Байкал Тесла

Lithium Replaced Series

USER'S MANUAL



EDITION V1.2

Introduction

Thanks for choosing LiFePO4 battery, we will provide you with high-quality products and reliable after-sales service. In order to protect the safety of users and products, please carefully read the detailed information on the product's features, structure, operation standards, maintenance and troubleshooting, etc.

Special Statement

This manual cannot be used as the basic requirements of LiFePO4 battery. This manual is subject to update without notice. No liability is accepted for any damages arising in this manual including, but not limited to, omissions, typographical errors, arithmetical or listing errors in this manual.

Liability Statement

will not bear any direct or indirect responsibility for battery damage or property loss caused by the following situations.

- Not authorized by, the battery system has been modified, refitted or replaced with parts.
- Non technicians change and clear the serial number of the battery system.
- Design and installation of the system composed of other equipment does not meet the standards, safety regulations and other relevant requirements.
- Equipment damage caused by failure to comply with the relevant requirements of the battery system user manual.
- Equipment damage caused by improper or misuse of the battery system.
- Equipment damage caused by insufficient ventilation of the battery system.
- Maintenance procedures regarding battery systems do not follow acceptable standards.
- Equipment damage caused by force majeure, such as earthquakes, storms, lightning, over-voltage, fire, etc.
- Equipment damage caused by any external factors.

Edition	Date	Records
V1.0	2025-12	First Edition
V1.2	2026-03	Second Edition

1.Safety Precaution

 **DANGER!**	• Please keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation. • This manual applies to trained and knowledgeable technical professionals. The technical personnel has to be familiar with the product, local standards,and electric systems. • Do not use the battery module if it is defective, broken, or damaged. • Do not disassemble, modify, or replace any part of the battery module without official authorization from. • Damaged battery may leak electrolyte. If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas, and immediately contact the after-sales service center for help.
 **WARNING!**	In case of accidental exposure to spilled substance, do the following: • Breath in the leaked substance: Evacuate from the polluted area, and seek immediate medical assistance. • Eye contact: Rinse your eyes for at least 15 minutes with clean water and seek immediate medical assistance. • Skin contact:Thoroughly wash the touch area with soap and clean water, and seek immediate medical assistance. • Ingestion: Induce vomiting, and seek immediate medical assistance. • Do not move the battery system if it is connected with external battery modules. Please contact after-sales service if the battery hall be replaced or added.
 **CAUTION!**	• Protect the battery system from damage during transportation and storage. • Be careful and consider its weight when moving the battery. • Do not hit, pull, drag, or step on the equipment, and do not place extraneous objects into any part of the battery system. • The transportation must be carried out by trained professionals. All operations during the process have to be recorded. • Keep the equipment stable to avoid dumping, which can result in equipment damage and personal injuries. • Please make sure that the carbon dioxide extinguisher or Novac 1230 or FM-200 is nearby. • The fire cannot be put out by water or ABC dry powder extinguisher. Firefighters are required to wear full protective clothing and self-contained breathing apparatus. • The battery may explode when the ambient temperature exceeds 150℃. • Use proper tools and protection when installing and maintaining heavy equipment. Improper operation might cause personal injury. • The insulation layer of the cables may be aging or broken due to high temperature. Place the cables at least 30mm away from the heating components or heat sources. • Tie the cables of the same type together, and place cables of different types at least 30mm apart. Do not place the cables entangled or crossed.

2.Product Introduction

2.1 Product

- This document mainly introduces the product introduction, application, installation, debug, maintenance and technical parameters of the LiFePO4 battery.
- The battery system can be used with leading brand solar inverters.

2.2 Symbol

Symbol	Description
	There is a potential hazard after battery is in operation. When operating please take precautions.
	There is high voltage when battery is running. When operating please ensure that it is powered off.
	The battery contains corrosive electrolyte. Please avoid contact with leaked electrolyte or volatile gas.
	TBefore operating the battery, please read the user manual carefully.
	Pay attention to personal protection during installation, operation and maintenance.
	Keep the battery away from open flames or sources of ignition.
	Keep the battery out of the reach of children.
	Can't leave battery as garbage disposal.
	Battery can be recycled.

3.Battery Introduction

Specification

Technical Parameter	12.8V		
Rated capacity	50Ah	100Ah	200Ah
Available electricity	6.4kWh	1.28kWh	2.56kWh
Operating voltage range	10V~14.6V		
Rated charge and discharge current	25A	50A	75A
Peak current	50A Continue @55A 10s	100A Continue @105A 10s	150A Continue @ 155A 10s
Dimensions (L*W*H) mm	210*155*154mm	260*180*265mm	320*180*265mm
Weight	6.33±3%Kg	11.5±3%Kg	21.53±3%Kg

Technical Parameter	12.8V	25.6V
Rated capacity	300Ah	200Ah
Available electricity	3.84kWh	5.12kWh
Operating voltage range	10V~14.6V	20V~29.2V
Rated charge and discharge current	75A	75A
Peak current	150A Continue @ 155A 10s	150A Continue @ 155A 10s
Dimensions (L*W*H) mm	410*185*270mm	435*225*270mm
Weight	29.53±3%Kg	38.03±3%Kg

Technical Parameter	
Cycle life (DOD80%)	≥6000@25°C
Charge temperature	0~55°C
Discharge temperature	-20~60°C
Battery protection	Over charge/ Over discharge/ Over temperature/ Over current
Installation	Upright position
Storage time	<3 Months -10~25°C
	<1 Year 0~25°C
Selective configuration	Bluetooth function and battery display are optional
IP grade	IP65 / IP20

*Please contact customer service for details of different products.

4.Storage & Package

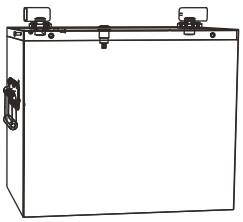
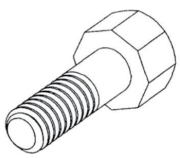
4.1 Storage Environment

If the battery is not installed and used immediately, Please confirm the storage environment meets the following conditions:

- The battery should be packed in the carton, and the carton needs to be sealed after placing desiccant in it;
- If the battery is not installed within 3 days after unpacking, it is recommended to store the battery in the carton;
- Storage SOC: 25~50%SOC, one charge-discharge cycle is required every 3 months of storage;
- Storage temperature range: storage at -20°C~40°C for no more than 1 month; storage at 0~35°C for no more than 1 year;
- Humidity range: 0~95% non-condensing. It cannot be installed when there is moisture condensation on the battery interface;
- The battery should be stored in a cool place out of direct sunlight;
- Battery storage should be kept away from flammable, explosive and corrosive items;
- Battery is prohibited from raining.

4.2 Package

- Before unpacking the battery carton, please check whether the carton is damaged and check the battery model. If there is any abnormality, please do not open carton and contact the after-sales service center as soon as possible.
- After unpacking the battery carton, please check whether the product delivery is complete according to the packaging information. If there is any abnormality, please contact the after-sales service center as soon as possible.

Packing list		
		
Battery x1	User Manual x1	Screw x2 (M6/M8*14mm)

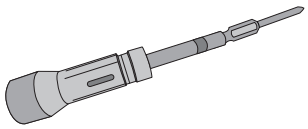
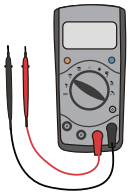
5.Appearance

Hardware version		
		
Material (ABS)	Material (SPCC)	Material (SPCC)
Software version (Bluetooth, Weak current switch)		
		
Material (ABS)	Material (SPCC)	Material (SPCC)

6.Lithium Battery Safety Operating Guidelines

6.1 Operating Tools

The following tools are needed to install batteries.

		
Phillips screwdriver	Insulating wrench	Voltmeter

Use insulated tools to prevent accidental electric shock or short circuit. If there is no insulation tool, use insulation tape to cover all exposed metal surfaces of the tool for insulation treatment.

6.2 Security Equipment

When connecting and handling the battery pack, it is recommended to wear the following safety equipment.

		
Insulating gloves	Goggles	Protective shoes

6.3 Installation Environment

The battery system must be installed on a floor with sufficient bearing capacity and smoothness. If the ground does not have enough support and flatness, it needs to be guaranteed by other means (such as making foundations, adding load-bearing plates, etc.).

- The battery works best at a temperature of 20~40°C;
- Avoid installation in direct heat, rain environment;
- Avoid installation near high temperature heat source or low temperature cold source environment;
- Avoid installation in areas with extreme changes in ambient temperature;
- Avoid installation in strong interference environment;
- Avoid installation in areas accessible to children;
- Avoid installation in areas prone to water accumulation;
- Do not place flammable or explosive materials around the device.

6.4 Battery Mounting

- Be sure to wear protective equipment when handling batteries;
- Place the battery modules in the installation cabinet or support. Place the batteries upright.
- Tighten the connection with appropriate cable size and appropriate torque value; Rubber handle or insulated wrench should be used when wiring to avoid external short circuit; Too loose or too tight connection may lead to terminal breakage, overheating or terminal melting;
- Battery terminals can be covered with plastic to prevent external short circuits;
- Do not place anything on the battery;
- Check that all cables are in good condition and that all cable connections are tight.

6.5 Series Or Parallel Connections

When connecting batteries in series or parallel, please follow these guidelines:

- Make sure each battery is within 30mV (0.03V) of each other before putting them in service. This will minimize the chance of imbalance between batteries. If your batteries get out of balance, the voltage of any battery is 30mV (0.03V) from another battery in the set, you should charge each battery individually to reach balance.
- Size batteries in parallel accordingly: The capacity of batteries (rated in amphours) when connected in parallel is increased by the multiple of the batteries connected (2x, 3x, 4x, etc). However, the current ratings (discharge and charge) for parallel batteries is only increased by 75% of the multiple of the batteries connected (1.5x, 2.25x, 3x, etc).
- It is the best way to charge batteries connected in series individually, charging as a series bank can lead to imbalances and reduced runtime, sometimes it requires individual charge to each battery in order to reach balance.

6.6 Battery Charging

When to charge your LiFePO4 battery:

- If LiFePO4 batteries are not fully discharged, they do not need to be charged after each use.
- LiFePO4 batteries do not get damaged when left in a partial state of charge (PSOC).
- You can charge your LiFePO4 batteries after each use or when they have been discharged up to 80% (20% SOC).
- If the BMS disconnects the battery due to low voltage, at 100% depth of discharge, remove the load to reconnect the battery circuit and charge immediately.
- Please note that we recommend storing batteries at 50% state of charge (SOC).

LiFePO4 batteries can safely charge between -4°F to 131°F (-20°C to 55°C). However, at temperatures below 32°F (0°C) the charge current must be reduced as follows:

- 32°F to 14°F (0°C to -10°C) charge at 0.1C (10% of the battery capacity).
- 14°F to -4°F (-10°C to -20°C) charge at 0.05C (5% of the battery capacity).

LiFePO4 batteries do not require temperature compensation for voltage when charging at hot or cold temperatures. All LiFePO4 come with a BMS that protects the battery from over-temperature.
If the BMS disconnects due to high temperature, wait until the temperature reduces and the BMS reconnects the battery circuit before using or charging the battery.



Bluetooth APP Installatio

Look at the label on the battery and follow the instructions to connect Bluetooth to view the data.Labels are for reference only.
The actual labels prevail.

15. Common Faults & Solutions

No.	Fault	Solution
1	Temperature Anomaly	Shutdown the battery and wait for 2.5hours, if problem is not solved, please contac after-sales in time.
2	Over Temperature	
3	Low temperature discharge	Shutdown the battery and wait the temperature to rise, then restart the battery, if problem is not solved, please contact after-sales in time.
4	Overcharge current	Shutdown and restart the battery, if problem is not solved, please contact after-sales in time.
5	Overdischarge current	
6	Pack Over-voltage	
7	Pack under-voltage	Connect and charge the battery as soon as the battery is turned on and wait the voltage to rise.
8	Low temperature charge	Shutdown the battery and wait the temperature to rise, then restart the battery, if problem is not solved, please contact after-sales in time.
9	Voltage difference of single cell is too big	Shutdown the battery and wait for 2.5hours, if problem is not solved, please contact after-sales in time.
10	Temperature s ensor failure	Shutdown and restart the battery, if problem is not solved, please contact after-sales in time.
11	MOS failure	
12	Fail to communicate with inverter	Shutdown the battery and check the communication cable then restart,if problem is not solved, please contact after-sales in time.
13	Inconsistent Protocol	Please contact after-sales in time.
14	MOS over temperature	Shutdown the battery and wait for 2.5hours, if problem is not solved, please contact after-sales in time.

16. Battery Maintenance

Items	Maintenance Period
If the battery is not in use, charge the battery fully and then discharge the battery to 20-50%	Every three months
Check whether there is loose in installation, if yes please fasten	Every six months
Check whether the shell is damaged, if yes please touch up the paint or contact after-sales	Every six months
Check whether the exposed cables is worn, if yes please replace or contact after-sales	Every six months
Check whether there is debris accumulation, if yes please clean it, so as not to affect the heat dissipation of battery	Every six months
Check whether there is water or pests, so as to avoid the long-term intrusion to the battery	Every six months