



PURE SINE WAVE INVERTER

OWNER'S MANUAL



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Read This First

Thank you for purchasing our Nomad pure sine wave inverter. Your Nomad inverter is part of a family of advanced power inverters from Nomad Power Systems, leader in off-grid power systems.

Connected to a battery or other stable DC source your Nomad Inverter will power a wide variety of devices including computers, microwave ovens, lighting, power tools and refrigerators. The pure sine wave output from this inverter ensures that AC loads connected to this unit work correctly and energy efficiently. Since these devices were designed to operate from pure sine wave AC voltage.

To get the most out of your Nomad inverter, carefully read and follow this entire manual.

Should you have any questions, please in the first instance contact your local distributor, else contact Nomad Power Systems on

Email: support@nomadpower.net

Phone: +1 777 246 7048

Web: www.nomadpower.net

Please record the following information

Order Number:

Place of Purchase:

Date of Purchase:

About Nomad Power Systems

Nomad Power Systems is a leader in the field of off-grid power systems technology. Our products include pure sine wave inverters, inverter-chargers, battery chargers, deep cycle batteries, circuit breakers and accessories.

Warranty

Your Nomad Inverter comes with a one-year warranty provided by your local distributor you purchased your unit from. Please contact your local distributor for all warranty enquiries.

Notice of Copyright

Your Nomad inverter owners guide is © 2020 Nomad Power Systems, all rights reserved.

Contact Information

Telephone: +1 777 246 7048

Email: support@nomadpower.net

Web: www.nomadpower.net

Important Safety Information

For your safety and that of others please read and follow this section carefully as you are working with high voltage equipment that if not operated correctly has the potential to cause fatal injury.

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Shock Hazard

Your Nomad inverter generates the same potential dangerous AC current as a domestic wall outlet. Do not insert foreign objects into the inverter's AC outlets or any other openings. Keep the unit out of reach of children at all times.

Do not expose your Nomad inverter to rain, snow, water or water spray. Do not touch or operate the unit with wet hands.

Your Nomad inverter contains electrical components that have the potential to cause an electrical spark. Do not operate the inverter in compartments containing flooded lead acid batteries or flammable gases or materials.

Carefully route all DC and AC electrical cabling, paying special care to avoid sharp edges or hot surfaces.

Your Nomad inverter is designed as a component of a stand-alone power system, do not connect the AC output from the inverter in any way into an on-grid power system or modify it to do so.

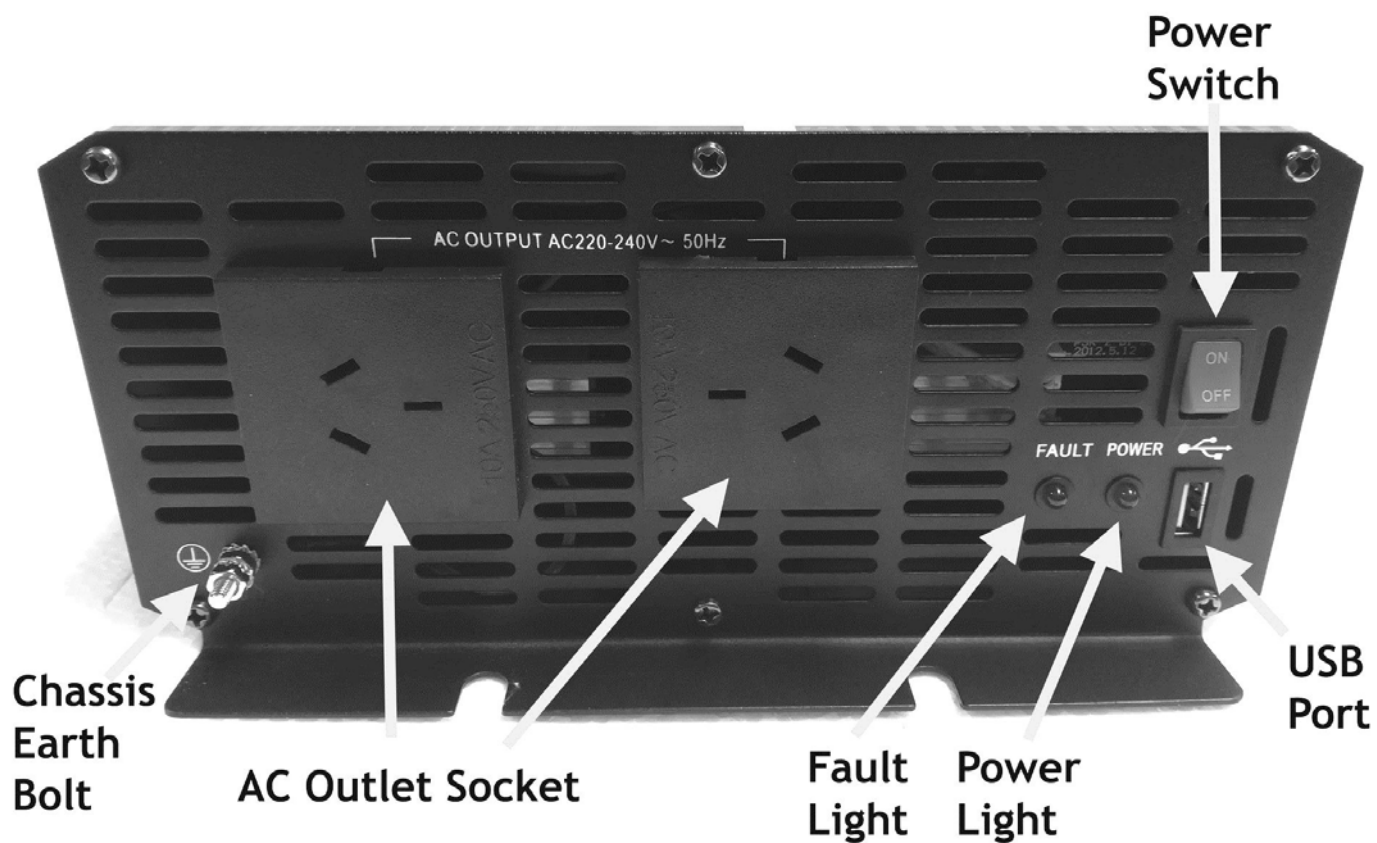
Reverse polarity battery connection: connecting the DC positive to negative and negative to positive will cause damage that will require repair. Damage caused by reverse polarity connection is not covered under warranty.

Some electrical equipment is not compatible with power inverters. Typically some types of devices that incorporate a rechargeable battery e.g. portable lights, shavers or the battery chargers of certain manufacturers power tools, these will typically state this incompatibility on their electrical label. It is your responsibility to confirm the compatibility of any electrical equipment to be run from your Nomad inverter.

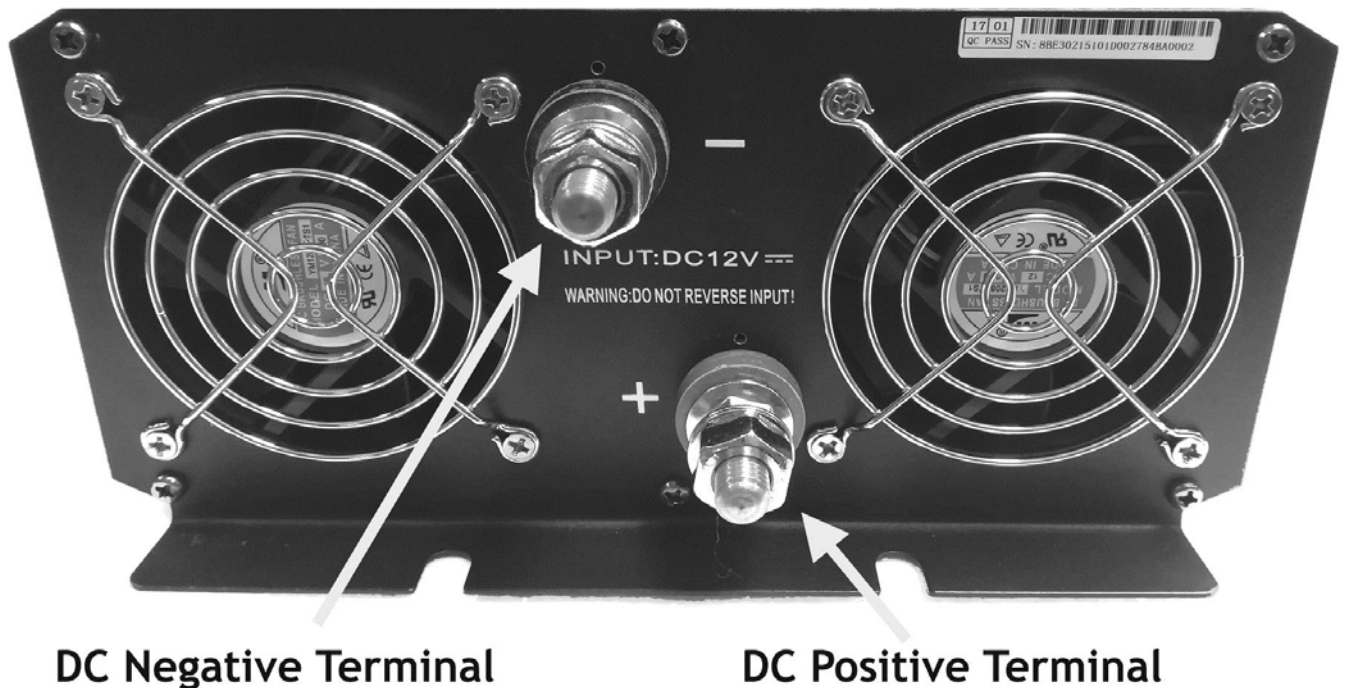
Do not operate Your Nomad inverter in temperatures under -10°C or over 40°C .

Nomad Inverter Features

AC Outlet End



DC Input End



AC outlets are used to power AC loads

Power Switch turns the inverter's control circuit on and off. This switch is not a power disconnect switch.

Fault light (red) indicates that the inverter has shut down due to inverter overload, over temperature, short circuit or earth leakage.

Power light (green) indicates the inverter is operating.

USB port outputs DC5V 2A, connect a USB powered device to this USB port and switch it on. The USB output on the power inverter provides a supply of 5V DC power for USB external appliances (e.g. lights, fans, radios) up to a maximum of 2A.

The USB output is permanently on when the power inverter is connected to batteries.

Warning: The USB port on the power is not designed for transferring data. Do not connect memory sticks, MP3 player or similar data storage external appliances.

DC Negative input terminal always connects to the negative terminal of the battery via a negative DC input cable (black battery cable).the negative DC input terminal is coloured black.

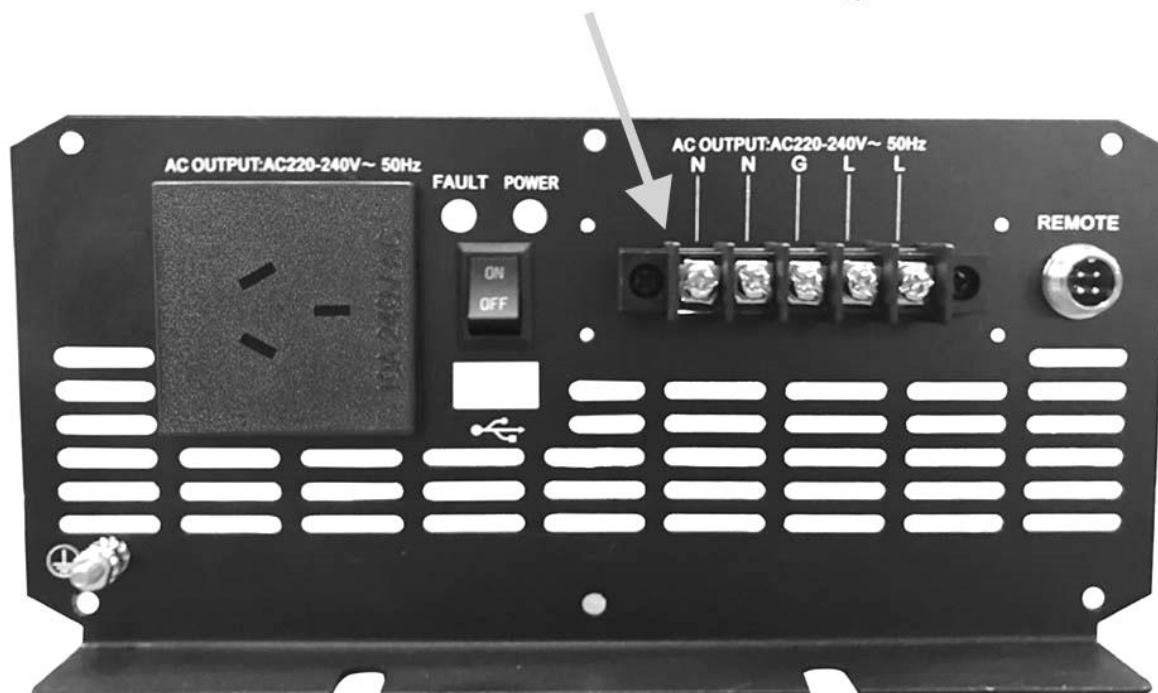
DC Positive input terminal always connects to the positive terminal of the battery via a positive DC input cable (red battery cable).the positive DC input terminal is coloured red.

Warning: Do not reverse polarity connection, the wrong connection will result in a blown fuse and will cause permanent damage to the inverter.

Chassis earth bolt connects to vehicle chassis, grounding bus or to grounding rod.

Direct Wiring Terminals

Direct Wiring Terminals



On NPS inverters fitted with direct wiring terminals, route the AC cabling through the glands of the cover and fix at the terminals. When you have finished wiring the terminals screw the cover into place.

Cover screwed into place



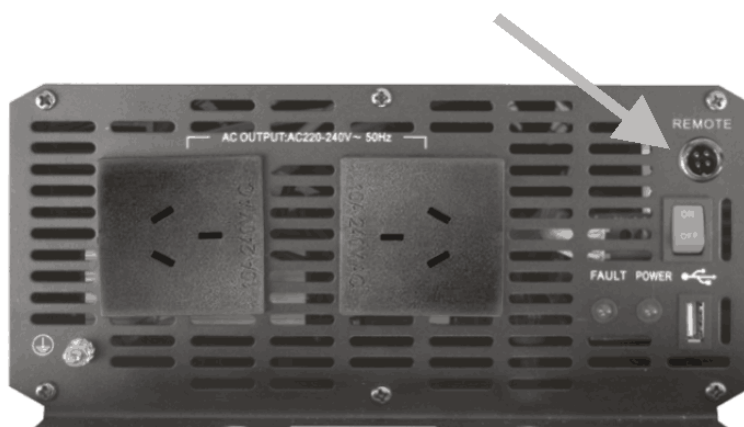
Remote Switch

If your NOMAD inverter is fitted with a remote switch port, then you can use the NOMAD remote switch and panel accessory to remotely switch and monitor your inverter.



The remote switch port is located on the AC end of the inverter. You must set the power switch on the inverter to OFF for the remote switch to work.

Remote Switch Port



Installation Guide

Depending on your local state or country there may be additional regulations that must be followed. It is the installers' responsibility to ensure that all applicable installation requirements are met.

Locating Your Nomad inverter

Your Nomad Inverter must be installed in a location that is

- **Dry**
- **Cool**
- **Ventilated**

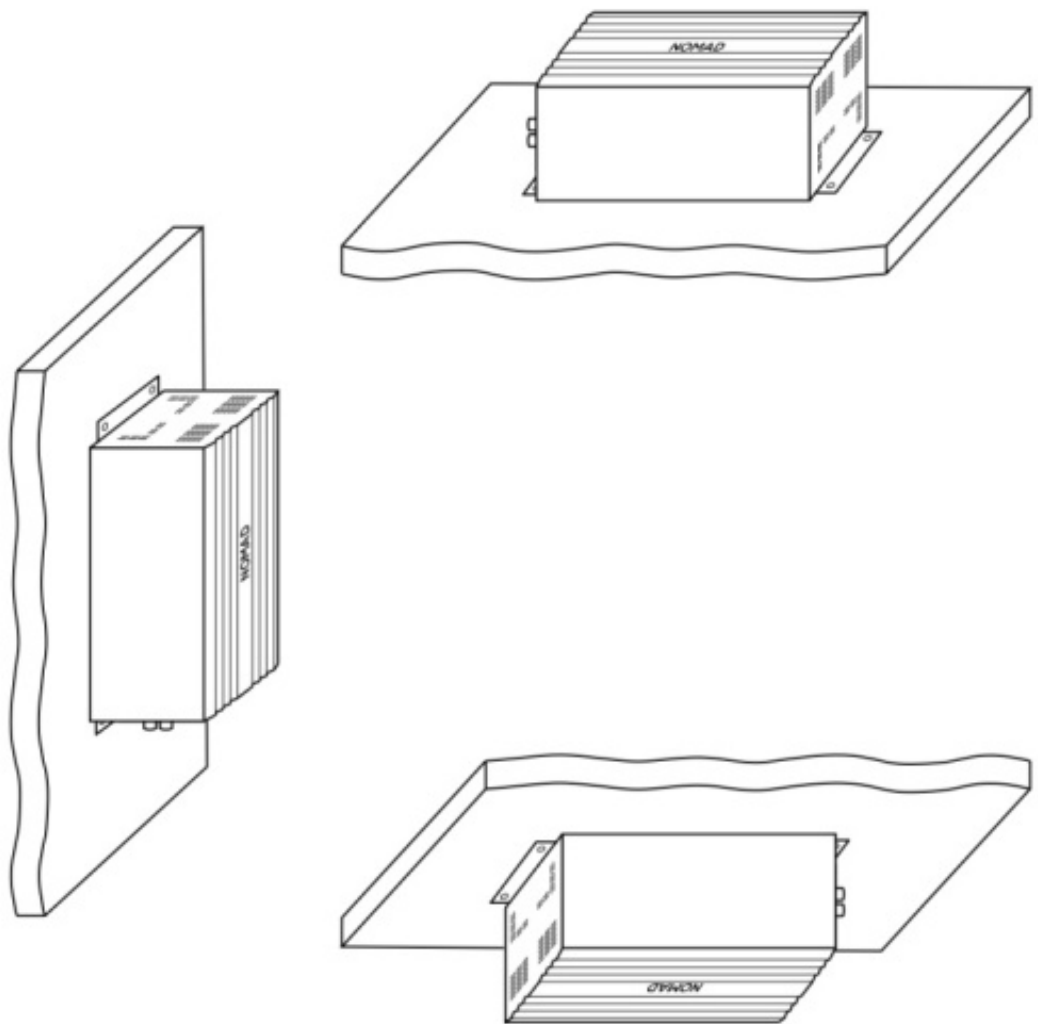
Your unit requires at least 10 inches (25 cm) of completely free clearance at both ends and 5 inches (12 cm) of clearance at the sides. The more clearance for ventilation the more stable the internal temperature will be and the longer your unit will last.

- **Dust free**
- **Non flammable**
- **Away from strong magnetic fields**

Do not locate your inverter directly next to equipment that produces strong electromagnetic fields, such as electric motors and power transformers.

Mounting the Inverter

Your Nomad Inverter comes with a mounting flange with holes for the unit to be fixed in place. Mount the unit to either a horizontal or vertical surface.



Example mounting positions

Ensure you mount it in such a way so the warning lights are visible and the off/on switch is easy to operate.

Operation Guide

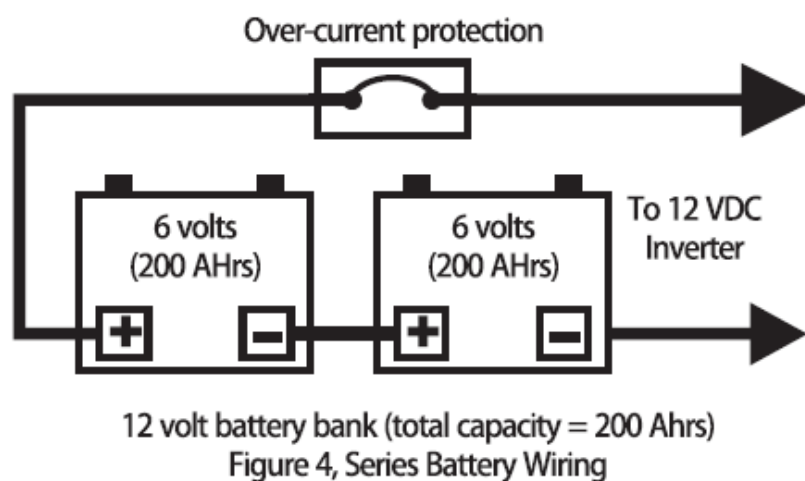
Corrosive materials warning

To reduce the risk of irritation or burns to yourself wear protective eyewear and clothing when handling batteries. Be careful that any metal tools or jewelry does not contact the battery terminals. And take care to not have any battery acid splash onto your inverter.

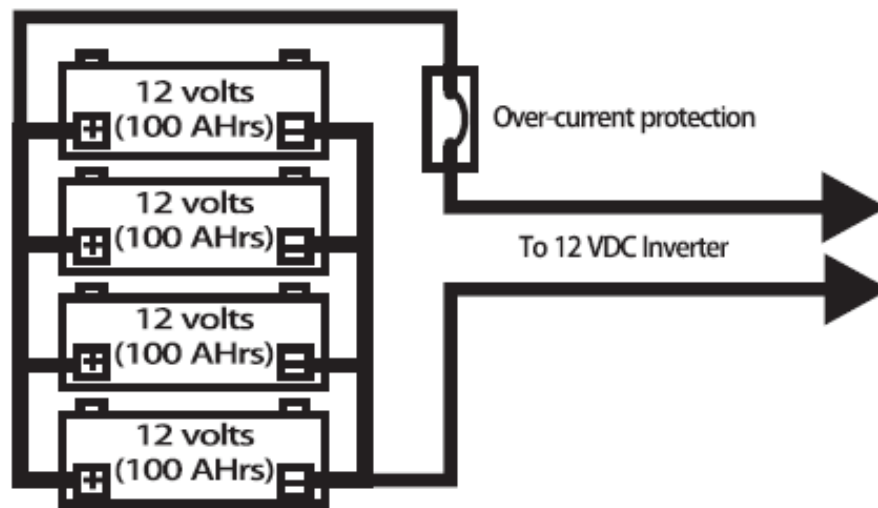
Use the correct power supply

Use the correct power supply for your unit either 12, 24 or 48 Volt DC. Connecting a power supply greater than 1.5 times higher than its rated voltage will damage your unit.

Connecting batteries to your inverter: series, parallel and series-parallel battery configuration



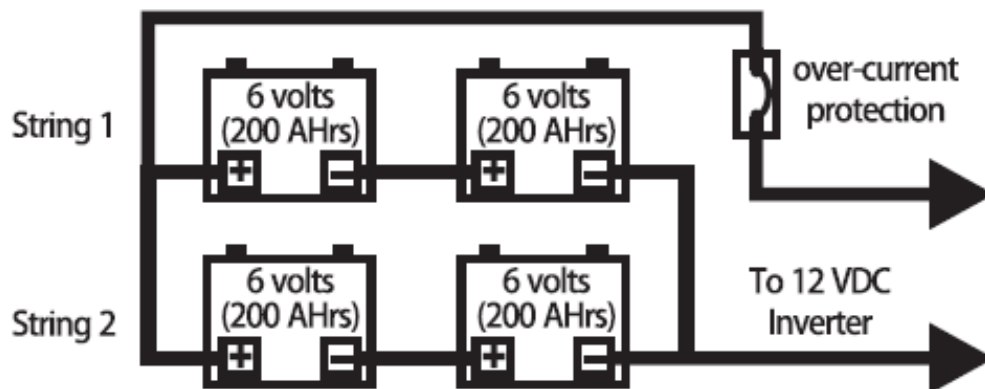
Series



12 volt battery bank (total capacity = 400 AHrs)

Figure 5, Parallel Battery Wiring

Parallel



12 volt battery bank (total capacity = 400 AHrs)

Figure 6, Series-Parallel Battery Wiring

Series-Parallel

For basic electrical safety use a fuse or circuit breaker on the positive cable to the inverter, or on both the positive and negative cables to the inverter.

Connecting the unit

- 1 Make sure the power switch of your AC load is turned off.
- 2 Ensure your Nomad Inverter power switch is switched off
- 3 Connect **ALL** provided DC cables to your inverter. The red to the red terminal and the black to the black terminal. Ensure the insulated nuts are tightened firmly. If your unit has more than one terminal of each polarity, attach cables to each. You must connect using **ALL** the cables the inverter comes with.
- 4 Attach the positive (red) cable to the positive terminal of your battery.
- 5 Attach the negative (black) cable to the negative terminal of your battery. You may see a small spark when you make this connection, this is normal. If your unit has multiple terminals of each polarity connect each of those terminals' cables to your battery.
- 6 Check that the battery cables to each battery terminal are firmly secured. Loose connections can cause sparks, overheating and voltage drops.
- 7 Turn the power switch on your Nomad Inverter unit on. Both the green and red LED will light and then after a few seconds only the green LED will be lit.
- 8 Turn on the connected AC load, one device at a time. The largest loads are recommended to be turned on before the smaller loads.
- 9 When turning off the inverter the LED may flash and a short beep heard

Note: In general do not connect the AC neutral to any battery negative connection, unless you have a specific reason to do so as advised by qualified electrician.

Disconnecting the battery

Please follow these recommended steps to disconnect the battery from your Nomad Inverter.

Step 1 Turn off AC load.

Step 2 Turn off Inverter.

Step 3 Disconnect negative (black) battery cable, and then disconnect positive (red) battery cable.

Protection Features and Fault Codes

This section describes the operation of your Nomad inverter as well as several inbuilt protection functions.

Normal operation

The unit is switched on and the green light is lit.

Low battery voltage alarm and shut down

If the input DC voltage becomes too low, e.g. the battery voltage has become drained below 10.5v; the unit will sound an alarm to alert you to this.

This alarm will give you time to take action to shut down sensitive equipment such as computers before the AC power stops.

If the voltage continues to drop and passes the low voltage shutdown threshold which is 10v, the unit will switch off. This feature is designed to save the battery from being completely drained and non-standard power being supplied to your AC circuit.

If your unit has switched off because of low voltage shutdown, you will need to increase the voltage of your battery, then unit will then restart automatically.

AC overload shutdown

If you connect an AC load which exceeds the wattage specified in your unit's product information sheet, the AC circuit will shut down, the buzzer alarm will sound and the red fault light will come on. Turn the

power switch off, reduce the amount of AC load and then turn the power switch on to reset the unit.

High DC voltage shutdown

When the DC input voltage exceeds 15v, the unit will switch off and the red fault light will come on.

Thermal over-temperature shutdown

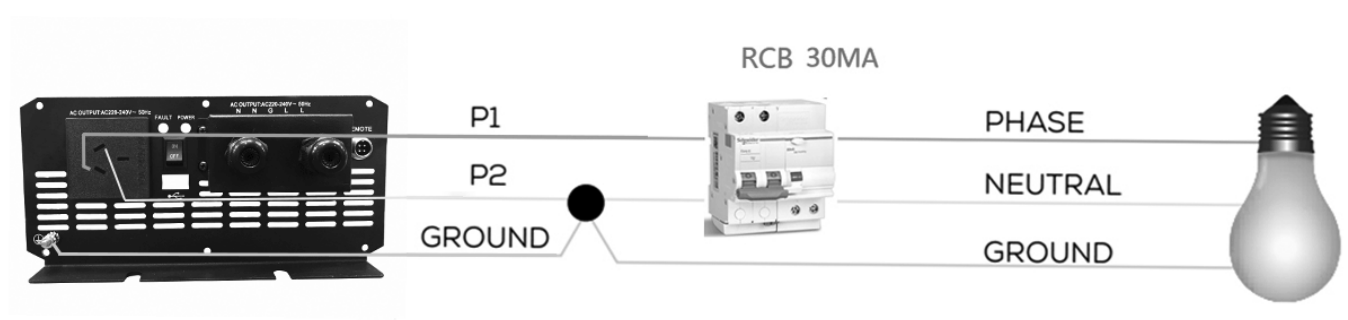
If the internal temperature of the unit exceeds acceptable levels, the unit will shutdown automatically. The unit can be used again after 15 minutes.

AC short circuit shutdown

If a short circuit between the output AC live and neutral is detected the unit will shutdown automatically.

Earth fault protection

To add an RCD to your inverter connect it as per this diagram



Trouble Shooting Guide

Audio visual interference

Audio visual equipment displays some distortion such as snow or lines on a TV or audio distortion, this can sometimes occur if your inverter unit is located right next to your audio visual Equipment, to avoid this locate the inverter at least 5 meters from Audio Visual equipment. Also keep the battery cables short and twisting them around each other can also help.

The unit doesn't work

- The switch is not turned on, turn the power switch to the ON position
- Reset the unit by switching it off then on.
- The inverter is not well connected to the battery. Check and tighten connections at the inverter and battery terminals.
- The battery voltage is too high or too low. Check the voltage of each battery in the battery stack and the battery stack as a whole, both under no load and under load. Replace the battery if the battery voltage is outside its or your Nomad inverters specifications.
- Short circuit in the AC circuit. Check the cabling is not damaged and also check the AC load for fault.
- The load is too high. Reduce the load and restart the inverter.
- Positive and Negative DC input are reversed, check cabling is connected correctly. If the positive and negative have been reversed, the unit will either need its fuses replaced or a more serious repair.

- Over temperature protection has been triggered. Relocate the unit to a cooler place, let cool down and restart.
- If the red and green LED are off the internal fuse may have blown, open unit and replace fuse if necessary.

The inverter is protected by an automatic internal circuit, in addition to that there is an internal fuse that can blow if mistreated e.g. reverse polarity, to check it you need to open the unit and check visually and by resistance. If it needs replacing, replace it with an identical one, a spare fuse for your inverter is included in your inverter packaging.

One Year Limited Warranty

Nomad Power Systems provides a one-year limited warranty against defects in materials and workmanship on all inverter and charger products if installed and operated inside the guidelines specified in its product manual. The Warranty term begins from date of purchase.

The warranty does not apply to any Product or Product part that has been modified or damaged by the following:

- Alteration or Disassembly;
- Normal Wear and Tear;
- Accident or Abuse;
- Corrosion;
- Lightning;
- Repair or service provided by an unauthorized repair facility;
- Operation contrary to manufacturer product instructions;
- Fire, Floods or Acts of God;
- Shipping or Transportation;
- Incidental, consequential damage or incompatibility caused by other components of the power system;
- Any other event not foreseeable by Nomad Power Systems.

Nomad Power Systems' liability for any defective Product, or any Product part, shall be limited to the repair or replacement of the product, at Nomad Power Systems discretion. Nomad Power Systems does not warrant or guarantee workmanship performed by any person or firm installing its products. This Warranty does not cover the costs of installation, removal, or reinstallation of products.

To request warranty service, you must first contact your Nomad Power Systems product distributor within the warranty period.