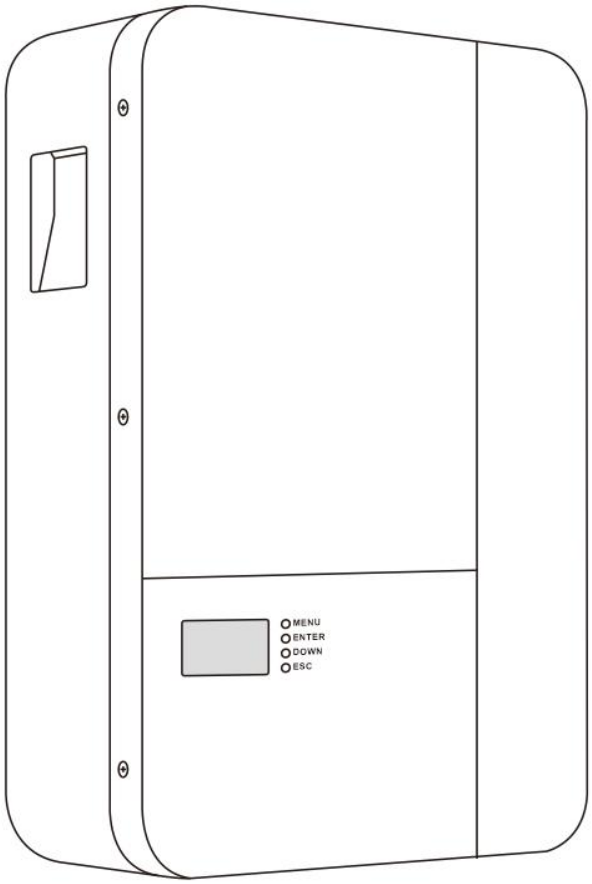
51.2V Power Wall Battery Pack Storage Battery

USER INSTRUCTION

1. Product Description

This power wall mode lifepo4 lithium battery belongs to one of the series of household energy storage products that are independently designed and developed. It has long cycle life, high safety standard BMS software protection and strong housing, exquisite looks, and easy installation, etc. It is widely used in energy storage system with off-grid inverters, on-off grid inverters and hybrid inverters.



*This interface design is only for reference, it may change according to different demands

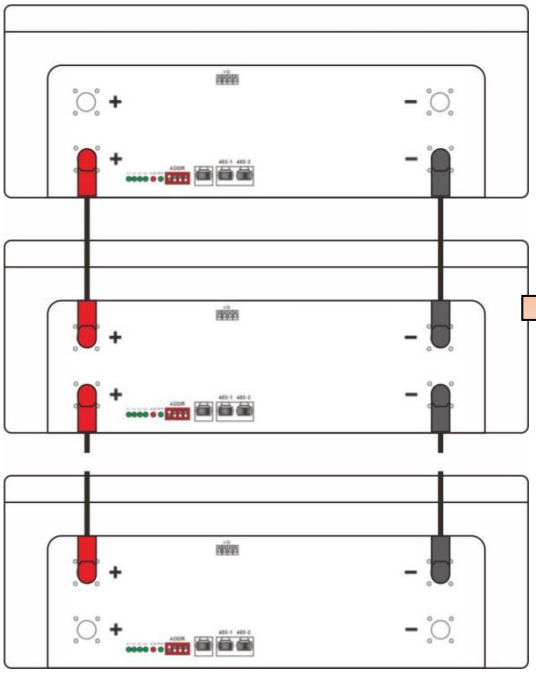
2. Product Function Description

2.1 Product Specifications

Items		Condition	Specification			
Nominal Capacity		Standard charge/discharge	50.0Ah	100.0Ah	150.0Ah	200.0Ah
Nominal Voltage		Average	51.2V	51.2V	51.2V	51.2V
Standard Charging Refer to 3.1		Constant current Constant voltage End current(Cut off)	10A 57.6V 0.2A	20A 57.6V 0.5A	30A 57.6V 0.7A	40A 57.6V 1A
Charging Voltage		/	57.6V	57.6V	57.6V	57.6V
Max. Continuous Charge Current		25±3℃	25.0A	50.0A	75.0A	100.0A
Standard Discharging Refer to 3.2		Constant current End voltage(Cut off)	25.0A 43.2V	50.0A 43.2V	75.0A 43.2V	100.0A 43.2V
Max Continuous Discharge Current		25±3℃	50.0A	100.0A	100.0A	100.0A
Max Output Power		25±3℃	2.56KW	5.12KW	5.12KW	5.12KW
Operating Temperature	Charge	/	0℃~ 60℃			
	Discharge	/	-20℃~ 60℃			
Storage Temperature		1 month 3 month 6 month	-20℃~ 45℃ -20℃~ 35℃ -20℃~ 25℃			
Power Cable Terminal		/	Ring Terminal			

2.2 Parallel Connection

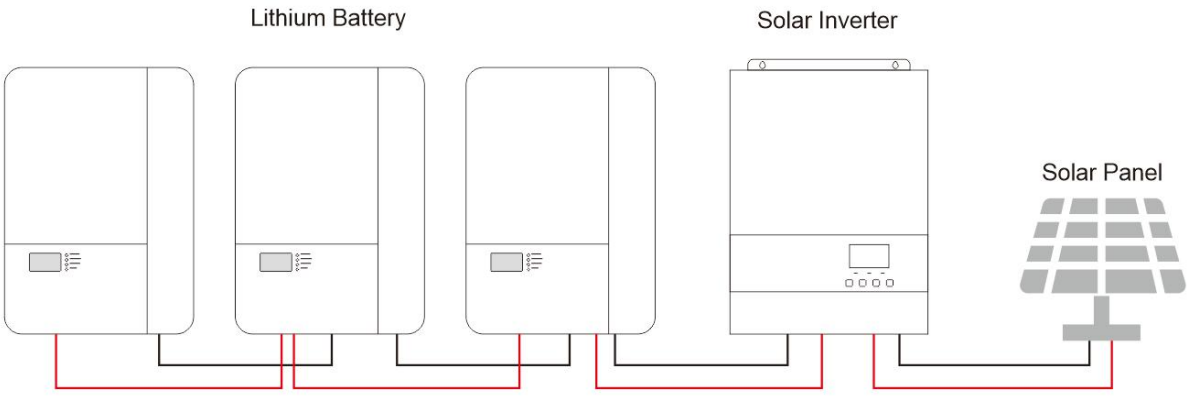
When Connect the batteries in parallel, connect the positive terminal and positive terminal(red colour) in parallel, and the negative terminal and negative terminal (black colour) in parallel, the max parallel quantity is 15pcs, as shown in the figure below：



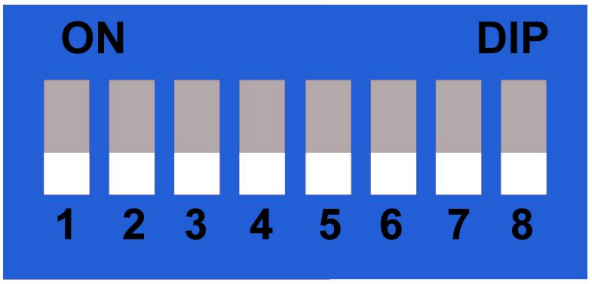
15pcs max in parallel

Model	Capacity	Max Parallel	Max Capacity
51.2V 50Ah	2.56 Kwh	15pcs	51.2V 750Ah 38.4Kwh
51.2V 100Ah	5.12 Kwh	15pcs	51.2V 1500Ah 76.8Kwh
51.2V 150Ah	7.68 Kwh	15pcs	51.2V 2250Ah 115.2Kwh
51.2V 200Ah	10.24 Kwh	15pcs	51.2V 3000Ah 153.6Kwh

Solar System Structure



2.3 Dial Code Switch Settings (parallel connection needed)



ON

OFF

When the battery packs are connected in parallel, the dial code switch of each battery can be used to distinguish different Pack addresses. The hardware address can be set through the dial code switch on the board.

*Bit1 to bit4 are used to set the slave address, while the host address is fixed to 0;

*Bit5 to bit8 are set according to the number of slaves in parallel, only the host battery needs to be set, the slave batteries are fixed in 0.

*The definition of the dial code switch refer to the following table.

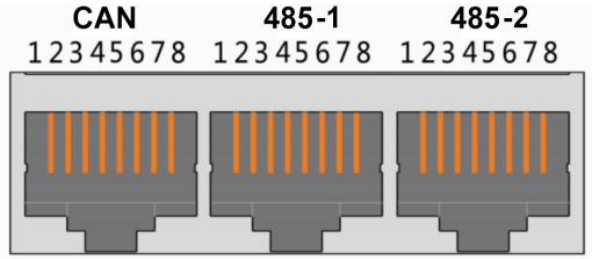
ADD	Dial switch position				Explain
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	No parallel connection, only 1 pcs
1	ON	OFF	OFF	OFF	Pack1
2	OFF	ON	OFF	OFF	Pack2
3	ON	ON	OFF	OFF	Pack3
4	OFF	OFF	ON	OFF	Pack4
5	ON	OFF	ON	OFF	Pack5
6	OFF	ON	ON	OFF	Pack6
7	ON	ON	ON	OFF	Pack7
8	OFF	OFF	OFF	ON	Pack8
9	ON	OFF	OFF	ON	Pack9
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

NO. Of Parallel	Dial switch position				Explain
	#5	#6	#7	#8	
2	ON	OFF	OFF	OFF	2 parallel
3	OFF	ON	OFF	OFF	3 parallel
4	ON	ON	OFF	OFF	4 parallel

5	OFF	OFF	ON	OFF	5 parallel
6	ON	OFF	ON	OFF	6 parallel
7	OFF	ON	ON	OFF	7 parallel
8	ON	ON	ON	OFF	8 parallel
9	OFF	OFF	OFF	ON	9 parallel
10	ON	OFF	OFF	ON	10 parallel
11	OFF	ON	OFF	ON	11 parallel
12	ON	ON	OFF	ON	12 parallel
13	OFF	OFF	ON	ON	13 parallel
14	ON	OFF	ON	ON	14 parallel
15	OFF	ON	ON	ON	15 parallel

2.4 Communication port

a)RS485/CAN main communication



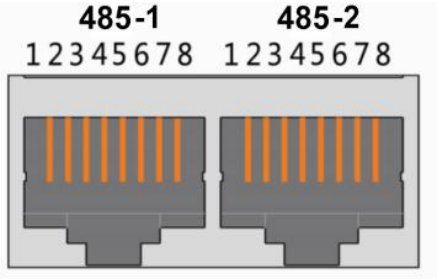
If you need to communicate with the monitoring device through RS485 or Can, the monitoring device will be used as the host, and the address setting range of other batteries will be 2~15 according to the polling data of the address.

The product adopts isolated communication design, supports RS485/CAN communication mode, RS485 communication default baud rate is 19200bps, the default baud rate of CAN communication is 500Kbps；

All pins of 485-1 and 485-2 connectors are parallel, so the interface definition is identical.

RS485 & CAN use 8P8C vertical RJ45 socket			
RS485 PIN	Define	CAN PIN	Define
1、3、8	RS485-B1	1、3、8	NC
2、7	RS485-A1	4	CANL
6	RS485-A2	5	CANH
5	RS485-B2	2、6、7	NC

b)RS485-1 and RS485-2 communication for parallel connection



With dual RS485 interfaces, the default baud rate is 19200bps. If you need to communicate the batteries in parallel with the monitoring device or inverter, you need to connect each battery with RS485-1 and RS485-2 ports, so the host battery can read the information of each battery.

2.5 LED Indication Function

The current power consumption and operation status of the product are shown through LED indicator Light Working status indication

system state	Protection / alarm / normal	RUN	ALM	Electric LED				explain
		●	●	●	●	●	●	
Shut down	dormancy	Extinguish	Extinguish	Total extinction				Total extinction
Standby	normal	Flash 1	Extinguish	Total extinction				position in readiness
	give an alarm	Flash 3	Flash 3					ALM and run lights flash simultaneously 3
charge	normal	Stay on	Extinguish	According to the power indication Maximum LED flash 2)				Maximum LED flash 2
	Over voltage alarm	Stay on	Extinguish					Maximum LED flash 2
	Over current alarm	Stay on	Flash 3	According to the electricity quantity indication				Maximum LED flash 2
	Over voltage protection	Stay on	Extinguish	Stay on				Run lamp: often on the city wire On, the power supply is in normal standby when offline state
	Over current protection (when the function of infinite current)	Extinguish	Stay on	Extinguish				
	Current limiting charging	Stay on	Extinguish	According to the electricity quantity indication				Maximum LED flash 2
discharge	normal	Flash 3	Extinguish	According to the electricity quantity indication				According to the indicator of the power normally on
	give an alarm	Flash 3	Flash 3					ALM and run lights flash simultaneously 3
	Protection of over current, short circuit, reverse connection, etc	Extinguish	Stay on	Extinguish				
temperature	Charging alarm	Stay on	Flash 3	According to the electricity quantity indication				Maximum LED flash 2
	Discharge alarm	Flash 3	Flash 3	According to the electricity quantity indication				According to the indicator of constant power on, ALM and run lights flash synchronously 3
	protect	Extinguish	Stay on	Extinguish				

Capacity Indicator

state	charge				discharge			
Capacity indicator	L1●	L2●	L3●	L4●	L1●	L2●	L3●	L4●
0~25%	twinkle	Extinguish	Extinguish	Extinguish	bright	Extinguish	Extinguish	Extinguish
25~50%	bright	twinkle	Extinguish	Extinguish	bright	bright	Extinguish	Extinguish
50~75%	bright	bright	twinkle	Extinguish	bright	bright	bright	Extinguish
75~100%	bright	bright	bright	twinkle	bright	bright	bright	bright
Operation indicator●	YES				Flash 3			

LED Flashing Instructions

Flash way	Bright	NO
Flash 1	0.25S	3.75S
Flash 2	0.5S	0.5S
Flash 3	0.5S	1.5S

Note:

The LED indicator alarm can be enabled or disabled through the host computer.

The factory default is enabled.

2.6 Sleep and wake-up mode

NO.	Dormancy condition	Wakeup condition	remarks
1	Normal standby for 48 hours	External power on voltage (36.0V ~ 56.4v), charging, reset button, soft switch.	Soft switch option
2	The lowest monomer voltage is lower than the monomer over discharge protection value (can be set) or the total voltage is lower than the overall over discharge protection value (can be set). After 10 minutes, it enters undervoltage sleep	External power on voltage (36.0V ~ 56.4v), charging, reset button, soft switch.	Soft switch option
3	Forced sleep is controlled by the upper computer	External power on voltage (36.0V ~ 56.4v), charging, reset button, soft switch.	Soft switch option

2.7 Reset key control function

It has activation / sleep / reset key, which can integrate activation and sleep functions. BMS has screening function and automatically enters sleep according to power, load and battery pack status.

NO.	Function	Definition
1	Power on / start	The BMS is in the sleep state. After pressing this key, the BMS will be started, and the LED indicator will flash in turn to turn into the normal working state.
2	Shutdown / hibernation	When the BMS is in the standby or discharge state, press this key for 3S, the BMS will be dormant, and the LED indicator will flash in turn to the dormant state.

3. Electrical Specification

(Unless there is special requirement, the test shall be done under temperature of 25±2℃ and with relative humidity of 45~85%.)

<table>
<tr><th>Items</th><th>Test Condition</th><th>Standard</th></tr>
<tr><td>3.1
Standard
Charge</td><td>The standard charge means charge the battery in temperature below 25±3℃with initial charge current of 10A(50Ah)/ 20A(100Ah)/ 30A(150Ah)/ 40A(200Ah) and with constant voltage of 57.6V, then charge with constant voltage of 57.6V and with floating current taper to 0.2A(50Ah)/ 0.5A(100Ah)/ 0.7A(150Ah)/ 1A(200Ah) cut-off (Charger should be exclusively designed for lithium battery, with an accuracy of ±0.05V) within 6 hours.</td><td>/</td></tr>
<tr><td>3.2
Standard
Discharge</td><td>After battery is charged fully in accordance with the standard and then discharge to voltage 43.2V with discharge current of 10A(50Ah)/ 20A(100Ah)/ 30A(150Ah)/ 40A(200Ah).The minimum gap time between charge and discharge period is 30 minutes.</td><td>Minimum Capacity ≥50/100/150/ 200Ah</td></tr>
<tr><td>3.3
Cycle Life</td><td>After the completion of standard charge and 30 minutes' rest, discharge with 80% DOD with constant current of 0.2C in the (25±3℃) environment, after 3000 cycles, rest it for 1 day and test the capacity in accordance with the above 3.2</td><td>Capacity≥80% Minimum Capacity</td></tr>
<tr><td>3.4
Discharge
Character</td><td>
<table>
<tr><td>Discharge current</td><td colspan="4">Discharge Temperature</td></tr>
<tr><td>0.2C</td><td>-10℃</td><td>0℃</td><td>25℃</td><td>40℃</td></tr>
<tr><td colspan="5">Batteries shall be charged according to 3.1 and discharged in accordance with the above mentioned temperature. The discharge capacity shall meet the standard. Batteries shall be stored for 6~8 hours at the test temperature</td></tr>
</table>
</td><td>At -10℃: Discharge Capacity≥50%

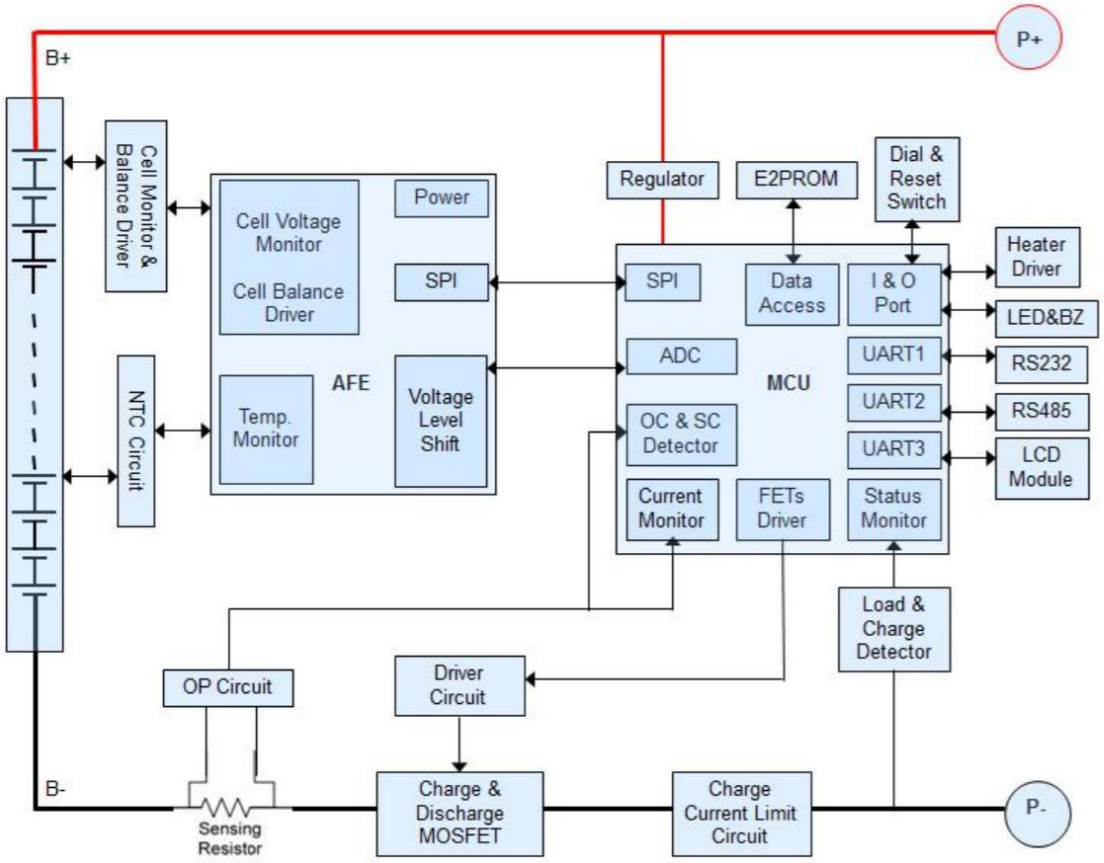
At 0℃: Discharge capacity≥80%

At 25℃ Discharge capacity≥100%

At 40℃ Discharge capacity≥100%</td></tr>
</table>

4. BMS

4.1 BMS System Schematic Diagram



4.2 BMS Parameter

No.	Item		51.2V 50Ah	51.2V 100Ah	51.2V 150Ah	51.2V 200Ah
1	Power Consumption	Low power consumption mode	≤100μA	≤100μA	≤100μA	≤100μA
2	Over charge Protection	Over charge detection voltage	3.7V	3.7V	3.7V	3.7V
		Over charge release voltage	3.38V	3.38V	3.38V	3.38V
3	Over discharge protection	Over discharge detection voltage	2.7V	2.7V	2.7V	2.7V
		Over discharge release voltage	2.95V	2.95V	2.95V	2.95V
4	Over current protection	Charging over current detection current (detection time)	27.5A (1S)	55A (1S)	82.5A (1S)	110A (1S)
		Discharging over current detection current 1 (detection time)	27.5A 1S	55A 1S	82.5A 1S	110A 1S
		Discharging over current detection current 2 (detection time)	≥75A 100ms	≥150A 100ms	≥150A 100ms	≥150A 100ms
5	Temp. Protection	Detection temperature	65±2℃	65±2℃	65±2℃	65±2℃
6	Balance	Balance voltage	3.55V	3.55V	3.55V	3.55V

5. Product Life

The design life of this product is 10 years.

6. Transportation

During transportation, please keep the battery from acutely vibration, impacting, over-exposure to the sun and drenching.

7. Storage

7.1 Storage environment requirement

Under temperature of 25±2℃ and relative humidity of 45~85%.

7.2 Storage term

The lithium battery must be charged every six months, and a complete charging and discharging period is required in every nine months.

8. Cautions

※The installation and debugging should be operated by professional electric personnel.

※Please do not stick your hands or other objects deep into the interior of the product.

※Please do not open the product without a professional around.

※Please do not mechanically damage the battery module of the energy storage cabinet (perforation, deformation, peeling, etc.).

※Please use dry powder extinguisher as extinguishing agent.

※Please do not let the storage cabinet battery module contact abnormal metals or conductors.

※Please do not use the product after short circuit occurs.

※Please do not expose the energy storage cabinet to flammable or hazardous chemicals or vapors.

Maintenance Record

Dear user.thank you for selecting our product,Please fill in and keep the warranty card for better services.

Attn:_____Product No.:_____

Tel:_____ E-mail:_____

Purchase Date:_____

Address:_____

Maintenance Record			
Date of repair	Content	Maintenance Personnel	Note