Product Registration Instructions

Please visit our website at www.AIMSCorp.net and click on the product registration link at the top of the page.

This will validate your warranty with AIMS Power and ensure that you get fast, expedited customer service if you need to repair or exchange your product.

Thank you for choosing

AIMS POWER™ www.AIMSCorp.net
A DIVISION OF THE AIMS CORPORATION

AIMS POWER™
A DIVISION OF THE AIMS CORPORATION

DC to AC Power Inverter

USER'S MANUAL

Model: PWRINV150W

Warning: This manual includes important safety and operational information. Please read it carefully before using your new inverter.

Specifications

ITEM	DESCRIPTION
Continuous Power	150 Watts
Peak Power	300 Watts
Input Voltage	10-16VDC (12VDC Nominal)
Output Voltage	110-120 V AC / 60Hz
Waveform	Modified sine wave
AC Receptacles	(2) 3 prong outlets
Efficiency	90%
Fuses	30 A external
Dimensions(inch)	5.6x4.3x1.9
Weight(ibs.)	1.32
Switch	Rocker on / off
Operating Temperature	32°F-113°F
Features	- Oveload protection - Oveheat protection - High voltage shut down - Low voltage alarm - Low voltage shutdown
USB Output	5V DC1A+2.1A

1. Description

This power inverter is an advanced power conversion tool. It is designed to supply AC power converted from a DC power source. Typical applications include automotive, marine, RV, and off grid cabins. It also may be used as an emergency backup for small appliances when power fails.

In order to use the inverter effectively and safely please read all the instructions carefully before installation and operation. Please pay special attention to all **warnings** and **notices** used in this manual.

2. Warnings and safety

1) Read the manual before using this inverter and keep it for future reference.

2) Do not expose the inverter to direct sunlight. Keep it out of direct heat, liquid and moisture.

3) The inverter may become very warm when in use. Please avoid direct contact with materials that cannot withstand high temperatures, such as clothes, sleeping bags and carpet.

4) **Notice!** Do not use together with an anode (positive) ground electrical system! This inverter is designed to be used in the cathode (negative) ground electrical system. Most vehicle and marine applications use a cathode (negative) ground.

5) Do not disassemble the inverter. Electric shock or fire may occur.

6) Keep out of reach from children.

7) Please treat the output socket as you would typical household AC receptacles. Do not put anything other than appropriate AC plug into this device. Damage to the inverter and shocking may occur.

8) Be aware of inverter status during operation. Do not operate the appliance alone for the first time to ensure proper operation. Disconnect the inverter when not in use. Make sure to take caution when handling live battery cables to avoid shock and fire.

AIMS Operating Corp., Inc., dba AIMS Power™ Warranty instructions

This product is designed with very strict quality control and testing guidelines. If you feel this product is not performing as it should, please contact us at (775)359-6703 ext 227 for technical advice or ext 224 to obtain an return authorization number (RA #). You may also email Techsupport@aimscorp.net or customerservice@aimscorp.net

We will do our best to resolve your concerns. Please do keep a copy of your purchase invoice as this is required to be sent back to us along with the inverter and RA# in case of a warranty claim. The warranty period is 1 year from date of purchase shown on your invoice or receipt.

This warranty is valid worldwide with the exception of duties and freight incurred outside the 48 continuous US States. User is responsible for return shipping. Except as provided above, AIMS makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall AIMS be liable for indirect, special or consequential damages. This warranty only applies to AIMS Power branded products. All other name brand products are warranted by and according to their respective manufacturer. Please do not attempt to return non-AIMS Power branded products to AIMS Power. You are responsible for return of the product to our facilities for warranty. We will cover return freight within the 48 continuous US States.

3. DC Input voltage and current

Voltage and current.

In most applications a battery is the supply for the inverters DC input. The DC input must follow the operating specs of this inverter. Any variance of the inverters operating specs will cause an over voltage or under voltage resulting in inverter failure.

The battery or DC supply to the inverter must also be able to support the high current load of the AC device. Small capacity batteries such as automotive batteries can only handle small AC loads for a short amount of time. We recommend using a deep cycle battery for stand alone systems.

The mathematical calculation to determine voltage, current and power is OHM's law.

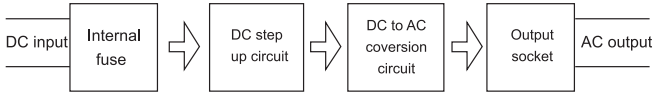
- Watts (power) ÷ volts = Current
- Volts X current = Watts (power)

Ex. 1000W ÷ 12V = 83.33A 1000 watts of power on a 12V battery uses 83.33 Amps an hour. OR 8.4A AC X 120V AC = 1008 watts.

4. Principles

The unit converts DC power to AC power. The power is created in two steps: step one is the inverter raises the low DC voltage input to a higher voltage. The second step it to pass the high DC voltage through a transformer and convert it to desired AC voltage.

The switching circuits use advanced high frequency conversion rather than a low frequency conversion making the inverter smaller and lighter in weight



11. Troubleshooting Tips.

Fault /Diaplay	Cause	Solution
No output voltage.RED LED illuminated	Low input DC voltage	Recharge or replace battery
	High input DC voltage	Check with battery charger manufacture for compatibility. Make sure the rated voltage is tolerace of the inverter operating specs
	Overload	Reduce the AC load
	Over temperature	Disable the AC load and allow the inverter to cool to operatin temperature. The AC load is too large for continuous usage. Ensure the ventilation of the inverter is not obs tructed. Lower the ambient temperature.
No output voltage	Bad DC connection	Make sure all DC connections are tight and secure.
Incorrect output voltage	Measuring with an incorrect multi meter	Mdasure the AC output voltage with a true RMS meter.
Will not power AC device.Does not start motor.	AC load is greater than the operating range of the inverter. Incorrect cable sizing and length	Reduce the AC load. Usea soft start device to lower the startup surge. Use the correct cable size and length

5. Battery operation

The battery operating time is dependent on the its capacity and the inverters output load. Using OHM's law if your load is 100 watts and using a battery that is at 12.5 volts with an Ah rating of 100. (100W ÷ 12.5V = 8A). You will be discharging the battery at 8% depth of discharge for 1 hour. **We recommend only discharging a battery at 50% unless it is an emergency.** The ideal run time would be 6 hours and 25 minutes.

6. Installation

Please make sure there is adequate space for the intended installation location of the inverter and should comply with the following requirements.
1) Never install in a location where any liquid may drip, spill or splash on the inverter.

2) The ambient temperature for operation should be 32°F-113°F . The ideal operating range is 50°F-77°F.

3) Please allow plenty of clearance around the inverter for ventilation and cooling fans to operate correctly. Any obstructions will result in overheating.

4) Avoid installing in an area that is dusty or dirty and where particles may be brought into the internals of the inverter by way of the cooling fan. This will cause overheating and internal shorting.

5) Do not place combustible materials such as gasoline, alcohol, and aerosol containers near the inverter. This will cause a fire hazard and potential explosion hazard.

Mounting

The inverter is able to mount vertical or horizontal on a floor or wall. Do not mount upside down it will cause overheating. Please ensure the platform to be mounted to is secure and stable and the inverter is affixed at all four mounting points.

3. Over voltage protection: The inverter will automatically shut down when the DC voltage is greater than 16VDC. The RED LED will be illuminated. Please turn off the inverter and apply the correct DC voltage within the correct operating range.

4. Overload protection: The inverter will automatically shut down when the load requires a higher amount of current than the inverter is able to supply. The RED LED will be illuminated. The load will need to be lowered and the inverter must be restarted.

5. Short circuit protection: The inverter is able to withstand a short circuit for less than 1 second. If a short circuit occurs longer than 1 second the inverter will shut down . The RED LED will be illuminated. You must remove the device creating the short circuit and restart the inverter.

6. Thermal protection: The inverter will become very warm when being used under normal operation. The inverter will automatically shut down when temperatures exceed 149°F. The RED LED will be illuminated. The cooling fans will continue to run. Once the inverter is back to operating temperature please cycle the power to regain operation of the inverter. You will also need to investigate the reason for the inverter running into thermal protection. Please check ventilation, ambient temperature, vents and load requirements or the problem will occur again.

7. Soft start technology

This inverter has the latest soft start technology. The output voltage gradually increases to the normal output voltage after it is turned on. There are several advantages to this.

- It can reduce the large current surge and help to start larger loads.
- Help Cold start larger power loads. The inverter may shut down due to large amount of current needed to start motors.

For large inductive loads such as electric motors turn the AC device on then turn on the inverter to allow the inverters soft start to operate correctly.

8. Warnings

1) It is never recommended to use multiple types of batteries and capacities. Always use the same type of battery and the same amp hour (Ah) capacity.

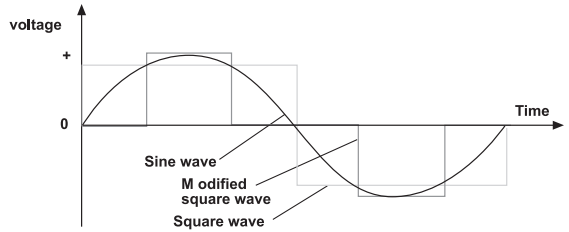
2) Please seek the advice of a professional before connecting multiple batteries. Any improper connections will result in inverter failure and battery malfunction.

Battery operation:

The battery operating time is dependent on the its capacity and the inverters output load. Using OHM's law if your load is 100 watts and using a battery that is at 12.5 volts with an Ah rating of 100. (100W ÷ 12.5V = 8A). You will be discharging the battery at 8% depth of discharge for 1 hour. **We recommend only discharging a battery at 50% unless it is an emergency.** The ideal run time would be 6 hours and 25 minutes.

9. Output waveform

The output waveform of the inverter is a "quasi-sine-wave" or "modified sine wave" this kind of waveform is suitable for most electrical appliances such as linear and switching power supplies, transformers and electric motors. Since the output waveform is different than that of grid power, a typical multi meter cannot be used to measure the AC voltage and you will need to use an RMS meter.



10. Inverter protection

1. Low voltage alarm trip: When the DC voltage is lower than 10.0V the power indicator will flash intermittently. This acts as a reminder to the user that the inverter will go into **Low voltage shutdown**. The battery bank must be recharged.

2. Low voltage protection: The inverter will automatically shut down when the supplied DC voltage is lower than 10V. The RED LED will be illuminated. Please turn off the inverter and recharge the battery.