EUROSTER 1100S

1) APPLICATION

The EUROSTER 1100 S is a modern differential temperature controller with 2 measurements, designed for work with 1 heat receiver in solar systems. It works together with a circulating pump in solar collector systems.

In the heating circuit, the task of the controller is to force circulation between the collector and the hot water tank.

INSTALLATION

a. Mounting the controller:
- mount the controller on a wall or a console, using two screws (expansion plugs with screws are supplied with the controller),
- fix the outgoing cables to the wall, using holders.

b. Mounting the sensors:
- **the sensors must not be immersed in liquids or installed in flue gas outlets**,
- install sensor 1 on the solar collector at a location intended for this purpose,
- install sensor 2 on the hot water tank,
- the maximum temperature measurement value is 99°C.

c. Connecting the power supply cable to the pump:
- connect the yellow or yellow/green wire (ground wire) to the (↓) terminal,
- connect the blue wire to the (N) terminal,
- connect the brown wire to the (L) terminal.

d. Checking the correct connection:
- check the correct connection and screw on the pump motor terminal box cover.

e. Connecting the controller:
- after protecting the cables against accidental breaking, connect the power supply cable to a grounded 230V/50Hz mains socket.

NOTE: The ambient temperature in the place of installation of the controller should not exceed 40°C.

Wait about 30 seconds after start-up for the controller to start normal operation.

2) PRINCIPLE OF OPERATION OF THE EUROSTER 1100S CONTROLLER

The control algorithm for the circulating pump is designed in such a way that the controller will not close the circulating pump relay, if the sensor temperature is higher than 75°C or 85°C, so as to prevent the water in the tank from boiling.

a. Turning on the controller:
- set the switch marked with (~) (the one on the left) in the "I" position,

- upon turning on, all display segments will light for about 2 seconds, and after 1.5 seconds the controller will show the current temperature of the hot water tank sensor and will turn on the circulating pump for 120 seconds.

The factory settings of the threshold temperature values are the following: the upper threshold value is set at 14 degrees and the lower threshold value is set at 6 degrees.

b. Display description (information display)
- non-flashing digits – the hot water tank sensor temperature is displayed
- flashing digits – the set temperature value is displayed
- lighted green LED – the circulating pump relay is closed
- in order to display the solar collector sensor temperature, press both buttons at the same time and release them. After 5 seconds the controller will automatically return to the hot water tank sensor temperature display.

c. Changing the temperature values
- **setting the upper differential temperature value for switching on** – press the left-hand button under the display (the digits will start flashing and will indicate the current set value),
- **setting the lower differential temperature value for switching off** – press the right-hand button under the display (the digits will start flashing and will indicate the current set value),
- set the desired temperature difference using the right-hand (increasing) or the left-hand (decreasing) button,
- after setting the temperature, wait for about 5 seconds, until the display stops flashing and the temperature difference is stored in the memory,
- the display will show the current hot water tank sensor temperature,
- normally, the maximum temperature limit for the hot water tank is set at 75°C. In order to increase the heat storage capacity of the buffer reservoir, the hot water tank temperature may be changed by the user to 85°C. The tank temperature can only be changed upon turning on the controller by pressing and holding both buttons at the same time. If the display flashes once during start-up, the temperature limit is set at 75°C, and if the display flashes three times, the temperature limit is set at 85°C.

d. Automatic operation
- set the right-hand switch marked with (►) in the "0" position, and the (~) switch in position 1,
- the controller will switch the pump on or off depending on the threshold temperature settings. If the difference between of the solar collector sensor temperature and the tank sensor temperature rises above the stored upper limit, the circulating pump will be switched on. When as a result of heating the difference between of the solar collector sensor temperature and the tank sensor temperature drops to the lower limit, the circulating pump will be switched off.

e. Continuous operation:
- set the switches marked with (~) and (►) in position 1,
- the hot water pump will run regardless of the temperature setting of the controller and the real temperature at the sensor location – this is indicated by a lighted green LED.

3) OPERATING THE CONTROLLER

The factory threshold temperature settings – the upper limit is set at 14°C and the lower limit is set at 6°C, which means that the controller will switch on the pump, if the

temperature difference between the solar collector and the hot water tank is 14°C and the pump will work until the temperature difference between the sensors drops to 6°C. If the upper differential temperature is changed to a value below the lower differential temperature, the lower limit will be changed automatically so as not to be higher than the upper limit, and if the lower differential temperature is changed to a value above the upper differential temperature, the upper limit will be changed automatically so as not to be lower than the lower limit.
Both threshold temperature values can be changed within the range from 0°C to 20°C.
The temperatures are set with the buttons under the controller's display.

In addition, the controller is equipped with an **ANTI-STOP** system working at two speeds. The **ANTI-STOP** system operates all the time, regardless of the threshold temperature values and the temperature difference. When the solar collector temperature is higher than 90°C, the **ANTI-STOP** system works with a high frequency, switching on every 30 minutes for 80 seconds, and when the collector temperature is lower, the system starts the pump every 14 days to run for 30 seconds.

Technical data

threshold temperature setting range	0°C – 20°C
measurement range	1°C – 99°C
supply voltage	230V AC
maximum load	6A AC

4) Kit components

a. controller with sensors (collector – 25 m, tank – 5 m)
b. sensor band clips
c. expansion plugs
d. instruction
e. mounting template

Connection diagram – connection of controller to pump and solar collector

The presented diagram is simplified and does not contain all the elements required for the correct operation of the installation.

hot water
cold water

Legend
1. Controller
2. Solar collector
3. Hot water tank
4. Collector temperature sensor
5. Tank temperature sensor

WARRANTY CARD

Warranty conditions:
EUROSTER 1100S controller, serial number .....

1) The warranty is granted for a period of 24 months from the date of sale.

2) Faulty controller together with the warranty card shall be delivered to the point of sale or directly to the manufacturer by mail.
3) The manufacturer commits itself to repair faulty equipment within 14 days following the receipt thereof.
4) The warranty is void in the case of mechanical damage, incorrect use or repairs made by unauthorised persons.
5) All changes and amendments in the warranty card are only valid if made by an authorised person and confirmed with a signature and a stamp.
6) Warranty and after-warranty repairs are made by the manufacturer only.

TO BE FILLED IN BY THE POINT OF SALE

date of sale **company stamp and signature**