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› ECO-WORTHY 12V 100Ah LiFePO4 Lithium Battery User Manual

ECO-WORTHY 12.8V 100AH BT

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Model: 12.8V 100AH BT

1. INTRODUCTION

This manual provides essential information for the safe and effective operation of your ECO-WORTHY 12V 100Ah LiFePO4 Lithium Battery. This battery features a built-in Battery Management System (BMS) for protection, Bluetooth connectivity for monitoring, and low-temperature charging protection, making it suitable for various applications including RVs, marine, and off-grid systems.



Figure 1: ECO-WORTHY 12V 100Ah LiFePO4 Lithium Battery with Bluetooth and Low-Temp Protection.

2. SAFETY INFORMATION AND PRECAUTIONS

Always adhere to safety guidelines to prevent damage to the battery and ensure personal safety. LiFePO4 batteries are generally safer than other lithium-ion chemistries, but proper handling is crucial.

- Do not use the battery as a starting battery for vehicles.
- Ensure all connections are secure and correct polarity is observed.
- Avoid short-circuiting the battery terminals.
- Do not disassemble, puncture, or modify the battery.
- Keep the battery away from heat sources, open flames, and flammable materials.

- Charge the battery only with a compatible LiFePO4 charger that has an activation function.
- Do not expose the battery to extreme temperatures outside its operating range.

2.1 Enhanced Flame Retardant Safety

The battery casing is constructed from a premium fire-resistant material designed to suppress combustion. In the event of ignition, the housing actively works to extinguish visible flames within 30 seconds, minimizing fire spread and enhancing safety.

Safety Upgrade: Flame-retardant Enclosure

Self-extinguishes within **30S** after flame removal



Why Choose Flame-Retardant Enclosure?

	Ordinary ABS Shell	Our Flame-Retardant Shell
Flammability	Ignites easily, softens above 80°C	Hard to ignite, requires sustained flame
Fire Spread	Fire spreads rapidly	Self-extinguishing within 30 seconds
Safety Hazard	Produces thick, toxic smoke	Low smoke, extremely low toxicity

Figure 2: Comparison of ordinary ABS shell vs. flame-retardant shell under fire conditions.

2.2 Battery Management System (BMS) Protection

The integrated BMS provides comprehensive protection for the battery, ensuring longevity and safe operation. This includes:

- **Over-charge Protection:** Prevents damage from excessive charging voltage.
- **Over-discharge Protection:** Protects cells from being discharged too low, extending battery life.
- **Short-circuit Protection:** Automatically disconnects the battery in case of a short circuit.
- **Over-current Protection:** Limits current flow to prevent damage from excessive loads.
- **High-temperature Protection:** Monitors internal temperature and prevents operation if it exceeds safe limits.

- **Low-temperature Protection:** Automatically pauses charging below 19.4°F (-7°C) and resumes above 32°F (0°C) to prevent damage. Discharging is cut off below -4°F (-20°C).

BMS PROTECTION FOR LONGER BATTERY LIFE

A-Grade Cells, Multiple Certifications

- ✓ Over-charge Protection
- ✓ Over-discharge Protection
- ✓ Short-circuit Protection
- ✓ Over-current Protection
- ✓ High-temp Protection
- ✓ Low-temp Protection



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Figure 3: Diagram illustrating the various protection features of the integrated BMS.

MEET COLD WEATHER NEEDS

Low-temp Protection Extends Battery Lifespan

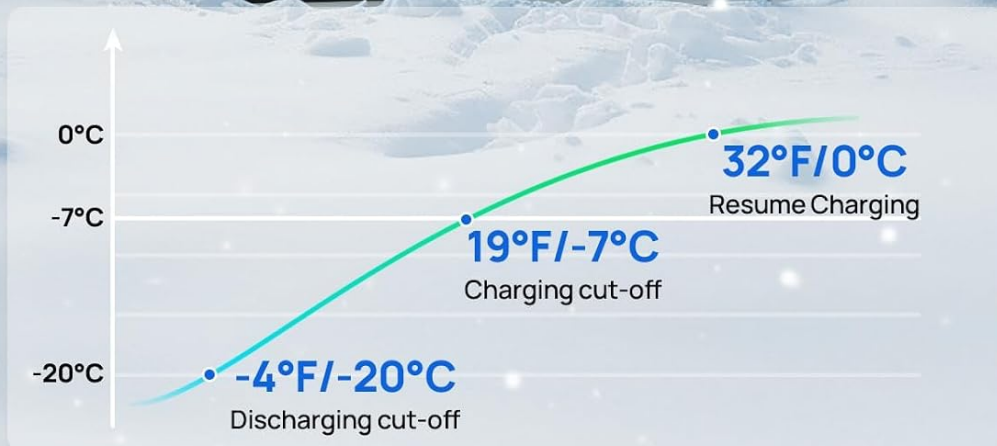


Figure 4: Graph showing charging and discharging cut-off temperatures for low-temperature protection.

3. SETUP AND INSTALLATION

The ECO-WORTHY 12V 100Ah LiFePO4 battery is designed as a drop-in replacement for Group 24 lead-acid batteries, offering a lighter and more efficient alternative.

3.1 Physical Dimensions and Weight

The battery has standard dimensions of 10.24 x 6.61 x 8.43 inches (26 x 16.8 x 21.4 cm) and weighs approximately 23.15 lbs (10.5 kg), making it significantly lighter than comparable lead-acid batteries.

SMALLER SIZE, HIGHER ENERGY

BCI Group 24: Compact Yet Universal



23.15 lbs



M8 Screw



50%↑ Energy
1280Wh Energy Density

66%↓ Lighter
23.15 lbs

28%↓ Smaller
10.24*6.61*8.43in

*Compare with the 12V 100AH lead-acid battery.

Figure 5: Detailed dimensions and weight of the ECO-WORTHY 12V 100Ah LiFePO4 battery.

3.2 Series and Parallel Connections

This battery supports flexible power expansion. You can connect up to 4 batteries in parallel (4P/400Ah) for increased capacity, or up to 4 batteries in series (4S/48V) for higher voltage applications.

- **Important:** Always use batteries of the **same brand and model** for all series and parallel connections.
- Ensure all batteries are from recent purchases (within 3-6 months) to maintain optimal performance and balance.
- Do not mount the battery with the top terminals facing down.

CLEAN ENERGY POWERS LIFE

10 Year lifespan, UP to 15000+ Cycles



Figure 6: Examples of capacity expansion configurations using series and parallel connections.

HIGH ENERGY & CONVENIENCE

Max.4P2S/2P4S Capacity Expansion

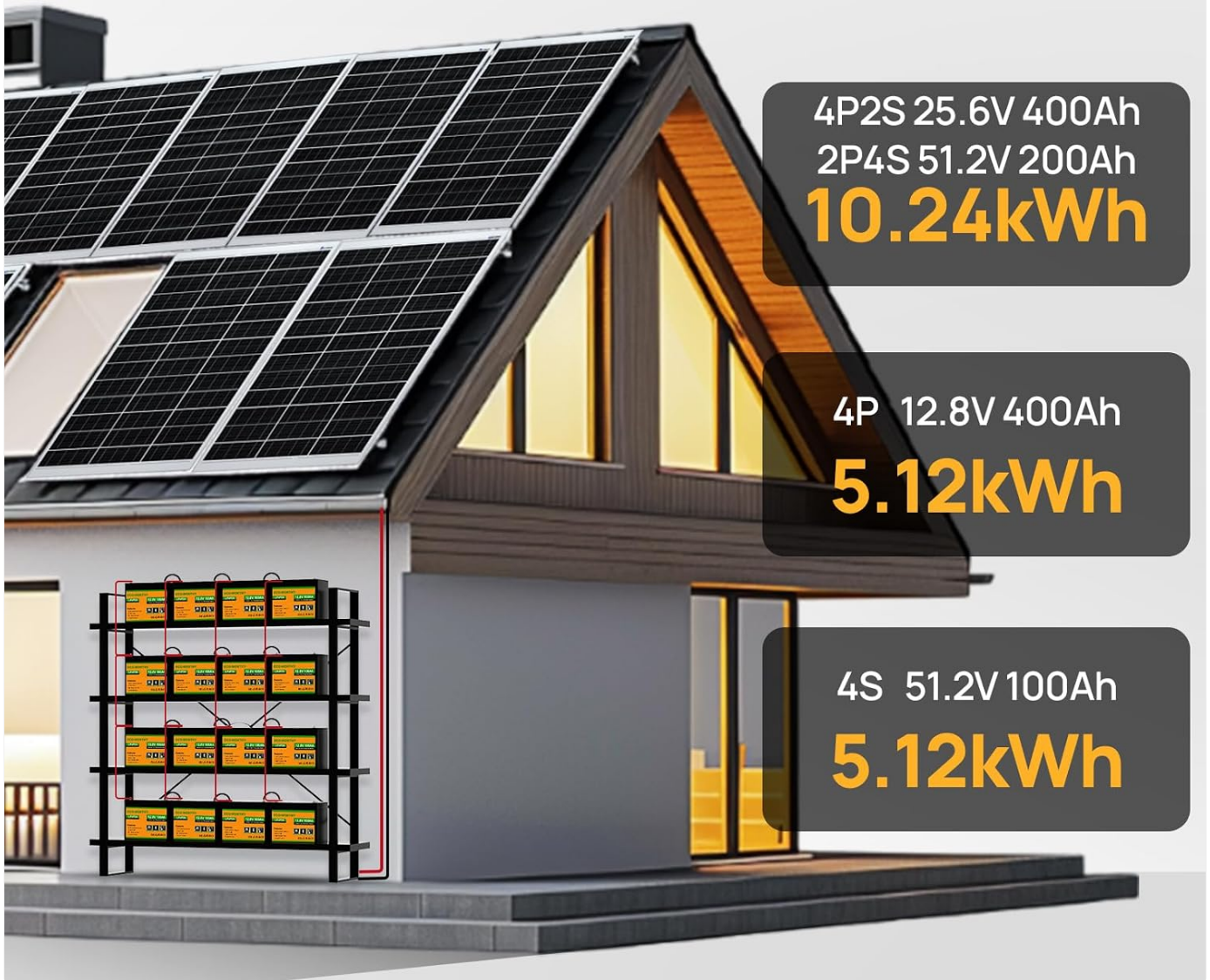


Figure 7: Visual guide for important battery connection and usage tips.

4. OPERATING INSTRUCTIONS

4.1 Smart Bluetooth Control and App Monitoring

The battery is equipped with Bluetooth 5.1, allowing real-time monitoring of its status via the ECO-WORTHY App. This feature provides full transparency for managing and planning your power usage.

1. Download the "ECO-WORTHY" App from Google Play Store (for Android) or Apple App Store (for iOS).
2. Enable Bluetooth on your mobile device.
3. Open the ECO-WORTHY App and follow the on-screen instructions to connect to your battery.
4. Once connected, you can monitor parameters such as:
 - Total Voltage
 - Current
 - Capacity (State of Charge - SOC)

- Remaining Battery Capacity
- Individual Cell Voltages
- Temperature
- Fault Warnings

BATTERY CONTROL & SUPERVISION at Your Fingertips



Auto-connection



Monitor in Real-time



Smart Control



Fault Warning

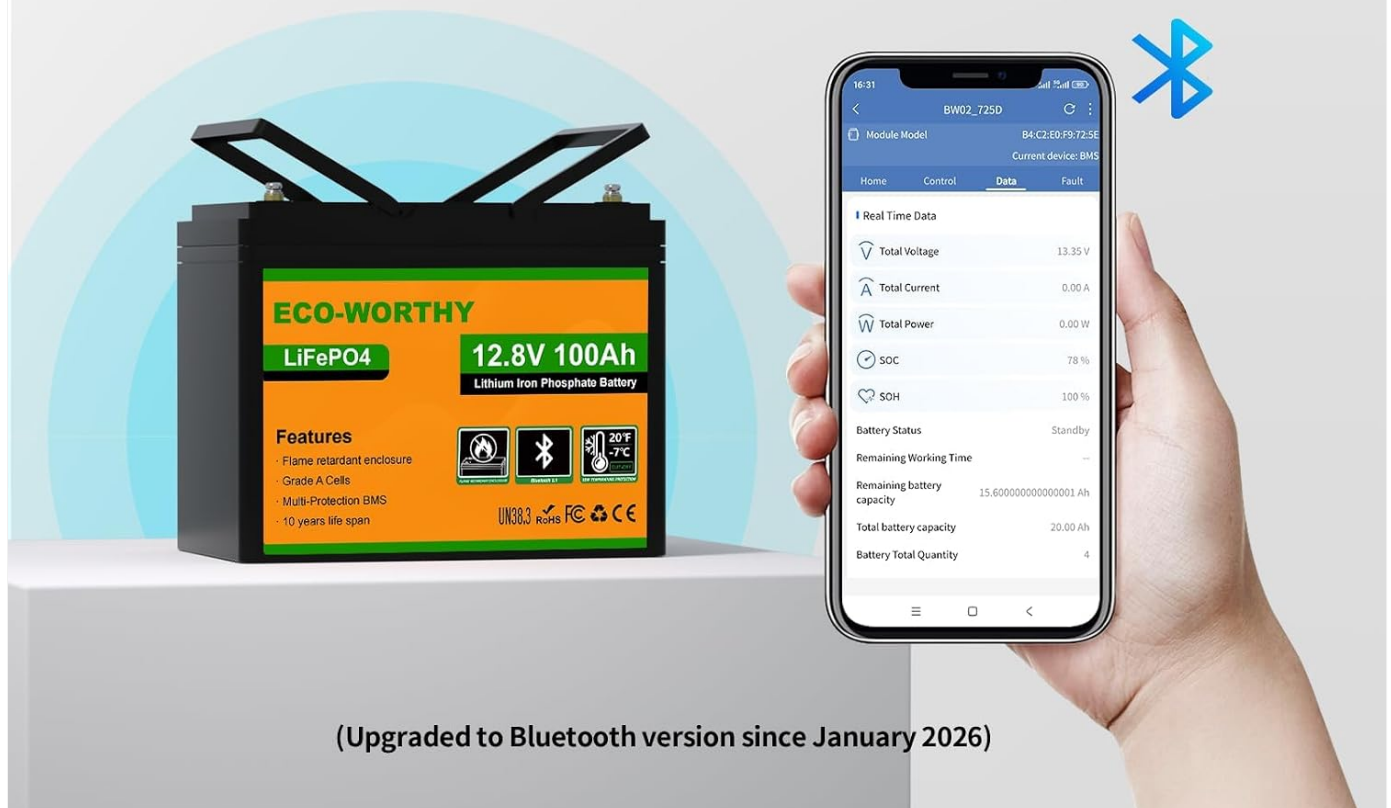


Figure 8: Illustration of the Bluetooth control feature and the ECO-WORTHY App interface for real-time monitoring.

5. MAINTENANCE

LiFePO4 batteries require minimal maintenance compared to lead-acid batteries. Following these guidelines will ensure optimal performance and longevity.

- **Charging:** Always use a dedicated LiFePO4 battery charger. For optimal results, pair with the ECO-WORTHY 12V/24V 20A Smart Battery Charger (ASIN: B0DYHGR9FR), which is designed to activate and recover LiFePO4 batteries from BMS protection mode.
- **Storage:** If storing the battery for an extended period, ensure it is charged to approximately 50% State of Charge (SOC) and stored in a cool, dry place. Recharge every 3-6 months to prevent deep discharge.

- **Cleaning:** Keep the battery terminals clean and free from corrosion. Use a dry cloth to wipe the battery casing.
- **Lifespan:** The battery is designed for a 10-year lifespan with over 15,000 cycles under ideal conditions.



Figure 9: Recommended ECO-WORTHY 12V/24V 20A Smart Battery Charger.

6. TROUBLESHOOTING

If you encounter issues with your ECO-WORTHY LiFePO4 battery, refer to the following common scenarios:

Problem	Possible Cause	Solution
Battery shows 0V or does not charge.	BMS has entered protection mode due to deep discharge.	Use a LiFePO4 battery charger with an activation function to reactivate the BMS. The recommended ECO-WORTHY 12V/24V 20A Smart Battery Charger (ASIN: B0DYHGR9FR) has this feature.
Battery not charging in cold temperatures.	Low-temperature charging protection is active.	Charging will automatically resume when the internal battery temperature rises above 32°F (0°C). Ensure the battery is in an environment above this temperature for charging.
Bluetooth app not connecting.	Bluetooth on device is off, app not updated, or battery is too far.	Ensure Bluetooth is enabled on your phone, update the ECO-WORTHY app, and be within close proximity to the battery. Restarting the app or phone may also help.
Reduced capacity or runtime.	Overloading, aging, or improper charging.	Verify your load does not exceed the battery's continuous discharge current. Ensure proper charging cycles are maintained. If the battery is very old, its capacity may naturally degrade over time.

7. SPECIFICATIONS

Feature	Specification
Model Number	12.8V 100AH BT
Rated Voltage	12.8V
Rated Capacity	100Ah
Energy	1280Wh
Battery Cell Composition	Lithium Iron Phosphate (LiFePO4)
Dimensions (L x W x H)	10.24 x 6.61 x 8.43 inches (26 x 16.8 x 21.4 cm)
Weight	23.15 lbs (10.5 kg)
Terminal Type	M8 Screw
Max. Continuous Charging Current	100A
Max. Continuous Discharging Current	100A

Feature	Specification
Charging Temperature	32°F to 131°F (0°C to 55°C)
Discharging Temperature	-4°F to 131°F (-20°C to 55°C)
Low-Temp Charging Cut-off	19.4°F (-7°C)
Low-Temp Discharging Cut-off	-4°F (-20°C)
Cycle Life	Up to 15,000+ cycles
Bluetooth Version	5.1 (Upgraded as of January 2026)

8. WARRANTY AND SUPPORT

8.1 Product Warranty

The ECO-WORTHY 12V 100Ah LiFePO4 Lithium Battery comes with a **3-Year Warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

8.2 Customer Support

For technical assistance, warranty claims, or any questions regarding your ECO-WORTHY product, please contact ECO-WORTHY customer service. You can typically reach support through the platform where you purchased the product (e.g., Amazon's messaging system) or via the official ECO-WORTHY website.

Price Protection Policy: ECO-WORTHY offers price protection for orders. If the actual price of the item is lower than the price you paid within 30 days from the purchase date, you may contact customer service with your original order number and a screenshot of the lower price. A refund for the price difference will be processed within 72 hours. This policy applies only to purchases made on the same platform.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question