QUICK GUIDE

KA 5578-E EN

Translation of original instructions

TROVIS 5578-E Heating and District Heating Controller

Edition May 2022

Notes on this document

This quick guide assists you in mounting and operating the device safely. The instructions in this quick guide are binding for handling SAMSON devices.

➔ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

➔ If you have any additional questions not related to the contents of these instructions, contact SAMSON's After-sales Service (aftersalesservice@samsongroup.com).

Definition of signal words

⚠ DANGER

Hazardous situations which, if not avoided, will result in death or serious injury

⚠ WARNING

Hazardous situations which, if not avoided, could result in death or serious injury

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

1 Liability

We are constantly developing our products and therefore, reserve the right to change the product at any time without notice.

We do not assume any liability for the accuracy or completeness of this document. Moreover, we do not guarantee that the buyer can use the product for an intended purpose. SAMSON rejects any liability for claims by the buyer, especially claims for compensation including lost profits or any other financial loss, except the damage was caused intentionally or by gross negligence. If an essential term of the contract is breached by negligence, SAMSON's liability is limited to the foreseeable damage.

2 Safety instructions

The device must be mounted, started up or operated only by trained and experienced personnel familiar with the product. Proper shipping and storage are assumed.

The device has been designed for use in electrical power systems. For wiring and maintenance, you are required to observe the relevant safety regulations.

This quick guide is intended to provide the necessary information for operating the device.

3 Electrical connection

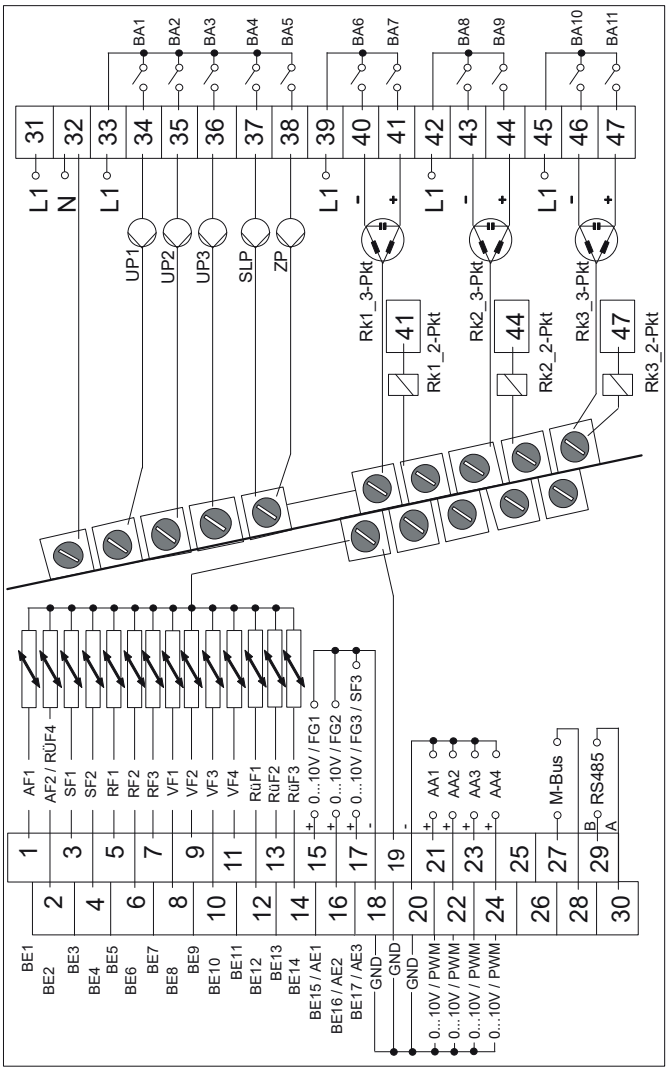


Fig. 1: *Electrical connection of the TROVIS 5578-E Heating Controller*

Legend for Fig. 1:

AA	Analog output	PWM	Pulse width modulation	SLP	Storage tank charging pump
AE	Analog input	RF	Room sensor	UP	Circulation pump (heating)
AF	Outdoor sensor	RK	Control circuit	VF	Flow sensor
BA	Binary output	RüF	Return flow sensor	ZP	Circulation pump (DHW)
BE	Binary input	SF	Storage tank sensor		
FG	Potentiometer				

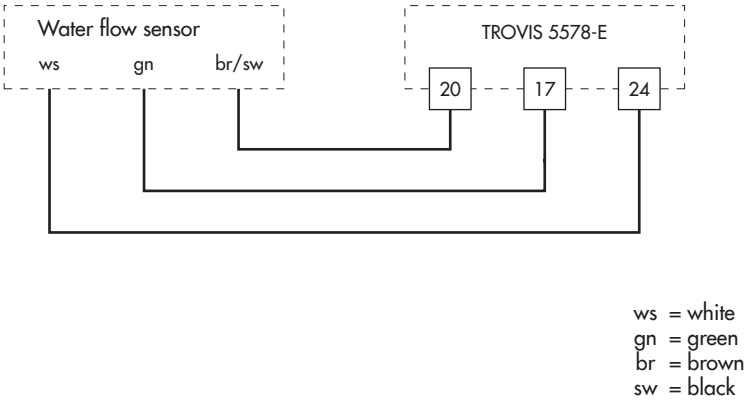
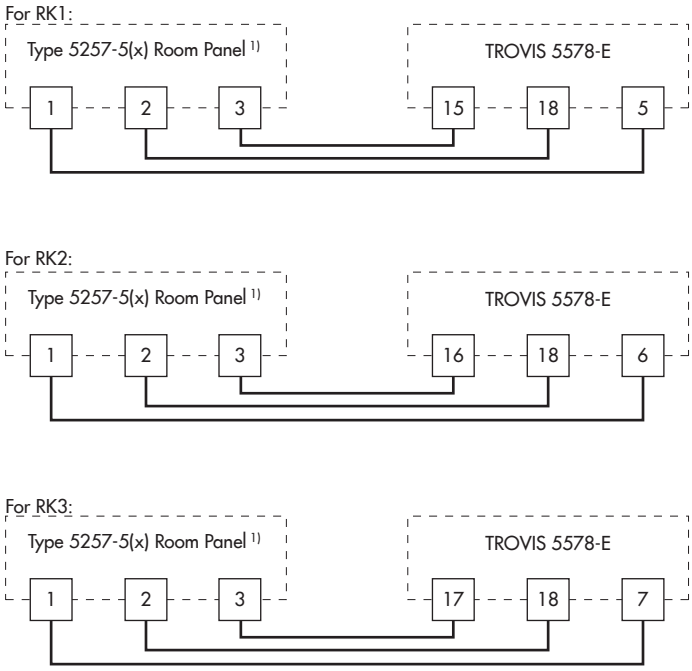


Fig. 2: *Connection of a water flow sensor*



1) Type 5244 no longer available

Fig. 3: *Wiring of a room panel for RK1, RK2 or RK3*

Table 1: *Permissible wire cross-section for terminals*

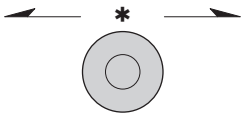
Cable	Wire cross-section
Single-wire	0.33 to 2 mm²
Multi-wire	0.33 to 2 mm²

Length of insulation to be stripped off wire ends: 6 mm

4 Operating controls

The heating controller is operated on site using the operating controls on the front. They are located in the front panel of the controller.

Rotary pushbutton

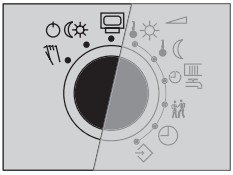


Turn [ ]:
Select readings, parameters and function blocks

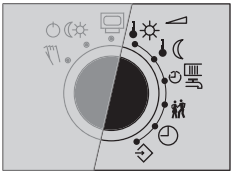
Press [✳]:
Confirm adjusted selection or settings

Rotary switch

The rotary switch is used to set the operating mode and the relevant parameters for each control circuit.



- Operating level
- Operating modes
- Manual level



- Day set point (rated room temperature)
- Night set point (reduced room temperature)
- Times-of-use for heating/DHW
- Special time-of-use
- Time/date
- Settings

5 Operation

5.1 Selecting the operating mode

The controller can be operated in the following modes:

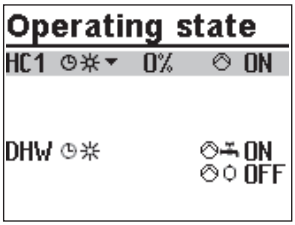
Day mode (rated operation): regardless of the programmed times-of-use and summer mode, the set points relevant to rated operation are used by the controller. Icon: ☼☼

Night mode (reduced operation): regardless of the programmed times-of-use, the set points relevant to reduced operation are used by the controller. Icon: ☽ ☽

Control operation deactivated: regardless of the programmed times-of-use, control operation of the heating circuits and DHW heating remains deactivated. The frost protection is activated, if need be. Icon: ⏻ ⏻
Icons when the frost protection is activated: HC ⏻ ☽, DHW ⏻ ☼

Automatic mode: During the programmed times-of-use, the controller works in day mode. Outside these times-of-use, the controller is in night mode, unless control operation is deactivated depending on the outdoor temperature. The controller switches automatically between both operating modes. Icon within the times-of-use: ◷☼, icon outside the times-of-use: ◷☽

Manual mode: valves and pumps can be controlled manually. For further details, see section 5.6.

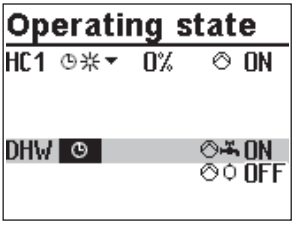


Turn the rotary switch to ◷☾☼ (operating modes). The operating states of all system control circuits are displayed:

- Heating circuit HC1
- Heating circuit HC2
- Heating circuit HC3
- Heating circuit HC11
- Heating circuit HC12
- Heating circuit HC13
- DHW heating

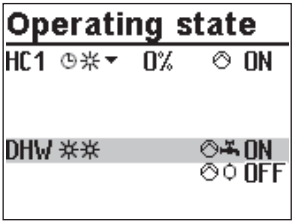
➔ Only those control circuits are available for selection which can be controlled by the selected system.

↺ Select the control circuit.



∗ Activate editing mode for the control circuit. The operating mode is shown inverted on the display.

↺ Select the operating mode:
- Automatic mode
- Day mode
- Night mode
- System deactivated



∗ Confirm the operating mode.

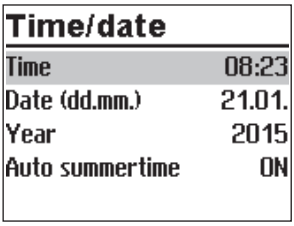
The controller is usually in automatic mode.

5.2 Schedules

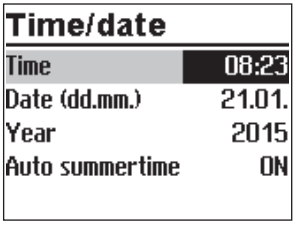
The controller operates according to the schedules in automatic mode.

5.2.1 Setting the time and date

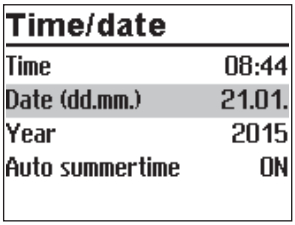
The current time and date need to be set immediately after start-up and after a power failure lasting more than 24 hours. This is the case when the time blinks on the display.



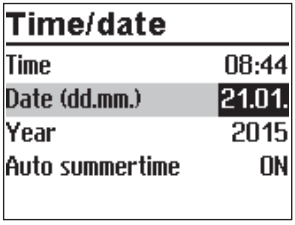
Turn the rotary switch to (time/date). The current time is selected (gray background).



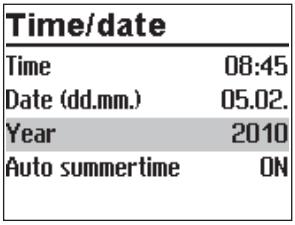
- ✳ Activate editing mode for the time. The time reading is inverted.
- ↻ Change the time.
- ✳ Confirm the time setting.



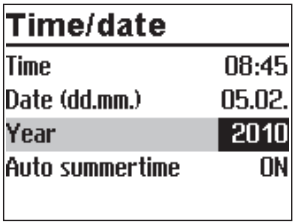
- ↻ Select 'Date' (dd.mm) [↻].



- ✳ Activate editing mode for the date. The date reading is inverted.
- ↻ Change date (day.month).
- ✳ Confirm the date setting.

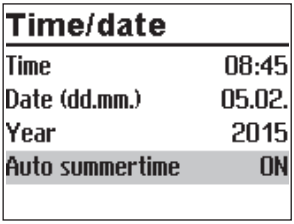


- ↻ Select 'Year'.

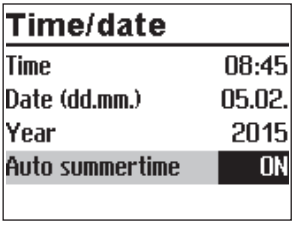


- ✳ Activate editing mode for the year. The year reading is inverted.
- ↻ Change the year.
- ✳ Confirm the year setting.

Deactivate or activate the automatic summer/standard time switchover as required.



() Select 'Auto summertime'.



∗ Activate the editing mode for automatic summer/standard time switchover. The current setting is shown inverted on the display:
ON = Summer/standard time switchover active
OFF = Summer/standard time switchover not active

() Deactivate or activate the automatic summer/standard time switchover.

∗ Confirm deactivation/activation.

Turn the rotary switch back to ⎚ (operating level).

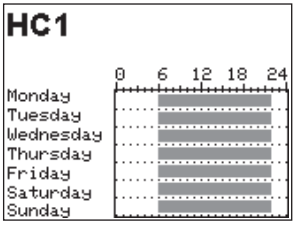
i ***Note***

The correct time is guaranteed after a power failure of 24 hours. Normally, the correct time is still retained at least 48 hours after a power failure.

5.2.2 Setting the times-of-use

Three times-of-use can be set for each day of the week.

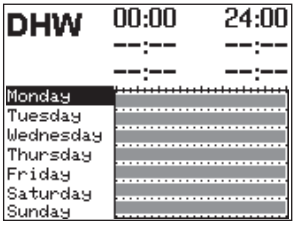
Parameters	WE		Value range
	HC1, HC2, HC3, HC11, HC12, HC13	DHW, CP	
Start first time-of-use	06:00	00:00	
Stop first time-of-use	22:00	24:00	
Start second time-of-use	--:--	--:--	00:00 to 24:00 h in steps of 15 minutes
Stop second time-of-use	--:--	--:--	
Start third time-of-use	--:--	--:--	
Stop third time-of-use	--:--	--:--	



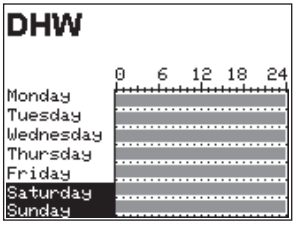
Turn the rotary switch to (times-of-use). The first control circuit is displayed together with its programmed times-of-use.

↺ Program the times-of-use of another control circuit, if required:
- Heating circuit HC2
- Heating circuit HC3
- Heating circuit HC11
- Heating circuit HC12
- Heating circuit HC13
- DHW heating
- Circulation pump (DHW) CP

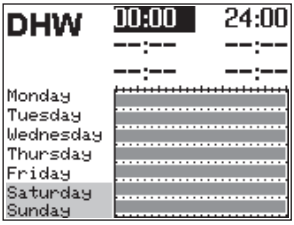
➔ Only those control circuits are available for selection which can be controlled by the selected system.



✳ Activate editing mode for the control circuit. The times-of-use for Monday are displayed.



↺ Select period/day for which the times-of-use are to be valid. The times-of-use can be programmed for individual days or for a block of days, e.g. Monday to Friday, Saturday and Sunday or Monday to Sunday. The selected days are shown inverted on the display.

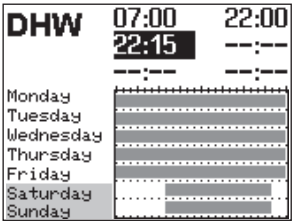


∗ Activate editing mode for the period/day.
The start time of the first time-of-use period can now be edited (inverted reading).

↻ Change start time.
(in steps of 15 minutes)

∗ Confirm the start time.
The stop time of the first time-of-use period can now be edited.

↻ End stop time.
(in steps of 15 minutes)

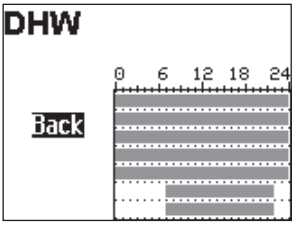


∗ Confirm the stop time.
The start time of the second time-of-use period can now be edited.

To set the second and third times-of-use periods, repeat steps with gray background. If no further times-of-use are to be programmed for the selected time period/day, exit the menu by confirming the indicated start time twice (2x ∗).

Proceed in the same manner to program further periods/ days.

After setting all times-of-use:



↻ Select 'Back'.

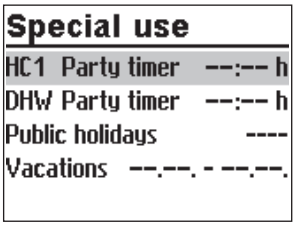
∗ Exit the times-of-use setting.

Turn the rotary switch back to ⌂ (operating level).

5.2.3 Setting the party timer (special time-of-use)

Rated operation in the corresponding control circuit (HC1, HC2, HC3 or DHW) is started or continued for the time period set in the party mode. When the party timer has elapsed, the party timer returns to --:--.

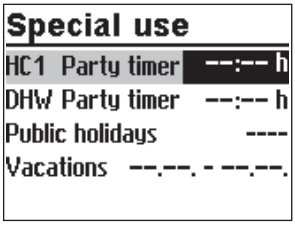
Parameters	WE	Value range
HC1 party timer	--:-- h	0 to 48 h; in steps of 15 minutes
HC2 party timer	--:-- h	0 to 48 h; in steps of 15 minutes
HC3 party timer	--:-- h	0 to 48 h; in steps of 15 minutes
DHW party timer	--:-- h	0 to 48 h; in steps of 15 minutes



Turn the rotary switch to (special times-of-use). The party timer for the first control circuit is now selected.

↻ Set time for party mode of another control circuit, if required:
– Heating circuit HC2
– Heating circuit HC3
– DHW heating

➔ Only those control circuits are available for selection which can be controlled by the selected system.



✳ Activate editing mode for the party timer. The party timer is now in the editing mode (inverted display).

↻ Extend day operation as required.
(in steps of 15 minutes)

✳ Confirm setting.

After setting the party timer:

Turn the rotary switch back to (operating level).

i ***Note***

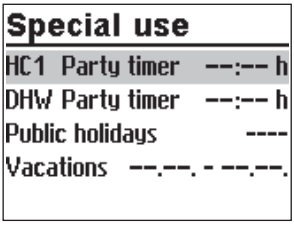
Party timer runs down in steps of 15 minutes.

5.2.4 Programming public holidays (special times-of-use)

On public holidays, the times-of-use specified for Sunday apply.

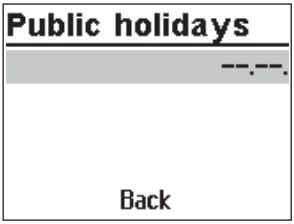
A maximum of 20 public holidays may be entered.

Parameters	WE	Value range
Public holidays	--:--	01.01 to 31.12



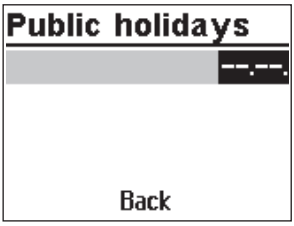
Turn the rotary switch to (special times-of-use). The party timer for the first control circuit is now selected.

() Select 'Public holidays'.



∗ Start the public holiday setting. The first public holiday setting is now selected. --:-- is displayed if no public holidays (default setting) have been programmed.

() Select --:--, if applicable.



∗ Activate editing mode for public holidays.

() Set the date of the public holiday.

∗ Confirm the date.

Proceed in the same manner to program further public holidays.

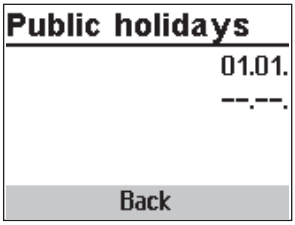
Deleting a public holiday:

() Select the holiday you wish to delete.

∗ Confirm the date.

() Select --:--.

∗ Confirm setting.
The public holiday is deleted.



After programming all public holidays:

- ↺ Select 'Back'.
- ✳ Exit the public holiday setting.

Turn the rotary switch back to 🖵 (operating level).

i ***Note***

Public holidays that are not assigned to a specific date should be deleted by the end of the year so that they are not carried on into the following year.

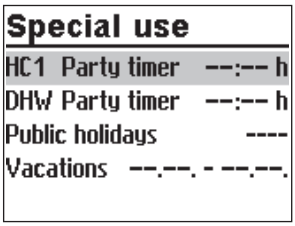
5.2.5 Programming vacation periods (special times-of-use)

The system runs constantly in reduced mode during vacation periods. A maximum of ten vacation periods can be entered. Each vacation period can be separately assigned to the heating circuits HC1, HC2, HC3 and DHW circuit or to all control circuits.

i ***Note***

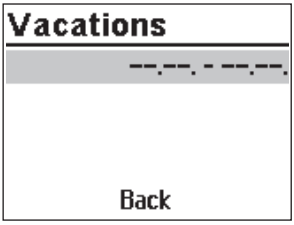
If a vacation period is programmed to apply to all control circuits, it also applies to control circuits HC11, HC12 and HC13.

Parameters	WE	Value range
Vacation period	--.-- - --.--	01.01 to 31.12



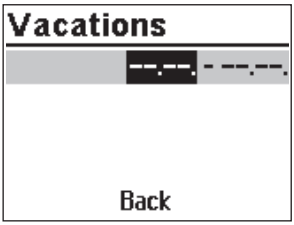
Turn the rotary switch to 🏖 (special times-of-use). The party timer for the first control circuit is now selected.

- ↺ Select 'Vacations'.



∗ Start the vacations setting. The first vacations setting is now selected. --.-- - --.--.is displayed if no vacations (default setting) have been programmed.

❍ Select --.-- - --.--, if applicable.

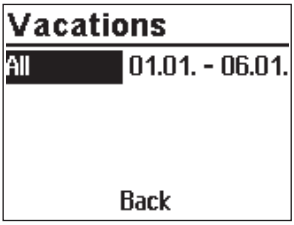


❍ Activate editing mode for vacations.
The start date can now be edited (inverted reading).

❍ Set the start date.

❍ Confirm the start date.
The end date can now be edited.

❍ Set the end date.



❍ Confirm the year setting. 'All' is selected. The vacation period then applies to all control circuits.

❍ If the vacation period is to be only valid for one control circuit, select the required control circuit:
– Heating circuit HC1
– Heating circuit HC2
– Heating circuit HC3
– DHW heating

➔ Only those control circuits are available for selection which can be controlled by the selected system.
The control circuits HC11, HC12 and HC13 are not available.

∗ Confirm the control circuit.

---

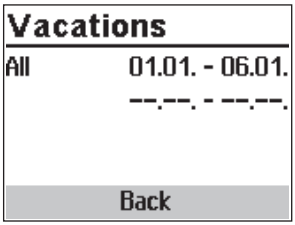
i ***Note***

An active vacation period is indicated on the display by the ✓ icon.

Proceed in the same manner to program further vacations.

Deleting vacation periods:

- ↻ Select the start date of the period you wish to delete.
- ✳ Confirm vacation period.
- ↻ Select --.-- - --.--.
- ✳ Confirm setting.
  The vacation period is deleted.



After programming all vacation periods:

- ↻ Select 'Back'.
- ✳ Exit the vacations setting.

Turn the rotary switch back to ⌸ (operating level).

i Note

Vacations should be deleted by the end of the year so that they are not carried on into the following year.

5.3 Entering day and night set points

The day set points apply during day mode (rated operation) and during times-of-use programmed for automatic mode.

The night set points apply during night mode (reduced operation) and outside the times-of-use programmed for automatic mode.

The desired room temperature for the day and night set points can be programmed.

Switch position 🌡☼

Parameters	WE	Value range
HC1 room temperature	20.0 °C	0.0 to 40.0 °C
HC2 room temperature	20.0 °C	0.0 to 40.0 °C
HC3 room temperature	20.0 °C	0.0 to 40.0 °C
HC11 room temperature	20.0 °C	0.0 to 40.0 °C
HC12 room temperature	20.0 °C	0.0 to 40.0 °C
HC13 room temperature	20.0 °C	0.0 to 40.0 °C
DHW temperature	60.0 °C	Min. to max. DHW temperature
HC1 OT deactivation value	22.0 °C	0.0 to 50.0 °C
HC2 OT deactivation value	22.0 °C	0.0 to 50.0 °C
HC3 OT deactivation value	22.0 °C	0.0 to 50.0 °C
HC11 OT deactivation value	22.0 °C	0.0 to 50.0 °C
HC12 OT deactivation value	22.0 °C	0.0 to 50.0 °C
HC13 OT deactivation value	22.0 °C	0.0 to 50.0 °C

Switch position 🌡☾

Parameters	WE	Value range
HC1 room temperature	15.0 °C	0.0 to 40.0 °C
HC2 room temperature	15.0 °C	0.0 to 40.0 °C
HC3 room temperature	15.0 °C	0.0 to 40.0 °C
HC11 room temperature	15.0 °C	0.0 to 40.0 °C
HC12 room temperature	15.0 °C	0.0 to 40.0 °C
HC13 room temperature	15.0 °C	0.0 to 40.0 °C
DHW temperature	40.0 °C	Min. to max. DHW temperature

Switch position 🌡☾

Parameters	WE	Value range
HC1 OT deactivation value	15.0 °C	–50.0 to 50.0 °C
HC2 OT deactivation value	15.0 °C	–50.0 to 50.0 °C
HC3 OT deactivation value	15.0 °C	–50.0 to 50.0 °C
HC11 OT deactivation value	15.0 °C	–50.0 to 50.0 °C
HC12 OT deactivation value	15.0 °C	–50.0 to 50.0 °C
HC13 OT deactivation value	15.0 °C	–50.0 to 50.0 °C

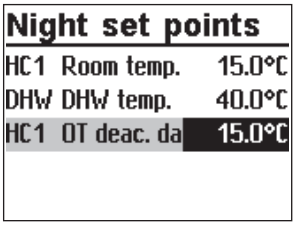
Turn the rotary switch to 🌡☼ (day set point) or 🌡☾ (night set point). The day and night set points appear on the display one after the other.

➔ Only those day and night set points are available for selection which can be controlled by the selected system.

i ***Note***

The deactivation values are located in a separate menu (deactivation values) for systems with three control circuits.

↻ Select the set point.



✳ Activate editing mode for set point.

↻ Adjust the set point.

✳ Confirm setting.

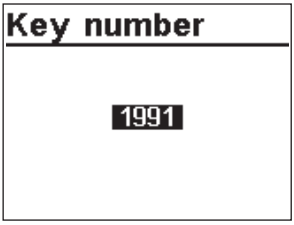
Proceed in the same manner to adjust further set points.

After adjusting all the set points:

Turn the rotary switch back to ⎙ (operating level).

5.4 Reset to default settings

All parameters set over the rotary switch as well as parameters in the PA1, PA2, PA3, PA11, PA12 and PA13 parameter levels can be reset to their default settings (WE). This does not apply to the maximum flow temperature and the return flow temperature limits in PA1 and PA2.



Turn the rotary switch to ⚙ (settings).

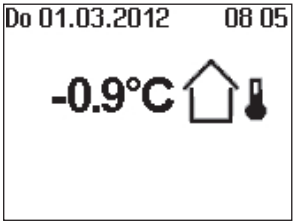
↻ Enter key number 1991.

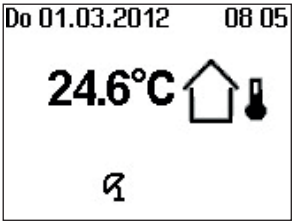
✳ Confirm key number.
The settings are reset to default when the following icon appears on the controller display:

5.5 Reading information

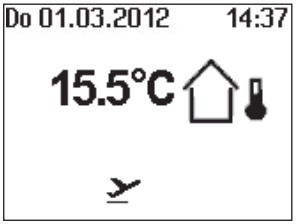
Different kinds of information can read off the controller display during operation. The controller display usually shows the date, time and an actual temperature when the rotary switch is switched to the 'Operating level' position.

Outdoor-temperature-compensated control · Current temperature = outdoor temperature



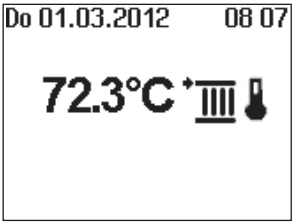


Deactivation depending on outdoor temperature active)

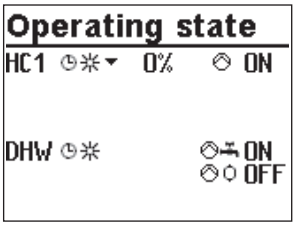


Vacations active

Fixed set point control · Current temperature = Flow temperature

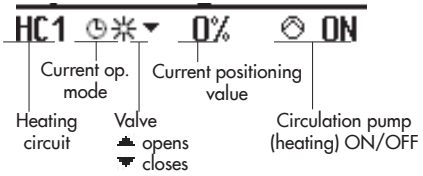


Further information can be obtained by turning the rotary pushbutton:

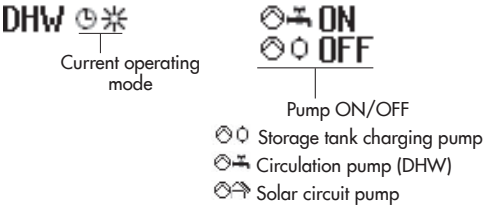


ↀ Operating state

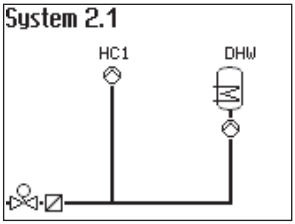
The following applies for heating circuits HC1, HC2, HC3, HC11, HC12 and HC13:



The following applies for DHW heating:



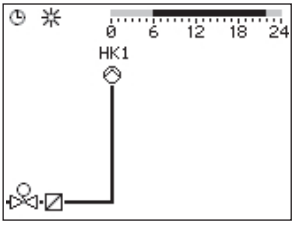
See section 5.1 for further information.



ↀ Selected system code number

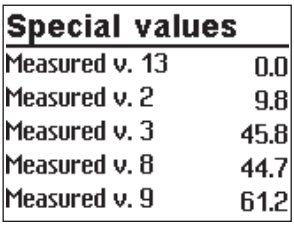
See Annex A (configuration instructions) for further information.

✳ Key measured values for the entire system, e.g. measured values and limits of a flow rate or capacity limitation, if activated.



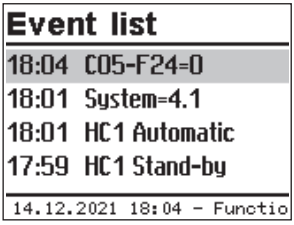
- Times-of-use (depending on the system code number)
  - Heating circuit HC1
  - Heating circuit HC2
  - Heating circuit HC3
  - Heating circuit HC11
  - Heating circuit HC12
  - Heating circuit HC13
  - DHW heating

  The day mode times is highlighted in black on the time chart.
  Night mode and deactivation times are highlighted in gray on the time chart.
- ✳ Measured values, set points and limits of the system section shown are displayed.

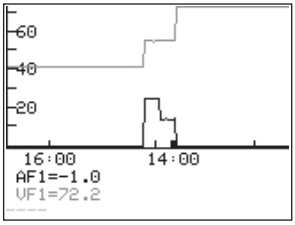


- Special values
  Measured values from additional sensor inputs (not relevant to closed-loop control) or from the 0 to 10 V inputs are displayed.

- Alarm list
  The last four alarm entries are listed.
- ✳ Open the alarm list and select further alarm entries ( ). Further information on an alarm (including time and date when it occurred) runs across the display.



- Event list
  The last four event entries are listed.
- ✳ Open the event list and select further event entries ( ). Further information on an event (including time and date when it occurred) runs across the display.



- Trend-Viewer
  The standard graph shows the data measured at the outdoor sensor AF1 and flow sensor VF1 plotted over time.

Extended operating level

Information	
Modbus ID	5578
Serial number	4378
Software version	2.50
Hardware version	1.75

The following details on the controller version (device identification, serial number, software and hardware versions) and meter bus are displayed in the extended operating level.

Turn the rotary switch to ⚙ (settings).

- Enter code number 1999.
- ✳ Confirm key number.

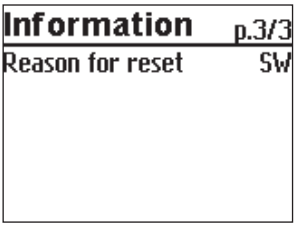
Turn the rotary switch to ▭ (operating level).

- Select 'Information'.

Information	p.1/3
Modbus station	255
Logging memory	OFF
Solar operation	0 h
Flow rate 1	0
Special flags	3840

Information	p.2/3
VF1-RüF1	--.-°C
Y1 avg mth bfr lst	10240
Y1 avg last month	0
Y1 avg this month	0
Binary inputs	

The additional "meter" page is displayed with connection status and further meter data for meters 1 to 3 in the "extended operating level" mode when the meter bus is activated (see Annex A). In addition, the respective measuring and limit values are displayed after confirming the plant scheme when the flow rate and/or capacity limitation is active.



Note

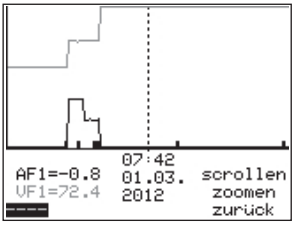
– The additional information is hidden when the key number 1999 is entered again.

– The key number 1999 cannot be used to change the controller configuration and parameterization. A separate key number exists for configuration and parameterization (see the 'Start-up' section).

5.5.1 Adapting the Trend-Viewer

The standard graph shows the data measured at the outdoor sensor AF1 and flow sensor VF1 plotted over time.

∗ Open the Trend-Viewer.

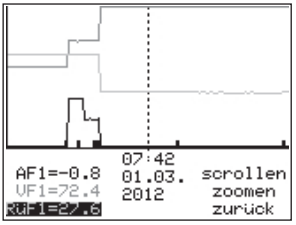


Adding measuring data

() Select – – – – on the display.

∗ Activate editing mode for sensor selection.

() Select sensor.



∗ Confirm setting.

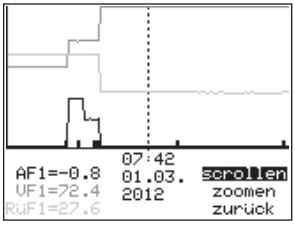
Deleting measured data:

() Select the sensor whose measured data are no longer to be displayed.

∗ Activate editing mode for sensor.

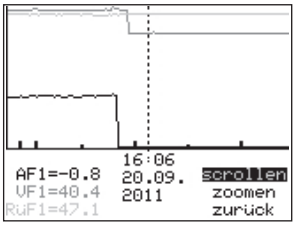
() Select – – – – on the display.

∗ Confirm deletion.

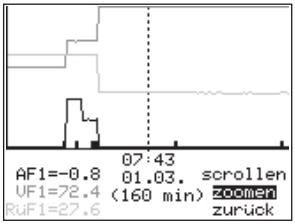


Shifting the time line:

- ↻ Select 'Scroll'.
- ✳ Activate editing mode for scroll function.

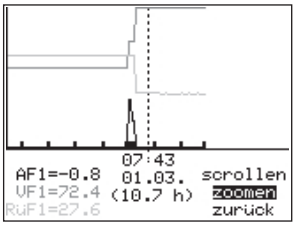


- ↻ Shift the time line.
- ✳ Confirm time display.



Zooming in/out

- ↻ Select 'Zoom'.
- ✳ Open zoom function.
- ↻ Zoom in or out.



- ✳ Confirm display.

Closing the Trend-Viewer

- ↻ Select 'Back'.
- ✳ Close the Trend-Viewer

5.6 Operating the controller in manual mode

Switch to manual mode to configure all controller outputs.

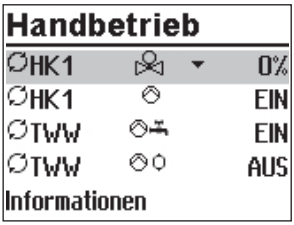
NOTICE

System damage caused by frost when manual operating mode is active!

The frost protection function is deactivated in the manual operating mode.

➔ *Do not run the heating during cold weather in the manual mode for long periods of time.*

Manually changing the positioning value/switching state:



Turn the rotary switch to 🔧 (manual mode). The outputs of the configured system are listed on the display.

- Select the output
  - Positioning value
  - Circulation pump (heating)
  - Storage tank charging pump
  - Circulation pump (DHW)
  - Solar circuit pump
- Activate editing mode for the output.
- Change the positioning value/switching state.
- Confirm the positioning value/switching state.
  The modified values remain active as long as the controller is in manual mode.

Turn the rotary switch to 🖳 (operating level). The manual mode is deactivated.

Note

The outputs of the controller are not affected by merely turning the rotary switch to 🔧 (manual mode). The outputs are only changed by entering or changing the positioning values or switching states.

6 Error list

Sensor failure	=	Sensor failure (see the 'Malfunctions' section in the Mounting and Operating Instructions ▶ EB 5578-E)
Disinfection	=	Disinfection temperature not reached. See 'Thermal disinfection of DHW storage tank' function in Annex A (configuration instructions) of the Mounting and Operating Instructions ▶ EB 5578-E.
Max. charging temp.	=	Max. charging temperature reached. See 'DHW heating in the storage tank charging system' function in Annex A (configuration instructions) of the Mounting and Operating Instructions ▶ EB 5578-E.
External	=	Error message from device bus
Temp. monitoring	=	Temperature monitor alarm
Unauthorized access	=	Unauthorized access occurred (see the 'Malfunctions' section in the Mounting and Operating Instructions ▶ EB 5578-E)
Binary alarm	=	Error message of a binary input
Meter bus	=	Meter bus communication error
Heat meter	=	Heat meter error registered

KA 5578-E EN

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2023-08-11 · English · 4000237084