

TECH CONTROLLERS

USER MANUAL EU-M-8N

EN

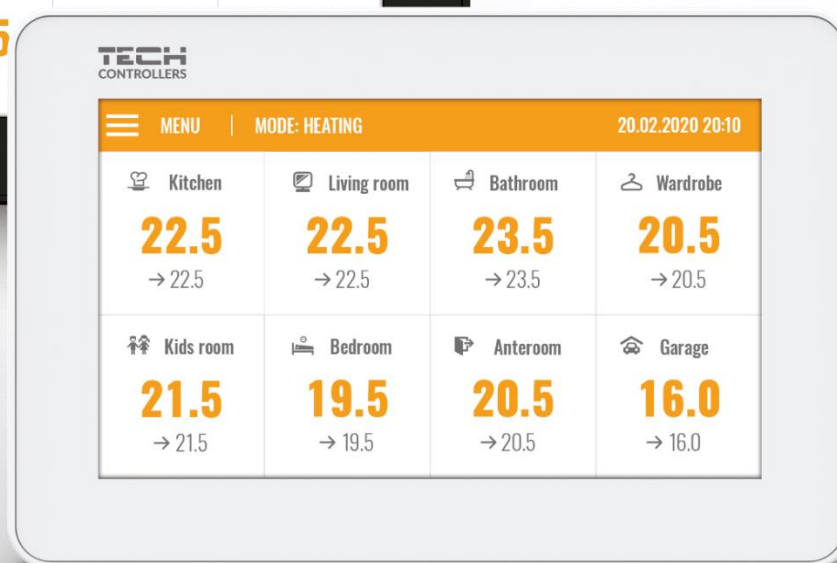
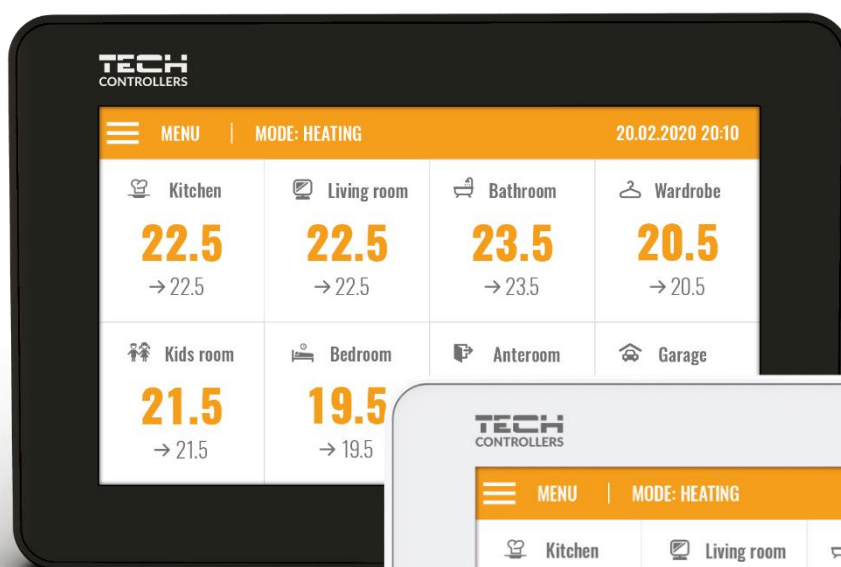


TABLE OF CONTENTS

I.	Safety	4
II.	Device description	5
III.	How to install the controller	6
IV.	Main screen description	8
V.	Controller functions.....	9
1.	Block diagram - controller menu	9
2.	Zones	10
3.	External sensor	10
3.1.	Calibration	10
3.2.	Information	10
4.	Temperature sensor	10
5.	Registration	10
6.	Time settings	10
7.	Screen settings	10
7.1.	Screensaver.....	10
7.2.	Screen brightness	11
7.3.	Screen blanking.....	11
7.4.	Screen blanking time	11
8.	Alarm clock settings.....	11
9.	Protections	11
10.	Language selection.....	11
11.	Software version	11
VI.	Zones.....	12
1.	Block diagram - zones menu.....	13
2.	ON.....	13
3.	Schedule settings.....	13
3.1.	Local schedule.....	13
3.2.	Global schedule 1-5	14
4.	Actuators	15
4.1.	Information	15
4.2.	Settings	15
5.	Window sensors	16
5.1.	Delay time	16
5.2.	Information	16
6.	Floor heating	16
6.1.	Operation mode	16



6.2.	Minimum temperature	16
6.3.	Maximum temperature	16
7.	Temperature settings	16
8.	Hysteresis	16
9.	Calibration	16
10.	Zone name	17
11.	Zone icon.....	17
VII.	Protections and alarms.....	17
VIII.	Software update	17
IX.	Technical data	17

JG. 2021.02.22



I. SAFETY

Before using the device for the first time the user should read the following regulations carefully. Not obeying the rules included in this manual may lead to personal injuries or controller damage. The user manual should be stored in a safe place for further reference. In order to avoid accidents and errors, it should be ensured that every person using the device has familiarized themselves with the principle of operation as well as security functions of the controller. If the device is to be put in a different place, make sure that the user manual is stored with the device so that any potential user has access to essential information about the device. The manufacturer does not accept responsibility for any injuries or damage resulting from negligence; therefore, users are obliged to take the necessary safety measures listed in this manual to protect their lives and property.



WARNING

- **A live electrical device!** Make sure the regulator is disconnected from the mains before performing any activities involving the power supply (plugging cables, installing the device etc.)
- The device should be installed by a qualified electrician.
- Before starting the controller, the user should measure earthing resistance of the electric motors as well as the insulation resistance of the cables.
- The regulator should not be operated by children.



WARNING

- The device may be damaged if struck by a lightning. Make sure the plug is disconnected from the power supply during storm.
- Any use other than specified by the manufacturer is forbidden.
- Before and during the heating season, the controller should be checked for condition of its cables. The user should also check if the controller is properly mounted and clean it if dusty or dirty.

Changes in the merchandise described in the manual may have been introduced subsequent to its completion on 22.02.2021. The manufacturer retains the right to introduce changes to the structure or colours. The illustrations may include additional equipment. Print technology may result in differences in the colours shown.

We are committed to protecting the environment. Manufacturing electronic devices imposes an obligation of providing for environmentally safe disposal of used electronic components and devices. Hence, we have been entered into a register kept by the Inspection for Environmental Protection. The crossed-out bin symbol on a product means that the product may not be disposed of to household waste containers. Recycling of waste helps to protect the environment. The user is obliged to transfer their used equipment to a collection point where all electric and electronic components will be recycled.



II. DEVICE DESCRIPTION

The EU-M-8n room regulator is intended to be used with EU-L-8e external controller. It is designed to control subordinate room regulators, sensors and thermostatic actuators. It sends current temperature readings from a given zone. Based on the data, the external controller manages the thermostatic valves (opening them when the temperature is too low and closing them when the pre-set temperature has been reached).

The EU-M-8n room regulator may be used to adjust the settings in other zones - pre-set temperature or floor heating.



NOTE

Only one EU-M-8n regulator may be installed in the heating system.

Functions offered by the controller:

- Wireless communication with the EU-L-8e controller, sensors (EU-C-8r, EU-C-mini, EU-CL-mini, EU-C-8f, EU-C-8zr, EU-C-2n), room regulators (EU-R-8b, EU-R-8bw, EU-R-8b Plus, EU-R-8z) and the STT-869 thermostatic actuators
- Room temperature control
- Displaying settings such as temperature, date and time
- Parental lock
- Alarm clock
- Screensaver - possibility of uploading photos (slide show)
- Software update via USB
- Managing the settings of other zones - pre-set temperatures, schedules, names etc.
- Possibility of introducing changes in global schedules

Controller equipment:

- Glass-made panel
- Wireless communication
- Large colour touch screen
- Built-in temperature sensor
- Flush-mountable



NOTE

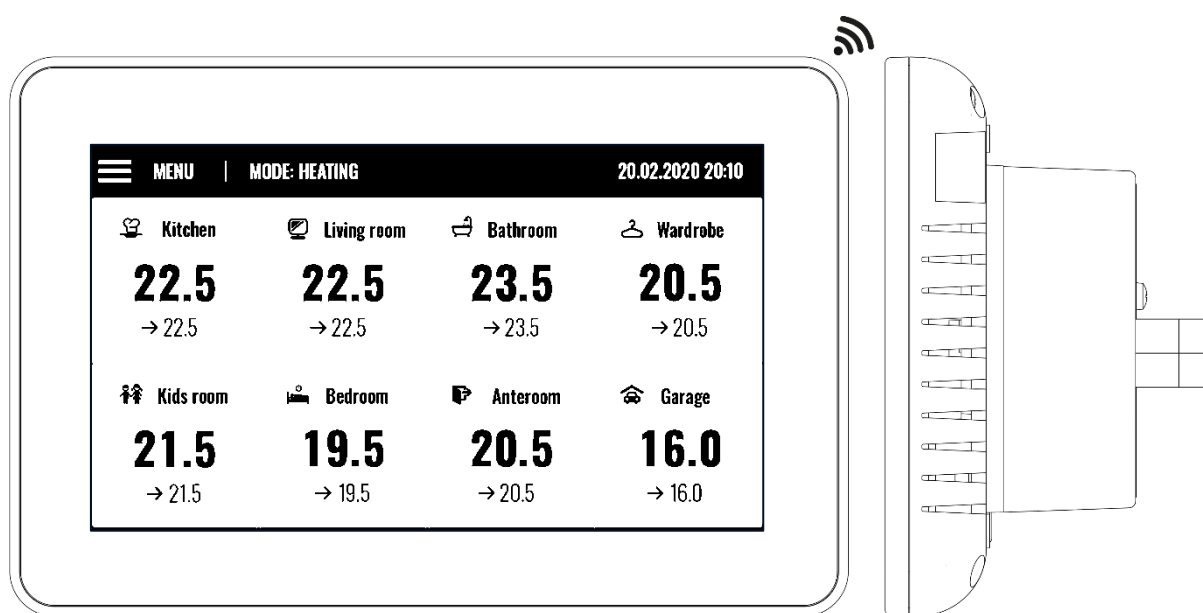
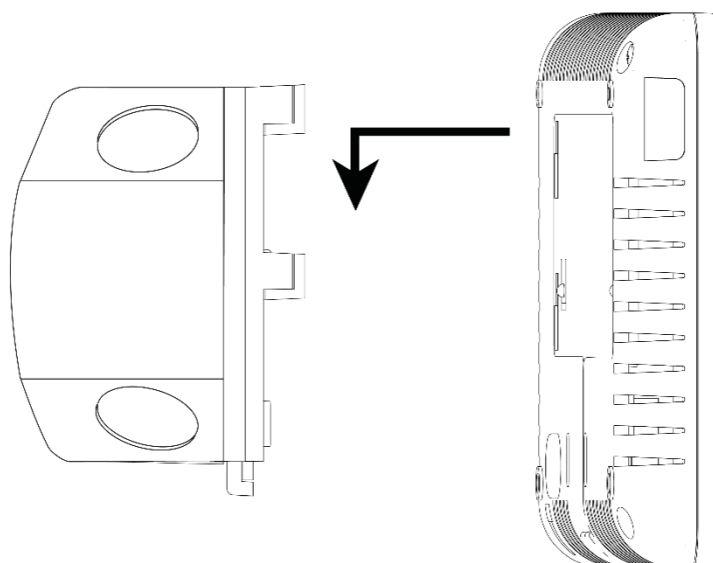
The regulator does not measure temperature. It forwards temperature readings from room regulators and sensors to the external controllers in which they have been registered.

THERE ARE 2 COLOR VERSIONS: WHITE OR BLACK.



III. HOW TO INSTALL THE CONTROLLER

The controller is flush-mountable in an electrical box.



WARNING

Risk of fatal electric shock from touching live connections. Before working on the controller switch off the power supply and prevent it from being accidentally switched on.

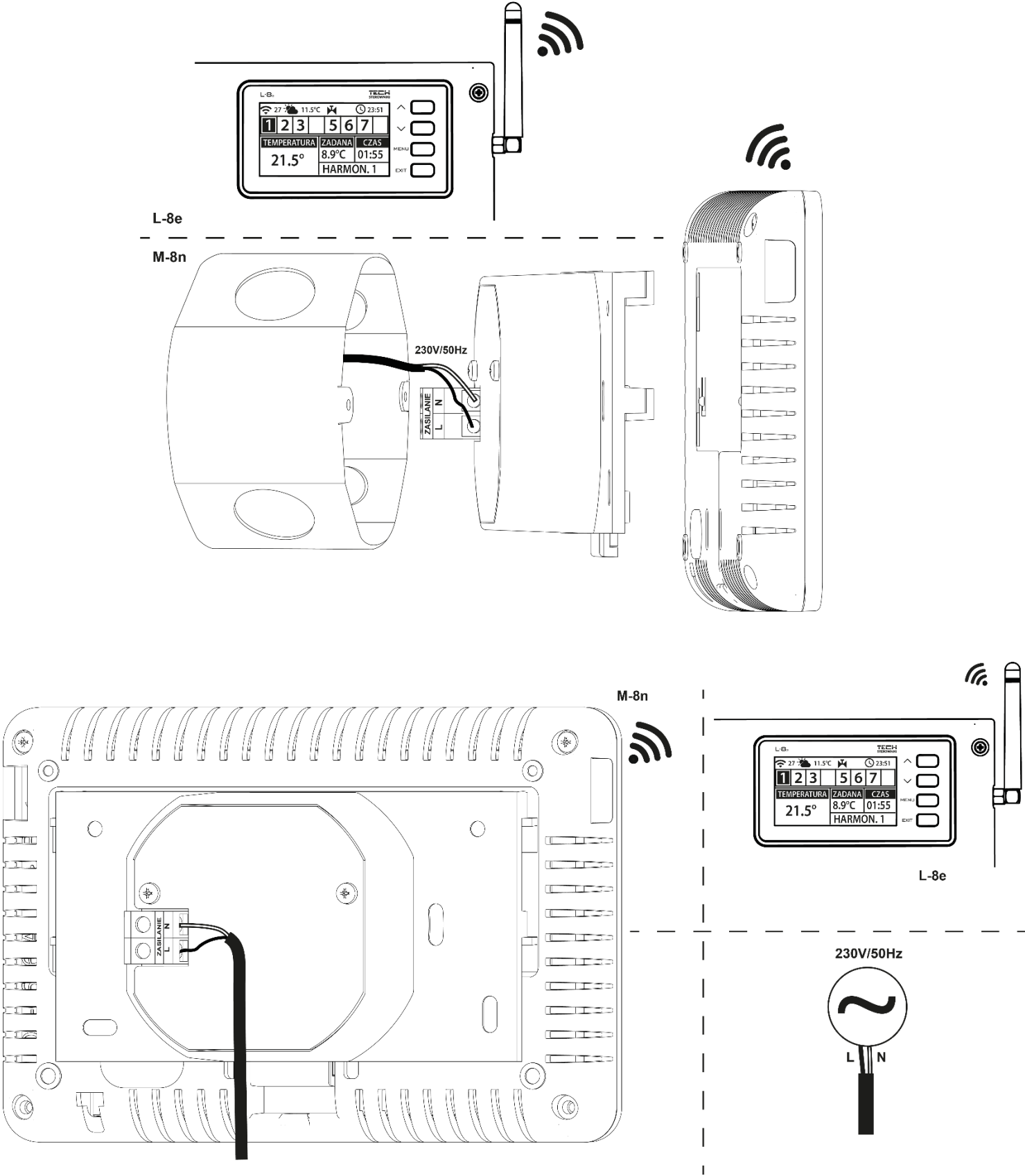


NOTE

Incorrect connection of wires may damage the controller.



The diagrams below illustrate correct connection:

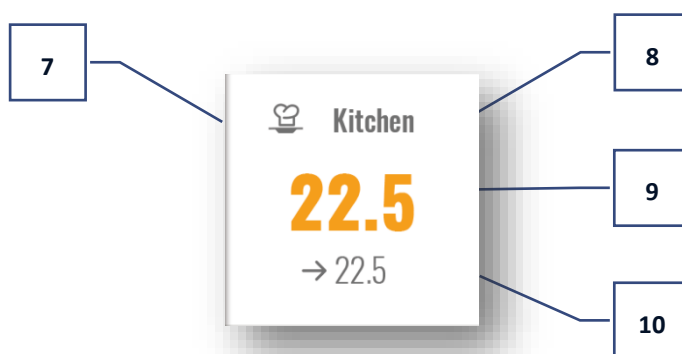


IV. MAIN SCREEN DESCRIPTION

The device is controlled using the buttons next to the display.



1. Enter the controller menu
2. Current operation mode (an armchair icon - comfort mode)
3. Cooling active
4. External temperature
5. Current time and date
6. Particular zone status:

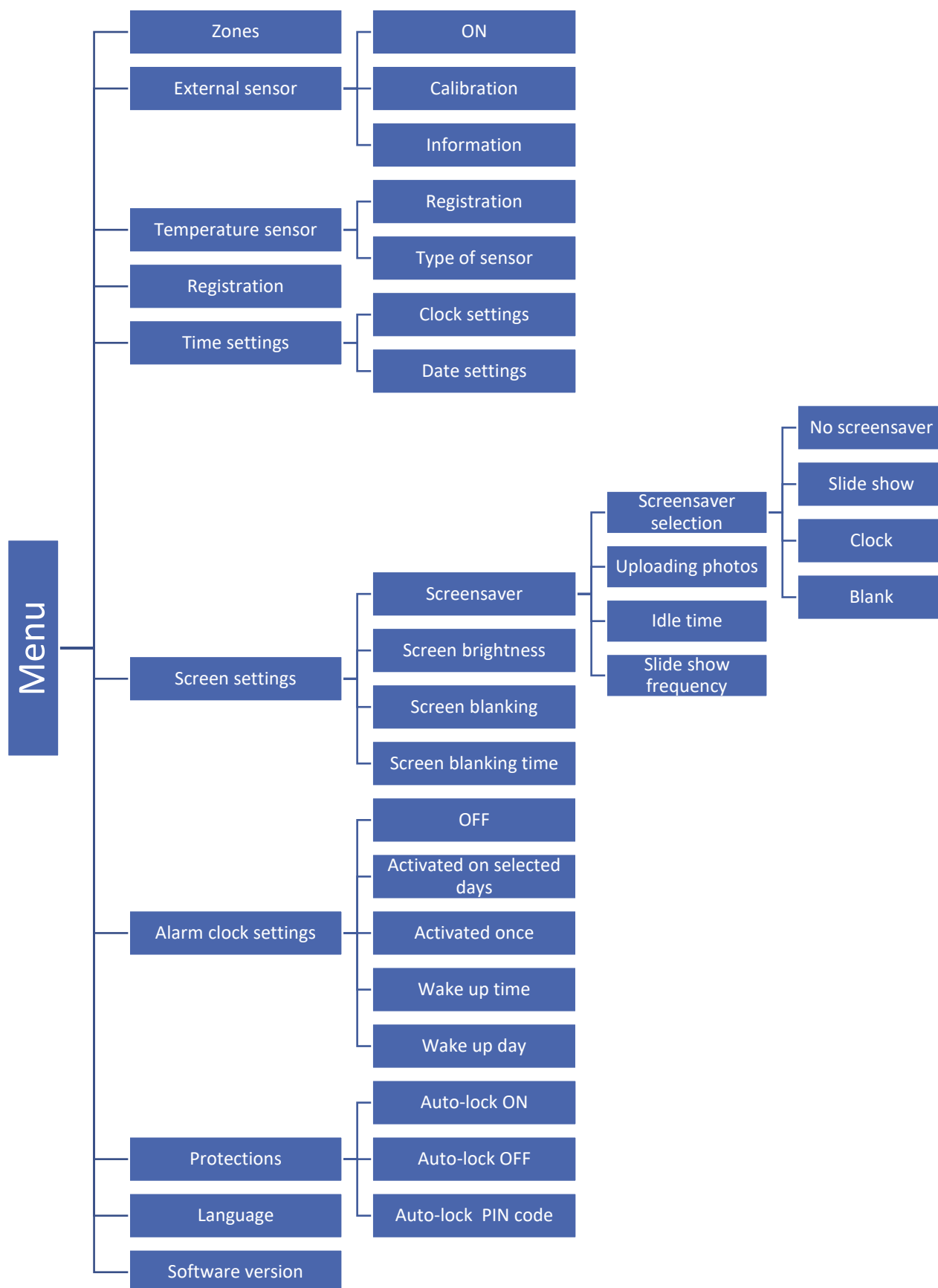


7. Zone icon
8. Zone name
9. Current zone temperature
10. Pre-set zone temperature



V. CONTROLLER FUNCTIONS

1. BLOCK DIAGRAM - CONTROLLER MENU



2. ZONES

This menu is described in detail in section VI.

3. EXTERNAL SENSOR

3.1. CALIBRATION

Room sensor calibration should be performed while mounting or after the regulator has been used for a long time, if the external temperature displayed differs from the actual temperature. Calibration setting range is from -10°C to +10°C with the accuracy of 0,1°C.

3.2. INFORMATION

After selecting this function, the controller display will show signal strength and external sensor battery level.

4. TEMPERATURE SENSOR

This function is used to register the temperature sensor (C-8r, C-mini or CL-mini). Follow these steps in order to register the sensor:

- Select registration option in EU-M-8n (Menu > Temperature sensor > Registration)
- Press the registration button on the sensor.

5. REGISTRATION

This function enables the user to register EU-M-8n room regulator in the EU-L-8e main controller. In order to register:

- Select *Registration* in EU-M-8n (Menu > Registration)
- Select *Registration* in EU-L-8e controller menu (Menu > Zones 1-8 > Registration)

6. TIME SETTINGS

This function enables the user to set current date and time which will be displayed in the main screen.

7. SCREEN SETTINGS

This function enables the user to adjust the screen parameters to individual needs.

7.1. SCREENSAVER

- **Screensaver selection** - After tapping on this icon, the user may deactivate the screensaver (*No screensaver*) or set the screensaver in the form of:
 - **Slide show** – the screen displays the photos at a user-defined frequency. This option may be activated if the photos have been uploaded first.
 - **Clock** - the screen displays the clock
 - **Blank** – after a pre-defined time of inactivity the screen goes blank

Uploading photos – Before importing the photos to the controller memory they must be processed using ImageClip (the software may be downloaded from <http://tech-controllers.com/download/software>). After the software has been installed and launched, load the photos. Select the area of the photo which will be displayed on the screen. The photo may be rotated. After one photo has been edited, load the next one. When all the photos are ready, save them in the main folder of the flash drive. Next, insert the flash drive into the USB port and activate *Picture import* function in the



controller menu. It is possible to upload up to 8 photos. When uploading new photos, the old ones are automatically removed from the controller memory.

- **Idle time** – this function is used to define the time after which the screensaver is activated.
- **Slide show frequency** - this option is used to set the frequency at which the photos are displayed on the screen (if the Slide show has been activated).

7.2. SCREEN BRIGHTNESS

This function enables the user to adjust the screen brightness to current conditions in order to improve its quality.

7.3. SCREEN BLANKING

The user may adjust the brightness of blank screen.

7.4. SCREEN BLANKING TIME

This function enables the user to define the time of inactivity after which the screen goes blank.

8. ALARM CLOCK SETTINGS

This submenu is used to activate and edit the alarm clock parameters . The alarm clock may be activated once or on selected days of the week. It is also possible to disable this function.

9. PROTECTIONS

Tap on *Protections* in the main menu to open up a screen enabling the user to configure the parental lock function. When this function is activated by selecting *Auto-lock ON*, the user may set the PIN code necessary to access the controller menu.



NOTE

0000 is the default PIN code.

10. LANGUAGE SELECTION

This function enables the user to select the language version of the controller menu.

11. SOFTWARE VERSION

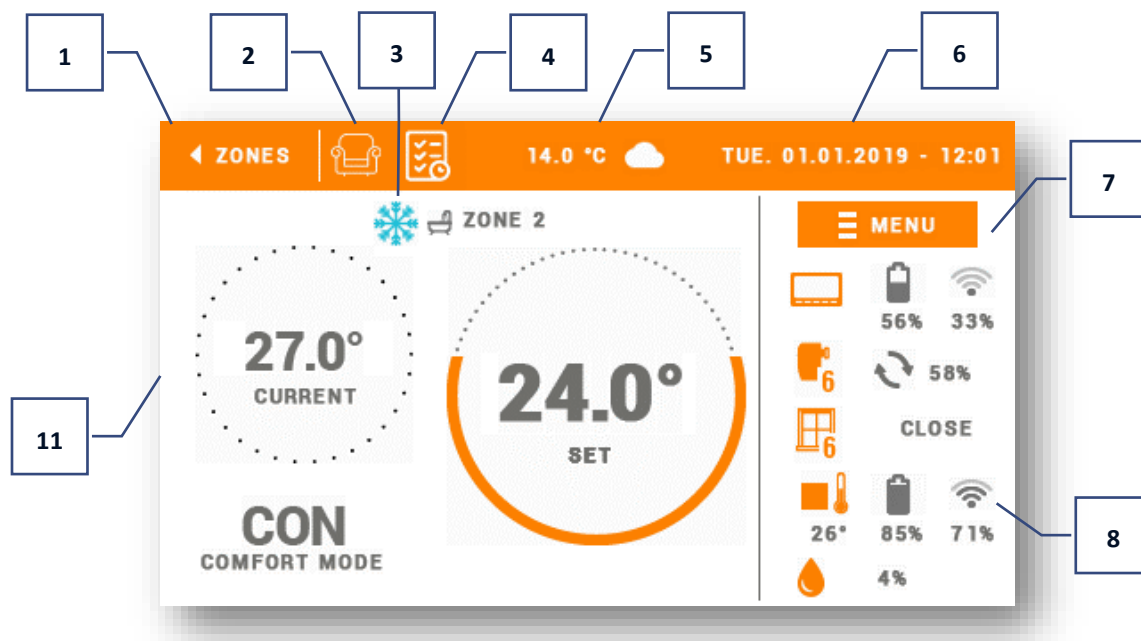
When this option is selected, the screen displays the controller manufacturer's logo and the software version.



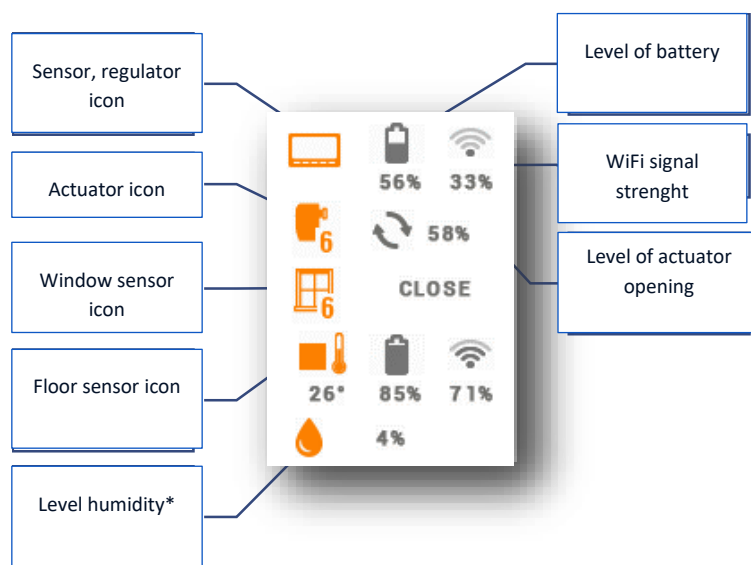
VI. ZONES

The EU-M-8n is a master room regulator – it enables the user to edit parameters of other zones regardless of the room regulator or room sensor used there.

In order to edit a given zone parameters, tap on the area of the screen with the zone status information. The display shows a basic zone editing screen:



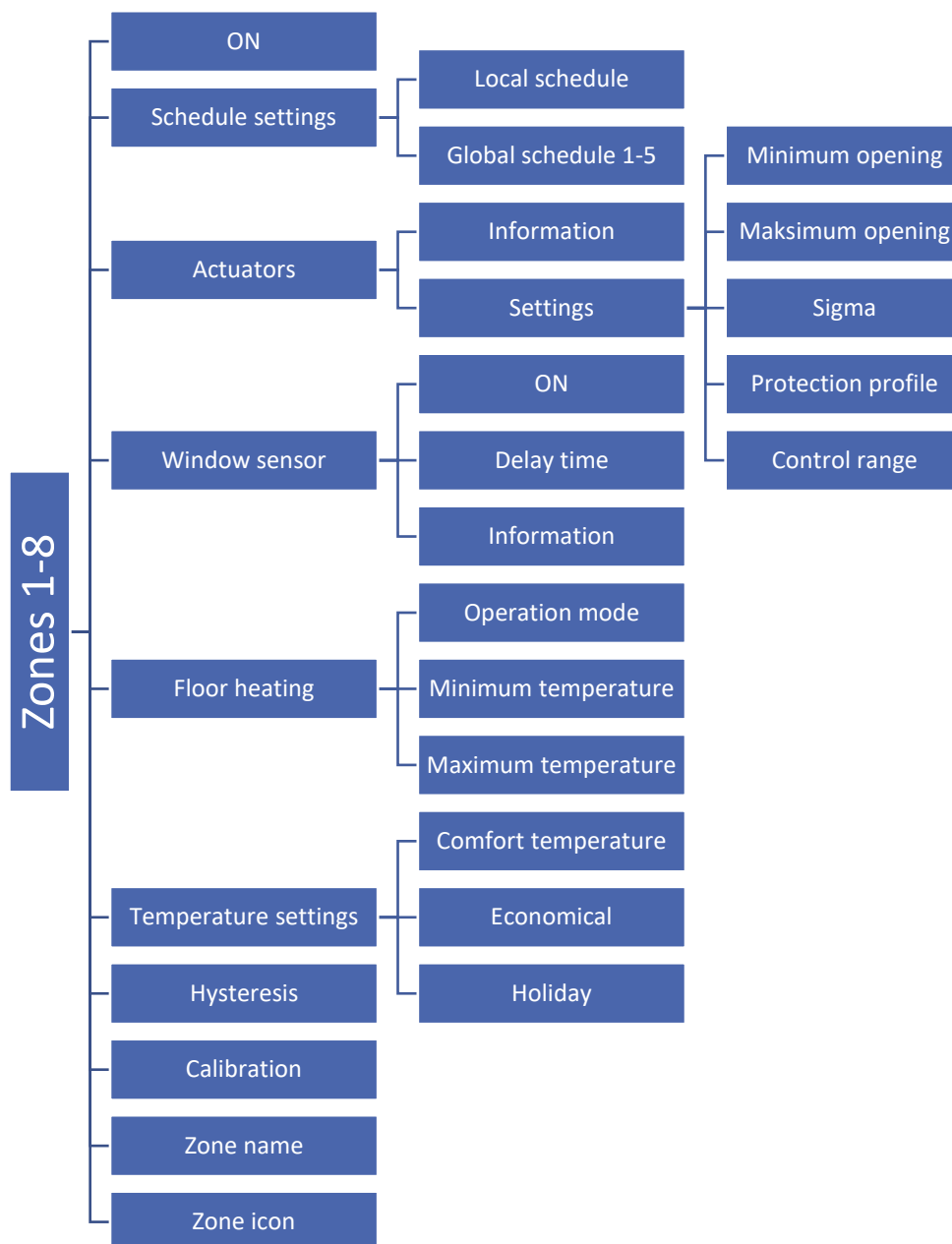
1. Return to the main screen
2. Operation mode icon
3. Schedule icon
4. Heating active
5. External temperature
6. Current time and date
7. Enter *Zones* menu
8. Parameter icons
9. Pre-set zone temperature
10. Name of the current schedule
11. Current zone temperature



* with a registered sensor offering humidity measurement function



1. BLOCK DIAGRAM - ZONES MENU



2. ON

After the room sensor has been activated and registered in a given zone, it is used by EU-L-8e controller. <OFF> is the default setting for this option. It may be activated when the room sensor has been registered.

3. SCHEDULE SETTINGS

3.1. LOCAL SCHEDULE

This weekly schedule is assigned to a given zone only. After the room sensor has been detected by the main controller, the schedule is activated automatically in this zone and may be adjusted by the user to individual needs. The changes introduced apply only to the given zone.

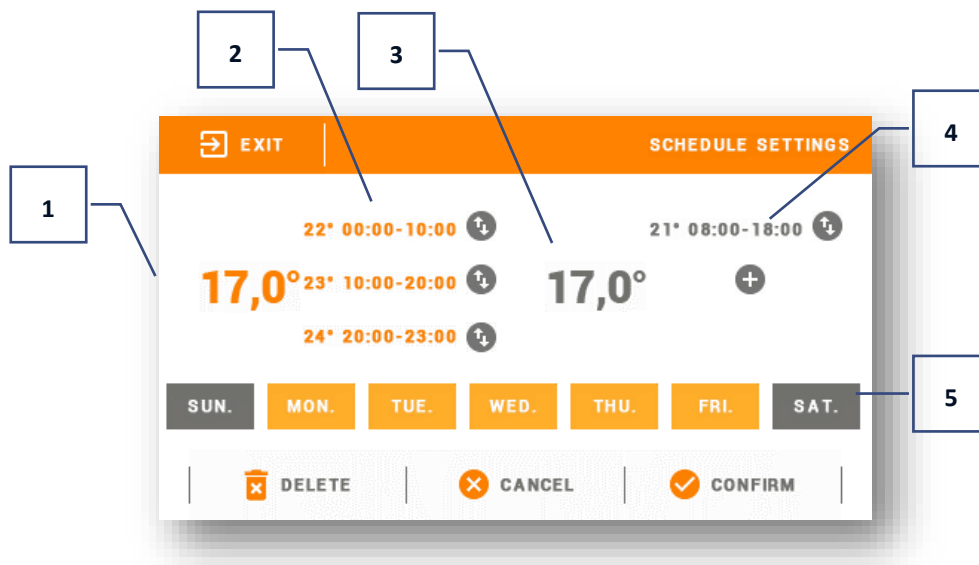


3.2. GLOBAL SCHEDULE 1-5

Global schedules are available in all zones – in each zone only one such schedule may be activated. The global schedule settings apply automatically in all remaining zones where a given global schedule is active.

How to edit a schedule:

After entering the schedule editing screen, the schedule may be adjusted to the user's needs. The settings may be configured for two separate groups of days – the first group marked with orange colour, the other one with grey colour. It is possible to assign up to 3 time periods with separate temperature values to each group. Outside these periods of time, a general pre-set temperature will apply (its value may also be edited by the user).



1. General pre-set temperature for the first group of days (orange colour – in the example above the colour is used to mark working days Monday-Friday). The temperature applies outside the time periods defined by the user.
2. Time periods for the first group of days – the pre-set temperature and the time limits. Tapping on a given period opens up an editing screen.
3. General pre-set temperature for the second group of days (grey colour – in the example above the colour is used to mark Saturday and Sunday).
4. In order to add new periods, tap on „+“.
5. Days of the week – orange days are assigned to the first group whereas grey days are assigned to the second one. In order to change the group, tap on a selected day.

The time period editing screen enables the user to adjust the pre-set temperature and the time limits of the period with the accuracy of 15 minutes. If the time periods overlap, they are marked with red colour. Such settings cannot be saved.



4. ACTUATORS

4.1. INFORMATION

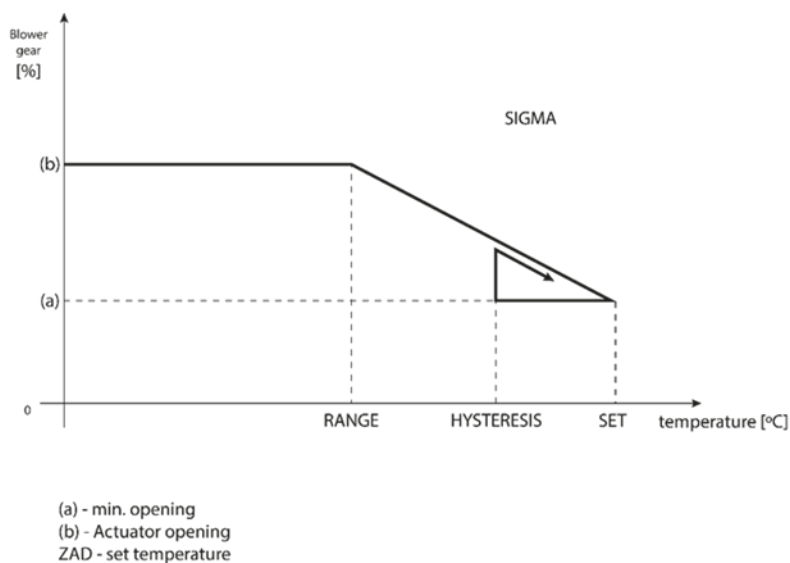
Select this option to view all actuators and their parameters: registered or not, battery level and signal strength.

4.2. SETTINGS

This submenu enables the user to configure the operation of the STT-869 thermoelectric actuators. The user may define the maximum and minimum actuator opening – the level of valve opening and closing will never exceed these values.

SIGMA function enables smooth control of the thermostatic valve. After activating this function, the user may set the minimum and the maximum level of valve closing.

Moreover, the user configures *<Range>* parameter, which defines the room temperature at which the valve starts closing and opening.



Example:

Pre-set zone temperature: 23°C

Minimum opening: 30%

Maximum opening: 90%

Range: 5°C

Hysteresis: 2°C

With the above settings, the valve starts closing when the zone temperature reaches 18°C (pre-set temperature minus *Range* value). The minimum opening is achieved when the pre-set zone temperature is reached. Afterwards, the temperature starts falling. When it drops to 21°C (pre-set temperature minus hysteresis), the valve starts opening. It achieves the maximum opening when the temperature reaches 18°C.

- **Protection profile** – once this function has been activated, the external controller checks the temperature. If the pre-set value is exceeded by the number of degrees defined in *<Adjustment range>* parameter, all the actuators in the zone will be closed. This function works only when SIGMA function is active.



5. WINDOW SENSORS

5.1. DELAY TIME

This function enables the user to set the delay time after which the main controller sends a signal to close the actuators. Settings range :00:00 – 00:30 minutes.

Example: Delay time is set at 10 minutes. When a window is opened, the C-2n sensor sends the information to the main controller. If the sensor sends another information that the window is open after 10 minutes, the main controller will force the actuators to close.

5.2. INFORMATION

Select this option to view all sensors and their parameters: registered or not, battery level and signal strength.

6. FLOOR HEATING

6.1. OPERATION MODE

- **Protection profile** – this function is used to maintain the floor temperature below the maximum temperature value in order to protect the heating system against overheating. When the temperature reaches the maximum value, the zone heating is disabled.
- **Comfort profile** – this function involves monitoring the floor temperature to maintain comfort temperature. When the temperature reaches the maximum value, the zone heating will be disabled (in order to protect the system against overheating). When the temperature drops below the minimum value, the zone heating will be enabled.

6.2. MINIMUM TEMPERATURE

This function is used to set the temperature below which floor heating in a given zone is enabled.

6.3. MAXIMUM TEMPERATURE

This function is used to set the temperature above which floor heating in a given zone is disabled.

7. TEMPERATURE SETTINGS

This function is used to define the pre-set temperature for particular operation modes. The user may configure comfort temperature, economical temperature and holiday temperature.

8. HYSTERESIS

This function is used to define tolerance of the pre-set temperature in order to prevent undesired oscillation in case of small temperature fluctuation. The setting range: 0,1°C - 10°C with the accuracy of 0,1°C.

Example: when the pre-set temperature is 23°C and the hysteresis is set at 0,5°C, the zone temperature is considered too low when the room temperature drops to 22,5°C.

9. CALIBRATION

Room sensor calibration should be performed while mounting or after the regulator has been used for a long time, if the external temperature displayed differs from the actual temperature. Calibration setting range is from -10°C to +10°C with the accuracy of 0,1°C.



10. ZONE NAME

This function enables the user to assign name to a given zone.

11. ZONE ICON

This function enables the user to select the icon which will be displayed next to the zone name.

VII. PROTECTIONS AND ALARMS

Protections and alarms are described in detail in the instruction manual of the EU-L-8e controller.

VIII. SOFTWARE UPDATE



WARNING

Software update shall be conducted only by a qualified fitter. After the software has been updated, it is not possible to restore previous settings.

In order to install new software, the controller must be unplugged from the power supply. Next, insert the flash drive with the new software into the USB port. Connect the controller to the power supply. A single sound signalizes that the software update process has been initiated.

IX. TECHNICAL DATA

Power supply	230V $\pm$ 10% / 50Hz
Max. power consumption	1,5W
Operation temperature	5°C÷50°C
Acceptable ambient relative humidity	<80% REL.H
Operation frequency	868MHz



TECH CONTROLLERS

EU Declaration of conformity

Hereby, we declare under our sole responsibility that the **EU-M-8n** regulator manufactured by TECH, head-quartered in Wieprz Biała Droga 31, 34-122 Wieprz, is compliant with Directive **2014/53/EU** of the European parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment, Directive **2009/125/EC** establishing a framework for the setting of ecodesign requirements for energy-related products as well as the regulation by the MINISTRY OF ENTREPRENEURSHIP AND TECHNOLOGY of 24 June 2019 amending the regulation concerning the essential requirements as regards the restriction of the use of certain hazardous substances in electrical and electronic equipment, implementing provisions of Directive (EU) 2017/2102 of the European Parliament and of the Council of 15 November 2017 amending Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (OJ L 305, 21.11.2017, p. 8).

For compliance assessment, harmonized standards were used:

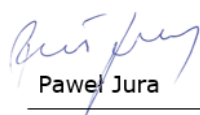
PN-EN IEC 60730-2-9 :2019-06 par. 3.1a Safety of use

ETSI EN 301 489-1 V2.1.1 (2017-02) par.3.1b Electromagnetic compatibility

ETSI EN 301 489-3 V2.1.1 (2017-03) par.3.1 b Electromagnetic compatibility

ETSI EN 300 220-2 V3.1.1 (2017-02) par.3.2 Effective and coherent use of radio spectrum

ETSI EN 300 220-1 V3.1.1 (2017-02) par.3.2 Effective and coherent use of radio spectrum


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