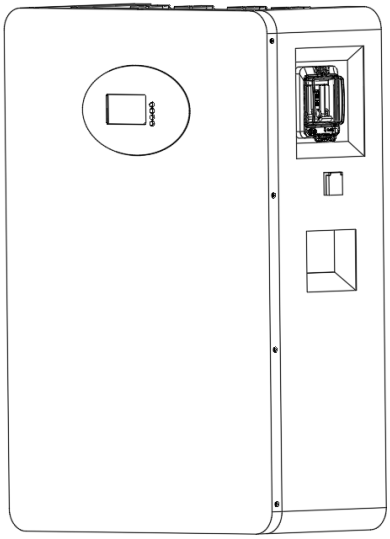
User Manual

Lithium Battery
Energy Storage System
（Wall-mounted）

Version: 1.0



25.6V/48V/51.2V-100Ah/200Ah/280Ah/314Ah

Contents

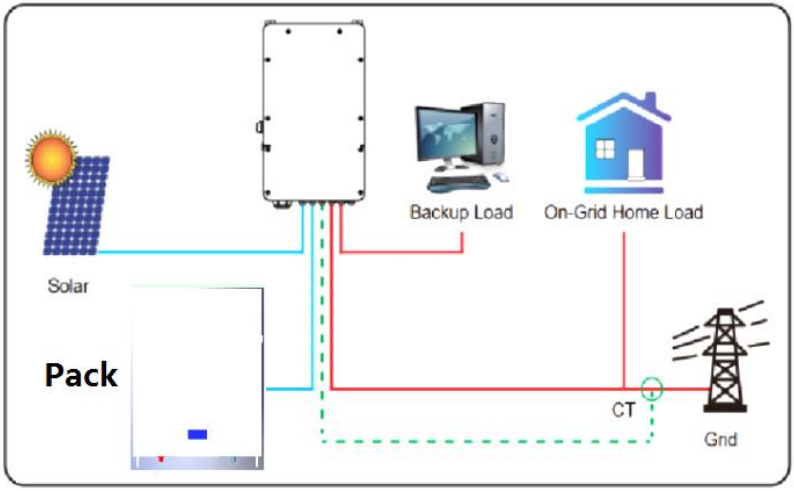
1. Safety Warning

Before using this product, please read this manual carefully. The safety precautions mentioned in this manual do not represent all safety precautions that should be observed, but can only be used as a supplement to all safety precautions. When installing, operating and maintaining equipment, local safety regulations and specifications shall be observed. Only trained professionals can install, operate and maintain the equipment. Our company will not be liable for any loss caused by violating the general safety operation requirements or the safety standards for design, production and use of equipment. The installation and maintenance personnel must have the technical ability of high-voltage and AC power operation. During installation, operation and maintenance, do not wear any conductive objects, such as watches, bracelets and rings. During transportation, installation and use, water and metal objects must be prevented from entering the battery.

1. High voltage hazard: direct contact or indirect contact with power supply through wet objects may cause fatal injury.
2. DC short circuit hazard: short circuit or reverse connection of positive and negative poles will damage the equipment and cause fatal injury.
3. Waterproof and moisture-proof: rain or moisture will cause short circuit and corrosion of the circuit board, causing the failure of the protective board.
4. Anti-static: static electricity generated outside the human body or equipment may damage the sensitive components of the internal circuit board.
5. Live operation is prohibited to prevent accidents.
6. Use special tools: when contacting DC high voltage or AC power supply, use special tools.
7. The battery shall be recharged every three months after long-term storage, so that its capacity is not less than 80%; When the capacity is less than 10%, it is necessary to charge in time.

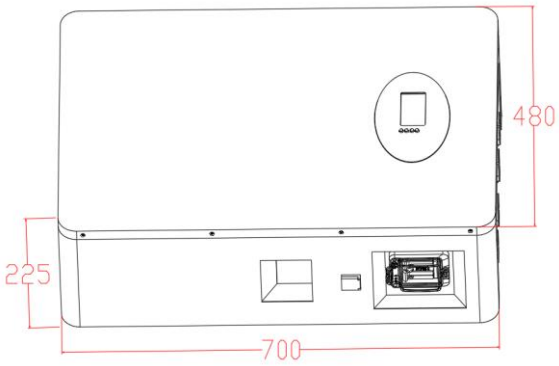
2. Product Introduction

This product is one of lithium iron phosphate household energy storage batteries provided by our company. It is widely used in photovoltaic energy storage systems and can be compatible with more than 70% of the inverters on the market (use schematic diagram is as follows). The internal battery management system (BMS) is equipped with multiple protection measures such as voltage protection, current protection, temperature protection, short circuit protection, cell balance, etc. It has the advantages of integration, miniaturization, lightweight, long life ant high safety factor.

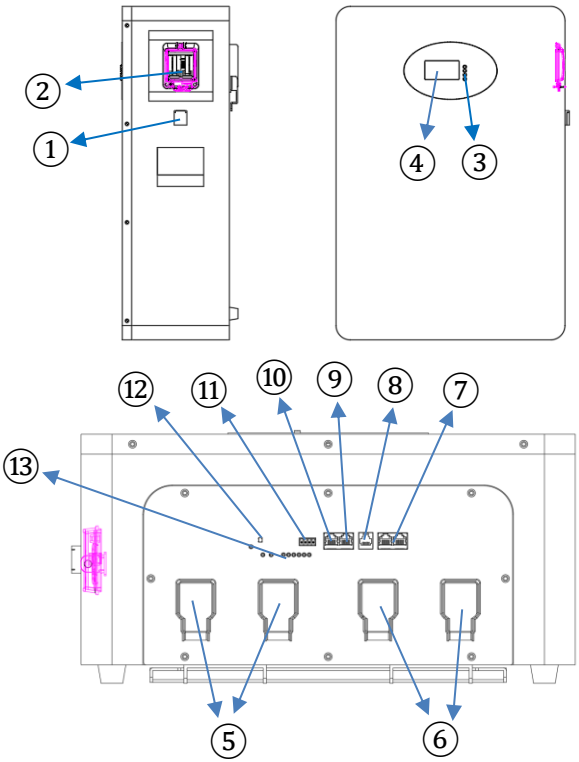


2.1 Product Picture

Note: Take 51.2V200Ah as an example, other models are only different in appearance.



2.2 Product Interface



2.2.1 Product Interface Definition

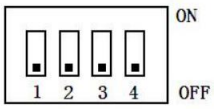
No.	Name	Screen printing	Definition
1	Power Switch	ON/OFF	Activate battery
2	air switch		output control
3	LCD keys		Check status of battery
4	LCD Screen		Display status of battery
5	Negative Electrode	P-	Connect the negative pole of the load or use it in parallel
6	Positive	P+	Connect the positive pole of load or used in parallel
7	Double RS485 interface	RS485-2	To use when parallel battery
8	RS232 interface	RS232	Host PC test
9	CAN interface	CAN	To connect CAN of inverter
10	RS485A interface	RS485-1	To connect RS485 of inverter
11	Main Contact	Main Contact	Main Contact 1-PIN1 to PIN2: normally on，off during fault protection. Main contact 2-PIN3 to PIN4:normally on, off during low capacity alarm
12	Reset Switch	RESET	
13	LED		Display battery level and status

2.2.2 Definition of Dial Switch

Note: Models without this dip switch are automatic dip switches, ignore this function.

When the PACK is used in parallel, the address can be set through the dial switch on the BMS to distinguish different PACKs.

It is necessary to avoid setting the same address. Refer to the following table for the definition of the BMS dial switch.



地址位(二进制) Address bit (binary)	说 明（Explain）				
	4	3	2	1	
0001(1)	OFF	OFF	OFF	ON	设置 PACK1 主机 (Set PACK1 to be used by a host)
0010(2)	OFF	OFF	ON	OFF	设置 PACK2 (Set PACK2)
0011(3)	OFF	OFF	ON	ON	设置 PACK3 (Set PACK3)
0100(4)	OFF	ON	OFF	OFF	设置 PACK4 (Set PACK4)
0101(5)	OFF	ON	OFF	ON	设置 PACK5 (Set PACK5)
0110(6)	OFF	ON	ON	OFF	设置 PACK6 (Set PACK6)
0111(7)	OFF	ON	ON	ON	设置 PACK7 (Set PACK7)
1000(8)	ON	OFF	OFF	OFF	设置 PACK8 (Set PACK8)
1001(9)	ON	OFF	OFF	ON	设置 PACK9 (Set PACK9)
1010(10)	ON	OFF	ON	OFF	设置 PACK10 (Set PACK10)
1011(11)	ON	OFF	ON	ON	设置 PACK11 (Set PACK11)
1100(12)	ON	ON	OFF	OFF	设置 PACK12 (Set PACK12)
1101(13)	ON	ON	OFF	ON	设置 PACK13 (Set PACK13)
1110(14)	ON	ON	ON	OFF	设置 PACK14 (Set PACK14)
1111(15)	ON	ON	ON	ON	设置 PACK15 (Set PACK15)

2.2.3 Definition of LED Indicator

系统状态	事件	MOS (LED9)	Run (LED8)	Alarm (LED7)	SOC(LED6~1)						说 明
					LED6	LED5	LED4	LED3	LED2	LED1	
State of system	Event	●	●	●	●	●	●	●	●	●	
关机(Power off)	休眠(Sleep)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	全灭(All LEDs turn off)
待机 static state	正常(Normal)	OFF	Flash1	OFF	参考表 4-11-2 Refer to table(4-11-2)						/
	告警(Alarm)	OFF	Flash1	Flash3							/
充电 Charging	正常(Normal)	OFF	ON	OFF							/
	告警(Alarm)	OFF	ON	Flash3							过充告警 ALM 不闪烁 The over-voltage alarm does not flash
	过压保护 (OV protect)	OFF	ON	OFF	ON	ON	ON	ON	ON	ON	/
	温度、过流、失效保护 (Temperature, Over-current, fail-safe)	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	/
放电 Discharging	正常(Normal)	OFF	Flash 3	OFF	参考表 4-11-2 Refer to table(4-11-2)						
	告警(Alarm)	OFF	Flash 3	Flash 3							
	欠压保护 (UV protect)	OFF	Flash2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	/
	过流、短路、温度、失效保护 (Over-current, short circuit, temperature, fail-safe)	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	/

2.2.4 Battery SOC Display Description (SOC Display Description)

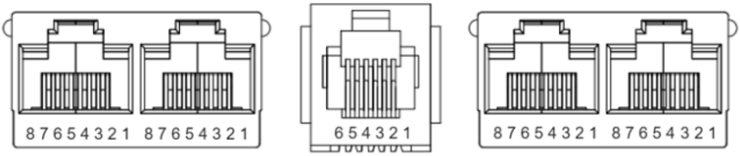
状态(State)			充电(Charging)						放电(Discharging)					
LED		LED6 ●	LED5 ●	LED4 ●	LED3 ●	LED2 ●	LED1 ●	LED6 ●	LED5 ●	LED4 ●	LED3 ●	LED2 ●	LED1 ●	
SOC(%)	0~16.6%	OFF	OFF	OFF	OFF	OFF	Flash2	OFF	OFF	OFF	OFF	OFF	ON	
	16.6~33.2%	OFF	OFF	OFF	OFF	Flash2	ON	OFF	OFF	OFF	OFF	ON	ON	
	33.2~49.8%	OFF	OFF	OFF	Flash2	ON	ON	OFF	OFF	OFF	ON	ON	ON	
	49.8~66.4%	OFF	OFF	Flash2	ON	ON	ON	OFF	OFF	ON	ON	ON	ON	
	66.4~83.0%	OFF	Flash2	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON	
	83.0~100%	Flash2	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	
RUN LED●		ON						Flash 3						

2.2.5 LED Flash(LED flash description)

闪烁模式(Flash Mode)	亮(ON)	灭(OFF)
Flash1	0.25S	3.75S
Flash2	0.5S	0.5S
Flash3	0.5S	1.5S

Note: The LED indicator warning can be enabled or disabled through the host computer. The factory default is enabled.

2.2.6 Definition of RS485/CAN/ RS232



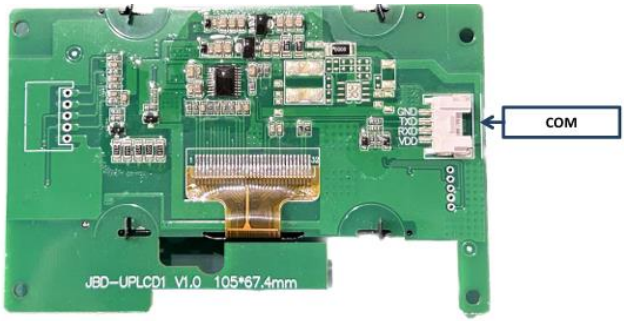
接 口 Connector	RS485-1		CAN1		RS323		RS485-2 * 2	
功能描述 Function	连接上位机或逆变器 (Connected PC or PCS)		连接上位机或逆变器 (Connected PC or PCS)		连接上位机 (Connected PC)		并机通信 (Parallel communication) * 2	
引脚说明 Pin specification	PIN	Description	PIN	Description	PIN	Description	PIN	Description
	1、8	RS485-B1	1、8	NC	1、2、6	NC	1、8	RS485-B2
	2、7	RS485-A1	2、7	NC	3	TX	2、7	RS485-A2
	4	NC	4	CANH1	4	RX	4、5	NC
	5	NC	5	CANL1	5	GND	3	IN(L)/OUT(R)
	3、6	GND	3、6	GND			6	GND

2.2.7 LCD Screen

2.2.7.1 Illustration

JBD-UPLCD1 V1.0

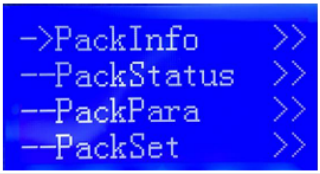
Number	Label	Function	Notes
1	Button 1	Main menu 主菜单	Start the screen or get back into the main page
2	Button 2	Enter 确认\进入当前选项	Select and get into the page
3	Button 3	Down 光标下移、循环滚动	Move the selection down
4	Button 4	Esc 退出	Escape from current page



Number	Label	Diagram	Function	Notes
1	COM	 HY2.0	UART - GND	B-
2			UART - TXD	
3			UART - RXD	
4			UART - VDD	12-20V

2.2.7.2 Pages description

HOME:



Name	Definition
Pack Info (Pack information)	此页面可以查看电压、电流、温度及其他数据。 This page allows you to view voltage, current, temperature, and other data.
Pack Status	此页面可以查看保护状态，保护次数，以及保护标志。 This page allows you to view the protection status, protection times, and protection flags.
Pack Para (Pack parameters)	此页面可以设置部分保护参数，暂未开放。 This page can set some protection parameters and is currently not open.
Pack Set (Pack settings)	此页面可以设置 BMS 的主机 RS485 协议或 CAN 协议。 This page allows you to set the host RS485 protocol or CAN protocol for BMS.

注：若未进行任何操作，系统会延时一分钟关闭。

Notes:

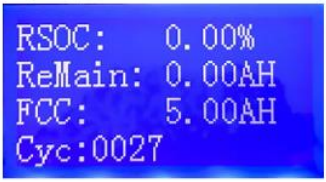
If there is no cooperation, the system will shut down for one minute.

Pack information:

•Vol(Voltage):电池组电压。Battery pack voltage

•Cur(Current): 充电/放电电流。Charging/discharging current

•Capacity:



•RSOC(Rest of state of capacity):剩余容量百分比。

•Remain: 剩余容量。

•FCC(Full charge capacity): 满充电容量。

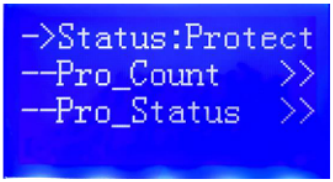
•Cyc(Cycle times):循环次数。

•Temp(Temperature):显示 BMS 所有探头的温度。.

•CellInfo(Cell Information):查看单节电压，单位为 mV。.

(The units of cell voltage are all in millivolt).

Pack Status



●Pro Count (Protection Count):不同保护标志的次数。.

●Pro Status(Protection Status):显示当前 BMS 产生何种保护标志。

Item	Definition
OVP	Over Voltage Protection(single cell) 单节过压保护
UVP	Under Voltage Protection(single cell) 单节欠压保护
POVP	Pack Over Voltage Protection 整组过压保护
PUVP	Pack Under Voltage Protection 整组欠压保护
COTP	Charge Over Temperature Protection 充电高温保护
CUTP	Charge Under Temperature Protection 充电低温保护
DOTP	Discharge Over Temperature Protection 放电高温保护
DUDP	Discharge Under Temperature Protection 放电低温保护
COCP	Charge Over Current Protection 充电过流保护
DOCP	Discharge Over Current Protection 放电过流保护
SCP	Short Circuit Protection 短路保护
LOCK	Soft Lock 软件锁定

Pack Settings

RS485(设置 BMS 主机 RS485 接口协议。)

CAN Bus(设置 BMS 的 CAN 接口协议。)

可选协议内容：

RS485	CAN BUS
RS485 - PYLON	CAN - Pylon
RS485 - GROWATT	CAN - VicTron
RS485 - Voltronic	CAN - GOODWE
RS485 - LXP	CAN - GROWATT
RS485 - DEYE	CAN - LXP
RS485 - INVT	CAN - DEYE
RS485 - SRNE	CAN - SOFAR
RS485 - OTHER	CAN - GINLONG
...	CAN - SMA
	CAN - MUST
	CAN - OTHER
	...

2.2.8 Bluetooth function

The communication module is connected to the protection board through the UART interface, and the Bluetooth broadcast corresponding to the communication module is connected using a mobile app After success, real-time information of the protection board can be viewed, configured, and related OTA operations can be performed.

2.2.8.1 Bluetooth configuration method

1.Open the app on your phone, click on "Add" in the upper right corner of the homepage.

2.Find the Bluetooth broadcast corresponding to the protection board SN from the device list, click and select the Bluetooth control method.

3.Connection successful, you can view the basic parameters and settings related to the protection board in real time through the page

2.2.9 WiFi function

The communication module is connected to the protection board through the UART interface, and the WIFI account and password information of the communication module is configured. The module is connected to the local WiFi wireless network, and can be used to view, configure, monitor, and perform OTA operations on the protection board information in real-time on the Jiabaida web management platform and mobile APP through this function.

2.2.9.1 WIFI usage method

Open the app, click on Add Device, select WIFI connection method, and enter 2.4G Hz WIFI Click on the network account password to connect.

Note: The communication module only supports 2.4g frequency band WIFI.

2.3 Product parameters

2.3.1 Environmental Parameters

BMSTheprotectiveplateallowsnormaloperationunderthefollowingconditions:

Ambient temperature:-20°C~75°C;

Relativehumidity:5%~90%;

Atmosphericpressure:86kPa~106kPa;

2.3.2 Electricity Parameters

功能名称 (Function name)	项目 (Project)	规格(Specification) 最小值 MIN	典型值 TYP	最大值 MAX	单位 (Unit)
单体过压 Cell Over Voltage	告警值(COV alarm value)	3580	3600	3620	mV
	告警恢复值(COV alarm release value)	3360	3380	3400	mV
	告警延时(COV alarm delay)	500	1000	2000	mS
	保护值(COV protect value)	3630	3650	3670	mV
	保护恢复值(COV protect release value)	3360	3380	3400	mV
	保护延时(COV protect delay)	500	1000	2000	mS
	过充保护释放条件 (Over-voltage release conditions)	1、最高单体低于恢复电压释放 (The highest monomer is released below the recovery voltage) 2、SOC 低于 98%释放 (Release SOC below 98%) 3、放电电流≥3A (The discharge current is greater than 3A)			
单体过欠压 Cell Under Voltage	告警值(CUV alarm value)	2680	2700	2720	mV
	告警恢复值(CUV alarm release value)	2880	2900	2920	mV
	告警延时(CUV alarm delay)	500	1000	2000	mS
	保护值(CUV protect value)	2480	2500	2520	mV
	保护恢复值(CUV protect release value)	2980	3000	3020	mV
	保护延时(CUV protect delay)	500	1000	2000	mS
	过放保护释放条件 (Under-voltage release conditions)	1、最低单体电压高于恢复电压释放 (the lowest single voltage is higher than the recovery voltage release) 2、充电电流≥1A 释放 (The charge current is greater than 1A)			
总压过压 Battery Over Voltage	告警值(BOV alarm value)	3.58*串数	3.6*串数	3.62*串数	V
	告警恢复值(BOV alarm release value)	3.36*串数	3.38*串数	3.40*串数	V
	告警延时(BOV alarm delay)	500	1000	2000	mS
	保护值(BOV protect value)	3.63*串数	3.65*串数	3.67*串数	V
	保护恢复值(BOV protect release value)	3.36*串数	3.38*串数	3.40*串数	V
	保护延时(BOV protect delay)	500	1000	2000	mS
	过充保护释放条件 (Over-voltage release	1、总压低于恢复电压释放 (The total voltage is lower than the recovery			

	conditions)	voltage release) 4、放电电流电流>3.0A (The discharge current is greater than 3A)			
总压欠压 Battery Under Voltage	告警值(BUV alarm value)	2.68*串数	2.70*串数	2.72*串数	V
	告警恢复值(BUV alarm release value)	2.88*串数	2.90*串数	2.92*串数	V
	告警延时(BUV alarm delay)	500	1000	2000	mS
	保护值(BUV protect value)	2.48*串数	2.5*串数	2.52*串数	V
	保护恢复值(BUV protect release value)	2.98*串数	3.0*串数	3.02*串数	V
	保护延时(BUV protect delay)	500	1000	2000	mS
	过放保护释放条件 (Under-voltage release conditions)	1、总压高于恢复电压释放 (The total voltage is higher than the recovery voltage release) 2、充电电流电流>1.0A (The charge current is greater than 1A)			
充电过流 Over current Charge	告警值(OCC alarm value)	见表 3.3(See Table 3.3)			A
	告警延时(OCC alarm delay)	1000	2000	4000	mS
	过流 1 保护值(OCC1 protect value)	见表 3.3(See Table 3.3)			A
	过流 1 级保护延时(OCC1 protect delay)	1000	2000	4000	mS
	过流 2 保护值(OCC2 protect value)	见表 3.3(See Table 3.3)			A
	过流 2 级保护延时(OCC2 protect delay)	250	500	1000	mS
	过流恢复延时(OCC release delay)	590	600	610	S
	过流恢复释放条件 (Over current Charge release conditions)	1、延时自动恢复，延时时间可设置 (Automatic recover ,The delay time can be set) 2、放电电流>3.0A (The discharge current is greater than 3A)			
放电过流 Over current Discharge	告警值(OCD alarm value)	见表 3.3(See Table 3.3)			A
	告警延时(OCD alarm delay)	1000	2000	4000	mS
	过流 1 保护值(OCD1 protect value)	见表 3.3(See Table 3.3)			A
	过流 1 级保护延时(OCD1 protect delay)	1000	2000	4000	mS
	过流 2 保护值(OCD2 protect value)	见表 3.3(See Table 3.3)			A
	过流 2 级保护延时(OCD2 protect delay)	100	200	1000	mS
	过流锁定次数(OCD2 lock	-	3	-	次

	times)				
	过流恢复延时(OCD release delay)	55	60	65	S
	过流恢复释放条件 (Over current Charge release conditions)	1、延时自动恢复，延时时间可设置 (Automatic recover ,The delay time can be set) 5、充电电流>1.0A (The Charge current is greater than 1A)			
短路保护 Short Circuit Discharge	短路保护电流 (Short circuit protection current value)	见 3.3 电流配置表(See Table 3.3)			A
	短路保护延时 (Short circuit protection delay time)	/	≤100	/	uS
	短路保护恢复 (Short circuit protection recovery)	延时 1min 后自动恢复,3 次后锁定 或充电恢复 (Automatic recover after a delay of 1min,locks after three times or charging)			
	短路功能测试条件：外接短路电阻 80-100 毫欧空开测试。 (Short circuit protection function test condition:80mR<external load<100mR,connect air circuit breaker for test.)				
	短路说明 1：用我司内部电芯测试有短路保护，批量前请客户端务必提供实际应用电池组做短路测试，建议按实际应用环境进一步评估。 (Short-circuit description: Use our internal battery cells to test for short-circuit protection. Before bulk production, please ensure that the client provides the actual application battery pack for short-circuit testing. It is recommended to further evaluate according to the actual application environment.)				
	短路说明2：短路电流小于最小值或高于最大值可能会造成短路保护失效，短路电流超过2000A，不保证有短路保护，也不建议做短路保护测试。 (Short-circuit description: The short-circuit current is less than the minimum value or higher than the maximum value, which may cause the short-circuit protection to fail, and the short-circuit current exceeds 2000A, short-circuit protection is not guaranteed, and short-circuit protection testing is not recommended.)				
充电高温 Over temperature Charge	告警值(OTC alarm value)	52	55	58	℃
	告警恢复值(OTC alarm release value)	47	50	53	℃
	保护值(OTC protect value)	62	65	68	℃
	保护恢复值(OTC protect release value	47	50	53	℃
充电低温 Under temperature Charge	告警值(UTC alarm value)	2	5	8	℃
	告警恢复值(UTC alarm release value)	7	10	13	℃
	保护值(UTC protect value)	-3	0	3	℃
	保护恢复值(UTC protect release value)	2	5	8	℃

放电高温 Over temperature Discharge	告警值(OTD alarm value)	52	55	58	℃
	告警恢复值(OTD alarm release value)	47	50	53	℃
	保护值(OTD protect value)	62	65	68	℃
	保护恢复值(OTD protect release value)	47	50	53	℃
放电低温 Under temperature Discharge	告警值(UTD alarm value)	-18	-15	-12	℃
	告警恢复值(UTD alarm release value)	-13	-10	-7	℃
	保护值(UTD protect value)	-23	-20	-17	℃
	保护恢复值(UTD protect release delay)	-18	-15	-12	℃
MOS 高温保护 Over temperature protection of MOS(Built-in)	告警值(OTM alarm value)	92	95	98	℃
	告警恢复值(OTM alarm release value)	77	80	83	℃
	保护值(OTM protect value)	102	105	108	℃
	保护恢复值(OTM protect release value)	82	85	88	℃
环境高温 Over temperature protection of environment	告警值(OTE alarm value)	67	70	73	℃
	告警恢复值(OTE alarm release value)	57	55	63	℃
	保护值(OTE protect value)	72	75	78	℃
	保护恢复值(OTE protect release value)	67	70	73	℃
压差过大 Over voltage differentials	告警值(VDIFF alarm value)	550	600	650	mV
	告警恢复值(VDIFF alarm release value)	450	500	550	mV
	保护值(VDIFF protect value)	750	800	850	mV
	保护恢复值(VDIFF protect release value)	450	500	550	mV
SOC 过低 Under SOC	告警值(LSOC alarm value)	/	10	/	%
	告警恢复值(LSOC alarm release value)	/	15	/	%
均衡功能 (Balance Function)	均衡开启电压 (Balance function turn-on voltage)	3.38	3.40	3.42	V
	开启压差 (Difference opening voltage value)	/	30	/	mV
	均衡电流 (Balance current)	20	60	80	mA

	均衡模式 (Balance model)	静态均衡/充电均衡(默认) (Idle equalization/charging equalization(default))
	均衡类型 (Balance type)	脉冲模式 (Pulsed model)

注：测试需在温度 25±2℃，相对湿度 65±20% 的环境。

Note: Test should be at temperature25±2°C, and relative humidity 65±20% of surroundings.

3. Product List

Battery Pack(bracket included)	communication cable(0.6m)	Battery cable(1.5m)	Manual
			

4. Installation Instructions

4.1 Necessary installation Tools

Multi-meter, Screw driver, RS232/USB+screw terminal, Personal anti-static clothing, drill, expansion screws










4.2 Selecting Mounting Location

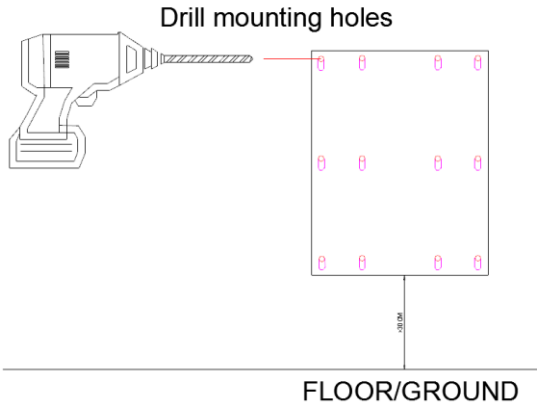
Consider the following points to install the energy storage Pack:

- Do not mount the Pack on flammable construction materials.
- Install this Pack module at eye level in order to allow the readability of LCD display at all times.
- For proper air circulation to dissipate heat, please leave a gap of about ＞0.3 meter from the ground,30 cm from the side of the device.
- The ambient temperature should be between 0°C and 40°C and relative humidity should be between 25% and 85% to ensure optimal operation.
- The recommended installation is Vertical installation.
- Install the battery module in a dry, protected area with no excessive dust and sufficient air circulation. Do not operate in locations where the temperature and humidity are outside the specified range.

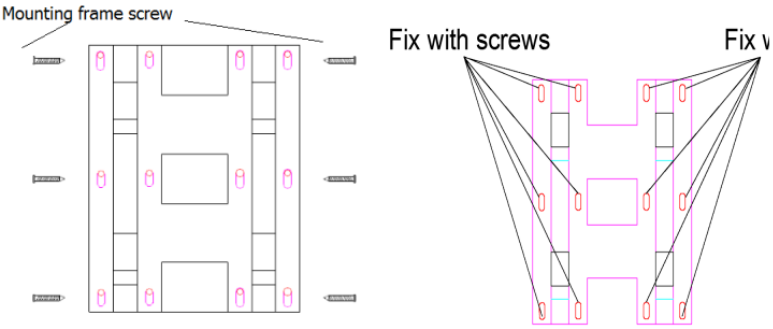
4.3 Installation Steps

4.3.1 Ensure that the Pack is installed on the wall surface. Choose a suitable installation location and require the battery pack to be placed at a safe distance greater than 30cm from the ground and the safety distance between battery packs is also greater than 30cm.We recommend an installation distance is 50cm.(For other PV lines and converter lines, please consult the corresponding suppliers.）

4.3.2 Use the mounting bracket to mark the location of the positioning screw hole on the wall, and use an electric drill to drilling the hole. Need to be drilled with a drill of appropriate diameter.



4.3.3 Insert frame screws, then place the bracket and use screws to lock it(Please make sure it is firm)

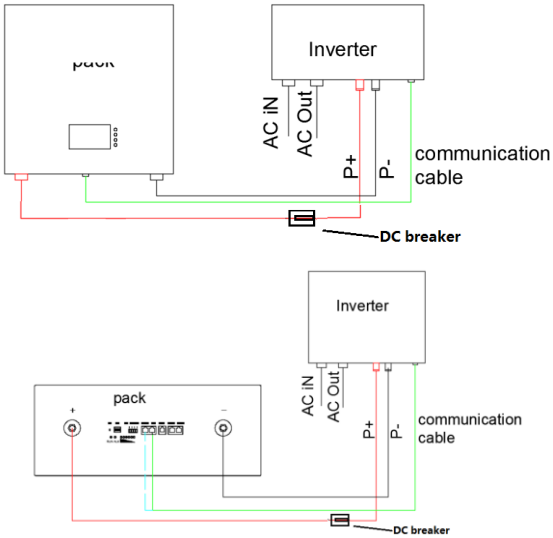


4.3.4 Please ensure that the battery is turned off and the main switch of the inverter is disconnected. Hang the battery and inverter on the wall, As shown as below,

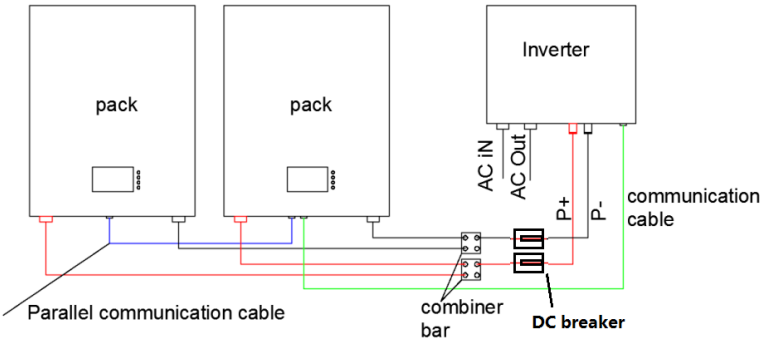
4.3.5 Connect the battery ground wire: fix one end of the wire at the battery ground wire connection, and the other end of the wire on the equipment that is connected to the ground, or directly buried in the ground.

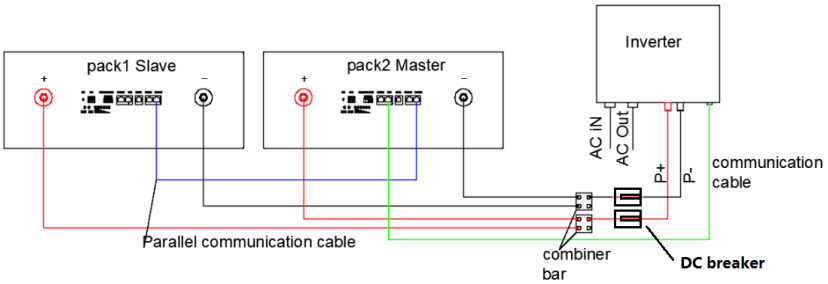
4.3.6 Schematic diagram of different proportion of pack and inverter
（Refer to schematic diagram to connect communication cable and power cable）

1. pack:inverter=1:1

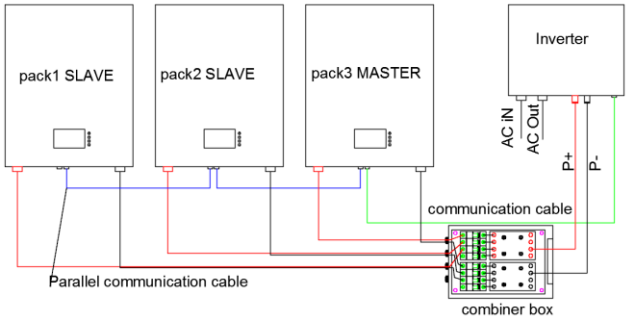


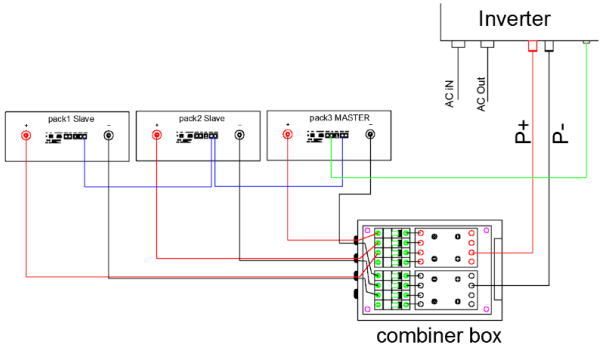
2 pack:inverter=2:1. Pack 1 is slave , Pack 2 is master.The length of the negative and positive power lines is the same.



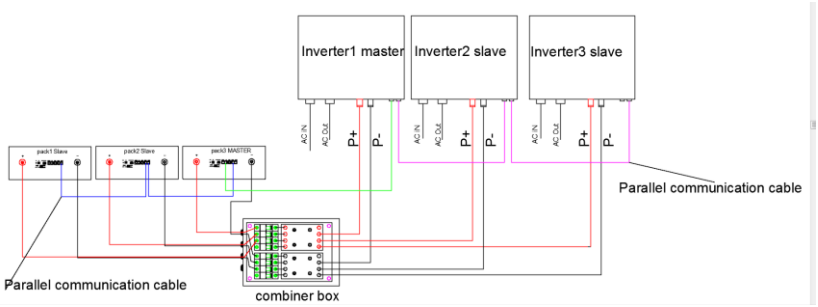


3 Pack:Inverter=3:1,Pack 1 and Pack 2 is slave, Pack 3 is master.More packs is paralleled, one pack is master, the other are slave.The negative and positive power lines have same functions.



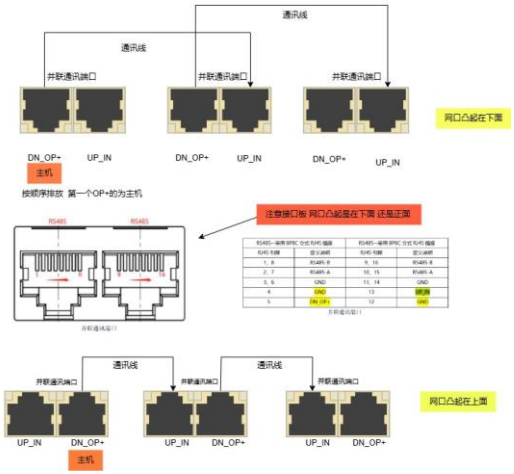


4 Pack:Inverter=3:3, Mainly wiring for 3-phase inverter. Pack 1 ,2 is slave, pack 3 is master. more packs are paralleled, one pack is master, other are slave. 3-phase inverter output 380VAC.One inverter is master, other are slave .Please refer to the operation manual of the inverter for the parallel connection method of the inverter, there is only an example.



4.3.7 Setting the address of the battery pack ,refer to the table in 2.2.2 for the definition of the BMS dial switch.

4.3.8 Connect the parallel communication cable (yellow network line).Any Pack has 2 PCS RS485B port for parallel communication, 1 PCS RS485A and 1PCS CAN port for inverter or other device.RS232 port only used for host software and update the firmware.



4.3.9 To start battery packs. Confirm that the wiring is correct, then you can start the battery. Press ON/OFF for 3 seconds to start the pack.

4.3.10 Running the device, set the external charger or inverter parameters, please set according to the corresponding operation manual. Can not exceed the rated parameter requirements. Refer to 2.3.2

4.3.11 Monitor all running status, and record all parameters. If there are any mistake, please record it .After start the system, every pack is on ,and RUN-led indicate these status.

4.3.12 Stop running battery pack.

When it is necessary to stop the charging and discharging of the battery or troubleshooting, please stop the external equipment first, cut off the input and output circuits, and then press the power switch off each battery pack.

5. Host software interface

6. Troubleshooting

6.1 Battery pack stop work.

A: Turn on switch, be sure it is ON; if battery is low SOC, it need to charge.

B: Battery pack low volt or enter sleep mode, there you will press down "RST" button for 3-6 seconds, or charge .

6.2 No communication , inverter can not received any DATA from BMS.

A : Check whether if communication cable is OK, check RJ45 PIN,

CAN :PIN4:CANH,485A-A,
PIN5:CANL; 485A-B
RS485A:PIN2:485A-A,
PIN1:485A-B;

B: Replace the communication line. Please give feedback to the dealer and exchange it.

C: Check inverter or other device which connect to BMS, update it is firmware.

D: If the communication function needs to be upgraded, please consult the agent or manufacturer.

E: Confirm your inverter and battery protocol is correct. Different protocol or different connection will make a mistake.

6.3 Battery pack report SOC is mistake.

A: inverter received Data from Master BMS , but it is SOC <total SOC, sample as :9PCS packs has 1800Ah,but inverter read DATA is 1600Ah.So you may check any one is disconnected. check RS485B communication cable(yellow),RS485 communication cable ,replace the cable which is broken.

B: SOC DATA has Large tolerance.
Discharge empty the battery first, then charge it fully with a small current, and learn to discharge. Any pack is mistake ,we advice you read the BMS Data(When we authorize the terminal to use) with host software.then we reset the BMS and calibration.

C: When multiple batteries are connected in parallel, the SOC is different.

We recommend that each pack has a small current discharged and it is emptied until the SOC alarm appears, and then recharged in parallel and fully charged.

6.4 How to turn on the Pack to discharge.

we recommend method is :

A: reset the single pack's BMS,LED will flash and start work

B:turn on the power switch on the bottom/front panel;

C:turn on power switch in the combiner box .

WARNING：The operating parameters of the equipment cannot exceed the rated working voltage and current of the Pack，exceed the rated volt and current, Can cause damage to the Pack or other failures.

6.5 Inverter or other external device can not connect the battery.

we recommend,

A: Check whether the working parameters of the device and battery are appropriate, and improper parameters cannot be matched.

B: When the device is turned on, the current is too large, resulting in battery protection. At this time, you should be able to see the LED flashing from the battery panel.in this case, You can adjust your equipment parameters or contact the dealer to solve.

C: It is necessary to update BMS parameters and match the device, then Reset BMS and restart your device.

6.6 Replace bad Pack

It is necessary to replace bad battery pack . Please contact your supplier，and it needs professional installers to operate it .We recommend replace all or make packs have same voltage and same specification batteries.

NOTE: When replacing the battery, the same module needs to be replaced at the same time, and the voltage should be the same.

6.7 Need to replace spare parts or emergency maintenance

Some parts can be obtained from the sales or agency, and the excess parts need to be purchased separately. Be careful, turn off the power switch before replacing parts.

6.8 Need to place some safety device for keep a safe environment. You'd better keep a safe case for Pack and external device. Please place safety device such as :fire-fighting sand, fire-fighting blankets, fire-fighting water pipes .Install Monitor sound, light, electricity, smoke and other equipment.

7. Warning

Emergency process:

1 .The external device catches fire and explodes:

A: Under the condition of ensuring safety, non-operating personnel immediately move to a safe location;

B: Under the condition of ensuring safety, the operator immediately cut off the external power supply of the equipment and the internal power supply.

C:Use fire-fighting equipment for fire-fighting treatment (the use of fire-fighting sand, fire-fighting blankets, fire-fighting water pipes)

D:If you cannot completely extinguish the fire, please call the local fire department for help.

E:Keep the accident site data so that the source of the accident can be traced.

2 .The Pack catches fire and explodes:

A: Under the condition of ensuring safety, non-operating personnel immediately move to a safe location;

B: Under the condition of ensuring safety, the operator immediately cut off the external power supply of the equipment and the internal power supply.

C:Use fire-fighting equipment for fire-fighting treatment (first the use of fire-fighting sand, fire-fighting blankets, then fire-fighting water pipes for cool the Pack)

D:If you cannot completely extinguish the fire, please call the local fire department for help.

E:Keep the accident site data so that the source of the accident can be traced.