Renogy RBT100LFP12S-G1

Renogy 12V 100Ah LiFePO4 Deep Cycle Rechargeable Lithium Battery Instruction Manual

Introduction

The Renogy Smart Lithium Iron Phosphate Battery is engineered for reliable and flexible power solutions. It features an auto-balancing function for parallel connections and integrated smart battery management system (BMS) to protect against various abnormal conditions while monitoring charging and discharging processes. Constructed with state-of-the-art battery cells, this unit ensures a long cycle life and exceptional discharge performance, making it an ideal plug-and-play solution for RV, camper, van, marine, and off-grid home energy storage applications.

Important Safety Note:

- Always secure all cable connections to the proper specification to ensure good contact between cable lugs and terminals. Over-tightening can cause terminal breakage, while loose connections can lead to terminal meltdown or fire.
- DO NOT string the battery in series. ONLY connect batteries of the same manufacturer and model in parallel.
- Avoid high voltage differences between paralleled batteries to prevent triggering over-current protection, despite the auto-balancing function.

Key Features

- **Upgraded BMS Circuit:** Equipped with seven pairs of Mosfet and two pairs of XT90, allowing a peak current of 150A for emergency charging and discharging. The high-precision BMS offers over 20 protections and warnings, with a 50% increased heat dissipation area for maximum safety.
- **Uncompromising Quality:** High-quality pouch cells pass severe high temperature and puncture tests. Certified with UL1642 (battery cell), UL1973, MSDS, UN38.3, FCC, CE, UKCA, PSE, and MIC. Offers over ten years of lifespan with more than 4,000 cycles (80% DOD).
- **Activation Switch:** An included switch cable allows turning multiple parallel batteries on or off, ensuring safe installation and use. Minimizes battery over-discharge during long periods of connection to

appliances by enabling a hibernate mode with extremely low open-circuit voltage.

- **Auto-balancing Function:** Easily connect up to 8 batteries in parallel, improving the average charging efficiency over the long term.
- **Real-time Monitoring:** Connect a battery monitor directly via CAT cable or use the BT-2 Bluetooth module with the DC HOME app to monitor multiple battery states in real time. For multiple Renogy devices with communication ports, consider adding Renogy ONE M1 for smart energy monitoring.

Setup and Installation

The Renogy 12V 100Ah LiFePO4 battery is designed for straightforward installation. Ensure all connections are secure and follow polarity guidelines. The compact size and side-mounting capability make it suitable for various applications, including small truck campers, travel trailers, and boats.

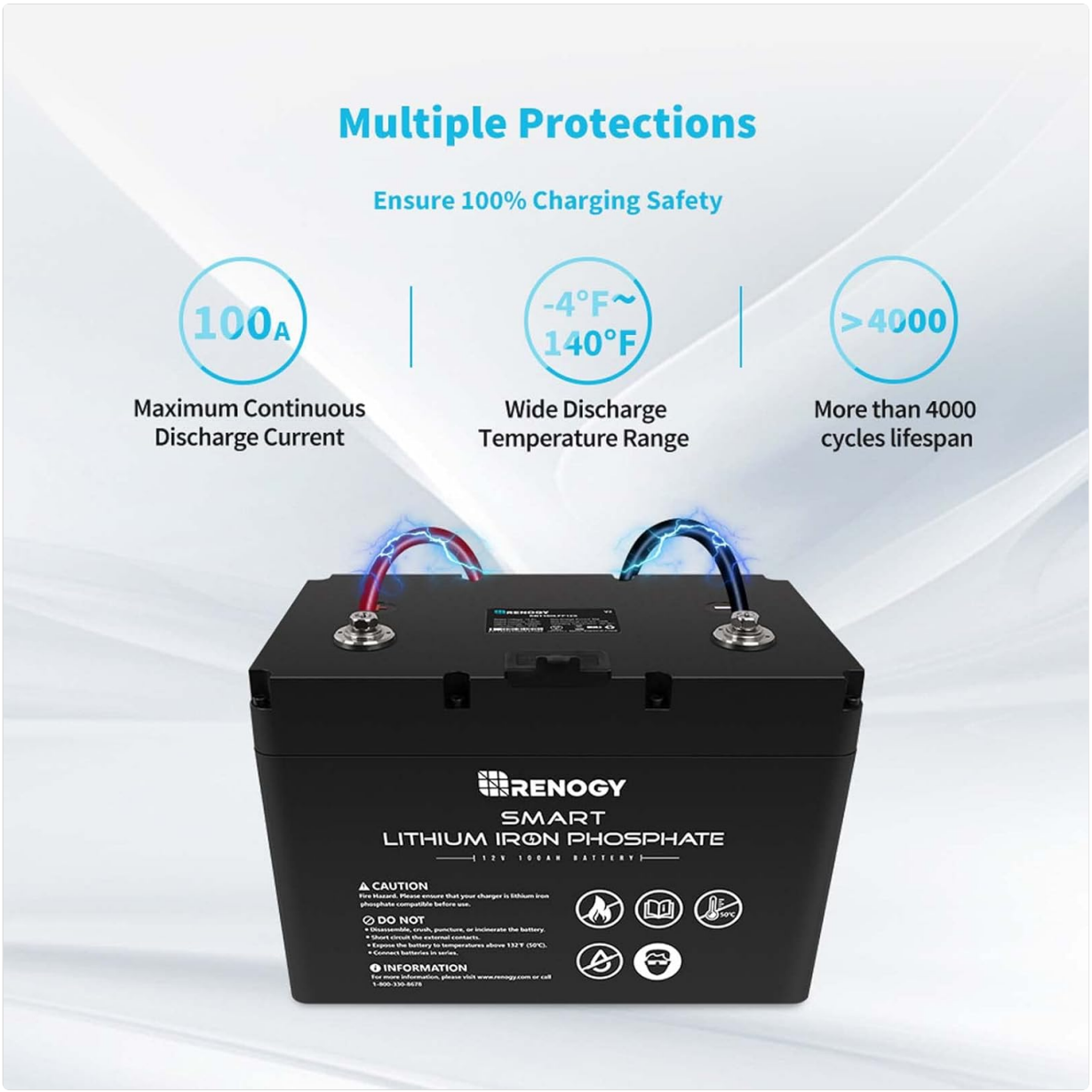

Figure 1: Renogy 12V 100Ah LiFePO4 Battery highlighting multiple internal protections for safe operation.

The battery features an upgraded Battery Management System (BMS) circuit for enhanced protection and performance.

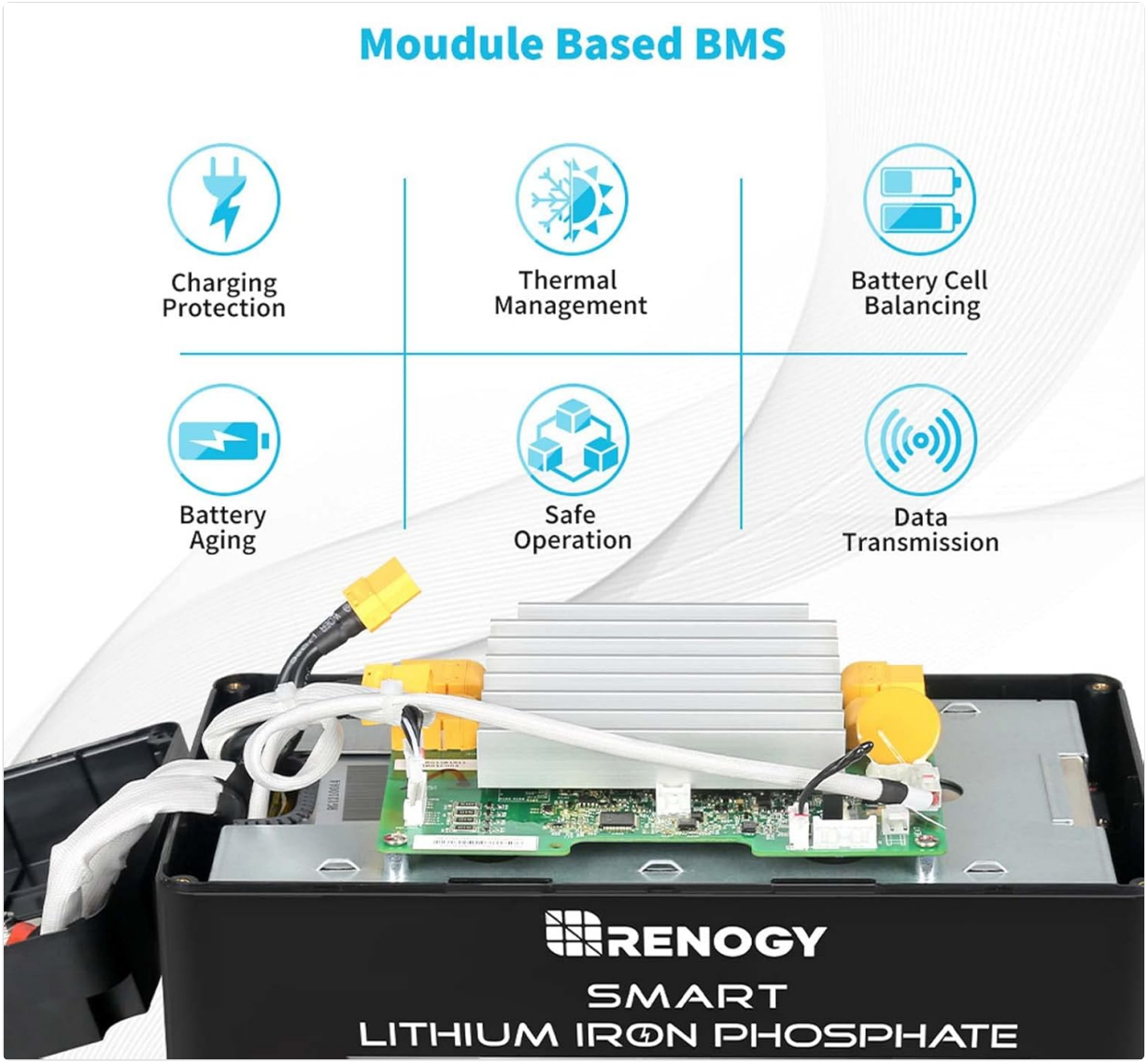

Figure 2: An internal view of the battery showcasing the module-based BMS, which manages charging protection, thermal management, battery cell balancing, battery aging, safe operation, and data transmission.

For systems requiring multiple batteries, the auto-balancing function simplifies parallel connections.

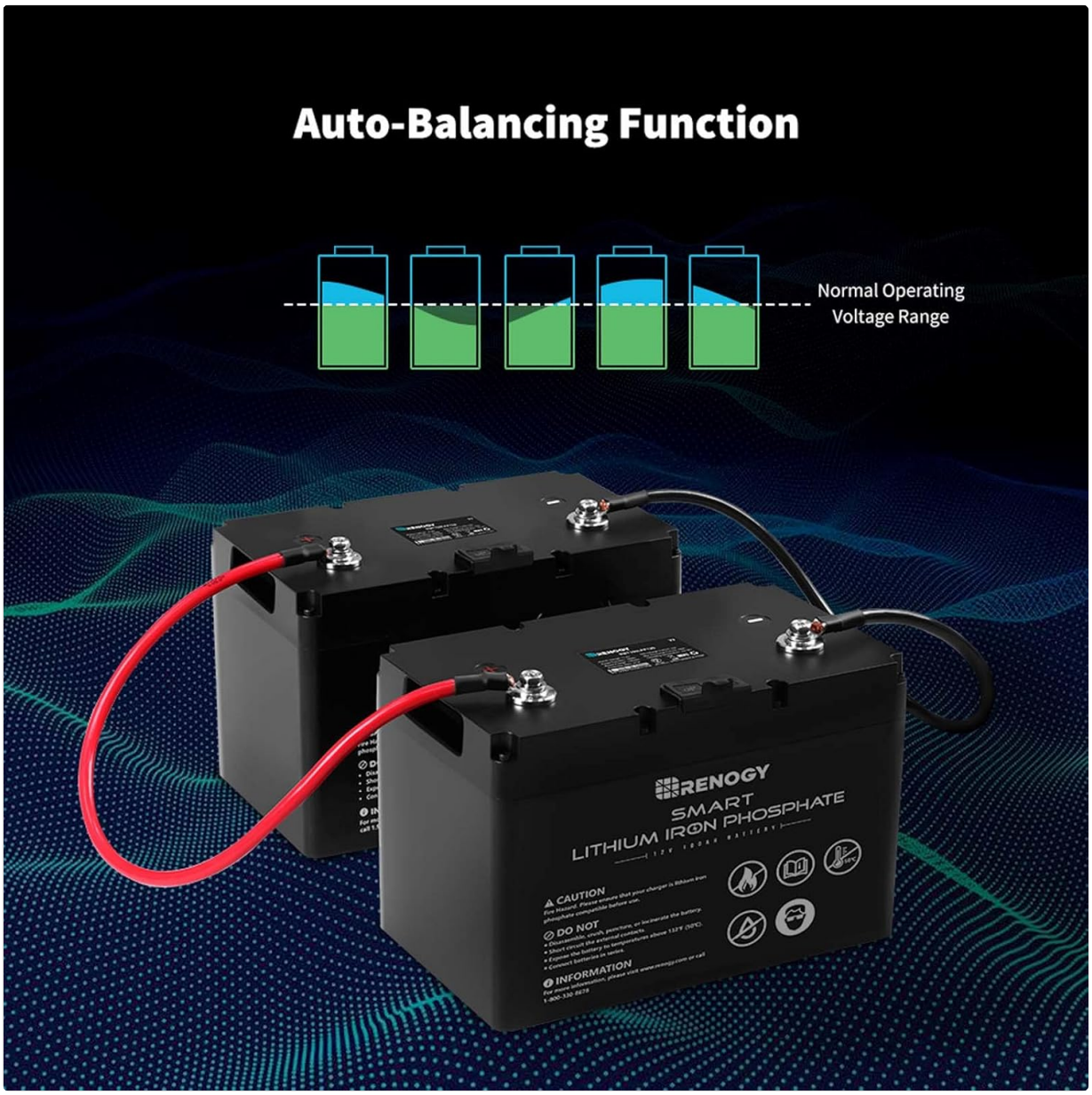

Figure 3: Two Renogy Smart Lithium Iron Phosphate Batteries connected in parallel, illustrating the auto-balancing function that ensures optimal charging efficiency across multiple units.

The activation switch provides an energy-saving mode for extended storage.

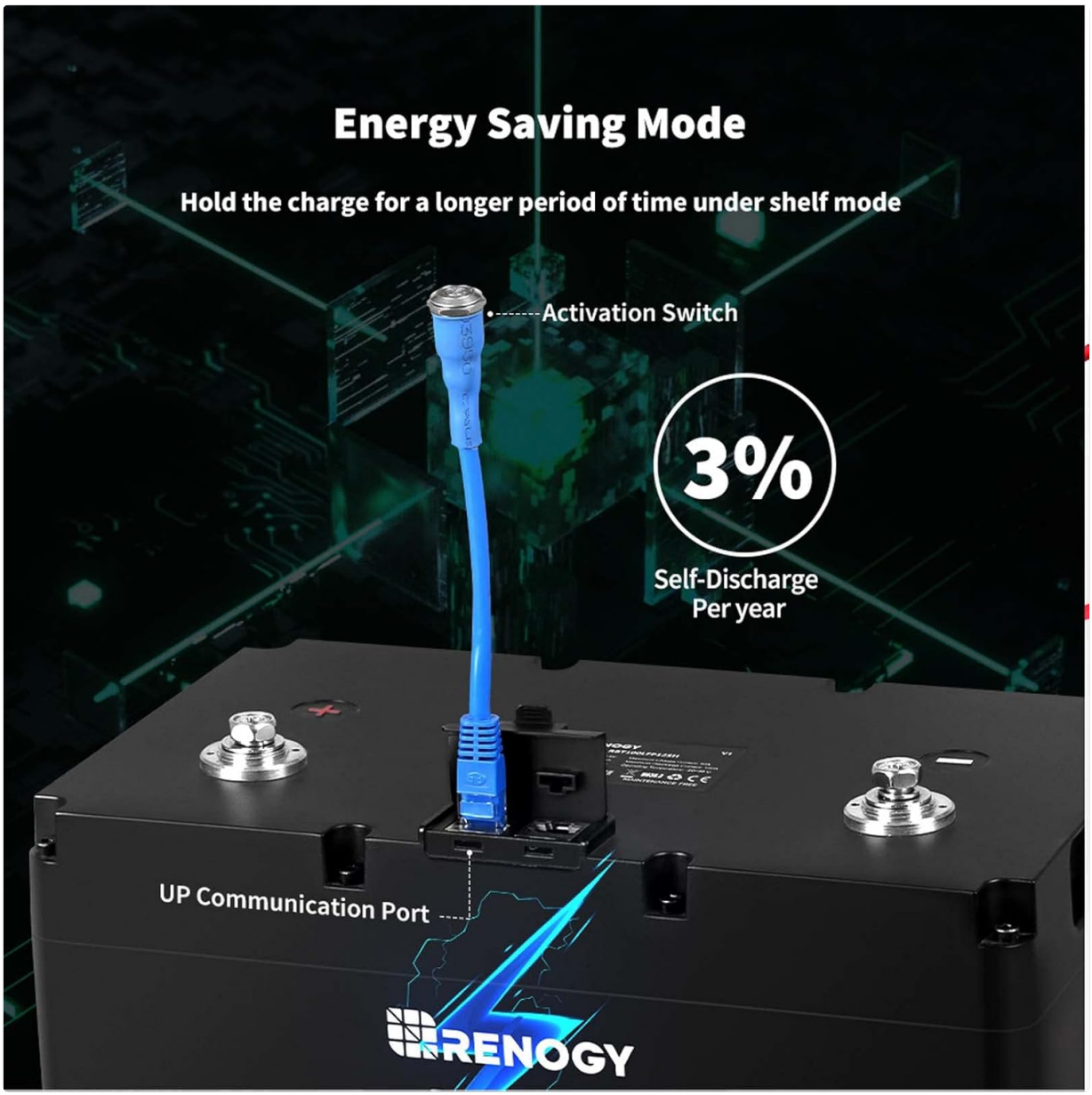

Figure 4: The battery features an activation switch and a UP communication port, enabling an energy-saving mode with a low self-discharge rate of 3% per year.

For general wiring principles for DC-DC chargers, which can be part of your battery system, refer to the video below. Note that this video specifically demonstrates wiring for a Renogy DC-DC charger, not the battery itself.

Video 1: This video demonstrates the wiring process for a Renogy 12V 40A/20A DC to DC Battery Charger. It covers connecting positive and negative wires to the house battery, connecting a fuse cable, and installing the battery temperature sensor. This provides general guidance for integrating chargers into a battery system.

Operating Instructions

Once installed, operating your Renogy LiFePO4 battery is straightforward. Utilize the activation switch to manage power flow. The integrated BMS continuously monitors the battery's health, including temperature, and will automatically protect the battery from damage, such as preventing charging below freezing

temperatures.

For real-time monitoring, connect a compatible monitor or use the DC HOME app via Bluetooth (with BT-2 module) to view charging/discharging status, State of Charge (SOC), and temperature.

Charging Methods

The Renogy 12V 100Ah LiFePO4 battery can be charged using various methods, including solar panels, DC-DC chargers, and AC-DC chargers. The integrated BMS ensures safe charging across different conditions.

Video 2: This video demonstrates various charging methods for a Renogy 100Ah Lithium Battery, including 100W portable solar panels, 400W lightweight solar suitcases, 50A DC-DC chargers (engine charging), and 20A AC-DC chargers. It also highlights the battery's performance in different temperature conditions and its BMS stability.

Below is a summary of typical charging performance with different methods:

Charging Method	Charging Amps / Duration (approx.)	Notes
100W Portable Solar Panel	2.9A @ 27 hours	Good for maintaining charge or slow top-off, dependent on sun conditions.
400W Lightweight Solar Suitcase	21A @ 3 hours	Faster recharge, utilizing MPPT technology.
50A DC to DC Battery Charger (Engine)	12.5A @ 6 hours	Regular method for keeping battery full while driving. Output may vary with smart alternators.
400W Solar Suitcase & 50A DC-DC Charger (Combined)	36.2A @ 2 hours	Fastest method, ideal for quick recharges.
20A AC to DC Battery Charger	19.6A @ 4 hours	Consistent current flow, good for shore power or when solar/engine charging is not an option.

Maintenance

The Renogy LiFePO4 battery is largely maintenance-free due to its robust design and integrated BMS. However, adhering to the following guidelines will ensure optimal performance and longevity:

- **Regular Inspection:** Periodically check all cable connections for tightness and corrosion. Clean terminals if necessary.
- **Storage:** For long-term storage, activate the energy-saving mode using the activation switch to minimize self-discharge. Store the battery in a cool, dry place.
- **Temperature Monitoring:** While the BMS protects against extreme temperatures, avoid prolonged exposure to temperatures outside the recommended operating range to maximize lifespan.

Troubleshooting

The integrated BMS provides comprehensive protection and alerts. If you encounter issues, consult the DC HOME app or your connected monitor for diagnostic information.

- **No Power Output:** Check all cable connections for tightness. Ensure the activation switch is in the 'ON' position. Verify the battery's State of Charge (SOC) via the monitoring app.
- **Charging Issues:** If charging is not occurring, check the temperature via the app. The BMS will prevent charging if the temperature is too low (e.g., below freezing) to prevent damage. Ensure your charging source (solar panel, DC-DC charger, AC-DC charger) is functioning correctly.
- **BMS Alerts:** If the monitoring app displays a BMS alarm (e.g., low battery temperature, over-current), follow the recommended actions provided by the app or consult the full user manual for detailed troubleshooting steps.

Specifications

Specification	Value
Brand	Renogy
Model	RBT100LFP12S-G1
Voltage	12 Volts
Battery Capacity	100 Ah
Battery Cell Composition	Lithium Iron Phosphate (LiFePO4)
Max Continuous Discharge Current	100A
Cycle Life	Over 4000 cycles (80% DOD)
Charging Temperature	32°F to 122°F (0°C to 50°C)
Discharge Temperature	-4°F to 140°F (-20°C to 60°C)
Product Dimensions	17.27 x 18.8 x 28.96 cm; 11.79 kg
Compatible Devices	Controller, Solar

Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the official Renogy website or contact Renogy customer service directly. Keep your purchase receipt for warranty claims.