

ExpertPower EP48100

ExpertPower 48V 100Ah LiFePO4 Battery User Manual

Brand: ExpertPower | Model: EP48100

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your ExpertPower 48V 100Ah 5KWh Lithium LiFePO4 Deep Cycle Rechargeable Battery. Designed for off-grid, residential, home, cabin, and backup power applications, this battery features advanced LiFePO4 technology, offering a long cycle life and robust performance. Please read this manual thoroughly before installation and use.

2. SAFETY INFORMATION

Your ExpertPower LiFePO4 battery is built with safety in mind, incorporating a sophisticated Battery Management System (BMS). However, it is crucial to adhere to all safety precautions to prevent injury or damage.

- **Risk of Fire or Explosion:** Always follow proper installation and operating procedures. Do not short-circuit the terminals.
- **Avoid Mechanical Shock:** The battery's prismatic cells undergo rigorous testing against puncture, fire, short circuit, impact, and liquid damage, but physical abuse should be avoided.
- Ensure proper ventilation during operation.
- Do not disassemble, crush, or modify the battery.
- Keep away from children and pets.

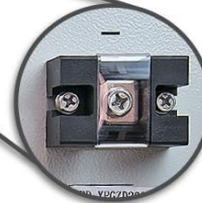
DIMENSIONS

Front View

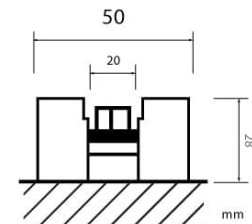


Terminal Specifications:

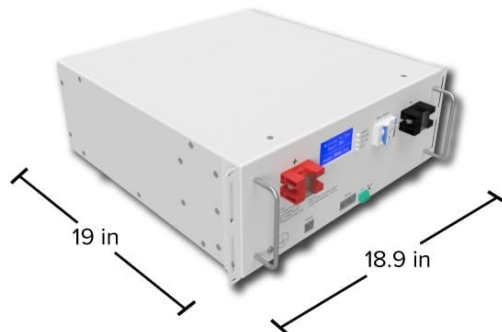
M6 Terminal



M6 Diagram

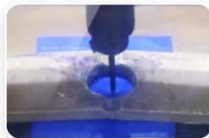


Side View



Safety 1st Design

All of our cells are rigorously tested and have proven well against a variety of damage* like:



Puncture



Short Circuit



Incendiary



Impact



Liquid

*For complete testing, please visit our website: expertpower.us

Figure 2.1: Product dimensions and visual representation of rigorous safety testing including puncture, short circuit, incendiary, impact, and liquid resistance.

3. PRODUCT FEATURES

The ExpertPower 48V 100Ah LiFePO4 battery is engineered for superior performance and longevity:

- **A+ Grade Prismatic Cells:** Utilizes state-of-the-art prismatic cells, which are lighter, safer, and more efficient than cylindrical cells, offering 4000 to 7000 life cycles and a 10-year expected lifetime.
- **Advanced Battery Management System (BMS):** A proprietary BMS optimized for these cells provides maximum useful life and protection against overcharge, deep discharge, overloading, overheating, low-temperatures, and short circuits.
- **Expandable Capacity:** Supports expansion up to 10 batteries sequenced in parallel, achieving a total capacity of 48V 1000Ah.
- **Integrated LCD Display:** Conveniently monitor battery parameters such as cell health, temperature, and current flow.

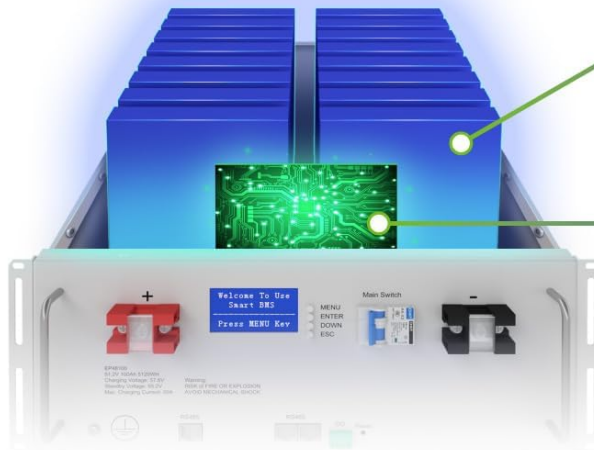
- **Durable Construction:** Housed in a sturdy 4U metal case with robust steel handles for easy handling and installation.

EXPERTPOWER®

EP48100

LiFePO4 Series

INTELLIGENT BATTERY DESIGN



A+ Grade Prismatic Cells

- Best Cell Design in The Industry
- Longest Lifespan of Any Cell Type
- Resistant to High Temperatures

Industry Leading BMS

- Over 20 Protection Parameters
- Resistant Against High Currents
- Accurate Battery Monitoring
- Over Charge & Discharge
- High & Low Temperature
- Auto Cell Balance
- Short Circuit

Max. 10 Batteries in Parallel vs. Max. 4 Batteries in Parallel

16 Cells 5120 Wh vs. 15 Cells 4800 Wh

Max. 51.2 KWh vs. Max. 19.2 KWh

Monitoring Display vs. No Monitoring Capabilities



Figure 3.1: Overview of the intelligent battery design, showcasing A+ Grade Prismatic Cells and the comprehensive Battery Management System (BMS).

INTEGRATED LCD DISPLAY

Monitoring Display

Monitor your battery's different parameters and history like cell by cell health, temperature and flowing current with the convenient and smart LCD display.

```
> Analog Info >
--BMS Status >
--Para Setting >
--Sys Setting >
```

Main Menu

```
> PackV: 52.84 V
--Im: 0.00 A
--Temperature >
--Cell Voltage >
```

Battery Information

```
> Status: Idle
--Record >
--BMS Status >
```

BMS Status

```
--T1: 25.6 °C
--T2: 25.5 °C
--T3: 25.9 °C
--T4: 25.6 °C
```

Cell Temperature

```
--Cell01: 3302 mV
--Cell02: 3303 mV
--Cell03: 3303 mV
--Cell04: 3302 mV
```

Cell Voltage

```
> SCP: 0
--O/UTP: 0
--OCP: 3
--UVP: 5
```

BMS Protection

Figure 3.2: Detailed view of the integrated LCD display, providing real-time monitoring of battery status, cell voltage, temperature, and BMS protection parameters.

4. SETUP AND INSTALLATION

The ExpertPower 48V 100Ah battery is designed for rack-mounted systems and can be connected in parallel for increased capacity.

4.1 Parallel Connection

Up to 10 units can be connected in parallel to achieve a total capacity of 48V 1000Ah (51.2 kWh). Ensure all batteries are of the same model and state of charge before connecting in parallel. Use appropriate cabling and follow all electrical safety guidelines.

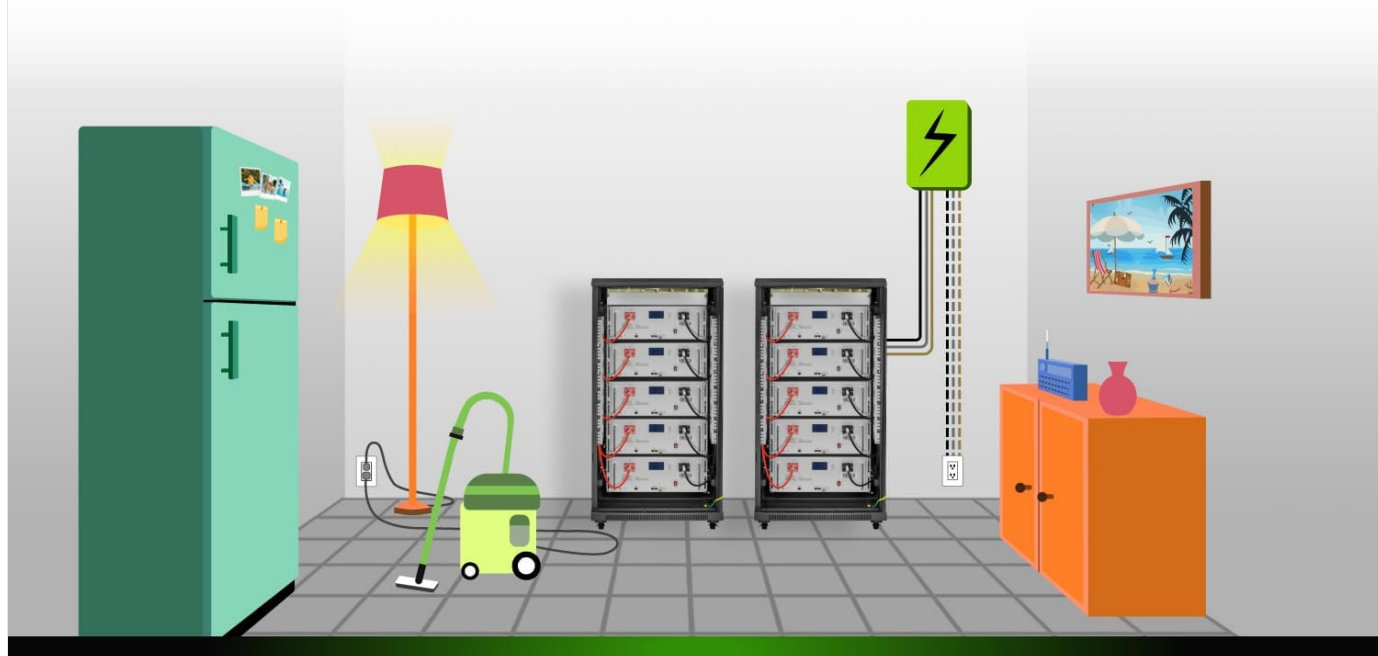
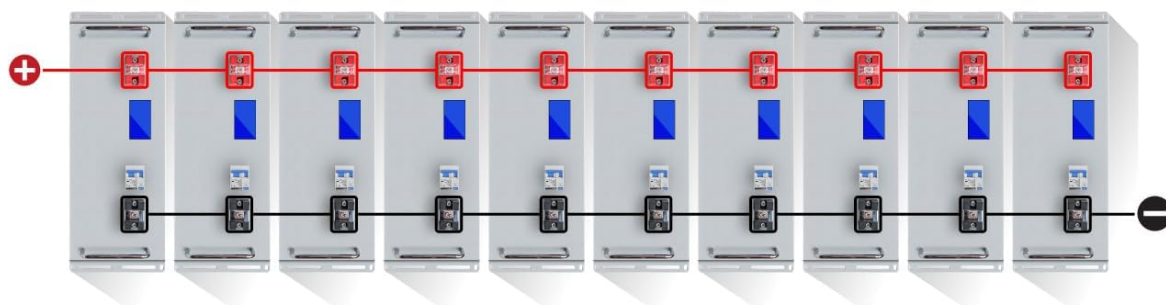
PARALLEL CONNECTION**10 In Parallel****48V 1000Ah**

Figure 4.1: Illustration of multiple ExpertPower 48V 100Ah batteries connected in parallel to expand system capacity.

4.2 System Integration

This battery is ideal for integration into complete off-grid or hybrid solar systems. It is compatible with ExpertPower hybrid solar inverters and solar panels for a seamless energy solution.

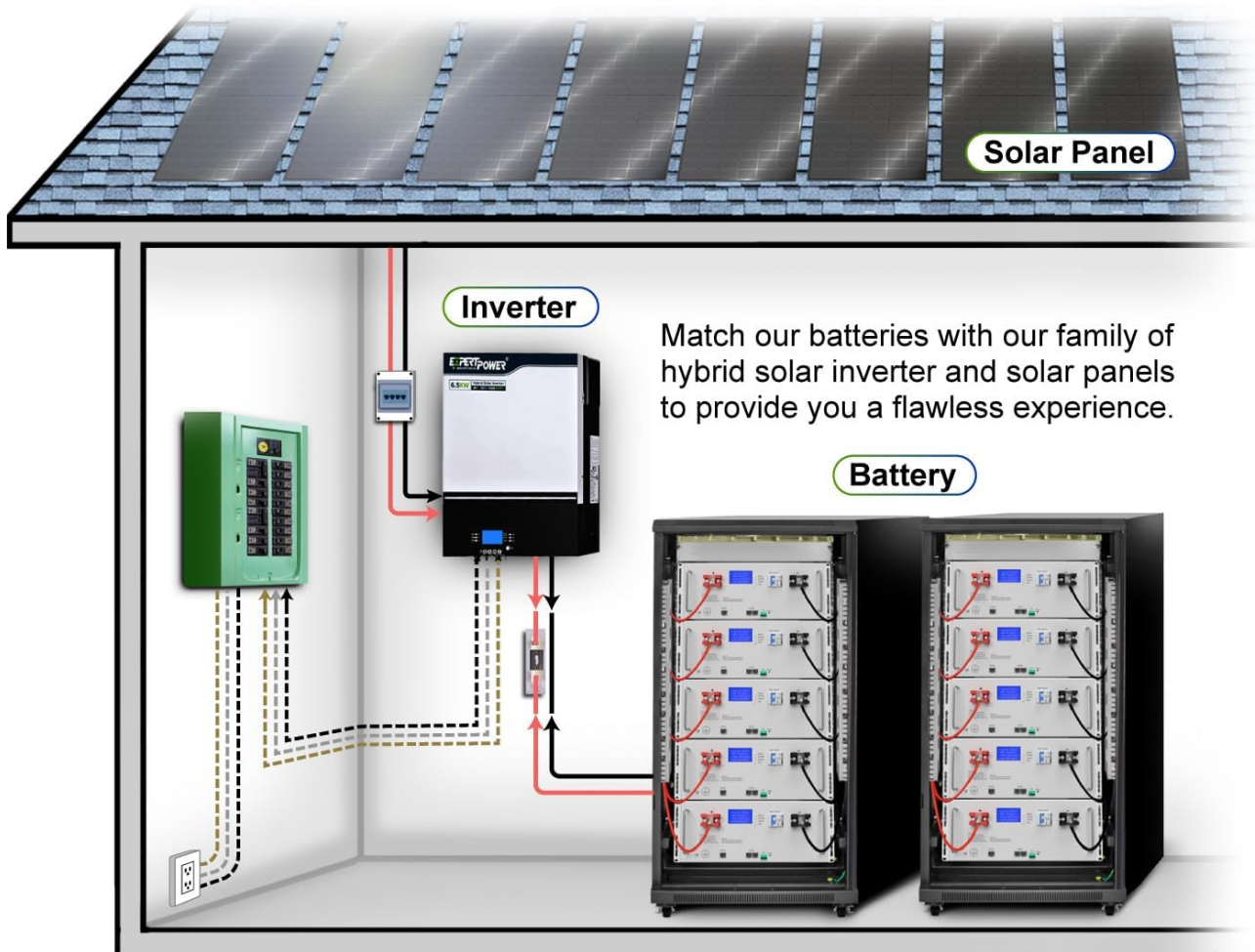
COMPLETE SYSTEM FLAWLESS EXPERIENCE

Figure 4.2: Example of a complete energy system integrating solar panels, an inverter, and ExpertPower 48V 100Ah LiFePO4 batteries for residential or off-grid use.

4.3 Installation Overview

For a visual guide on the features and potential applications of the ExpertPower 48V 100Ah LiFePO4 battery, please watch the official product video below. This video demonstrates the battery's design and its suitability for various power solutions.

Your browser does not support the video tag.

Video 4.1: Official product video showcasing the ExpertPower 48V 100Ah LiFePO4 Lithium Battery, its features, and potential applications in energy storage systems.

5. OPERATING INSTRUCTIONS

Once installed, the battery operates automatically with your inverter system. The integrated LCD display provides real-time data for monitoring.

5.1 Monitoring with LCD Display

The front-panel LCD allows you to monitor various parameters including pack voltage, current (Im), temperature, and individual cell voltages. Navigate the menu using the provided buttons (MENU, ENTER, DOWN, ESC) to view detailed information about your battery's status and performance.

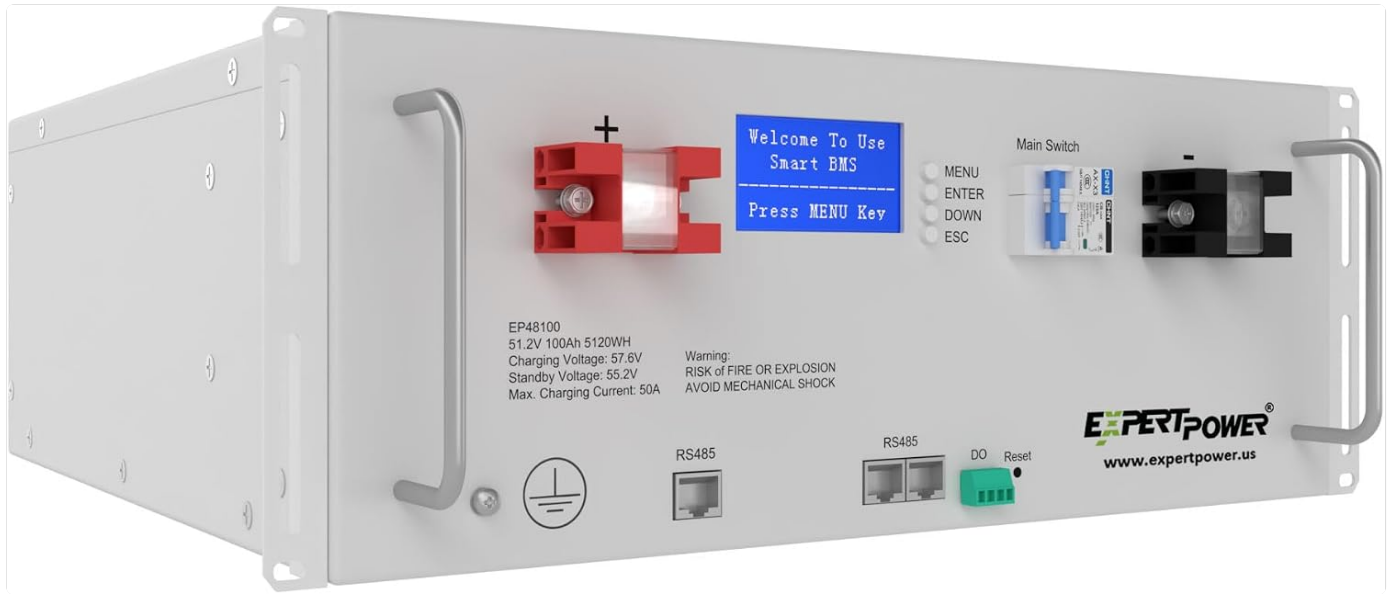


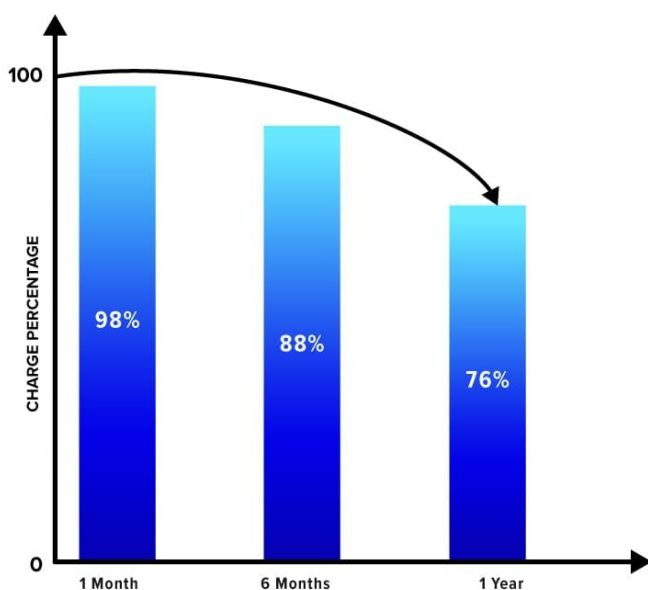
Figure 5.1: The main display of the ExpertPower 48V 100Ah battery, showing the LCD screen and control buttons for monitoring system parameters.

6. MAINTENANCE

ExpertPower LiFePO4 batteries are designed to be maintenance-free. However, regular visual inspections and adherence to proper charging/discharging practices will ensure optimal performance and longevity.

- Keep the battery clean and free from dust and debris.
- Ensure all connections are secure and free from corrosion.
- Operate the battery within its specified temperature range.
- Avoid prolonged storage in a fully discharged state. The battery has a low self-discharge rate, retaining charge for up to a year.

LONG SHELF LIFE



Low Self-Discharge

A low discharge rate means less worry when stored. Battery loses about 2% charge per month! Which is possible due to the nature of Lithium Iron Phosphate batteries and their high energy density. Meaning a fully charged LiFePO4 Battery can potentially hold a charge up to 1 year.

LiFePO4 VS LEAD-ACID Batteries

LIFE TIME



COST PER CYCLE



LIFE CYCLES



WEIGHT



Figure 6.1: Comparison of LiFePO4 battery characteristics, including long shelf life and superior performance metrics compared to traditional lead-acid batteries.

7. TROUBLESHOOTING

The integrated BMS provides comprehensive protection. If you encounter issues, consider the following general troubleshooting steps:

- **No Power Output:** Check all cable connections, ensure the main switch on the battery is in the ON position, and verify the inverter is functioning correctly.
- **Low Voltage/Capacity:** Ensure the battery is adequately charged. Check the LCD display for State of Charge (SOC) and any error codes.
- **Overheating:** Ensure proper ventilation around the battery. The BMS will protect against overheating by reducing output or shutting down.
- **BMS Alarms:** Refer to the LCD display for specific BMS status messages. These messages indicate protection events (e.g., overcharge, deep discharge, short circuit).

For persistent issues, please contact ExpertPower customer support.

8. SPECIFICATIONS

Attribute	Value
Product Dimensions	18.9 x 19 x 7 inches
Item Weight	98 pounds
Item Model Number	EP48100
Battery Type	Lithium Iron Phosphate (LiFePO4)
Battery Capacity	100 Amp Hours
Nominal Voltage	48V
Energy Capacity	5KWh
Life Cycles	7000 Life Cycles
Expected Lifetime	10-Year Lifetime
Recommended Uses	Indoor/Outdoor
Manufacturer	ExpertPower
Date First Available	August 14, 2020

9. WARRANTY AND SUPPORT

ExpertPower stands by the quality and reliability of its products. Your LiFePO4 battery comes with an unwavering warranty and access to world-class technical support.

- **Warranty:** Refer to your purchase documentation for specific warranty terms and duration.
- **Technical Support:** For any questions, technical assistance, or troubleshooting beyond this manual, please contact ExpertPower Direct customer support.

ExpertPower is committed to providing a seamless and reassuring buying experience.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question