J1: Output J1 (internal heating circulation pump), pump output Output J14: Output J14 (circulation pump), mix valve "Open" Output J2 contact A: Contact A on output J2 (change-over valve 3UVB1), mixer valve "Closed" Output J2 contact B: Contact B on output J2 (change-over valve 3UVB1) Output J12 3UV DHW open: Output J12, change-over valve 3UV DHW, "Closed" Output J12 3UV DHW closed: Output J12, change-over valve 3UV DHW "Open" Connection J3 N/O contact B: Connection J3 (potential-free relay: Normally open contact B-B1) - AUX Connection J3 changeover contact A: Connection J3 (potential-free relay: Changeover contact A-A1/A-A2) - AUX Output J10: Output J10 (power supply A1P) Output J17 relay K2: Output J17 (Pin 3) - relay K2 (RTX-EHS) output XBUH1 T2 Output J17 relay K1: Output J17 (Pin 2) - relay K1 (RTX-EHS) output XBUH1 T3 Output J17 relay K3: Output J17 (Pin 4) - relay K3 (RTX-EHS) output XBUH1 T1	N	E	Output J1 Output J14 Output J2 contact A Output J2 contact B Output J12 3UV DHW open Output J12 3UV DHW closed Connection J3 N/O contact B Connection J3 changeover contact A Output J10 Output J17 relay K2 Output J17 relay K1 Output J17 relay K3	-	-
Screed	Function for floor screed dryout Off: Deactivated On: The flow temperature is regulated according to the parametrised floor screed program. The day on which the screed function is activated is not included in the running time of the floor screed program. The first day starts when the day changes at 00:00 am. On the day of activation, heating is carried out for the remaining time with the feed temperature setpoint of the program of the first day (see Chap. 4.5).	N	E	Off On	☑ ☐	-
Screed Program	Setting of the sequence program of the screed heating. An individual feed temperature setpoint can be set for each day for a maximum duration of 28 days. The end of the Floor screed program is defined by the 1st day with the target value setting "- - - -" (see Chap. 4.5).	N	E	10 - 70 °C per heating day	see Tab. 3-10	1 °C

Tab. 7-25 Parameters in the menu: "Additional programs"

7.7 Info

[→ Main menu → Info]

7.7.1 Overview

[→ Main menu → Info → Overview]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Mode	Current mode of the heating pump.	S	S	No request Heating Cooling Domestic hot water generation Automatic defrost function	-	-
EXT	External request: Low tariff: EVU function HT/NT active and low tariff. High tariff: EVU function HT/NT active and high tariff. SG1: SMART GRID EVU function active, discharge: No heat pump operation, no frost protection function. SG2: SMART GRID EVU function active, switch-on recommendation, operation with higher temperature setpoints, cheap current. SG3: SMART GRID EVU function active, switch-on command and storage tank charging to 70 °C, cheaper current. No external mode: Heat pump operates in standard mode.	S	S	Low tariff High tariff SG1 SG2 SG3 No external mode	-	-
RT	Room thermostat/Interlink: Off: If [Interlink function] = On: Frost protection only; otherwise: Off Heat or cooling request (If [Room Thermostat] = On) No heat request (If [Room Thermostat] = On) IL1 (If [Interlink function] = On): Normal feed temperature setpoint IL2 (If [Interlink function] = On): In heating mode, increased feed temperature setpoint, in cooling mode reduced feed temperature setpoint	S	S	No heat request IL1 IL2	-	-
Pump	Status of the internal heating circulation pump (On/Off)	S	S	Off On	-	-
V	Current volume flow in the heating system	S	S	-	-	-
EHS	Current output of the optional backup heater in kW	S	S	-	-	-
TV	Current feed temperature after the plate heat exchanger (tV) in °C	S	S	-	-	-
TVBH	Current feed temperature after heating support (tV, BH) in °C	S	S	-	-	-
TR	Current return flow temperature in °C	S	S	-	-	-
Tdhw	Current temperature in hot water tank in °C	S	S	-	-	-
TA	Current external temperature in °C (on outdoor unit)	S	S	-	-	-
Psyst	Current water pressure in the heating network in bar	S	S	-	-	-
BPV	Current position of 3UVB1 mixing valve (0%: heating network; 100%: internal bypass)	S	S	-	-	-
3UVD	Current position of the 3UVDHW mixing valve (0% heating network; 100% hot water storage tank)	S	S	-	-	-

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
TA2	Current external temperature in °C (on optional external temperature sensor)	S	S	-	-	-
Tilq2	Current refrigerant temperature °C	S	S	-	-	-
quiet	Status of the Quiet mode	S	S	Inactive Active Active at night	-	-
HZU	Status of the heating support	S	S	Off On	-	-

Tab. 7-27 Parameters in the menu: "Overview"

7.7.2 Values

[→ Main menu → Info → Values]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Feed temperature current	The current feed temperature of the heat generator (t_{V1}) is displayed in °C.	S	S	0 - 100 °C	-	1 °C
Feed temperature setpoint	The current temperature setpoint of the heat generator is displayed in °C.	S	S	0 - 90 °C	-	0.1 °C
Average ext. temperature	The current external temperature is displayed in °C.	S	S	-39 - 50 °C		0.1 °C
Hot water temperature current	The current temperature of the hot water storage tank is displayed in °C. If no hot water function is activated, "- - -" is displayed.	S	S	0 - 100 °C	-	0.1 °C
Hot water temperature setpoint	The current temperature setpoint for domestic hot water generation is displayed in °C. If no hot water function is activated, "- - -" is displayed. Here, the current target value is always the maximum value of all requirements relevant for this hot water circuit.	S	S	10 - 70 °C	-	0.1 °C
Current return flow temperature	The current return flow temperature of the heat generator is displayed in °C. If no respective sensor is connected to the heat generator, "- - -" is displayed.	S	S	0 - 100 °C	-	0.1 °C
Current volume flow	The filtered value of the current volume flow is displayed.	S	S	0 - 5100 l/h	-	l/h
Feed temperature HC current	The temperature of the direct HC (t_{V2} is displayed with active heating support, otherwise t_{V1}) in °C.	S	S	0 - 100 °C	-	0.1 °C
Feed temperature HC setpoint	The (feed) temperature setpoint of the direct HC is displayed in °C.	S	S	0 - 90 °C	-	0.1 °C
Status heat circulation pump	The current status of the internal circulation pump of the heat generator is displayed.	S	S	Off On	-	-
Mixer Position	Only 5xx: The current position of the 3UVDHW 3-way mixing valve in % is displayed.	S	S	-	-	1%
Heat generator type	The configured type of the heat generator is displayed.	S	S	-	-	-
Software Nr B1/ U1	The software and version of the operating unit are displayed.	S	S	-	-	-
Software no. controller	The software number and version of the control PCB are displayed.	S	S	-	-	-

Tab. 7-28 Parameters in the menu: "Values"

INFORMATION

Depending on the device type, the system configuration and the version of the device software, individual information parameters listed in Chap. 7.7 cannot be displayed or are displayed at another parameter level.

7.7.3 Water pressure

[→ Main menu → Info → Pressure]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Water pressure	The current water pressure is displayed in bar.	S	S	0 - 4 bar	-	0.1 bar

Tab. 7-30 Parameters in the menu: "Water pressure"

7.8 Error

[→ Main menu → Error]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Manual operation status	Activation of the fixed feed temperature control (for diagnostic purposes).	E	E	Inactive Active	☑ ☐	-
Manual operation temperature	Required feed temperature for manual operation.	E	E	20-80 °C	50 °C	-
Emergency operation	Emergency heating by backup heater or another external heat generator. On: In the event of an error, emergency operation is automatically activated. Off: In the event of an error, emergency operation by manual activation only.	E	E	Off On	☑ ☐	-

Tab. 7-31 Parameters in the menu: "Error"

7.9 Terminal

[→ Main menu → Terminal]

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Bus - Scan	Off: No function On: Control unit checks which RoCon devices are connected in the system via CAN bus lines. Detected devices are displayed with type and data bus ID (e.g. MM#8 = mixer module with bus ID 8). The selection and activation of a device with the rotary button switches the function of the control unit to the selected device (see Chap. 4.8).	E	E	Off On	Off	-
Local (No selection)	Activation switches to local device.	E	E	☐ / ☑	☑	-
Contr BM1/BE1 #X	Activation switches to the heat generator with the bus ID X (see Chap. 4.8, [BUS ID HS] parameter).	E	E	☐ / ☑	☐	-
Mix Valve #X	Activation switches to the mixer module with the bus ID X (see Chap. 4.8, [Heating circuit assignment] parameter).	E	E	☐ / ☑	☐	-
Terminaladress	Setting of the terminal ID of the control panel for system access. The set value must be unique throughout the entire system. Confirmation of this parameter with the rotary button effects new initialisation of the control unit. All settings (except "Off") authorise the user of the control panel to activate the terminal function and thus to operate all RoCon system components with a valid device ID.	N	E	Off, 0-9	Off	1
System Config	System configuration of the device, consisting of sensor configuration and data bus configuration. If the prompt regarding use of the standard configuration is answered with "Yes" when the device is first started, the basic configuration appropriate to the installed heat generator is automatically activated. Confirmation of this parameter with the rotary button when "Inactive" or "Delete" is set leads to re-initialisation of the controller. An error message follows. Use the rotary button to operate the displayed menu guidance.	N	E	Inactive Active Delete	Active	-

Tab. 7-32 Parameters in the menu: "Terminal"

7.10 Statistics

[→ Main menu → Statistics]

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Energy add. heat hot water	The volume of heat of the additional heat generator for domestic hot water generation in kWh is displayed.	S	S	-	-	kWh
Energy add. heat heating	The volume of heat of the additional heat generator for heating mode in kWh is displayed.	S	S	-	-	kWh
Energy HP cooling	The volume of heat of the heat pump for cooling mode in kWh is displayed.	S	S	-	-	kWh
Energy HP heating	The quantity of heat in the heat pump for heating is displayed in kWh.	S	S	-	-	kWh
Runtime compressor	The running time of the refrigerant compressor in h is displayed.	S	S	-	-	1 h
Runtime Pump	The runtime of the internal heating circulation pump is displayed in h.	S	S	-	-	1 h

Tab. 7-33 Parameters in the menu: "Statistics"

INFORMATION

Depending on the device type, the system configuration and the status of the device software, individual listed information parameters cannot be displayed or can be displayed at a different parameter level.

7.11 Configuration wizard

Automatically when commissioning the system or under [→ Main menu → Configuration → Wizard]

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Unmixed Circ Config	Setting of the HC ID for the direct HC of the ROTEX HPSU monobloc compact. The HC ID must be unique throughout the RoCon system. There must be no overlap with the HC IDs of optional mixer circuits.	N	E	0 – 15	0	1
BUS ID HS	The setting may only be changed if more than 1 heat generator is integrated in the RoCon system. Several heat generators integrated in the heating installation must be regarded as a special application. If necessary, contact a ROTEX service specialist.	N	E	0 – 7	0	1
Time Master	Activation of a system-wide time master. The Time Master synchronises all controllers in the RoCon system with the time and date set on the Time Master. For all other control panels in the system, it is no longer possible to enter the time and date. There must only be one time master in the entire system. The parameter is not available if the Time Master parameter is activated at another controller in the RoCon system.	N	E	Off On	☐ ☑	-

Tab. 7-35 Parameters in the menu: "Configuration Wizard"

8 Faults and malfunctions

DANGER: RISK OF ELECTROCUTION

Electrostatic charges can lead to voltage arcing that can destroy the electronic components.

- Ensure potential equalisation prior to touching the switching panel PCB (e.g. by touching the switching panel holder).

8.1 Troubleshooting

The electronic controller of the Daikin Altherma EHS(X/H):

- signals an error by means of the display lighting up red and shows an error code on the display (see Chap. 8.3).
- shows information messages regarding the operating status (not signalled by red background lighting).

An integrated protocol saves up to 15 error messages or other operating status information messages that last occurred.

Depending on the operating mode, messages are also forwarded to connected room stations or room thermostats.

8.1.1 Current error display

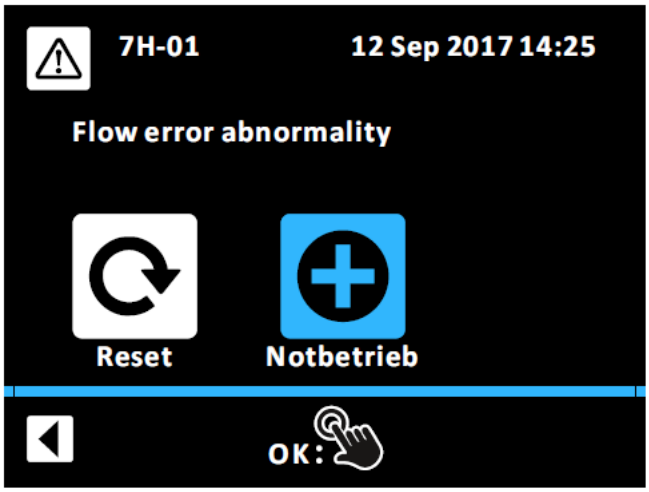

Fig. 8-1 Display of a current error message

8.1.2 Reading the error protocol

The error protocol can be read in the menu: "Error".

Here, the latest (most recent) error message received is given top priority. All other previous error messages are then pushed down one place by each new entry. The 16th error message is deleted if a new error message arrives.

The entire error protocol can only be deleted by Service.

8.1.3 Rectifying faults

Information messages that are displayed without red illumination do not normally result in permanent restrictions on the operation of the RoCon.

Messages that are displayed with an error code E.... and red illumination require error correction by an authorised and trained expert heating technician.

For information on warning messages, see Chap. 8.3.

1 Detecting and remedying the cause of the malfunction.
   – Contactor triggered:
   – Nothing shown on the display of the controller. Ascertain the cause that triggered the contactor and remedy the fault. Start the system again.
   - Once the cause has been remedied, the system will resume operation as normal.
   – Contactor not triggered:

2 No error codes are shown, but the system is not working properly. Look for causes and remedy them (see Chap. 8.3).
   - Once the cause has been eliminated, the system continues to work normally.

3 Error codes are displayed as long as fault conditions are present. Look for causes and remedy them (see Chap. 8.3). If the fault message is still displayed after the cause of the fault has been corrected, the system must be disconnected from the power supply for at least 10 seconds in order to unlock it.
   - Once the cause has been eliminated, the system continues to work normally.

INFORMATION

To ensure that the fault has not been caused by incorrect settings, set all the parameters back to the factory settings before possible replacement of components (see Chap. 4.5).

If it is not possible to determine the cause of the fault, please consult a service technician.

Please have the essential device data ready for this:

Type and manufacturer number of the Daikin Altherma EHS(X/H) (see heat pump nameplate) as well as the software versions of:

a: Control panel RoCon+ B1 [Sw No B1/U1]

b: RoCon BM2C PCB [Sw Nr Controller]

c: Burner control [Sw Nr FA]

On optional RoCon system components:

EHS157034 [Sw No B1/U1]

EHS157068 [Sw Nr mixing valve]

8.2 Emergency operation

In the event of electronic control malfunctions or malfunctions of the 3-way switching valves, emergency heating operation can be maintained by activating the special "Emergency operation" function on the control unit (see the notes in the installation and maintenance instructions of the Daikin Altherma EHS(X/H)).

1 Use the rotary button to select the **"**Error**"** menu.

2 Confirm the selection with a brief push of the rotary button.
   ➔ An overview is displayed

3 Use the rotary button to select the "Emergency operation" menu.

4 Confirm the selection with a brief push of the rotary button.

5 Activate emergency operation with the rotary button.

Cancellation and jump back by pushing the button again.

8.3 Error codes

See Daikin Altherma EHS(X/H)Installation and maintenance instructions; chapter "Errors, malfunctions, messages".

9 Mixer module

In addition to the direct HC, the emitter type can be extended by additional HCs using mixer modules EHS157068. These additional HCs can be configured independently of the direct HC. The configuration is similar to the configuration of the direct HC (see Chap. 4). Only a limited selection of parameters and functions is available (see Chap. 9.2).

The optional EHS157068 mixer module does not have its own control unit. For configuration and operation, it must be connected to the RoCon+ controller installed in the heat generator or to a EHS157034 room station via a CAN bus line. The mixer module can be operated in terminal mode from both operating units (see Chap. 4.8).

A unique device ID (≥ 1) must be set on the address switch of the mixer module (see Fig. 9-1) for the HC to be controlled by this mixer module, which must be synchronised with the [Heating circuit assignment] parameter of the mixer module (see Tab. 4-10]).

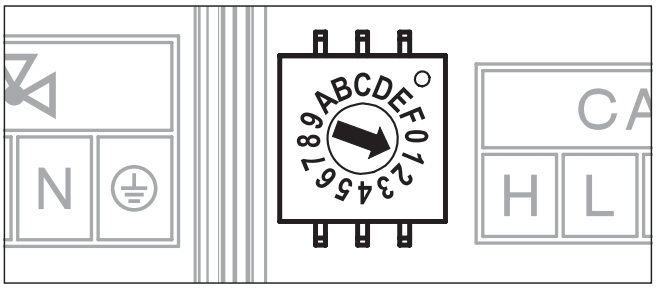

Fig. 9-1 Setting the device ID for the RoCon M1 mixer module

The current operating status can be determined directly on the EHS157068 mixer module (see Fig. 9-2).

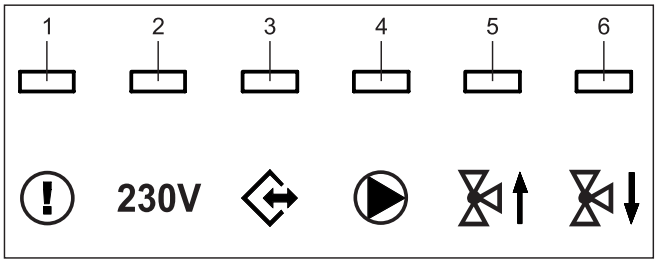

Fig. 9-2 Explanation of the RoCon M1 status display icons

Item	LED	Description
1	Red	Flashing: Internal error (The error code is communicated to the relevant control unit via the CAN bus)
		To: Undervoltage of the internal clock after a power failure (>10 h)
2	Green	To: Display during operation, mixer module switched on
3	Green	To: CAN communication
4	Green	To: Mixer circuit pump switched on
5	Green	To: Mixer valve "Open" is activated
6	Green	To: Mixer valve "Closed" is activated

Tab. 9-1

9.1 Mixer module start screen (terminal function)

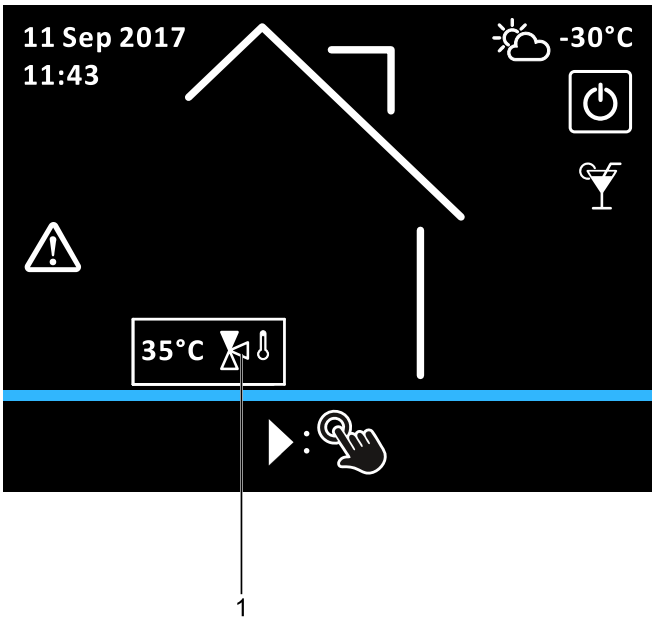

Fig. 9-3 Mixer module start screen

The start screen for the mixer module (Fig. 9-3) is a reduced version of the RoCon+ HP start screen. The meaning of the icons is the same Tab. 3-4, but the mixer temperature is the only system temperature displayed (Fig. 9-3, item 1).

9.2 Mixer valve parameter overview

Menu: Mode

see Chap. 6.1.

Menu: User

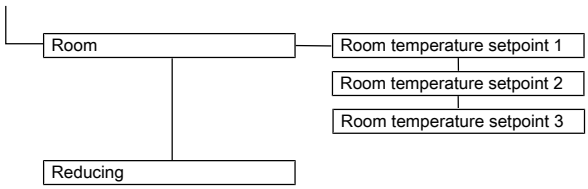

Fig. 9-4 Parameters in the menu: "User"

Menu: Time program

see Chap. 6.3.

Menu: Settings

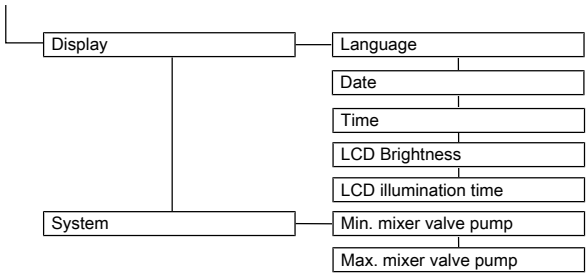

Fig. 9-5 Parameters in the menu: "Settings"

Menu: Configuration

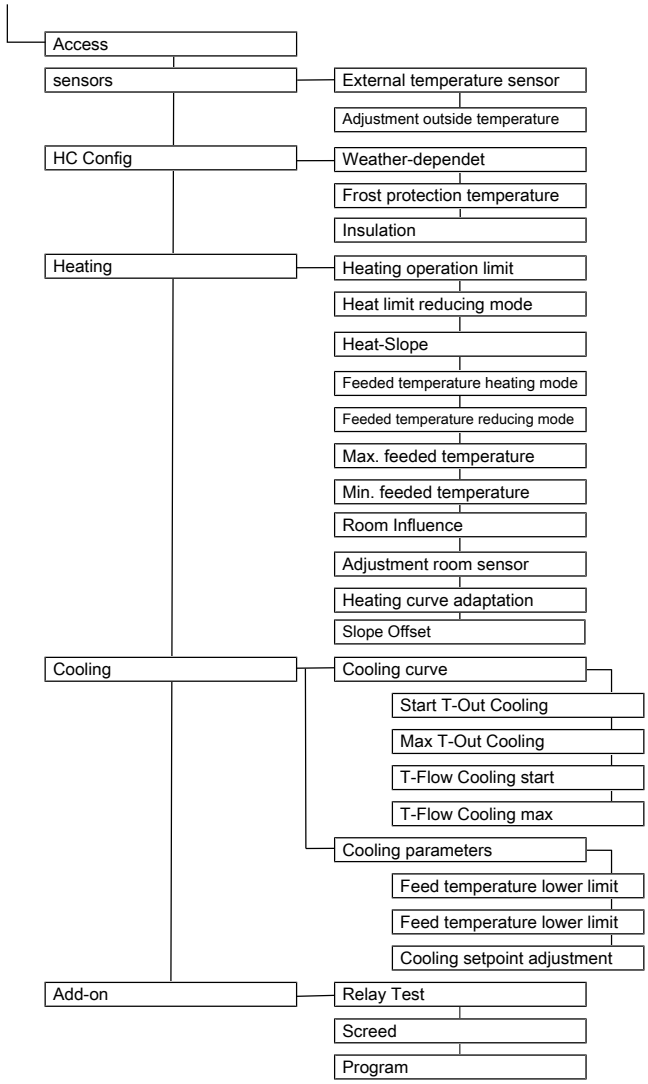

Fig. 9-6 Parameters in the menu: "Configuration"

Menu: Info

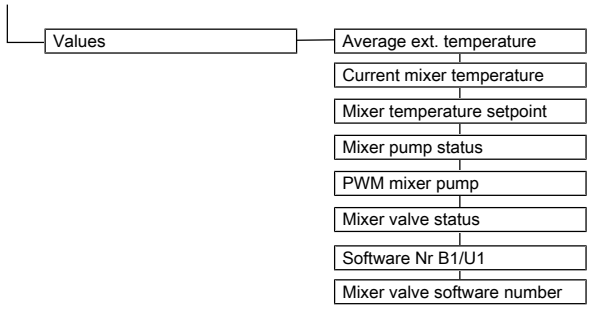

Fig. 9-7 Parameters in the menu: "Info"

Menu: Terminal

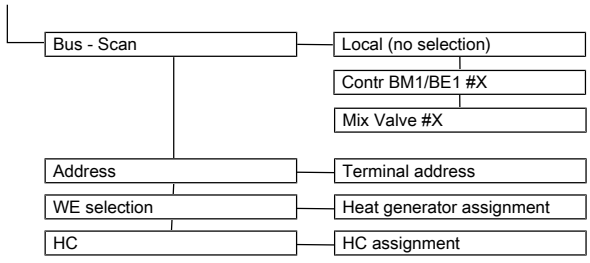

Fig. 9-8 Parameters in the menu: "Terminal"

9.3 Mixer module parameter settings

The parameters available for the mixer module are largely identical to the parameter described in Chap. 7. Tab. 9-2 lists the additional parameters available for the mixer module.

Parameters	Description	Access		Setting range	Factory setting	Increment
		BE	HF	Min / Max		
Min. mixer valve pump	[→ Main menu → Settings → System] Minimum power of the pump in the mixer circuit.	N	E	10 - 100%	30%	1%
Max. mixer valve pump	[→ Main menu → Settings → System] Maximum power of the pump in the mixer circuit.	N	E	20 – 100%	100%	1%
Slope Offset	[→ Main menu → Configuration → Heating] Setting of the slope offset of the feed temperature setpoint on the Daikin Altherma EHS(X/H) in comparison with the feed temperature setpoint determined for the mixer circuit.	N	E	0 – 50 K	5 K	1 K
Heat generator assignment	[→ Main menu → Terminal → WE Selection] Setting of the heat generator ID. Assignment of the EHS157068 to the heat generator. Setting must correspond to the value of the [BUS ID HS] parameter (see Chap. 7.11).	N	E	0 – 7	0	1
HC assignment	[→ Main menu → Terminal → HC] Setting of the HC ID of the mixer module. ▪ Off: Automatic assignment if there is only one mixer module in the system (system then automatically takes over the address switch setting as the HC ID irrespective of the set value). The setting must always correspond to the HC ID on the mixer module address switch. ▪ 0 - 9 = 0 - 9 ▪ 10 = A ▪ 11 = B ▪ 12 = C ▪ 13 = D ▪ 14 = E ▪ 15 = F	N	E	Off 0-15	Off	1

Tab. 9-2 Parameters of the mixer module

10 Glossary

Mode	Request by the user or the control unit for the function of the heat generator (e.g. room heating, domestic hot water generation, standby, etc.)
Backup requirement	Operating situation in which the required feed temperature cannot be reached efficiently or at all using the heat pump process. A heater booster (e.g. a backup heater) is therefore integrated to support the Daikin Altherma EHS(X/H) in generating heat.
Backup heater	Optional electric heater booster for general support of the Daikin Altherma EHS(X/H) during heat generation.
Heating curve	Mathematical relationship between the external temperature and the feed temperature setpoint in order to achieve the required room temperature at all external temperatures.
Refrigerant	A substance used for heat transfer in the heat pump process. At low temperature and low pressure, heat is absorbed and at high temperature and a high pressure, heat is emitted.
Anti-legionella system	Periodic heating of the storage water to >60 °C for the preventative elimination of pathogenic bacteria (so-called legionella) in the hot water circuit.
Off-peak mains connection (HT/NT)	A special mains connection to the energy supplier, which offers various cheaper rates during so-called low-load periods for electrical current (day-, night-, heat pump current, etc.).
Parameters	A value that influences the execution of programs or processes or defines specific states.
Control unit	Device electronics that are used to control the processes for the heat generation and heat distribution of the heating system. The control unit consists of a number of electronic components. The most important component for the operator is the control panel in the front area of the heat generator, which includes program selection keys, rotary buttons and display.
Return flow	Part of the hydraulic circuit that directs the cooled water from the radiators in the rooms back to the heat generator via the piping system.
Switching time program	Program for setting the times on the control unit in order to determine the regular heating, reducing and hot water cycles.
Smart Grid (SG)	Intelligent use of energy for inexpensive heating. By using a special electricity meter, it is possible to receive a "Smart Grid signal" from the utility company. Depending on the signal, the heat pump is shut off or operated as normal or at higher temperatures.
Flow	Part of the hydraulic circuit that diverts the heated water from the heat generator to the heating surfaces.
Domestic hot water circuit	This is the water circuit in which cold water is heated and diverted to the hot water tap.
Domestic hot water generation	Operating status of the heat generator in which heat with elevated temperatures is generated and fed to the hot water circuit, e.g. loading of the hot water storage tank.
Heat pump process	In a closed-loop refrigerant circuit, the refrigerant absorbs the heat from the ambient air. By means of compression, the refrigerant achieves a higher temperature that is transferred to the heating system (thermodynamic cycle).
Heat exchanger	A component that transfers thermal energy from one circuit to another. The two circuits are hydraulically separated from one another by a wall in the heat exchanger.
Weather-dependent feed temperature control	A suitable feed temperature is determined from the measured value for the external temperature and a defined heating curve; this temperature is used as the target value for temperature control in the heating unit.
Circulation pump	The circulation pump is an additional electrical circulation pump that permanently circulates the hot water in the hot water lines, thus providing it immediately at every tap. This circulation is especially useful in extensive pipeline networks. In systems without a circulation line, first the water cooled in the sampling line escapes during the sampling process until the sampling line has been sufficiently heated by the inflowing hot water.
Heater booster	Additional heat generator (e.g. backup heater or external boiler) integrated in the heating system to achieve the required feed temperature setpoint in the case of an inadequate or inefficient heat pump process.

11 User-specific settings

11.1 Switching time program

The factory settings of the timer programs are indicated in Chap. 4.3.

Enter your timer settings in the table below.

		Switching cycle 1		Switching cycle 2		Switching cycle 3	
	Temperature setting	**[Room temperature setpoint 1]: ____ °C**		**[Room temperature setpoint 2]: ____ °C**		**[Room temperature setpoint 3]: ____ °C**	
	Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Heating circuit automatic 1	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						
Heating circuit automatic 2	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Individual settings in the heating timer programs

		Switching cycle 1		Switching cycle 2		Switching cycle 3	
	Temperature setting	**[Hot water temp. setpoint 1]: ____ °C**		**[Hot water temp. setpoint 2]: ____ °C**		**[Hot water temp. setpoint 3]: ____ °C**	
	Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Hot water automatic 1	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						
Hot water automatic 2	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Individual settings in the hot water timer programs

		Switching cycle 1		Switching cycle 2		Switching cycle 3	
	Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Circulation program	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Individual settings in the hot water timer programs

11.2 Parameters

Enter the parameter changes you made in the table below and in the operating manual of the heat generator.

Rotary switch setting	Parameter level	Parameters	Old value	New value	Date	Comments

Individual parameter changes

11.3 Data bus addresses

RoCon Device	Data bus address	Comments

Data bus addresses in the RoCon system

12 Notes

12 Notes

List of keywords

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