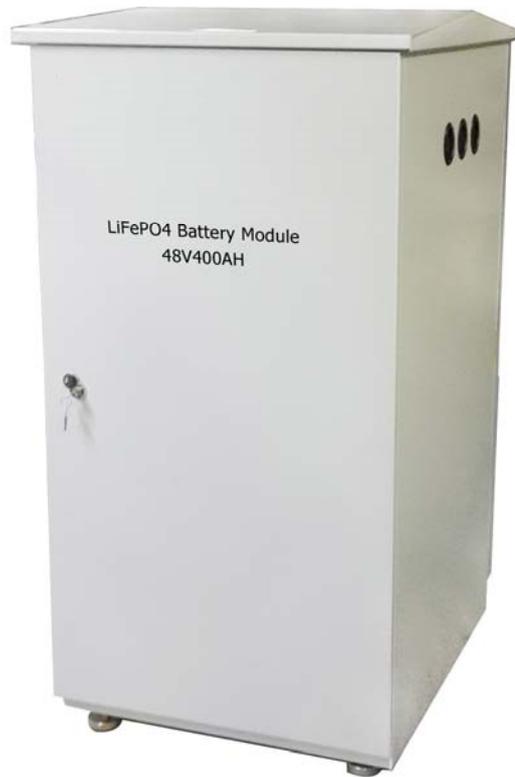


LiFePO4 Battery Specification



1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack and describes the type, performance, technical characteristics, warning and caution of the battery pack.

2. Specification

NO	Items	Description	
Normal Specification			
1	Nominal Voltage	51.2V	
2	Normal Capacity	400Ah	
3	Internal Resistance	≤20mΩ	
4	Battery system info. Display and communication	Support LCD display and RS485 communication, to display battery voltage, current, temp., SOC, etc.	
Standard Charge			
5	Battery operation temperature range @charging	0~45℃	
6	Normal charge voltage	58.4±0.1V	
7	Recommended float charge voltage(for Standby use)	55.6±0.1V	
8	Allowed MAX charge current	100A@ Battery initial Temp 25±5℃	
9	Recommended charge current	≤60A	
Standard Discharge			
10	Battery operation temperature range @discharging	-20~60℃	
11	Output voltage range	40~58.4V	
12	Allowed discharge current	300A withstand 10 min @Battery initial Temp 25±5℃	
13	Pulse discharge current	350A/20s	
14	Discharge cut-off voltage	40V	
Mechanical Characteristics			
15	Dimension	Depth 800 mm±3m	
		Width 600 mm±3m	
		Height 1200 mm±3m	
16	Dimension of battery box	498 * 590 * 175.5 mm	
17	Dimension of controller box	482 * 422 * 177 mm	
18	Total Weight	333 Kg ±2kg	
Storage			
19	Storage Temperature & Humidity Range	Short: within one month	-20~35℃, 45~75%RH
		Long: above one month	-10~30℃, 45~75%RH
20	Self-discharge rate	Residual capacity	≤3% per month; ≤15% per year
		Reversible capacity	≤1.5%per month; ≤8% per year

3. Electrical Characteristics & Test Condition

@Ambient Temperature 25±5°C & Humidity 45%~75%.

NO	Items	Criterion	Condition	
1	Internal Impedance	≤20mΩ	Test the internal resistance of 50% SOC battery pack with 1 kHz AC internal resistance test instrument.	
2	Nominal Capacity	≥380Ah	Rest for 1 hour after fully charged, then discharge with 0.33C current until the battery reaches the discharge cutoff voltage.	
3	Short circuit protection	/	Not allowed.	
4	MAX charge Current	100A	Charging with this current for more than 0.5h and the added temperature of battery pack less than 20°C.	
5	MAX discharge Current	150A	Discharging with this current for more than 10min and the added temperature of battery pack less than 35°C.	
6	Cycle life (DOD%100)	≥2000 cycles	Discharge with the current of 0.5C until it can't discharge, and then rest it for 1h. Charge the battery following CC(0.33C)/CV mode to full capacity, and then rest it for 1h. Repeat above process until full charged capacity is no more than 80% of normal value. Accumulated times is defined as cycle life.	
7	Discharge Temperature Characteristics	-20°C	≥70%	At 25±5°C discharge the battery with the current of 0.33C to the cut-off voltage and record charge capacity. Store the battery at various temperatures for 2h and discharge the battery with 0.33C to the cut-off voltage.
		0°C	≥80%	
		25°C	100%	
		55°C	≥95%	
8	Charge Retention ability	remain capacity≥90%	Charge the battery to full capacity and store it for 28 days, and then discharge it with 0.33C to the cut-off voltage.	

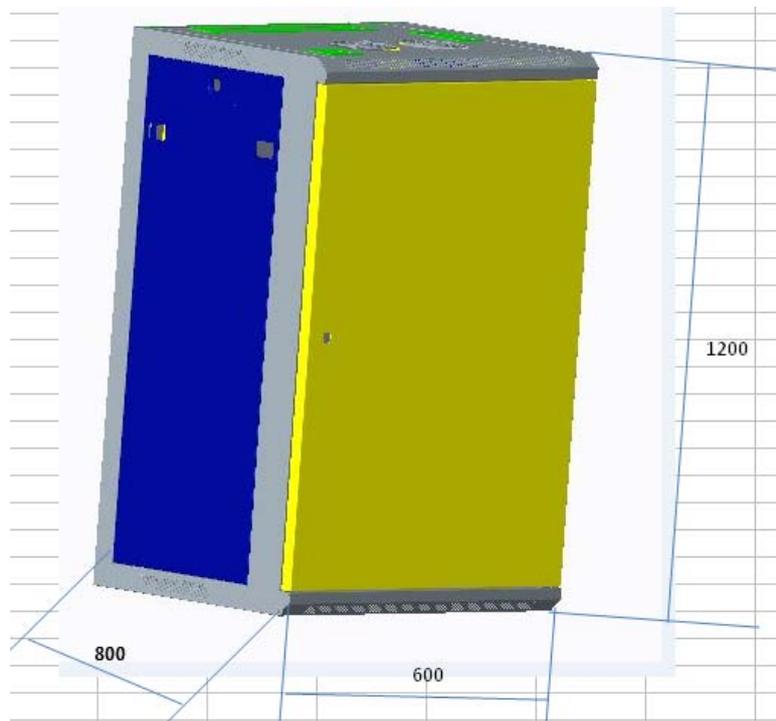
4. Circuit Protection

The batteries are supplied with a LiFePO4 Battery Management System (BMS) that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack overcharge, over discharge, over current, over heat, etc. It would cut off the battery input or output for protection once necessary. Overall, the BMS helps to ensure safe and accurate running.

Test item	Content	Criterion
Over charge	Over-charge protection for each cell	3.80±0.03V
	Over-charge release for each cell	3.60±0.05V
	Over-charge release method	Under the release voltage

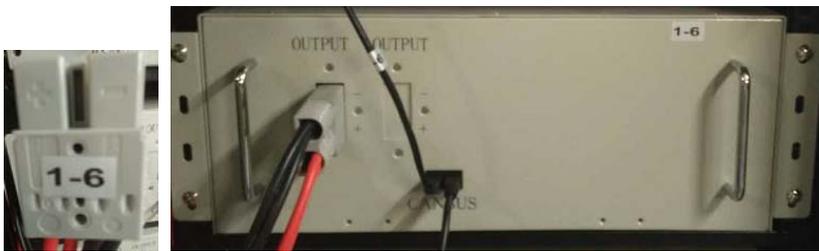
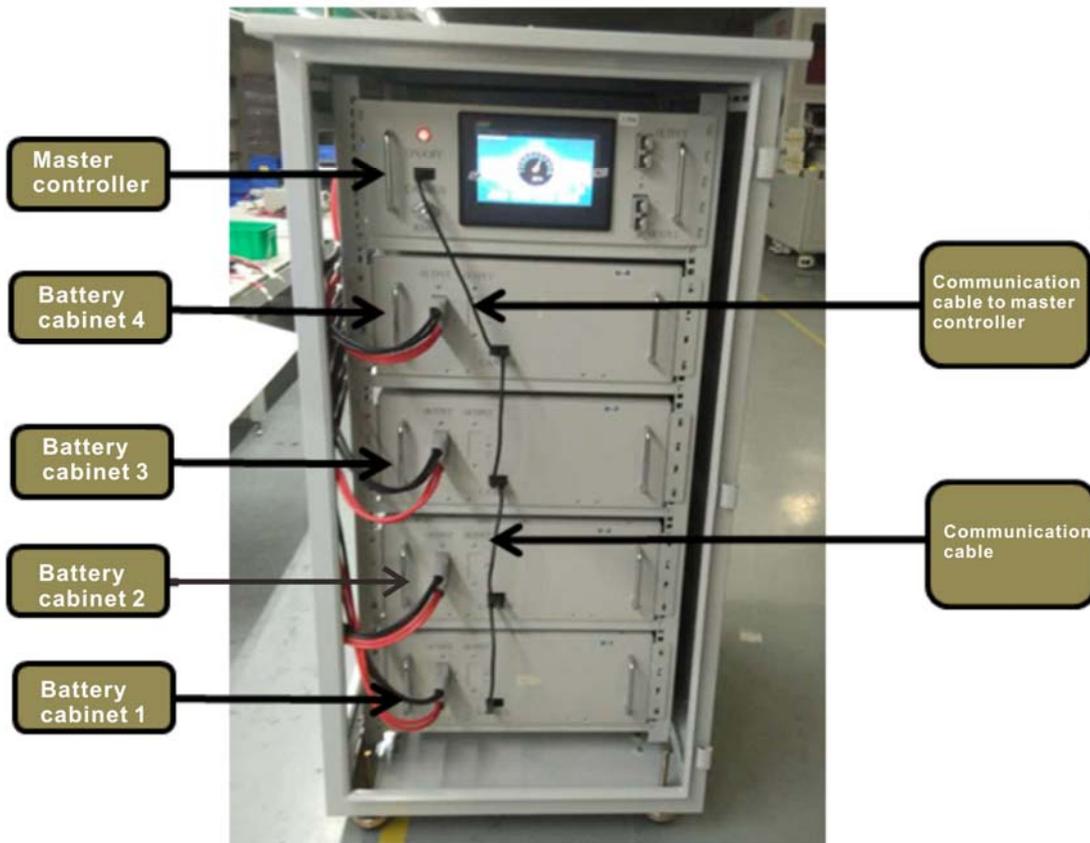
Over discharge	Over-discharge protection for each cell	2.50±0.05V
	Over-discharge release for each cell	2.80±0.05V
	Over-discharge release method	Release after charge
Over current	Discharge over current protection	200~300A
	Protection delay time	20~40s
	Over current release method	Release after cutoff the load.
Battery temperature	Battery Over temperature	Protection @65±5°C
		Release @55±5°C
	Over-charge protection for each cell	Protection @-20±5°C
		Release @-10±5°C

5. Dimensional Drawing



6. Installation

- install the 4 battery boxes and controller box into cabinet in order;
- connect the battery boxes and controller box with communication cables;
- connect the battery boxes and controller box with power cables (the code of Anderson connectors are one-to-one correspondence)



7. Controller display panel



8. Transportation

* Based on the character of cell, proper environment for transportation of LiFePO₄ battery pack need to be

created to protect the battery.

- * Battery should be stayed in the warehouse $-20^{\circ}\text{C}\sim 35^{\circ}\text{C}$ where it's dry, clean, shade, and well-ventilated.
- * The battery should be stored in 50% SOC during transportation.
- * The battery need to be charged every 6 months if out of use
- * Keep the battery against dropping, turning over and serious stacking during loading.

9. Warning & Tips

Please read and follow the specification and caution remarks on battery surface before use the battery. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. We are not responsible for any accidents caused by usage without following our specification.

Warning!

- * The battery must be far away from heat source, high voltage, and avoid to be exposed in sunshine for long time.
- * Never throw the battery into water.
- * Never connect the positive and negative of battery with metal.
- * Never transport or store battery together with metal.
- * Never reverse two electrodes when use the battery.
- * Never disassemble the battery without manufacturer's permission and guidance.
- * Never knock, throw or trample the battery.

Tips!

- * Keep the battery against high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life.
- * When battery run out of power, please charge your battery timely (≤ 15 day).
- * Please use the matched or suggested charger for this battery.
- * If battery emits peculiar smell, heating, distortion or appear any abnormality during working or storage, please stop using and take it out from device.
- * If the battery leaks and get into the eyes or skin, do not wipe, instead, rinse it with clean water and see doctor immediately.
- * Please far away from children or pets.
- * Do not put scrap battery into a fire or water.
- * It is strictly prohibited any series between the battery packs. Any requirements on serials connection, please contact us for details.