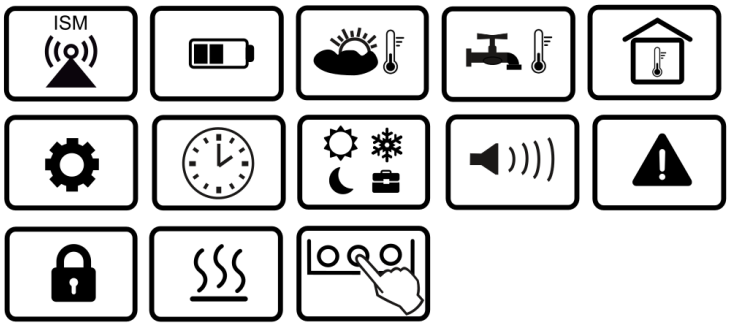
WIRELESS ROOM THERMOSTAT

HPx40CM

FOR HPCU360iCM CONTROL UNIT

The HPrfCM radio module is standard equipment for the thermostat.



Technical manual for thermostat

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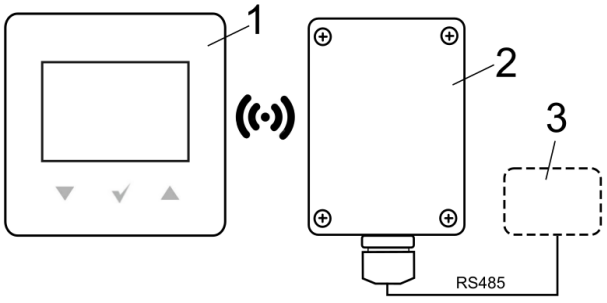
1. Recommendations regarding safety

The following requirements shall be complied with.

- The device should be used as intended, keeping it in a dry environment and installing it only indoors.
- The thermostat has small parts, so keep it away from children.
- Before connecting the radio module to the control unit, absolutely stop the operation of the control unit by switching it off and disconnecting it from the main power supply.
- Non-compliant with the manual or incorrect connection of the radio module to the control unit may be a source of malfunction of the control unit and the radio module itself.
- The device should only be started up by a person who is familiar with these instructions.
- Under no circumstances may the device construction be modified.

2. General information

The HPx40CM room thermostat is designed for wireless cooperation with HPrfCM radio transmission module, which is wired to the control unit. The thermostat is installed in a selected room, e.g. a living room and is designed to maintain a preset room temperature by sending a radio signal to a module connected to the control unit. The implemented encrypted, two-way radio communication allows the transmission of information from the control unit to the thermostat alarm statuses of the control unit and external temperature values. The thermostat on the backlit LCD display shows information about the room temperature value, selected operating mode, current time with simultaneous clock synchronization with the control unit.



Radio communication: 1 – HPx40CM thermostat, 2 – HPrfCM radio module, 3 – HPCU360iCM control unit.

3. Information about documentation

The thermostat manual is a supplement for the control unit manual. In particular, except for this manual, the control unit manual should also be followed. Manufacturer is not responsible for any damages caused by failure to following these instructions.

4. Storage of documentation

This assembly and operation manual, as well as any other applicable documentation, should be stored diligently, so that it is available at any time. In the case of removal or sale of the device, the attached documentation should be handed over to the new user / owner.

5. Applied symbols

In this manual the following graphic symbols are used:

 - the symbol indicates additional advice and information.

 - the symbol indicates important information.

Caution: the symbols indicate important information, in order to make the manual more user friendly. Yet, this does not exempt the user from the obligation to comply with requirements which are not marked with a graphic symbol!

6. Declaration of conformity

The purchased product meets the requirements of **Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014** on the harmonization of the laws of the Member States concerning making available on the market of radio equipment and does not cause harmful interference with radio communications to other equipment, in a residential area, provided that the product is correctly installed and used in accordance with the requirements of this manual.

7. Directive WEEE 2012/19/UE

Purchased product is designed and made of materials of highest quality. The product meets the requirements of the **Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment**

(WEEE), according to which it is marked by the symbol of crossed-out wheeled bin (like below), meaning that product is subjected to separate collection.

Responsibilities after finishing a period of using product:

- dispose of the packaging and product at the end of their period of use in an appropriate recycling facility,
- do not dispose of the product with other unsorted waste,
- do not burn the product.

By adhering obligations of waste electrical and electronic equipment controlled disposal mentioned above, you avoid harmful.

8. The first start of the thermostat

After inserting the battery into the thermostat and electrical connection of the radio module to the control unit it is necessary to perform the thermostat pairing with the radio module.

The clock synchronization function with the control unit automatically sets the clock in the thermostat. The clock can also be set directly in the thermostat from the User menu (**P04**).

The change of time in the thermostat will also cause a change in the control unit and the devices connected to the control unit.

9. Thermostat main screen

Legend:

1. Operation modes:
   - Holiday;
   - Comfortable;
   - Economic;
   - Antifreeze;

   „Air" – Airing;
   „out" – Out;
   „PrtY" – Party;
   - one time loading of the DHW;
2. clock and the field of information displayed, e.g. menu descriptions, additional operating modes, outdoor temperature;
3. symbol when displaying the outdoor temperature value;
4. radio connection symbol - visible only during an active radio connection with the radio module. When it is always visible, the thermostat is not paired with the radio module, and when it is flashing, there is permanent loss of radio connection with this module;
5. indicator of battery discharge - when it is constantly on, it means that the batteries are on depletion and when it flashes, it means that the batteries are already depleted and the thermostat has stopped communicating with the radio module;
6. unit symbol;
7. heating symbol - the symbol is visible when the heating signal is being sent to the control unit and the preset temperature in the room is not reached;
8. value of room temperature and edition of the preset room temperature;
9. alarm – the symbol flashes when:
   - an alarm occurred in the control unit,
   - there is no radio connection with the radio module,

   the symbol is constantly displayed when:
   - notification was received at the control unit (prompt),
   - the thermostat is not paired with the radio module;
10. parameter editing symbol;
11. activated parental lock - unblocking occurs after holding the ✓ button for 5 seconds.

10. Thermostat settings

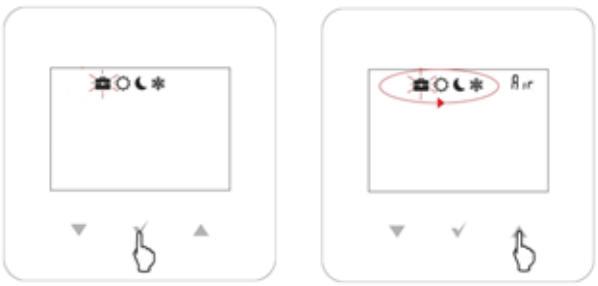
9.1. Edition of the preset temperature

Pressing ▼ or ▲ brings to the check / edit of the preset temperature which starts to flash.

The first press causes to edit the current preset temperature, but does not change the value. Only another press changes the value. The saving and exit from the edition takes place after pressing ✓ button. If the change of the preset temperature value is not confirmed with the ✓ button, then after the inactivity time of 5 seconds the thermostat will exit the editing menu, without changing the preset temperature value. The preset temperature value changes every 0,1ºC. Note: holding ▼ or ▲ button for 2 seconds causes a fast, cyclical change of the parameter.

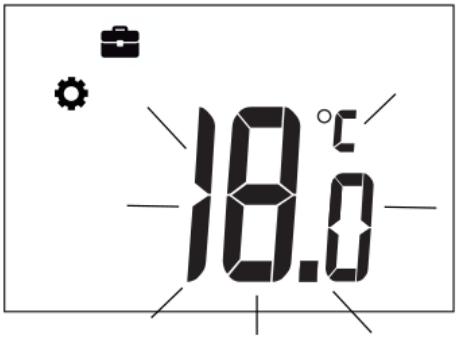
9.2. Edition of the operation modes

Editing the operating modes is enabled by briefly pressing the ✓ button, then the operating modes are displayed, with the current operating mode flashing.

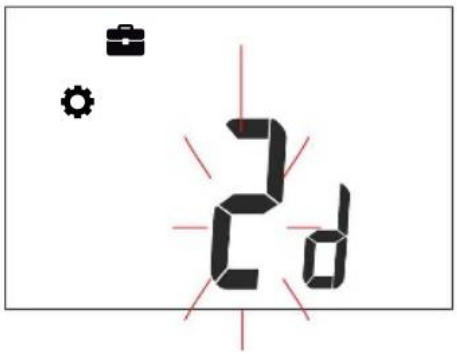


The operating mode is changed with ▼ or ▲ buttons. The saving and exit from the edition takes place after pressing the ✓ button. Exit from editing the operating modes to the main screen, without saving the change of the working mode, by pressing the A key for 2 seconds or after an idle time of 5 seconds. Editable operating modes that are related to parameter settings in the User menu:

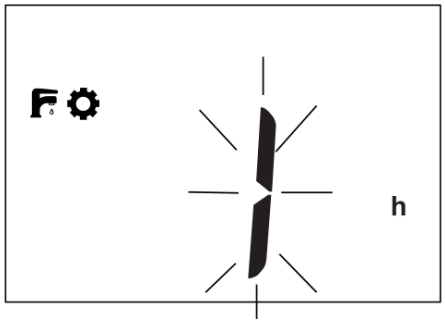
- **Holiday** – the preset temperature is set single time to the "Holiday" temperature (**P10**), which appears for editing:



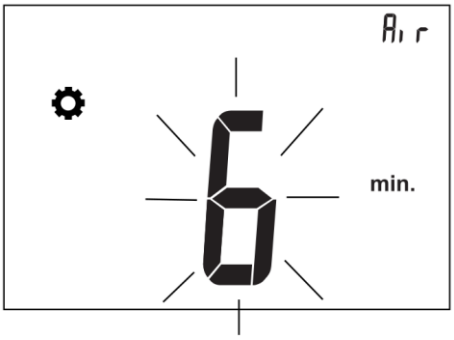
for the duration time (**P11**) of this mode, which appears for editing immediately after the temperature:



After this time, the thermostat goes into the mode in which he worked before turning on the "Holiday" mode. This mode is useful when traveling on holidays.
- **Comfortable** – the thermostat operations with a constant preset temperature "Day" (**P05**), which ensures a comfortable temperature in a heated room.
- **Economical** - the thermostat operations at a constant preset temperature "Night" (**P06**), which saves fuel.
- **Antifreeze** - the thermostat operations with a constant preset temperature "Antifreeze" (**P07**), which ensures protection against freezing of water in the heating circuit. This mode is useful when there is no one in the heated rooms.
- F - the mode enables a single loading of DHW tank for the set time (**P14**), which appears for editing:

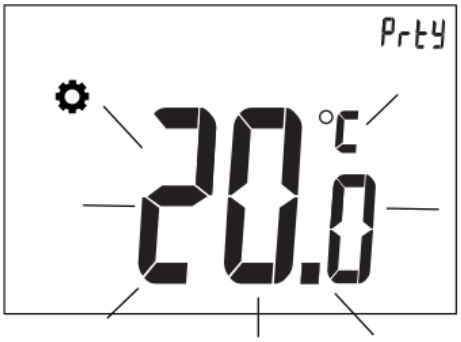


- **Airing** (text information - item 3 in the main screen) – the circuit is switched off for the duration (**P13**) of the "Airing" mode, which appears for editing:

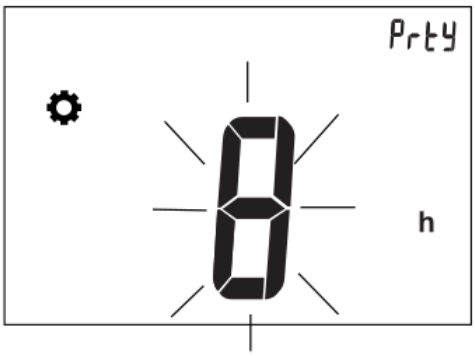


After this time, the thermostat switches to the mode in which it worked before turning on the "Airing" mode. This mode is particularly useful when ventilating rooms.

- **Party** (text information - item 3 in the main screen) – the preset temperature is set single time for the "Party" temperature (**P08**), which appears for editing:

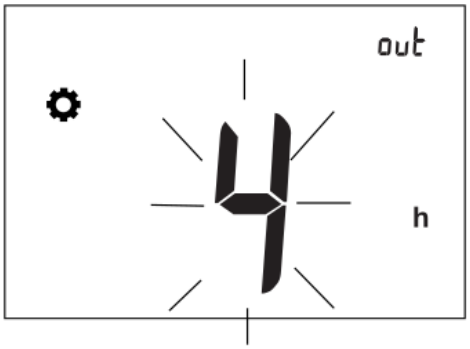


for the duration time (**P09**) of the of the "Party" mode, which appears for editing immediately after the temperature:



After this time, the thermostat switches to the mode in which it worked before turning on the "Party" mode.

- **Out of house** (text information - item 3 in the main screen) – the preset temperature is set single time to the "Night" temperature (**P06**), for the duration time (**P12**) of the of the "Out of house" mode, which appears for editing:



After this time, the thermostat switches to the mode in which it worked before turning on the "Out of house" mode. Useful mode when the user leaves the heated room.

11.User menu

The user menu is entered by holding simultaneously the ▼ and ▲ buttons for 2 seconds.

Individual parameters of the user menu are visible as consecutive indications displayed on the main screen in item no. 3, as described in the table below.

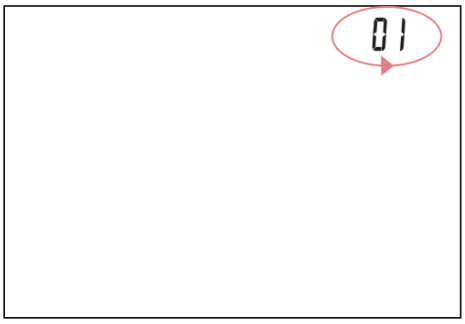
The parameters are selected using the ▼ or ▲ buttons and the ✓ button is confirmed by the selection.

No.	Description
P03	„**PAr**" Paring.
P04	Setting the clock.
P05	„Day" Preset temp. [°C]
P06	„Night" Preset temp. [°C]
P07	„Antifreeze" Preset temp. [°C]
P08	„Party" Preset temp. [°C]
P09	Time duration of the "Party" mode [h]
P10	„Holiday" Preset temp. [°C]
P11	Time duration of the "Holiday" mode. [day]
P12	Time duration of the "Out of house" mode. [h]
P13	Time duration of the "Airing" mode. [min.]
P14	Time one time of the DHW loading. [h]
P15	Turning on (**on**) or off (**oFF**) sound of pressing the buttons.
P16	Turning on (**on**) or off (**oFF**) sound alarms. At the (**oFF**) setting, alarm notification is only visible in the information field of the main screen (item 3).
P17	Turning on (**on**) or off (**oFF**) sound notification of alarms at night from 22:00 to 6:00.
P18	Screen contrast. [%]
P19	Brightness of the screen backlight. [%]
P20	Room thermostat temperature hysteresis. [°C]
P21	Turning on (**on**) or off (**oFF**) of the parental lock.
P30	The strength of the radio signal between the thermostat and the radio module. [%]
P31	Thermostat program version.
P32	Correction of the accuracy of the displayed temperature. [°C]
P34	Restoring (**on**) factory settings.
P35	Thermostat address.
P41	Turning on (**on**) or off (**oFF**) the weather temperature indication.
P42	Turning on (**on**) or off (**oFF**) display on the clock screen.

Holding the ✓ button for 2 seconds will exit the User menu to the main screen.

12.Service menu

The entry to the service menu is done by holding simultaneously the ▼ and ✓ buttons for 2 seconds. After entering the menu, enter the following password using the ▼ and ▲ buttons: 1410 and confirm by pressing the ✓ button. The individual parameters in the service menu are visible as consecutive markings displayed on the screen in 3rd item, as described in the table below.



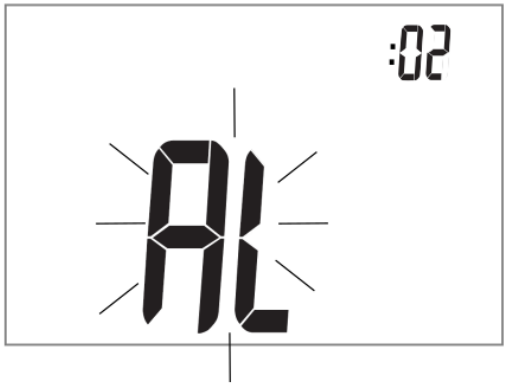
No.	Description
1	Turing (**on**) or off (**oFF**) the possibility of changing parameters from other thermostats. The default setting is (**on**).
2	Turning on (**on**) or off (**oFF**) of the hotel mode in which the possibility of changing the control unit parameters by the thermostat is blocked. The default setting is (**oFF**).

Holding the ✓ button for 2 seconds will exit the service menu to the main screen.

13.Signaling of the alarms and prompts

13.1 Alarms

The thermostat signals the alarm states sent from the control unit. During the alarm, the flashing "**AL**" is displayed, the alarm number and the beep - if (**P16**) parameter is set to on.



The first press of the ✓ button silences the alarm sound. With ▼ and ▲ buttons you

can check successive alarm numbers if there are more of them at the same time.

Pressing the button again takes to the main thermostat screen. If the alarm is still in progress, the flashing symbol is still displayed on the thermostat's main screen and the alarm code is displayed in the information field (item 3). It is possible to enable or disable sound signaling from the User menu.

13.2 Prompts

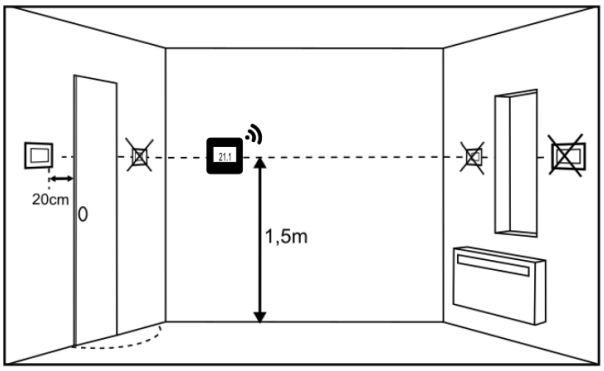
In the case when the control unit sends prompts (an information), the "**In**" message and the prompt number are displayed on the thermostat's screen. There is no audible signal when there is a prompt. With and buttons can check the successive numbers of prompts if there are more of them at the same time. The first press of the button confirms the reading of the prompt. Pressing button again takes to the main thermostat screen. If the prompt is still in progress, the symbol is still displayed on the thermostat's main screen and the confirmation code is displayed in the information field (item 3).

14.Installation of the thermostat

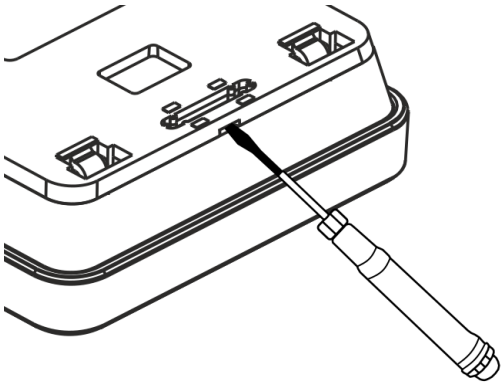
The thermostat is intended for installation only in a dry habitable room and should be mounted on a wall or placed on a flat surface (as a free-standing device) in a room representative for a given heating/cooling circuit. After choosing the place of assembly, make sure that:

- the selected location is free of excessive humidity and the ambient temperature of the thermostat should be within the range of 5..35°C,
- the chosen location should ensure free air circulation and should be located away from heat-emitting sources, e.g. electronic equipment, fireplace, heater and direct sunlight,
- the selected place must not cause interference or a lack of radio signal.

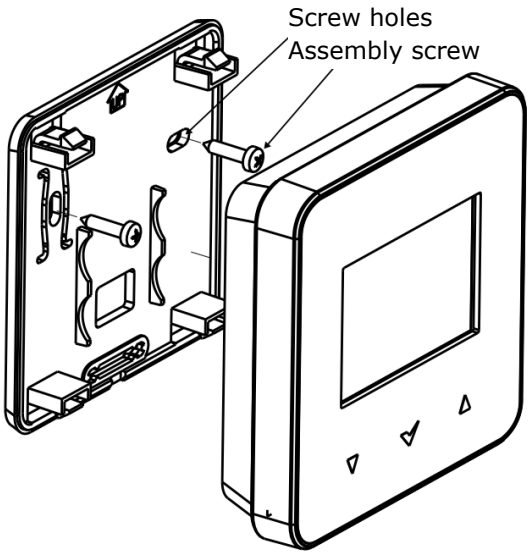
The thermostat should be mounted at a height enabling convenient operation, typically 1.5 m above the floor.



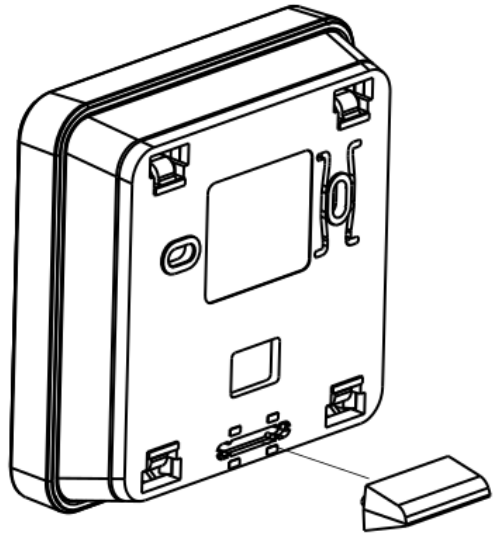
The thermostat should be screwed to the wall with mounting screws. Access to the screw holes is obtained by opening and removing the back cover of the thermostat. A flat screwdriver can be used to open the cover.



The cover is screwed to the selected location of the wall with the appropriate position, as shown in the figure below. The hole spacing can be determined by attaching the cover to the wall.



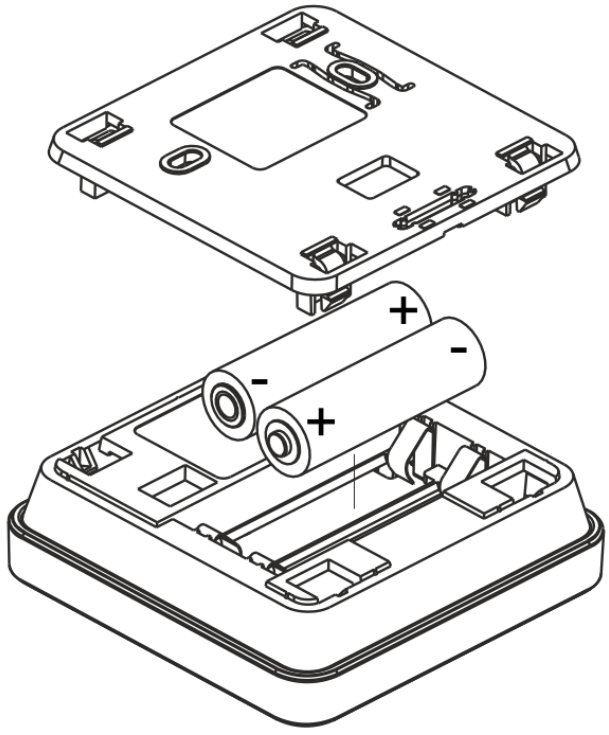
In order to place the thermostat on a flat surface, use a dedicated stand.



14.1 Inserting or replacing the batteries in the thermostat

To insert or replace the battery, remove the back cover of the thermostat housing.

When inserting the batteries, the battery poles have to be positioned correctly.



It is recommended to use alkaline batteries to power the thermostat. The thermostat's working time depends on the quality of the batteries used.

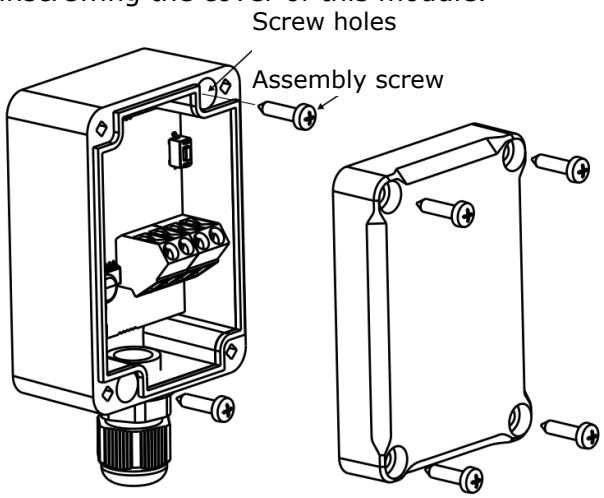
15. Radio module

15.1 Installation and electric connection of the radio module to the control unit

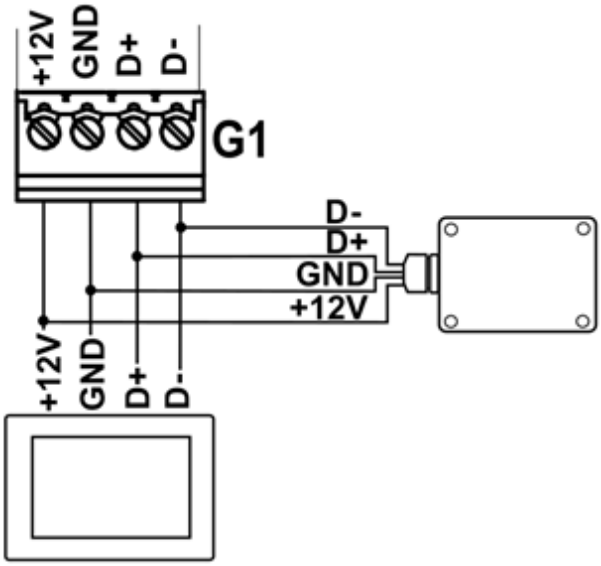
The HPrfCM radio module should be mounted on a wall near the installation location of the control unit. If the radio connection is poor, try placing the module in other places. Moving the module even by a few centimeters can affect the quality of the connection.

Placing a radio module in a metal casing, e.g. a mounting box, will dampen the radio signal and thus interfere with the operation of this radio module.

The radio module should be screwed to the wall with mounting screws. Access to holes for assembly screws is obtained after unscrewing the cover of this module.



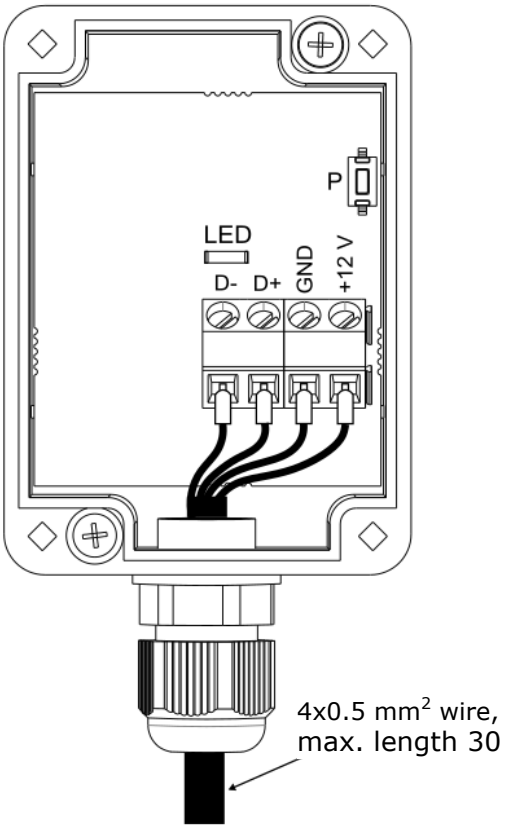
Terminals D +, D-, GND, 12 VDC of the radio module should be connected to the G1 socket of the control unit, according to the scheme below.



When connecting the transmission and power supply attention should be paid to the proper polarity of connection of D +, D- and GND, 12

V between the radio module and the control unit. Improper connection may lead to damage to the control unit or errors in its operation.

The maximum cable length depends on the cross-section of the wires. For a 0.5 mm^2 wire, it should not exceed 30 m. The cross-section should not, however, be less than 0.5 mm^2.



It is not recommended to turn off the main power supply of the control unit due to frequent attempts to obtain a radio connection of the thermostat with a radio module, which leads to a quick discharge of the battery in the thermostat.

15.2 Pairing the radio module with the thermostat

The radio module connected electrically to the control unit requires pairing with a thermostat.

Until the pairing with the radio module on the thermostat screen is complete, the ⚠ and (( )) symbols are permanently displayed.

Pairing from the control unit menu.

Enter the control unit menu: *User settings → Radio settings → Connect to therm.* and confirm *Yes*, then the pairing mode will be activated for 4 minutes, during this time the thermostat with the radio module should be paired. To do this, hold simultaneously ▼ and ▲ button for 2 seconds in the thermostat and then select the program (**P03**) in the User menu of the thermostat, where "**PAr**" is displayed on the screen. After accepting with ✓ button, the pairing will start (the word "**PAr**" begins to flash).

If the thermostat has never been paired with the radio module (factory setting), then pairing occurs after pressing the ✓ button, without having to enter the User menu.

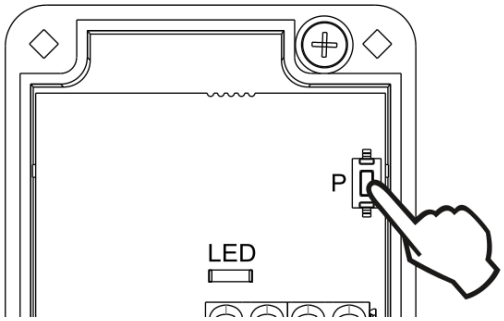
The correctness of the pairing will be confirmed by the message "**END**" and "**Succ**" on the thermostat. The ⚠ and (( )) symbols are also no longer visible on the thermostat screen. During the active pairing mode, can pair, in the same way, subsequent thermostats. After correctly pairing the thermostats with the radio module, end the pairing mode in the control unit menu or can wait for the active pairing time to expire.

After establishing the radio connection with the thermostat in the control unit menu: *Service settings → Installation control → Information*, the thermostats will be shown as *Thermostat*, with the version of the software displayed.

Connecting the radio module to the control unit again does not require pairing if the thermostats have previously been paired.

Pairing directly from the radio module.

The **P** button of the radio module is used to start the pairing mode, which should be briefly pressed once - then the LED will start to flash, which means that the pairing mode will be activated for 4 minutes.



Only one thermostat should be paired at this time, analogously as described during pairing from the control unit menu level. After correct pairing of the thermostat, end the pairing mode by briefly pressing the **P** button or wait until the active pairing time expires.
After establishing the radio connection with the thermostat in the control unit menu: *Service settings → Installation control → Information*, the thermostats will be shown as *Thermostat*, with the version of the software displayed.

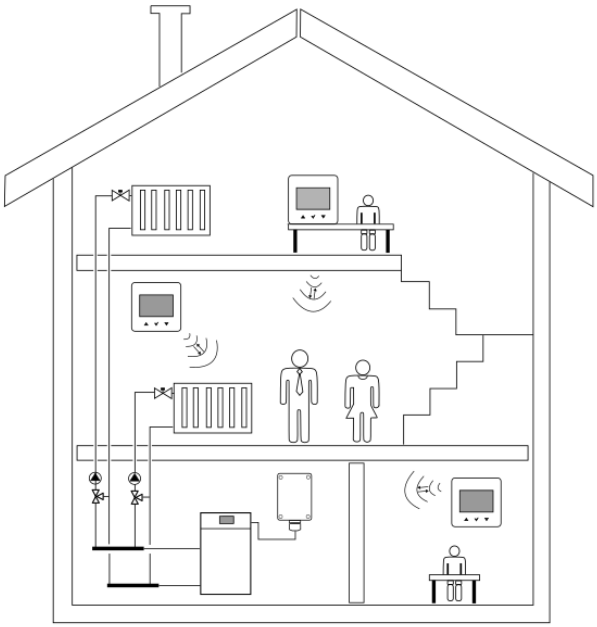
15.3 Resetting memory of the radio module

The radio module stores data on paired thermostats in its memory, so after replacing any thermostat it is necessary to reset the memory of the radio module. Memory reset can by pressing the **P** button of the radio module for about 8 seconds. Confirmation of removing the pairing memory is to turn off the LED for a moment, immediately after releasing the **P** button.

The reset radio module requires re-pairing with thermostats.

15.4 Cooperation of the radio module with several thermostats

The radio module can operate with up to three thermostats.



Correctly paired thermostats with a radio module require setting an individual address for each of the thermostats.

The address for the thermostat is set in the User menu, parameter (**P35**). One should set a different address for each thermostat in the range 1..3. It is important that each of the thermostats has the same address as set in the control unit menu. To do this, enter the control unit menu: *Service settings → Installation control → Circuit* and set the *Thermostat type* parameter to *Thermostat*. Then set the *Select thermostat* parameter to the one that has been set in the thermostat for the selected heating/cooling circuit, that is: *T1*, *T2* or *T3*.
The structural elements of the building, the layout and equipment of rooms, the amount of electronic equipment, the distance between the installation place of the radio module and the thermostat affect the level of the received radio signal, therefore when choosing a place to install the thermostat, take into account the obtained signal level in the selected location by observing the symbol on thermostat screen. If the symbol:
- is not displayed, the radio connection with the radio module is correct. The symbol is shown only briefly during active radio communication with the radio module,
- flashing, there is no radio connection or there is a weak signal and should choose a different place to install the thermostat.

The value of the radio signal strength can be read in parameter (**P30**) of the thermostat user menu.

If the radio connection to the thermostat is lost, the control unit will go into operating mode without a thermostat after a few minutes.

16.Technical data

Thermostat power supply.	2 x AA (LR6) 1.5V - alkaline batteries.
Radio module power supply.	5..12 VDC - directly from the control unit socket.
Degree of protection for the thermostat / radio module.	IP 20 / IP 40
Relative humidity.	5…85% without steam condensation.
Storage temperature of the thermostat and radio module.	-10..+60°C
Working temperature of the thermostat and radio module.	5..35°C
Communication.	Bi-directional ISM radio communication.
The band of radio transmission.	ISM 868 MHz, (the band 865…868 MHz)
Transmission power of the thermostat and radio module.	20 mW (+13 dBm)
Radio network topology.	One radio module and many subordinate thermostats.
Display.	LCD with backlight.
Controlling.	Capacitive buttons.
Dimensions.	Thermostat: 87 x 87 x 27,3 mm Radio module: 70 x 50 x 7,7 mm
Thermostat / Radio module weight.	0,2 kg / 0,16 kg
Thermostat installation method.	On the wall or free-standing.
Radio module installation method.	On the wall.

Set:

- HPx40CM thermostat 1 piece.
- stand to thermostat 1 piece.
- HPrfCM radio module 1 piece.
- AA LR6 battery 2 pieces.

17.Storage and transport conditions

The thermostat and radio module must not be exposed to the direct influence of atmospheric conditions, i.e. rain and sun rays, and vibrations higher than typical during road transport. Storage and transport temperature should not exceed -10…+60°C.

18.Description of possible faults

Symptoms	Tips
The thermostat is not working. The display shows nothing.	Check the correct installation of the battery or whether the batteries used are not discharged.
The thermostat is working but there is no backlight on the display.	This is a normal phenomenon that occurs with partially discharged batteries. The thermostat is still working correctly. If the backlight is required, replace the batteries with new ones.
Buttons for changing settings do not work.	Check if the buttons are not blocked and if necessary disable the child lock - point 9 (item 16).
The thermostat does not start the heating mode.	The preset temperature may be lower than the current room temperature - increase the preset temperature.
The radio module can't be paired with a thermostat or several thermostats.	The cause may be a lack of radio coverage. For the time of pairing with the radio module, place the thermostat near this radio module.
The battery in the thermostat is discharging too quickly.	Check that the batteries used comply with the recommendations and are of good quality. The cause may also be frequent attempts to connect the thermostat with the radio module, e.g. during longer interruptions in the power supply of the control unit.

Changes register:

The manufacturer reserves a right to make improvements and modifications of the products.

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