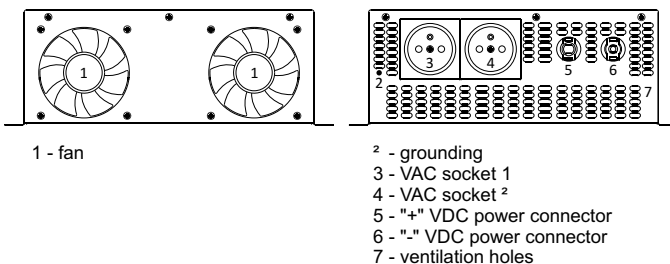
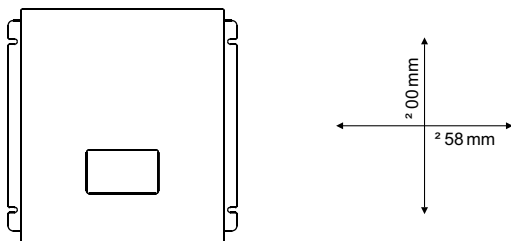


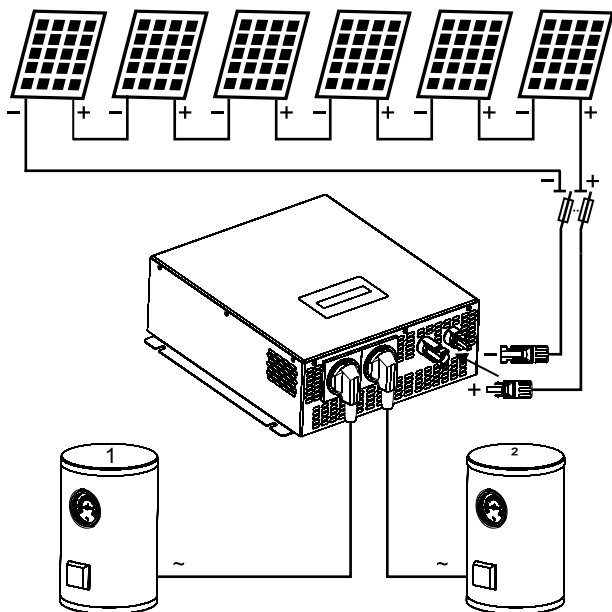
CONNECTOR DESCRIPTION / HOUSING



MOUNTING HOLE SPACING



SAMPLE WIRING DIAGRAM



TECHNICAL DATA

model	MPPT-3000 PRO	MPPT-4000 PRO
input voltage (DC)	1 ² 0V ÷ 350V	
output voltage (AC)	1 ² 0V ÷ 350V	
output voltage waveform	modified sine wave	
output voltage frequency	50 Hz	
maximum continuous power	3500 W	4500 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)	3 ² 0 x 2 ⁷ 2 x 96 [mm]	
net weight	4.1 kg	

MPPT PRO

OPERATING MANUAL ECO Solar Boost MPPT-3000 PRO MPPT-4000 PRO



10.0

PROTECTIONS AND OTHER FEATURES

model	MPPT-3000 PRO	MPPT-4000 PRO
overload protection	yes	
short circuit protection	yes	
thermal protection	80 °C	
overvoltage protection	yes	
LCD display	yes	
data presented on the LCD display	present voltage of PV panels present current of PV panels present power of PV panels energy produced today energy produced yesterday total energy produced	
operating temperature	-2 ⁵ °C ÷ 55 °C	
efficiency	> 94 %	
cooling	active	
IP protection grade	IP ² 1	

MANUFACTURER

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INTENDED USE

The ECO Solar Boost PRO 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 ($250\text{W} - 400\text{W}$) connected in series, with a total voltage in the range of 120V to 350V , an ECO Solar Boost inverter and an energy receiver with a heater with a capacity of 200W to 3.5kW . The inverter is equipped with internal maximum power protection of 3.5kW in MPPT-3000 version and 4.5kW in MPPT-4000 version; however, the total power of the panels connected to the inverter should not be higher than 5kW .

The optimum power for systems operating in the spring - autumn period for boilers with a capacity of $50 - 200\text{L}$ is 1000W to 2000W (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.

A DC safety switch designed for such installations shall be installed on the power cord from the PV system.

Connect a suitable 230V 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 display running. Activation of output "1" is indicated with an "Output 1 – OK" on the LCD.

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 "4". Activation of the output "2" is indicated with an "Output 2 – OK" on the LCD. Lack of activities on both outputs for a long time will cause a delay of load sense on output 2 up to several minutes.

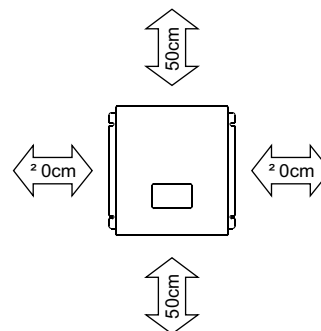
The inverter must be earthed via the designated screw connector on the inverter housing (2).

PROPER INSTALLATION

To connect the PV panels to the inverter, use suitable PV installation cables with a cross section of not less than 4mm^2 . 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 PRO 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 ($120\text{V} - 350\text{V}$), the inverter checks the presence of receivers connected to both outputs. Detection of a resistive load (heater) with a power not exceeding $3.5\text{kW} / 230\text{V}$ 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 PRO series inverters have been equipped with a number of protections (see protections table), so that in the event of an overload of the output or overheating, the device will safely shut down, thus avoiding permanent damage. The LCD continuously informs the user about the PV installation parameters such as: PV panels system voltage, generated current, output power, amount of energy produced today ("D" symbol), amount of energy produced yesterday ("Y" symbol) and amount of energy produced from the first startup ("T" symbol). In addition, the display shows the current events as well as detected irregularities in the form of text messages.

-, Output 1 OK " or -, Output 2 OK " - proper load connected, waiting for the start

-, Output 1 ON " or -, Output 2 ON " - proper load connected, output engaged

SAFETY

The ECO Solar Boost PRO 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 230V 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

-, Output 2 OFF " - proper load connected, output "2" not engaged
-, Output 1 ! " lub -, Output 2 ! " - output "1" or "2" overload / output "1" or "2" short circuit
-, Output 1 - " lub -, Output 2 - " - lack of load on the output "1" or "2"

Messages presented on the LCD:

- High voltage - voltage too high in the system; too many panels connected in series; reduce the number of panels or connect them e.g. in series-parallel system
- Low voltage - circuit voltage too low; too many panels connected
- High temperature - temperature is outside the operating range of the device; if the temperature is too high, let the inverter cool down and check if the fans have not been mechanically blocked (additional intermittent slow sound signal)
- Overload - too high current in the system; possible causes are: connected heater with too high power or short circuit at the output (additionally indicated by intermittent fast audible alert).

