User manual
EU-21DHW

EN

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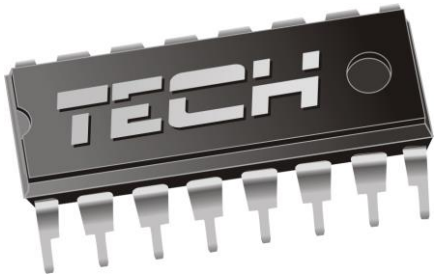


Declaration of conformity 26/2010

Hereby, we declare under our sole responsibility that **EU-21DHW 230V, 50Hz** thermoregulator manufactured by TECH, headquartered in Wieprz 1047A, 34-122 Wieprz, 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 : 05-2010

PAWEŁ JURA JANUSZ MASTER
WŁAŚCICIELE TECH SP.J.

Wieprz, 14. 04. 2015

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.

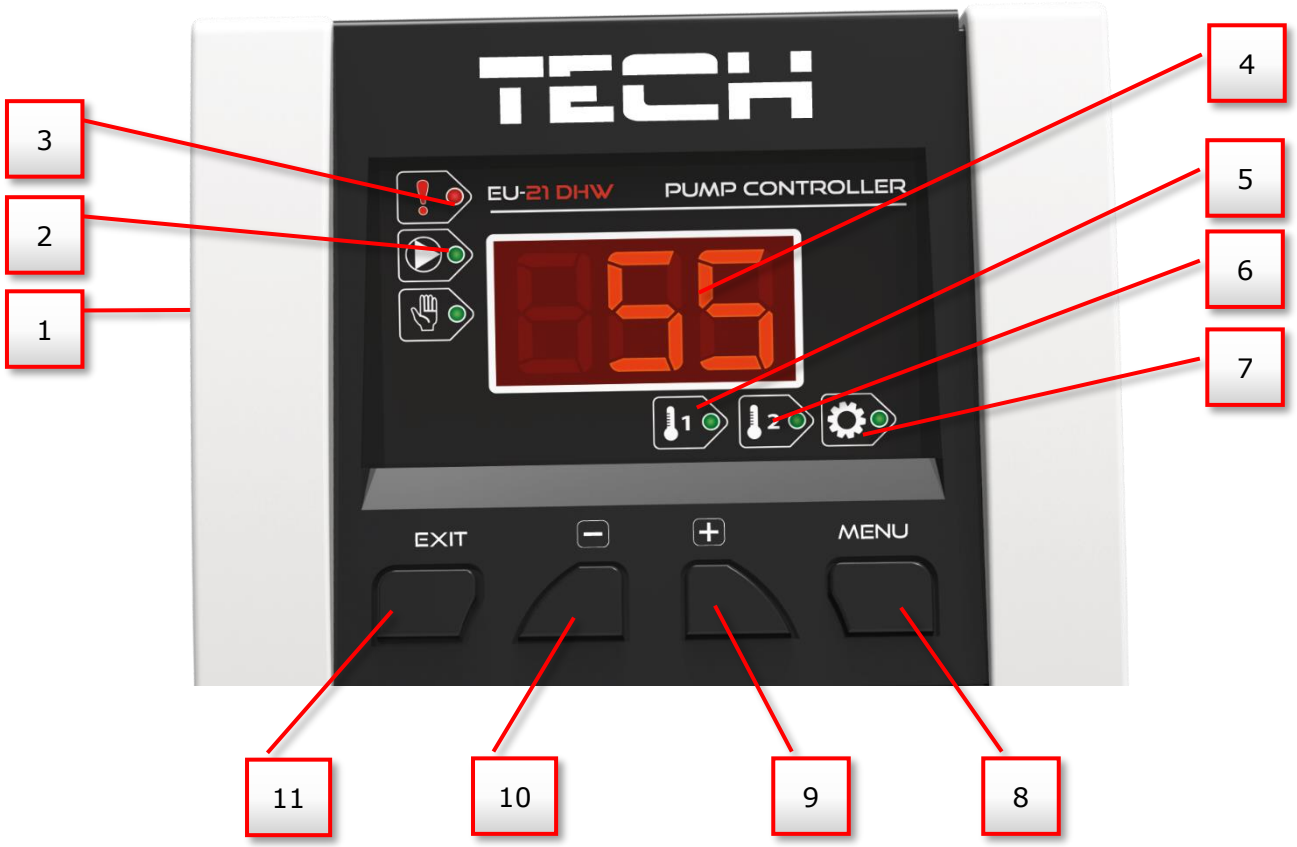
WARNING

- **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.

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-21DHW 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 DHW 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.

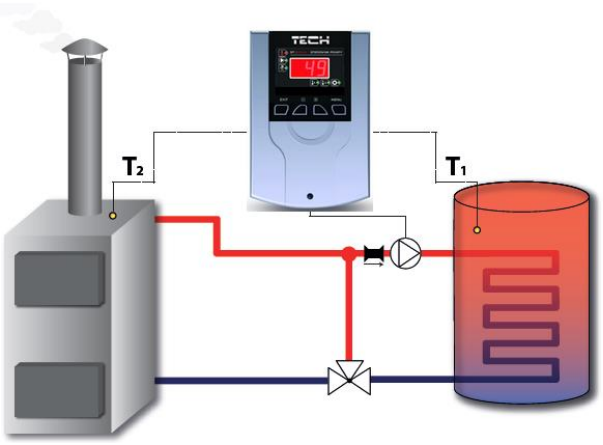
Installation

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	Power consumption	W	2
3	Ambient temperature	^{O}C	5÷50
4	Pump output load	A	0,5
5	Potential-free contact max. output load	A	1
6	Accuracy of measurement	^{O}C	1
7	Sensor thermal resistance	^{O}C	-30÷99
8	Fuse	A	1,6

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

Wiring diagram



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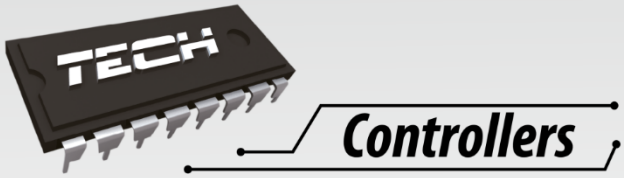
If:
T2-T1 ≥Δ and T2≥Activate treshold then **Pump is working**

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



TECH Sp.j.
Wieprz 1047A
34-122 Wieprz

SERWIS
32-652 Bulowice,
Skotnica 120

Tel. +48 33 8759380, +48 33 3300018
+48 33 8751920, +48 33 8704700
Fax. +48 33 8454547

serwis@techsterowniki.pl

Monday - Friday
7:00 - 16:00
Saturday
9:00 - 12:00