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› [Kingboss](#) /

› Kingboss 12V 100Ah LiFePO4 Lithium Battery User Manual

Kingboss 12V100ah-01M

Kingboss 12V 100Ah LiFePO4 Lithium Battery User Manual

Model: 12V100ah-01M

INTRODUCTION

This manual provides essential information for the safe and efficient use of your Kingboss 12V 100Ah LiFePO4 Lithium Battery. This deep cycle battery features an advanced 100A Smart Battery Management System (BMS) with low-temperature cut-off, designed for various applications including RVs, solar systems, marine use, and off-grid power solutions. Please read this manual thoroughly before installation and operation.

10 years lifespan

Longer Cycle Life: 4000-12000 Cycles

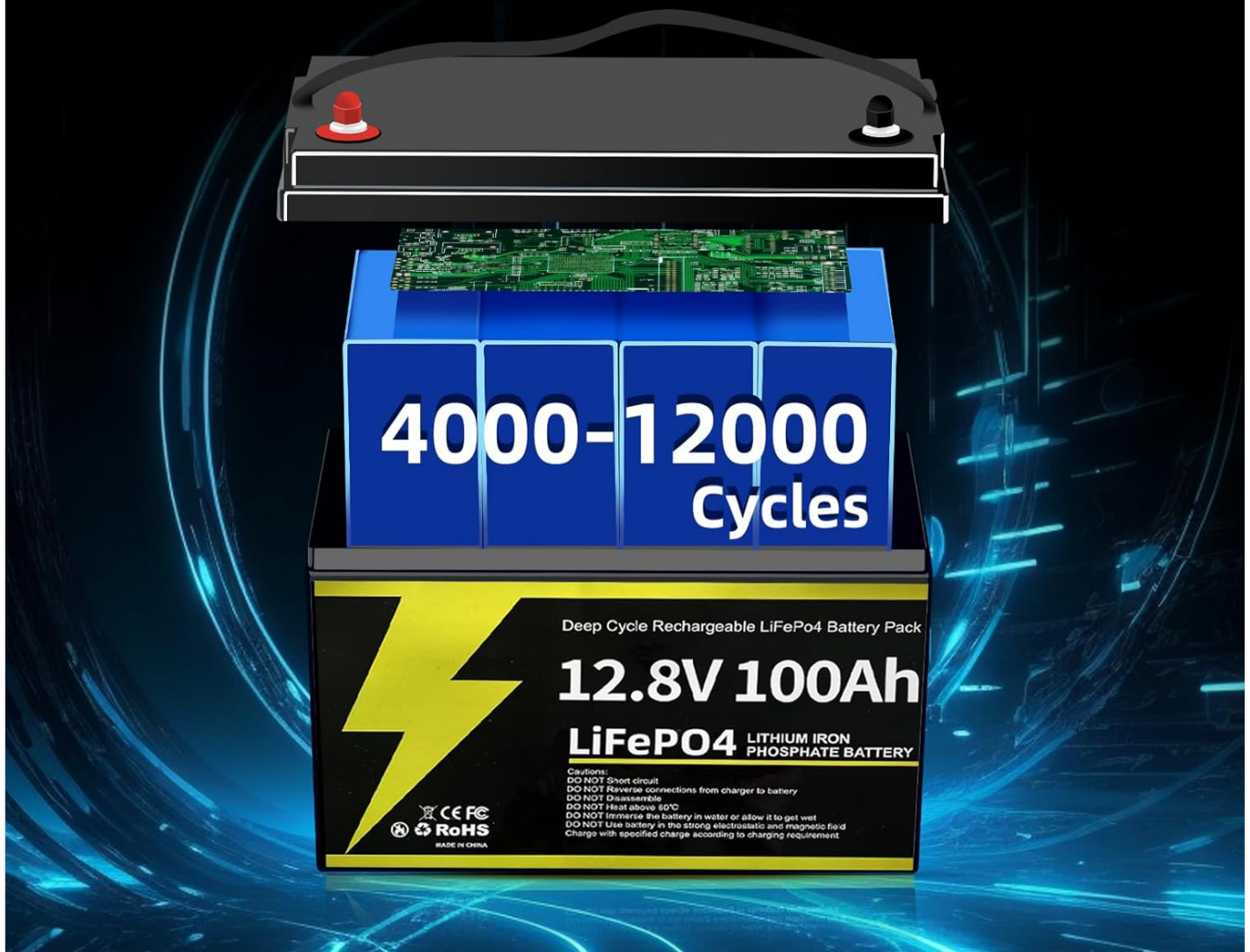


Image: The Kingboss 12V 100Ah LiFePO4 Lithium Battery emphasizing its long cycle life of 4000-12000 cycles, contributing to a 10-year lifespan.

IMPORTANT SAFETY INFORMATION

Failure to follow these safety instructions may result in electric shock, fire, serious injury, or death. Always exercise caution when working with batteries.

- **DO NOT** short circuit the battery terminals.
- **DO NOT** reverse connections from charger to battery.
- **DO NOT** heat above 60°C (140°F).
- **DO NOT** immerse the battery in water or allow it to get wet.
- **DO NOT** expose the battery to strong static electricity and magnetic fields.
- Charge with specified charge according to charging requirements.
- Always wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves, when handling batteries.

- Ensure adequate ventilation in the area where the battery is installed and charged.
- Keep out of reach of children.

UPGRADE 100A BMS System

BMS PROTECTION, ROBUST AND SECURE



Image: The Kingboss 12V 100Ah LiFePO₄ Lithium Battery highlighting its 100A Smart BMS protection against over-discharging, overcharging, over-current, overheating, and short circuits. This system ensures safe operation and extends battery life.

WHAT'S IN THE BOX

Verify that all items are present upon unpacking:

- 1 x Kingboss 12V 100Ah LiFePO₄ Lithium Battery
- 2 x M8- 5/8" (16mm) Terminal Bolts
- 2 x Insulating Caps
- 1 x User Manual

SETUP AND INSTALLATION

Physical Dimensions and Weight

The Kingboss 12V 100Ah LiFePO4 battery is designed as a drop-in replacement for BCI Group 31 battery boxes. Its compact size and lightweight design facilitate easy installation.

Dimensions (L x W x H): 12.87" x 6.69" x 8.58" (32.7 cm x 17 cm x 21.8 cm)

Weight: 24 lbs (10.9 kg)

Terminal Type: Screw Terminal (M8- 5/8" bolts included)

Technical Specification



BMS : 100A

Cycle Life: 4000Cycle-15000Cycle

Operating Temperature: Charge at 0°C-40°C; Discharge at -20°C-58°C

Battery Type: LifePO4

Voltage: 12V

Weight: 22lbs

Cycle Life: 1280Wh

Image: Detailed technical specifications including dimensions (12.9in x 6.6in x 8.5in), BMS rating (100A), cycle life (4000-15000 cycles), operating temperature, battery type (LiFePO4), voltage (12V), and weight (22lbs).

Connecting Batteries in Series and Parallel

This battery supports expansion up to 4S4P (4 in series, 4 in parallel) for systems up to 51.2V and 400Ah. Follow these guidelines for safe and effective connections:

1. **Pre-charge:** Ensure each battery is charged separately until its voltage is consistent before connecting all batteries.
2. **Identical Batteries:** Use only identical batteries with the same battery capacity (Ah) and BMS.

3. **Same Brand:** All batteries in a series or parallel configuration must be from the same brand.
4. **Connection Order:** For parallel connections, connect positive terminals together and negative terminals together. For series connections, connect the positive terminal of one battery to the negative terminal of the next.
5. **Cable Sizing:** Use appropriately sized cables and fuses for your system's current requirements.

Expansion Up To 4P4S For RV Solar System

Support Expansion Up To 4P4S Power Solution For Your RV Solar System

-
20.48 kWh Massive Power Expansion Max.



Image: An illustration demonstrating how to connect multiple Kingboss LiFePO4 batteries in series and parallel configurations for a solar energy system, including solar panels, an MPPT charge controller, an inverter, and household appliances. Important connection rules are listed.

Charging

The Kingboss LiFePO4 battery can be recharged up to 3 times faster than traditional lead-acid batteries. It has zero memory effect.

- **Recommended Charger:** Use a 14.6V 20A LiFePO4 charger.
- **Charging Sources:** Compatible with solar panels, alternators, and dedicated LiFePO4 chargers.
- **Charging Time:** Approximately 5 hours for a full charge with a 14.6V 20A charger.
- **Low-Temperature Cut-Off:** The Smart BMS prevents charging below 32°F (0°C) to protect the battery cells from damage.

OPERATING INSTRUCTIONS

Operating Temperature Range

The battery is engineered for stability across a wide range of temperatures:

- **Discharge Temperature:** -4°F to 140°F (-20°C to 60°C)
- **Charge Temperature:** 32°F to 104°F (0°C to 40°C)

The integrated BMS automatically cuts off charging if the temperature drops below 0°C (32°F) to prevent damage and ensures safe operation within the specified discharge range.

Low Temperature Protection

Min Discharge Temperature:

Max Discharge Temperature:

-4°F (-20°C)

155°F (68°C)



Image: An illustration showing the Kingboss LiFePO4 battery's low temperature protection, indicating a minimum discharge temperature of -4°F (-20°C) and a maximum discharge temperature of 155°F (68°C).

Battery Management System (BMS)

The upgraded 100A Smart BMS provides comprehensive protection for the battery, ensuring longevity and safety:

- **Overcharge Protection:** Prevents charging beyond the safe voltage limit.
- **Over-discharge Protection:** Prevents discharging below the safe voltage limit.
- **Over-current Protection:** Safeguards against excessive current draw.
- **Short Circuit Protection:** Automatically disconnects in case of a short circuit.
- **Low-Temperature Cut-Off:** Stops charging when the temperature is below 0°C (32°F).
- **Thermal Runaway Prevention:** LiFePO4 chemistry inherently reduces the risk of thermal runaway.

Applications

This versatile battery is suitable for a wide range of applications:

- RV House Banks
- Solar Energy Storage Systems
- Marine Trolling Motors
- Golf Carts
- Home Backup Power (UPS)
- Off-Grid Systems
- Portable Power Stations (e.g., for CPAP machines, electric wheelchairs)

EASY TO CARRY AND CONVENIENT



Image: A collage illustrating the Kingboss LiFePO4 battery's versatility, showing its use in a yacht, RV, camping setup, fishing boat, and integrated into a solar energy system, emphasizing its portability and convenience.

Power Capacity and Run Times

The 1280Wh energy capacity provides reliable power for various devices. Example run times:

- TV (30W): Approximately 42 hours
- Electric Kettle (800W): Approximately 1.6 hours

- Fan (60W): Approximately 21 hours
- Refrigerator (50W): Approximately 25 hours

POWER YOUR NEEDS

1280Wh



Appliance	Power (W)	Run Time (hrs)
TV	30W	42 hrs
Electric Kettle	800W	1.6 hrs
Fan	60W	21 hrs
Refrigerator	50W	25 hrs

Image: An illustration demonstrating the 1280Wh power capacity of the Kingboss LiFePO4 battery, showing estimated run times for common appliances like a TV, electric kettle, fan, and refrigerator in an RV setting.

MAINTENANCE

The Kingboss LiFePO4 battery is designed to be maintenance-free, eliminating the need for acid refilling or corrosion worries associated with lead-acid batteries. However, periodic checks are recommended:

- **Terminal Inspection:** Periodically inspect battery terminals for cleanliness and tightness. Ensure connections are secure to prevent resistance and overheating.
- **Cleaning:** If necessary, clean the battery casing with a dry or slightly damp cloth. Do not use solvents or harsh chemicals.
- **Storage:** If storing the battery for an extended period, ensure it is charged to approximately 50% state of charge and stored in a cool, dry place, away from direct sunlight and extreme temperatures. Recharge every 3-6 months to

prevent deep discharge.

TROUBLESHOOTING

If you encounter issues with your Kingboss LiFePO4 battery, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
Battery not charging	Charger not connected or faulty. Charging temperature too low (below 0°C/32°F). BMS activated due to over-discharge. Loose terminal connections.	Check charger connection and functionality. Move battery to a warmer environment. Connect to a compatible LiFePO4 charger to reactivate BMS. Tighten terminal bolts.
No power output	Battery is deeply discharged. BMS activated due to over-discharge, over-current, or short circuit. Loose or corroded terminal connections.	Charge the battery. Disconnect load, check for short circuits, then attempt to reactivate BMS by connecting to a charger. Clean and tighten terminal connections.
Battery capacity seems reduced	Operating in extreme temperatures. Aging of the battery (though LiFePO4 has long cycle life).	Ensure operation within recommended temperature ranges. If battery is very old and has exceeded its cycle life, replacement may be necessary.

If the problem persists after attempting these solutions, please contact Kingboss customer support.

TECHNICAL SPECIFICATIONS

Feature	Specification
Model Number	12V100ah-01M
Battery Type	LiFePO4 (Lithium Iron Phosphate)
Nominal Voltage	12.8V
Capacity	100Ah
Energy	1280Wh
Max Charge Current	100A
Recommended Charger Current	20A
Max Pulse Current	300A
Charge Cut-off Voltage	14.6V - 14.8V
Discharge Cut-off Voltage	10V
BMS	100A Smart BMS with Low Temp Cut-Off

Feature	Specification
Cycle Life	15,000+ cycles (60% DOD), 8,000+ cycles (80% DOD)
Operating Temperature (Discharge)	-4°F to 140°F (-20°C to 60°C)
Operating Temperature (Charge)	32°F to 104°F (0°C to 40°C)
Dimensions (L x W x H)	12.87" x 6.69" x 8.58" (32.7 cm x 17 cm x 21.8 cm)
Weight	24 lbs (10.9 kg)
Terminal Type	M8 Screw Terminal
Enclosure Material	ABS & PC (IP65 Waterproof and Drop-resistant)
Series/Parallel Connection	Up to 4S4P (51.2V, 400Ah max)

Technical Specification



BMS : 100A

Cycle Life: 4000Cycle-15000Cycle

Operating Temperature: Charge at 0°C-40°C; Discharge at -20°C-58°C

Battery Type: LifePO4

Voltage: 12V

Weight: 22lbs

Cycle Life: 1280Wh

Image: A graphic displaying key technical specifications such as battery capacity (100Ah), power (1280Wh), voltage (12.8V), max charge

current (100A), charger current (50A), max pulse current (300A), charge cut-off voltage (14.8V), discharge cut-off voltage (10V), battery weight (22Lbs), internal resistance ($\leq 150\text{m}\Omega$), size (13.07*6.93*8.7inch), and BMS (4S100A).

WARRANTY AND SUPPORT

Kingboss is committed to providing reliable products and excellent customer service. Your 12V 100Ah LiFePO4 battery is designed for a long service life, offering 15,000+ cycles and an estimated 10-year lifespan.

For any technical questions, warranty claims, or support needs, please contact our dedicated US-based support team. We guarantee a 24-hour response to assist you.

Provide technical support

- Local Warehouse
- 10 Years Service Life
- Aftersalles Service
- Respond Within 24hrs

Deep Cycle Rechargeable LiFePO4 Battery Pack
12.8V 100Ah
LiFePO4 LITHIUM IRON PHOSPHATE BATTERY

Cautions:
DO NOT Short circuit
DO NOT Reverse connections from charger to battery
DO NOT Disassemble
DO NOT Heat above 60°C
DO NOT Immerse the battery in water or allow it to get wet
DO NOT Use battery in the strong electrostatic and magnetic field
Charge with specified charge according to charging requirement

CE FC
RoHS
MADE IN CHINA

Image: An illustration highlighting Kingboss's commitment to customer support, including local warehouse availability, a 10-year service life for the battery, comprehensive after-sales service, and a promise of response within 24 hours for inquiries.

