SMART DC to AC POWER INVERTER
240VDC→220VAC USER'S MANUAL

☆Read the manual particularly before using the inverter!

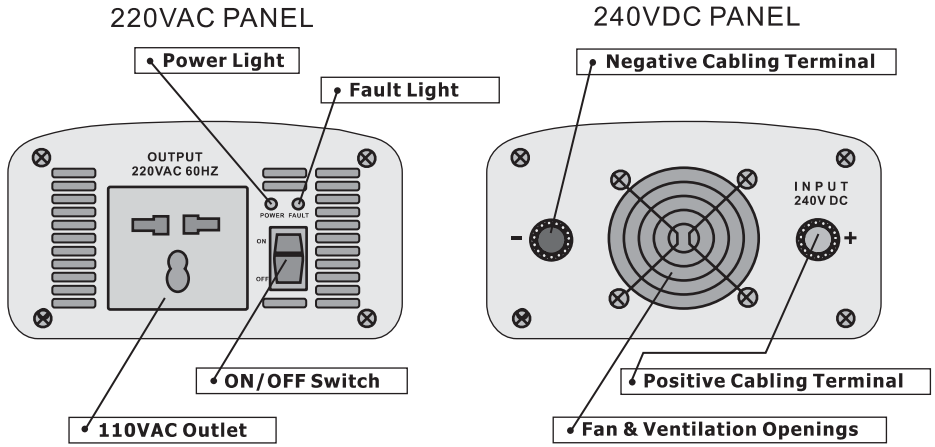
■ABOUT THE INVERTER

The inverter provides dependable modified sine wave power for industry, business, homes, wind power generator and workshops. It can power most common electrical appliances such as lights, TVs, cash registers, computers, and power tools. The high surge capacity of inverter gives it the ability to start difficult motor loads.

Inverter Features:

- ●Auto shutdown prevents total battery discharge.
- ●Regulated output frequency for time sensitive applications.
- ●High surge capacity for starting demanding loads.
- ●Standard forced air variable speed cooling fan.
- ●Compact size for convenient use and storage.
- ●Silent operation.

■FIGURES



■IMPORTANT SAFETY INFORMATION

Misusing or incorrectly connecting the inverter may damage the equipment or create hazardous conditions for users. Read the following safety instructions and pay special attention to all Caution and Warning statements in the manual.

⚠ **Warning! Shock Hazard**

Keep children away from the inverter. The inverter generates the same potentially lethal AC power as a normal household wall outlet.

⚠ **Warning! Heated Surface**

The inverter housing may become uncomfortably warm, reaching 140° F (60° C) under extended high power operation. Ensure that at least 2 inches (5 cm) of air surround the inverter. During operation, keep it away from materials that may be affected by high temperatures.

⚠ **Warning! Explosion Hazard**

Do not use the inverter in the presence of flammable fumes or gases, such as in the bilge of a gasoline powered boat, or near propane tanks. Do not use the inverter in an enclosure containing automotive-type, lead-acid batteries. These batteries, unlike sealed batteries, vent explosive hydrogen gas, which can be ignited by sparks from electrical connections.

⚠ **Caution!**

Some chargers for small nickel-cadmium batteries can be damaged if connected to the inverter. Do not use the inverter with the following appliances:

- ●Small battery-operated appliances like rechargeable flashlights, some rechargeable shavers, and night lights that are plugged directly into an AC receptacle to recharge.
- ●Battery chargers used in hand power tools. These chargers display a warning label stating that dangerous voltages are present at the charger battery terminals.

⚠ **Caution!**

Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched OFF.

Do not connect any AC load, which has its neutral conductor connected to ground, to the inverter.

Additional Safety Guidelines

- ●Do not insert miscellaneous objects in the inverter outlets.
- ●Never connect the inverter to power utility AC distribution wiring.
- ●Do not use the inverter in temperatures over 104° F (40° C).
- ●Do not expose the inverter to water, rain, snow, or spray.

Failure to follow these safety guidelines may cause personal injury and/or damage to the inverter. It may also void your product warranty.

■HOW TO CONNECT THE INVERTER

For the best performance, place the inverter on a flat surface in a location that is:
Dry, Cool, Well ventilated, Safe, Clean.

Follow these steps to connect your inverter:

1. Place the inverter on a **FLAT SURFACE**.
2. Make sure the on/off **SWITCH** of the inverter is **OFF**.
3. Take the cables equipped with battery clips on one end and place the ring terminals over the two cabling terminals on the inverter. Make sure you connect **RED WIRE** to **RED TERMINAL** and **BLACK WIRE** to **BLACK**

TERMINAL tightly. Fasten the **POSITIVE (RED) CLIP** to the **POSITIVE** battery post, and then fasten the **NEGATIVE (BLACK) CLIP** to the **NEGATIVE** battery post.

4. Turn the on/off **SWITCH** of the inverter **ON**. To **VERIFY** the **GREEN LED** power **LIGHT** indicates that the inverter is operating normally and that AC power is available at the outlet.
5. Turn the on/off **SWITCH** of the inverter **OFF**.
6. Make sure the **SWITCH** of the electric appliance is **OFF**.
7. Plug the electric appliance into the three-prong AC outlets of the inverter.
8. Turn the on/off **SWITCH** of the inverter **ON**.
9. Turn the **SWITCH** of the electric appliance **ON**.

SHUT THE INVERTER OFF

⚠ **Warning!**
To avoid discharging the battery, always remove the cables of inverter from the battery when not in use.

1. TURN **the electric appliance** OFF FIRST.
2. TURN the inverter OFF using the front panel On/Off switch.
3. REMOVE the cable clip FROM the battery terminals first.
4. Remove the cable terminals from the ring terminals of the inverter.

■TROUBLESHOOTING

⚠ **Warning! Electrical Shock and Burn Hazard!**
Do not dismantle the inverter. Attempting to service the inverter yourself could result in an electrical shock or burn.

Q: The AC load will not operate. No inverter lights are on.

A: ①Battery is defective.
Check battery and replace if required.
②The inverter has been connected with reverse DC input polarity.
Check connection to battery. The inverter has likely been damaged and needs to be repaired. Have the unit repaired (not covered under warranty).
③Loose cable connections.
Check cables and connections. Tighten as required.

Q: Measured inverter output is too low.

A: ①For accurate measurement, the inverter modified sine wave output requires a "true RMS" voltmeter for accurate measurements.
②The battery voltage is too low.
Recharge the battery.

Q: Alarm is sounding.

A: Low voltage shutdown or thermal shutdown has occurred.
Shorten cables or use heavier cables. Recharge battery. Allow unit to cool. Improve air circulation around unit. Locate units in a cooler environment. Reduce load if continuous operation is required.

Q: Battery run time is less than expected.

A: ①The AC product power consumption is higher than rated.
Use a larger battery to make up for the increased power requirement.
②The battery is old or defective.
Replace the battery.
③The battery is not being charged properly.
Some chargers are not able to fully recharge a battery. Make sure that you use a powerful charger.
④Power dissipation in DC cables. *Use shorter/heavier DC cables.*

Q: The AC load will not operate. The FAULT light is on.

A: ①The AC product(s) connected are rated at more than the inverter's continuous power; overload shutdown has occurred.
Use a product with a power rating less than the inverter's continuous power.
②The AC product(s) connected are rated at less than the inverter's continuous power rating; high starting surge has caused overload shutdown.
The product exceeds the inverter's surge capability. Use a product with a starting surge power within the inverter's capability.
③Battery is discharged (alarm is sounding).
Recharge battery.
④The inverter has overheated due to poor ventilation and has shutdown (alarm is sounding).
Switch inverter OFF and allow to cool for 15 minutes. Clear blocked fan or remove objects covering unit. Move the inverter to a cooler place. Reduce load if continuous operation is required.
⑤Input voltage is greater than normal volts.
Verify the voltage of battery is properly regulated and suited to the inverter.

■SPECIFICATIONS

Model	M2001-120	M2501-120	M3001-120
Input Voltage Range	96-144VDC	96-144VDC	96-144VDC
Output Voltage Range	100-120VAC	100-120VAC	100-120VAC
Maximum AC Output Power	2000W	2500W	3000W
Long Term Power Output	1600W	2000W	2400W
Surge Capacity	4000W	5000W	6000W
Optimum Efficiency	>90%	>90%	>90%
No Load Current Draw	<0.5A	<0.5A	<0.5A
Output Frequency	60±2Hz	60±2Hz	60±2Hz
Output Waveform	Modified Sine Wave	Modified Sine Wave	Modified Sine Wave
Short Circuit Protect	Yes	Yes	Yes
Under Voltage Alarm	Yes	Yes	Yes
Under Voltage Shutdown	Yes	Yes	Yes
Over Load Protect	Yes	Yes	Yes
Over Voltage Shutdown	Yes	Yes	Yes
Over Temperature Shutdown	Yes	Yes	Yes
Cooling Fan	Yes	Yes	Yes
Operating Temperature Range	0° C to 40° C	0° C to 40° C	0° C to 40° C
Dimensions (L x W x H)	250×165×70mm	250×165×70mm	250×165×70mm
Weight (approx.)	2.2Kg	2.2Kg	2.3Kg

⚠ WARNING: Limitations on Use
Specifically, please note that this power supply is NOT intended for use in connection with life support systems and we makes NO warranty or representation in connection with any use of the product for such purposes.