ECO-WORTHY ECO2000W(BB)

ECO-WORTHY 2000W 12Vdc-230Vac Pure Sine Wave Solar Inverter User Manual

Model: **ECO2000W(BB)** | Brand: **ECO-WORTHY**

1. Introduction

The ECO-WORTHY 2000W Pure Sine Wave Solar Inverter is designed to convert 12V DC power from batteries into 230V AC power, suitable for powering various household appliances and electronic devices. This inverter delivers a clean and stable pure sine wave output, making it safe for sensitive electronics. It is ideal for off-grid applications, RVs, camping, and backup power systems.

Figure 1.1: The ECO-WORTHY Inverter is versatile for use in RVs, camping, cabins, and boats, providing reliable power in various off-grid settings.

2. Safety Instructions

Please read and understand all safety instructions before installing or operating the inverter. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Proper Grounding:** Always ensure the inverter is properly grounded to prevent electrical hazards.
- **Overload Protection:** Do not exceed the inverter's rated power output of 2000W. Overloading can damage the unit and connected appliances.
- **Fuses:** The inverter includes built-in fuses and an external 100A ANL fuse for protection against overcurrent. Do not bypass or use incorrect fuses.
- **Ventilation:** Ensure adequate ventilation around the inverter. The dual cooling fans prevent overheating; do not block air vents.
- **Environment:** Install the inverter in a dry, well-ventilated area, away from flammable materials, moisture, and direct sunlight.
- **Battery Connection:** Connect the inverter only to a 12V DC battery system. Incorrect voltage can cause severe

damage.

- **Professional Installation:** If you are unsure about any installation steps, consult a qualified electrician.

Figure 2.1: This diagram details the comprehensive safety protections integrated into the inverter, including ground terminal, external fuse, built-in fuse, short-circuit protection, overload protection, and overheat protection, designed to prevent fire and explosion risks.

3. Package Contents

Verify that all items are present in the package before proceeding with installation:

- ECO-WORTHY 2000W Pure Sine Wave Inverter Unit
- 2 x AC Outlets (integrated)
- 2 x 18W USB Ports (integrated)
- 1 x Hardwire Terminal Block
- 1 x 100A ANL Fuse
- 1 x External Inverter Indicator and Switch with 16.4 ft Extension Cable

- Battery Cables (4AWG, 2.9 ft)
- Grounding Cable (16AWG, 3.2 ft)

Figure 3.1: This image provides the physical dimensions of the inverter and details the included accessories: a remote control with a 16.4 ft wire, battery cables with an ANL fuse, and a grounding cable.

4. Product Overview

The ECO-WORTHY 2000W inverter features a robust design with multiple output options and an informative display for easy monitoring.

4.1 Front Panel Features

- **AC Outlets:** Two standard 230V AC outlets for connecting appliances.
- **USB Ports:** Two 18W USB ports for charging mobile devices (9V/2A when single, 5V/3A when both plugged).
- **LCD Display:** Shows real-time data such as battery level, output power (W), input voltage (VDC), output voltage (V), and various warning indicators.
- **Power Button:** For turning the inverter ON/OFF.

4.2 Rear Panel Features

- **DC Input Terminals:** Red (+) and Black (-) terminals for connecting to the 12V battery bank.
- **Ground Terminal:** For connecting the grounding cable.
- **Hardwire Terminal:** For direct connection to a panel box or specific appliances.
- **Cooling Fans:** Dual smart cooling fans activate automatically to dissipate heat.

Figure 4.1: A detailed view of the inverter's output section, showing two AC outlets, two 18W USB fast charging ports, and a hardwire terminal for panel box connections.

Figure 4.2: This image illustrates the inverter's data monitoring capabilities, showing the main unit and an optional remote switch. The display provides information on output power, battery voltage, output voltage, and working temperature, along with various warnings.

Figure 4.3: This image highlights the inverter's dual smart cooling fans, which activate when the load capacity reaches approximately 750W or the internal temperature reaches 70°C, ensuring efficient heat dissipation and quiet operation.

5. Setup

Follow these steps for proper installation of your ECO-WORTHY inverter.

5.1 Choosing a Location

- Mount the inverter in a cool, dry, and well-ventilated area.
- Ensure there is at least 6 inches of clear space around the inverter for proper airflow.
- Avoid locations exposed to direct sunlight, heat sources, or moisture.

5.2 Connecting to a 12V Battery Bank

The inverter requires a 12V DC battery bank for operation. It is compatible with various battery types.

1. Ensure the inverter is OFF before making any connections.
2. Connect the positive (red) battery cable to the positive (+) terminal of the battery and the positive (red) terminal

of the inverter.

3. Connect the negative (black) battery cable to the negative (-) terminal of the battery and the negative (black) terminal of the inverter.
4. Ensure all connections are tight and secure to prevent arcing and overheating.

Figure 5.1: This diagram illustrates that the inverter is compatible with various 12V battery types, including LiFePO4, Sealed Lead-Acid (SLA), GEL, Flooded (FLD), and AGM batteries. A 12V battery bank is required for inverter operation.

5.3 Grounding the Inverter

Connect the grounding cable from the inverter's ground terminal to a proper earth ground point (e.g., vehicle chassis, ground rod) to ensure safety.

5.4 Connecting AC Loads and Remote Switch

1. Plug your AC appliances into the inverter's AC outlets.
2. For hardwired applications, connect the appliance wiring to the hardwire terminal block, ensuring correct polarity (H, N, E).
3. Connect the remote inverter indicator and switch cable to the designated port on the inverter for convenient monitoring and control.

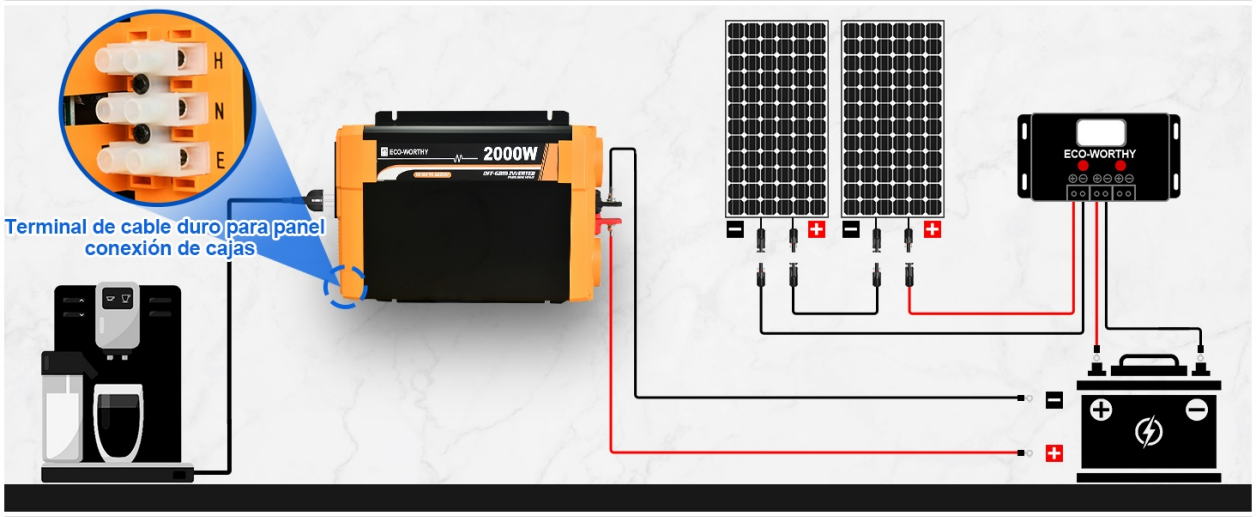

Figure 5.2: This diagram shows a typical wiring setup for the inverter within a solar power system, connecting solar panels to a charge controller, then to a battery, and finally to the inverter. It also highlights the hardwire terminal connection for appliances.

6. Operating Instructions

Learn how to operate your inverter safely and efficiently.

6.1 Turning the Inverter ON/OFF

- **To Turn ON:** Press and hold the power button on the inverter (or remote switch) for a few seconds until the display illuminates.
- **To Turn OFF:** Press and hold the power button again until the display turns off.

6.2 Understanding the LCD Display

The LCD display provides critical information about the inverter's status:

- **Battery Level:** Indicates the charge status of the connected battery (e.g., 25%, 50%, 75%, 100%).
- **Output Power (W):** Shows the current power consumption of connected AC loads.
- **Input Voltage (VDC):** Displays the voltage from the battery.
- **Output Voltage (V):** Shows the AC output voltage.
- **Warning Indicators:** Alerts for high voltage, low voltage, overload, and high temperature.

6.3 Using AC Outlets and USB Ports

- Plug your 230V AC appliances directly into the AC outlets. Ensure the total wattage does not exceed 2000W.
- Connect your USB-powered devices to the 18W USB ports for charging.

Figure 6.1: This image displays the ECO-WORTHY 2000W Pure Sine Wave Inverter, highlighting its 12V DC input terminals and 230V AC output sockets. It also shows examples of appliances it can power, such as a refrigerator (150W), laptop (200W), and microwave (900W).

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure the cooling fan vents are free from dust and debris.
- **Connections:** Regularly check all electrical connections (battery cables, grounding cable, AC output) for tightness. Loose connections can cause power loss or overheating.
- **Environment:** Ensure the inverter remains in a suitable environment, free from excessive heat, cold, or moisture.
- **Fuse Inspection:** If the inverter stops working, check the external 100A ANL fuse and any internal fuses (if accessible and safe to check) for damage. Replace only with fuses of the same rating.

8. Troubleshooting

This section addresses common issues you might encounter with your inverter.

Problem	Possible Cause	Solution
No power output / Inverter not turning on	Loose battery connections, discharged battery, blown fuse, faulty power button.	Check battery connections. Recharge/replace battery. Inspect and replace fuses. Ensure power button is pressed correctly.
Overload warning on display	Connected appliances exceed 2000W capacity.	Reduce the total load by unplugging some appliances. Ensure starting surge of motors is accounted for.
High/Low voltage warning	Battery voltage is too high or too low.	Check battery voltage. Recharge battery if low. Disconnect if voltage is too high.
Overheating / Fans running constantly	Inadequate ventilation, high ambient temperature, prolonged high load.	Ensure clear airflow around the inverter. Reduce load. Move inverter to a cooler environment. Clean fan vents.
Remote display not working	Loose cable connection, faulty remote unit.	Check the connection cable between the inverter and the remote display. Try reconnecting.

9. Specifications

Detailed technical specifications for the ECO-WORTHY 2000W Pure Sine Wave Solar Inverter.

Feature	Specification
Brand	ECO-WORTHY
Model	ECO2000W(BB)
Input Voltage	12V DC
Output Voltage	230V AC
Output Power	2000W
Efficiency	95%
Frequency	50 Hz
Product Dimensions	42.67 x 24.9 x 10.4 cm
Product Weight	6.82 kg
USB Output	2 x 18W (9V/2A single, 5V/3A both plugged)
Included Fuse	1 x 100A ANL Fuse

Feature	Specification
Certifications	ETL

10. Warranty and Support

ECO-WORTHY is committed to providing high-quality products and excellent customer service.

- **Warranty:** This product comes with a 1-year warranty from the date of purchase. Please retain your proof of purchase for warranty claims.
- **Customer Support:** For any questions, technical assistance, or warranty inquiries, please contact ECO-WORTHY's professional after-sales support team. They are available 24/7 to assist you.

For more information, visit the official ECO-WORTHY website or contact their customer service directly.