

LiFePO4 Battery Specification and Use Manual

Model: 48V 100AH

1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack **48V100Ah** manufactured by Anhui GP New Energy Technology Co., Ltd describes the type, performance, technical characteristics, warning and caution of the battery pack.

2. Battery Specification (@ 25±5℃)

NO	Items		Characteristics
2.1	Normal capacity		100Ah
	Minimum capacity		99Ah
2.2	Nominal energy		4.8KWh
2.3	Nominal voltage		48V (LFP-15S)
2.4	Internal resistance		≤30mΩ @1kHz AC
2.5	Normal charge voltage		54.75±0.2V
2.6	Float charge voltage(for Standby use)		51.75±0.2V
2.7	Allowed MAX charge current		100A
2.8	Recommended charge current		≤55A
2.9	Allowed MAX discharge current		100A
2.10	End of discharge voltage		37.5V
2.11	Dimension		Breadth 482.6±2mm
			Height 180±2mm
			Depth 441±2mm(without handle)
2.12	Weight		Approx. 45kg
2.13	Operation temperature	Charge	0~45℃
		Discharge	-20~60℃
2.14	Self-discharge rate	Residual capacity	≤2%/Month; ≤10%/ year
2.15	Storage environment		≤1month
			≥3month
			Recommend environment

3. Electrical Characteristics & Test Condition

Testing Conditions: Ambient Temperature: 25±5℃; Humidity:45%~75%.

Normal charge: Charge battery under CC(0.2C)/CV(54.75V) mode until over charge protection or the charge current reduce to 0.05C, and then rest for 1 hours.

序号 NO	项目 Items	标准 Criterion	测试方法 Condition	
3.1	Normal Capacity	100Ah	After Normal charge, discharge @0.2C current to the end of discharge voltage.	
3.2	Internal Impedance	≤30mΩ	@50% SOC @1kHz AC internal resistance test instrument.	
3.3	Short circuit protection	Auto cutoff load when short circuit	Connect the positive and negative of this battery pack through a lead with 0.1Ω resistance.	
3.4	Cycle life @DOD100%	≥2000 cycles	After Normal charge, discharge @0.2C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 80% of initial value.	
3.5	@0.2C Discharge temperature characteristic @0.2C	-20℃	≥70%	Capacity @specified temperature Capacity @ 25℃
		-0℃	≥80%	
		25℃	≥100%	
		55℃	≥95%	
3.6	Capacity retention rate	remain capacity ≥96%	After normal charge, store the battery @25±5℃ for 28days, then discharge capacity @0.2C, the retention capacity accord with criterion.	

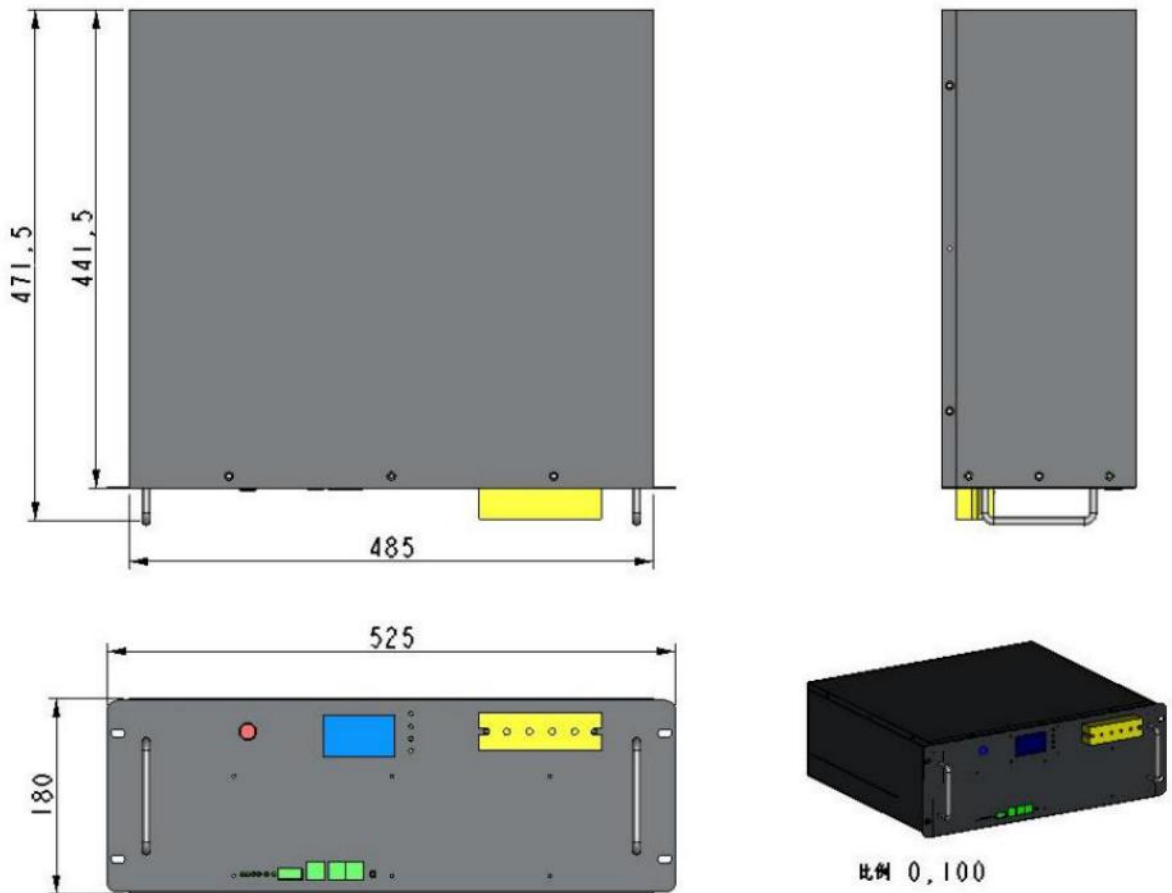
4. Circuit Protection

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, short circuit. Overall, the BMS helps to ensure safe and accurate running.

No	Item	Content	Criterion
4.1	Over charge	Over-charge warning for each cell	3.60±0.03V
		Over-charge protection for each cell	3.70±0.03V
		Over-charge release for each cell	3.38±0.05V
		Over-charge release method	Under the release voltage
4.2	Over discharge	Over-discharge warning for each cell	2.80±0.05V
		Over-discharge protection each cell	2.50±0.05V
		Over-discharge release for each cell	2.90±0.10V

		Over-discharge release method	Charging
4.3	Over current	Charge over current warning	125A
		Charge over current protection	130A, delay time 1s
		Charge over current release	Discharge or auto release after 1min
		Discharge over current warning	125A
		Discharge over current protection	130A, delay time 1s
		Discharge over current release	Charge or auto release after 1min
		Short circuit protection	Setting 350A,300us, forbid short circuit
4.4	Temperature	Charge over temperature protection	Protect@55±5°C; Release@50±5°C;
		Charge under temperature protection	Protect@-5°C; Release@0°C;
		Discharge over temperature protection	Protect@60±5°C; Release@55±5°C;
		Discharge under temperature protection	Protect@-20±5°C; Release@-15±5°C;

5. Battery dimension



6. System panel function brief introduction

6.1 “++” “--” terminal is the battery output port, from left to right, battery +, battery +, battery -, battery -.

6.2 Reset Button:

- a、 Dormancy: press the button (3~6S) and release, the protection board will be dormant, LED indicator light will be lit from the lowest power lamp for 0.5 seconds.
- b、 Activate: press the button (3~6S) and release, the protection plate is activated, and the LED indicator light will be lit from "RUN" for 0.5 seconds.
- c、 Reset: press the button (6~10S) and release, the protection plate is reset, and the LED lamp will be lit for 1.5 seconds at the same time.

6.3 RS485 primarily from the communication interface, use battery as in parallel with the main Pack from Pack by RS485 interface and communication, can be through the main Pack from the RS232 to view all information Pack, RS485 interface to parameter setting and the corresponding control operation.

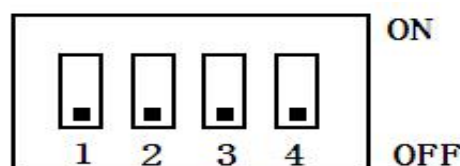
RS485- adopts 8P8C vertical RJ45 socket.	
RJ45 PIN	Specifies
1、 8	RS485-B
2、 7	RS485-A
3、 6	GND
4、 5	NC

6.4 RS232 communication interface and the upper machine, which can be through the PC monitor cell of all kinds of information, including the battery voltage, current, temperature, status, SOC and SOH and battery production information, such as the default baud rate to 9600 BPS.

RS232- adopts 6P6C vertical RJ11 socket.	
RJ11 PIN	Specifies
1、 2、 6	NC
3	TX
4	RX
5	GND

6.5 Dialing switch: there is a 4-bit dial switch on the panel for the address code of the module in communication:

When used in battery as parallel, but by hardware address to distinguish the different PACK, and the whole battery pile in each PACK of hardware address is the only, hardware address can be, in turn, by means of the dial the code switch board Settings, switch with reference to the definition of the table below



Add ress	Position of dial code switch.				Instructions
	#1	#2	#3	#4	

0	OFF	OFF	OFF	OFF	No cascade , single use
1	ON	OFF	OFF	OFF	Set to Pack1 (main)
2	OFF	ON	OFF	OFF	Set to Pack2
3	ON	ON	OFF	OFF	Set to Pack3
4	OFF	OFF	ON	OFF	Set to Pack4
5	ON	OFF	ON	OFF	Set to Pack5
6	OFF	ON	ON	OFF	Set to Pack6
7	ON	ON	ON	OFF	Set to Pack7
8	OFF	OFF	OFF	ON	Set to Pack8
9	ON	OFF	OFF	ON	Set to Pack9
10	OFF	ON	OFF	ON	Set to Pack10
11	ON	ON	OFF	ON	Set to Pack11
12	OFF	OFF	ON	ON	Set to Pack12
13	ON	OFF	ON	ON	Set to Pack13
14	OFF	ON	ON	ON	Set to Pack14
15	ON	ON	ON	ON	Set to Pack15

6.6 Run the indicator light, green. It is always bright while charging and flickering when discharging.

6.7 Warning light, red. There is always a glitch.

6.8 Capacity indicator light decreases from left to right:

All four lights are bright, Battery capacity is 75%~100%;

When 3 lights are on, Battery capacity is 50%~75%;

When 2 lights are on, Battery capacity is 25%~50%;

When 1 lights are on, Battery capacity is $\leq 25\%$.

7. Install and Use

7.1 It is recommended to be installed in 19 "standard cabinet, or wall hanging method can be installed, and 4 M6 bolts are installed on both sides of the cabinet to fix the system on the rack.

7.2 On the right ground of the rear panel of the cabinet, the ground is grounded with a yellow-green soft wire above 8.5mm² to ensure good grounding;

7.3 Battery capacity under 50 ah and battery system with two 5.0 mm above the squared of red and black two kinds of cord on the chassis respectively output terminal is the cathode electric pool to meet on the switching power supply or equipment is negative, the battery capacity in more than 50 ah lithium iron batteries battery system with two 5.0 mm above the squared of red and black two kinds of soft line respectively take on chassis battery output terminal is the cathode is negative in switching power supplies or equipment, pay attention to the positive and negative sign.

7.4 System activation arousal

The battery system has been dormant for 24 hours without external power supply and no load. The following operation can wake up the system:

- a. Automatic activation after connecting to charging voltage;
- b. Manually press the button 3s to activate;

c. Activate by software instruction.

8. System standby, dormancy

After the system is activated, the battery system will voluntarily enter standby mode if external charging and load are removed. In this state, the power loss is extremely low, and the RUN light on the panel indicates that the system is in standby mode. After 24 hours, the battery system goes into hibernation automatically. The indicator light on the panel indicates that the battery system is in hibernation. It can also be used by software instructions or manually pressing the button 3s to get BMS into hibernation.

9. Transport & Store

The battery need to be charged every 6 months if out of use

No fall down, no pile up over 6 layers, and keep face up.

9.1 Warning & Tips.

Please read and follow the handling instructions before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. Describes is not responsible for any accidents caused by the usage without following our handling instructions.

Warning

- * Battery must be far away from heat source, high voltage, and no exposed in sunshine for long time.
- * Never throw the battery into water or fire;
- * Never reverse two electrodes when use the battery;
- * Never connect the positive and negative of battery with metal;
- * Never knock, throw or trample the battery;
- * Never disassemble the battery without manufacturer's permission and guidance.

Never use mixed with other type of 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 appears any abnormality, please stop using.
- * 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.
- * It is strictly prohibited any series between the battery packs. Any requirements on serials connection, please contact Great Pack for details.