



**USER**

**INVERTER**

# INTRODUCTION




## USAGECONSIDERATION

Thank you for purchasing our products! This manual is suitable for inverter and inverter with charger, UPS. This series of products are used for DC 12/24/48/60V transform to AC 220V 50Hz/AC110V 60Hz. Please read and comply with this book before using the products.

1. Do not keep the product under the environment of corrosive gas, humid, overheat, severe dust, quake, and electromagnetic interference.
2. Do not repair and disassemble the products by yourself.
3. Please keep all the information which comes with the products for security.

## SYMBOLCONVENTION

The meaning of symbol in the book show following charts.

SIGN	INTRODUCTION
 <b>DANGER</b>	It means having potentials serious danger ,it might cause casualties.
 <b>WARNING</b>	It means having potentials medium danger ,it might cause medium injury.
 <b>CAUTION</b>	It means having potentials danger ;it might cause damage of machine, data losing, machine performance degradation or some unpredictable loss.

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# CHAPTER 1 SAFETY PRECAUTION

This chapter is all about safety precaution. Please read this chapter carefully before using our products to make sure personal safety or out of equipment damaged.

## SYMBOL DESCRIPTION

Please comply with information of charts following show before using our products as Chart1-1.

Chart1-1

 Safety sign	 Anti-static sign	 Danger electric shock
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## SAFETY PRECAUTION

The inverter inter has high temperature and pressure. Please read the comply with the safe code and operating instruction before using inverter, or would cause personal injury and equipment damaged.

Warning: our company do not respond on any violate safety operation and the standard of security.

Different brands and size batteries have different DC voltage. Please make sure the input of voltage is matching with the battery. Please contact to manufacturer if you need more details. Because of changing the configuration, structure and sub-unit of system would effect on property. Please contact manufacturer before executing this.



### **DANGER HIGH VOLTAGE!**

Immediate touching or humid things indirect touching would bring you in danger.

1. Do not take apart of host machine without authorization! The input and output voltage of host machine is high dangerous voltage. It will bring you in danger with touching.

2. Must turn off the electricity power before maintaining. It is better using voltmeter to check the host machine output end before maintaining to make sure the electricity power off.

3. Before you open the shell of inverter, please make sure the inverter been off than 10 mins. Because there is residual voltage in inverter.

4. Please keep machine insulate before install and using.

5. Do not take with any electric conduction processing for example, watches, bracelets or rings.

6. The inverter fixing and maintained only for professional serviceman.



### **INDUCTIVE LOAD AND HALF-WAVE RECTIFICATION LOAD ATTENTION!**

Please choose inverters as 2 to 3 times of load power when hitching half-wave rectification or inductive load.



### **DO NOT DICK HOLD OUT OF SHELL!**

It would break inside of host machine without satisfactory dicing. The metal filling would cause short circuit.



### **STATIC AVOIDING**

Please wear the antistatic wrist strap and use the other side or connect ground for protecting sensitive part of machine from person static before touching (for example: spiel, circuit board, IC chips).



### **DO NOT TAKE PART OF MACHINE UNDER POWER ON!**

Do not install and take off power line when the electric is on. Please connecting the wires as counter mark shows.



### **PLEASE USE REGULATION BATTERY!**

The product would be failure with non-regulation battery.



### **MUST OPERATE BATTERY UNDER PROVISION**

Must operate as introduction show to use battery. Especially for battery connecting. Incorrect operation would bring user in danger.

1. Do not connect the wires in short circuit. Keep the connector is tightening! Do not touch both of connector of battery at the same time or wires exposed sides.

2. Avoiding the electrolyte of battery overflow. The electrolyte would cause metal corroding, machine fault and short circuit.

3. Keep battery away from the fire or any easy to cause spark machines.



### **FANS HARM AVOIDING!**

Before fans stop working, do not use finder or any tool touch the fans.



### **KEEP THE MACHINE UNDER VENTILATION!**

Make sure the air intake, air outlet of machine and in the front of fans are unimpeded.

# CHAPTER 2 INST ALL OF INVERTERS

## OUT OF BOX AUDIT

Please check the follow information after open the package:

◆Check the inverter outside if has any damaged. If there is any damaged of machine, please contact common carrier immediately.

◆Please check the complete of standard accessory. If you find out any accessory or wrong model please contact common carrier immediately.

### ENVIROMENT CONDITIONS

Keep inverters under draughty place. Keep inverters away from water, overheat, explosives, direct sunlight, volatile gas and over salinity.



### CAUTION

The operation temperature range of inverter is  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ . Do not keep inverter in over  $40^{\circ}\text{C}$  place with full load. If inverter is worked in over  $40^{\circ}\text{C}$  place, please derate 10% with each over  $1^{\circ}\text{C}$ .

The best operating temperature range for the battery is  $20^{\circ}\text{C}\sim 30^{\circ}\text{C}$ . If keep battery in place with over  $30^{\circ}\text{C}$  would reduce life of battery. Keeping battery in below  $20^{\circ}\text{C}$  place would reduce electric storing time.

### SAFETY DISTANCE USING

Inverter needs to be keeping 60mm distance from the front pael and back panel to anything nearby.

Please do not cover to weo panel sides of inverter to avoid inside of UPS overheat and reduce UPS life.

## THE ELECTIRC CABLE CONNECTION



### CAUTION

Please make sure inverter power button is off before connection the cable.

Do not make wrong connection of polarity, or would cause inverter short circuit.

Please do as following sequential process when you connect inverter cable:

1. Turn the power button in "OFF".
2. Connect direct current input cable to the polarity of battery.
3. Make sure the plugs of inverter and battery are connecting fine, or would cause cable overheat.

4. Connecting the load with alternating current plug of inverter output side panel.

5. After make sure the cable connecting is fine, please turn on the inverter power on button. When LED light shows green, it means inverter is working fine. The correct connection of inverter shows following chart.

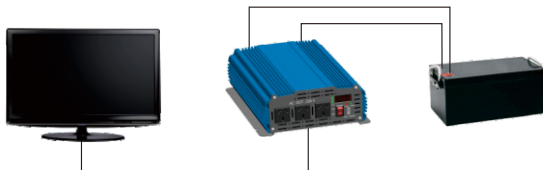


Chart1-1

## CAUTION

- ⚠ 1. Do not use alternation current output to connect power grid, or would cause inverter over burning.
- ⚠ 2. Make sure the loads power increase gradually and do not go over rated power of inverter.
- ⚠ 3. Please choose inverter with the power 2-3 times of inductive load.
- ⚠ 4. Because vacuum pump and electromotor start current is too strong, must tur off the other electric equipment first. Do not launch frequently.
- ⚠ 5. The inverter should keep in place drafty and keep away anything covering, any explosive and body touching.
- ⚠ 6. Do not use inverter to connect to off level battery, or would cause inverter over burning.

## ENVIRONMENT CONDITIONS

- 1. Keep the inverter in place drafty and clean.
- 2. Avoiding the direct sunlight, water, humid, dirt and the acid fog.
- 3. The working temperature should be  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ .



# CHAPTER 3 ABOUT BATTERY

## STORAGE BATTERY INTRODUCTION

Storage battery is a device chemical energy change to electric energy and the device of inverter input. Please choose suitable battery with corresponding inverter model, or would cause inverter to be unable to work and damaged.

### STORAGE BATTERY PERFORMANCE INDEX

1. Capacity: It means how much the energy storing with full power equal discharge current multiply by discharge time.

Capacity= Discharge Current (I)\*Discharge Time (H)

2. Discharge rate: It means speed of each discharge current per specific time.

3. Discharge current: Discharge current is output current. It is usually perform with ampere and volume multiply by some coefficient.

4. Final discharging voltage: It means the voltage of battery is not going the discharge; It is usually 1.75V/unit cell

5. Nominal capacity: It means the capacity after 20 hours discharge.

6. Self discharge rate: The battery would discharge without using. The unit is C/unit.

## THE OPTION OF BATTERY COMPUTING METHOD

Because inverter need strong current when it is working. The low capacity storage battery and most output current would cause inverter cannot drive full-loaded. Also it would cause damaged of battery.

The storage battery capacity depends on most discharge current:

Most discharge current=rated power/(storage voltage\*0.85)

Storage battery capacity=most discharge current\*discharging time

Example: PI1500-12 inverter rated power is 1500W, input voltage is 12V

Most discharge current=1500/(12\*0.85)=147A

Keep working for 2 hours

Storage battery capacity=147A\*2=294AH

The battery should be more than 294AH.

# CHAPTER 4 FAULT ANALYSIS AND MAINTAINING

## THE COMMON FAULT ANALYSIS

Fault phenomenon	Fault analysis	Solution
power light and LCD screen do not work	1. whether storage battery is damaged or not 2. whether storage battery is in connecting right way 3. fuse breaking 4. the inverter start button is on	1. change battery 2. check the connection of battery 3. change fuse 4. turn off the inverter start button
LCD showing: 0VAC 0VDC 0W no output and red light is up	1. Voltage of battery is too low inverter is protecting 2. over-heating protection	1. Change battery and wait the inverter output auto-recover. 2. Wait the inverter be cool, then restart the inverter.
LCD showing Over Current(ovL)	1. overloading power more than inverter power 2. open current of loading appliance is too high	1. reduce the load of inverter 2. turn on loading appliance than turn on inverter
LCD showing Short Circuit(Sht)	AC output short circuit	check the appliances and reduce appliances
LCD showing Over temperature(ovt)	temperature of inverter inside is too heat	1. check the fan to be work or not 2. keep inverter to be in ventilation environment

**IF THE INVERTER CANNOT WORK BESIDE OF THOSE PROBLEMS,PLEASE CONTACT AGENCY OR MANUFACTORY IMMEDIATELY.DO NOTDISMANTLE MACHINE BY SELF!**

## THE MAINTAINING

It is better keep maintaining machine for longer HP inverter life.

1. Avoiding the high causticity, high dirt, overheat, high humidity and metallics fall into host machine.
2. Regular checking the wires ageing, holding tight and safe.
3. Cleaning fans and checking running regularly.

# QUALITY GUARANTEE

Inverters have been strict detected. Our company guarantee the products and every part of machine are good qualities with warranty card. The warranty time is 1 year. The condition of warranty is following:

1. From purchasing day on, if there is any damaged or fault of our products under using regularly, our company would offer repairing and changing parts. The broken parts are belong to our company.

2. Warranty Card would automatic avoidance under following happen:

- ◆ Changing logo of our company;
- ◆ Damaged inverter due to violate compasses operation;
- ◆ Remove device code or seal and repair the inverter without authorization;
- ◆ Lost warranty card and induction.

Please keep this warranty card and show the card to engineer checking for repairing.

Warranty Card				
Product name		Identification of product		
Product type		Purchasing date	year	month
Remark:				
Purchasing unit		Phone number		
Contact name				
Dealer				
Repairing record				
Date	Type of repairing	Digest	Repairman	User Sign

<b>MODEL</b>	100W-12V	100W-24V	
	150W-12V	150W-24V	300W-48V
	200W-12V	200W-24V	500W-48V
	300W-12V	300W-24V	700W-48V
	400W-12V	400W-24V	800W-48V
	500W-12V	500W-24V	1000W-48V
	600W-12V	600W-24V	1200W-48V
	700W-12V	700W-24V	1500W-48V
	800W-12V	800W-24V	2000W-48V
	1000W-12V	1000W-24V	3000W-48V
	1200W-12V	1200W-24V	4000W-48V
	1500W-12V	1500W-24V	5000W-48V
	2000W-12V	2000W-24V	
	3000W-12V	3000W-24V	
<b>OUTPUT</b>	Rated output voltage	100/110/120VAC,220/230/240VAC	
	Output wave	Modified sine wave/Pure sine wave	
	Output frequency	50/60Hz	
	LED light showing	Green light: working Red light: failure	
	Efficiency of operations (load 100%)	>88%	>93%

<b>INPUT</b>	Rated input voltage	12VDC	24VDC	48VDC
	The range of rated input voltage	10.0~15.5VDC	19.5~30.5VDC	40.0~60.0VDC
	Input overvoltage or undervoltage	output shutoff,voltage recovering,inverter auto-launch		
	Overload,short circuit	output shutoff,restart using/inverter auto-launch when fault disappears		
	overheating	output shutoff,restart using/inverter auto-launch when fault disappears		
	Input polarity reversal	Blown fuse		
<b>ENVIRONMENT</b>	Working temperature	-10℃~40℃		
	Working humidity	20%~90%RH non-condensational		
	Store temperature and humidity	-20℃~55℃/10%~95%RH		
	Working height	The height can not be over 1000m,or using as GB/T3859.2 derating.		
	Refrigeration	Cooling fans are controlled by temperature		
	Adhibiton	Samll medol off grid solar system,wind energy supply system,electric tools.Vehicle mounted,ships and some other portable power source		

Model	100W	150W	200W	300W	400W	500W	600W	700W
Rated output voltage	100W	150W	200W	300W	400W	500W	600W	700W
Peak Power	200W	300W	400W	600W	800W	1000W	1200W	1400W
Model	800W	1000W	1200W	1500W	2000W	3000W	4000W	5000W
Rated output voltage	800W	1000W	1200W	1500W	2000W	3000W	4000W	5000W
Peak Power	1600W	2000W	2400W	3000W	4000W	6000W	8000W	10000W

**IF THE INFORMATION CHANGED,EXCUSING WITHOUT FUTHER NOTICE!**

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