



PowerInverter®
Líderes en transformaciones de energía

**Telecom 19 Inch 2U Rack Mount
AC/DC Converter | Switching Power Supply |
Rectifier**

User Manual

POWER INVERTER LTDA.

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Part 1: Product Introduction

- AC/DC Converter | Switching Power Supply | Rectifier is a high efficient, high performance and high reliable telecom power supply.
- AC/DC Converter | Switching Power Supply | Rectifier adopts the most advanced PWM technique and reliable circuit topological structure.
- AC/DC Converter | Switching Power Supply | Rectifier has many good points, including small volume, light weight, high efficiency, wide working temperature range, strong anti-jamming, wide input range, fast dynamic response, high stability, low noise and ripple, strong protection function etc.
- AC/DC Converter | Switching Power Supply | Rectifier is apply to Computer Numerical Control Machine Tools, data processing and other equipment; They also can be used as the charge/discharge equipment of battery and automatically protect to battery.

Part 2: Main Characteristics

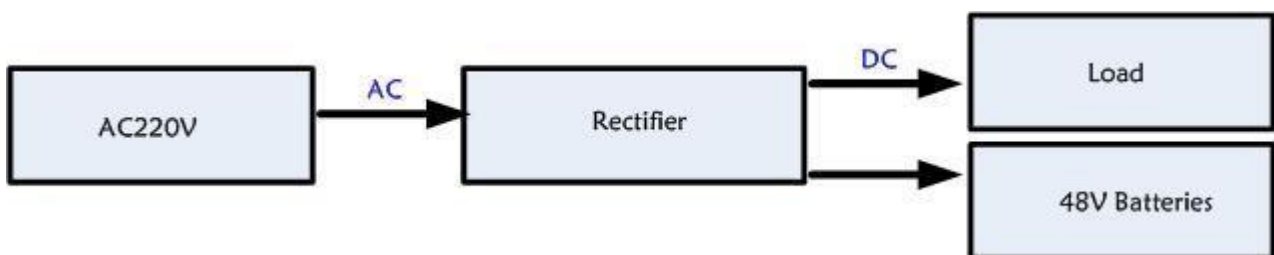
- A. Wide input voltage range
- B. DC output voltage adjustable
- C. High precision voltage regulation
- D. Low output noise ripple
- E. Intelligent fan
- F. High efficiency, small volume and light weight
- G. 19 inch rack mounting and stand-alone available

Part 3: Customize range

Series	Output Current
220VAC to 24VDC	10A \ 20A \ 30A \ 40A \ 50A \ 60A
220VAC to 48VDC	10A \ 20A \ 30A \ 40A \ 50A \ 60A \ 80A \ 100A
220VAC to 110VDC	5A, 10A \ 15A \ 20A

Noted :All AC/DC Converter | Rectifier support multi units connect in parallel with large power output

Part 4: Working schematic



Part 5: Specification

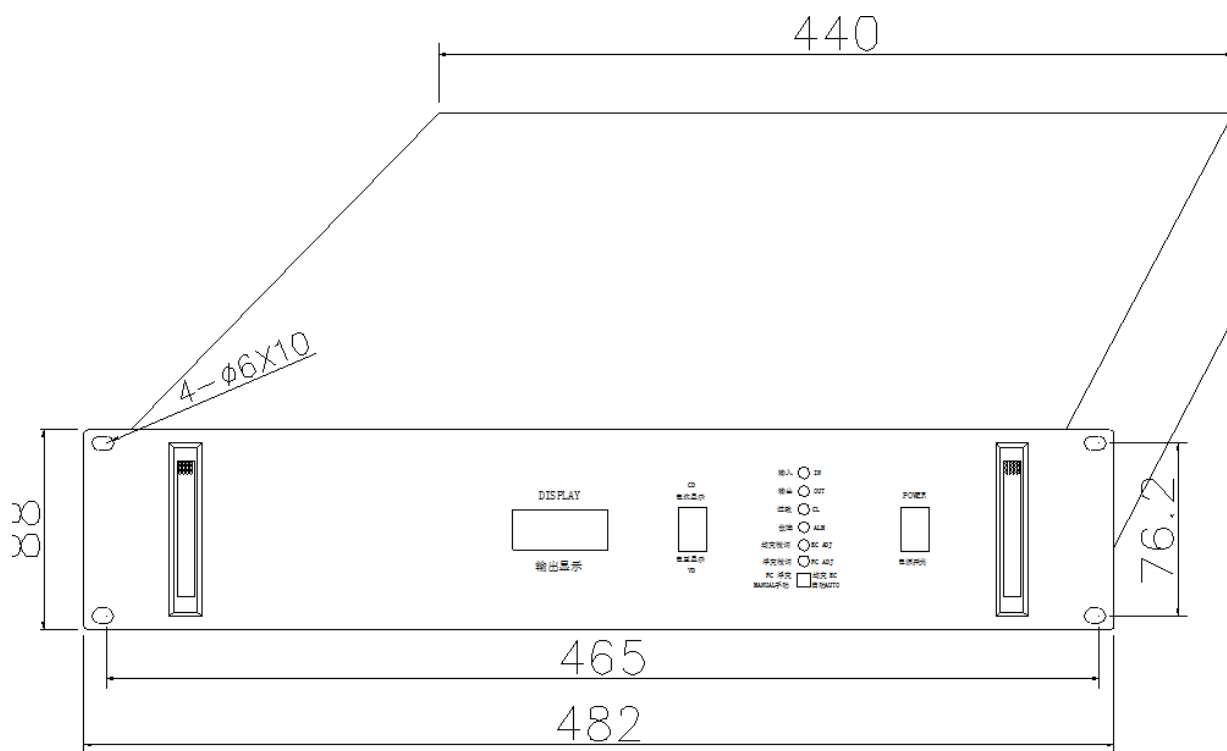
Item	Parameter						Test Condition
Model	4810	4820	4830	4840	4850	4860	
Output	48V 10A	48V 20A	48V 30A	48V 40A	48V 50A	48V 60A	
Input Voltage	AC:220V						
Input Voltage Range	AC:176V~280V						Output Full-load
Output Float Charging Voltage	53.5V						Factory Settings
Output Equal Charging Voltage	56.5V						Factory Settings
Output Voltage Range	48V: 40~58VDC Adjustable						59.0V over voltage protection, need to restart
Output Current	10A	20A	30A	40A	50A	60A	Output Limiting Current (101%-105%)
Power Grid Regulation	±0.1%max						Output zero load to full load
Load Regulation	±0.5%max						Output zero load to full load
Dynamic Response	100usmax						20%~100%load
Output Phone Constant Weight Noise	<2mV						Noise Meter
Output Peak Noise	≤200mV						0~20MHz
Efficiency	>88%/>87%						
Working Frequency	160KHz						
Star- up Delay Time	≤5S						
Hold Time	≥20mS						
Equalized-current Deviation	<5%						<2A
Temperature Coefficient	0.02%°C						
Working Temperature	-10°C~+45°C						85°C over temperature protection, can

		restore
Storage Temperature	-40°C~+85°C	
Humidity	5%~95%RH	Without Condensing
Insulating Strength	Leakage Current<30mA	50Hz 2000V/500V/1min
Insulating Resistance	>10MΩ	DC 1000V
Dimension(mm)	482*88*300mm	W*H*D
Net weight	8.5kg	

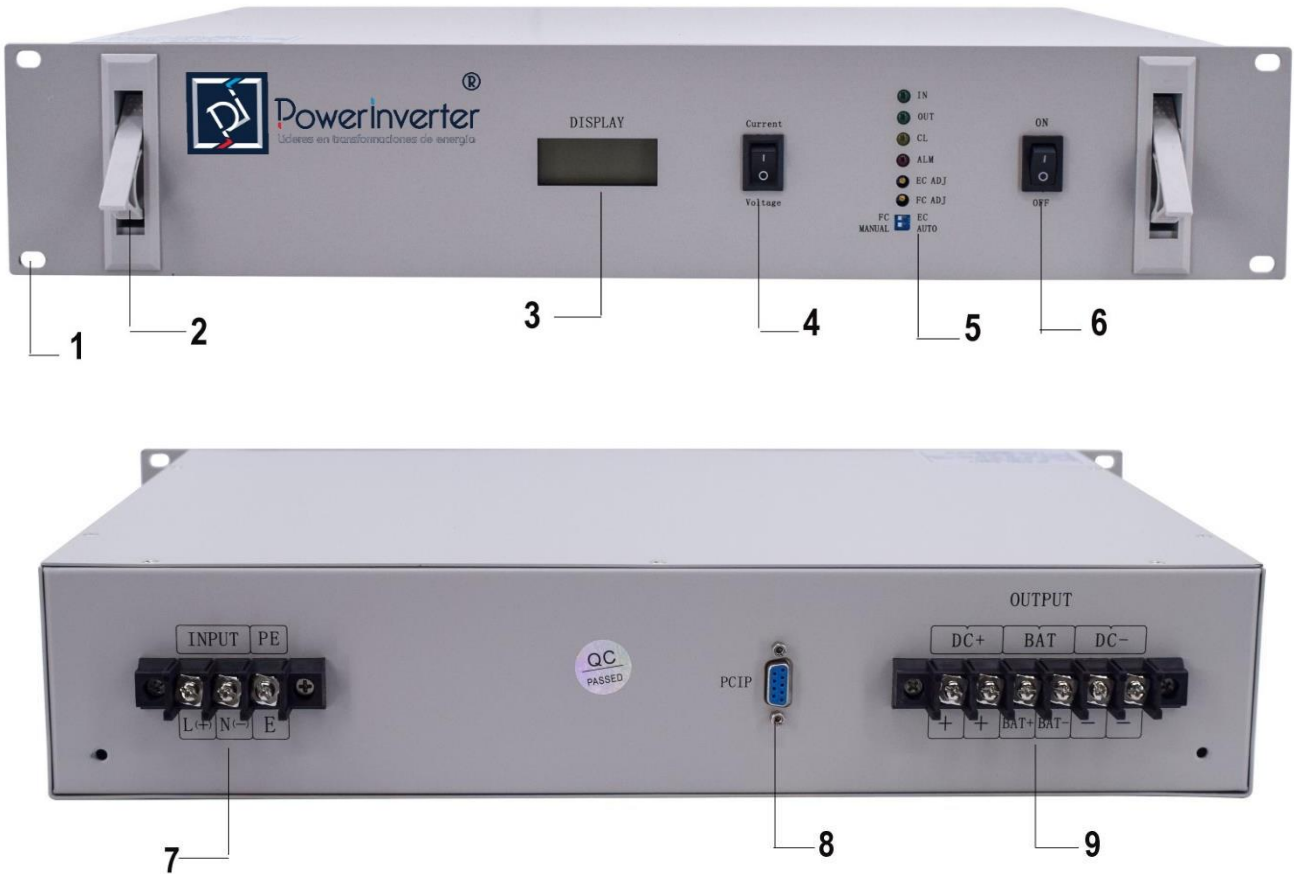
Part 6: Order List

Input voltage	Output voltage	Output Current	DC output channel	Battery channel	Dimension
220VAC -48VDC Series					
AC220V	DC48V	10A	2/4 channel	0/2 channel	2U
AC220V	DC48V	20A	2/4 channel	0/2 channel	2U
AC220V	DC48V	30A	2/4 channel	0/2 channel	2U
AC220V	DC48V	40A	1/2 channel	0/1 channel	2U
AC220V	DC48V	50A	1/2 channel	0/1 channel	2U
AC220V	DC48V	60A	1/2 channel	0/1 channel	2U
AC220V	DC48V	80A	1/2 channel	0/1 channel	2U
AC220V	DC48V	100A	1/2 channel	0/1 channel	2U
220VAC -24VDC Series					
AC220V	DC24V	10A	2/4 channel	0/2 channel	2U
AC220V	DC24V	20A	2/4 channel	0/2 channel	2U
AC220V	DC24V	30A	2/4 channel	0/2 channel	2U
AC220V	DC24V	40A	1/2 channel	0/1 channel	2U
AC220V	DC24V	50A	1/2 channel	0/1 channel	2U
AC220V	DC24V	60A	1/2 channel	0/1 channel	2U
220VAC -110VDC Series					
AC220V	DC110V	5A	1/2 channel	0/1 channel	2U
AC220V	DC110V	10A	1/2 channel	0/1 channel	2U
AC220V	DC110V	15A	1/2 channel	0/1 channel	2U
AC220V	DC110V	20A	1/2 channel	0/1 channel	2U

Part 7: Structure

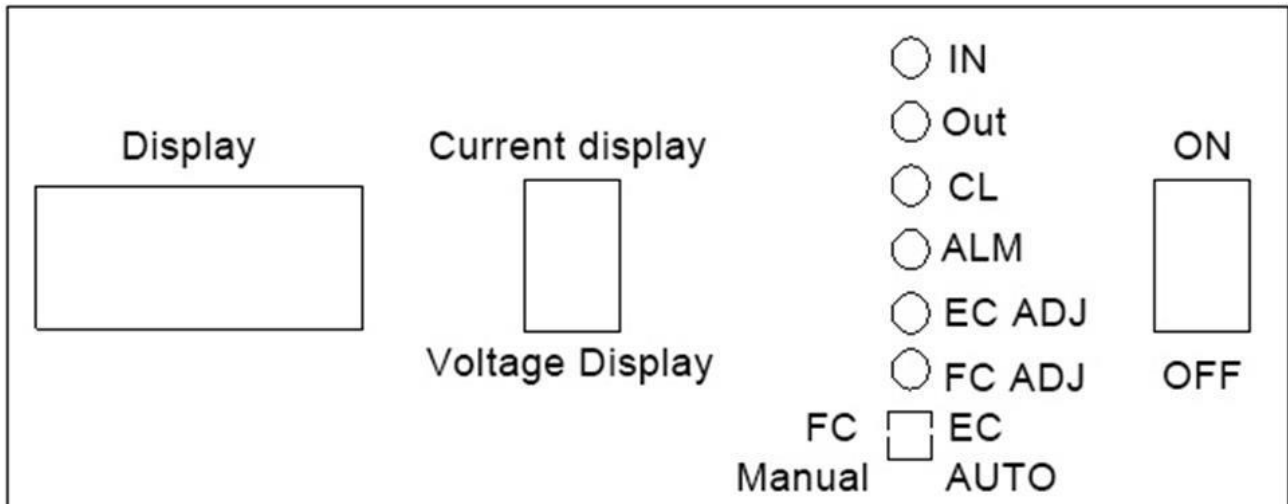


Part 8: Panel introduce



Number	Name	Description
1	Install hole	
2	Invisible handle	
3	LCD display Window	Display the voltage and current
4	Voltage and current switcher	When dc converter operating , it can switch this button To check the voltage and current
5	Indicator	IN OUT CL(Over Load) ALM (ALARM) EC ADJ (Equal charge voltage adjustable) FC ADJ (Float charge voltage adjustable) FC MANUAL (Float charge work by manual) EC AUTO (work float charger in automatic)
6	Power switcher	Switch ON/OFF
7	Input Terminal	L(+) N(-) E
8	PCIP PORT	Parallel connect port Support Multi units of the same specification of converter connect in parallel to get more big current output
9	Output Terminal	DC + BAT DC- Support 2* DC Port +1* BAT Port If the order without BAT port , the BAT port can use for dc port output

A. Front Panel introduction



Float / Equal voltage output adjustment instructions: (Use DC48V as an example)

- A. The Equal Charge voltage is DC56.4V, Float Charge voltage is 53.5VDC, the output current limit value is 110% of the rated output current value (Factory has been set in manufacture)
- B. Charging voltage regulation: ("manual" "automatic" dial has been allocated to "manual" position)
 - The Equal Charge voltage 56.4V regulation ("Float Charge" " Equal Charge" button dial it To " EC AUTO " Position) , Equal Charge voltage support adjustable from 54-56.5V
 - The Float Charge voltage 53.5V regulation ("Float Charge" " Equal Charge" button dial it To " FC MANUAL " Position) , Float Charge voltage support adjustable from 52-54V



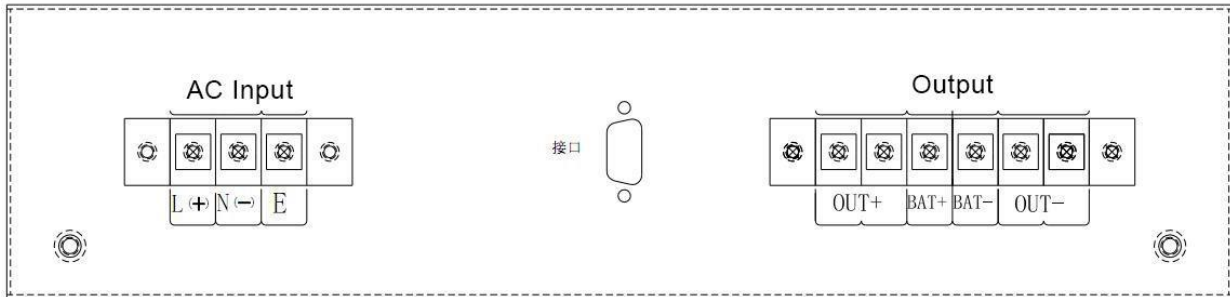
- It cannot use to charge the battery when the switching power supply connect without load
 - When "Float Charge" " Equal Charge" button dial it To " FC MANUAL " Position, the voltage is 53.5V
 - When "Float Charge" " Equal Charge" button dial it To " EC AUTO " Position, the voltage is 56.4V
- C. When the switching power supply charging the battery and the current display in 20A, The voltage will be drop and reach to 53.5V/56.4V in slowly. That is to say, in order to protect the battery. It should be use constant current mode to charge and the charger current will be drop in automatically. When battery charge in full , the voltage will get to the setting voltage in slowly



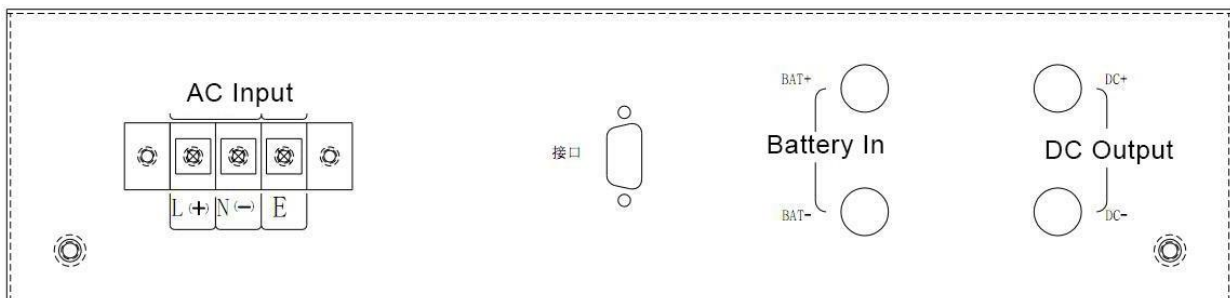
When the switching power supply use charge the battery, It Prohibited to adjust the equal voltage and float voltage

- The window display output current and voltage value , press VI can select display voltage /.current
- The switch ON/OFF to control the switching power supply BOOT/ Shut down. Press "ON", the switching power supply BOOT (There will have 5 seconds delay output when the power unit boot) and press "OFF". the switching power supply shut down

B. Rear Panel introduction



10-30A Rear Panel



40-100A Rear Panel

Input Interface

- When AC220V Input: "L(+)" connect line cable ; "N(-)" connect Neutral cable ; "E" connect Earth cable
- When DC220V Input: "L(+)" connect positive ; "N(-)" connect negative ; "E" connect Earth cable
- A1: (+) & (-) is DC Input positive & negative
- A2: L N E is ac input line cable, Neutral cable and Earth cable

DC output interface

- Battery in: Battery positive and negative it is a 48V (24V) battery charging interface to connected the positive and negative of a 48V (24V) battery.
(Only With battery management will have this function, if not, there have one channel is DC Output)
- DC output: Output Positive and negative, it is the positive and negative interface of 48V (24V) output, connected to the positive and negative terminals of the load,

PCIP Parallel connect interface

- Use the parallel cable connect with Multi units of the same specification of converter of PICP together to get more big
- **Please distinguish between the exchange of LINE wire, Neutral line, EARTH; DC positive and negative.**

Part 9. Installation and commissioning

A. Installation environment requirements

- The equipment must be work in No conductive dust explosion, non-corrosive gases and vapors environment.
 - Installation environment must to be far away from heat and electromagnetic interference
 - In addition, it must be leaving adequate enough space to facilitate heat dissipation, cooling air holes and block
1. Environment temperature: $-5^{\circ}\text{C}\sim 45^{\circ}\text{C}$
 2. Environment Humidity: 10%~90%RH
 3. The power system must be stable place and no severe shock during Installing.

B. Checking Boxing

After receive the parcel, please open it then check whether all the accessories are complete or not. If there are any problems, please contact with us immediately.

C. Install

● **Booting and Shut OFF**

1. Closed the AC input switching after power module connect the AC input then the power module(Converter) into the working state
2. The RUN LED will on then will have DC Output voltage
3. The power converter will be stop working after cut off AC input and RUN LED Off then the power converter without output

● **Function key operating**

1. Current/Voltage switcher: Used to switching the current and voltage display
2. UP for current , Down for voltage

● **Indicator light**

1. RUN LED ON (Green) means the power converter work normally
2. ALM LED ON (Red) means the power converter is failed or power converter module in a state of self-protection.

● **DC Output setting**

Under normal circumstances, the DC output power module factory set at the following values

1. Float voltage: $53.5\pm 0.25\text{V}$ V_{FL}
2. Equal Voltage: $56.4\text{V}\pm 0.25\text{V}$ V_{EQ}
3. Output Current limited: 101%-105% I_{LIM}

If users need to change the factory setting, according to the following methods to re-set

● **Setting float voltage**

1. In Floating state, adjust FLA potentiometer on the front panel then you can re-set the float voltage.
2. Note: The output voltage is higher than 60V, the module will protect and shutdown.

● **Setting equal voltage**

1. In equal state, adjust EQA potentiometer on the front panel then you can re-set the equal voltage.
2. Equal voltage will be adjust and change at the same time when the float adjust and it need to re-adjust
3. **Note: The output voltage is higher than 60V, the module will protect the shutdown.**
4. Set the output voltage should ensure that the output did not enter the current-limiting step-down process, otherwise the actual output voltage will be far more than the required voltage and may cause over-voltage protection shutdown. Can be adjusted in a single module or system no-load case

Part 10. Protection defined

No	item	Define d
1	Input under voltage protection	The power supply output voltage down to 40V, red light, no fault output Troubleshooting can automatically resume normal work after
2	Input overvoltage protection	Output power protection fault red light, troubleshooting can automatically resume normal work
3	Output voltage alarm	The power supply output voltage down to 39V, fault red light, but there is still output can automatically resume normal work after troubleshooting
4	Output overvoltage protection	Output power protection fault red light, troubleshooting can automatically resume normal work
5	Over temperature protection	Output power protection fault red light, troubleshooting can automatically resume normal work
6	Fan rotation	The case of the above with a 3A load, heat sink inside the chassis when the temperature reaches 50 ° C, fan rotation, the temperature dropped, the fan does not turn automatically recover
7	Output current limiting protection	Power supply output voltage began to decrease until no output, the red light failure, troubleshooting can automatically resume normal work
8	Output short circuit protection	Output power protection fault red light, troubleshooting can automatically resume normal work
9	Charge current limit	Charging voltage began to decrease until no output, the red light failure, troubleshooting can automatically resume normal operation
10	Battery over-discharge protection	The battery voltage is less than 42V, inside the battery management will automatically cut off the passage of the connection between the battery and the output is no longer externally output, only mains again to restart

Part 11. Daily Maintenance

A. Routine Maintenance

- AC/DC Converter | Switching Power Supply | Rectifier work uninterrupted. But routine maintenance is highly necessary to ensure the reliability of power supply and work in the best status.

B. Regular cleaning power to prevent dust

- Weekly inspect each parameters of power are normal.
- Check the terminal connection every month

C. Fault and alarm handling

- Reference lights work on when the power work well.
- The phenomenon, reasons and countermeasure of power failure are as below.

Phenomenon	Reason	Countermeasure
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Power on without output , alarm LED lights and display warning signal	Load short-circuit or overload	Power off, then eliminate short- circuit or reduce load, Restart again
Power on without output ,but not alarming	Higher or lowerDC Input voltage	Adjust DC Input voltage to normal Range
Other problem please contact with manufacturer		



1. Don't connect the rectifier module to voltage if the voltage is over 280VAC
2. **Please pay attention to the correct connection, the machine cabinet must Grounding**
3. Please keep the power supply in the drafty environment, and keep 100mm space over the power supply for cooling.
4. The storage environment must dustproof, moisture proof, away from the heat and electromagnetism, no corrosive gas and metal dust.
5. If the operating environment is not good enough, please clean the machine cabinet termly. And must keep the vent otherwise, the bad environment will affect the reliability of machine.
6. Intelligent fan. The fan will startup if > 55°C (± 5°C) the fan will close if < 55°C (± 5°C)

Part 12. Environmental conditions

No	Item	Technical Specifications	Unit	Note
1	Operating Temperature	-10~50	°C	-10°C Module to work properly, -20 ° C module rated power start o
2	Storage Temperature	-40~85	°C	
3	Relative temperature	5—95	%	No condensation
4	Cooling mode	Forced air cooling		
5	Altitude	≤4000	m	In 3000—4000 m Environmental conditions of high temperature derating, be reduced by 1 ° C since the 3000 m per 300 m.

Part 13. Guarantee

After the day of buying the equipment, non man-made failure, there is 1 year warranty If there is failure please contact with the sellers

The following no included in the warranty:

- * Man-made failure or out of guarantee period or disassemble the cabinet or cover of inverter without permission
- * The failure or broken cause by Force Majeure or external reason
- * Misapplication, accident, neglect, amendment or repair without permission
- * Use goes beyond the limit
- * Break the operation instruction

Guarantee Card				
Product name		Product NO.		
Product model		Purchase time		
Remark :				
Purchase company				
Contact person		Telephone		
Distributor				
Maintain Record				
Date	Maintain type	Summery	Maintenance man signature	User signature