

DC to AC
PURE SINE WAVE
POWER INVERTER

USER MANUAL

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Service support: support@giandel.com.au

MODEL:PS-600JAR

Specifications

1. Use of advanced microprocessor control
2. Intelligent temperature control cooling fan will not work if case temperature is low.
3. With USB outlet, which can supply power for the portable device with USB port.

Item	PS-600JAR
Continuous power	600W
Surge power	1200W
Input voltage range	9.5-16V DC (rated power 12VDC)/ 19-30VDC (rated power 24VDC)
Output voltage	<input type="checkbox"/> 115V / <input type="checkbox"/> 120V / <input type="checkbox"/> 220V / <input type="checkbox"/> 230V / <input type="checkbox"/> 240V ±10% (Be subjected to the rating)
Output frequency	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz
DC input	<input type="checkbox"/> 12V <input type="checkbox"/> 24V
Output wave form	Pure sine wave (THD≤3%)
Efficiency	90 %
USB output	5 VDC Max 2.4A
Input over-voltage shutdown	16VDC±0.5V
Input under-voltage shutdown	9.5VDC±0.5V
Input under-voltage alarm	9.8VDC±0.3V
Over temperature protection	65±5℃
Over-load protection	700W±100W
No Load currents	0.8A
Dimension (L×W×H)	213x140x74mm
Weight	1.67Kg
Working temperature	0~40℃
temperature	-10~45℃
Intelligent cooling	The cooling fan on the product will not run when start up the inverter, it will start running only when the case temperature reaches about 40℃

Fault/Display	Cause	Solutions
Cannot drive the load	1. Load power is too large, or the actual power of the appliance exceeds nominal power. 2. The starting power is larger than rated power (such as motor)	1. Reduce the load power, or open the appliance first, then open the inverter, The inverter internal soft-start circuit to buffer start the appliances.
When using with TV or audio, There snowflake on the screen or noise of the audio	Disturbance	1. Separate the inverter and antenna. 2. Use screened antenna

If inverter still cannot work normally after solutions mentioned above are tried, please return inverter to supplier for repairing. The internal parts may be damaged.

11. WARRANTY

We take the guarantee of one year from the purchasing day. During the guarantee period, any malfunction caused by our product quality, our company will fix the unit for free. But any one of the following conditions is beyond our guarantee terms.

1. The box distorted, damaged or changed, and interior parts damaged because of the exterior hit or drop.
2. Connect the DC power adversely.
3. Dismantled or repaired the unit by un-granted person.
4. The unit was damaged by incorrect installation or operating method.

5). Short circuit protection:

The AC output will be automatically shut down when short circuit. It reset on after the problem solved.

6). Thermal protection:

The unit will be calorific during operation. If the temperature is higher than 65°C, the inverter will automatically shut down. Then the buzzer sound continuously and the green light is off, red light is on. Please turn off the inverter, and continue using it after the inverter cool down to normal temperature naturally. Meanwhile the user should find out the factors caused the fault, such as ventilation, ambient temperature, vent, load power and so on to avoid it happen again.

11. TROUBLESHOOTING TIPS

Fault/Display	Cause	Solutions
No output voltage, buzzer sounds continuously	Low input DC voltage	Recharge or replace the battery
	High input DC voltage	Do not use it when the battery is charging. Check the rated voltage of the battery and make sure that it is in the allowable range of the input voltage
	Overload	Reduce the load power.
	Over temperature	Cut off the load and keep it cool naturally for 10 to 30 minutes. Restart it after it resume to normal temperature. The load power is too large and reduce the total load power to the range of rated power. Avoid blocking the vent and improve the ventilation condition. Reduce the ambient temperature.
No output voltage	1. The switch is off. 2. The battery lead doesn't connect well	1. Turn on the power switch. 2. Check the joint and make sure it's well connected.
Incorrect output voltage	1. RMS Multimeter measurement error 2. The battery power of RMS Multimeter is low The input voltage is too high or too low	1. Use the true RMS multimeter to measure, such as the model FLUKE 177/179. 2. Try to maintain the input voltage in the range of rated power 3. Change the battery of the multimeter then test again.

1. BRIEF:

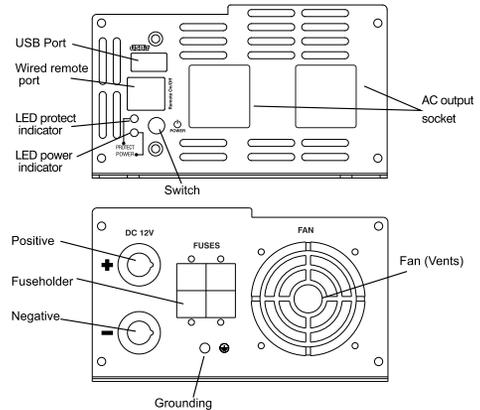
Our power inverter is an advanced tool of power conversion, and it can supply you with AC power converted from DC power source. Not only can be used in cars, vessels and camping, but also can be used in emergency when out of electricity.

In order to use the inverter efficiently and safely, please install and use it in a proper way. Please read the instruction carefully before installing and using the appliance.

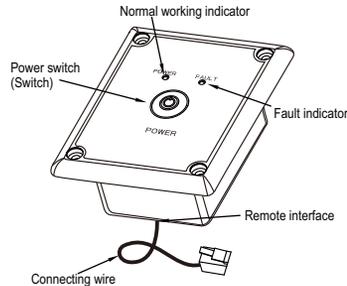
2. WARNING AND SAFETY

- 1) Read the manual before use it and keep it for future reference.
- 2) Keep away from sunshine, heating source, moisture or damp environment.
- 3) The case of inverter will be heating up during operation, please keep away from the material that can't stand of high temperature, such as clothes, sleeping bag and carpet.
- 4) Our power inverter is designed to use with the negative ground electrical system! Don't use it with positive ground electrical systems (modern automobiles, RVs, trucks and boats are negative ground).
- 5) Do not disassemble the unit random, it may cause fire or electric shock.
- 6) Keep inverter away from children and don't allow them to play with the unit.
- 7) The power inverter will output AC power as utility power, please treat the output terminal as carefully as your home AC socket. Don't put any other things into the output terminal except electrical appliance plug. It will bring danger or fire if using in a wrong way.
- 8) Disconnect the battery and inverter if the unit is not in use.

3. PARTS LIST



3) Remote control box



4. ASSEMBLE

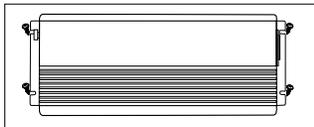
1) The position of Mounting

First ensure that there is enough space to install the inverter, while the installation location must meet the following requirements:

- (1) **Drying:** Do not use water or other liquids dripping on the inverter
- (2) **Cool:** a working environment temperature of the product is 0-40°C, preferably a temperature of 10-25°C, at a temperature as low as possible within this range
- (3) **Ventilation:** There should be a certain distance between inverter and other objects, to avoid blocking the products vents.
- (4) **Clean:** Do install the products in the dusty, wood chips or other particles , If cooling fan is turned on, the particles involved in the inside of the product, thus affecting the normal work.
- (5) Inverters and batteries when connected, will produce arcs or sparks, so there should not be around flammable objects such as gasoline, alcohol, etc.

2) Assemble the inverter

For this big power inverter, because the heavier weight, preferably mounted on a solid platform, such as floor, table or mounting bracket fine. In order to avoid falling off, platform for supporting the product should can bear the weight of sufficient capacity, and it is good with four screws to secure the product.



8. About Soft start Technology.

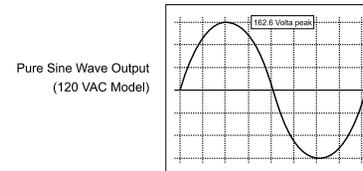
The Gradual voltage ramp-up during inverter startup. This can eliminates all shutdowns from high startup currents, which can make startup easier from large inductive loads.

Suggest you switching on the large inductive loads such as electric tools and the capacitive loads firstly and a while later switching on the inverter. The soft start works.

9. The output wave form

The output wave form for this inverter is Pure Sine Wave, which is much like even more pure than the one from utility-supplied AC electricity; pure sine wave is applicable in most of loads, such as Linear Adaptor, switching power supply, transformer, and motor and so on.

Comparing with Modified wave form, for inductive loads such as refrigerator and electric fans, pure sine wave form can improve its power factor and the battery use ratio and reduce effectively working noises from appliances. For capacitive loads such as adapter of lap-top, pure sine wave can low down the rush current at working and reduce interferences to increases reliability and the life of the product.



10. Protection Function

1). under voltage alarm:

When the input DC voltage is lower than 9.8V, the buzzer sound intermittently to remind that the inverter will go into the under voltage protection soon. Pay attention to save the data if you are using computer.

2). under voltage protection:

The inverter will automatically shut down when the input DC voltage is lower than 9.5V. The buzzer sound continuously and the green light is off, red light on. Please turn off the inverter and recharge the battery before use it again.

3). over voltage protection:

The inverter will automatically shut down when the input DC voltage is higher than 15V. The buzzer sound continuously and the green light is off, red light on. Please turn off the inverter and adjust the input voltage to the allowable range before use it again.

4). Overload protection:

The inverter will automatically shut down and the buzzer sound continuously when the load power is higher than the rated power. Turn off the inverter and use it again after taking away the redundant load.

fuse or result the permanence damage of the internal elements of inverter.

7) Take away the metal accouterment, such as ring or watch, when installation to avoid the short circuit.

8) Although there is over-voltage protection, it may also cause damage of the inverter if the input voltage is too high.

3) Connection of the AC appliance

Put the power plug of the AC appliance load into the output AC receptacle of the inverter directly.

Warnings:

Make sure that the switches of the inverter and appliance power are in OFF position before connection.

Check the power cord. If it is damaged, it should be connected after replacement.

Each output socket of the inverter has a rating current given by manufacturer. Don't exceed the value in operation, or the socket will be damaged because of over temperature and it may cause electric shock. For the max output power of the single socket, see the following tables:

Output socket	AC output voltage	Single socket max output current	Single socket max output power
 E	110~120VAC	15A	1500W
 A	220~240VAC	16A	3000W
 B	220~240VAC	13A	2500W
 C	220~240VAC	10A	2000W

1. High power load connection

If the electrical appliance power is higher than a single socket max output power, please connect it to the ac terminal, see below photo

2. Connection of the remote control box

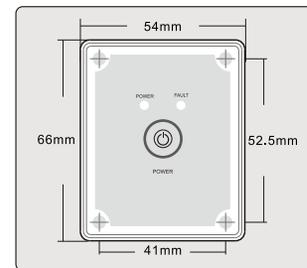
Directly to the two ends of the cable respectively inserted into the inverter and wired remote control remote control box on the interface.

7. Using time of battery

The using time of battery depends on battery capacity (AH) and the power of the connected load (W), the calculating method is: Time (hours) = battery capacity (AH) x battery output voltage (V) x efficiency rate ÷ electrical power of using (W) such as the 12V DC input inverter uses the 12V battery, if the battery capacity is 300AH and at this time the inverter is driving 1500W power load, the efficiency rate is 90% when the battery is full, according to the formula above, the battery use time = $300 \text{ (AH)} \times 12 \text{ (V)} \times 0.9 \div 1500 \text{ (w)} = 2.16 \text{ (Hour)}$. This means the battery can be used for 2.16 hours.

6.

3) Assemble the remote control box



- 1) The remote is designed to be mounted on a dash or other surface where a hole should be cut so that it sits flush. This is not a requirement however just a recommendation.
- 2) The remote cable should be plugged into inverter and the remote before mounted.

5. Usage

1. How to use inverter

- 1) Check the output voltage and capacity of the battery to make sure it applicable to the requirement of the product use.
- 2) Connect the battery and the DC cable of the inverter to ensure that the polarities do not be reversed and in good contact.
- 3) Long press the switch of inverter or of remoter for over 0.5s and later on let it go, if the indicator lighter on the inverter or on the remoter box is on, it means that the inverter start to work normally. This method can avoid effectively turning on the unit due to the interference or any mistakes.
- 4) Switch off electrical appliances and put electrical appliance plug to the AC output socket of inverter. And then switch on electrical appliance for using.
- 5) The cooling fans inside the inverter do not work when the unit power on. It doesn't run until the case temperature rise up to 40 °C .
- 6) Switch off inverter and remoter to stop working. At that time, the indicator lights in both inverter and remoter are off. The inverter does not consume current from battery when it switched off.

3.

2. How to use USB outlet

The USB outlet can provide stable 5V DC voltage; the maximum current is 1000mA(2100mA), which can directly provide power for the portable device with USB port.

Notice: Before use the USB power supply, please make sure the device can be charged by USB and the maximum working current is no more than 1000mA(2100mA).

6. CONNECTION

1) Grounding

The power inverter has a terminal on the back panel marked "Grounding" or "  ". This is used to connect the chassis of the power inverter to the ground. The ground terminal has already connected to the ground wire of AC output receptacle through the internal connecting wire.

The ground terminal must be connected to the ground wire, which will vary depending on where the power inverter is installed. In a vehicle, connect the ground terminal to the chassis of the vehicle. On the ship, connect the ground terminal to the ship grounding system; In a fixed position, connect the ground terminal to the earth.

Warnings:

- To make sure the firmness of the connection. The ground wire must be 14AWG (2.08mm²) or even larger.
- Do not operate the power inverter without connecting to ground. Electric shock hazard may result.

2) Connect to the battery

Please do all the safety precautions before connection, then check whether the battery voltage is in accordance with the input voltage of the inverter. Only the voltage of battery according with the requirements can be allowed to connect with the inverter.

The connecting wire must be big enough to bear current, or else the inverter can not support big load because of voltage reduce caused by the small cross-sectional wire. Depending on the below table, please select the input DC wire or larger one.

Rated voltage of inverter	Current max. load power	Max. current of wire	Specification of wire lengths1m	Specification of wire length:1-2m	Specification of wire length:Nm
12V	1000W	100A	6AWG(13.3mm ²)	3AWG(26.67mm ²)	N×6AWG(N×13.3mm ²)
	1500W	150A	4AWG(21.15mm ²)	1AWG(42.41mm ²)	N×4AWG(N×21.15mm ²)
	2000W	200A	3AWG(26.67mm ²)	0AWG(53.49mm ²)	N×3AWG(N×26.67mm ²)
	2500W	250A	2AWG(33.62mm ²)	00AWG(67.43mm ²)	N×2AWG(N×33.62mm ²)
	3000W	300A	1AWG(42.41mm ²)	000AWG(85.01mm ²)	N×1AWG(N×42.41mm ²)
24V	1000W	50A	9AWG(6.63mm ²)	6AWG(13.3mm ²)	N×9AWG(N×6.63mm ²)
	1500W	75A	7AWG(10.55mm ²)	4AWG(21.15mm ²)	N×7AWG(N×10.55mm ²)
	2000W	100A	6AWG(13.3mm ²)	3AWG(26.67mm ²)	N×6AWG(N×13.3mm ²)
	2500W	125A	5AWG(16.77mm ²)	2AWG(33.62mm ²)	N×5AWG(N×16.77mm ²)
	3000W	150A	4AWG(21.15mm ²)	1AWG(42.41mm ²)	N×4AWG(N×21.15mm ²)

Notice:

The above table is only for your reference. In practice, the thick wire can be replaced by two thin parallel wires if only the total section acreage of the wire meets the requirements.

In high current, the input DC wire may produce voltage drop, therefore, the operating voltage should be subject to the value on the terminals. If the voltage drop is too large, it can increase the acreage of the section or reduce the length of the lead. The recommended length of lead is less than 1m.

Connect cathode wire of the battery to the cathode terminal (black) on the back panel of inverter and then connect the anode wire of the battery to the anode terminal (red) on the inverter, and fix them.

Warnings:

- 1) Please wear eye patch and work clothes when working around the battery to avoid the acid and corrosive objects harm your eyes and skin.
- 2) Prepare enough water and soap. In case the acid materials contact eyes or skin, clean it by soap and water as soon as possible. If the acid materials spray to your eyes accidentally, clean it by cold water immediately and then sent to hospital.
- 3) Do not put any combustible material in the location of installation for spark will result when it is connected to the battery.
- 4) Keep good ventilation. The battery may produce a little inflammable gas when it works, so keep away from the inverter and it is better to install them in different space.
- 5) Fix the connecting wire of the input DC, or it will result the over-reduction of the voltage or over-temperature of the wire.
- 6) Reverse connection of the polarities or the short circuit will burn the