

OWNER'S MANUAL

Pure Sine Wave Inverter

DC-AC Power Inverter

Special Feature:

- Fuse:Built-out
- Remote control(Optional)
- Power ON-OFF switch
- USB:5V, 2.1A(Optional)
- Two multiple controlled DC fans: Temperature and load.
- Protection: LED Indicator&Audible Alarm.
- Output wave form: Pure Sine Wave
- CE and RoHS Approved

Congratulations and thank you for purchasing our pure sine wave inverter. Carefully read,understand and comply with all instructions before use.

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I-INTRODUCTION

1.1 What is an Inverter?

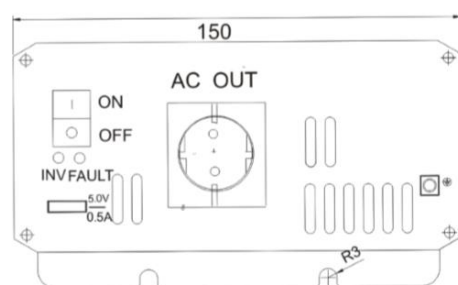
Power inverter is an electronic device that convert DC (Direct Current) battery power to standard AC (Alternating Current) power. DC is the power that is produced by battery while AC is the standard power needed to run electrical equipment. A power inverter does the opposite of a rectifier and is used in places and situations where AC power is not available.

1.2 Pure Sine Wave Inverter

If you want to run your equipment exactly to the manufacturer's specifications, choose a pure sine wave inverter. With pure sine wave, motor loads start easier and run cooler. Some equipment only operate properly with pure sine wave inverter, such as laser printers, variable speed motors and digital clocks.

2. MAIN COMPONENTS

2.1 Front Panel



The front panel view shows the inverter's ON-OFF Switch, AC Output Receptacle, LED Indicator Light, Vent Outlet, Remote Control port, USB.

A.ON/OFF Switch.

This switch controls ON-OFF operation of the inverter

B.LED Indicator Light: Fault, Inverter

a)Fault: Turns Red shows fault, reference to Troubleshooting.

b)Inverter: This light will illuminate continuously whenever connected equipment is receiving battery-supplied, inverted AC power.

C.AC Output Receptacle: For application demands of different geographic areas all over the world, there are many different kinds of optional AC receptacle to choose from.

D.Vent outlet

To decrease the temperature of the inverter

F.Remote switch port(Optional):

Use to connect the remote ON/OFF switch via a communication cable. Refer to Appendix

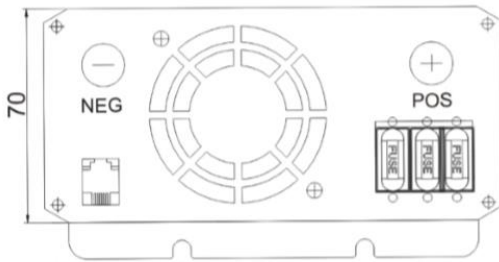
G.Hardwire Terminal Block(3000w):

Note: When the load current is $>15A$, must use output terminal connection which can be found inside the AC output panel of the inverter.

H.USB Port(Optional):

Power and charges USB-enabled devices.

2.2 Rear Panel



The rear panel view shows the inverter’s Cooling fan, DC battery Terminals, Fuse.

A.Temperature and Load controlled Cooling Fan

Quiet, efficient fan prolongs equipment service life.

Load $>20\%$ or inner temperature is more than 45 C, the Fan will start work

B.DC Battery Terminals

Connect the battery or other power source.

Negative(-) and positive(+)DC terminals should be kept insulated to protect from accidental short circuits.

a)Connect the black cable to the black post marked (-)on the back of the inverter. Connect the other end to the negative terminal on the battery.

b)Connect the red cable to the red post marked (+)on the back of the inverter. Connect the other end to the positive terminals on the battery.

If you connect the cables to the incorrect terminals, you will reverse the polarity and damage the inverter.

3. HOW TO USE INVERTER

3.1 Load consideration

When an appliance with motor starts, it requires a momentary surge of power. This surge of power is the “start load” or “peak load”. Once started, the appliance require less power to continue to operate. This is known as the “continuous load”. It is important to know the starting loads of the appliance that are to be powered by the inverter. Appliance power is rated in watts. This information is usually stamped or printed on most appliances and equipment. In some cases, a tool will be rated in amperes. To convert from amps to watts, multiply:

$$\text{Amps} \times \text{AC voltage} = \text{Watts}$$

The startup load of an appliance is a major factor of whether this inverter can power it. Startup load is momentary. With many appliance, it is approximately twice the continuous load, but some appliance start up loads can be as high as eight times the continuous load.

To determine if an appliance or tool will operate with this inverter, run a test. This inverter will automatically shut down in the event of an output overload, so there is no danger of damaging either the inverter or the equipment, When lit, a red LED indicator and Buzzer signals a fault.

3.2 Configuring the Battery Bank

To determine the minimum battery ampere-hour rating that you will need to operate appliance from the inverter and any DC appliance power by the battery bank..

3.3 Battery Wiring Examples

In renewable energy systems, batteries are connected to each other in one of three ways :

Series(voltage increases, amperage stays the same as a single battery)

Parallel (voltage stays the same as a single battery, amperage increases)

Series/Parallel (both voltage and amperage increase)

3.4 Placement of inverter

The location where to install inverter must be:

A. Dry: Do not allow water to drip or splash onto it.

B. Cool: Ambient air temperature should be between 0°C and 40°C- ideally between 15°C and 25°C. Do not place the inverter on or near a heating vent or any piece of equipment which is generating heat above room temperature. Do not place the inverter in direct sunlight unnecessarily.

C. Ventilated: Allow at least one inch of clearance around the unit for air flow .Do not place items on or over the inverter during operation. Make sure that air is allowed to circulate freely around the unit. A fan is helpful in the case where the inverter is operating at maximum.

D. Safe: Do not install the inverter in the same compartment as the batteries or in any compartment where flammable liquids or fumes may be or may become present.

E. Dust Do not install the inverter in a dusty environments. The dust can be inhaled into the unit when the cooling fan is working.

F. Close to batteries: Avoid excessive cable lengths. Do not install the inverter in the same

compartment as batteries.

3.5 Mounting position of the inverter

The inverter may be mounted horizontally on the top of a horizontal surface or under a horizontal surface. The inverter may be mounted on a vertical surface only horizontally

3.6 Getting Connected

Follow the connection sequence described below.

Step1 Ensure that the ON/OFF switch on the Inverter is in the OFF position. If the power source is a DC power supply, switch it OFF as well.

Step2 Connect inverter to power source.

Connect the DC cables to the DC battery terminals on the rear panel of the inverter. The red terminal is positive(+) and the black terminal is negative(-).

Step3 Connect inverter to appliances.

Make sure the load power within the rated power of inverter and the start power should not exceed the peak power of the inverter. When having the inverter connected with appliances and a power supply, switch on the inverter and appliances. If you are operating several loads from the power inverter, turn them on separately after the inverter has been turned on. This will ensure that the power inverter does not have to deliver the starting currents for all the loads at once.

4. IMPORTANT SAFETY INSTRUCTIONS

Incorrect installation and misuse of the inverter may result in danger to the user or hazardous conditions.

1. Do not attempt to connect the any other power source, including any AC power source.
2. Make sure the opening to the ventilation fan and vent holes are not blocked.
3. Avoid pulling on the cords and cables. Always grip plugs firmly when unplugging from power source and when disconnecting cables.
4. To avoid electrical hazard, be sure to unplug the inverter from its external power source before inserting the AC plug.
5. For indoor use only. Avoid exposure to external heat sources; direct, prolonged sunlight; dust; corrosive chemicals; and moisture.
6. It is normal for inverters to become warm during use. Avoid touching the device during use. Avoid placing in direct sunlight or near heat-sensitive materials.
7. Do not drop or subject the inverter to undue shock.
8. Do not place anything on top of the inverter.
9. Always with the supplied cables and connectors as shown. Use of cables, connectors, or accessories not supplied with this product constitutes misuse and may result in injury or damage.
10. Do not attempt to service or disassemble. The unit is not user-serviceable. Attempting to

disassemble or service the unit can result in electrical hazard, including death from exposure to high voltage. If you experience problems with the unit, discontinue use and Contact Technician.

11. When cleaning the inverter, please switch off power (unplug the inverter). Carefully clean with dry cloth. Do not use wet cloth or cleanser.

12. Disconnect all AC and DC side connections before working on any circuits associated with the inverter. Turning the ON/OFF switch on the inverter to off position may not entirely remove dangerous voltage.

13. Keep away from children.

5. PROTECTION FEATURE

Inverter is equipped with numerous protection features to ensure safe operations.

Input Low Voltage Protection:

A: When battery voltage is below **10.5±0.2V**, Buzzer sound 2 times, which indicates DC power supply voltage is descending and batteries need to recharge.

B: When input voltage reach **10±0.2V**, **Buzzer sound 3 times and red light turn on**. AC output will be automatically shut off.

Input Over Voltage Protection

When input voltage reach **15.5±0.5V**, **Buzzer sound 4 times and red light turn on**, the AC output will be automatically shut off.

Short Circuit Protection

When short circuits occur, **Buzzer sound 11 times and red light turn on**, output will be shut off.

Overload Protection

When overload occur, **Buzzer constantly sound and red light turn on**, output will be shut off.

Reverse polarity protection: Fuse or MOSFET

a. Via Fuse: When battery terminals are reverse connected, fuse will be burned to protect appliance.

b. Via MOSFET(Optional): When battery terminals are reverse connected, the inverter won't work until correct connect.

Over Temperature Protection

When heat sink temperature exceed 45°C, the inner cooling fan will automatically turn on to cool the inverter. When inner temperature exceed 75°C, **Buzzer sound 5 times and red light turn on**,

AC output will automatically shut off.

6. TROUBLESHOOTING REFERENCE

Acoustics buzzer alarms

When applying the inverter to acoustics device, some inferior acoustics device will buzz, this is because the output wave from the inverter is modified sine wave inverter.

Note: * When $190\% \leq \text{Load} \leq 200\%$, limit current of AC output, that's to say AC Output Voltage decreasing, output shut down, delay 60s to restart automatically, once ten consecutive restart automatically, then you have to start the inverter by manual.

7. Maintenance

To keep your inverter operating properly, there is very little maintenance required. You should clean the exterior periodically with a dry cloth to prevent accumulation of dust and dirt. At the same

time, tighten the screws on the DC input terminals.

II- MPS SYSTEM

8. GENERAL INFORMATIONS

Inverter with MPS (Mains Priority System) function is a combination of an inverter and AC Auto transfer switch into one complete system with a peak dc to ac conversion advanced system in the market today.

MPS System : it also called the AC priority .the AC power will be direct to the loads through bypass ways. For example when connecting to the mains on a motorhome service area, the converter automatically selects the 230V, thus stopping the use of 12V batteries. It is not necessary to disconnect the batteries in order to use the mains.

MPS (Mains priority system) Mode: the AC input of the inverter is continually monitored.

Whenever AC power falls ,the inverter automatically transfers back to the inverter mode with minimum power interruption to your appliances as long as the inverter is turned on. The transfer time is usually fast enough to keep your equipment (including computers) powered up. The time will be less than 16 milliseconds

9. APPLICATIONS

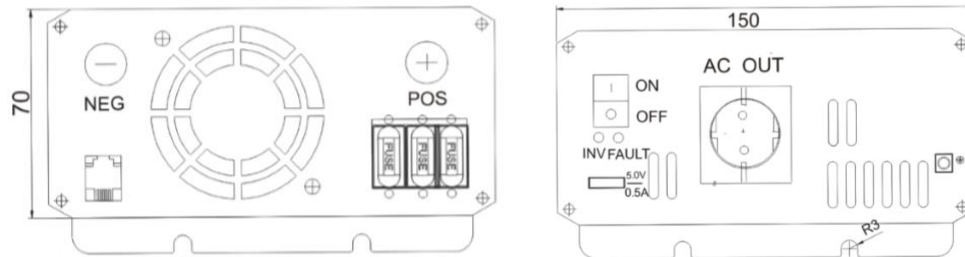
Kitchen appliances – coffee makers, blenders, ice makers, toasters.

Household items – vacuum cleaners, fans, fluorescent and incandescent lights, shavers.

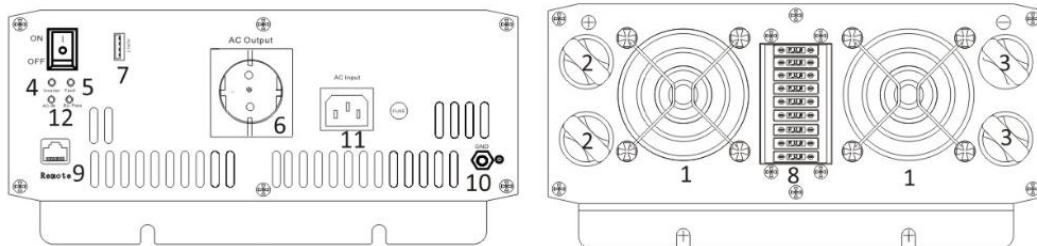
Power tools—circular saws, drills, grinders, sanders, buffers, weed and hedge trimmers, air compressors.
 Office equipment – computers, printers, monitors, facsimile machines, scanners.
 Home entertainment electronics – television, VCRs, video games, stereos, musical instruments, satellite equipment.

10. MECHANICAL DRAWING

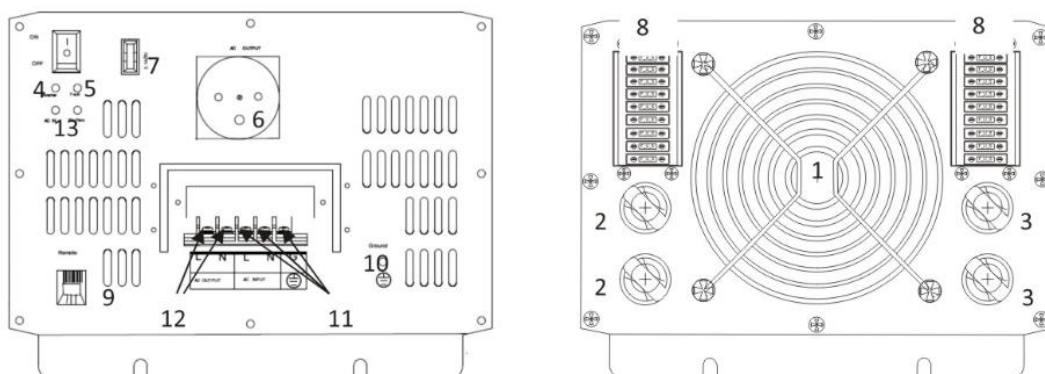
Front and back Panels



1000W



2000W



3000W

- A) ON/OFF Switch: This switch controls ON/OFF operation of the unit
- B) Charger In: plug AC input cable into it and AC source
- C) AC socket

- D) Hardwire Terminal Block: When the load current is $>15A$, must use output terminal connection.
- a) AC Input Terminal Block: a screw type terminal block for attaching AC output wires. Each slot is labeled L for Lines and N for Neutral. Connect the incoming Line wire to the input L slot, Connect the incoming Neutral wire to the input N slot.
 - b) AC Output Terminal Block: a screw type terminal block for attaching AC output wires. Each slot is labeled L for Lines and N for Neutral. Connect the outgoing Line wire to the output L slot, Connect the outgoing Neutral wire to the output N slot.
- E) Fuse breaker: under “bypass mode”, when the AC output is shorted or the load current exceeds the rated current of the fuse breaker, the fuse breaker will burned to stop bypassing energy from the utility getting to present possible danger.
- F) Ventilation holes: the inverter requires suitable ventilation to work properly. Please make sure there is good ventilation and the lifespan of the inverter can preserved.
- H) Communication port: for remote control purpose, the unit can be connected a remote control panel by using the optional cable
- I) Led indication: Operating status, warning
- a. Inverter: The inverter started up and output is normal.
 - b. Fault: Warning user there is some problem, need to check the system now. Such as low voltage, over voltage, over load, short circuit and so on.
 - c. AC in: The status of utility is normal.
 - d. Bypass: The unit is working under “bypass mode”, the AC electricity consumed by the loads is provided by the utility instead of the inverter.

11. INSTALLATION

Connections & Operations

Step 1 Connect the (+) and (-) cables from the battery to the respective terminals of the unit.

Step 2 Plus in the AC source to real panel AC Input Socket(Hard Block Terminal)

Step 3 Connect the earth cable from the AC ground system to that of the unit

Step 4 To start the unit, turn on the ON/OFF switch. LED green lights on, Charger and AC power on.

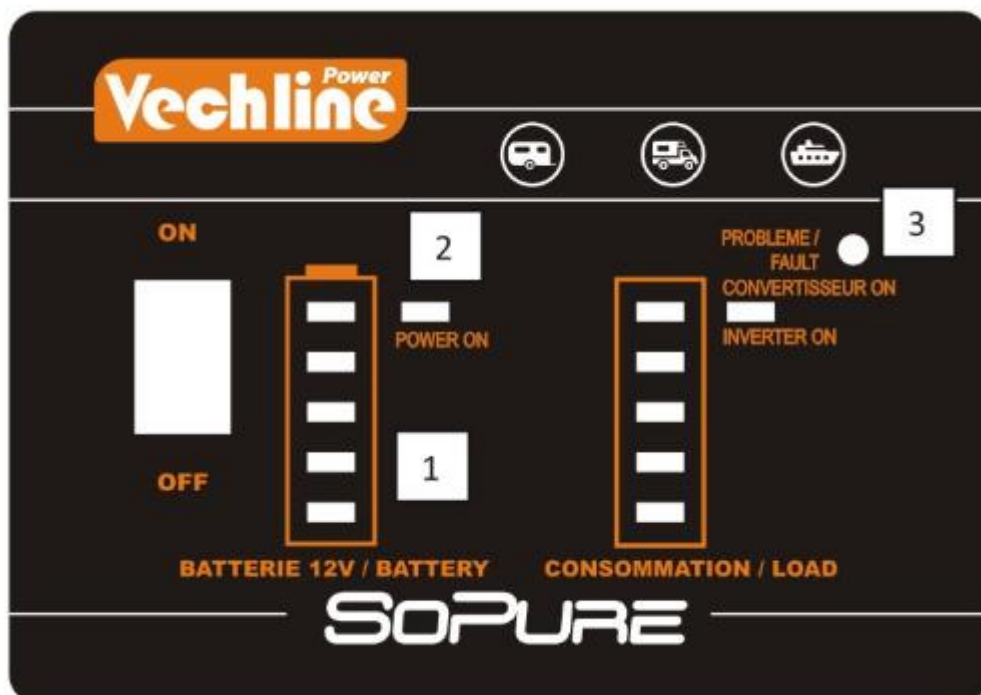
Step 5 Connect consumer unit to the socket in the front of the unit

Step 6 Make sure the cable is firmly connected in the socket. If the connection is not firm enough, the plug will heat up and cause unit damage

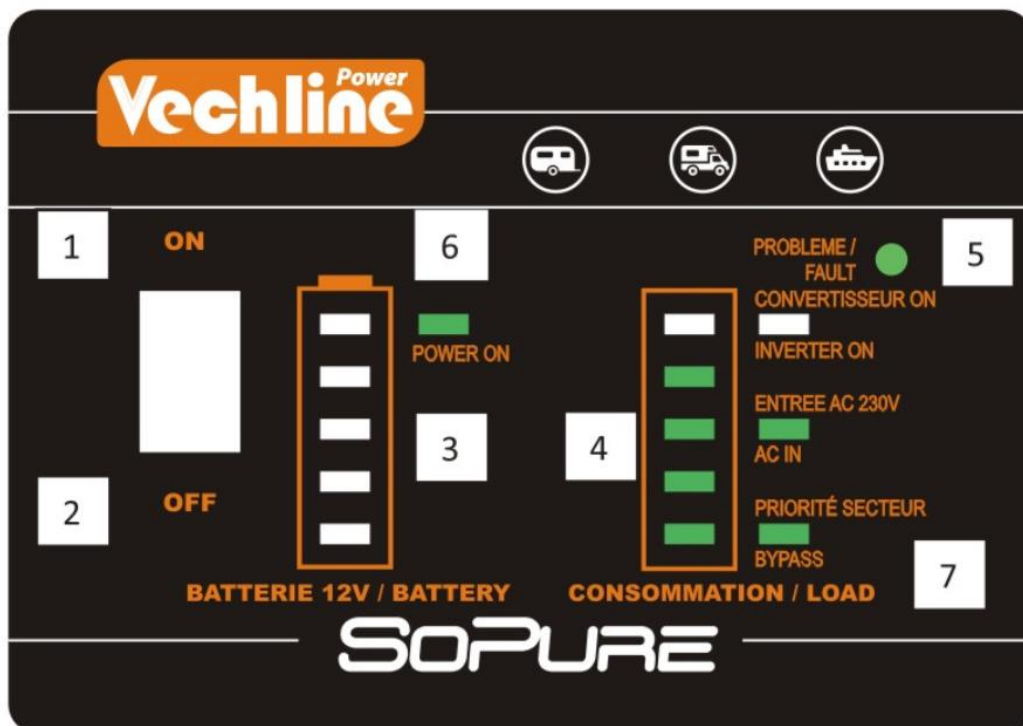
Step 7 USB only supply output power source

Warning: the output voltage of this unit must never be connected in it's input AC terminal, overload or damage may result. Always switch on the inverter before plugging in any appliance. Damage caused by AC wiring mistakes are not covered under warranty .

12.REMOTE CONTROL SWITCH



500W 466382B/466385B/466386B



2000W/3000W

Power ON/OFF Switch

- A. Power ON/OFF switch is to turn the inverter on or off.

Battery Capacity/Load Voltage indicator

- B. Load: Show the approximate connected equipment load level.
5 Levels---20%,40%,60%,80%,100%.

- C. Battery: Show the battery residual capacity.
5 Levels---20%,40%,60%,80%,100%.

AC In Indicator

- D. AC In: after correct connect the AC mains , the light will turn on.
 - E. Bypass: under Bypass function, the light will on .
- Charge In: Under charge function ,the light will on

- F. **Fault:** Turns red show fault, refer to Troubleshooting of Inverter Manual.

Connecting the Communications Cable

The communications cable is 3meters, 6-conductor cable (wired like a normal telephone-type cable). This cable is connected to the RJ11 jack on the rear of the remote control and to the REMOTE port located on the rear of the inverter.

Notice:

Inverter's ON/OFF Switch and Remote control's ON/OFF Switch is in parallel. To use this remote control, must turn the inverter's ON/OFF Switch to OFF, and vice versa.

13. WARRANTY

We guarantee this product against defects in materials and workmanship for a period of 18 months from the date of retail purchase by end user.

This warranty will be considered void if the unit has been misused, altered, or accidentally

Damaged .We are not liable for anything that occurs as a result of the user's fault.

If the warranty period for your product has expired, if the unit was damaged by misuse or incorrect installation, if other conditions of the warranty have not been met, or if not dated proof of purchase is available, your unit may be serviced or replaced for a flat fee.