CT SOLAR INVRTER

>>> User Manual

Content

1: Installation Instruction ---------- 1

2: Inverter's use ---------- 3

3: Inverter's protection ---------- 3

4: Outlook of inverter ---------- 5

5: LCD display ---------- 7

6: Operation ---------- 8

7: Wiring ---------- 9

8: Maintenance ---------- 11

9: Error and Solution ---------- 11

10: Technical specification ---------- 12

11. Appendix(Maintenance Record&Certificate) ---------- 13

⚠ Warning

This is A class inverter. It might cause slightly radio interference in daily life. And practical measure is required to take under this condition.

Preface

Thank you for the purchase of pure sine wave solar inverter (Hereinafter referred to as inverter). Please read this manual carefully before installing and using the inverter!

Copyright

1.Installation Instructions

1-1: Open-package inspection

1. After opening the package, please check random accessories, including user manual (contains conformity certificate and warranty card), wall mounting accessories, battery cable, mounting screws, . And check whether the inverter is still kept well after transportation, if find any broken or component missing, do not turn on the machine, feedback to the carrier and distributor.

Note:

- Please keep the packing box and packing material, can be used for next delivery if needed.

1-2: Safety instruction

The installation and debugging of the product must be done by professional electric worker or may cause danger.

1) Do not connect the product to civil use grid distribution box such as house electric wire route.

2) The product must be separated from water to avoid water dropping on inverter. Do not put plug in or pull out by wet hand.

3) Please put the product in cool environment where temperature 10℃~50℃ will be proper and avoid sunlight and hor air.

4) The product must be separated from inflammable material or place where piles inflammable gas.

5) The product will heat after long time working so that please separate from material sensitive to heat.

6) Please ensure the air inlet open and thermal function OK.

7) Do not open the product because of high voltage danger.

8) Please use proper size cable to avoid cable breaking caused by big current.(Select the connecting wire of no more than 5A/m² electric current density)

9) Make sure that the inverter is connected to the correct battery and PV array, pay attention to its positive and negative poles, otherwise it will damage the inverter. Turn off the switch when the inverter is not in use.

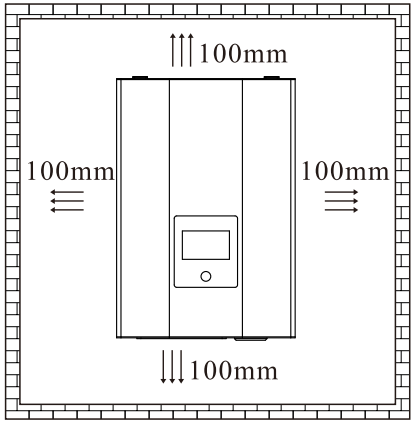
10) Please switch off before cleaning. Please clean with dry rag but not wet ragor cleaning detergent.

Note:

- Please turn off load before connecting to the inverter;
- The battery and PV input shall be equipped with a circuit breaker that meets the breaking capacity;
- This product can only protect high-voltage surges with low energy. In areas of frequent thunder and lightning, it is recommended to install lightning protection devices outside the PV input terminals;
- Inverter should be chosen based on the start up power of inductive loads, like motor, monitor and laser printer, etc. usually, it is 2 to 3 times higher than therated capacity of inductive loads.

1-3: Placement

Please leave 10cm of space for each side of inverter to keep good air circulation.



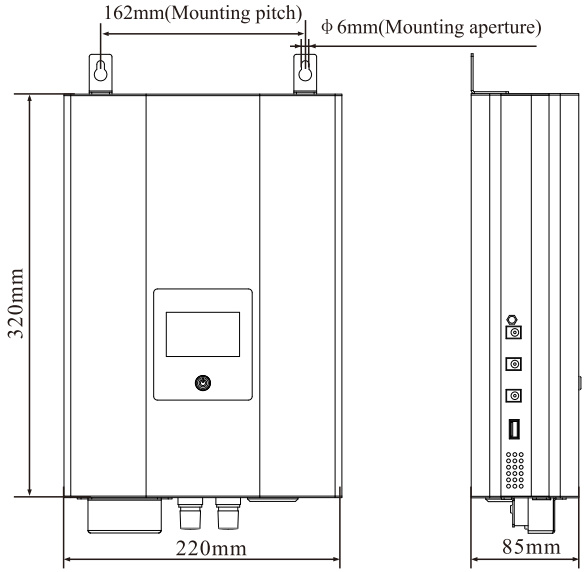
★ Avoid direct sunlight

★ Avoid dust

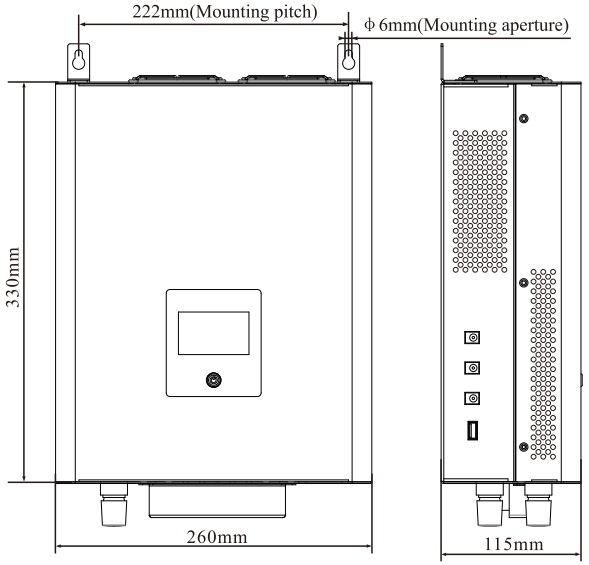
★ Avoid moisture and liquids

★ Avoid over heating

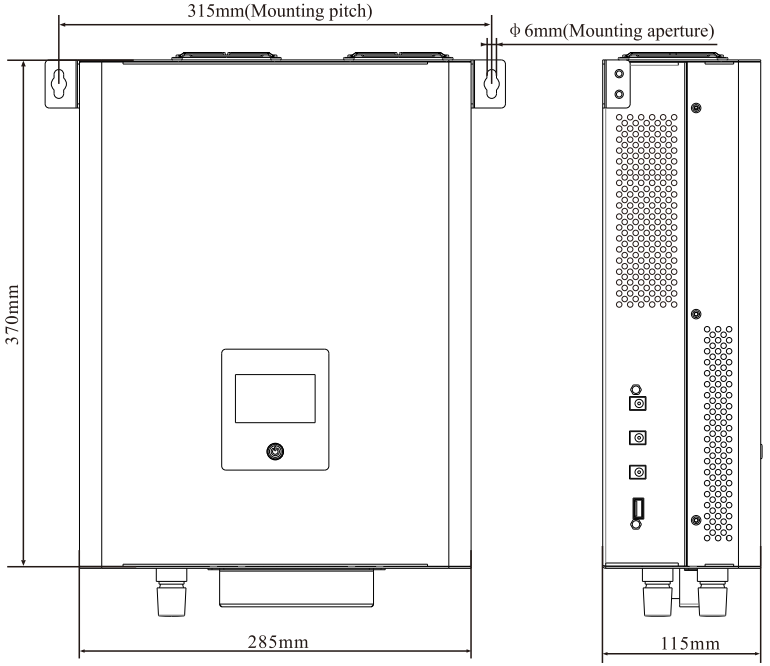
1-4: Inverter size and installation size



200W~600W series



800W~2000W series



2500W~3000W series

2: Inverter’s use

2-1: Power supply selection

The PV input of this inverter needs to be powered by solar panels. Do not connect any other form of power supply to the PV input terminal of the inverter. The BATTERY input terminal requires battery power. Choose the appropriate voltage according to the different specifications of the product.

2-2: Connect the inverter to the power supply

Turn off the inverter. And all devices are placed to the "OFF" state.

a. Battery powered: connect the negative terminal of the battery to the Battery(-)terminal block of the inverter; connect the positive terminal of the battery to the Battery (+) terminal block of the inverter;

b. Connect the positive terminal of the PV panel to the PV(+) terminal block of the inverter and the negative terminal of the PV panel to the PV(-) terminal block of the inverter.

2-3: Connect inverter to load

Load must be accommadated with inverter’s rated power and start current not over inverter peak capacity. Switch on inverter and loads after connection.

3: Inverter’s protection

3-1: Low input voltage protection

When battery input voltage lower than inverter standard parameter, AC output will be shut down automatically, buzzer will scream 3 times.

3-2: Over input voltage protection

When battery input voltage higher than inverter standard parameter, AC output will be shut down automatically, buzzer will scream 4 times.

3-3: Short circuit protection

When short circuit happens, output will be shut down.

3-4: Temperature protection

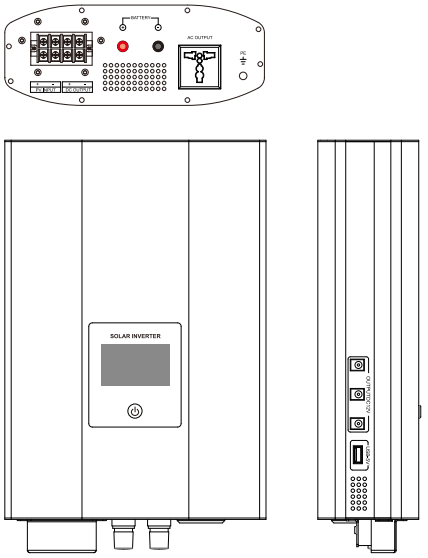
When inverter temperature over 90℃, AC output will be shut down automatically. It will recover normal automatically when temperature back to 50℃.

3-5: Overload protection

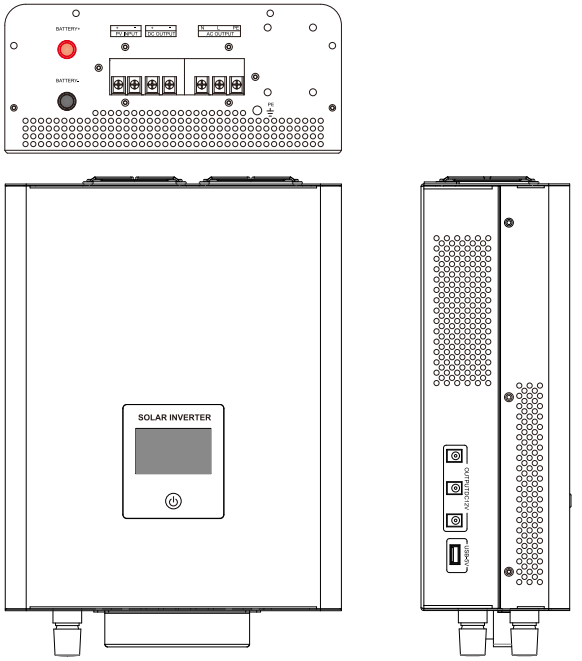
When load is 110% or more than inverter rated capacity, AC output will be shut down automatically. When load back to normal, inverter will recover normal.

4: Outlook of inverter

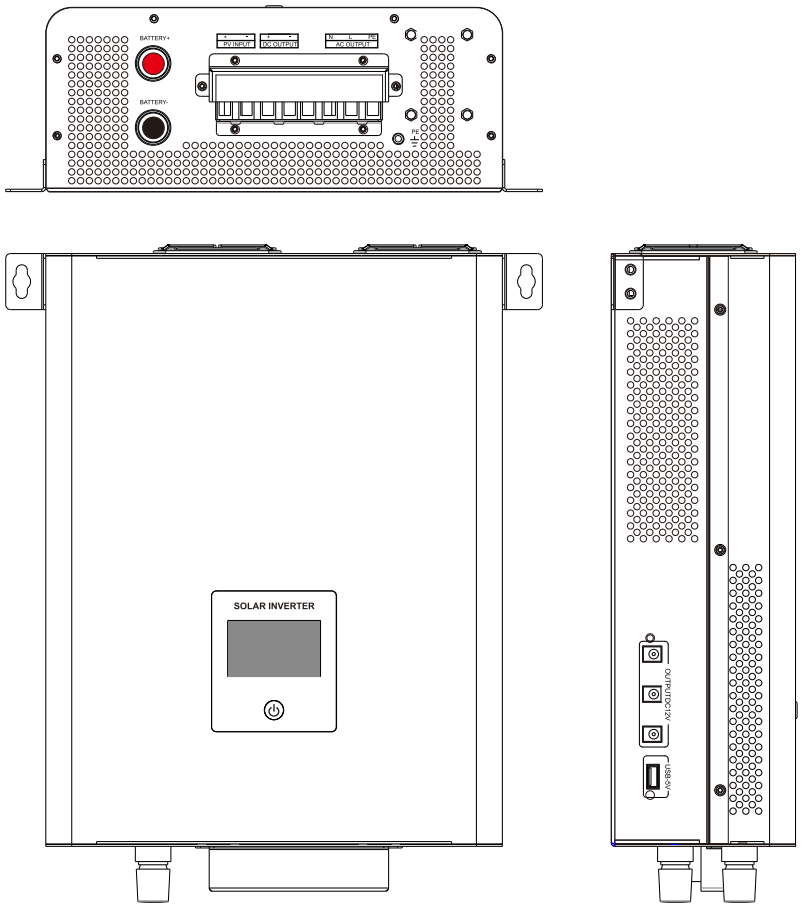
4-1: 200W~600W series



4-2: 800W~2000W series

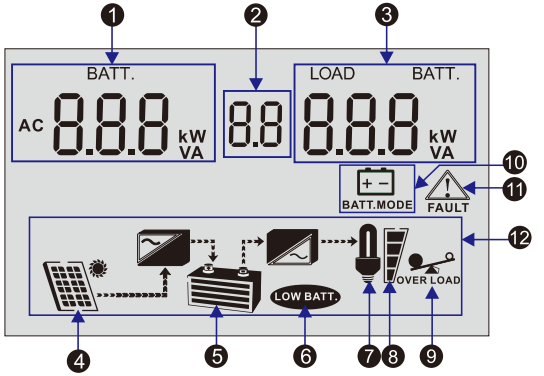


4-3: 2500W~3000W series



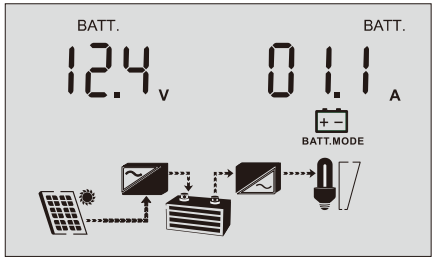
Note: Images may be slightly different from actual product. Please in kind prevail!

5: LCD display

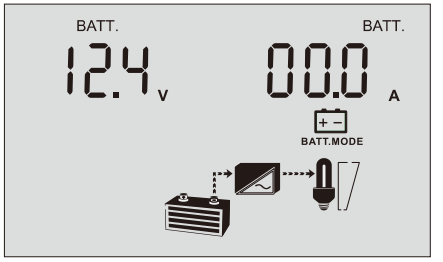


1. Battery input voltage display / AC output voltage display
2. Output frequency display
3. Charge current display / AC output current display
4. Solar panel, if there is no built-in controller, the icon will not be displayed
5. Battery
6. Battery low battery prompt
7. Loads
8. Load capacity
9. Load overload prompt
10. Battery mode
11. Fault prompt
12. Machine immediate running status display area

1) In the battery parameter interface, the screen displays the battery voltage and charging current.

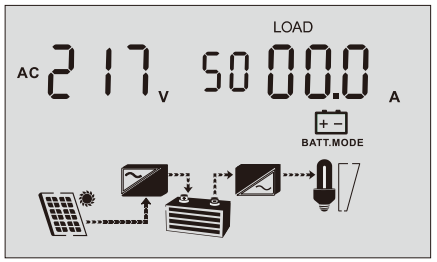


Battery parameter interface(Have PV input)

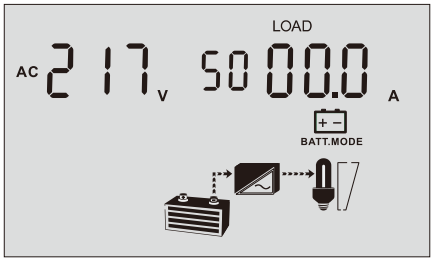


Battery parameter interface(No PV input)

2) In the AC output interface, the screen displays AC output voltage, output frequency and load current.

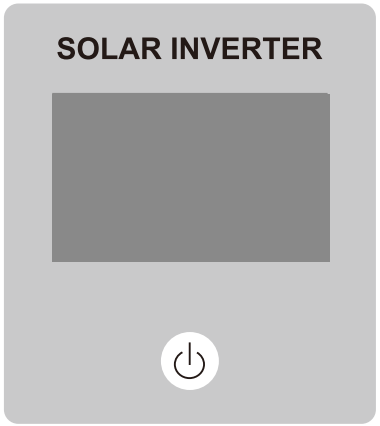


AC output interface(Have PV input)



AC output interface(No PV input)

6: Operation



6-1. ⏻ Button

ON/OFF button,Press this button to start or cut off the AC output of the inverter.

Note: This button is only used to start or cut off the AC output of the inverter. But the solar controller is not controlled by this button. When the PV and battery are normal, the controller can charge the battery.

6-2. Steps of start up

1) Connect loads to the output of the inverter;
2) Connuct solar panel and battery, please notice the negative and positive side during wiring;
3) Press "⏻" button to start the inverter□
4) After 30s when the output voltage is stable, start loads in turn.

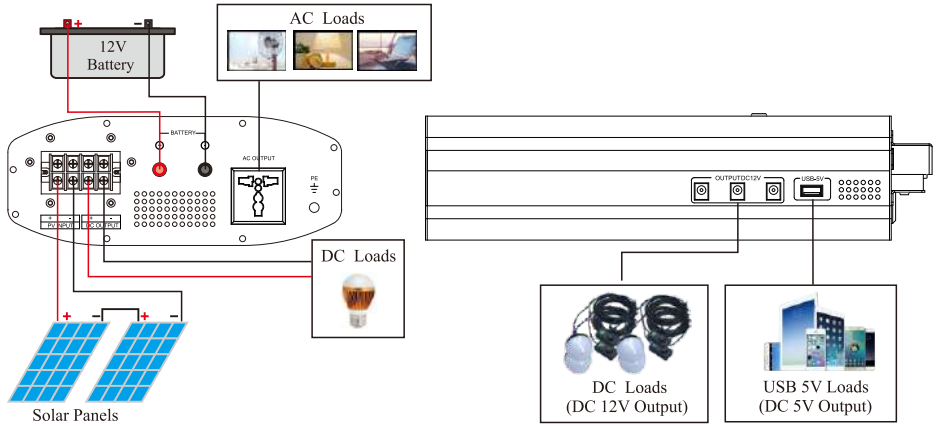
6-3. Steps of power off

1) Disconnect all loads;
2) Press "⏻" button to disconnect AC output, but the solar controller and DC output can still be used normally.

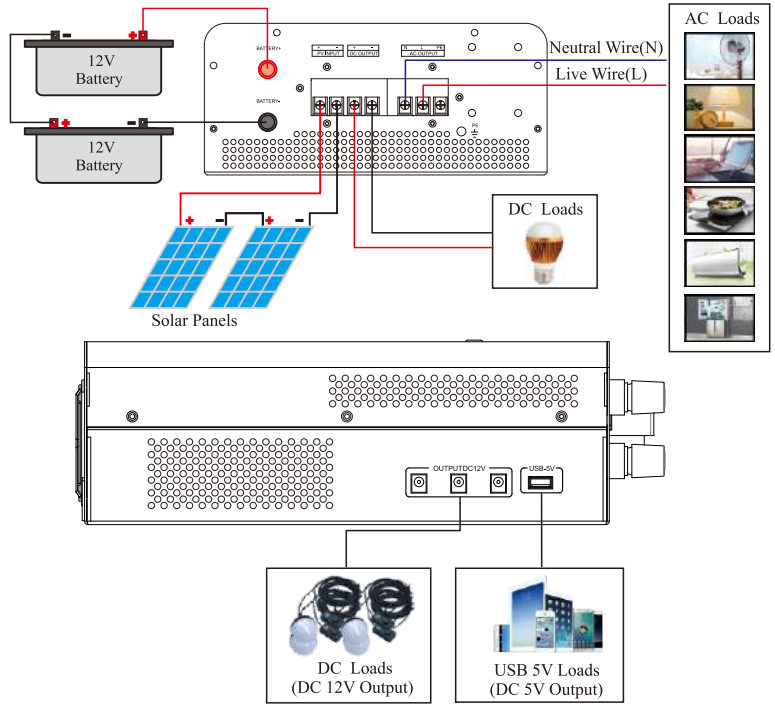
7: Wiring

(Remarks: Please refer to the technical parameter table for specific battery voltage and solar panel parameter, This diagram is only for wiring diagram. 12V system: single 12V battery; 24V system: 2 units 12V battery connect in series.

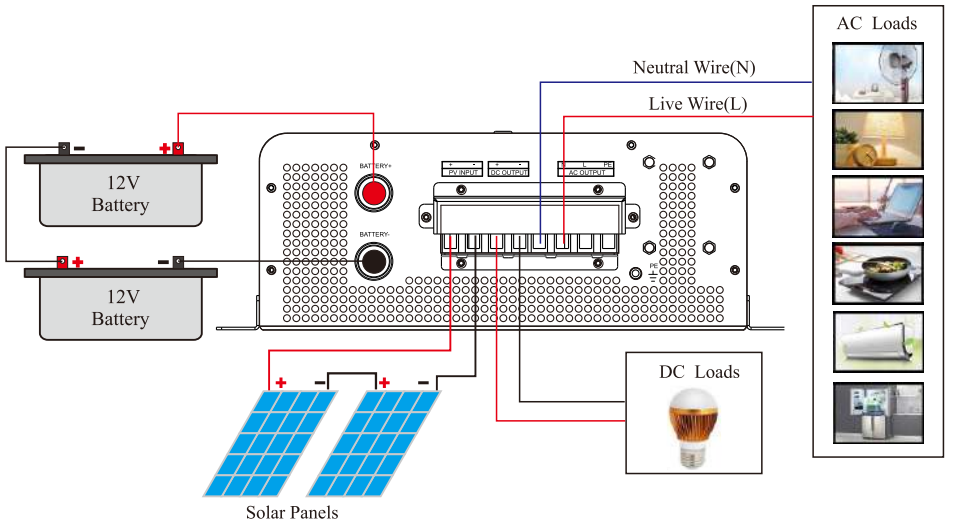
7-1: 200W~600W series input and output wiring diagram

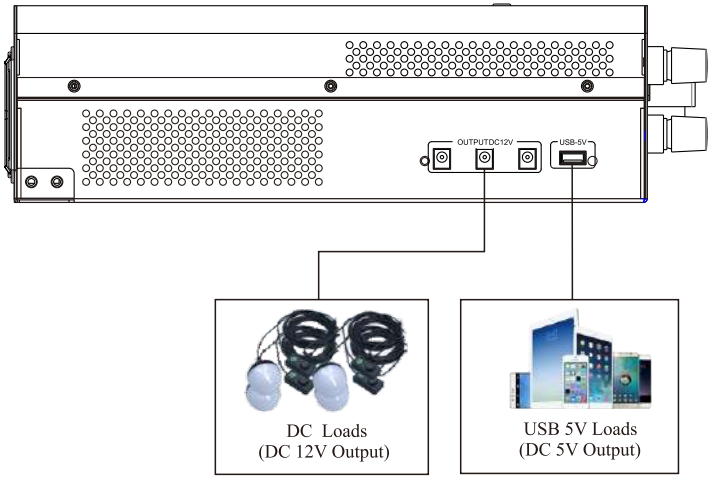


7-2: 800W~2000W series input and output wiring diagram



7-3: 2500W~3000W series input and output wiring diagram





Note:

- When connecting the machine, battery, PV input cable and DC output load, pay attention to the positive and negative polarities, please do not reverse.
- Models of 200W-600W 24VDC does not support DC 12V&5V output.

8: Maintenance

1) The inverter just needs the minimum maintenance. And life of Pb(battery) can be preserved by frequent charge.
2) Batteries should be charged for every three months if the inverter is long-term unused.
3) Lifespan of battery normally lasts for three to five years. It should be replaced in advance if any battery is found in poor state. And the replacement shall be operated by the professional.
4) The battery should not be replaced individually. Observe the battery supplier's instructions when replacing the battery..
5) For every three months, batteries should be discharged (until the inverter shuts down) and recharged. Every charge (by standard inverter) should last at least for 12 hours.
6) Among high temperature area, batteries should be discharged and recharged for every two months. Every charge (by standard inverter) should last at least for 12 hours.

Note:

- Please shut down the inverter and disconnect PV input before replacing batteries.
- Please do not wear metal jewelry such as ring or watch.
- Please use screwdriver with insulated handle and avoid to place tools or metal objects on batteries.
- Please avoid short circuit or reverse connection.

Warning:

① Battery must not be put in the fire, which may cause explosion.
② Shall not open or damage the battery. Electrolyte released will cause harm to eyes and skin and even intoxication.

9: Error and Solution

9-1: Regular error and Solution

Error	Reason&Solution
Inverter fails to switch on	False connection between battery and inverter, please connect again
	Battery reverse connection and fuse broken, please replace fuse
Low output voltage	Overload and load current over rated current, please switch off some loads and restart
	Low input voltage, please assure that input voltage is within rated voltage
Low voltage alarm	Battery low capacity, please charge battery
	Battery low capacity or improper connecttion, please charge battery, check battery terminal or clean terminal with dry rag.
Inverter no output	Battery low voltage, please charge battery or replace battery
	High load current, please switch off some loads
	Over temperature protection. Please put inverter on ventilated place to cool for a while
	Inverter starting failure, please restart
	Reverse connection and fuse breaking, please replace fuse
Inverter dose not work	Please check power switch, fuse, battery connection or car cigarette lighter

9-2: Code for alarm

Code for alarm	Reason	Solution
08	Communication failure of controller	Please contact the supplier

10: Technical specification

Model: GP		20112/24	30112/24	40112/24	50112/24	60112/24	80112/24	10212/24	15212/24	20212/24	25212/24	30212/24
Rated Power		200W	300W	400W	500W	600W	800W	1000W	1500W	2000W	2500W	3000W
Rated Battery Voltage		12/24VDC										
Machine size(L*W*Hmm)		320x220x85					330x260x115				370x285x115	
Package size(L*W*Hmm)		375x293x160(1pc)/386x304x333(2pcs)					410x318x175				447x340x172	
N.W.(kg)		3(1pc)	3(1pc)	3(1pc)	3.3(1pc)	3.5(1pc)	6.4	6.4	6.4	6.4		
G.W.(kg)		3.7(1pc)	3.7(1pc)	3.7(1pc)	4(1pc)	4.2(1pc)	7.4	7.4	7.4	7.4		
Installation Method		Wall-Mounted										
Input	DC Input Voltage Range	10.5-15VDC(Single battery voltage)										
	Voltage of the battery switched on automatically	⩾11V(Single battery voltage)										
Output	DC Output	12V*3+5V*1(Models of 200W-600W 24VDC does not support DC output)										
	Output Voltage(Battery Mode)	110VAC±2% / 120VAC±2% / 220VAC±2% / 230VAC±2% / 240VAC±2%										
	Output Frequency(Battery Mode)	50Hz±1% / 60Hz±1%										
	Efficiency(Battery Mode)	⩾85%										
	Output Wave(Battery Mode)	Pure Sine Wave										
Solar controller	PV charging mode	PWM										
	PV charging current	20A					50A					
	Max PV Input Voltage (At the lowest temperature)	50V										
	Max PV input power	280W(12V system) / 560W(24V system)					700W(12V system) / 1400W(24V system)					
Battery Charging	Floating charge	13.8V(Single battery)										
	Charge voltage	14.2V(Single battery)										
	Overcharge protection voltage	15V(Single battery)										
	Battery Type	Valve Regulated Lead Battery										
Protection	Battery undervoltage alarm	10.5V±0.5V(Single battery)										
	Battery undervoltage protection	Inverter output: 9.5V±0.5V; DC output: 10.5V±0.2V(Single battery)										
	Battery overvoltage protection	15V±0.5V(Single battery)										
	Output undervoltage protection	≤187V machine shut down										
	Output short circuit protection	Shut down output, disconnect battery current										
	Overload power protection	>110% rated power										
	Temperature protection	⩾90℃ machine shut down										
Display		LCD										
Thermal method		Cooling fan in intelligent control										
Environment	Operating temperature	-10℃~40℃										
	Storage temperature	-15℃~60℃										
	Noise	⩽55dB										
	Elevation	2000m(More than derating)										
	Humidity	0%~95%, No condensation										

Note: All specification is subject to change without prior notice.

Warranty Card

Customer Name: _____ Tel.: _____

Address: _____

Brand: _____ Model: _____

Serial No.: _____ Date of Purchase: _____

Bought From: _____

Invoice Number: _____ Invoice Price: _____

Warranty Instruction

- Please keep this warranty card as proof of maintenance.
- The warranty period is 1 year from the date of purchase.
- During the warranty period, under the condition of normal use and maintenance, if damage caused by the product's own quality, the company will provide free repair and replacement parts after verification.
- The company reserves the right to maintain and interpret all contents.

Free maintain won't be given under the following circumstance:

- The damage caused by the manipulation that hasn't follow the requests of the manual.
- The product has been repaired, modified by technicians other than our company's, and any internal parts of the product have been replaced by users.
- The product number has been altered or product is inconsistent with the warranty card.
- Damage caused by careless use, penetration of water or other substances into the product.
- Damage caused by accident or natural disaster.

Certificate

Name: _____

Model: _____

Inspectors: _____

Date: _____

Products have been tested qualified by standard and permitted to deliver.