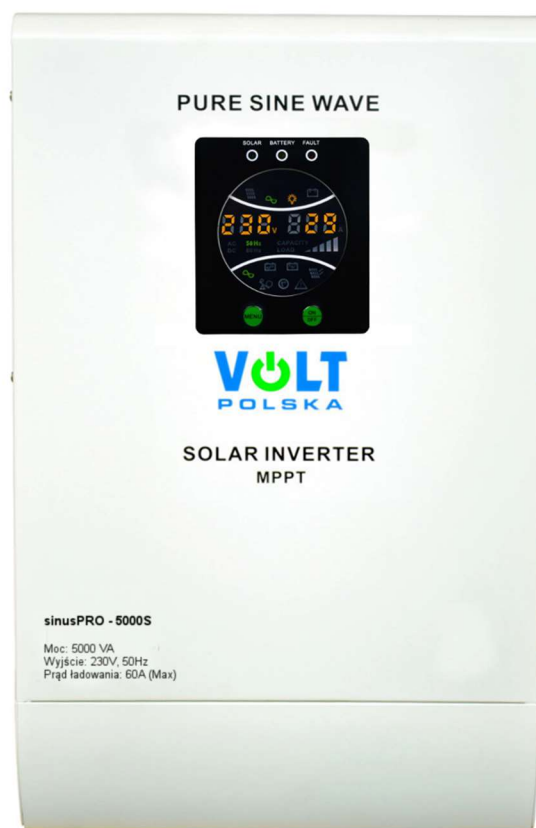
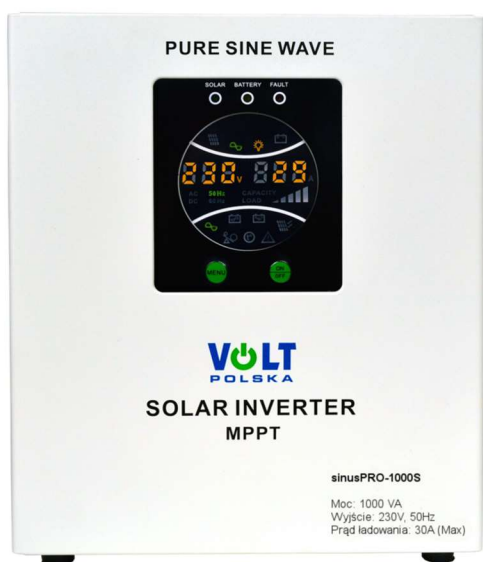


VOLT POLSKA

UPS

SINUS PRO S



Ver. 1.0 - 2016

GENERAL SAFETY INFORMATION

THE MANUAL IS AN INTEGRAL PART OF THE POWER SINUS DEVICES. DO NOT THROW IT AWAY, KEEP IT ACCESSIBLE AND READ ITS CONTENTS BEFORE FIRST USE OF THE APPLIANCE.

- Do not expose the inverter to rain, snow, dust, chemicals, oils, etc.
- Do not cover the ventilation openings. The inverter should be installed in an easily accessible place with a minimum 30 cm of free space around the housing to ensure free air circulation, otherwise the device may be exposed to overheating. The minimum airflow value is 145 CFM.
- To reduce the risk of fire or electric shock, make sure existing wiring is in good condition and that all wires are properly sized (cross-section, length, etc.). Do not run the inverter with damaged or sub-standard wiring.
- This device contains components that may cause arcing. To avoid fire and / or explosion, do not install the device in rooms containing flammable batteries or materials, or in a place where there are devices that cannot come into contact with fire. This includes any place where gasoline powered machines, fuel tanks, fittings, adhesives, or other connections between fuel system components are stored.
- Do not open / remove the housing from the inverter. The device does not contain any parts that require maintenance. Attempting to repair may result in electric shock or fire. The capacitors inside the device remain charged after power has been disconnected.
- To reduce the risk of electric shock, disconnect both AC and DC power before performing maintenance or cleaning. Switching off the device with the button does not reduce the risk.
- The output part of the AC cabling should under no circumstances be connected to the mains or generator. Such connection may cause damage greater than a short circuit in the circuit. The AC output of the inverter must under no circumstances be connected to an AC input. In particular, remember that the inverter should not be used to power life support systems or other medical equipment. We do not guarantee the correct operation of the inverter with such types of devices, in such a system you use it only at your own risk.
- To reduce the risk of injury, charge only the batteries described in the BATTERY TYPE section.

BASIC INFORMATION ABOUT FUNCTIONALITY

The sinusPRO S emergency power supply is a combination of a 230V power converter with a pure sinusoidal waveform of the output voltage, an MPPT solar charger and a UPS module with a mains charger. The device is equipped with switches for switching off or switching on the mains charger and changing the priority of the power supply (AC / SOLAR).

Basic information:

- clean sinusoidal output signal, thanks to which the power supply is compatible with, among others: refrigerators, freezers, farelki, TV sets, fluorescent lamps, fluorescent lamps etc.
- construction based on an efficient toroidal transformer
- double control of the main processor
- MPPT solar charger (regulator) with very high efficiency
- wide range of input frequency, automatic detection 50/60 Hz
- intelligent switching between the priorities of the power supply for better efficiency and lower energy losses
- full range of protections and alarms: overload, short circuit, over and under voltage and temperature protections
- an easy-to-use display that provides an overview of the most important functions

CONNECTING THE POWER SUPPLY:

1. Open the carton and check that all components are included and that the device is undamaged. Disconnect the network cable from the device.
2. Correctly connect the battery to the device, with correct polarity + -.
3. Correctly connect the set of photovoltaic panels to the device, with correct polarity + -.
4. Select the appropriate priority for the UPS operation. With panels connected, select SOLAR PRIORITY, otherwise select AC PRIORITY.
5. Start the device by pressing the ON / OFF button (hold for 5s until you hear a beep) and connect the plug to the mains.
6. Switch the contactor that starts charging from the photovoltaic panels on the side of the device to the ON position.
7. Connect all the devices that you want to use with the power adapter, make sure they are turned off, and turn them on one by one after connecting them.

SWITCHING OFF THE POWER SUPPLY:

1. Turn off all connected devices to the UPS one by one
2. Hold the power switch on the power supply for 3 seconds to disconnect the power supply output.
3. Disconnect the network cable
4. Turn off the contactor from the panels and the batteries
5. Disconnect the batteries and the set of photovoltaic panels

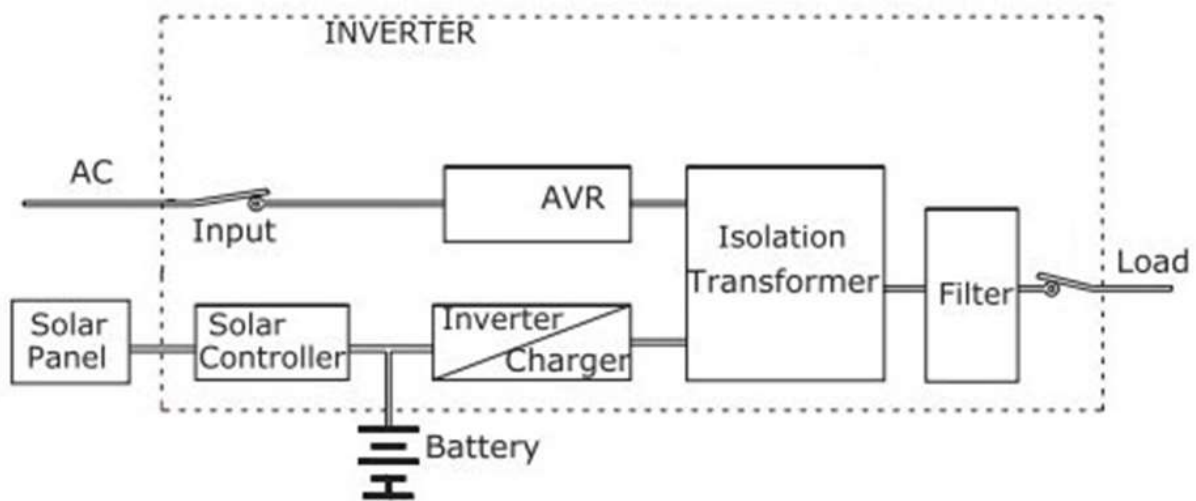
REMARKS:

1. Be careful when connecting the panels and the battery, the voltage generated during reverse polarity of the connection may damage the power supply.
2. Remember to properly ground the installation.
3. Do not overload the device above its nominal power. When connecting refrigerators, freezers and other induction devices / devices that draw more power at start-up, remember not to exceed 30% of the total nominal power of the power supply.
4. Do not connect the device in the open air, avoid contact of the power adapter with water.
5. Remember to place the power supply in a suitable place, with access to fresh air and a minimum distance of 30 cm on each side of the housing.
6. In the event of noticing a malfunction / damage to the power supply, disconnect the power cord immediately. Then disconnect the cables from the battery and the panel assembly. Contact the manufacturer's service.

The refreshed version of the sinusPRO S has a button that allows you to turn off or on the charger. Thanks to this, we can turn off charging, leaving the BYPASS function active. In the solar mode and with the mains charger turned off, after the battery (s) are discharged (at night, when no charging), the PSU will switch to the BYPASS mode without charging the battery.

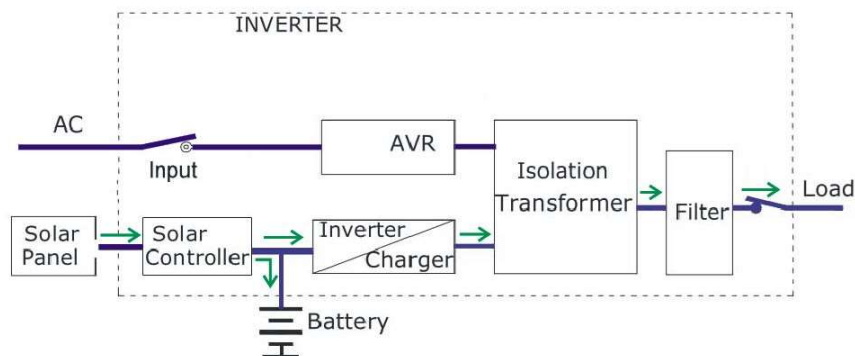
OPERATION / OPERATING MODES

1. General diagram of the internal components of the power supply

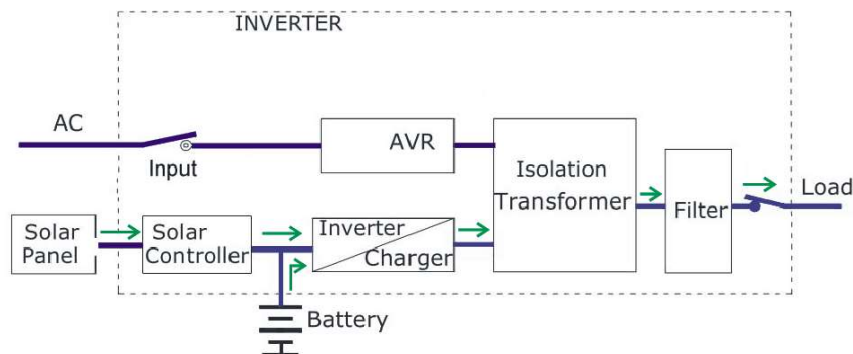


2. ENERGY FROM PHOTOVOLTAICS: Big enough WORK PRIORITY: Does not matter MAINS VOLTAGE: Does not matter

The solar controller will set to take the highest voltage from the panels and start transmitting it to the output of the power supply, when the power from the panels is greater than the power of the connected load, the connected set of batteries will be simultaneously charged.

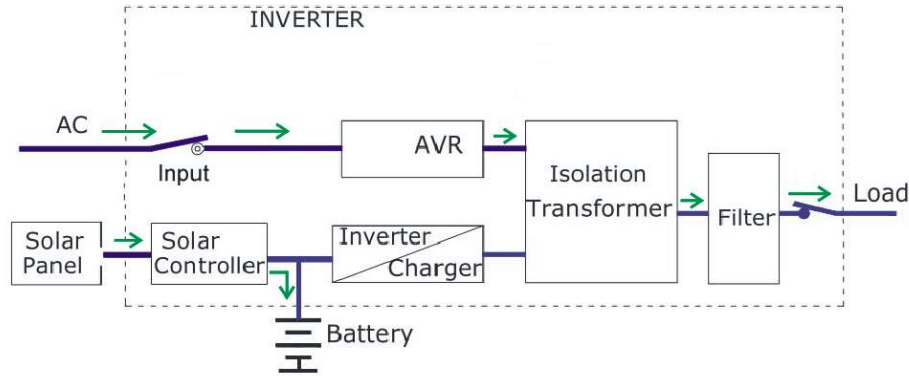


If the power from the set of photovoltaic panels is lower than the power of the connected load, the power supply will output power from the panels and the batteries, excluding charging the batteries from the panels.

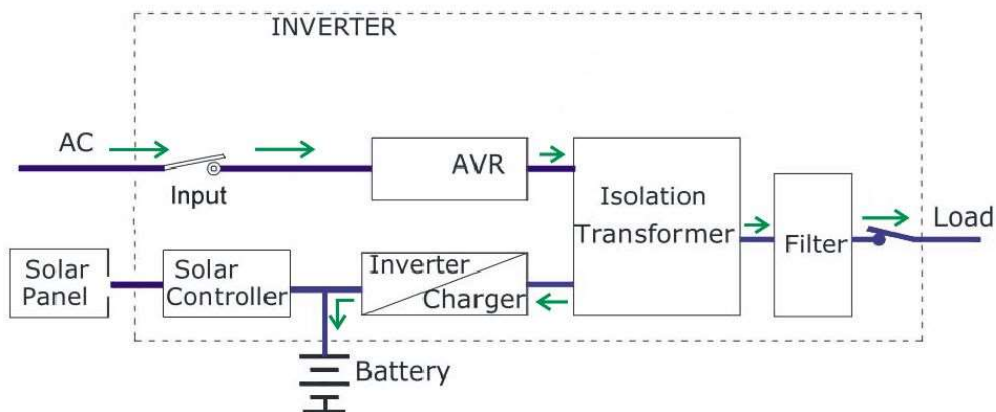


3.ENERGY FROM PHOTOVOLTAICS:Not big enough WORK PRIORITY:AC - network MAINS VOLTAGE:Normal

The mains voltage will be transferred directly to the power supply output. At the same time, the energy from the photovoltaic panels will be used to charge the batteries.

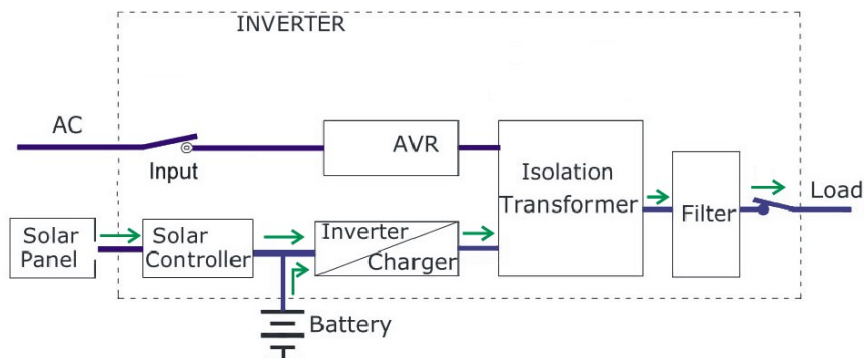


At night, after sunset, when there is a complete lack of voltage from the photovoltaic panels, the mains voltage will be transferred directly to the output of the power supply and additionally power the built-in charger that will charge the connected batteries.

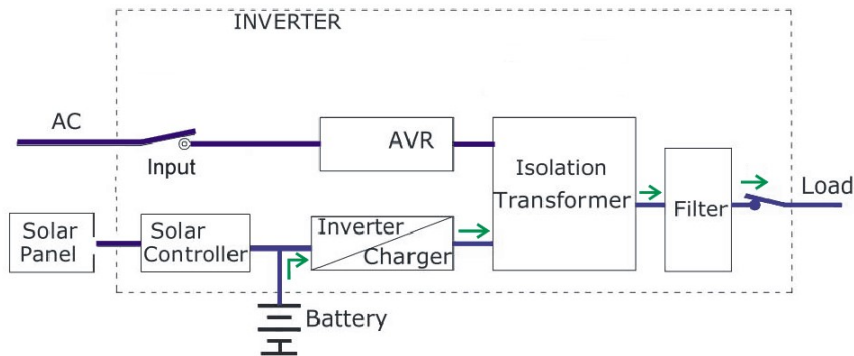


4.ENERGY FROM PHOTOVOLTAICS:Not big enough WORK PRIORITY:AC - network MAINS VOLTAGE:Mistake

The power supply will convert the voltage from the panels and the battery, thus supplying the load connected to it.

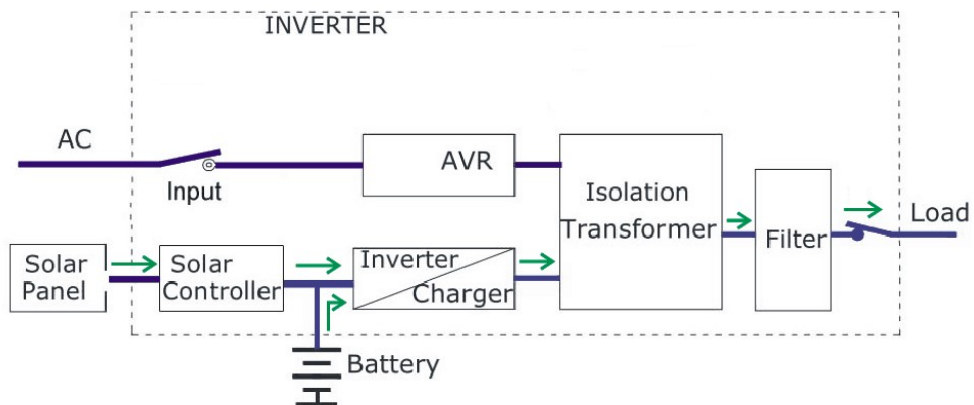


At night, after sunset, when there is a total loss of voltage from the PV panels, the load connected to the power supply will be powered exclusively by the processed voltage from the batteries.

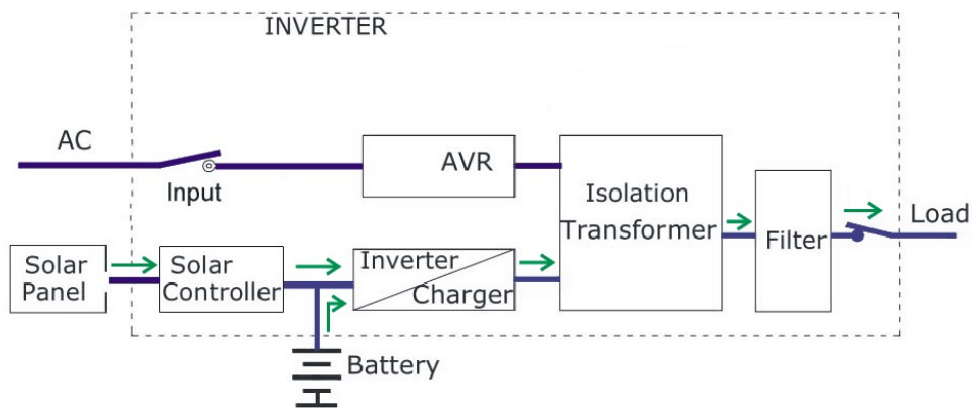


5.ENERGY FROM PHOTOVOLTAICS:Not big enough WORK
 PRIORITY:SOLAR - solar panels MAINS VOLTAGE:
 Normal

The power supply will convert energy from batteries and photovoltaic panels and feed it directly to the output to power the load.



If the capacity of the connected battery pack drops below 30% of the maximum value, the voltage from the panels will not be transferred to the power supply output and will be used only for charging the batteries.



DISPLAY MODES (changed with the MENU button)



- preview mode of the operating parameters of the connected set of solar panels, on the left the input voltage, on the right the charging current, DC illuminated)



- network operation parameters preview mode (input voltage on the left)



- battery operation preview mode (on the left the input voltage value, the highlighted LOAD shows the power of the connected load on the scale)



- preview mode of the capacity of the connected battery (CAPACITY illuminated, scale shows battery level, flashes when charging)

ICONS AT THE BOTTOM OF THE DISPLAY



- a light signaling a pure sinusoidal waveform at the output



- battery mode, no mains charging



- mains mode, active charging from the rectifier



- active charging from a set of photovoltaic panels



- error - power supply overload



- error - overheating of the power supply



- error - other unrecognized cause of the malfunction, e.g. a faulty battery

AC

- AC input voltage | AC

DC

- DC voltage at the input | DC

60 Hz

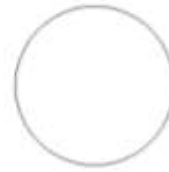
- **50 Hz** Frequency designation

LEDS ON THE HOUSING

SOLAR

BATTERY

FAULT



LEFT: GREEN: Indication of connection of solar panels. LED lit indicates normal operation. Flashing LED indicates an unidentified fault on the side of the solar panels.

MIDDLE: YELLOW: Indication of connection of the battery (s). LED lit indicates normal operation. The shoulder of the lit diode or flashing indicates an error on the battery side.

RIGHT: RED: The lit diode indicates a PSU error.

Model	500 S.	800 pp	1000 S.	2000 pp	3000 S.	5000 pp
Continuous power	300 W.	500 watts	700 Watts	1400 watts	2100 Watts	3400 Watts
Momentary power	500 VA	800 VA	1000 VA	2000 VA	3000 VA	5000 VA
DC input voltage	12 V	12 V	12 V	24 V	48 V	48 V
Solar regulator	10 A PWM ~ 18V 12-25V	10 A PWM ~ 18V 12-25V	30A MPPT ~ 36V 12-50V	30A MPPT ~ 36V 24-50V	60 amps MPPT ~ 72V 48-90V	60 amps MPPT ~ 72V 48-90V
Network charging current	10 A.	10 A.	20 A.	20 A.	15 A.	15 A.
Network charging voltage	13.8V ± 0.5V	13.8V ± 0.5V	13.8V ± 0.5V	27.6V ± 0.5V	58V ± 0.5V	58V ± 0.5V
AVR voltage stabilizer	Yes 140 - 275 VAC					
Permitted voltage range power supply	Switching to battery power takes place when the mains voltage is present lower than 160V (+ - 5V) or higher than 260V (+ - 5V)					
Voltage frequency power supply	45 Hz ~ 65 Hz					
Output voltage range	Mains voltage regulator: 204 - 240 V, UPS: 230 V (+ - 3%)					
Voltage frequency output UPS	50 Hz (+ - 0.5 Hz)					
Security overload (power battery)	In the event of an overload of 110% - 130%, the power supply is disconnected after 30 seconds. If the overload is greater than 130%, the power is disconnected immediately.					
Safeguard overload (power network)	The device warns of an overload until the fuses blown.					
Working temperature	0-40 degrees C					
Cooling	heat sinks + fans					
Permissible humidity	10% RH ~ 90% RH					
Mains charger switch	-	-	YES	YES	YES	YES