



TECH CONTROLLERS ST-2801 WiFi OpenTherm User Manual

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TECH
CONTROLLERS

TECH CONTROLLERS ST-2801 WiFi OpenTherm



Product Information

The EU-2801 WiFi is a multi-purpose room regulator designed for controlling gas boilers with OpenTherm communication protocol. It allows users to control room temperature (CH circuit) and domestic hot water temperature (DHW) without the need to go to the boiler room.

Functions offered by the controller include:

- Smart control of room temperature
- Smart control of pre-set CH boiler temperature
- Adjusting pre-set room temperature based on current external temperature (weather-based control)
- Weekly house & DHW heating schedule
- Informing about heating device alarms
- Alarm clock
- Auto lock
- Anti-freeze function

Controller equipment includes a large touch screen, built-in room sensor, and flush-mountable design.

The package also includes a C-mini room sensor, which should be registered in a particular heating zone. The C-mini sensor provides the main controller with the current room temperature reading.

Technical data of the C-mini sensor:

- Range of temperature measurement
- Operation frequency
- Accuracy of measurement
- Power supply: CR2032 battery

Product Usage Instructions

InstallationNote: The order of wires connecting the OpenTherm device with the EU-2801 WiFi controller does not

matter.

1. Disconnect the regulator from the mains before performing any activities involving the power supply.
2. Mount the EU-2801 WiFi controller and the C-mini room sensor using the provided latches.

Main Screen Description The main screen of the controller provides various options and information:

1. WiFi module
2. Date and time
3. Mode
4. Screen settings
5. Alarm clock settings
6. Protection Heating circuit
7. Hot water settings
8. Weekly control
9. Language
10. Software version
11. Service menu

Controller Menu The controller menu offers multiple settings and features:

- WiFi network selection
- Registration DHCP
- Module version
- Clock settings
- Date settings
- Automatic Heating Reduction
- Only DHW Party
- Absent Holiday OFF
- Screensaver
- Screen brightness
- Screen blanking
- Blanking time
- Active on selected days
- Active once
- Wake up time
- Wake up day
- Auto-lock ON
- Auto-lock OFF
- PIN code auto-lock

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.
- 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 11.08.2022. 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.

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.

DEVICE DESCRIPTION

EU-2801 WiFi multi-purpose room regulator is intended for controlling gas boilers with OpenTherm communication protocol. The device enables the user to control room temperature (CH circuit) as well as domestic hot water temperature (DHW) without the need to go to the boiler room.

Functions offered by the controller:

- Smart control of room temperature
- Smart control of the pre-set CH boiler temperature
- Adjusting pre-set room temperature on the basis of current external temperature (weather-based control)
- Weekly house&DHW heating schedule
- Informing about heating device alarms
- Alarm clock
- Auto lock
- Anti-freeze function

Controller equipment:

- Large touch screen
- Built-in room sensor
- Flush-mountable

To the EU-2801 WiFi controller is attached room sensor C-mini. Such sensor is installed in particular heating zone. It provides the main controller current room temperature reading. Room sensor should be registered in a particular zone.

In order to do it, use <Registration>. Select <Registration> icon and press the communication button on a particular C-mini sensor. Once the registration process has been completed successfully, the main controller

display will show an appropriate message.

Once registered, the sensor cannot be unregistered, but only switch off.

Technical data of the C-mini sensor:

| | |
|----------------------------------|--------------------------------------|
| Range of temperature measurement | -30 ⁰ C÷50 ⁰ C |
| Operation frequency | 868MHz |
| Accuracy of measurement | 0,5 ⁰ C |
| Power supply | CR2032 battery |

HOW TO INSTALL

The controller should be installed by a qualified person. The device is intended to be installed on the wall.

WARNING

EU-2801 WiFi controller is intended to be installed in a flush-mounting box. It is powered with 230V/50Hz – the cable should be plugged directly into the connection terminal of the controller. Before assembling/disassembling, disconnect from the power supply.

1. Attach the back cover to the wall in the place where the room regulator in the electrical box will be installed.
2. Connect the wires.

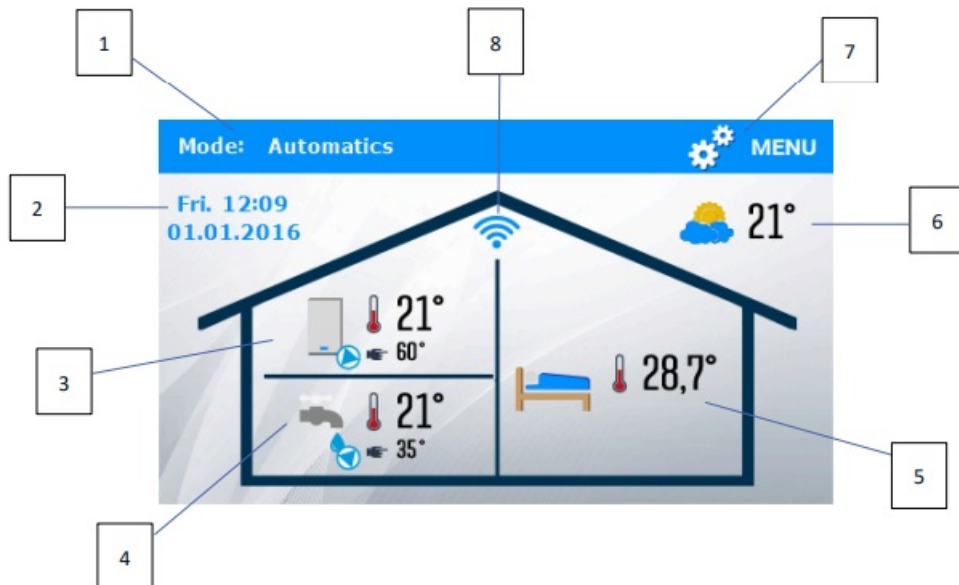


NOTE

The order of wires connecting OpenTherm device with EU-2801 WiFi controller does not matter.

3. Mount the devices on the latches.

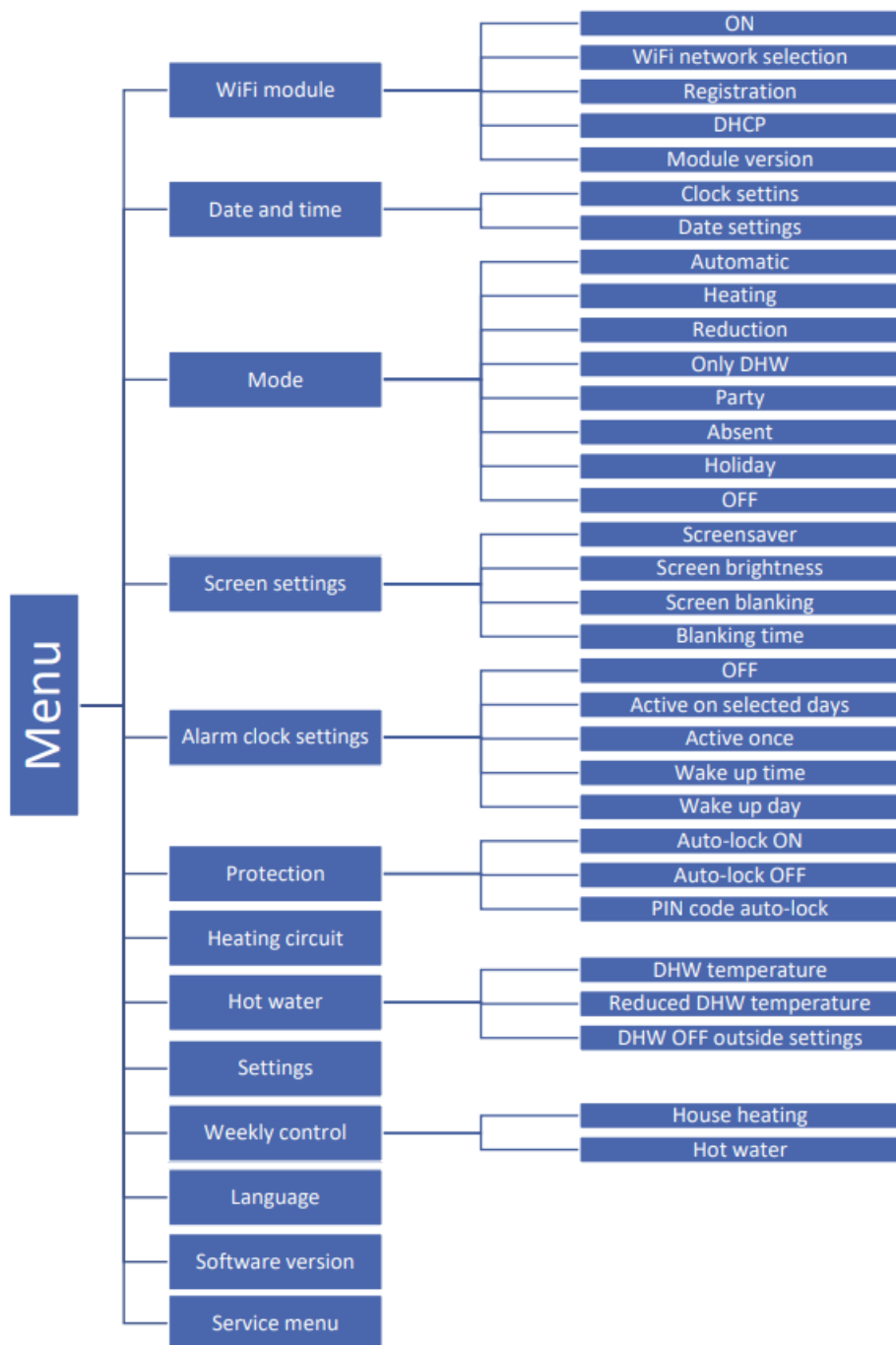
MAIN SCREEN DESCRIPTION



1. Current CH boiler operation mode
2. Current time and day of the week – tap on this icon to set time and day of the week.
3. CH boiler icon:
 - flame in the CH boiler – CH boiler is active
 - no flame – CH boiler is damped
4. Current and pre-set DHW temperature – tap on this icon to change the pre-set temperature of domestic hot water
5. Current and pre-set room temperature – tap on this icon to change the pre-set room temperature.
6. External temperature
7. Enter controller menu
8. WiFi signal– tap on this icon to check the signal strength, IP number and view WiFi module settings.

CONTROLLER MENU

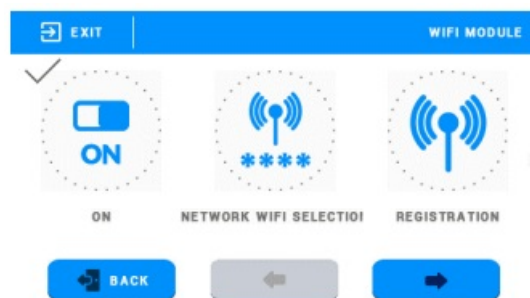
BLOCK DIAGRAM OF MAIN MENU



WIFI MODULE

Internet module is a device enabling the user remote control of the heating system. The user controls the status of all heating system devices on a computer screen, a tablet or a mobile phone.

After switching the module on and selecting DHCP option, the controller automatically downloads parameters from the local network.



Required network settings

For the Internet module to work properly, it is necessary to connect the module to the network with a DHCP server and an open port 2000.

After connecting the Internet module to the network, go to the module settings menu (in the master controller). If the network does not have a DHCP server, the Internet module should be configured by its administrator by entering appropriate parameters (DHCP, IP address, Gateway address, Subnet mask, DNS address).

1. Go to the WiFi module settings menu.
2. Select "ON".
3. Check if the "DHCP" option is selected.
4. Go to "WIFI network selection"
5. Select your WIFI network and enter the password.
 1. Wait for a while (approx. 1 min) and check if an IP address has been assigned. Go to the "IP address" tab and check if the value is different from 0.0.0.0 / -.-.-.-.
 - a) If the value is still 0.0.0.0 / -.-.-.-, check the network settings or the Ethernet connection between the Internet module and the device.
 2. After the IP address has been assigned, start the module registration in order to generate a code which must be assigned to the account in the application.

DATE AND TIME

CLOCK SETTINGS

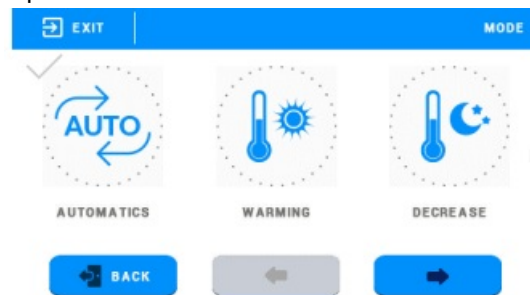
This option is used to set current time which is displayed in the main screen view. Use icons: ▲ and ▼ to set the desired value and confirm by pressing OK

DATE SETTINGS

This option is used to set current time which is displayed in the main screen view. Use icons: ▲ and ▼ to set the desired value and confirm by pressing OK.

MODE

The user may choose one of eight operation modes available.



AUTOMATIC

The controller operates according to user-defined temporary program – house heating and DHW heating only in pre-defined hours.

HEATING

The controller operates according to <Pre-set room temperature> parameter (in <Heating circuit> submenu) and <DHW temperature> parameter (in <Hot water> submenu) regardless of current time and day of the week.

REDUCTION

The controller operates according to <pre-set room temperature reduction> parameter (in <Heating circuit> submenu) and <DHW reduction> parameter (in <Hot water> submenu) regardless of current time and day of the week. For this function it is necessary to use a reduction in heating reduction.

ONLY DHW

The controller only supports the hot water circuit (heating circuit off) according to the settings <Temp. DHW> (set in the <Hot water> submenu) and Weekly settings.

PARTY

The controller operates according to <Pre-set room temperature> parameter (in <Heating circuit> submenu) and <DHW temperature> parameter (in <Hot water > submenu) for a user-defined period of time.

ABSENT

Both circuits remain deactivated until the time pre-defined by the user. Only anti-freeze function remains active (if it has been activated beforehand).

HOLIDAY

Both circuits remain deactivated until the day pre-defined by the user. Only anti-freeze function remains active (if it has been activated beforehand).

OFF

The controller deactivates both circuits for a non-specified time. Only anti-freeze function remains active (if it has been activated beforehand).

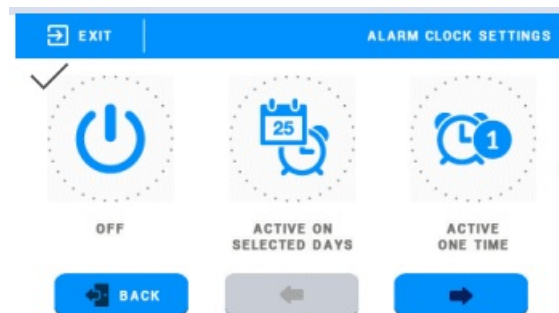
SCREEN SETTINGS

The user may adjust screen settings to individual needs.

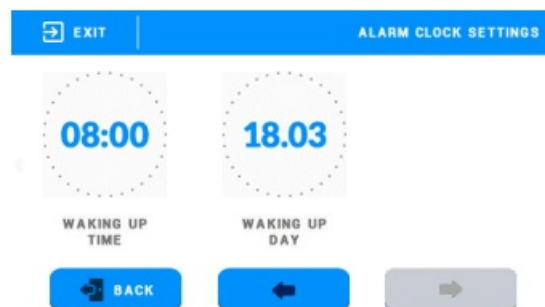
CLOCK SETTINGS

This function is used to configure clock settings.

- OFF – when this option is selected, the alarm clock function is inactive.
- Active on selected days – The alarm clock goes off only on selected days.



- Once – When this option is selected, the alarm clock goes off only once at a pre-set waking-up time.
- Waking-up time – Use icons ▲▼ to set the waking-up time. Tap on <OK> to confirm.
-



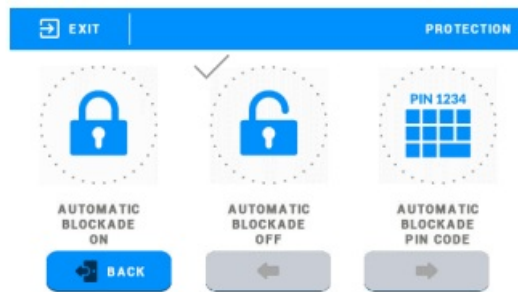
Waking-up day – Use icons ▲▼ to set the waking-up day. Tap on <OK> to confirm.

PROTECTIONS

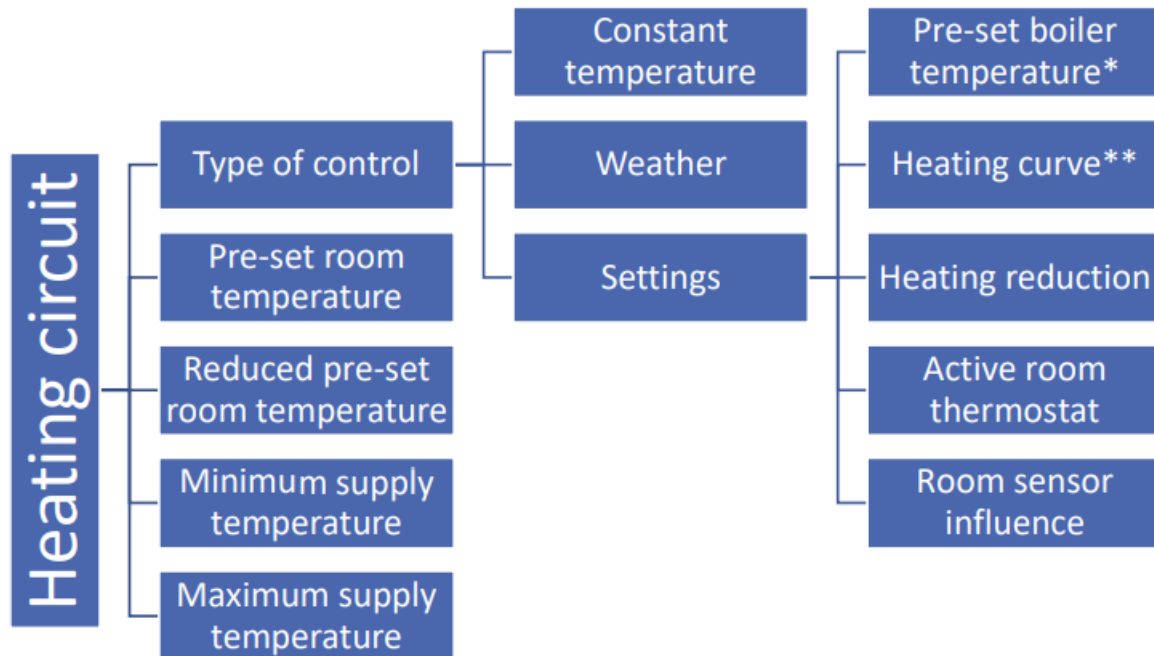
This function enables the user to activate and deactivate the auto-lock. When auto-lock is active, it is necessary to enter PIN code in order to access the controller menu.

NOTE

Default PIN code is „0000“.



HEATING CIRCUIT



* Displayed when the <Constant temperature> function is activated

** Displayed when the <Weather> function is enabled

TYPE OF CONTROL

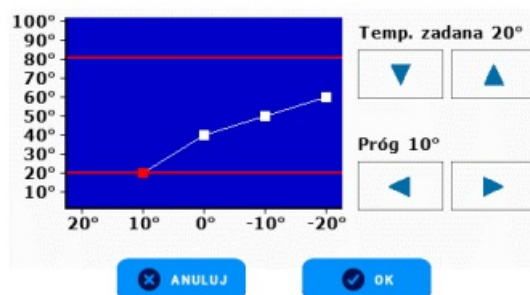
- **Constant temperature** – when this option is active, the user may edit the parameters available in the <Settings> submenu.
- **Settings** – this function is used to define the pre-set CH boiler temperature without the use of external sensor. The user may set desired temperature of the CH boiler. The boiler remains active in the periods defined in the Weekly schedule. Outside these periods the device does not work. Additionally, when the thermostat function has been activated, the CH boiler is damped when the pre-set room temperature has been reached (when the thermostat function is switched off, reaching the pre-set room temperature will result in decreasing the pre-set CH boiler temperature). The room will be heated to reach the pre-set temperature in the periods defined in the Weekly schedule.
- **The <Heating reduction> function** – This parameter is connected with the Weekly schedule which enables the user to define the time periods for each day of the week when the CH boiler will operate based on the pre-set temperature settings. After activating the thermostat and setting the Heating reduction function at Decrease, the CH boiler will operate in two modes. In the weekly schedule periods the CH boiler will heat the rooms to reach the pre-set temperature whereas outside these periods the CH boiler heat the rooms the the temperature of pre-set temperature decrease.
- **Weather** – After selecting this function, the pre-set CH boiler temperature depends on the outside temperature value. The user sets the Weekly schedule settings.

Settings – this function (apart from the possibility of setting the heating reduction and room thermostat – as in the case of constant temperature) also serves to define the Heating curve and Influence of the room sensor.

The user may set the following parameters:

- **Heating curve** – it serves to define the pre-set CH boiler temperature based on the outside temperature. In our controller the curve consists of four points of external temperature : 10°C, 0°C, -10°C and -20°C.

Once the heating curve has been defined, the controller reads the outside temperature value and adjusts the pre-set boiler temperature accordingly.



- **Influence of the room sensor** – activating this function results in more dynamic heating to reach the pre-set value in case of significant temperature difference (e.g. when we want to reach the pre-set room temperature quickly after airing the room). By setting the hysteresis of this function, the user may decide how big the influence should be.
- **Room temperature difference** – this setting is used to define a single unit change in the current room temperature at which a pre-defined change in the pre-set temperature of the CH boiler will be introduced.

Example:

Room temperature difference 0,5°C

Change of pre-set CH boiler temperature 1°C

Pre-set CH boiler temperature 50°C

Pre-set temperature of the room regulator 23°C

Case 1. If the room temperature increases to 23,5°C (by 0,5°C), the pre-set CH boiler temperature changes to 49°C (by 1°C).

Case 2. If the room temperature drops to 22°C (by 1°C), the pre-set CH boiler temperature changes to 52°C (by 2°C).

- **Change of pre-set temperature** – this function is used to define by how many degrees the pre-set CH boiler temperature is to increase or decrease with a single unit change in the room temperature (see: Room temperature difference). This function is available only with TECH room regulator and it is closely related to <Room temperature difference parameter>.

PRE-SET ROOM TEMPERATURE

This parameter is used to define the pre-set room temperature (daytime comfort temperature). This parameter is used e.g. in the temporary program – it applies for the time specified in this program.

REDUCED PRE-SET ROOM TEMPERATURE

This parameter is used to define the reduced pre-set room temperature (nighttime economical temperature). This parameter is used e.g. in reduction mode.

MINIMUM SUPPLY TEMPERATURE

This parameter is used to define minimum pre-set CH boiler temperature – the pre-set temperature may not be lower than the value defined in this parameter. In some cases the pre-set CH boiler temperature may be controlled with operation algorithm (e.g. in weather-based control in case of external temperature increase) but it will never be reduced below this value.

MAXIMUM SUPPLY TEMPERATURE

This parameter is used to define maximum pre-set CH boiler temperature – the pre-set temperature may not be higher than the value defined in this parameter. In some cases the pre-set CH boiler temperature may be controlled with operation algorithm but it will never exceed this value.

HOT WATER

DHW TEMPERATURE

This parameter is used to define the pre-set hot water temperature. This parameter is used e.g. in the temporary program – it applies for the time specified in this program.

REDUCED DHW TEMPERATURE

This parameter is used to define the reduced pre-set hot water temperature. This parameter is used e.g. in reduction mode.

DHW OFF OUTSIDE SETTINGS

If this option is selected, domestic hot water will not be heated outside the periods specified in weekly control settings.

SETTINGS

HEATING SYSTEM PROTECTION

Once this function has been activated, the user defines the pre-set temperature. If the external temperature drops below this value, the controller activates the pump which operates until the temperature is raised and maintained for 6 minutes.

When this function is active, the controller also monitors the CH boiler temperature. If it drops below 10°C, the fire-up process is initiated and the flame is sustained until the CH boiler temperature exceeds 15°C.

SUMMER

When this function is active, the controller continuously monitors the external temperature. If the threshold temperature is exceeded, the heating circuit is switched off.

TYPE OF SENSOR

The controller has a built-in sensor but it is also possible to use an additional wireless sensor. Such a sensor must be registered using one of the options: <Wireless sensor> or <Registration>. Next, press the communication button on the sensor within 30 seconds. If the registration process has been successful, the controller will display a message to confirm. If an additional sensor has been registered, the main display will show information about WiFi signal and battery level.

NOTE

If the battery is flat or there is no communication between the sensor and the controller, the controller will use the built-in sensor.

SENSOR CALIBRATION

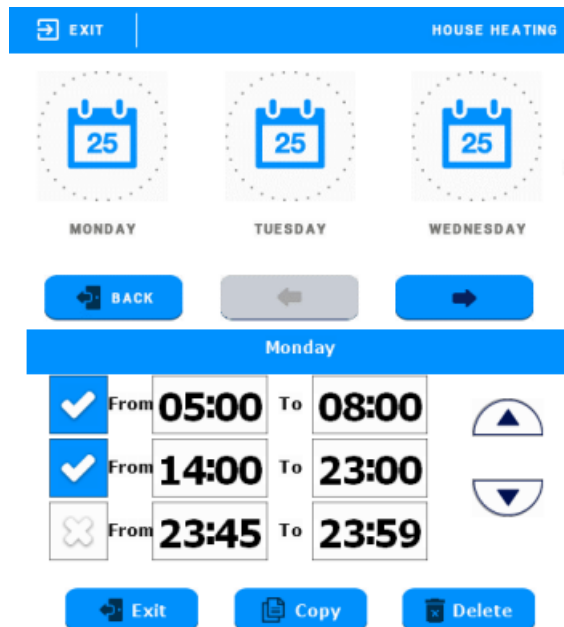
Sensor calibration should be performed during installation or after a longer period of using the regulator when the room temperature (room sensor) or external temperature (external sensor) measured by the sensor is different from actual temperature. Range of regulation is -10 to +10 °C with the accuracy of 0,1°C.

WEEKLY CONTROL

The user may configure a weekly control schedule for house and domestic hot water heating on particular days of the week and hours. It is possible to create 3 time periods for each week using UP and DOWN arrows. The settings for a particular day may be copied into next ones.

- Select the day to be configured.
- Select the heating periods which will be active and configure their time limits.
- Within the time periods the controller will operate according to pre-set temperature settings. Outside these periods the controller operation is configured by the user in Heating circuit -> Type of control -> Weather-based control -> Heating reduction – if <ON/OFF> is selected, the controller deactivates a given circuit whereas if

<Reduced> is selected, the controller operates according to reduced temperature settings.



LANGUAGE

This option is used to select the software language preferred by the user.

SOFTWARE VERSION

Tap on this icon to view the CH boiler manufacturer's logo, the software version.

NOTE

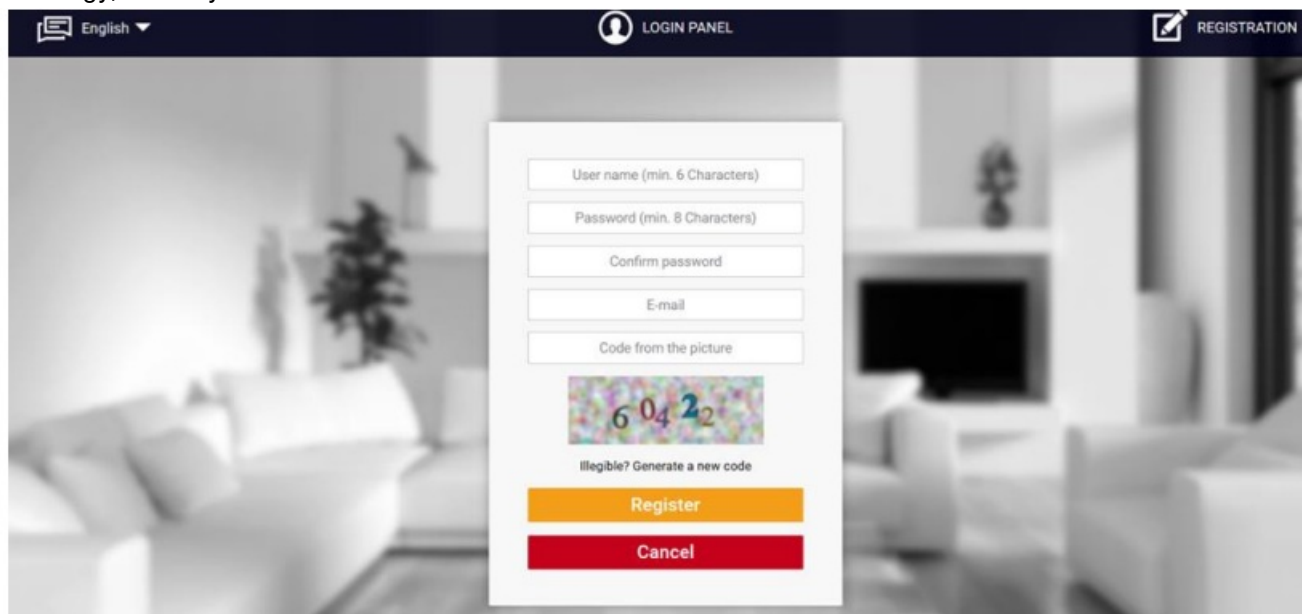
When contacting Service Department of TECH company it is necessary to provide the software version number.

SERVICE MENU

This function is used to configure advanced settings. Service menu should be accessed by a qualified person and it is protected with a 4-digit code.

HOW TO CONFIGURE THE MODULE

The website offers multiple tools for controlling your heating system. In order to take full advantage of the technology, create your own account:



Creating a new account at emodul.pl

Once logged in, go to Settings tab and select Register module. Next, enter the code generated by the controller

(to generate the code, select Registration in EU-2801 WiFi menu). The module may be assigned a name (in the are labelled Module description).

New module registration screen

HOME TAB

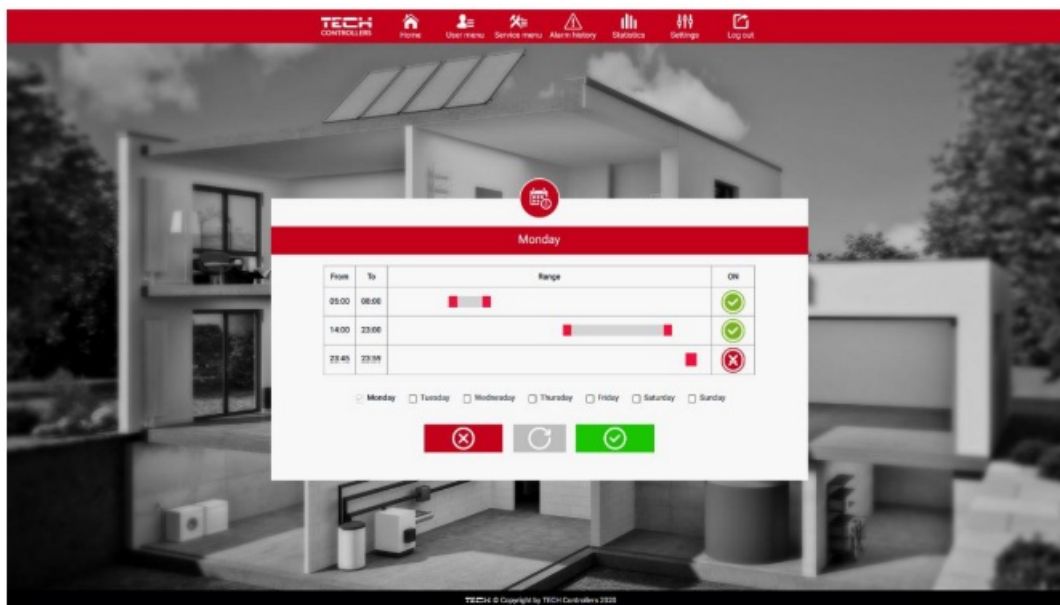
Home tab displays the main screen with tiles illustrating the current status of particular heating system devices. Tap on the tile to adjust the operation parameters:



Screenshot presenting an example tab with main menu parameters

USER MENU

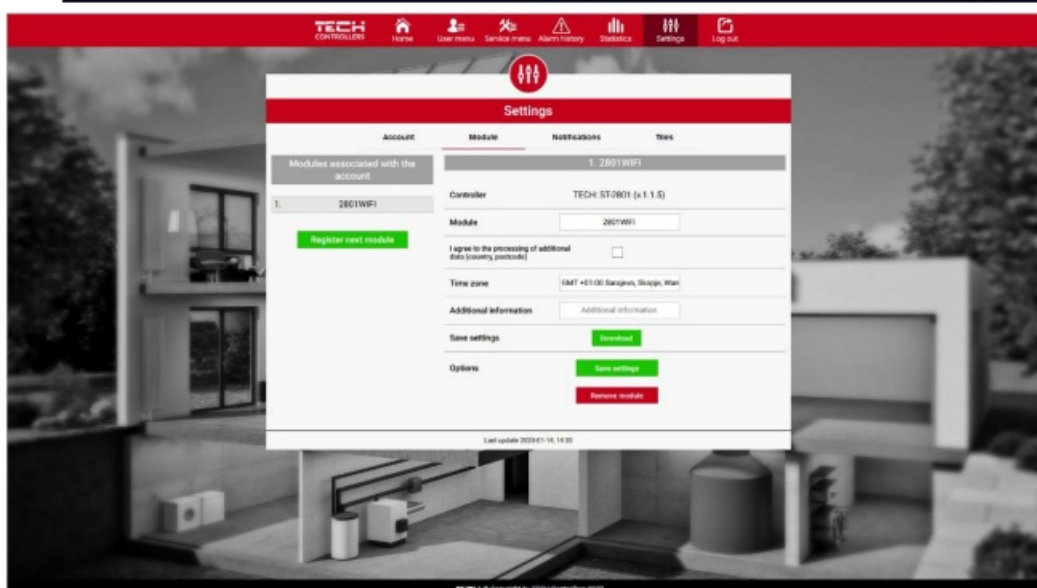
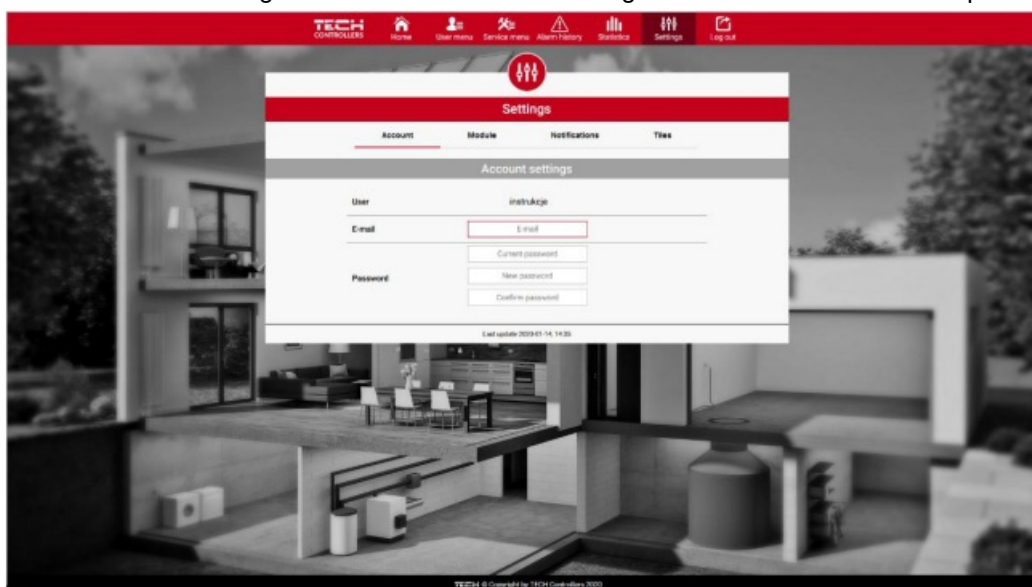
In the User menu it is possible to set the operating modes, boiler week and hot water and other parameters according to your needs.



User menu tab view - Weekly settings

SETTINGS TAB

Settings tab enables the user to register a new module and change the e-mail address or the password:



Screenshot showing the tab Settings

TECHNICAL DATA

| Specification | Value |
|--|---------------------|
| Range of room temperature setting | from 5°C to 40°C |
| Supply voltage | 230V +/- 10% / 50Hz |
| Power consumption | 1,3W |
| Accuracy of room temperature measurement | +/- 0,5°C |
| Operating temperature | from 5°C to 50°C |
| Frequency | 868MHz |
| Transmission | IEEE 802.11 b/g/n |

ALARMS

EU-2801 WiFi room temperature regulator signals all alarms which occur in the main controller. In case of alarm, the regulator activates a sound signal and the screen displays a message with error ID.

NOTE

In most cases, in order to remove an alarm it is necessary to delete it in the CH boiler controller.

EU Declaration of conformity

Hereby, we declare under our sole responsibility that EU-2801 WiFi manufactured by TECH STEROWNIKI, headquartered 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 art. 3.1a Safety of use

PN-EN IEC 62368-1:2020-11 art. 3.1 a Safety of use

PN-EN 62479:2011 art. 3.1 a Safety of use

ETSI EN 301 489-1 V2.2.3 (2019-11) art.3.1b Electromagnetic compatibility

ETSI EN 301 489-3 V2.1.1 (2019-03) art.3.1 b Electromagnetic compatibility

ETSI EN 301 489-17 V3.2.4 (2020-09) art.3.1b Electromagnetic compatibility

ETSI EN 300 328 V2.2.2 (2019-07) art.3.2 Effective and coherent use of radio spectrum

ETSI EN 300 220-2 V3.2.1 (2018-06) art.3.2 Effective and coherent use of radio spectrum

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

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Documents / Resources



[TECH CONTROLLERS ST-2801 WiFi OpenTherm](#) [pdf] User Manual
ST-2801 WiFi OpenTherm, ST-2801, WiFi OpenTherm, OpenTherm

References

-  [eModul.pl](#)