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EconomiPower E24-100MINI-BT

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Model: E24-100MINI-BT

1. INTRODUCTION

Thank you for choosing the EconomiPower 24V 100Ah LiFePO4 Lithium Battery. This battery is designed for reliable power in various applications, including RVs, solar systems, marine vessels, and off-grid setups. It features integrated Bluetooth monitoring and a robust 100A Battery Management System (BMS) for enhanced safety and performance. This manual provides essential information for the safe and efficient use of your battery.

2. SAFETY INFORMATION

Read all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Do not short-circuit the battery terminals.
- Do not immerse the battery in water or expose it to excessive moisture.
- Do not expose the battery to fire or extreme heat.
- Ensure proper ventilation during charging and discharging.
- Use only compatible chargers designed for LiFePO4 batteries.
- Avoid charging the battery below 0°C (32°F) to prevent damage. The built-in BMS provides low-temperature charging cut-off protection.
- Wear appropriate personal protective equipment (PPE), such as gloves and eye protection, when handling batteries.
- Keep out of reach of children.

3. PRODUCT FEATURES

- **Smart Bluetooth Monitoring:** Connect via Bluetooth 5.0 to monitor real-time voltage, current, remaining capacity, and battery health from your smartphone.
- **Built-in 100A BMS:** Provides comprehensive protection against overcharging, over-discharging, overcurrent, short circuits, overheating, and low-temperature charging.

- **Automotive-Grade LiFePO4 Cells:** Ensures high safety, stability, and a long cycle life of 5000+ deep cycles.
- **Compact Design:** Smaller footprint (7.68 × 9.45 × 15.35 inches) compared to traditional batteries, allowing for installation in confined spaces.
- **Expandable System:** Can be connected in series (up to 2S) and parallel (up to 4P) for a maximum energy storage of 20.48kWh (50.4V, 400A).
- **Maintenance-Free:** Sealed design, no leaks, fumes, or vents required.

4. SPECIFICATIONS

Attribute	Value
Brand	EconomiPower
Model Number	E24-100MINI-BT
Voltage	24V (Nominal 25.6V)
Capacity	100Ah
Energy	2.56kWh
Max Continuous Discharge Current	100A
Built-in BMS	100A
Max Continuous Power	2560W
Dimensions (L x W x H)	15.35 x 7.48 x 9.65 inches (390 x 190 x 245 mm)
Weight	38.8 pounds (17.65 kg)
Terminal Type	M8
Cycle Life	5000+ cycles at 80% DoD
Operating Temperature (Discharge)	-20°C to 60°C (-4°F to 140°F)
Operating Temperature (Charge)	0°C to 45°C (32°F to 113°F)
Low Temp Charging Cut-off	0°C (32°F)
Waterproof Rating	IP65

5. SETUP

5.1 Unpacking and Inspection

Upon receiving your battery, carefully inspect the packaging for any signs of damage. Remove the battery and check for physical damage, loose terminals, or any other irregularities. If any issues are found, contact customer support immediately.

5.2 Installation Location

Install the battery in a clean, dry, and well-ventilated area. The battery can be installed upright or sideways. Do not install

upside down. Ensure the location is free from flammable materials and direct sunlight. Maintain adequate clearance around the battery for air circulation.

5.3 Connecting the Battery

Use appropriate M8 terminals for secure, corrosion-free connections. Ensure all connections are tight to prevent resistance and overheating.

- **Single Battery Connection:** Connect the positive (+) terminal of the battery to the positive terminal of your load/charger, and the negative (-) terminal to the negative terminal of your load/charger.
- **Series Connection (up to 2S):** For higher voltage, connect the negative terminal of one battery to the positive terminal of the next. Ensure all batteries have similar voltage and state of charge before connecting in series.
- **Parallel Connection (up to 4P):** For higher capacity, connect positive terminals together and negative terminals together. Ensure all batteries have similar voltage and state of charge before connecting in parallel.

Important: Always connect the load last and disconnect it first. Use appropriately sized cables and fuses for your application.

5.4 Bluetooth App Setup

The EconomiPower battery features Bluetooth connectivity for real-time monitoring. Follow these steps to connect:

1. Download the EconomiPower app from your smartphone's app store (iOS or Android).
2. Ensure your phone's Bluetooth is enabled.
3. Open the app and search for nearby devices. Your battery should appear as a discoverable device.
4. Select your battery from the list to connect. The app will display real-time data such as voltage, current, remaining capacity, and cell health.



Image: The EconomiPower 24V 100Ah LiFePO₄ battery shown alongside a smartphone displaying its Bluetooth monitoring application, which provides real-time data like voltage, current, and remaining capacity.

6. OPERATING INSTRUCTIONS

6.1 Charging the Battery

The battery can be recharged using various methods. Always use a charger compatible with LiFePO₄ batteries.

3 WAYS TO RECHARGE



Charger- 29.2V LiFePO4 Battery Charger

5 hours



Solar Panel- 500W Solar Panel System

5 hours



Generator-+ Generator With 20A Charger

5 hours

Image: This diagram illustrates three common methods for recharging the Economipower LiFePO4 battery: using a dedicated battery charger, connecting to a solar panel system, or utilizing a generator with a compatible charger. Each method is shown to achieve a full charge in approximately 5 hours.

- **Dedicated LiFePO4 Charger:** A 20A charger can fully charge the battery in approximately 5 hours.
- **Solar Panels:** An 800W solar panel system can charge the battery in approximately 5 hours under optimal sunlight. Ensure you use an MPPT charge controller with appropriate settings (Over voltage Disconnect: 29.2V, Charger voltage: 29.2V, Low voltage Disconnect: 20V, Float Charging voltage: 27.2V).
- **Generator:** A generator with a 20A charger can also charge the battery in approximately 5 hours.

Note: The BMS will prevent charging if the battery temperature is below 0°C (32°F). Allow the battery to warm up before attempting to charge in cold conditions.

6.2 Bluetooth Monitoring

Use the Economipower app to monitor your battery's status. The app provides:

- Real-time voltage and current.
- Remaining capacity percentage and Ah.
- Individual cell voltages.
- Battery temperature.
- Charge/discharge status.
- Low battery alerts.

On-the-go Monitoring with Bluetooth



Monitor capacity, voltage

Manage Discharge, power off

Battery Health Diagnostic

Image: This graphic emphasizes the convenience of on-the-go monitoring with Bluetooth, showing the EconomiPower battery and a smartphone displaying the app interface, which allows users to check capacity, voltage, manage discharge, power off, and perform battery health diagnostics.

7. MAINTENANCE

The EconomiPower LiFePO4 battery is largely maintenance-free. However, following these guidelines will ensure optimal performance and longevity:

- **Regular Inspection:** Periodically check battery terminals for corrosion or loose connections. Clean terminals with a wire brush if necessary.
- **Temperature Management:** While the battery has low-temperature protection, avoid prolonged exposure to extreme temperatures. Store the battery in a cool, dry place when not in use.
- **Storage:** For long-term storage, charge the battery to approximately 50% State of Charge (SoC) and store it in a cool, dry environment. Recharge every 3-6 months to prevent deep discharge.
- **Cleaning:** Keep the battery clean and free of dust and debris. Use a dry cloth to wipe the exterior. Do not use solvents or harsh chemicals.

LOW TEMPCUT-OFF PROTECTION

Below
-4°F (-20°C)
Discharging
cut-off

Below
32°F (0°C)
Charging cut-off
20°C/-4°F

Above
41°F (5°C)
Charging
Recovery



Image: This diagram details the low-temperature protection features of the EconomiPower battery. It specifies that discharging is cut off below -4°F (-20°C), charging is cut off below 32°F (0°C), and charging recovery occurs above 41°F (5°C), ensuring battery safety in cold conditions.

8. TROUBLESHOOTING

If you encounter issues with your EconomiPower battery, refer to the following common problems and solutions:

- **Battery Not Charging:**

- Check all connections for tightness and proper polarity.
- Ensure the charger is compatible with LiFePO4 batteries and is functioning correctly.
- Verify the battery temperature is above 0°C (32°F). The BMS will prevent charging in cold conditions.
- Check the charger's output voltage and current.

- **Battery Not Discharging/No Power Output:**

- Check for loose connections or blown fuses in your system.

- The BMS may have activated a protection mode (e.g., over-discharge, overcurrent, short circuit). Disconnect the load, wait a few minutes, and try reconnecting. If the issue persists, a small charge may be needed to reset the BMS.
- Ensure the load's power requirement does not exceed the battery's continuous discharge current (100A) or power (2560W).

- **Bluetooth Connection Issues:**

- Ensure your smartphone's Bluetooth is enabled and within range of the battery.
- Restart the app and try reconnecting.
- Ensure no other devices are actively connected to the battery's Bluetooth.

- **Uneven Cell Voltages (in multi-battery systems):**

- This can occur if batteries were not balanced before connecting in series/parallel or if there are charging/discharging imbalances.
- The BMS has a balancing function, but for significant differences, it may be necessary to individually charge each battery to full capacity to allow the BMS to balance the cells.

If troubleshooting steps do not resolve the issue, please contact EconomiPower customer support.

9. WARRANTY AND SUPPORT

EconomiPower stands behind the quality of its products. Your 24V 100Ah LiFePO4 Lithium Battery comes with **5-year warranty**.

For technical assistance, warranty claims, or any questions regarding your product, please contact our US-based support team. Refer to the contact information provided with your purchase or visit the official EconomiPower website for support details.

Please have your model number (E24-100MINI-BT) and purchase date ready when contacting support.