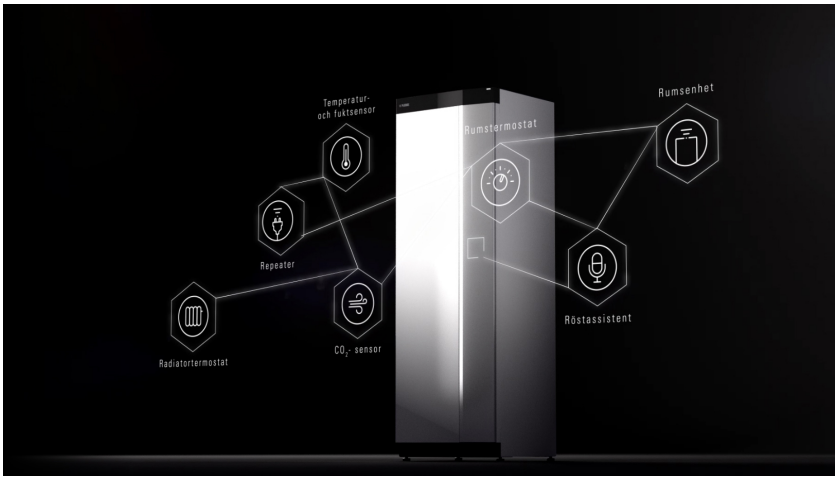
Technical manual

NIBE Smart Home



TEM EN 2226-3
M12858

Important information

Safety information

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This is an original manual. It may not be translated without the approval of NIBE.

Symbols

Explanation of symbols that may be present in this manual.

NOTE

This symbol indicates danger to person or machine.

Caution

This symbol indicates important information about what you should consider when installing or servicing the installation.

TIP

This symbol indicates tips on how to facilitate using the product.

General

Shared functions:

- Wireless IoT units. (Internet of Things)
- Battery powered up to 24 months of battery life.
- Mesh network for IoT products.
- Max. 40 wireless units in the system.
- Max. 32 pcs RMU S40 per main unit.

(Only 2 pcs can be supplied with power from the main unit!)

All IoT units have an internal address that is paired with HMI. You pair the accessory with the main product via the main product's display, select menu 5.4 "Connect wireless units". They will find each other and the unit will be listed on the HMI. During installation, it is possible to name units based on the customer's wishes, e.g. "left wing".

Climate systems and zones

- Max. 8 climate systems per main unit
- Max. 32 zones per main unit

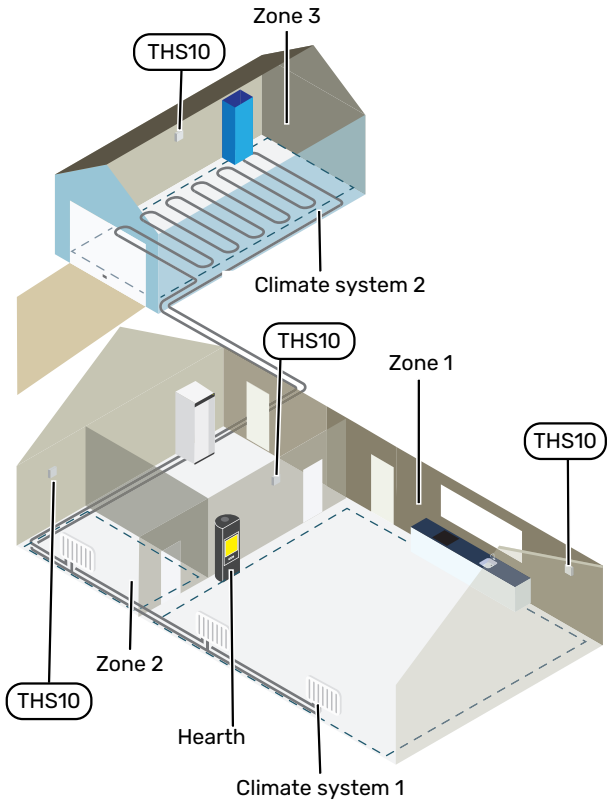
Multiple climate systems are used when different supply temperatures are required for different parts of the system, for example when both underfloor heating and radiators are fitted in a property.

A climate system can be divided up into several zones, which can be allocated one or more sensors or other wireless accessories. A zone could be a specific room or part of larger premises.

OUTLINE DIAGRAM WITH CLIMATE SYSTEMS AND ZONES

The example shows a property with two climate systems. Climate system 1 is a radiator system with two zones. Zone 1 is the controlling zone and there are two THS10 installed, which means that the heat pump extracts the heat from the stove more rapidly. Zone 2 is the zone displayed, which means that the temperature and humidity can be read off in the myUplink app or via myuplink.com.

Climate system 2 is a radiator system with one zone, which is the controlling zone.



Description of functions

Controlling room temperature

- Each unit that can set a set point value sends it to the master (the display), which then distributes it so that all units in the same zone are working from the same set point value.
- Each room sensor can be selected as controlling or not. If humidity is used as controlling, that sensor is prioritised.
- If a zone does not reach its set point value, and is solitary in its system, the fault is used for the room sensor control that calculates an offset.
- When the control reaches min. or max. supply, which is defined by the system, it does not regulate any more. The same applies for climate systems 2-8, which can never become hotter than that for which climate system 1 has been calculated.
- If a zone is not solitary under a system, a supply is calculated per zone and the highest (hottest) then proceeds to the system for regulation.
- Each zone has its own PI regulator for calculating the supply per zone.
- Offset per zone is limited in order not to get carried away in the event of unreasonable set point values and undersized systems.
- If the room sensor loses contact with the main unit, regulation reverts to the original curve.

Controlling humidity (RH)

- The sensor with the highest relative humidity value is used for each zone.
- The zone with the highest discrepancy is used to influence the climate system.
- The zone with the highest humidity value is used to influence the ventilation.

If menu setting “Limit_RH” = “Yes”, the installation is then affected via parallel adjustment of the heating/cooling curve.

If there is more than one sensor, the one with the highest humidity is used as controlling.

Controlling ventilation in CO2

The sensor with the highest CO2 value is used to force the ventilation in the whole house.

- If "low_CO2":

  <600 ppm

  - Counts down "Waiting time_fan effect" (10 min).

  - Reduces the relevant fan speed.
- If "normal_CO2":

  600 - 800 ppm

  - Does not affect the fan or revert to "fan speed_normal".
- If "high_CO2":

  >1000 ppm

  - Counts down "Waiting time_fan effect" (10 min).

  - Increases the relevant fan speed.

BOOST

If CO2 increases by a substantial amount, the product will be forced to make a change over a short period in order to reset CO2 in

the property.

When this happens, the ventilation increases more rapidly.

Activating function

If CO2 >2000 ppm:

- CO2 sensor is prioritised over humidity sensor.
- Counts down 50% of "Waiting time_fan effect" (10 min).
- Increases the relevant fan speed with the following exceptions

  - The time for "Interval_fan" is 50% of the set value. However, it must be at least 30 seconds.

Deactivating function

If CO2 <1500 ppm:

- Reverts to "fan speed_normal".

Menu settings

Menu 5.4 – Wireless devices

In this menu you connect wireless units, and manage settings for connected units.

Add the wireless unit by pressing "Add unit". For the quickest identification of a wireless unit, it is recommended that you put your master unit in search mode first. Then put the wireless unit in identification mode.

Menu 5.4.1 – 5.4.5

Here, you name your wireless units and select the zones in which these are placed.

You can go in here at a later date and change zones on a unit.

You can also choose to remove delete a unit.

> Caution
>
> You can make menu settings for both wired and wireless accessories.

Menu 1.1.1, 1.1.2 - Heating and cooling

SET THE TEMPERATURE (WITH ROOM SENSOR INSTALLED AND ACTIVATED):

Heating
Setting range: 5 – 30 °C

The value in the display appears as a temperature in °C, if the zone is controlled by a room sensor.

> Caution
>
> A slow heating system such as underfloor heating may be inappropriate for controlling with room sensors.

Menu 1.1.3 - Humidity (accessory is required)

Setting range: 30 – 90%

This menu is shown if the accessory is installed and has been activated in menu 7.1.6.4 - "Limit humidity in heat".

Here, you set the desired value for relative humidity (RH).

Menu 1.3 - Room sensor settings

Here, you make your settings for room sensors and zones. The room sensors are grouped by zone.

Here, you select the zone to which a sensor will belong. It is possible to connect multiple room sensors to each zone. Each room sensor can be given a unique name.

The control of heating, humidity and ventilation are activated by checking each option. Which options are shown depends on which type of sensor is installed. If control is not activated, the sensor will be the displaying sensor.

Menu 1.3.3 - Room units

NAME ROOM SENSOR
Enter a name for the relevant room sensor.

CONTROL ROOM SENSOR
Setting range: on/off

Here, you select the zone to which a sensor will belong. It is possible to connect multiple room sensors to each zone. Each room sensor can be given a unique name.

The control of heating, humidity and ventilation are activated by checking each option. Which options are shown depends on which type of sensor is installed. If control is not activated, the sensor will be the displaying sensor.

Menu 1.3.4 - Climate zones

Here, you add and name zones. You also select the climate system to which a zone is to belong.

Menu 7.1.4.4 - Demand-controlled ventilation

HIGHEST FAN SPEED
Setting range: 1 – 100%

LOWEST FAN SPEED
Setting range: 1 – 100%

TIME INTERV. CHANGE OF FAN SPEED
Setting range: 1 – 60 minutes

CONTROLLING ZONES
Activate zones for demand-controlled ventilation.

Here, you make settings for demand-controlled ventilation.

Menu 7.1.6.4 - Limit RH in heat

Here you can activate Humidity control, controlled by the relative humidity (RH) of the air, during heating operation. Only shown if a moisture sensor is installed

Menu 7.1.7.2 - Humidity control

Only shown if a moisture sensor is installed and cooling is activated.

PREVENT CONDENSATION IN COLD
Setting range: on/off

LIMIT RH IN COLD
Setting range: on/off

Prevent condensation in cold: With the function activated, condensation in the pipes is prevented.

Limit RH in cold: With the function activated, the temperature is regulated to achieve the desired relative humidity (RH).

THS 10

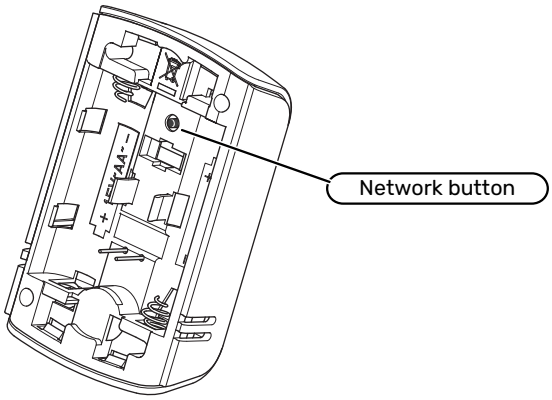
Wireless room sensor with temperature and humidity sensor.

The sensor can be used for:

- Logging/displaying.
- Controlling room temperature in heating/cooling.
- Humidity control during heating/cooling, where the set point value is affected with the aid of the humidity in the premises.

Characteristics:

- Humidity: 20 - 100%
- Measurement range: 0 - 45 °C
- Protection rating IP30



Alarm		Alarm no.
Communication error		438
Low battery	level 1-4	439

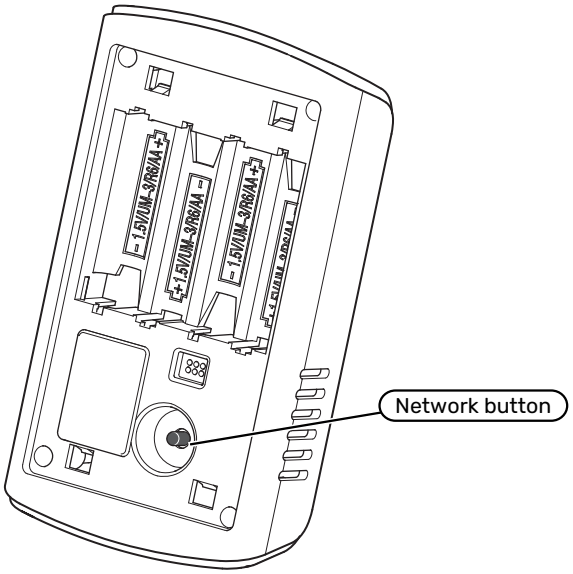
Battery level	Battery status	Volt
100%	Full	>=2,75V
75%	Good	2,65V - 2,74V
50%	Good	2,55V - 2,64V
25%	Weak	2,40V - 2,54V
<10%	Final	<2,40V

LED INDICATIONS	
Factory reset	Red LED on for 5 seconds
Connecting to network	Red LED flashing 0.3s off/on in 3,5s cycles, after 5 minutes it shuts down.
Low battery	Red LED flashing 0.25s off/on 3 times within 10 seconds
Lost connection or unit is not connected to network	Red LED flashing 0.25s on and off 4 times within 10 seconds
Connected	Green LED flashing for 0,25s on and 0,75s off

Button		
Long press	Press and hold for 3s and release within 9 seconds.	Identifies whether unit has network
Long press	Press and hold for 10 seconds	Factory reset

CDS 10

Wireless room sensor with temperature/CO2 sensor and humidity sensor.



The sensor can be used for:

- Logging/displaying
- Controlling room temperature in heating/cooling (Temperature/RH)
- Controlling ventilation (CO2).
- Humidity control in heating/cooling, where the set point value is affected using the humidity in the premises (Temperature/RH)

Characteristics:

- Measurement range: 0 - 45 °C
- Humidity: 20 - 100%
- Co2: 0 - 5000 ppm
- Protection rating IP30

Alarm		Alarm no.
Communication error		438
Low battery	level 1-4	439

Battery level	Battery status	Volt
100%	Full	>=2,75V
75%	Good	2,65V - 2,74V
50%	Good	2,55V - 2,64V
25%	Weak	2,40V - 2,54V
<10%	Final	<2,40V

LED INDICATIONS	
Factory reset	Red LED on for 5 seconds
Connecting to network	Red LED flashing 0.3s off/on in 3,5s cycles, after 5 minutes it shuts down.
Low battery	Red LED flashing 0.25s off/on 3 times within 10 seconds
Lost connection or unit is not connected to network	Red LED flashing 0.25s on and off 4 times within 10 seconds
Connected	Green LED flashing for 0,25s on and 0,75s off

Button		
Long press	Press and hold for 3s and release within 9 seconds.	Identifies whether unit has network
Long press	Press and hold for 10 seconds	Factory reset

Function CO2

Variable	Value
Low_CO2	<600 ppm
Normal_CO2	600 - 800 ppm
High_CO2	>1000 ppm
Boost	>2000 ppm
Boost reset	<1500 ppm

RMU S40

Wireless room sensor with temperature and humidity sensor.

Max. 32 RMU S40 wireless/wired per main unit. (Note: in the case of more than 2 wired RMU S40, the external power supply is required for unit 3-8).

The sensor can be used for:

- Logging/displaying.
- Controlling room temperature in heating/cooling.
- Humidity control during heating/cooling, where the set point value is affected with the aid of the humidity in the premises.

Characteristics:

- Humidity: 20 - 80%
- Measurement range: 5- 55 °C
- Ambient temperature 5-50 °C
- Rated voltage (from main product) 12VDC 100mA
- Rated voltage (external Micro-USB) 5VDC 250mA
- Rated voltage (external power supply) 24VAC 120mA
- Protection class IP20

Control - Home screen

- Heating
- Hot water
- Cooling
- Ventilation
- Pool
- PV solar
- Home/Away
- Alarm information
- Reset current alarms

Control - Menu

MENU 1 – NIGHT MODE

Night mode
Setting: On/Off

Schedule night mode
Setting: 00.00 – 23.59

You can activate night mode here.

Activate night mode during the time of day you want to switch off the backlight.

MENU 2 – CONNECTIONS

Select wireless or wired connection.

Wireless connection

Select wireless connection.

Go to the main product and select menu 5.4 – "Connect wireless units".

Wired connection

Select a communication address for NIBE Smart Home by allocating it a unique number in this menu.

Setting: 1 – 8

MENU 4 – LICENCES

You can find licences for open source code here.

MENU 7 – DISPLAY ZONES

Here, you can select the zones that you want to be displayed in your NIBE Smart Home, for heating and cooling.

You can choose to display a maximum of ten zones.

MENU 8 – FACTORY SETTING

Reset to factory setting.

MENU 9 – INFORMATION

Here, information is displayed about the product and the software version that is installed.

Advice when connecting RMU S40 wirelessly

When installing RMU S40 wirelessly, the installation must be carried out next to the display. If there is no 230V outlet nearby, RMU S40 can be powered from the display's USB outlet, which supplies 5VDC MAX 2A (RMU S40 requires at least 5VDC 250mA), or a powerbank that supplies at least 5VDC 250mA.

If you experience problems with the range between RMU S40 and the main unit, and you want to test where the communication is good, you can use a powerbank to power RMU S40. Move RMU S40 until the communication is good and add RPP10 there, and then move RMU S40 to the desired room; you then need to check whether more RPP10 are required.

RPP 10

Used first and foremost as a signal strength repeater; if the transmitter in the display is not strong enough, one or more plugs can be placed out. RRP10 can also be used as an energy meter and can be named freely in the display.

- On/off (Max. 230V, 13Amp, 2990W)
- Accumulated energy consumption ±5%
- Immediate power consumption ±5%
- Minimum measurable power >2W
- Protection rating IP30.

The smart plug does not have its own display, although the switch indicates green if it is on. Under menu 6.2, it is possible to set the schedule for activating the smart plug's relay. Also available as RPP10-UK with different pins to fit wall sockets in the UK.

Control conditions

Description: RPP10 has a built-in function that makes it possible to control the outlet remotely and turn it off/on. This function can be used in App and on Web.

The following can be changed in Tile for RPP10.

- Outlet Off/On
- Change Schedule

RPP10 has a built-in energy meter.

- Current consumption (W)
- Total consumption (kWh)

Menus

The option to reset saved data on the energy meter can be found in menu 5.4 under the relevant RPP10. Resetting can only be performed via HMI, not via Web/App.

LED indications

LED	Explanation
Red LED comes on for five seconds	Factory reset
Red LED flashes once every five seconds	Connecting to network
Red LED flashes once every second	The unit is overheated
Red LED flashes three times within five seconds	Lost connection or unit is not connected to network
Green LED comes on	Relay ON
Green LED does not come on	Relay OFF

Alarm		Alarm no. (See Noah alarm list for more info
Communication error		438
Overheated		449

Button		
Short press	Press and release within 0.5s	Relay active
Long press	Press and hold for 3s and release within 9s	Identifies whether unit has network
Long press	Press and hold for at least 10s	Factory reset

Overheated

If the internal temperature sensor's reading in RPP10 is higher than 75°C, it will overheat and will turn off the relay.

Alarm 449 "overheated" is activated.

After the indoor temperature drops to 50°C, the unit will leave the overheating temperature mode and the relay function will be resumed.

Accumulated energy

Accumulated energy is stored in the unit. In order to reset accumulation, this can be done by resetting in the main unit's display or by means of factory resetting.

Lost communication

If RPP 10 loses contact with the main product, RPP 10 will attempt to reconnect for 60 minutes; if the reconnection fails, the power supply to the outgoing power outlet in RPP 10 will be turned off. For this reason, do not connect equipment that is sensitive to loss of power.

ROT 10

Wireless room thermostat with temperature and humidity sensor.

The thermostat can be used for:

- Logging/displaying.
- Controlling room temperature in heating/cooling.
- Humidity control during heating/cooling, where the set point value is affected with the aid of the humidity in the premises.

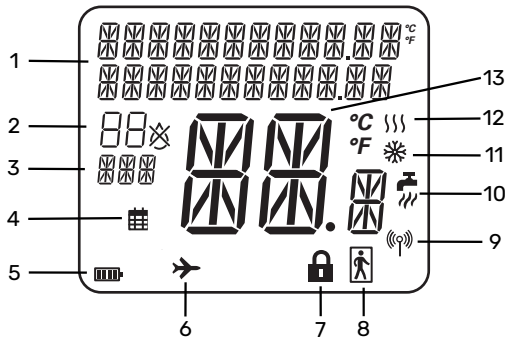
Characteristics:

- Humidity: 20 - 100%
- Measurement range: 0 - 45 °C
- Protection rating IP30

Alarm		Alarm no.
Communication error		438
Low battery	level 1-4	439

Display	Battery level	Function
	100%	Function normal
	75%	Function normal
	50%	Function normal
	25%	Function normal, backlight off
	<10%	Function normal, backlight off, battery status flashing

Display

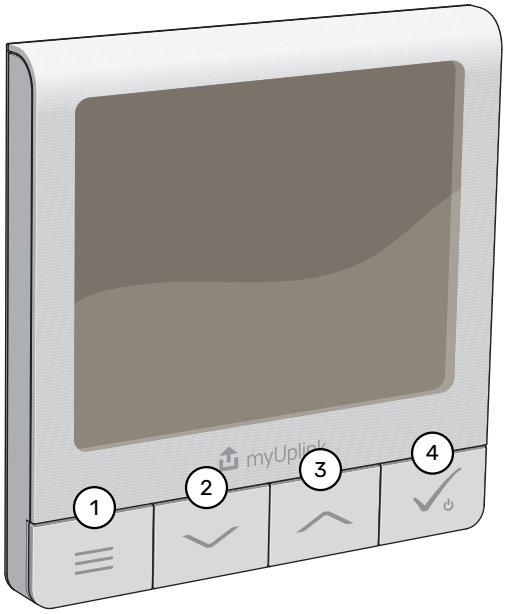


The display in ROT10 presents the latest set point value and measured temperature.

	Description
1	Character display
2	Humidity in the zone
3	Week day
4	Scheduling activated in the main product
5	Battery status
6	Holiday mode activated in main product
7	Key lock activated.
8	Home/away mode activated
9	signal strength
10	"More hot water" activated
11	Cooling activated in the zone[1]
12	Heating activated in the zone[1]
13	Room temperature

[1] Flashes when the compressor is in operation

Settings



Press any button to activate ROT10, the display's backlight comes on.

1. Menu
2. Lower the temperature and navigate through the menus.
3. Increase the temperature and navigate through the menus.
4. Confirm.

MENU SYSTEM

ROT10 has a menu system that is used to control some of the main product's functions.

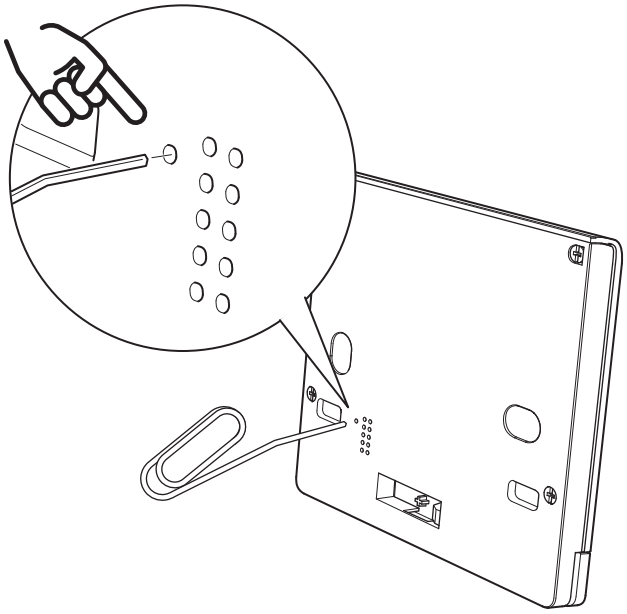
MORE HW	Activates "More hot water" in the main product's menu 2.1.
OP MODE	Controls "Operating mode" in the main product's menu 4.1. Setting options: Auto, Heating and Cooling (if the main product can produce cooling).
AWAY MODE	Activates "Away mode" in the main product's menu 4.5.
INCR VENT	Activates "Incr. ventilation" according to the settings in the main product's menu 1.2.

FACTORY RESET

To reset to the factory settings for ROT10, press and hold buttons 1 and 4 for 10 seconds. When resetting to the factory settings, all communication is interrupted, although the previous settings remain when you reconnect the unit.

RESTART

To restart ROT10, press the button located in the hole on the rear of the unit.

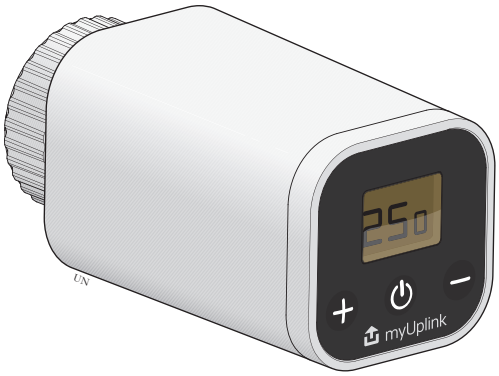


LOST CONNECTION

If connection to the main product is lost, restart ROT10.

SRV 10

Wireless radiator thermostat.



The thermostat can be used for:

- Controlling room temperature

Characteristics:

- Measurement range: 0 - 45 °C
- Selectable temperature range: 5 - 35 °C
- Resolution, temperature: 0,5 °C
- Accuracy at 15-25°C: <±1,0°C. Other temperature range: <±1,5°C
- Protection rating IP20

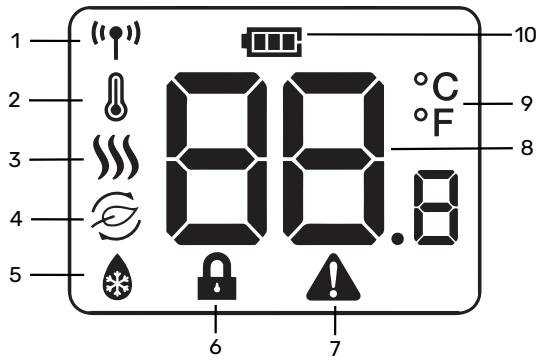
Alarm

Alarm	Alarm no. (SRV 10)	Alarm no. (See Noah alarm list for more info
Communication error		438
Low battery		439
Calibration fault	A03	440
Motor fault	A04	441
Freeze prot		455
Internal fault, wireless unit		456
Updating error		457

CALIBRATION FAULT A03

In the event of a calibration fault A03, check that the valve's pin moves easily, move the pin during installation. Check that the plastic nut on SRV 10 is not tightened too firmly, or loosen it a little and start new calibration.

Navigation



1	Connected to the network
2	Heating mode
3	The motor in SRV 10 is in operation
4	Controlled by the zone's temperature
5	Off position, frost protection activated
6	Activated key lock
7	Alarm, also shown in the main product. Also shows if calibration during installation has failed.
8	If the light is steady, room temperature is displayed; if the light is flashing, the set temperature is displayed
9	Display in Celsius or Fahrenheit
10	Battery status

Battery

Battery status	Volt
Full	>2,68V
Between	2,4V - 2,68V
Low	2,2V - 2,4V
Discharged	<2,2V

LOW BATTERY

In event of low battery, open the radiator valve fully. Low battery status is shown in the display and alarm 439 is sent.

When changing batteries, "P1" will be shown in the display in SRV 10. The motor is adjusted to fully open, as during first start-up. It can take up to 10 minutes before calibration starts and the unit returns to normal mode.

LOST CONNECTION

If connection is lost, open the radiator valve fully. The antenna icon flashes.

Advice/Troubleshoot IoT units

If there is no connection to your units, there are a number of steps to check for a more stable connection:

- Check that the latest software is installed.
- If possible, reduce the distance between the unit and the main product.
- Walls and some surfaces can absorb the wireless signal. If possible, place the unit in the same room as the main product (to test the connection).

Examples of wall materials:

Thick stone or concrete wall with metal structure -> *Significant disruption*.

Wall with metal framework -> *Significant disruption*.

Brick wall -> *Medium disruption*.

Walls or doors made of plasterboard, glass or wood -> *Little disruption*.

Other examples that can disrupt the connection where the unit is installed:

- Behind a TV.
- Close to an aquarium.
- In or beneath a metal object.
- In closed furniture.
- Close to a large number of cables and power cords.
- Close to other wireless devices (laptops, tablets, cordless phones, wireless printers, speakers, IP cameras, other smart devices, microwaves, etc.).

If you have any of these devices in your home, turn them off temporarily and check the connection again (which can take up to 15 minutes). If the problem persists, deactivate the unit in menu 5.4 and reset the factory settings according to the Installer Manual for the unit, then try again.

If the connection improves after these measures, you can try to increase the distance between the myUplink products and the main unit. The status of the connection can be read in menu 5.4. If the communication is still weak between the myUplink products and the main unit, a repeater RPP 10 may need to be installed.

You can also check that the smart units are not on the same frequency channel as the wifi in the property.

In menu 3.1.13 you can see which channel the wireless units are using (requires v2.2.1). When the display starts up or you perform a restart, the heat pump scans its surroundings and, in this way, selects the channel that is most suitable for the wireless units in the property in which it is located.

Q & A

1. *How long can it take for my unit to be paired?*

   It can take up to 5 minutes before the unit is connected to the system.

2. *How long will the batteries in my units last?*

   The batteries will last for approximately 18 months. Remember that battery life can be affected by the quality of the batteries, and that longer distances between the unit and the heat pump/repeater can affect the battery life.

3. *What happens when the battery runs out?*

   You will initially receive a warning/notification that the battery level is low on your unit. If you don't do anything, the unit will disappear and you will receive a new warning/notification that the unit has been lost.

4. *What happens if my RPP 10 loses contact with the main product?*

   If RPP 10 loses contact with the main product, RPP 10 will attempt to reconnect for 60 minutes; if the reconnection fails, the power supply to the outgoing power outlet in RPP 10 will be turned off. For this reason, do not connect equipment that is sensitive to loss of power.

5. *Which channel do the wireless units use?*

   When the display starts up or is restarted, the heat pump scans its surroundings and, in this way, selects the channel that is most suitable for the wireless units in the property in which it is located (only if no wireless units are connected). In menu 3.1.13 you can see which channel the wireless units are using (requires V2.3.3).

How are the smart units updated?

The units are updated automatically via the main product when they are connected to the system.

Updating should not be performed if the battery level is low. This is to ensure that the updating can complete the entire process before the battery runs out.

Updating of the wireless unit is permitted if:

- Battery level >= 25%

Updating of the wireless unit is not permitted if:

- Battery level < 25%

A notification appears in the myUplink app when the updating of one or more wireless units is blocked due to the low battery level.

NIBE AB Sweden
Hannabadsvägen 5
Box 14
SE-285 21 Markaryd
info@nibe.se
www.nibe.eu

TEM EN 2226-3 M12858