Renogy RBT12100LFP-M-US

Renogy 12V 100Ah LiFePO4 Mini Size Lithium Battery Instruction Manual

Model: RBT12100LFP-M-US

1. Product Overview

The Renogy 12V 100Ah LiFePO4 Mini Size Lithium Battery is a compact, deep-cycle battery designed for various applications including RVs, marine vessels, solar energy systems, and trolling motors. It features a built-in Battery Management System (BMS) for comprehensive protection and offers flexible installation options due to its reduced size.

Image 1.1: Front view of the Renogy 12V 100Ah LiFePO4 Mini Size Lithium Battery, showcasing its compact design and branding.

Key Features:

- **Compact Design:** Up to 50% smaller than traditional Group 31 batteries, allowing installation in confined spaces.
- **Advanced BMS:** Integrated 100A BMS provides protection against overcharge, over-discharge, short circuit, overcurrent, and extreme temperatures.
- **Low-Temperature Protection:** Actively prevents charging below 32°F (0°C) to preserve cell health.
- **Flexible Installation:** Can be installed in various orientations (excluding upside down) to accommodate space limitations.
- **Durable Construction:** Features integrated cell spacers and IP65-rated housing for protection against water, dust, and vibration.
- **Monitoring Capability:** Supports real-time monitoring via the DC Home app or Renogy ONE monitor when paired with a Renogy 300A Battery Shunt (sold separately).

2. Safety Information

Read and understand all safety instructions before installing or operating the battery. Failure to follow these instructions may result in electric shock, fire, or serious injury.

General Safety Precautions:

- Always wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves,

when handling batteries.

- Do not short-circuit the battery terminals.
- Do not disassemble, puncture, or modify the battery.
- Keep the battery away from open flames, heat sources, and flammable materials.
- Ensure proper ventilation during charging and operation.
- Do not immerse the battery in water or other liquids.
- In case of fire, use a Class D fire extinguisher. Water can exacerbate lithium battery fires.
- Dispose of the battery according to local regulations.

Low-Temperature Charging Protection:

This battery includes an internal protection system that prevents charging when the internal cell temperature drops below 32°F (0°C). This feature safeguards the battery cells from damage and extends their lifespan. Charging will automatically resume once the temperature rises above this threshold.

Image 2.1: Diagram illustrating the low-temperature charging protection feature, showing charging stopping when the temperature drops below 32°F and resuming when it rises.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your Renogy LiFePO4 battery.

Unpacking and Inspection:

- Carefully remove the battery from its packaging.
- Inspect the battery for any visible damage. If damage is found, contact Renogy customer support immediately.
- Verify that all components listed in the packing list are present.

Mounting the Battery:

The compact size and robust construction of the Renogy Mini LiFePO4 battery allow for flexible mounting. It can be installed in various orientations to fit tight compartments, such as those found in teardrop trailers, kayaks, and compact RVs. **Do not place your batteries upside down.**

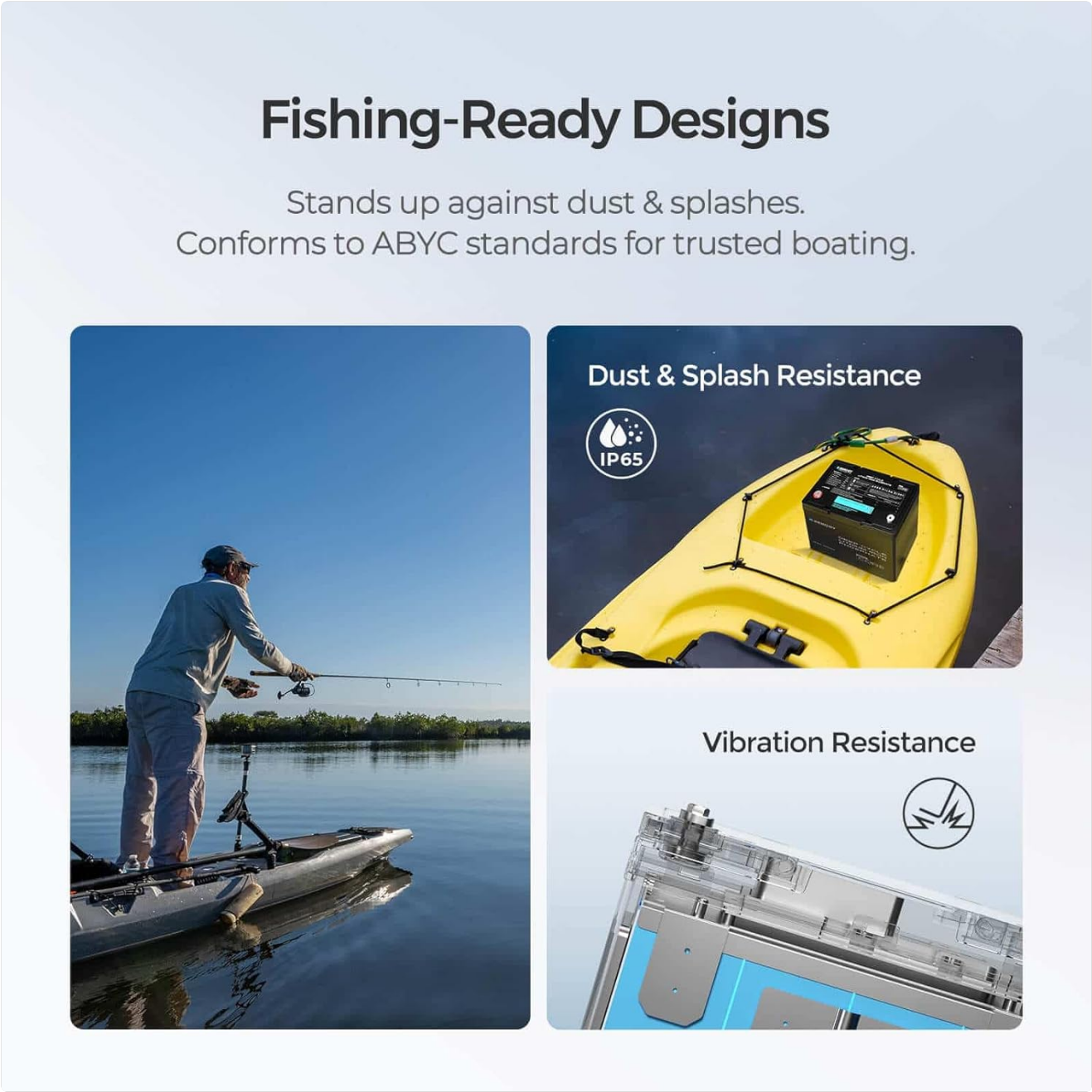

Image 3.1: The Renogy LiFePO4 battery mounted on its side within a custom wooden enclosure, demonstrating its flexible installation capabilities in tight spaces.

Electrical Connections:

- Ensure all connections are secure and properly insulated.
- Use appropriate gauge wiring for your application to prevent overheating.
- Connect the positive terminal (M8) of the battery to the positive terminal of your system and the negative terminal (M8) to the negative terminal of your system.
- For parallel or series connections, refer to advanced wiring diagrams in the full user manual or consult a qualified electrician.

Optional Bluetooth Monitoring Setup:

To enable real-time monitoring of your battery status via the DC Home app or Renogy ONE monitor, a Renogy 300A Battery Shunt is required (sold separately). Connect the shunt according to its specific instructions, then pair it with your monitoring device.

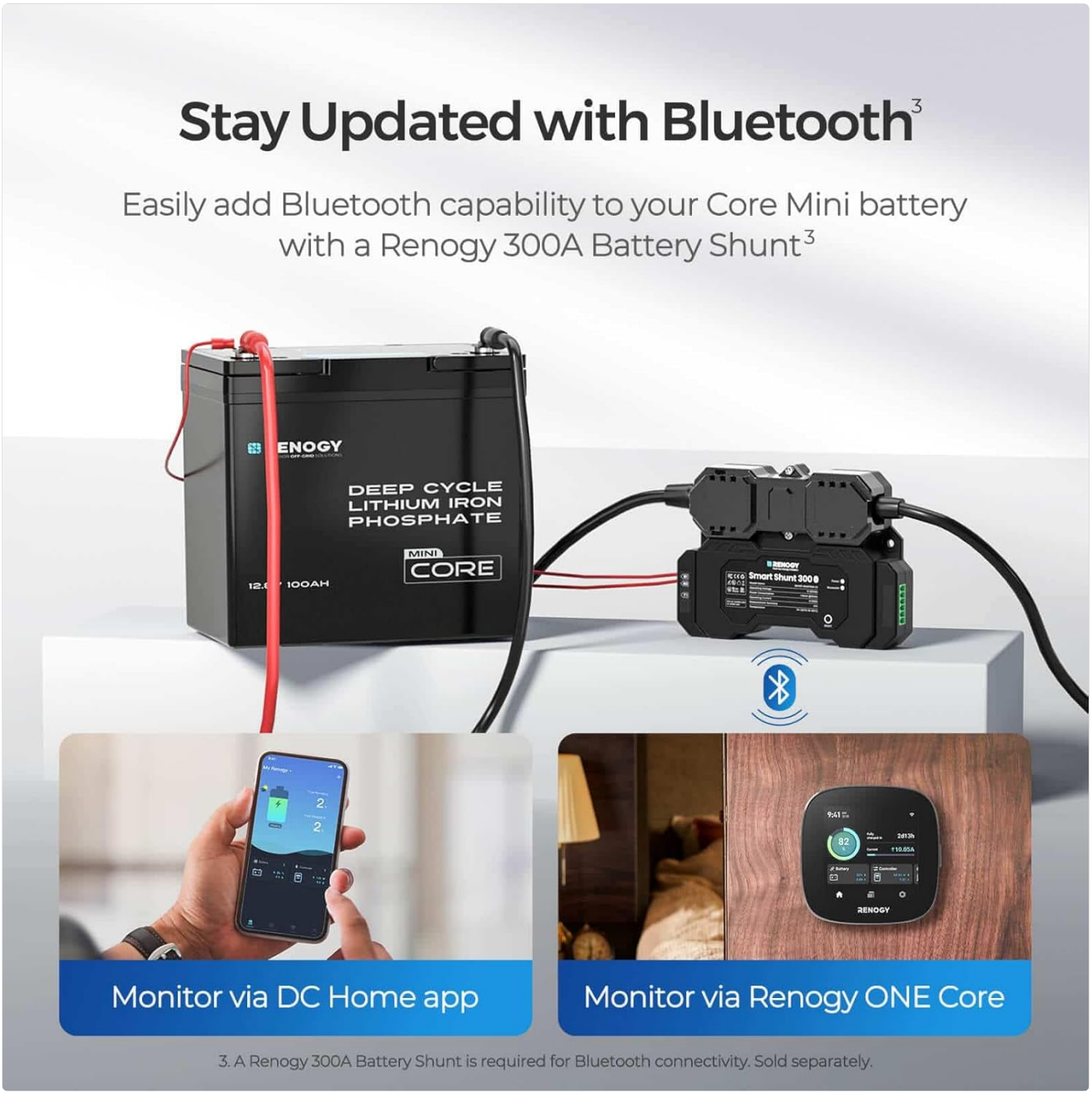

Image 3.2: A Renogy LiFePO4 battery connected to a Renogy 300A Battery Shunt, illustrating the setup for Bluetooth monitoring via the DC Home app or Renogy ONE.

4. Operating Instructions

The Renogy 12V 100Ah LiFePO4 battery is designed for deep cycle applications, providing reliable power for extended periods.

Charging the Battery:

- Use a LiFePO4 compatible charger.
- Ensure the charger voltage and current settings are appropriate for a 12V 100Ah LiFePO4 battery.
- The integrated BMS will manage the charging process, protecting against overcharge.

Discharging the Battery:

- The battery can deliver a continuous discharge current of 100A and a peak discharge current of 300A for 5 seconds.
- Avoid exceeding the maximum continuous discharge current to prevent damage to the battery and connected devices.
- The BMS will disconnect the battery if the voltage drops below a safe level (over-discharge protection).

Monitoring Battery Status:

If you have installed a Renogy 300A Battery Shunt, you can monitor the battery's state of charge, voltage, current, and temperature in real-time using the Renogy DC Home app on your smartphone or a Renogy ONE monitor. This allows for proactive management of your power system.

5. Maintenance

The Renogy LiFePO4 battery requires minimal maintenance due to its robust design and advanced BMS.

Regular Checks:

- Periodically inspect the battery terminals for corrosion and ensure connections are tight.
- Keep the battery surface clean and free of debris.
- Monitor battery performance through the DC Home app or Renogy ONE, if applicable.

Environmental Protection:

The battery's IP65-rated housing provides protection against dust and splashes, making it suitable for marine and outdoor environments. It also features vibration resistance, conforming to ABYC standards for trusted boating applications.

Image 5.1: A Renogy LiFePO4 battery shown in a kayak, highlighting its IP65 dust and splash resistance and vibration resistance for marine use.

Storage:

- Store the battery in a cool, dry place, away from direct sunlight and extreme temperatures.
- For long-term storage, charge the battery to approximately 50% state of charge.
- Periodically check the battery voltage during storage and recharge if necessary to prevent deep discharge.

6. Troubleshooting

This section provides general guidance for common issues. For detailed troubleshooting, refer to the full user manual or contact Renogy support.

Battery Not Charging:

- **Check Connections:** Ensure all charging cables are securely connected to the battery and charger.
- **Charger Compatibility:** Verify that your charger is compatible with LiFePO4 batteries and set to the correct voltage.

- **Temperature:** If the ambient temperature is below 32°F (0°C), the battery's low-temperature protection will prevent charging. Move the battery to a warmer environment.
- **BMS Activation:** If the battery was deeply discharged, the BMS might have entered a protective state. Some chargers may require a specific procedure to reactivate the BMS.

Battery Not Discharging:

- **Check Load:** Ensure the connected load is within the battery's continuous discharge limits.
- **Over-Discharge Protection:** The BMS may have disconnected the battery due to low voltage. Recharge the battery to reactivate it.
- **Short Circuit:** The BMS will disconnect the battery in case of a short circuit. Disconnect the load, inspect for shorts, and reconnect.

Inconsistent Performance:

- **Loose Connections:** Inspect all terminals and connections for tightness. Loose connections can cause voltage drops and poor performance.
- **Monitoring System:** If using a monitoring system, check its calibration and ensure it is functioning correctly.

7. Specifications

Image 7.1: Visual representation of the Renogy LiFePO4 battery's dimensions, highlighting its compact size and key features like low-temp cut-off and optional Bluetooth.

Feature	Specification
Model Number	RBT12100LFP-M-US
Nominal Voltage	12.8V
Nominal Capacity	100Ah
Energy	1280Wh
Max. Continuous Discharge Current	100A
Peak Discharge Current (5s)	300A
BMS Current Rating	100A
Cycle Life	5000+ cycles (80% DOD)

Feature	Specification
Dimensions (L x W x H)	9.02 x 5.43 x 8.39 inches
Weight	21.8 lbs
Terminal Type	M8
Ingress Protection (IP) Rating	IP65
Operating Temperature Range	Discharge: -4°F to 140°F (-20°C to 60°C) Charge: 32°F to 113°F (0°C to 45°C)
Storage Temperature Range	-4°F to 113°F (-20°C to 45°C)
UPC	840315243255

8. Warranty and Support

Warranty Information:

The Renogy 12V 100Ah LiFePO4 Mini Size Lithium Battery comes with a**5-Year Warranty**. This warranty covers defects in materials and workmanship under normal use and service conditions. Please retain your proof of purchase for warranty claims.

Image 8.1: An icon representing the 5-Year Warranty provided by Renogy for their products.

Customer Support:

For technical assistance, warranty claims, or any questions regarding your Renogy product, please visit the official Renogy website or contact their customer service department. Detailed contact information can typically be found on the product packaging or the Renogy website.
Renogy is committed to providing reliable off-grid power solutions and prompt customer support.