

Invertek pure sine wave solar inverter 600/3000W



User's manual

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Manual instruction

Purpose

The purpose of this manual is to provide explanations and procedures for operating, maintaining, and troubleshooting the pure sine wave inverter. This manual should be read through carefully before installations and operations. Please retain this manual for future reference.

Scope

This document defines the functional requirements of pure sine wave inverter, intended for worldwide use in electronic processing equipment. The inverter unit shall contain a fan for forced air-cooling. The inverter may be used singly or in redundant configurations. All manuals are applicable under all operating conditions when installed in the end use system, unless otherwise stated.

Order of precedence

This manual is intended for anyone who needs to install and operate the inverter. In the event of a conflict between this manual and references cited herein, this manual shall take precedence.

Organization

This manual is composed of three chapters.

Chapter 1: product introduction contains the information about general description, features and specifications of inverter.

Chapter 2: installation and operation provides the information about installation and operation of inverter.

Chapter 3: maintenance and troubleshooting contains the information of how to maintain and troubleshoot inverter.

Important safety instructions



WARNING!

Before using the Inverter, read and save the safety instructions.

General safety precautions

1. Before installing and using the inverter, read all instructions and cautionary markings on the inverter and all appropriate sections of this guide. Be sure to read all instructions and cautionary markings for any equipment attached to this unit.

2. This unit is designed for indoor use only. Do not expose the inverter to rain, snow, or spray.
3. To reduce risk of fire hazard, do not cover or obstruct the ventilation openings. Do not install the inverter in a zero-clearance compartment.
4. Use only attachments recommended or sold by the manufacturer. Doing otherwise may result in a risk of fire, electric shock, or injury to persons.
5. To avoid a risk of fire and electric shock, make sure that existing wiring is in good condition and that wire is not undersized. Do not operate the inverter module with damaged or substandard wiring.
6. Do not operate the inverter module if it has received a sharp blow, been dropped, or otherwise damaged in any way.

Precautions when working with batteries

To avoid personal injury and property damage, read these battery precautions on handling, charging and disposing batteries.

1. Not reverse INPUT+ and INPUT- to battery.
2. Keeps the battery away from heat sources including direct sunlight, open fires, microwave ovens, and high-voltage container? Temperatures over 60°C may cause damage. Make sure the area around the battery is well ventilated.
3. Never smoke or allow a spark or flame near the engine or batteries.
4. Use caution to reduce the risk of dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion.
5. Remove all metal items, like rings, bracelets, and watches when working batteries.
6. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
7. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood it with running cold water for at least twenty minutes and get medical attention immediately.
8. If you need to remove a battery, always remove the grounded terminal from the battery first. Make sure all accessories are off so you don't cause a spark.

1. Product introduction

1.1. General function description

The pure sine wave inverter adopts many superior features and is designed based on the highest standards in the industry. The advanced high frequency infrastructure with pure sine wave output is perfectly designed for diverse applications including home, office, and heavy-duty industrial power environments. The inverter can operate independently. However, the unique optional N+X parallel redundancy structure design can maximize the expansibility of integrating additional units to the inverter system in the future. Pure sine wave inverter promises to provide the extraordinary performance in terms of reliability and flexibility all environments from home to heavy-duty industrial.

1.1.1. Features

- Ø Adopts new pure sine wave inverter topology
- Ø High power density with superior reliability and performance
- Ø Surge rating: 2 * power rating
- Ø Input/output isolated design
- Ø Optional N+X redundancy function
- Ø Design for harsh environment and various equipments
- Ø "All master" dynamic mechanism eliminate single point failure to optimize reliability
- Ø Pure sine wave output(THD<3%) for wide range of applications and harsh environment
- Ø Output frequency: 50/60Hz switch selectable
- Ø Low power "power saving mode" to conserve energy
- Ø Capable of driving highly reactive & capacitive loads at start moment
- Ø LED indicators display
- Ø Advanced DSP control
- Ø Protection: input low voltage/overload/short circuit/low battery alarm/input over voltage/over temperature/high output voltage/low output voltage/unit internal failure/unit parallel failure

1.1.2. Application

Power tools: circular saws, drills, grinders, sanders, buffers, weed and hedge trimmers, air compressors.

Office equipment: computers, printers, monitors, facsimile machines, scanner.

Household items: vacuum cleaners, fans, fluorescent and incandescent lights, shavers, sewing machines.

Kitchen appliances: coffee makers, blenders, ice markers, toasters.

Industrial equipment: metal halide lamp, high – pressure sodium lamp.

Home entertainment electronics: television, VCRs, video games, stereos, musical instruments, satellite equipment.

1.2. Series models introduction

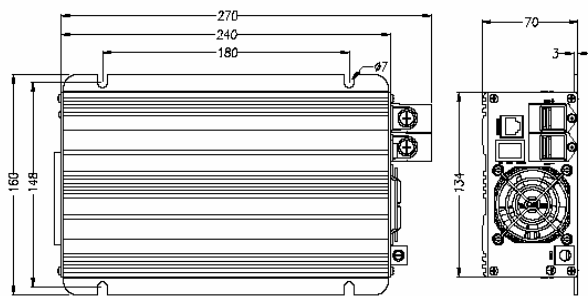
To fulfill the diverse environments and power demands, the pure sine wave inverter has complete lines for meeting the requirements from the clients. The inverter system ranges from 600W to 3000W that can fulfill the majority power demands from home, small business to industrial heavy-duty environment.

1.2.1. Product line

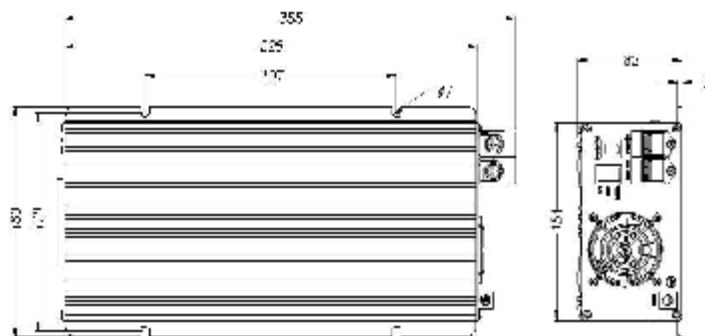
Part number	Description
Invertek600/120	600W inverter (I/P: 12VDC, O/P: 120VAC)
Invertek1000/120	1000W inverter (I/P: 12VDC, O/P: 120VAC)
Invertek2000/120	2000W inverter (I/P: 12VDC, O/P: 120VAC)
Invertek3000/120	3000W inverter (I/P: 12VDC, O/P: 120VAC)
Invertek600/220	600W inverter (I/P: 12VDC, O/P: 220VAC)
Invertek1000/220	1000W inverter (I/P: 12VDC, O/P: 220VAC)
Invertek2000/220	2000W inverter (I/P: 12VDC, O/P: 220VAC)
Invertek3000/220	3000W inverter (I/P: 12VDC, O/P: 220VAC)

1.2.2. Physical specifications:

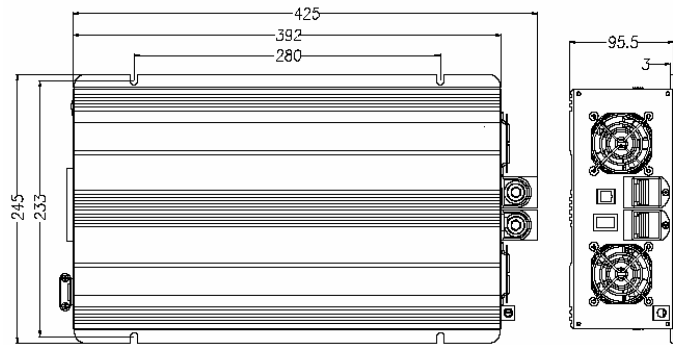
Inverter mechanical		
Model	Dimension(L*W*H) mm	Weight
Invertek600	270(L)*160(W)*70(H)	2.2Kg
Invertek1000	355(L)*180(W)*82(H)	4.0Kg
Invertek2000	425(L)*245(W)*95(H)	7.5Kg
Invertek3000	495(L)*245(W)*95(H)	9.5Kg



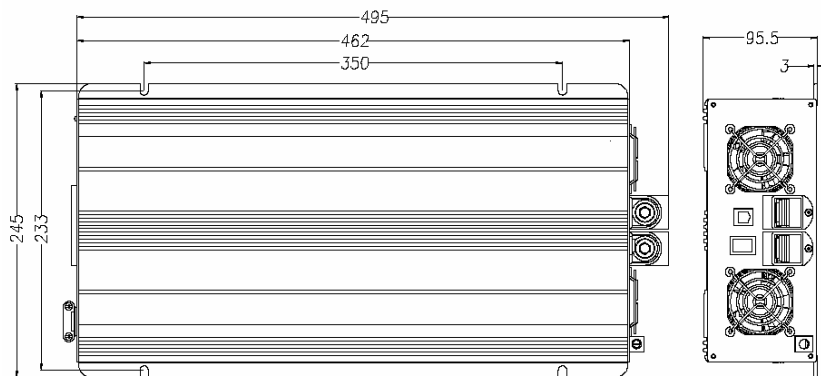
600W dimension (mm)



1000W dimension (mm)



2000W dimension (mm)



3000W dimension (mm)

1.2.3. Certification

Certification	CE
Safety	Comply with EN60950, UL-458 Standard
EMC	FCC part 15 class B; EN55022 Class B; IEC61000-4-2; IEC61000-4-3; IEC61000-4-4; IEC61000-4-5; IEC61000-4-6

1.3. Electrical specifications

Nominal voltage	12VDC
Operating range	10VDC~15VDC
Output waveform	Pure sine wave
Surge rating	2*power rating
Nominal output voltage	110/115/120VAC 220/230/240VAC
Output voltage regulation	±5%
Output frequency	50/60Hz±0.1%

Output current @110/115/120	<table border="1"> <tr> <td>Invertek600/120</td> <td>5.45A/5.22A/5A</td> </tr> <tr> <td>Invertek1000/120</td> <td>9.09A/8.70A/8.33A</td> </tr> <tr> <td>Invertek2000/120</td> <td>18.18A/17.39A/16.67A</td> </tr> <tr> <td>Invertek3000/120</td> <td>27.28A/26.09A/25A</td> </tr> </table>	Invertek600/120	5.45A/5.22A/5A	Invertek1000/120	9.09A/8.70A/8.33A	Invertek2000/120	18.18A/17.39A/16.67A	Invertek3000/120	27.28A/26.09A/25A
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Output current @220/230/240	<table border="1"> <tr> <td>Invertek600/220</td> <td>2.73A/2.61A/2.50A</td> </tr> <tr> <td>Invertek1000/220</td> <td>4.55A/4.35A/4.17A</td> </tr> <tr> <td>Invertek2000/220</td> <td>9.10A/8.70A/8.34A</td> </tr> <tr> <td>Invertek3000/220</td> <td>13.65A/13.05A/12.51A</td> </tr> </table>	Invertek600/220	2.73A/2.61A/2.50A	Invertek1000/220	4.55A/4.35A/4.17A	Invertek2000/220	9.10A/8.70A/8.34A	Invertek3000/220	13.65A/13.05A/12.51A
Invertek600/220	2.73A/2.61A/2.50A								
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Invertek2000/220	9.10A/8.70A/8.34A								
Invertek3000/220	13.65A/13.05A/12.51A								
Crest factor	3:1								
THD	<3%, linear load; <5%, non-linear load;								
Peak output current @110/115/120	<table border="1"> <tr> <td>Invertek600/120</td> <td>10.92A/10.44A/10A</td> </tr> <tr> <td>Invertek1000/120</td> <td>18.2A/17.4A/16.68A</td> </tr> <tr> <td>Invertek2000/120</td> <td>36.4A/34.8A/33.36A</td> </tr> <tr> <td>Invertek3000/120</td> <td>54.6A/52.2A/50.04A</td> </tr> </table>	Invertek600/120	10.92A/10.44A/10A	Invertek1000/120	18.2A/17.4A/16.68A	Invertek2000/120	36.4A/34.8A/33.36A	Invertek3000/120	54.6A/52.2A/50.04A
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Invertek3000/220	27.3A/26.1A/25.02A								
Peak efficiency	> 90%								
No load current draw	<table border="1"> <tr> <td>Invertek600/1000</td> <td><12W</td> </tr> <tr> <td>Invertek2000/3000</td> <td><20W</td> </tr> </table>	Invertek600/1000	<12W	Invertek2000/3000	<20W				
Invertek600/1000	<12W								
Invertek2000/3000	<20W								
Stand-by current draw	<table border="1"> <tr> <td>Invertek600/1000</td> <td><6W</td> </tr> <tr> <td>Invertek2000/3000</td> <td><10W</td> </tr> </table>	Invertek600/1000	<6W	Invertek2000/3000	<10W				
Invertek600/1000	<6W								
Invertek2000/3000	<10W								
Power saving recovery time	5 seconds								
Protection	Overload, short circuits, reverse polarity, Over/under input voltage, over temperature, Over/under output voltage, unit internal failure, Unit in-parallel failure								

1.4. Audible alarm

Item	Alarm mode	Beep mode	Remark
1	Alarm	Beep 1 time/1s	Input level<battery-low level or > battery-high level
			Load>150%
2	Alarm	Beep 2 time/1s	Power limitation by temperature
3	Alarm	Beep 3 time/1s	Fan fault
4	Fault	Beep always	All fault mode
5	Switch on/off	Chirp one time	When switch on/off the unit
	Remote on/off	Chirp one time	When remote switch on/off the unit

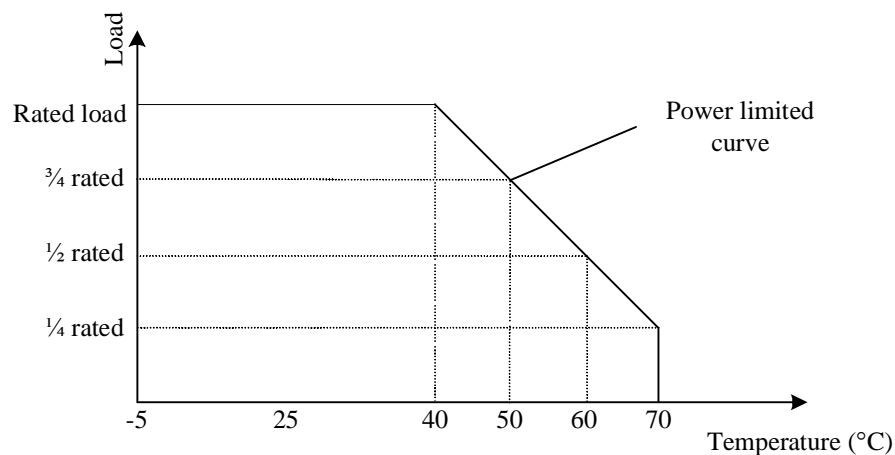
1.5. Environmental specifications

Operating temperature	Operation temperature: -20°C to +70°C -5°C to 40°C with full performance
Storage temperature	-30°C to 70°C
Operating humidity	90% relative humidity(no condense)
Noise	<50dB
Operating attitude	1500M
Force cooling	Load and temperature controlled cooling fan

1.6. Fan control

Load level and temperature	Fan speed
Load<=10% and temperature<=40°C	0
Else	Full speed

1.7. Power limitation



Power de-rating V.S. ambient temperature

1.8. Short circuit protection

Short circuit protection algorithm consists of 2 stages:

Stage 1: power limited during short circuit

The short current is set as the normal value for inverter, if output voltage is less than 40VAC and output current is higher than 2A for 4 cycles, Inverter will be judged as short circuit fault maybe happened, and the short circuit protection algorithm will go to the second stage.

Stage 2: unit resumed from short circuit condition

The short current is regulated to 50% normal value, if output voltage is less than 50VAC and output current is higher than 2A for 30 seconds, the inverter system will consider the short circuit occurs, and the short current is set to a small value (4A), otherwise the short circuit alarm will be cleared.

1.9. Over load protection

Over load protection consists of 2 stages:

Stage 1: The overload protection will happen if the load power exceeds the rated power. With the conditions of 20s of 125% overload/10s of 150% overload/5s of 200% overload, the inverter system will judge as overload and de-rate the output power less than the rated power. Then the protection algorithm goes to the second stage.

Stage 2: The inverter system remains operating with the de-rating power. If the load power is less than 10% for 10s, the system will recover back to the normal operation status.

2. Installation and operation

2.1. Unpacking and inspection

Once receiving your pure sine wave inverter, remove the unit from its packaging and inspect it for scratches, cracks, broken connection. Your purchase of inverter unit should ship with the manual. If you want to add other more modules into the system achieve parallel function, you can choose the propositional packaging, if any missing or damage is discovered, repack the unit and return it to the original place of purchasing.








Invertek pure sine wave solar inverter 600/3000W



Packing of inverter

In addition, some optional accessories are available could work with pure sine wave inverter. Please base on your application and then choose the suitable package.

Part name	Function description	Figure
Sync-hub-4	A necessary kit for the in-parallel application. It can make modules parallel and achieve synchronized operation Max. in-parallel ports: 4	
Sync-cable-0.6M	Used to connect the sync-hub and inverter module. Cable length: 0.6M	
Terminal-blocks-10P	Used for in- parallel DC and AC power cords.	
Serial-comm-cable-1.8M	RS232 data line for communication between computer and inverter; to monitor inverter's state and parameters setting. Cable length: 1.8M	
Remote-panel	Designed for controlling the inverter unit remotely. Cable length: 10M	

Accessories list table

Standard package	Package contents			
Package S1	Sync-hub-4	1 pc	Sync-cable-1-0.6M	4 pcs
	Terminal-blocks-10P	2 pcs		
Package S2	Serial-comm-cable-1.8M	1 pc	Remote-panel	1 pc
Package S3	Sync-hub-4	1 pc	Sync-cable-1-0.6M	4 pcs
	Terminal-blocks-10P	2 pcs	Serial-comm-cable-1.8M	1 pc
	Remote-panel	1 pc		

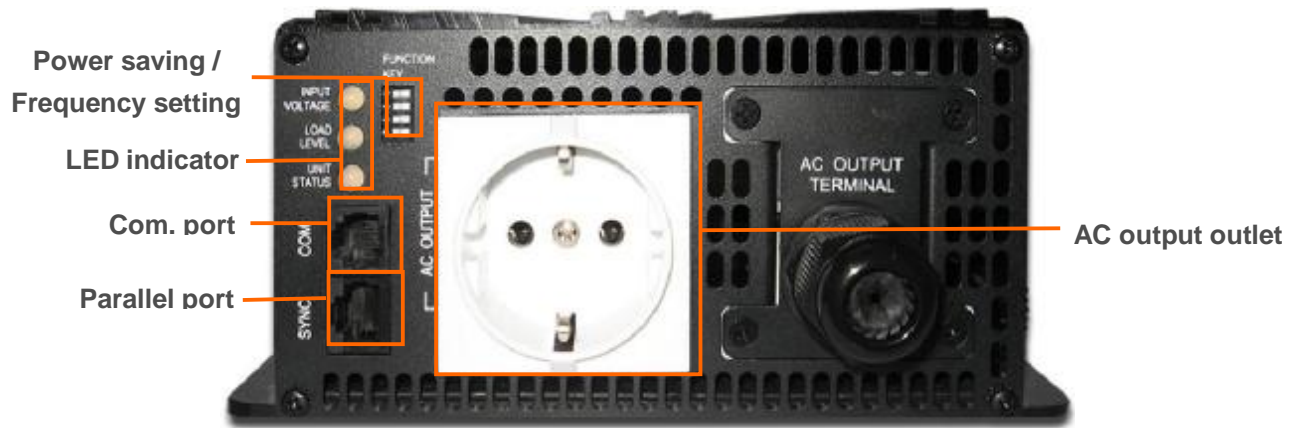
Propositional packaging list

2.2. Handling and storage

If the inverter is going to be stored, it should be stored in a cool, dry, well-ventilated location where the rain, splashing water, chemical agents, etc. will not reach based on the environment specification standard. The equipment should be covered with a tarpaulin or plastic wrapper to protect it from dust, dirt, paint, or other materials.

The equipment can be lifted from the front panel by drawing out the handle. Firstly, screw off the steel bolt, then drawing out the handle until the whole module out. When the inverter module has to be installed in the shelf, the bolt should be screwed down.

2.3. Front panel description and operation



Front panel view (1000W)

2.3.1. LED indicator

Refer to the above figure. There are 3 dual color LED indicators on the front panel: 1. Unit status indicator, 2. Load level indicator, 3. Input voltage indicator.

1. Unit status indicator

Green LED	Solid	Inverter okay
	Blink(slow)	Power saving
	Blink(fast)	Unit starting
Orange LED	Solid	EEPROM fault
	Blink(slow)	Unit start failure(DC-DC circuit)
	Blink(fast)	Unit start failure(DC-AC circuit)
Red LED	Solid	Over temperature
	Blink(slow)	Unit internal failure(DC-DC circuit)
	Blink(fast)	Short circuit
Orange+red LED	Orange and red interchanged(slow)	Unit internal failure(DC-AC circuit)
	Orange and red interchanged(fast)	Unit in-parallel failure

2. Load level indicator

LED status	OFF	Green solid	Orange solid	Red solid	Red blink
600W	0~30W	30~198W	198~450W	450~576W	Over 576W

1000W	0~50W	50~330W	330~750W	750~960W	Over 960W
2000W	0~100W	100~660W	660~1500W	1500~1920W	Over 1920W
3000W	0~150W	150~990W	990~2250W	2250~2880W	Over 2880W

3. Input voltage indicator

LED status	Battery cut-off level(12VDC)		
Load level	0~29%	30~69%	70~100%
Red solid	<10.3VDC	<10.2VDC	<10VDC
Red blink	10.3~11.3VDC	10.2~11.2VDC	10~11.0VDC
Green solid	11.3~14VDC	11.2~13.9VDC	11.0~13.7VDC
Orange blink	14~15VDC	13.9~14.9VDC	13.7~14.7VDC
Orange solid	>15VDC	>14.9VDC	>14.7VDC

2.3.2. Power saving/frequency setting

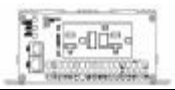
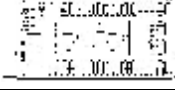
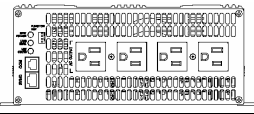
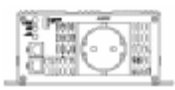
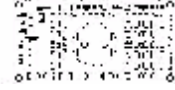
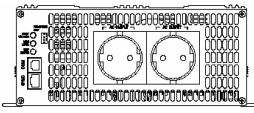
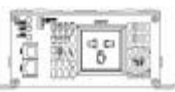
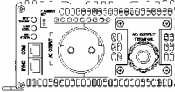
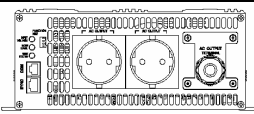

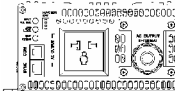
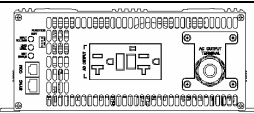

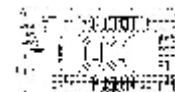
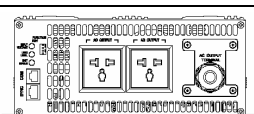

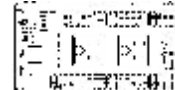
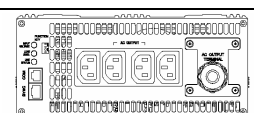


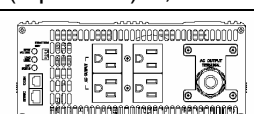


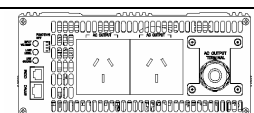
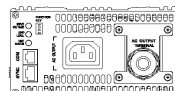
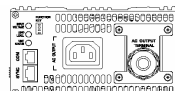



1. Power saving mode can be set by 3 dip switches, SW1, SW2 and SW3 on front panel. For example: when the power saving watt setting is 15W, if load level>15W, the inverter will go to normal operation; if load level<15W, the inverter will go to the power saving mode.

Invertek600	Invertek1000	Invertek2000/3000	SW1	SW2	SW3
Disable	Disable	Disable	OFF	OFF	OFF
13W	20W	40W	ON	OFF	OFF
35W	50W	100W	OFF	ON	OFF
60W	80W	160W	ON	ON	OFF
85W	110W	220W	OFF	OFF	ON
85W	110W	220W	Others		

2. Frequency can be set by a dip switch SW4 on front panel.

Frequency	S4 Status
50Hz	OFF
60Hz	ON

2.3.2. AC outlets

600W	1000W	2000W&3000W
		
GFCI*1	GFCI*1	NEMA 5-15R(2 position)*2
		
Schuko*1	Schuko*1	Schuko*1
		
Universal*1	Schuko*1, hardwire	Schuko*2, hardwire
		
IEC(2 position)*1	Universal*1, hardwire	GFCI*1, hardwire
		
NEMA 5-15R(2 position)*1	IEC(2 position)*1	Universal*2, hardwire
		
Australia/New Zealand*1	NEMA 5-15R(2 position)*1	IEC(4 position)*1, hardwire
		
United Kingdom*1	Australia/New Zealand*1, hardwire	NEMA 5-15R(2 position)*2, hardwire
		
	United Kingdom*1, hardwire	Australia/New Zealand*2, hardwire
		
	IEC*1, hardwire	United Kingdom*2, hardwire
		
	NEMA 5-20R(2 position)*1	

2.4. Rear panel description and operation



Rear panel view (1000W)

Main switch

ON: Located the switch to "On", the machine power on.

OFF: Located the switch to "OFF", the machine power off.

REMO: Located the switch to "REMO", the machine can be switched on or off remotely by wired remote control.

Remote control port

Connect the remote control to the port.

Ground terminal

Connect the GND to the ground terminal.

Please using #6 AWG wire to connect vehicle chassis.



WARNING!

Operation of the inverter without a proper ground connection may result in an electrical safety hazard.

Battery connector

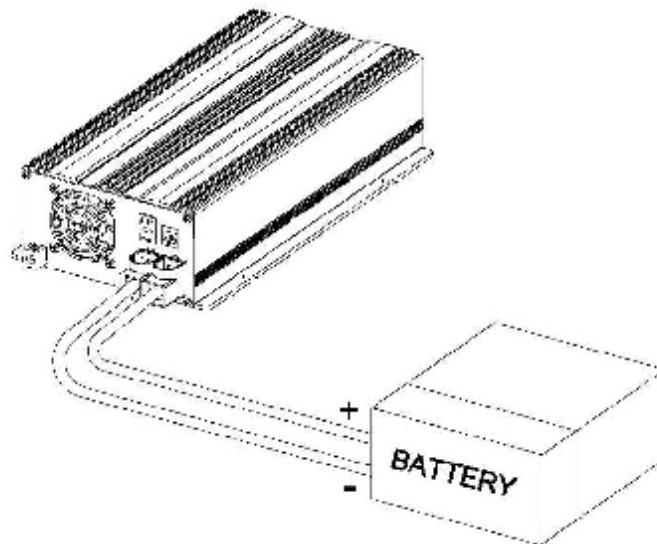
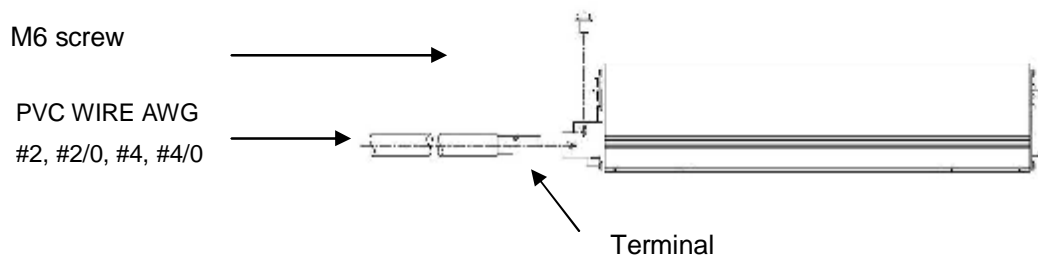
Connect the battery to the positive (+) battery terminal and the negative (-) battery terminal

2.5. Installation

2.5.1. Installation environment

The inverter should be installed in a location that meets the following requirements:

- n Dry — Do not allow water to drip or splash on the inverter
- n Safe — Do not install in a battery compartment or other areas where flammable fumes may exist, such as fuel storage areas or engine compartment
- n Ventilated — Allow at least one inch of clearance around the inverter for air flow. Ensure the ventilation opening on the rear and front of the unit are not obstructed
- n Dust — Do not install the inverter in a dusty environments where are dust, wood particles or other filings/shavings are present. Dust can be pulled into the unit when the cooling fan is operating
- n Close to batteries — Avoid excessive cable lengths but do not install the inverter in the same compartment as batteries. Also do not mount the inverter where it will be exposed to the gases produced by the battery. These gases are very corrosive and prolonged exposure also will damage the inverter



Battery to inverter cable connection

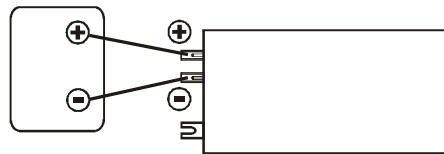
2.5.2. Battery connection

Step 1- Following battery polarity guide located near battery terminal! Place the battery cable ring terminal over inverter's battery terminal. Tighten the M6 nut. Do not place anything between the flat part of battery terminal and the battery cable ring terminal, or overheating may occur.

Caution! DO NOT place anything between battery cable ring terminals and battery terminals. The terminal stud is not designed to carry current. Apply anti-oxidant paste to terminals after terminals have been torqued.

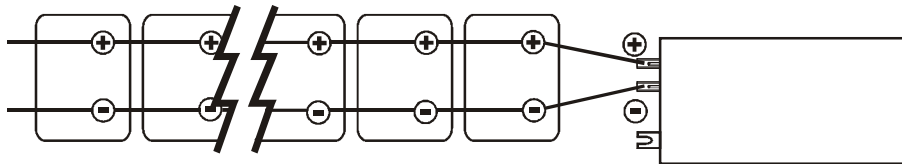
Step 2- Connect battery cables to your batteries

- I Single battery connection: when using a single battery, its voltage must be equal to the voltage of pure sine wave inverter nominal input voltage.



Caution! For the user operation safety, we strongly recommend that you should isolate the battery terminals before you start to operate the unit. If you parallel more batteries to extend the backup time, please make sure that you already use tapes to isolate the rest battery terminals before you start to operating the unit.

- I Parallel battery connection: when using multiple batteries in parallel, each battery's voltage must be equal to the voltage of pure sine wave inverter nominal input voltage.



DC wiring connections

Please be noted that connect the battery cables to the DC input terminals of the pure sine wave inverter. Your cables should be as short as possible (ideally, less than 6 feet/1.8 meters) enough to handle the required current in accordance with the electrical codes or regulations application. Cables are not an adequate gauge (too narrow) or too long will decrease the inverter performances such as poor surge capability and low input voltage warnings frequently and shutdowns.

If the cables longer or narrower, the greater the voltage drop. Increasing your DC cable size will help improve the situation.

The following cable recommendations are for the best performance of inverter (apply both 120V and 220V versions).

Model P/N	Wire AWG	Inline fuse
Invertek600	# 4	120A
Invertek1000	# 2	160A
Invertek2000	# 2/0	320A
Invertek3000	# 4/0	480A

Warning:

1. Connect the cables to the power input terminals on the rear panel of the inverter. The red terminal is positive (+) and black terminal is negative (-). Insert the cables into the terminals and tighten screw to clamp the wires securely
2. Also, use only high quality copper wire and keep cable length short, a maximum of 3-6 feet. Make sure all the DC connections are tight. Loose connections could result overheat in a potential hazard.
3. Carefully check that all wiring is disconnected from any electrical sources. Do not connect the output terminals of the inverter to an incoming AC source.

2.5.3. AC connection

Before having AC connection, match the power requirements of connected devices with the power output of pure sine wave inverter to avoid overload. Consult a qualified electrician, follow local code for the proper outlet connectors and select the correct outlet (reference 2.3.3. AC outlet).

3. Maintenance and troubleshooting**3.1. Preventative maintenance**

The following preventive maintenance routines should be considered as a minimum requirement. Your installation and site may require additional preventive maintenance to assure optimal performance from your installed inverter and associated equipment. These routines should be performed twice a year (more often if required). We strongly recommend a contract with pure sine wave inverter customer support services for preventive and remedial maintenance. The technician or electrician performing preventive maintenance on the equipment must read and understand thoroughly this manual and be familiar with the indicators, controls, and operation of the equipment.

3.2. Troubleshooting guide

If the inverter fails to operate properly, use the troubleshooting table to determine the probable cause(s) and solution(s) to resolve error conditions. For unlisted error conditions, please contact your local dealer for technical assistances.

Troubleshooting table

Error condition	Possible cause	Recommendation
No AC output and all LEDs off	Lack of input power	<ol style="list-style-type: none"> 1. Check if input cables are all firmly connected to power source. 2. Check if power source is not yet switched on, or is low in power. 3. Check if input cables are connected to correct polarity, positive to positive, negative to negative(reverse connect will lead to the fuse open, need be repaired).
No AC output and <u>status LED</u> is red/blink(fast)	Short circuit	<ol style="list-style-type: none"> 1. Check if the devices connect to the AC output is damaged. Turn off the input power source, remove the load and check the connection, then switch on the input power to restart the inverter.
No AC output and <u>status LED</u> is red/blink(slow) Audible alarm: beep always	Unit internal failure (DC-DC circuit)	Reboot the inverter unit, If the inverter can not work normally; suggest to send the unit back to supplier.
No AC output and <u>status LED</u> is red/solid Audible alarm: beep always	Over temperature	<ol style="list-style-type: none"> 1. The inverter has been overheated, switch off the inverter and the consumer, and wait for approx. 2 minutes and switch on the inverter only, suggest reduce the loading and make sure that a better ventilation for the inverter is given ,Then switch on the consumer again.
No AC output and <u>status LED</u> is orange/blink(fast) Audible alarm: beep always	Unit start failure (DC-AC circuit)	Reboot the inverter unit, if the inverter can not work normally; suggest to send the unit back to supplier.
No AC output and <u>status LED</u> is orange/blink(slow) Audible alarm: beep always	Unit start failure (DC-DC circuit)	Reboot the inverter unit, if the inverter can not work normally; suggest to send the unit back to supplier.
No AC output and <u>status LED</u> is orange red /blink (red one time and Yellow one time (slow)) Audible alarm: beep always	Unit internal failure (DC-AC circuit)	Reboot the inverter unit, if the inverter can not work normally; suggest to send the unit back to supplier.

<p>No AC output and <u>status LED</u> is orange red/blink(red one times and yellow one time(slow)) Audible alarm: beep always</p>	<p>Unit in-parallel failure</p>	<p>1. Check if output power cables are connected to correctly; 2. Check if parallel communication cables are connected to correctly.</p>
<p>No AC output and input level LED is red solid Audible alarm: beep 1 time/1s</p>	<p>Input voltage lower than operating range(10~15V)</p>	<p>Ensure input voltage in 10V~15VDC range.</p>
<p>No AC output and input level LED is orange solid Audible alarm: beep 1 time/1s</p>	<p>Input voltage higher than operating range(10~15V)</p>	
<p>AC output exists and beep alarm 3 times per second</p>	<p>Fan failure</p>	<p>Reboot the inverter system, if the inverter can not work normally, suggest to send the unit back to supplier.</p>