

※Thank you for selecting the IPower series Pure Sine Wave Inverter. Please read this manual carefully before using the product and pay attention to the safety information.

IPower series Pure Sine Wave Inverter



1. Overview

IPower series is a pure sine wave inverter which can convert 12/24Vdc into 110/120Vac. It has the characteristics of concise outline, compact size, high reliability, high efficiency, easy to install and operate and so on. The inverter applicable to household emergency lighting system, vehicle mounted system and small field power supply, etc.

Features:

- Complete isolation-type inverter technology
- Adoption of advanced SPWM technology, pure sine wave output
- Low output harmonic distortion (THD≤5%)
- Optional output voltage and frequency at 110/120Vac,50/60Hz
- High conversion efficiency up to 91%
- USB output 5Vdc/1A
- Extensive Electronic protection

2. Product Features



Figure1 DC Input panel

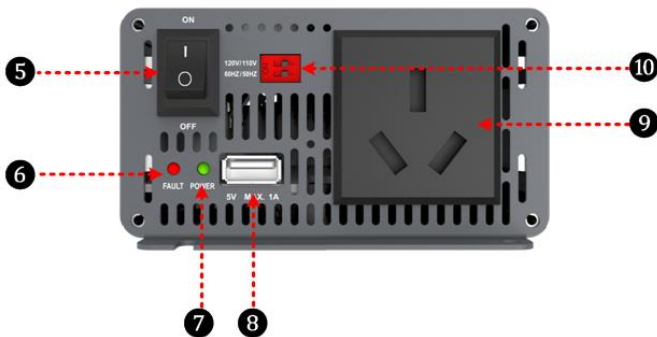


Figure2 Output panel

①	DC positive input	⑥	Fault indicator(red)
②	Fuse	⑦	Working indicator(green)
③	Fan Ventilation	⑧	USB output interface (5VDC/1A)
④	DC negative input	⑨	AC Outlet
⑤	AC output switch	⑩	Mode switch



NOTE: 12V system input voltage range is 10.8~16V; 24V system input voltage range is 21.6~32V.

1) Fan Ventilation

When the heat sink temperature is more than 40°C or internal temperature is more than 45°C, the fan will turn on automatically.

When the heat sink temperature is lower than 35°C and internal temperature is lower than 40°C, the fan will turn off automatically.

2) Mode Switch

The output mode can be changed by the mode switch. This mode can be switched online.



- When the switch No.1 is on the ON side, output frequency is 60Hz, otherwise is 50Hz.
- When the switch No.2 is on the ON side, the output voltage is 120Vac, otherwise is 110Vac.



NOTE: Both the output frequency and the output voltage change availability after restart the inverter.



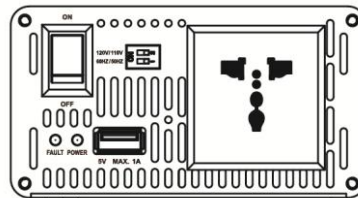
WARNING: DO NOT turn ON/OFF the mode switch when the inverter is working.

3) LED indicator and Buzzer

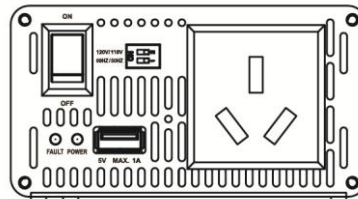
Working indicator	Fault indicator	Buzzer	Status
Green On Solid	Red OFF	No Sounding	Output is ON
Green Slowly Flashing	Red OFF	Sounding	Input low voltage
Green Fast Flashing	Red OFF	Sounding	Input over voltage
Green On Solid	Red On Solid	Sounding	Over temperature
Green OFF	Red Fast Flashing	Sounding	Load short circuit
Green On Solid	Red Slowly Flashing	Sounding	Overload
Green OFF	Red OFF	Sounding	Output voltage abnormal

4) AC Outlet (optional)

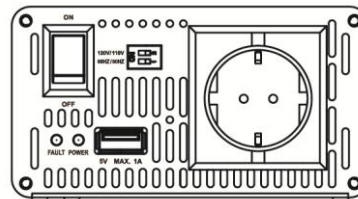
Universal:



Australia/New Zealand:



European:



3. Installation and wiring

1) Notes of installation

- Do not expose the inverter to humid, flammable, explosive or dust environment.
- Please make sure the air ventilation clearance around the inverter is more than 10cm.
- Never install the inverter in a sealed enclosure with flooded batteries.

- The surface of the inverter produce high temperature when it is working, please stay away from materials or equipment which affected by high temperature
- This inverter can only be used singly, parallel connection or in series will damage the inverters.
- It's an off-grid inverter, if connect to the grid, the inverter may be damaged.

2) Wiring

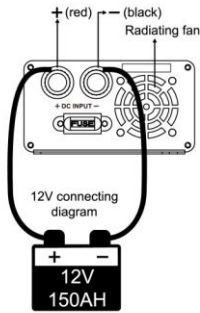


Figure 1 DC Input

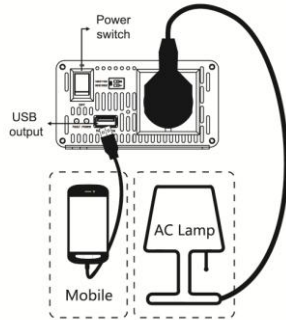


Figure 2 Output

Operation Steps:

Step1: Turn off the inverter.

Step2: Connect the AC load to the AC outlet.

Step3: Connect the battery.

Step4: Turn on the inverter.

Step5: Turn on the AC load.



NOTE: If the output is connected different loads, it is suggested that turn on the large shock current load first, then turn on the small shock current load.



NOTE: Turn off the inverter, and then cut off the DC input power supply when the load stops working.



WARNING: When the inverter polarity reversed, the fuse or inverter will be damaged.



WARNING: Be careful the electric shock risk, the AC port will output a high voltage.



WARNING: DO NOT open the inverter cover, place where the children can't reach to prevent electric shock.



WARNING: Please contact the professional, when the inverter occur the faults

4. Protection

Protection and recover	Condition		Phenomenon
	Parameter	IPower-11 IPower-21	
Over voltage protection and recover	Input Voltage U_i	$U_i > 16V \pm 3\%$ $U_i > 32V \pm 2\%$	Output is OFF Green indicator fast flashing Buzzer sounds
		$U_i \leq 14.5V \pm 3\%$ $U_i \leq 29V \pm 2\%$	Green indicator on solid The output is on
Low voltage protection and recover	Input Voltage U_i	$U_i < 10.8V \pm 3\%$ $U_i < 21.6V \pm 2\%$	Output is OFF Green indicator slowly flashing Buzzer sounds
		$U_i \geq 12.5V \pm 3\%$ $U_i \geq 25V \pm 2\%$	Green indicator on solid The output is on
Over tem. protection and recover	Tem.(T)	Heat sink $T \geq 75^\circ C$ (IP350-12:70°C) or Internal $T \geq 65^\circ C$	Inverter turn OFF
		Heat sink $T \leq 55^\circ C$ and Internal $T \leq 50^\circ C$	Inverter turn ON
Overload protection ^① and recover	Output power S Output power P_o	$S = 1.2P_o$	Output is OFF after 15min Red indicator slowly flashing Buzzer sounds
		$S = 1.3P_o$	Output is OFF after 1min Red indicator slowly flashing Buzzer sounds
		$S = 1.5P_o$	Output is OFF after 10s Red indicator slowly flashing Buzzer sounds
		$S > 2P_o$ (Rated input power)	Output is OFF after 5s Red indicator slowly flashing Buzzer sounds
Load short circuit protection ^①			Output is OFF immediately Red indicator fast flashing Buzzer sounds

①When appear output overload protection or load short circuit protection, it has three times auto-recover output function (once delay 5s, twice delay 10s and three times delay 15s).

5. Troubleshooting

Faults	Possible reasons	Troubleshooting
Green indicator slowly flashing Buzzer sounds	DC input voltage too low	Measure the DC input voltage, if the voltage is lower than 10.8V/21.6V. Adjust the input voltage to restore normally.
Green indicator fast flashing Buzzer sounds	DC input voltage too high	Measure the DC input voltage, if the voltage is higher than 16V/32V. Adjust the input voltage to restore normally.
Red indicator slowly flashing Buzzer sounds	Overload	① Reduce the number of the AC load. ② Restart the inverter.
Red indicator fast flashing Buzzer sounds	Short circuit	① Check carefully loads connection, clear the fault. ② Restart the inverter.
Green and red indicator on solid Buzzer sounds	Over temperature	When the heat sink temperature exceeds $75^\circ C$ or the internal temperature exceeds $65^\circ C$, the inverter will automatically stop output; When the heat sink temperature below $55^\circ C$ and the internal temperature below $50^\circ C$, the inverter will resume to output.

6. Technical Specifications

Technical Parameters

Item	Model	IP350-11	IP500-11	IP350-21	IP500-21
Input Rated Voltage		12VDC		24VDC	
Input Voltage Range		10.8~16VDC		21.6~32VDC	
Input surge voltage		<32V		<44V	
Fuse		32VDC/50A	2*32VDC/35A	32VDC/30A	2*32VDC/25A
No-load current		<0.7A	<0.9A	<0.5A	<0.5A
Output Voltage		110VAC($\pm 5\%$) 120VAC(-10%~+5%)			
Output Continuous Power(-20°C~+45°C)		350VA	500VA	350VA	500VA
Power factor		0.8			
Instantaneous impact power		$\geq 750VA$	$\geq 1000VA$	$\geq 750VA$	$\geq 1000VA$
Output way		Single phase			
Output Wave		Pure sine wave			
Output Frequency		50/60Hz ($\pm 0.2\%$)			
Distortion THD		THD $\leq 5\%$ (Resistive load)			
Max. Efficiency		91%			
Max. USB Output		90%(IP350-11) 5VDC/1A			

Environmental Parameters

Working environment temperature	-20°C~+45°C
Storage temperature range	-35°C~+70°C
Humidity range	$\leq 93\%$ (N.C.)
Enclosure	IP20
Altitude	<2000m (Derating to operate according to IEC62040 at a height exceeding 1000 m)

Mechanical Parameters

Model	IP350-11	IP350-21	IP500-11	IP500-21
DC input terminal	6mm ²			
Overall dimension	214x105.5x57.7mm		232.2x132x74.5mm	
Mounting dimension	185.5x76.7mm		205x102mm	
Mounting hole size	$\Phi 4.2mm$		$\Phi 5.2mm$	
Net weight	0.9kg		1.4kg	

7. Disclaimer

This warranty does not apply under the following conditions:

- Damage from improper use or use in an unsuitable environment.
- Battery voltage exceeding the rated value of inverter.
- User disassembly or attempted repair the inverter without permission.
- The inverter is damaged due to natural elements such as lightning.
- The inverter is damaged during transportation and shipment.

Any changes without prior notice! Version number: V1.0