

User manual

Fast power Energy modified sine wave



Read carefully these installation and operating instructions through before connecting and using the inverter.

What size inverter matches your need?

The size you choose depends on power consumption (find the power consumption by referring to the specification plate on the appliance). We recommend you to buy larger inverter than you think you will need, because of surge power reason, etc.

Max output continuous and max surge power

The meaning of "Max output continuous" and "Max surge power" is that some appliances or tools, such as ones with a motor, require an initial surge of power to start up (max surge load or max peak load). Once started, the tool or appliance requires less power to continue to operate (max output continuous load).

★ Helpful formulas:

Multiply: Amps x 230 (AC voltage) = Watts

Multiply: Watts x 2 = Surge Power

This formula yields a close approximation of the surge power of the appliance.

⚠ Caution: Induction loads such as compressor, air conditioners, refrigerators, freezers and pumps may have a greater surge power of 3-9 times the continuous rating.

If you need inverter to run induction loads, use pure sine wave inverters.

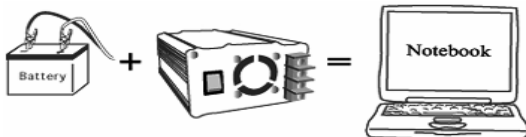
What type of battery should I use?

For above-mentioned models, most automobile and marine batteries will provide an ample power supply for hours even when the engine is off.

Actual time depends on the age and condition of battery. We recommend you start the engine if you intend to use the inverter for a long time.

Appliances connection

Make sure that the maximum current consumption of the appliances connected to the inverter (ie: notebook, TV, fan, emergency light, etc.) does not exceed the maximum output power of the inverter itself.



How to use the inverter

Put the cigar plug into the cigarette lighter socket (DC12v or 24V) or directly to the battery. Turn on the power switch; LED indicator will light up. Then connect the electrical appliance to your inverter.

⚠ Caution: Make sure positive pole of DC clip (**Red wire +**) is connected to positive pole of battery (**Red wire +**)

Do not drive while using the alligator clips with the inverter.

Maintenance

Remember to pull all the plugs out of the socket when cleaning and

clean inverter with dry cloth only.

⚠ Caution: Water and damp are not acceptable near or on the inverter.

Do not open the inverter.

General Safety Precautions

- Do not expose the Inverter to rain, snow, spray, bilge or dust. To Reduce risk of hazard, do not cover or obstruct the ventilation openings. Do not install the Inverter in a zero-clearance compartment. Overheating may result.

- To avoid a risk of fire and electronic shock. Make sure that existing wiring is in good electrical condition; and that wire size is not undersized. Do not operate the Inverter with damaged or substandard wiring.

Explosive Gas Precautions

This equipment contains components, which can produce arcs or Sparks. To Prevent fire or explosion do not install in compartments batteries or Flammable materials or in locations which require ignition protected equipment. This includes any space containing gasoline-powered machinery, fuel tanks, or joints, fittings, or other connection between components of the fuel system.

Precautions When Working With Batteries

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 20 minutes and get medical attention immediately.

- NEVER smokes or allow a spark or flame in vicinity of battery or engine. Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery or other electrical part may cause an explosion.
- Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery.
- A lead-acid battery produces a short-circuit current high enough to weld a ring or the like to metal, Causing a severe burn.



WARNING!

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



WARNING!

Shock Hazard. Before proceeding. Further, ensure that the Inverter is NOT connected to any Batteries, and that all wiring is disconnected from any electrical Sources.



Do not connect the output Terminals of the Inverter to an incoming AC sources. The inverter will be damaged permanently, not covered by our warranty.



WARNING!

Make sure all the DC connections are tight (torque to 9-10 ft-lbs, 11.7-13Nm). Loose connections will overheat and could result in a potential hazard.



CAUTION!

Reverse polarity connection will blow a fuse in Inverter and may permanently damage the inverter. Damage caused by reverse polarity connection is not covered by our warranty.



WARNING !

You may observe a spark when you make this connection since current may flow to charge capacitors in the power inverter.

Do not make this connection in the presence of flammable fumes, explosion or fire may result.



WARNING!

Do not open or disassemble Inverter, attempting to service the unit yourself may result in a risk of electrical shock or fire.

Installation:

• **Where to install**

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

- **Dry** – Do not allow water to drip or splash on the inverter.
- **Cool** – Ambient air temperature should be between 0 degrees and 40 degrees C. Do not place the inverter in direct sunlight if avoidable.
- **Safe** –Do not install in a battery compartment or other areas where flammable fumes may exist, such as fuel storage are as or engine compartments.
- **Ventilated** – Allow at least one inch of clearance around the inverter for air flow. Ensure the ventilation openings on the rear and bottom of the unit are not obstructed.
- **Dust-free** –Do not install the Inverter in a dusty environment where either dust, wood particles or other filings/shavings are present. These can pulled into the unit when the cooling fan is operating.
- **Close to battery/batteries** – Avoid excessive cable lengths but do not install the Inverter in the same compartment as batteries. Use the recommended wire lengths and sizes. 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 will damage the Inverter.

AC safety Grounding

During the AC wiring installation, AC input and output ground wires are connected to the inverter. The AC input ground wire must connect to the incoming ground from your AC utility source. The AC output ground wire should go to the grounding point for your loads (for example, a distribution panel ground bus).

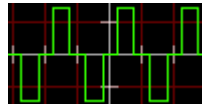


The installation of the inverter must comply with your countries electrical current regulations of the appliance

CAUTION

1. Please do not use the inverter if the DC input source is not 12Vdc for the 12V inverters or 24Vdc for the 24V inverters, and appliances are not 230Vac (220-240 Vac).
2. When you stop using it, please pull out the plug. Because of the high temperature of the metal part, do not touch the plug by hand or place it near flammable and easy-melting materials.
3. Under Voltage Protection system will automatically switch off the inverter if the input voltage is too low. Please start the engine to charge the battery, or stop using it.
4. If the consumption power is over inverter power rate itself, when switching on appliances, a protection system will indicate the overload.
5. Due to the difference of the waveform, buzzing and lines on audio and video equipment might appear.
6. How to select cigar plug or alligator clip for use:
 - (1) Cigar-Lighter: use with electric equipment below 150 Watt output.
 - (2) Alligator clips: use with electric equipment over 150 Watt output.
7. We recommend you should use pure sine wave inverter on very sensitive test equipment.
8. Do not use the inverter if the power cable or plug is damaged or loose.
9. Do not put any object into the inverter: it may cause fire, electric

- shock or short circuit; if there is any abnormal noise, smell or smoke, please turn it off immediately, then contact your retailer.
10. Do not place any heavy object on the inverter or on the power cable. Do not use it when the power cable is coiled or bent sharp.
 11. Do not allow water drip or splash on the inverter. Do not touch the case or the plug with wet hands.
 12. Do not attempt to alter the structure or the power cable: it may cause electric shock or fire; please contact your retailer for internal checking if necessary.



MODIFIED SINE WAVE

Unpacking and inspection
Before starting, please check this carton should contain following items: inverter, user's manual, cigar plug or power cables. Should any of above-mentioned items be missing, please contact your local dealer immediately.

TECHNICAL SPECIFICATIONS ^(*)								
Model	FPE 150W-12V	FPE 300W-12V	FPE 500W-12V	FPE 700W-12V	FPE 1000W-12V	FPE 1000W-24V	FPE 1500W-12V	FPE 1500W-24V
Max Output Continuous	Watt 150	Watt 300	Watt 500	Watt 700	Watt 1000	Watt 1000	Watt 1500	Watt 1500
Max Surge Power	Watt 300	Watt 600	Watt 1000	Watt 1400	Watt 2000	Watt 2000	Watt 3000	Watt 3000
DC Input Voltage	12/10~15V dc	12/10~15Vdc	12/10~15Vdc	12/10~15Vdc	12/10~15Vdc	24/20~30Vdc	12/10~15Vdc	24/20~30Vdc
AC Output Voltage	220	220	220	220	220	220	220	220
Modified Sine Wave	yes	yes	yes	yes	yes	yes	yes	yes
Efficiency	>85%	>85%	>85%	>85%	>85%	>85%	>85%	>85%
Frequency	50Hz+/- 3%	50Hz +/- 3%	50Hz +/- 3%	50Hz +/- 3%	50Hz +/- 3%	50Hz +/- 3%	50Hz +/- 3%	50Hz +/- 3%
Dimensions in mm	172x58x104	230x60x105	285x73x206	308x72x210	445x85x235	445x85x235	390x95x232	390x95x232
Net Weight	kg 0,8	kg 1,5	kg 2,6	kg 3	kg 4,5	kg 4,5	kg 5,5	kg 5,5
Code	20879	20880	20881	20882	20883	20884	20887	20888

(*) We reserve the right to modify above-mentioned specifications without prior notice. Inverters have obtained CE approvals.

Trouble Shooting Guide

PROBLEM	POSSIBLE CAUSES	SUGGESTED REMEDY
Unit will not operate	<p>Battery voltage is below 10 Volts.</p> <p>Equipment being operated draws too much power.</p> <p>Inverter in thermal shut down conditions.</p> <p>Battery is poor condition. Have battery checked.</p>	<p>Charge or replace battery.</p> <p>Make sure load has less than the continuous power operation</p> <p>Inverter must cool down. Check for good ventilation.</p> <p>Replace battery.</p>
Low <u>Voltage</u> Alarm On Continuously	Insufficient power or large voltage drop.	Check condition of connection cables. Clean or replace as necessary.
Low Output Voltage	<p>Inverter is overloaded.</p> <p>Input voltage below 11.0 volts</p>	<p>Reduce load.</p> <p>Keep input voltage above 11.0 volts to maintain regulation.</p>
Television Interference	Snow, Picture is breaking up.	<p>a) Locate the inverter as far as possible from the television, the antenna, and the antenna cables.</p> <p>b) Adjust the orientation of the inverter, the antenna cables, and the TV power cord to reduce interference.</p> <p>c) Make sure that the antenna feeding the television provides an adequate ("snow free") signal and that high quality, shielded antenna cable is used.</p>
Buzz or Hum in Audio System if used.	The Power supply in the device does not adequately filter the modified sine wave produced by the inverter.	Use a sound system that uses a higher quality power supply.