

E-LekTech SH-12-500

E-LekTech 12V 600Ah LiFePO4 Lithium Battery User Manual

Model: SH-12-500

1. INTRODUCTION

This manual provides essential instructions for the safe and efficient use of your E-LekTech 12V 600Ah LiFePO4 Lithium Battery (Model SH-12-500). Please read this manual thoroughly before installation, operation, or maintenance to ensure proper functionality and longevity of your battery. Retain this manual for future reference.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury, damage to the battery, or damage to connected equipment:

- Do not short-circuit the battery terminals.
- Do not expose the battery to fire, excessive heat, or direct sunlight for prolonged periods.
- 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.
- Keep the battery away from children and pets.
- Wear appropriate personal protective equipment (PPE) such as gloves and eye protection when handling the battery.

The E-LekTech 12V 600Ah LiFePO4 battery features a built-in 300A Intelligent Battery Management System (BMS) for enhanced safety. This BMS provides multiple protections:

- Over Current Protection
- Over-discharge Protection
- Over Voltage Protection

- Short Circuit Protection
- Overcharge Protection
- Overheating Protection
- Low Temperature Cutoff Protection



Image: BMS Protection Features

3. PRODUCT OVERVIEW

The E-LekTech 12V 600Ah LiFePO4 Lithium Battery is designed for reliable power storage in various applications. It offers high capacity, long cycle life, and advanced safety features.

Key Features:

- **High Capacity:** 12V 600Ah with 7.68kWh usable energy.
- **Long Lifespan:** Over 8,000 cycles, providing up to 10 years of service life.
- **Integrated BMS:** 300A BMS with comprehensive protection functions.
- **High Power Output:** Maximum continuous discharge current of 300A and maximum load power of 3840W.
- **Lightweight Design:** Weighs 104 pounds, approximately 1/3 the weight of comparable lead-acid batteries.
- **Expandable:** Supports up to 6 series and 6 parallel connections for increased capacity and voltage.
- **Smart App Control:** Monitor and control battery parameters via a dedicated smartphone application.
- **Durable Construction:** IP65 waterproof rating.



Image: E-LekTech 12V 600Ah LiFePO4 Battery with Smart App

Dimensions and Terminal Specifications:

- **Dimensions (L x W x H):** 24.03 inches x 9.66 inches x 8.7 inches
- **Terminal Type:** M8 (16mm length, 8mm diameter)

TERMINAL SPECIFICATIONS

M8 Terminal-16mm

Easy to carry



7680Wh

Usable
Energy



300A

Max. Continuous
Discharging Current



3840W

MAX. Load
Power



IP65

Waterproof
Class

Image: Battery Dimensions and M8 Terminal Specifications

4. SETUP AND INSTALLATION

Unpacking:

Carefully remove the battery from its packaging. Inspect the battery for any signs of damage. If damage is found, contact customer support immediately.

Initial Charging:

It is recommended to fully charge the battery before its first use. Use a compatible LiFePO4 charger (14.6V 75A recommended) or a solar panel system with an MPPT controller (recommended >400W).



Image: Recommended Charging Methods

Connecting the Battery:

1. Ensure all connected devices are turned off before making connections.
2. Connect the positive (+) terminal of the battery to the positive terminal of your load/charger.
3. Connect the negative (-) terminal of the battery to the negative terminal of your load/charger.
4. Ensure all connections are secure and tight to prevent arcing or poor contact.

Capacity Expansion (Series and Parallel Connections):

The E-LekTech 12V 600Ah LiFePO4 battery supports expansion up to 6 units in series and 6 units in parallel. This allows for greater capacity and higher voltage configurations.

- **Series Connection:** Connect batteries in series to increase the total voltage. For example, two 12V batteries in series create a 24V system.
- **Parallel Connection:** Connect batteries in parallel to increase the total capacity (Ah) while maintaining the same voltage. For example, two 12V 600Ah batteries in parallel create a 12V 1200Ah system.

Important Note for Series/Parallel Connections:

- All batteries used in a series or parallel bank must be of the same voltage and capacity.
- It is highly recommended to use batteries purchased at approximately the same time (within one month) to ensure optimal performance and balance.
- Before connecting batteries in series or parallel, ensure each battery is fully charged separately to achieve a voltage balance state.

EXPANSION CAPACITY AND VOLTAGE

UP TO 6 IN SERIES CONNECTION

SERIES CONNECTION



UP TO 6 IN PRARLLEL CONNECTION

PARALLEL CONNECTION

Note: When the batteries are used in parallel or series, the battery voltage and capacity must be the same, and .Purchased in near time (within one month)

Image: Series and Parallel Connection Diagrams

5. OPERATING INSTRUCTIONS

General Operation:

Once properly installed and charged, the battery is ready to power your applications. The integrated BMS will manage charging and discharging parameters to protect the battery.

Smart App Monitoring and Control:

The E-LekTech battery can be monitored and controlled via a dedicated smartphone application. This app provides real-time data on battery status, voltage, current, temperature, and cycle count.

1. Download the E-LekTech battery monitoring app from your device's app store.
2. Enable Bluetooth on your smartphone.
3. Open the app and search for available batteries.
4. Connect to your E-LekTech battery.
5. Use the app to view parameters, adjust settings (if applicable), and monitor performance.

MONITOR AND CONTROL WITH SMART APP



Image: Smart App Interface for Monitoring and Control

Applications:

This battery is suitable for a wide range of applications, including:

- Off-Grid Solar Power Systems
- Recreational Vehicles (RVs)
- Golf Carts
- Home Backup Power
- Camping
- Marine (Boats)
- Portable Lighting Solutions



Image: Wide Application Scenarios

6. MAINTENANCE

LiFePO4 batteries require minimal maintenance compared to other battery types. Follow these guidelines to ensure optimal performance and lifespan:

- **Regular Inspection:** Periodically check the battery terminals for corrosion or loose connections. Clean terminals with a wire brush if necessary and ensure they are tightened securely.
- **Cleaning:** Keep the battery surface clean and dry. Use a damp cloth to wipe away dust or dirt. Do not use harsh chemicals or abrasive cleaners.
- **Storage:** If storing the battery for an extended period, ensure it is charged to approximately 50-70% of its capacity. Store in a cool, dry place away from direct sunlight and extreme temperatures. Recharge every 3-6 months to prevent deep discharge.
- **Temperature:** Operate and store the battery within its specified temperature range to maximize performance and lifespan. The BMS includes low and high temperature cutoff protections.

7. TROUBLESHOOTING

If you encounter issues with your E-LekTech battery, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
Battery not charging	Loose connections, incompatible charger, BMS protection activated (over-voltage, low temperature)	Check all cable connections. Ensure charger is LiFePO4 compatible. Verify ambient temperature is within charging range.
No power output	Battery discharged, BMS protection activated (over-discharge, over current, short circuit), loose connections	Check battery state of charge via app. Inspect connections. Reduce load if over current protection is active.
Battery overheating	Excessive load, poor ventilation, high ambient temperature	Reduce load. Ensure adequate ventilation around the battery. Move battery to a cooler environment if possible. BMS will activate overheating protection.
Inaccurate State of Charge (SOC) reading	BMS calibration needed, initial use fluctuations	Perform a full charge and discharge cycle to allow the BMS to recalibrate. Ensure the battery is fully charged periodically.

If the problem persists after attempting these solutions, please contact E-LekTech customer support for further assistance.

8. SPECIFICATIONS

Feature	Specification
Model	SH-12-500
Nominal Voltage	12V
Nominal Capacity	600Ah
Usable Energy	7.68kWh
Battery Type	LiFePO4 (Lithium Iron Phosphate)
BMS	Built-in 300A Intelligent BMS
Max Continuous Discharge Current	300A
Max Load Power	3840W
Cycle Life	>8,000 cycles (at specified conditions)
Expected Lifespan	Up to 10 years
Dimensions (L x W x H)	24.03" x 9.66" x 8.7" (61.04cm x 24.54cm x 22.1cm)

Feature	Specification
Weight	104 pounds (47.17 kg)
Terminal Type	M8
Waterproof Rating	IP65
Series/Parallel Connection	Up to 6S6P (6 series, 6 parallel)

9. WARRANTY AND SUPPORT

E-LekTech offers a **five-year warranty** on this battery. This warranty covers defects in materials and workmanship under normal use.

If you encounter any problems during use or have questions regarding your battery, please contact E-LekTech customer support. Our team is available to assist you within 24 hours to analyze and resolve issues, and provide guidance on optimal usage.

For warranty claims or technical support, please refer to the contact information provided with your purchase or visit the official E-LekTech website.