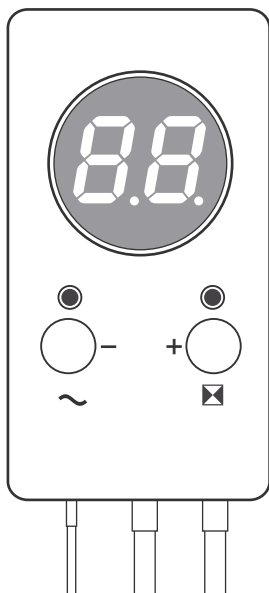


AURATON

www.auraton.pl

S10

User manual



AURATON S10

Three-way valve controller

AURATON S10 is a controller intended for control of the three-way valve. The controller opens and closes the valve in the hysteresis range of 10°C. The controller can work with actuators both with limit switches (AUTO function) and without limit switches (MANUAL function).

NOTE: If controllers with limit switches are used, the AUTO function must be used (the controller will automatically select the opening and closing time of the valve) and when controllers without limit switches are used, the MANUAL function must be used (the operation time specified by the controller manufacturer must be selected manually).

Installation

Mounting the sensor:

- install the sensor on a non-covered pipe;
- press the sensor against the tube using a clamp.

Connecting the power supply cable to the valve:

- on the controller side, the blue cable is the common wire (in the actuator, the common cable may be different, depending on the manufacturer);
- the brown and black wires are control cables; depending on the direction of operation the two cables may be mutually exchanged.

Connecting the controller:

- after the cables have been secured to prevent accidental pulling, connect the power supply cable to a 230 V/50 Hz mains power outlet..

Mounting the controller:

- the controller must be mounted on a wall or another support using two screws (the concrete anchors with screws are delivered with the controller).
- the cables extending from the controller must be fixed to the wall.

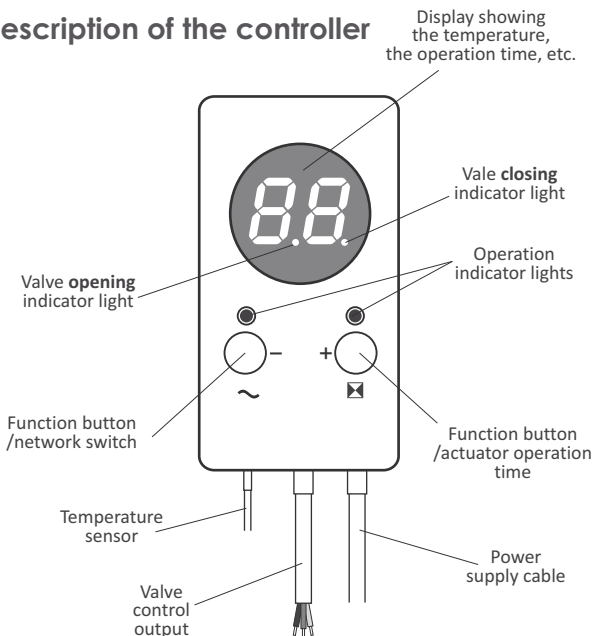
Operation of the controller

If the return temperature is set to 60 °C, the valve is opened and closed in the hysteresis range of ± 5 °C.

This means that when the sensor installed on the return pipe reaches the temperature of 65 °C, the valve will be fully closed and when it reaches the temperature of 55 °C, the valve will be fully open.

When the temperature of 60 °C, which is set by the user on the controller, is reached, the valve is half (50%) open. The controller controls the valve in the same way as a stepper motor: it gradually opens or closes the valve depending on the temperature. Each change of the temperature by 1 °C causes the valve to be opened or closed by 10%.

Description of the controller



*The valve **opening** and **closing** indicator lights indicate the status of operation of the actuator. Blinking indicator lights indicate operation of the valve to the left or to the right.*

First start

On the left side under the display there is the network switch button (⌚). Hold the button for 2 seconds to switch the controller on or off. When the controller is off, the LED is illuminated red and when it is on, the LED is illuminated green..

When the controlled is activated, it automatically calibrates the valve opening and closing time (the display shows the symbol "CA"). This consists in fully opening and closing the valve and measuring the opening and closing time. The measured value is saved in the memory; in order to ensure accurate measurement, the calibration is performed twice.



After the calibration process is completed, the current sensor temperature is displayed. The sensor is then ready to set the appropriate operating temperature.

Setting the temperature

The temperature setting function can be activated by briefly pressing the left or right button.

The temperature value will then blink for 3 seconds on the display. The appropriate temperature can then be set using the (–) or (+) button.

After the setting has been performed, the controller automatically stores this value **and the display shows the current sensor temperature.**

NOTE: If the actuator is fitted with limit switches, the controller is ready for operation. If an actuator without limit switches is used, it is necessary to set the operation time specified by the manufacturer of the actuator.

Setting the actuator operation time

When the right button (⏏) is pressed and held for 2 seconds, the actuator operation time is edited.

The display then shows the symbol "AU" (automatic operation).

Use the (–) and (+) buttons to set the appropriate value of the time:

- **01** – 10 seconds (minimum value);
- **40** – 400 seconds (maximum value);
- **AU** – automatic operation.



When the “AU” value is set, the controller will resume operation in the automatic mode (an actuator with limit switches).

After the edition is completed, the controller will save the set values and, after 10 seconds, instead of the blinking time setting, the display will show the current temperature.

The most common value is 150 seconds (15).

In the event of a power outage, after the controller is switched on again, the symbol “NA” is shown (manual setting of the actuator operation time).



NOTE: In the event of a momentary power outage, the AUTOCALIBRATION function is activated; after the calibration is completed, the controller resumes normal operation. The display then shows the following sequence: display test, software version (e.g. F1.2), symbol “AU” (automatic actuator operation time) or “NA” (manually set actuator operation time), and “CA” (calibration function activated).

Switching the controller off

The controller can be switched off in two ways:

- During normal operation, press and hold for 2 seconds the (~) button; the display is then switched off and the green LED changes its color to red. The controller can be switched off in the same way when the calibration function is being performed. The display is switched off too and the LED changes its color from green to red; however, in this case the actuator operation direction indicator light blinks. Thus, the calibration is completed and the valve is set in the central position at 50% (right hand, orange LED).
- Another way is to completely switch off the controller at any time; this can be done by simultaneously pressing and holding both buttons (~ and ☒) for 2 seconds. In such a case, the GUARD system is not active. The fact that the controller is completely switched off is signaled by both the left hand and the right hand diode illuminated red. In order to switch the controller back on, press the (~) button.

Error information codes

E0	The valve calibration time for any of the sides is too short (defective valve, incorrect connection).	The valve is stopped; waiting for the defect to be repaired (message only in the "AU" mode); after the defect has been repaired, press any button.
E1	The limit switch is not activated for more than 4 minutes (defective valve, incorrect connection).	The valve is stopped; waiting for the defect to be repaired (message only in the "AU" mode); after the defect has been repaired, press any button. NOTE: <i>If this message is displayed when the controller is activated for the first time, this may indicate a need to reset the controller into the "NA" mode (manual setting of the actuator operation time.</i>
E2	No network synchronization signal that protects the relay is present.	The valve is stopped; waiting for the defect to be repaired (for the power supply to be cut off temporarily).
E3	A short circuit took place in the sensor.	The valve has been switched off; waiting for the defect to be repaired (replacement of the temperature sensor); once the defect has been repaired, press any button.
E4	Missing or defective sensor.	The valve has been switched off; waiting for the defect to be repaired (replacement of the temperature sensor); once the defect has been repaired, press any button.
L0	Sensor temperature below 2°C.	The valve is stopped; waiting for the defect to be repaired (higher temperature).
H1	Sensor temperature above 90°C.	Warning about high temperature in the system.

NOTE: All defects must be repaired with the power supply cable removed from the mains power outlet.

NOTE: The above alarms are signaled with an intermittent acoustic signal until the relevant defect has been repaired or the controller has been switched off. Once the defect has been repaired, the controller performs calibration and starts normal operation.

NOTE: The error codes are displayed alternately with the current sensor temperature (this does not apply to codes **E3** and **E4**).

Other information codes

CA	CA	The controller is in the valve calibration mode.
AU	AU	The controller is set for automatic actuator operation time.
NA	NA	The controller is set for manual actuator operation time.

GUARD function

The controller has a GUARD function.

Every 14 days, self-calibration is activated automatically. This is intended to improve the precision of actuator operation and, at the same time, to prevent the stalling of the valve in periods when it is not in use.

The GUARD function is also active when the controller is off but only after full calibration has been performed. This is indicated by illumination of only the left hand red LED.

Controller operation modes

The controller is switched on (*the GUARD system is active*)

- the left hand LED is green
- the display is on
- the color of the right hand LED depends on the opening status of the valve:
 - **green** – the valve is closed;
 - **orange** – the valve is 50% closed;
 - **red** – the valve is opened.

The controller is in standby/switched off

(*the GUARD system is active*)

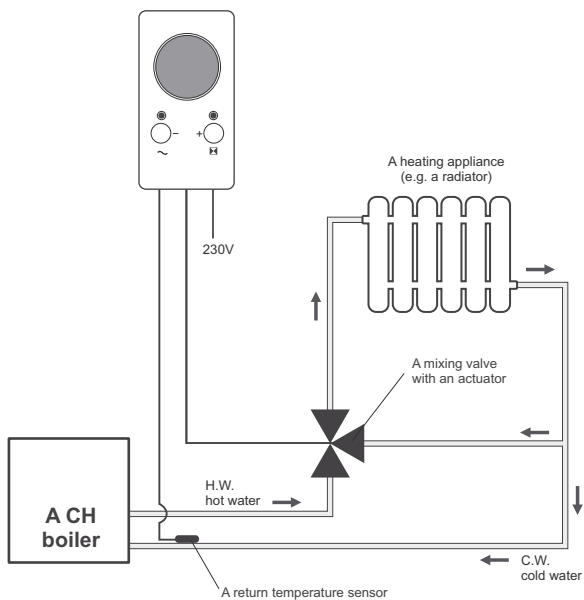
- the left hand LED is red
- the display is not backlit
- the right hand LED is off

The controller is completely switched off

(*the GUARD system is inactive*)

- the left hand LED is red
- the display is not backlit
- the right hand LED is red

Wiring diagram of the controller



Technical data

Operating temperature range:	0-40 °C
Temperature adjustment range:	10-90 °C
Temperature measurement range:	2-99 °C
Actuator operation time setting range:	10-400 seconds
Hysteresis:	+/- 5 °C
Supply voltage:	230 V AC
Maximum load:	5 A AC

Cleaning and maintenance

- The outside of the controller must be cleaned with a clean cloth. Do not use solvents (such as benzene, thinners, or alcohol).
- Do not touch the device with wet hands. This can lead to electric shock or serious damage to the device.
- Do not expose the device to excessive impact of smoke or dust.
- Do not touch the display with sharp objects.
- Avoid contact of the device with liquids and moisture.

Disposal of the device



The device is marked with a symbol of a crossed waste bin. Pursuant to European Directive 2002/96/EC and to the Act on waste electrical and electronic equipment, such mark indicates that the device, at the end of its service life, must not be disposed off together with other household waste.

The user is required to deliver it to a waste electrical and electronic equipment collection point.



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