EUROSTER 12
Universal controller for heating system

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

In order to take full advantage of the controller capabilities and ensure proper operation of a heating system, please read this user manual carefully.

Manual version: 29.03.2016

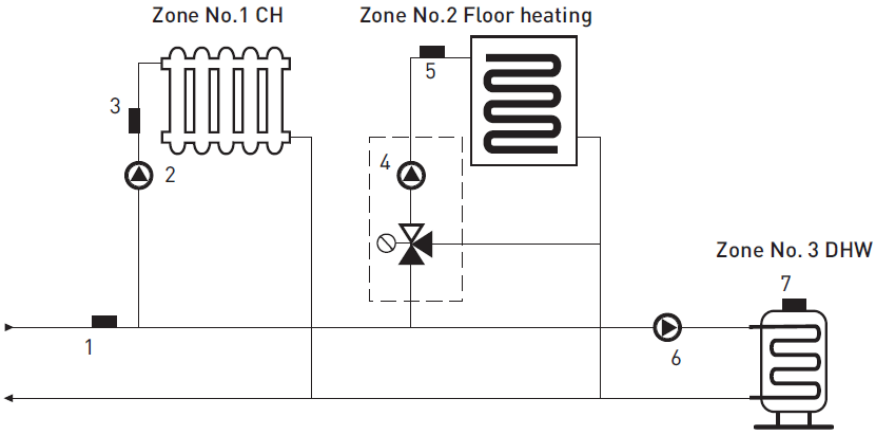
1. APPLICATION

EUROSTER 12 is a universal controller designed to control a heating system.
It is equipped with three independently operating control outputs (relays). Based on the measured temperatures or time, the controller switches on and off a relay for each output. Flexible arrangement enables adaptation of the controller to the needs of the majority of systems. Each of the controller outputs may be set up to interact with:

- central heating circulation pump
- domestic hot water tank feeding pump
- domestic hot water zone circulation pump
- floor heating pump
- blower (no speed adjustment)
- any device (thermostat mode, time-based operation mode).

All parameters are shown on a readable graphical display and the device is very easy to control with a knob and a button.

Example of a CH pump, floor heating pump (thermostatic mixer) and DHW tank feeding pump control system



1. Feeding temperature sensor
2. CH zone pump
3. CH zone temperature sensor
4. Floor heating pump (thermostatic mixer)
5. Floor heating zone temperature sensor
6. DHW tank feeding pump
7. DHW tank temperature sensor

2. BASIC FUNCTIONS OF THE CONTROLLER

- weekly operating schedules independent for each output
- configurable DHW priority
- overheating protection for the zones
- alarm indication
- SUMMER/WINTER operation mode
- frost protection mode for pump operation
- possibility to turn off any unused output
- Anti-Stop function – protection of pumps against seizure
- possibility to test each output independently
- readable, graphical, backlit LCD
- three relay outputs
- set of temperature sensors
- surface mounting

3. VISIBLE ELEMENTS

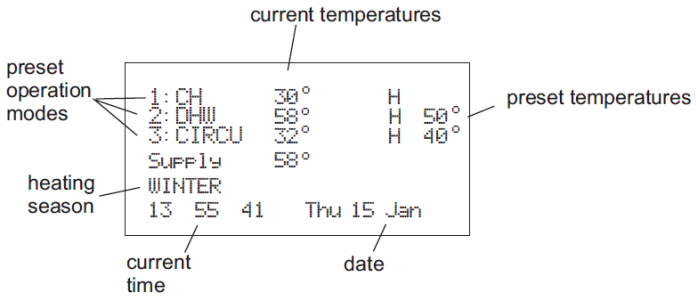
1. Power switch
2. LCD
3. Knob
4. 230 V 50 Hz power cable of the controller
5. 230 V 50 Hz power cable of the zone 1 device
6. 230 V 50 Hz power cable of the zone 2 device
7. 230 V 50 Hz power cable of the zone 3 device
8. Zone 1 temperature sensor cable
9. Zone 2 temperature sensor cable
10. Zone 3 temperature sensor cable
11. Feeding temperature sensor cable

a. Display

The following information is shown on the display:

- arrangement of the controller outputs
- current and preset temperatures of the individual outputs
- current feeding temperature of the heating system
- switched on devices
- time and date
- controller status (anti-stop, thermal cleansing, heating season: WINTER/SUMMER, alarms, and others)

Example of a screen



b. Meaning of icons shown on the display

H – operation with a weekly schedule
P – active DHW heating priority
P (flashing) – pause in the DHW heating priority
D – thermal cleansing of the DHW switched on
↑ – thermostat mode – heating
↓ – thermostat mode – cooling
– output switched on
WINTER– heating season
AS – anti-stop system active
AF – frost protection switched on

4. CONTROLLER INSTALLATION

Caution!

- **It is necessary to read this user manual prior to the commencement of the installation works. Incorrect installation and control of the controller will result in loss of manufacturer's warranty.**
- **Prior to mounting or dismantling, make sure that the controller is de-energized.**
- **Voltages hazardous to life may be present on the controller and its cables, therefore only qualified and authorized technicians may be entrusted with the installation of the controller.**
- **Ready electric connections and cables used shall be adequate to the applied loads and must conform to all requirements.**
- **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 systems prone to the risk of damage due to failure of the control systems.**
- **Protect the controller against moisture, water, and other liquids.**
- **The controller should be installed in a place where the temperature does not exceed 40°C.**

Using a pair of screws mount the controller box on a wall or any other supporting structure (screw anchors with screws are supplied with the controller). Screw the power cables to the connectors of the controlled devices according to the description and figure. 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. Using hose clips tighten the temperature sensors to the pipes and cover them with thermal insulation. Moreover, make sure to provide the proper contact with measured surfaces.

CAUTION! Do not immerse the temperature sensors in liquids nor install them at flue gas outlets to the stack.

5. Switching on and operating the controller

The controller is operated by means of a knob with a button. Use the power switch to turn the controller on. Once the controller is switched on, a main information window is displayed and an anti–stop system is activated for 15 seconds (AS sign is displayed). Press the knob to enter the menu. Turn the knob to select the subsequent menu items. Press the knob to select the required item. Proceed the same way to change the parameters. Exit the menu using the "Exit" message or by pressing the knob longer (for approximately 3 seconds).

6. Configuration of the controller and restoring factory settings

In order to configure the controller outputs or restore factory settings, perform the following steps:

- keep the knob pressed and turn the controller off and on. A "Factory settings" configuration window will be displayed
- if you want to restore factory settings, set YES for "RESET" parameter
- select language of the menu
- select operation mode for output No. 1
- select operation mode for output No. 2
- select operation mode for output No. 3
  For each of the outputs, the following operation modes are selectable: Off/ CH/ DHW/ Circulation/ Thermostat/ Floor/ Temporary operation/ Blower/
- store the changes by confirming the "STORAGE/Exit" parameter

Caution! Reset does not delete the controller configuration, menu language, date, and time.

7. Description of the menu parameters

Depending on the type of the heating system, each controller should be set up individually, according to the individual needs.

Caution! *It is recommended to restore factory settings before configuring a new controller.*

a. For detailed description of the selected operation modes, see point 8.

b. Manual operation
It enables the connected devices to be switched on manually. The test lasts until leaving the menu.

c. Heating season
It enables switching off the central heating and floor heating zones beyond the heating season (SUMMER).

Caution! *DHW, Circulation, Thermostat, Time-based operation and Blower modes operate continuously regardless of the selected heating season.*

d. Date and Time
These windows enable to enter current date and time. Please remember that only correct settings enable the proper operation of the schedules and controlling algorithms.

e. Temperature reading correction
This is a value added to or subtracted from the measured temperature value.
It enables a manual correction of the temperature reading for each temperature sensor
in the range of +/-5°C.

f. Feeding

Setting of the alarm temperature value for the feeding temperature sensor. Upon exceeding this temperature, an alarm of feeding overheating is generated. CH, DHW, floor outputs are switched on until the decrease of the feeding temperature below the preset alarm temperature. Range from 60°C to 110°C.

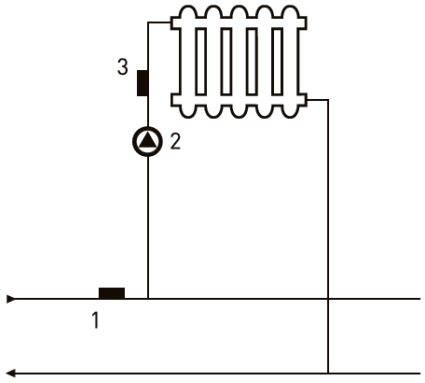
8. Description of the operation modes

The following diagrams are simplified and do not cover all the elements necessary for the correct operation of the system.

a. CH MODE – OPERATING THE CENTRAL HEATING CIRCULATION PUMP

Designations:

1. Feeding temperature sensor
2. CH zone pump
3. The zone temperature sensor for which the CH mode was selected.



Operating conditions:

- The CH pump is activated if:
  - the CH system is switched on;
  - the current time is selected in the schedule;
  - the temperature of the feeding sensor reaches the value of the "Switch-on temperature" setting.
- The CH pump is deactivated if the temperature of the feeding sensor drops by the hysteresis value below the "Switch-on temperature" setting.
- The weekly schedule of the CH pump operation enables switching the zone off for the selected hours in the selected days of the week.
- The zone overheating alarm is generated if the temperature of the zone sensor exceeds the value of the "Alarm temperature" setting. If the alarm temperature is maintained longer than for one minute, then the zone pump is switched off.
- In the case when the hourly schedule for the pump operation is not marked (heating not needed), the pump operates in cycles, according to the "Operating time" and "Idle time" settings. If "Operating time" = 0 is set, then the pump is not switched on.

Caution! *When setting the alarm temperature, special precautions must be taken in order not to damage the system or CH boiler.*

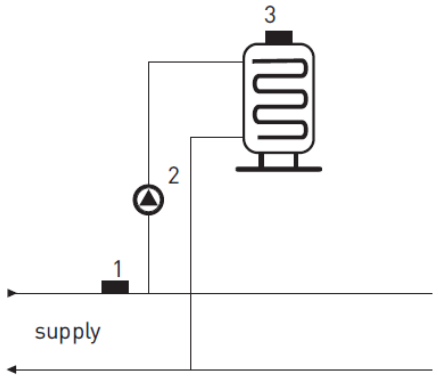
CH mode settings table

Mode	Parameter	Value default	Description
CH	On/Off	On	Switches the zone on or off.
	Switch-on temperature	35°C	The temperature above which the pump is switched on. Range from 10°C to 90°C.
	Schedule	All hours on.	Weekly schedule of the CH pump operation
	Alarm temperature	95°C	The temperature above which the pump is switched off generates the alarm. Range from 80°C to 110°C.
	Maintenance	Operation – 10 minutes Idle time – 50 minutes	The function is active when the hourly schedule is not selected. "Operating time" setting range – from 0 to 600 min. "Idle time" setting range – from 1 to 600 min.
	Hysteresis	2°C	It is a difference between the temperature at which the CH pump is switched on and off. Range from 2°C to 10°C.
	Exit	-	-

b. DHW MODE – CONTROL OF THE DOMESTIC HOT WATER TANK FEEDING PUMP

Designations:

1. Feeding temperature sensor
2. DHW tank feeding pump
3. The tank temperature sensor for which the DHW mode was selected.



Operating conditions:

- The DHW pump is activated if:
  - the DHW system is switched on;
  - the current time is selected in the schedule;
  - the temperature of the DHW sensor drops by the value of the hysteresis below the DHW preset temperature;
  - the temperature of the feeding sensor will be higher by the "Excess" parameter than the tank temperature;
  - the feeding sensor temperature will be higher than the "DHW start temperature" setting.
- The weekly schedule of the DHW pump operation enables switching the zone off for the selected hours in the selected days of the week.
- The thermal cleansing function consists in heating the tank up to the temperature of 70°C. The time for performance of the thermal cleansing is limited to 4 hours. Maintaining a low DHW temperature (at the level of 40°C) facilitates the development of bacterial flora in the system. The proper cleansing consists in heating the DHW tank

to the temperature of 70°C and flushing the pipes with hot water.

- The "Excess" parameter determines the value by which the temperature of the heat source must exceed the temperature of the tank. Setting a higher temperature ensures an adequate heating capacity and compensates the heat loss due to the imperfect insulation of pipes connecting the boiler and the tank. If the temperature of the heat source is not sufficiently high, then the DHW tank feeding pump is not switched on.
- The overheating alarm is generated if the temperature of the zone sensor exceeds the value of the "Alarm temperature" setting and is maintained longer than for one minute.
- Switching on of the "Priority" function means that the controller switches off the CH circuits for the time of DHW heating in order to achieve the temperature preset for the tank as fast as possible. In the case when the tank cannot be heated up in a reasonable time, it is possible to limit the DHW priority. The DHW tank is heated for the time preset by the "Operation time" parameter (**P** icon active on the display screen), then the DHW priority is switched off for the "priority break time". – the pumps operate simultaneously (**P** icon flashing on the display). Subsequently, the priority is switched on again. Only CH and Floor zones implement the "priority" function.
- The "DHW start temperature" parameter determines the threshold of the DHW pump activation. If the temperature of the feeding sensor exceeds the DHW start temperature, the pump is activated.

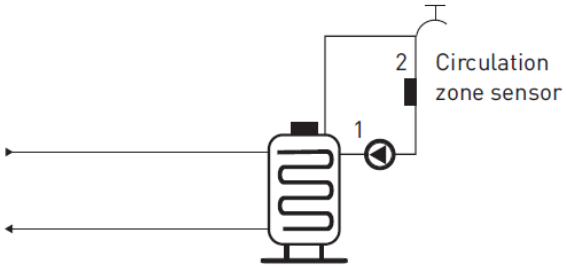
DHW mode settings table

Mode	Parameter	Default value	Description
DHW	On/Off	On	Switches the zone on or off.
	Preset temperature	50°C	DHW tank preset temperature Range from 30°C to 95°C.
	Schedule	All hours on.	Weekly schedule of the DHW pump operation.
	DHW thermal cleansing	Off	Enables performance of thermal cleansing of the DHW system.
	Hysteresis	5°C	It is a difference between the temperature at which the tank feeding pump is switched on and off. Range from 2°C to 10°C.
	Excess	5°C	Determines the value by which the temperature of the heat source must exceed the temperature of the tank. Range from 2°C to 10°C.
	Alarm temp.	85°C	The temperature above which the tank overheating alarm is generated. Range from 75°C to 95°C.
	Priority	Off	Enables switching the DHW operating priority over the CH and floor heating pumps on or off. "Operating time" setting range – from 1 to 99 min. "Idle time" setting range – from 1 to 99 min.
	DHW start temperature	40°C	DHW pump activation threshold Range from 10°C to 80°C.
	Exit	-	-

c. CIRCULATION MODE – CIRCULATION OF THE DOMESTIC HOT WATER ZONE

Designations:

1. DHW circulation pump
2. The zone temperature sensor for which the "Circulation" mode was selected.



Operating conditions:

- The circulation pump is activated if:
  - the circulation zone is active;
  - the current time is selected in the schedule;
  - the temperature of the zone sensor decreases below the preset temperature by the value of the hysteresis.
- The pump is switched off if the temperature of the zone sensor achieves the preset temperature.
- The zone overheating alarm is generated after one minute from the moment of exceeding the "Alarm temperature" setting.

Circulation mode settings table

Mode	Parameter	Default value	Description
DHW Circulation "Circ"	On/Off	On	Switches the zone on or off.
	Temperature	40°C	Preset temperature of the zone. Range from 20°C to 70°C.
	Schedule	All hours on.	Weekly schedule of the DHW circulation pump operation.
	Hysteresis	5°C	It is a difference between the temperature at which the circulation pump is switched on and off. Range from 2°C to 10°C.
	Alarm temp.	75°C	The temperature above which the zone overheating alarm is generated. Range from 70°C to 95°C.
	Exit	-	-

d. THERMOSTAT MODE – MODE OF OPERATION AS A PROGRAMMABLE THERMOSTAT WITH A HEATING OR COOLING FUNCTION

$$\text{HEATING } T_{\text{switch on}} < T_{\text{switch off}}$$

$$\text{COOLING } T_{\text{switch on}} < \text{switch off}$$

The temperature sensor of the zone for which the "Thermostat" mode was selected is used in this mode.

Operating conditions:

- The output is activated if:
  - the zone is active;
  - the current time is selected in the schedule;
  - according to the "T switch on" and "T switch off" settings.

- The Heating/Cooling parameter enables selecting whether the zone is to control heating or cooling.
- The feeding temperature is disregarded in this mode.

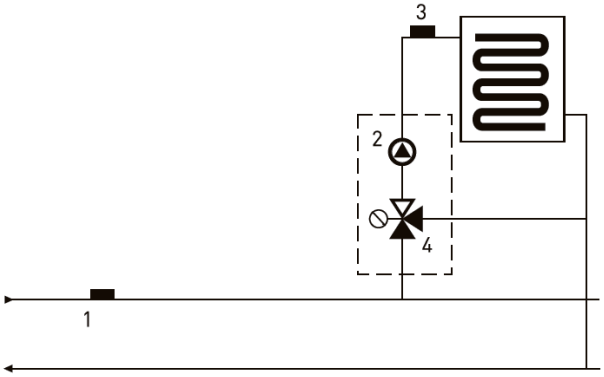
Thermostat mode settings table

Mode	Parameter	Default value	Description
Thermostat "Thermo"	On/Off	On	Switches the zone on or off.
	T switch on	28°C	Switch-on temperature. Range from 0°C to +95°C
	T switch off	30°C	Switch-off temperature. Range from 0°C to +99°C
	Schedule	All hours on.	Weekly schedule of the Thermostat output operation.
	Heating/ Cooling	Heating	Enables selecting whether the thermostat circuit is to control heating or cooling.
	Exit	-	-

e. FLOOR MODE – CONTROL OF THE FLOOR HEATING ZONE

Designations:

1. Feeding temperature sensor
2. Floor zone pump
3. The zone temperature sensor for which the "Floor" mode was selected.
4. Thermostatic valve



Operating conditions:

- The floor pump is activated if:
  - the zone is active;
  - the current time is selected in the schedule;
  - the temperature of the feeding sensor exceeds the value of the switch-on temperature setting (Switch-on temp.);
  - the temperature of the floor zone temperature sensor is maintained below the switch-off temperature setting (Switch-off temp.).

- The temperature sensor downstream of the pump is used for controlling the temperature of the floor zone. The pump will be switched off when the temperature of the sensor reaches the switch-off temperature (switch-off temp.) and will be switched on when the temperature of the zone sensor drops by the hysteresis value below the switch-off temperature.
- The zone overheating alarm is generated after one minute from the moment of exceeding the "Alarm temperature" setting. The alarm temperature setting must be higher than the switch-off temperature.
- In the case when the hourly schedule for the pump operation is not marked (heating not needed), the "Maintenance" function is implemented" – the pump operates in

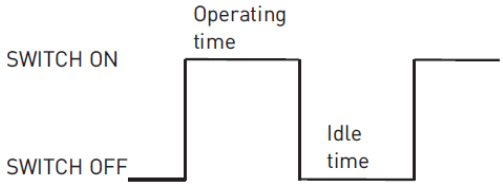
cycles, according to the "Operating time" and "Idle time" settings.
If "Operating time" = 0 is set, then the pump is not switched on.

Floor mode settings table.

Mode	Parameter	Value default	Description
Floor "Floor"	On/Off	On	Switches the zone on or off.
	Switch-on temperature	20°C	The temperature above which the pump is switched on. Range from 10°C to 60°C.
	Switch-off temperature	45°C	The temperature above which the pump is switched off. The switch-off temperature must be lower than the alarm temperature. Range from 20°C to 50°C.
	Schedule	All hours on.	Weekly schedule of the floor pump operation.
	Alarm temperature	50°C	The temperature above which the zone overheating alarm is generated. Range from 21°C to 60°C.
	Maintenance	Operation – 10 minutes Idle time – 50 minutes	The function is active when the hourly schedule is not selected. "Operating time" setting range – from 0 to 600 min. "Idle time" setting range – from 1 to 600 min.
	Hysteresis	2°C	It is a difference between the temperature at which the pump is switched on and off. Range from 2°C to 10°C.
	Exit	-	-

f. TIME-BASED OPERATION MODE – MODE OF OPERATION WITH PROGRAMMABLE OPERATING TIME AND IDLE TIME

1. The temperature sensors are not used in this mode.
2. The output may be used for the time-based control of, e.g., lighting, ventilation.



Operating conditions:

- The transmitter is activated if:
  - the output is active;
  - the current time is selected in the schedule;
  - according to the "Operating time" and "Idle time" settings – operation in cycles.
- In the case when the hourly schedule of the pump operation is not marked (empty cells), the output is not switched on.
- If the "Idle time" = 0 is set, then the output operates at all times.

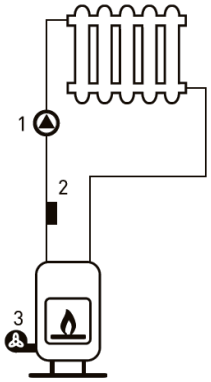
Time-based operation mode settings table

Mode	Parameter	Value default	Description
Time-based operation "Temp.op."	On/Off	On	Switches the zone on or off.
	Operating time	10 minutes	Range from 1 min to 600 min.
	Idle time	30 minutes	Range from 0 min to 600 min.
	Schedule	All hours on.	Weekly schedule of the output operation.
	Exit	-	-

g. BLOWER MODE – MODE OF OPERATION CONTROLLING THE CH BOILER BLOWER (WITHOUT SPEED ADJUSTMENT)

Designations:

1. CH pump
2. The zone temperature sensor for which the "Blower" mode was selected.
3. Blower



Operating conditions:

- The transmitter is activated if:
  - the output is active;
  - the current time is selected in the schedule;
  - the temperature of the sensor is maintained below the "Preset temperature" setting.
- The FIRING-UP function is activated by switching the controller off and on again with the power button. The blower operates for 60 minutes and if during this period the zone temperature does not reach the shutdown temperature, then the controller switches the blower off and terminates the firing-up process.
- Exceeding the boiler temperature ("Preset temperature") results in turning into the blow-through operation. The blower operates time-based, according to the "Blow-through time" and "Blow-through idle time". In this operation mode, the blower is started only to remove combustion gases out of the furnace. The blow-throughs are implemented until the temperature drops by the hysteresis value below the preset temperature.
- In the case when the hourly schedule of the pump operation is not marked (heating not needed), the preset temperature is decreased by the "Reduction" parameter.
- The zone overheating alarm is generated after one minute from the moment of exceeding the "Alarm temperature" setting. The blow-throughs are not performed then.
- The zone temperature sensor shall be located along with the feeding temperature sensors (possibly close to the boiler).
- "Shutdown" – a temperature below which the controller turns the blower off (the fire is considered shut down).

Blower mode settings table

Mode	Parameter	Value default	Description
Blower "Blower"	On/Off	On	Switches the zone on or off.
	Temperature	60°C	Preset temperature. Range from 15°C to 85°C.
	Schedule	All hours on.	Weekly schedule of the blower operation.
	Hysteresis	5°C	It is a difference between the temperature at which the blower is switched on and off. Range from 2°C to 10°C.
	Temp. reduction	5°C	Reduction of the preset temperature by a preset value. Range from 2°C to 10°C.
	Alarm temperature	95°C	The temperature above which the alarm is generated. Range from 90°C to 95°C.
	Blow-through time	10 seconds	Blow-through time. Range from 1 s to 99 s.
	Blow-through idle time.	5 minutes	Idle time between the blow-throughs. Range of 1 min to 99 min.
	Shutdown	35°C	Range from 10°C to 50°C.
	Exit	-	-

9. Anti-stop system

EUROSTER 12 controller is equipped with an ANTI-STOP system that prevents the process of scale build-up on the rotors of unused pumps. It automatically turns the pumps on every 10 days when the heating season is over. Keep the controller turned on to allow the function operation after the heating season.
The anti-stop system is implemented for the CH, DHW, Circulation, Floor modes.

10. Alarm situations

To ensure safe and reliable operation, the controller features a number of protections. The list of alarm events is shown in the table below. If an alarm situation occurs, an audible alarm is generated and a relevant message is displayed. Upon resolution of the alarm situation, the controller automatically resumes its operation. The message is displayed until the menu is entered. If the alarm is resolved, the message is erased upon exiting the menu.

Alarm	Message	Controller response
Feeding sensor shorted	Supply sens. shorted	Switching on of the outputs (CH, Floor) and activation of an audible alarm.
Opening of the feeding sensor	Feeding sens. open	Switching on of the outputs (CH, Floor) and activation of an audible alarm.
Feeding sensor overheating	Feed. sens. overheating	Switching on of the outputs (CH, DHW, Floor) and activation of an audible alarm.
Zone 1 sensor shorted	Sens. shorted 1	Switching off of the output, activation of an audible alarm
Zone 1 sensor open	Sens. open 1	Switching off of the output, activation of an audible alarm.
Zone 1 sensor overheating	Sens. overheating 1	Switching off of the output, activation of an audible alarm.
Zone 2 sensor shorted	Sens. shorted 2	Switching off of the output, activation of an audible alarm.

Zone 2 sensor open	Sens. open 2	Switching off of the output, activation of an audible alarm.
Zone 2 sensor overheating	Sens. overheating 2	Switching off of the output, activation of an audible alarm.
Zone 3 sensor shorted	Sens. shorted 3	Switching off of the output, activation of an audible alarm.
Zone 3 sensor open	Sens. open 3	Switching off of the output, activation of an audible alarm.
Zone 3 sensor overheating	Sens. overheating 3	Switching off of the output, activation of an audible alarm.

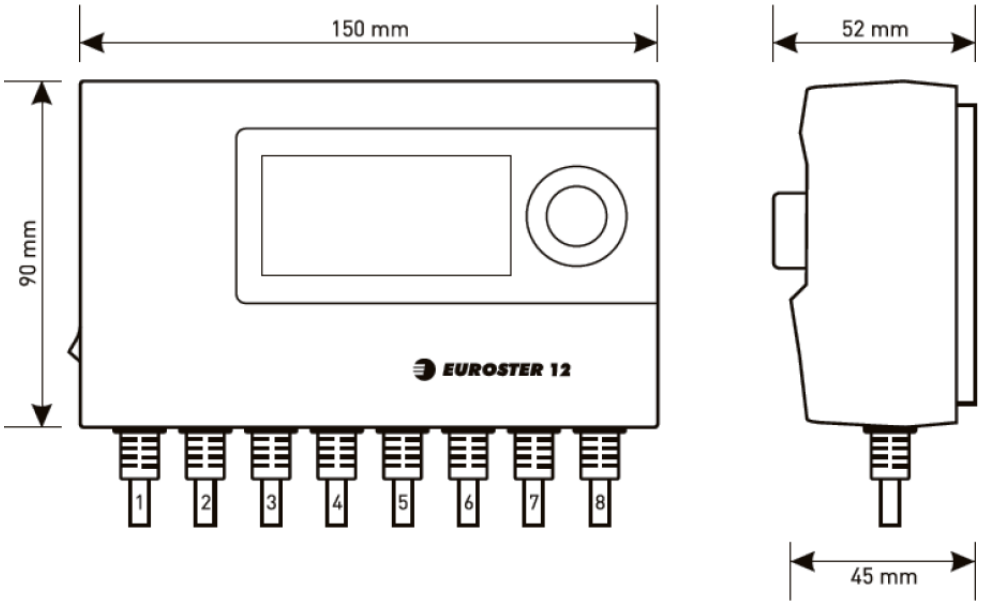
11. Maintenance

Before each and every heating season, the controller must be cleaned of any dust and dirt, the cables must be checked for tight fixing. If necessary, wipe it carefully with a soft cloth. Do not use solvents and aggressive detergents since they may damage the surface of the housing and the display. Avoid contact with water or other liquids.

12. Internal battery

The controller is equipped with an internal battery, unavailable for the user. Do not try to replace it by yourself. For further information on replacement or repair of the controller (no clock backup after blackout), please contact our technical support.

13. Dimensions



14.Technical data

Controlled device:	pumps and other devices used in heating systems
Supply voltage:	230 V 50 Hz
Maximum load of each of the outputs:	1 A 230 V 50 Hz
Maximum power consumption of the controller:	3 W
Temperature measurement range:	from -5°C to +100°C
Temperature adjustment range:	CH mode: from +10°C to +90°C DHW mode: from +30°C to +95°C Circulation mode: from +20°C to +70°C Floor mode: from +10°C to +60°C Blower mode: from +15°C to +85°C Thermostat mode: from 0°C to +99°C
Temperature control accuracy:	1°C
Hysteresis range:	from 2°C to 10°C
Visual signalization:	backlit LCD
Operation temperature:	from +5°C to +40°C
Storage temperature:	from 0°C to +50°C
Ingress protection rating:	IP40
Color:	black
Mounting method:	wall-mounted
Controller weight:	0.84 kg
Standards, approvals, certificates:	conformity to EMC, LVD, and RoHS
Warranty period:	2 years
Dimensions (width / height / depth) in mm:	150 / 90 / 52
Line protection:	WTA-T4A time lag fuse (inside the controller)

Length of cables:

- Power cable of the controller: 1.5 m
- Power cable of device No. 1: 1.5 m
- Power cable of device No. 2: 1.5 m
- Power cable of device No. 3: 1.5 m
- Zone 1 temperature sensor: 1.5 m
- Zone 2 temperature sensor: 3 m
- Zone 3 temperature sensor: 5 m
- Feeding temperature sensor: 1.5 m

15. KIT CONTENTS

Euroster 12 controller
Sensor hose clips (4 pcs)
Screw anchors (2 pcs)
Mounting template
User Manual with Warranty Certificate

16. STANDARDS AND CERTIFICATES

Euroster 12 controller conforms to the following EU Directives: EMC, LVD, and ROHS.
The EC Declaration of Conformity is published and available at:

http://www.euroster.com.pl

17.ELECTRONIC WASTE MANAGEMENT INFORMATION

We made every effort to ensure that this controller lifetime is as long as possible.
However, the device is subject to natural wear. If the device would not meet your requirements any more, you are kindly requested to have it brought in to an electronic waste management facility. Cardboard boxes must be disposed at a paper recycling facility.

WARRANTY CERTIFICATE
EUROSTER 12 controller

Warranty terms:

1. The warranty is valid for 24 months from the device sale date.
2. Claimed thermostat 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. The device 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	stamp and signature	service: tel. 65-57-12-012

Business entity that issued this warranty certificate is:
P.H.P.U. AS Agnieszka Szymańska-Kaczyńska, Chumiętki 4, 63-840 Krobia, Poland