Litime 12V 230Ah Plus

Litime 12V 230Ah Plus LiFePO4 Battery User Manual

Model: 12V 230Ah Plus

1. Introduction

This manual provides essential instructions for the safe and efficient use of your Litime 12V 230Ah Plus LiFePO4 Battery. Please read this manual thoroughly before installation and operation to ensure optimal performance and longevity of your battery. This battery is designed for various applications including RVs, marine vessels, trolling motors, and home energy backup systems.

2. Safety Guidelines

Always adhere to the following safety precautions to prevent injury or damage to the battery and connected equipment:

- Do not short-circuit the battery terminals.
- Do not expose the battery to fire or extreme heat.
- Do not immerse the battery in water or other liquids.
- Do not disassemble, puncture, or modify the battery.
- Use only compatible chargers designed for LiFePO4 batteries.
- Ensure proper ventilation during charging and discharging.
- Wear appropriate personal protective equipment (PPE) such as gloves and eye protection when handling batteries.
- Keep out of reach of children.

3. Product Overview

The Litime 12V 230Ah Plus LiFePO4 Battery is a high-performance lithium iron phosphate battery featuring advanced technology for reliability and durability.

Key Features:

- **Low-Temperature Protection:** Features smart cutoff for charging below 0°F (-17.8°C) and discharging below -4°F (-20°C) to prevent damage in cold environments. Charging recovery occurs at 41°F (5°C).
- **Extended Cycle Life:** Offers 4000+ deep cycles at 100% Depth of Discharge (DOD), significantly outperforming traditional lead-acid batteries.
- **High Energy Density:** Approximately 3 times denser and lighter than comparable lead-acid batteries, enhancing portability and efficiency.
- **Integrated 200A BMS:** Built-in Battery Management System provides comprehensive protection against overcharge, over-discharge, over-current, and short-circuit.
- **Versatile Applications:** Suitable for marine, RVs, backup power, and 12V trolling motors (30-70 lbs thrust).

Product Dimensions:

The battery measures approximately 19.02 inches (L) x 6.69 inches (W) x 9.45 inches (H) and weighs 45.3 pounds.

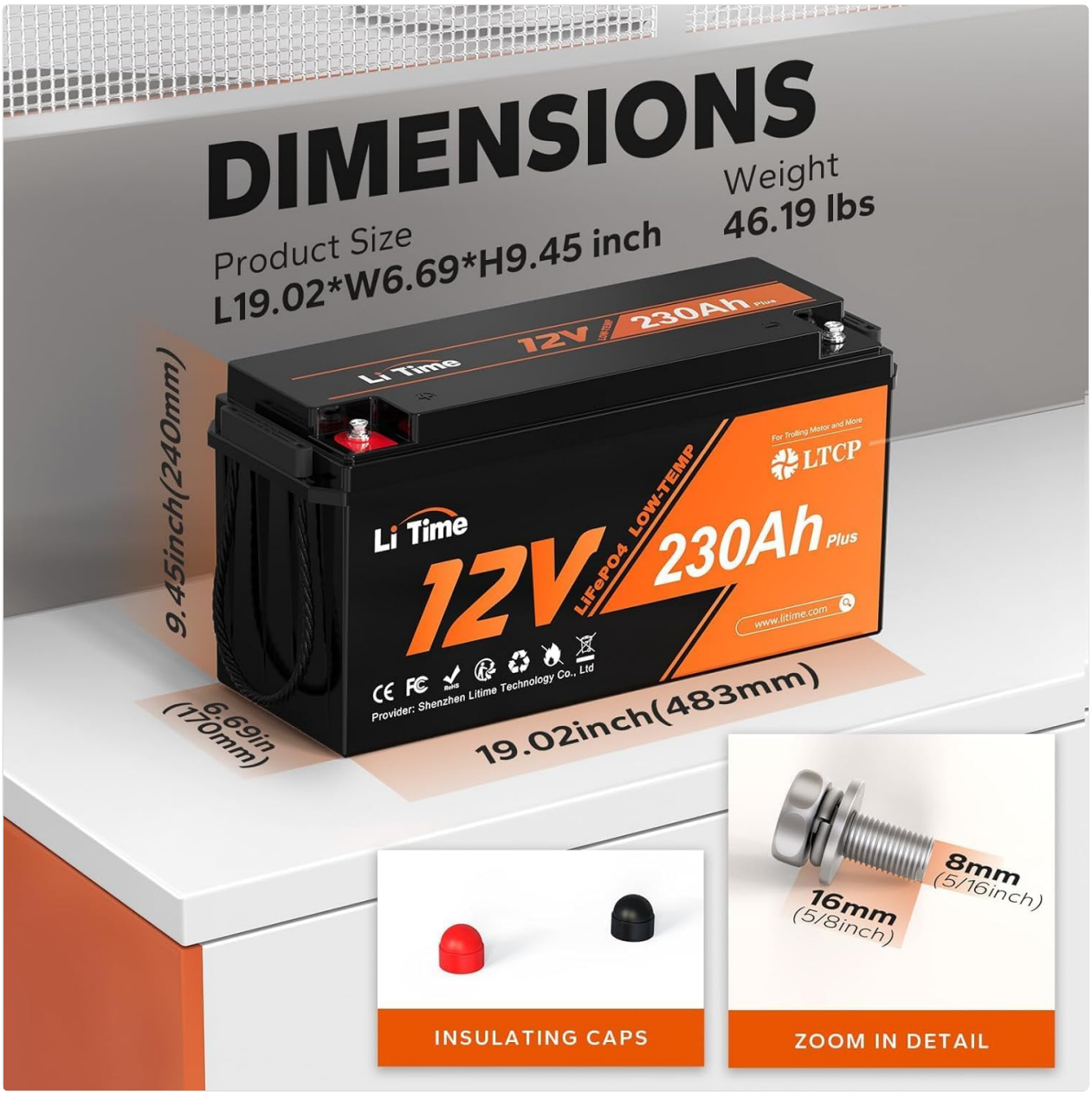

Image: The Litime 12V 230Ah Plus LiFePO4 battery with its dimensions clearly marked: Length 19.02 inches (483mm), Width 6.69 inches (170mm), Height 9.45 inches (240mm). The image also shows insulating caps for the terminals and a detailed view of the 8mm (5/16 inch) bolt and 16mm (5/8 inch) screw.

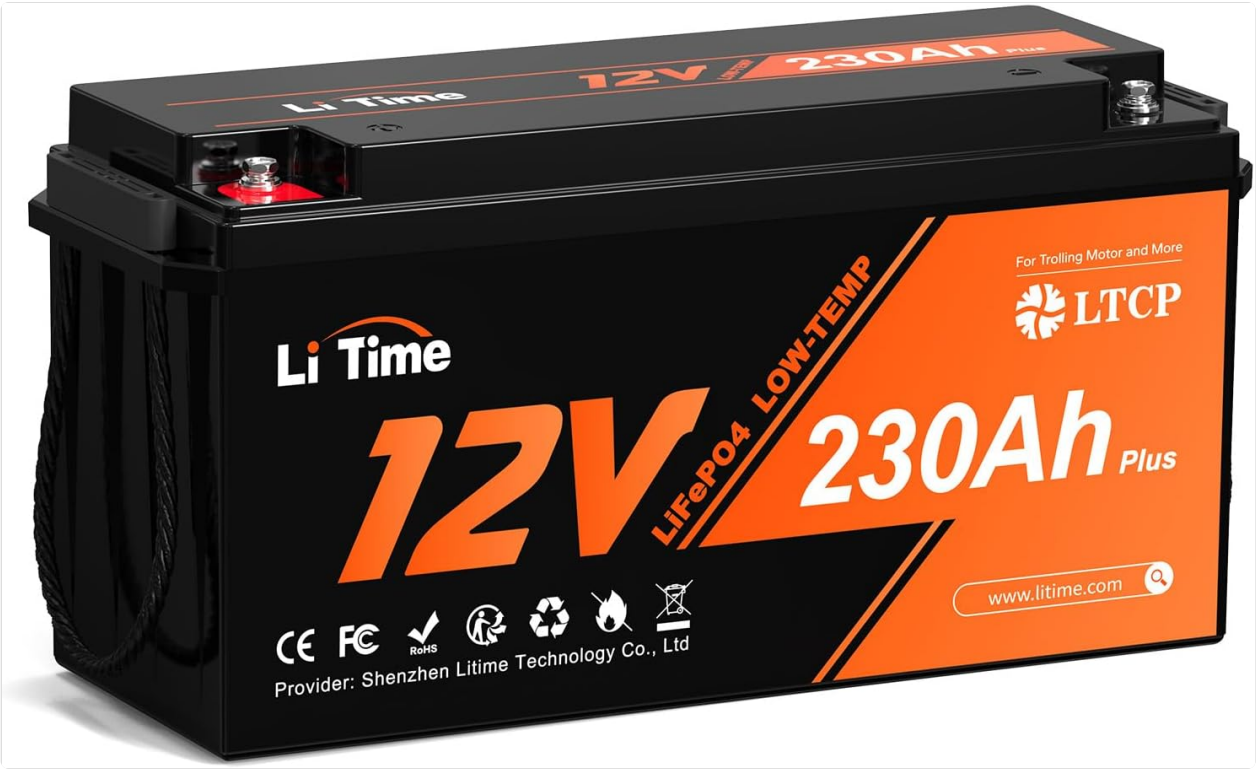

Image: A front-angle view of the Litime 12V 230Ah Plus LiFePO4 battery, showcasing its black and orange casing with the brand logo, voltage, and capacity prominently displayed. The terminals are visible on top.

4. Specifications

Attribute	Value
Brand	Litime
Model	12V 230Ah Plus
Item Weight	45.3 pounds
Product Dimensions	6.7 x 19 x 9.5 inches
Amperage	200 Amps (BMS continuous discharge)
Voltage	12 Volts
Battery Cell Composition	Lithium-Phosphate (LiFePO4)
Battery Capacity	230 Amp Hours
Recommended Uses	Marine, RVs, Backup Power, Trolling Motors
Cycle Life	4000+ cycles (100% DOD)
Low-Temp Protection	Charging cutoff < 0°F (-17.8°C), Discharging cutoff < -4°F (-20°C)

5. Setup and Installation

Proper installation is crucial for the safety and performance of your battery. Consult a qualified professional if you are unsure about any steps.

5.1 Initial Inspection

- Inspect the battery for any physical damage during shipping.
- Verify that all components, including terminal bolts and insulating caps, are present.

5.2 Connection Guidelines

- Ensure all connections are clean, tight, and free of corrosion.
- Connect the positive (+) terminal to the positive lead and the negative (-) terminal to the negative lead. Reverse polarity can cause severe damage.
- Use appropriately sized cables and fuses for your application to prevent overheating and damage.

5.3 Parallel and Series Connections

This battery supports configurations up to 4 parallel (4P) and 4 series (4S) for a maximum system voltage of 51.2V and capacity of 920Ah, enabling up to 47.1kWh of energy and 40.96kW of power.

- **Parallel Connection:** Connect positive terminals together and negative terminals together to increase capacity (Ah) while maintaining the same voltage (V). Ensure all batteries are at a similar state of charge before connecting in parallel.
- **Series Connection:** Connect the positive terminal of one battery to the negative terminal of the next to increase voltage (V) while maintaining the same capacity (Ah). Ensure all batteries are of the same model and capacity when connecting in series.

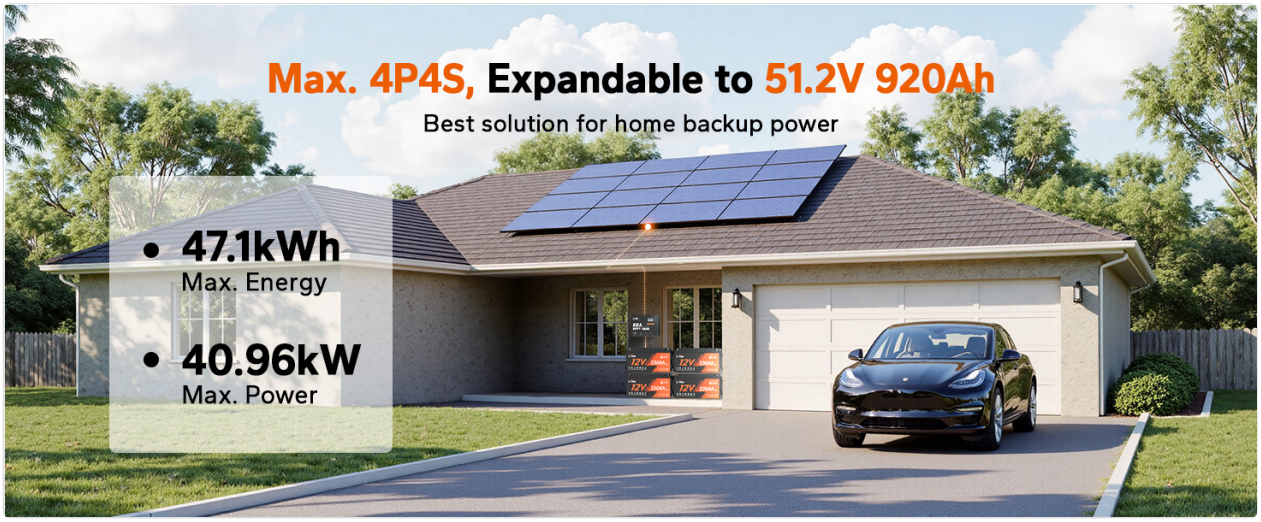

Image: An illustration demonstrating the scalability of the Litime battery system, showing a house with solar panels and a car, indicating that up to 4 batteries can be connected in parallel and 4 in series (4P4S) to achieve a maximum of 51.2V 920Ah, providing up to 47.1kWh of energy and 40.96kW of power for home backup.

5.4 Charging Methods

The Litime 12V 230Ah Plus LiFePO4 battery can be charged using various methods:

- **AC-DC Battery Charger:** Use a compatible LiFePO4 charger (e.g., 14.6V 40A) for efficient charging.
- **Solar Panel + MPPT:** Connect to solar panels via an MPPT charge controller. Recommended solar power is 450W for sunny days.
- **Alternator + DC-DC Charger:** For vehicle charging, use a DC-DC charger with your alternator.
- **Generator + AC-DC Charger:** A generator can power an AC-DC charger for battery replenishment.

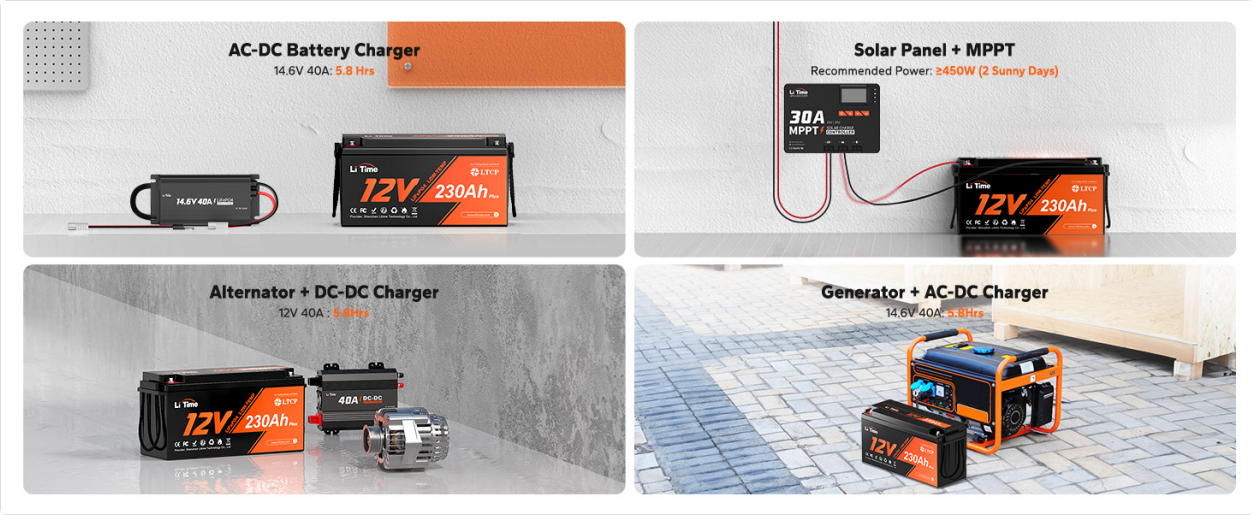

Image: A visual representation of four different charging methods for the Litime 12V 230Ah LiFePO4 battery: AC-DC Battery Charger, Solar Panel with MPPT controller, Alternator with DC-DC Charger, and Generator with AC-DC Charger. Each method shows the battery connected to its respective charging source.

6. Operation

6.1 General Use

- Ensure the battery is adequately charged before initial use.
- Monitor battery voltage and current to stay within safe operating parameters.
- The battery provides a stable 12V output for various devices. For example, a full charge can power a 10W light for 294 hours or a 1000W air conditioner for 2.9 hours.

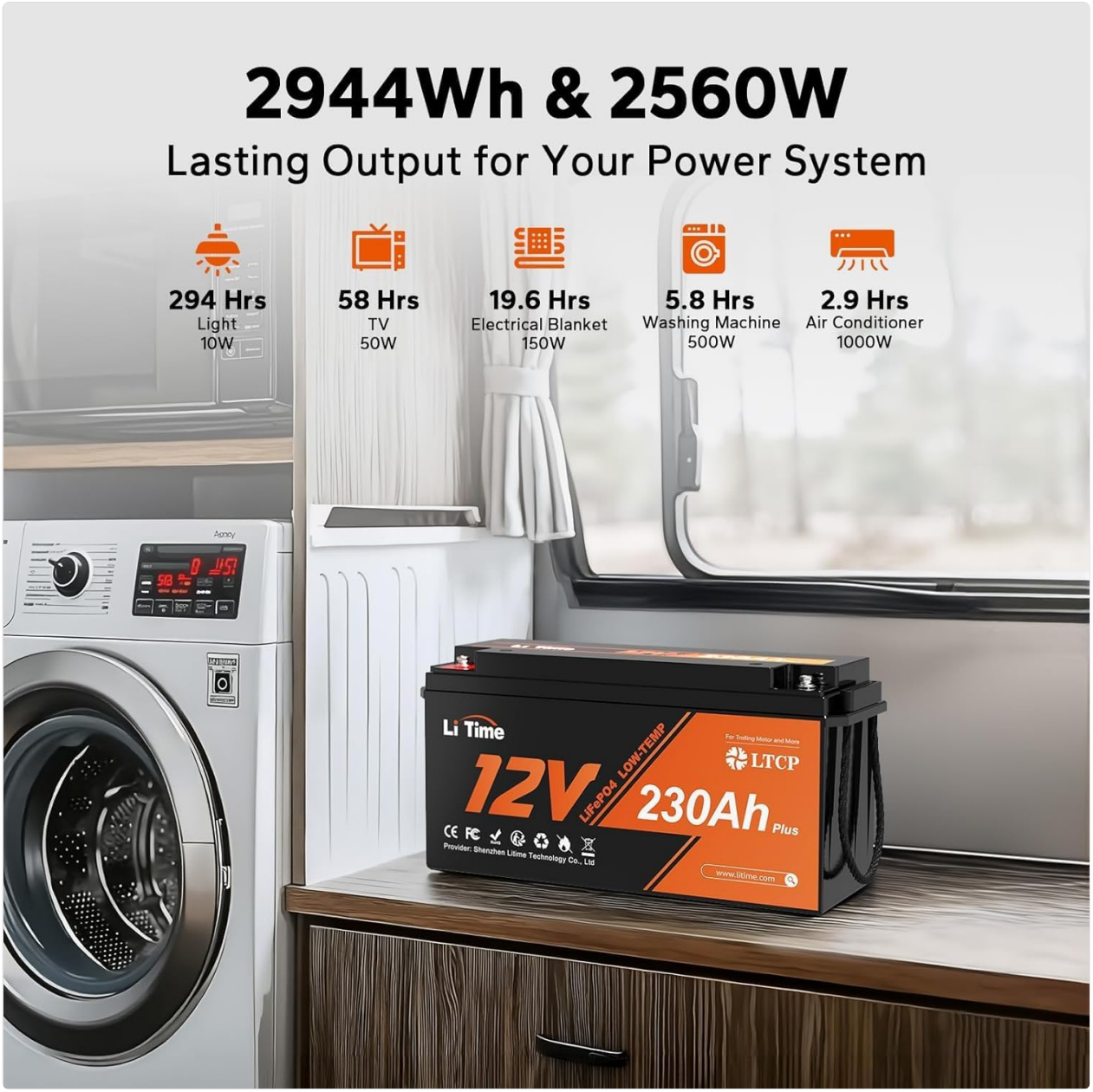

Image: An illustration demonstrating the lasting output of the Litime 12V 230Ah Plus LiFePO4 battery (2944Wh & 2560W). It shows the battery powering various household appliances like a light (10W for 294 Hrs), TV (50W for 58 Hrs), electrical blanket (150W for 19.6 Hrs), washing machine (500W for 5.8 Hrs), and air conditioner (1000W for 2.9 Hrs).

6.2 Low-Temperature Protection (LTP)

The integrated BMS includes a low-temperature protection feature to safeguard the battery in cold conditions:

- **Charging Cutoff:** If the battery temperature drops below 0°F (-17.8°C), the BMS will automatically stop charging to prevent damage.
- **Discharging Cutoff:** If the battery temperature drops below -4°F (-20°C), the BMS will automatically stop discharging.
- **Charging Recovery:** Charging will resume automatically once the battery temperature rises above 41°F (5°C).

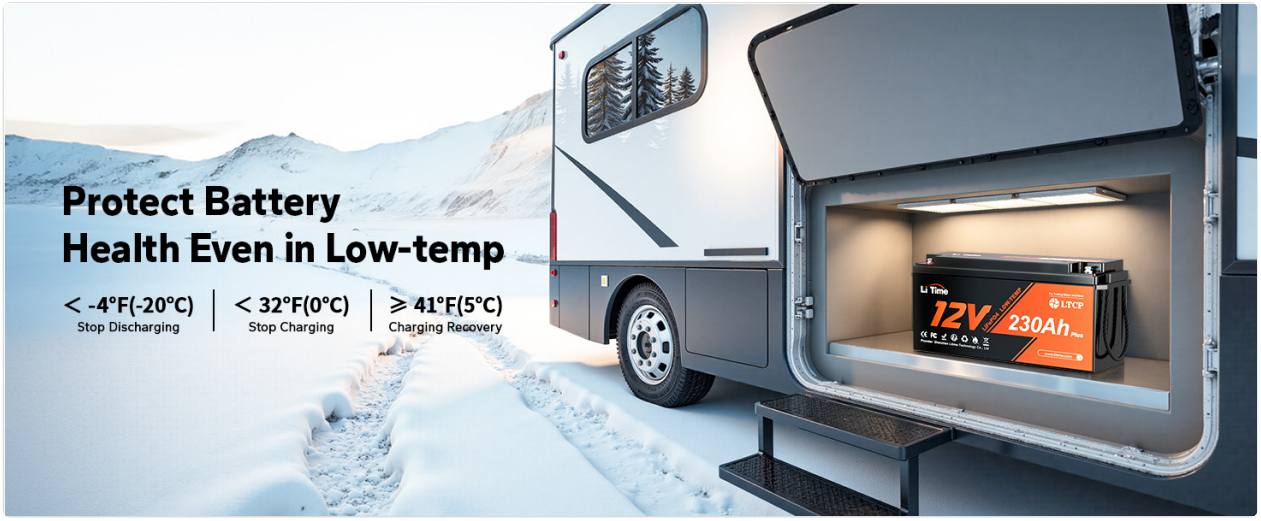

Image: A Litime LiFePO4 battery installed in an RV compartment during winter, illustrating its low-temperature protection feature. Text indicates that discharging stops below -4°F (-20°C), charging stops below 32°F (0°C), and charging recovers above 41°F (5°C), ensuring battery health in cold conditions.

7. Maintenance

LiFePO4 batteries require minimal maintenance compared to lead-acid batteries, but following these guidelines will ensure optimal performance and lifespan:

- **Regular Inspection:** Periodically check terminals for cleanliness and tightness. Ensure there are no signs of corrosion or damage.
- **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. Avoid storing in extreme temperatures.
- **Cleaning:** Use a dry cloth to clean the battery casing. Do not use solvents or abrasive cleaners.
- **Avoid Deep Discharge:** While the BMS protects against over-discharge, consistently avoiding extremely low states of charge can prolong battery life.

8. Troubleshooting

If you encounter issues with your Litime 12V 230Ah Plus LiFePO4 Battery, refer to the following common problems and solutions:

8.1 Battery Not Providing Power / Appears Dead

- **Symptom:** Battery shows 0 volts or does not power devices after being deeply discharged.
- **Cause:** The Battery Management System (BMS) may have entered a protective shutdown state due to over-discharge.
- **Solution:** Disconnect all loads from the battery. Connect a compatible LiFePO4 charger. The BMS should reset and allow charging to commence. If the charger does not immediately activate, ensure all loads are completely disconnected, then try reconnecting the charger.

8.2 Battery Not Charging in Cold Temperatures

- **Symptom:** Charger indicates no charging or battery voltage does not increase when connected to a charger in cold conditions.
- **Cause:** The low-temperature protection feature of the BMS has activated, preventing charging below 0°F (-17.8°C).

- **Solution:** Move the battery to a warmer environment or allow its internal temperature to rise above 41°F (5°C). Charging will automatically resume once the safe temperature threshold is met.

8.3 Reduced Runtime

- **Symptom:** Battery does not last as long as expected.
- **Cause:** This could be due to increased load, aging, or incomplete charging cycles.
- **Solution:** Verify the total power draw of your devices. Ensure the battery is being fully charged. If the battery is several years old, some capacity degradation is normal.

For issues not covered here, please contact Litime customer support.

9. Warranty and Support

Litime stands behind the quality of its products. The Litime 12V 230Ah Plus LiFePO4 Battery comes with a **5-year service warranty**.
This warranty covers defects in materials and workmanship under normal use. It does not cover damage resulting from misuse, abuse, neglect, improper installation, accidents, or unauthorized modifications.

Customer Support:

For technical assistance, warranty claims, or any questions regarding your Litime battery, please contact our professional tech support team. We offer 24-hour online service to provide prompt assistance.
Please refer to the official Litime website or your purchase documentation for the most current contact information.