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› ECO-WORTHY 24V 100AH Bluetooth Lithium Battery User Manual

ECO-WORTHY 24V 100AH

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Model: 24V 100AH

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your ECO-WORTHY 24V 100AH Bluetooth Lithium Battery. Please read it thoroughly before installation and use. This battery features an intelligent battery monitoring system (BMS), an LED display for real-time status, and Bluetooth connectivity for smartphone monitoring.



Figure 1: ECO-WORTHY 24V 100AH Bluetooth Lithium Battery with SOC LED Display and smartphone app interface.

2. SAFETY INFORMATION

Always prioritize safety when handling lithium batteries. Improper use can lead to damage, injury, or fire. Observe the following precautions:

- Do not short circuit, disassemble, crush, heat, or incinerate the battery.
- Immerse in any liquid.
- Ensure all connections are properly tightened when connecting batteries.

- Use a LiFePO4 battery charger with activation function to charge or else the charger won't recognize the battery when its voltage is low.
- Charge within the rated voltage and current range specified in the data sheet.
- It's recommended to charge the battery to 50% every 3 months if the battery is to be left unused for a long time.

3. PRODUCT FEATURES

- **Smart Battery Monitoring:** Intelligent system with LED display and status indicators for real-time tracking of charging status and battery performance.
- **Bluetooth Connectivity:** Monitor voltage, current, and charge status via the ECO-WORTHY Smart App.
- **Advanced Protection Features:** Built-in 100A BMS with low-temperature protection (-7°C / 19.4°F cutoff for charging) safeguards against overload, high/low pressure, and extreme temperatures.
- **Scalable and Long-Lasting Power:** Up to 15,000 charge cycles. Expandable to 20.48kWh with 4P2S configuration.
- **Lightweight and Versatile:** Weighs 45.6 pounds, dimensions 16.3 x 8.5 x 10.2 inches, suitable for RV, off-grid solar, and home power systems.
- **Anti-Swelling Fixture:** Internal design provides stable, inward force to prevent cell expansion, improving battery performance and longevity.

4. PACKAGE CONTENTS

Upon unboxing, please verify that all items are present:

- ECO-WORTHY 24V 100AH Bluetooth Lithium Battery
- M8 Terminal Bolts (x2)
- Insulating Caps (x2)
- 0.078" (2mm) Washers (x2)
- Product Manual
- Quick Start Guide
- Service Card



Video 1: Unboxing the ECO-WORTHY 24V 100Ah Bluetooth LiFePO4 Battery, showing package contents including manuals, terminal bolts, and the battery itself.

5. SETUP

5.1 Connecting Terminals

Carefully connect your battery cables to the M8 terminal bolts. Ensure proper polarity (red for positive, black for negative) and tighten connections securely to prevent arcing or damage.

5.2 Initial Charging

It is recommended to fully charge the battery before its first use. Use a compatible LiFePO4 battery charger. The battery comes with approximately 31% charge out of the box.

5.3 App Download and Bluetooth Connection

Download the ECO-WORTHY Smart App from your smartphone's app store. Ensure Bluetooth is enabled on your device. Open the app and follow the on-screen instructions to connect to your battery. You can monitor real-time data and control certain features through the app.



Figure 2: Smart Battery Monitoring via Bluetooth 5.0, showing the app interface with real-time battery status.

5.4 Series and Parallel Connection

The ECO-WORTHY 24V 100AH battery supports flexible expansion. It can be configured in up to 2 series (2S) and 4 parallel (4P) for a maximum of 20.48kWh. Always ensure identical batteries are used for series and parallel connections.

6. OPERATING INSTRUCTIONS

6.1 SOC LED Display and Status Indicators

The battery features an integrated LED display on top. Press the 'on/off' button to activate the display. It shows the State of Charge (SOC) in 25% increments (0%, 25%, 50%, 75%, 100%).



Figure 3: Smart LED Indicators on the battery, showing SOC light and Abnormal light for quick status checks.

6.2 Abnormal Status Indicator

The LED display also includes indicators for abnormal conditions such as High Temp, Low Temp, Over Voltage Protection (OVP), Under Voltage Protection (UVP), Over Current Protection (OCP), and BMS Fault. These lights help in quick troubleshooting.



Figure 4: Abnormal Status Indicator, showing the battery connected to a solar inverter charger with a warning buzzer.

6.3 Buzzer Alarm

If any abnormal conditions arise, the built-in buzzer will alert you. The buzzer alarm provides a periodic sound (8 seconds on, 2 seconds off) and can be turned off through the app or by pressing the 'on/off' button on the battery.

6.4 Smart App Monitoring

The ECO-WORTHY Smart App allows you to monitor various parameters in real-time, including voltage, current, power, and battery status. You can also activate 'Storage Mode' via the app to reduce the battery's self-consumption during long periods of inactivity.

6.5 Low-Temperature Protection

The integrated BMS prevents charging below -7°C (19.4°F) to protect the cells from damage and ensures discharging stops below -4°F . Charging resumes when the temperature is above 0°C (32°F).



Figure 5: Low-Temp Protection thresholds, indicating stop discharging below -4°F , stop charging below 19.4°F , and resume charging at or above 32°F .

6.6 Usage Scenarios

This battery is designed for versatile applications, including RVs, off-grid solar systems, and home power backup. Its high capacity (2560Wh) can power various appliances for extended periods.

High-Capacity Power for Off-Grid Homes

2560WH



ECO-WORTHY
25.6V 100Ah
LiFePO4 Battery
Lithium Iron Phosphate Deep Cycle Battery

 Electric Fan 50W 51.2Hrs	 Microwave Oven 1000W 2.5Hrs	 Hair Dryer 1500W 1.7Hrs
 TV 100W 25.6Hrs	 Laptop 50W 51.2Hrs	 Induction Cooker 1800W 1.4Hrs

Figure 6: High-Capacity Power for Off-Grid Homes, showing the battery's 2560Wh capacity and estimated runtimes for common appliances.

Reliable Power, Beyond the Grid



Figure 7: Reliable Power, Beyond the Grid, illustrating the battery's use in RVs, for trolling motors, and in off-grid homes.

7. MAINTENANCE

Proper maintenance ensures the longevity and performance of your battery.

- **Regular Charging:** If the battery is not used for a long time, it is recommended to charge it to 50% every 3 months.
- **Clean Terminals:** Keep battery terminals clean and free of corrosion.
- **Storage:** Store the battery in a cool, dry place away from direct sunlight and extreme temperatures.
- **Anti-Swelling Fixture:** The internal anti-swelling fixture helps maintain cell integrity by providing stable inward force, preventing expansion due to overcharging, aging, or high temperatures. This

contributes to a longer cycle life and improved performance.

8. TROUBLESHOOTING

If you encounter issues with your ECO-WORTHY battery, refer to the following common troubleshooting steps:

- **Battery Not Charging:** Ensure the charger is a compatible LiFePO4 charger with an activation function. Check all cable connections for tightness and correct polarity. Verify the battery temperature is above 0°C (32°F).
- **Buzzer Alarm Sounds:** Check the LED indicators on the battery or the app for specific fault codes (High Temp, Low Temp, OVP, UVP, OCP, BMS Fault). Address the underlying issue based on the indicator. The buzzer can be turned off via the app or the battery's 'on/off' button.
- **Bluetooth Connectivity Issues:** Ensure Bluetooth is enabled on your smartphone and the battery. If the Bluetooth module powers off after 3 minutes of inactivity, press the 'on/off' button on the battery to reactivate it. Try restarting the app or your phone.
- **Inaccurate App Readings:** If the app shows 0% charge or 0 amps despite the battery being charged/discharging, try reconnecting the Bluetooth. Ensure the app is updated to the latest version.
- **Overcurrent Protection (OCP) Triggered:** If the battery stops providing power under heavy load, the BMS's OCP may have activated. Reduce the load on the battery. The battery will automatically reset once the load is within safe limits.

9. SPECIFICATIONS

Specification	Value
Product Name	LiFePO4 Battery
Model	24V 100AH
Rated Capacity	100Ah/2560Wh (25°C, 0.5C)
Rated Voltage	25.6V
Voltage Range	20 - 29.2V
Maximum Continuous Charging Current	100A
Maximum Continuous Discharging Current	100A
Charging Voltage	29.2V
Dimensions (LxWxH)	16.3"D x 8.5"W x 10.2"H (41.4 x 21.5 x 26cm)
Weight	45.6 Pounds (20.7 kg)
Charging Temperature	32 - 131°F (0 - 55°C)
Discharging Temperature	-4 - 131°F (-20 - 55°C)
Item model number	L13080202109-1
UPC	810127135963

Great Format & Lighter Weight

Making fitment in your compartment a breeze



Figure 8: Battery dimensions and weight, highlighting its compact format.

10. WARRANTY AND SUPPORT

ECO-WORTHY provides a 5-year warranty for this product, ensuring peace of mind for your investment. For technical support, warranty claims, or any inquiries, please contact customer service.

- **Email:** customer.service@eco-worthy.com
- **Warranty Period:** 5 Years

