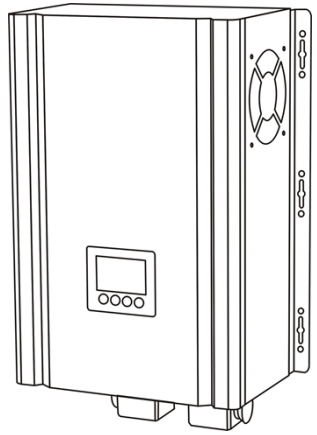
User Manual

1K-6K



Solar sine wave inverter

8 Technology Parameter

Type：**G-PSW-Ⅱ**		**1KW**	**1.5KW**	**2KW**	**3KW**	**5KW**	**6KW**
Rated power		**1000W**	**1500W**	**2000W**	**3000W**	**5000W**	**6000W**
Battery	Rated voltage	12VD/24VDC /48VDC			24VDC/ 48VDC	48VDC	
	Charge current	30A（default）-C0-C6can be set					
	Battery type	U0-U7 can be set					
Input	Voltage range	85-138VAC/170-275VAC					
	Frequency	45-65Hz					
Output	Voltage range	110VAC/220VAC；±5%(Inverter mode)					
	Frequency	50/60Hz±1%(Inverter mode)					
	Output wave	Pure sine wave					
	Switching time	＜10ms(typical load)					
	Efficiency	＞85%（80% Resistance load）					
	Overload	110-120%/30S；＞160%/300ms；					
	Protection	Battery overvoltage/lowvoltage, overload, short circuit protection, overtemperature protection, etc.					
Operating ambient temperature		0-40℃					
Storage ambient temperature		-15 - +50℃					
Operating/Storage ambient		0-90% No condensation					
Machine Size:W*D*H (mm)		298*179*454				540*360*235	
Package size: W*D*H (mm)		348*189*505				590*410*245	
Net weight/Gross weight(Kg)		12/14	14/16	17/19	19/22	26/29	31/34

Note: Our company has the right of changing this user manual without any information

Dear Customers

It's very grateful to you for trusting our company and selecting our products! Before using this product, please read carefully this user manual, including installation, using, failure investigation and other important information and suggestion, we also suggest you keep this manual well!

Catalogue

1 Product Features

- Double CPU intelligent control technology, excellent performance
- The grid mode/energy-saving mode/battery mode could be set, application flexible
- Charge current/battery type could be set, convenient and practical
- Intelligent fan control, safe and reliable
- Pure sine wave AC output, and be adapt to all kinds of loads;
- LCD display equipment parameter in real-time, operation status be clear at a glance
- Output overload, short circuit protection, various of automatic protection and alarm warning;

2 Installation、Storage instruction

（1）Unpacking Inspection

1.1 Open the package, inspect product accessories,including:1 host,1 piece user manual

1.2 Inspect whether the machine have been damaged during the transport or not, If it have some damage, don't start the machine, contact the logistics company and dealer.

（2）Installation、Storage Notes

2.1 The product installation should be operated by professionals， or assisted by dealer.

2.2 If it needs to transport machine, please take proper protection measures; move the machine from low temperature environment to high temperature environment， may appear droplet, please keep it dry and ensure safety.

2.3 Don't let the machine exposure in damp, inflammable and explosive or large accumulation of dust environment. Don't cover and block vents, please preset above 10cm air circulation clearance so that having a good cooling.

2.4 It is battery switch must be shut down when the equipment is not connected with the grid and not being used

7 Judgment and treatment for simple faults

Warning :High voltage inside the device! Do not open it by yourself, or try to do maintenance, so as not to be in danger!

Fault	Possible causes	solution
The grid occasional	Strong out of restoration fuse holder	Press again the strong out part
Time degradation of Machine with loads	Battery undercharge	Make sure battery be full of charging normally
	Machine connect load overcharge	Move away non-key loads
	Battery burn-in and can't charge enough power	Please contact with CSR and get battery need changing module
The machine can't be started	The grid input line or battery input line is in bad connect	Check and reconnection
Starting up alarm	Low battery	Make sure battery be full of charge normally
	Overload	Move away non-key loads
Buzzer for 2s, pause 1s	Internal over-temperature	Check fan and hear dissipation whether be blocked
Fan sometimes fast, sometimes slow	Internal temperature above 45℃ fan fast, below 42℃ fan slow	Normal

When you contact with engineers, please provide the following information: machine model/problem date/complete description of the problem(including indicator status, battery specification, all of the connection etc)

（5）Direction for using of wire diameter

Direction for using of battery, AC input/output wire diameter: (Compute depends on 1mm^2 copper core with 4-5A current)

$$\text{Battery wire diameter} = \frac{\text{Rated power(W)}}{\text{Rated battery(V)} \times 5\text{A/mm}^2}$$

$$\text{AC wire diameter} = \frac{\text{Rated power(W)}}{\text{Rated AC voltage(V)} \times 5\text{A/mm}^2}$$

For example：Wire diameter of 5000W/48Vdc/220Vac as below:

$$\text{Battery wire diameter} = \frac{5000\text{W}}{48\text{V} \times 5\text{A/mm}^2} \approx 20(\text{mm}^2)$$

$$\text{AC wire diameter} = \frac{5000\text{W}}{220\text{V} \times 5\text{A/mm}^2} \approx 6(\text{mm}^2)$$

6 Care and Maintenance

（1）This series products only need rarely care, battery only need keeping charging so that can get expected lifetime.

（2）If the equipment will not be used for long-term, we suggest it should be charged 1 time every 4~6 month. Usually, the battery can be used for 3~5 years, if it has some problem, then the battery should be changed as soon as possible. When changing battery, it must be operated by professional and obey battery supplier indicate.

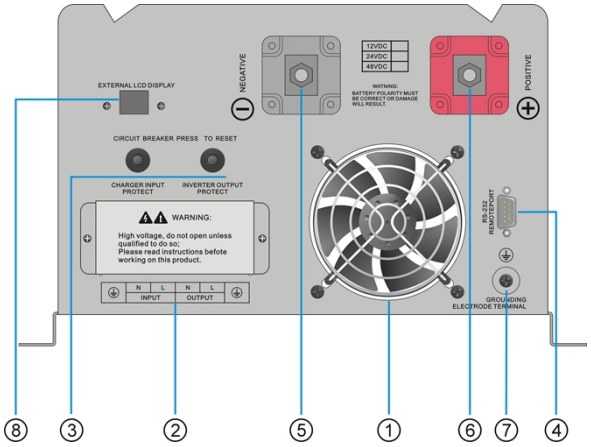
（3）Before changing the battery, it must be closed equipment and break away from the grid, close the battery switch. Take off the metal objects such as rings.

（4）Connect the battery line, tiny spark in joint belongs to the normal phenomenon, and will not cause harm to the personal safety and equipment. Never connect the battery positive and negative into short or the reverse.

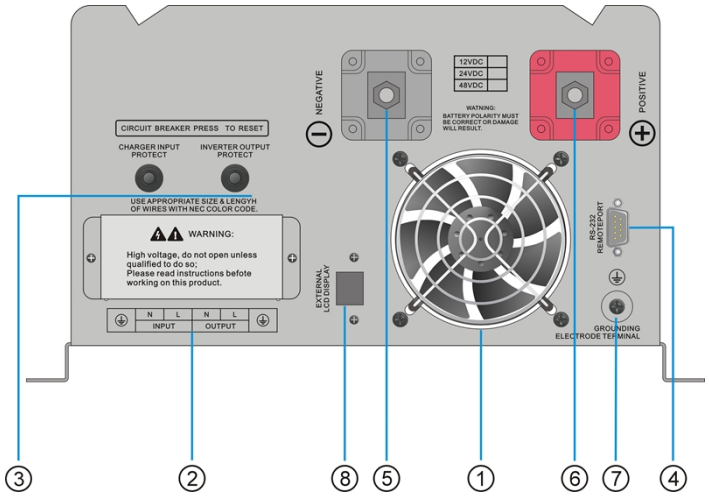
3 Equipment appearance graphical representation guide

（1）Equipment appearance view

（2）1K/2K/3K view of equipment appearance



（3）4K/5K/6K view of equipment appearance



（4）Guide

①-- Fan

②-- AC input/output termianl

③-- AC input/output fuse holder

④-- RS232 communication interface(optional function)

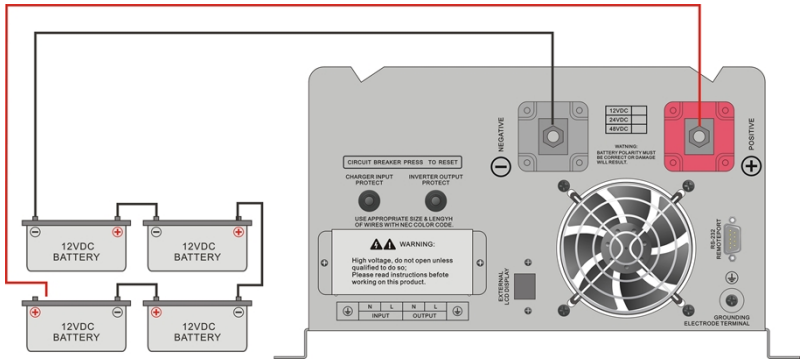
⑤-- Battery terminal negative input terminal

⑥-- Battery terminal positive terminal

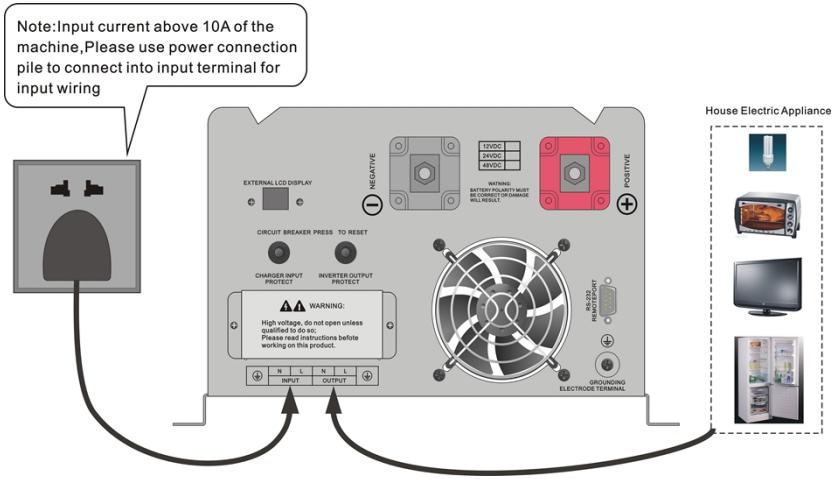
⑦-- Earth terminal

⑧-- External LCD display(*optional)

（3）48VDC series battery wiring diagram（It is 8 pieces 12VDC battery connected in series of 96VDC series battery connection）

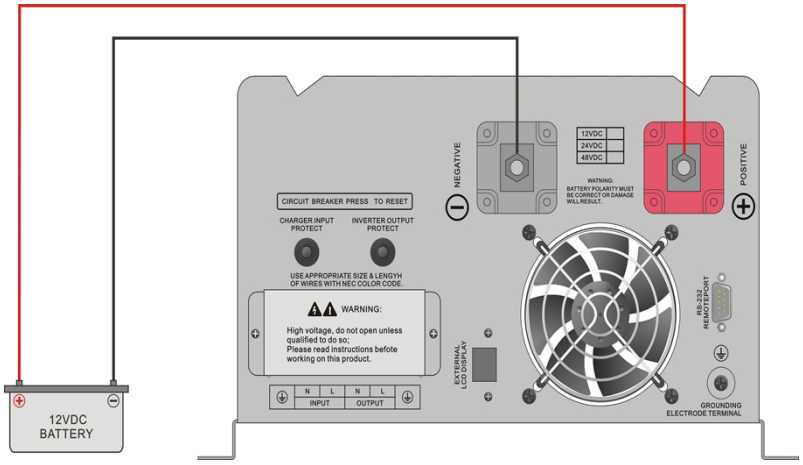


（4）Input/Output wiring diagram

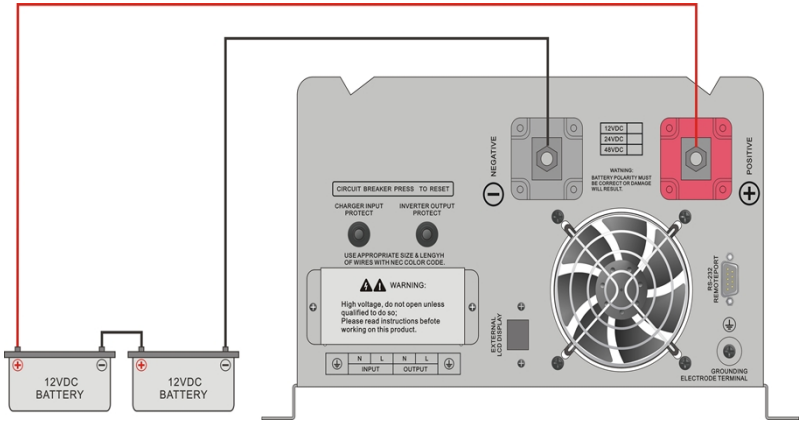


5 Equipment wiring diagram

（1）12VDC series battery wiring graphical representation



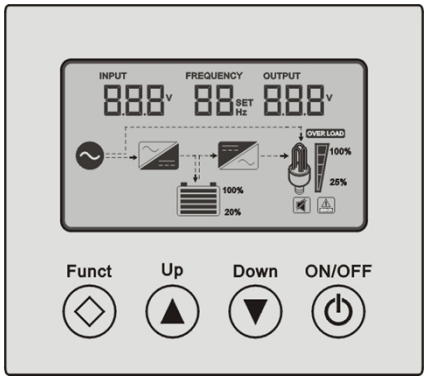
（2）24VDC series battery wiring diagram



4 Operating instructions

（1）Panel LCD display graphical representation instruction

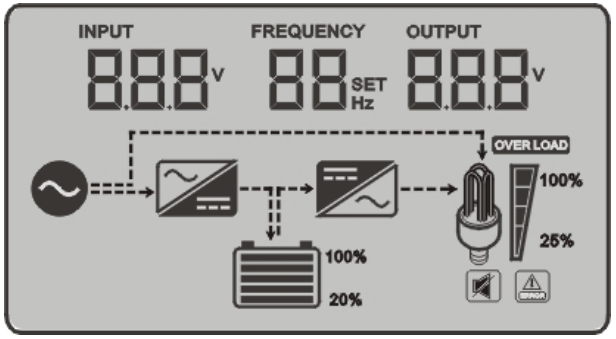
1.1 LCD display and function keys interface can display the equipment working status, such as: input/output voltage, frequency, grid mode, inverter mode, battery capacity, load capacity, alarm warning etc.



1.2 Instruction of keys

Function keys		Instruction
◇	Mute/ function key	Sound attenuation with short press; enter into equipment working mode with long press
▲	Function key/ multiply key	Enter into charge current setting with long press 5s; increment with short press
▼	Function key / Reducing key	Enter into battery mode setting with long press 5s; decrement with short press
⏻	ON/OFF	Single bond ON/OFF control

1.3 LCD display instruction



Equipment parameter instruction			
LCD display	**Function instruction**		
INPUT V	AC input voltage parameter		
FREQUENCY Hz	AC output frequency parameter		
OUTPUT V	AC output voltage parameter		
SET	Equipment working mode selection		
	Grid priority mode	Energy-saving mode	Battery priority mode
	01 SET	02 SET	03 SET

03 SET	Battery priority mode	battery power down to low voltage threshold, the equipment through the mains bypass regulator supply power to the load, but no power to battery. This pattern is mainly design for new energy power generation system design (such as wind and solar power system)

（4）Audible alarm reminder instruction

Equipment running normal	Buzzing prohibit	Buzzer is no tweet under default state
	Buzzer starts	Buzzer tweet 4 times every 15s, indicate the equipment operated under battery inverter state
Battery high voltage alarm	Buzzer tweets 4 times per second, alarms high voltage	
Battery low voltage alarm	Buzzer tweets 2 times per second, alarms low voltage	
Overtemperature alarm	Buzzer alarm 2 seconds pause 1 second	

（5）Electric generator connection announcements

If connect electric generator, it needs operating as below:

5.1 Start up electric generator and after it running stable, make electric generator output power supply be connected into the equipment input terminal, then make sure the equipment output is no-load, then start up the equipment.

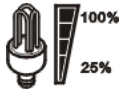
5.2 After the equipment starting, then connect load one by one

5.3 We suggest electric generator capacity should be 2~3 times of this equipment

（3）Working mode instruction

Icon	Working mode	Running state
01 SET	The grid priority mode	Mains priority mode, after the device starts and the grid input under normal operation, the equipment through the grid bypass regulator to supply power to the load, at the same time power battery; When the grid is having too high/low/serious distortion or other abnormal , equipment will make battery energy through internal module transfer into high quality electricity and supply power to load.
02 SET	Energy-saving mode	Under energy-saving mode, after the device starts, it will automatically detect load, when the load is greater than 5% rated power, the equipment starts AC output and power to the load; When detects no load, the device will automatically back to the search pattern, drop the battery energy consumption to lowest; This mode, equipment detects load every 10s, so as to achieve the purpose of energy saving.
03 SET	Battery priority mode	Battery priority mode, the device started for the first time and the mains input under normal , equipment operation for mains priority mode, but no battery be powered. When the battery in the external charging device (such as solar charging system) after adequate power charged, equipment will automatically convert to battery energy through internal module into high quality electricity for load;When the

Battery icon instruction		
LCD display	Status	Battery voltage values/12V；*A（pcs）
	Twinkle	＜10.5V；*A
	Lighten	10.5～11.2V；*A
	Lighten	11.2～11.6V；*A
	Lighten	11.6～12.1V；*A
	Lighten	12.1～12.5V；*A
	Lighten	＞12.5V；*A

Load icon instruction				
LCD display	Function instruction			
OVER LOAD	Output overload reminder			
	0%～25%	25%～50%	50%～75%	75%～100%
				

Working mode icon instruction		
LCD display	Function instruction	
	Grid input icon	
	AC-DC icon	
	DC-AC icon	
Buzzing icon instruction		
	Lighten	Prohibit buzzer tweet
	dark	Start buzzer tweet
Fault/abnormal icon instruction		
	Fault/Abnormal reminder	

（2）Panel key/LCD setting instruction

Function key		Operating instructions		
◇	Mute key	Long press for 1 second, buzzing 1 time, start mute state; Long press for 1 second again, buzzing 2 times, close mute stage;		
	Functi -on key	Long press for 5s, 01,02,03 mode can be recurrent selection, it will take effect after restarting；		
		Grid priority mode	Energy-saving mode	Battery priority mode
				

▲	Functi -on key	Long press for 5s，LCD panel  will display relative charge current regulation C+, press ▲ increase charge current，press ▼ decrease charge current					
		C0	C1	C2	C3	C4	C5	C6
		0A	5A	10A	15A	20A	25A	30A
▼	Functi -on key	Long press for 5s，LCD panel  will display charge voltage regulation U+, press ▲ increase charge voltage from U0 to U7，press ▼ decrease charge voltage from U7 to U0;					
		U0	Gel U.S.A	13.7V			
		U1	A.G.M.1	13.4V			
		U2	A.G.M.2	13.7V			
		U3	Sealed lead Acid	13.6V			
		U4	Gel European	13.8V			
		U5	Open lead acid	13.8V			
		U6	Calcuim(open)	13.6V			
		U7	De sulphation cycle 15.5 for 4 hrs				
⏻	ON/ OFF key	Starting up	Long press for 2s, buzzing 1 time, equipment start output				
		Power off	Long press for 2s, Long press for 2,after internal relay energized, the equipment power off output				