

## Models:

INV600-12, INV600-24  
INV1000-12, INV1500-24,  
INV1500-12, INV2500-24,  
INV2500-12

# Modified Sine Wave DC to 240VAC Power Inverters

Operating Instructions  
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### Features include:

- Low battery alarm • Low battery shut down • Input voltage (12V Models 10-16VDC) (24V Models 20-30VDC) • Input low voltage protection • Input high voltage protection • Input short circuit protection
- Output voltage 220~240VAC @ 50Hz • Output short circuit protection • Overload protection • Over-temperature protection via internal temperature controlled fan(s) • High efficiency design 85-90% efficient • Bar graph displays for battery voltage & load levels (%) (INV1000, 1500, 2500 models) • LED displays, indicate power ON & shutdown modes (INV150, 350, 600 models)
- Aluminium construction heatsink

### Operating Limits:

The inverter will operate most AC appliances within its power rating.

When operating microwaves, please note that the power commonly advertised for microwave ovens is the cooking power (the power delivered to the food) not the power actually used by the microwave oven. Microwave ovens generally will consume 40% to 100% more than the advertised cooking power. Check the rating sticker at the rear or under the oven to determine its actual power draw.

In some cases the power inverter may not be able to start some electric motors even though the rated current draw is within the limits of the inverter. If a motor will not start, check the voltage reading of the battery voltage indicator. If the voltage indicator reads below 11.0 volts (19V on 24V models, this could be the reason for not starting. Check that the wire connections are good and that the battery is fully charged. If these are ok and you get the same, then this is indicative that the inverter is too small for the application.

### Safety Instructions

#### Explosive Gas Precautions:

This equipment contains components that can produce arcs or sparks. To prevent fire or explosion do not install in compartments containing batteries or flammable materials, or in locations that require ignition-protected equipment. This includes any space containing petrol-powered machinery, fuel tanks, joints or other connections 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 gets into eyes, immediately flood eyes with running cold water for at least 20 minutes and get medical attention immediately. NEVER smoke, allow a spark or flame in the vicinity of batteries or engine. Do not drop a metal tool on the battery as the resulting spark or short-circuit of the battery 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 similar metal, causing a severe burn.

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**Electrical Requirements:**

Before installing your inverter, please make sure that you have appropriately sized batteries. A battery that is too small in capacity will not allow the inverter to perform to its full specification. The DC cabling must be connected to the correct polarity terminals of the battery bank. (Red = Positive, Black = Negative). DO NOT extend the DC cable length to the inverter unless you are prepared to increase the diameter of the cable. If this is necessary consult your supplier or installer for advice.

**WARNING!** Reverse polarity connection will blow the internal fuse and may damage the inverter permanently. Reverse polarity is not covered by warranty.

**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 source.

**Controls and indicators:****1. ON/OFF Switch (all models):**

The ON/OFF switch turns the control circuit in the power inverter on and off. It does not disconnect power from the power inverter. Always leave this switch in the off position before operating inverter.

**2. Over temp LED indicator (all models):**

The over temp LED indicates that the power inverter has shut down because it has become overheated. The power inverter may overheat because it has been operated at power levels above it's rating, or because it has been installed in a location, which does not allow it to dissipate heat properly. The power inverter will restart automatically once it has cooled off.

**3. Overload LED indicator (all models):**

The overload LED 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.

**4. Input voltage display (INV1000/1500/2500 only):**

This bar graph displays the status of the input voltage from the supply source. Under normal operating conditions the bar graph should display in the green area. Should the voltage either increase or decrease the bar graph will display in the red areas and the unit will shut down.

**5. AC Load display (INV1000/1500/ 2500 only):**

This bar graph displays the AC power drawn from the power inverter. It indicates the load in Watts. Under normal operating conditions the bar graph should display in the green or orange bars of the display. If the load is excessive the number of bars being displayed will increase. Should all the bars illuminate, the unit will shut down to protect itself as this is in overload condition.

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**Before Use:**

1. Unpack and inspect the power inverter, check to see that the power switch in the OFF position.
2. Connect the DC POSITIVE cable to the Positive (POS+) terminal on the battery.
3. Connect the cable to the Positive terminal on the inverter.
4. Connect the DC NEGATIVE cable to the Negative terminal on the inverter.
5. Connect the cable to the Negative (NEG-) terminal of the battery. This should be the last connection made. A spark when making this final connection is normal.

**WARNING!** • Make sure all the DC connections are tight. Loose connections will overheat and could result in a fire hazard. • Do not operate the power inverter without connecting it to ground if used on a building site. Electrical shock hazard may result. • You may observe a spark when you make this connection. Do not make this connection in the presence of flammable fuse Explosion or fire may result.

**Testing Unit after Connection:**

1. Set the power switch to the ON position. Check the METERS and INDIDCATORS on the front panel of the inverter. The voltage bar graph will indicate the level of voltage from power source. If bar graph (1000/1500/2500) or LED (600W) does not indicate voltage, check the power source and the connections to inverter. The other indicators should be off.
2. 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 GPO on the front panel of the inverter while still in the "off" position.
3. Set power inverter switch to the ON position and turn the test load on. The inverter should supply power to the load.
4. If you are operating several loads from the power inverter, switch them on separately after the inverter has been switched on.

**Maintenance:**

Very little maintenance is required to keep your inverter operating properly. You should clean the exterior of the unit periodically with a dry cloth to prevent accumulation of dust and dirt. Do NOT use cleaning chemicals or water.

**Remember to remove all plugs from GPO's when cleaning the inverter and at the same time, check and tighten the screws if necessary on the DC input terminals.**

**Helpful Tip to Conserve Battery Power:**

Should the inverter not be used over an extended period of time, it is recommended that the battery be disconnected from the inverter. This will ensure battery will not be drained over the period of non-usage.

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**Trouble Shooting:**

| Symptom  | Possible Cause   | Solution  |
|--|--|---|
| Low AC output voltage: 190-210VAC                  | Using average reading Voltmeter  | Use true RMS meter and cable  |
| No AC output voltage. Over Temp LED On.            | Insufficient ventilation around inverter<br>Ensure true power rating of appliance (including power factor) is less than inverter output rating   | Improve ventilation<br>Check ratings and reduce with different appliance  |
| Inverter shuts down when trying to start a load    | Possible surge from motor starting causing shut down   | Check that battery voltage is within specification. If voltage drops excessively when starting, batteries size may have to be increased. Or load is too large for inverter.   |
| Load LED flashes                                   | Overload   | Reduce load. Remove load.   |
| No AC output voltage. Bar Graph in lower RED zone. | Low input voltage  | Check battery status.<br>Re-charge if required.   |
| No AC output voltage. Bar Graph in upper RED zone. | Excessive input voltage  | Check input voltage.<br>Reduce if too high.   |
| TV channel interference on some channels           | Connection of chassis ground lug at rear of inverter needs attention.<br><br>High power loads being used during TV viewing.<br><br>Ensure TV antenna providing a good signal.<br><br>DC power cables too long causing excessive radiated interference. | Check chassis ground lug is a solid connection.<br><br>Do not use high power loads.<br><br>Check antenna wiring and connection. Move TV away from power inverter.<br><br>Shorten cables if necessary and twist them together with approx. 2 to 3 twists per foot. |

**Warranty Conditions:** The product is warranted to be free from defects in materials and workmanship under normal use and service for a period of 24 months from the date of sale. This warranty covers defective parts and workmanship provided that the product is shipped prepaid to the seller within 24 months of purchase of goods. This warranty is limited to the repair or replacement (at the manufacturers' discretion) of parts and shipping prepaid to the original despatch destination. We regret that no liability can be accepted for consequential or special damages of any kind howsoever arising in connection with products supplied by the seller. This warranty is in lieu of all other warranties expressed or implied. No representative is authorised to assume for the seller any other liability in connection with the seller's products.