

Uponor Base thermostat display T-27 230V

EN

Installation and operation manual

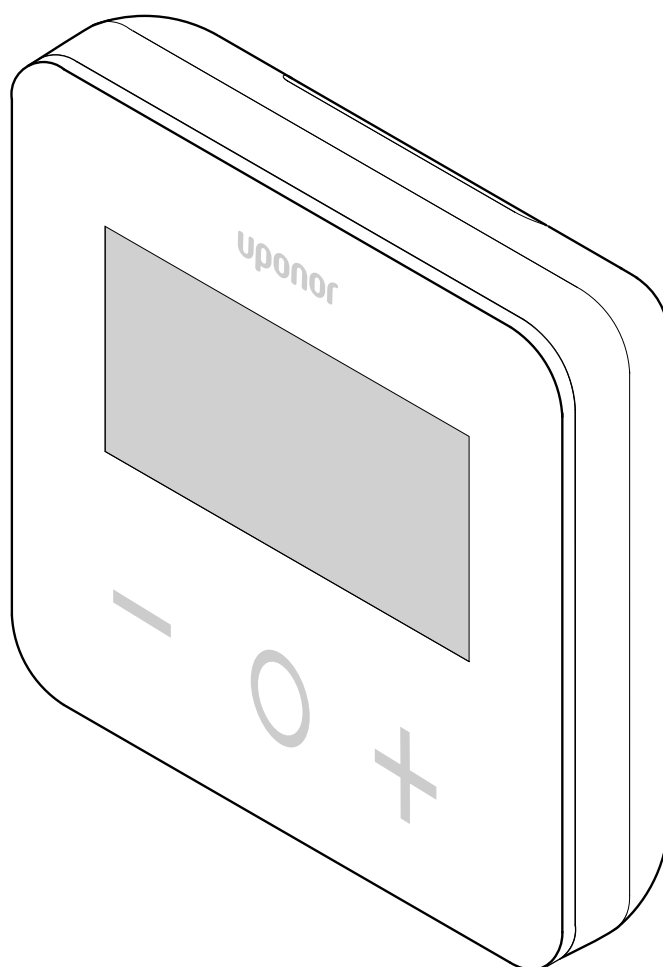


Table of contents

1	Copyright and disclaimer.....	3
2	Preface.....	4
2.1	Safety instructions.....	4
2.2	Correct disposal of this product (Waste Electrical and Electronic Equipment).....	4
3	Uponor Base thermostat display T-27 230V - description.....	5
3.1	Thermostat features.....	5
3.2	System compatibility.....	5
4	Installation.....	6
4.1	Placement of thermostat.....	6
4.2	Installation procedure.....	6
5	Operation.....	9
5.1	Activate the thermostat.....	9
5.2	LCD display descriptions.....	9
5.3	Display temperatures (Comfort/ECO).....	10
5.4	Temperature setpoint (Comfort/ECO).....	10
5.5	Settings.....	10
5.6	Heating/cooling modes.....	11
5.7	Comfort/ECO modes.....	11
5.8	ECO mode setback temperature.....	11
5.9	Regulation selection.....	12
5.10	High limitation of floor temperature.....	12
5.11	Low limitation of floor temperature.....	12
5.12	Calibration of internal room sensor.....	12
5.13	Calibration of external room sensor.....	13
5.14	Lock keys and display function.....	13
5.15	Software version.....	14
5.16	Min. value of setting range of the setpoint temperature.....	14
5.17	Max. value of setting range of the setpoint temperature.....	14
5.18	Hysteresis value.....	14
5.19	Factory reset.....	14
6	Troubleshooting.....	15
6.1	Temperature measurement errors.....	15
7	Technical data.....	16
7.1	Technical specifications.....	16
7.2	Dimensions.....	16
7.3	Wiring diagram.....	16
7.4	Menu description.....	17

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2 Preface

This installation and operation manual describes how to install and operate the components of the system.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes of disposal.

2.1 Safety instructions


Safety measures

Conform to the following measures when installing and operating any Uponor equipment:


- Read and follow the instructions in the installation and operation manual.
- Installation must be performed by a competent person in accordance with local regulations.
- It is prohibited to make changes or modifications not specified in this manual.
- All power supplies must be switched off before starting any wiring work.
- Do not use water to clean Uponor components.
- Do not expose the Uponor components to flammable vapours or gases.

Uponor cannot accept any responsibility for damage or breakdown that can result from ignoring these instructions.

Power


	Warning! The Uponor system uses 50 Hz, 230 V AC power. In case of emergency, immediately disconnect the power.
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Technical constraints

	Caution! To avoid interference, keep installation/data cables away from power cables of more than 50 V.
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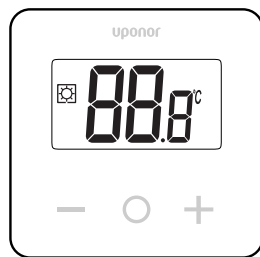
2.2 Correct disposal of this product (Waste Electrical and Electronic Equipment)

	Note Applicable in the European Union and other European countries with separate collection systems
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 This marking shown on the product or its literature indicates that it should not be disposed with other household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

3 Uponor Base thermostat display T-27 230V - description



CD0000426

Uponor Base thermostat display T-27 230V (thermostat T-27) comes with a big LCD display and capacitive keys.

The temperature is displayed in large digits for easy readability also from a distance.

The capacitive keys and the front glass make cleaning of the front of the thermostat easy.

A special electronics (triac) ensures that the thermostat is operating completely noiseless and provides highest comfort in all rooms.

3.1 Thermostat features

Main characteristics for the thermostat:

- Mounting
 - on wall
 - on standard European patress box/flush mounting box
- Noiseless switching (triac)
- Can supply up to 5 actuators with power
- Optional: an external temperature sensor can be connected to the thermostat, to measure the room or floor temperature

Software features

Main characteristics of the thermostat software:

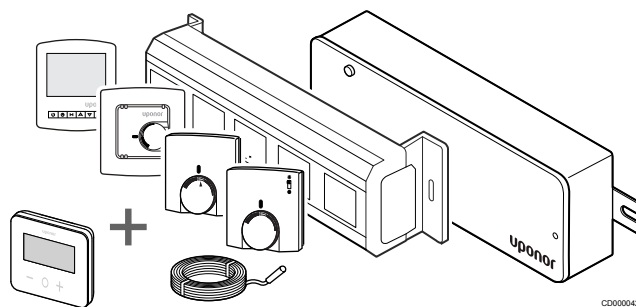
- Temperature limitation
- Optional floor sensor connectivity
- Heating/cooling switch
- Regulation modes
 - **rt**: room temperature
 - **rS**: external sensor temperature
 - **rFt**: room temperature with floor temperature limitation
- Comfort/ECO modes
- Demand indication in the display
- Calibration
- Valve exercise - triggers the actuator valve to open for 2 minutes if the actuator has been closed for 3 days (72 hours)
- Factory reset

3.2 System compatibility



Note

For more detailed information, product range and documentation please visit the Uponor website: www.uponor.com.

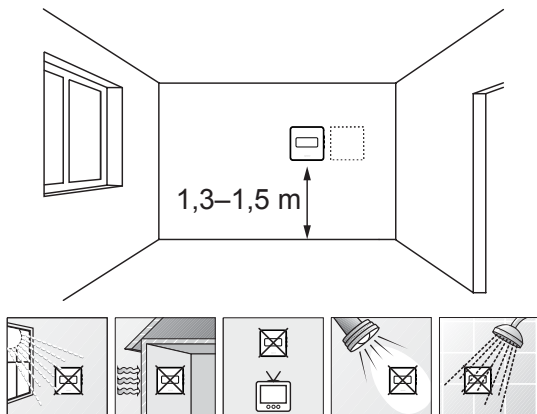


CD0000427

The thermostat T-27 is compatible with the current Uponor Base control system 230 V, the Uponor Base flexiboard controllers (X-24/X-25/X-26/X-27), the Uponor Base X-23 wiring box as well as the Uponor Smatrix floor/remote sensor S-1XX.

4 Installation

4.1 Placement of thermostat



SD0000002

- Select an indoor wall and a position 1,3 m to 1,5 m above the floor.
- Ensure that the thermostat is away from direct sunlight.
- Ensure that the thermostat will not be heated through the wall by sunshine.
- Ensure that the thermostat is away from any source of heat, for example television set, electronic equipment, fireplace, spotlights, and so on.
- Ensure that the thermostat is away from any source of humidity and water splashes (IP30).

4.2 Installation procedure

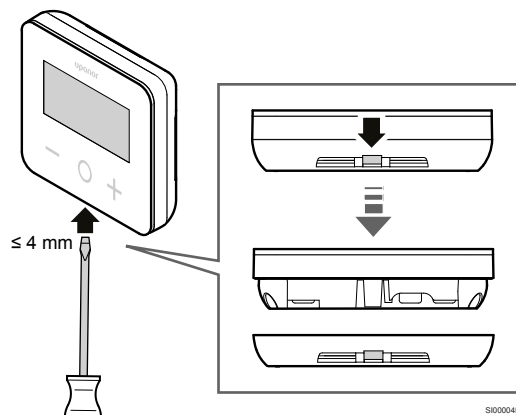
	Warning! The thermostat uses 230 V AC power. Never open and/or separate the front cover from the rear face of the thermostat!
	Caution! Do not push hard on the LCD screen as this may cause irreparable damage.

SD0000464

To install the thermostat, follow these steps:

Remove the back plastic cover

1

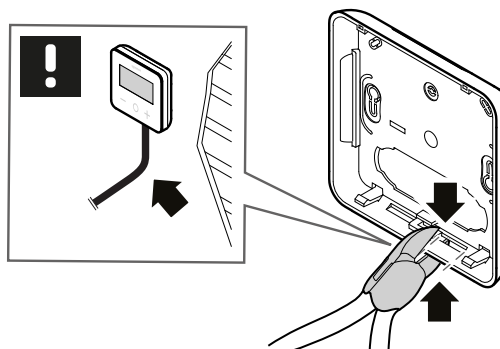


SD0000456

Use a flat screw driver/tool (width max. 4 mm) to remove the back plastic cover.

If necessary: cut the back part plastic

2

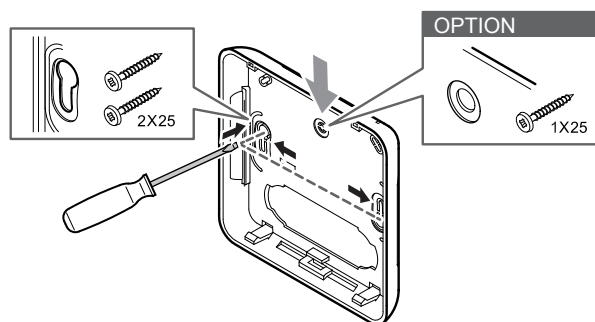


SD0000457

If the thermostat is wall mounted and the cables (or some of them) are placed on the wall, cut the back part plastic.

Remove the breakouts

3



SD0000458

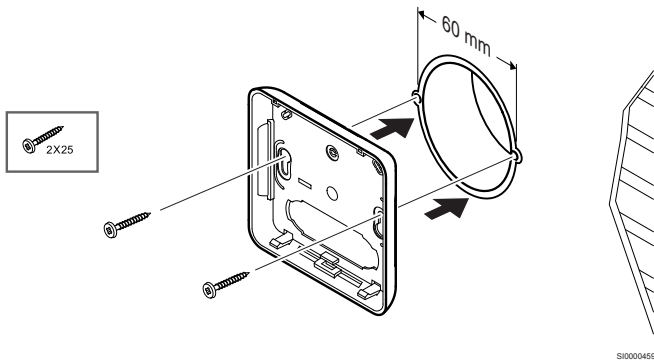
Wall mounting with 2 screws: Remove the 2 breakouts for the screws in the back cover.

Option — wall mounting with 1 screw: Remove the breakout of the center hole in the back cover.

Attach the back plastic cover to the wall

Wall box mounted

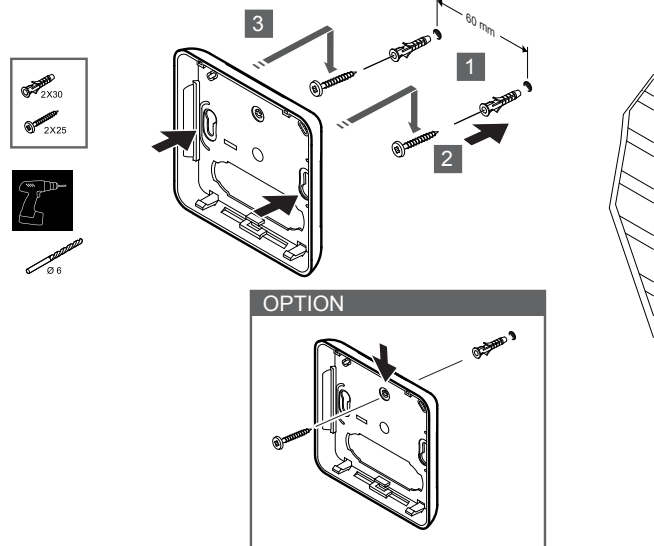
4a



Attach the back cover to the wall box.

Wall mounted

4b



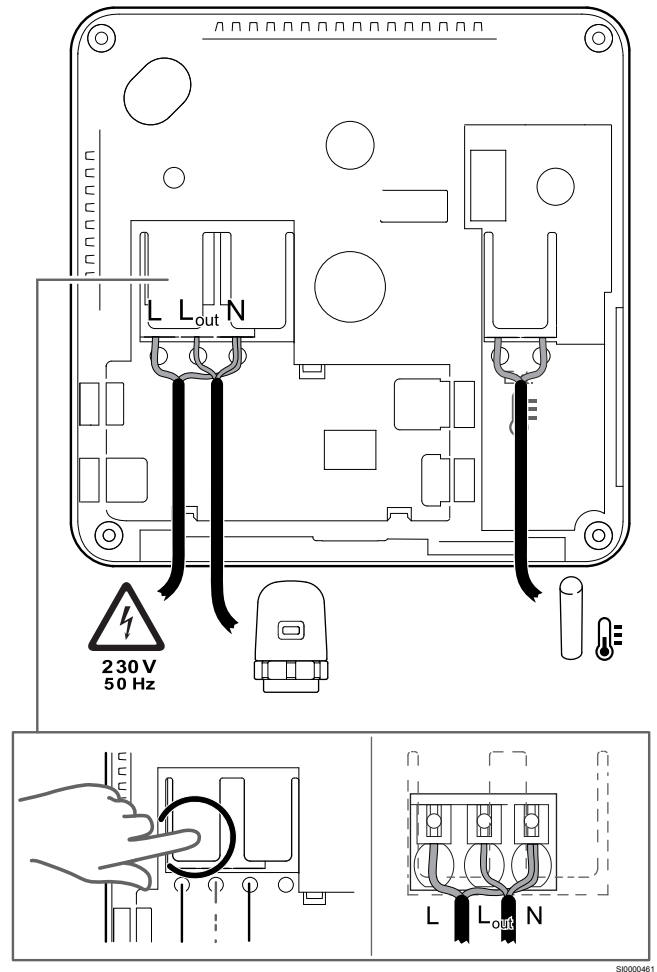
Attach the back cover to the wall with 1 or 2 screws.

Connect the thermostat

Note

Read the wiring diagram in the technical data chapter before making any electrical installation!

5



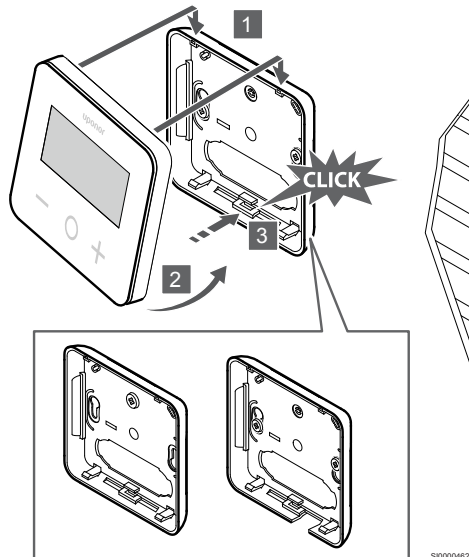
Connect the power cables to the backside of the thermostat. External sensor is optional.

The cables from the actuators can be connected directly to the thermostat or to a separate connection box.

For easier wiring, Uponor Base Flexiboard X-24/X-25/X-26/X-27 offers flexible allocation of one or more actuators to the room thermostats via selector switch during or after installation.

Attach the thermostat to the back cover

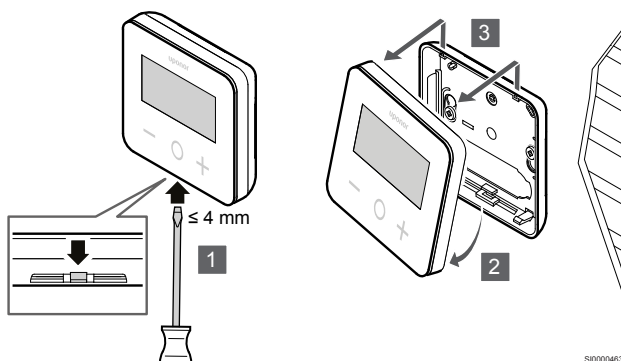
6



Attach the thermostat to the back cover.

1. Attach the thermostat body to the back cover by using the 2 hooks in the upper part as hinge.
2. Gently press the thermostat down towards the clips at the bottom of the back cover until a clicking sound is heard.
3. The thermostat is attached to the back cover.

Remove the thermostat from the wall



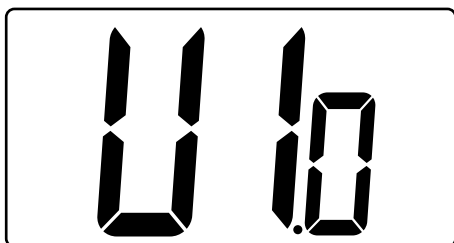
Press the clips at the bottom of the back cover with a flat screwdriver (width max. 4,0 mm) to unlock and remove the thermostat.

5 Operation

5.1 Activate the thermostat

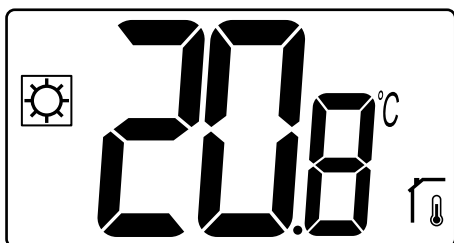


Power on/reset display



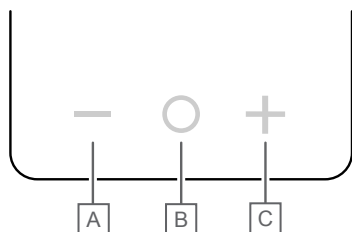
The software version is displayed after power on, or after a product reset.

Current mode



After the power has been set on or the thermostat has been reset, the thermostat runs current mode (Comfort or ECO).

Thermostat key descriptions



Key/icon	Description
–	Minus/decrease
○	OK
+	Plus/increase

Press a key on the thermostat T-27 to initiate an action related to that key.

– and + keys

The keys – and + are used to

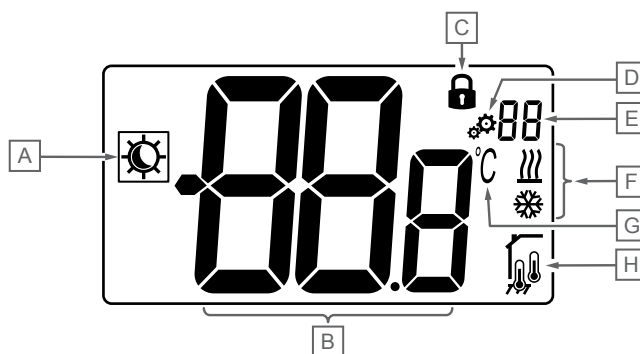
- Adjust setpoint temperature
- Move from one parameter to the next/previous one in the settings menu

○ (OK) key

The key ○ (OK) is used to

- Display temperature measure
- Toggle between current status data, and values of available sensors connected to the thermostat
- Enter and exit the settings menu (holding the key for about **3 seconds**)
- Confirm a setting




5.2 LCD display descriptions



Symbols/icons

The figure shows all possible symbols and characters that can be shown on the display:

Item	Icon	Description
A	☀ / ☾	Comfort/ECO modes Visible depending on the selected mode
B	888	Temperature Value from internal or external temperature sensor
C	🔒	Locked display and keys
D	⚙	Settings
E	88	Settings menu number
F	🔥 / ❄	Heating/cooling demand on the display
G	°C	Temperature unit

Item	Icon	Description
H		Type of measured data and sensor used for system regulation:
		Room temperature sensor (rt)
		Room temperature with external floor sensor (rFt)
		Remote temperature sensor (rS)

Display text

The following table contains an overview of all the display texts with reference to the respective sections where they are described.

Display text	Description	Settings menu number
00.5	ECO mode setback temperature	03
CLd	Cooling mode	01
Cmf	Comfort mode	02
dls	Lock keys and display function	09
Eco	ECO mode	02
Err	Error	—
FL.H	High limitation of floor temperature	05
FL.L	Low limitation of floor temperature	06
Hot	Heating mode	01
HYS	Hysteresis value	13
MAH	Maximum heat Maximum value of setting range of the setpoint temperature	12
Min	Minimum Minimum value of setting range of the setpoint temperature	11
Mod	Mode Heating/cooling modes	01
no r _i	Calibration of internal room sensor	07
no r _e	Calibration of external room sensor	08
rEG	Regulation selection	04
rES	Factory reset	—
rFt	Room temperature with external floor sensor	04
rS	Remote sensor	04
rt	Room temperature	04
U1.0	Software version	10
YES	Yes	07/08

5.3 Display temperatures (Comfort/ECO)

Follow below instructions to **display the temperatures**:

1. Press the key — or + to see the setpoint
2. Press the key O (OK) to display the room temperature and floor temperature (external sensor must be connected and the regulation set to rFt)

5.4 Temperature setpoint (Comfort/ECO)

The Comfort/ECO temperature setpoint is continuously monitored.

Follow below instructions to **modify the temperature setpoints**:

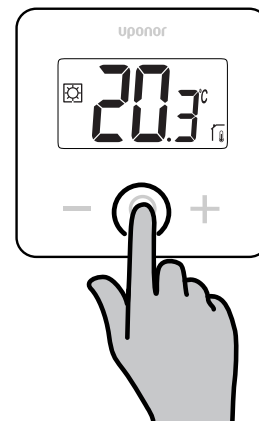
1. Press the key — or + to see the current temperature setpoint
2. Press the key — or + again to modify the setting temperature
3. Press the key O (OK) to confirm the temperature setpoint value

5.5 Settings



Note

After 1 minute of user inactivity in the settings menu, the thermostat returns automatically to the current mode.



S1000427

Settings menu overview

The following table contains an overview of all the settings with reference to the respective sections where they are described.

Settings menu number	Name	Description
01	Mod	Heating/cooling modes, Page 11
02	Eco	Comfort/ECO modes, Page 11
03	Setback	ECO mode setback temperature, Page 11
04	rEG	Regulation selection, Page 12
05	FL.H	High limitation of floor temperature, Page 12
06	FL.L	Low limitation of floor temperature, Page 12
07	no	Calibration of internal room sensor, Page 12
08	no	Calibration of external room sensor, Page 13
09	dls	Lock keys and display function, Page 13
10	U1.0	Software version, Page 14
11	Min	Min. value of setting range of the setpoint temperature, Page 14

Settings menu number	Name	Description
12	MAH	Max. value of setting range of the setpoint temperature, Page 14
13	HYS	Hysteresis value, Page 14
—	rES	Factory reset, Page 14

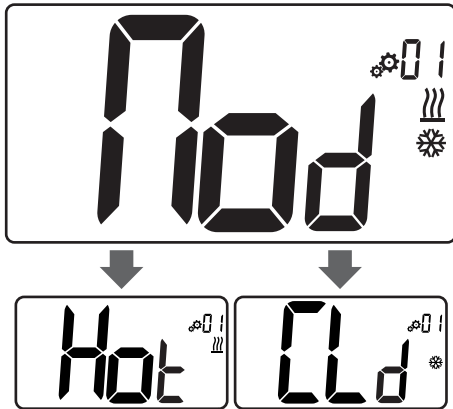
Enter the settings menu

The settings menu is accessible in both Comfort and ECO modes.

Follow below instructions to enter the settings menu:

1. Press the key **O** (OK) for **3 seconds**
2. Scroll up and down in the menu with the keys **—** and **+**
3. Select the desired menu by pressing the key **O** (OK)
4. Change the value with the keys **—** and **+**
5. Press the key **O** (OK) to confirm the settings
6. Press the key **O** (OK) for **3 seconds** to return to the current mode

5.6 Heating/cooling modes

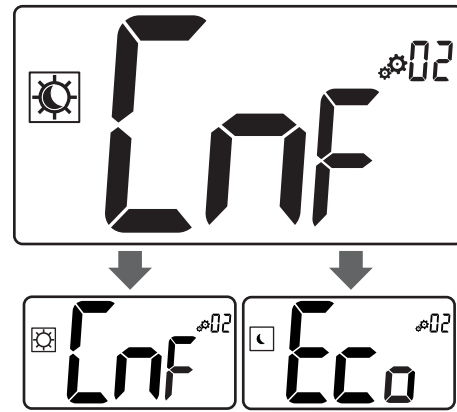


CD0000442

Values: Hot/CLd

Value	Description
Hot	Heating mode (default)
CLd	Cooling mode

5.7 Comfort/ECO modes



CD0000437

Values: Comfort/ECO modes

Value	Description
CmF	Comfort mode (default)
Eco	ECO mode

Comfort mode

Setpoint setting	Step	Temperature range
21 °C	0,5 °C	5,0 °C to 35 °C

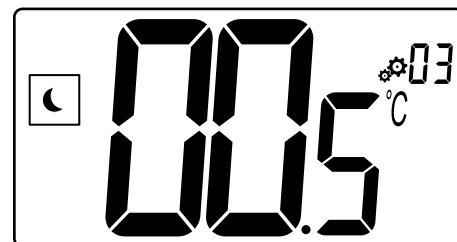
If no limitation is defined, please see the settings menu

ECO mode

Setpoint setting	Step	Temperature range
17 °C	0,5 °C	5,0 °C to 31 °C

If no limitation is defined, please see the settings menu

5.8 ECO mode setback temperature



CD0000440

Description	Value
Default value	4 °C
Step	0,5 °C
Values	0 °C to 11 °C

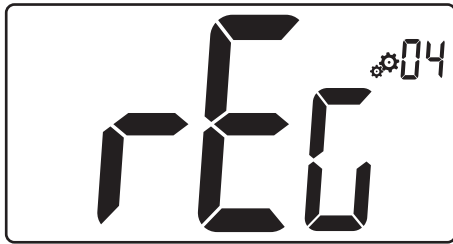
Calculation of ECO setpoint temperature

When the mode is changed from Comfort to ECO, the value displayed as setpoint temperature is:

- Comfort setpoint – ECO setback (in heating)
- or
- Comfort setpoint + ECO setback (in cooling)

When the mode is changed from ECO to Comfort, the value shown as setpoint temperature is only the setpoint.

5.9 Regulation selection



Description	Value
Default value	rt
Values	rt/rFt/rS

Mode	Icon	Sensor	Description
rt		Internal	Indoor temperature The room temperature is measured with the internal sensor in the thermostat
rFt		Internal & external	Indoor temperature with floor temperature limitation The room temperature is measured with the internal sensor in the thermostat, and the floor temperature with external sensor Press the key O (OK) to switch between room temperature and floor temperature
rS		External	Remote sensor temperature The room or floor temperature is measured with an external sensor

5.10 High limitation of floor temperature



Note

This value is displayed only when the setting "rEG" is set on "rFt".



CD0000443

Description	Value
Default value	26 °C
Step	0,5 °C
Values	20 °C (or "FL.L") to 35 °C

5.11 Low limitation of floor temperature



Note

This value is displayed and set only if the parameter "rEG" is set on "rFt".



CD0000446

Description	Value
Default value	20 °C
Step	0,5 °C
Values	10 °C to 30 °C (or "FL.H")

5.12 Calibration of internal room sensor



Note

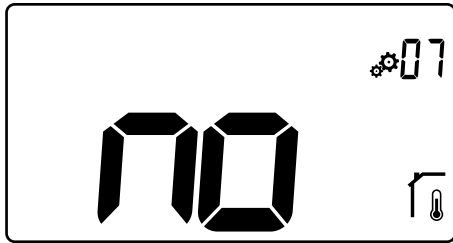
This menu is only displayed if the parameter "rEG" is set with "rt" or "rFt".



Note

If the keys — and + are pressed simultaneously, the sensor calibration is reset.

"no" is displayed



CD0000435

Description	Value
Default value	No (0,0 °C)
Step	0,1 °C
Values	-3,0 °C to 3,0 °C

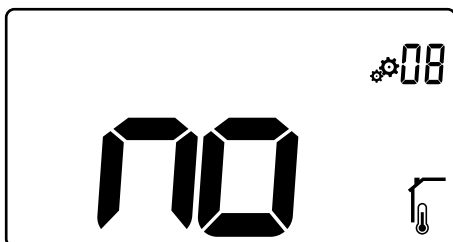
The indicator says "no" (correction value is zero) when the calibration mode is entered for the first time. This means no calibration has been performed yet.

Enter the reading on the thermometer using the keys — and + (step of 0,1 °C).

The setting is validated with key O (OK).

5.13 Calibration of external room sensor

!	Note This menu is only displayed if the parameter "rEG" is set with "rS" or "rFt".
!	Note If the keys — and + are pressed simultaneously, the sensor calibration is reset. "no" is displayed



CD0000434

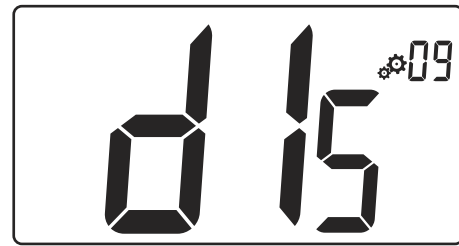
Description	Value
Default value	No (0,0 °C)
Step	0,1 °C
Values	-3,0 °C to 3,0 °C

The indicator says "no" (correction value is zero) when the calibration mode is entered for the first time. This means no calibration has been performed yet.

Enter the reading on the thermometer using the keys — and + (step of 0,1 °C).

The setting is validated with key O (OK).

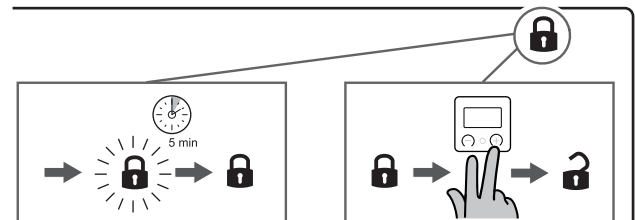
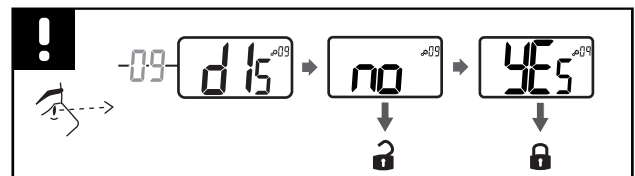
5.14 Lock keys and display function



CD0000450

Value	Description
Yes	Activate the lock display and keys
No	Deactivate the lock display and keys

The "lock keys and display function" is used to lock the thermostat keys and LCD display.



CD0000433

Lock keys and display

Follow the instruction below to activate the lock function of the thermostat display and keys:

1. Press the key O (OK) for **3 seconds**
2. Scroll up in the menu with the key + to **09 d15**
3. Select the desired menu by pressing the key O (OK)
4. Change the displayed value "no" to "Yes" with the key +
5. Press the key O (OK) to confirm the settings
6. Press the key O (OK) for **3 seconds** to return to the current mode
7. The lock icon on the display starts flashing
8. After 5 minutes of inactivity, the lock icon stops flashing and the thermostat is locked

Unlock keyboard and display

Temporary deactivation of the lock function

Follow the instruction below to temporarily deactivate the lock function of the thermostat display and keys:

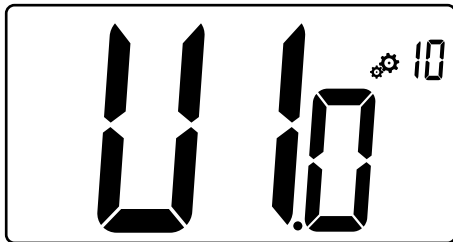
1. Press the keys — and + during **5 seconds**. The lock icon starts flashing.
2. Make necessary changes in the setpoint, navigate in the settings menu and change parameters.
3. After 5 minutes of inactivity, the thermostat will automatically be locked again.

Complete deactivation of the lock function

Follow the instruction below to completely deactivate the lock function of the thermostat display and keys:

1. Press the keys **—** and **+** during **5 seconds**. The lock icon starts flashing.
2. Press the key **O** (OK) for **3 seconds**
3. Scroll up in the menu with the key **+** to **09 dls**
4. Select the desired menu by pressing the key **O** (OK)
5. Change the displayed value "Yes" to "No" with the key **+**
6. Press the key **O** (OK) to confirm the settings
7. Press the key **O** (OK) for **3 seconds** to return to the current mode
8. The lock icon on the display disappears and the thermostat is unlocked

5.15 Software version

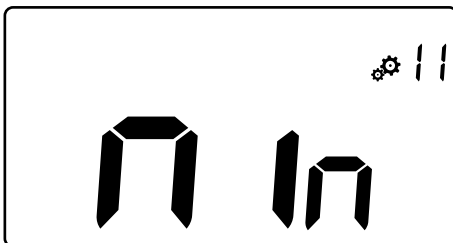


CD0000436

Press and hold the key **O** (OK) to display the software version and debug information.

The software version is written: **Vx.x**.

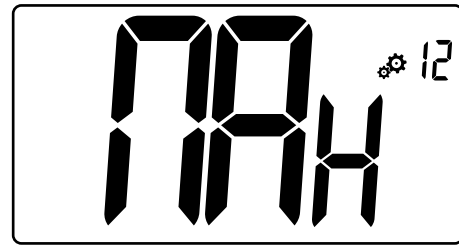
5.16 Min. value of setting range of the setpoint temperature



CD0000448

Description	Value
Factory settings value	5,0 °C
Values	5,0 °C to 15,0 °C

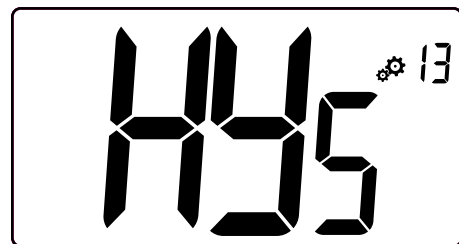
5.17 Max. value of setting range of the setpoint temperature



CD0000447

Description	Value
Factory settings value	30,0 °C
Values	20,0 °C to 37,0 °C

5.18 Hysteresis value



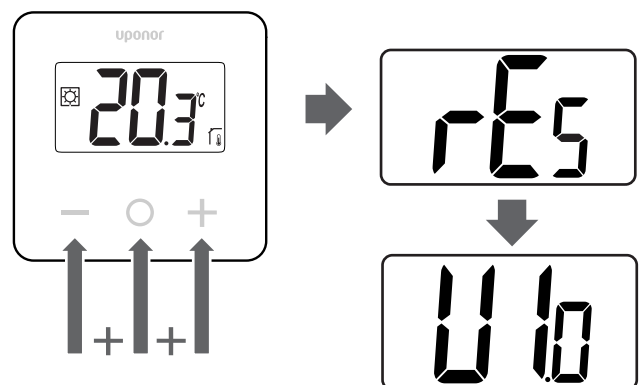
CD0000444

Description	Value
Default value	0,3 °C
Step	0,1 °C
Values	0,2 °C to 3 °C

Follow the instruction below to set the hysteresis value:

1. Use the keys **—** and **+** to set the hysteresis value
2. Validate the settings with the key **O** (OK)

5.19 Factory reset



S10000423

Follow below instructions to **reset the thermostat (factory reset)**:

1. Hold all three keys **—** and **O** (OK) and **+** for **10 seconds**
2. The thermostat is reset with factoring settings

6 Troubleshooting

6.1 Temperature measurement errors

Note
The error can be identified in the regulation settings (04) for respective sensor mode rS/rt/rFt.

The thermostat can fail to measure the temperature due to connection problems with the temperature sensor.

If the selected mode is "rS", the display shows "Err".

Change the mode to "rt" to continue working with the internal sensor or replace the external sensor.

Internal sensor (rt)



CD0000445

In "rt" mode, "Err" is displayed and the icon internal sensor is shown.

External sensor (rS)



CD0000441

In "rS" mode, "Err" is displayed and the icon external sensor is shown.

Internal and external sensors (rFt)

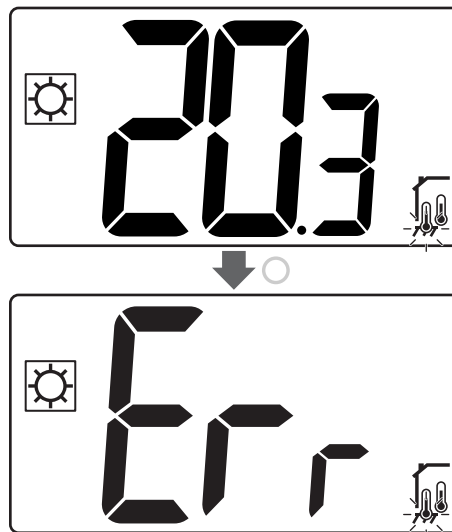
rFt - Internal sensor error



CD0000487

If the **internal sensor fails**, "Err" and the internal + floor sensor icons are shown.

rFt - External sensor error



CD0000486

If the **external (floor) sensor fails**, the thermostat carries on to measure the temperature with the internal sensor.

- The icon with internal and floor sensors is shown, but the floor sensor flashes.
- Press the key **O** (OK) and "Err" is shown instead of the floor temperature, and the floor sensor icon flashes.

7 Technical data

7.1 Technical specifications

Description	Value
IP	IP30 (IP: degree of inaccessibility to active parts of the product and degree of water)
Max. ambient RH (relative humidity)	60 % at 20 °C
Marking	CE, UKCA
ERP	Class I
Power supply	230 V AC, 50 Hz
Operating temperature	0 °C to +50 °C
Wired control	TRIAC 230 V
Storage temperature	-20 °C to +60 °C
Room temperature sensor (rt)	CTN 10 K at 25 °C
External temperature sensor	CTN 10 K at 25 °C
Thermostat colour	Thermostat body RAL 9016 Transparent front glass

Directive 2014/35/EU (LVD)

Harmonised standards applicable under Directive 2014/35/EU for Low Voltage (LVD):

- EN 60730-1:2017 Safety — Automatic electrical controls for household and similar use - Part 1: General requirements
- EN 60730-2-9:2013 Safety — Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls

Directive 2014/30/EU (EMC)

Harmonised standards under Directive 2014/30/EU for Electromagnetic compatibility (EMC):

- EN IEC 61000-3-2:2019 — Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current 16 A per phase)
- EN IEC 61000-3-3:2013 + AMD1:2017 — Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current =16 A

Declaration of conformity

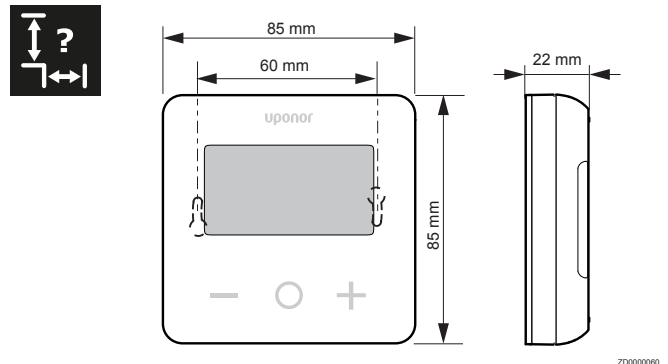
Usable in all Europe

Declaration of conformity

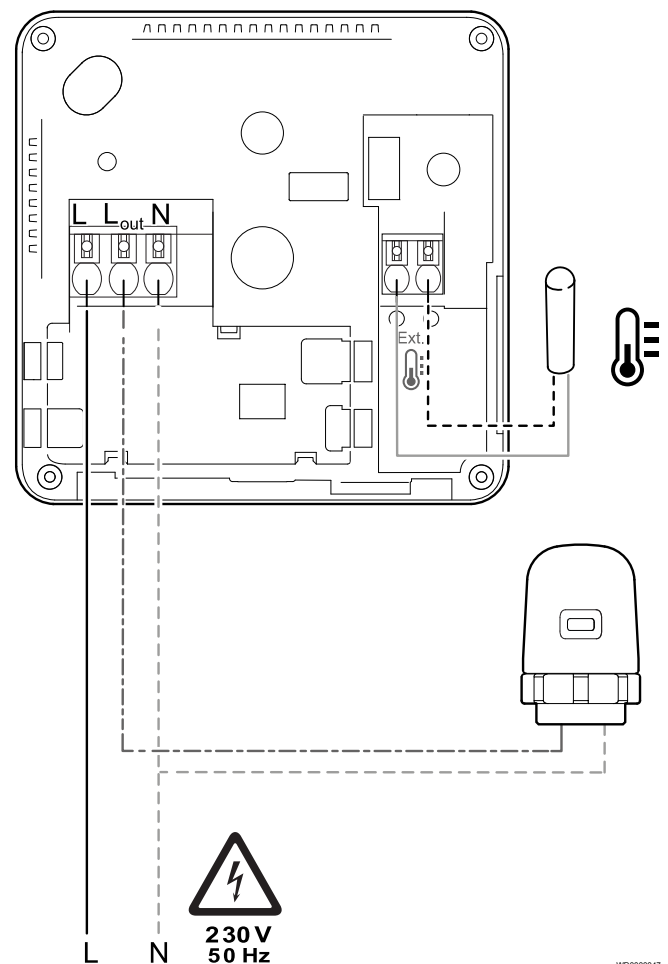
We hereby declare under our own responsibility that products dealt with by these instructions satisfy all essential demands linked to the information stated in the Safety instruction booklet.



7.2 Dimensions

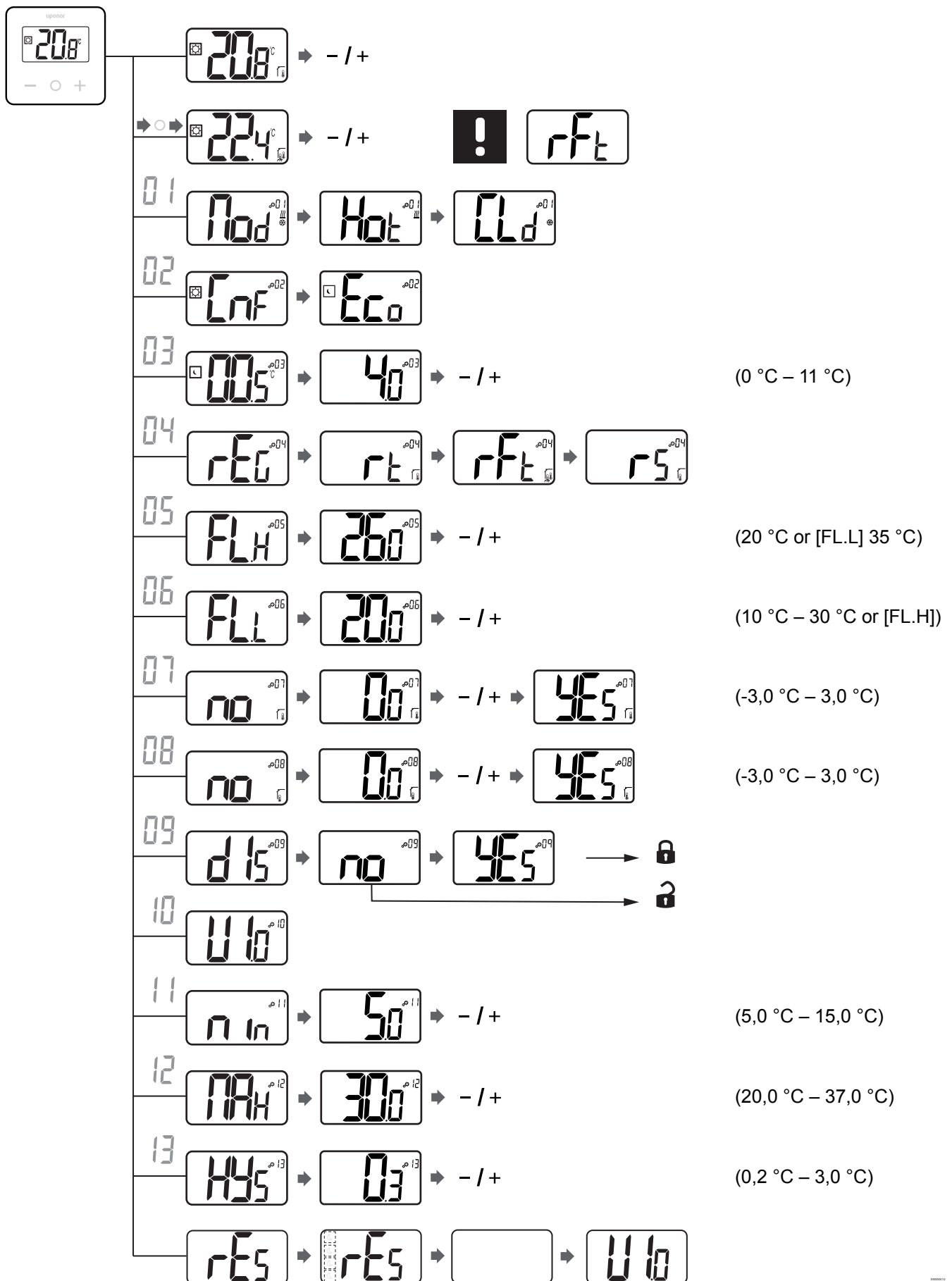


7.3 Wiring diagram



Item	Connection	Description
A	L	Power
B	L out	Actuator
C	N	Neutral
D		External sensor
E		External sensor

7.4 Menu description



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Uponor reserves the right to make changes, without prior notification,
to the specification of incorporated components in line with its policy of
continuous improvement and development.



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