

## ECO-WORTHY ECO3000W(SR)

# ECO-WORTHY 3000W 24V Hybrid Solar Charge Inverter with 60A MPPT Controller User Manual

Model: ECO3000W(SR)

## 1. INTRODUCTION

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This manual provides comprehensive instructions for the installation, operation, and maintenance of your ECO-WORTHY 3000W 24V Hybrid Solar Charge Inverter. This all-in-one unit integrates a 3000W pure sine wave inverter and a 60A MPPT solar charge controller, designed to efficiently manage your solar power system.

Key features include:

- **Multiple Operating Modes:** Supports two output modes (utility bypass and inverter output) and four charging modes (solar only, utility priority, solar priority, and hybrid charge).
- **Advanced MPPT Technology:** Features a 60A MPPT charge controller with 99.9% efficiency for optimal solar energy harvesting.
- **Pure Sine Wave Output:** Provides stable and clean power, suitable for sensitive electronics.
- **Intelligent Design:** Equipped with an LCD screen and LED indicators for real-time system data, an AC output control switch, an energy-saving mode, and a variable-speed cooling fan.
- **Broad Battery Compatibility:** Compatible with various 24V battery types, including Gel, AGM, Lithium, LiFePO4, Flooded, and NCM/NCA batteries.

## 2. PRODUCT OVERVIEW

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The ECO-WORTHY Hybrid Solar Charge Inverter combines essential components of a solar power system into a single unit, simplifying installation and operation.



Image: Front view of the ECO-WORTHY 3000W 24V Hybrid Solar Charge Inverter, showing the LCD display and control buttons.

## 2.1. Bottom Interface and Connections

The bottom panel of the inverter provides all necessary connection ports for your solar power system.

# BOTTOM INTERFACE

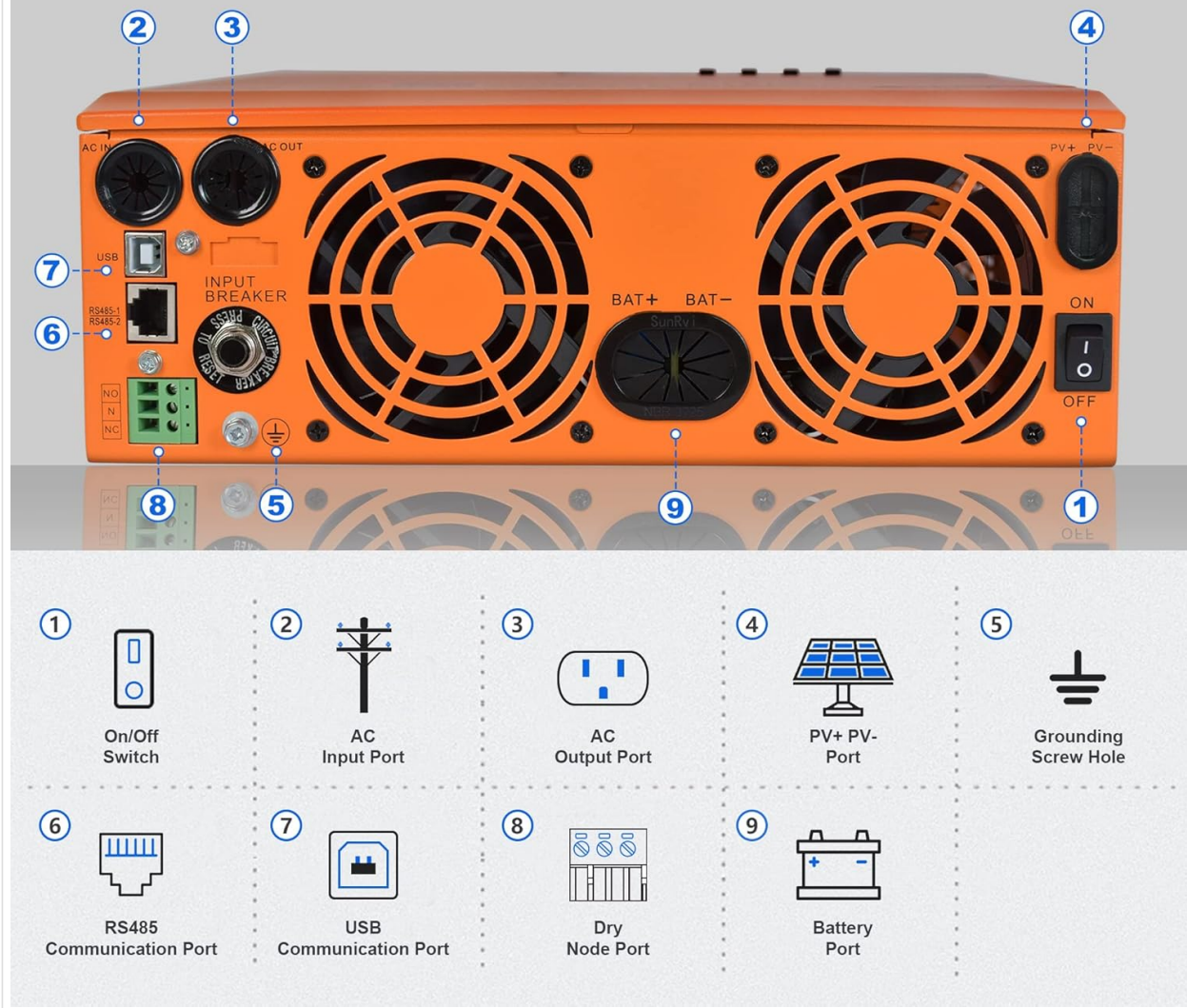


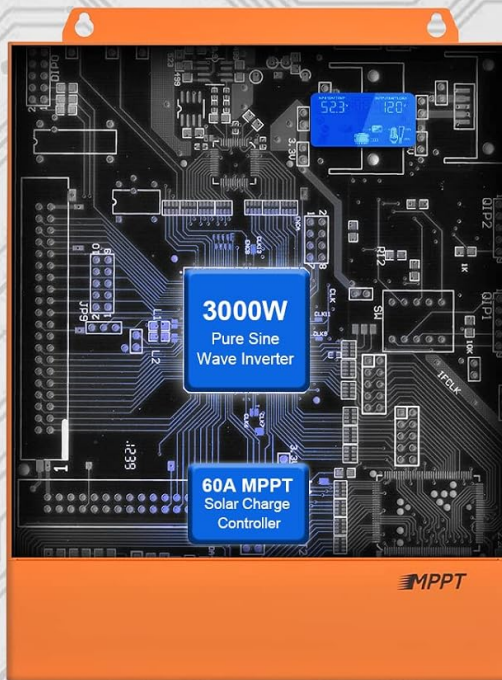
Image: Detailed view of the inverter's bottom interface, highlighting various connection ports and their labels.

1. **On/Off Switch:** Main power control for the unit.
2. **AC Input Port:** Connects to the utility grid or an AC generator.
3. **AC Output Port:** Provides 230V AC power to your loads.
4. **PV+ PV- Port:** Connects to your solar panel array.
5. **Grounding Screw Hole:** For system grounding to ensure safety.
6. **RS485 Communication Port:** For data communication with external devices.
7. **USB Communication Port:** For data communication and monitoring.
8. **Dry Node Port:** For external control or signaling.
9. **Battery Port (BAT+ BAT-):** Connects to your 24V battery bank.

## 2.2. All-in-One Design

This inverter integrates a 60A MPPT solar charge controller and a 3000W pure sine wave inverter into a single compact unit, reducing wiring complexity and installation time.

# ALL IN ONE (LESS WIRE)



60A MPPT Solar Charge Controller



3000W Pure-Sine-Wave Inverter

**230V AC**

230V AC Output

**50/60HZ**

50/60HZ Switchable

Image: Illustration of the inverter's internal components, demonstrating the integration of the 60A MPPT solar charge controller and the 3000W pure sine wave inverter.

## 3. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of the inverter. It is recommended that installation be performed by qualified personnel.

### 3.1. Wiring Diagram

The following diagram illustrates the typical wiring connections for the ECO-WORTHY Hybrid Solar Charge Inverter in a complete solar power system.

# HOW IT WORKS

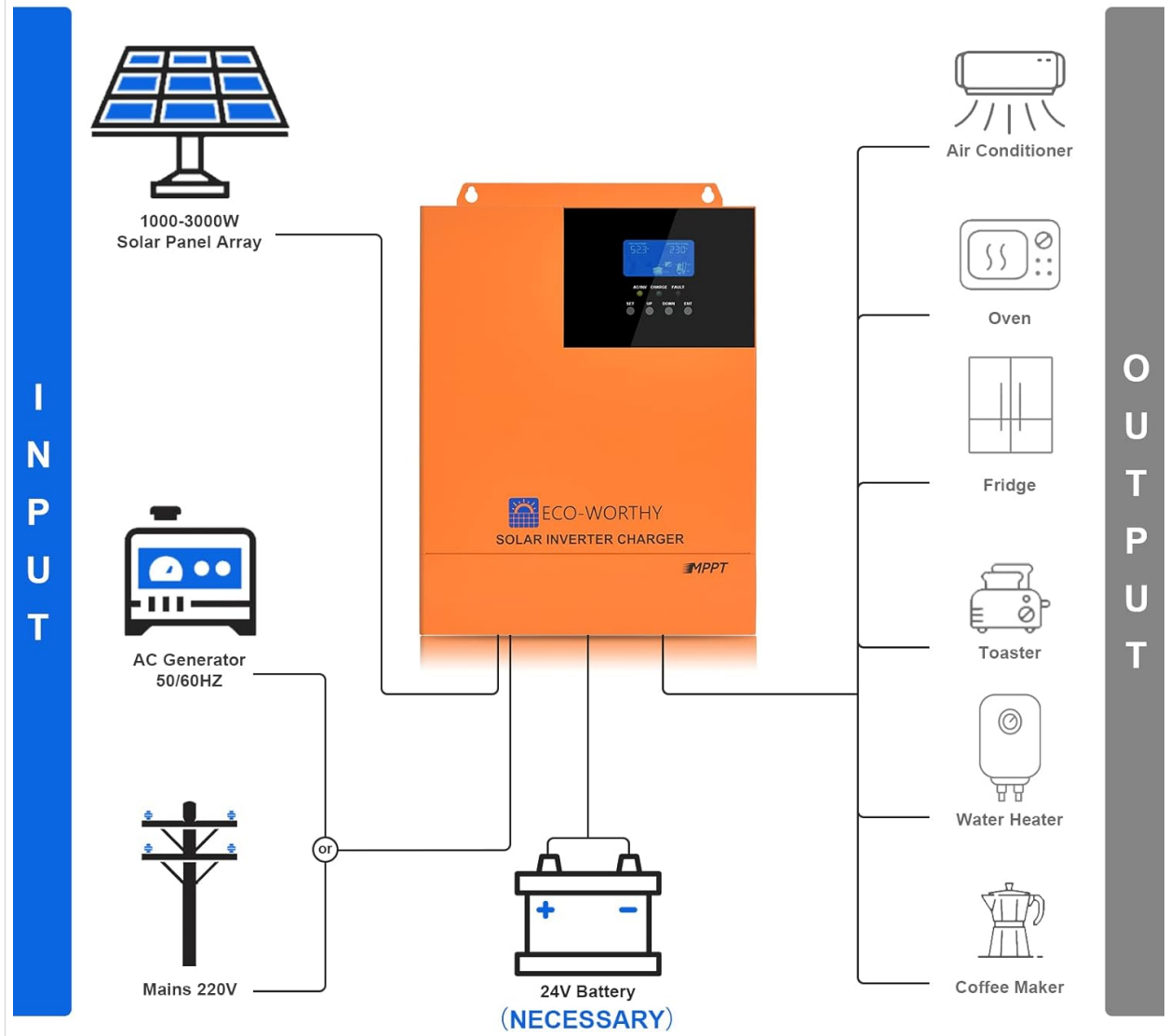


Image: A comprehensive wiring diagram showing connections from solar panels, AC generator/mains, 24V battery, and various AC loads to the hybrid inverter.

- **Input:** Connect solar panel array (1000-3000W), AC generator (50/60Hz), or Mains 220V.
- **Battery:** Connect a 24V battery bank (necessary for operation).
- **Output:** Connect various AC loads such as air conditioners, ovens, refrigerators, toasters, water heaters, and coffee makers.

## 3.2. Wire Gauge Recommendations

Using appropriate wire gauges is essential for safety and performance. Refer to the following recommendations:

# WITH CE CERTIFICATION



## WIRE GAUGE



Battery Wire: 2AWG



AC loads Wire: 7AWG

Image: Visual representation of recommended wire gauges for battery and AC load connections.

- **Battery Wire: 2AWG** (American Wire Gauge)
- **AC Loads Wire: 7AWG**

Always ensure all connections are secure and properly insulated. Consult local electrical codes for specific requirements.

## 4. OPERATING MODES

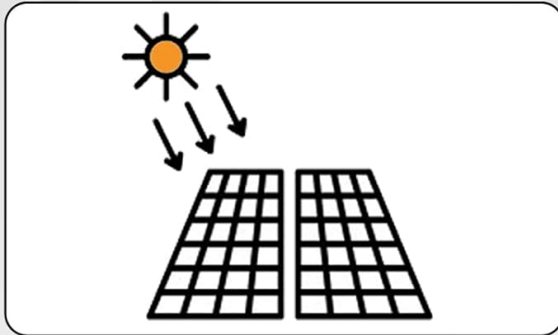
The inverter offers flexible operating modes to suit various power requirements and grid conditions.

### 4.1. Output Modes (UPS Function)

The inverter provides three output priority modes to manage power delivery to your loads, functioning as an Uninterruptible Power Supply (UPS).

# RELIABLE UPS FUNCTION

3 output modes



## Solar First

Suitable For Areas With Relatively Stable Grid

Inverter First

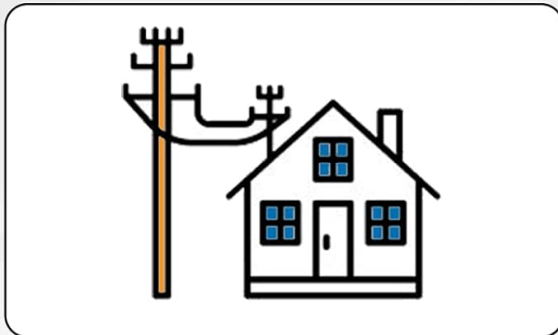
Suitable For Areas With Stable Grid

Solar First

Suitable For Areas With Relatively Stable Grid

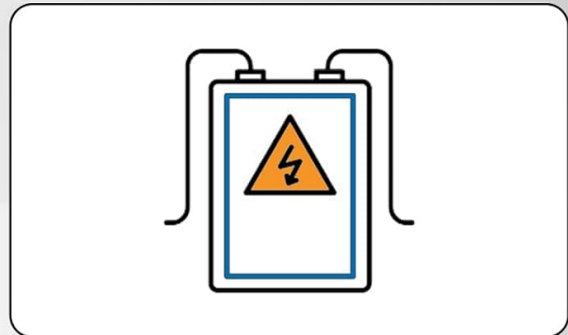
Grid First

Suitable For Areas With Unstable Grid



## Inverter First

Suitable For Areas With Stable Grid



## Grid First

Suitable For Areas With Unstable Grid

Image: Flowchart depicting the three reliable UPS output modes: Inverter First, Solar First, and Grid First, with descriptions of their suitable applications.

- **Inverter First:** Prioritizes power from the inverter (battery/solar). Suitable for areas with stable grid power where you want to maximize self-consumption.
- **Solar First:** Prioritizes solar power, then battery, then grid. Suitable for areas with relatively stable grid power, aiming to use solar energy primarily.
- **Grid First:** Prioritizes utility grid power, then inverter (battery/solar). Suitable for areas with unstable grid power, ensuring continuous supply from the grid when available.

## 4.2. Battery Charging Modes

The inverter supports four battery charging modes to optimize energy storage based on your preferences and available sources.

# NO WASTE ON SOLAR POWER

## FOUR BATTERY CHARGING MODES



### Solar Priority

Auto switch to grid when solar insufficient



### Solar Only

Charging from solar



### Mains Priority

Auto switch to solar when grid insufficient



### Hybrid Charge

The Fastest Charging Mode

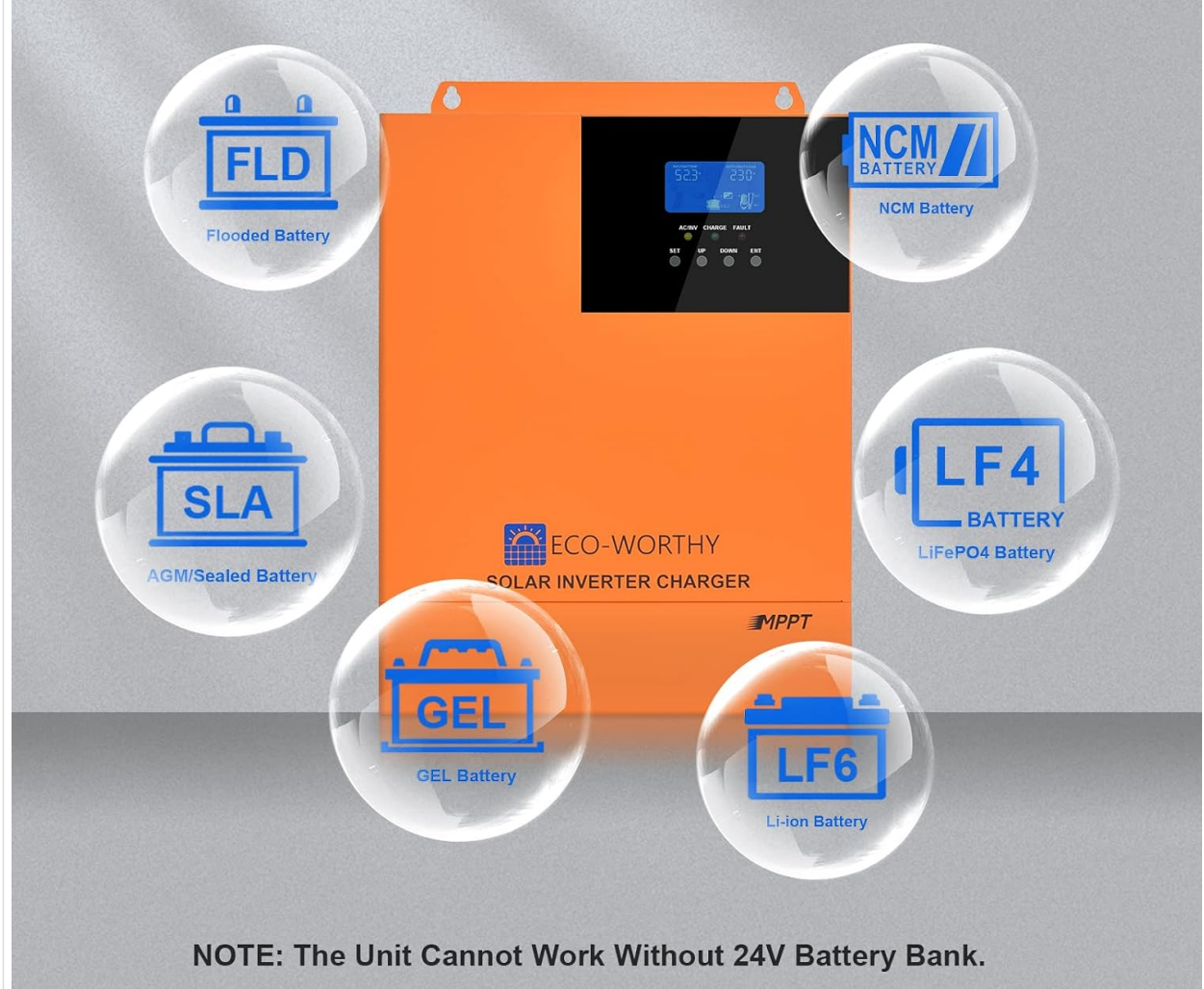
Image: Illustrations of the four battery charging modes: Solar Priority, Solar Only, Mains Priority, and Hybrid Charge, explaining how each mode utilizes solar and grid power.

- **Solar Only:** Charges the battery exclusively from solar panels.
- **Mains Priority:** Charges the battery primarily from the utility grid, switching to solar if the grid is insufficient.
- **Solar Priority:** Charges the battery primarily from solar panels, switching to the utility grid when solar is insufficient.
- **Hybrid Charge:** Utilizes both solar and utility grid power simultaneously for the fastest charging.

## 5. BATTERY COMPATIBILITY

The ECO-WORTHY Hybrid Solar Charge Inverter is designed to be compatible with a wide range of 24V battery types, ensuring flexibility for various energy storage solutions.

# COMPATIBLE WITH 98% KINDS OF BATTERIES



**NOTE: The Unit Cannot Work Without 24V Battery Bank.**

Image: Icons representing different battery types, indicating the inverter's compatibility with Flooded (FLD), AGM/Sealed (SLA), GEL, Lithium (LF6), LiFePO4 (LF4), and NCM/NCA batteries.

Compatible 24V battery types include:

- Flooded (FLD)
- AGM/Sealed (SLA)
- GEL
- Lithium (Li-ion)
- LiFePO4
- NCM/NCA

**Note: The unit requires a 24V battery bank to operate.**

## 6. MONITORING AND SETTINGS

The inverter features an intuitive LCD display and control buttons for easy monitoring of system status and adjustment of settings.

# EASY MONITORING & SETTING



Normal Display



Ac Output Frequency Settings



Charging Mode



Battery Type



Charging Voltage Setting



Equalization charging voltage



AC/INV	Yellow	Steady on: Mains output Flash: Inverter output
CHARGE	Green	Steady on: Charged completed Flash: Battery charging
FAULT	Red	Steady on: Fault state
SET		Enter/Exit settings menu
UP		Previous choice
DOWN		Next choice
ENT		Confirm/Enter options under the settings menu

Image: Close-up of the inverter's LCD screen showing various display modes and the control buttons (SET, UP, DOWN, ENT) with their functions and LED indicator meanings.

## 6.1. LCD Display

The LCD provides dynamic information including input/battery voltage, output/load, AC output frequency, charging mode, battery type, charging voltage settings, and equalization charging voltage.

## 6.2. Control Buttons

- **SET:** Enter/Exit settings menu.
- **UP:** Navigate to the previous choice or increase a value.
- **DOWN:** Navigate to the next choice or decrease a value.
- **ENT:** Confirm/Enter options under the settings menu.

## 6.3. LED Indicators

- **AC/INV (Yellow):** Steady on indicates Mains output. Flashing indicates Inverter output.
- **CHARGE (Green):** Steady on indicates charging completed. Flashing indicates battery charging.
- **FAULT (Red):** Steady on indicates a fault state.

## 7. MAINTENANCE

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Regular maintenance helps ensure the longevity and optimal performance of your ECO-WORTHY Hybrid Solar Charge Inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris to prevent overheating.
- **Connection Check:** Regularly inspect all electrical connections (solar panels, battery, AC input/output) to ensure they are tight and free from corrosion.
- **Environmental Conditions:** Ensure the inverter is installed in a well-ventilated area, away from direct sunlight, moisture, and flammable materials.
- **Battery Inspection:** Follow the manufacturer's maintenance guidelines for your specific battery type.

## 8. TROUBLESHOOTING

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If you encounter issues with your inverter, refer to the following basic troubleshooting steps. For complex problems, contact customer support.

- **No Power Output:** Check the main On/Off switch, battery connections, and AC output circuit breaker. Verify battery voltage is within the operating range.
- **No Charging:** Ensure solar panels are connected correctly and receiving sufficient sunlight. Check AC input connection if using utility charging. Verify charging mode settings.
- **Fault Indicator On:** Note the specific fault code or pattern on the LCD/LEDs and consult the detailed troubleshooting section in the full product manual (if available) or contact support.
- **Overheating:** Ensure adequate ventilation around the unit. Clear any obstructions from the cooling fan vents. Reduce load if continuously operating at maximum capacity.

## 9. SPECIFICATIONS

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Technical specifications for the ECO-WORTHY 3000W 24V Hybrid Solar Charge Inverter.

Feature	Specification
Brand	ECO-WORTHY
Model Number	ECO3000W(SR)
ASIN	B0DGLN1R8D
UPC	810127135666
Item Weight	7.95 Kilograms
Manufacturer	ECO-WORTHY
Average Customer Review	3.8 out of 5 stars (10 ratings)
Spare Parts Availability	Information not available
Software Updates Guaranteed Until	Information not available

## 10. WARRANTY AND SUPPORT

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Information regarding specific warranty terms and conditions for the ECO-WORTHY 3000W 24V Hybrid Solar Charge Inverter is not available in the provided product data. For warranty claims, technical support, or service inquiries, please refer to the documentation included with your product or contact ECO-WORTHY customer service directly through their official channels.

Please note that information on spare parts availability and guaranteed software updates is also not available in the provided data.