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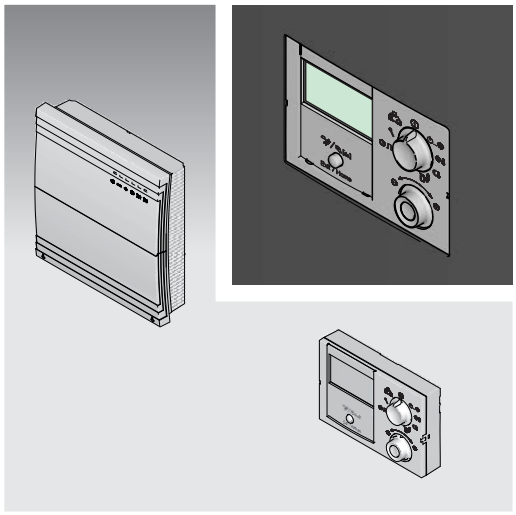
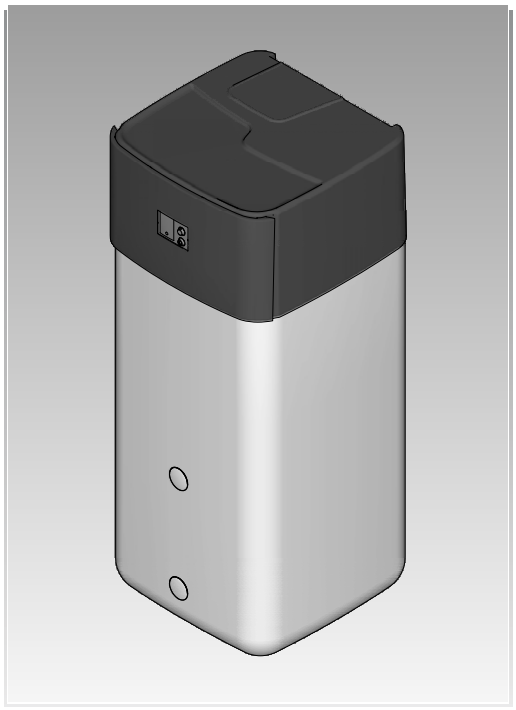
ROTEX

ROTEX Control unit RoCon mb, RoCon U1, RoCon M1 Operating instructions



Electronic controller for heat pumps



CE

For ROTEX HPSU monobloc compact types

RKHWMX300C
RKHWMX500C
RKHWMXB300C
RKHWMXB500C

GB
Edition 09/2017

List of contents

1 Safety

1.1 Refer to the manual

These instructions are the >> ***translation of the original version*** << in your language.

All the activities required for operation and setting the parameters are described in this instruction manual. All parameters needed for trouble-free operation have been configured at the factory.

- Please read through this manual carefully before operating the heating system or before adjusting the settings for it.
- Make a note of the preset values before you make any changes to the unit configuration.

Relevant documents

– ROTEX HPSU monobloc compact:
  – Installation and maintenance instructions
  – Operating instructions for the user/owner
  – Commissioning checklist
  – the operating manual for the user/owner
– Outdoor unit for ROTEX HPSU monobloc compact: the respective installation and operating instructions.
– On connection of a ROTEX solar system: the respective installation and operating instructions.
– On connection of a ROTEX HP convector: the respective installation and operating instructions.
– For connecting to another ROTEX heat generator or optional accessories: the associated installation and operating instructions.

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

1.2 Warning signs and explanation of symbols

1.2.1 Meaning of the warnings

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

DANGER!

Draws attention to imminent 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 may cause damage to property and the environment.

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

Special warning signs

Some types of danger are represented by special symbols:

Electric current

Risk of burning or scalding

1.2.2 Validity

Some information in this manual has limited validity. The validity is highlighted by a symbol.

- Only valid for ROTEX HPSU monobloc compact with cooling function
- Only valid/available with a connected room station (RoCon U1)
- Only valid/available with a connected mixer module (RoCon M1)

1.2.3 Order number

Notes related to order numbers are identified by the shopping cart symbol .

1.2.4 Handling instructions

- 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.

Display readouts of the RoCon controller

Entry into a setting procedure

Exit from a setting procedure

Certain screen displays or menu items may deviate from those shown in these instructions depending on the national or equipment variant of the ROTEX HPSU monobloc compact or the user status logged onto the controller.

1.3 Avoiding danger

The ROTEX HPSU monobloc compact is built according to the state-of-the-art and the recognised technical rules. However, improper use may result in serious physical injuries or death, as well as property damage.

To avoid hazards, only operate the ROTEX HPSU monobloc compact:
– as stipulated and in perfect condition,
– with an awareness of safety and the hazards involved.

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

WARNING!

This equipment must 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 therefrom. **Children** must not play with the equipment. Cleaning or **user maintenance** must not be carried out by **children** without supervision.

1.4 Use as intended

The RoCon mb controller must only be used in ROTEX HPSU monobloc compact heat pumps that are approved for the ROTEX RoCon regulating system. The ROTEX RoCon mb must only be operated as per the data in these instructions.

Any other use outside the intended use is considered as improper. 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, you must observe the details provided in the supplementary documents, particularly with regard to safety instructions.

2 Product description

The RoCon mb controller is part of the ROTEX HPSU monobloc compact.

It consists of the **RoCon BM1** printed circuit board, to which the actuators, sensors and further components of the ROTEX RoCon regulating system are connected, and the **RoCon B1** control panel.

In this instruction manual we explain just the functions and setting possibilities of the control unit. More detailed information on the ROTEX HPSU monobloc compact and other device components can be found in the other applicable documents.

Depending on heater unit, the electronic, digital controller automatically regulates all heating, cooling and hot water functions for a direct heating circuit, a storage tank charging circuit and, via mixer modules that can be optionally connected, also further heating circuits.

It undertakes all safety management for the ROTEX HPSU monobloc compact. 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 ROTEX HPSU monobloc compact 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 back-lighting.

The following additional, optional devices can be connected to the ROTEX HPSU monobloc compact via the controller data bus:
– **RoCon U1** room station (15 70 34).
– **RoCon M1** mixer module (15 70 68).

In addition, the RoCon mb controller has a frost protection function for the direct heating circuit 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.).

Several inputs for evaluating external control contacts are also available (external operating mode switching or heat request, Smart Grid and off-peak EVU functions[1)].

1) Utility company (EVU) outputs signals that are used to control power grid capacity utilisation and influence the electricity price and availability.

With the optional **RKRSCA1** outside temperature sensor (**14 10 39**) that is installed on the north side of the building, weather-dependent T-HS control can be further optimised.

If the optional **RoCon G1** gateway (**15 70 56**) is installed and connected to the Internet, the ROTEX HPSU monobloc compact can be conveniently monitored and operated by remote control using a mobile phone (app).

The RoCon mb control unit contains a timer which can be used to set:
– 2 individual adjustable switching time programs[2)] for room heating and room cooling (direct heating circuit),
– 2 individually-adjustable timer programs for hot water generation,
– 1 individually-adjustable timer program for an optional circulation pump.

2) Use of the switching time programs for room cooling only in combination with a connected room thermostat

Initial commissioning of the heating system is described in the installation instructions for the ROTEX HPSU monobloc compact.

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

The RoCon U1 room station has the same user interface as the ROTEX HPSU monobloc compact's integrated RoCon B1 control panel.

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

After corresponding assignment, a connected RoCon M1 mixer module is also operated using the RoCon B1 control panel and/or the RoCon U1 room station.

3 Operation

3.1 General

DANGER!

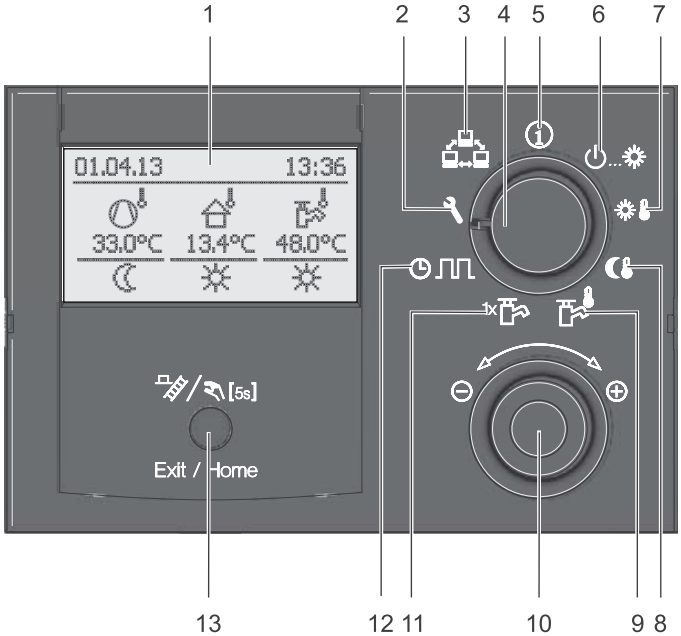
If electrical components come into **contact** with **water**, this can cause an **electric shock** as well as cause potentially fatal burns or injuries.

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

Maximum energy exploitation
The ROTEX HPSU monobloc compact makes the most effective use of energy at the lowest possible return and target hot water temperature.

If an external heat generator (e.g. the optional backup heater) is activated at target feed temperatures over 50 °C, the efficiency (COP) of the ROTEX HPSU monobloc compact can deteriorate (depending on the outside temperature).

3.2 Display and operating elements



1	*Clear text display*	7	*Setting: Set Temp Day*
2	*Setting: Configuration*	8	*Setting: Set Temp Night*
3	*Setting: Remote Param*	9	*Setting: DHW Set Temp*
4	*Rotary switch*	10	*Rotary button*
5	*Setting: Info*	11	*Setting: DHW Install*
6	*Setting: Operating Mode*	12	*Setting: Time Program*
		13	*Exit key*

Fig. 3-1 Arrangement of display and operating elements

3.2.1 Display

All operating steps are supported by corresponding displays on a coloured backlit plain text display.

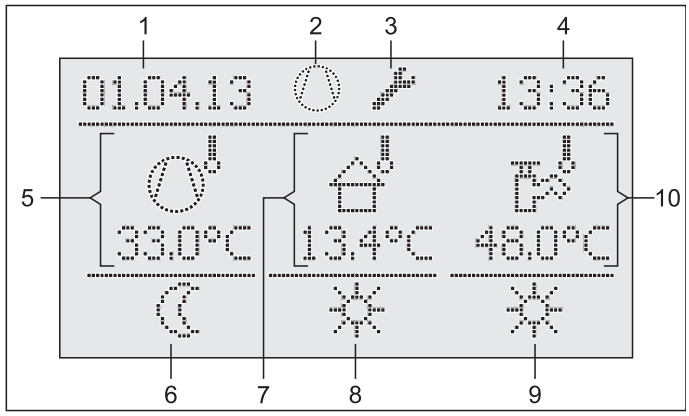
The menu guidance can be displayed 7 languages (see chap. 3.4.8).

Malfunctions are generally indicated by a fault code and a clear text fault message on the display.

For troubleshooting instructions, see Chapter 7.

The colour of the backlighting indicates the operational status and the operating mode:

White:	Standard lighting, normal operating display.
Red:	Fault status; depending on the type of fault, the ROTEX HPSU monobloc compact continues to operate with restrictions.
Green:	Operating mode with operator authorisation.
Blue:	Operating mode with expert authorisation.



1	*Display date*	7	*Current outside temperature*
2	*Refrigerant compressor status*	8	*Active operating mode*
3	*Status display (e.g. technician access rights active)*	9	*Hot water generation status*
4	*Display time*	10	*Current storage temperature*
5	*Current feed temperature*		
6	*Heating circuit status*		

Fig. 3-2 Display of the control unit - standard display

3 Operation

Explanation of symbols

Item fig. 3-2	Icon	Explanation
2		Flashing: heat pump request active Permanently on: refrigerant compressor operating
2		No connection to the heat pump outdoor unit
3		Expert access rights active (see chap. 3.6.1)
2 / 3		Air purge active (see chap. 3.6.10)
2 / 3		Terminal function active (see chap. 3.4.9)
2 / 3		Frost protection function active (see chap. 3.6.5)
2 / 3		Temporary time program "Party" active (see chap. 3.4.7)
2 / 3		Temporary time program "Away" active (see chap. 3.4.7)
2 / 3		Temporary time program "Holiday" active (see chap. 3.4.7)
2 / 3		Temporary time program "Vacation" active (see chap. 3.4.7)
2 / 3		Screed program active (see chap. 3.6.13)
5		Direct heating circuit The current feed temperature $t_{V, BH}$ is displayed beneath this.
5		Mixer circuit (M1) The current T-HS of the assigned heating circuit is displayed underneath.
5		Room temperature sensor (U1) The current room temperature is displayed underneath.
6		Heating circuit status – Heating circuit active (room heating function) – Heating circuit active (room cooling function) – Heating circuit not active (currently no thermal transport in the heating circuit)
7		External temperature sensor The current outside temperature is displayed underneath.
8		Current operating mode (see chap. 3.4.2)
		Standby active
		Reducing active
		Heating active
		Cooling active
		Summer active
		Automatic 1 active
		Automatic 2 active
9		Hot water generation active
		Hot water generation not active
10		Hot water heating circuit status The current storage tank temperature t_{DHW} is displayed beneath this.

Tab. 3-1 Explanation of display symbols

3.2.2 Controls

CAUTION!

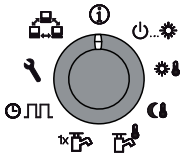
Never operate the operating elements of the control unit with a hard, pointed object. This can cause damage and can cause the control to malfunction.

If special key combinations or long key presses are required for certain functions, these are referred to separately in the respective section of this manual.

Rotary switch

Frequently required functions and setting options can be quickly and directly selected using the rotary switch (main function level).

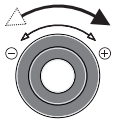
Irrespective of the rotary switch position, the ROTEX HPSU monobloc compact operates according to the operating mode which has been set in the ***"Operating Mode"*** ⏻…☼ switch position or activated by a special program.

Action	Result
Turning 	Direct selection of the main function level assigned to this switch position.

Tab. 3-2 Function of the rotary switch

Rotary button

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 	To the right (+): increasing adjustment To the left (–): decreasing adjustment
Touching 	Confirm selection, accept setting, execute function.

Tab. 3-3 Functions of the rotary button

Exit key

This key can be used to jump back to the previous display within a menu item or to cancel a function/input.

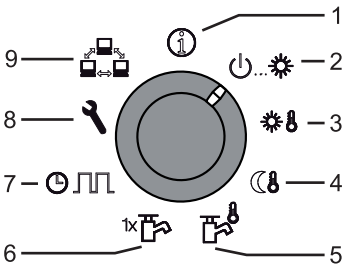
The special level can also be called up using this key (see chap. 3.5).

Action	Result
Touch briefly. 	– Return to the previous display or the previous level or – cancel a special function or an active, temporary time program.
Press for longer than 5 seconds. 	– A special level is called up.

Tab. 3-4 Functions of the Exit key

3.3 Operating concept

The operating concept of the RoCon mb control unit is designed so that frequently required setting options can be accessed quickly and directly at the **main function level** (selection by means of **rotary switch**) and less frequently required setting options are arranged on a lower lying parameter level.



1 Info (chap. 3.4.1)
2 Operating Mode (chap. 3.4.2)
3 Set Temp Day (chap. 3.4.3)
4 Set Temp Night (chap. 3.4.4)
5 DHW Set Temp (chap. 3.4.5)
6 DHW Install (chap. 3.4.6)
7 Time Program (Chap. 3.4.7)
8 Configuration (Chap. 3.4.8)
9 Remote Param (Chap. 3.4.9)

Fig. 3-3 Illustration of the main function level (rotary switch position)

Certain functions and parameters are restricted by access rights and can only be configured by a heating expert (see chap. 3.6.1).

In normal operation, the rotary switch should be in the ⓘ position.

After switching on and successful initialisation, the standard display automatically shows the display for the rotary switch setting ⓘ.

During initial start-up, the setting for the language selection is first displayed.

- Select the language with the rotary button.
- Confirm the selection with a brief push of the rotary button.

Adaptations to the special system configuration are made in the ***"Configuration"*** rotary switch setting (see chap. 3.4.8).

If the system is switched on, the defaults set in the RoCon mb control unit fully automatically control the operation of the
– room heating, room cooling and
– hot water generation plumbing.

Irrespective of the rotary switch position, the ROTEX HPSU monobloc compact operates according to the operating mode which has been set in the ***"Operating Mode"*** ⏻…☼ switch position or activated by a special program.

If the user sets a value manually, this setting remains active until the user changes it or until the timer program forces a different mode of operation.

The operating modes can be affected by additional functions such as:
– Weather-dependent T-HS control
– Switching time program
– Setting the temperature target value
– Setting on the room station
– Setting on the room thermostat
– Switch status on the EXT input (external operating mode changeover)
– Switch status at the EBA input (external requirement request)
– Whisper mode
– Interlink function
– Switch status at the Smart Grid input (EVU function Smart Grid)
– Switch status at the EVU input (EVU function HT/NT (off-peak) or Smart Grid)
– Defrost function
– Frost protection function
– Screed function
– Air purge
– Manual operation
– EHS emergency operation

Keylock

The control panel of the RoCon mb can be locked against inadvertent operation (see fig. 3-4).

It is unlocked in the same way.

Precondition for this function is that the [Keylock Function] parameter at the *"Setup"* level is set to "On" (see chap. 6.2.1, tab. 6-1).

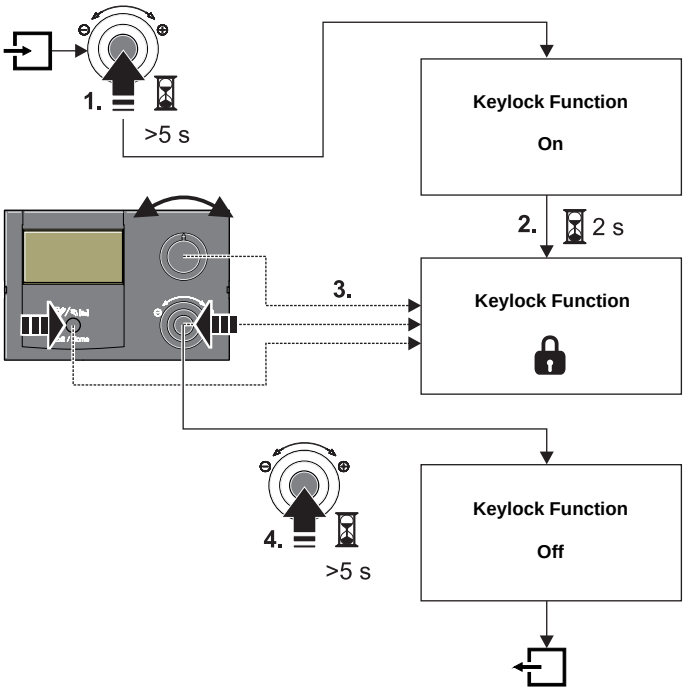


Fig. 3-4 Activating (1.) and deactivating (4.) the key lock

3.4 Basic functions and operating modes

If the storage tank temperature falls below specific minimum values, the ROTEX HPSU monobloc compact's safety settings prevent the heat pump from being operated at low outside temperatures:

– **Outside temperature < -2 °C**, minimum **storage tank temperature = 30 °C**
– **Outside temperature < 12 °C**, minimum **storage tank temperature = 23 °C**.

Without backup heater:
The storage tank water must be heated to the required minimum storage tank temperature with an external heater booster.

With backup heater (BUxx):
At an outside temperature of < 12 °C and a storage tank temperature of < 35 °C, the backup heater (BUxx) is automatically switched on to heat the storage tank water to at least 35 °C.

- To **speed up** the **heating process with backup heater**, **temporarily** set
  – parameter **[Function Heating Rod]** = "1" and
  – parameter **[Power DHW]** to the **maximum value of the backup heater**.
  – Set the rotary switch to operating mode, and set the parameter [1x Hot Water] to "On".

Automatic defrost function

At low outdoor temperatures and corresponding humidity, the heat pump outdoor unit may ice up. This icing impairs efficient operation. The system detects this status automatically and starts the defrost function.

While the defrost function is active, heat is drawn from the hot water storage tank, and the backup heater is activated if necessary. Depending on the heat required for the defrost function, heating the direct heating circuit may be temporarily interrupted during the defrosting process.

After a maximum of 8 minutes, the system switches back to normal operation.

3.4.1 System information (Info)

In this rotary switch position, the rotary button can be used to query all system temperatures, the ROTEX HPSU monobloc compact type, various software information and the operating states of all system components in succession. The number of displayed parameters depends on which components are connected.

No adjustments can be made to these values.

- Set the rotary switch to the ***"Info"*** position.
  ➔ Standard display is shown (see fig. 3-2).
- Press the rotary button briefly.
  ➔ Parameter overview is displayed.
- Use the rotary button to select the desired information level.
- Confirm the selection with a brief push of the rotary button.
  ➔ Value is displayed (example, see fig. 3-6).
- Use the rotary button to select the individual information.

Further explanations on, and possible display values for, this rotary switch position can be found in tab. 3-5 and chap. 6.10.

Displaying the operating data overview

On the "Overview" information level, the RoCon mb controller's display shows the current operating data for the ROTEX HPSU monobloc compact.

The display of the operating data is split over several screen pages. Adjust the rotary button to navigate between the screen pages.

Short designation		Explanation of the display value
Page 1	Mode	Current heat pump mode: - - -: No heat or cooling request ☼ : Heating ❄ : Cooling : Hot water generation : Automatic defrost function active
	Ext	Current heat pump energy mode: LT: EVU function HT/NT active and off-peak. HT: EVU function HT/NT active and peak. SGN: EVU function Smart Grid active, normal operation. SG1: EVU function Smart Grid active, shut-off: no heat pump operation, no frost protection function. SG2: EVU function Smart Grid active, switch-on recommendation, operation at higher target temperatures, inexpensive electricity. SG3: EVU function Smart Grid active, switch-on command and storage tank charging to 70 °C, inexpensive electricity - - -: No external mode active, heat pump operates in standard mode.

	RT	Parameter [Room thermostat] / [Interlink fct] = Off: - - -
		
		Parameter [Room thermostat] = On:
		– ☼ : Heat or cooling request
		– ○ : No heat requirement
		
		Parameter [Interlink fct] = On (priority):
		– - - -: Frost protection only
		– IL1: Normal target feed temperature
		– IL2:
		  – In heating mode, increased target feed temperature
		  – In cooling mode, reduced target feed temperature

	Pump	Current status of the internal heating circulation pump
	V	Actual flow rate in the heating system
	EHS	Current output of the backup heater in kW
Page 2	TV	Current feed temperature downstream of the plate heat exchanger (t_{V1})
	TVBH	Current heating feed temperature, poss. downstream of the heating support heat exchanger ($t_{V, BH}$)
	TR	Current temperature of heating return (t_{R1})
	Tdhw	Current temperature in the hot water storage tank (t_{DHW})
	TA	Current outside temperature (measured by the heat pump outdoor unit temperature sensor)
	Psyst	Current water-side pressure in the heating system
Page 3	BPV	Current position of mixing valve 3UVB1 (100% = A, 0% = B)
	3UVD	Current position of mixing valve 3UV DHW (100% = B, 0% = A)
	TA2	Current outside temperature (measured by the optional outside temperature sensor RKRSCA1)
	Tliq2	Current refrigerant temperature (t_{L2})
	quiet	Indicates the whisper mode status
	Glycol	Glycol present: 0 (No) / 1 (Yes)

Tab. 3-5 Explanation of the operating data displayed as an overview

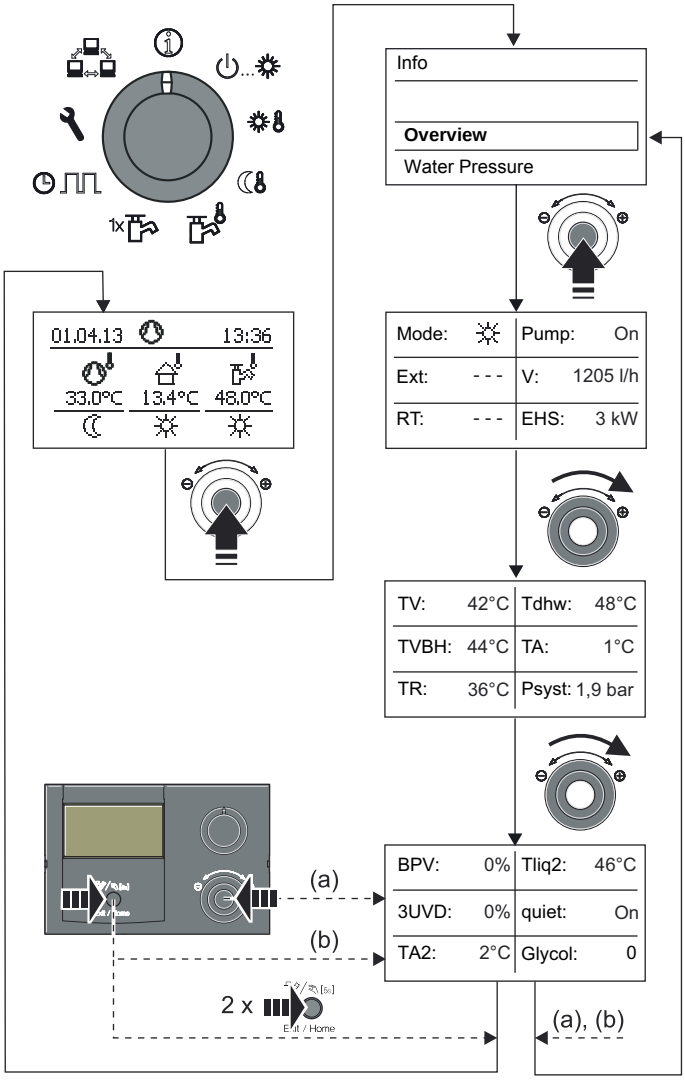


Fig. 3-5 Displaying the operating data overview

At low return flow temperatures and with glycol in the system, only "ffff" is displayed as the volumetric flow, no current value.

Displaying the water pressure

On the RoCon mb control unit, the system pressure (water pressure) of the internal circuit (direct heating circuit) can be displayed when it is switched on. The water pressure is the first info parameter available after the operating data overview (see fig. 3-6).

The permissible water pressure range during operation is dependent on the ROTEX HPSU monobloc compact and the heating system. The target values and thresholds may only be set by the heating expert. If the water pressure drops below the minimum value (set parameter value), it must be increased by topping up the system (see ROTEX HPSU monobloc compact installation instructions, chapter entitled "Inspection and maintenance").

The pressure limits for safety shut-off and the target pressure can be set in the parameter setting on the *"System Configuration"* level.

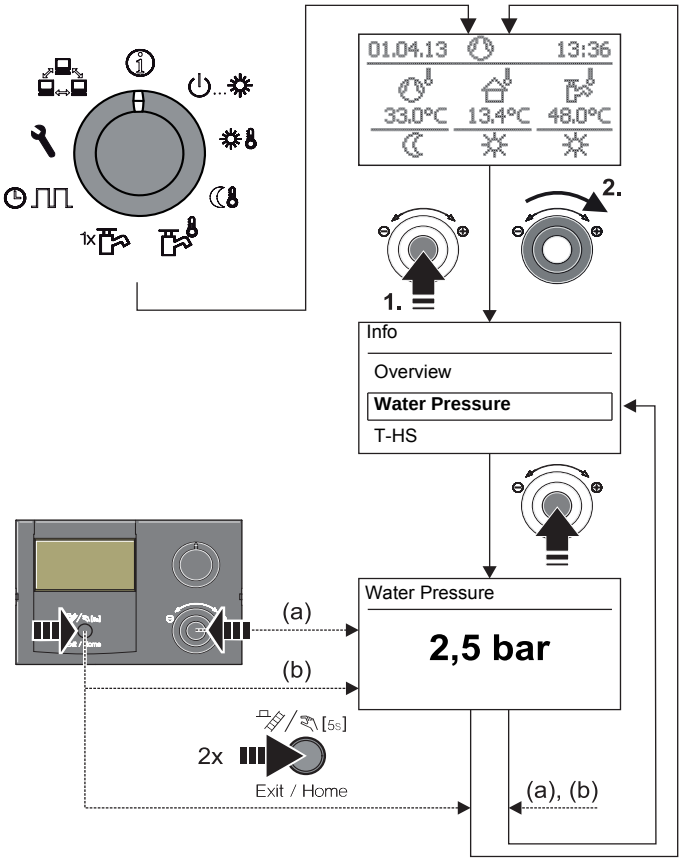


Fig. 3-6 Displaying info values (e.g. system pressure)

3.4.2 Setting the operating mode

The operating mode in which the ROTEX HPSU monobloc compact is to operate is selected using the rotary switch in the ***"Operating Mode"*** position.

The selected operating mode is activated by briefly pressing the rotary button.

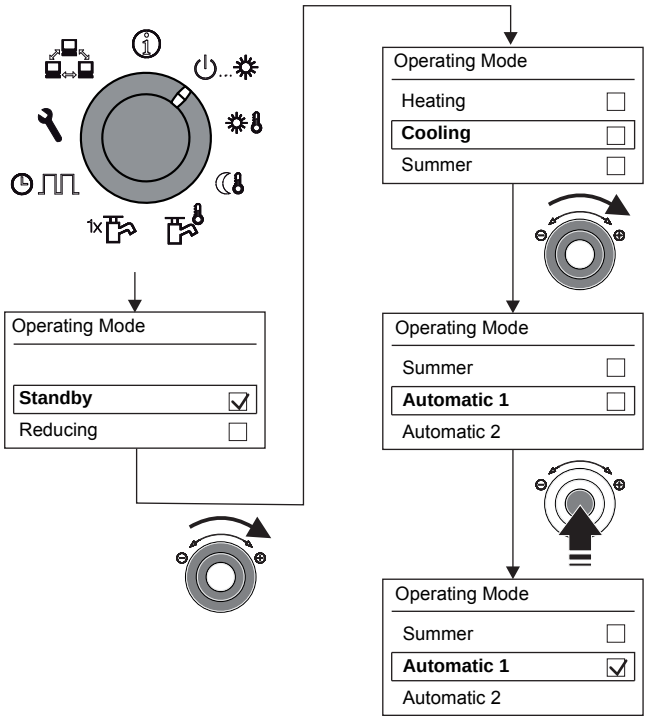


Fig. 3-7 Changing the operating mode (e.g. from "Standby" to "Automatic 1")

- Set the rotary switch to the ***"Operating Mode"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the required operating mode.
- Confirm the selection with a brief push of the rotary button.
  ➔ ROTEX HPSU monobloc compact operates according to the set operating mode.
  ➔ The current operating mode is indicated by an appropriate symbol on the standard display.

Operating mode Standby (Stand-by)

CAUTION!

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

- Add glycol to the heating water circuit (see installation and maintenance instructions)
- Alternatively, 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 external main switch must remain switched on if there is a danger of frost.

In this operating mode, the ROTEX HPSU monobloc compact is switched to Stand-by mode. The **frost protection function** (see chap. 3.6.5) is maintained. 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.

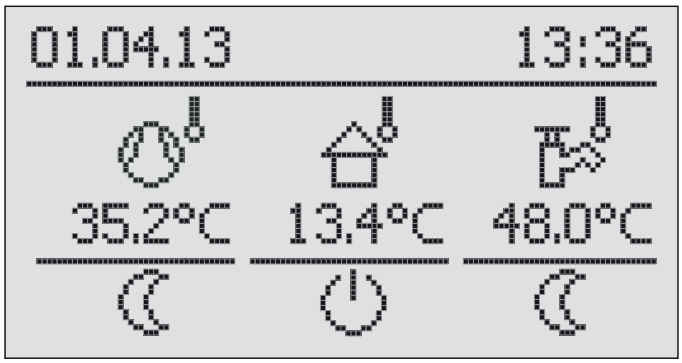


Fig. 3-8 Standard display in the "Standby" operating mode (above the frost limit temperature)

Operating mode Reducing

Reduced heating mode (lower target room temperature) according to the target feed temperature set for reducing mode in the parameter [T-Reduced] (see chap. 3.4.4).

Hot water preparation according to the set target hot water temperatures and switching cycles in the hot water time program [DHW Program 1] (see chap. 3.4.5).

Operating modes Heating, Cooling ❄

Heating, cooling mode according to the target room temperature set in the parameter [T-Room 1 Setpoint] (see chap. 3.4.3).

A connected outside temperature sensor (weather-dependent T-HS control) or a connected room station also influence the target feed temperature (prerequisite: parameter [HC Function] = On).

Hot water preparation according to the set target hot water temperatures and switching cycles in the hot water time program [DHW Program 1] (see chap. 3.4.5).

Operating mode Summer

Hot water preparation according to the set target hot water temperatures and switching cycles in the hot water time program [DHW Program 1] (see chap. 3.4.5).

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

Operating mode Automatic 1 (time program)

Automatic heating and setback mode according to the permanent time programs (see chap. 3.4.7):
– [HC Program 1]
– [DHW Program 1]

Operating mode Automatic 2 (time program)

Automatic heating and setback mode according to the permanent time programs (see chap. 3.4.7):
– [HC Program 2]
– [DHW Program 2]

If the hot water readiness is in setback mode in the active operating mode, a temporary ***"DHW Reheating"*** can be set with the rotary switch setting without having to change other standard settings (see chap. 3.4.6).

Switching contact for external operating mode switch-over

A potential-free switching contact connected via ROTEX HPSU monobloc compact connection J8 at the "EXT" terminals and wired with a resistor can also be used to switch the operating mode from an external device (e.g. modem, …).

In this case, the switching contact functionality is dependent on the parameter [Function BSC]:
– [Function BSC] = 0 (default setting): evaluation of the resistance values (see tab. 3-6)
– [Function BSC] = 1: evaluation as a burner blocking contact. If the switching contact is closed, the external heat generator has priority.

Operating mode	Resistance	Tolerance
Standby	< 680 Ω	± 5 %
Heating	1200 Ω	
Reducing	1800 Ω	
Summer	2700 Ω	
Automatic 1	4700 Ω	
Automatic 2	8200 Ω	

Tab. 3-6 Resistance values for evaluating the EXT signal

The resistances specified in tab. 3-6 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 to be connected to the ROTEX HPSU monobloc compact (e.g. Smart Grid, room thermostat), the related functions may have a higher priority than external operating mode switch-over. The operating mode requested by the EXT switching contact is then possibly not activated, or is only activated later.

Besides these operating modes, different temporary heating programs (see tab. 3-7) are available that are carried out with priority after activation.

Temporary time program	Setting/Activation in the level	Rotary switch setting	Information
DHW Install	DHW Install		Chap. 3.4.6
Party	Time Program		Chap. 3.4.7
Away			
Holiday			
Vacation			
Screed*	Configuration > HC Configuration		Chap. 3.6.13

** only with technician code.*

Tab. 3-7 Overview of temporary time programs

If a temporary time program (DHW Install, 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.

3.4.3 Temperature setting of daytime room temperature

In rotary switch position ☀🌡, the target room temperatures during the day for room heating are defined.

- Set the rotary switch to the ***"Set Temp Day"*** ☀🌡 position.
  ➔ An overview is displayed.

> The last digits of the parameter designations (1 - 3) within this rotary switch setting mark the affiliation to the respective cycle of the time program.

- Select the temperature block to be set with the rotary button.
- Confirm the selection with a brief push of the rotary button.
  ➔ Settings are displayed.
- Set the temperature.
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values for this rotary switch setting can be found in chap. 6.5.

3.4.4 Temperature setting of setback mode

In rotary switch position 🌙🌡, the target room temperatures in reducing mode for room heating are defined.

- Set the rotary switch to the ***"Set Temp Night"*** 🌙🌡 position.
  ➔ An overview is displayed.
- Select the parameter to be set with the rotary button.
- Confirm the selection with a brief push of the rotary button.
  – [T-Reduced]: Setting value for "Reducing" operating mode or reduction through permanent time program.
  – [T-Absence]: Setting value for temporary heating/cooling programs ("Away" and "Vacation").
  ➔ Settings are displayed.
- Set the temperature.
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values for this rotary switch setting can be found in chap. 6.6.

3.4.5 Temperature setting of hot water generation

In rotary switch position 🚿🌡, the target hot water temperatures for hot water preparation for the respective time programs are defined.

- Set the rotary switch to the ***"DHW Set Temp"*** 🚿🌡 position.

> The last digits of the parameter designations (1 - 3) within this rotary switch setting mark the affiliation to the respective cycle of the time program.

- Select the temperature block to be set with the rotary button.
- Confirm the selection with a brief push of the rotary button.
  ➔ Settings are displayed.
- Set the temperature.
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values for this rotary switch setting can be found in chap. 6.7.

3.4.6 Unscheduled hot water preparation

In rotary switch position 🚿 the hot water can be recharged manually, outside of a hot water time program, to the target temperature set as default in the parameter [T-DHW Setpoint 1]. The heating up is carried out with priority and independent of other heating programs.

- Set the rotary switch to the ***"DHW Install"*** 🚿 position.
  ➔ An overview is displayed.
- Select the parameter to be set with the rotary button.
  – [1x Hot Water]: Activation of one-time hot water generation.
- Confirm the selection with a brief push of the rotary button.
- Set the parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The unscheduled hot water generation starts.

> After this temporary function has elapsed, the control unit automatically jumps back to the previously active operating mode. The rotary switch should therefore be brought back into the ***"Info"*** ⓘ position after the function has been activated.
>
> The function is subject to time limitations.
>
> At the latest, it is cancelled after the maximum loading time set in the parameter [Max DHW loading time], and can be restarted at the earliest after the blocking time set in the parameter [DHW Off Time] has expired (see chap. 6.2.4).

Detailed explanations and possible setting values for this rotary switch setting can be found in chap. 6.3.

3.4.7 Switching time program

For comfortable and individual room and hot water temperature control, different (but freely adjustable) time programs preset at the factory can be selected.

The switching time programs control the assigned heating circuit, the storage charging circuit as well as an optionally connected circulation pump according to the specified switching times.

Setting

In the 🕒⎍⎍ rotary switch setting, the time intervals for the heating circuit, integrated hot water generation and the optional circulation pump are set.

- Set the rotary switch to the ***"Time Program"*** 🕒⎍⎍ position.
  ➔ An overview is displayed.
- Use the rotary button to select the time program to be set.
- Confirm the selection with a brief push of the rotary button.
  ➔ Settings are displayed.
- Use the rotary button to select and change the value to be adjusted.
- Confirm the selection with a brief push of the rotary button.

More detailed explanations and possible setting values for this rotary switch position can be found in chap. 6.8.

Permanent time programs

Time programs control the heating circuit temperatures or the operating times of the circulation pump according to the specified switching cycles for the connected heating circuits and the storage charging circuit. The switching cycles are saved in time blocks for which different target temperatures can be set.

In the switching cycles, the heating system is controlled differently according to **day** and **reducing mode**.

The target temperatures for these time programs are set in the rotary switch positions ***"Set Temp Day"*** , ***"Set Temp Night"*** and ***"DHW Set Temp"***.

The following switching time programs are available:

– **2 time programs for the heating circuit**, each with 3 possible switching cycles
  – [HC Program 1]
  – [HC Program 2]

The times can be entered separately for each individual weekday or in blocks of "Monday to Friday", "Saturday to Sunday" and "Monday to Sunday".

Program	Time period	Switching cycle	
HC Program 1	Individual weekday (Monday, Tuesday …)	1. 2. 3.	06:00 -> 22:00 --:-- -> --:-- --:-- -> --:--
	Working week (Monday to Friday)	1. 2. 3.	06:00 -> 22:00 --:-- -> --:-- --:-- -> --:--
	Weekend (Saturday to Sunday)	1. 2. 3.	07:00 -> 23:00 --:-- -> --:-- --:-- -> --:--
	Whole week (Monday to Sunday)	1. 2. 3.	06:00 -> 22:00 --:-- -> --:-- --:-- -> --:--
HC Program 2	See HC Program 1	1. 2. 3.	See HC Program 1

Tab. 3-8 Menu structure of heating circuit/time program

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. Examples referring to tab. 3-8:

a) The starting time in the 1st switching cycle is changed from 06:00 am to 05:00 am for the individual weekday "Monday".
   ➔ The 1st switching cycle is also automatically changed from 06:00 am to 05:00 am for the "working week" and "whole week" time periods.

b) The starting time in the 1st switching cycle is changed from 07:00 am to 08:00 am for the "weekend" time period.
   ➔ The 1st switching cycle is also automatically changed from 07:00 am to 08:00 am for the individual weekdays "Saturday" and "Sunday".

c) The end time in the 1st switching cycle is changed from 10:00 pm to 9:30 pm for the "whole week" time period.
   ➔ The 1st switching cycle is also automatically changed from 10:00 pm to 9:30 pm in all weekday or block programs.

– **2 time programs for the hot water circuit**, each with 3 possible switching cycles
  – [DHW Program 1]
  – [DHW Program 2]

The setting and the entry structure of the time programs are identical with those for the heating circuit time program (see also tab. 3-8).

– **1 time program for an optionally connected circulation pump**, each with 3 possible switching cycles
  – [Circulation Time]

The setting and the entry structure of the time program are identical with those for the heating circuit time program (see also tab. 3-8).

For further information on settings for an optional circulation pump, see chap. 3.6.15.

Saved switching time programs can be changed at any time. For a better overview, it is recommended to write down and safely store the programmed switching cycles (see chap. 9.1.1).

The permanent time programs are preset according to tab. 3-9.

	Switching cycle 1		Switching cycle 2		Switching cycle 3	
Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
Room heating / room cooling						
Temperature setting	[T-Room 1 Setpoint]: 20 °C		[T-Room 2 Setpoint]: 20 °C		[T-Room 3 Setpoint]: 20 °C	
	[T-Reduced]: 10 °C					
"HC Program 1"						
Monday - Friday	06:00	22:00	--:--	--:--	--:--	--:--
Saturday, Sunday	07:00	23:00	--:--	--:--	--:--	--:--
"HC Program 2"						
Monday - Friday	06:00	08:00	--:--	--:--	--:--	--:--
Saturday, Sunday	07:00	23:00	--:--	--:--	--:--	--:--
Domestic hot water generation						
Temperature setting	[T-DHW Setpoint 1]: 48 °C		[T-DHW Setpoint 2]: 48 °C		[T-DHW Setpoint 3]: 48 °C	
"DHW Program 1"						
Monday - Sunday	00:00	24:00	--:--	--:--	--:--	--:--
"DHW Program 2"						
Monday - Friday	05:00	21:00	--:--	--:--	--:--	--:--
Saturday, Sunday	06:00	22:00	--:--	--:--	--:--	--:--
"Circulation Time"						
Monday - Friday	05:00	21:00	--:--	--:--	--:--	--:--
Saturday, Sunday	06:00	22:00	--:--	--:--	--:--	--:--

Tab. 3-9 Factory setting of the permanent switching time programs

Temporary time programs

4 **temporary time programs** are available for special situations, **which** make the **permanent time programs** or the currently set operating mode **ineffective** for the duration of their validity.

The symbol of the temporary time program is displayed in the header of the standard display for as long as the time program is active.

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

1. [Party]: **Immediate one-off extension of room heating**.
   a) If an automatic program is activated, the last valid switching cycle is always extended. In the time prior to switching cycle 1, control is carried out according to the target room temperature set in the parameter [T-Room 1 Setpoint].
   b) In all other operating modes, control is carried out according to the target room temperature set in the parameter [T-Room 1 Setpoint].
   – The hot water generation is not affected.
   – The time program runs for the set time period from activation.
2. [Away]: **Immediate one-time setback** up to 6 hours.
   – In reducing mode, control is carried out according to the target room temperature set in the ***"Set Temp Night"*** rotary switch position in the parameter [T-Absence].
   – The hot water generation is not affected.
   – The time program runs for the set time period from activation.
3. [Holiday]: **One-time calendar-controlled presence**.
   – Control is carried out only according to the settings for "Sunday" in the [HC Program 1].
   – The hot water generation is only controlled according to the settings for "Sunday" in the [DHW Program 1].
4. [Vacation]: **One-time calendar-controlled setback**.
   – In reducing mode, control is carried out exclusively according to the target room temperature set in the ***"Set Temp Night"*** rotary switch position in the parameter [T-Absence].
   – Hot water generation according to the set target temperatures and switching cycles in the [DHW Program 1] hot water time program (see chap. 3.4.5).
   – The calendar-controlled [Vacation] program is **not started** if the "Standby" or "Manual Operation" operating mode is active on the set start date.

3.4.8 System settings

In the ***"Configuration"*** rotary switch position, basic setting of the RoCon mb controller and system configuration for the installation environment of the ROTEX HPSU monobloc compact, the direct heating circuit, hot water preparation and any optionally connected components are carried out.

Depending on the access authorisation (user or expert), different parameters are available. Several parameters can only be accessed by the heating expert.

Setting the LCD display, language, date, time

An internally pre-programmed calendar ensures an automatic timeshift for the annually repeating summertime/wintertime changeover dates.

- Set the rotary switch to the ***"Configuration"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the *"Setup"* level.
  ➔ An overview is displayed.
- With the rotary button, select the parameters [LCD Brightness] and [LCD Illum Time], and change them if desired.
- With the rotary button, select and confirm the parameters [Language], [Date] or [Time].
- Use the rotary button to select and change the value to be changed within the respective display.
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values of this rotary switch setting can be found in chap. 3.6 and in chap. 6.2.

3.4.9 Terminal function

In the ***"Remote Param"*** rotary switch setting, other devices (mixer module control unit or heat generator control components) integrated in the RoCon system via the CAN bus can also be operated and parametrised as long as the respective control unit has the required authorisation (see also chap. 4.3).

A list of the recognised devices is displayed for selection on the display after activation of the "Bus - Scan" (external devices and local device).

After selection and confirmation of an external device, the terminal function for this device is activated and the associated standard display for this device is shown on the display.

The operating component is then in terminal operation.

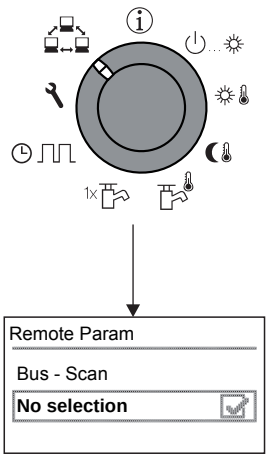
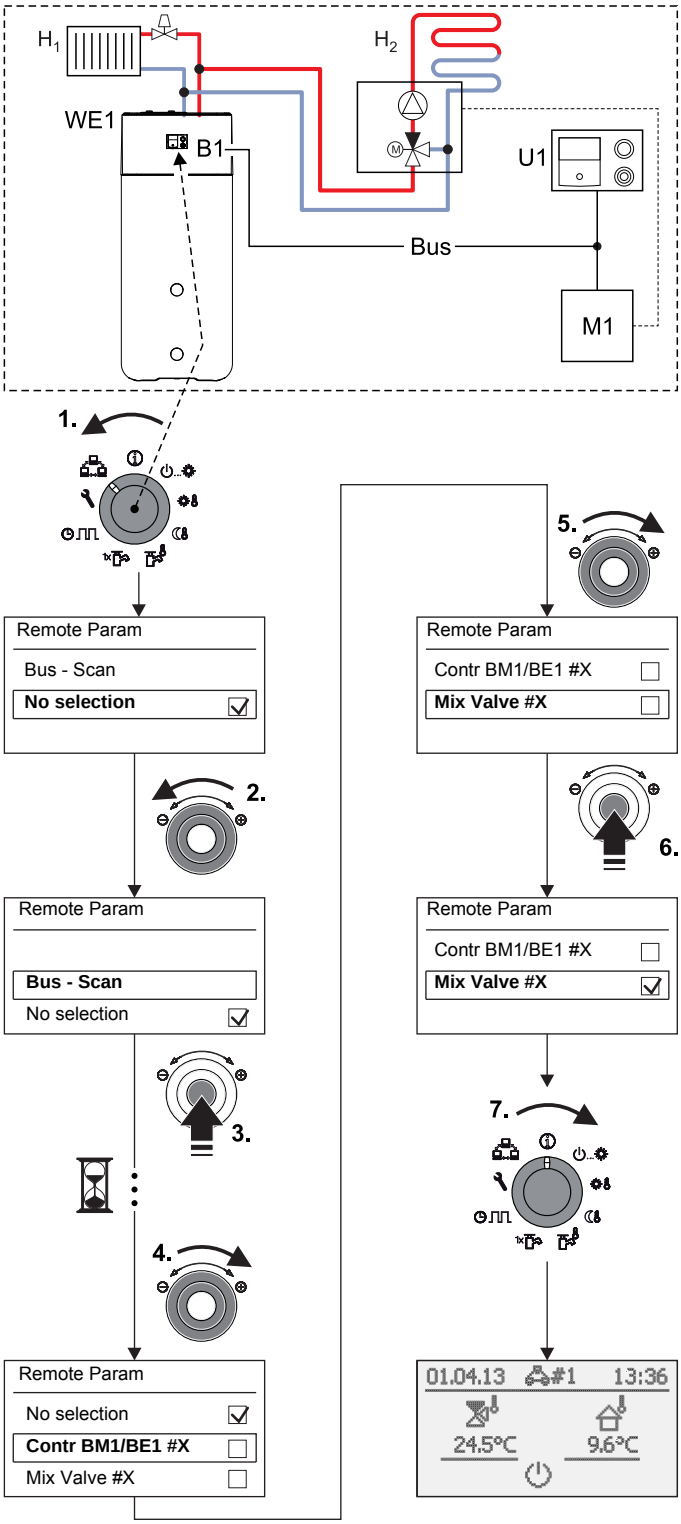


Fig. 3-9 Display of the "Remote Param" level during commissioning or after interim disconnection from the mains

The local control unit functions as a remote control for the external device. In this case, all the control functions are performed and saved 1:1 as on the external device.

The different application and parametrisation options for the use of the devices and control units in the RoCon system connected via the CAN bus are described in chap. 4.3.



B1 RoCon B1 control panel of the HPSU monobloc compact
Bus CAN bus (connection line between RoCon devices and control units)
H_1 Direct heating circuit (e.g. radiators)
H_2 Mixed heating circuit (e.g. floor heating)
M1 RoCon M1 mixer module
U1 RoCon U1 room station
WE1 Heat generator HPSU monobloc compact

Fig. 3-10 Example of "Bus - Scan" on a heating system with 1 heat generator, 1 mix valve, 1 room station and activation of the terminal function for remote control of the mixer module

If the terminal function is activated, the #X symbol is displayed in the header of the display as additional information on the remote-controlled device, where "X" is the set device identification of the remote-controlled device.

The displayed values and symbols are always accepted by the selected device (e.g. mixer circuit T-HS of the RoCon M1 mix valve module with device identification 1).

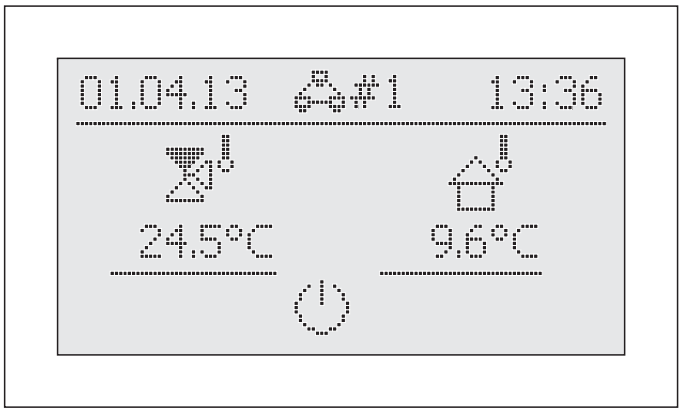


Fig. 3-11 Example of the display for the remote-controlled mixer module

In order to operate the local device, it must be activated again in the selection list ([No selection] parameter).

If the "n.A." message is displayed in the rotary switch setting , no valid terminal ID has been assigned to the control unit until now.

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 ROTEX Service Team for this.

Activating/deactivating terminal operation

Prerequisite: a valid terminal ID has been assigned to the RoCon B1 control panel of the ROTEX HPSU monobloc compact or the RoCon U1 room station (**15 70 34**).

For setting the terminal ID of optionally connected devices, see chap. 4.4 or the respective operating instructions that are supplied.

- Set the rotary switch to the ***"Remote Param"*** position.
  ➔ The "*Remote Param*" level is displayed.
- Use the rotary button to select the [Bus - Scan] parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The context menu is displayed.
- Use the rotary button to select the [Bus - Scan] parameter and confirm with "Yes".
  ➔ Bus - Scan is performed.
  ➔ An overview of all the devices found is displayed (for an example, see fig. 3-10).
- Use the rotary button to select the device for which the terminal function should be carried out.
- Confirm the selection with a brief push of the rotary button.
  ➔ The local control unit functions as a remote control for the external device.

To **end terminal operation** and to switch back to the control unit for the operation of the assigned device, the [**No selection**] **parameter must be selected and confirmed** at the **"*Remote Param*" level**.

After an interim disconnection from the power supply, the display always appears at the "*Remote Param*" level, as shown in fig. 3-9.

To be able to use the terminal function for connected devices, a repeat Bus - Scan must be carried out.

Communication between the RoCon system components also continues to function without a Bus - Scan, and previously undertaken settings remain active.

The terminal function is activated as shown in fig. 3-10, but after confirmation of the "Bus - Scan" display, the [New scan?] parameter must be selected with the rotary button and confirmed with "Yes".

3.4.10 Operation with glycol

Frost can damage the system. To prevent the hydraulic components from freezing, the software is equipped with special frost protection functions, that include the activation of pump, internal heaters, and/or backup heater operation in case of low temperatures.

However, in case of a power failure, these functions cannot guarantee protection. It is therefore recommended to add glycol to the water circuit. To do this, observe the installation and maintenance instructions.

If glycol has been added to the system, the RoCon controller setting must be adapted accordingly.

- Set the rotary switch to the ***"Configuration"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the *"Setup"* level.
  ➔ An overview is displayed.
- Use the rotary button to select the [Glycol] parameter.
- Change the parameter if desired.
  – Parameter [Glycol] = 0: no glycol added
  – Parameter [Glycol] = 1: glycol added
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

3.4.11 Whisper mode

Whisper mode means that the heat pump outdoor unit operates at reduced output. This reduces the operating noise generated by the heat pump outdoor unit.

CAUTION!

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

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

Activating / deactivating whisper mode

- Set the rotary switch to the ***"Configuration"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the *"System Configuration"* level.
  ➔ An overview is displayed.

- Use the rotary button to select the [Quite Mode] parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The setting of the parameter is displayed.
- Set the parameter.
  – Parameter [Quite Mode] = 0: deactivated
  – Parameter [Quite Mode] = 1: permanently activated
  – Parameter [Quite Mode] = 2: only activated at night
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values of this function can be found in chap. 6.2.2.

3.4.12 Smart Grid (SG)

WARNING!

There is a danger of scalding at target hot water temperatures over 60 °C. This is possible, as 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 target hot water temperature in the hot water storage tank can exceed 60 °C.

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

- Install scald protection in the hot water distribution line (e.g. VTA32, 15 60 15 + Screw set 1", 15 60 16).

A special electricity meter with SG receiver, to which the ROTEX HPSU monobloc compact must be connected, is required to use this function.

As soon as the function is activated by the parameter [SMART GRID] = 1, the heat pump is set to an operating mode as per tab. 3-10 depending on the utility company signal.

Signal[2]		Electricity costs	Effect on	
EVU	SG		Domestic hot water	Heating installations
1	0	- - -	No operation[1]	No operation[1]
0	0	Normal	Normal operation	Normal operation
0	1	Low	Switch-on recommendation, and target storage tank temperature value is increased depending on the parameter [Mode SG]	Switch-on recommendation, and target feed temperature is increased depending on the parameter [Mode SG]
1	1	Very low	Switch-on command, and target storage tank temperature value is set to 70 °C	Switch-on command for storage tank charging

1) No frost protection function (see chap. 3.6.5).
2) Switching contacts at input J8 of the RoCon BM1 printed circuit board closed (1) or opened (0).

Tab. 3-10 Use of the SG signal

Detailed explanations and possible setting values of this function can be found in chap. 6.2.1.

3.4.13 EHS emergency operation

If the heat pump fails, the backup heater can be used as emergency heating, and can undertake all heating requirements either automatically or non-automatically.

Activation of emergency automatic operation ensures that heating and hot water requirements are reliably met even if the heat pump fails. However, the risk is run that the user only notices the system malfunction after a certain time, and that electricity consumption is thus increased.

If emergency automatic operation is deactivated (default setting), it must be activated as described below to meet heating and hot water requirements in the event that the outdoor unit fails.

Activating / deactivating emergency automatic operation

- Set the rotary switch to the ***"Configuration"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the *"Setup"* level.
  ➔ An overview is displayed.
- Use the rotary button to select the [Emergency BUH] parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The setting of the parameter is displayed.
- Set the parameter.
  – Parameter [Emergency BUH] = 0: no automatic emergency operation
  – Parameter [Emergency BUH] = 1: automatic emergency operation
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

3.5 Special functions

At the ***"Special Level"***, different functions (mostly useful functions for the heating expert) can be carried out.

The following special functions are possible:
– Manual operation (see chap. 3.5.1).
– Displaying messages (see chapter 7)
– Reset to factory settings (see chap. 3.6.12)

Detailed explanations of these functions can be found in chap. 6.11.

The calling-up of the special functions does not depend on the rotary switch setting.

- Push the Exit button for at least 5 s.
  ➔ Menu ***"Special Level"*** is displayed.
- Use the rotary button to select the program to be started.
- Confirm the selection with a brief push of the rotary button.
  ➔ The selected program starts.
- Cancellation and jump back by:
  – pressing the Exit key again or
  – touching the rotary button or
  – selecting another menu using the rotary switch.

3.5.1 Manual operation

Manual operation is used to manually control the ROTEX HPSU monobloc compact to a specific feed temperature. Manual operation should only be used for diagnostic purposes.

With hydraulically controlled priority operation for hot water preparation, it must be ensured that the target feed temperature set in manual mode is sufficient to achieve the stored target hot water temperature (parameter [T-DHW Setpoint 1]).

- Push the Exit button for at least 5 s.
  ➔ Menu ***"Special Level"*** is displayed.
- Use the rotary button to select the *"Manual Operation"* program.
- Confirm the selection with a brief push of the rotary button.
  ➔ *"Manual Operation"* is active.
- Use the rotary button to set the target feed temperature.

  Do **not confirm** this setting **with the rotary button**, as the program is otherwise ended.

  ➔ During active manual mode, the storage tank temperature is permanently regulated to the first target hot water temperature parameter value ([T-DHW Setpoint 1]).
  ➔ The key lock (if it was activated prior to the start of this function) is reactivated within 2 s to prevent undesired cancellation of the function through operation of the RoCon mb controller.
- Cancellation and jump back by:
  – pressing the Exit key again or
  – touching the rotary button or
  – selecting another menu using the rotary switch.
  ➔ If manual operation is ended, the RoCon mb control unit automatically switches to "Standby" operating mode.

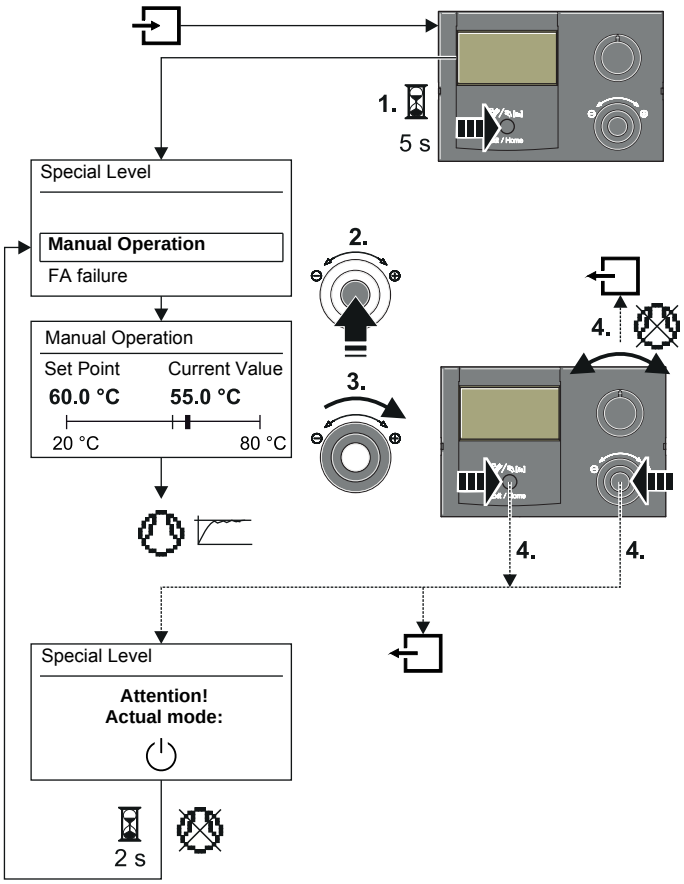


Fig. 3-12 Symbolic brief instructions for manual operation

3.5.2 3-way switching valves reference travel

The positions of the two 3-way switch valves 3UVB1 and 3UV DHW in the ROTEX HPSU monobloc compact are controlled continuously between their two basic settings for optimised energy utilisation (e.g. heating support function).

To ensure this function, the two 3-way switch valves are always moved automatically to their basic position (bypass - path AB-A open) at 11:00 hours.

This function can take up to 5 minutes. It is programmed as standard and cannot be changed.

3.6 Special system settings

The RoCon mb controller is already basically configured for the ROTEX HPSU monobloc compact. However, it must still be adapted to optionally connected accessories and the installation environment during initial commissioning.

The adjustment is carried out by setting the parameters in the ***"Configuration"*** rotary switch setting .

The next lowest level can be accessed or the respective parameter directly accessed by navigation with the rotary button.

3.6.1 Access rights (technician code)

Certain settings in the control unit are limited by access rights. To receive access to these parameters, the technician code must be entered at the *"Setup"* level.

Fig. 3-13 shows the basic procedure for entering the access code. The expert company receives the technician code in a separate letter.

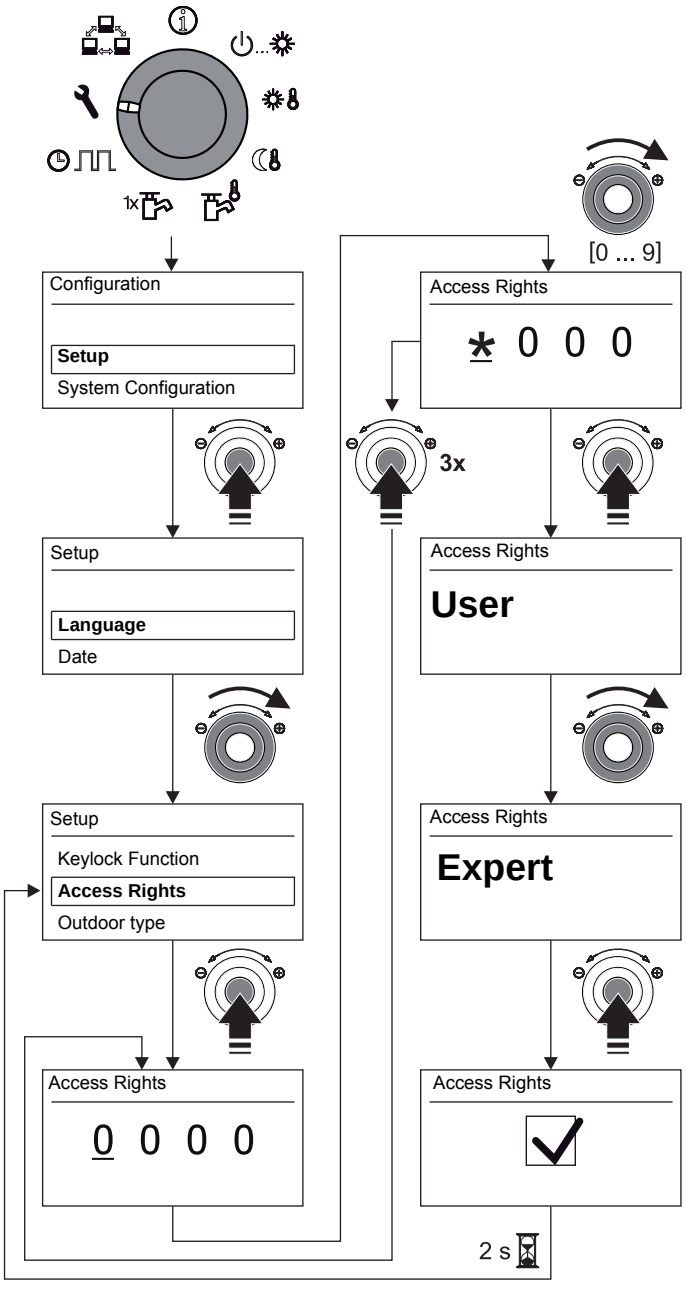


Fig. 3-13 Entering the access code

3.6.2 Heat slope

Caution - Risk of overheating of floor heating!

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 of the floor heating system, set the maximum temperature limit in the RoCon mb controller (parameter [T vbh1 max]) and the maximum permissible system temperature (parameter [Max T-Flow]).
- Connect an overheating protection switch (in the building) at the "EXT" plug connection to external operating mode switch-over so that the ROTEX HPSU monobloc compact is switched to "Standby" or "Summer" operating mode (see chap. 3.4.2).
  With parameter [Room thermostat] = On or parameter [Interlink fct] = 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 heat slope is used to adjust the target feed temperature to the characteristics of the building depending on the respective outside temperature (weather-dependent T-HS control, see chap. 3.6.4). Generally speaking, the steepness of the heating slope describes the ratio of the T-HS change to the external temperature change.

The heat slope is valid within the limits of the minimum and maximum temperatures set for the respective heating circuit. Deviations may occur between the room temperature measured in the occupied area and the desired room temperature; these can be minimised by installing a room station or a room thermostat.

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

Automatic heat slope adaptation can be activated (parameter [HC Adaption]), **if** the **room station** (RoCon U1, 15 70 34) is **connected** (see chap. 3.6.4).

Start conditions for automatic heat slope adjustment:
– Outside temperature < 8 °C
– Operating mode is automatic (I or II)
– Duration of the setback period is at least 6 h

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

Manually adjusting the heat slope
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.

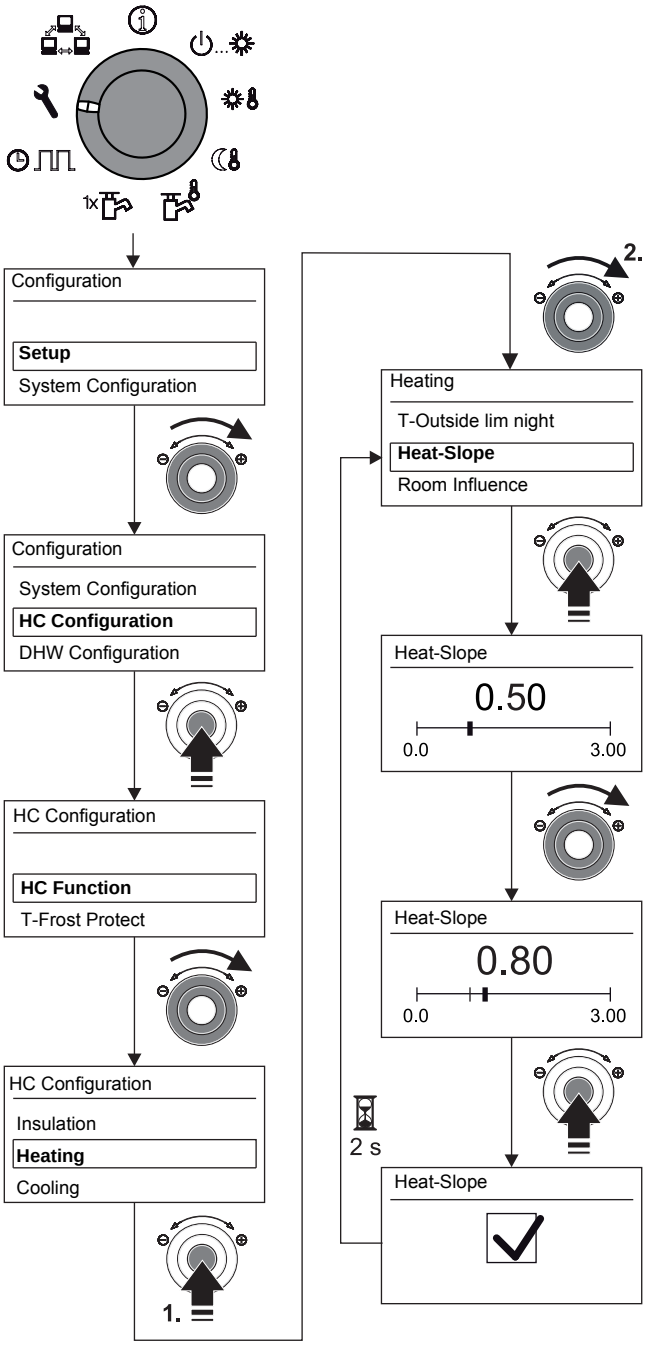
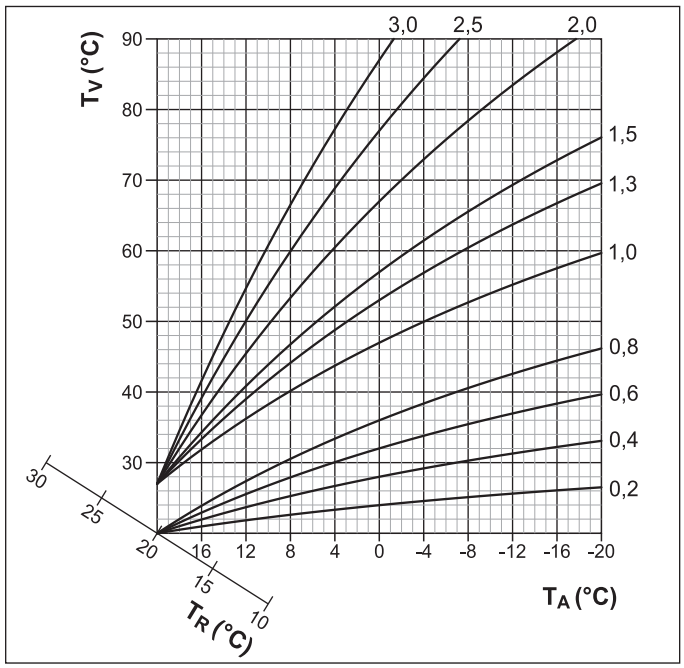


Fig. 3-14 Manual setting of the heat slope (illustration with "User" access authorisation)



T_A *Outside temperature* T_V *T-HS*
T_R *Room temperature target value*

Fig. 3-15 Heat slopes

Detailed explanations and possible setting values of this function can be found in chap. 6.2.

3.6.3 Cooling slope

Caution - risk 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.

- Prior to initial commissioning and activation of cooling mode, set the minimum temperature limit to the minimum permissible system temperature in the RoCon mb controller (parameter [Min T-Flow Cooling]).

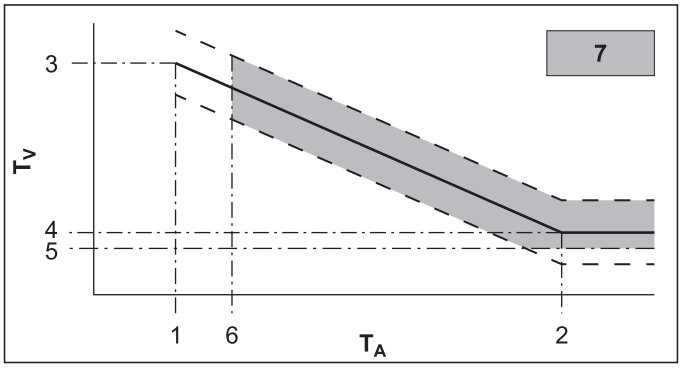
The cooling slope is used to adjust the target feed temperature to the characteristics of the building depending on the respective outside temperature (weather-dependent T-HS control, see chap. 3.6.4). Warmer outside temperatures result in a colder target feed temperature and vice versa.

Prerequisites for **cooling mode**:
– Outside temperature > set target room temperature value
– Outside temperature > set value of the parameter [Start T-Out Cooling]
– *"Cooling"* operating mode activated.
  a) Via rotary switch in ***"Operating Mode"*** ⏻…❄ position or
  b) via room thermostat function (cooling ❄ switching contact closed)
– No heat request active in the heating system's RoCon system.

The cooling slope is defined through the four following parameters:

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

During weather-dependent T-HS control, the user can increase or decrease the target feed temperature by a maximum of 5 K with the parameter [Cooling Setpoint adj]. A temperature reduction is limited by the parameter [Min T-Flow Cooling].



1	*Parameter [Start T-Out Cooling]*	T_A	*Outside temperature*
2	*Parameter [Max T-Out Cooling]*	T_V	*T-HS*
3	*Parameter [T-Flow Cooling start]*	—	*Cooling slope*
4	*Parameter [T-Flow Cooling max]*	---	*Possible parallel cooling slope shift*
5	*Parameter [Min T-Flow Cooling]*		
6	*Target room temperature*		
7	*Cooling mode possible*		

Fig. 3-16 Cooling slope parameter dependency

Detailed explanations and possible setting values of this function can be found in chap. 6.2.3.

If the mean outside temperature falls below 4 °C when *"Cooling"* operating mode is active, the operating mode automatically switches to *"Heating"*.

Renewed automatic operating 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 outside temperature increases to over 10 °C again.

3.6.4 Weather-dependent T-HS control

When weather-dependent T-HS control is active, the target feed temperature (see info parameter [T-HS Setpoint], chap. 6.10) is automatically determined according to the set heat/cooling slope depending on the outside temperature.

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

With the optional **RKRSCA1** outside temperature sensor (**14 10 39**) that is installed on the north side of the building, weather-dependent T-HS control can be further optimised. If no **RKRSCA1** is installed, the RoCon mb controller uses the outside temperature value measured at the heat pump outdoor unit.

If the room station (**RoCon U1**, **15 70 34**) is additionally connected to the ROTEX HPSU monobloc compact, the target feed temperatures are controlled depending on the weather and room temperature (see tab. 6-3 / tab. 6-16, parameter [Room Influence]).

The activation or deactivation of this function is takes place via the [HC Function] parameter in the ***"Configuration"*** rotary switch setting at the *"HC Configuration"* level.
– [HC Function] parameter = 0: Weather-dependent T-HS control
– Parameter [HC Function] = 1: control according to fixed target feed temperature
  – For heating mode: parameter [T-Flow Day] or parameter [T-Flow Night]
  – For cooling mode: parameter [T-Flow Cooling]

Weather-dependent T-HS control has no influence on the target feed temperature in the case of a hot water circuit request.

With connected mixer module (M1)

Setting of the heat/cooling slopes and the activation of weather-dependent T-HS control for the assigned heating circuit are carried out in the same way as described above.

The assigned heating circuit can be operated as a:

a) Mixer add-on
The outside temperature of the outside temperature sensor connected to the ROTEX HPSU monobloc compact is transmitted to the mixer module via the CAN bus.

or as a

b) Mixer add-on with zone control
A separate outside temperature sensor must be connected (**RKRSCA1**, **14 10 39**) to the mixer module. The assigned heating circuit is controlled according to the outside temperature relevant to this zone.

With activated terminal function, the mixer module can be operated and the settings for the assigned heating circuit undertaken via the RoCon B1 control panel of the ROTEX HPSU monobloc compact.

In combination with the RoCon U1 room station (**15 70 34**), the mixer module can also control the assigned heating circuit completely independently and irrespective of the ROTEX HPSU monobloc compact.

If, in the rotary switch position, the message "n.A." is displayed, no valid terminal address has been assigned to the control unit yet.

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 ROTEX Service Team for this.

More detailed explanations and possible setting values for this function can be found in chapters 6.2.3 and 6.13.2.

3.6.5 Frost protection function

The integrated heating circulation pump is switched on at an outside temperature below the [T-Frost Protect] 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 measured temperature at one of these sensors falls to less than 7 °C (less than 5 °C at room temperature), the antifreeze function is also activated.

If the antifreeze function is active, the display of the RoCon mb control unit displays the ❄ symbol next to the time on the standard display.

If the heating feed temperature falls below 7 °C, the ROTEX HPSU monobloc compact heats until the heating feed temperature reaches at least 12 °C.

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

If off-peak functions are activated;
–Parameter [HT/NT Function] = 3
or
–parameter [SMART GRID] = 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 are recognisable if the "Overview" information level's (see chap. 3.4.1) "Ext" operating data field displays the value "HT" or "SG1".

3.6.6 Interlink function

CAUTION!

Unsuitable feed temperatures can cause damage to the floor heating system or dew formation on cooling surfaces.

- Limit target feed temperatures to suitable temperature ranges.
- Design heat distribution areas with different design temperatures as hydraulically separate heating circuits.
  If necessary, design heating circuits with limited target feed temperatures as mixer circuits, and regulate with a mixer module.

Setting the parameter [Interlink fct] = On enables the ROTEX HPSU monobloc compact to include two different target feed temperature values in control.

This applies to both weather-dependent control and in the case of control according to a fixed target feed temperature (see chap. 3.6.4).

One possible application is e.g. the additional integration of an HP convector in a surface heating and cooling system.

Prerequisite: 2 switching contacts are connected to ROTEX HPSU monobloc compact plug connection J16 (e.g. room thermostats).

– Parameter [Interlink fct] = Off: deactivated
– Parameter [Interlink fct] = On: evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM1 printed circuit board.
  Activation of cooling mode only by switching the operating mode to "Cooling" (see chap. 3.4.2).
  Setting of the parameter [Room thermostat] is no longer evaluated.
  a) Open switching contacts: only frost protection active
  b) "Heating" or "Automatic 1" / "Automatic 2" operating mode active during the switching cycles in day mode.
  – Closed heating switching contact = IL1:
  ➔ The system is regulated to the normal target feed temperature as per the parameter settings in the *"HC Configuration"* > *"Heating"* level.
  – Closed cooling switching contact = IL2:
  ➔ The system is regulated to the increased target feed temperature (normal target feed temperature + value of the parameter [T-Flow CH adj]. Priority if both switching contacts are closed!
  c) "Cooling" operating mode active.
  – Closed heating switching contact = IL1:
  ➔ The system is regulated to the normal target feed temperature as per the parameter settings in the *"HC Configuration"* > *"Cooling"* level.
  – Closed cooling switching contact = IL2:
  ➔ The system is regulated to the reduced target feed temperature (normal target feed temperature - value of the parameter [T-Flow Cooling adj]. Priority if both switching contacts are closed!

Detailed explanations and possible setting values of this function can be found in chap. 6.2.1.

3.6.7 Additional alternative heat generator

The heat supplied by an alternative WEZ must be fed to the unpressurised storage tank water in the ROTEX HPSU monobloc compact hot water storage tank.

– On use of the optional BUxx backup heater, this is carried out due to the design installation situation.

– On use of an alternative WEZ (e.g. gas- or oil-fired boiler), this can be hydraulically integrated
  a) unpressurised via the connections (solar feed and solar return) of the hot water storage tank
  or
  b) in the case of ROTEX HPSU monobloc compact …B device types, via the integrated pressurised solar system heat exchanger.

The parameter [Function Heating Rod] setting is used to define whether any additional heat generator (WEZ) is available for hot water preparation and heating support, and which.

– 0: no additional WEZ
– 1: optional BUxx backup heater (connection via connector XBUH1)
– 2: alternative WEZ undertakes hot water preparation and heating support. To request the WEZ, relay K3 on printed circuit board RTX-EHS is switched.
– 3: alternative WEZ 1 (optional BUxx backup heater) undertakes hot water preparation 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. Observe warning notice!

The function of an additional alternative WEZ is also influenced by the settings of parameter [Equilibrium Func.] (see chap. 6.2.1) and parameter [Equilibrium Temp] (see chap. 6.2.2).

Detailed explanations and possible setting values of this function can be found in chap. 6.2.1.

3.6.8 Heating support

If the heating support function (parameter [HZU] = On) is activated, the energy in the ROTEX HPSU monobloc compact's integrated storage tank is used to undertake the heating function. At a sufficiently high storage tank temperature, the heat pump (refrigerant circuit) remains deactivated.

The minimum value (T_{HZUmin}) is calculated as follows:
T_{HZUmin} = currently active hot water target temperature [T-DHW Setpoint] + [TDiff-DHW CH Support] parameter.

Switch-on condition:
Tdhw > T_{HZUmin} + 4 K **and** Tdhw > [T-HS 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.

Switch-off condition:
Tdhw < T_{HZUmin} **or** Tdhw < [T-HS Setpoint] info parameter (see chap. 3.6.4)

If the switch-off condition is met, heating support from the hot water storage tank is ceased, and the heat pump takes over heating operation.

The [Power BIV] parameter limits the maximum power that can be removed. The [T vbh1 max] parameter limits the maximum temperature that can enter the heating system.

Detailed explanations and possible setting values of this function can be found in chap. 6.2.2.

3.6.9 Special function: switching contacts

By setting the [AUX Fct] 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 time] parameter.

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

0: function deactivated.

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

1: if storage tank temperature (Tdhw) ≥ value of parameter [T-DHW 1 min].

2: if a cooling request or heating request is present.

3: if a hot water request to the backup heater (BUxx) is present or the configured backup heater is requested for heating support.

4: if an error is pending.

5: if the sensor value (TVBH) is > 60 °C.

6: if the outside temperature is < parameter value [Equilibrium Temp].

➔ Heat pump continues to operate = parallel bi-valence mode.

7: if the outside temperature is < parameter value [Equilibrium Temp] + a heating request or a hot water request is present.

➔ Heat pump does not continue to operate = alternative bi-valence mode.

8: if a hot water request is present.

9: 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 parameter [Equilibrium Temp] - only in hot water mode.

Application: alternative room heating bi-valence mode if the boiler is hydraulically integrated so that it directly heats the unpressurised storage tank water of the ROTEX HPSU monobloc compact (connection via solar connections).

10: "multi-oil" - 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 parameter [Equilibrium Temp] - only in hot water mode.

Application: alternative room heating bi-valence 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 ROTEX HPSU monobloc compact (parameter [T-Frost Protect] = Off).

With this option, frost protection must take place via the boiler.

11: if the heat pump is in "Cooling" operating mode.

Detailed explanations and possible setting values of this function can be found in chap. 6.2.2.

3.6.10 Air purge

By activating the air purge, the RoCon mb controller starts a permanently defined sequence program with start/stop operation of the integrated heating circulation pump and various settings of the 3-way switch valves integrated in the ROTEX HPSU monobloc compact.

Any air present can escape via the automatic vent valve during the air purge and the hydraulic circuit connected to the ROTEX HPSU monobloc compact is evacuated.

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

The heating circuit must be completely full before activating this function.

1. Enter the technician code (see chap. 3.6.1).
   ➔ After entering, the ***"Setup"*** level is displayed.
2. Use the rotary button to select the [**Air Purge**] parameter.
3. Confirm the selection with a brief push of the rotary button.
   ➔ The setting of the parameter is displayed.
4. Use the rotary button to set the parameter for the function to ***"On"***, and confirm by pressing the rotary button briefly.
   ➔ *"Air Purge"* starts (3-way switch valves move to the middle position, the heating circulation pump modulates - see fig. 3-17).
   ➔ After the program has ended (approx. 10 min), the ROTEX HPSU monobloc compact is switched to "Standby" operating mode.

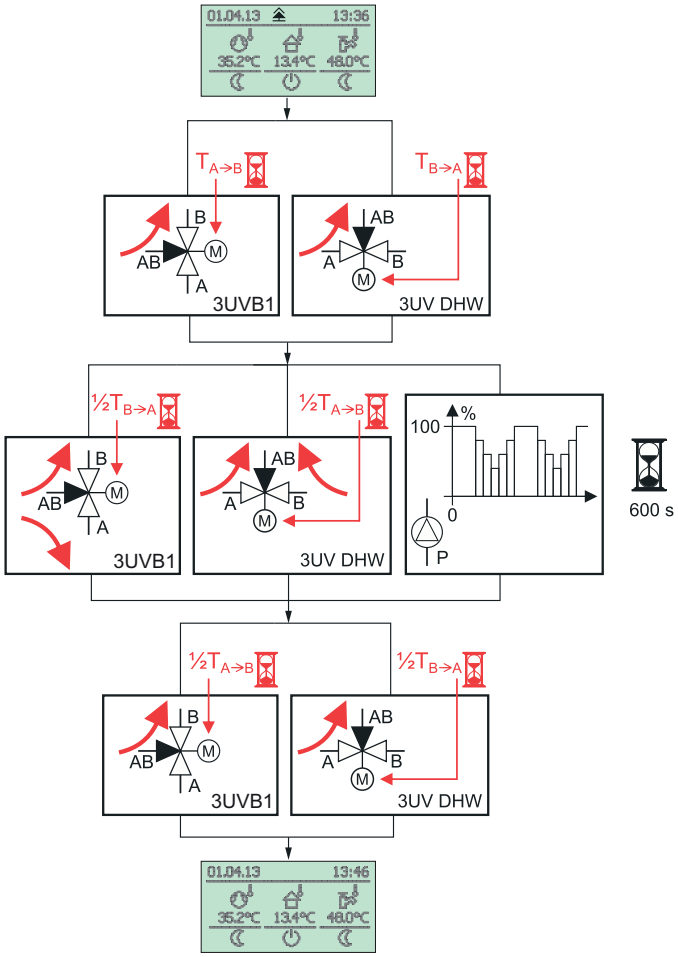


Fig. 3-17 Processes of the Air Purge

5. Set the rotary switch to the ***"Operating Mode"*** ⏻...☼ position and set the required operating mode (see chap. 3.4).

Detailed explanations and possible setting values of this function can be found in chap. 6.2.1.

3.6.11 Anti-legionella system

WARNING!

There is a danger of scalding at target hot water temperatures over 60 °C. This is possible when using solar energy if the Legionella protection or Smart Grid functions are activated or the target hot water temperature is set higher than 60 °C.

- Install scald protection in the hot water distribution line (e.g. VTA32, 🛒 15 60 15 + Screw set 1", 🛒 15 60 16).

This function is used to prevent bacterial contamination in the hot water storage tank. Refer to the national regulations for the precise drinking water hygiene regulations.

The Legionella protection function is deactivated in the factory in the ROTEX HPSU monobloc compact, as the risk of contamination is very low due to the following reasons:

– Low volume of the heat exchanger (stainless steel) for heating drinking water.
– Frequent, complete water exchange "first-in-first-out".
– No stagnant water areas in the stored drinking water.

When the Legionella protection function is activated (parameter [Anti-Legionella day]), the connected hot water storage tank is heated up to a disinfection temperature 1x daily or 1x weekly. The anti-legionella system function is active for one hour.

Heating the hot water to the disinfection temperature is carried out irrespective of the target hot water temperatures set by the user or the heating technician.

A connected circulation pump is automatically switched on during thermal disinfection.

The setting of the parameters for the anti-legionella system is carried out in the ***"Configuration"*** rotary switch setting at the *"DHW Configuration"* level.

With the factory settings, the storage tank is recharged at 03:30 hours if the target hot water temperature at this point in time is below 65 °C.

Detailed explanations and possible setting values of this function can be found in chap. 6.2.4.

3.6.12 Resetting to factory settings (reset)

If the ROTEX HPSU monobloc compact no longer functions correctly and no other cause for the incorrect behaviour can be determined, it may be appropriate to reset all controller settings to the factory settings. There are 3 ways of doing this.

Option 1

With **user access rights** the **switching time programs** can be reset to the factory settings in the "Special Level", according to tab. 3-9.

1. Push the Exit button for at least 5 s.
   ➔ Menu ***"Special Level"*** is displayed.
2. Use the rotary button to select the *"Timeprog Reset"* program.
3. Execute the program by briefly pressing on the rotary button.
   ➔ The respective values are reset to the factory setting.
4. Use the rotary button to select *"Return"*.
5. Confirm the selection with a brief push of the rotary button.

Option 2

With **technician access rights** all **customer-specific parameter settings** can be reset to the factory settings in the "Special Level", according to tab. 6-1 to tab. 6-11.

1. Enter the technician code (see chap. 3.6.1).
   ➔ After entering, the *"Setup"* level is displayed.
2. Push the Exit button for at least 5 s.
   ➔ Menu ***"Special Level"*** is displayed.
3. Use the rotary button to select the *"Reset?"* program.
4. Execute the program by briefly pressing on the rotary button.
   ➔ The respective values are reset to the factory setting.
5. Use the rotary button to select *"Return"*.
6. Confirm the selection with a brief push of the rotary button.

Option 3
If fundamental changes to the ROTEX HPSU monobloc compact are required for the function within the RoCon system, the **basic configuration** can be set to the **delivery state** or redefined with **technician access rights**.

1. Enter the technician code (see chap. 3.6.1).
   ➔ After entering, the *"Setup"* level is displayed.
2. Use the rotary button to select the *"System Config"* level.
3. Confirm the selection with a brief push of the rotary button.
   ➔ An overview is displayed.
4. Use the rotary button to select the *"Delete"* program.
5. Confirm the selection with a brief push of the rotary button.
   ➔ The ROTEX HPSU monobloc compact is restarted.
   ➔ The "No Basic Configuration" message is displayed.
6. Set the rotary switch to the ***"Info"*** ⓘ position.
   ➔ The "Basic Configuration Not Set" message is displayed.
7. Now it is possible to either carry out the settings individually (a) or to automatically load the factory settings (b).
   a) Press the rotary button briefly.
   ➔ The parameter overview of the ***"Basic Configuration"*** level is displayed, and the settings can be carried out manually according to tab. 6-14.
   b) Switch the ROTEX HPSU monobloc compact off and then on again.
   ➔ After restarting the ROTEX HPSU monobloc compact, a prompt asking whether the standard configuration should be used appears. If it is **confirmed with "Yes"**, the default **basic configuration is loaded**. If **"No"** is selected, the settings must be carried out manually, **see a)**.

More detailed explanations and possible setting values for this function can be found in chap. 6.12.

After resetting to the factory settings using option 2 or 3, the system must be adjusted to the installation environment again by the heating expert and all customer-specific parameters need to be reset.

3.6.13 Screed program

The screed program is used exclusively for the specified drying of newly created screed for floor heating. Here, the heat generator is operated over several days in accordance with a specified temperature profile (the basis for the preset temperature profile is the recommendation of the surface heating federal association for screed curing heating).

After entering the technician code, temperatures and the duration of the screed program can be set freely in the ***"Configuration"*** rotary switch position 🔧 in the *"HC Configuration"* level in the parameter [Screed Program].

The **screed program** is a special function and is not interrupted by any other operating mode. It can **only** be activated by the **heating expert** for the **direct heating circuit** and/or optionally connected mixed heating circuits. It must be activated separately for every heating circuit.

Before starting the screed program, the parameters [Interlink fct] and [Room thermostat] must be deactivated.

During a short-term power failure, a previously activated screed function is continued at the point of the interruption.

After activation of the screed program (parameter [Screed] = On), all weather-dependent control functions of the respective heating circuit are switched off. The respective heating circuit works, as a constant temperature control regardless of the operating mode (switching times).

An already started screed program can be deactivated at any time. After ending the screed program, the parameter is automatically set to "Off", and the heating circuit continues to operate according to the currently set operating mode.

Function heating
The function heating serves as proof of the production of defect free work for the heating engineer. A prefabricated heating protocol related to ROTEX floor heating can be found in the Internet portal of ROTEX.

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 at the earliest after 21 days and of anhydrite screeds after 7 days at the earliest in accordance with the specifications of the manufacturer. The first heating begins with a T-HS of 25 °C that must be maintained for 3 days. Afterwards, the heating is carried out with the maximum set T-HS for the heating circuit (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 parameter [Screed Program] 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 heating circuit temperature (limited to 70 °C) is then maintained for 4 days.

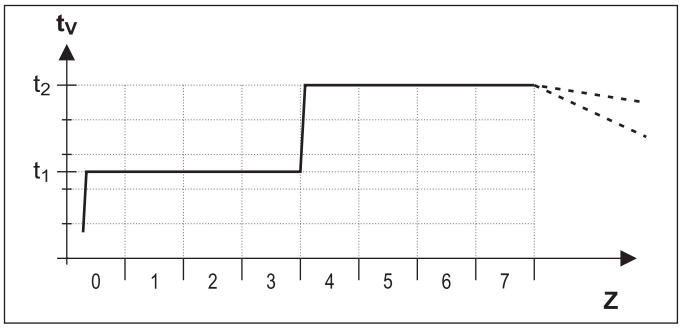
After the described heating process, it is not yet assured that the screed has reached the required moisture content for workability of the screed.

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

Procedure in accordance with EN 1264 Part 4:

For anhydrite and cement screeds, the heating circuits must be leak tested by a water pressure test after completion. The leaktightness must be ensured immediately before and during the laying of the screed. The height of the test pressure is at least 1.3x 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.



t_1 Start temperature 25 °C (38 °C with system 70)
t_2 Maximum heating circuit temperature
t_V T-HS
Z Duration of the screed function in days after starting the function

Fig. 3-18 Chronological sequence of the screed program during the function heating

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 beginning the work of the top floor installer, 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 screed curing (see fig. 3-19). However, the residual moisture of the screed must basically be checked metrologically before the flooring can be laid.

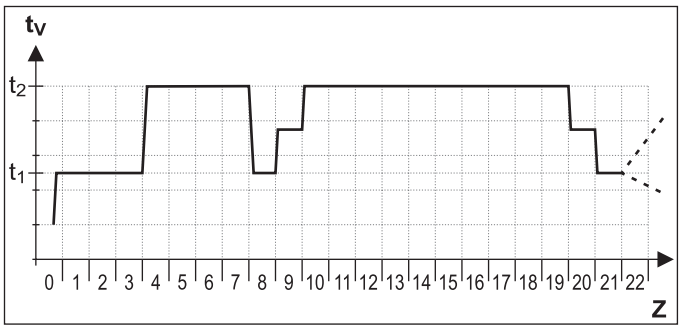


Fig. 3-19 Chronological sequence of the screed program during the combined function and screed curing heating (for legend, see fig. 3-18)

More detailed explanations and possible setting values for this function can be found in chapters 6.2.3 and 6.13.2.

Setting and starting the screed program

The screed program already includes factory default values which can, however, be individually adjusted.

The day on which the screed program is activated is not counted in the runtime of the program. The 1st day starts at the change of day at 00:00 am. On the day of activation, the setting of the 1st program day is used for heating for the remaining time.

- Enter the technician code (see chap. 3.6.1).
  ➔ After entering, the *"Setup"* level is displayed.
- Use the rotary button to select the parameters [Interlink fct] and [Room thermostat] and check whether they are deactivated (see tab. 6-1).
  ➔ Both parameters must be set to "Off" before starting the screed program.
- Briefly press the Exit button.
  ➔ An overview is displayed.
- Use the rotary button to select the *"HC Configuration"* level.
  ➔ An overview is displayed.
- Use the rotary button to select the [Screed Program] parameter.
- Check the settings for the screed program, and set according to the manufacturer specifications for the screed if necessary (see fig. 3-20).
  – The adjustment range always lies between 0.0 and 65 °C.
  – The increment is 1 °C.

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. 3-11 Screed program default settings

- Briefly press the Exit button.
  ➔ An overview is displayed.
- Use the rotary button to select the [Screed] parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The setting of the parameter is displayed.
- Use the rotary button to set the parameter for the function to ***"On"***, and confirm by pressing the rotary button briefly (see fig. 3-20).
  ➔ Screed program starts.
  ➔ The key lock (if it was activated prior to the start of this function) is reactivated within 2 s to prevent undesired cancellation of the function through operation of the RoCon mb controller.

After the screed program has ended, the RoCon mb control unit continues to work in the previously set operating mode. If not configured beforehand, the following finishing work is necessary.

a) On connection without room station:
- Set the heating characteristic curve or desired target feed temperature.

b) On connection with room station:
- Activate the room station.
- Set the heating characteristic curve or desired target feed temperature.If necessary, activate the parameter [Room Influence] and set the target room temperature.

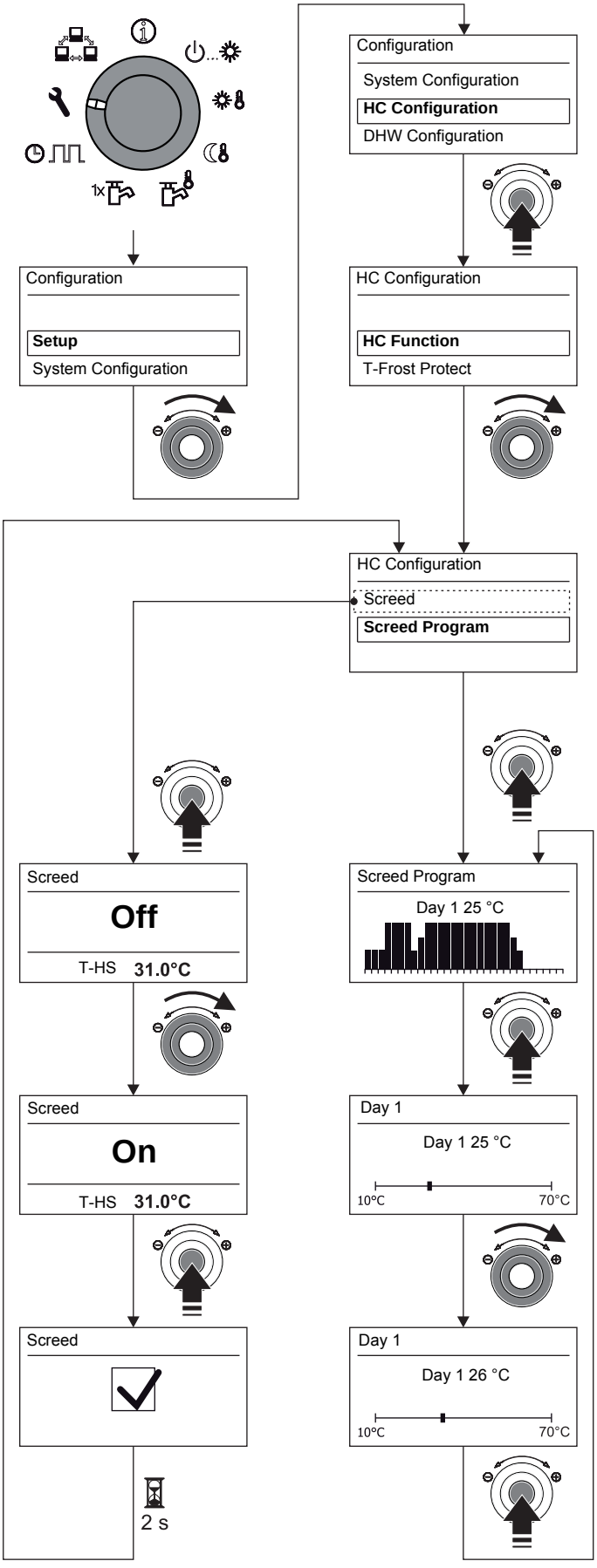


Fig. 3-20 Setting the screed program

3.6.14 Relay test

In the event of error messages, heating problems or as part of annual maintenance, it may be necessary to check the function of the internal switching relays.

- Enter the technician code (see chap. 3.6.1).
  ➔ After entering, the *"Setup"* level is displayed.
- Briefly press the Exit button.
  ➔ The *"Configuration"* level is displayed.
- Use the rotary button to select the *"System Configuration"* level.
- Confirm the selection with a brief push of the rotary button.
  ➔ An overview is displayed.
- Use the rotary button to select the parameter [**Relay Test**]:
  ➔ All relays are deactivated.
  ➔ A selection list of all relays is displayed (for the assignment of the relays, see chap. 6.2.2).
  - Use the rotary button to select the relays to be checked.
  - Confirm the selection with a brief push of the rotary button.

  ➔ A relay is activated.
- Cancellation and jump back by:
  – briefly pressing the Exit key or the rotary button
  – selecting another menu using the rotary switch.

Detailed explanations and possible setting values of this function can be found in chap. 6.2.2.

3.6.15 Settings for optional circulation pump

For greater convenience in draining the water, an optional circulation pump can be switched with the RoCon mb control unit.

There are 2 setting options for this:

a) Separate switching time program (see chap. 3.4.7). Here, the circulation pump works according to an independent switching time program.

b) Together with a hot water switching time program. Here, the circulation pump is controlled in parallel to the operating times of a hot water switching time program.

Independent of the set switching time program, the energy consumption of the circulation pump can be minimised by operating it in pulse mode. The [Circl-Pump Interval] parameter sets the duration of operation of the circulation pump within a 15-minute interval.

Defining the switching time program for the circulation pump

- Set the rotary switch to the ***"Configuration"*** position.
  ➔ An overview is displayed.
- Use the rotary button to select the *"DHW Configuration"* level.
- Confirm the selection with a brief push of the rotary button.
  ➔ An overview is displayed.
- Select the parameter to be set with the rotary button.
  – [Circl-Pump DHW]: Setting of whether the circulation pump is actuated by the active hot water switching time program [ON] or by the separate switching time program [OFF].
  – [Circl-Pump Interval]: Setting of the interval control for optional circulation pump.
- Confirm the selection with a brief push of the rotary button.
- Set the parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The circulation pump is controlled by the RoCon mb control unit in accordance with the entered settings.

Possible setting values of this rotary switch setting can be found in chap. 6.2.4.

3.6.16 Remote control via Internet

An optional gateway (**RoCon G1**, **15 70 56**) can be used to connect the RoCon mb controller to the Internet. This enables remote control of the ROTEX HPSU monobloc compact by mobile phones (by app).

Operation is possible intuitively.

4 Initial start-up

In addition to the commissioning instructions listed in this chapter, the specific commissioning instructions listed in the respective installation instructions for the ROTEX HPSU monobloc compact must be observed.

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 reason, the RoCon BM1 printed circuit boards and the RoCon B1 control panels of the ROTEX HPSU monobloc compact, as well as any optional **RoCon U1** room station (**15 70 34**) and **RoCon M1** mixer module (**15 70 68**) system components are connected to each other via data bus lines.

These system components must be allocated unique functional IDs, so that the data exchange and the assignment within the RoCon system functions without any problems.

In many applications, nothing needs to be changed in the basic settings. The more RoCon system components that are integrated in the RoCon system, the more adjustments that need to be made during initial commissioning or when extending the heating system.

The assignment of the functional IDs is easiest when carried out via the "Setup Wizard" installation menu. Most IDs can also be adapted subsequently to the conditions by means of individual parameter settings in the specific parameter levels (see Chapter 6).

a) If **no optional RoCon system components are connected to the ROTEX HPSU monobloc compact**, communication in the RoCon system is limited to just the RoCon BM1 printed circuit board and the integrated RoCon B1 control panel.
   ➔ Adaptation of the IDs is not necessary.
   ➔ The question displayed during initial commissioning "Use Standard Config" can be confirmed by "Yes".

b) If **optional RoCon system components** such as **RoCon U1** and / or **RoCon M1** are connected, adaptation of the IDs may be necessary.

4.1 Fundamental aspects of the IDs and authorisations in the RoCon system

In the RoCon system, the following functional IDs that are relevant for data exchange of the RoCon system components exist:

ID / Function	System components	Parameters	Comments
Heating circuit ID Unique numbering of a heating circuit in the heating system in the RoCon system. A maximum of 16 heating circuits can be controlled.	ROTEX HPSU monobloc compact (RoCon BM1)	[Unmixed Circ Config] See tab. 6-14	Factory setting = 0 Should not normally be changed.[1)]
	RoCon U1 room station	[HC Assignment] See tab. 6-1	Factory setting = Off Adaptation required if there are different heating circuits in the system and / or the parameter [Master-RoCon] = On
	RoCon M1 mixer module	[HC Assignment] See tab. 6-15	Factory setting = Off Must always be adapted to the setting of the address switch (fig. 4-2).
Heat generator ID Unique numbering of a heat generator in the RoCon system.[1)]	ROTEX HPSU monobloc compact (RoCon BM1)	[BUS ID HS] See tab. 6-14	Factory setting = 0 Should not normally be changed.[1)]
	RoCon M1 mixer module	[Boiler Assignment] See tab. 6-15	Factory setting = 0 Should not normally be changed.[1)] Defines the heat generator that supplies the assigned heating circuit with heat.
Terminal ID Unique numbering of a RoCon B1 or RoCon U1 control unit 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 units in the RoCon system. If remote control in the RoCon system is to be possible, the control unit must be allocated the ID "0".	ROTEX HPSU monobloc compact (RoCon BM1)	[Terminaladress] See tab. 6-1	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.
	RoCon U1 room station	[Terminaladress] See tab. 6-1 or tab. 6-15 - depending on the set heating circuit ID and the current operating mode	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.

ID / Function	System components	Parameters	Comments
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.	ROTEX HPSU monobloc compact (RoCon BM1)	[BUS ID HS] See tab. 6-14	Identical to heat generator detection. The value must not be the same as the heating circuit ID of a mixer module in the RoCon system.
	RoCon M1 mixer module	[HC Assignment] See tab. 6-15	Identical to the heating circuit ID. The value must not be the same as the heat generator ID of a ROTEX HPSU monobloc compact in the RoCon system. The value must be the same as the setting of the address switch (fig. 4-2).

Tab. 4-1 Functional IDs in the RoCon system

1) 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 ROTEX service technician.

If several control units are incorporated in the RoCon system of a heating installation, additional parameter settings are relevant for this and can be used to set the individual functions and parameters using the appropriate authorisations.

For the RoCon U1 room station

– [RoCon U1 assign] parameter:
  – The setting = "Living Room" can be used to influence the heating circuit defined by the set heating circuit ID.
  – The setting = "Mixing Valve" can be used to carry out all the settings for the mixer circuit defined by the set heating circuit ID.

– [Master-RoCon] parameter:
  If the heating circuit ID is set for the direct heating circuit of a ROTEX HPSU monobloc compact, the setting = "On" can be used to activate the master RoCon function. In addition to the heating circuit functions, the hot water functions of the ROTEX HPSU monobloc compact can also be operated with this room station.
  Activation of the master RoCon function can also be used for heating systems that consist only of a ROTEXHPSU monobloc compact (without heating circuit extension) and a room station, and which are to be operated primarily via the room station (observe following information).

  If the master RoCon function is activated, the operating mode of the heat generator is set via the room station, and this is shown on the display.

  The settings on the room station are transferred to the heat generator, but not vice versa. The room station has priority.

  If the [Summer] operating mode is set, for example, and subsequently, on the ROTEX HPSU monobloc compact control panel, the [Heating] operating mode is set, no heating circuit requirement is generated, because the direct heating circuit assigned to the room station via the heating circuit ID is still in [Summer] operating mode. The change in operating mode must therefore be carried out at the room station.

  On heating systems with heating circuit extensions, we recommend not activating the master RoCon function (setting = "Off") and instead using the terminal function.

For all RoCon B1 and RoCon U1 control units

– [Terminaladress] parameter:
  As soon as a control panel has been assigned with a terminal ID (all settings except "Off"), the control panel can be used to activate the terminal function.
  After carrying out the [Bus - Scan], all the system components integrated in the RoCon system can be remotely controlled using a valid device ID (caretaker authorisation).
  If the terminal function is to be used in the heating system, the terminal ID = 0 must be allocated to a control unit.

4.2 Operating Support during 1st. Commissioning and during System Extensions

When a ROTEX HPSU monobloc compact or a RoCon U1 room station is switched on for the first time, setting the user language is normally offered first.

Then, on the ROTEX HPSU monobloc compact you will be asked "Use Standard Config?". This query can normally be answered with "Yes".

Only in special applications (e.g. several heat generators in the RoCon system) should the answer be "No". In this case, the *"Basic Configuration"* parameter level will be offered in order to set the necessary adaptations (see tab. 6-14).

In the case of the RoCon U1 room station, after setting the user language, the *"Setup Wizard"* installation menu appears.

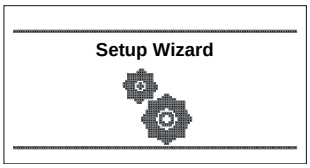


Fig. 4-1 "Setup Wizard" display

The items for defining the function, the authorisation and the IDs of the room station in the RoCon system are requested and checked for plausibility.

This prevents duplicate device and terminal IDs being set.

Therefore, it is recommended that you use this installation menu when extending or making changes to the RoCon system of the heating installation. To do this, a room station already integrated in the heating installation must first be reset.

1. Enter the technician code (see chap. 3.6.1).
2. Push the Exit button for at least 5 s.
   ➔ Menu ***"Special Level"*** is displayed.
3. Use the rotary button to select the *"RoCon B1/U1 Reset"* program.
4. Execute the program by briefly pressing on the rotary button.
   ➔ The *"Setup Wizard"* installation menu starts.

4.3 Commissioning ROTEX HPSU monobloc compact

The prerequisite for initial commissioning is the completion of all preparatory installation work as per the installation and maintenance instructions for the.ROTEXHPSU monobloc compact

- Switch on the power supply to the ROTEX HPSU monobloc compact.
  ➔ After the start phase, the operating language selection is displayed.
- Use the rotary button to select the desired language.

> The operating language can be changed again at any time.

- Confirm the selection with a brief push of the rotary button.
  ➔ The "Use Standard Config?" message is displayed.
- Confirm the default "Yes" by briefly pressing on the rotary button (see also chap. 4.2).
  ➔ The Basic Configuration of the RoCon device is loaded.
  ➔ The "Starting Up" message is displayed.
  ➔ The "Initialization" message is displayed.
  ➔ The standard display for the current rotary switch setting is shown.
- Adjust settings related to the configuration of the heating system on the RoCon device (see chap. 3.6).

4.3.1 Assigning the terminal ID on the RoCon B1 control panel of the ROTEX HPSU monobloc compact

> If several control units are connected in the RoCon system via the data bus, it is important to note that the [Terminaladress] parameter = 0 must be set for a heat generator.
>
> Make sure not to assign a duplicate value as the setting of the [Terminaladress] in the RoCon system.

- Enter the technician code (see chap. 3.6.1).
  ➔ After entering, the *"Setup"* level is displayed.
- Use the rotary button to select the [Terminaladress] parameter.
- Confirm the selection with a brief push of the rotary button.
- Within the display, use the rotary button to set the unique terminal address.
  For reasons of clarity, this control unit must be assigned the value = 0.
- Confirm the selection with a brief push of the rotary button.
  ➔ Change has been accepted. Jump back to previous display.

Detailed explanations and possible setting values for this rotary switch setting can be found in chap. 6.2.1.

4.4 Putting optional RoCon system components into operation

4.4.1 (M1) Mixer module RoCon M1

The **RoCon M1** mixer module (🛒 **15 70 68**) has no separate control unit. For configuration and operation, it must be connected via a CAN bus line to a RoCon controller installed in the heat generator or a RoCon U1 room station(🛒 15 70 34).

> In conjunction with a room station, the mixer module can also be operated as a free-standing heating circuit controller.
>
> To operate the mixer module directly via the RoCon B1 control panel of the ROTEX HPSU monobloc compact, it must be assigned with a terminal ID, and the terminal function must be activated (see chap. 3.4.9).

After selection and confirming an external device, the terminal function for this device is activated and the associated standard display for this device is shown in the display.

The operating component is then in terminal operation.

In the rotary switch position , the local control panel acts as a remote control for the external device. In this case, all the control functions are performed and saved 1:1 as on the external device.

For reasons of clarity, this control unit must be assigned the value = 0.

> If, in the rotary switch position , the message "n.A." is displayed, no valid terminal ID has been assigned to this RoCon B1 control panel yet.
>
> 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 ROTEX Service Team for this.

A unique device ID (≥ 1) must be set on the address switch (see fig. 4-2) for the heating circuit to be controlled by this mixer module, which must be synchronised with the [HC Assignment] parameter of the mixer module (see tab. 4-1]).

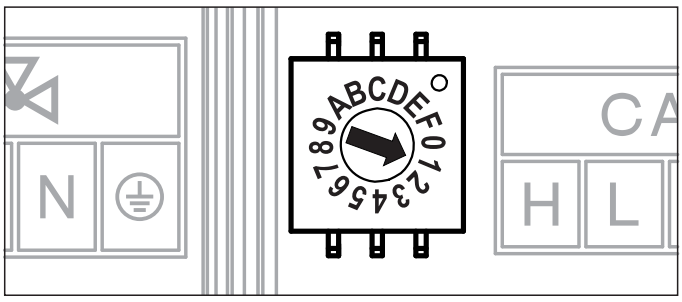
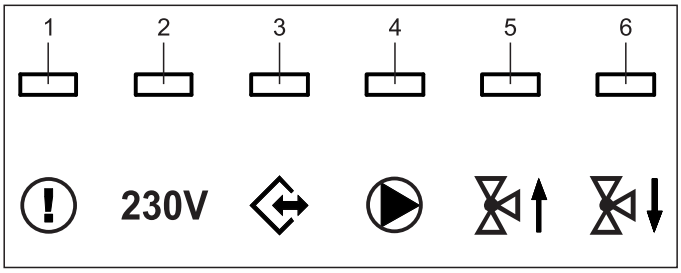


Fig. 4-2 Setting the device ID for the RoCon M1 mixer module

All settings and operating steps for this heating circuit are performed in the same way as those for the direct heating circuit. The overview of the available parameters and their settings can be found in chap. 6.13.

The current operating status can be determined directly on the RoCon M1 mixer module (see fig. 4-3).



1	*LED red*	*-*	*Flashing: Internal error (error code is communicated to the relevant control unit over the CAN bus)*
		-	*To: Undervoltage of the internal clock after a power failure (>10 h)*
2	*LED green*	*-*	*To: Display during operation, mixer module switched on*
3	*LED green*	*-*	*To: CAN communication established*
4	*LED green*	*-*	*To: Mixer circuit pump switched on*
5	*LED green*	*-*	*To: Mix valve "OPEN" is activated*
6	*LED green*	*-*	*To: Mix valve "CLOSED" is activated*

Fig. 4-3 Explanation of symbols for RoCon M1 status displays

4.4.2 (U1) RoCon U1 room station

The **RoCon U1** room station (🛒 **15 70 34**) can be used as

a) a remote control unit for the ROTEXHPSU monobloc compact,

b) a mixer circuit operating unit (as a mixer circuit extension or as a freestanding mixer circuit controller),

c) a room thermostat for the ROTEX HPSU monobloc compact,

d) remotely controlled unit for the entire RoCon system (with terminal function activated).

The room station must be connected using a CAN bus line to the ROTEX HPSU monobloc compact's installed RoCon controller or a RoCon M1 mixer module. No separate mains supply is necessary for the room station.

Sequence for initial commissioning (see also chap. 4.2)

- Set the rotary switch on the RoCon U1 room station to the ***"Info"*** ⓘ position.
- Switch on the power supply to the respective ROTEX HPSU monobloc compact.
  - ➔ After the start phase, the operating language selector is displayed on the RoCon U1 room station.
- Use the rotary button to select the desired language.

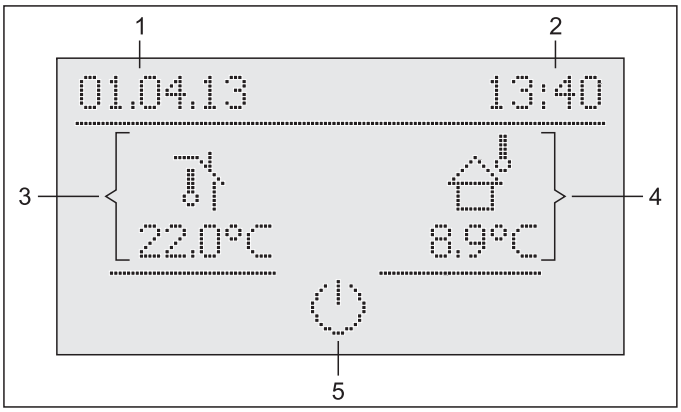
> The operating language can be changed again at any time.

- Confirm the selection with a brief push of the rotary button.
  - ➔ The "Setup Wizard" message is displayed.
- Use the rotary button to set the desired operating function for the room station.
  - – "Living Room": Operating function, see a), c), d)
  - – "Mixing Valve": Operating function, see b)
  - ➔ Depending on the selected application, the further configuration is based either on A or B in the following sections.

> All operating steps after initial commissioning for the assigned heating circuit are carried out similarly to those on the **RoCon B1**control panel of the ROTEX HPSU monobloc compact.
>
> However, not all functions (e.g. manual operation, resetting faults) of the ROTEX HPSU monobloc compact can be activated with the room station.

A: Configuration for the "Living Room" setting

- Confirm the "Living Room" setting by briefly pressing the rotary button.
  - ➔ Setting of the heating circuit ID ([HC Assignment] parameter) is displayed.
- Use the rotary button to select the associated heating circuit in the [HC Assignment] parameter.
- Confirm the selection with a brief push of the rotary button.
  - ➔ Setting of the terminal ID ([Terminaladress] parameter) is displayed.
- Use the rotary button to set the [Terminaladress] parameter.
- Confirm the selection with a brief push of the rotary button.
  - ➔ The standard display is shown (see fig. 4-4).



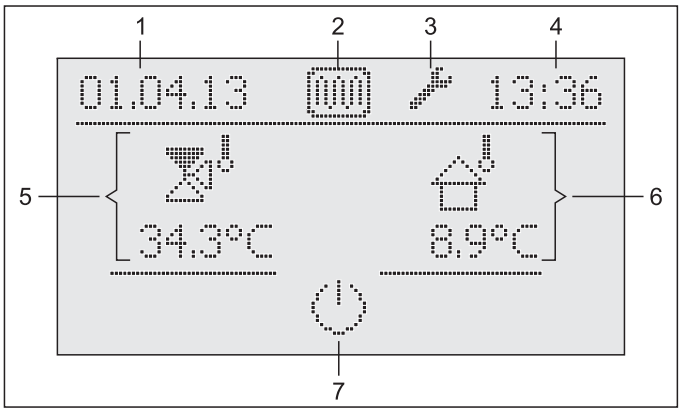
1	*Date*	*4*	*Current outside temperature*
2	*Time*	*5*	*Operating mode active for the assigned heating circuit*
3	*Current room temperature*		

Fig. 4-4 Standard RoCon M1 - "Living Room" display

  - ➔ The settings on the RoCon U1 room station are only valid for the assigned heating circuit (except if the terminal function is active).

B: Configuration for "Mixing Valve" setting

- Confirm the "Mixing Valve" setting by briefly pressing the rotary button.
  - ➔ Setting of the heating circuit ID ([HC Assignment] parameter) is displayed.
- Use the rotary button to set the [HC Assignment] parameter. This parameter must be identical to the setting of the address switch in the mixer module (see fig. 4-2), that is allocated to the RoCon U1 room station.
- Confirm the selection with a brief push of the rotary button.
  - ➔ Setting of the terminal ID ([Terminaladress] parameter) is displayed.
- Use the rotary button to set the [Terminaladress] parameter.
  - ➔ The standard display is shown (see fig. 4-4).



1	*Display date*	*5*	*Current T-HS of the mixer circuit*
2	*Status display: Screed function active*	*6*	*Current outside temperature*
3	*Status display: Expert login*	*7*	*Operating mode setting for the assigned heating circuit*
4	*Display time*		

Fig. 4-5 RoCon M1 standard display - "Mixing Valve" with example status displays

In the "Mixing Valve" setting, the room sensor of the RoCon M1 is deactivated.

4.4.3 (M1) Allocating the RoCon M1 mixing module to a heat generator

If just 1 heat generator is integrated in the RoCon system, adaptation of the heat generator ID is not necessary (see tab. 4-1).

If adaptations have to be undertaken, the value of the parameter [Boiler Assignment] (see chapter 6, tab. 6-15) must be set to the same value as the heat generator ID of the ROTEX HPSU monobloc compact that is intended to supply the mixer circuit of this mixer module.

4.4.4 Master RoCon function

Each RoCon U1 room station whose heating circuit ID is set to a direct heating circuit can be assigned to the master RoCon function.

- Enter the technician code (see chap. 3.6.1).
  ➔ After entering, the ***"Setup"*** level is displayed.
- Use the rotary button to select the [**Master-RoCon**] parameter.
- Confirm the selection with a brief push of the rotary button.
  ➔ The setting of the parameter is displayed.
- Use the rotary button to set the parameter for the function to ***"On"***, and confirm by pressing the rotary button briefly.

All settings on the **RoCon U1 room station act in the same way as** settings on the **RoCon B1** control unit of the assigned heat generator.

As a result, the functions for hot water generation can also be remotely operated from the room station.

As the **RoCon B1** control panel has control of the assigned heating circuit in this setting, settings undertaken on the ROTEX HPSU monobloc compact control panel only affect the heat generator, not the heating circuit (see chap. 4.1).

4.4.5 Caretaker function

The caretaker function equates to the terminal function (see chap. 3.4.9 and chap. 4.1 under the [Terminaladress] parameter).

5 Parameter overview

5.1 For first commissioning or resetting to factory settings

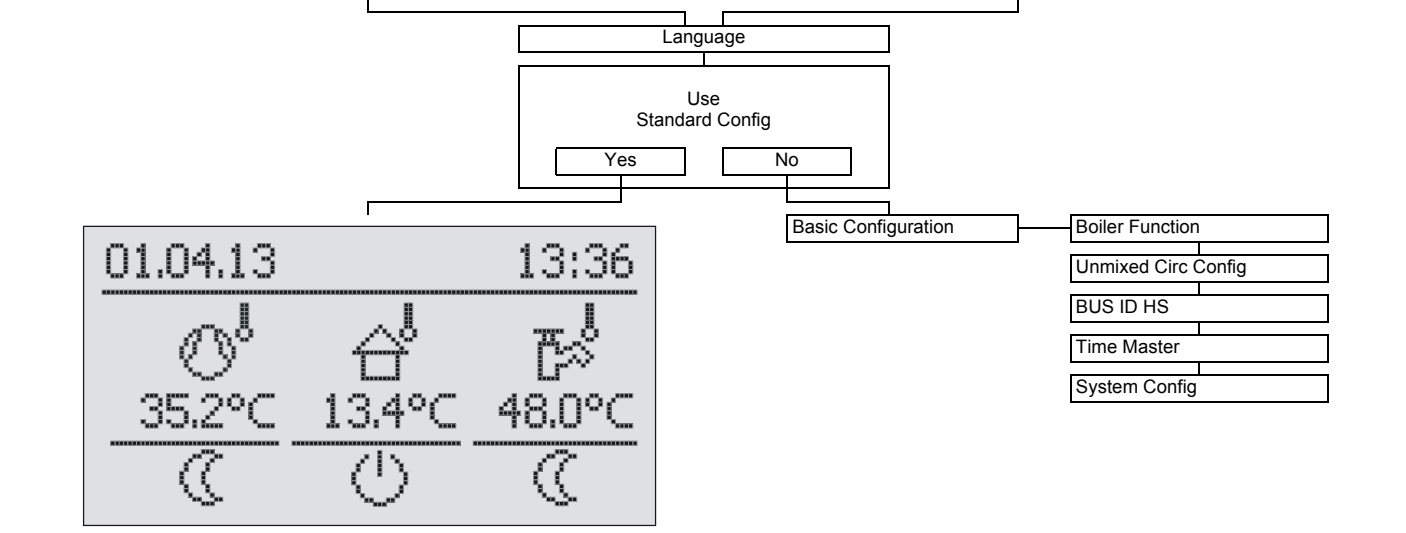
The parameters listed in this section can only be accessed when the ROTEX HPSU monobloc compact is commissioned for the first time or has been completely reset.

During initial commissioning:

- Rotary switch setting: Info ⓘ
- Switch on the power supply to the ROTEX HPSU monobloc compact.

After resetting to factory settings:

- Resetting to factory settings. (see chap. 3.6.12 - Option 3)
- Rotary switch setting: Info ⓘ

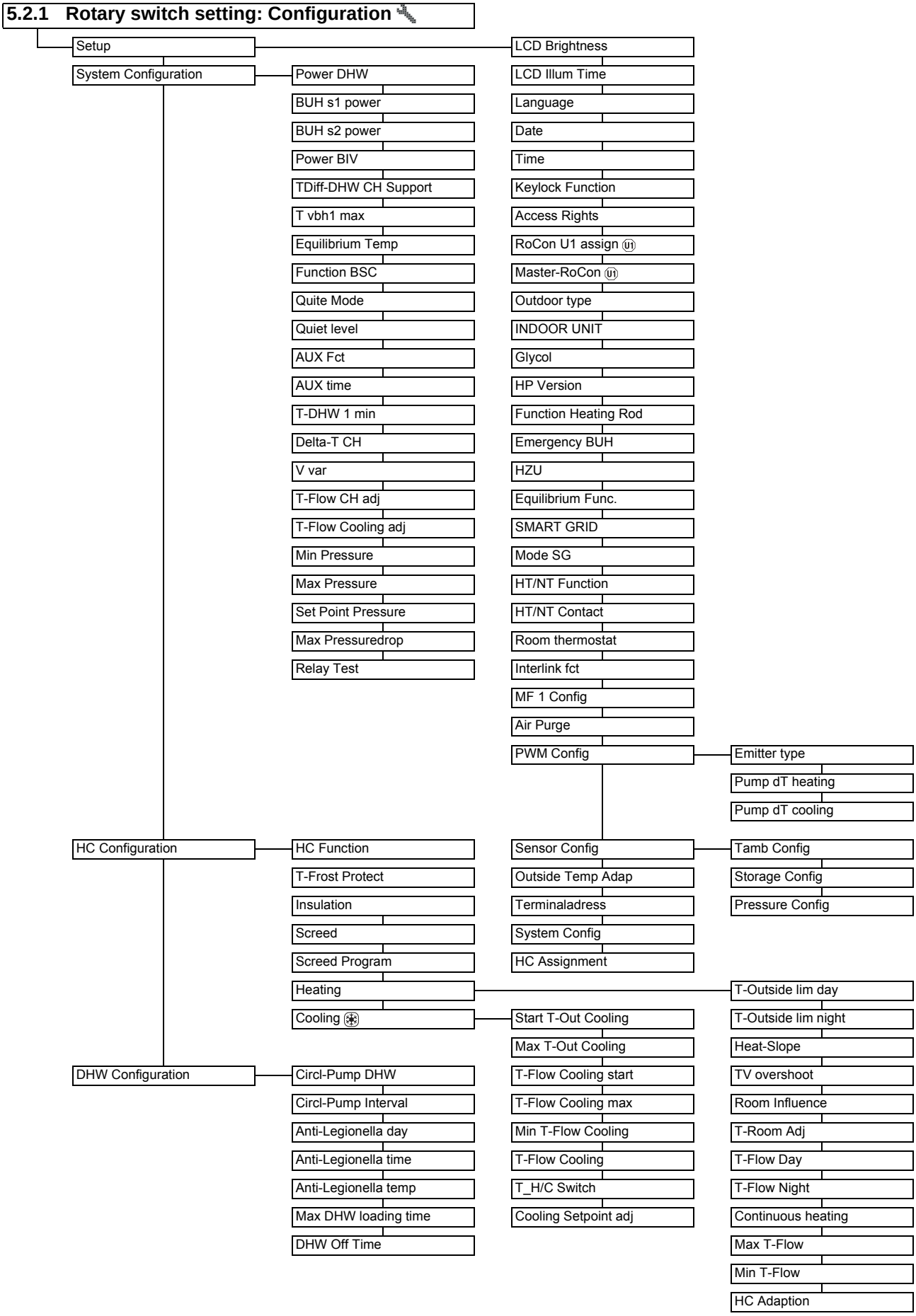


Tab. 5-1 "Basic Configuration" parameters

After each system restart, the "Configuration" level cannot be accessed for approx. 3 minutes.

5.2 After first commissioning/After successful basic configuration

5.2.1 Rotary switch setting: Configuration



Tab. 5-2 Parameters in the "Configuration" rotary switch setting

5.2.2 Rotary switch setting: DHW Install

- 1x Hot Water
- Hyst HP
- Timer BOH

Tab. 5-3 Parameters in the "DHW Install" rotary switch setting

5.2.3 Rotary switch setting: Operating Mode

- Standby
- Reducing
- Heating
- Cooling
- Summer
- Automatic 1
- Automatic 2

Tab. 5-4 Parameters in the "Operating Mode" rotary switch setting

5.2.4 Rotary switch setting: Set Temp Day

- T-Room 1 Setpoint
- T-Room 2 Setpoint
- T-Room 3 Setpoint

Tab. 5-5 Parameters in the "Set Temp Day" rotary switch setting

5.2.5 Rotary switch setting: Set Temp Night

- T-Reduced
- T-Absence

Tab. 5-6 Parameters in the "Set Temp Night" rotary switch setting

5.2.6 Rotary switch setting: DHW Set Temp

- T-DHW Setpoint 1
- T-DHW Setpoint 2
- T-DHW Setpoint 3

Tab. 5-7 Parameters in the "DHW Set Temp" rotary switch setting

5.2.7 Rotary switch setting: Time Program

- Party
- Away
- Vacation
- Holiday
- HC Program 1
- HC Program 2
- DHW Program 1
- DHW Program 2
- Circulation Time

Tab. 5-8 Parameters in the "Time Program" rotary switch setting

5.2.8 Rotary switch setting: Remote Param

- Bus - Scan
- No selection
- Contr BM1/BE1 #X
- Mix Valve #X

Tab. 5-9 Parameters in the "Remote Param" rotary switch setting

5.2.9 Rotary switch setting: Info

- Overview

Mode:	Pump:
Ext:	V:
RT:	EHS:
TV:	Tdhw:
TVBH:	TA:
TR:	Psyst:
BPV:	Tliq2:
3UVD:	quiet:
TA2:	Glycol:

(see also chap. 3, fig. 3-5)

- Water Pressure
- T-HS
- T-HS Setpoint
- T-Outside
- T-DHW
- T-DHW Setpoint
- T-Return
- Flow Rate
- T-HC
- T-HC Setpoint
- Status HS pump
- Runtime Compressor
- Runtime Pump
- Mixer Position
- Qboh
- Qchhp
- Qsc
- Qch
- QWP
- Qdhw
- HS type
- Sw Nr B1/U1
- Sw Nr Controller

Tab. 5-10 Parameters in the "Info" rotary switch setting

5.2.10 Exit key: Special function

- Manual Operation
- FA failure
- Protocol
- Delete message
- RoCon B1/U1 Reset
- Parameter Reset
- Timeprog Reset
- Return

Tab. 5-11 Parameters in "Special Level" level

5.3 M1 Parameter levels for the RoCon M1 mixer module

5.3.1 Rotary switch setting: Info

See chap. 5.2.9.

5.3.2 Rotary switch setting: Operating Mode

See chap. 5.2.3.

5.3.3 Rotary switch setting: Set Temp Day

See chap. 5.2.4.

5.3.4 Rotary switch setting: Set Temp Night

See chap. 5.2.5.

5.3.5 Rotary switch setting: DHW Set Temp

No function.

5.3.6 Rotary switch setting: DHW Install

No function.

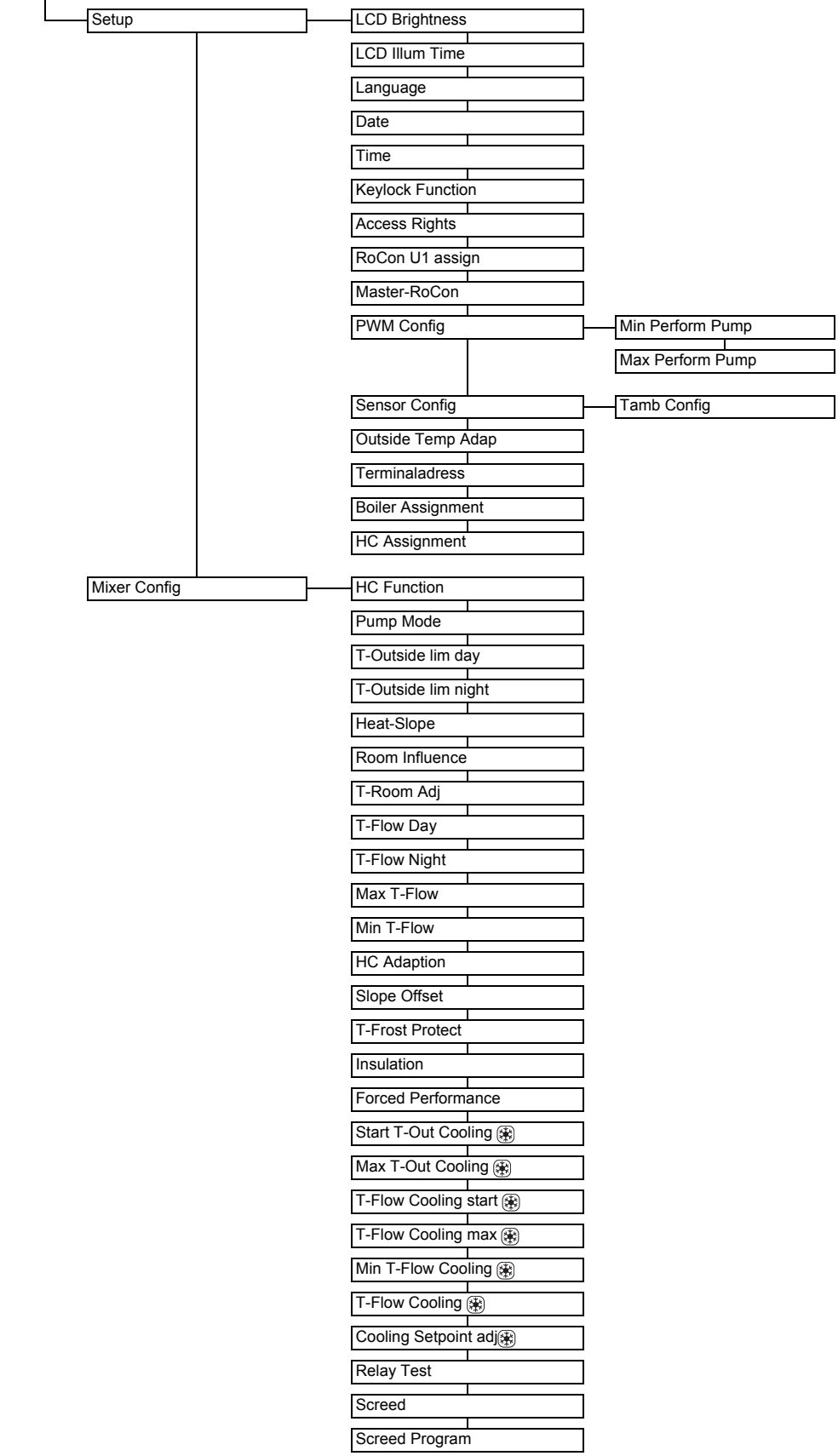
5.3.7 Rotary switch setting: Time Program

See chap. 5.2.7.

5.3.8 Rotary switch setting: Remote Param

See chap. 5.2.8.

5.3.9 Rotary switch setting: Configuration



Tab. 5-12 (M1) Parameters in the "Configuration" rotary switch setting

6 Parameter settings

6.1 Explanation of the parameter tables

The parameter tables listed in Chaps. 6.2 to 6.11 include compact information on all parameters, which is available in the respective rotary switch setting on the control unit (1st menu level, 2nd menu level).

In addition to the parameter designations, the tables contain details of the setting ranges, factory settings, setting options or setting step distances and brief function explanations.

In addition, they provide 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 authorisation with technician code

In the event of different information in the BE and HF columns, login as a heating technician must be carried out prior to selecting the parameter level in order to obtain the status entered in the HF column (see chap. 3.6.1).

Status:

N Not visible

E Visible and configurable

S Visible

6.2 Rotary switch setting: Configuration

6.2.1 "Setup" level

Sub-level	Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
			BE	HF			
	LCD Brightness	Brightness of the display	E	E	0 - 100 %	50 %	10 %
	LCD Illum Time	Lighting duration of the display	E	E	5 - 120 s	30 s	1 s
	Language	National language of the display texts on the control unit	E	E	German English French Dutch Italian Spanish Portuguese	German	-
	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			
	Keylock Function	Release of the key lock function: Off: Key lock cannot be activated. On: Key lock can be activated with the rotary button (see chap. 3.3).	E	E	Off On	Off	-
	Access Rights	Access code entry. Setting digit-by-digit like a combination lock (see chap. 3.6.1).	E	E	0 - 9	0000	1
	RoCon U1 assign	Display only on connected (U1) room station: Function of the RoCon U1 room station in the CAN data bus system: Living Room: Control unit for the heating circuit allocated in the [HC Assignment] parameter. Mixing Valve: Mixer circuit operating unit (as mixer circuit extension or as a free-standing mixer circuit control unit) In addition to the above functions, the room station can basically be used as a remote control unit for the ROTEX HPSU monobloc compact and the entire RoCon system (with activated terminal function) (see chapters 4.1 and 4.4.2).	N	E	Living Room, Mixing Valve	Living Room	-
	Master-RoCon	Display only on connected (U1) room station: Setting of the master RoCon function Off: Deactivated On: Function active For every RoCon U1 room station whose heating circuit ID is set on a direct heating circuit, the master RoCon function can be activated (see chap. 4.4.4). Several room stations with active master RoCon function in the system are possible, but only one room station which is assigned to the same heat generator. All settings on the RoCon U1 room station work for activated master RoCon function as settings on the RoCon B1 control unit of the assigned heat generator. As a result, the functions for hot water generation can also be remotely operated from the room station.	N	E	Off On	Off	-
	Outdoor type	Heat pump outdoor unit type 0: no selection 1: 5 kW 2: 7 kW	N	E	0 - 6	0	1
	INDOOR UNIT	Heat pump interior unit type Adaptation of the set value important, as the device types have different defrosting logics. 0: no commissioning carried out so far. 1: 300 2: 500	N	E	0 - 4	0	1

Sub-level	Parameters	Description	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
	Glycol	Adding glycol to the water circuit is recommended to guarantee frost protection in the event of a power failure. If glycol has been added to the system, the RoCon controller setting must be adapted accordingly. 0: no glycol added 1: glycol added	S	E	0 - 1	0	-
	HP Version	Version of the HPSU internal unit 5: version 5	N	E	5	5	-
	Function Heating Rod	Setting regarding whether an additional heat generator (WEZ) for hot water preparation and heating support is available (see chap. 3.6.7). 0: no additional WEZ 1: optional backup heater 2: alternative WEZ undertakes hot water preparation and heating support 3: alternative WEZ 1 undertakes hot water preparation and alternative WEZ 2 undertakes heating support	N	E	0 - 3	1	1
	Emergency BUH	If the heat pump fails, the backup heater can be used as emergency heating, and can undertake all heating requirements either automatically or non-automatically. 0: no automatic emergency operation 1: automatic emergency operation	E	E	0 - 1	0	-
	HZU	Heating support from hot water storage tank if minimum temperature is exceeded (see chap. 3.6.8 and parameter [TDiff-DHW CH Support]). Off: no heating support On: heating support function active	N	E	Off On	On	-
	Equilibrium Func.	The bi-valence 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 released if the temperature set in the parameter [Equilibrium Temp] is undershot.	N	E	Off On	On	-
	SMART GRID	Evaluation of the SG signal (see chap. 3.4.12). 0: Smart Grid function not active, SG signal is not evaluated. 1: depending on utility company signal, the heat pump is shut off (no frost protection function - see chap. 3.6.5) or operated at higher temperatures.	N	E	0 - 1	0	-
	Mode SG	Only if [SMART GRID] parameter = 1: Used for a possible increase in the target temperature in the case of a Smart Grid switch-on command. 0: comfort (target hot water temperature increase by 5 K) 1: standard (target feed temperature increase by 2 K and target hot water temperature increase by 5 K) 2: eco (target feed temperature increase by 5 K and target hot water temperature increase by 7 K)	N	E	0 - 2	1	1
	HT/NT Function	Setting regarding which heat sources are switched off if the peak signal output by the utility company (EVU) is received in the case of an off-peak mains connection. 0: deactivated (no effect) 1: refrigerant compressor is switched off 2: refrigerant compressor and backup heater are switched off 3: everything is switched off (no frost protection function - see chap. 3.6.5)	N	E	0 - 3	0	1
	HT/NT Contact	Definition of whether the HT/NT input is evaluated as a normally closed contact or a normally open contact. 0: normally open contact (switching contact closed = peak) 1: normally closed contact (switching contact closed = off-peak)	N	E	0 - 1	0	-
	Room thermostat	Configuration of a room thermostat with potential-free contacts connected to ROTEX HPSU monobloc compact connection J16. – Off: Deactivated – On: (only if parameter [Interlink fct] = Off) Evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM1 printed circuit board (only if none of the "Standby", "Reducing", "Summer", "Vacation", "Holiday" or "Screed" operating modes are active): a) Closed heating switching contact: operating mode is switched to "Heating". Priority if both switching contacts are closed. b) Closed cooling switching contact: operating mode is switched to "Cooling". c) Open contacts: only frost protection active.	N	E	Off On	Off	-

Sub-level	Parameters	Description	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
	Interlink fct	Configuration for systems that are operated with 2 different target feed temperatures (see chap. 3.6.6). One possible application is e.g. the additional integration of an HP convector in a surface heating and cooling system. Prerequisite: 2 room thermostats are connected to ROTEX HPSU monobloc compact plug connection J16. – Off: Deactivated – On: evaluation of the heating and cooling switching contacts at plug connection J16 on the RoCon BM1 printed circuit board. Activation of cooling mode only by switching the operating mode to "Cooling" (see chap. 3.4.2). Setting of the parameter [Room thermostat] is no longer evaluated. a) Open switching contacts: only frost protection active b) "Heating" and "Automatic 1" / "Automatic 2" operating mode active during the switching cycles in day mode. – Closed heating switching contact = IL1: → The system is regulated to the normal target feed temperature as per the parameter settings in the *"HC Configuration"* > *"Heating"* level. – Closed cooling switching contact = IL2: → The system is regulated to the increased target feed temperature (normal target feed temperature + value of the parameter [T-Flow CH adj]. Priority if both switching contacts are closed! c) "Cooling" operating mode active. – Closed heating switching contact = IL1: → The system is regulated to the normal target feed temperature as per the parameter settings in the *"HC Configuration"* > *"Cooling"* level. – Closed cooling switching contact = IL2: → The system is regulated to the reduced target feed temperature (normal target feed temperature - value of the parameter [T-Flow Cooling adj]. Priority if both switching contacts are closed!	N	E	Off On	Off	-
	MF 1 Config	Configuration of the multi-function output (230 V, J14 connection): 0: The output is without function. 1: Header pump – The output becomes active as soon as a system heating circuit reports a heat requirement to the heat generator. 2: Circulation pump – The output is activated either after the time program of the circulation pump or after the time program of the hot water generation, depending on the parametrisation (see chap. 3.4.7). 3: Feeder pump – The output becomes active as soon as a heat requirement is pending for the direct heating circuit of the heat generator.	N	E	0 - 3	2	1
	Air Purge	Activation of automatic ventilation of the ROTEX HPSU monobloc compact and the connected heating circuit (see chap. 3.6.10). Off: Deactivated On: Start of the Air Purge	N	E	Off On	Off	-
PWM Config							
	Emitter type	System reaction time: depending on the water volume in the system and the heat exchanger type, heating or cooling a room may take more time. This setting can compensate for a slow or fast heating/cooling system by adapting the device's output during the heating/cooling cycle. 0: fast. Example: lower water volume and convectors. 1: slow. Example: higher water volume, floor heating circuits.	S	E	0 -1	0	-
	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.	S	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.	S	E	3 - 10	5	1
Sensor Config							
	Tamb Config	Configuration of the optional outside temperature sensor. 0: no sensor evaluation 1: sensor evaluation activated. To determine the target feed temperature, this sensor is evaluated and shown on the standard display.	S	E	0 - 1	0	-
	Storage Config	Configuration of the hot water generation: Inactive: No function for hot water generation. Sensor: Function for hot water generation is activated. A storage temperature sensor is evaluated for hot water generation (if no storage temperature sensor is connected, an error message is generated). Thermostat: Function for hot water generation is activated. A thermostatic switch (On / Off) is evaluated for hot water preparation, whereby "open terminals" is evaluated as "no requirement".	N	E	Inactive Sensor Thermostat	Sensor	-
	Pressure Config	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	On	-
	Outside Temp Adap	Individual adjustment for the measured value of the outside temperature relevant for the control unit.	N	E	-5.0 to +5.0 kW	0.0 K	0.1 K

Sub-level	Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
			BE	HF			
	Terminaladress	Setting of the terminal ID of the control unit 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 for "Off" authorise the user of the control unit to activate the terminal function and thus to operate all RoCon system components with a valid device ID (see chap. 3.4.9 and 4.1).	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 "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. The rotary switch must then be set to *"Info"*. Use the rotary button to operate the displayed menu guidance.	N	E	Inactive Active Delete	Active	-
	HC Assignment	Display only on connected (U1) room station: Setting of the heating circuit ID for the room station (see chap. 4.1). This parameter determines which heating circuit should be operated with this value. The direct heating circuit of the ROTEX HPSU monobloc compact is set to heating circuit ID "0" as standard (see chap. 6.12, parameter [Unmixed Circ Config]).	N	E	Off, 0 - 15	Off	1

Tab. 6-1 Parameters in the "Configuration" rotary switch setting, "Setup" level

6.2.2 "System Configuration" level

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Power DHW	Heat output of the electric heater booster for hot water preparation	N	E	1000 - 40,000 W	3000 W	1000 W
BUH s1 power	Heat output of the electric heater booster for heating support stage 1 See operating instructions for heating element BUxx.	N	E	-	-	-
BUH s2 power	Heat output of the electric heater booster for heating support stage 2 See operating instructions for heating element BUxx.	N	E	-	-	-
Power BIV	Setting limits the heating support output.	N	E	3000 - 40000 W	15000 W	1000 W
TDiff-DHW CH Support	Only if parameter [HZU] = On. Heating support is activated if Tdhw > T_{HZUmin} + 4 K **and** Tdhw > [T-HS Setpoint] + 1 K. Heating support is deactivated if Tdhw < T_{HZUmin} **or** Tdhw < [T-HS Setpoint]. T_{HZUmin} = currently active target hot water temperature [T-DHW Setpoint] + set parameter value [TDiff-DHW CH Support]. Tdhw = current hot water storage tank temperature [T-HS Setpoint] = currently active target feed temperature (see tab. 6-12 and chap. 3.6.4)	N	E	2 - 15	5	1
T vbh1 max	Setting limits the target feed temperature (measured against $t_{V, BH}$) when the heating support function is active.	N	E	5 - 85 °C	60 °C	1 °C
Equilibrium Temp	Setting influences the effect of the potential-free AUX switching contact (toggle switch output A) defined in the parameter [AUX Fct]. Only if parameter [Equilibrium Func.] = On: Outside temperature as of which the optional heater booster is activated to support room heating. The bi-valence 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 TA) integrated in the heat pump outdoor unit is used for this.	E	E	-15 to +35 °C	0 °C	1 °C
Function BSC	Selection of the functionality of switching contact EXT (J8): 0: evaluation of the resistance valves (see chap. 3.4.2) 1: evaluation as a burner blocking contact. If the switching contact is closed, the external heat generator has priority.	S	E	0 - 1	0	-
Quite Mode	Mode for low-noise operation at reduced output (see chap. 3.4.11). 0: deactivated 1: activated 2: only operated in whisper mode at night from 22:00 to 06:00 hours.	E	E	0 - 2	0	-
Quiet level	On selection of low-noise operation, three noise levels can be set. 0: less quiet. The output can decline in colder ambient conditions. 1: medium quiet. Reduced output is possible under all conditions. 2: quietest. The output is reduced under all conditions.	S	E	0 - 2	0	-
AUX Fct	Setting assigns the switching conditions for the potential-free AUX switching contact (toggle switch output A, see chap. 3.6.9). 0: function deactivated AUX switching contact switches: 1: if storage tank temperature (Tdhw) ≥ value of parameter [T-DHW 1 min]. 2: if a cooling request or heating request is present. 3: if a hot water request to the backup heater (BUxx) is present or the configured backup heater is requested for heating support. 4: if an error is pending. 5: if the sensor value (TVBH) is > 60 °C. 6: if the outside temperature is < parameter value [Equilibrium Temp]. → Heat pump continues to operate = parallel bi-valence mode. 7: if the outside temperature is < parameter value [Equilibrium Temp] + a heating request or a hot water request is present. → Heat pump does not continue to operate = alternative bi-valence mode. 8: if a hot water request is present. 9: 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 parameter [Equilibrium Temp] - only in hot water mode. Application: alternative room heating bi-valence mode if the boiler is hydraulically integrated so that it directly heats the unpressurised storage tank water of the ROTEX HPSU monobloc compact (connection via solar connections). 10: "multi-oil" - 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 parameter [Equilibrium Temp] - only in hot water mode. Application: alternative room heating bi-valence 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 ROTEX HPSU monobloc compact (parameter [T-Frost Protect] = Off). 11: if the heat pump is in "Cooling" operating mode.	N	E	0 - 9	0	1
AUX time	AUX switching contact (A) only switches after a delay if the switching condition (see parameter [AUX Fct]) is present for longer than the set time.	N	E	0 - 600 s	120 s	5 s
T-DHW 1 min	Storage tank temperature (Tdhw) switching threshold for AUX switching contact (see parameter [AUX Fct]).	N	E	20 - 85 °C	50 °C	1 °C
Delta-T CH	Target spread for room heating. The heating circulation pump of the ROTEX HPSU monobloc compact regulates the flow rate to achieve the target spread stored in the parameter between the target feed temperature and return temperature ($t_{V, BH}$ - t_{R1}).	N	E	2 - 20 K	7 K	1 K

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
V var	System's currently required minimum volumetric flow (calculated value, not adjustable)	N	S	INFO VALUE	XXX	-
T-Flow CH adj	Only if parameter [Interlink fct] = On: When the RT switching contact cooling ❄ is closed, the target feed temperature is increased by the set value (see tab. 6-1, parameter [Interlink fct]). Request e.g. through HP convector.	N	E	0 - 50 K	5 K	1 K
T-Flow Cooling adj	Only if parameter [Interlink fct] = On: When the RT switching contact cooling ❄ is closed, the target cooling feed temperature is reduced by the set value (see tab. 6-1, parameter [Interlink fct]). Request e.g. through HP convector.	N	E	0 - 50 K	5 K	1 K
Min Pressure	Defines the minimum water pressure. Pressure monitor function (only with activated pressure sensor, [Pressure Config]=On, see tab. 6-1): if the measured value falls below the set value, the ROTEX HPSU monobloc compact is shut off and an error message is generated.	N	E	0.1 - 5.0 bar	0.5 bar	0.1 bar
Max Pressure	Defines the maximum water pressure. Pressure monitoring function (only with activated pressure sensor, [Pressure Config]=On, see tab. 6-1): 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
Set Point Pressure	Defines the target water pressure. Pressure monitoring function (only with activated pressure sensor, [Pressure Config]=On, see tab. 6-1): If the measured value undercuts the set value by more than the value set in the [Max Pressuredrop] parameter, a warning message is generated.	N	E	0.1 - 5.0 bar	0.9 bar	0.1 bar
Max Pressuredrop	Defines the maximum acceptable pressure loss in the heating system. Pressure monitoring function (only with activated pressure sensor, [Pressure Config]=On, see tab. 6-1): If the measured value undercuts the value set in the [Set Point Pressure] 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
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. Relay 1: Output J1 (internal heating circulation pump), M1 output pump Relay 2: output J14 (circulation pump), M1 mix valve "open" Relay 3: Contact A on output J2 (3UVB1 switching valve), M1 mix valve "Closed" Relay 4: Contact B on output J2 (3UVB1 switching valve) Relay 5: Output J12, 3UV DHW switching valve, "Closed" Relay 6: Output J12, 3UV DHW switching valve "Open" Relay 7: Connection J3 (potential-free relay: Closer B-B1) - AUX Relay 8: Connection J3 (potential-free relay: Changer A-A1/A-A2) - AUX Relay 9: Output J10 (A1P power supply) Relay A: output J17 (pin 3) - relay K2 (RTX-EHS) output XBUH1 T2 Relay B: output J17 (pin 2) - relay K3 (RTX-EHS) output XBUH1 T1 Relay C: output J17 (pin 4) - relay K1 (RTX-EHS) output XBUH1 T3	N	E	☐ / ☑	☐	-

Tab. 6-2 Parameters in the "Configuration" rotary switch setting, "System Configuration" level

Depending on the version, individual information parameters are displayed that are not described in tab. 6-2. For this, see tab. 6-12.

6.2.3 "HC Configuration" level

Sub-level	Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
			BE	HF			
	HC Function	Setting defines the type of T-HS control. 0: Weather-dependent T-HS control 1: regulation to a fixed target feed value, depending on heating, cooling or economy mode	N	E	0 - 1	0	1
	T-Frost Protect	Off: No frost protection of the heating circuit Otherwise: If the outside temperature drops below the set value, the system switches to frost protection operation (the pumps are switched on). The function is ended if the outside temperature rises above the set value +1 K.	E	E	Off, -15 to +5 °C	0 °C	1 °C
	Insulation	Setting the building insulation standard. This influences the averaged outside temperature and the automatic adaptations of the heat slope and the heating times.	E	E	Off low Normal Good Very Good	low	-
	Screed	Function for screed drying Off: Deactivated On: the target feed temperature is regulated according to the set screed program. The day on which the screed function is activated is not included in the running time of the 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 target feed temperature of the first day's program (see chap. 3.6.13).	N	E	Off On	Off	-
	Screed Program	Setting of the sequence program of the screed heating. A separate target feed temperature can be set for each day for a maximum duration of 28 days. The end of the screed program is defined by the 1st day with the target value setting "- - - -" (see chap. 3.6.13).	N	E	10 - 70 °C per heating day	See tab. 3-11	1 °C

Sub-level	Parameters	Description	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
Heating							
	T-Outside lim day	Automatic summer shut-off setting for heating mode. If the outside temperature measured and averaged by the controller exceeds the set value by 1 K, the heating circuit is switched off. The heating is released again if the outside temperature undercuts the set heating limit.	E	E	Off, 10 - 40 °C	19 °C	0.5 °C
	T-Outside lim night	Heating limit setting for heating circuit "shut-off" during the reduction time (function as in parameter [T-Outside lim day]).	E	E	Off, 10 - 40 °C	10 °C	0.5 °C
	Heat-Slope	Only if [HC Function] parameter = 0: Setting of the heat slope. The heat slope reflects the dependency of the heating circuit's target feed temperature on the outside temperature (see chap. 3.6.2).	E	E	0,0 - 3,0	0,5	0,1
	TV overshoot	This function defines how far the water temperature may exceed the target feed temperature before the compressor is stopped. The compressor resumes operation when the feed temperature falls below the target feed temperature. This function ONLY applies to heating mode.	S	E	1 - 4	3	1
	Room Influence	Only when a room station (U1) is connected and assigned to the heating circuit: setting that influences the deviation of the room temperature measured by the RoCon U1 from the current target value (see chapters 3.4.3 and 3.4.4) on the target feed temperature. Off: Purely weather-dependent T-HS control 0: purely weather-dependent T-HS control, but the internal heating circulation pump continues running until the next heating cycle after a heat request during the reduction time. 1-20: leads to the correction of the target feed temperature (parallel shift of the heat slope) by the set factor. Example: if the measured temperature lies 2 K below the target value, the target feed temperature is increased by 2x the set value.	E	E	Off, 0 - 20	Off	1
	T-Room Adj	Only when a room station (U1) is connected and assigned to the heating circuit: Individual adjustment of the room temperature relevant to the control unit. If a systematic deviation of the room temperature measured by the RoCon U1 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	-5.0 to +5.0 kW	0.0 K	1 K
	T-Flow Day	Only if [HC Function] parameter = 1: Setting of the target feed temperature for the heating circuit during the heating time in operating mode: "Automatic 1", "Automatic 2", "Heating".	E	E	20 - 90 °C	40 °C	1 °C
	T-Flow Night	Only if [HC Function] parameter = 1: Setting of the target feed temperature for the heating circuit during the reduction time in operating mode: "Automatic 1", "Automatic 2", "Reducing".	E	E	10 - 90 °C	10 °C	1 °C
	Continuous heating	This function enables uninterrupted heating even during evaporator defrosting. This enables high comfort to be guaranteed even with rapidly reacting heating systems (e.g. convectors). 0: no uninterrupted heating 1: uninterrupted heating. During evaporator defrosting, heat for heating is taken from the storage tank.	S	E	0 - 1	1	-
	Max T-Flow	The determined heating circuit target feed temperature is limited to the maximum value set here. If an optionally connected mixed heating circuit requests a higher temperature from the ROTEX HPSU monobloc compact, this is taken into consideration. The ROTEX HPSU monobloc compact's internal heating circulation pump therefore always runs when it is switched on. If the connected heating circuit supplies a floor heating system, a mechanical temperature limiter must be installed to prevent overheating the screed.	N	E	20 - 90 °C	55 °C	1 °C
	Min T-Flow	The determined heating circuit target feed temperature is limited to the minimum value set here.	N	E	28 - 90 °C	28 °C	1 °C
	HC Adaption	Only when a room station (U1) is connected and assigned to the heating circuit: Off: Deactivated On: Activated = start of a one-time automatic heat slope adaptation. Prerequisites: - Outside temperature <8 °C - setting of the operating 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 heat slope is determined by the controller from the target feed temperatures that are required to maintain this room temperature. If the automatic heat slope 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). Hot water generation and heating optimisation is locked during the heat slope adaptation.	N	E	Off On	Off	-

Sub-level	Parameters	Description	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
Cooling (❄ Only applicable if the assigned heat generator has a cooling function.)							
	Start T-Out Cooling	Only if [HC Function] parameter = 0: Setting as of which outside temperature cooling mode starts with the highest target cooling feed temperature [T-Flow Cooling start] (setting condition: "Cooling" operating mode).	E	E	15 - 45 °C	24 °C	1 °C
	Max T-Out Cooling	Only if [HC Function] parameter = 0: Setting of the outside temperature at which the lowest target cooling feed temperature [T-Flow Cooling max] is specified (setting condition: "Cooling" operating mode).	E	E	20 - 45 °C	35 °C	1 °C
	T-Flow Cooling start	Only if [HC Function] parameter = 0: Setting of the target cooling feed temperature at the start of cooling mode (outside temperature = parameter [Start T-Out Cooling])	E	E	5 - 25 °C	18 °C	1 °C
	T-Flow Cooling max	Only if [HC Function] parameter = 0: Setting of the minimum target cooling feed temperature. This is held constant as of the outside temperature ([Max T-Out Cooling] parameter).	E	E	5 - 25 °C	8 °C	1 °C
	Min T-Flow Cooling	Only if [HC Function] parameter = 0: Setting of the absolute lower limit of the target cooling feed temperature. Limitation acts if a lower target cooling feed temperature is determined from other parameter settings.	N	E	5 - 25 °C	18 °C	1 °C
	T-Flow Cooling	Only if [HC Function] parameter = 1: Setting of the target cooling feed temperature (fixed value) for active cooling mode.	E	E	8 - 30 °C	18 °C	1 °C
	T_H/C Switch	Automatic activation of cooling mode. Off: Deactivated 10 - 40: if the outside temperature exceeds the set value, the system is switched to "Cooling" operating mode. If the outside 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
	Cooling Setpoint adj	Parallel shift of the cooling characteristic curve by the set value.	E	E	-5.0 to +5.0 kW	0.0 K	1 K

Tab. 6-3 Parameters in the "Configuration" rotary switch setting, "HC Configuration" level

6.2.4 "DHW Configuration" level

Parameters	Description	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
Circl-Pump DHW	Setting for the control of a circulation pump. Off: Optional circulation pump is controlled according to the [Circulation Time] switching time program. On: Optional circulation pump is synchronously controlled to the active switching time program for hot water generation.	E	E	Off On	Off	-
Circl-Pump Interval	Setting of the interval control for an optional circulation pump. Off: Deactivated. The circulation pump runs permanently during the release times of the assigned switching time program ([Circl-Pump DHW] 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
Anti-Legionella 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, Mon - Sun	Off	-
Anti-Legionella 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
Anti-Legionella temp	Setting of the hot water target temperature during thermal disinfection of the hot water storage tank.	N	E	60 - 70 °C	65 °C	1 °C
Max DHW loading time	Setting limits the period of time for hot water generation to the set target value [T-DHW Setpoint]. After the period of time has elapsed, the control unit switches back to the previously active operating mode. Hot water generation is carried out to the then current target value.	N	E	0 - 240 min	60 min	10 min
DHW Off Time	Setting of the blocking time after completion or cancellation of a hot water generation cycle. The repeat request for hot water generation is operated after this blocking time has elapsed at the earliest.	N	E	0 - 180 min	30 min	10 min

Tab. 6-4 Parameters in the "Configuration" rotary switch setting, "DHW Configuration" level

6.3 Rotary switch setting: DHW Install 1x

Parameters	Name	Access BE	Access HF	Setting range Min / Max	Factory setting	Increment
1x Hot Water	Start of one-off heating of the hot water to the set target value [T-DHW Setpoint 1], irrespective of the heating programs.	E	E	Off On	Off	-
Hyst HP	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 target hot water temperature [T-DHW Setpoint] before the heat pump for hot water charging is to be activated.	E	E	2 - 20 K	7 K	1 K
Timer BOH	Delay time as of which the additional heat generator may support the heat pump in hot water charging (see chap. 3.6.7).	E	E	20 - 95 min	50 min	1 min

Tab. 6-5 Parameters in the "DHW Install" rotary switch setting

6 Parameter settings

6.4 Rotary switch setting: Operating Mode

Parameters	Name	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
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 data bus are also primarily switched to this operating mode on selection of this setting. ⚠ Outputs are not always completely free of voltage.	E	E	☐ / ☑	☐	-
Reducing	The internal heating circuit is continuously controlled (24 h per day) to the set setback temperature. Hot water generation is carried out according to [DHW Program 1].	E	E	☐ / ☑	☐	-
Heating	The internal heating circuit is continuously (24 h per day) regulated to the set day target room temperature (heating). Hot water generation is carried out according to [DHW Program 1].	E	E	☐ / ☑	☐	-
Cooling	The internal heating circuit is continuously (24 h per day) regulated to the set day target room temperature (cooling). Hot water generation is carried out according to [DHW Program 1]. Frost protection remains active and a blocking protection for the pump is guaranteed.	E	E	☐ / ☑	☐	-
Summer	The internal heating circuit is switched off. Frost protection remains active and a blocking protection for the pump is guaranteed. Hot water generation is carried out according to [DHW Program 1]. All controllers integrated in the RoCon system via the CAN data bus are also primarily switched to this operating mode on selection of this setting.	E	E	☐ / ☑	☐	-
Automatic 1	The internal heating circuits regulate according to the set time program [HC Program 1] with the respective target room temperature. Hot water generation is carried out according to [DHW Program 1].	E	E	☐ / ☑	☐	-
Automatic 2	The internal heating circuits regulate according to the set time program [HC Program 2] with the respective target room temperature. Hot water generation is carried out according to [DHW Program 2].	E	E	☐ / ☑	☐	-

Tab. 6-6 Parameters in the "Operating Mode" rotary switch setting

6.5 Rotary switch setting: Set Temp Day

Parameters	Name	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
T-Room 1 Setpoint	Target room temperature for the 1st switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	5 - 40 °C	20 °C	0.5 °C
T-Room 2 Setpoint	Target room temperature for the 2nd switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	5 - 40 °C	20 °C	0.5 °C
T-Room 3 Setpoint	Target room temperature for the 3rd switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	5 - 40 °C	20 °C	0.5 °C

Tab. 6-7 Parameters in the "Set Temp Day" rotary switch setting

6.6 Rotary switch setting: Set Temp Night

Parameters	Name	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
T-Reduced	Target room temperature valid for the reduction times of the permanent time programs [Automatic 1] and [Automatic 2].	E	E	5 - 40 °C	15 °C	0.5 °C
T-Absence	Target room temperature for the reduction times of the temporary time programs [Away] + [Vacation].	E	E	5 - 40 °C	15 °C	0.5 °C

Tab. 6-8 Parameters in the "Set Temp Night" rotary switch setting

6.7 Rotary switch setting: DHW Set Temp

Parameters	Name	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
T-DHW Setpoint 1	Target hot water temperature for the 1st switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	35 - 70 °C	48 °C	1 °C
T-DHW Setpoint 2	Target hot water temperature for the 2nd switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	35 - 70 °C	48 °C	1 °C
T-DHW Setpoint 3	Target hot water temperature for the 3rd switching time cycle of the time programs [Automatic 1] and [Automatic 2].	E	E	35 - 70 °C	48 °C	1 °C

Tab. 6-9 Parameters in the "DHW Set Temp" rotary switch setting

6.8 Rotary switch setting: Time Program

Parameters	Name	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Party	The heating circuit is controlled to the target room temperature set in the parameter [T-Room 1 Setpoint] for the set duration. If the time programs [Automatic 1] or [Automatic 2] are active, the heating cycle is extended or started prematurely. (Target room temperature, see chap. 3.4.7). The hot water generation is not affected.	E	E	00:00 - 06:00	00:00	1 h
Away	The heating circuit is controlled to the target room temperature set in the parameter [T-Absence] for the set duration. The hot water generation is not affected.	E	E	00:00 - 06:00	00:00	1 h
Vacation	The heating circuit is continuously (24 h per day) regulated to the target room temperature set in the parameter [T-Absence]. 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. During this period of time, regulation is carried out exclusively according to the settings for "Sunday" in [HC Program 1] and [DHW Program 1].	E	E	Date 1st day - Date last day	-	1 Day
HC Program 1	The 1st time program for the heating circuit can be parameterised in this menu. 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. 3.4.7	See tab. 3-9	15 min
HC Program 2	The 2nd time program for the heating circuit can be parameterised in this menu. 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. 3.4.7	See tab. 3-9	15 min
DHW Program 1	In this menu, the 1st time program for 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. 3.4.7	See tab. 3-9	15 min
DHW Program 2	In this menu, the 2nd time program for 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. 3.4.7	See tab. 3-9	15 min
Circulation Time	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. 3.4.7	See tab. 3-9	15 min

Tab. 6-10 Parameters in the "Time Program" rotary switch setting

6.9 Rotary switch setting: Remote Param

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Bus - Scan	Off: No function On: controller checks which RoCon devices are connected in the system via CAN data bus lines. Detected devices are displayed with their type and device ID (see chap. 4.1, example: MM#8 = mixer module with device ID 8). The selection and confirmation of a device with the rotary button (pushing the button briefly sets a tick in the selection box) activate the terminal function. → The control panel then acts as a remote control for the selected device (see chap. 3.4.9).	E	E	Off On	Off	-
No selection	Activation switches to local device.	E	E	☐ / ☑	☐	-
Contr BM1/BE1 #X	Activation switches to the ROTEX HPSU monobloc compact with the device ID X (see chap. 6.12, parameter [BUS ID HS]).	E	E	☐ / ☑	☐	-
Mix Valve #X	Activation switches to the mixer module with the device ID X (see chap. 6.13.1, parameter [HC Assignment]).	E	E	☐ / ☑	☐	-

Tab. 6-11 Parameters in the "Remote Param" rotary switch setting

6.10 Rotary switch setting: Info

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Overview	Display of different current operating data (see chap. 3.4.1).	S	S	-	-	-
Water Pressure	The current water pressure is displayed in bar.	S	S	0 - 4 bar	-	0.1 bar
T-HS	The current feed temperature (TVBH) of the heat generator in °C is displayed.	S	S	0 - 100 °C	-	1 °C
T-HS Setpoint	The current target feed temperature of the heat generator in °C is displayed (see chap. 3.6.4).	S	S	0 - 90 °C	-	0.1 °C
T-Outside	The mean outside temperature in °C is displayed.	S	S	-39 to +50 °C		0.1 °C
T-DHW	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

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
T-DHW Setpoint	The current target hot water temperature in °C is displayed. 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
T-Return	The current T-Return 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
Flow Rate	The filtered value of the current volumetric flow in litres per hour is displayed. At low return flow temperatures and with glycol in the system, only "ffff" is displayed as the volumetric flow, no current value.	S	S	0 - 5100 l/h	-	l/h
T-HC	The feed temperature of the direct heating circuit in °C is displayed.	S	S	0 - 100 °C	-	0.1 °C
T-HC Setpoint	The target feed temperature of the direct heating circuit in °C is displayed.	S	S	0 - 90 °C	-	0.1 °C
Status HS pump	The current status of the internal heating circulation pump of the ROTEX HPSU monobloc compact is displayed.	S	S	Off On	-	-
Runtime Compressor	The running time of the refrigerant compressor in h is displayed.	S	S	-	-	h
Runtime Pump	The runtime of the internal heating circulation pump is displayed in h.	S	S	-	-	h
Mixer Position	The current position of the 3-way switch valve 3UV DHW is displayed. 0%: position A (room heating) 100%: position B (hot water preparation)	S	S	0 - 100 %	-	1 %
Qboh	The volume of heat of the additional heat generator for hot water preparation in kWh is displayed.	S	S	-	-	kWh
Qchhp	The volume of heat of the additional heat generator for heating mode in kWh is displayed.	S	S	-	-	kWh
Qsc	The volume of heat of the heat pump for cooling mode in kWh is displayed.	S	S	-	-	kWh
Qch	The quantity of heat in the heat pump for heating is displayed in kWh.	S	S	-	-	kWh
QWP	The total volume of heat of the heat pump in kWh is displayed.	S	S	-	-	kWh
Qdhw	The quantity of heat for hot water generation is displayed in kWh.	S	S	-	-	kWh
HS type	The detected heat generator type ROTEX HPSU monobloc compact is displayed.	S	S	-	-	-
Sw Nr B1/U1	The software and the version of the RoCon B1 control panel / (U1) the RoCon U1 room station are displayed.	S	S	-	-	-
Sw Nr Controller	The software number and the version of the RoCon BM1 printed circuit board are displayed.	S	S	-	-	-

Tab. 6-12 Parameters in the "Info" rotary switch setting

6.11 Exit key: Special function

To enter, press the Exit button for at least 5 s.

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Manual Operation	The direct heating circuit and the target hot water temperature are regulated to the temperature set in this parameter (see chap. 3.5.1).	E	E	20 - 80 °C	50 °C	1 °C
FA failure	Display of a current ROTEX HPSU monobloc compact heat pump fault. If "----" is displayed, no error is pending (see chap. 7).	E	E	-	-	-
Protocol	Display of the protocol (error and information messages). The messages stored for the ROTEX HPSU monobloc compact and the connected RoCon system components are each displayed here as a menu entry with date and code. By selecting an entry using the rotary button, all further information on the selected message is accordingly displayed: - Date and time of the message - Code number (information for the heating technician) - Device type from which the message originates - Device ID of the RoCon device from which the message originates	E	E	-	-	-
Delete message	By setting this parameter to "On" and briefly pressing the rotary button, all protocol entries incl. the faults of connected RoCon system components are deleted.	E	E	Off On	Off	-
RoCon B1/U1 Reset	Resets all parameter settings to the factory setting. Required in the case of software updates or changes to the RoCon system (see chap. 4.2). Complete reconfiguration then necessary.	N	E	Off On	Off	-
Parameter Reset	Resets all customer-specific parameter settings to the factory settings. Specific parameters pertaining to the outdoor unit are excluded from this parameter reset.	N	E	Off On	Off	-
Timeprog Reset	Resets all permanent time programs to the factory settings (see tab. 3-9).	E	E	Off On	Off	-
Return	This parameter is used only to exit the special level.	E	E			

Tab. 6-13 Parameters at the "Special Level" level

6.12 "Basic Configuration" parameter level

This parameter level only appears:
– during initial commissioning if the answer selected for the "Use Standard Config?" prompt was "No", or
– after the [System Config] parameter has been set to "Inactive" or "Delete" in the "***"Configuration"*** rotary switch setting, *"Setup"* level.

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Boiler Function	Setting of the system functionality of the device in the RoCon system (do not change the factory setting). The default value of this parameter is "Single", and thus applies to a ROTEX HPSU monobloc compact in autonomous operating mode. If the values "Slave 1" to "Slave 8" are set, the ROTEX HPSU monobloc compact operates as a heating module and expects an optional cascade controller for the request. These settings are not yet applicable.	N	E	Single, Slave 1, … Slave 8	Single	-
Unmixed Circ Config	Setting of the heating circuit ID for the direct heating circuit of the ROTEX HPSU monobloc compact. The heating circuit ID must be unique throughout the entire RoCon system. There must not be any overlap with the heating circuit IDs of optional mixer circuits ([HC Assignment] parameter, see tab. 6-15).	N	E	0 - 15	0	1
BUS ID HS	The setting must not 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 technician.	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 units 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 on another controller in the RoCon system.	N	E	Off On	On	-
System Config	The system configuration of the device, consisting of sensor configuration and data bus configuration, can be deleted, activated or deactivated with this parameter. If, when first starting up, the query for use of the standard configuration is answered with "Yes", settings suitable the basic configuration of the heat generator are automatically activated (see chap. 6.2.1, tab. 6-1).	N	E	Inactive, Active, Delete	Inactive	-

Tab. 6-14 "Basic Configuration" level parameters

6.13 (M1) Parameter levels of the RoCon M1 mixer module

The parameter levels, parameter meanings, setting ranges and connected functions are basically described in the same way as in the previous sections.

An unlimited scope of available parameters exists at the individual levels.

Only the corresponding sections are referred to below. Significant differences are explained in more detail.

Rotary switch setting: Info
See chap. 6.10.

On setting a control panel to "Mix Valve #X" (terminal function), the displayed values refer to the components (pump, mix valve, …), connected to the RoCon M1, of the mixer circuit assigned via the device ID.

On setting a RoCon U1 room station assigned to the mixer module via the heating circuit ID to "Living Room", the parameter [T-Room adj] is available. The target room temperature can be changed in the range -5 K to +5 K with the rotary button. This function is not available if the RoCon U1 is used as a remote control in terminal function.

Rotary switch setting: Operating Mode
See chap. 6.4.

Rotary switch setting: Set Temp Day
See chap. 6.5.

Rotary switch setting: Set Temp Night
See chap. 6.6.

Rotary switch setting: DHW Set Temp
No function.

Rotary switch setting: DHW Install
No function.

Rotary switch setting: Time Program
See chap. 6.8.

Rotary switch setting: Configuration
See chap. 6.13.1 and 6.13.2.

Rotary switch setting: Remote Param
See chap. 6.9.

6.13.1 (M1) Rotary switch setting: Configuration , "Setup" level

Sub-level	Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
			BE	HF			
	LCD Brightness	Brightness of the display	E	E	0 - 100 %	50 %	10 %
	LCD Illum Time	Lighting duration of the display	E	E	5 - 120 s	30 s	1 s
	Language	National language of the display texts on the control unit	E	E	German English French Dutch Italian Spanish Portuguese	German	1
	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			
	Keylock Function	Release of the key lock function: Off: Key lock cannot be activated. On: Key lock can be activated with the rotary button (see chap. 3.1).	E	E	Off On	Off	-
	Access Rights	Access code entry. Setting digit-by-digit like a combination lock (see chap. 3.6.1).	E	E	0 - 9	0000	1
	RoCon U1 assign	Display only on connected (U1) room station: Function of the RoCon U1 room station in the CAN data bus system: Living Room: control panel for the heating circuit assigned in the parameter [HC Assignment] (heating circuit ID). Mixing Valve: Mixer circuit operating unit (as mixer circuit extension or as a free-standing mixer circuit control unit) In addition to the above functions, the room station can basically be used as a remote control unit for the ROTEX HPSU monobloc compact and the entire RoCon system (with activated terminal function) (see chapters 4.1 and 4.4.2).	N	E	Living Room, Mixing Valve	Living Room	-
PWM Config							
	Min Perform Pump	Lower limit for modulation of the pump power	N	E	0 - 100 %	50%	1 %
	Max Perform Pump	Upper limit for modulation of the pump power	N	E	0 - 100 %	100%	1 %
Sensor Config							
	Tamb Config	Configuration of the outside temperature sensor: Off: takeover of the outside temperature from the heat generator to which the mixer module is assigned by the heat generator ID (parameter [Boiler Assignment]), or no sensor evaluation On: sensor evaluation activated	N	E	Off On	On	-
	Outside Temp Adap	Individual adjustment for the measured value of the outside temperature relevant for the control unit.	N	E	-5.0 to +5.0 kW	0.0 K	0.1 K
	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 for "Off" authorise the user of the control unit to activate the terminal function and thus to operate all RoCon system components with a valid device ID (see chap. 3.4.9 and 4.1).	N	E	Off, 0 - 9	Off	1
	Boiler Assignment	Setting of the heat generator ID. Assignment of the RoCon M1 to the heat generator. Setting must correspond to the value of the parameter [BUS ID HS] (see chap. 6.12, tab. 6-14).	N	E	0 - 7	0	1
	HC Assignment	Setting of the heating circuit 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 heating circuit ID irrespective of the set value). The setting must always correspond to the heating circuit ID on the mixer module address switch (see chap. 4.4.1, fig. 4-2). 0 - 9 = 0 - 9 10 = A 11 = B 12 = C 13 = D 14 = E 15 = F	N	E	Off, 0 - 15	Off	1

Tab. 6-15 (M1) Parameters in the "Configuration" rotary switch setting, "Setup" level

6.13.2 (M1) Rotary switch setting: Configuration , "Mixer Config" level

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
HC Function	Setting defines the type of T-HS control. 0: Weather-dependent T-HS control 1: regulation to a fixed target feed value, depending on heating, cooling or economy mode	N	E	0 - 1	0	1
Pump Mode	Setting of the operating mode of the mixer circuit pump. 0: Standard mixer circuit pump switching (weather/room dependent) 1: Mixer circuit pump switching according to heating limits (optional room thermostat shutdown works in addition). 2: Mixer circuit pump switching according to the heating program 3: Mixer circuit pump switching in continuous operation	N	E	0 - 3	0	1
T-Outside lim day	Only if [Pump Mode] parameter = 1: Automatic summer shut-off setting for heating mode. If the outdoor temperature measured and averaged by the controller exceeds the set heating limit by 1 K, the heating is switched off. The heating is released again if the outdoor temperature falls below the set heat limit.	E	E	Off, 10 - 40 °C	19 °C	0.5 °C
T-Outside lim night	Only if [Pump Mode] parameter = 1: Setting of the heating limit for heating circuit shut-off during the reduction time (function as in parameter [T-Outside lim day]).	E	E	Off, 10 - 40 °C	10 °C	0.5 °C
Heat-Slope	Only if [HC Function] parameter = 0: Setting of the heat slope. The heat slope reflects the dependency of the heating circuit's target feed temperature on the outside temperature (see chap. 3.6.2).	E	E	0,0 - 3,0	0,5	0,1
Room Influence	Only when a room station (U1) is connected and assigned to the heating circuit: setting that influences the deviation of the room temperature measured by the RoCon U1 from the current target value (see chapters 3.4.3 and 3.4.4) on the target feed temperature. Off: Purely weather-dependent T-HS control 0: purely weather-dependent T-HS control, but the internal heating circulation pump continues running until the next heating cycle after a heat request during the reduction time. 1-20: leads to the correction of the target feed temperature (parallel shift of the heat slope) by the set factor. Example: if the measured temperature lies 2 K below the target value, the target feed temperature is increased by 2x the set value.	E	E	Off, 0 - 20	Off	1
T-Room Adj	Only when a room station (U1) is connected and assigned to the heating circuit: Individual adjustment of the room temperature relevant to the control unit. If a systematic deviation of the room temperature measured by the RoCon U1 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	-5.0 to +5.0 kW	0.0 K	1 K
T-Flow Day	Only if [HC Function] parameter = 1: Setting of the target feed temperature for the heating circuit during the heating time in operating mode: "Automatic 1", "Automatic 2", "Heating".	E	E	20 - 90 °C	40 °C	1 °C
T-Flow Night	Only if [HC Function] parameter = 1: Setting of the target feed temperature for the heating circuit during the reduction time in operating mode: "Automatic 1", "Automatic 2", "Reducing".	E	E	10 - 90 °C	10 °C	1 °C
Max T-Flow	The determined heating circuit target feed temperature is limited to the maximum value set here.	N	E	20 - 70 °C	50 °C	1 °C
Min T-Flow	The determined heating circuit target feed temperature is limited to the minimum value set here.	N	E	10 - 70 °C	10 °C	1 °C
HC Adaption	Only when a room station (U1) is connected and assigned to the heating circuit: Off: Deactivated On: Activated = start of a one-time automatic heat slope adaptation. Prerequisites: - Outside temperature <8 °C - setting of the operating 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 heat slope is determined by the controller from the target feed temperatures that are required to maintain this room temperature. If the automatic heat slope 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). Heating optimisation is locked during automatic heat slope adaptation.	N	E	Off On	Off	-
Slope Offset	Setting of the slope offset of the target feed temperature on the ROTEX HPSU monobloc compact in comparison with the target feed temperature determined for the mixer circuit.	N	E	0.0 - 50.0 K	5.0 K	1 K
T-Frost Protect	Off: No frost protection of the heating circuit Otherwise: If the outside temperature drops below the set value, the system switches to frost protection operation (the pumps are switched on). The function is ended if the outside temperature rises above the set value +1 K.	E	E	Off, -15 to +5 °C	0 °C	1 °C
Insulation	Setting the building insulation standard. This influences the averaged outside temperature and the automatic adaptations of the heat slope and the heating times.	E	E	Off low Normal Good Very Good	Normal	-
Forced Performance	Not applicable.	N	E	Off On	Off	-
Start T-Out Cooling	Only applicable if the assigned heat generator has a cooling function . Only if [HC Function] parameter = 0: Setting as of which outside temperature cooling mode starts with the highest target cooling feed temperature [T-Flow Cooling start] (setting condition: "Cooling" operating mode).	E	E	20 - 45 °C	24 °C	1 °C

Parameters	Description	Access		Setting range Min / Max	Factory setting	Increment
		BE	HF			
Max T-Out Cooling	Only applicable if the assigned heat generator has a cooling function ❄ . Only if [HC Function] parameter = 0: Setting of the outside temperature at which the lowest target cooling feed temperature [T-Flow Cooling max] is specified (setting condition: "Cooling" operating mode).	E	E	20 - 45 °C	35 °C	1 °C
T-Flow Cooling start	Only applicable if the assigned heat generator has a cooling function ❄ . Only if [HC Function] parameter = 0: Setting of the target cooling feed temperature at the start of cooling mode (outside temperature = parameter [Start T-Out Cooling])	E	E	5 - 25 °C	18 °C	1 °C
T-Flow Cooling max	Only applicable if the assigned heat generator has a cooling function ❄ . Only if [HC Function] parameter = 0: Setting of the minimum target cooling feed temperature. This is held constant as of the outside temperature ([Max T-Out Cooling] parameter).	E	E	5 - 25 °C	18 °C	1 °C
Min T-Flow Cooling	Only applicable if the assigned heat generator has a cooling function ❄ . Only if [HC Function] parameter = 0: Setting of the absolute lower limit of the target cooling feed temperature. Limitation acts if a lower target cooling feed temperature is determined from other parameter settings.	N	E	5 - 25 °C	18 °C	1 °C
T-Flow Cooling	Only applicable if the assigned heat generator has a cooling function ❄ . Only if [HC Function] parameter = 1: Setting of the target cooling feed temperature (fixed value) for active cooling mode.	E	E	8 - 30 °C	18 °C	1 °C
Cooling Setpoint adj	Only applicable if the assigned heat generator has a cooling function ❄ . Parallel shift of the cooling characteristic curve by the set value.	N	E	-5.0 to +5.0 kW	0.0 K	1 K
Relay Test	See chap. 6.2.2, tab. 6-2.	N	E	☐ / ☑	☐	-
Screed	Function for screed drying Off: Deactivated On: the target feed temperature is regulated according to the set screed program. The day on which the screed function is activated is not included in the running time of the 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 target feed temperature of the first day's program (see chap. 3.6.13).	N	E	Off On	Off	-
Screed Program	Setting of the sequence program of the screed heating. A separate target feed temperature can be set for each day for a maximum duration of 28 days. The end of the screed program is defined by the 1st day with the target value setting "- - - -" (see chap. 3.6.13).	N	E	10 - 70 °C per heating day	See tab. 3-11	1 °C

Tab. 6-16 (M1) Parameters in the "Configuration" rotary switch setting, "Mixer Config" level

7 Errors, malfunctions and messages

CAUTION!

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

- Secure potential equalisation before touching electronic parts (e.g. by touching an earthed metallic part).

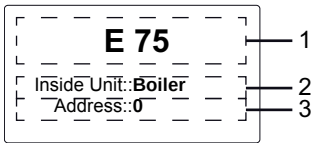
7.1 Recognising errors, correcting malfunctions

The electronic controller of the ROTEX HPSU monobloc compact:
– signals an error by means of the background of the display lighting up red and shows an error code on the display (see chap. 7.4).
– shows information messages regarding the operating status (not signalled by red background lighting).

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

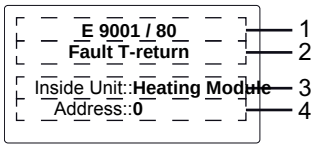
Depending on the operating mode, messages are also forwarded to connected room stations or room thermostats.

7.1.1 Current error display



1 Error message as code (see chap. 7.4)
2 Location data (device) of the detected error
3 Device ID of the RoCon device from which the message originates

Fig. 7-1 Displays an active error message (controller fault)



1 Error message as code (see chap. 7.4)
2 Error message as plain text (see chap. 7.4)
3 Location information (device) of the detected fault
4 Device ID of the RoCon device from which the message originates

Fig. 7-2 Display of a current error message (heat pump fault)

7.1.2 Reading out the protocol

The protocol can be read out in the *"Special Level"* (see fig. 7-3).

The last received (latest) message is in the first position. All other previous messages are then pushed backwards by one place when a new entry is made. The 15th message is deleted on arrival of a new message.

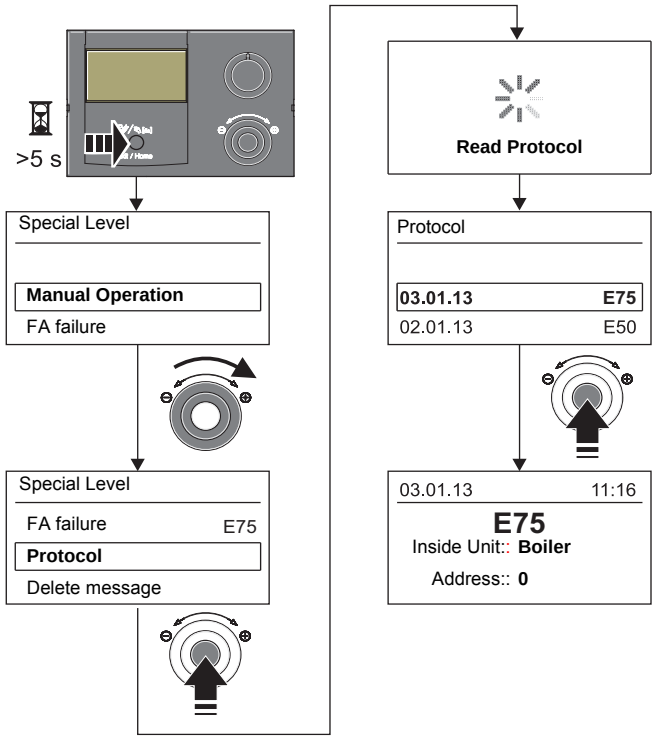


Fig. 7-3 Reading the protocol

7.1.3 Troubleshooting

Information messages that are displayed **without red back-lighting** normally result in **no permanent limitations** on the operation of the ROTEX RoCon.

Messages that are displayed **with an error code E.... and red back-lighting** required error correction by an **authorised and trained expert heating technician**.

For information on warning messages, see chap. 7.4.

- Detecting and remedying the cause of the malfunction.

– Contactor triggered:
Nothing shown on the display in the controller. Ascertain cause of triggering the contactor and remedy fault. Start the system again.
➔ Once the cause has been remedied, the system will resume operations as normal.

– Contactor not triggered:
a) No error codes are shown, but the system is not working properly. Search for and rectify faults (see chap. 7.4).
➔ Once the cause has been eliminated, the system continues to work normally.
b) Error codes are displayed as long as fault conditions are present. Search for and rectify faults (see chap. 7.4). If the fault message is still displayed after the cause of the fault has been corrected, the system must be disconnected fromthe power supply for at least 10 in order to unlock it.
➔ Once the cause has been eliminated, the system continues to work normally.

To ensure that the error is not caused by incorrect settings, reset all parameters to the factory settings before any possible replacement of components (see chap. 3.6.12).

If you are unable to determine the cause of the fault yourself, please consult a ROTEX service technician.

To do this, please have the important device data available (see fig. 7-4 for the procedure):
– Type and manufacturer number of the ROTEX HPSU monobloc compact (see heat pump type plate).
– Software versions (see fig. 7-4) of:
  a: RoCon B1 control panel [Sw Nr B1/U1]
  b: RoCon BM1 printed circuit board [Sw Nr Controller]
– For optional RoCon system components:
  (U1) RoCon U1 [Sw Nr B1/U1]
  (M1) RoCon M1 [Sw Nr mixing valve]

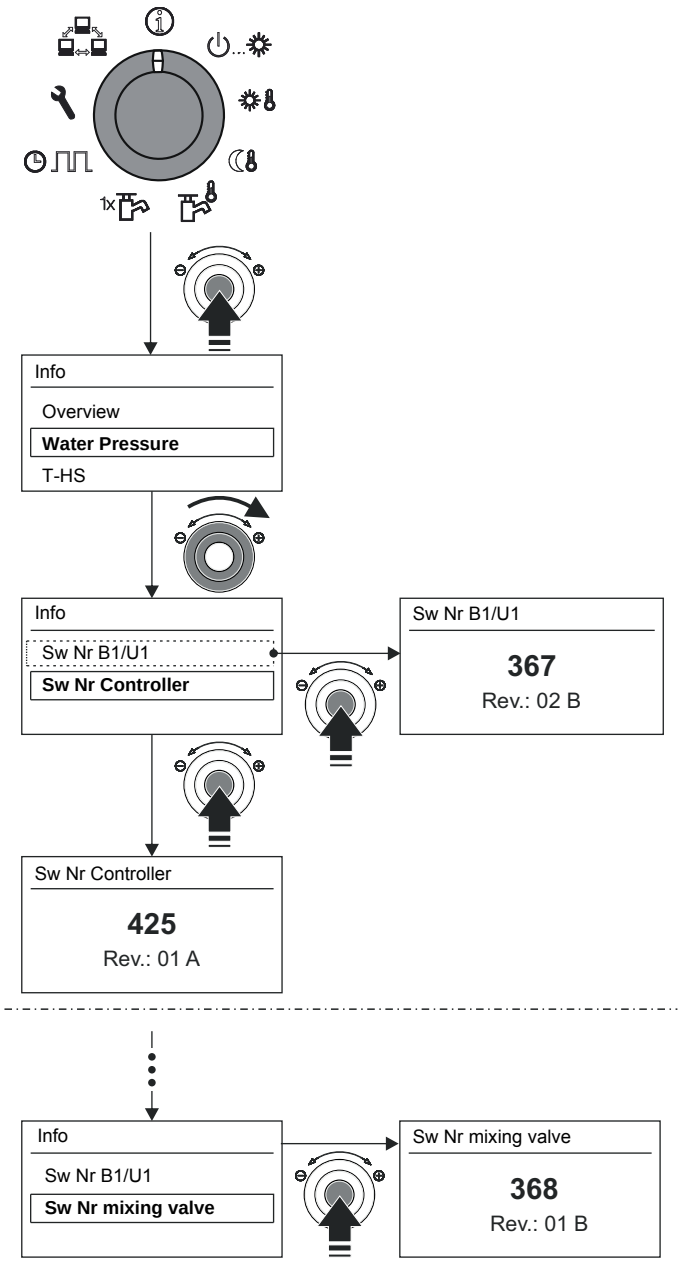


Fig. 7-4 Software information of the controller components

7.2 Emergency operation

In the event of incorrect electronic controller settings or 3-way switch valve malfunctions, emergency heating operation can be maintained by activating the **"Manual Operation" special function** on the controller (see chap. 3.5.1 and the **supplementary notes in the installation and maintenance instructions** of the ROTEX HPSU monobloc compact).

7.3 EHS emergency operation

If the heat pump fails, the backup heater can be used as emergency heating, and can undertake all heating requirements either automatically or non-automatically (see chap. 3.4.13).

7.4 Malfunctions and fault codes

See ROTEX HPSU monobloc compact installation and maintenance instructions; chapter entitled "Faults, malfunctions, messages".

8 Glossary

Operating mode	Heat generator function requested by the user or the controller (e.g. room heating, hot water preparation, Stand-by, 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 ROTEX HPSU monobloc compact in generating heat.
Backup heater	Optional electric heater booster for general support of the ROTEX HPSU monobloc compact during heat generation.
Heating characteristic curve	Mathematical relationship between the external temperature and the target T-HS (synonym = heat slope) in order to achieve the desired room temperature at all outside 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 tank water to >60 °C to preventively kill pathogenic bacteria (Legionella) in the hot water circuit.
Modulation	Automatic and stepless adjustment of the heating performance/pump performance to the respective heating requirement, without different heating/pump steps or cycles having to be switched.
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.).
Nominal output	Maximum heating performance, which the heat generator provides under test conditions for certain operating temperatures.
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 heat generation and heat distribution for 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; it includes controls (rotary switches, rotary buttons, Exit button) and a 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	Setting of weekdays and times on the controller to define regular heating, cooling, economy 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	The water circuit in which cold water is heated and conducted 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 which 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 separated from each other hydraulically by a wall in the heat exchanger.
Water shortage/Overheating protection	Safety facility that shuts off the heat generator automatically in the event of a water shortage to prevent overheating.
Weather-dependent T-HS control	Target feed temperature determined from the measured value for the outside temperature and a defined heating curve for temperature control in the heater.
Circulation pump	Optional circulation pump that circulates the hot water in the circulation circuit (return from the tapping point to the hot water storage tank), thus making it available immediately at each tapping point. This circulation is especially useful in extensively branching pipe networks. In hot water distribution networks without circulation, the cooled water in the removal line first emerges during the tapping process until the removal line has been heated sufficiently 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 target feed temperature in the case of an inadequate or inefficient heat pump process.

9 Notes

9.1 User-specific settings

9.1.1 Switching time program

The factory settings of the switching time programs are stated in chap. 3.4.7, tab. 3-9.

- Enter your switching time settings in the table below.

		Switching cycle 1		Switching cycle 2		Switching cycle 3	
	Temperature setting	[T-Room 1 Setpoint]: ____ °C		[T-Room 2 Setpoint]: ____ °C		[T-Room 3 Setpoint]: ____ °C	
	Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
HC Program 1	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						
HC Program 2	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Tab. 9-1 Individual settings in the heating timer programs

		Switching cycle 1		Switching cycle 2		Switching cycle 3	
	Temperature setting	[T-DHW Setpoint 1]: ____ °C		[T-DHW Setpoint 2]: ____ °C		[T-DHW Setpoint 3]: ____ °C	
	Time period	**On**	**Off**	**On**	**Off**	**On**	**Off**
DHW Program 1	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						
DHW Program 2	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Tab. 9-2 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 Time	Monday						
	Tuesday						
	Wednesday						
	Thursday						
	Friday						
	Saturday						
	Sunday						

Tab. 9-3 Individual settings of the circulation switching time program

9.1.2 Parameters

- Enter the parameter changes you have made in the following table and in the ROTEX HPSU monobloc compact operating manual.

Rotary switch setting	Parameter levels / Parameters	Old value	New value	Date	Comments

Tab. 9-4 Individual parameter modifications

9.1.3 IDs in the RoCon CAN bus system

RoCon device	ID	Comments

Tab. 9-5 IDs in the RoCon CAN bus system

9.2 Other items

9 Notes

10 List of keywords

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