

VATRER POWER 51.2V 100Ah

VATRER POWER 51.2V 100AH Lithium LiFePO4 Battery User Manual

1. PRODUCT OVERVIEW

This manual provides instructions for the VATRER POWER 51.2V 100AH Lithium LiFePO4 Battery. This battery is designed for solar systems and off-grid applications, offering a high-capacity energy storage solution.

Key Features:

- **High Capacity:** 51.2V 100Ah LiFePO4 battery with 5.12kWh energy storage.
- **Advanced Cell Technology:** Utilizes 16Pcs Automotive Grade A prismatic cells for stable performance.
- **Integrated BMS:** Built-in 100A Battery Management System (BMS) for comprehensive protection.
- **User Interface:** Features a touchable smart display and mobile application for real-time monitoring and control via Bluetooth.
- **Dual Terminals:** Two positive and two negative terminals to equalize current and reduce heat.
- **One-touch Operation:** Includes a one-touch ON/OFF switch that also functions as a circuit breaker.
- **Extended Cycle Life:** Provides over 5000 charge/discharge cycles.
- **Lightweight Design:** Approximately 50% lighter than lead-acid batteries of comparable capacity.



Figure 1: VATRER POWER 51.2V 100AH LiFePO4 Battery units and mobile app interface.

The battery is designed to power various applications, including air conditioners, TVs, microwaves, coffee makers, and refrigerators, with estimated runtimes provided in Figure 2.

LONG - LASTING & STEADY POWER FOR DAILY LIFE

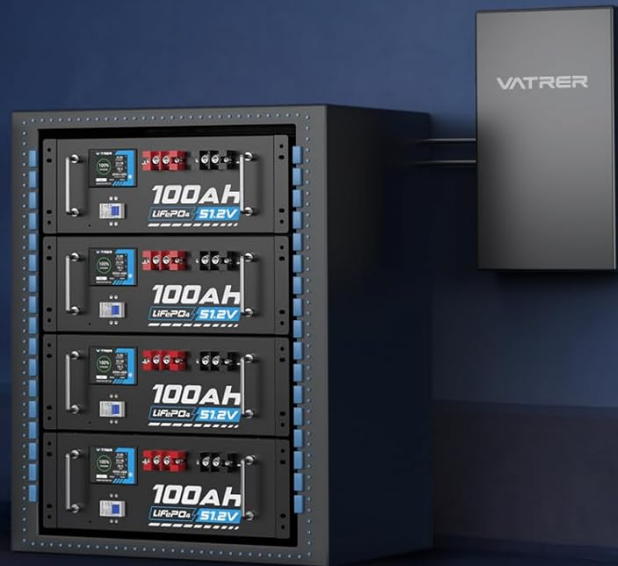


Figure 2: Estimated appliance runtimes with the VATRER POWER 51.2V 100Ah LiFePO4 Battery.

2. SAFETY INFORMATION

Read all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Do not disassemble, crush, puncture, or short-circuit the battery.
- Keep the battery away from fire, heat sources, and direct sunlight.
- Do not immerse the battery in water or other liquids.
- Use only compatible chargers and charging methods.
- Ensure proper ventilation during charging and discharging.
- Wear appropriate personal protective equipment (PPE) such as gloves and eye protection during installation.
- The built-in BMS provides protection against overcharge, over-discharge, over-current, short circuit, and temperature extremes. Do not attempt to bypass or modify the BMS.
- In case of fire, use a Class D fire extinguisher. Water may not be effective.

3. PRODUCT COMPONENTS AND FEATURES

The VATRER POWER 51.2V 100AH LiFePO4 battery is designed with user convenience and safety in mind. Key physical features include:

- **Touchable Smart Display:** Provides real-time battery status.
- **One-touch ON/OFF Switch:** For easy power control and acts as a circuit breaker.
- **Portable Handles:** For easier transportation and installation.
- **Dual Terminals:** Two positive (red) and two negative (black) terminals for robust connections.



Figure 3: Detailed view of the battery's user interface and connection points.

The battery incorporates Grade A prismatic cells and a 100A BMS to ensure optimal performance and protection. The BMS monitors and protects against:

- Over-Discharge
- Over-Charge
- Over-Current

- Short Circuit
- Low/High Temperature Cut-off

GRADE A CELLS & BUILT-IN 100A BMS

100% DOD & SOC 5000+ Cycles Life



Over-Discharge



Over-Charge



Over-Current



Short Circuit



Low/High
Temp Cut-off



Figure 4: Internal components and BMS protection features.

4. SETUP AND INSTALLATION

The VATRER POWER 51.2V 100AH LiFePO4 battery is designed for straightforward installation, particularly in parallel configurations for system expansion.

Installation Considerations:

- **Parallel Connection:** The battery supports parallel connections for capacity expansion, allowing up to 10 units to be connected. This eliminates the need for complex series wiring often required with lower voltage batteries.
- **Weight:** Each battery unit weighs approximately 102.5 pounds (46.5 kg). Ensure the installation location can support the combined weight of all batteries.
- **Space Efficiency:** A single 51.2V 100Ah unit offers the equivalent energy of four 12V 100Ah LiFePO4

batteries connected in series, reducing overall space requirements and wiring complexity.

- **Rack Mounting:** The battery is designed for rack mounting, typically occupying 4U of rack space.

EASILY INSTALLATION

No need for a series wire connection
Support max.10 in parallel for expansion



Figure 5: Comparison of 51.2V 100Ah battery with multiple 12V batteries for installation.

Dimensions:

Refer to Figure 6 for detailed battery dimensions to ensure proper fit and installation planning.

BATTERY DIMENSION



BMS
100A



Max. Load Power
5.12 kW



Max. Energy
5.12 kWh



rack mounted
4U



Figure 6: Physical dimensions of the battery unit.

5. OPERATION

The battery features both a touchable smart display and a mobile application for convenient monitoring and control.

5.1. One-touch ON/OFF Switch

To power on or off the battery, press the designated one-touch switch. This switch also functions as an automatic circuit breaker, protecting the battery by shutting down if the load current exceeds safe limits.

5.2. Touchable Smart Display

The integrated smart display provides real-time information about the battery's status. The display typically cycles through different pages, showing data such as:

- Current (Amps)
- Voltage (Volts)

- State of Charge (SOC) percentage
- Remaining capacity (Ah)
- Time to Empty/Full
- Internal temperature
- Individual cell voltages
- BMS status (e.g., charging, discharging, normal)

MONITORING & CONTROL THE BATTERY IN REAL-TIME



Figure 7: Examples of information displayed on the smart battery LCD.

5.3. Mobile APP Monitoring

Download the official VATRER POWER application to your smartphone. Connect to the battery via Bluetooth to monitor and control its parameters remotely. The app provides a detailed overview of battery health, charge status, and other critical data.

6. MAINTENANCE

The VATRER POWER LiFePO4 battery requires minimal maintenance due to its robust design and integrated BMS.

- **Regular Inspection:** Periodically check all cable connections for tightness and corrosion. Ensure the battery terminals are clean.
- **Temperature Management:** The BMS includes low and high-temperature cutoff protection. Avoid operating or charging the battery outside its specified temperature range to prevent damage. The high-temperature cutoff prevents charging over 167°F (75°C).
- **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.
- **Cleaning:** Clean the battery casing with a dry, soft cloth. Do not use harsh chemicals or abrasive materials.

7. TROUBLESHOOTING

The built-in 100A BMS is designed to protect the battery from various conditions. If the battery unexpectedly shuts down or does not operate as expected, consult the smart display or mobile app for diagnostic information.

Common BMS Protection Triggers:

- **Over-Discharge:** If the battery voltage drops below a safe threshold, the BMS will cut off output to prevent damage. Recharge the battery to resume operation.
- **Over-Charge:** If the charging voltage exceeds the safe limit, the BMS will stop charging. Verify your charger settings.
- **Over-Current:** If the load draws excessive current, the BMS will disconnect the output. Reduce the load or check for short circuits in your system. The one-touch switch also acts as a circuit breaker for this.
- **Short Circuit:** A direct short circuit will trigger immediate BMS protection. Identify and resolve the short circuit before attempting to restart the battery.
- **Low/High Temperature:** Operation or charging outside the safe temperature range will activate temperature protection. Allow the battery to return to its normal operating temperature range.

If the issue persists after addressing these points, contact VATRER POWER customer support.

8. SPECIFICATIONS

Specification	Value
Brand	VATRER POWER
Item Model Number	51.2V 100Ah
Voltage	51.2 Volts
Capacity	100 Ah
Max. Power Output	5.12 KW
Energy	5.12 kWh
BMS Current	100A
Cycle Life	5000+ Cycles
Recommended Uses	Solar Devices

Specification	Value
Item Weight	102.5 pounds (46.5 kg)
Package Dimensions	25.5 x 23.2 x 12.59 inches
Number of Batteries	Lithium Ion batteries required. (Unit Count: 2.0 Count for the product listing)

9. WARRANTY INFORMATION

Specific warranty terms for the VATRER POWER 51.2V 100AH Lithium LiFePO4 Battery are provided by the manufacturer. Please refer to the official VATRER POWER website or your purchase documentation for detailed warranty coverage, duration, and claim procedures.

10. CUSTOMER SUPPORT

For technical assistance, troubleshooting, or any inquiries regarding your VATRER POWER battery, please contact VATRER POWER customer support through their official channels. Contact information can typically be found on the manufacturer's website or in your product packaging.