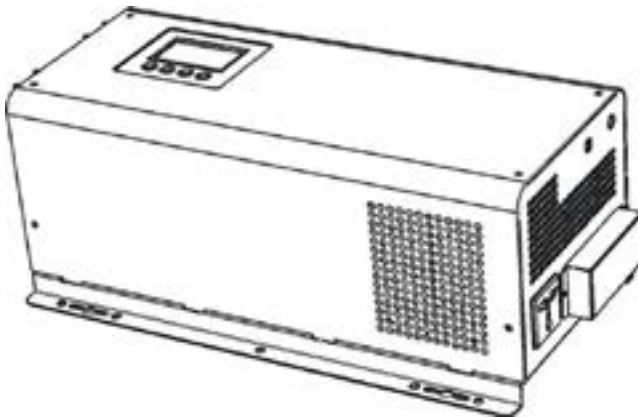




# User's Manual

## SP series intelligent power inverter



## 8、 Technology Parameter

Mode		1.5KVA	2KVA	2.5KVA	3.5KVA	5KVA	6.5KVA	7.5KVA
Rated power		1KW	1.5KW	2KW	3KW	4KW	5KW	6KW
Battery	Rated voltage	12VDC/24VDC /48VDC			24VDC/48VDC		48VDC/96VDC	
	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	50/60Hz±1%( Inverter mode)						
	Frequency	110VAC/220VAC; ±5%( Inverter mode)						
	Output wave	Pure sine wave						
	Switching time	<10ms( traditional load)						
	Efficiency	>85% (80% Resistance load)						
	Overload	110-120%/30S; >160%/300ms;						
	Protection	Battery overvoltage/lowvoltage, overload, short circuit protection, oevertemperature protection, etc.						
Operating ambient temperature		0-40℃						
Storage ambient temperature		-15 - +50℃						
Operating/Storage ambient		0-90%No condensation						
Machine Size: L*W*H (mm)		517*248*179				580*320*240		
Package size: L*W*H (mm)		556*308*179				616*378*240		

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

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### Esteemed 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

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## 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, save 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 pcs 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 When the machine will not be used for long term, it needs closing the battery switch on back panel;

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## 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°C fan fast, below 42°C 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)

### 6、 Care and Maintenance

1.This series products only need rarely care, battery only need keeping charging so that can get expected lifetime. When connect with the grid, no matter the equipment on and off, it should be charge battery and provide overcharge/overdischarge protection function.

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.When the equipment has been used normally, the battery need charging/discharging every 4~6 month, charging after it discharge untill the equipment power off and charging time can't less than 12 hours. At high temperature area, the battery need charging/discharging every 2 month,and charging time can't less than 12 hours.

4, 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, watches.Use a screwdriver with insulated handle, don't put the tool, or other metal on the battery.

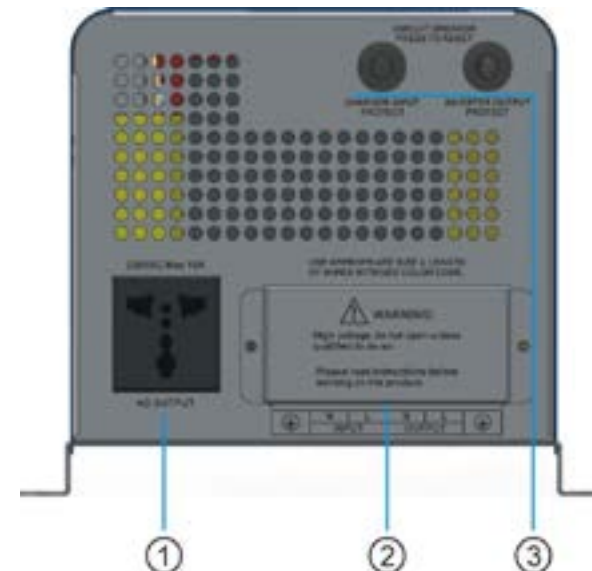
5. Connect the battery line, tiny spark in joint belongs to the normal phenomenon, and will not cause harm to the personal safety and equipment. Never connect the battery positive and negative into short or the reverse.

### 3、 Equipment appearance graphical representation guide

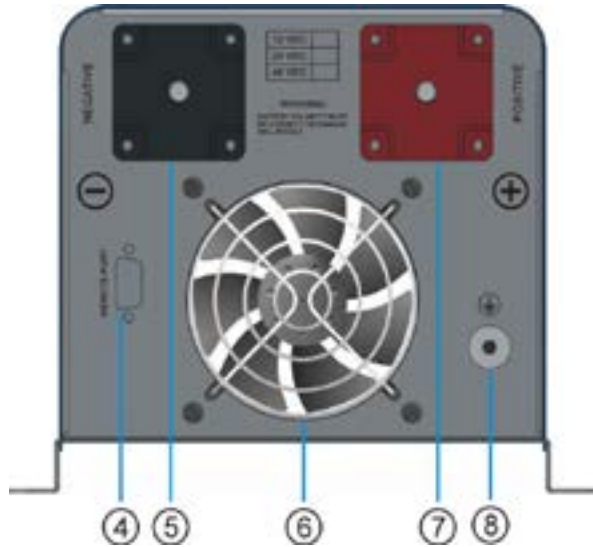
#### (1) Equipment appearance view



#### (2) Equipment appearance right view



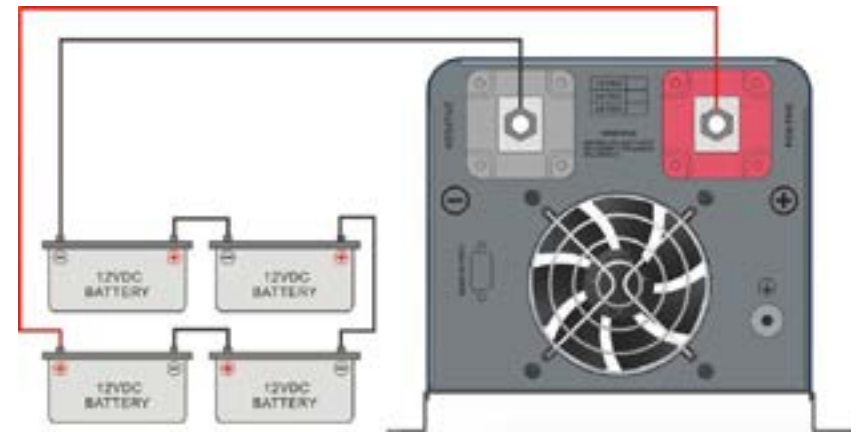
(3) Equipment appearance left view



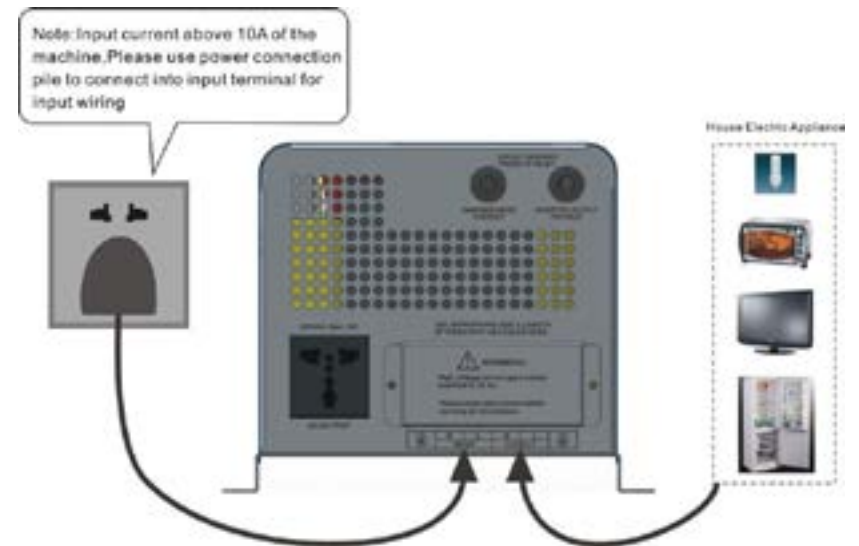
(4) Guide:

- ①--AC output socket (Max.10A)
- ②--AC input/output terminal
- ③--AC input/output/output fuse holder
- ④--RS232 communication interface(optional function)
- ⑤--Battery terminal negative input terminal
- ⑥--Fan
- ⑦--Battery terminal positive terminal
- ⑧--Earth terminal

3) 48VDC series battery wiring graphical representation

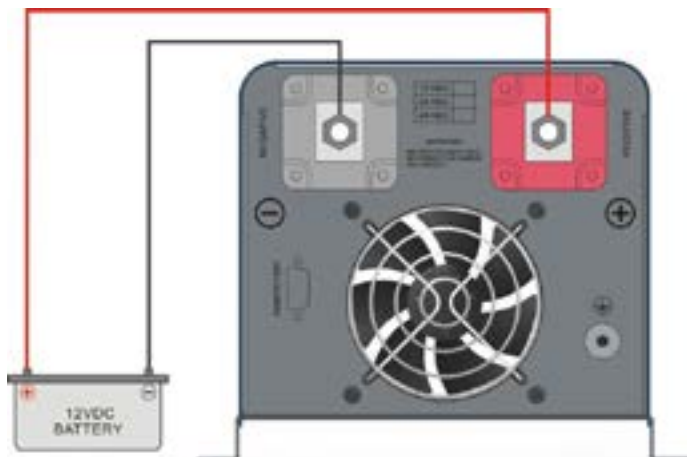


(4) Input/Output wiring graphical representation

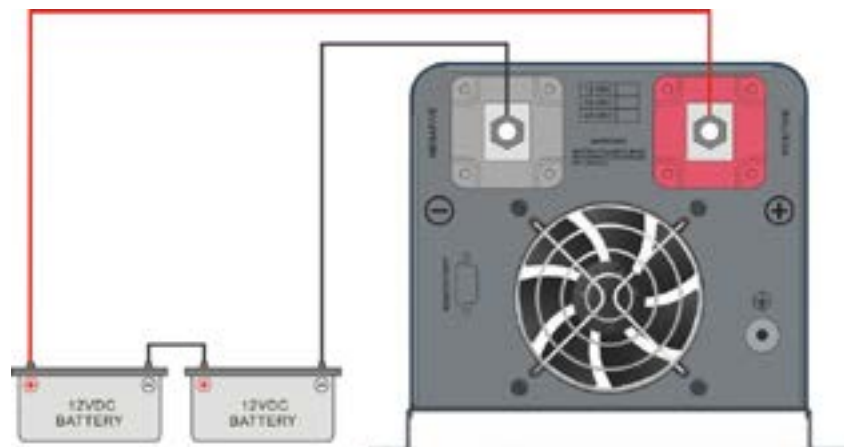


## 5、Equipment wiring graphical representation

(1) 12VDC series battery wiring graphical representation



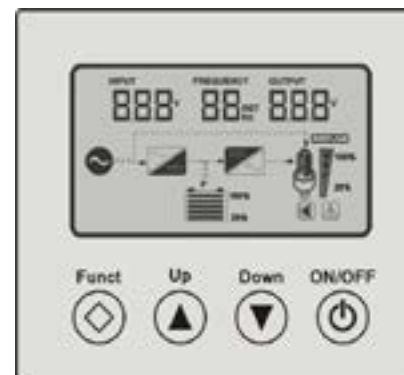
(2) 24VDC series battery wiring graphical representation



## 4、Operating instructions

(1) Panel LCD display graphical representation instruction

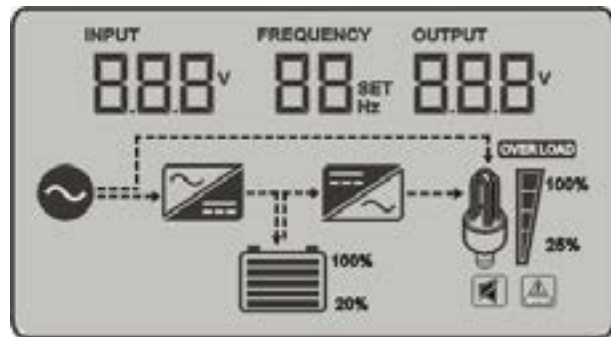
1.1 LCD display and function keys interface can display the equipment working status, such as: input/output voltage, frequency, grid mode, inverter mode, battery capacity, load capacity, alarm warning etc.



### 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; increment with short press
	Function key / Reducing key	Enter into battery mode setting with long press; decrement with short press
	ON/OFF	Single bond ON/OFF control

### 1.3 LCD display instruction



Equipment parameter instruction			
LCD display	Function instruction		
INPUT 888 V	AC input voltage parameter		
FREQUENCY 88 Hz	AC output frequency parameter		
OUTPUT 888 V	AC output voltage parameter		
88 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)
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### (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:

- 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.
- 2, After the equipment starting, then connect load one by one
- 3, We suggest electric generator capacity should be 2~3 times of this

equipment

**(3) Working mode instruction**

Icon	Working mode	Running state
	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 haveing 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.
	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.
	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
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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			
	Output overload reminder			
	0%~25%	25%~50%	50%~75%	75%~100%










		Grid priority mode	Energy-saving mode	Battery priority mode
		01 <sub>NET</sub>	02 <sub>NET</sub>	03 <sub>NET</sub>


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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	

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	Function key	Long press for 5s, LCD panel 88 <sub>NET</sub> 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
	Function key	Long press for 5s, LCD panel 88 <sub>NET</sub> will display relative charge voltage regulation U+, press  increase charge voltage, press  decrease charge voltage;						
		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	Start ing up	Long press for 2s, buzzing 1 time, equipment start output					
		Pow er off	Long press for 2s, Long press for 2,after internal relay energized, the equipment power off output					

## (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;
	Function key	Long press for 5s, 01,02,03 mode can be recurrent selection, it will take effect after restarting;

