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LiFePO4 battery product specification

Product name:, LiFePO4 battery pack

product model: 51.2V 600A

size of product: 51.2V 600A h

Date of preparation: 2025-07-06

Fabrication	Examine and verify	Ratify
Producer	Auditor	Ratifier

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1.Range of application

This specification describes the technical requirements, measurement methods, transportation,

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storage and precautions for lithium batteries produced.

2. Product overview

This product is a lithium iron battery battery pack, the battery pack is composed of 32 Pieces 300Ah lithium iron phosphate cells combined through series and parallel mode. The battery pack adopts scientific internal structure design, advanced battery production process, has high specific energy, long life, safety and reliability, wide use temperature range and other characteristics, is a green energy storage power supply products.

3. Product technical specifications and parameters

The cell	Specifications and models	Iron lithium-300Ah
	Capacity	300Ah
	Nominal voltage	3.2V
	Nominal internal resistance	≤2mΩ
	compound mode	16 String 2 and
	Standard of matching group	Tolerance ≤1%
		Single section internal resistance difference of 0.2m Ω
		One-segment voltage difference is 5 mV
		Charge retention capacity of 90%
Finished product parameters	Nominal voltage (V)	51.2
	Nominal capacity (Ah)	600
	Minimum capacity (Ah)	600
	Charge voltage (V)	58.4
	Discharge cut-off voltage (V)	40
	USB Output voltage (V)	not have
	Maximum continuous discharge current (A)	200
	Display screen	have

	Bluetooth function	Optional
	Standard charging current (A)	50
	Charging is suitable for temperature	0℃～45℃
	The discharge is suitable for temperature	－20℃～65℃
	Battery size	800 * 400 * 1152 ± 3mm (main body)
	Battery weight	About about 267 Kg
	Storage temperature range	-20℃～45℃
	Storage of ambient humidity (RH)	5%~95% (no condensate)
Management system	Single overpressure protection value	3.65V
	Overpressure release value	3.5V
	Single underpressure protection value	2.5V
	Under-pressure release value	3.0V
	Overflow protection value	210A

CAN / RS485 network cable port definition:

Parallel communication interface



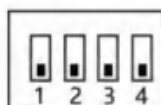
RJ-45 connector

RS485 one adopts 8P8C vertical RJ45 socket		RS485 one adopts 8P8C vertical RJ45 socket	
RJ45 pin	Definition/explanation	RJ45 pin	Definition/explanation
1、8	RS485-B	9、16	RS485-B
2、7	RS485-A	10、15	RS485-A
3、6	GND	11、14	GND
4、5	NC	12、13	NC

RS485 and CAN interface

RS485 one adopts 8P8C vertical RJ45 socket	
RJ45 pin	Definition/explanation
1、8	RS485-B1
2、7	RS485-A1
4	CANH
5	CANL
6	GND

When the cells are in parallel, it is necessary to set a unique Addr /ID for each cell via a switch on the BMS.

ON
OFF

Battery ADDR address dial code meter

address	Uncode switch position			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

state	Normal / alarm / protection	RUN	ALM	Power quantity indicates the LED				explain
		●	●	●	●	●	●	
shut down	dormancy	go out	go out	go out	go out	go out	go out	All out
await the opportune moment	normal	Flash 1	go out	According to the electricity instruction				await the opportune moment
	report an emergency	Flash 1	Flash 3					Low power alarm
charge	normal	Often bright	go out	According to the electricity instruction (Power indicates maximum LED flash 2)				Maximum power LED flash (flash 2), ALM does not flash when overcharge alarm
	report an emergency	Often bright	Flash 3					
	Overcharge protection	Often bright	go out	Often bright	Often bright	Often bright	Often bright	If there is no city supply, the indicator light turns to the standby state
	Temperature, overcurrent, and failure protection	go out	Often bright	go out	go out	go out	go out	Stop charging
discharge	normal	Flash 3	go out	According to the electricity instruction				
	report an emergency	Flash 3	Flash 3					
	undervoltage protection	go out	go out	go out	go out	go out	go out	Stop discharge
	Temperature, overcurrent, short circuit, reverse connection, failure protection	go out	Often bright	go out	go out	go out	go out	Stop discharge
hitch		go out	Often bright	go out	go out	go out	go out	Stop charging and discharging

state		charge				discharge			
Capacity indicator light		L4 ●	L3 ●	L2 ●	L1 ●	L4 ●	L3 ●	L2 ●	L1 ●
quantity of electricity (%)	0~25%	go out	go out	go out	Flash 2	go out	go out	go out	Often bright
	26~50%	go out	go out	Flash 2	Often bright	go out	go out	Often bright	Often bright
	51~75%	go out	Flash 2	Often bright	Often bright	go out	Often bright	Often bright	Often bright
	76~100%	Flash 2	Often bright	Often bright	Often bright	Often bright	Often bright	Often bright	Often bright
Run the indicator light, ●		Often bright				Slint (flash 3)			

Summary of the communication protocol inverter list (RS485)

Inverter brand		communication mode	Display screen protocol options
派能		RS 485-9600	Pylon
古瑞瓦特		RS485-9600	Growatt
硕日		RS485-9600	WOW/Pace
德业		RS485-9600	Pylon
日月元		RS485-9600	Voltronic
首航		RS485-9600	Sorfar
斯曼科		RS485-9600	SMK
三科		RS485-9600	Pylon
施耐德		RS485-9600	Sneider

通讯协议逆变器列表汇总（CAN）

逆变器品牌		通讯方式	显示屏协议选项
派能		CANBUS-500K	Pylon
固德威		CANBUS-500K	GoodWe
古瑞瓦特		CAN	Growatt
SMA		CANBUS-500K	SMA
Victron		CANBUS-500K	Victron
MUST		CANBUS-500K	Must
迈格瑞能		CANBUS-500K	Pylon

德业		CANBUS-500K	Deye
英威腾		CANBUS-500K	Invtr
首航		CANBUS-500K	Sorfar
索瑞德		CANBUS-500K	Revo
Sol-Ark		CANBUS-500K	Pylon
Luxpower		CANBUS-500K	Lux
锦浪		CANBUS-500K	Pylon
施耐德		CANBUS-500K	Sneider
			Reserve
			ZC
			Kspp
			Sunsynk

4. Test conditions, methods and performance

4.1 Test conditions

Unless otherwise specified, all tests were conducted in a temperature of 15℃ ~35℃ , humidity of 25% to 85%, and atmospheric pressure of 86 kPa ~ 106 kPa.

4.2 Measurement instrument

4.2.1 The accuracy of the DC voltmeter used for the voltage measurement shall not be less than 0.5 level, and the internal resistance in the voltmeter shall not be less than 1 kΩ / V;

4.2.2 The accuracy of the DC meter used for measuring the current shall not be less than the 0.5 level;

4.2.3 The thermometer used for measuring the temperature shall have an appropriate range, and its separation value shall not be greater than 1℃;

4.2.4 The timer used for measuring the time shall be timely, minute and second minute, with at least ± 1% accuracy.

4.3 Standard charging

Use DC voltage supply supply (switching power supply) to charge the current from 0.25C (A) to 0.02C (A).

4.4 Standard discharge

After charging according to method (4.3), discharge with 0.5C (A) current to the total voltage below 40.0V cut-off.

4.5 Battery capacity

Charge and discharge according to the method (3.4), and record the discharge time (h), capacity (Ah) = current (A) * discharge time (h).

4.6 Electric performance

Test item	Test method	Technical requirement
Normal temperature performance	After charging the battery of the battery according to the standard specified in 4.3, hold it for 2h at room temperature of 20℃± 5℃, and then discharge at the temperature specified in 4.4	1.Discharge time of> 120min; 2.No fire, no explosion
Elevated temperature property	After charging the battery pack according to the standard specified in 4.3, hold for 2h at high temperature 55℃± 2℃, and then discharge according to 4.4	1. Discharge time is> 120min; 2. No fire or explosion
Cryogenic property	After charging the battery of the battery according to the standard specified in 4.3, hold it for 2h at low temperature-20℃± 2℃, and then discharge at the temperature according to 3.4	1. Discharge time is> 95min; 2. No fire or explosion
Charge to maintain	After the battery pack is charged according to the standard specified in 4.3, the normal temperature is 20℃± 5℃ is shelved for 30d, and then discharged at the temperature according to 4.4	Charge retention rate of 95%
Fold discharge performance	After the battery pack is charged according to the standard specified in 4.3, hold it at room temperature for 10min, discharge with 1C current, the cut-off voltage is 40.0V, and the discharge capacity is recorded	Discharge capacity of 95%
Cycle life	Under the condition of 20℃± 5℃, the battery pack is charged according to the standard specified in 4.3, shelved for 5min, and then discharged to the termination condition specified in 4.4, according to this cycle. The	Admito 2,500 times

battery capacity is tested every 25 cycles according to the standard charge and discharge, and the test is terminated when the capacity is less than 80% of the rated capacity

4.7 Environmental performance

Test item	Test condition	Testing standard
Temperature constant heat experiment	After charging the battery pack according to 4.3, under the ambient temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and relative humidity of 90~95% for 48 hours, after the temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and relative humidity of 25%~85%.	The battery pack has no obvious deformation, rust, smoke or explosion; the discharge capacity is greater than 80% of the rated capacity.
Temperature ictus	After the battery pack is charged according to 4.3, the open circuit is placed in the temperature box 1) Starting from $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, maintain the low temperature for 120min; 2) Then at $10^{\circ}\text{C} / \text{min}$ to $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$; 3) Maintain a high temperature of $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 120min; 4) Cool down to $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at $10^{\circ}\text{C} / \text{min}$ After repeated 4 times, the battery pack was restored to room temperature and left for 120min at 25°C to make the lithium battery pack reach room temperature.	No deformation, cracking and leakage; the open circuit voltage and charge capacity meet the product specification, and normal charge and discharge.

4.8 Safety performance

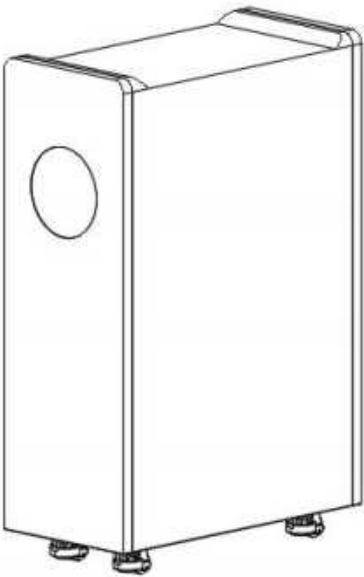
Test item	Test condition	Testing standard
Squeezing test	After charging the battery pack according to 4.3, it is placed between the two extrusion surfaces of the extrusion equipment to gradually increase the pressure to 13 KN with a retention time of 1min.	The battery pack does not explode or catch fire
Pin-prick test	Fill the battery pack according to 4.3, place the thermocouple in the battery pack, and penetrate the center of a set of cells at a speed of 20-40 mm/s.	The battery pack does not explode or catch fire
Short-circuit test	After charging the battery pack in 4.3, hold for 1h at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$. Conduct an external short circuit for 10min with an external line resistance $<10\text{m} \Omega$.	The battery pack does not leak liquid, explode, or catch fire
Fall-down test	After charging the battery pack in 4.3, take hold at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 1h, and fall to the board from 1.5 meters at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$.	The battery pack does not leak liquid, explode, or catch fire

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Overcharge test	Remove the protection plate, and continuously charge the lithium battery pack with a constant current constant voltage source from 1C (A) to 58.4V at 20℃± 5℃ ambient temperature until a single battery voltage of 3.65V.	The battery pack does not leak liquid, explode, or catch fire
Over-put test	Remove the protective plate and discharge the battery at 0.5C (A) current to 0V at 20℃± 5℃.	The battery pack does not leak liquid, explode, or catch fire
Hot box test	After charging the cell according to 4.3, put it into a constant temperature heating box. Heat the cell, and the temperature rise speed is 5 ± 2℃ per minute. When the temperature reaches 130 ± 2℃, keep the temperature for 30 minutes.	The battery pack does not leak liquid, explode, or catch fire

5. Product structure characteristics

Product appearance schematic diagram:



6. Storage, maintenance, and transportation

6.1 Storage

When the battery pack needs to be stored for a long time, please charge the battery pack to about 50%

(after the charge, please charge the battery display screen to display 50%), place it in the dry and ventilated place, and circulate once every three months. The battery pack should be stored in clean, dry and ventilated places, avoid contact with corrosive substances, and keep away from fire and heat sources.

6.2 Transportation

The battery pack should be packaged and transported. During transportation, violent vibration, shock or extrusion should be prevented to prevent sun and rain and prevent inversion. Cars, trains, ships, aircraft and other transportation vehicles can be used for transportation.

6.3 Maintenance

6.3.1 When storing the battery pack, it shall be stored in 40%~60% charge state;

6.3.2 When the battery pack is not used for a long time, it is recommended to replenish power every three months or so, and charge the power to the display screen when the battery;

6.3 During the maintenance process, do not re-load the battery in the battery pack, otherwise the battery performance will decline;

6.3.4 Do not replace any battery in the battery pack without authorization. Do not dissect the battery.

7. Notes for battery use

7.1 Do not connect the positive and negative poles back to prevent short circuit;

7.2 Do not put the battery pack into the water or wet it;

7.3 Do not charge the battery pack under fire source or extremely hot conditions! Do not use or store the battery pack near the heat source (such as fire or heater);

7.4 It is strictly prohibited to puncture the shell of the battery pack with nails or other sharp objects, or to hammer or pedal the battery pack;

7.5 It is strictly prohibited to decompose the battery pack and the battery in any way;

7.6 If the battery pack emits odor, heat, deformation, discoloration or any other abnormal phenomenon, it should be immediately removed from the electrical appliance or charger and stopped using;

7.7 If the electrolyte accidentally splashed into the eyes after the battery leakage, do not wipe, should immediately rinse with water, and should seek medical assistance in time;

7.8 The ambient temperature will affect the discharge capacity. When the ambient temperature exceeds the standard environment ($25^{\circ}\text{C} \pm 5^{\circ}\text{C}$), the discharge capacity will be slightly reduced;

7.9 During the charging process, if there is an odor or abnormal sound, please stop charging immediately;

7.10 During the discharge process of the battery pack, if there is an odor or abnormal sound, please stop discharging immediately;

7.11 If the above phenomenon occurs, please contact the manufacturer, do not disassemble without permission.

7.12 This product is made of LiFePO4 cell with 6000 cycle life, please be used and stored in strict accordance with the operating guidelines.