

Controllers

USER'S MANUAL ST-2640

EN



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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's 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 sold or put in a different place, make sure that the user's manual is there 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

- **High voltage!** 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.

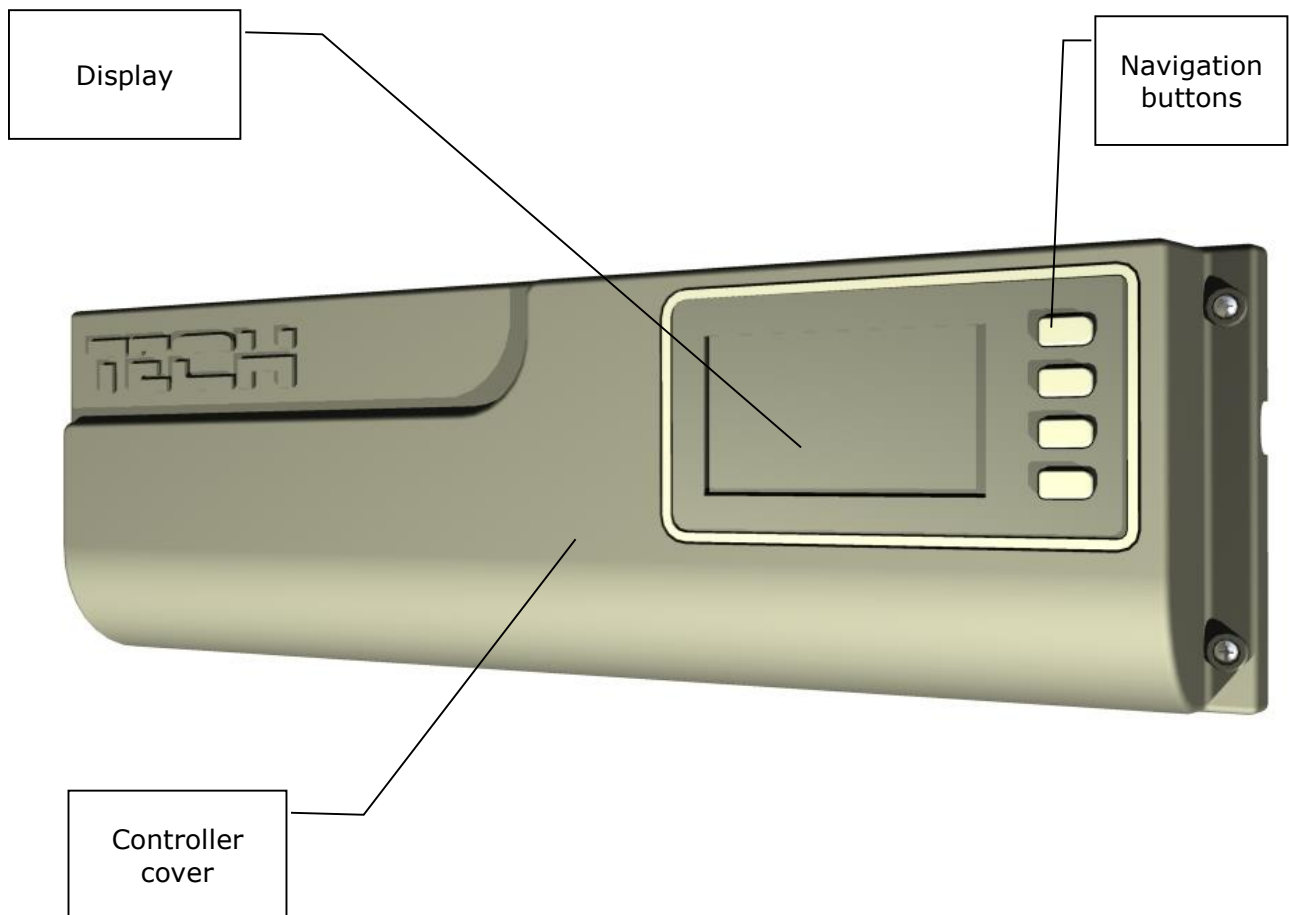


We are committed to protecting the environment. Manufacturing electronic devices imposes an obligation of providing for environmentally safe disposal of used electronic components and devices. Hence, we have been entered into a register kept by the Inspection For Environmental Protection. The crossed-out bin symbol on a product means that the product may not be disposed of to household waste containers. Recycling of wastes 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-2640 installation strip is intended to operate the valves both by means of wired and wireless communication via a radio signal. The strip makes it possible to substantially save the consumption of electricity due to its precise temperature management of particular rooms in the building. Due to its expanded software, the regulator may perform a number of functions:

- the operation of temperature regulator actuators 230V
- one output 230V for the pump
- dry contact
- the possibility to connect EU-507 Ethernet - makes it possible to control certain functions, preview certain parameters via the Internet
- the possibility to operate battery actuators (wireless) – no more than 9 in a zone
- the operation of 8 sensors
- the operation of an external sensor



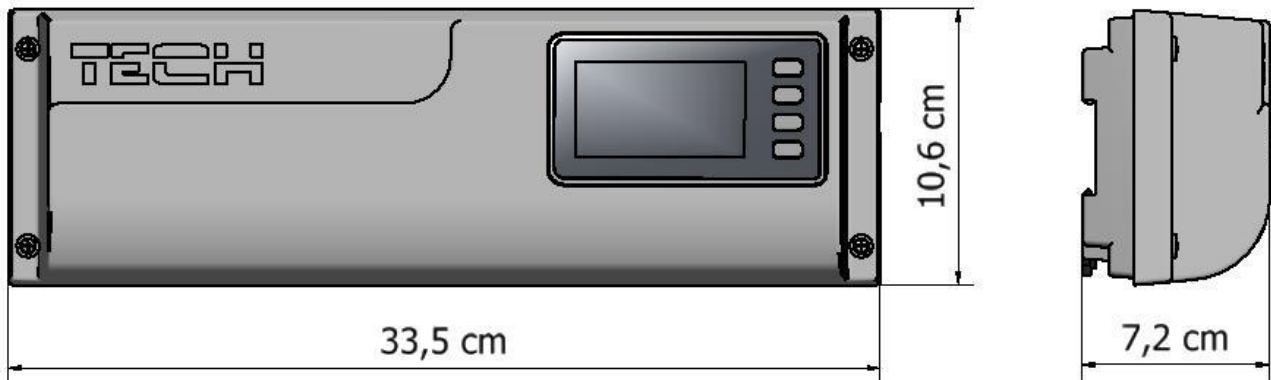
III. Installing the controller

The controller should be installed by a qualified person.

**WARNING**

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

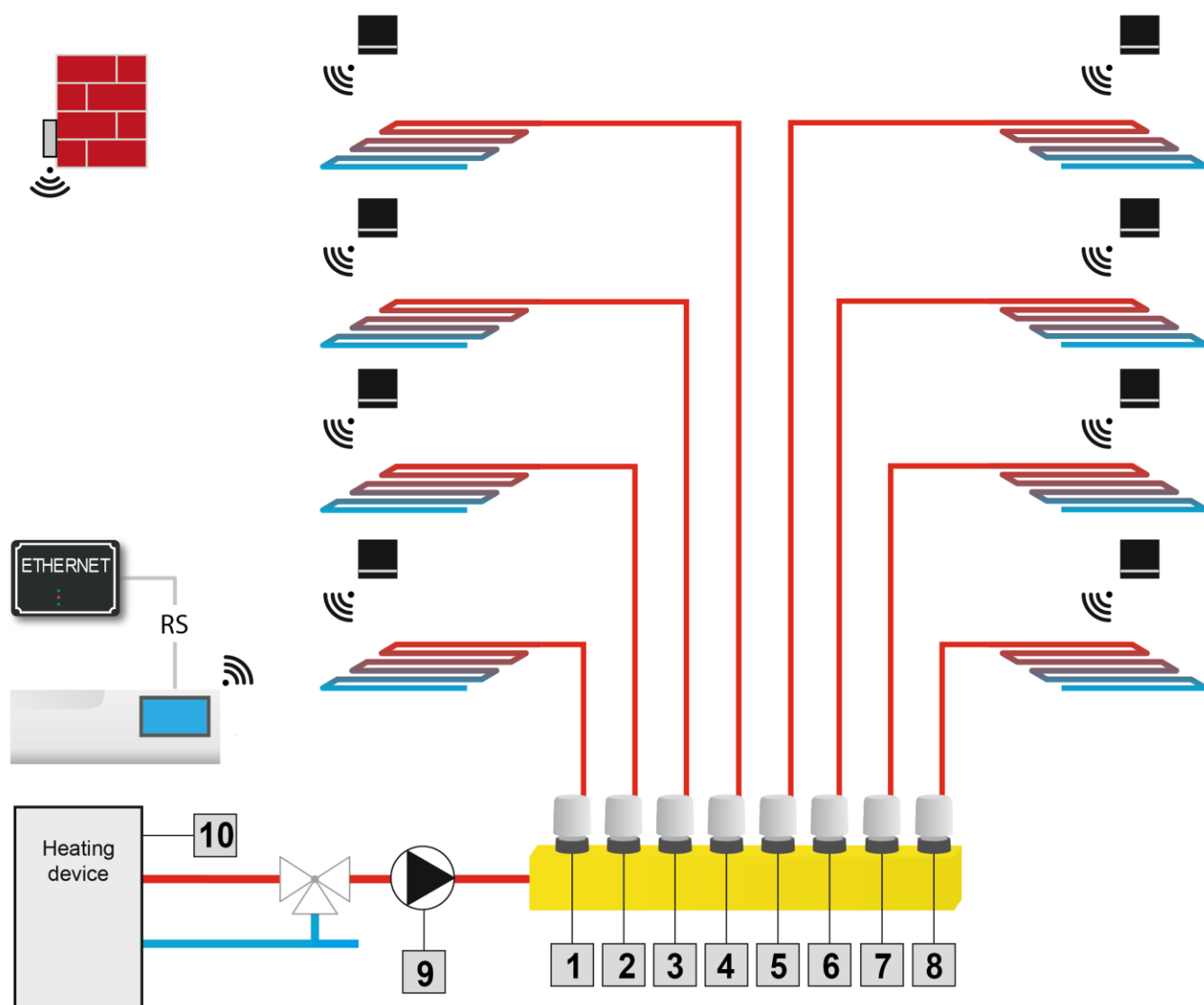
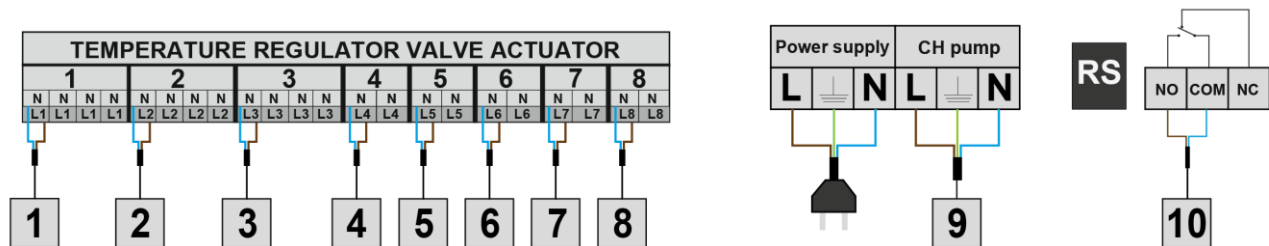
The EU-2640 regulator may be installed as a free-standing device or as a panel mountable on a wall.



The strip is adapted for installation on a DIN strip.



The controller's cover should be disassembled to connect the cables.



IV. Radio communication

The EU-2640 controller may communicate with certain devices by means of radio communication:

		Function	Configuration
	EU-261r room temperature sensor	It makes it possible to transmit information on the current temperature in the room	- the current communication channel needs to be the same as in the EU-2640 regulator - a given sensor should be assigned to the selected zone, the desired zone should be adjusted in the sensor.
	EU-291 external temperature sensor	It makes it possible to monitor the external temperature.	- the current communication channel needs to be the same as in the EU-2640 regulator
	STT-868 wireless temperature regulator actuator	It makes it possible to maintain the set temperature.	- registration necessary in the EU-2640 controller

V. First start-up

In order for the controller to operate correctly, the user should proceed according to the following steps during the first start-up:

1. Connect the cables.
2. Switch on the controller's power supply.
3. If the set includes the EU-507 Internet module, the user should activate it in the controller's menu: *Main menu / Fitter's menu / Internet module / Activated.*
4. If the set includes an external sensor, the user should activate its operation by selecting: *Main menu / External sensor / Wireless.*
5. Configuration of temperature sensors transmitting information on the current temperature in a given zone.
 - a. The user should determine whether the current communication channel in the temperature sensors is the same as in the EU-2640 regulator. The factory setting in both devices is channel 35, so if the user has a new set there is no need to adjust the communication channel. The communication channel should be changed to another only when the operation of the devices is disturbed by other radio signals.

Changing the channel in the EU-261r room sensor:

It may be necessary to change the communication channel in the event of radio interference. In order to change the channel to a different one, the user should press the channel change button **twice** - holding it the second time. When the LED on the sensor flashes, this means that the channel change process has started. Holding the channel change button all the time, the user should wait until the LED flashes as many times as the value of the first digit of the requested channel number.

Then, the user should release the button when the LED goes out and should press it again to adjust the second digit of the requested number – the LED flashes quickly two times. Holding the button, the user should wait until the LED flashes the requested number of times. After the button is released, the LED flashes two times – this means that the new



channel has been programmed.

NOTE:

If the user adjusts a single-digit channel (channels 0÷9), 0 should be adjusted as the first digit.

When the LED goes on for approx. 2 seconds, this signals errors in the channel change process. In this case, the channel is not changed.

- b. Each room sensor should be assigned to a given zone. By default, each sensor is assigned to zone 1.



CAUTION

Only one room sensor may be assigned to one zone.

Assigning the EU-261r room sensor to the selected zone:

In order to assign the room sensor to the selected zone, the user should press and hold the channel change button on the EU-261r controller. The LED will begin flashing – the number of flashes indicates the number of the zone. The user should release the channel change button when the flashing LED reaches the number of the selected zone.

- c. A separate set temperature and a weekly schedule may be adjusted for each room sensor assigned to a given zone. These settings may be changed both in the controller's menu (Main menu / Sensors) as well as at oeg.emodule.eu (using the ST-5072 module).

VI. Operating the controller

VI.a) Principle of operation

The EU-2640 controller determines the reheating need for a given zone on the basis of the current temperature transmitted by the EU-261r room sensor as well as on the basis of the individual operation algorithm for each zone.

Upon receiving such information, the EU-2640 controller activates the additional contact which may be intended, e.g. for the operation of a heating device.

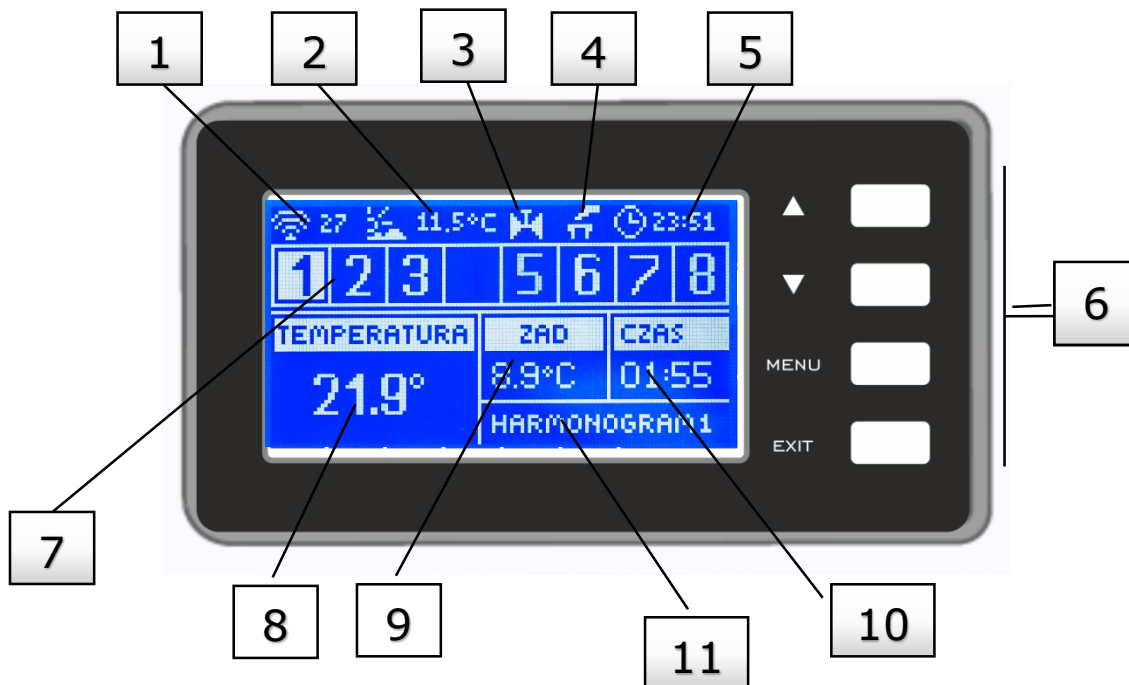
After the delay time (parameter: Main menu / Pump / Delay), the EU-2640 controller activates the CH pump.

The signal from each zone is transferred to the EU-2640 strip via the EU-261r room sensor. Room sensors communicate with the strip by means of radio communication.

Wired valve actuators may be connected to each zone as well as no more than nine wireless actuators communicating with the EU-2640 strip by means of a radio signal (they require a registration process).

VI.b) View and description of the main screen

The device is controlled by means of buttons located next to the display



1. Information about the current channel of radio communication
2. External temperature
3. Icon signaling the pump's operation
4. Icon signaling the activated additional contact
5. Current time
6. Navigation buttons
7. Information on zones:

The visible digit means a connected room sensor transferring information on the current temperature in a given zone. If the zone is insufficiently heated, the digit flashes. In the case of an alarm in a given zone, an exclamation mark is displayed instead of the digit.

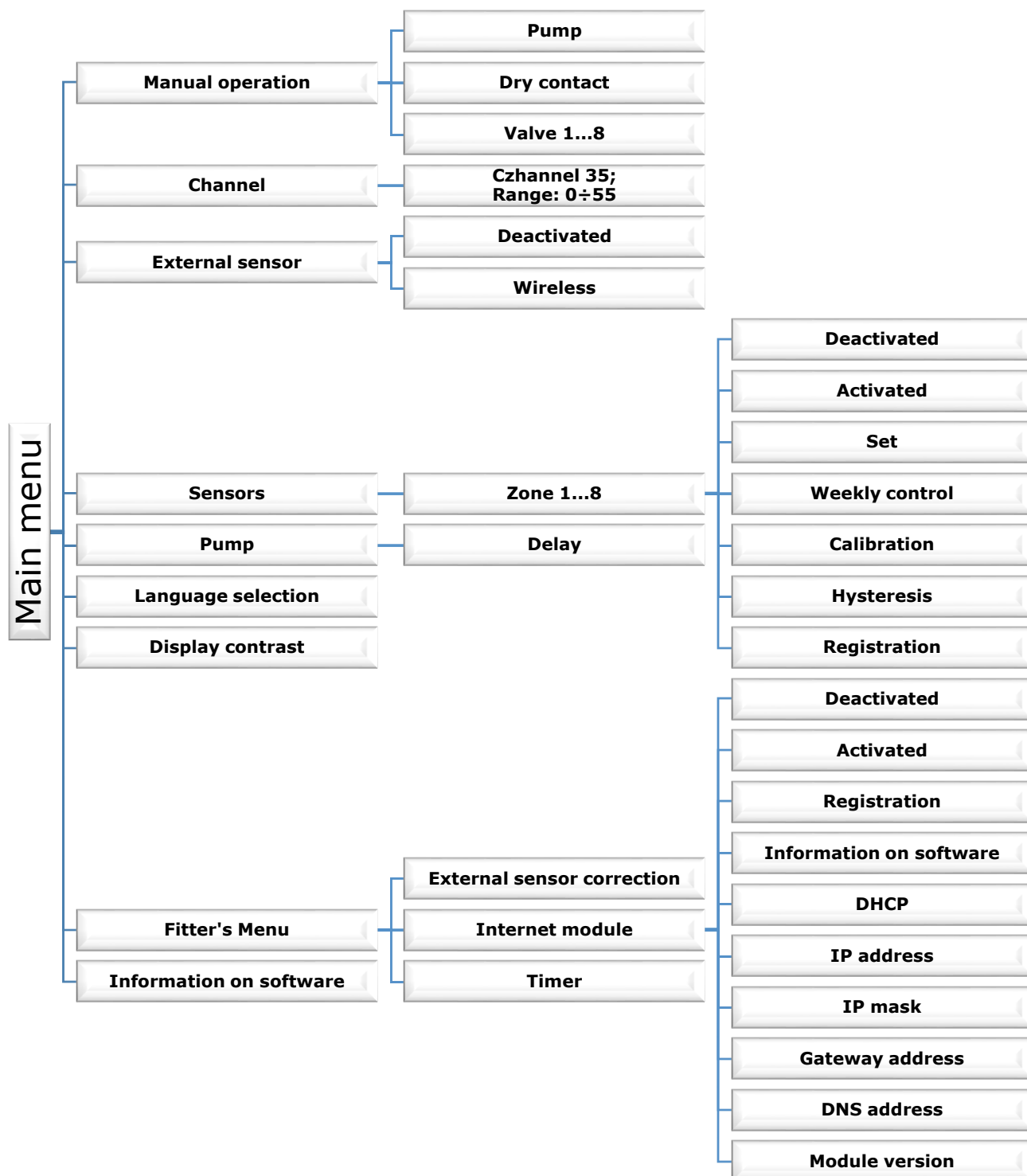
With the use of buttons▲ as well as▼, the user may view the current settings of subsequent zones.

8. Temperature of room sensor from a given zone
9. Set temperature in a given zone
10. Time until the end of manually adjusted set temperature
11. Information on the type of valid weekly schedule

VII. Controller's functions – Main menu

Due to the numerous functions of the controller, the menu is divided into the Main Menu and the Fitter's Menu.

VII.a) Chart of the controller's menu



VII.b) Manual operation

This function allows the user to control the operation of particular devices. The user may manually activate each device: the pump, the dry contact as well as particular valve actuators.

VII.c) Channel

This function is used to select the channel for radio communication with room sensors as well as with the external sensor. The user should remember that this channel should be the same as in all devices communicating with the EU-2640 controller. The user may select channels 0÷55.

The factory setting in devices cooperating with the EU-2640 controller is channel "35". The channel needs to be changed only in the case of a conflict with other devices communicating with one another with the use of a radio signal. In this situation, the user should remember to change the channel in each device that is to communicate with the EU-2640 strip.

VII.d) External sensor

An external temperature sensor may be connected to the controller that allows the user to monitor the current temperature on the main screen.

After the external sensor is mounted, the user should mark the option Wireless in the controller.

NOTE



The user should remember to adjust the same channel for radio communication as in the EU-2640 controller. The factory setting in the external sensor is channel "35".

Changing the communication channel in the external sensor:

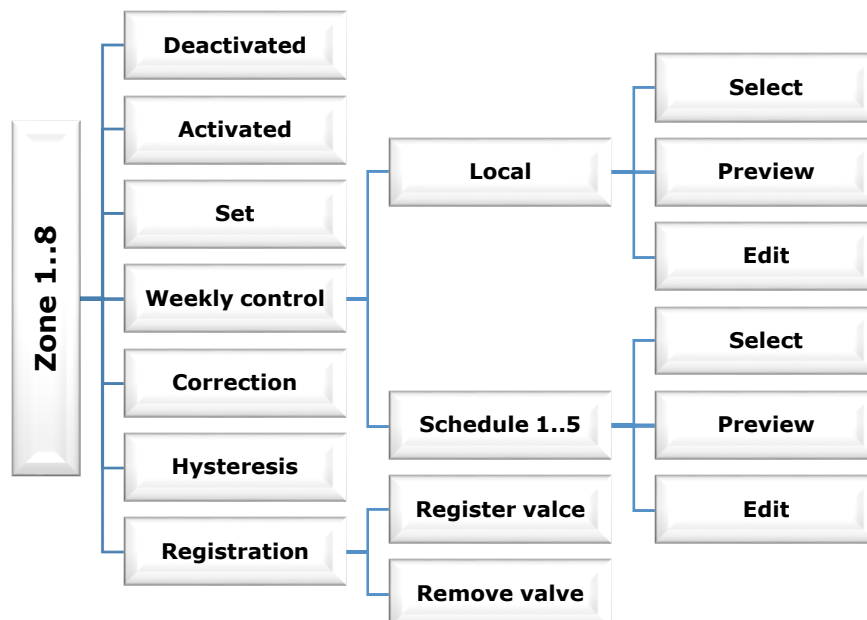
In order to change the channel to a different one, the user should press and hold the channel change button. When the LED on the sensor flashes two times, this means that the channel change process has started. Holding the channel change button all the time, the user should wait until the LED begins flashing again - the number of flashes corresponds to the number of the channel (one flash - channel 1, 5 flashes - channel 5). When the requested channel number is adjusted, the user should release the button. In order to adjust the channel back to 0, the user should repeat the entire procedure and release the channel change button immediately after the first two flashes of the LED.



VII.e) Sensors

The submenu Sensors allows the user to adjust the operation parameters for particular zones. When a given zone reaches the set value, the EU-2640 controller assigns a reheated status to this zone until the temperature drops below the set value, reduced by hysteresis. When all zones are reheated, the EU-2640 controller deactivates the pump as well as the dry contact at the same time.

Submenu in each zone:



Deactivated / Activated

After the room sensor is activated and is assigned a given zone, it will be detected by the EU-2640 strip. However, the operation of this sensor may be disabled by marking a suitable option.

Set value

The set temperature in a given zone depends on the settings of the selected weekly schedule. However, the function Set Value allows the user to adjust a separate set value.

After it is determined, the display will show the screen with time settings for this temperature. After this time expires, the set temperature in a given zone will again depend only on the weekly schedule. When the duration of a given set temperature is adjusted as 00:00, this temperature will be valid for an indefinite period of time.

The value of the set temperature along with the time until its end is displayed on the main screen on a current basis (see Description of the main screen – screen number 8).

Weekly control

The EU-2640 controller has two types of weekly schedules:

1. Local schedule

This is a weekly schedule assigned only to a given zone. After the strip detects the room sensor, it is automatically assigned as valid in a given zone. It may be edited freely.

2. Global schedule (Schedule 1..5)

These schedules have the same settings regardless of the zone and are non-editable from the level of the strip (changes in global schedules are possible only via the Internet in cooperation with an Internet module).

In order to assign the selected schedule to a given zone, the user only needs to mark the option *Select*.

If the user wishes only to modify the global schedule as the current one in a given zone, this is possible in the option *Edit*. After the user enters the desired modifications and saves them, it is overwritten as a local schedule.

The type of weekly schedule assigned to the zone is visible on the main screen (see Description of the main screen – screen number 9).

Edit

The schedule's editing commences after the user marks the option *Edit*.

The user may program no more than three time intervals with specific boundaries (with accuracy to 15 minutes). A separate set temperature is assigned to each interval. The next step is the adjustment of the set temperature valid beyond the time intervals.

The last step is selecting days of the week on which these settings are to be valid: by means of the button ▲, the user proceeds to edit the neighboring day of the week and it is marked / unmarked with the use of the key ▼.

Correction

The room sensor is calibrated during the installation or after a longer period of the regulator's operation if the displayed external temperature differs from the actual temperature. Adjustment range: -10 to +10°C with accuracy to 0.1°C.

Hysteresis

Hysteresis introduces the tolerance for the set temperature preventing unwanted oscillations at minimum temperature deviations (ranging from 0 ÷ 10°C) with accuracy to 0.1°C.

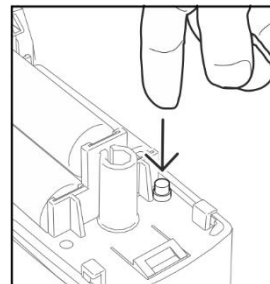
Example: when the set temperature is 23°C and the hysteresis is adjusted to 2°C, the zone will be assigned a status of insufficient heating after the temperature in the room drops to 21°C.

Registration

When wireless temperature regulator actuators are used, it is necessary to register a given actuator in the zone. The user may select 8 zones (Valve 1...8), no more than 9 actuators may be registered in each zone.

The registration process:

1. The temperature regulator actuator is mounted on the heater, the user waits until it is calibrated (the calibration process ends with a short, double acoustic signal)
2. The user selects the number of the zone in which they wish to register a given actuator and then the option *Registration / Register Valve*.
3. The user presses the registration button on the actuator. This needs to be done within 30 seconds from pressing the option Register Valve – after this time, the EU-2640 controller considers the registration process unsuccessful.
4. If the registration is conducted correctly, an appropriate message will appear on the display informing about the successful registration, as well as informing about the number of registered valves. In the case of an error in the registration process, an appropriate message will appear on the display. There are three possible causes of errors:
 - a. Attempt to register more than nine actuators.
 - b. Attempt to register an already registered actuator.
 - c. No signal from the valve actuator within 30 seconds.



Registration button on wireless temperature regulator actuator.

A digit informing about the number of registered valves is displayed apart from the icon Register Valve.

VII.f) Pump

The EU-2640 regulator controls the operation of the pump – it activates the pump after the delay time when any zone is insufficiently heated. When all zones are reheated (the set temperature is reached), the controller deactivates the pump.

The function Delay allows the user to adjust the delay time for the pump's deactivation after the temperature drops in any zone below the set value. The delay in pump activation is used for the valve's actuator to open.

VII.g) Language selection

This function allows the user to change the controller's language version.

VII.h) Display contrast

This function allows the user to adjust the display's contrast to their individual needs.

VII.i) Fitter's menu

The Fitter's Menu is intended to be operated by people with appropriate qualifications and is used primarily to adjust the controller's additional functions.

- **External sensor correction**

The external sensor is calibrated during the installation or after a longer period of the regulator's operation if the displayed external temperature differs from the actual temperature. Adjustment range: -10 to +10°C with accuracy to 0.1°C.

- **Internet module**

The EU-2640 regulator may operate with an Internet module which makes it possible to monitor and change certain parameters via the Internet. Control of this type is possible only after connecting an additional ST-5072 control module to the controller.

The Internet module may be connected with the EU-2640 controller via an RS cable. After the module is connected, the user selects the option Registration. The code generated by the controller is entered on the website – a detailed description may be found in the Internet module's user's manual.

The Internet module is a device allowing the user to remotely control the regulator's operation via the Internet. The user controls the condition of all valves on their personal computer at home.

After the user activates the Internet module and selects the DHCP option, the controller will automatically download the following parameters from the local network: IP address, IP mask, Gateway address and DNS address. In the case of any problems with downloading the network parameters, it is possible to adjust these parameters manually. The method of obtaining the local network parameters is described in the manual for the Internet module.

- **Timer**

This function allows the user to adjust the current time and day of the week.

VII.j) Information on software

After this option is activated, the display will show the boiler manufacturer's logo along with the controller's software version.

VIII. Protections and alarms

In order to ensure the maximum safe and trouble-free operation, the regulator is equipped with a number of protections. An acoustic signal is activated in the case of an alarm and a relevant message is shown on the display.

Automatic sensor control

If the temperature sensor or the external sensor are damaged, an alarm is activated, signaling the relevant defect on the display, e.g. "**Sensor damaged**".

The alarm will be active until the defect is removed (battery exchanged in the sensor or sensor replaced with a new one) and until it is deleted from the strip level.

Deleting the zone alarm from the strip level:

The user marks the zone where the alarm is present (exclamation mark instead of the strip number). The user presses the EXIT button – the screen will show two options to select from:

- Reset
For a given period of time, the strip will try to communicate with the sensor again (this may take several minutes). Until communicating with the sensor, the valve remains in alarm position (closed – zone reheated). If the communication attempt with the zone is not successful, the alarm occurs again.
- Switch off
This function deactivates the zone from operation. Reactivation is possible via the option of Activate – parameter: Main menu / Sensors / Zone 1..8.

Fuse

The regulator is equipped with tube fuse element WT 3.15A, dimensions 5x20mm, protecting the network.



NOTE:

Higher amperage fuse should not be used as it may damage the controller.

IX. Software update

**NOTE**

New software may be uploaded to the controller only by a qualified fitter. After the software is changed, it is not possible to restore the previous settings.

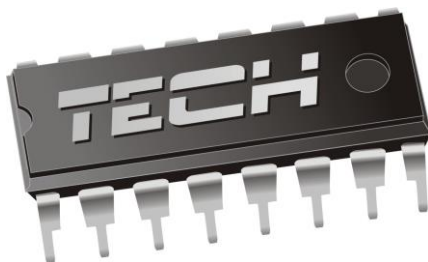
To upload new software, the controller should be disconnected from the power supply. A flash drive with the new software should be inserted to the USB port. Then, the user should connect the controller to the power supply while holding the EXIT button. The user should hold the EXIT button until a single acoustic signal is heard – this means that the new software is being uploaded. After the task is completed, the controller will restart by itself.

**CAUTION**

Never switch the controller off when the software is being updated.

X. Technical data

Item	Specification	Unit	
1	Power supply	V	230V/50Hz +/-10%
2	Maximum power consumption	W	7
3	Ambient temperature	°C	5÷50
4	CH pump output load	A	0,5
5	CH temperature measurement range	°C	0÷90
6	Measurement accuracy	°C	1
7	Temperature strength of the sensor	°C	-25÷90
8	Fuse element	A	3,15



Declaration of conformity 185/2015

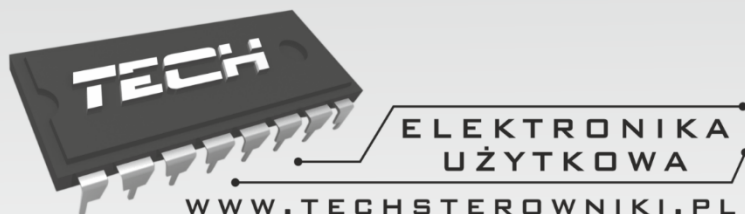
Hereby, we declare under our sole responsibility that **EU-2640 230V, 50Hz** thermoregulator manufactured by TECH, headquartered in Wieprz (34-122), Biała Droga 31, is compliant with:

- the regulation by the Ministry of Economy, Labour and Social Policy (Journal of Laws No. 155, Item 1089) of August 21, 2007 implementing provisions of the Low Voltage Directive **(LVD) 2006/95/EC**,
- an act of April 13, 2007 concerning Electromagnetic Compatibility (Journal of Laws 07.82.556) implementing provisions of **EMC directive 2004/108/EC**,
- the regulation by the Ministry of Economy of May 8, 2013 concerning the essential requirements as regards *the restriction of the use of certain hazardous substances in electrical and electronic equipment*, implementing provisions of RoHS **directive 2011/65/EU**.

For compliance assessment, harmonized standards were used:
PN-EN 60730-2-9:2011, PN-EN 60730-1:2012

Date of CE marking: 10-2015

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