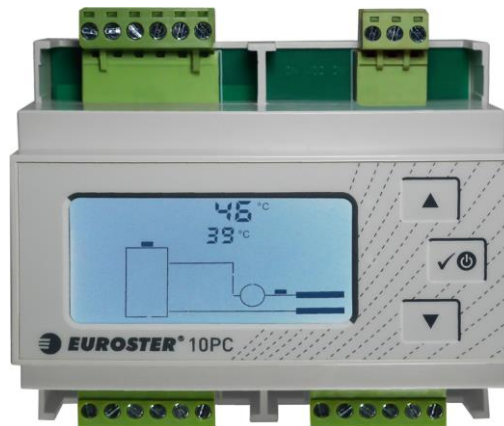


# **EUROSTER 10PC**

CH PUMP CONTROLLER FEATURING HEATING SOURCE CONTROL



Manual version: 01.08.2023

MANUFACTURER: P.H.P.U. AS, Chumiętki 4, 63-840 Krobia, Poland

## **1. INTRODUCTION**

In order to ensure proper operation of the controller and the CH system, please read this manual carefully.

## **2. APPLICATION**

**EUROSTER 10PC** is designed to control the CH circulating pump and to switch on the heating source (voltage-free contact). The controller is equipped with an input to connect a room thermostat and two temperature sensors (one for the heating source and one for the heating zone).

The controller may be used in the following systems:

- With a heat pump, to control the CH pump with a buffer tank
- Floor heating equipped with a thermostatic mixing valve
- Heating systems, to switch on the CH pump with an activation temperature

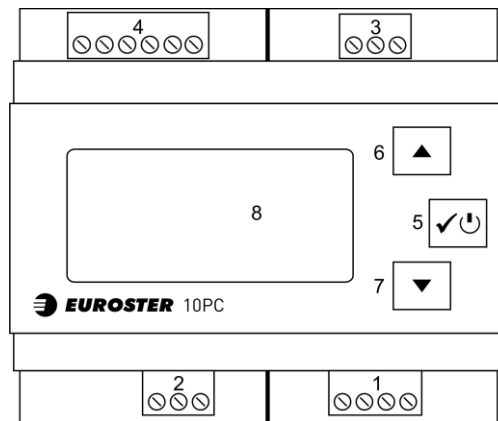
## **3. CONTROLLER FUNCTIONS**

- Controls a CH circulating pump
- Controls a heating source
- Cooperates with a room thermostat
- Protects the heating system against overheating – a preset alarm temperature for a heating zone and supply
- Measures the heating source temperature
- Features a function that protects the system against freezing
- Prevents seizure of the pump – Anti-Stop function
- set of sensors included
- Installation in an electric cabinet (6 modules) on a DIN 35 mm rail.



EUROSTER 10PC controller is equipped with an Anti-Stop system that prevents the process of scale build-up on the unused pump rotor. It automatically turns the pump on every 14 days when the heating season is over. Keep the controller turned on to allow the function to operate after the heating season.

#### 4. VISIBLE ELEMENTS OF THE CONTROLLER



1. Controller's power connection – 230 V 50 Hz
2. Output for connecting the CH pump 230 V 50 Hz
3. Output for connecting heating source (change-over voltage-free contact)
4. Connector for temperature sensors and room thermostat
5. Confirm and switch-on/off button
6. Button – increase the setting
7. Button – decrease the setting
8. LCD

The display backlight turns off by default after one minute following the end of the controller operation. The controller enables turning the permanent backlight on.

#### 5. THERMOSTAT INSTALLATION

##### GENERAL SAFETY RULES

- **Prior to the commencement of any installation works read this manual carefully! Incorrect installation and improper use may lead to serious hazards to users or other persons and result in property damage!**
- **Prior to mounting or dismantling and maintenance of the controller, make sure that it is de-energized!**
- **Dangerous voltages, hazardous to life, may be present on the controller and its cables, therefore only qualified technicians holding authorization for electrical works may be entrusted with the installation of the controller!**
- **The electric connections performed and cables used shall be adequate to the applied loads and must conform to all requirements!**
- **Do not install the controller in rooms of increased humidity, substantial dustiness or with the presence of caustic or flammable vapours, protect it against water and other liquids!**
- **Do not install any controller showing signs of mechanical damage!**
- **The controller is not a safety component of the heating system. Additional protection devices must be used in the heating systems prone to the risk of damage due to failure of the control systems!**
- **When connecting the power cables, pay particular attention to the correct connection of PE conductors.**
- **Do not misuse the controller!**
- **The device is not intended for use by children!**
- **Failure to meet the safety and maintenance rules results in loss of warranty!**

Install the controller in a place where the temperature does not exceed 40°C. Lead all necessary cables prior to mounting the controller.

Screw the electric cables to the connectors according to the description and drawing. Make sure to keep the proper designation of the cables. Screw the neutral conductors to N terminals, phase conductors to L terminals and grounding conductors to PE terminals. Use a cable with a minimum diameter of 0.75mm<sup>2</sup> for connection.

### CAUTION!

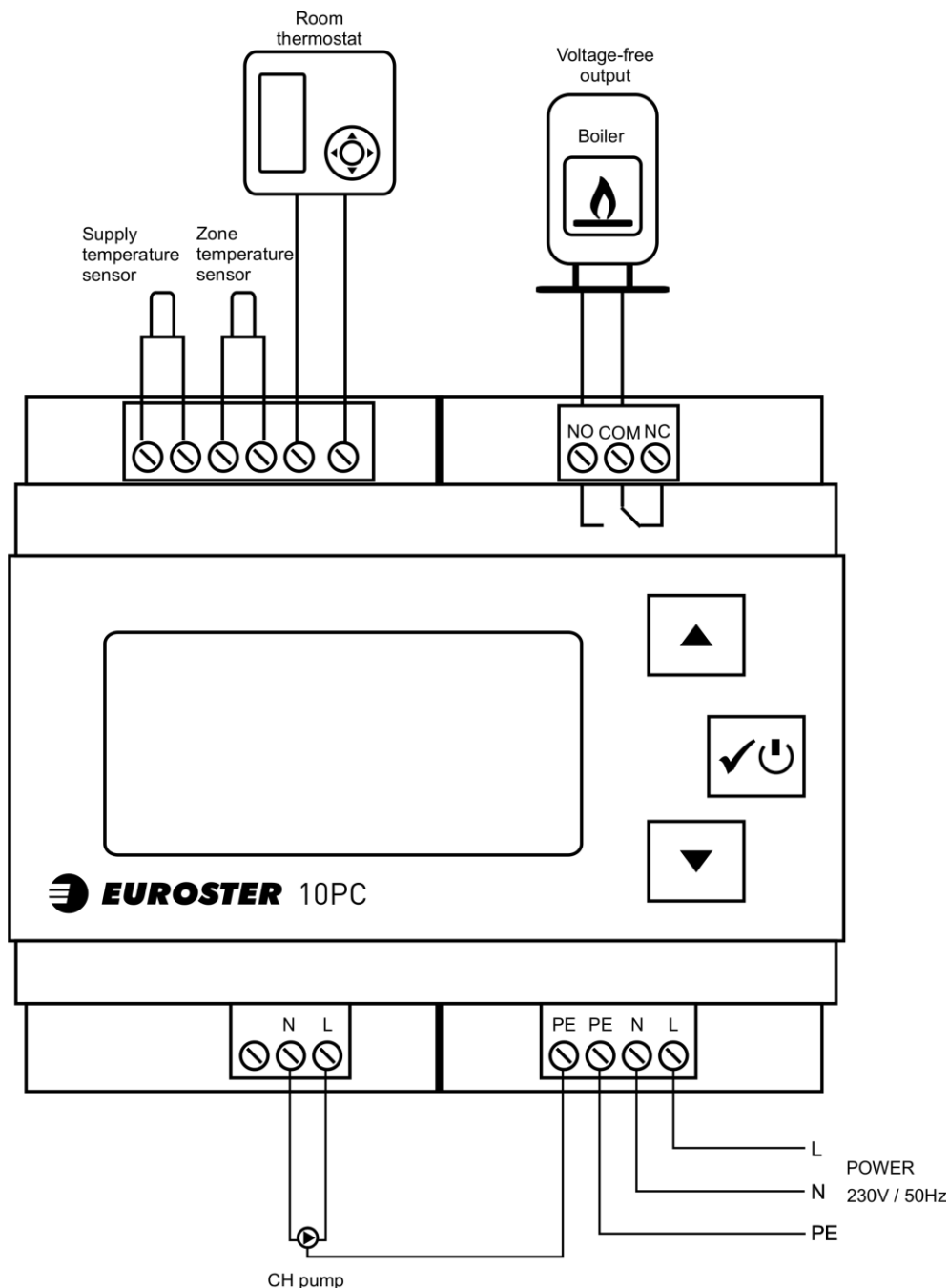
**When connecting the power cables, pay particular attention to the correct connection of PE conductors.**

**The temperature sensors are not suitable to be immersed in liquids.**

### CAUTION!

**Euroster 10PC controller and a heat emitting device connected to the "Boiler" output must be powered from the same phase of the power system.**

#### a) Connection Diagram



**b) mounting the controller**

- Install the controller in an electric cabinet (width of 6 modules) on a DIN 35 mm rail
- using fasteners fix controller cables to the wall.

**c) Connecting a Room Thermostat**

The controller can cooperate with any room thermostat with voltage-free, normally open (NO) output – e.g. any thermostat manufactured by EUROSTER.

Connection of the controller:

- Make sure that the controller is de-energized.
- Remove the jumper from the REG joint
- Lead a cable (minimum 2 x 0.5 mm<sup>2</sup> stranded wire) between the room thermostat (or the receiver – in case of connecting the wireless version) and the EUROSTER 10PC controller and insulate the cables
- Screw the cables to the joint.
- connect the cables to COM and NO contacts in the room thermostat.

**d) Connecting Temperature Sensors**

The controller temperature sensors may be connected in any way, with no need to keep cable polarity. At installation avoid leading the sensors parallel to live cables. Moreover, make sure to provide the proper contact with measured surfaces.

- Install the heating source temperature sensor on the heating source/buffer or the uncovered outlet pipe of the CH boiler (possibly close to the boiler),
- Install the heating zone temperature sensor on the uncovered pipe downstream of the CH zone pump.
- Use the hose clips to tighten the sensors to the pipe and insulate them.

**e) BOILER output**

It is used to switch on the heating source, e.g. gas-fired boiler. It has 3 contacts marked as NO, COM and NC. They are galvanically isolated from the rest of the system. They withstand a mains voltage of 230 V and a load of 1 A.

Most commonly, boilers are equipped with the normally open connection (a jumper must be removed from the heating source), in such cases, you need to connect the 10PC controller with COM and NO terminals (the controller has the COM and NO terminals).

The BOILER output is disconnected whenever the room thermostat achieves the preset temperature or the supply temperature alarm occurs.

**f) Connecting the CH pump**

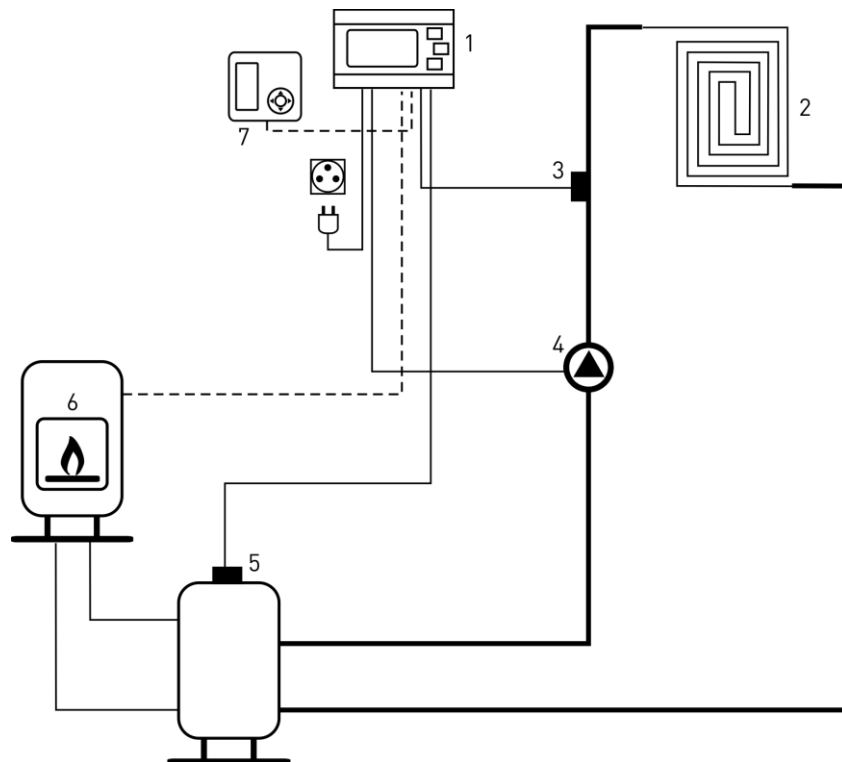
- Connect the yellow or yellow-green wire (protective conductor) to the PE terminal
- connect the blue core to the (N) terminal,
- connect the brown wire to the terminal (L);

**g) Connecting the controller to 230 V 50 Hz network**

Check the wires and sensors for the correct connection. Having secured the cables against accidental breaking, connect the power cable to the 230 V 50 Hz mains socket with an earth pin.

## 6. MOUNTING TEMPLATE

The following diagram is simplified and does not cover all the elements necessary for the correct operation of the system.



1. EUROSTER 10PC Controller
2. Heating zone, e.g. floor heating
3. Heating zone temperature sensor
4. CH pump
5. Heating source temperature sensor
6. Heating device, e.g. gas boiler
7. Room thermostat (option)

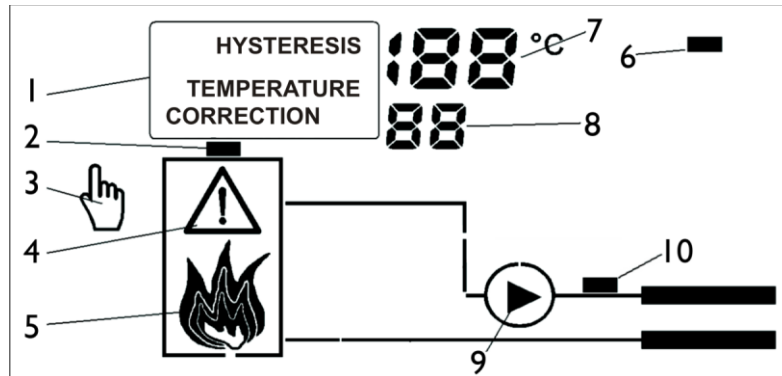
## 7. SWITCHING THE CONTROLLER ON/OFF

- After connecting the plug into the 230 V power socket, the number of program version is displayed for 2 sec.
- Anti-Stop system turns on the pump – AS letters blink and the system status is displayed
- In order to switch the controller off, hold „√“ for 3 seconds – St letters (STOP) appear, and similarly, during switching-off, the system status is displayed.

**CAUTION!!! The controller has an electronic switch, which does not guarantee a safe de-energizing of cooperating equipment. Disconnecting or short-circuiting the sensor cables during installation, in particular, may cause an emergency switch-on of the outputs. Before starting any work with the controller installation, make sure to disconnect the power supply!**

## 8. DISPLAY DESCRIPTION

Active elements of the display are presented below:



1. Name of the set parameter – displayed while previewing or changing parameters
2. Heating source (boiler) temperature sensor icon
3. Test operation icon – displayed during manual control
4. Alarm icon – blinks in case of alarm
5. Furnace status illustration – shown with active heating source (BOILER) output, disappears when the room thermostat input is open.
6. Room thermostat input status signal – active when the thermostat switches the heating on
7. Heating source (boiler) temperature / Value of the displayed parameter
8. Temperature of the heating zone / Menu item number
9. Pump icon – visible during pump operation
10. CH temperature sensor icon

## 9. RESTORING FACTORY SETTINGS / PERMANENT LIGHT-UP OF THE DISPLAY

Proceed as follows to restore factory settings or change the operation mode, if needed:

- While holding the **✓** button pressed, momentarily unplug and then reconnect the plug to the 230 V mains socket
- "Fd" letters (factory defaults) are displayed and 0 appears after releasing the button,
- Use **▲▼** buttons to select 0 or 1 and confirm with **✓**.  
Selecting 0 enables the change of screen backlight functions without restoring factory defaults. Selecting 1 restores factory settings.
- Then, "bl" (backlight) is displayed and 0 appears after releasing the button.
- Use **▲▼** buttons to select the required number (0 or 1). Selecting 0 results in the automatic screen backlight switch-off after 1 minute of finishing operating the controller, and selecting 1 results in the display backlight being continuously active.
- Control and correct the remaining controller settings, if necessary.
- In case of failure to confirm the changes within 5 seconds, the controller resumes operation without introducing changes.

## 10. CONTROLLER SETTINGS

After being switched on the controller shows the system status. Press **▲** to enter preview and setting change mode.

The controller configuration is specified below: press **▲▼** buttons to select the desired parameter. The controller will show the value (at the top) and number (at the bottom). In order to change the value of the displayed parameter, press **✓** (the parameter value starts

blinking), set the required value using ▲▼, and confirm the selection by pressing ✓. If the current value is to remain unchanged (cancelling changes), do not press the button, but wait 10 seconds until the setting stops blinking.

To facilitate the operation of the controller, the configuration windows have been numbered. The user can change the following parameters:

**1. CH pump operation temperature**

When the temperature in the supply sensor is exceeded, the CH pump output is switched on.

**2. Hysteresis**

It indicates the temperature difference at which the controller turns the CH pump on and off. The conditions for turning the pump on and off are specified in section 11.

**3. Temperature of Supply Alarm**

Exceeding the alarm temperature on the system's supply triggers the alarm algorithm, which aims to cool down the heating device. The alarm algorithm heats the zone to a temperature close to the alarm threshold. It is essential to ensure that the alarm temperature is at a safe level.

**4. Alarm temperature of the CH zone.**

This setting allows you to establish the temperature at which the alarm procedures are activated. If the controller is used in a floor heating system, it is recommended to set it at 45 °C.

Caution! Alarm temperatures for zones should be selected carefully. Incorrect setting of temperature level may cause improper operation or major failure of the system components.

**5. Minimum operating time of the heating source**

If the room thermostat switches on for a period shorter than this setting, the boiler and pump transmitters will remain switched on for a period equal to this setting. The operating time (minutes) preset here determines also the delay in the CH pump switch-off.

Switching off the room thermostat (REG output open) results in switching off the BOILER input, while the output of the CH pump is switched off after the lapse of the preset time.

**6. Read-out Correction – the Heating Source Temperature Sensor**

It is a value added to the measured temperature value. It allows for compensating the difference in readings between the sensor placed on the pipe and the thermometer installed on the boiler.

**7. Read-out Correction – the Heating Zone Temperature**

It is a value added to the measured temperature value. It allows for compensating the difference in readings between the sensor placed on the pipe and the heating medium.

## 8. Pump Operation/Test

Displays the current status of the pump calculated by the controller (0 or 1). To operate the pump manually press the button and change the displayed value. After 10 seconds of inactivity or pressing the knob again, the controller resumes operation according to the settings.

## 9. Heating Source Operation/Test

Displays the current status of the heating source transmitter, calculated by the controller (0 or 1). To operate the pump manually press the button and change the displayed value. After 10 seconds of inactivity or pressing the button again, the controller resumes operation according to the settings.

**ATTENTION: In case the set values preclude the correct operation of the controller, the alarm icon will appear on the display, and the colliding settings will be displayed alternately. After a few seconds, the last correct configuration is restored.**

All settings are listed below:

Setting		Value			unit
Name	No.	Default	Min.	Max.	
CH pump activation temperature	1	28	10	80	°C
Pump hysteresis	2	4	2	20	°C
Temperature of Supply Alarm	3	90	80	110	°C
Alarm temperature of the CH zone.	4	50	30	90	°C
Heating source operating time	5	2	0	60	min.
Correction of the heating source temperature sensor read-out.	6	0	-5	5	°C
Correction of the CH zone temperature sensor read-out.	7	0	-5	5	°C
Pump operation/test	8	- 1)	0 2)	1 2)	-
Heating source operation/test	9	- 1)	0 2)	1 2)	-

1) The displayed value is calculated by the controller,

2) 1 stands for activation, and 0 stands for deactivation.

## 11. CONTROLLER OPERATION

The controller controls the temperatures of the boiler and the CH zone. Periodically, it calculates the difference between the preset and measured temperature.

The pump is switched on once the pump activation temperature (parameter 1) is exceeded, and it is switched off when the temperature drops below the set value by the hysteresis (parameter 2).

## 12. ANTI-FREEZE PROTECTION

The anti-freeze protection is activated when the temperature of a given sensor drops to 4°C. If such temperature is detected by a sensor, the pump is activated and "AF" (anti-



freeze) appears on the display. The protection is turned off when the temperature rises to 6 °C.

### **13. OPERATION WITH ROOM THERMOSTAT**

Turning off the room thermostat (opening the output) will cause the heating source transmitter to turn off, followed by switching off the pump.

The connection of a room thermostat was described in point 5c.

### **14. ANTI-STOP**

Each time the controller is connected to a 230 V network (also after restoring factory settings or changing the backlight type), the Anti-Stop function immediately activates the pump, later the operation is repeated every 14 days. During its operation, "AT" letters flash at the display.

If an alarm situation (overheating or sensor damage) occurs when the Anti-Stop system is active, the operation of the Anti-Stop system will be ceased.

### **15. TROUBLESHOOTING**

#### **The device does not work**

Burnt fuse or ROM failure – send the device to the service.

#### **The display and the sensor icon blink, "Sh" or "OP" letters appear**

The sensor is shorted (Sh) or opened (Op) – check the cable of the sensor, whose icon is flashing or send the device along with the sensors to the service centre.

#### **The pump does not work**

The device is turned off – make sure that the proper icons are displayed. If not – check the settings. Restore factory settings (section 9).

Wrong connection – check.

### **16. SIMPLIFIED DECLARATION OF EU CONFORMITY**

P.H.P.U. AS AGNIESZKA SZYMAŃSKA-KACZYŃSKA hereby declares that the type of EUROSTER 10PC equipment conforms to the following directives: 2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS).

The complete text of the Declaration of EU conformity is available at the following Internet address: [www.euroster.pl](http://www.euroster.pl).

### **17. TECHNICAL DATA**

Controlled device: CH pump

Supply voltage: 230 V 50 Hz

Maximum output load: 100 W

Maximum power consumption: 2 W

Temperature measurement range: -30°C... +110°C

Zone temperature control range: +10°C... +80°C

Temperature control accuracy: 1°C

Hysteresis range: 2°C... 20°C

Operating temperature +5°C... +40°C

Storage temperature: 0°C... +55°C

Ingress protection rating: IP20

Installation method: protective cabinet – DIN 35 mm rail

Warranty period: 2 years

Dimensions (width/height/depth) in mm: 106 / 90 / 59

Line protection: WTA-T 3.15 A time-lag fuse (inside the device).

**18. KIT CONTENTS**

- b) Euroster 10PC Controller
- c) Controller power cable: 2 m
- d) Heating zone temperature sensor: 3 m
- e) Heating source temperature sensor: 3 m
- f) Sensor hose clips: 2 pcs.
- g) Installation and Operation Manual with Warranty Certificate

**19. ELECTRONIC WASTE MANAGEMENT INFORMATION**

This product is designed and manufactured from high-quality materials and components suitable for reuse. If the equipment, packaging, user manual, etc. is provided with a crossed-out wheeled bin symbol, it means that the product should be selectively collected in accordance with the Directive 2012/19/EU of the European Parliament and of the Council. Such marking informs that the electrical and electronic equipment may not be disposed of together with other household waste after their service life. The user is obliged to take the used devices to a point of collection of waste electrical and electronic equipment. The entities collecting such equipment, including the collection points, shops, and municipal entities, set up an appropriate system enabling the handover of such equipment. The proper disposal of waste equipment contributes to the prevention of dangerous consequences to nature and human health, resulting from the possible presence of hazardous components in the equipment and from inaccurate storage and processing of such equipment. Selective collection contributes to the recovery of materials and components used for manufacturing the equipment. A household plays an important role in contributing to reuse and recovery including recycling, of the waste equipment. The attitudes influencing the protection of the common good of a clean environment are shaped at this level. Households are also one of the larger users of small equipment and its rational management at this stage impacts the recovery of recyclables. Inaccurate disposal of this product may be penalized in accordance with national legislation.

**MAINTENANCE**

Before each and every heating season, the control module must be cleaned of any dust and other dirt, the cables must be checked for their technical condition and tight fixing. Do not use solvents and aggressive detergents to clean the controller, since they may damage the surface of the housing. If necessary, wipe it carefully with a soft cloth.

**WARRANTY CERTIFICATE**  
**EUROSTER 10PC CONTROLLER**

Warranty terms:

1. The warranty is valid for 24 months from the device's sale date.
2. The claimed module along with this warranty certificate must be supplied to the seller.
3. Warranty claims shall be processed within 14 business days from the date the guarantor has received the claimed device.
4. The device may be repaired exclusively by the guarantor, manufacturer or by other parties clearly authorized by the manufacturer.
5. Warranty becomes void in case of any mechanical damage, incorrect operation and repairs made by unauthorized persons.
6. This consumer warranty does not exclude, restrict nor suspend any right of the buyer if the product does not meet any of the sale contract terms.

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Sale date	Serial number / date of manu- stamp and signature	service: telephone No.
	facture	(65) 57-12-012

**The business entity that issued this warranty certificate (the guarantor) is:**  
**P.H.P.U. AS Agnieszka Szymańska-Kaczyńska, Chumiętki 4, 63-840 Krobia, Poland**