

ALL IN ONE

INSTRUCTION MANUAL

12V/24V LiFePO4 Deep Cycle Battery



Boat & Fishing



Solar & Wind Power



RV & Camper



Power Backup



Outdoor Activities



Other Lead-Acid/
AGM Batteries Replacement

ALL IN ONE Battery Technology CO Ltd

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ALL IN ONE was established in 2010 since then we were specialized in manufacturing NiMH, Li-ion Batteries. ALL IN ONE is one of the largest manufacturer of high C-rate and high capacity batteries manufacturer in China.

Our factory is located in Shucheng Economic Development Zone Luan, Anhui Province China with 14 hectare. Sales Dept is based in Longhua Shenzhen. And we have roughly 1000 employees, 20 of them are in our R&D department engineers and technicians who have won several national patents. All In One has independent and advanced facilities each equipped with laboratories, where research and tests of different materials and new products. Scientific operation standards are set up and executed during our process of raw material purchase, inspection, production, outgoing quality control, and warehouse management for excellent efficiency.

ALL IN ONE's batteries have widely used in different areas, such as aircraft systems, consumer electronics, medical instruments, portable power, electronic tools, and military related projects. We designs and manufactures custom-made batteries and cells for the specific need, from chemistry to structural design to protection systems. We provide One-stop services and fully integrated battery to reply to specific needs.



Product Introduction



12.8V 50Ah LiFePO4 Battery



12.8V 100Ah LiFePO4 Battery



12.8V 200Ah LiFePO4 Battery



12.8V 300Ah LiFePO4 Battery

LiFePO4 Battery	12.8V 50AH	12.8V 100AH	12.8V 200AH	12.8V 300AH
Nominal Voltage	12.8V	12.8V	12.8V	25.6V
Charge Voltage	14.6V	14.6V	14.6V	29.2V
Cycle Life	> 2000 cycles at 100% DoD up to 5000 cycles at 80% DoD cycles at 80% DoD			
Weight	6.3KG/13.8LB	10.8KG/23.8LB	22.2KG/48.9LB	30.5KG/67.2LB
Energy	640WH	1280WH	2560WH	3840WH
Max Continuous Charging Current	50A	100A	200A	200A
Max Continuous Discharging Current	50A	100A	200A	200A
Max. Load / Inverter Power	1000W	1000W	2000W	2000W
Operating Temperature Rang	Charge 0°C~50°C (32°F~122°F) Discharge -20°C~60°C (-4°F~140°F) Storage -20°C~50°C (-4°F~122°F)			
Dimension	196*164*165mm 7.7*6.4*6.4inch	320*173*215mm 11.8*6.8*8.4inch	522*240*218mm 20.5*9.4*8.5inch	522*240*218mm 20.5*9.4*8.5inch

About low temperature automatic heating lithium iron phosphate battery

Low temperature heating function

charging: when the ambient temperature is lower than 0°C (32°F), the internal heating plate of the battery will automatically get heated to 10°C (50°F), our battery starts to charge automatically; discharge: when the ambient temperature is lower than -20°C (-4°F), the battery will automatically stop discharging, and the discharge function is automatically restored when the ambient temperature is higher than -10°C (14°F).

NOTE

- 1, Charging Temperature: -31°F (-35°C) to 122°F (50°C).
- 2, Discharge Temperature: -4°F (-20°C) to 140°F (60°C).
- 3, If it is a 4-string lithium iron battery pack, the charge protection voltage is $3.65\text{V} \times 4 = 14.6\text{V}$, and the discharge protection voltage is $2.5\text{V} \times 4 = 10\text{V}$.

How to charge the battery?

Scheme 1: You can use a lithium iron phosphate 4-string (14.6V) charger to charge the battery pack.

Scheme 2: You can use photovoltaic solar panels to charge the battery through MPPT.

Scheme 3: You can use the inverter to charge the battery pack (note: the inverter needs a built-in AC to DC charging function)

If the controller (MPPT) is used to charge the battery pack, the controller output is connected to the load electrical appliances (such as low-power light bulbs). In order to avoid triggering the battery's BMS protection after low current discharge, causing the battery pack to fail to restore output, it is recommended that the controller set the parameters as follows:

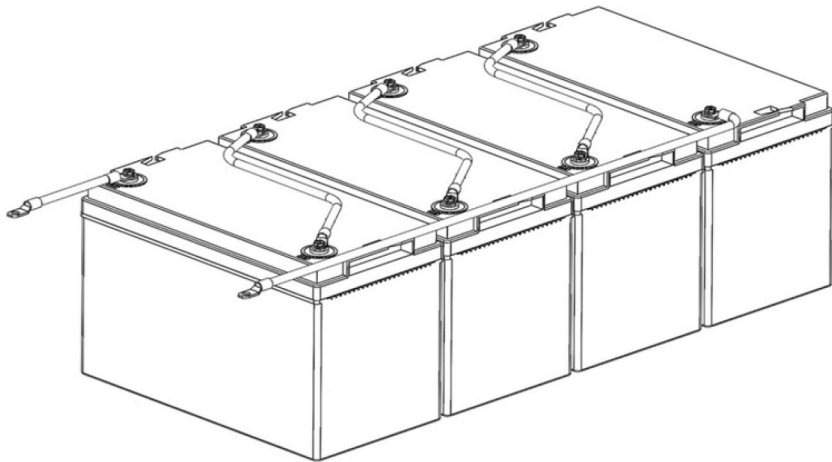
- A. Charging protection voltage: 14.6V
- B. Charging recovery voltage: 14.2V
- C. Discharge protection voltage: 10V
- D. Discharge recovery voltage: 10.8V

The above settings can ensure that the battery pack does not trigger the BMS protection. When an emergency occurs, the controller first triggers the protection, which can prolong the service life of the battery.

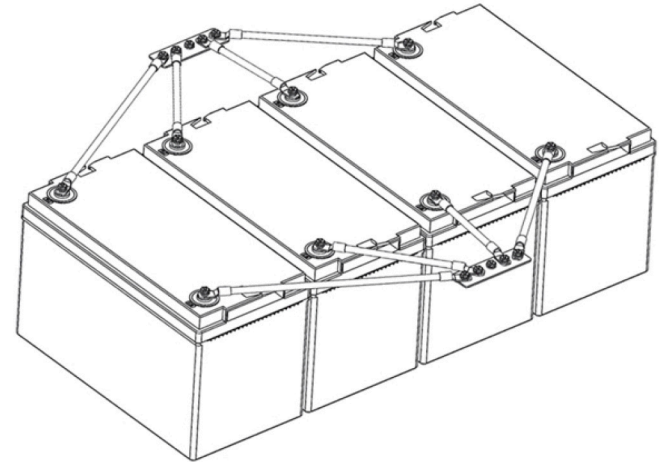


About connected in parallels and in series

Our Lifepo4 batteries can be connected in parallels and in series for larger capacity and voltage. Suggest Max connection in series: 4pcs batteries to 48V. Suggest Max connection in parallels: it can connect multiple batteries, suggest no more than 10pcs in parallel. Products of different manufacturers cannot be connected in series or in parallel. When the batteries are used in parallel or series, the voltage must be the same. It can support fast charging and solar panel charging.



Please refer to the following picture for series connection



Please refer to the following picture for parallel connection

Precautions:

1. When recharging, use the LiFePO₄ battery charger specifically for that purpose.
2. Do not strike battery with any sharp edge parts, such as Ni-tabs, pins and needles.
3. Do not immerse the battery in water and seawater.
4. Do not use and leave the battery near a heat source as fire or heater.
5. Do not reverse the position and negative terminals.
6. Do not connect the battery to an electrical outlet.
7. Do not discard the battery in fire or heat it, Do not bend tab.
8. The battery tabs are not so stubborn especially for aluminum tab.
9. Do not short-circuit the battery by directly connecting the positive and negative terminal with metal object.
10. Do not transport and store the battery together with metal objects such as necklaces, hairpins etc.
11. Do not directly solder the battery and pierce the battery with a nail or other sharp object.

NOTE:

The battery should store in the product specification book stipulation temperature range. If the storage time exceeds 3 months, it is recommended that you charge the lithium iron phosphate battery. Otherwise, the service life of the battery may be affected. Discharge current: Do not surpass the biggest discharge current which in this specification. Discharge voltage: Do not be less than the lowest voltage which is in this specification. Discharge temperature: The discharge temperature is in according to this specification,

How to activate the battery's BMS?

When you follow any of these methods, your battery can be used normally.

1: Please use an 18V solar panel to directly charge the battery, so that the current does not need to pass through the controller and the BMS can be activated. (You also can use a 12V solar panel to activate the battery's BMS, it takes about 3 seconds to fully activate.)

2: You can use a 14.6V charger (with 0V charging function) to charge the battery, which can also activate the battery's BMS.

3: If you have another same battery, you can use these two batteries in parallel, which can also activate the battery's BMS (it takes about 3 seconds to fully activate). After the battery is activated, charging and discharging can be rescheduled.

Note:

1. When you receive the product, please read the product manual carefully, which contains the installation method, precautions and detailed warranty terms of the product.
2. When using it for the first time, please complete a cycle of deep discharge and full charge so that the battery capacity will be automatically corrected.
3. Every 1-3 months, the battery must complete at least one cycle of deep discharge and full charge, otherwise the battery may be damaged. If the battery is not used for more than 6 months, the battery may be damaged.

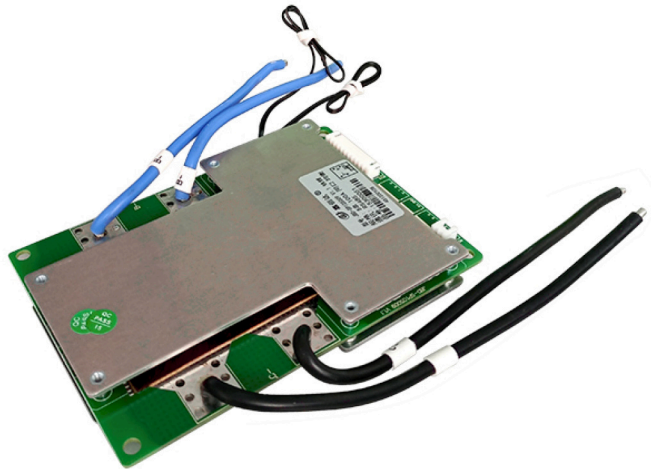
We have our own factory and have been committed to providing customers with high-quality battery products and after-sales service. We also set up our own after-sales service center in California, USA, to provide customers with real 10-year warranty service.

About our battery's BMS

The unique built-in battery management system (BMS) of our product's lithium battery can protect it from overcharge, deep discharge, overload, overheating and short circuit, and low self-discharge rate. Our BMS has a high temperature disconnect function. When the internal temperature of the battery reaches 75°C (167°F), it will automatically disconnect to protect the battery. With overcharge and overdischarge protection functions, when the overcharge voltage exceeds 15V and the overdischarge voltage is lower than 8.8V, the battery will automatically disconnect. Our recommended charging voltage and discharging voltage are $14.6 \pm 0.2V$ and 10V, respectively. If the charging voltage is lower than 13.8V, the battery power (with a deviation of 1-2%) cannot be fully charged.

About our battery's cell

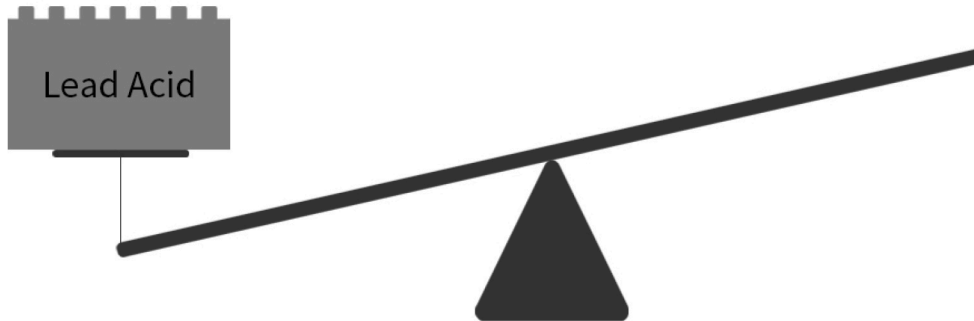
Lithium-ion batteries have high energy density and high average output voltage. The self-discharge is small and there is no memory effect. The wide operating temperature range is $-20^{\circ}C \sim 60^{\circ}C$. Excellent cycle performance, fast charging and discharging, charging efficiency up to 100%, and high output power. long lasting. It does not contain toxic and hazardous substances and is called a green battery.



Lead Acid:
Pollution
Poor high temperature performance
Low dod
Short cycle life
Low energy Density
Low Discharging Rate

Lithium Battery:
Environmentally friendly green battery
Good high temperature performance
100% DOD
Long cycle life (>2000)
High Energy Density
High Discharging Rate

Lithium Battery



Warranty Terms

Thank you very much for using our products, We will provide you with free warranty service. Please read the product manual and warranty terms carefully before using the product.

Product Model:		Product Name:	
Purchase Store:		Purchase Date:	
Order Number:		Customer Name:	
Customer E-mail:			

Note: When you fill in the warranty card and send us a photo of the warranty card through the customer service email , your warranty service has taken effect.

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