TECH CONTROLLERS

USER MANUAL

EU-21 CWU

EN



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EU DECLARATION OF CONFORMITY

Hereby, we declare under our sole responsibility that **EU-21 CWU** manufactured by TECH STEROWNIKI, 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.

Wieprz, 03.03.2022

PAWEŁ JURA JANUSZ MASTER

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 shoud measure earthing resistance of the electric motors as well as the insulation resistance of the cables.
- The regulator should not be operated by children.

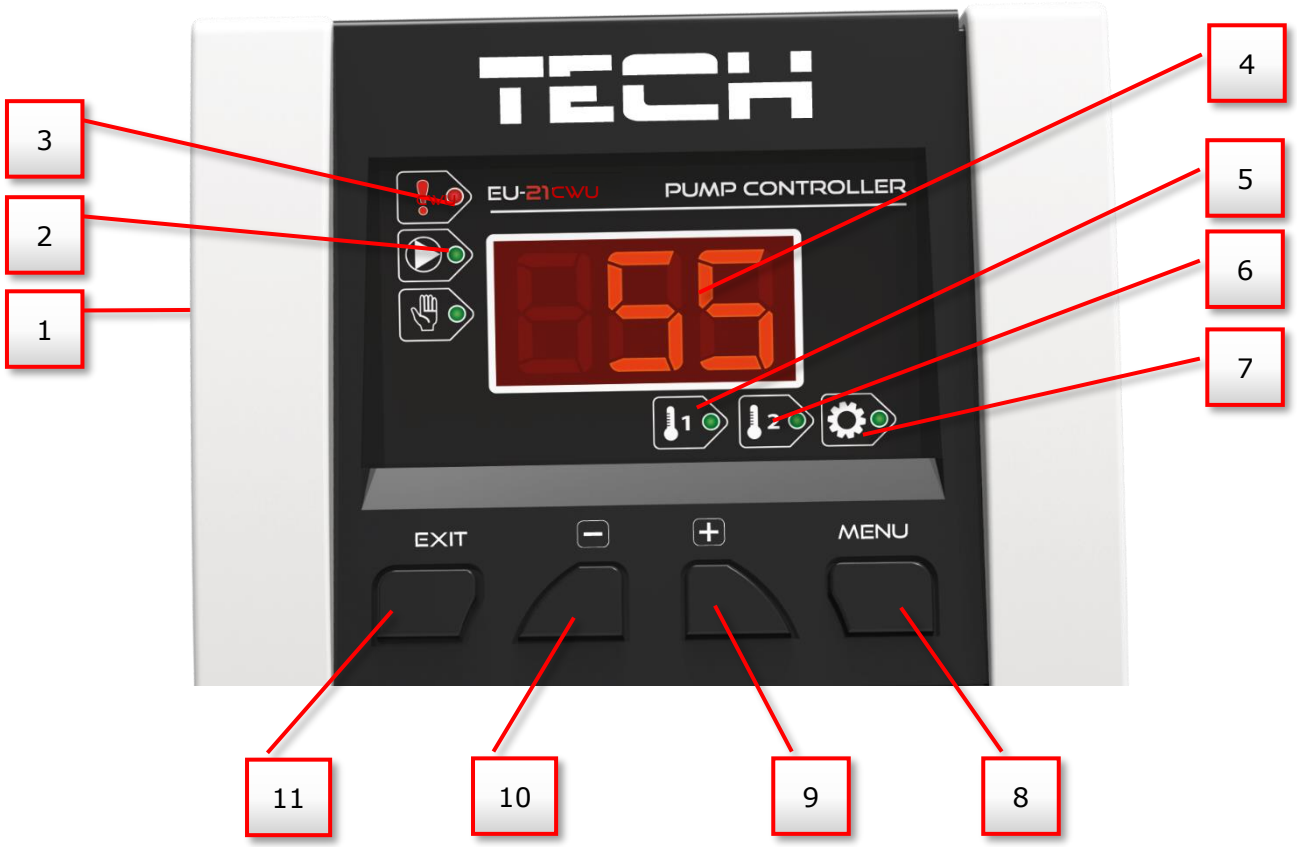
WARNING

- 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 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.

Description of the controller



1. LED – manual operation
2. LED – Pump operation
3. LED – alarm
4. T1 or T2 sensor temperaturę
5. Current temperaturę of T1 sensor
6. Current temperature of T2 sensor
7. View menu options
8. Select MENU, confirm the settings
9. Main screen: selection of T1 (DHW tank) temp. View; Edit: PLUS button; Manual operation: switching off the pump
10. Main screen: selection of T2 (CH boiler) temp. View; Edit: MINUS button; Manual operation: switching off the pump.
11. Main screen: holding the buton – standby; During alarm: mute the sound; Manual operation: exit menu operation

Principle of operation

EU-21 CWU regulator is a multi-purpose controller equipped with two temperature sensors. It is intended for controlling the central heating circulation pump.

The controller activates the pump when the temperature difference between the two sensors exceeds the set value (T2-T1 ≥ Δ), provided that T2 ≥ Minimum threshold of pump activation.
The pump is deactivated when T2 ≤ T1 or when T2 < Minimum threshold of pump activation – 2ºC (constant hysteresis value). The pump also switches off when T1 reaches the set value.
Key: T2 – CH boiler temperature T1 – DHW tank temperature (buffer).
It prevents unnecessary pump operation as well as unintended cooling down of the DHW tank when the water supply temperature drops. This, in turn, helps to save electricity and prolongs the life of the pump. Consequently, the device is more reliable and economical.

EU-21 CWU regulator is equipped with a system preventing pump stagnation during long standstill. The pump is switched on for 1 minute every 10 days.
Additionally, the controller is equipped with anti-freeze function. When the temperature of CH boiler sensor or DHW tank sensor drops below 6ºC, the pump is activated permanently. It is switched off when the circuit temperature reaches 7ºC.

Regulator operation

Sensors temperature view may be changed using **MINUS** button (DHW tank temperature – T1) and **PLUS** button (CH boiler supply water temperature – T2). After pressing **MENU** button, the regulator displays the user's menu in which the user navigates using **PLUS** and **MINUS** buttons. In order to select an option or confirm changes, press **MENU** button. In order to cancel changes or exit the menu, press **EXIT** button. Holding **EXIT** button for 5 seconds in the main screen view activates standby mode and then the pump is switched off.
The following functions are available in the main **MENU**:

1. Manual operation

This function enables the user to activate the pump manually (e.g. to check if it works correctly). After A1 function is selected, the user may switch the pump on (**PLUS** button) and off (**MINUS** button).



2. Delta of pump activation

This function is used to set the temperature difference (Δ) between the CH boiler and the tank (Δ = T1-T2). After this value has been reached, the pump is activated, provided that the temperature value is higher than the pre-set activation threshold.



3. Activation threshold

This function enables the user to set the temperature of pump activation. When the temperature exceeds this value, the pump is activated (so called *Activation threshold*), provided that the delta *of pump activation* has been reached.



4. Deactivation threshold



This function enables the user to set the temperature of pump deactivation. When the temperature exceeds this value, the pump is switched off (so called *Deactivation threshold*). The temperature is measured by the tank sensor.

5. Factory settings



The regulator is pre-configured for operation. However, the settings should be customized to the user's needs. Return to factory settings is possible at any time. When the factory settings option is activated, all customized settings of the controller are lost and replaced with the manufacturer's settings.

Alarms

c1 – Tank sensor error,
c2 – CH boiler sensor error,
AL1 – the message is displayed alternately with the current CH boiler temperature when the *anti-freeze* function is activated (signal from the CH boiler sensor)
AL2 – the message is displayed alternately with the current DHW tank temperature when the *anti-freeze* function is activated (signal from the tank sensor)
-A- – message informing that the anti-stop function is active

NOTE
If any of the alarms occurs, the pump will be activated regardless of the current temperature.

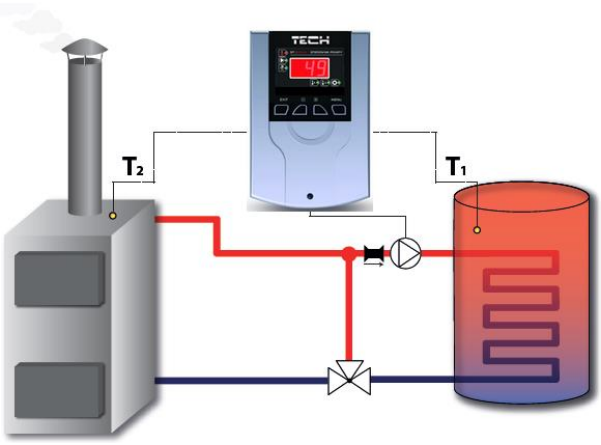
Installation

The device should be installed by a qualified person! The sensor should be mounted using a band clip and isolated with insulation tape to minimize external influences. The pump power cable should be connected in the following way: blue and brown – 230V, yellow/green (protective) should be connected to the earthing point in the frame.
Space between the mounting holes is 86,5 mm.

No.	Specification	Unit	
1	Power supply	V	230V ±10% /50Hz
2	Max. power consumption	W	2
3	Operation temperature	°C	5÷50
4	Pump max. output load	A	0,5
5	Potential-free contact max. output load	A	1
6	Temperature measurement accuracy	°C	±1
7	Sensor thermal resistance	°C	-30÷99
8	Fuse	A	1,6

The regulator has a WT 1,6A tube fuse-link protecting the network.

Wiring diagram



EU-21 CWU

If:
T2-T1 ≥Δ and T2≥Activate treshold then **Pump is working**

If:
T1 ≥T2 or T2<Activate treshold then **Pump is not working**

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