

LiFePO4 Battery User Manual



Lithium Battery Store

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1. Applicable Range

This product specification applies to lithium iron phosphate battery products provided by our company. The product we provide (and which is described in this manual) complies with the requirements of the IEC62133 standard.

Customers who use batteries manufactured or sold by our company must read this user manual carefully before using them. We cannot be held responsible for accidents or damage deriving from incorrect use.

2. Battery Maintenance

- When the customer receives the battery, they should check the basic function first, and make sure no damage occurred during transport. Please test the battery voltage, charging function, discharge function, and display function; if there are any anomalies, please stop installation and notify us immediately. After installing the battery according to the installation manual, fully charge the battery before using it for the first time. Upon being fully charged and discharged between three and five times, the battery will reach its maximum capacity.
- To prolong their lifecycle, charge batteries when their capacity is low. If batteries are not charged during this time and they are left in a deficient state for a prolonged period, this will adversely affect the battery life. If those batteries will not be used for a long time, keep them at half-capacity and float-charge the battery every two months, for one hour each time.
- The battery should be installed in a dry, clean, and well-ventilated area, while avoiding ignition sources and proximity to flammable materials. Be sure to disconnect the load (i.e., turn off the electrical equipment) during charging.
- The working temperature of the battery is 41–104°F. (Optimal working temperature is 59–95°F.) Outside this temperature

range, the performance of the battery may change. Under such circumstances, it is normal for the capacity or the equipment operating time to change.

- Avoid cleaning the battery case with organic solvents.
- If an accident occurs, do not use carbon dioxide to extinguish the fire; instead, use carbon tetrachloride or sand to extinguish it.
- The battery is a consumable item and its lifecycle is limited. Please replace the battery when the battery capacity is lower than 50% of the rated capacity.

3. Precautions for Use

To avoid battery leakage, abnormal heat levels, fire, performance degradation, or explosion or other accidents, please follow the specifications and use the battery properly. We cannot be held responsible for accidents caused by the failure to operate in accordance with this manual.

- Handle batteries gently; avoid violently shaking them.
- Do not immerse the battery or its accessories in water or other liquids; keep them in moisture-proof surroundings.
- Avoid shorting the positive and negative output terminals of the battery pack.
- Do not disassemble the battery. Removing the battery may cause an internal short circuit, which can decompose its internal substances and lead to fire, explosion, etc. In addition, dismantling the battery may leak the battery electrolytes; if electrolytes are splashed on the skin, eyes, or other body parts, rinse immediately with clean water and go to a doctor immediately.
- Never put spent batteries into a fire; doing so can cause explosions or other dangerous accidents.
- In the event of battery damage, deformation, electrolyte leakage, unusual smell, or other abnormalities, immediately cease to use

the battery. Please send it to the authorized office of the manufacturer or the appropriate agency for proper disposal. In addition, batteries leaking electrolytes should be kept away from fire, to preclude explosion.

- When it is time to replace the battery, it should be replaced by the battery supplier. Users cannot replace the battery without permission.
- Self-demolition is prohibited. Users are not allowed to dismantle battery packs and chargers. We cannot be held responsible for damage, accidents, or other losses caused by the self-demolition of batteries.
- Batteries can be used in parallel, but not in series. The voltage of batteries must be tested before being used in parallel, and their voltage tolerance must be within $\pm 0.1V$.

4. Precautions for Transportation

- The battery pack is suitable for transportation modes such as automobiles, trains, and airplanes. However, during the transportation process, sun, rain, and severe vibrations should be avoided.
- The battery pack should be packaged with insulating and shock-proof material, and labeled as “fragile,” so as to preclude damage caused by bumps during transportation.
- The battery pack pole should be oriented upward, and a “THIS WAY UP” label should be applied. Do not store the battery pack upside-down, sideways, etc.
- The battery pack must be handled gently during transportation and handling. Do not toss it about, and avoid hitting it with any other surface.
- To avoid inflicting damage on the battery pack, do not place heavy objects on the battery pack during transportation.
- During transportation, do not pack the battery pack with flammable or explosive materials, or with sharp metal objects.

5. Storage

The battery should be stored at a temperature of $41^{\circ}\text{F} \sim 104^{\circ}\text{F}$, and at a relative humidity $\leq 90\%$ ($104^{\circ}\text{F} \pm 36^{\circ}\text{F}$); additionally, the storage environment should be clean, dry, and well-ventilated. Avoid contact with corrosive substances and keep away from fire and heat sources. The battery is in a half-power state, of about 50–60%. To prevent the battery from over-discharging, it is recommended that the battery be charged every two months, for one hour each time.

6. Charging Parameter Settings, and Common Failures

- **Charging Parameter Settings**

Please use a special lithium iron phosphate charger to charge the battery. The charger parameters are as follows.

Charge Settings for LiFePO₄ Batteries	
Bulk voltage	$3.65 * N$
Absorb voltage	$3.65 * N$
Absorb end up current	$0.01C$
Suggested charge current	$0.2C$
Charge cut-off voltage	$3.65 * N$
Recommended discharge cut-off voltage	$2.5 * N$

Note: N = Number of series; C = Capacity

Please check with our if you use an inverter to charge the battery. You need to ensure that the specs of the inverter and of the battery fit each other before connecting: a mismatch can inflict damage on the inverter, the battery, or both.

Never use a charge/inverter/power supply with a charging voltage higher than the battery charging voltage; doing so will damage the BMS.

The following are the regular nominal voltage levels for each series number. (This information is supplied only as a reference: if you are not sure of your product's nominal voltage, please check with the salesperson.)

Nominal Voltage	Series Number	Voltage in Market
12.8V	4S	12V
25.6V	8S	24V
38.4V	12S	36V
48V	15S	48V
51.2V	16S	48V
54.4V	17S	48V
76.8V	24S	72V

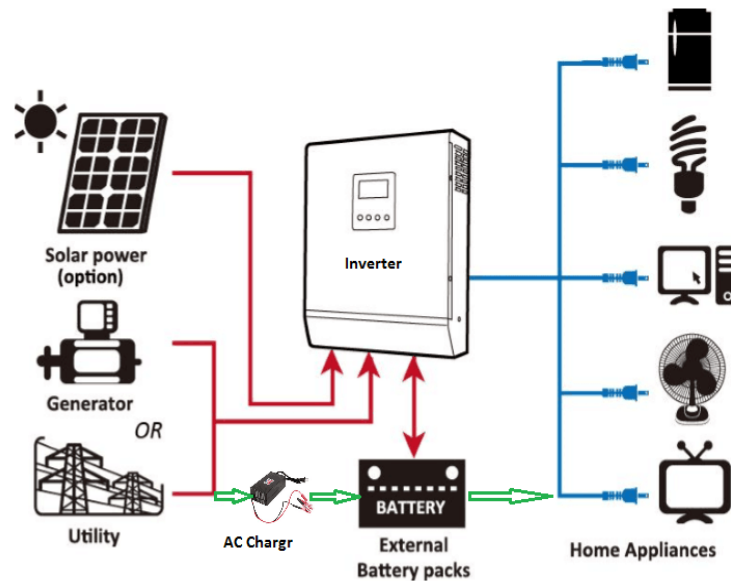
LiFePO₄ Battery Failure Solutions

Problem	Solution
Unable to charge or discharge	Check the wire connection
	Check the voltage
	Check the connection between cells
	Unload first then connect again
	Replace BMS
Product heats during use	Continues current is too high
	Battery cells are not tightly connected with each other

7. Battery Parameters

Please refer to the Data Sheet.

8. Application Examples



Hybrid Power System Figure

9. After-Sales Service

The Lithium Battery Store offers a two (2)-year backed warranty that covers manufacturer defects. Within that warranty timeframe, we will repair the battery or replace it with a new or remanufactured battery.

- Covered by the warranty:

If BMS damage is experienced within this two-year period, we can send a free BMS replacement and train you on how to replace it. After the two-year period, BMS replacement units can be shipped upon receipt of payment.

For problems that the customer cannot handle, we can send an engineer or local partner agent to fix the issue.

For cell defects (which constitute a very small percentage of problems), we can ship a replacement battery cell or new battery directly.

- Not covered by the warranty:

Damage caused by accidents or acts of God

Damage caused by loose terminal bolts and/or corrosion

Failure to properly install the battery and to maintain and charge it

Damage inflicted by fire, intense heat, or freezing

Damage inflicted by product tampering

Additional Product Information

Our company makes every attempt to ensure that our products are precisely what you need for your specific application.

If you have additional questions or concerns, please feel free to contact us at info@lithiumbatterystore.com or call us at +1 (941) 210-4921.