



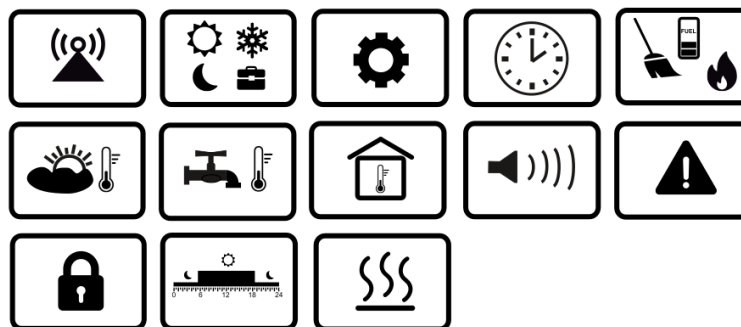
WIRELESS ROOM PANEL

# eSTER\_x80

FOR HEATING CIRCUIT CONTROLLERS

ONLY COOPERATES WITH ecoMAX SERIES OF THE BOILER CONTROLLERS

ISM\_xSMART\*



\* the ISM\_xSMART radio module is standard equipment for the wireless room panel.



## INSTALLATION AND OPERATING MANUAL

ISSUE: 1.1\_EN



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## 1. Recommendations regarding safety

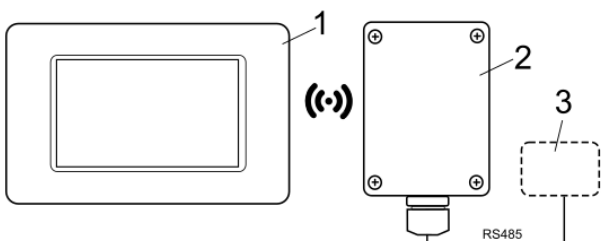
The following requirements shall be complied with.



- The device should be used as intended, keeping it in a dry environment, and installing it only indoors.
- Before connecting the radio module to the main controller, absolutely stop the operation of the main controller 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 main controller may be a source of malfunction of the main controller 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 wireless room panel is designed for wireless cooperation with external radio transmission module, which is wired to the main controller. The room panel 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 main controller. The implemented encrypted, two-way radio communication allows the transmission of information from the main controller to the room panel, so the room panel itself acts as an additional screen for servicing all parameters of the main controller.



Radio communication: 1 – eSTER\_x80 wireless room panel, 2 – ISM\_xSMART radio module, 3 – main controller.

Wireless room panel can be used in a household or similar environments and in slightly industrialized buildings.

## 3. 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.

## 4. Information about documentation

The wireless room panel manual is a supplement for the main controller manual. In particular, except for this manual, the main controller manual should also be followed. Manufacturer is not responsible for any damages caused by failure to following these instructions.

## 5. 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.

## 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:

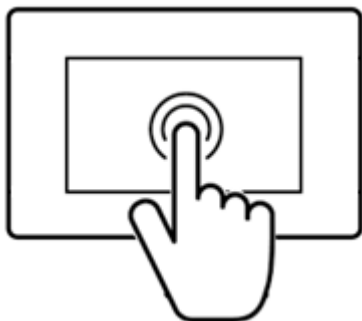
- dispose of the packaging and product at the end of their period of use in an appropriate recycling facility,
- do not dispose of the product with other unsorted waste,
- do not burn the product.

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

## 8. Support of the wireless room panel

### 8.1 Controlling of the wireless room panel

Device is equipped with a screen and touch panel.

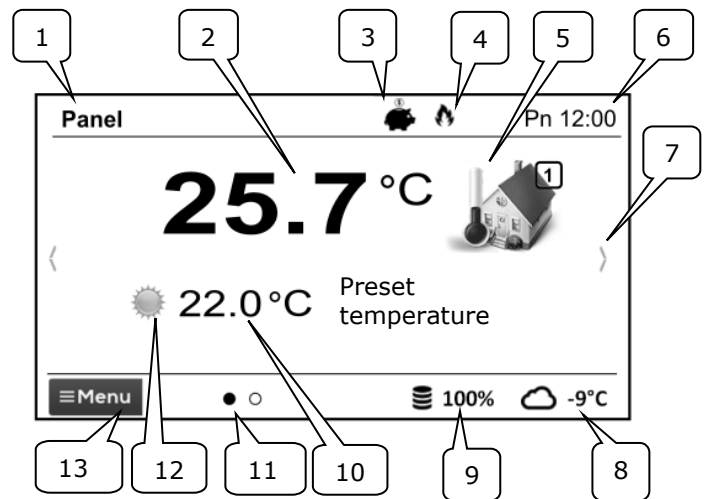


Press corresponding symbols on the screen in order to select position from the menu.

The symbols mean:

- ☰ Menu - w selection of the main Menu;
- / + - decrease/increase the value of the selected parameter;
- ∨ / ^ - scroll the parameters list up/down;
- ↶ - exit a chosen Menu position or cancel a parameter setting;
- 🏠 - return back to the main screen;
- ✓ - enter the Menu position or confirm the setting of the selected parameter;
- ⓘ - information concerning the selected Menu position.

## 8.2 Main screen

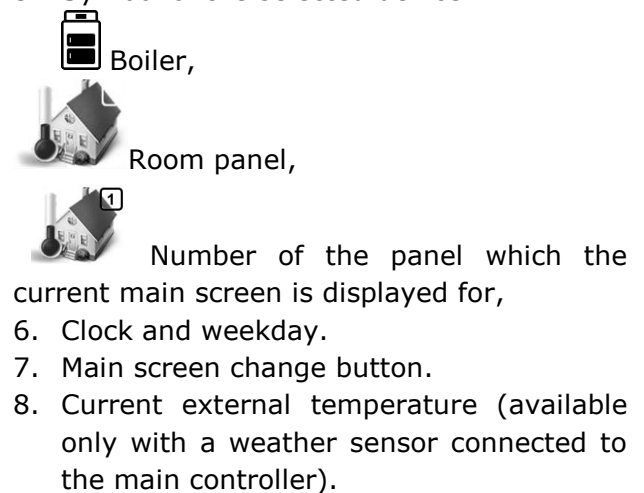


Legend:

1. Name of the wireless room panel defined by the user.
2. Current measured temperature inside the room.
3. Wireless room panel operation mode:



4. Active heating signaling.
5. Symbol of the selected device:





9. Current level of fuel inside the feeder.
10. Current preset temperature inside the room.
11. Number of available main screens with the indication of which is currently displayed.
12. Current preset day or night temperature indicator.
13. Access to main Menu.

### 8.3 Operation modes


The settings of the wireless room panel operating modes are available in the menu:

**Menu → Operation modes**

#### 8.3.1 Schedule

Preset room temperature is determined in accordance with a time schedule. *Night preset temperature*  (economic) or *Day preset temperature*  (comfort) is set in the following menu:


**Temperature settings → Night temperature or Day temperature**

The  symbol is displayed on the panel screen.

#### 8.3.2 Economy

The main controller works with a constant *Economic preset temperature*, set in the following menu:


**Temperature settings → Night temperature**

The  symbol is displayed on the panel screen.

#### 8.3.3 Comfort

The main controller works with a constant *Comfort preset temperature*:


**Temperature settings → Day temperature**

The  symbol is displayed on the panel screen.


#### 8.3.4 Out of home

Existing temperature setting can be exchanged for a preprogrammed period of 1÷60 h with economic temperature set in the following menu:


**Temperature settings → Night temperature**

After this mode is activated, its duration has to be set within a range of 1÷60 h, in 1 h increments. After this period, the controller switches to the mode in which it has been operating before the *Out of home* mode was set. The  symbol is displayed on the panel screen.


#### 8.3.5 Airing

Selection of this mode will result in closing the mixing valves and switching the circulating pumps off in the controller for a preprogrammed period of 1÷60 min. After this mode is activated, its duration has to be set within a range of 1÷60 h, in 1 h increments. After this period, the controller switches to the mode in which it has been operating before the *Airing* mode was set. The  symbol is displayed on the panel screen.

#### 8.3.6 Party

Existing temperature setting can be changed to any temperature setting for a preprogrammed period of 1÷48 h. After this mode is activated, a required temperature and its duration has to be set within a range of 1÷60 h, in 1 h increments. After this period, the controller switches to the mode in which it has been operating before this mode was set. The  symbol is displayed on the panel screen.

#### 8.3.7 Holidays

Existing temperature setting can be changed by entering one constant temperature, which will be valid for a preprogrammed period of 1÷60 h. This function is useful in case of a holiday trip. After this mode is activated, a required temperature and its duration has to be set within a range of 1÷60 days, in 1 day increments. After this period, the controller switches to the mode in which it has been operating before this mode was set. Activation of this mode will additionally result in setting a preset temperature of hot utility water on the controller to 8°C. The  symbol is displayed on the panel screen.

### 8.3.8 Antifreeze

The main controller works with a constant preset temperature set in the following menu:

#### Temperature settings → Antifreeze temperature

Activation of this mode will additionally result in setting a preset temperature of hot utility water on the controller to 8°C. The ❄️ symbol is displayed on the panel screen.

### 8.3.9 Loading HUW

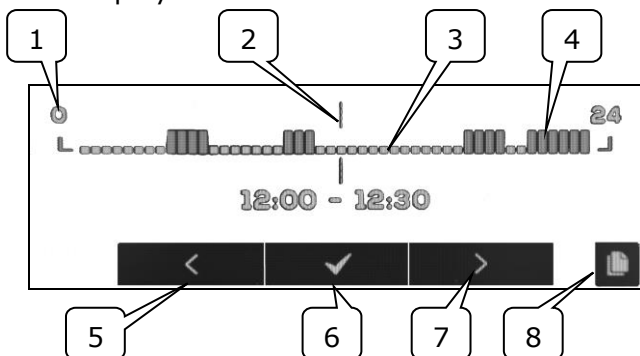
This mode enables loading the HUW container once. After this mode is activated, its duration has to be set within a range of 1÷60 h, in 1 h increments. During the period in which this mode is active, night temperature decreases set in schedules for the HUW container and circulation pump are inactive.

### 8.4 Schedule

Menu enables programming time schedules for room panels, HUW container and operation of the circulating pump. It is possible to set time schedules for every weekday separately with an accuracy of 0.5 h (48 changes of temperature during one day). The main controller enables setting two temperature levels: day (comfort) and night (economic). Schedules can be edited in the:

#### Menu → Schedule

- Select a weekday for which the schedule will be set / modified.
- Schedule edition window will be displayed.



1-time period line, 2-currently edited time period, 3 - night temp., 4 - day temp, 5,7-time period selection, 6-temp. selection., 8-entering schedules copying menu.

In order to set the required time period:

- set the indicator "2" to a starting hour of time zone with the use of < , > buttons,

- set the comfort (day) or economic (night) temperature with the use of ✓ button,
- set the indicator "2" to an ending hour of time zone with the use of < , > buttons,
- press ✓ button in order to finish editing the zone,
- the aforementioned actions can be repeated for other time period, if required,
- press 📄 button in order to display window for copying the set schedule to any weekday.

### 8.5 Temperature settings

Enables changing *preset temperatures* inside the compartment:

- *Day temperature (comfort),*
- *Night temperature (economic),*
- *Antifreeze temperature.*

### 8.6 Boiler

Enables remote access to boiler controller menu which the wireless room panel is connected to. It is possible to preview and edit all parameters and alarms available in the main controller.

### 8.7 HUW

Enables setting a preset temperature and operation mode of the HUW container.

### 8.8 Summer/Winter

Enables changing the "Summer/Winter" work mode in the boiler controller.

### 8.9 Boiler On/Off

Enables remote activation or deactivation of the boiler controller from the wireless room panel.

Menu positions: *Boiler, HUW, Summer/Winter* and *Boiler On/Off* are optional and available only in case of connecting the wireless room panel to the main controller with compatible software.

### 8.10 Notifications concerning controller alarms

Wireless room panel displays the alarms transmitted by the main controller and reports them using a sound signal. Touch the screen in order to turn off the active alarm.

The alarm will not be deleted. For safety reasons, this can be done only via the main controller.

## 8.11 Settings

Settings are available in the:

**Menu → Settings**

### 8.11.1 Hysteresis

This parameter defines hysteresis of room temperature. The main controller will start heating when the room temperature drops under the current preset temperature minus hysteresis. It will finish heating when the current preset room temperature is reached.

### 8.11.2 Temperature correction

Enables entering a correction of measured temperature by the wireless room panel within a range of  $-4.0^{\circ}\text{C}$  to  $+4.0^{\circ}\text{C}$ .


### 8.11.3 Screen brightness

Enables setting screen backlight brightness in [%] separately for a day (6:00-22:00), night (22:00-6:00) and the current edition of settings.

### 8.11.4 Changing the language

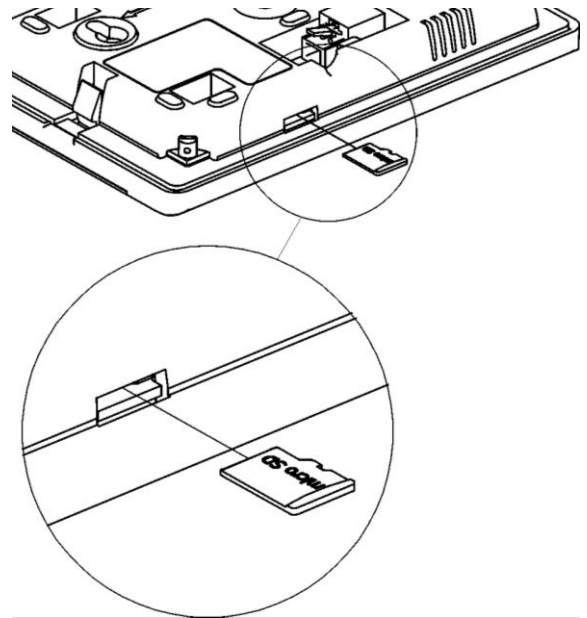
Enables changing the language of the wireless room panel.

### 8.11.5 Parental lock

This function activates itself after few minutes of inactivity.  symbol is then displayed on the screen next to the clock. Touch and hold the screen for a few seconds in order to unlock the room panel.

### 8.11.6 Software update

Enables updating the software with the use of a microSDHC memory card (inserted into a slot in the panel enclosure) in all connected devices: controller, additional modules, control panels and room panels.



### 8.11.7 Service settings



You must enter service password in order to enter the settings.

- *Hotel mode* – disables editing other room panels and access to this device menu. User can execute only basic settings.
- *Visibility in other panels* – enabling options of preview and edition of this device from other room panels.
- *Restore default settings* – returning to default settings.
- *Touch panel calibration* – enables calibrating the touch screen.

### 8.11.8 Sound

Activation and deactivation of sound in alarms and notifications sent by the main controller.

### 8.11.9 Clock

Setting the current time. Wireless room panel has a function of time synchronization with other room panels and main controller.



Time synchronization will take place when time difference between room panels/main controller exceeds 10 sec.

Time change from the level of one wireless room panel will result in a time change in remaining panels and main controller itself. The wireless room panel connected to a power source receives time setting from the boiler controller.





Programmed schedule operates on the basis of internal memory of the wireless room panel and is not deleted in absence of power supply.

### 8.11.10 Date

Setting the current date. After the date is set, day of the week will be set automatically. Synchronization function is also applied here and it works similarly as in case of changing time settings.

### 8.11.11 Panel

Enables assigning an individual address and name to the wireless room panel.

- *Panel address* – user can select addresses 1, 2 or 3. This parameter enables changing address of the wireless room panel. If several room panels are connected to one main controller.



In order for the system to operate correctly, particular room panels must be assigned different addresses.

- *Name* – user can enter their own name of the wireless room panel, e.g. attic, living room, etc. It facilitates determining location of the room panel inside the building and changing preset temperature in a distant room. This name will be additionally visible on screens of other room panels.

Selected panel *Address* (at 2 or 3 connected panels) is displayed on the main screen as



(further digits 2, 3). *Name* is displayed (also for other panels) in the upper bar of the screen (on the left).

### 8.11.12 Radio module

Allows to perform the pairing of the wireless room panel with the radio module. After connecting the radio module to the main controller, set the *Pairing mode* parameter to *Yes*, which will start the wireless room panel's pairing function with the radio module for 4 minutes. The correct pairing will be confirmed by a message on the screen of the wireless room panel.

### 8.11.13 Information

The Information menu displays the strength of the radio signal and information about the

software version of the wireless room panels, the main controller and additional modules.



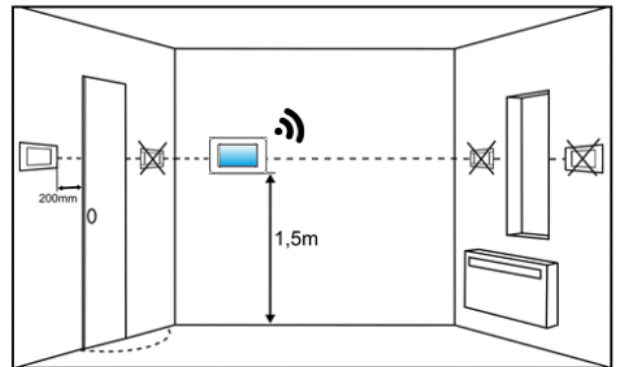
It is recommended to use the same software version for all connected wireless room panels.

## 9. Installation of the wireless room panel

In order to ensure maximum effective operation, please observe the following recommendations regarding the place of installation of the wireless room panel.

Recommendations:

- Wireless room panel is intended for wall installation inside rooms,
- avoid highly insulated areas with poor air circulation, near heating devices and in direct vicinity of doors and windows – temperature measurement is disturbed by external conditions,
- assemble the wireless room panel at a height of approx. 1.5 m above the floor.

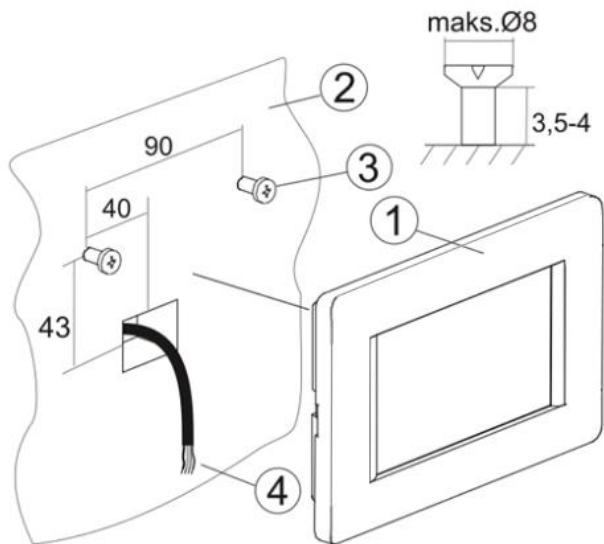


The wireless room panel should be installed in accordance with the following guidelines:

- drill holes in the wall (apply wall plugs in case of masonry wall) and screw the screws in. Distance between holes is given on the housing back side of the wireless room panel (90 x 43 mm),
- execute electrical connection (only power supply) between the wireless room panel and the main controller or additional power supply serving as its power source with the use of electrical wire. Wire can be flush or wall mounted.



Do not lead the connection wire along with wires of electrical network in the building. Wire cannot be located near devices emitting strong electromagnetic field.



## 10. Connection to the main controller

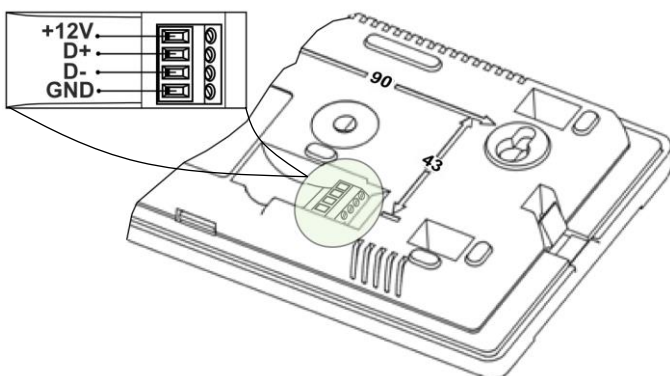
Recommended supply voltage of the wireless room panel is the 12 VDC.

Wireless room panel can be supplied with 5÷12 VDC. However, it is not recommended due to voltage losses in long connection wires.

The 4-wire cable with a max. length of 30 m and cross-section of min. 0.5 mm<sup>2</sup> is required to connect to the main controller terminals.

When the wireless room panel is wired with the main controller, the radio transmission is switched off.

Terminal signal outputs in the rear side of the wireless room panel:



Be careful to connect the poles correctly. Incorrect connection may cause damage to devices.

In wireless cooperation a room panel with a main controller, connect the radio module to the main controller, according to point. 11.

The wireless room panel requires an external power supply connection.

To do this, use the 12 VDC mains adapter, min. 0.5 A, which must be connected to the room panel connector with correct polarity. The room panel can be powered directly from the main controller socket, using a 2-wire cable, which should be connected in accordance with point. 12, omitting the connection of the D + and D- signals.



To connect the room panel power supply, you can use a 2-wire cable available in houses, provided for thermostats and run between the boiler room and the living room, to which we connect the power supply unit and the wireless room panel.

## 11. Radio module

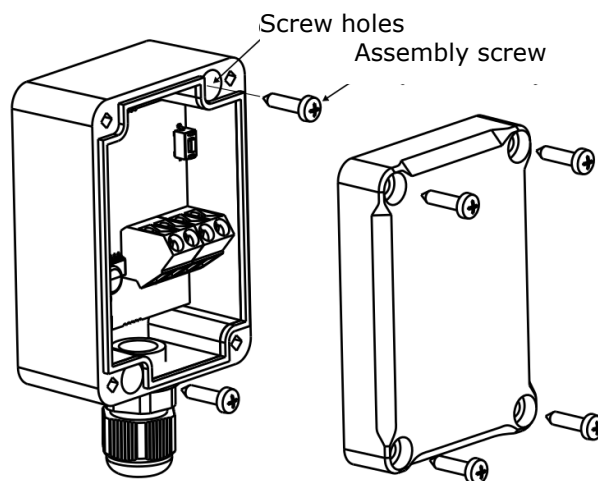
### 11.1 Installation and connection of the radio module to the main controller

The radio module should be mounted on a wall near the installation location of the main controller. 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, a metal boiler casing, etc., will dampen the radio signal and thus interfere with the operation of this 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.



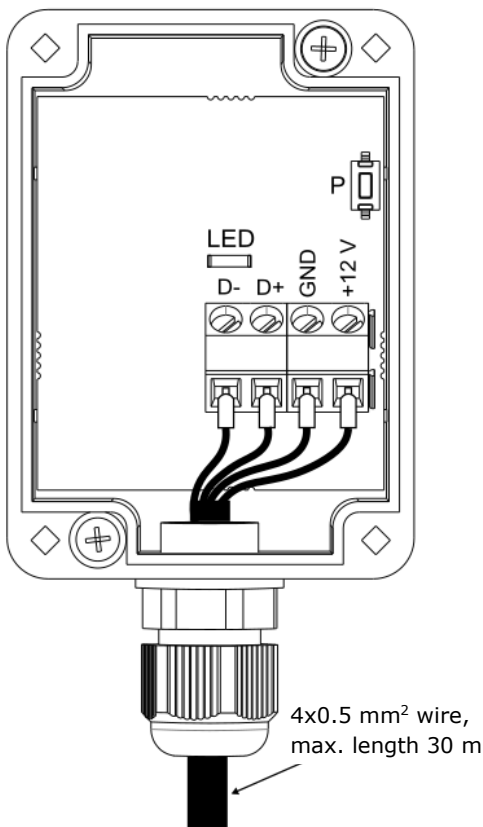
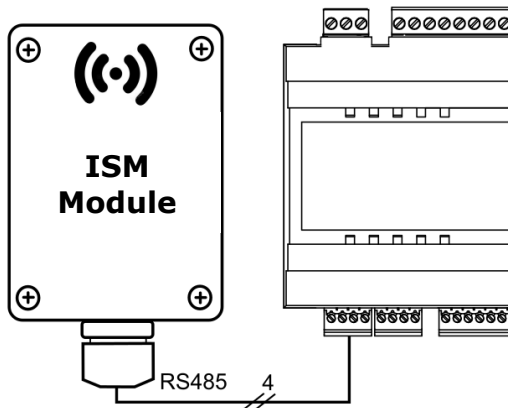
Terminals D +, D-, GND, 12 VDC of the radio module should be connected to the RS485 transmission socket of the main controller.



When connecting the transmission and power supply attention should be paid to the proper polarity of connection of D +, D- and GND, 12 VDC between the radio module and the main controller. Improper connection may lead to damage to the main controller or errors in its operation.



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



### 11.2 Pairing the radio module with the wireless room panel



The radio module connected electrically to the main controller

requires pairing with a wireless room panel.

#### Pairing from the main controller menu:



The pairing method is only available when the main controller program is fully compatible with the radio module.

Enter the main controller menu:

**MENU** → **General settings** → **Radio module** → **Pairing mode** → **Device pairing mode** and set the *Start pairing?* to *Yes*, then the pairing mode will be activated for 4 minutes, during this time the room panel with the radio module should be paired, in accordance with point 8.11.12.

During the active pairing mode, you can pair, in the same way, subsequent wireless room panels.

After correctly pairing the room panels with the radio module, end the pairing mode in the main controller menu or you can wait for the active pairing time to expire.

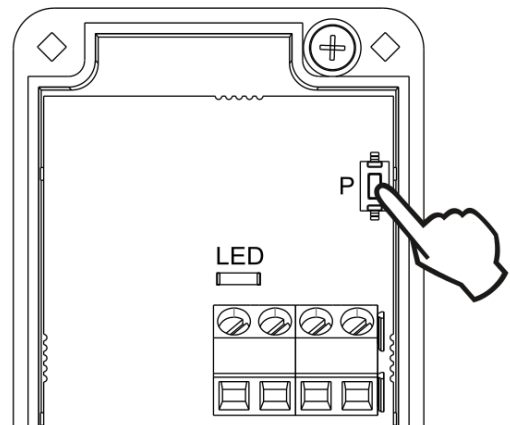
After establishing the radio connection with the room panel in the main controller **Information** menu, the panels will be shown as eSTER\_x80, with the version of the software displayed.



Connecting the radio module to the master controller again does not require pairing if the room panels have previously been paired.


#### Pairing directly from the radio module:

With limited compatibility of the main controller program with 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 wireless room panel should be paired at this time, analogously as described during pairing from the main controller menu level. After correct pairing of the panel, 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 room panel in the main controller **Information** menu, the wireless room panel will be visible as ecoSTER TOUCH, with the given version of the software.


 The pairing method with the **P** button can also be used when the radio module program is fully compatible with the main controller.

### 11.3 Resetting the memory of the radio module pairing


The radio module stores data about paired wireless room panels in its memory, so after replacing any wireless room panel it is necessary to reset the memory of the radio module by setting the parameter in the main controller menu:

**MENU** → **General settings** → **Radio module** → **Pairing mode** → **Deleting paired devices** = Yes.

Memory reset can also be performed 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 wireless room panels.


### 11.4 Cooperation of the radio module with several wireless room panels

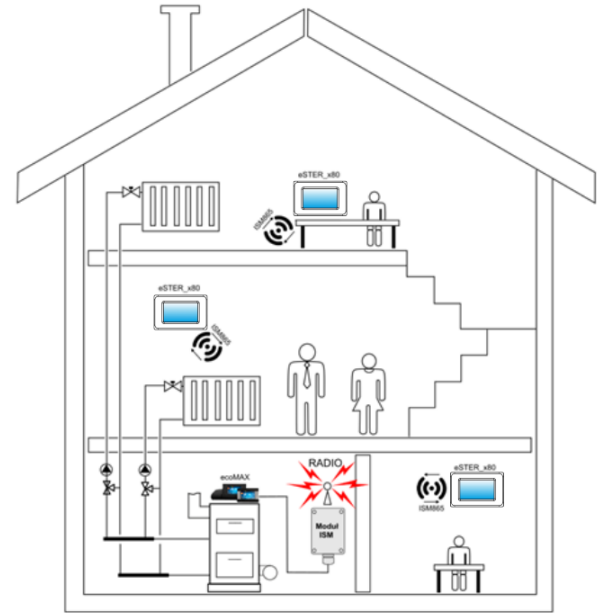
 The cooperation of the main controller with more than one wireless room panels is possible only when the radio module program is fully compatible with the main controller.


To check if the main controller program is fully compatible with the radio module, select the tab in the main controller menu:

**MENU** → **Information** → **Programs versions** and if ISM information is visible, with the displayed version of the program, the radio module will work with up to three wireless room panels, if there is no information, the radio module can work with


only one wireless room panel. In order to check if it is possible to get full cooperation with subsequent room panels, contact the manufacturer of the main controller, who will determine if it will be possible to update the software of the main controller so that this cooperation will be ensured.

 The radio module can operate with up to three wireless room panels.



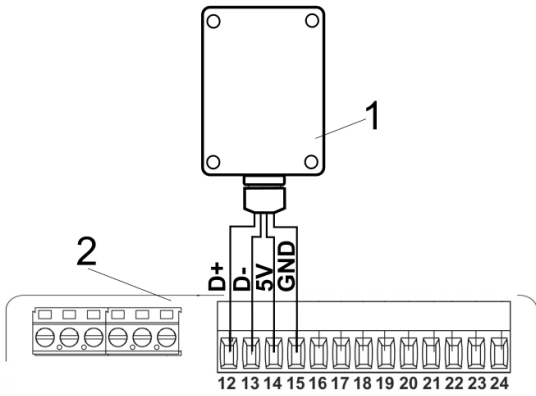
 Correctly paired wireless room panels with a radio module require setting an individual address for each of the room panels, in accordance with point 8.11.11

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 wireless room panel affect the level of the received radio signal - RSSI, therefore when choosing a place to install the wireless room panel, take into account the obtained signal level in the selected location. The value of the radio signal strength can be read in the: **MENU** → **Settings** → **Information**

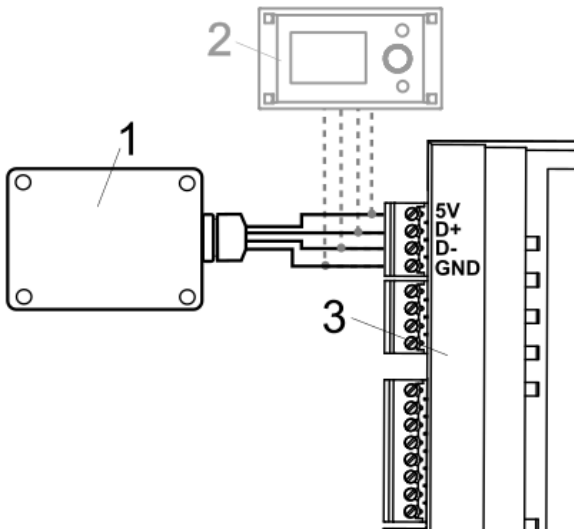
 If the radio connection to the wireless room panel is lost, the main controller will go into operating mode without a room panel after a few minutes.

### 11.5 Connecting the radio module to selected main controllers

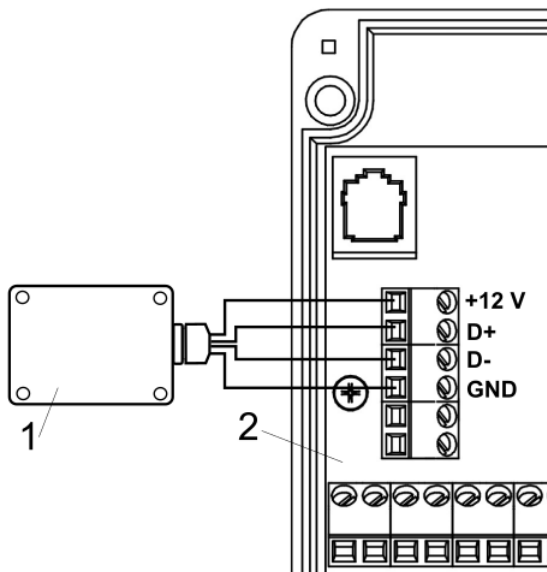
The electrical schemes of the radio module's electrical connections to the main controller's terminals are shown below.



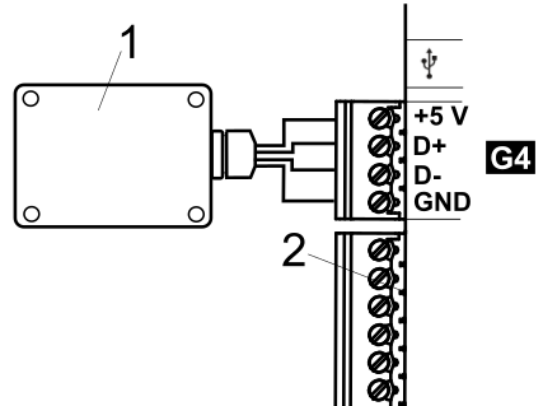
Connection of the module to the **ecoMAX350P1, P2, R1, R2**: 1 - radio module, 2 - main controller.



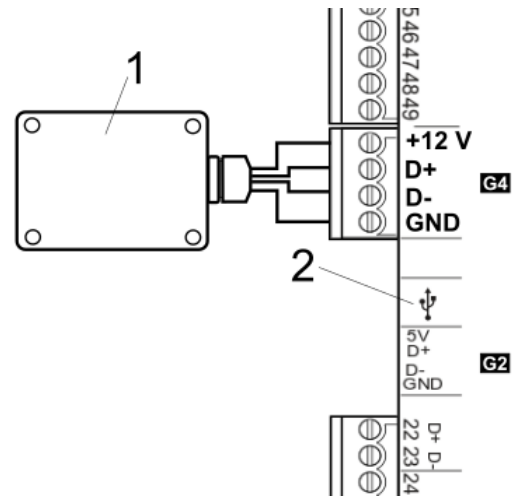
Connection of the module to the **ecoMAX800P3, D3** and **ecoMAXX800R3, T3**: 1 - radio module, 2 - control panel, 3 - main controller.



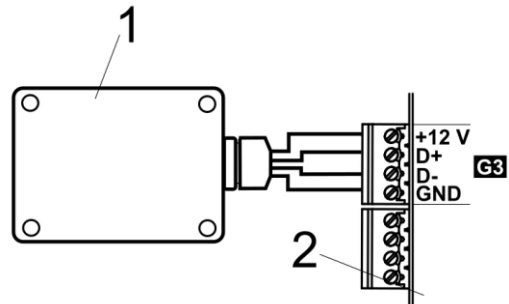
Connection of the module to the **ecoMAX850P2, R2, D2**: 1 - radio module, 2 - main controller.



Connection of the module to the **ecoMAX860P1, P2, D1, D2**: 1 - radio module, 2 - main controller.



Connection of the module to the **ecoMAX860P3, D3**: 1 - radio module, 2 - main controller.



Connection of the module to the **ecoMAX910R1, ecoMAX920P1**: 1 - radio module, 2 - main controller.

### 12. Connecting the room panel to the terminals of the main controller

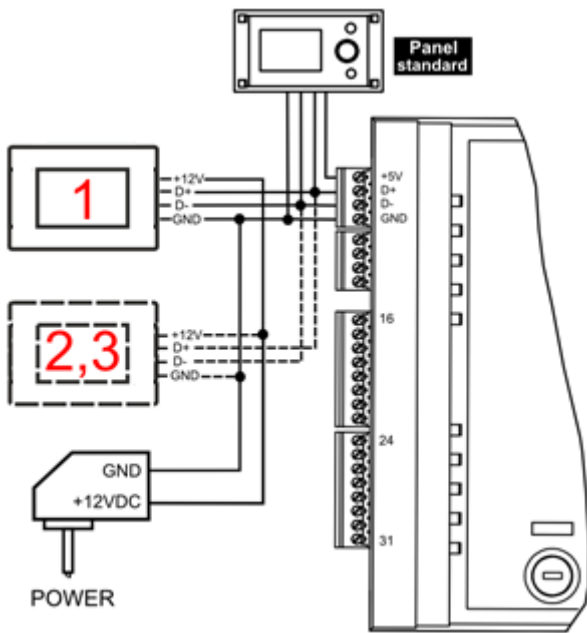


When wired RS485 transmission signals between the wireless room panel and the main controller, the room panel does not use radio transmission.

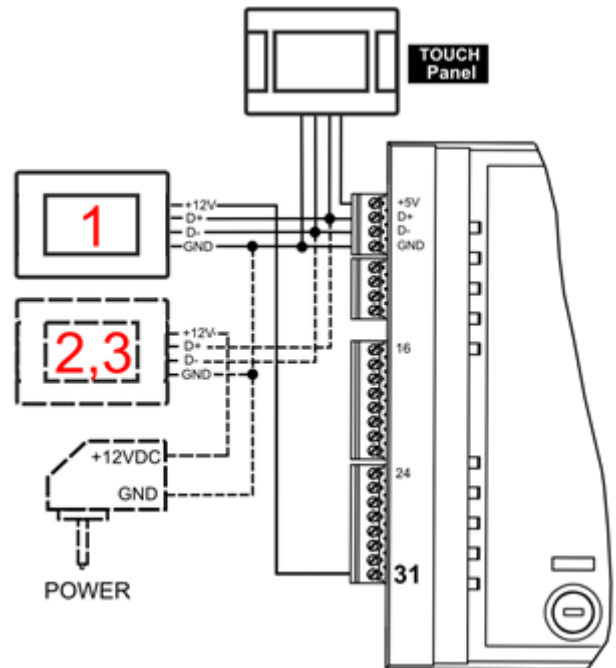
Below are the schemes of connecting the electric wireless room panel directly to the terminals of the main controller, without radio transmission.

**Connection with ecoMAX800P1, P2, D1, D2 and ecoMAXX800R2, T2:**

All 1,2,3 room panels require application of an additional power adapter 12 VDC / min. 0.5 A.



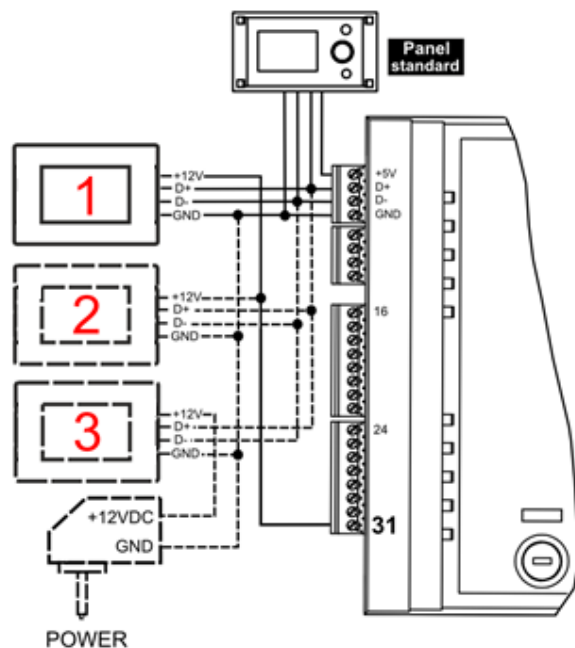
panel), only one room panel can be supplied directly from the controller module (terminal 31). Panels 2 and 3 have to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



**Connection with ecoMAX800 P3, D3 and ecoMAXX800 R3, T3:**

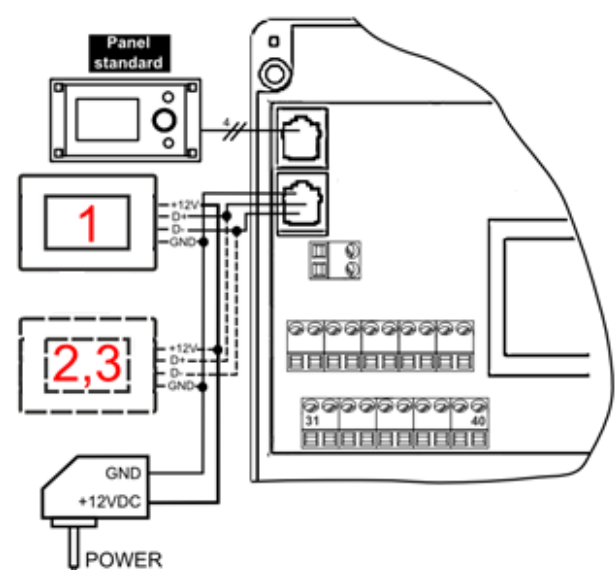
Controller module can supply up to 2 colored TOUCH type panels simultaneously.

If the main controller is equipped with a standard control panel (version with a knob), two room panels can be supplied directly from the controller module (terminal 31). Third panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



**Connection with ecoMAX850P1, R1, D1:**

All 1,2,3 room panels require application of an additional power adapter 12 VDC / min. 0.5 A.

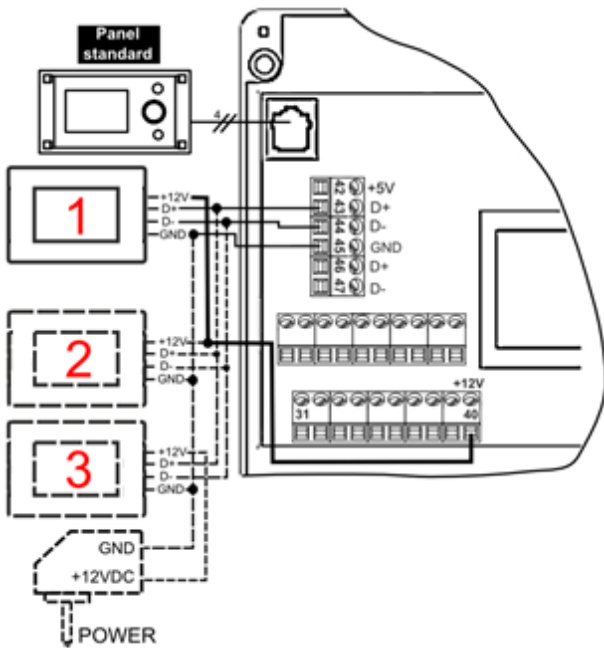


If the main controller is equipped with TOUCH control panel (colored with a touch

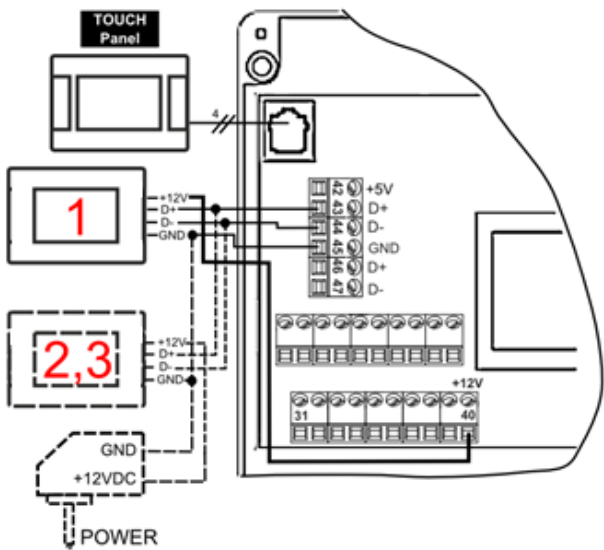
**Connection with ecoMAX850P2, R2, D2:**

Controller module can supply up to 2 colored TOUCH type panels simultaneously.

If the main controller is equipped with a standard control panel (version with a knob), two room panels can be supplied directly from the controller module (terminal 40). Third panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



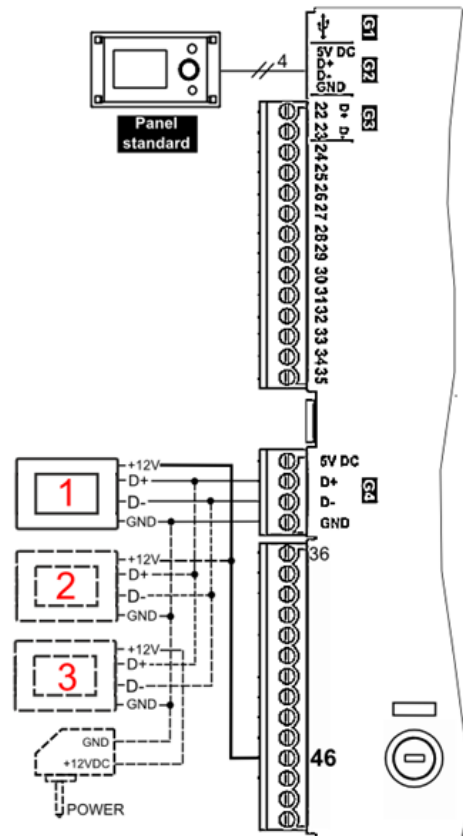
If the main controller is equipped with TOUCH control panel (colored with a touch panel), only one room panel can be supplied directly from the controller module (terminal 40). Panels 2 and 3 have to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



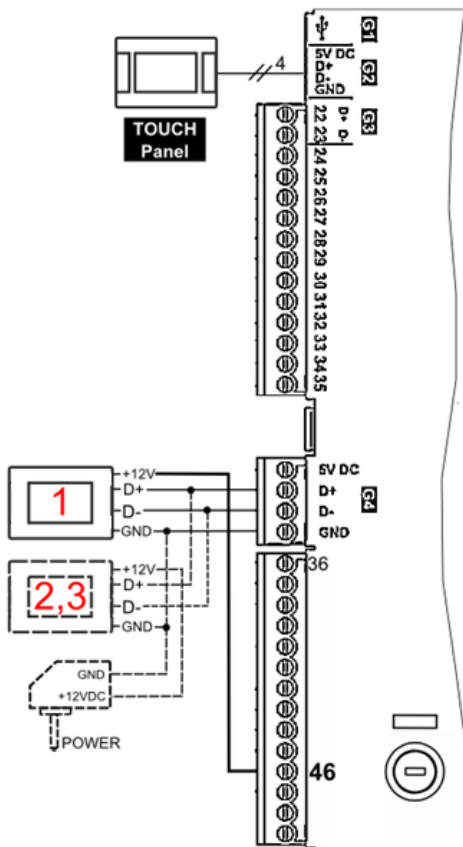
**Connection with ecoMAX860P1, D1:**

☞ Controller module can supply up to 2 colored TOUCH type panels simultaneously.

If the main controller is equipped with a standard control panel (version with a knob), two room panels can be supplied directly from the controller module (terminal 46). Third panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



If the main controller is equipped with TOUCH control panel (colored with a touch panel), only one room panel can be supplied directly from the controller module (terminal 46). Panels 2 and 3 have to be supplied by the additional power adapter 12 VDC / min. 0.5 A.

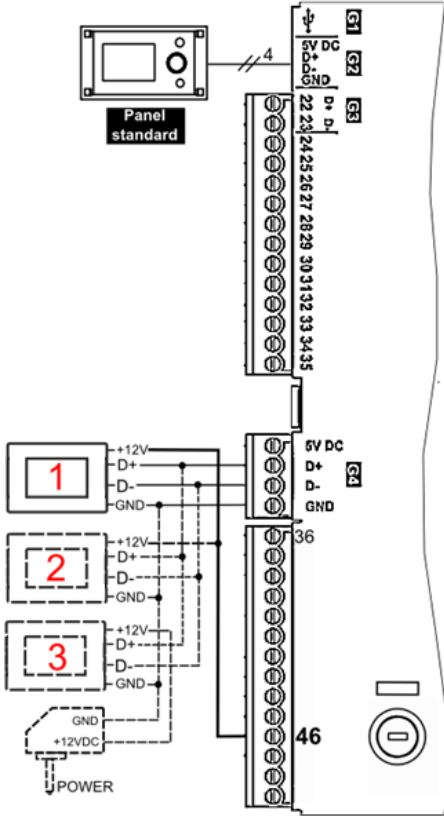


**Connection with ecoMAX860P2, D2:**

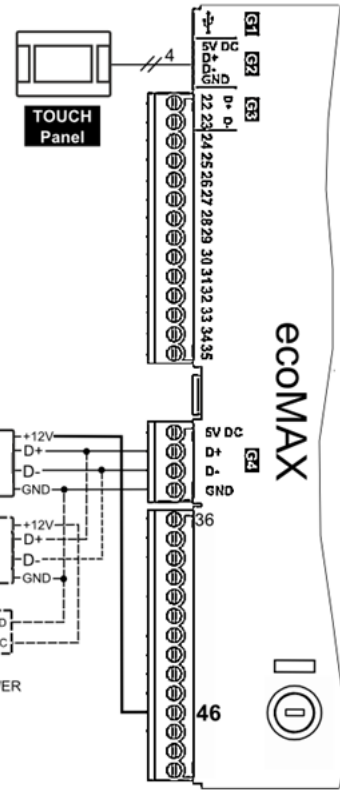


Controller module can supply up to 2 colored TOUCH type panels simultaneously.

If the main controller is equipped with a standard control panel (version with a knob), two room panels can be supplied directly from the controller module (socket G4). Third panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



If the main controller is equipped with TOUCH control panel (colored with a touch panel), only one room panel can be supplied directly from the controller module (socket G4). Panels 2 and 3 have to be supplied by the additional power adapter 12 VDC / min. 0.5 A.

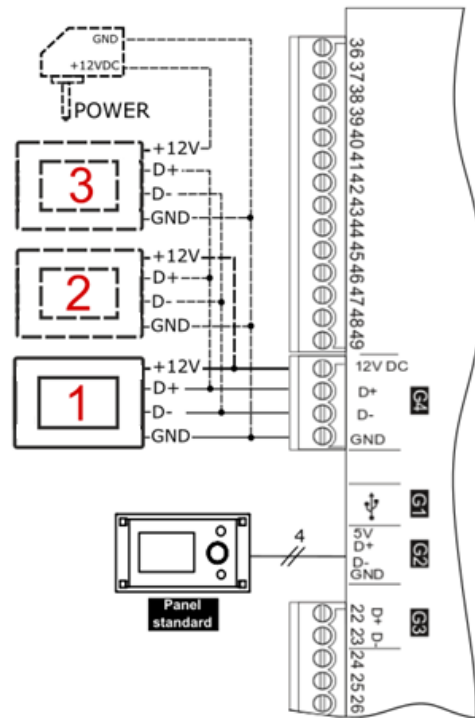


**Connection with ecoMAX860P3, D3:**



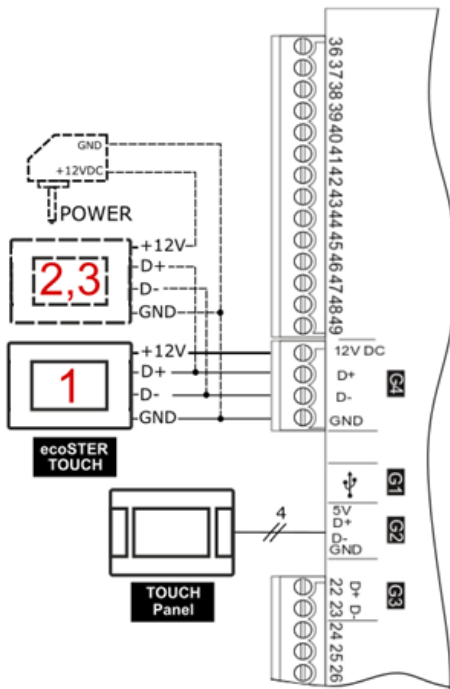
Controller module can supply up to 2 colored TOUCH type panels simultaneously.

If the main controller is equipped with a standard control panel (version with a knob), two room panels can be supplied directly from the controller module (socket G4). Third panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



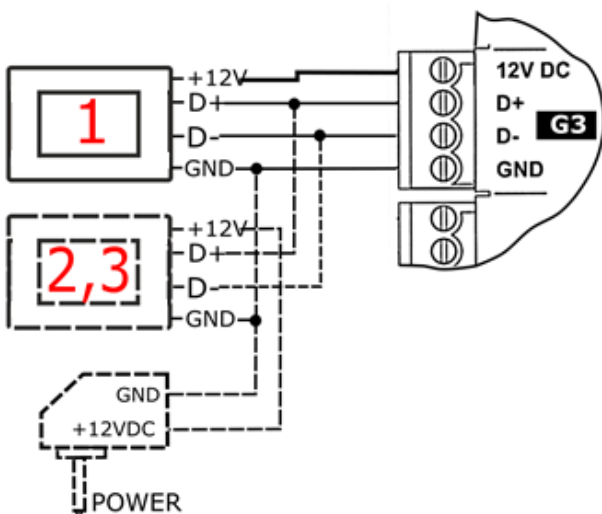


If the main controller is equipped with TOUCH control panel (colored with a touch panel), only one room panel can be supplied directly from the controller module (socket G4). Panels 2 and 3 have to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



**Connection with ecoMAX910R1, ecoMAX920P1:**

If the main controller is equipped with a standard control panel (version with a knob) or TOUCH control panel (colored with a touch panel), only one room panels can be supplied directly from the controller module (socket G3). Two panel has to be supplied by the additional power adapter 12 VDC / min. 0.5 A.



### 13. Technical data

Wireless room panel power supply	5..12V DC – from the external power supply or socket of the main controller
Radio module power supply	5...12 VDC - directly from the main controller socket
Current collected by the wireless room panel (at 12 VDC power supply)	0,15 A
Degree of protection for the wireless room panel; radio module	IP 20; IP 40
Relative humidity	5...85% without steam condensation
Working temperature of the wireless room panel and radio module	5..35°C
Storage temperature of the wireless room panel and radio module	-10..60°C
Communication	Bi-directional ISM radio communication
The band of radio transmission	ISM 868 MHz, (the band 865...868 MHz)
Transmission power of the wireless room panel and radio module	20 mW (+13 dBm)
Radio network topology	One radio module and many subordinate room panels
Display	Graphic 480 x 272 pix., with touch screen
Dimensions	Room panel: 148 mm x 97 mm x 23 mm Radio module: 70 mm x 50 mm x 7,7 mm
Weight wireless room panel; radio module	0,2 kg; 0,16 kg
Standards	PN-EN 60730-2-9 PN-EN 60730-1
Software class	A
The module and wireless room panels installation method	On the wall

Composition of the set: eSTER\_x80 wireless room panel and ISM\_xSMART radio module.

### 14.Storage and transport conditions

The wireless room panel 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.

### Revision history:





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