Lithium-ion Rechargeable Battery Specification

一. Scope

This specification describes the requirements of theLiFePO4 lithium-ion batteries Rechargeable Battery Pack supplied by Anern Industry Group Limited

二. Description and Model

- This product is a new type of backup power supply for the development of high-tech products, with integration, miniaturization, light, intelligent, standardized, environmental protection and other characteristics, can be widely used in indoor distribution stations, integrated base stations, marginal stations, distributed power supply and other fields.
- This product's manufacturing standard reference YDB032-2009 communication backup type lithium ion battery pack, YDT - 2011-2344.1 the communication lithium iron phosphate battery part 1: integrated battery "YDT, 1051-2010" communication board (stand) power

system total technical requirements ", YDT - 2005-1363.3 the communication board (station) power supply, air conditioning and environment centralized monitoring management system "of the relevant standards.

- Adopted by the high safety performance, lithium battery cathode material for lithium iron phosphate, high safety, high stability, high cycle life, high specific energy, specific power, low temperature performance is superior, but large current charge and discharge, and many other advantages, at the same time, using suitable for communication demand special high performance battery management system (BMS), with the charge, over discharge, short circuit, over-current (load), temperature, flow, total pressure protection, charging under the secondary electricity, balanced and various protective functions, and provides CAN 、 RS485 communication interface and the upper machine to realize remote monitoring, can be connected to the base station power environmental monitoring systems,Intelligent software anti-theft design， Ensure the life of lithium battery and reduce the daily maintenance work.

- Standard design, low operating environment requirements (can be in -20 ~ 60℃, humidity < 95% normal work), small size, light weight, easy installation, simple maintenance in the later stage, can save considerable upfront investment and maintenance costs in the later stage.

三、Product features

1.The internal single battery adopts the anode material of lithium ferrous phosphate(LiFePO4), which has high safety, high energy density and excellent cycling performance

2.The battery pack is equipped with BMS, a high-performance battery management system, which has the protection functions of over discharge, over charge, over current, high temperature and low temperature to ensure the safety of the battery pack;

3.Automatic charge and discharge management. The monitoring unit automatically measures the charge and discharge current of the battery and manages the floating
charge and even charge of the battery;

4.When the battery voltage is lower than the alarm value, it will alarm, and when the voltage is too low, it will automatically power down to protect the battery;

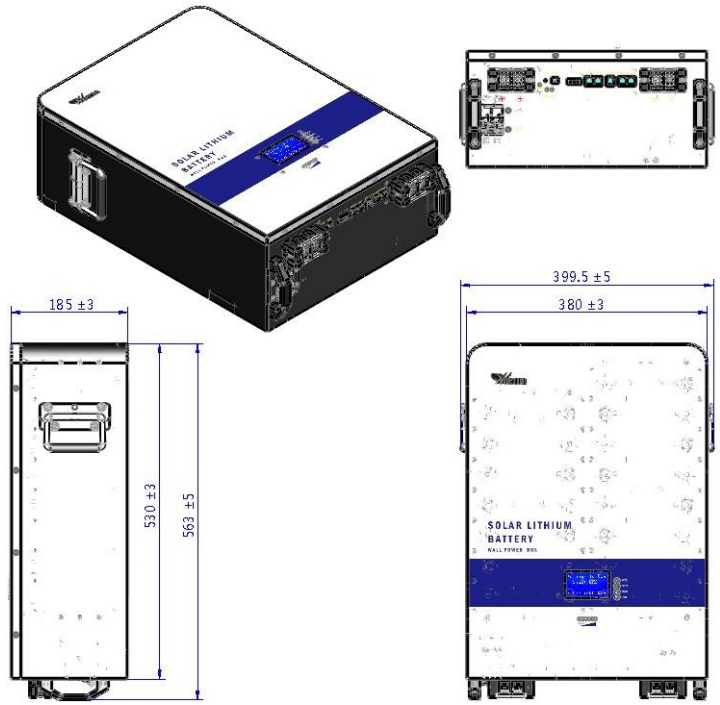
5.The battery pack has good electromagnetic compatibility;

四、Basic Characteristics

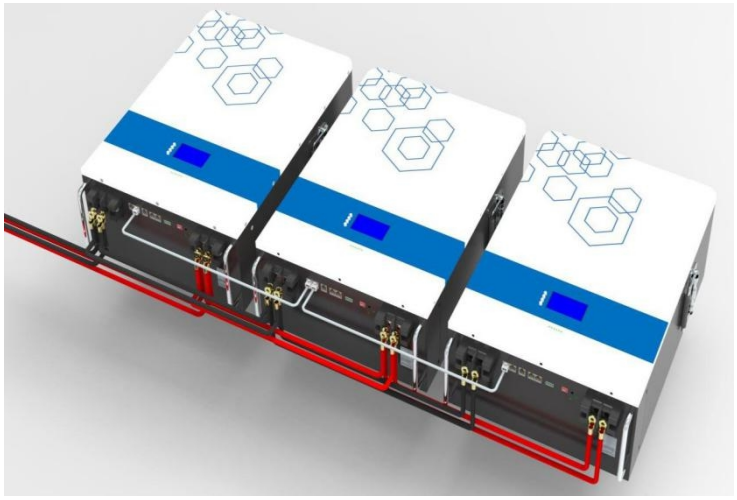
No.	Item	Specification
1.	Nominal Capacity	100Ah

2.	**Watt Hour**	4800Wh
3.	**Nominal Voltage**	48V
4.	**Operating voltage range**	37.5V~54.75V
5.	**Standard charging method**	50A
6.	**Maximum continuous charging current**	100A
7.	**Standard discharging method**	50A
8.	**Maximum continuous discharge current**	100A
	Discharge protection voltage	37.5V
	Charge protection voltage	54.75V
9.	**Cycle Life**	≥4000 cycles (0.5C charge, 0.5C discharge） 80%DOD; ±25℃
10.	**Operating Temperature**	-20℃-60℃
11.	**Storage Temperature**	-20℃ ~ 50℃
12.	**communication mode**	RS485
13.	**Shipment voltage**	≥48V
14.	**Charge retention and capacity recovery capability**	Standard charge the battery, and then put aside at room temperature for 28d or 55 ℃ for 7d, Charge retention rate≥90%, Recovery rate of charge≥90
15.	**Weight**	51kg
16.	**Size**	（W399.5×L563×D185mm ） ±5mm
17.	**Designed life**	10 years
18.	**Guarantee period**	3 years

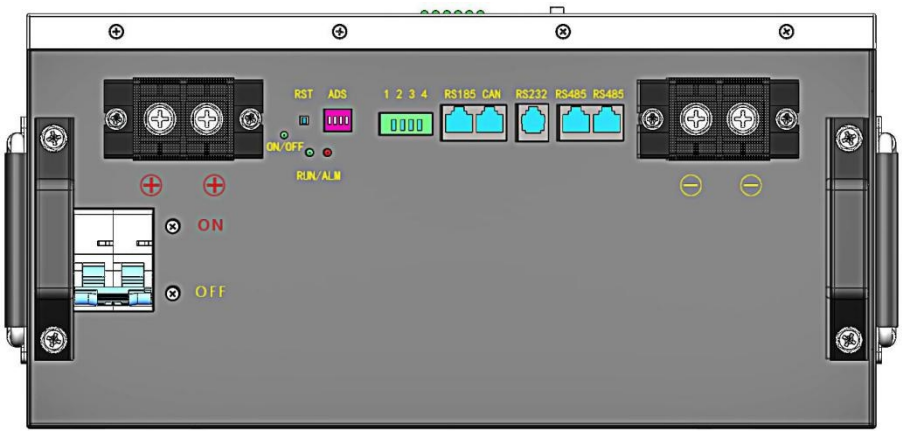
五、Product appearance and size



Parallel Schematic Diagram



Port drawings



六、Environmental Characteristic

No.	Item	Testing Instruction	Requirement
1	**Vibration Test**	The battery will be vibrated 30 minutes in three mutually perpendicular directions and changing frequency between 10 to 55Hz. The rate of scanning frequency is from 10 Hz to 55Hz with the rate of 1Hz per min. Vibrationfrequency: 10-30Hz Amplitude: 0.38mm vibrationfrequency: 30-55Hz: Amplitude: 0.19mm	The battery shall not rupture, smoke, explode or leak. Battery electric voltage ≥48V
2	**Constant Temperature/ Humidity Test**	Keep the battery at 40±2℃ and 90%-95%RH for 48 hrs after complete charge. After the test, keep the battery at 20±5℃ for 2 hrs. Discharge at 10A constant current discharge to the termination voltage.	Appearance of the battery shall not rust, smoke or explode. Discharge Capacity ≥ 80%
3	**High Temperature Performance Test**	Keep the battery at a hot oven with 55±2℃ for 2 hrs, then measure the capacity with constant discharge current 0.5C to discharge protection point after complete charge. After the test, keep the battery at 20±5℃ for 2 hrs.	Appearance of the battery shall not rust, smoke or explode. Discharge Capacity >90%
4	**Low Temperature Performance Test**	Keep the battery at -20±2℃ for 16-24 hrs, then measure the capacity with constant discharge current 0.5C to discharge protection point after complete charge. After the test, keep the battery at 20±5℃ for 2 hrs.	Appearance of the battery shall not rust, smoke or explode. Discharge Capacity >55%

七、Safe Characteristic

No.	Item	Testing Instruction	Requirement
1	Over-charge test	Charge in accordance with the following two ways (Choosing one between the two). (1) Charge at 1C current for 90min or until voltage of some single battery reaches 5.0V (stop test when fulfills either condition). (2)Charge at 3C current until the voltage of some single battery reaches 10.0V, then stop the test.	The battery shall not explode or catch fire.

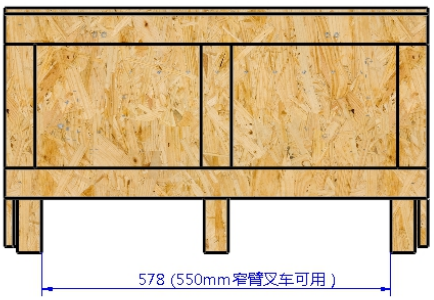
2	Over-discharge test	Charge the battery. Place at 20±5℃ for 1h, then discharge in 1/3C current at same temperature until some cell's voltage is 0V	The battery shall not explode or catch fire.
3	Short-circuiting Test	After charge batteries, place at 20±5℃ for 1h. Short the battery for 10min, the external circuit resistance should be less than 5mΩ.	The battery shall not explode or catch fire.

八、Packaging Method

No fall down, no pile up over 8 layers, and keep face up.

1 Packing size：L700*W520*H405mm；

2 Carton Size：L650*W470*H290mm；



九、Storage conditions：

When the battery pack to be long-term stored, charge the battery pack to about 60% capacity,store in dry and ventilated place, charge 1h for every 3 months.

The battery pack and charger should be stored in clean, dry and ventilated place, avoid contacting with corrosive materials and be away from fire and heat.

十、Product Liability

- We assume no responsibility for the accident of not operating in accordance with the specification.
- Specifications, raw materials, production process or production control system is changed , the change will vary depending on the quality and reliability of data written notice to the customer.

十一、Battery Handling Precautions

- Forbid to immerse battery in water or allow it to get wet!
- charge, use and store battery near a heat source such as fire and heater! If the battery leaks or releases strange odor, pls remove it from place near fire place immediately. Fully charge the battery before first-time using.
- Forbid to reverse the positive and negative pole!
- Forbid to throw the battery pack into fire or heat it!
- Forbid to short-circuit battery with wire or other metal objects!
- Forbid to nail, knock or trample battery!
- Forbid to disassemble the battery and battery pack in any way!
- Forbid to put the battery into microwave oven or pressure vessel!
- If the battery pack gives off odor, gets heat, deformation, discoloration or appears any abnormal phenomenon, stop using it; please remove the battery from electrical appliances and stop using it, when the battery is being used or charged!
- Forbid to use battery pack in a very hot environment, such as under direct sunlight or in car on hot day. Otherwise, the battery pack will overheat, which will affect battery performance and shorten battery life!
- If the battery leaks and electrolyte leakage enters into the eyes, do not rub, rinse with water immediately and seek immediate medical assistance. If not in time, eyes will be hurt!
- Ambient temperature will affect the discharge capacity, if the ambient temperature is beyond the standard environment (25±5),℃ the discharge capacity will drop!

Special Considerations:

- During charging, if there is odor and unusual noise, immediately stop charging.
- During discharging, if there is odor, unusual noise, immediately stop charging.
- If there are above phenomenon, please contact the manufacturer, do not disassemble by yourself.