



Lithium Iron Phosphate Battery Specification Ver1.0

Part name	LiFePO ₄ Battery
Model No	PKG-RM512100 (L460*W483*H178mm)
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Date	2023-09-07

SHENZHEN PKNERGY ENERGY CO.,LTD

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1.Scope

The specification shall be applied to LiFePO₄ rechargeable battery pack Of PKG-RM512100 (L460*W483*H178mm) which is manufactured by SHENZHEN PKNERGY ENERGY CO.,LTD.

2.Battery Pack specifications

No.	Item	General Parameter		Remark
1	Combination method	16S1P		51.2V 100Ah
2	Rated Capacity	Typical	100Ah	Standard discharge after Standard charge (package)
		Minimum	98Ah	
3	Voltage Range	43.2~58.4V		
4	Voltage at end of Discharge	43.2V		Discharge Cut-off Voltage
5	Charging Voltage	58.4V		
6	Internal Impedance	≤20m Ω		Internal resistance measured at AC 1KHZ after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 time
7	Standard charge	Constant Current 0.2C Constant		Charge time (Approx) :6.5h
8	Standard discharge	Constant current : 0.2C end voltage		
9	Maximum Continuous Charge Current	100A		T≥ 10°C
10	Maximum Continuous Discharge Current	100A		T≥ 10°C
11	Operation Temperature Range	Charge : 0~50°C		60± 25%R .H. Bare Cell
		Discharge : -20~55°C		
12	Storage Temperature Range	Less than 12 months :-10~35°C		60± 25%R .H. at the shipment state
		less than 3 months: -10~45°C		
		Less than 7 day : -20~55°C		
13	Dimensions	L460*W483*H178mm		
14	Weight (Approx)	45.1kg		

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3.BMS function introduction

The BMS is designed for 15/16 series lithium battery.

The BMS have all functions which are :

Overcharge detection function/Over discharge detection function/Over current detection function/Short detection function/Temperature detection function/Balance function/Communicate function/Alarm function/Total capacity function/Storage history function.

3.1BMS Protect parameter

Items	Details	Standard
Cell overcharge protection	Overcharge detection voltage	3.65±0.025V
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	3.38±0.02V
Cell over-discharge protection	Over-discharge detection voltage	2.7±0.02V
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	2.95±0.02V
Over-current protection	discharge Over-current protection current1	110A
	discharge Over-current detection delay time 1	1S
	discharge Over-current protection current 2	150A
	discharge Over-current detection delay time 2	≤200m±50ms
	Charge OC protection current	110A
Short protection	Short protection current	350A
	Protection condition	Load short
	Detection delay time	≤30ms
	Protection release condition	Charging
Temperature(T) protection	Charge high T protection	55±3°C
	Charge high T recover	47±4°C
	Discharge high T protection	60±3°C
	Discharge high T recover	50±4°C

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	Charge low T protection	$0\pm 3^{\circ}\text{C}$
	Charge low T recover	$5\pm 4^{\circ}\text{C}$
	Discharge low T protection	$-20\pm 3^{\circ}\text{C}$
	Discharge low T recover	$-10\pm 4^{\circ}\text{C}$
Balance	Balance threshold voltage	3.45V
Communication	It has RS232 /RS485 and canbus standard communication interface, it can real-time monitoring the capacity of battery bank, the voltage, current, environment temperature, and charging/discharging current.	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm Function.	

4.Appearance and structural dimensions

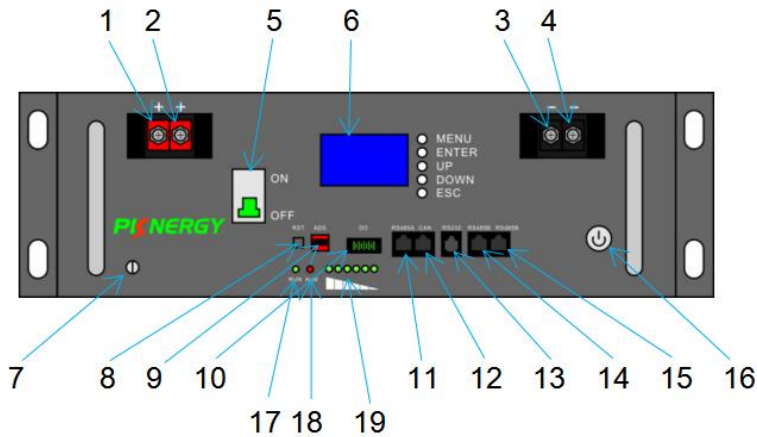
There shall be no such defect as scratch, bur and other mechanical scratch, and the connector should be no rust dirt. The structure and dimensions see attached drawing of the battery.



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5.Function interface description



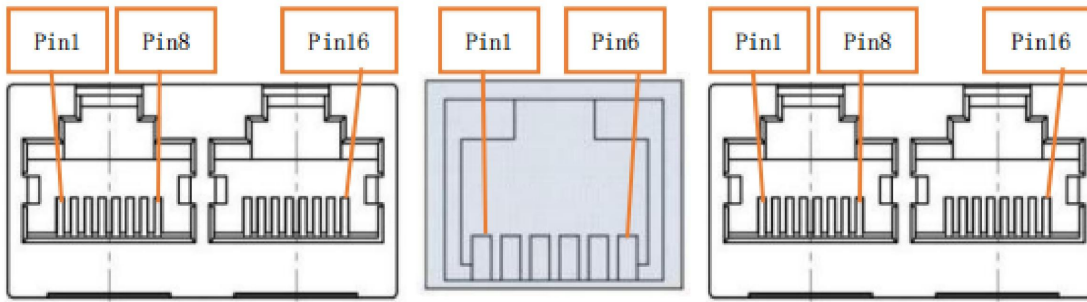
No.	Description	Silk-screen
1	Output terminal	+
2	Output terminal	+
3	Output terminal	-
4	Output terminal	-
5	Circuit breaker switch	ON/OFF
6	LCD	MEUN/Enter/UP/ESC
7	Grounding wire	
8	Reset button	RST
9	Dial switch	ADS
10	Dry port	DRY CONTACT
11	RS485A Port	RS485A
12	CAN bus Port	CAN
13	RS232 Port	RS232
14	RS485B Port	RS485B
15	RS485B Port	RS485B
16	E-Switch	ON/OFF
17	LED indicate	RUN
18	LED indicate	ALM
19	LED indicate	CAPACITY

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6.Communication interface



External communication
RS485/CAN

Communication with
host computer RS232

Parallel communication
RS485

6.1 External communication RS485/CAN

RS485 (RJ45 8P8C)		CAN (RJ45 8P8C)	
RJ45		RJ45	
1、 8	RS485-B1	9、 10、 11、 14、 16	NC
2、 7	RS485-A1	12	CANL
3、 6	GND	13	CANH
4、 5	NC	15	GND

6.2 Communication with host computer RS232

RS232 (RJ11 6P6C)	
RJ11	
1、 5、 6	NC
2	GND
3	RX
4	TX

6.3 Parallel communication RS485

RS485 (RJ45 8P8C)		RS485 (RJ45 8P8C)	
RJ45		RJ45	
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

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7. Dip switch

7.1 Switch setting

In the multi-machine parallel communication operation, you need to configure the DIP address of each PACK

first. The DIP code adopts the BCD code format, the address of 0  .

is defined as (black dot is OFF state, blank is ON state, these are below) , address 1  , address 2  , and soon.

7.2 Slave Setting (Table)

Addr	DIP switch position				Description
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	Pack0
1	ON	OFF	OFF	OFF	Pack1
2	OFF	ON	OFF	OFF	Pack2
3	ON	ON	OFF	OFF	Pack3
4	OFF	OFF	ON	OFF	Pack4
5	ON	OFF	ON	OFF	Pack5
6	OFF	ON	ON	OFF	Pack6
7	ON	ON	ON	OFF	Pack7
8	OFF	OFF	OFF	ON	Pack8
9	ON	OFF	OFF	ON	Pack9
10	OFF	ON	OFF	ON	Pack10
11	ON	ON	OFF	ON	Pack11
12	OFF	OFF	ON	ON	Pack12
13	ON	OFF	ON	ON	Pack13
14	OFF	ON	ON	ON	Pack14
15	ON	ON	ON	ON	Pack15

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8.Storage and Others

8.1 Long Time Storage

If stored for a long time(don't used,exceed three months), the cell should be stored in drying and cooling place. The cell's storage voltage should be 48.0V-51.0V and the cell is to be stored in a condition that the temperature of $23 \pm 2^{\circ}\text{C}$ and the humidity of 45%-75%. Long-term use of unused batteries to recharge every 3 months. Ensure that the battery voltage is within the above range.

8.2 Others

Any matters that this specification does not cover should be conferred between the customer and SHENZHEN PKNERGY ENERGY CO.,LTD.

9.Amendment of this Specification

This specification is subject to change with prior notice.

Danger!

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat such as a fire or heater.
- Do not reverse the positive(+) and negative(-) terminals.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer,or step on it.
- Do not strike, throw or subject the battery to sever physical shock.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.

.....EDN.....

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