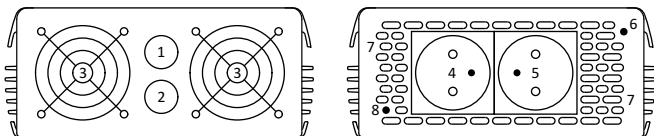


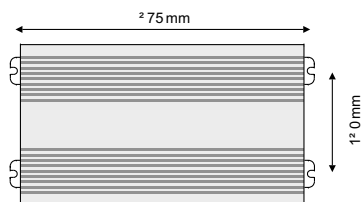
## CONNECTOR DESCRIPTION / HOUSING



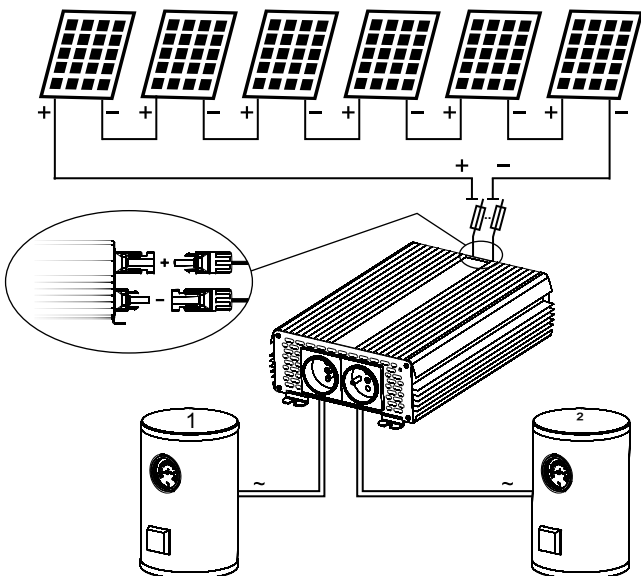
1 - "+" VDC power connector  
2 - "-" VDC power connector  
3 - fan

4 - VAC socket 1  
5 - VAC socket 2  
6 - indicator  
7 - ventilation holes  
8 - earthing

## MOUNTING HOLE SPACING



## SAMPLE WIRING DIAGRAM



## TECHNICAL DATA

model	MPPT - 3000
input voltage (DC)	1 <sup>2</sup> 0V ÷ 350V
output voltage (AC)	1 <sup>2</sup> 0V ÷ 350V
output voltage waveform	modified sine wave
output voltage frequency	50 Hz
maximum continuous power	3000 W
MPPT function	yes
connection of PV panels	series or series-parallel
power connector (input)	MC4 - 2 pcs
output socket	type E (French)- 2 pcs
enclosure	steel + aluminium
dimensions (L x W x H)	2 90 x 190 x 80 [mm]
net weight	2 ,4 kg

## PROTECTIONS AND OTHER FEATURES

model	MPPT - 3000
overload protection	yes
short circuit protection	yes
thermal protection	80 °C
overvoltage protection	yes
LCD display	yes
operating temperature	-2 5 °C ÷ 55 °C
efficiency	> 94 %
cooling	active
IP protection grade	IP <sup>2</sup> 1

# MPPT

## OPERATING MANUAL ECO Solar Boost MPPT-3000



10.0

## MANUFACTURER

AZO Digital Sp. z o.o.  
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80-2 09 Chwaszczyno, POLAND  
tel. +48 58 71<sup>2</sup> 81 79  
poczta@polskieprzetwornice.pl  
www.polskieprzetwornice.pl

Made in Poland



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## INTENDED USE

The ECO Solar Boost inverter is designed to power heating devices such as boilers, heaters, electric heaters or heating mats directly from PV panels. It achieves the best performance cooperating with devices equipped with bimetallic temperature control (non-electronic).

The system requires: 4 to 9 typical PV panels ( $^2$ 50W - 400W) connected in series, with a total voltage in the range of 1<sup>2</sup> 0V to 350V, an ECO Solar Boost inverter and an energy receiver with a heater with a capacity of  $^2$  00W to 3kW. The inverter is equipped with internal maximum power protection of 3kW. However, the total power of the panels connected to the inverter should not be higher than 5 kW.

The optimum power for systems operating in the spring - autumn period for boilers with a capacity of 50- $^2$  00L is 1000W to  $^2$  000W (4 to 7 PV panels). However, for year-round systems, it should be slightly higher due to high cloud cover and low sun angle in winter.



Two mains outputs located on the casing allow for connecting two heating devices (e.g. two boilers), one of which will always be heated first and the other only when the thermostat of the first one stops receiving energy from the inverter. This ensures that energy from the PV panels will not be lost when one of the units reaches a set temperature.

ECO Solar Boost inverter is equipped with MPPT algorithm that maximizes the amount of energy drawn from PV panels and causes automatic adjustment to the heater power.

## CONNECTION

### NOTE:

**The polarity of the supply voltage is very important when connecting! Reverse wiring will damage the inverter and void the warranty!**

The device has two MC4 connectors on the housing, which must be connected to the PV installation. The connector shaped  should be connected to the negative pole of the PV installation and the connector shaped  should be connected to the positive pole of the PV installation.

ADC safety switch, designed for such installations, shall be installed on the PV system power cord.

Connect a suitable  $^2$  30V heating consumer, e.g. an electric boiler, to the inverter output marked "1". When the inverter detects the presence of voltage from the PV panels within the appropriate range, the inverter will automatically turn on, which will be confirmed by the LED indicator.

Optionally, a second energy consumer can be connected to the output marked "2". This feature works only with a bi-metal thermostats. Electronic temperature controllers can only work with an output "1". Lack of activities on both outputs for a long time will cause a delay of load sense on output  $^2$  up to several minutes.

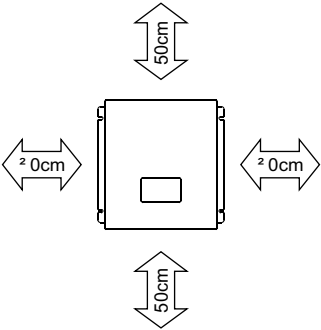
The inverter must be earthed via the designated screw connector on the inverter housing ( $^2$  ).

## PROPER INSTALLATION

To connect the PV panels to the inverter, use suitable PV installation cables with a cross section of not less than 4mm . Using wires that are too thin will cause them to heat up and cause a voltage drop at the inverter input, which leads to losses in the circuit and in extreme cases can cause a fire.

The inverter requires unobstructed air circulation for proper operation. Do not, under any circumstances, cover the ventilation holes in the casing (7 in the diagram), as this may be a direct cause of overheating and incorrect operation or damage to the unit.

In order to improve heat dissipation and for your own safety, it is suggested to screw the inverter vertically to non-flammable surfaces (concrete, metal) while maintaining the appropriate distance from adjacent elements.



## USE

The ECO Solar Boost inverter is equipped with two power outputs (type E electrical sockets) labelled "1" and "2". After connecting the correct supply voltage from the solar power system (1<sup>2</sup> 0V - 350V), the inverter checks the presence of receivers connected to both outputs. Detection of a resistive load (heater) with a power not exceeding 3.5kW /  $^2$  30V will supply the output to which the load has been connected. If two resistance receivers are connected to the outputs "1" and "2", the load connected to the output "1" will be powered first. When it stops consuming energy, the inverter will switch power to output "2". The reappearance of the load on output "1" will switch the power supply back to this output. In case of detecting too much load connected to the output "1" or "2", the overpowered output will not be powered.

ECO Solar Boost series inverters have been equipped with a number of protections (see protections table), so that in case of an overload or overheating, the device will safely shut down, thus avoiding permanent damage.

In case of detecting any irregularities, the converter signals the impossibility of further, correct operation by the appropriate flashing of the green or red LED indicator located on its housing, and additionally, in case of a critical error, also with an acoustic signal.

Individual events or errors can be presented one after the other, which is signalled by the lighting of the signalling diode in different colours and with different frequency. For example, the correct operation of output 1 and too high load on output  $^2$  will generate the following alternating sequence: single short blink in green, double short blink in red.

## SAFETY

The ECO Solar Boost Series voltage inverter produces a dangerous voltage at the output that may cause electrical shock or fire. During use, follow all safety rules that apply to  $^2$  30V electrical equipment.

High voltage may persist on the power supply terminals and internal components even after disconnecting the power supply, and in case of no load even for a quarter of a minute until the LCD goes out.

Any repairs should only be carried out by an authorised service centre.

Do not use the voltage inverter in a high-humidity area, near a fire source, flammable substances, or exposed to direct sunlight.

If it gets wet, immediately disconnect the power supply. Do not connect a load greater than that permitted for continuous operation to the inverter output. Overloading may cause damage to the device.

In case of fire, use a fire extinguisher designed for extinguishing live electrical equipment in accordance with its operating instructions.

Under no circumstances may the input (VDC connectors "+" and "-") and output (VAC sockets 1 and  $^2$ ) of the ECO Solar Boost inverter be connected to the power grid or earth potential.

## USE

green LED - single short blink	proper load detected output 1 engaged
green LED - two short blinks	proper load detected output $^2$ engaged
red LED - single short blink	output 1 - overload or short circuit
red LED - two short blinks	output $^2$ - overload or short circuit
green LED blinks	proper load detected waiting for start
green LED blinks rapidly	PV voltage too high or too low
red LED blinks	inverter will not start
intermittent sound signal	overtemperature
intermittent sound signal	restart after cooldown
red LED blinks rapidly	overload
intermittent sound signal	automatic shutdown and restart after a few seconds