



# DC TO AC POWER INVERTER

## PWRINV10KW12V



# Instruction Manual

## **Introduction**

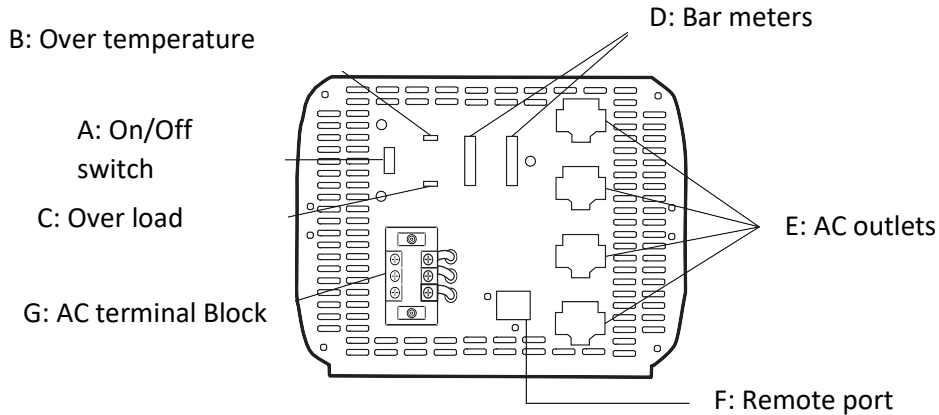
The AIMS Power 10,000 watt inverter is the most technology advanced mobile DC to AC power inverter available. AIMS also offers the 8,000 Watt 12V or 12,000 Watt 24V.

This inverter is used in a wide range of applications including back up power for remote homes, off-grid systems, RVs, boats, commercial vehicles and mobile businesses. The 10,000 watt inverter will operate most pumps, motors, lights, heaters, compressor based appliances and hand tools.

To get the most out of the power inverter, it must be installed and used properly. Read the instructions in this manual before installing and using this product. Follow all safety precautions.

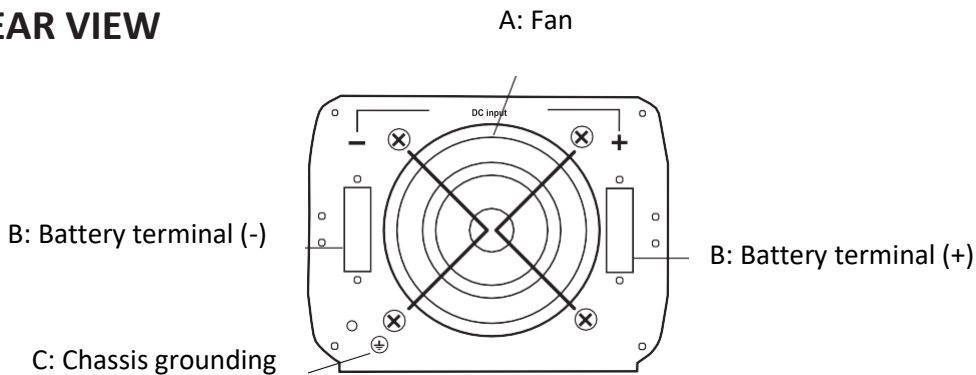
# FUNCTIONS

## 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. Over load indicator: Lights when inverter shuts down because of overload. Indicator will turn off and inverter will restart when overload is removed.
- D. Bar meters: Displays 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 1500W.
- F. Remote port: Used with remote switch to turn inverter ON/OFF (sold separately).
- G. AC terminal block: Hard wire block providing inverter's full power.

## REAR VIEW



A: Fan: Do not obstruct, allow at least 12 inches for air flow.

B: Battery terminals: Connect to 12V, or 24V, or 36V, or 48V (depending on inverter model) battery (s) or other DC power source. "+" is positive & "-" is negative. Reverse polarity connection will blow internal fuse and may damage inverter permanently. Make sure you check your input voltage and do not REVERSE POLARITY! **This will void the warranty.**

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.

## QUICK HOOK-UP AND TESTING

If you would like to quickly hook-up the power inverter and check its performance before moving forward 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. Before you connect the battery cables, make sure the power switch is in the off position. Connect Red (+) battery cable to Red (+) inverter terminal. Connect Black (-) battery cable to Black (-) inverter terminal. Connect Red (+) battery cable to Red (+) battery terminal. Connect Black (-) battery cable to Black (-) battery terminal. Alligator clamp cables may be used but only to connect to the battery. Do not use clamps on inverter terminals. Alligator clamps are not a permanent solution. You may see a spark during connection. **Do not reverse the polarity.** This may damage the inverter and void warranty.

**Caution!** Loosely tightened connectors result in excessive voltage drop and may cause overheated wires and melted insulation. 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, as explosion or fire may result.

## V 2.0

3. 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.
4. 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.
5. 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 when operating in this range
- 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.

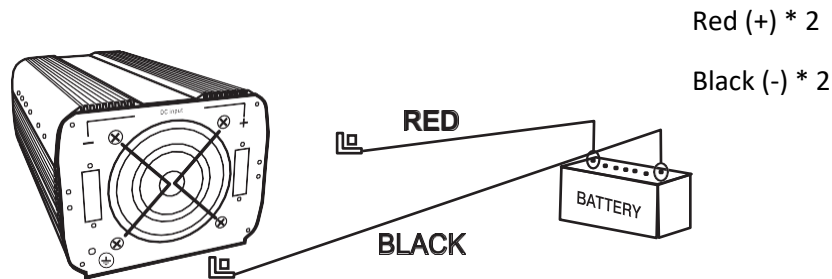
### 2. Cables

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 below:

12 Volt Model: 2x set of 4/0 AWG (2 red + 2 black) and quantity 2- ANL500KIT-500 Amp fuse kits for positive (red) cables

#### Battery Cables Installation

When connecting the AC inverter to the battery terminals, it is important to connect the "+" wire to the "+" terminal and the wire to the "-" wire to the "-" terminal. Do **NOT** reverse the polarity. It will void the warranty. Make sure you connect negative to negative and positive to positive.

**Caution!**

**DO NOT** allow the wires to cross or touch each other. Install the cables facing away from each other and screw tightly. When connecting the battery cables to the terminals of the inverter, make sure they do not touch the case.

**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 outlets 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 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 an earth point, which will vary depending on where the power inverter is installed.

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 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.

**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 deliver starting currents to all of 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 450 mA.

### 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.

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. The indicator only displays DC volts and amps.

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.

To measure AC current, use a TRUE RMS MULTI METER.

### 4. Over temp indicator

The over temp 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. Over load indicator

The over load 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 to OFF, correct the fault condition, and then switch the ON/OFF back to ON.

## **THINGS TO CONSIDER REGARDING THE LOAD**

The 10,000W inverter will operate most AC loads within its power rating. When determining whether a microwave oven can be operated by the 10,000W inverter, remember that the power commonly advertised for microwave ovens is the cooking power (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 10,000W inverter will operate small microwave ovens (0.2 to 0.3 cubic foot capacity) that draw is about 1700 watts.

Some induction motors used in refrigerators, freezers, pumps, and other motor operated equipment require very high surge currents to start. The power inverter may not be able to start some of these appliances 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 10.5V DC 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 a larger battery or larger battery bank.

(\*2 for 24V \*3 for 36V \*4 for 48V)

### **INPUT VOLTAGE**

The power inverter will operate from input voltage ranging from 10V-16V. If the voltage drops below input range, 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 +/- .5V. This protects your battery from being over discharged.

The power inverter will also shut down if the input voltage exceeds 17V +/- .5V. 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 over voltage, the inverter is at risk of permanent damage if the input voltage is allowed to exceed 17V +/- .5V.

### **TROUBLESHOOTING**

#### 1.Common problems

##### a. Buzz in audio systems:

Some inexpensive stereo systems and radios 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.

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



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

Problem and Symptoms	Possible Cause	Solution
Low output voltage	If using a non-RMS meter you could get an incorrect reading @ 10-30V	Use a true RMS meter
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 cable connection.
No output voltage, no voltage indication.	Inverter switched off. No power to the inverter. Internal fuse open. Reverse polarity.	Turn power switch to on position. Check wiring to the inverter. Check polarity.
No output voltage. Voltage in upper red zone.	High input voltage.	Make sure inverter is plugged to correct DC voltage. Check voltage charging system.
Low battery alarm on all of the time. Indicator below 11V.	Poor DC wiring, poor battery conditions.	Use proper cable and make proper connection. Consider new battery.
No output voltage. Over heat indicator on. Load >10,000 W.	Thermal shutdown.	Improve ventilation and make sure openings in the inverter are not obstructed. Reduce ambient temp.
No output voltage. Over load indicator on.	Short circuit or wiring error. AC load too large.	Check AC wiring for short circuit or improper polarity. Remove load.

## SPECIFICATIONS

<b>MODEL NO</b>	<b>PWRINV10KW12V</b>
DC Input Voltage	12V (10-16V)
Output Wave Form	Modified Sine Wave
Output Power	10,000W
Surge Power Capacity	20,000W for 40milsecs
Efficiency	Over 90%
No Load Current	<1.8A
Fan	Thermal
Battery Low Alarm	DC 10.5 ± 0.5 V
Battery Low Shutdown	DC 9.5 ± 0.5 V
High Voltage Shutdown	17V ± 0.5 V
Operating Temperature (Automatic Recovery/Shutdown)	30-140° F +/- 5°F
Internal DC Input Fuse	Must be fitted use 40A*8 max
Mounting Hole Location	2.32" center hole to center hole * 2
Remote Switch Port	Yes
Direct Connect Terminal Block	Yes
Recommended Cable Size	2 sets of 4/0 AWG & 8AWG ground wire
Outlets	4
Power Switch	DC input ON/OFF control
Dimensions (LxWxH)	21" x 8" x 6.5"
Net Weight	22.6 lb

**AIMS Corp., Inc. dba AIMS Power Warranty Instructions:**

This product is designed using the most modern digital technology and under very strict quality control and testing guidelines. If, however you feel this product is not performing as it should, please contact us: [techsupport@aimscorp.net](mailto:techsupport@aimscorp.net) or (775)359-6703

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 and RMA# prepaid to AIMS. You have a full 1 year warranty from date of purchase.

This warranty is valid worldwide 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 Power 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.

For additional products such as:

- Modified sine wave inverters
- Pure sine wave inverters
- Low Frequency Inverters
- Solar Charge Controllers
- Micro Grid Tied Inverters
- Inverter Chargers and Automatic transfer switches
- Converters DC-DC
- Custom cut cables
- Batteries
- Solar Panels & Racks

Please visit our web site: [www.aimscorp.net](http://www.aimscorp.net)

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

**Product Registration Instructions**

Please visit our website at [www.AIMSCorp.net](http://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

