

EUROSTER 11E CENTRAL HEATING/UTILITY HOT WATER SYSTEM PUMP CONTROLLER



MANUFACTURER: P.H.P.U. AS, Polanka 8a/3, 61-131 Poznań, POLAND

1. INTRODUCTION

In order to guarantee correct operation of central heating or hot usable water controller and installations one should familiarize oneself with the present user manual.

2. FIELD OF APPLICATION

EUROSTER 11E is a modern controller that controls central heating circulating pump or hot water tank loading pump.

3. CONTROLLER FUNCTION

- prevents boiler sweat (CH system control mode)
- keep constant temperature in the tank (UHW system control mode)
- anti-stop function to protect pumps against stoppage
- frost protection
- pump operation test
- temperature reading correction



The **EUROSTER 11E** controller features the Anty-Stop function that prevents idle pump rotors against seizing. Once the heating season is over, every 14 days the function automatically turns ON the pumps for 30 seconds. To that end the controller must be left powered up.

4. VISIBLE CONTROLLER ELEMENTS



1. 230 V 50 Hz mains input
2. 230 V 50 Hz power supply to pump
3. Input for temperature sensor cable
4. Mains switch
5. LCD display
6. Knob

Screen backlight turns off by default after a minute of finishing controller operation. Controller makes it possible to set permanent backlight. (chapter 9).

5. INSTALLATION



Hazardous voltages may be present inside the controller and on its cables. Therefore it is expressly forbidden to install the device prior to disconnecting its mains power supply. Only qualified technicians may install the controller. Do not install any devices showing signs of any mechanical damage.

The procedure:

a) Mount the controller:

- using a pair of supplied nylon nail-it fasteners (anchors) mount the controller box on a wall (or any other suitable supporting structure)
- using fasteners fix controller cables to the wall

b) Install temperature sensors:

- **do not immerse sensors in liquids nor install them within stream of flue gases**
- install boiler temperature sensor at the boiler point specially designed for that purpose or else on an unshielded boiler outlet pipe (as close to the boiler as possible) or install UHW tank temperature sensor at the tank point specially designed for that purpose
- using hose clips tighten the sensor to its pipe and cover it with thermal insulation

c) Hook up pump power supply cable:

- connect yellow (or yellow-green) PE wire with the \perp terminal
- connect blue wire with the N terminal
- connect brown wire with the L terminal.

d) Verify the connections:

- check up all cable connections and tighten terminal box lids.

e) Hook up the controller:

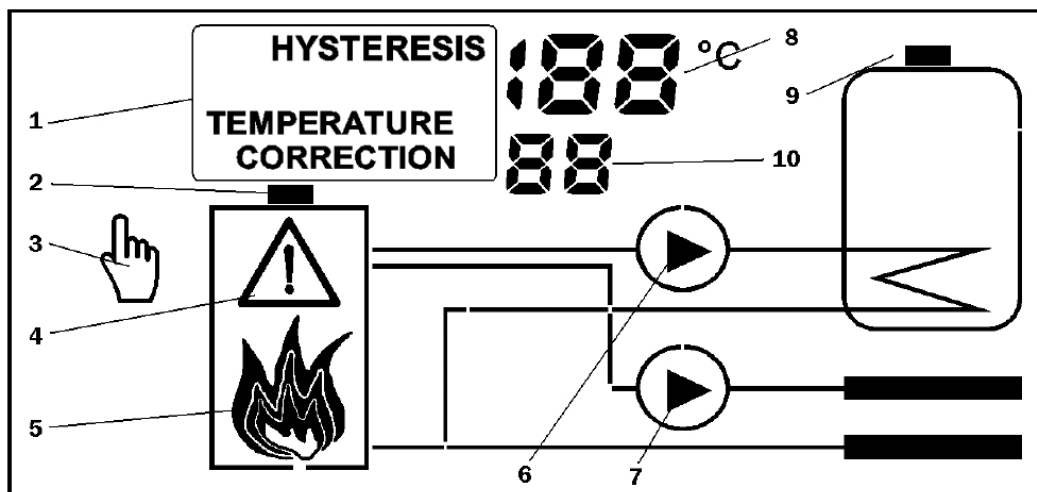
- **make sure controller cables are protected against incidental cut off**
- plug the controller power supply cable into a 230V/50Hz mains socket equipped with a grounding pin.



The controller must not be installed in a place where the ambient temperature may exceed 40°C.

6. CONTROLLER DISPLAY

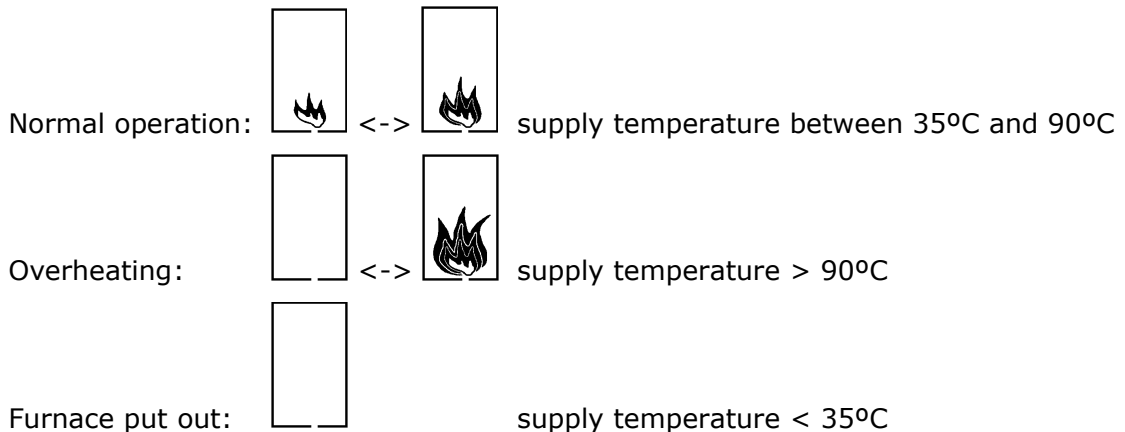
Elements of the controller display:



1. Name of the controlled parameter (displayed while set point values are browsed/set)
2. Heat source (boiler) temperature sensor icon (CH system control mode)
3. Manual operation mode (icon lit while the temperature is manually controlled)
4. Alarm (pulsating in case of an emergency situation)

5. State of the heat source (boiler) furnace – animated icon, see description below
6. UHW system pump icon lit while the pump is running (UHW system control mode)
7. CH system pump icon lit while the pump is running (CH system control mode)
8. Heat source (boiler)/UHW tank temperature (CH system/UHW system control mode, respectively) / other displayed parameter value
9. UHW tank temperature sensor icon (UHW system control mode)
10. Menu option number (displayed while set point values are browsed/set)

Animated icon that visually presents state of the heat source (boiler) furnace is for information purposes only, it does not influence operation of the controller in any way.



7. TURNING THE CONTROLLER ON

- turn the controller mains switch (4 in section 3) into the "I" position
- device firmware version No. and compilation date are sequentially displayed for 2 s
- "AS" letters are blinking on the display while the ANTY STOP function turns on the pump
- state of the system is shown on the display.
- if the controller is being turned on for the first time: select the desired mode of operation (see section 7 below) and set the desired controller presets (see section 8 below)

8. MODE OF OPERATION

The **EUROSTER E11E** controller may be operated in two modes: it may control CH system pump or UHW system pump. In the former mode the CH system pump is engaged if sensor temperature has exceeded the preset limit. In the latter mode the UHW system pump is kept running until sensor temperature reaches the preset value.

Restore one of the factory default presets to change the mode:

- **Set 1** has been compiled for layouts in which CH system pump is controlled
- **Set 2** has been compiled for layouts in which UHW pump is controlled

Proceed as follows to restore factory presets (e.g. in order to change the controller operational mode):

- press the knob and while holding it depressed turn the controller off and on. "Fd" (factory defaults) is displayed.
- release the knob. Digit 0 is displayed.
- select the desired set of defaults (1 or 2) and accept the selection.
- check and correct the presets if needed.

9. RESTORING FACTORY SETTINGS / PERMANENT SCREEN LIGHT-UP

If it is needed to restore factory settings, the following steps should be taken:

- keep the knob pressed and turn the controller on and off. "Fd" (Factory defaults) will appear on the screen, once the knob is released, 0 will appear
- use the knob to select required settings (0, 1 or 2) and confirm

- by selecting 0 you will be able to change screen backlight functions without restoring factory defaults. Selecting 1 restores factory settings and sets operation in heating medium control mode, selecting 2 restores settings and sets operation in return temperature control mode
- next, "bl" (Backlight) will appear on the screen, once the knob is released, 0 will appear
- use the knob to select 0 or 1 and confirm. Selecting 0 will result in automatic screen backlight switch off after 1 minute of finishing controller operation, and selecting 1 will result in permanent screen backlight
- control and possibly correct the remaining controller settings.
- in case of lack of confirmation within 5s the controller resumes operation as if no changes have been introduced

10. CONTROLLER PRESETS

Shortly after power supply of the controller is turned on, current state of the system is shown on the display. Turn the knob to the right to enter the preset browse/edit mode. General procedure to edit a preset:

1. Turn the knob to select the desired preset (parameter). The controller displays current value of the selected parameter (top) and its number (bottom).
2. Press the knob. The displayed parameter value starts to blink.
3. Set the desired new value and press the knob to accept it or wait 10 seconds until the displayed parameter value stops blinking in order to abort the edit procedure (to leave the current value intact)

Configuration windows are numbered to facilitate manipulations. User may edit the following controller parameters (presets):

1. Controlled temperature

Threshold temperature at which controller will turn the respective pump ON/OFF.

2. Pump hysteresis

Difference between the temperature at which the controller turns the pump ON and the temperature at which the controller turns it OFF. See section 11 below for details.

3. Temperature sensor correction

A constant added to/subtracted from all values measured by (external) temperature sensor to compensate for difference in respect to water temperature inside the system.

4. Pump manual operation (test)

Display current pump status commanded by the controller (0/1 = pump disengaged/engaged).

Press the knob and modify the parameter value to manually control the pump. Press the knob once more or leave it inactive for 10 seconds to resume automatic mode of control.

All presets are listed below for two possible modes of operation:

- CH central heating pump control mode
- UHW utility hot water pump control mode

Parameter Name	Preset value						Unit
	default		min		max		
	CH	UHW	CH	UHW	CH	UHW	
Controlled temperature	40	60	10	10	80	80	°C
Pump hysteresis	4	4	2	2	10	10	°C
Temperature sensor correction	0	0	-5	-5	5	5	°C
Pump manual operation (test)	as calculated by the controller	as calculated by the controller	0 (OFF)	0 (OFF)	1 (ON)	1 (ON)	-

11. CONTROLLER OPERATION

Central heating pump control mode:

- the pump is engaged as soon as the boiler temperature T_{boiler} has exceeded the preset threshold T_{preset} by more than half of the pump hysteresis H_{pump} : $T_{\text{boiler}} \geq T_{\text{preset}} - H_{\text{pump}}/2$
- the pump is disengaged as soon as the boiler temperature has dropped below the threshold by more than half of the hysteresis: $T_{\text{boiler}} \leq T_{\text{preset}} + H_{\text{pump}}/2$

Utility hot water pump control mode:

- the pump is engaged as soon as the UHW tank temperature T_{tank} has dropped below the threshold T_{preset} by more than half of the pump hysteresis H_{pump} : $T_{\text{tank}} \leq T_{\text{preset}} - H_{\text{pump}}/2$
- the pump is disengaged as soon as the UHW tank temperature has exceeded the threshold by more than half of the hysteresis: $T_{\text{tank}} \geq T_{\text{preset}} + H_{\text{pump}}/2$

12. THE ANTY-STOP FUNCTION

Pump anty-stop system switches the pumps on for 30 seconds immediately after each controller switch on (also after restoring to factory default or change of backlight mode) and then every 14 days. During its operation, "AS". keeps pulsating on the screen.

Any alarm generated while the ANTY-STOP function is active (overheating or temperature sensor failure) aborts the function execution.

13. FROST PROTECTION

Frost protection function gets activated when temperature of a given sensor falls to 4°C. If the sensor reaches such a temperature, pump is activated and "AF" (Anti freeze) gets displayed on the screen. Protection is switched off, when the temperature raises above 6°C.

14. TROUBLESHOOTING

Device is dead

Burnt mains fuse or ROM failure. Replace the fuse or have the controller serviced.

Sensor icon on the display blinks, "Sh" or "OP" letters next to the icon

Sensor circuit shorted (Sh) or opened (OP). Check/replace the sensor cable or ship the controller (together with the sensor) to service.

Pump does not operate

Turn on the controller and make sure that pump icon is displayed. If not, check the presets or restore factory ones (see section 9.). Check pump connection.

Controller knob operates erratically

Pulse generator failure. Have the controller serviced.

15. COMPATIBILITY WITH STANDARDS/CERTIFICATES

The **EUROSTER 11E** controller meets all requirements of the EMC and the LVD EU Directives. The CE Conformity Declaration is available on the <http://www.euroster.com.pl> Internet webpage.

16. SPECIFICATIONS

Controlled device	central heating pump or hot water pump
Supply voltage	230 V 50 Hz
Maximum inlet and outlet load	3 A 230 V 50 Hz
Maximum power consumption	1.6 W
Temperature measurement range	from -5°C to +120°C
Temperature adjustment range	from +10°C to +80°C
Temperature adjustment precision	1°C
Hysteresis range	2°C - 10°C
Visual signalling	backlit LCD screen
Operation temperature	from +5°C to +40°C
Storage temperature	from 0°C to +65°C
Protection level	IP40
Colour	black
Assembly method	wall, rawbolts
Controller weight with cables	0.54 kg
Cable length	1,5 m
Norms, approvals, certificates	Conformity with EMC and LVD directives, RoHs
Warranty period	2 years
Size (width/height/depth) mm	150/90/52

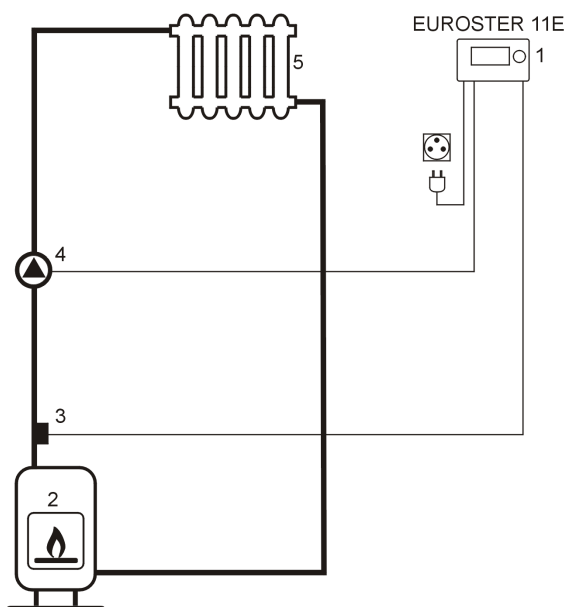
17. KIT CONTENTS

- a) controller box with temperature sensor
- b) sensor hose clip
- c) box fasteners/anchors
- d) this Installation & Operation Manual
- e) template to drill holes for fasteners/anchors

18. CONNECTION DIAGRAMS

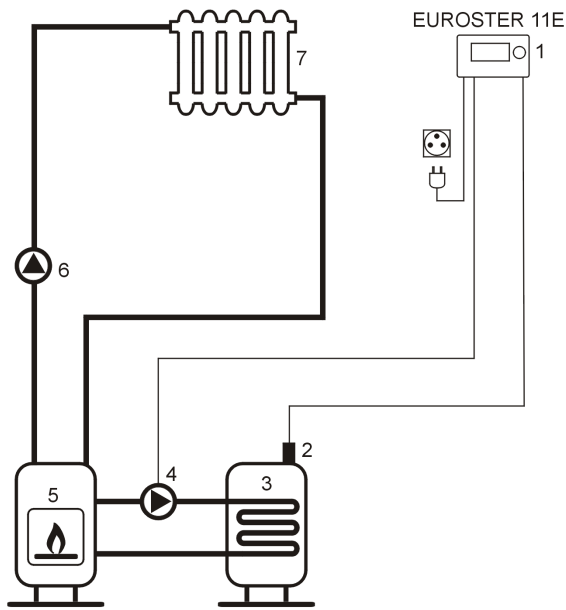
Diagrams presented below are simplified (not every element necessary to correctly operate the system is shown).

Central heating pump control mode



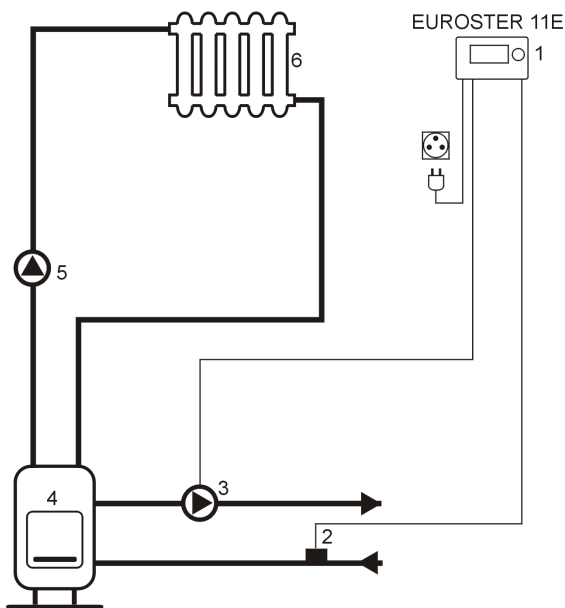
1. EUROSTER 11E controller
2. CH boiler
3. Heat source temperature sensor
4. CH pump
5. Radiator (heat load)

Utility hot water pump control mode



1. EUROSTER 11E controller
2. UHW tank temperature sensor
3. UHW tank
4. UHW tank pump
5. CH (gas) boiler
6. CH pump
7. Radiator (heat load)

Utility hot water re-circulation pump control mode (the so called "third pipe")



1. Controller EUROSTER 11E
2. Re-circulated water temperature sensor
3. Re-circulation pump
4. CH boiler with UHW tank
5. CH pump
6. Radiator (heat load)

ELECTRONIC WASTE MANAGEMENT INFORMATION



We made every effort to get as a long controller lifetime as possible. However, the device is subject to natural tear and wear. We ask you to have a controller that will not meet your requirements any more brought in to an electronic waste management facility. Electronic waste is collected free of charge by local distributors of electronic equipment.

Inappropriate management of electronic waste may lead to an unnecessary environment pollution.

Cardboard boxes should be disposed of at a paper recycling facility.

GUARANTEE CERTIFICATE

EUROSTER 11E

Warranty terms:

1. Warranty is valid for 24 months from the controller sale date.
2. Claimed controller together with this warranty certificate must be supplied to the seller.
3. Warranty claims shall be processed within 14 business days from the date the manufacturer has received the claimed device.
4. Controller may be repaired exclusively by the manufacturer or by other party clearly authorized by the manufacturer.
5. Warranty becomes invalidated in case of any mechanical damage, incorrect operation and/or making any repairs by unauthorized persons.
6. This consumer warranty does not exclude, restrict nor suspend any right of the Buyer ensuing if the product would not meet any of the sale contract terms.

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sale date	serial number/date of manufacture	signature/stamp
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Business entity that issued this warranty certificate:

P.H.P.U. AS Agnieszka Szymańska-Kaczyńska, Chumiętki 4, 63-840 Krobia, Poland