Pure sine wave inverter

CATALOGUE

User Manual

1. Safety Precautions (Please read this manual carefully before installing)

- The machine contains high voltage with a potential hazard, if abnormal must be handled by qualified technical personnel, do not open the Inverter cover.
- Do not place Inverter in a humid environment and near water.
- Do not place Inverter in a high-temperature environment, direct sunlight or near fire.
- Replace the battery, please use the same brand and the same type of battery equipment, is strictly prohibited using different brands or different capacity batteries at the same time use.
- Do not keep the battery or battery near the fire source, or explode wounding.
- Keep the Inverter before or after the air intake or exhaust (please keep at least 15cm or more).
- Do not stack other items on the Inverter cabinet.

Warning: The battery will increase with the use of life and aging problems, once the battery aging, the need for professionals to do the replacement or treatment, or the battery may be due to leakage and other hazards caused by the proposed annual maintenance of the battery on a regular basis.

No Disassembling | No Humidity | No Fire or High Temperature | Don't pile Up Sundries | Keep Ventilation

2. Product Introduction

- The off-grid inverter series for the digital CPU control, DC / AC converter, the use of battery pack to provide energy conversion to AC voltage output.
- With a sinusoidal waveform output, long-term work in the 0% -100% load state.
- Its instantaneous power of more than 1 times, for inductive, capacitive load and other different load types.
- Applications include computers, communications, yachts, SUV, home recreation equipment, motors, power tools, industrial control equipment, various types of audio and video appliances and other applications.

2.1 Features

- Sine wave output (THD <3%)
- Highest efficiency output up to 91%
- Full LED display working status
- Too low battery capacity warning
- Full digital control tips
- The product complies with CE/FCC/LVD/ROSEspecifications
- Can be applied to most AC input products
- One-year free product maintenance and warranty

2.2 Main Specifications

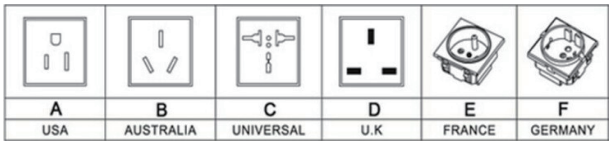
OUTPUT	Model	PS300W PS600W PS1000W PS1500W PS2000W PS2500W PS3000W PS4000W PS5000W PS6000W			
	Power	0% -100% State (continuous use) - (120% - 150% = 10S) - (≤150% = 2S)			
	Voltage Frequency	Factory Setting: 220V AC±3V Through settings: 220/230/240V AC		Factory Setting: 110V AC±3V Through settings: 110/115/120V AC	
		50±0.5Hz		60±0.5Hz	
	Waveform	Rated power input, pure sine wave (THD <3%)			
	Protection	shoet-cireuit ptoteclion,over-load protection, super-charge protection,over-temperature protection			
INPUT	Battery Voltage		10.5V-15V	20V-30V	40V-60V
	Efficiency		89%	90%	91%
	DC Current Machine Model	PS300W Current	32A	17A	8.2A
		PS600W Current	64A	33A	16A
		PS1000W Current	107A	55A	27A
		PS1500W Current	161A	83A	41A
		PS2000W Current	214A	111A	55A
		PS2500W Current	268A	138A	68A
		PS3000W Current	321A	167A	82A
		PS4000W Current	428A	222A	109A
		PS5000W Current	535A	277A	137A
		PS6000W Current	642A	333A	165A
	No Load Current Draw	See the technical specifications			
	Protection	Overcurrent protection, battery reverse protection (built-in fuse) battery is too low warning and power protection			

3. Panel Description

3.1 Front panel description

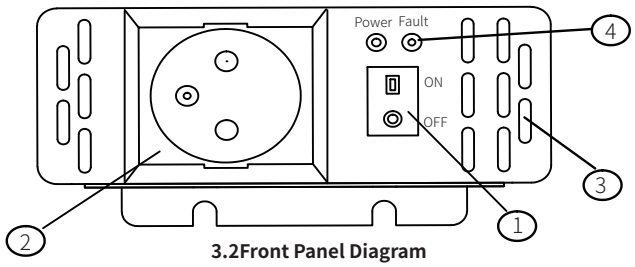
(1)POWER ON / OFF switch: switch if the switch in the ON position, then Inverter boot.

(2) AC Outout output socket: the use of the needs of the region, with a variety of different forms of socket for users to choose.



(3) air into the air hole: for Inverter cooling stable work, to maintain a smooth ventilation, to ensure product life.

(4) LED lights: Show Inverter working status, battery capacity, the use of load and abnormal status warning.



3.2Front Panel Diagram

3.3 Indications of LED signals of the front panel

Status LED (Status LED): that is in the work mode

LED Display	GREEN	ORANGE	RED
State mode	Normal	Standby Saving Mode	Abnormal/Protection

- When display abnormal,please refer to the instruction 5.2,5.3 or 7.of the manual to troublesh Battery LED:Display the remaining capacity of the external batteries.

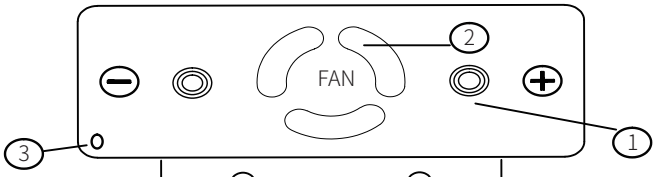
LED Display	Indication of 4 red LEDs
STATE MODEL	Battery =25%-50%-75%-100%

LOAD LED: Display the current capacity

LED Display	Indication of 4 red LEDs
STATE MODEL	Battery =25%-50%-75%-100%

3.4 Rear Panel Description

(1)Battery input Terminals(+)(-) (2)Air Vents(Fan) (3)Earth terminal of the chassis(FG)



4. Settings of Initial Output Voltage, Frequency,Standby Saving Mode

4.1 Instruction of Initial Factory Setting

(1)Factory Setting is 220Vac/50Hz or 110Vac/60Hz

(2)Set the Standby Saving Mode enabled(Not in use)

5.Protection Functions

5.1 Input Protection

(1) battery polarity reverse polarity protection: When the battery input reverse, Inverter internal or external fuse will be blown, Inverter should be returned to the original maintenance. (For easy replacement: fuse external, random with a ready-made fuse such as the user accidentally reverse, please open the FUSE cover to replace the randomly prepared fuse)

(2) battery low voltage protection: When the battery voltage is lower than the specification value, Inverter will automatically turn off the AC output and alarm 3 sound failure light long.

(3) battery high voltage protection: When the battery voltage is higher than the specification value, Inverter will automatically turn off the AC output and alarm 4 sound failure light long.

WARNING: When using this series of Inverter, enter the battery pack, the voltage condition is configured for normal operating voltage(The voltage marked by the specification).

If the configuration voltage is too low (such as 24V models with 12V input), then Inverter will not boot properly.

If the configuration voltage is too high (such as 24V models with 48V input), then Inverter will be destructive damage.

5.2 Output Protection

If an abnormality occurs, the unit will display a fault message lamp (see Table 5.3) for troubleshooting reference.

(1) over-temperature protection (OPT): When Inverter internal temperature is too high (70 degrees), will occur OTP protection, and alarm 5 sound prompt (continuous alarm) fault LED light long, when the temperature dropped to 60 degrees, automatic recovery normal status.

(2) AC output abnormal protection: When Inverter AC output voltage is high or low, the need to start the new.

(3) AC output short circuit protection: When the Inverter output occurs when the short circuit or load surge from the new start, remove the fault (or fault load) automatic recovery or manual recovery.

(4) battery voltage abnormal protection: when the battery voltage is too high or too low occurs, if the battery voltage rises to the safe voltage range Inverter will automatically start from the new.

(5) Output overload protection (OLP): When the load ≧ 120% and ≦ 145% when the embedded buzzer alarm 10S continuous after the turn off AC output, panel FAUL indicator flashes (reset inverter switch recovery).

(6) Output overload protection (OLP): When the load ≧ 145% for 2S off AC output, panel FAUL indicator flashes (reset inverter switch recovery).

5.3 Instruction of Fault Signal

Buzzer	Fault Information
1 beep	Normal Startup:Green LED is on,shows the inverter is normal.
2 beep	Undervoltage Warning:The storage battery voltage is running out.
3 beep	Undervoltage Protection:Red LED is on, shows the battery voltage is too low or depleted
4 beep	Overvoltage Protection:RED LED is on, shows the battery voltage is too high.
5 beep	Overheat Protection:RED LED is on, shows the interior of the inverter is overheat.
Continuous beep	Inverter overload protection: 10S after closing AC output (need to reset the inverter switch).

6. Installation and Wiring

6.1 Battery cable:

wire length should be shortened, the following is not more than 1.5 meters for the principle, and the choice of wire diameter required according to safety regulations, can carry the current flow of the wire. Wiring too thin will cause the wire to overheat and even cause the risk of ignition.Please refer to the following table 6-1 actual wiring, please find the dealer or the original factory to ensure safety

Form 6-1 Wire Using recommendation

Rated Current	Wire CSA(m㎡)	AWG	
16A-25A	2.5	12	Safety Wiring Range
25A-32A	4	10	
32A-40A	6	8	
40A-60A	10	6	
63A-80A	16	4	
80A-100A	25	2	
100A-125A	35	1	
≥125A	50	0	

6.2 Battery Pack Recommendation

1. The battery pack is configured with the minimum safe start and full load discharge time. Users can use this table to select a larger capacity (to meet the discharge time) to meet the needs of the battery pack.
2. Inverter working time is under load conditions, how to determine the time of a battery work, where the first description of the battery capacity, the battery is the time (AH) to nominal capacity. Anshi (AH) means the maximum discharge capacity of the battery within 1 hour, such as a battery nominal 20AH, which in 1 hour maximum output 20A current. We can use this value to count the time it takes for a battery to drive a load.

The time that a battery needs to drive a load:

Battery capacity (AH) × battery voltage (V) × 0.8 × 0.9 ÷ load = working hours (hours)

Solution: battery capacity (AH) × battery voltage (V) = battery can output the maximum power (W)

3. Because the battery can not be fully discharged, so 20% can not discharge, because the battery has a memory function, the electric light, the battery is useless, so the maximum power to multiply 0.8 This is the actual power of the battery can work , In the battery can not put the photoelectric at the same time the inverter also has the conversion efficiency of the problem, for the quasi-sine in general efficiency of about 90%, so here selected 0.9, and battery capacity × battery voltage × 0.8 × 0.9, this is the real inverse The total power that the transformer can do to the load.

The battery by the inverter to work on the load time:

Working hours = battery capacity (AH) × battery voltage (V) × 0.8 × 0.9 ÷ load

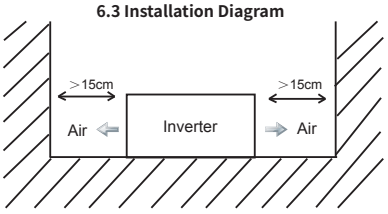
For example:a 12V/60Ah Battery, a 220v/100w filament lamp
Working Time=12(V)×60(AH)×0.8×0.9÷100(W)=5.18(Hour)
Explanation:12V--Battery Voltage
60AH--Battery Vapacity
0.8--Battery Capacity
0.9--Inverter Convert Efficiernccy
100(W)--The nominal power the bulb

5.18(Hour)--The working time that a 60AH battery works by the power supply of batteries ps, there are some errors of the actual discharge time base on the conditions,lifetime,maintenance of batteries.

6.3 Installation Requirements

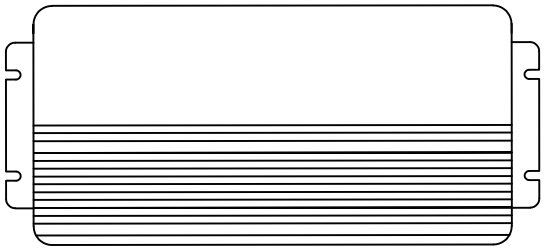
- The machine weight should be taken into consideration when fixing the machine, and avoid high temperature and high pressure environment,in order to guarantee a long service life.
- The machine uses the built-in fan to force the air-cooled heat, need to keep the front and rear ventilation openings, to avoid long-term operation in high temperature environment or overload conditions to operate, in order to avoid the machine can not provide normal function operation or affect the service life. (Recommended access to the outlet 15 cm, should not hinder the ventilation of the fault)

6.3 Installation Diagram

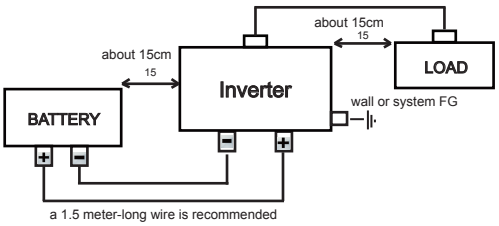


6.4 Fixing Recommendation

As shown in the figure, the body shell design to retain four fixed holes, the user can use the reserved hole to be fixed. (Recommended horizontal fixed, and pay attention to whether the ventilated ventilation is smooth)



6.5 Rerence Diagram of Setup



7. Troubleshooting

This series of inverter power supply for professional goods, due to improper use or modification, can cause damage or electric shock hazard. Therefore, the company recommends that users according to the following table after the basic inspection can not return to normal, please contact the dealer or return to the original maintenance.

Fault state	May cause the cause	Suggest the method of lifting
AC voltage no output	DC voltage abnormality	Check if the DC voltage (battery voltage) is too low or too high
	Over temperature protection	Check if the radiator vents are open or the temperature is too high. Please use or lower the ambient temperature
	Overload protection	Check whether the load exceeds the rating or requires large starting current,such as inductive or capacitive devices.
	Short circuit protection	Check whether the load exceeds the rating or short-circuited
Battery discharge Time is too shortrt	battery is used for too long or malfunctioning	Replace battery
	battery capacity is too small	Confirm specifications recommend increasing battery capacity

8.Cautions for the Electrical Load

This series of inverter power supply can be used on most AC devices, and can be normal power supply. But some special equipment applications, Inverter may not be able to start or work properly.

1) Motor load equipment due to its start will produce a great starting current (about 6-10 times the rated current), pay attention to whether the instantaneous start power exceeds the Inverter maximum output power specifications.

2) When the load device is capacitive or rectified (for example: switching or switching power supply), it is recommended to put the device before the no-load or light load conditions, with Inverter after the start of the load will slowly increase to ensure that Inverter can be smooth machine.

9.Warranty

In the normal use of the product to provide free repair service for 1 year, do not replace the parts or modify or repair the product in any way, so as not to affect your enjoyment of the normal warranty service.