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Litime L48V100-100-BASIC-15-S3U

Litime 48V 100Ah Server Rack LiFePO4 Off Grid Battery User Manual

Model: L48V100-100-BASIC-15-S3U

1. Introduction

This manual provides essential information for the safe and efficient operation of your Litime 48V 100Ah Server Rack LiFePO4 Battery. Please read this manual thoroughly before installation and use, and retain it for future reference. This battery is designed for off-grid and home energy storage applications, offering high energy density, long cycle life, and robust safety features.



Image 1.1: The Litime 48V 100Ah Server Rack LiFePO4 Battery, showcasing its compact design and front panel connections.

2. Safety Instructions

Always observe the following safety precautions to prevent injury or damage to the battery and connected equipment.

- **Installation:** Ensure installation is performed by qualified personnel.
- **Ventilation:** Install the battery in a well-ventilated area.
- **Temperature:** Operate within specified temperature ranges.
- **Connections:** Verify all connections are secure and correct polarity is observed before applying power. Incorrect polarity can cause severe damage.
- **Tools:** Use insulated tools to prevent short circuits.
- **Short Circuits:** Avoid short-circuiting the battery terminals.
- **Disassembly:** Do not attempt to disassemble, repair, or modify the battery. There are no user-serviceable parts inside.
- **Water Exposure:** Keep the battery away from water, moisture, and flammable materials.
- **Charging:** Use only chargers compatible with LiFePO4 batteries and the specified voltage (48V, 15S configuration). Using an incompatible charger (e.g., 16S 58V charger) can damage the battery.
- **Weight:** The battery is heavy (approximately 91 pounds). Use proper lifting techniques or assistance during installation.

3. Product Overview and Features

The Litime 48V 100Ah LiFePO4 battery is designed for high-performance energy storage. Key features include:

- **Premium EV-Grade LiFePO4 Cells:** Ensures high energy density, stable performance, and extended lifespan.
- **Integrated 100A BMS:** Provides comprehensive protection against overcharge, over-discharge, overheating, overcurrent, and short circuits, enhancing battery longevity and safety.
- **Long Cycle Life:** Offers 4000+ cycles at 100% Depth of Discharge (DOD), translating to a minimum 10-year lifespan.
- **High Continuous Output:** Capable of 4.8KW continuous output power.
- **Metal Case (SPCC):** Provides improved heat dissipation and wear resistance for better performance and durability.
- **Maintenance-Free Operation:** Designed for hassle-free use.
- **Certifications:** UL, FCC, CE, RoHS, and UN38.3 certified for safety and quality assurance.

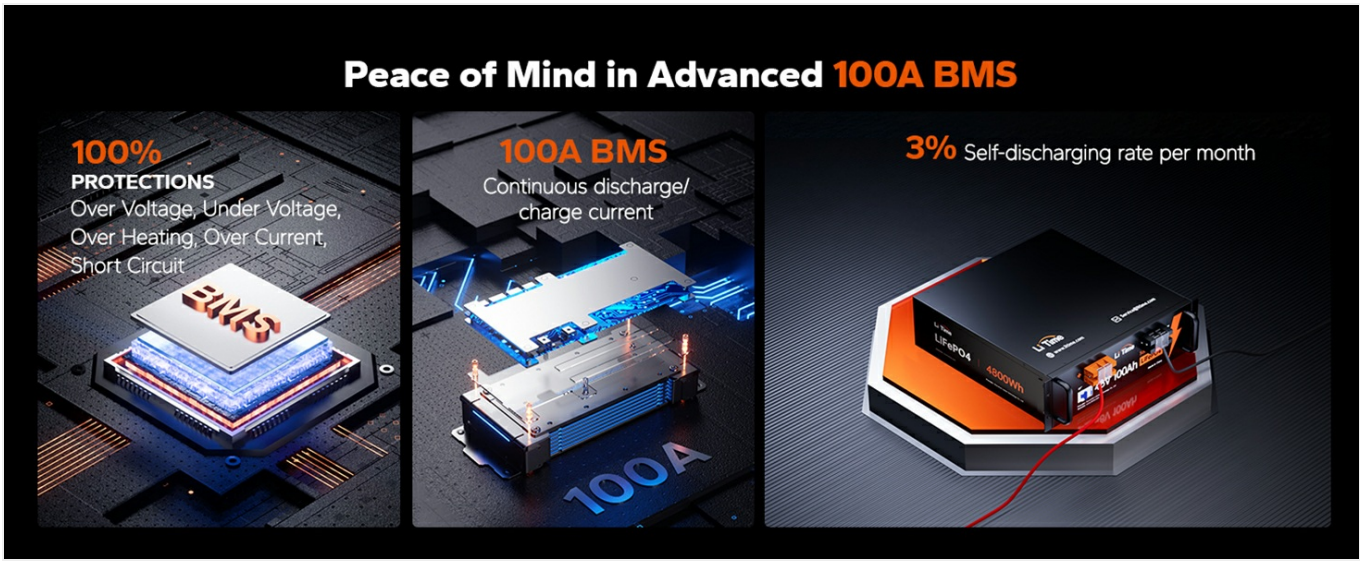


Image 3.1: Visual representation of the battery's key features, including the 100A BMS, 4000+ cycle life, and various certifications.

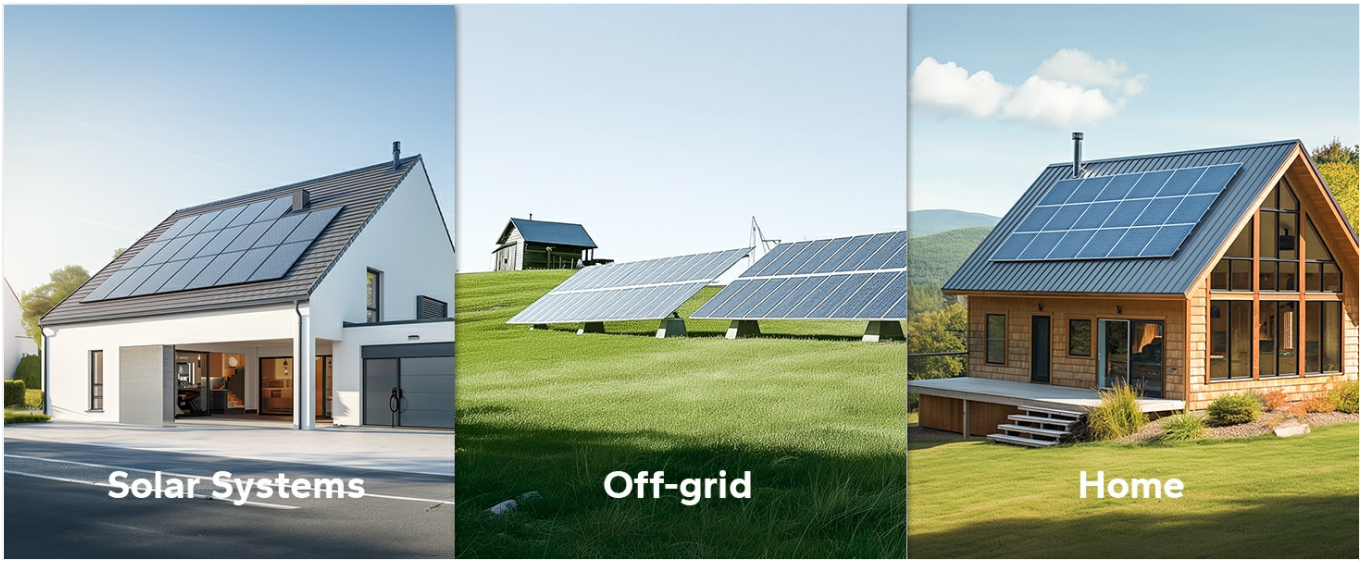


Image 3.2: Detailed view of the 100A BMS and its protective functions against over voltage, under voltage, over heating, over current, and short circuit.

4. Specifications

Detailed technical specifications for the Litime 48V 100Ah LiFePO4 Battery.

Attribute	Value
Model Number	L48V100-100-BASIC-15-S3U
Nominal Voltage	48 Volts
Nominal Capacity	100 Ah
Energy	4800 Wh
Continuous Output Power	4.8 KW
Battery Cell Composition	Lithium Iron Phosphate (LiFePO4)
BMS	Built-in 100A
Cycle Life	4000+ cycles at 100% DOD
Product Dimensions (L x W x H)	20.39 x 17.4 x 5.24 inches (with handles)
Item Weight	Approximately 91 pounds
Certifications	UL, FCC, CE, RoHS, UN38.3

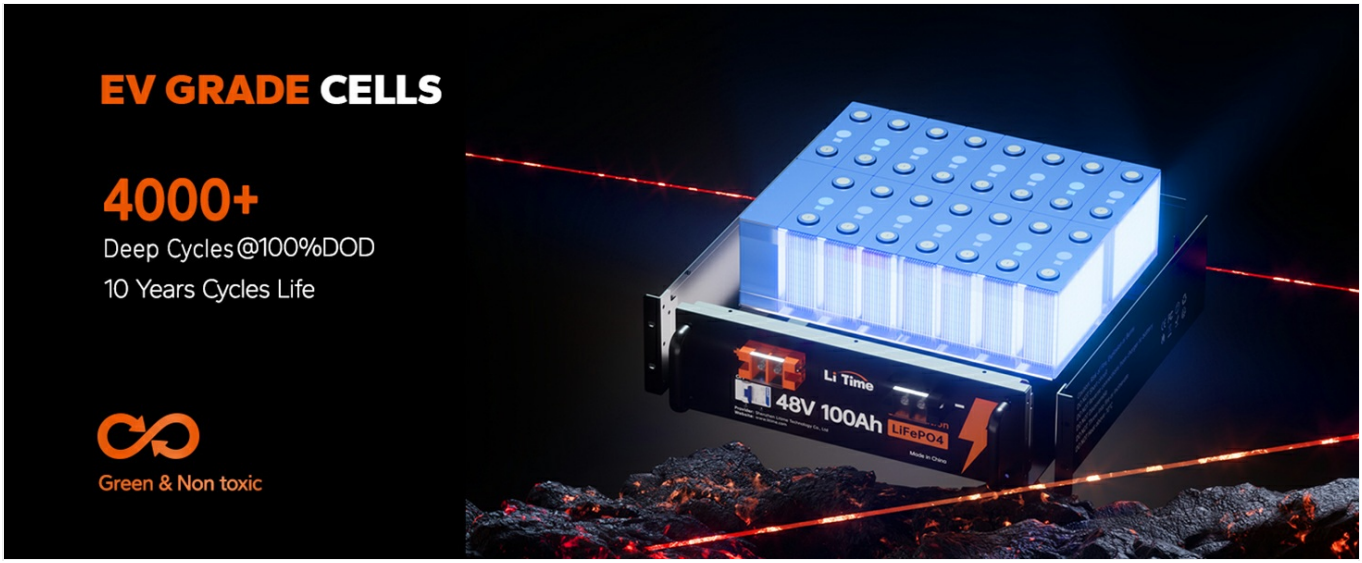


Image 4.1: Diagram illustrating the physical dimensions and weight of the Litime 48V 100Ah battery.

5. Setup and Installation

This section outlines the general steps for setting up your Litime 48V 100Ah battery. Professional installation is recommended.

1. **Unpacking:** Carefully remove the battery from its packaging. Inspect for any visible damage.
2. **Placement:** Position the battery in a clean, dry, well-ventilated area, away from direct sunlight, heat sources, and flammable materials. Ensure the surface is stable and can support the battery's weight.
3. **Mounting (Server Rack):** If installing in a server rack, ensure the rack is appropriately sized and secured. Follow standard server rack installation procedures.
4. **Wiring:**
    - Identify the positive (+) and negative (-) terminals on the battery.
    - Connect appropriate gauge cables to the battery terminals and to your inverter/charge controller system. Ensure all connections are tight and secure.
    - *Important:* Always connect the negative terminal first, then the positive terminal when connecting to the system. When disconnecting, disconnect the positive terminal first, then the negative.
    - Ensure correct polarity throughout the system to prevent damage.
5. **Parallel Connection (Optional):** For increased capacity, multiple Litime 48V 100Ah batteries can be connected in parallel.
    - Ensure all batteries are at a similar state of charge before connecting in parallel.
    - Use appropriate busbars and cables for parallel connections to ensure even current distribution.
    - Consult a qualified electrician for complex parallel configurations.
6. **System Integration:** Connect the battery system to your inverter, charge controller, and other components according to their respective manuals.
7. **Initial Charge:** It is recommended to fully charge the battery before its first use.

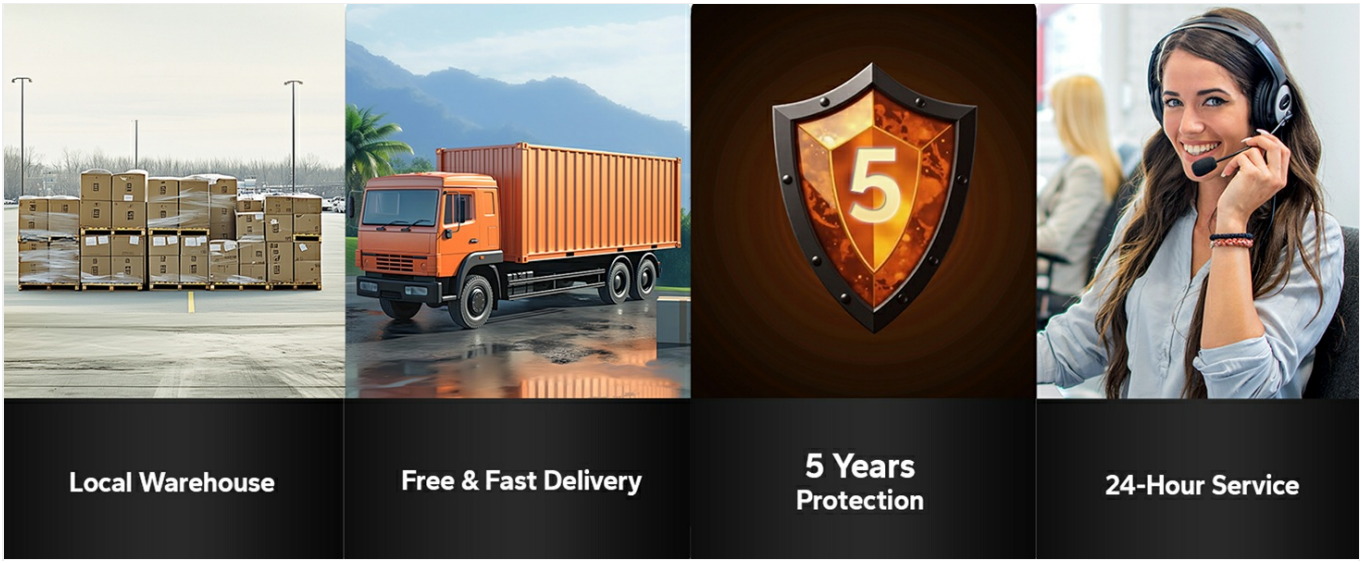


Image 5.1: Examples of typical applications for the Litime 48V 100Ah battery, including solar systems, off-grid setups, and home energy storage.

6. Operating Instructions

Once installed, the Litime 48V 100Ah battery operates largely autonomously due to its integrated BMS. However, understanding its operation is key.

6.1 Charging

- **Charger Compatibility:** Use a dedicated LiFePO4 charger with a 48V output voltage (specifically designed for 15S LiFePO4 batteries). The recommended charging voltage is typically around 54.75V (3.65V per cell x 15 cells).
- **Charging Current:** The built-in BMS supports a continuous charge current of up to 100A. Refer to your charger's specifications and the battery's maximum charge current.
- **Charging Time:** Charging time depends on the charger's output current. For example, a 20A charger would take approximately 5 hours (100Ah / 20A = 5 hours) for a full charge from empty.
- **Solar Charging:** When using solar panels, ensure your MPPT or PWM charge controller is configured for LiFePO4 batteries and the correct 48V settings.

6.2 Discharging

- **Continuous Discharge:** The battery supports a continuous discharge current of up to 100A, providing 4.8KW of continuous output power.
- **BMS Protection:** The BMS will automatically disconnect the battery if the discharge current exceeds its limit, if the voltage drops too low (over-discharge), or if the temperature becomes too high. This protects the battery from damage.
- **Load Management:** Monitor your connected loads to ensure they do not exceed the battery's continuous discharge capabilities.

Image 6.1: Various charging methods for the Litime 48V 100Ah battery, including AC-DC LiFePO4 charger, solar panel, and generator with AC-DC charger.



Image 6.2: Examples of appliances and their estimated run times with the Litime 48V 100Ah battery, demonstrating its 4800Wh usable energy and 4800W load power.

7. Maintenance

The Litime LiFePO4 battery is designed to be maintenance-free. However, following these guidelines can help ensure optimal performance and longevity:

- **Regular Inspection:** Periodically check the battery and its connections for any signs of damage, corrosion, or loose terminals.
- **Cleaning:** Keep the battery clean and free of dust and debris. Use a dry cloth for cleaning. Do not use solvents or abrasive cleaners.
- **Temperature Control:** Ensure the operating environment maintains the recommended temperature range to prevent performance degradation or damage.
- **Storage:** If storing the battery for an extended period, ensure it is charged to approximately 50-70% of its capacity and stored in a cool, dry place. Recharge every 3-6 months to prevent deep discharge.

8. Troubleshooting

This section addresses common issues you might encounter with your Litime 48V 100Ah battery.

Problem	Possible Cause	Solution
Battery not charging	• Charger not connected or faulty • Charger incompatible (e.g., 16S charger for 15S battery) • BMS protection activated (over-discharge, over-voltage) • Loose connections	• Check charger connection and functionality. • Ensure charger is specifically for 48V (15S) LiFePO4 batteries. • If BMS is in protection mode, remove load, wait, or attempt a low-current charge to reset. • Verify all cable connections are secure.
Battery not discharging / No power output	• BMS protection activated (over-discharge, over-current, over-temperature) • Loose connections to inverter/load • Battery is fully discharged	• If BMS is in protection mode, remove load, allow battery to cool, or charge the battery. • Check all cable connections. • Charge the battery.

Problem	Possible Cause	Solution
Reduced capacity or runtime	• Battery not fully charged • High ambient temperature • Aging of battery cells (after many cycles)	• Ensure battery is fully charged before use. • Operate within recommended temperature range. • This is normal over the battery's lifespan.

If you encounter issues not listed here or if troubleshooting steps do not resolve the problem, please contact Litime customer support.

9. Warranty and Support

Litime provides a warranty for this product and offers customer support.

- **Warranty:** The Litime 48V 100Ah LiFePO4 battery is backed by a 5-year warranty, ensuring reliable performance and peace of mind.
- **Customer Support:** For technical assistance, warranty claims, or any questions regarding your battery, please contact Litime customer service. Refer to the product packaging or the official Litime website for contact information.

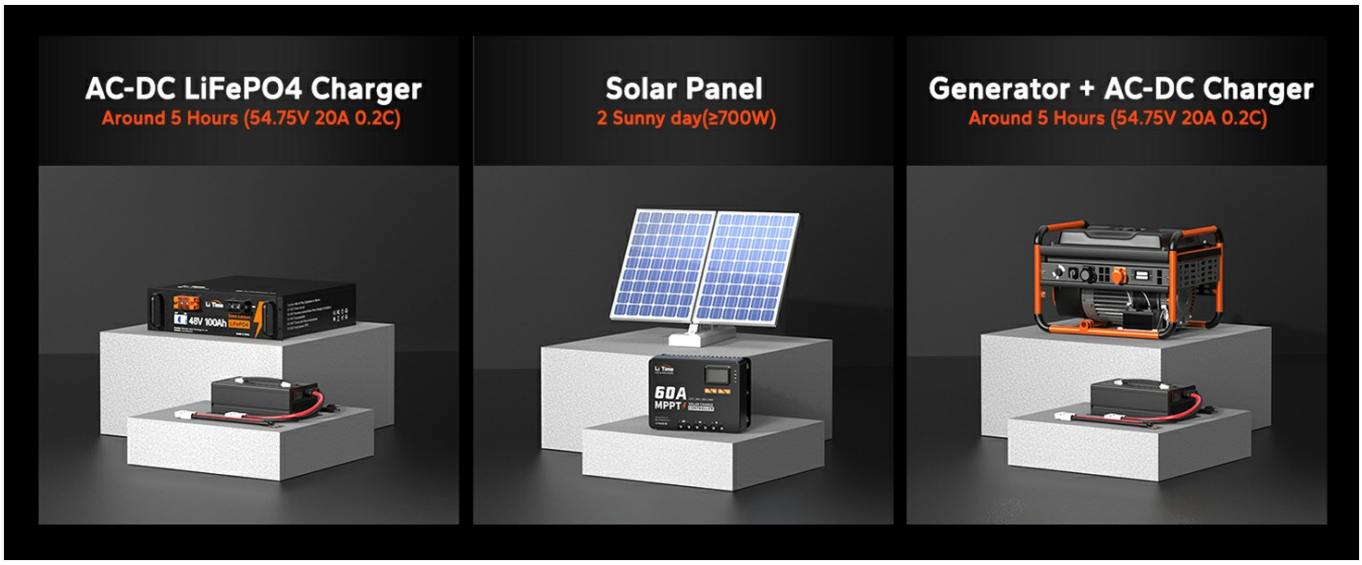


Image 9.1: Comparison highlighting the advantages of the Litime 48V 100Ah LiFePO4 battery over traditional lead-acid batteries in terms of weight and usable energy.

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