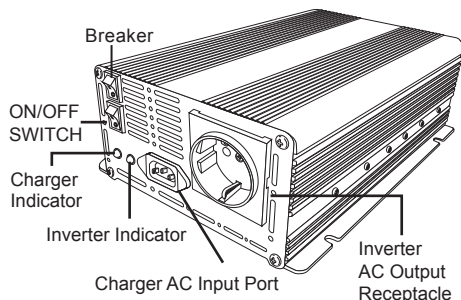


# Inverter / Charger (bypass function)

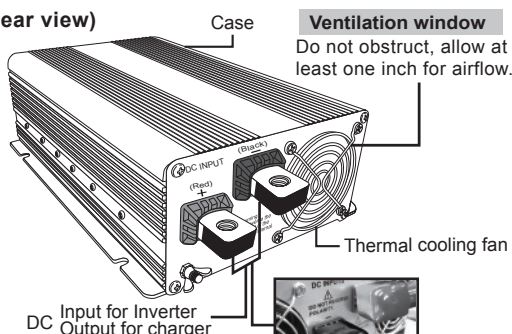
**HT-B-M1000**

**⚠ Damage caused by reversed polarity is not covered by the warranty.**

(Front view)



(Rear view)



**Firstly, thank you for purchase our product. Please read this manual carefully before installing or using this product.**

## Specification

|   |   |
|---|---|
| Model No.:                                    | HT-B-M1000-12                                   |
| Inverter:                                     |   |
| DC input volt:                                | 12V   |
| Volt range:                                   | 10-16VDC(12V)                                   |
| Surge power:                                  | 2000W   |
| Continuous power:                             | 1000W   |
| Wave form:                                    | Modified Sine Wave                              |
| AC voltage:                                   | 100V / 120V / 230V                              |
| Frequency:                                    | 50/60Hz±3%                                      |
| AC Regulation:                                | ±8%(100V:±10%)                                  |
| No load current draw:                         | 0.6A(12V)                                       |
| Bat. low alarm:                               | 10.5±0.5V(12V)                                  |
| Bat. low shutdown:                            | 10±0.5V(12V)                                    |
| Over voltage:                                 | 16±0.5V(12V)                                    |
| Bat. Polarity Reverse:                        | Fuse burn out                                   |
| Over load:                                    | Re-start 1 time, shutdown if failed             |
| Bypass function:                              | Yes   |
| Low AC input volt transfer to inverter mode.: | 90Vac+/-5% or 180Vac+/-5%                       |
| Low AC input volt recovery to AC mode.:       | 95Vac+/-5% or 190Vac+/-5%                       |
| Connector                                     | Input AC Plug: Yes<br>Output AC Receptacle: Yes |
| Charger:                                      |   |
| Output current:                               | 10A(12V)  |
| AC input volt:                                | 120V(90-135V) / 230V(180-265V)                  |
| Charging type:                                | multistage                                      |
| Bulk stage:                                   | 14.5±0.5V, 10A(12V)                             |
| Absorption stage:                             | 14.5±0.5V, 10A-1A(12V)                          |
| Float stage:                                  | 13.6±0.5V, min. 0.5A(12V)                       |
| Frequency:                                    | 45-65Hz   |
| Recommended Battery Type:                     | Lead acid                                       |
| Recommended Battery Size:                     | 40-160AH  |
| DC Power Supply (fixed output) mode:          | 12.5Vdc   |
| <b>PROTECTION:</b>                            |   |
| Over load protection:                         | Yes   |
| Over temp protection:                         | Yes   |
| Inverter input reverse protection:            | Fuse blow                                       |
| Charger output reverse protection:            | Fuse blow                                       |
| Inverter output short circuit protection:     | Shut-off  |
| Over temperature:                             | 55°C ± 5°C                                      |
| <b>ENVIRONMENT:</b>                           |   |
| Working temp.:                                | -15°C ~ 45°C                                    |
| Storage temp.:                                | -25°C ~ 70°C                                    |
| Working humidity:                             | 20%~90% RH non-condensing                       |
| Storage temp., Humidity:                      | -30°C ~ 70°C / -22°F ~ 158°F, 10~95% RH         |
| Temp. Coefficient:                            | ±0.05%/°C(0~55°C)                               |
| <b>OTHERS:</b>                                |   |
| Dimension(LxWxH):                             | 405x179x82.5mm                                  |
| Net weight:                                   | 4.0kgs  |

## Introduction

The Inverter/Charger series are the member of the most advanced line of mobile AC power systems available.

This model is used in a wide range of application including remote homes, RVs, sailboats and powerboats. It will operate most televisions and VCR's, personal computers, small appliances and tools such as drills, sanders, grinders, mixers and blenders.

To get the most out of the inverter/charger, 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 heat protection:  
LED sparkles when product temperature gets high, it would shut down automatically while temperature arrives 55±5°C.

c. Overload protection:  
Orange LED lights when inverter/charger shut down due to overloading. Inverter would re-start one time, if failed, inverter would shut down. Please turn inverter OFF, reduce load and turn inverter ON to reset.

d. AC socket:  
Outlet sockets available: Australia  
NZ  
North America  
Europe  
Universal  
Japan

### 2. Rear view:

a. Ventilation window:  
Do not obstruct, allow at least one inch for airflow.

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/charger permanently.

**⚠ WARNING!!**

Operation of the inverter/charger without a proper ground connection may result in an electrical safety hazard.

## Installation

1. Where to install  
The inverter/charger should be installed in a location that meets the following requirements:

- Dry - Do not allow water to drip or splash on the inverter/charger.
- Cool - Ambient air temperature should be between 0°C and 40°C, the cooler environment is better.
- Ventilated - Allow at least 3 inch (15cm) of clearance around the inverter for airflow. Ensure the ventilation openings on the rear and bottom of the unit are not obstructed.

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

**⚠ CAUTION!!**

This equipment is not ignition protected and employs components that tend to produce arcs or sparks. To reduce the risk of fire or explosions, do not install in compartments containing batteries or flammable materials or areas in which ignition protected equipment is required.

**⚠ CAUTION!!**

To reduce the risk of electric shock and prevent premature failure due to corrosion, do not mount where exposed to rain or spray.

**⚠ CAUTION!!**

To prevent fire, do not obstruct ventilation openings. Do not mount in a zero clearance compartment, overheating may result.

**⚠ CAUTION!!**

Risk of electrical shock. Both AC & DC voltage sources are existed inside this equipment. Each circuit must be individually installed.

**⚠ CAUTION!!**

Risk of electrical shock. Do not remove cover, no user serviceable parts inside. Refer servicing to qualified service personnel.

## APPLICATION INFORMATION:

Provided with integral electronic protection against AC & DC overloads.

## Quick hook - up and testing

If you would like to quick hook-up the power inverter/charger and check its performance before going ahead with your installation, please follow these guideline.

- Unpack and inspect the inverter/charger, check to see that the power switch in the OFF position.
- Connect the cables to the power input terminals on the rear panel of inverter/charger. The red terminal is positive (+) and black terminal is negative (-). Connect the cables into the terminals and tighten the wing nut to the wires securely.
- Connect the cable from the negative terminal of the inverter/charger to the negative terminal of the power source. Make a secure connection.

**⚠ CAUTION!!**

Loosely tightened connectors result in excessive drop and may cause overheated wires and melted insulation.

4. Before proceed further, carefully check if the terminals connect correctly.

**⚠ CAUTION!!**

Reverse polarity connection will blow a fuse in inverter/charger and may permanently damage the inverter/charger. **Damage caused by reverse polarity connection is not covered by our warranty.**

5. Connect the cable from the positive terminal of inverter/charger 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, explosions or fire may result.

6. Set power inverter switch to the ON position and turn the test load on, the inverter should supply power to the load.

**Batteries**

To achieve 50% cycling you should calculate your Amp-hour consumption between charging cycles and use a battery bank with twice that capacity.

To calculate Amp-hour consumption first look at the rating plate on your AC appliance or tools. Each appliance or tool will be rated in either AC Amps or AC watts or AC VA (Volts-Amps) apparent power.

Use one of the following formulas to calculate the DC Amp-hour draw for a 12 Volt system:

- (AC Amps x 10) x 1.1 x hours of operation = DC Amp-hours
- (AC watts/12) x 1.1 x hours of operation = DC Amp-hours
- (AC VA/12) x 1.1 x hours of operation = DC Amp-hours

In all formulas, 1.1 is the factor for inverter/charger efficiency.

Calculate the above for every AC appliance or tool you intend to use on your inverter. This will give you the total number of Amp-hours used between recharges. Size your battery bank using this number as a guideline. A good rule to follow is to size the battery bank about 2 times larger than your total Amp-hour load requirement. Plan on recharging when 50% discharged.

Many electric motors have momentary starting requirements well above their operational rating. Start up watts are listed where appropriate. Individual styles and brands of appliances may vary.

**NOTICE:**

The output of this device is not pure sine wave, but modified sine wave.

- (1)Small Load Inverter LED Indicator : Green.
- (2)Half Load Inverter LED Indicator : Orange.
- (3)Full Load Inverter LED Indicator : Red.

**Battery Charger**

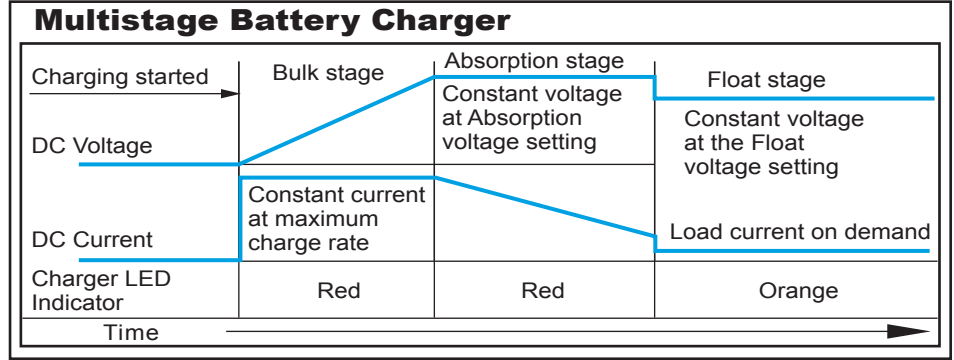
**For lead-acid and lead-calcium batteries only.**

Stage1: Bulk Charge Max 14.5±0.5V, 10A. Charger LED Indicator : Red.

Stage2: Absorption Charge 14.5±0.5V, 10~1A. Charger LED Indicator : Red.

Stage3: Float Charge 13.6±0.5V, min. 0.5A. Charger LED Indicator : Orange.

Complete charging, charger LED Indicator : Green.



**Status Led**

| Inverter LED                                    | Alarm         | Question  | Solution   |
|---|---------------|---|--|
| <b>Inverter Mode (Front inverter indicator)</b> |               |   |  |
| Orange flash                                    | 3 short alarm | Overload / short circuit                                      | Reduce load /Solve short circuit question.   |
| Orange flash                                    | Long alarm    | High temp shut down/ Hightemp. shut down                      | Replace or charge the battery / Allow inverter/charger to cool off. Improve ventilation. |
| Green flash                                     | Quick alarm   | Low battery alarm Poor DC wiring Poor DC terminal connection. | Charge or Change battery   |
| No inverter mode, no inverter indicator LED     | None          | High/Low battery shut down                                    | Reduce input vlot / charge or change battery   |
| <b>Charger Mode</b>                             |               |   |  |
| Red at Fault postioon, (output 2-3A only)       | None          | Hightemp  | Allow inverter/charger to cool off. Improve ventilation.                                 |

**Troubleshooting**

| Problem                                  | Things to Check   |
|--|---|
| No Inverter Output                       | <ol style="list-style-type: none"> <li>1. Battery voltage under load.</li> <li>2. Battery connections and DC fuse.</li> <li>3. Circuit breaker on front panel.</li> <li>4. Thermal condition, high powered loads or inadequate ventilation may cause overheating.</li> <li>5. Overloads or short circuit, check for excessive loads or bad wiring connections.</li> </ol> |
| Low Inverter Output Voltage              | Confirm that your volt meter is a true RMS meter. Standard volt meters will not accurately read the waveform of the inverter. If a true RMS meter is not available, check the brightness of an incandescent light bulb - if it appears normal, the output voltage is properly regulated.  |
| Little or No Output from Battery Charger | <ol style="list-style-type: none"> <li>1. Wiring connections-check both the AC and DC connections.</li> <li>2. AC input voltage-low voltage input will result in low DC output current.</li> <li>3. AC input spec. isn't correct to Inverter/Charger spec.</li> </ol>   |

**⚠ Warning:** Wrong DC volt or AC volt spec., or reversed polarity is not covered by the warranty.