

USV | ACTIVE POTENTIOMETER

Mounting and operating instructions



Table of contents

SAFETY AND PRECAUTIONS	3
PRODUCT DESCRIPTION	4
INTENDED AREA OF USE	4
TECHNICAL DATA	4
STANDARDS	4
WIRING AND CONNECTIONS	5
OPERATIONAL DIAGRAMS	5
MOUNTING INSTRUCTIONS IN STEPS	5
VERIFICATION OF INSTALLATION INSTRUCTIONS	6
TRANSPORT AND STORAGE	7
WARRANTY AND RESTRICTIONS	7
MAINTENANCE	7

SAFETY AND PRECAUTIONS



Read all the information, the datasheet, mounting and operating instructions and study the wiring and connection diagram before working with the product. For personal and equipment safety, and for optimum product performance, make sure you entirely understand the contents before installing, using, or maintaining this product.



For safety and licensing (CE) reasons, unauthorised conversion and /or modifications of the product are inadmissible.



The product should not be exposed to abnormal conditions, such as: extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible; avoid condensation.



All installations shall comply with local health and safety regulations and local electrical standards and approved codes. This product can only be installed by an engineer or a technician who has expert knowledge of the product and safety precautions.



Avoid contacts with energised electrical parts; always treat the product as if it is live. Always disconnect the power supply before connecting, servicing or repairing the product.



Always verify that you apply appropriate power supply to the product and use appropriate wire size and characteristics. Make sure that all the screws and nuts are well tightened and fuses (if any) are fitted well.



Recycling of equipment and packaging should be taken into consideration and these should be disposed of in accordance with local and national legislation / regulations.



In case there are any questions that are not answered, please contact our technical support or consult a professional.

PRODUCT DESCRIPTION

The USV-8/010-PA is an active potentiometer (supply voltage 85–264 VAC / 50–60 Hz) with 0–10 VDC / 0–20 mA / PMW output and is developed to control EC fans / motors or other devices that require a 0–10 VDC / 0–20 mA / PMW input signal.

INTENDED AREA OF USE

- Fan speed control in ventilation systems or air-conditioning systems
- Direct EC fan / motor control of whole house fans, fireplace blowers, humidifiers, range hoods, etc.

TECHNICAL DATA

- Supply voltage: 85–264 VAC / 50–60 Hz
- Analog output types:
 - ▶ 0–10 VDC mode: min. load 50 k Ω ($R_L \geq 50 \text{ k}\Omega$)
 - ▶ 0–20 mA mode: max. load 500 Ω ($R_L \leq 500 \Omega$)
 - ▶ PWM mode: PWM Frequency – 1 kHz, amplitude – 14 VDC, min. load 50 k Ω ($R_L \geq 50 \text{ k}\Omega$)
- Minimum and maximum output value adjustable via two internal trimmers
- Adjustable minimum output: 0–40 %
- Adjustable maximum output 60–100 %
- Adjustable output value from minimum to maximum with indexed zero-output at leftmost position of the potentiometer
- Analog / modulating output type selectable via jumper
- Enclosure:
 - ▶ plastic R-ABS, UL94-V0
 - ▶ grey colour (RAL 7035)
- Operating ambient conditions:
 - ▶ temperature: -5–65 $^{\circ}\text{C}$ / 23–149 $^{\circ}\text{F}$
 - ▶ rel. humidity: 5–85 % rH (non-condensing)
- Storage temperature: -20–70 $^{\circ}\text{C}$ / -4–158 $^{\circ}\text{F}$

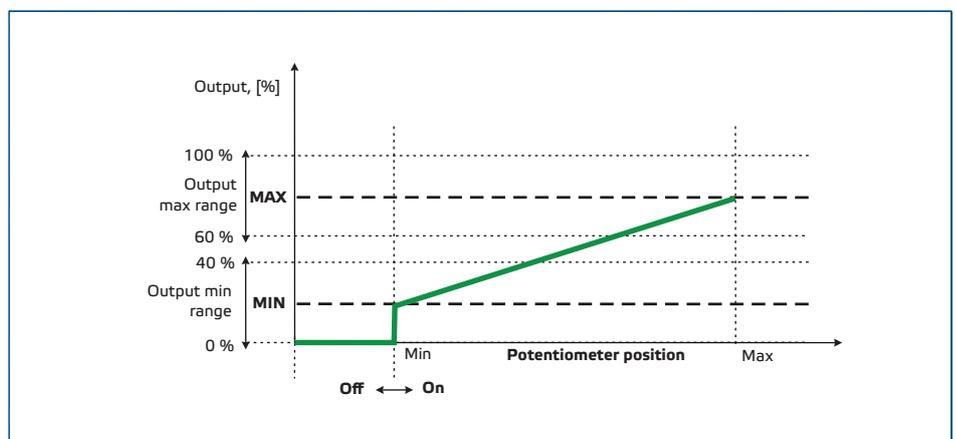
STANDARDS

- Low Voltage Directive (LVD) 2014/35/EC: CE
 - ▶ EN 60335-1:2012 Household and similar electrical appliances - Safety - Part 1: General requirements Amendments A11:2014 and AC:2014 to EN 60335-1:2012
 - ▶ EN 60730-1:2011 Automatic electrical controls for household and similar use Part 1: General requirements
 - ▶ EN 62233:2008 Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure
 - ▶ Amendment AC:2008 to EN 62233:2008
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU:
 - ▶ EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
 - ▶ EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light industrial environments
 - ▶ EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3:2007
- RoHs Directive 2011/65/EC
- WEEE 2012/19/EC

WIRING AND CONNECTIONS

White wire (N)	Neutral	
Black wire (L)	Power supply, phase 85–264 VAC / 50–60 Hz	
Blue wire (Ao1)	Analog / modulating output to motor	
Grey wire (GND)	Ground	
Cable cross section	Supply cables	0,75 mm ² / AWG 18
	Output cables	0,50 mm ² / AWG 20

OPERATIONAL DIAGRAMS



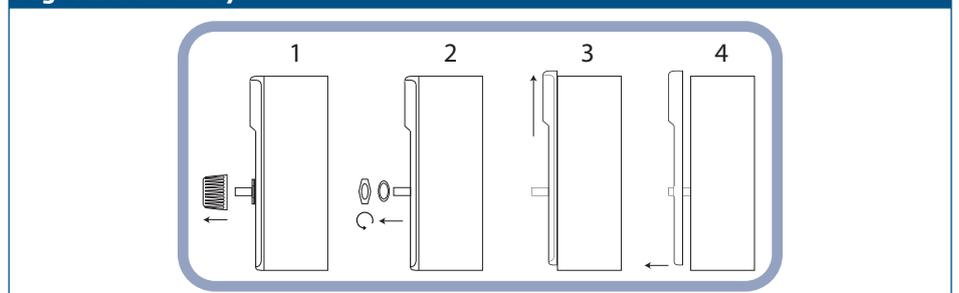
MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the USV, read carefully **“Safety and Precautions”**. Choose a flat surface for installation (a wall, panel, etc.).

Follow these steps:

1. Remove the potentiometer knob and unscrew the nut to open the cover of the enclosure (Fig. 1).

Fig. 1 Disassembly



3. Remove any of the four pre-stamped cable entries on the rear of the enclosure to insert the wires.

- Mount the unit onto the wall or panel using suitable fasteners. Mind the correct mounting position and unit mounting dimensions. (See Fig. 2 and Fig. 3)

Fig. 2 Mounting dimensions

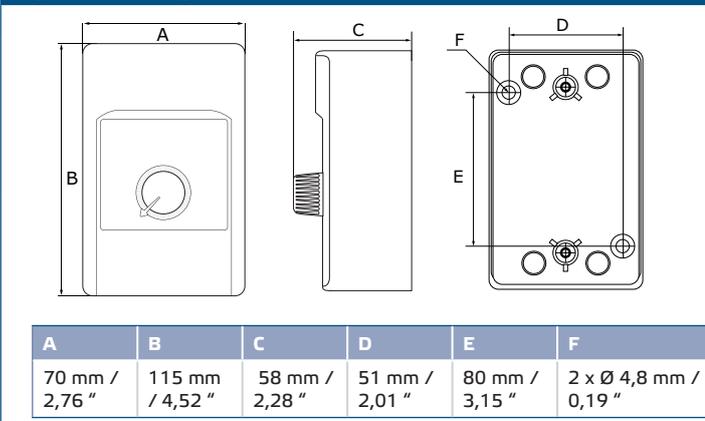
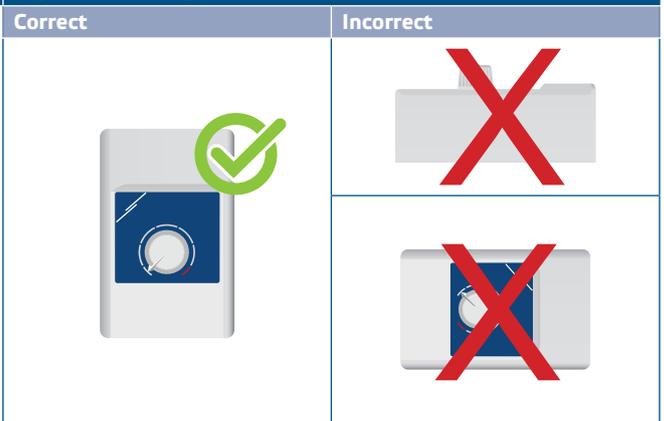
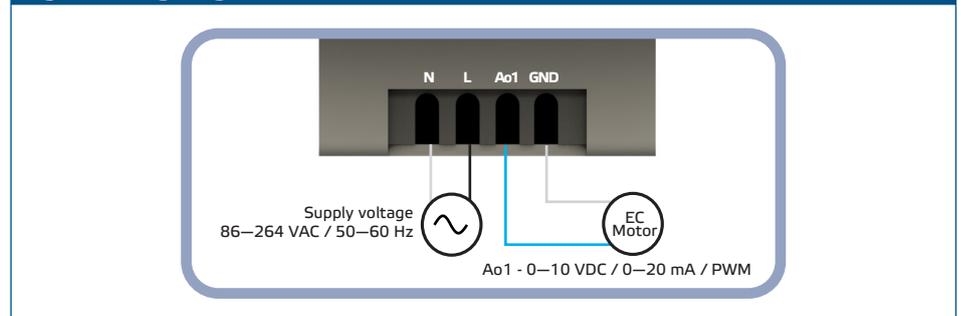


Fig. 3 Mounting position



- Do the wiring according to the wiring diagram (see Fig. 4) adhering to the information in section "Wiring and connections".

Fig. 4 Wiring diagram

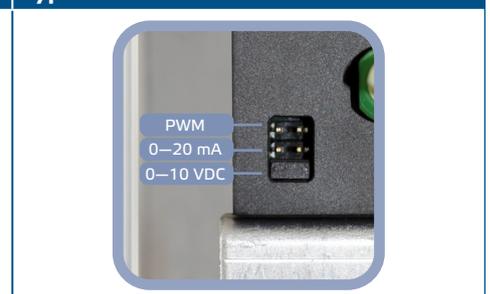


- Adjust the minimum and maximum output speed trimmers using a screwdriver. See Fig. 5.
- Use a pincette to select the output type via placing jumper JP1 in the desired position. See Fig. 6.

Fig. 5 Min. and max. output speed trimmers



Fig. 6 Analog / modulating output type selection



ATTENTION

Make sure you use cables with an appropriate diameter.

ATTENTION

Make sure the connections are correct before you power the unit.

- Put back the cover and fix it. Put back the knob.
- Switch on the power supply.

VERIFICATION OF INSTALLATION INSTRUCTIONS



ATTENTION

Use only tools and equipment with non-conducting handles when working on electrical devices.

- Switch on the power supply.
- In case of faulty operation, please check if:
 - ▶ the correct output type has been selected;
 - ▶ the trimmers have been set in the desired positions;
 - ▶ all connections are correct;
 - ▶ the regulated device is functioning.

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

Two years from the delivery date against defects in manufacturing. Any modifications or alterations to the product after the date of publication relieve the manufacturer of any responsibilities. The manufacturer bears no responsibility for any misprints or mistakes in this data.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.