AIMS Operating Corp., Inc, Warranty Instructions:

This product is designed using the most modern digital technology and under very strict quality control and testing guide lines. If however you feel this product is not performing as it should , please contact us:

techsupport@aimscorp.net or (775)762-5400

We will do our best to resolve your concerns. If the product needs repair or replacement, make sure to keep your receipt/invoice, as that will need to be sent back along with the package prepaid to AIMS. You have a full 1 year from date of purchase warranty.

This warranty is valid world wide with the exception that freight and duty charges incurred outside the contiguous 48 United States will be prepaid by customer.

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 particulat purpose. In no event shall AIMS be liable for indirect, special or consequential damages.

For additional products such as:

- Modified sine wave inverters
- Pure sine wave inverters
- Power controllers
- Automatic transfer switch controllers
- Custom cut cables

Please visit our web site: www.aimscorp.net

To find out where to buy any of our products, you may also e-mail: sales@aimscorp.net or call (775)359-6703



AIMS Power™
a Division of the AIMS Corporation

# DC TO AC POWER INVERTER

## Part# PWRIN5K240


## Instruction Manual

| SPECIFICATIONS | |
|---|---|
| Model No | PWRIN5K240 |
| Maximum Continuous Output Power | 5000W |
| Output Surge Capacity | 10000W |
| Output Wave Form | Modified Sine Wave<br>phase corrected |
| No Load Current Draw-<br>Switch ON,<br>Switch OFF, | <br><2 ADC<br><0.2 mADC |
| Efficiency | 90% |
| Input Voltage Range | 10-16V |
| Low Voltage Alarm | DC 10.5V± 0.5V |
| Low Voltage Shutdown | DC 10V± 0.5V |
| Over Temperature protection | 55°c ± 5°c |
| Dimensions (L x W x H) | 570x210x180mm<br>or 22.44"x8.26"x7.08" |
| Weight | 11KGS or 24.2LBS |

AC Output voltage : 240V

AC Output receptacles : 

Output frequency : 60Hz

| | | |
|---|---|---|
| No output voltage, voltage indicator in upper red zone. | High input voltage | Make sure that inverter is connected to 12V battery. Check regulation of charging system. |
| Low battery alarm on all the time, voltage indicator below 11V | Poor DC wiring, poor battery condition. | Use proper cable and make Solid connections. Use new battery |
| No output voltage, Over Heat indicator on,load in excess 5000W:500A(12V) | Thermal shutdown | Allow inverter to cool off.Reduce load if continuous operation required. |
| No output voltage, Over Heat indicator on, load less than: 5000W:500A(12V) | Thermal shutdown | Improve ventilation, make sure ventilation openings in inverter are not obstructed, reduce ambient temperature. |
| No output voltage, Over Load indicator on. | Short circuit or Wiring error: | Check AC wiring For short circuit or improper polarity (active and neutral reversed) |
| | Very high power load | Romove load |

## Maintenance

Very little maintenance is required to keep your inverter operating properly. You should clean the exterior of the unit periodically with a damp cloth to prevent accumulation of dust and dirt. At the same time, tighten the screws on the DC input terminals.



## Introduction

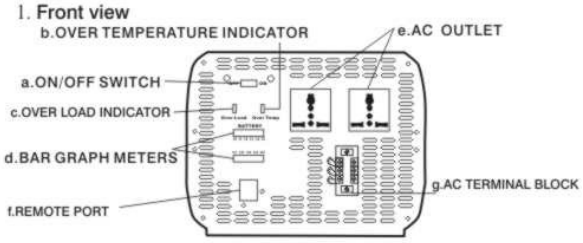
AIMS Power inverter series are the most advanced line of mobile AC power systems available.

This model is used in a wide range of applications including remote homes, RV's, sail boats and power boats. It will operate most televisions and VTR's, personal computers, small appliances and tools such as drills, sanders, grinders, mixers and blenders.

To get the most out of the power inverter, it must be installed and used properly. please read the instructions in this manual before installing and using this model.

## Name and main function

1. **Front view**




a.ON/OFF switch:
Leave in the OFF position during installation.

b.Over Temperature indicator:
Lights when inverter protects itself against overheating.Inverter shuts down while indicator is on. Inverter will restart automatically and indicator will turn off when the inverter cools.

c.Overload indicator:
Lights when inverter shuts down because of overload. Indicator will turn off and inverter will restart when overload is removed.

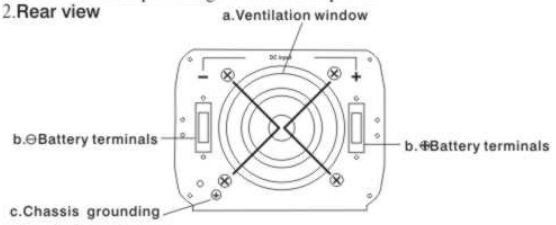
d.Bar graph meters:
Display battery voltage and current. Current should be in the green zone for continuous operation. The inverter will operate for several minutes when the current is in the yellow zone. Operation with battery voltage or current in the red zone of a meter will result in protective shutdown of inverter.

e.AC outlets:
Maximum recommended output per outlet is 3000W

f.Remote port:
Used with remote switch to turn inverter ON/OFF.

g.AC Terminal block:
Hard wire block providing inverter's Full power.

2.**Rear view**




a.Ventilation window:
Do not obstruct, allow at least l inch for air flow.

b.Battery terminals:
Connect to 12V battery or other 12V power source."+"is positive," - " is negative, Reverse polarity connection will blow internal fuse and may damage inverter permanently.

c.Chassis ground lug: Connect to earth ground or to vehicle chassis using #8 AWG wire.

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



-Keep the cables between the battery and the power inverter as short as possible and twist them togerter with about 2 to 3 twists per foot. This minimizes radiated interference from the cables.

## 2.Troubleshooting guide

| Problem and Symptoms | Possible Cause | Solution |
|---|---|---|
| Low output voltage 240V:210-230V AC | Using average reading voltmeter | Use true RMS reading meter See page 4 Point 8 of manual |
| Low output voltage and current indicator in red zone. | Overload | Reduce load |
| No output voltage and voltage indicator in lower red zone | Low input voltage | Recharge battery. check connections and cables |
| No output voltage, no voltage indication | Inverter switched off<br>No power to inverter<br>Internal fuse open<br>Reverse DC polarity | Turn inverter on.<br>Check wiring to inverter<br>Have qualified service technician check and replace fuse.<br>OBSERVE CORRECT POLARITY. |

The power inverter will also shut down if the input voltage exceed 17V. This protects the inverter against excessive input voltage. The voltage indicator will be in the upper red zone. Although the power inverter incorporates protection against overvoltage, it may still be damaged if the input voltage is allowed to exceed 20V.

## Troubleshooting

### 1.Common problems

a.Buzz in audio systems:

Some inexpensive stereo systems and "boom boxes"will emit a buzzing noise from their loudspeakers when operated from the power inverter. This is because the power supply in the device does not adequately filter the modified sine wave produced by the power inverter. The only solution is to use a sound system that incorporates a higher quality power supply.

b.Television interference:

Operation of the power inverter can interfere with television reception on some channels. If this situation occurs, the following steps may help to alleviate the problem.

-Make sure that the chassis ground lug on the back of the power inverter is solidly connected to the ground system of your vehicle, boat or home.

-Do not operate high power loads with the power inverter while watching television.

-Make sure that the antenna feeding your television provides an adequate ("snow free") signal and that you are using good quality cable between the antenna and the television.

-Move the television as far away from the power inverter as possible.



### Quick hook-up and testing

If you would like to quickly hook-up the power inverter and check its performance before going ahead with your installation, please follow these guidelines:

1.Unpack and inspect the power inverter, check to see that the power switch is in the OFF position.

2.Connect the cables to the power input terminals on the rear panel of power inverter.The red terminal is positive(+)and black terminal is negative(-).

3.Connect Earth per section 3. Grounding on Page 5.

Connect the cable from the negative terminal of the inverter to the negative terminal of the power source. Make a secure connection.

**Caution**!Loosely tightened connectors rsesult in excessive voltage drop and may cause overheated wires and melted insulation.

4.Before proceeding further,carefully check that the cable you have just connected connects from the negative terminal of inverter to the negative output terminal of the power source.

**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.

5.Connect the cable from the positive terminal of inverter to the positive terminal of the power source. Make secure connection.

**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, as explosion or fire may result.

6.Set the power switch to the on position.Check the meters and indicators on the front panel of the inverter. The voltage bar graph should indicate 11 to 14 volts depending on the voltage of the power source.If it does not,check your power source and the connections to inverter. The other indicators should be off.

7.Set power inverter switch to the OFF position, the indicator lights may blink and the internal alarm may sound momentarily. This is normal. Plug the test load into the AC receptacle on the front panel of the inverter. Leave the test load switch off.

8.Set power inverter switch to the ON position and turn the test load on, the inverter should supply power to the load. If you plan to measure the true output R.M.S. voltage of inverter, a meter such as FLUKE 87A, BACKMAN 4410 or TRIPLETT 4200 must be used.

## Installation

### 1.Where to install

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

a:Dry-Do not allow water to drip or splash onto the inverter.

b.Cool-Ambient air temperature should be between 0°C and 40°C , the cooler the better.

c.Ventilation-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.

d.Safety-Do not install the inverter in the same compartment as batteries or in any compartment capable of storing flammable liquids such as gasoline.



(the power delivered to the food) not the power actually consumed by the microwave oven. The microwave oven will consume 40% to 100% more than its advertised cooking power. Check the rating sticker on the back of the oven to determine its actual power draw. The 5000W inverter will operate small microwave ovens (0.2 to 0.3 cubic foot capacity) that draw about 1700 watts.

Some induction motors used in refrigerators, freezers, pumps, and other motors operated equipment require very high surge currents to start. The power inverter may not be able to start some of these motor even though their rated current draw is within the rating of the power inverter.

If a motor refuses to start, observe the battery voltage indicator while trying to start the motor. If the battery voltage indicator drops below 11 volts while inverter is attempting to start the motor, this may be why the motor won't start. Make sure that

the battery connections are good and that the battery is fully charged. If the connections are good and the battery is charged, but the voltage still drops below 11 volts, you may need to use a larger battery or larger battery bank.

### 2.Input voltage

The power inverter will operate from input voltage ranging from 10V-16V. If the voltage drops below 10.7V, an audible low battery warning will sound and the voltage indicator will be in the lower red zone. The power inverter will shut down if the input voltage drops below 10V. This protects your battery from being overdischarged.

Ideally, the voltage should remain in the green area of the bar graph. If the voltage goes into the red area at top or bottom of the graph, inverter may shut-down.

**3.Battery current indicator**

The battery current bar graph indicates the current drawn from the battery by the power inverter, It will not indicate current by other loads also connected to the battery.
For long term operation, the current should be in the green area of the bar graph. Short term operation is possible with current in the orange area. If the current rises to the red area, the inverter will reduce its output voltage to protect itself.

**4.Overtemp indicator**

The overtemp indicator indicates that the power inverter has shut itself down because it has become overheated. The power inverter may overheat because it has been operated at power levels above its rating, or because it has been installed in a location which does not allow it to dissipate heat properly.

**5.Overlad indicator**

The overload indicator indicates that the power inverter has shut itself down because its output circuit has been short circuited or drastically overloaded. Switch the ON/OFF switch to OFF, correct the fault condition, and then switch the ON/OFF switch back to ON.

**Operating limits**

1.Power output

The 5000W inverter will operate most AC loads within its power rating. When determining whether a microwave oven can be operated by the 5000W inverter, remember that the power commonly advertised for microwave ovens is the cooking power



2.**Cables:**

DC to AC inverters require high amperage/low voltage DC power to low amperage/high voltage AC power. To operate properly.connect inverter DC input terminals direct to battery with heaviest wire available see chart below:

2 x sets of 1/0 Awg (2 red + 2black)
or 1 x set of 4/0 Awg (1 red + 1black)

3.**Grounding**

The power inverter has a lug on the rear panel marked "chassis ground" This is to connect the chassis of the power inverter to the ground. The ground terminals in the AC oulets on the front panel of the inverter are also connected to the ground lug.
The chassis ground lug must be connected to a grounding point,which will vary depending on where the power inverter is indtalled.In a vehicle, connect the chassis ground to the chassis of the vehicle.In a boat, connect to the boat's grounding systems. In a fixed location,connect the chassis ground lug to an earth point,which will vary depending on where the power inverter is installed.In a vehicle, connect the chassis ground to the chassis of the vehicle. In a boat, connect to the boat's grounding systems. In a fixed location,connect the chassis ground lug to earth.

The neutral (common)conductor of the power inverter AC output circuit is connected to the chassis ground.Therefore,when the chassis is connected to ground,the neutral conductor will also be grounded.This conforms to national electrical code requirements that separately derived AC sources (such as inverters and generators) have their neutral tied to ground in the same way that the neutral conductor from the the utility line is tied to ground at the AC breaker panel

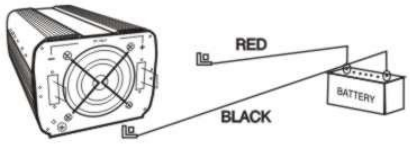
**Caution**! The Negative DC input of the power inverter is connected to the chassis. DO not install the power inverter in a positive ground DC system. A positive ground DC system has the positive. terminal of the battery connected to the chassis of the vehicle or to the grounding point.

**Warning**! Do not operate the power inverter without connecting it to ground.Electrical shock hazard may result.

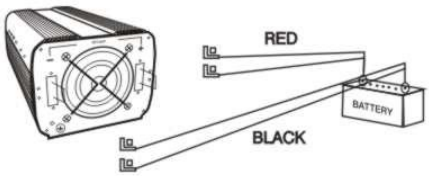
**4.Battery Cables installation**

When you connect the AC inverter to the battery terminals, it is important to connect the "+" wire to the "+" terminal and the "-" wire to the "-" terminal.

(a)When using 4/0 Awg cables see connection graph below:




(b) When using 1/0 Awg cables see connection graph below:




Warning: Only connect to ac Terminal Block when inverter is turned off and disconnected from dc power source.



IF YOU CONNECT THE WIRES TO THE INCORRECT TERMINALS. YOU WILL REVERSE THE POLARITY AND WILL INSTANTLY VOID THE WARRANTY OF YOUR INVERTER, SO BE CAREFUL TO CONNECT YOUR INPUT WIRES PROPERLY.

Caution! 1.To avoid any touch between the battery cords "+" "-" terminals, the directions of both "+" and "-" battery cords terminals must be the same or away from each other. Please also be sure to screw them tightly.

2.When you connect the battery cords to the terminals of the inverter, please make sure they do not touch the case.

Operation

To operate the power inverter,turn it on using the ON/OFF switch on the front panel. The power inverter is now ready to deliver AC power to your loads. If you are operating several loads from the power inverter,turn on separately after the inverter has been turned on. This will ensure that the power inverter does not have to deliver the starting currents for all the loads at once.

**1.Controls and indicators**

The ON/OFF switch turns the control circuit in the power inverter on and off. It does not disconnect power from the power inverter.

When the switch is in the OFF position, the power inverter draws no current from battery. When the switch is in the ON position but with no load, the power inverter draws less than 2 Amps.

**2.Battery voltage indicator**

The battery voltage bar graph indicates the voltage at the input terminals of the power inverter. At low input current, this voltage is very close to the battery voltage. At high input current, this voltage will be lower than the battery voltage because of the voltage drop across the cable and connections.