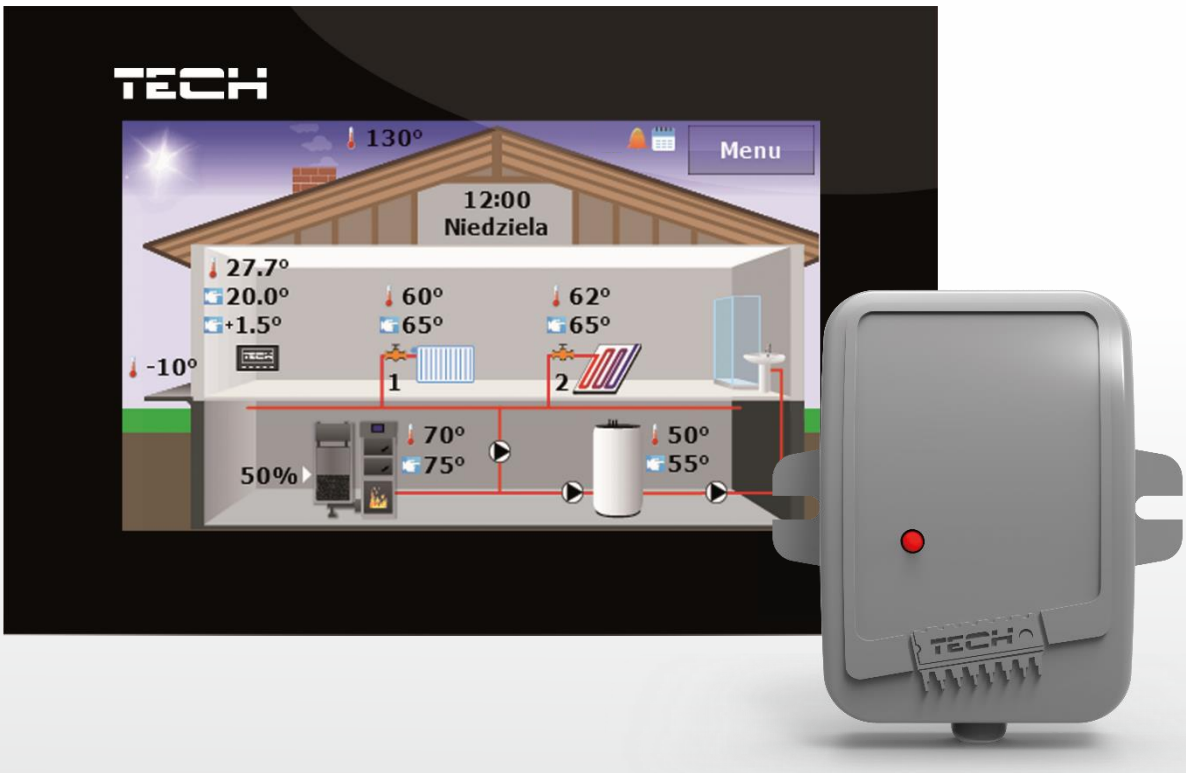
TECH CONTROLLERS

USER MANUAL

EU-281C

EN



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KN.13.06.2022

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

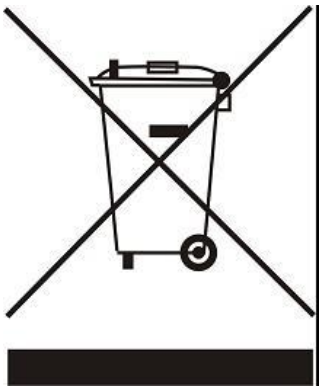
- **High voltage!** Make sure the regulator is disconnected from the mains before performing any activities involving the power supply (plugging cables, installing the device etc.)
- The device should be installed by a qualified electrician.
- The regulator should not be operated by children.

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 13.06.2022. The manufacturer retains the right to introduce changes to the structure. The illustrations may include additional equipment. Print technology may result in differences in colours shown.

Care for the natural environment is our priority. Being aware of the fact that we manufacture electronic devices obligates us to dispose of used elements and electronic equipment in a manner which is safe for nature. As a result, the company has received a registry number assigned by the Main Inspector of Environmental Protection. The symbol of a crossed out rubbish bin on a product means that the product must not be thrown out to ordinary waste bins. By segregating waste intended for recycling, we help protect the natural environment. It is the user's responsibility to transfer waste electrical and electronic equipment to the selected collection point for recycling of waste generated from electronic and electrical equipment.



II. DESCRIPTION OF THE DEVICE

EU-281C room regulator enables convenient control of the room temperature, CH boiler temperature, water tank temperature as well as the temperature of the mixing valves without the need to go to the boiler room. The regulator may cooperate with various types of main controllers using RS communication: standard controllers, pellet controllers (equipped with an igniter) and installation controllers.

A large clear graphic display with a backlit touch screen makes it easy to read and change the controller parameters.

EU-281C room regulator offers:

- Room temperature control
- CH boiler temperature control
- DHW temperature control
- Control of the mixing valves temperature (cooperation with valve module is necessary)
- Possibility of monitoring external temperature
- Weekly heating schedule
- Alarm clock
- Parental lock
- Displaying current room temperature and CH boiler temperature

Controller equipment:

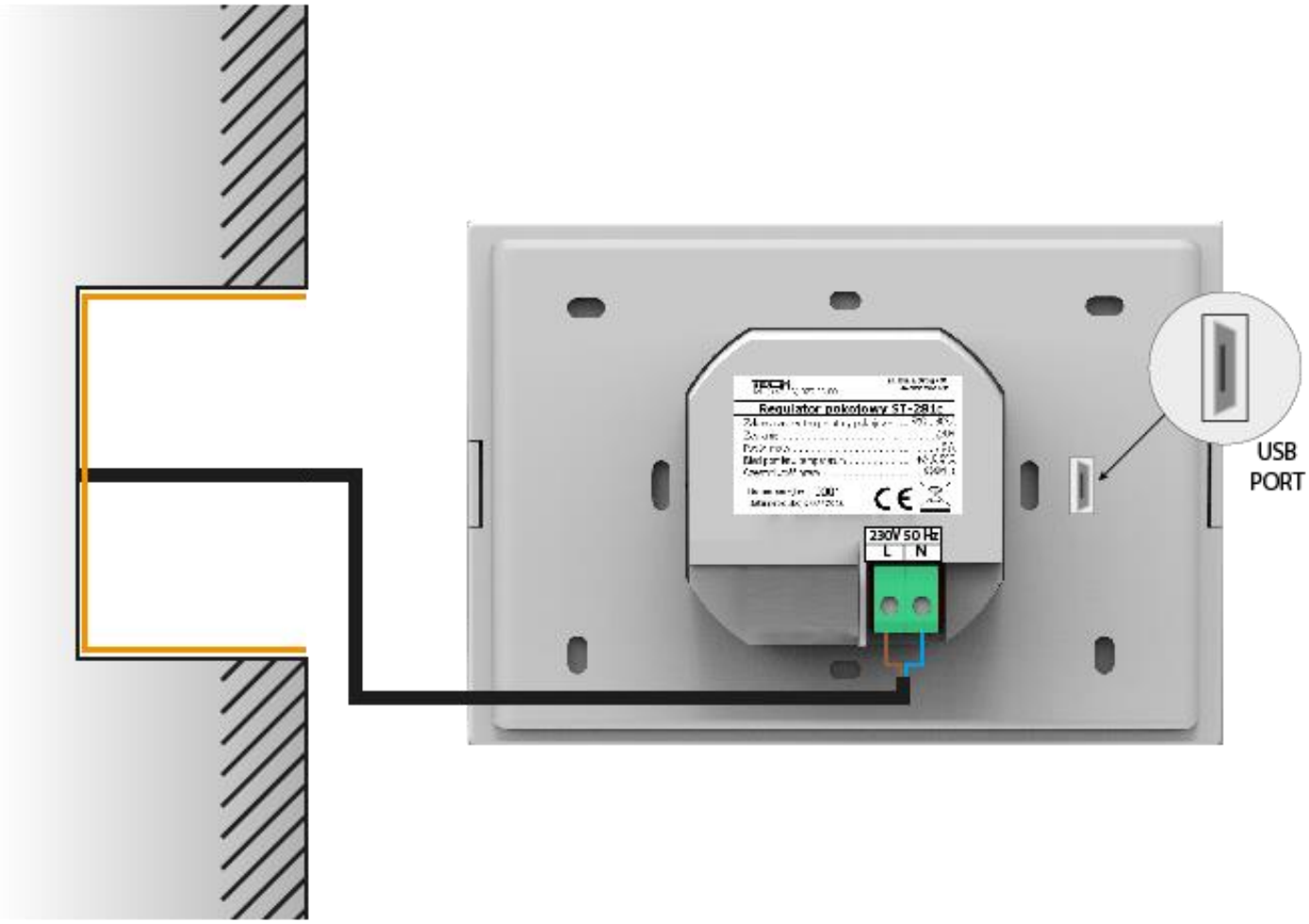
- Large, easy-to-read, colour touch screen
- Built-in room sensor

III. INSTALLATION

EU-281C is intended to be flush-mounted. The controller should be installed by a qualified person.

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.

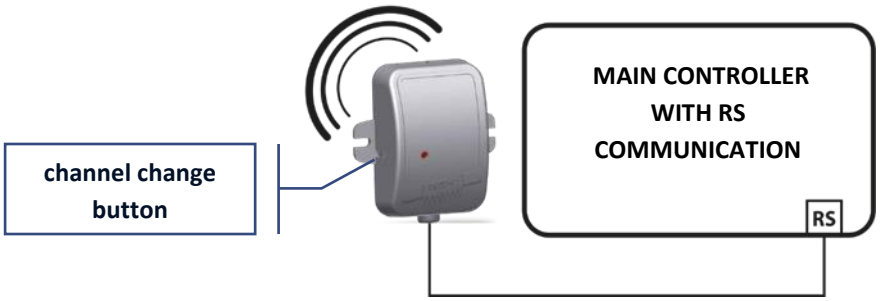


IV. MODULE EU-260V1

V1 module – intended for . It should be connected to a device with its own power supply.

NOTE

In order to achieve the maximum aerial sensitivity, EU-260 v1 should be installed at least 50 cm from any metal surface, piping or the CH boiler.



NOTE

The default communication channel is „37". There is no need to change the communication channel if the device operation is not interrupted by any radio signal.

In case of any radio interference, it might be necessary to change the communication channel. In order to change the channel, follow these steps:

1. Press and hold the **channel change button**. When the control light on the sensor flashes once, you have started setting the first digit.

2. Hold the button and wait until the control light flashes (goes on and off) the numer of times indicating the first digit of the channel number.

3. Release the button. When the control light goes off, press the channel change button again. When the control light on the sensor flashes twice (two quick flashes), you have started setting the second digit.

4. Hold the button and wait until the control light flashes the desired numer of times. When the button is released, the control light will flash twice (two quick flashes). It means that the channel change has been completed successfully.

Errors in channel change procedure are signalised with the control light going on for about 2 seconds. In such a case, the channel is not changed.

NOTE

In case of setting a one-digit channel numer (channels 0-9), the first digit should be 0.

V. HOW TO USE THE CONTROLLER

1. PRINCIPLE OF OPERATION

The regulator sends a signal to the main controller informing if the pre-set temperature has been reached. Depending on particular settings, reaching the pre-set temperature may result in e.g. CH pump deactivation, pre-defined decrease in the pre-set CH boiler temperature (main controller settings). The room regulator also enables the user to change certain settings of the main controller e.g. the pre-set CH boiler temperature, pump operation modes etc.

2. MAIN SCREEN DESCRIPTION

The controller is equipped with a large touch screen. It displays the current status of basic CH boiler parameters.

Depending on the user's preferences, the display may show the heating system (installation) screen or panel screen. Parameters displayed in the main screen view of the room regulator depend on the main controller settings and its type.

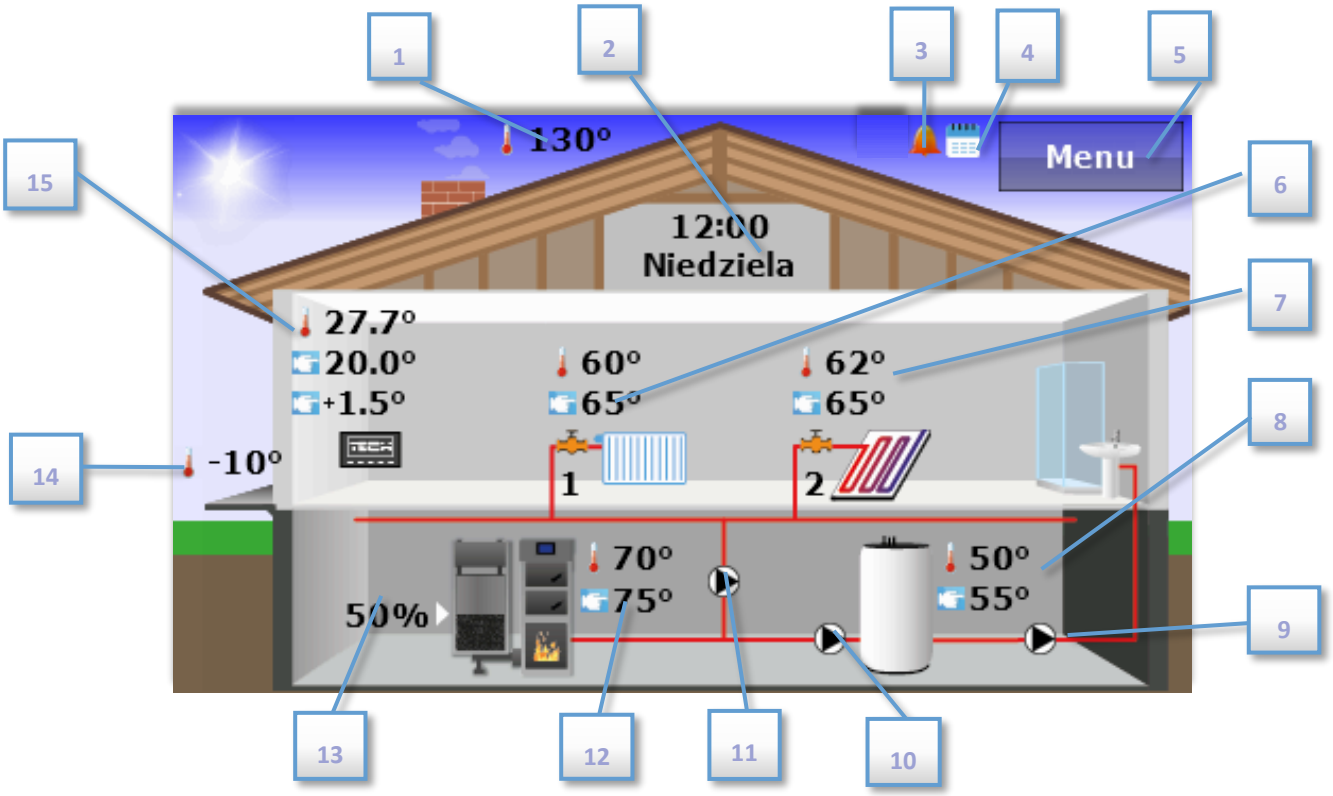
NOTE

Each change of the pre-set temperature, time or any other parameter in the room regulator or CH boiler controller results in new settings being introduced in both devices.

NOTE

Installation view is the default main screen view. The user may change it into panel view.

A) MAIN SCREEN DESCRIPTION - INSTALLATION SCREEN



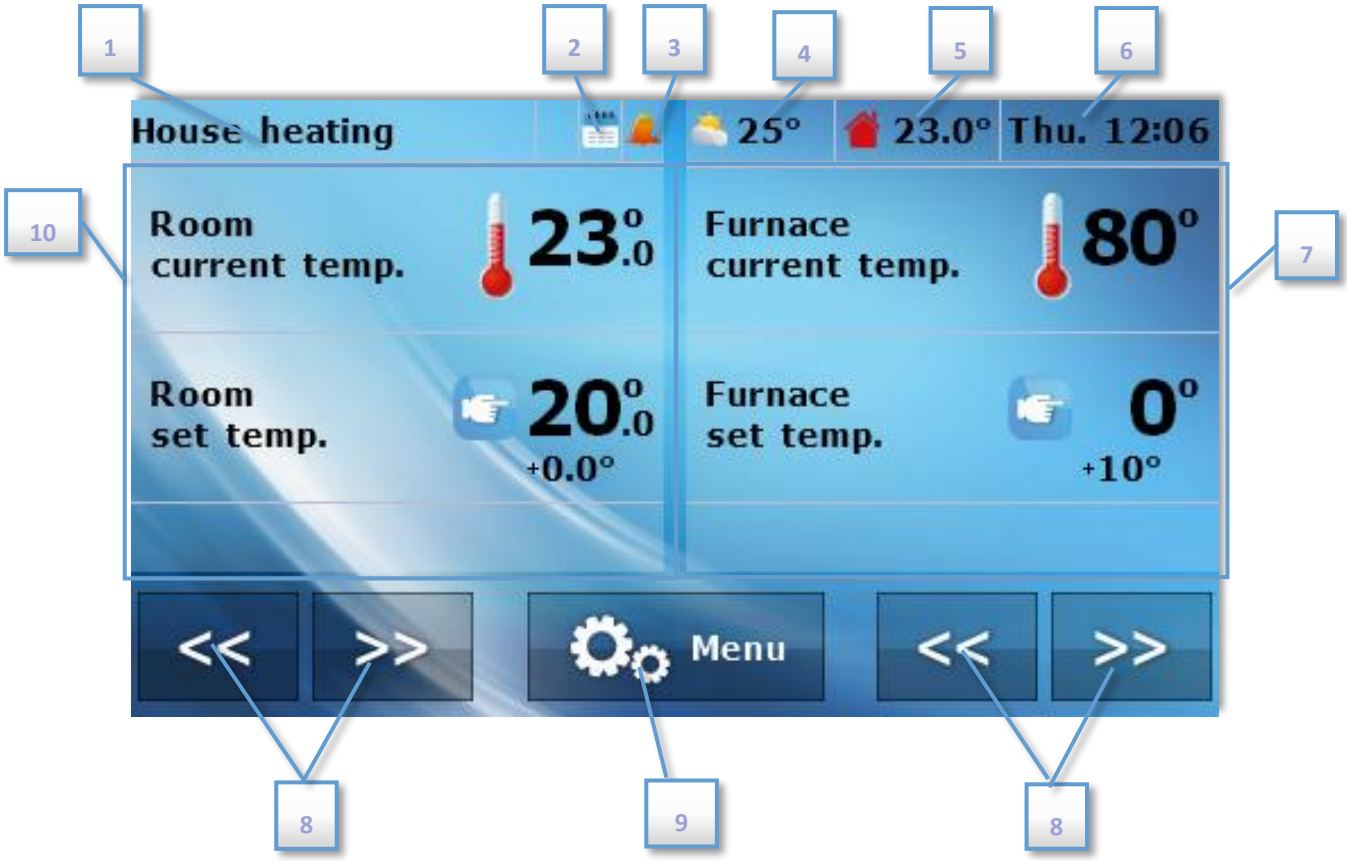
1. Flue gas temperature (displayed only if a flue gas sensor is used in the main controller).
2. Current time and day of the week - tap here to edit time settings.
3. Icon indicating that alarm clock function is active.
4. Icon indicating that weekly control function is active.
5. Enter controller menu.
6. Valve 1 temperature: current and pre-set value - tap here to edit the pre-set temperature of valve 1.
7. Valve 2 temperature: current and pre-set value - tap here to edit the pre-set temperature of valve 2.

NOTE

In order for the room regulator to display the valves parameters, it is necessary to activate and register them (if external valve modules such as ST-431N are used). If the valve is not active, the room regulator screen displays „!”.

8. Water tank 1 temperature: current and pre-set value - tap here to edit the pre-set water tank temperature.
9. Circulating pump icon – animated icon indicates that the pump is active.
10. DHW pump icon – animated icon indicates that the pump is active.
11. CH pump icon – animated icon indicates that the pump is active.
12. CH boiler temperature – current and pre-set value. If three values are displayed, it means that weekly control is active and the third value refers to pre-set temperature correction. Tap here to edit the pre-set temperature of CH boiler.
13. Level of fuel in the feeder.
14. External temperature (displayed only if external sensor is used in the main controller).
15. Room temperature – current and pre-set value. If three values are displayed, it means that weekly control is active and the third value refers to pre-set temperature correction. Tap here to edit the pre-set room temperature.

B) MAIN SCREEN DESCRIPTION – PANEL SCREEN



1. Current operation mode of the pumps.
2. Icon indicating that weekly control function is active.
3. Icon indicating that alarm clock function is active.
4. External temperature (displayed only when the external sensor is used in the main controller).
5. Current room temperature.
6. Current time and day of the week.
7. Right parameter panel.
8. Buttons used to change the screen view.
9. Enter the controller menu.
10. Left parameter panel.

Using panel change buttons the user may view additional information about the heating system:

- **Room temperature panel** – Current and pre-set room temperature – tap on this panel to change the pre-set room temperature.

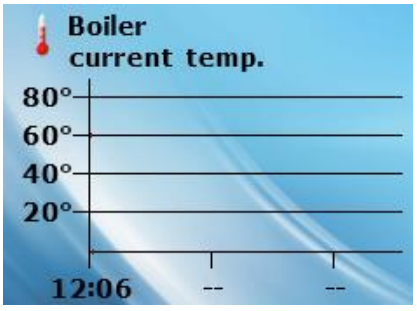
- **CH boiler temperature panel** – Current and pre-set CH boiler temperature – tap on this panel to change the pre-set CH boiler temperature.

- **Water tank temperature panel** – Current and pre-set water tank temperature – tap on this panel to change the pre-set water tank temperature.

- **Valve panel** – Current and pre-set temperature of valves 1,2,3 or 4 - tap on this panel to change the pre-set valve temperature.

- **Fuel level panel** – Level of fuel in the CH boiler (option available only if the CH boiler controller sends such information to the room regulator).

- **Chart panel** – Current temperature chart: CH boiler, water tank or room temperature – graphic representation of temperature changes over time.



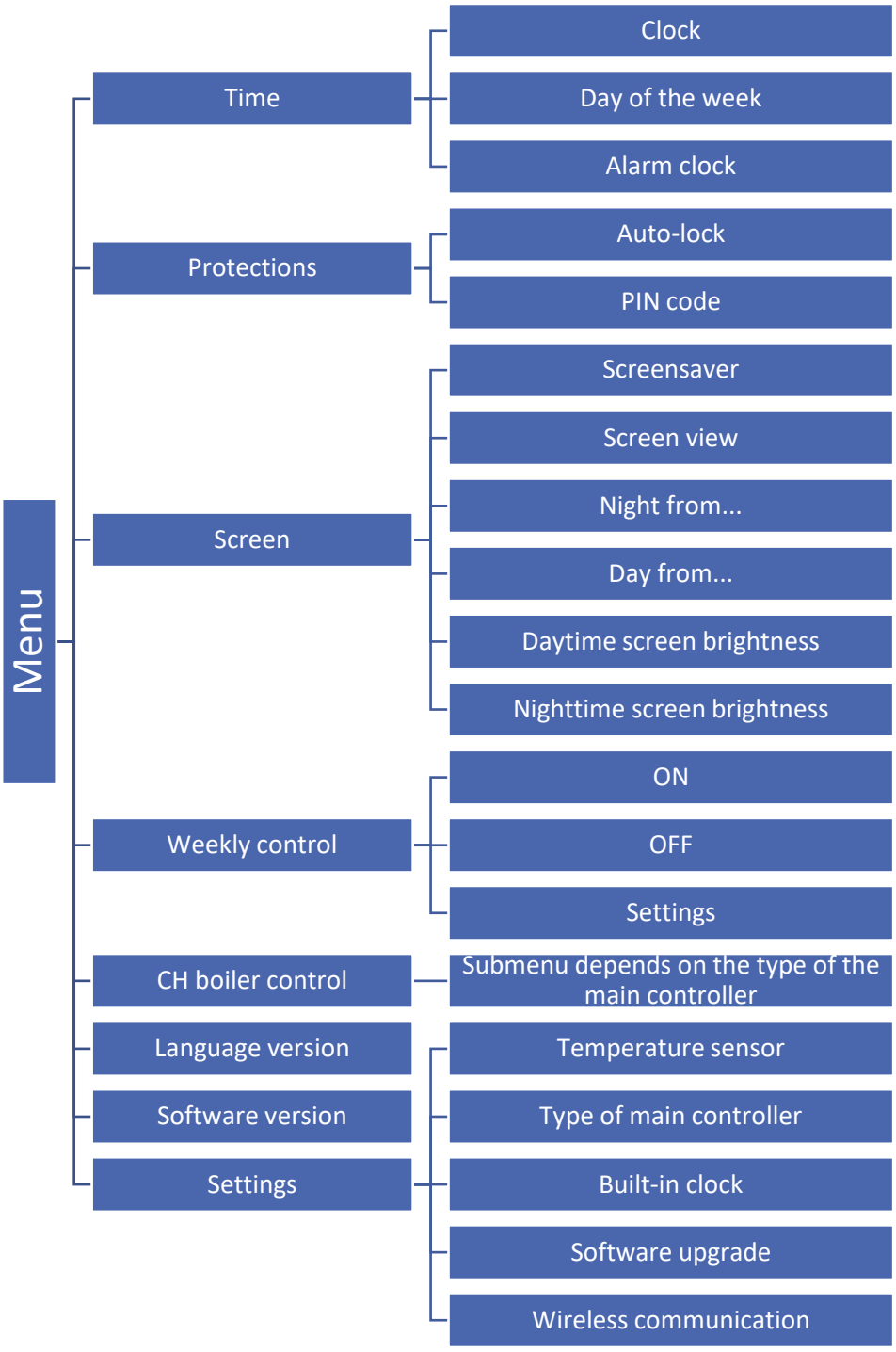
- **Pellet boiler operation mode panel**– It offers fire-up and damping functions (the view is available only for pellet boilers). Tap on this panel to activate or deactivate the CH boiler.

- **Pump operation mode panel** – *Operation mode* view – it shows current operation mode of the pumps (the view is available only for pellet boilers).Tap on this panel to change the operation mode. The following modes are available: House heating, Water tank priority, Parallel pumps, Summer mode with reheating, Summer mode without reheating. Detailed description of each mode may be found in the CH boiler controller manual.

VI. CONTROLLER FUNCTIONS – MENU OPTIONS

During standard operation of the controller, **graphic** display shows *the main page*. By tapping on MENU the user enters particular settings of the regulator.

1. BLOCK DIAGRAM OF MAIN MENU



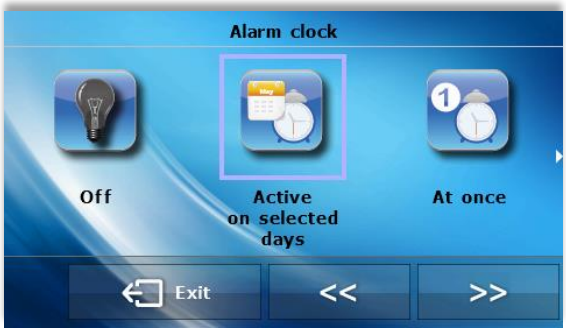
2. TIME

Tapping on *Time* icon opens up a panel enabling the user to change clock settings, current day of the week and alarm clock settings.

- **Clock** – This function is used to set the current time according to which the regulator operates.

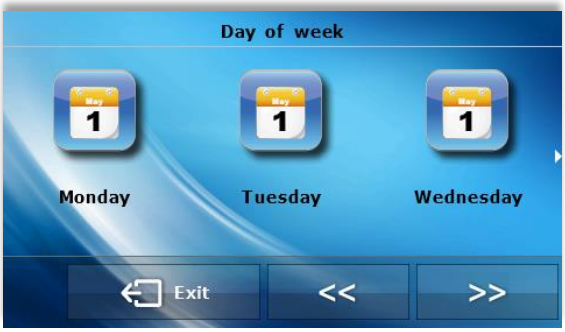
- **Day of the week** – This function is used to set the current day of the week according to which the regulator operates.

- **Alarm clock** – This function is used to set the alarm clock. The alarm clock may be configured to be activated on selected days of the week (active on selected days) or only once.

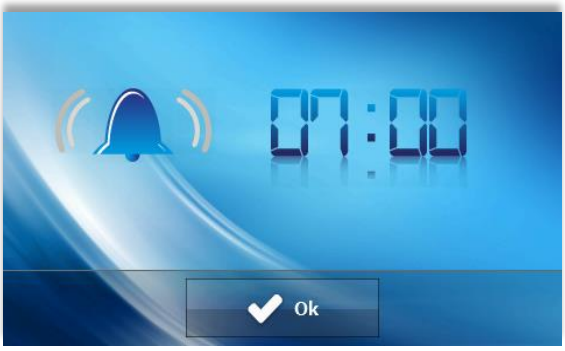


Set the alarm time using ‘up’ and ‘down’ arrows.

- If the alarm clock is to be activated on selected days only, the user needs to select the days of alarm clock activation.



Screen view when the alarm clock is about to be activated.



3. PROTECTIONS

Tap on Protection icon in the main menu to configure parental lock settings.

- **Auto-lock** – After pressing Auto-lock icon, the display shows the panel enabling the user to activate and deactivate the lock.

- **PIN code** – In order to set PIN code, which is necessary for the user to operate the controller when the lock is activated, tap on PIN icon.

NOTE

0000 is the default PIN code.

4. SCREEN

Tap on Screen icon in the main menu in order to configure screen settings.

- **Screensaver** – The user may activate a screensaver which will appear after a pre-defined time of inactivity. In order to return to the main screen view, tap on the screen. The following screensaver settings may be configured by the user:

  - Screensaver selection – After tapping on this icon, the user may deactivate the screen saver (*No screensaver*) or set the screensaver in the form of:

    - Clock – – the screen displays the clock.

    - Blank – after the pre-defined time of inactivity the screen goes blank.

    - Blanked only at night - the screen will go blank at nighttime.

  - Idle time – This function is used to define the time after which the screensaver is activated.

- **Screen view** – Tap on *Screen view* icon to adjust the main screen view, Installation view is set as default but the user may also select panel screen.

- **Night from/ Day from** – Further in the screen menu, the user may define the exact time of entering nighttime mode(Night from) and returning to daytime mode (Day from).

- **Daytime screen brightness/ Nighttime screen brightness** – After tapping on screen brightness icon, the user may adjust the screen brightness (in percentages) both for the daytime and the nighttime.

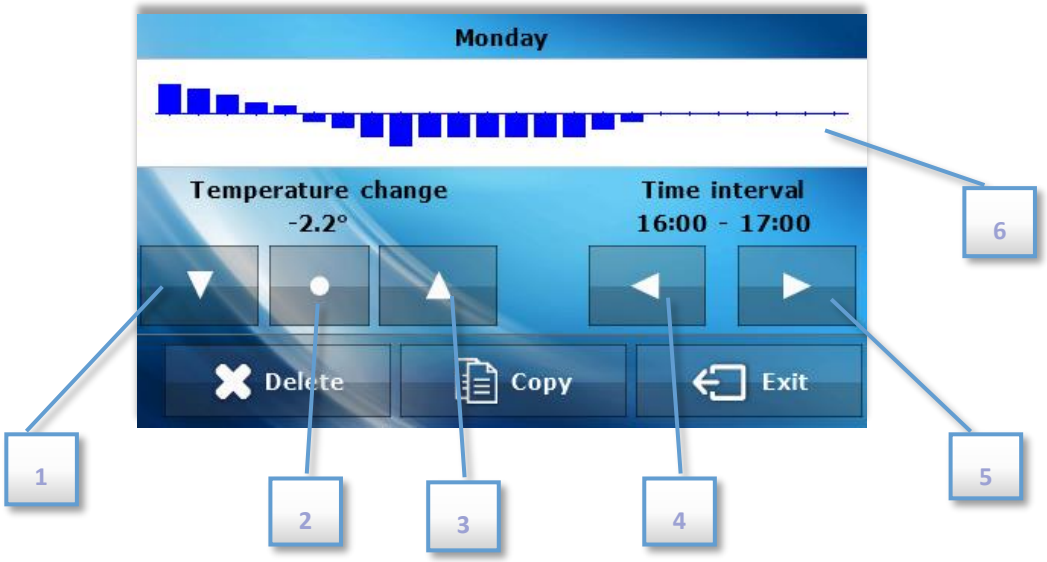
5. WEEKLY CONTROL

The weekly setting of pre-set temperatures reduces heating costs and provides the desired thermal comfort 24 hours a day. The parameter that determines the correct operation of this function is the current time and day of the week.

After selecting the weekly control function, the user may switch on / off the operation schedule and configure appropriate parameters.

Before setting the hourly deviations, select the day of the week to which the settings will apply.

After selecting the day of the week, a panel for setting temperature deviations in selected time intervals is displayed.



1. Decrease temperature
2. Copy temperature deviation to next hours
3. Increase temperature
4. Change time period backwards
5. Change time period forwards
6. Time period bar (24 hours)

Copy icon enables the user to copy the whole day settings into another day.

6. CH BOILER CONTROL

The parameters in this submenu may differ depending on the type of the main controller.

A) STANDARD CONTROLLER SUBMENU

- **Pre-set temperature** – Tap on this icon to change the pre-set CH boiler temperature (it may also be done by tapping on parameters panel in the main screen view).

- **Operation modes** – Tap on this icon to choose one of the following pump operation modes (in the CH boiler controller): House heating, Water tank priority, Parallel pumps or Summer mode. Detailed description of particular operation modes may be found in the CH boiler controller manual.

B) PELLET CONTROLLER SUBMENU

- **Pre-set temperature** - Tap on this icon to change the pre-set CH boiler temperature (it may also be done by tapping on parameters panel in the main screen view).

- **Fire-up** – Tap on this icon to initialise CH boiler fire-up process.

- **Damping** – Tap on this icon to initialise CH boiler damping process.

- **Operation modes** – Tap on this icon to choose one of the following pump operation modes (in the CH boiler controller): House heating, Water tank priority, Parallel pumps or Summer mode. Detailed description of particular operation modes may be found in the CH boiler controller manual.

C) INSTALLATION CONTROLLER SUBMENU

- **Operation modes** – Tap on this icon to choose one of the following pump operation modes (in the CH boiler controller): House heating, Water tank priority, Parallel pumps or Summer mode. Detailed description of particular operation modes may be found in the CH boiler controller manual.

7. LANGUAGE VERSION

Tap on this icon to select the language version of the menu.

8. SOFTWARE VERSION

After selecting this icon, the display shows the CH boiler manufacturer's logo as well as the information about software version.

9. SETTINGS

Tap on this icon to configure additional parameters.

- **Temperature sensor –** Tap on this icon to configure the hysteresis and calibration of room regulator temperature sensor.

  - 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 (within the range 0 ÷ 10^{O}C) with the accuracy of 0,1°C.

    Example: if the pre-set temperature is 23^{O}C and the hysteresis is 1^{O}C, the room temperature is considered too low when it drops to 22^{O}C.

  - Calibration – Calibration should be performed while mounting or after the regulator has been used for a long time, if the room temperature measured by the sensor differs from the actual temperature. Calibration setting range is from -10^{O}C to +10^{O}C with the accuracy of 0,1^{O}C.

- **Type of main controller** – Tap on this icon to select the type of the main controller to cooperate with the room regulator: *standard controller, pellet controller* or *installation controller. CH boiler control* submenu will change accordingly.

- **Built -in clock** – date and time will be automatically downloaded from the panel, and then it will be displayed on the main screen even if communication with the main controller is interrupted.

- **Software update** – this function enables the user to update the controller software using a USB flash drive.

- **Wireless communication** – the function enables the user to activate wireless communication and select the communication channel. ‘37’ is the default channel. If no radio signals interfere with the operation of the device, it is not necessary to change the channel.

VII. ALARMS

EU-281C room temperature regulator signalizes all alarms which occur in the main controller. In the event of alarm, the room regulator sends a sound signal and the display shows the same message as the main controller. If the internal sensor is damaged, the following alarm appears: '*Room temperature sensor damaged*'.

VIII. TECHNICAL DATA

Power supply	230V
Power consumption	1W
Operation temperature	5÷50°C
Measurement error	± 0,5°C
Operation frequency	868MHz

Technical data of the module EU-260v1

Power supply	12V DC
Ambient temperature	5÷50°C
Frequency	868MHz

EU Declaration of Conformity

Hereby, we declare under our sole responsibility that **EU-281c** manufactured by TECH STEROWNIKI II Sp. z o.o., head-quartered in Wieprz Biała Droga 31, 34-122 Wieprz, is compliant with Directive **2014/35/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to **the making available on the market of electrical equipment designed for use within certain voltage limits** (EU OJ L 96, of 29.03.2014, p. 357), **Directive 2014/30/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to **electromagnetic compatibility** (EU OJ L 96 of 29.03.2014, p.79), 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, PN-EN 60730-1:2016-10, PN EN IEC 63000:2019-01 RoHS.

Wieprz, 13.06.2022

Paweł Jura Janusz Master

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