

WARRANTY CARD

DATE OF PURCHASE	
SHIPPING ADDRESS	
SIGNATURE / STAMP	
DAMAGE DESCRIPTION	
SERVICE COMMENTS	

FILL IN IF NEEDED

(*) Cross incorrect

I agree to pay the cost of inverter repair due to:

* expiration of the warranty period / * warranty void

Before proceeding with the repair, service will inform by phone about the exact costs of the repair.

Please attach a copy of the purchase document (receipt or invoice) to the complaint.

The full regulations of service repairs can be found on our website www.voltpolska.pl

Proper disposal of the product (waste electrical and electronic equipment)

The marking placed on the product or in the texts related to it indicates that it should not be disposed of with other household waste at the end of its useful life. To avoid harmful effects to the environment and human health from uncontrolled disposal, please separate this product from other types of waste and recycle responsibly to promote the reuse of material resources as a continuing practice. For information on where and how to recycle this product in an environmentally safe manner, residential users should contact the retailer where they purchased the product, or their local government authority. Business users should contact their supplier and check the terms and conditions of their purchase contract. The product should not be disposed of with other commercial waste.



PRODUCT MANUAL

version 2024-07-09

PURE SINE WAVE ELECTRONIC INVERTERS
WITH UPS

sinusPRO E

VOLT
POLSKA

VOLT POLSKA Sp. z o.o.
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www.voltpolska.pl

INTRODUCTION

Thank you for purchasing UPS from sinusPRO E series. Please read this user manual before starting the device.

Inverter characteristics

- One device with built-in DC / AC converter, an uninterruptible power supply unit and an automatic battery charger.
- Toroidal transformer used in the converter ensures high efficiency and low idling current. The device is much more energy-efficient than older constructions that used E-type transformers.
- Fast 32-bit microprocessor ensures accurate and trouble-free operation.
- Intuitive and simple operation thanks to the color LED display, which informs about the current operating status of the device (input and output voltage, battery capacity, charging, etc.).
- Converter generates a pure sinusoidal voltage at the output, which makes it possible to work with practically any type of load.
- High battery charging current (exact values in the table with technical specifications).
- Fast switching from mains supply to operating mode as a UPS enables uninterrupted operation of connected devices.
- Intelligent control of the cooling fan, depending on the actual temperature of the device and the operating status of the inverter.
-

FIRST TIME START-UP

Built-in AVR (Automatic Voltage Regulation).

- Adapted to work with AGM or GEL batteries.
- **IMPORTANT!** Don't input voltage from poor quality generators that don't produce sinusoidal voltage, because the device will not work.
- **IMPORTANT!** We recommend using dedicated AGM/GEL lead-acid batteries that are suitable for buffer/cyclic work and deep discharge. Connecting to the converter car batteries that are not adapted for such work may result in damage to the converter/battery. Also, do not connect LiFePO4 batteries, due to different charging/discharging characteristics than those offered by the Sinus PRO E, W, S. To work with LiFePO4 batteries, we recommend using the Sinus PRO ULTRA series by VOLT Polska.

STARTING-UP INVERTER

1. Open the carton and check, if the the device is not undamaged. Disconnect mains cable from the device.
2. Connect battery properly to the device according to the correct polarity (red wire + / black wire -).
3. Connect the plug to the mains socket.
4. Start the device with the ON / OFF button (hold down 3s until you hear a beep).
5. Change the mains charger switch to the „I” or „ON” position to start charging the battery (AC/ battery charging).
6. Connect all devices that you want to use and turn them on one by one after connecting.

SWITCHING-OFF THE INVERTER

1. Turn off one by one, all the devices connected to the inverter.
2. Change the charger switch to the "0" position to stop the battery charging process.
3. Hold down the ON / OFF button for 3 seconds to disconnect the inverter output.
4. Disconnect mains plug from the network.
5. Disconnect battery from the inverter.

IMPORTANT NOTES FOR CONNECTION

Information how to connect CO gas stoves to the power supply!

When connecting the power plug to the stove, first connect it to a socket with a grounding pin. If the magneto in the furnace does not work (ionization current error), switch the plug to the socket without the grounding pin (turning it 180 degrees from the previous connection).

ATTENTION

1. Be careful when connecting the battery, the voltage generated when reverse polarity happen can damage the inverter.
2. Do not overload the device above its nominal power. When connecting refrigerators, freezers and other induction appliances / consuming more power on start-up, remember not to exceed 30% of the total power rating of the UPS.
3. Do not connect the device on the outdoors, avoid contact with water.
4. Remember to install the power supply in the right place, with access to fresh air and a minimum distance of 30 cm from each side of the housing.
5. If you notice an incorrect operation / damage to the inverter, contact the manufacturer's service department.
6. If you want to test the device please do not unplug inverter from the mains. Instead turn off mains RCD switch in building to observe proper work of the device. By unplugging inverter from the mains, neutral - "zero" is cut off from the inverter, which can cause incorrect work of the inverter.

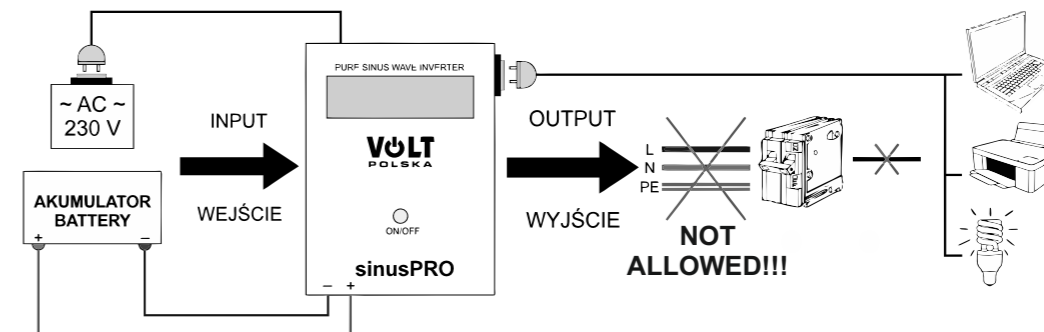
Recommendations for batteries

We recommend using dedicated AGM/Gel lead-acid batteries from Volt Polska. Users can also use batteries of this type from other manufacturers, provided that they are designed for buffer/cyclic and deep discharge operation. Connecting car batteries to the inverter that are not designed for such operation may result in damage to the inverter/battery. It is also not recommended to connect LiFePO4 batteries due to their different charging/discharging characteristics than those offered by the Sinus Pro E, W, and S series. For use with LiFePO4 batteries, we recommend using the Sinus Pro Ultra series.

IMPORTANT NOTES FOR CONNECTION

Important safety instructions

The 230VAC output of the inverter is designed for direct power supply of connected devices in a so-called islanding system. It is forbidden to connect the AC output to the existing electrical installation (even through differential current protection), and in particular to the phase, neutral N, and differential current wires. Such a connection may result in reverse voltage applied to the output of the inverter. Damage caused by such a connection will result in the loss of warranty!



Temporary power outages

If there are temporary disturbances in the AC mains voltage in the user's home installation, the inverter will switch to battery power for the duration of the disturbances. This situation is not harmful to either the inverter itself or the devices connected to it.


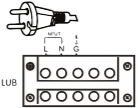
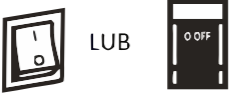

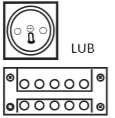
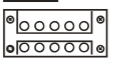


Output voltage

The output voltage of the inverter may deviate from the input voltage. More information on this topic is available in the table on page 9, section "Stabilizer AVR".

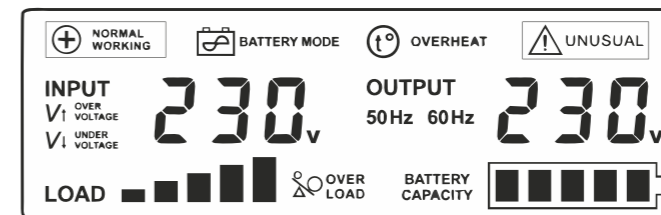
Additional information

Other important information on topics such as: selecting batteries, calculating the required power or capacity of a battery set, can be found on our website www.voltpolska.pl.

OPERATION OF THE DEVICE

NAME	PICTURE	DESCRIPTION
Output switch		Pressing and holding the switch for more than 3 seconds will change the state of the inverter to ON or OFF.
AC input cord or terminal		Connecting the plug to an electrical outlet allows the battery to be charged and to power the output devices through the built-in voltage regulator.
Mains switch	 LUB 	If the device is connected to the mains supply and the switch is in the "I" position, the battery will be charged and the output devices will be supplied from the mains. Switching to the "0" position will start the inverter and supply the output devices from the battery.
Output socket or terminal	 LUB 	Connect output devices to the terminal or terminal strip. The maximum power of a single socket is 2000 W. If the power of the output devices is higher, please connect them to the terminal block.
Ventilation fan		The cooling fan starts when the UPS inverter is running or when the battery is being charged - when the temperature of the transistors exceeds 45 C
Battery input		The red terminal should be connected to the positive pole of the battery (+), and black to negative (-). Changing the cables will prevent proper operation of the device.

LCD DISPLAY ELEMENTS



NORMAL WORKING

- Normal operation mode, devices powered directly from the 230 V BYPASS network



BATTERY MODE

- No mains voltage, output devices powered from a connected battery



OVERHEAT

- Overheating of the inverter, emergency output devices are disconnected



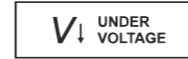
UNUSUAL

- Incorrect battery voltage, short-circuit or overheating of MOSFET transformers



OVER VOLTAGE

- Mains voltage is too high



UNDER VOLTAGE

- Mains voltage is too low



OVER LOAD

- Inverter overload, too high power output devices



LOAD

- Inverter load level



BATTERY CAPACITY

- battery charge level, this indicator will flash during charging



INPUT 230V

- Input voltage value



OUTPUT 230V 50Hz

- Output voltage value and frequency

IMPORTANT NOTES

1. Emergency power supply for central heating systems

First, we need to check which components our system consists of and what are the powers of its individual parts. Then, based on this information, we select the appropriate continuous power of the power supply and a set of batteries. For example, the elements of our system that we want to power are 2 x CO pumps, a boiler with a controller, a blower, and a feeder. The powers of the individual elements are 2 x 50 W, 25 W, 100 W, and 300 W, respectively. The total power of the system is 525 W. We always select the power supply with a 15-25% margin. $525 * 1.15 = \sim 600$ W. From these calculations, it follows that we need a power supply with a minimum power of 600 W, which is met by the sinusPRO 1000 E model (700 W continuous power). We want to get about 2 hours of continuous operation. Using the calculator available on our website (Frequently Asked Questions section), we get a battery with a capacity of about 120 Ah for 2 hours of continuous operation and a load of 525 W. However, we know that not all system components work all the time, so a battery with a capacity of about 100 Ah will be enough.

2. Emergency power supply for a computer and peripheral devices

The principle of selecting the power of the power supply and the battery is the same as when selecting the power supply for a central heating system. A typical workstation can consist of a central unit with a power supply with a maximum power of 300 W and an LCD monitor with a power of about 40 W. Additionally, we want to power a 250 W laser printer connected to the computer. The computer with the monitor consumes 340 W at maximum load. We need to take a moment with the printer. The most popular models are laser printers and inkjet printers. With inkjet printers, we only look at the continuous power, as the starting power of such models is very close to the rated power. The situation is different with laser printers, as standard laser printers consume about 200-300 W, and at start-up (heating the toner) about 900-1100 W of instantaneous pulsed power. In this case, we assume about 540-640 W of continuous power and 1240-1440 W of instantaneous power (continuous power of other devices + printer start-up). These requirements are met by the sinusPRO 1500 E power supply, which has 1050 W of continuous power and 1500 W of instantaneous power. We want to achieve about 30 minutes of emergency operation. Using the calculator, we get a capacity of about 40 Ah, remembering the high starting power of the printer, we can choose a battery with a larger capacity, for example: 65 Ah.

3. Emergency power supply for refrigeration devices - refrigerator

In this case, we take the power similarly to the case of a laser printer. The motor built into the refrigerator at start-up (about 1-2 seconds of operation) can load the power supply about 5-10 times more current than the rated value. For example, a 100 W refrigerator can take about 500-1000 W at start-up. The power supply that meets these requirements is the sinusPRO 1000 E model (700/1000 W power). In order to achieve about 4 hours of continuous operation, we choose a battery with a capacity of about 65 Ah.

TECHNICAL PARAMETERS

MODEL	500 E	800 E	1000 E	1500 E	2000 E	2200 E	3000 E
Max power	500VA	800VA	1000VA	1500VA	2000VA	2200VA	3000VA
Max constant power	300W	500W	700W	1050W	1250W	1600W	2100W
Idle current (battery mode)	< 1 A						
Input	Voltage	170~270VAC					
	Frequency	45~65Hz					
	AVR stabilizator	In the AC mode, if the voltage supplied from the 230VAC AC mode to the power supply is in the range of 245-270VAC or 170-216VAC, the power supply will activate the built-in AVR mains voltage stabilizer.					
Output	Voltage	230VAC \pm 1% in battery mode: 216-245VAC in AC mode with AVR					
	Frequency	50 Hz \pm 0.5 Hz					
	Voltage type	PURE SINE WAVE					
	Distorsions	< 3% THD					
Priority selection button (AC / battery)	NO (YES in E PLUS version)	NO	NO	NO	NO	NO	NO
Charge current selection (5/10A)	YES (E PLUS: 2/5/10A)	YES	YES	NO	NO	NO	NO
Securities	overload, temperature, over and undervoltage, before the battery is discharged, short-circuiting, before overcharging						
Switching time AC / BATTERY	\leq 4ms						
Battery voltage	12VDC						48VDC
Max charge current	10A			20A			10A
Dimensions	138x226x155mm		138x276x155mm	220x335x230mm		220x425x230mm	220x335x230mm
Weight	3,7kg	4,5kg	5,7kg	11,2kg	12,5kg	14,5kg	15,7kg