PURE SINE WAVE INVERTER MANUAL

Model：

PSI-500 Pure Sine Wave Inverter (500W/12V)

PSI-1000 Pure Sine Wave Inverter (1000W/12V)

PSI-1200 Pure Sine Wave Inverter (1200W/12V)

PSI-2000 Pure Sine Wave Inverter (2000W/12V)

PSI-3000 Pure Sine Wave Inverter (3000W/12V)

Please read the instruction manual before use.

Pay special attention to the installation instructions and warnings. Some practices may possibly lead to inverter damage, we advise to proceed with caution.

To correctly install, use, and store your inverter, please read the complete instruction manual.

Please keep the manual with all other paper work together for future use.

Warning: For non-professionals and technical personnel, please DO NOT open the inverter shell.

SAFETY NOTICE

Please read and remember the safety notices.

To avoid damage to the inverter and harm to yourself, Please read safety notice. Ensure to follow instructions.

WARNING NOTICES

- **Flammable gases.** Battery charging, discharging will produce inflammable gases, should be well-ventilated, do not put in the place may accumulate Flammable gases.
- **Output cannot be parallel with the mains**. Will damage the inverter and danger of electrical shock.
- **Minors cannot use it**. Output high voltage will cause a danger of electrical shock.
- **Do not disassemble or remodel inverter**. Disassemble or modify unauthorized inverter may cause a malfunction or fire, electrical shock.
- **Do not get wet**. Do not wet the airframe otherwise may lead to short circuit, even fire and electrical shock.
- **Do not place rod or other metal objects at vent or other openings.** This may touch on the internal components to cause electric shock or injury.
- **Put the plug of load of equipment full insert into an electrical outlet**. Failure to fully insert the plug socket, could lead to electrical shock and overheating, even cause a fire accident. Do not use a damaged plug or loose outlet.
- **Do not touch power plug with wet hands.** This may cause electric shock.
- **Do not let volatile substances or combustible materials float into the inverter**. Keep away from flames.

SAFETY NOTICE
Continued

- **Do not damage output sockets or wires.** When using the inverter, please do not bundle wires. Use of broken wire can cause electric shock, short circuit, or fire. (Do not cut, remodel, close to the pyrogenic, over-distorted, reversed, wiring and pull wires, or place outlet weight on wires or sockets.)
- **Use inverter in the common ground wire power system.** If the output connects with the ground it will cause inverter to short circuit and damage. For example: used in the car, the inverter's output terminal has the voltage reflected on the car body.
- **In power, do not let the load and to type in the loop.** Cause the overload protection circuit will invalidate or increase the overload protection power.
- **Do not install inverter a in hot or humid environment.** Inverter leakage may cause electric shock or fire caused by accident.
- The inverters have not been tested for use in medical equipment.

ATTENTION
1. In connection cable should be used to install the appropriate cable, if the 230V output cable is too long or the wire cross-sectional area is too small, will generate many cable power losses, the load performance as low power, low voltage.
2. Battery and inverter connection cable are not standardized, cable is too long, cross-sectional area is too small, to connect parts of contact short, and even turn does not work give an alarm. Meanwhile, cable must have waterproof, insulate strength to meet environment requires.

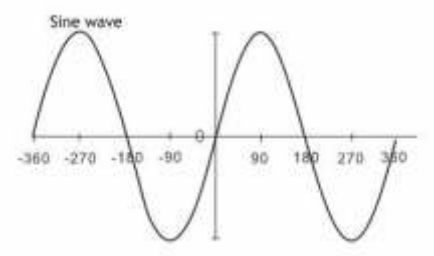
Applied to the following products:

Bulb, fluorescent light, rice-cooker, electric iron, desktop computer, laptop, printers, LCD TV, TV, fans, DVD machine, cell phone chargers, electric drill, washing machine, hair dryer, amplifier, music centre, subwoofer and so on

Introduction of performance environment for use

Inverter is a power equipment that can change DC (storage battery, solar cells, wind dynamo, etc.) to AC. The inverter uses high-frequency power conversion technology and use the ferrite transformer instead of the old bulky silicon steel transformer. That is why Charging System's power inverter is lighter, smaller than another similar inverter. When the inverter working in inversion mode, the output waveform is sine wave.

Pic 1: Output sine waveform



Environment for use

To get the best using results, please put the inverter on the flat surface, such as the ground, car floor, or other solid surface which can easily fixed the inverter's power cord. The working place should meet the following criteria:

1. Keep dry, should not let the inverter contact the water or other liquids, keep the inverter away from moisture or water.
2. Cool environments keep the temperature between 0 Celsius degrees (no condensation) and 40 Celsius degrees. Do not put the inverter next to heat vents or other heat devices. Try to keep the inverter not to be shined directly by the sunshine.
3. Ventilation. No objects block around and keep free flow of the air. Do not put anything on the inverter when it was working, because the fan is helping to radiating.
4. Safety. Do not use inverter near the place of flammable materials or accumulate flammable gases.
5. The battery is not only to provide 11V to 15V DC voltage also provide sufficient load operating current. Power should be full power, good lead-acid batteries. Rough estimate the current that a load need, can be estimated by the load power dividing 10.

For example: an AC load power is 100W, the power supply must provide a current of 100/10 = 10A. if you need larger current, you can use a few batteries in parallel. The most important is to ensure that there is sufficient cross-sectional area of the connection cable. This manual cannot list all the battery combinations. Battery charging and combination are other areas of expertise.

Installation connection steps: please refer to the connection diagram.

1. First, turn off the inverter power.
2. Use the black DC cable to connect the negative terminal of the battery and the black post head of the inverter.
3. Use the red DC cable to connect the anode terminal of the battery and the red post head of the inverter.
4. Plug the power plug of the equipment in the inverter's output socket.
5. Press the inverter's switch then it can be used.

Dismantle steps:

1. First, turn off the inverter power.
2. Disconnect the power plug.
3. Dismantle the red DC cable.
4. Dismantle the black DC cable.

Installing and using method

Note: The connecting diagram just as the basic reference, please contact with the professional technical personnel for the actual installation.

Inverter can use on or more batteries. Use of 150AH or larger battery is the best.

Note: Because these processes may have to connect the battery, before connecting you must ensure that no flammable gas around.

Use the cable of Inverter equipped with (not including high-power mode cable) to connect the inverter and battery, the red cable connects to the red post head of the inverter input terminal and the positive terminal of the battery. The black cable connects to the black post head of the inverter input terminal and the negative terminal of the battery. Make sure all connections solid and reliable. Improper cable connections may result in overheating, post head and lug damage. At the same time will reduce battery time. The inverter mode dial to switch ON, if your battery is fully charged situation, POWER LED glows green below, if the red light, that is, to protect the inverter. Should find a way to solve before use it (check battery voltage is too high or too low, the inverter output is overloaded or short circuit)

12V inverter power source can be a 12V battery, or a few 12V batteries in parallel to increase the battery power supply time.

⚠ Note: The inverter required to connect the same voltage battery, 12V inverter to 12V battery, 24V inverter to 24V battery .

⚠ In the plug all your electrical equipment patch, make sure that all equipment is turned off.

Open the inverter's inverter mode switch, LED below POWER glows green, then your device can be opened one by one, if your device does not overload, it can work normally now. If the LED light red, is overloaded. To reduce the load the re-start to work.

Characteristic (inverter mode)

Charging Systems series inverters are equipped with perfect protection circuits. Provide safe automatic shutdown function, including grounding protection, low voltage alarm to prevent damage to your battery.

Inverters have advanced anti-jamming technology, fully functional protection circuit and soft start circuit, convenient mode of operation.
Protection circuit is automatic, overload protection, input over-voltage protection, input low voltage protection, over temperature protection.
Soft-start circuit has the function of gradually raise the output voltage when start-up to eliminate cold start failure. And has the function of instantaneous output voltage drop and fast recovery to reduce the load boot instantly overloaded.

Frequently Asked Questions

Operation tips

Rated current and the actual used equipment.

The nominal current or power of most of electro motion tools, household appliances and audio-visual equipment, in the range of nominal power or much lower, but when they start-up it will occur overload protection phenomenon. Inverter most likely to drive resistive loads and switching power supply load. Because the resistive load is linear load that can work with full load. Such as electric stove, rice cooker, LCD TVs, and other devices.

Some audio-visual equipment and electro motion tools need more power that the resistive load to work normally, an asynchronous motor, CRT TV, compressors, pumps and so on. They need 2 to 6 times of the operating current to start. Whether it can run a specific load depend on the subject test.

Note: continuous frequently on and off the inverter may cause damage.

Power tools and microwave ovens cannot start	Read the parameter of the high-power equipment carefully and make the input power and output power that if it has enough power to run the equipment and the microwave ovens, please remember that the electro tools may need 2 to 6 times power
Television interference	The inverter just has little interference to the TV signal. But in some case, it will have interference, special when the TV signal is poor. Please try to deal with it in the following way: 1. Let the inverter away for the TV antenna as far as possible or lengthen the TV antenna cable. 2. Adjust the placed direction of the Inverter. 3. To ensure that the signal strength the antenna supply to the TV is strong enough and use a good shielding effect and good quality antenna cable. 4. When you watch TV, do not run the high-power electrical equipment or tools. 5. There is no way to completely disappear interference of some old TV.

Warning: For non-professionals and technical personnel, please DO NOT open the inverter shell.

Technical Information

PSI-500 500W 12V 220V High Frequency Pure Sine Wave Inverter

PSI-1000 1000W 12V 220V High Frequency Pure Sine Wave Inverter

PSI-1200 1200W 12V 220V High Frequency Pure Sine Wave Inverter

PSI-2000 2000W 12V 220V High Frequency Pure Sine Wave Inverter

PSI-3000 3000W 12V 220V High Frequency Pure Sine Wave Inverter

Features:

- High conversion efficiency, smart soft start function
- Multiple safe protections
- Input and output are completely independent.
- Smart, light, portable and designed for home use.
- Pure sine waveform output
- Applicable for resistive/sensitive loads
- High-precision voltage stability technology
- Aerospace-grade silence technology
- 100% pure sine wave output waveform: designed for sensitive loads (resistive load)
- With the technology of CPU centralized control and SMD inside
- True sine wave output (Total Harmonic Distortion (THD) < 3%)

Model	PSI-500	PSI-1000	PSI-1200	PSI-2000	PSI-3000
Peak Power	1000VA(1S)	2000VA(1S)	2400VA(1S)	4000VA(1S)	6000VA(1S)
Rated Power	500W(1S)	1000W	1200W	2000W	3000W
Output waveform	Pure sine wave	Pure sine wave	Pure sine wave	Pure sine wave	Pure sine wave
Output Voltage	220V/230±5V	220V/230±5V	220V/230±5V	220V/230±5V	220V/230±5V
Harmonic distortion	<3%(Impedance)	<3% (Impedance load)	<3%(Impedance)	<3%(Impedance)	<3%(Impedance)
Output frequency	50Hz (or 60Hz)	50Hz (or 60Hz)	50Hz (or 60Hz)	50Hz (or 60Hz)	50Hz (or 60Hz)
Standby current	<0.9A	<0.9A	<0.9A	<0.9A	<0.9A
Conversion efficiency	Maximum 91%	80%~85%	80%~85%	Maximum 94%	80%~85%
Rate voltage	12V	12V	12V	12V	12V
Maximum input current	50A	120A	120A	250A	300A
Input voltage range	10.5V-15V	10.5V-15V	10.5V-15V	10.5V-15V	10.5V-15V
Under voltage protection	9.5V±0.5V	9.5V±0.5V	9.5±0.5V	9.5±0.5V	9.5V±0.5V
Under voltage tip	10.2V±0.5V	10.2V±0.5V	10.2±0.5V	10.2±0.5V	10.2V±0.5V
Under voltage recovery	12.5V±0.5V	12.5V±0.5V	12.5±0.5V	12.5±0.5V	12.5V±0.5V
Over voltage protection	15V±0.5V	15V±0.5V	15±0.5V	16±0.5V	15V±0.5V
Over voltage recovery	14.8V±0.5V	14.8V±0.5V	14.8±0.5V	15.8±0.5V	14.8V±0.5V
High temperature protection	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning
Output short circuit protection	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning	Buzzer/LED warning
Output overload	Smart control	Smart control	Smart control	Smart control	Smart control
Load power factor	0.98	0.98	0.98	0.98	0.98
USB Output	5V 1A	5V 1A	5V 1A	5V 1A	5V 1A
Battery reverse protection	YES	No	No	No	No
Cooling way	Temperature control	Temperature control	Temperature control	Temperature control	Temperature control
Working temperature	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C
Storage temperature	-20~80°C	-20~80°C	-20~80°C	-20~80°C	-20~80°C
Working humidity	10~90%	10~90%	10~90%	10~90%	10~90%
Product size	185X126X70mm	260X155X85mm	260X155X85mm	410x240x150mm	315X177X83mm
N.W/G. W(KG)	1.25	3.48	3.48	4kg	4.78