

# TECH TECH CONTROLLERS

USER MANUAL

EU-22

EN



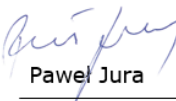


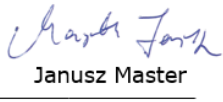
## EU DECLARATION OF CONFORMITY

Hereby, we declare under our sole responsibility that **EU-22** 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.**

  
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Prezisi firmy

**Wieprz, 29.06.2022**

### 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**

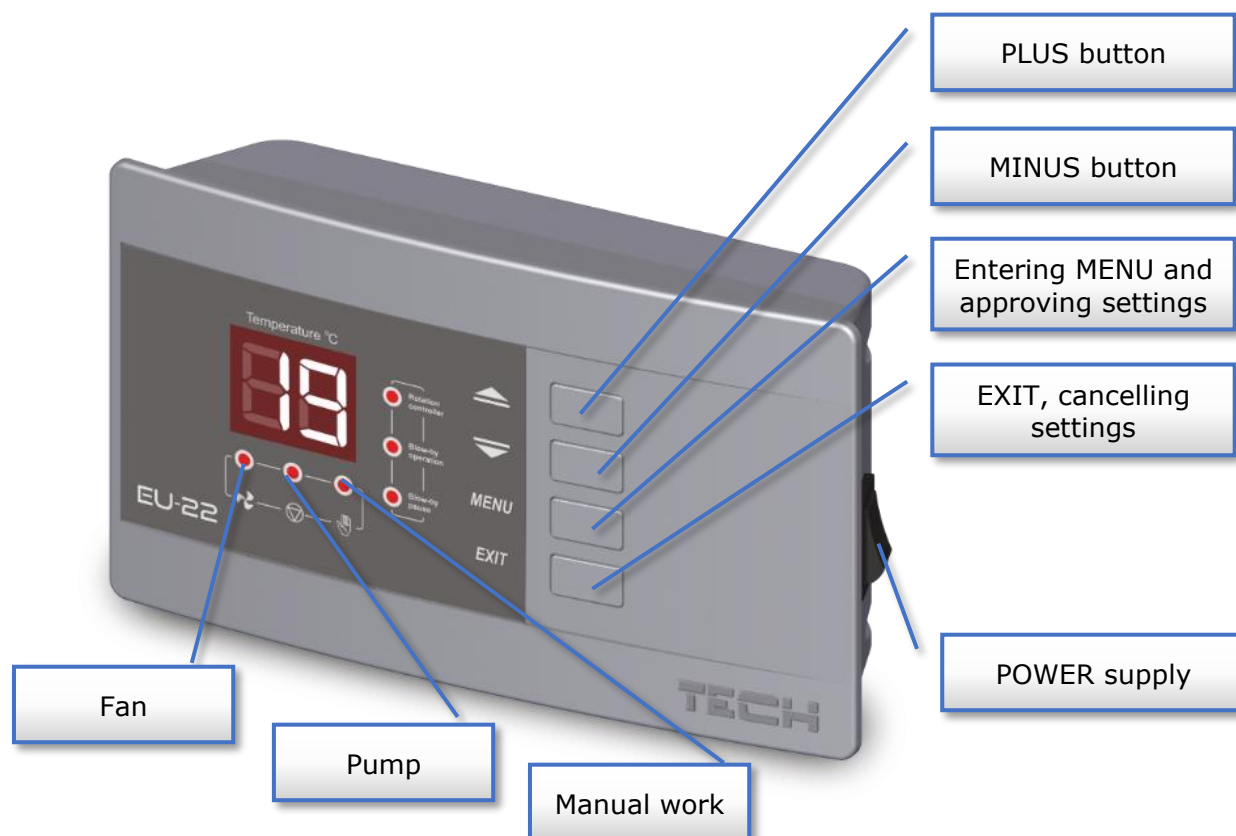
- **High voltage!** Make sure the regulator is disconnected from the mains before performing any activities involving the power supply (plugging cables, installing the device etc.)
- The device should be installed by a qualified electrician.
- Before starting the controller, the user should measure earthing 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.

## II. Principle of operation

Microprocessor regulator ST-22 is designed for controlling the central heating boiler equipped with air-blow and the central heating water circulation pump. It keeps the set temperature by means of ventilator. When the temperature on the stove is lower than 30°C, the controller is in the lighting function. Then to turn on the controller (the ventilator) you should press the button manual work. It will cause turning on the indicator light marked with manual work and turning on the ventilator. This function will be turned on (active) until the temperature on the stove reaches the set temperature. Repeated pressing this button will cause turning off the controller from the lighting function (to manual work). When the controller reaches the set temperature it will change to the back-up mode. In this mode the work of controller consist in turning on the air-blowing with the frequency that depends on users' settings – that is the kind of the fuel being burned in the boiler.



## III. The functions of the controller

The controlling of the revolutions function can be activated by pressing the option button. The diode of "revolutions control" is switching on. This function controls the ventilator's work rate. Range of adjustment is from 1 to 6 (it can be said that these are ventilator's gears). The biggest the gear is, the faster the ventilator is working. The first gear – it is a minimum speed of the ventilator and 6th gear is a maximum speed of the ventilator.

To change the range of ventilator's gears, press the button PLUS and MINUS.

The air-blowing work function it is the time (seconds) of ventilator's work. It is automatically turned on when it reaches the set temperature and after the time of burning break.

The blower's speed is depended on setting of the controlling of the revolutions function. This function prevents from extinguishing of the boiler.

The air-blowing break function – it is the time (minutes) when the ventilator is turned off. The break between ventilator's work is automatically turned on after reaching the set temperature. This function prevents from extinguishing the boiler.

### **IV. The set temperature function**

The set temperature it is the demanded temperature on the boiler. You can change the temperature by pressing the PLUS button. It means that you increase the temperature. By pressing the button MINUS you fall the temperature while the display pulsates. After 4 seconds on the display there is shown the temperature on the boiler.

### **V. Controlling the central heating pump**

Depending on the temperature on the boiler the central heating pump switches on and switches off. . Switching on happens after reaching 35°C. Above this temperature, the pump is working without any break. Switching off happens below 33°C. It prevents redundant pump work.

### **VI. Protection**

In order to ensure safe operation, the regulator has a number of protections. Every mistake error is displayed on the LED display.

E4 – when the temperature exceeds the maximal temperature of the boiler (set to 85°C)

E5 – when the temperature sensor is damaged

In both cases the air-blow turns off and the central heating pump turns on (in the case of not being switched on). In the case of occurring the error E4, after falling the temperature to safe level, the alarm can be deleted with the Options key.

Besides, the controller is protected by the bimetallic mini sensor which disconnects ventilator's supply in the case of exceeding the temperature 90°C

#### **ATTENTION!**

THE LIVE ELECTRIC DEVICE!

Before doing any activities connected with power supply (connecting wires, installation of the device, etc) it is necessary to make sure that the regulator is not connected to the grid!

Assembly and installation should only be carried out by qualified electrician.

Before activating the controller it is necessary to do the measurement of effectiveness of resetting electric motors, a boiler and the measurement of insulation of electric wires.

You mustn't use any shut-off valves that shut off central heating water circulation.

The regulator mustn't work in closed system of central heating. There must be mounted pop valves, pressure valves and expansion tank that protect the boiler from boiling water in the central heating system.

The controller MUST be connected to the socket with earthing. While connecting the controller you must do the measurement of effectiveness of earthing. Cables cannot be exposed to temperature above 90°C. You must isolate them from elements of the stove that can warm up to high temperatures.

### **VII. START STOP**

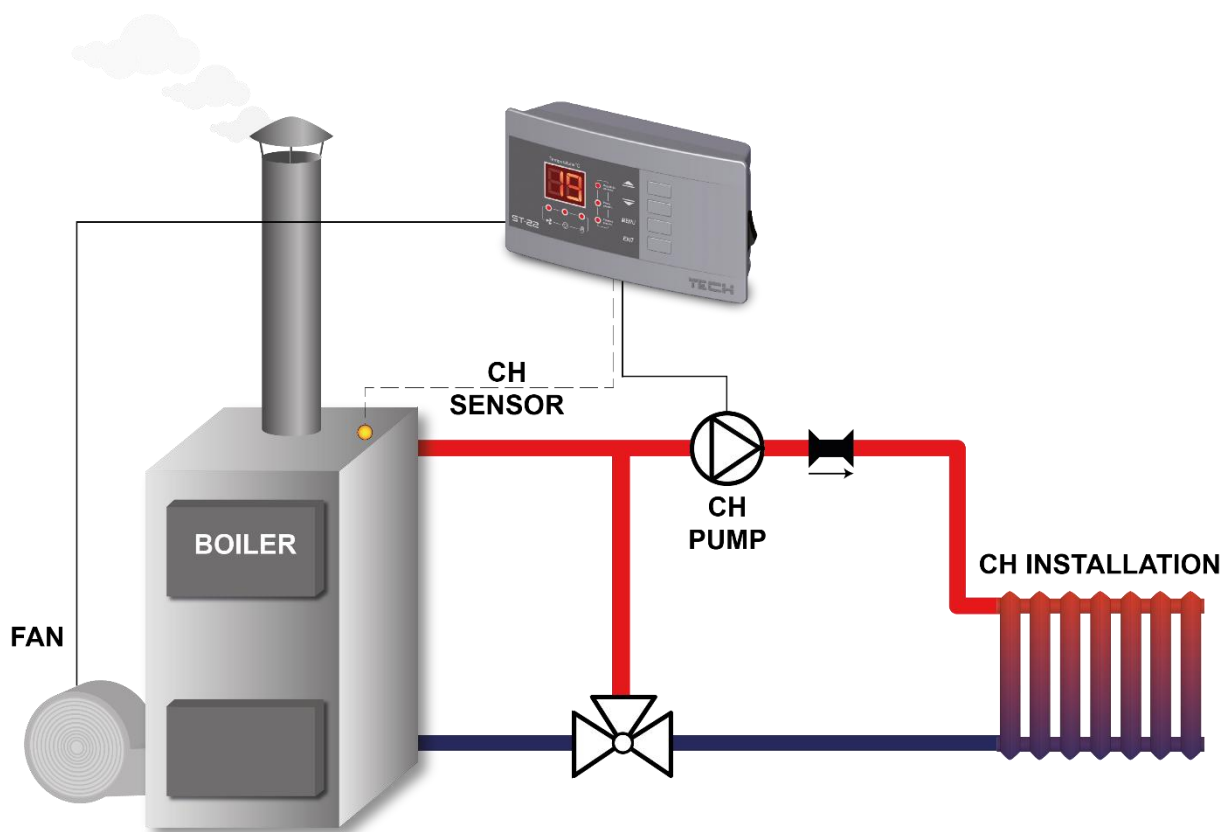
Button start stop is designed to turning the ventilator on and off during continual controller's work. If the boiler reaches the temperature over 30°C and it doesn't reach the set temperature, then the button functions as START - STOP. Using this function you can switch the ventilator on or off during its work. It is signaled by pulse lighting the Manual Work diode. This function is made available in order to safe operating the boiler by the user. When the ventilator is on, you mustn't open the hearth's door.

Automatic controlling the revolutions it is the function which allows safe operating the boiler, that is every turning the ventilator on is started from the third gear and the speed is increasing or decreasing gradually depending on settings of the ventilator's speed. Attention! Every turning the ventilator on starts from 3 regardless of settings

Power supply	230V $\pm$ 10% /50Hz
Maximum power consumption	2W
Ambient temperature	5÷50
Pump max. output load	0,5A
Fan max. output load	0,6A
Temperature measurement accuracy	1°C
Sensor thermal resistance	-30÷99°C
Fuse	1,6A

## VIII. Maintenance

Before heating season and in the time of his duration there must be checked the technical status of the wires in the ST-22 controller. The fastening of the controller, cleaning up and dusting must be checked. It must be done the measurement of motors' earthing (pump and blow)



\* Pictorial diagram – it cannot replace CH installation project. Its aim is to present how the controller may be expanded. This heating installation diagram does not include protective elements which are necessary to ensure correct installation.

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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.

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