Shenzhen Braun Power Energy Storage Co., Ltd.

48V Low VoltageHomeEnergyStorage

Battery User Manual



Shenzhen Braun Power Energy Storage Co., Ltd.

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1、 Important Safety Procedures

Save these important security instructions

Important Notice: This product shall not be used for any purpose other than those specified in this user manual.

The installation and maintenance of this battery pack require knowledge of high-voltage electricity and must be performed exclusively by qualified personnel. No liability shall be assumed for injuries or property damage resulting from attempts by non-professionals to repair the device or failure to adhere to these instructions. These warnings and precautions must be strictly observed during battery usage.

Compliance in This Document

This manual uses the following compliance criteria to highlight important information:



warn indicates a dangerous situation that, if not avoided, may result in death or serious injury.



prudent Indicates that damage or injury may occur, and in such cases, if not avoided, may result in minor injuries or property loss.



pour： indicates the risk that the product may be damaged.



warning message

- Battery installation must be performed by trained personnel with knowledge of high-voltage electricity or licensed installers.
- In power regulation circuits, the risk of electric shock or burns is significantly high due to excessively high voltage.
- High voltage on AC and DC cables poses risks of fatal electric shock and severe burns.
- If you have not read or fully understood the appropriate safety precautions, this product may pose potential hazards such as death or severe injury caused by fire, high pressure, or explosion.
- Flammable and explosive materials must not be placed near products.
- All operations related to photovoltaic systems, power regulation, and battery systems must be performed by qualified personnel.
- Electrical installations must comply with local and national electrical safety standards.
- Do not remove the product cover as it poses an electric shock hazard. If removal is necessary, consult your local distributor or licensed technicians.

Service: Do not touch uninsulated wires.

- If the product malfunctions and the system fails to start, maintenance must be performed by qualified personnel or authorized support center staff.



Warning Message

- The battery and its accessories are included in this box. Given their significant weight, special care must be taken during handling, ensuring that the package is transported and moved by two individuals.
- Do not use damaged, worn, or broken cable wires. Protect cables from physical and mechanical damage, such as twisting, snagging, or trampling. Regularly inspect product cables. If visible damage or deterioration occurs, discontinue use of this product immediately.Contact qualified personnel to replace the cable.
- This product should not come into contact with water, nor should items filled with liquids be placed on the product.
- To prevent the risk of fire or electric shock, do not expose the product to rainwater or moisture.
- Keep away from children or animals.
- Do not step on the product or its packaging, as the product may be damaged.
- Do not discard batteries during a fire, as batteries may explode.



Note

- Before connection, ensure the open-circuit voltage of the photovoltaic array falls within the acceptable range for the inverter compatible with the product; otherwise, it may cause damage to the product.
- Do not use any solvents, abrasives, or corrosive substances to clean this product.
- Before connecting the product to the inverter terminals, ensure that the product is disconnected, the inverter is disconnected, and both the mains power supply and photovoltaic circuit are disconnected.
- The product transportation process should be as stable as possible to avoid exposure to environments with severe vibrations.

2、 Maintenance and Care

Environmental Requirements

The battery may be charged within the specified operating temperature range. During extreme temperature conditions, power output may be limited during charging or discharging to enhance battery lifespan.

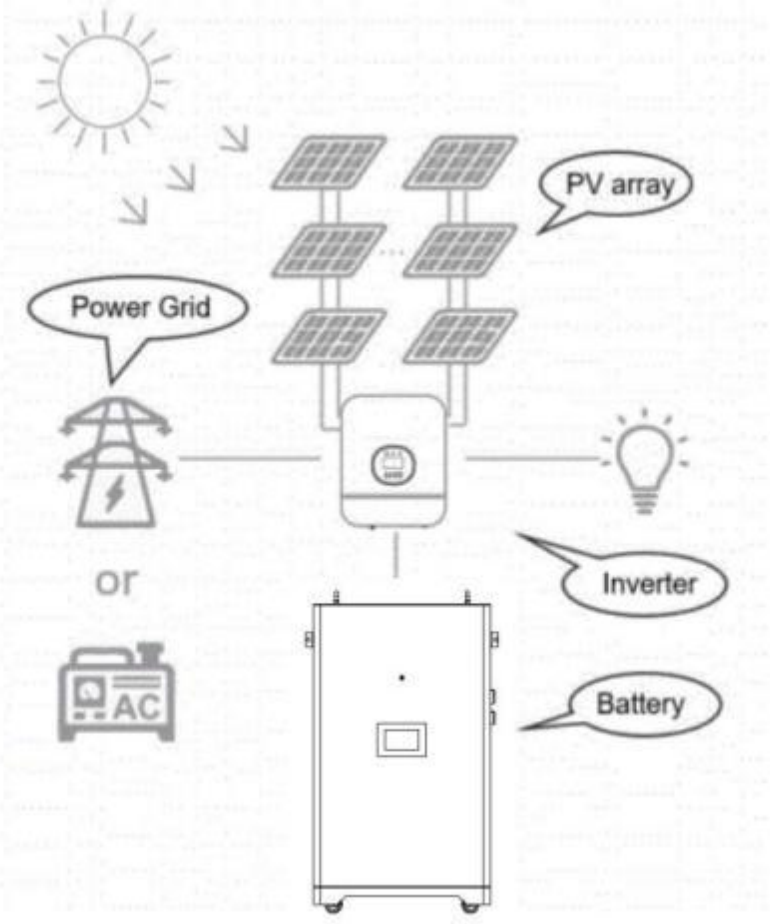
Battery pack operating temperature	Charging: 0°C-55°C Discharge: -20°C to 60°C
Battery pack storage temperature	-10℃-45℃

Nursing and Cleaning

- When cleaning the battery pack, use a soft, non-flocked cloth, preferably a dry soft cloth.
- Do not clean the powder with cleaning solvents, or expose it to flammable chemicals or vapors.

3、 Product Overview

This product is primarily designed to form an energy storage system in combination with inverters, photovoltaic (PV) modules, and related accessories. The system is used to store the electrical energy generated by PV into connected batteries, convert the direct current (DC) produced by these batteries into alternating current (AC), and supply it to the household power grid.



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This product is a lithium-ion battery capable of storing electrical energy and delivering direct current (DC). The battery maintains an electrical connection with the inverter, which converts photovoltaic (PV) generated electricity into DC and stores it in the connected battery. When power is required, the battery's stored energy is converted from DC to alternating current (AC) through the inverter and fed into the household power grid to supply electricity for household appliances.

Product basic parameters

Project	Essential parameter
Product model	52.2V314AH
Rated voltage （V）	51.2
Operating voltage range (V)	43.2-57.6
Rated capacity （Ah）	300
Rated energy （WH）	16076
Compound mode	1P16S
Charging cutoff voltage (V)	57.6
Discharge cutoff voltage (V)	43.2
Operating temperature range (°C)	-20～60℃
Recommended charging current (A)	50
Maximum continuous charging current (A)	200
Maximum continuous discharge current (A)	200
Product size （mm）	850*500*255mm
Net product weight (kg)	124KG

Functions of Home Energy Storage Systems

- Independent production and sales of electricity

  Utilize solar energy and batteries to reduce dependence on the power grid, and store electricity during the day for nighttime use.
- back up power

  When the power grid experiences a blackout, it can seamlessly switch to batteries as a backup power source to protect your home from power outages.
- Electricity sales

  The electrical energy generated by photovoltaic arrays is stored in battery systems or sold to energy companies with demand.

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Product Bill of Materials



battery



Wall mounting fixture



setscrew



Positive and negative electrode cable lines



screw



Inverter communication line, parallel line

Name	Explain
Battery	Energy storage battery
Wall fastener X2	For fixed battery packs
Expansion screw X2	Fixed battery on the wall
Positive and negative cable X2	Cable for connecting to the inverter
Screw X4	For securing cable lines at terminals
Inverter communication line X1	For communication with inverters
Parallel line X1	Communication between batteries and between batteries
Host computer line X1	Communication between batteries and computers
User Manual X1	Customer Operation Manual

Product Installation

- Tools required for installation



churn drill



electric wrench



There are many electric screws.



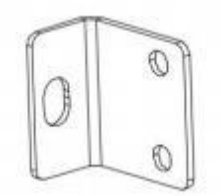
hammer



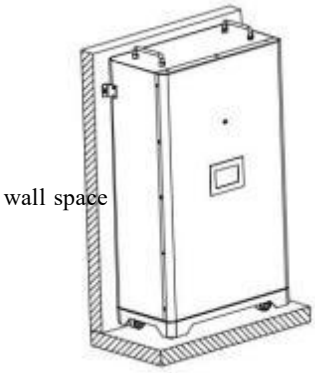
bolt driver

NO.	Name	Explain
1	Churn drill	Drilling holes in the wall
2	Electric wrench	Locking expansion screw
3	Electric screw driver	Clamp screw
4	Hammer	Hammer tool
5	Bolt driver	Clamp screw

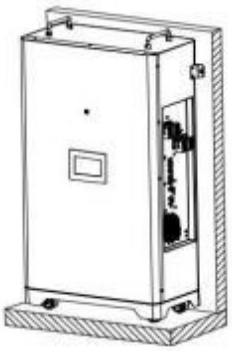
- Installation Assembly Instructions



Wall mounting fixtures



the earth's surface



the earth's surface

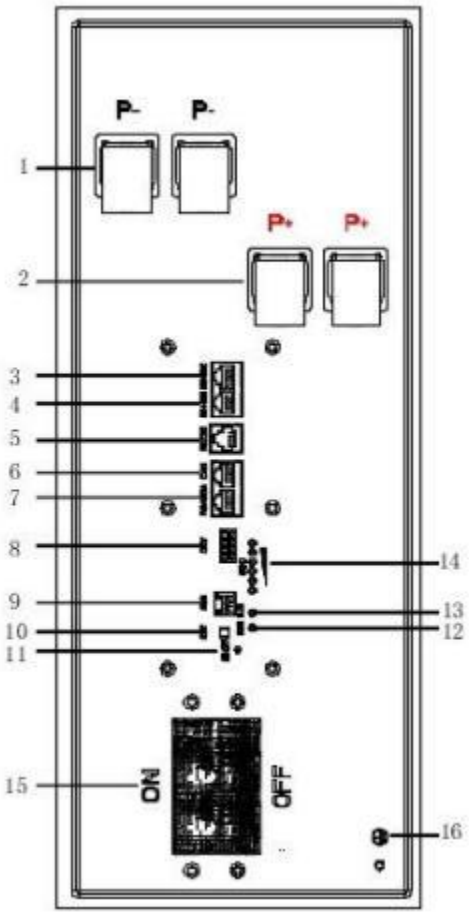
The installation of this product must meet the following requirements.

- This product is recommended for indoor installation. If installed outdoors, it must be ensured that the product is protected from direct sunlight, liquid exposure, or strong wind in all circumstances.
- This product is designed for vertical installation on walls or floors. Do not place it flat on the ground.
- The applicable operating temperature range of this product is 0℃ to 55℃.

- Do not install this product in areas where flooding frequently occurs.
- Do not install this product in areas with vibration.
- Do not install this product in locations containing ammonia, corrosive vapors, acids, or salts.
- Do not install this product in environments with high dust concentrations.

4、 Interface Definition

Battery Interface Panel Definition



NO.	Name	Explain
1	P−	Battery negative electrode output
2	P+	Battery cathode output
3	RS485C	Parallel communication port C
4	RS485B	Parallel communication port B
5	RS232	232 Communication Port
6	CAN	Communicate with the inverter
7	RS485A	Communicate with the inverter
8	DRY	Dry contact point
9	ADD	Address settings
10	RST	Reset button
11	ON/OFF	Power light
12	RUN	Operation indicator light
13	ALM	Fault indicating lamp
14	SOC	Battery indicator light
15	ON/OFF	Killer switch
16	GND	Landing

LED Status Indicator Light

状态(status)		充电(charging)					放电(discharge)				
容量指示灯(capacity indicator light)		L5	L4	L3	L2	L1	L5	L4	L3	L2	L1
电量(Electric quantity)%	0~20%	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
	20~40%	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON
	40~60%	OFF	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON
	60~80%	OFF	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	80~100%	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
备注：ON代表LED状态为亮，OFF代表LED状态为熄灭 Note: ON indicates that the LED is on, OFF indicates that the LED is off											

状态(status)		充电(charging)					放电(discharge)				
容量指示灯(capacity indicator light)		L5	L4	L3	L2	L1	L5	L4	L3	L2	L1
电量(Electric quantity)%	0~20%	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
	20~40%	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON
	40~60%	OFF	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON
	60~80%	OFF	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	80~100%	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
备注：ON代表LED状态为亮，OFF代表LED状态为熄灭 Note: ON indicates that the LED is on, OFF indicates that the LED is off											

状态（status）	正常/告警/保护(Normal, alarm, or Protection)	ON/OFF指示	RUN	ALM	L1	L2	L3	L4	L5	L6	说明(Instructions)
关机(Power Off)	正常(normal)	OFF									
Balance	正常(normal)	ON	闪烁(flicker)	OFF	依据电量显示(Battery based display)					OFF	
充电(charging)	正常(normal)	ON	闪烁(flicker)	OFF	依据电量显示(Battery based display)					OFF	
	过流\过温\过压\充电失败(Over current, over temperature, over voltage, charging failure)	ON	闪烁(flicker)	闪烁(flicker)	依据电量显示(Battery based display)					OFF	

放电 (discharge)	正常(normal)	ON	闪烁 (flicker)	OFF	依据电量显示(Battery based display)	OFF	
	过流\过温\欠压\放电失败(Over current, over temperature, under voltage, discharge failure)	ON	闪烁 (flicker)	闪烁 (flicker)	依据电量显示(Battery based display)	OFF	
其他告警 (Other alarm)	密码未修改\短路\温度异常 (Password not changed \ short circuit \ temperature	ON	闪烁 (flicker)	闪烁 (flicker)	依据电量显示(Battery based display)	OFF	

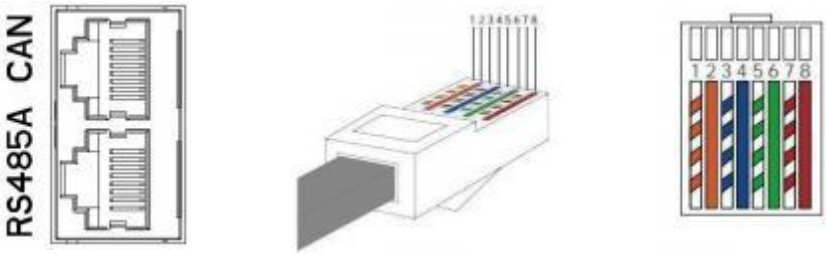
备注：当设备地址设置为0时做主机，最后一颗LED灯 L6闪烁。当设为其他值时做从机熄灭，从机和主机通信成功后闪烁

Note: When the device address is set to 0, the last LED indicator L6 blinks. If the value is set to other values, the slave is off and blinks after the communication between the slave and the host is successful.

备注：ON代表LED状态为亮，OFF代表LED状态为熄灭。

Note: ON indicates that the LED is on,OFF indicates that the LED is off.

Pin Configuration for RS485A/CAN Interface



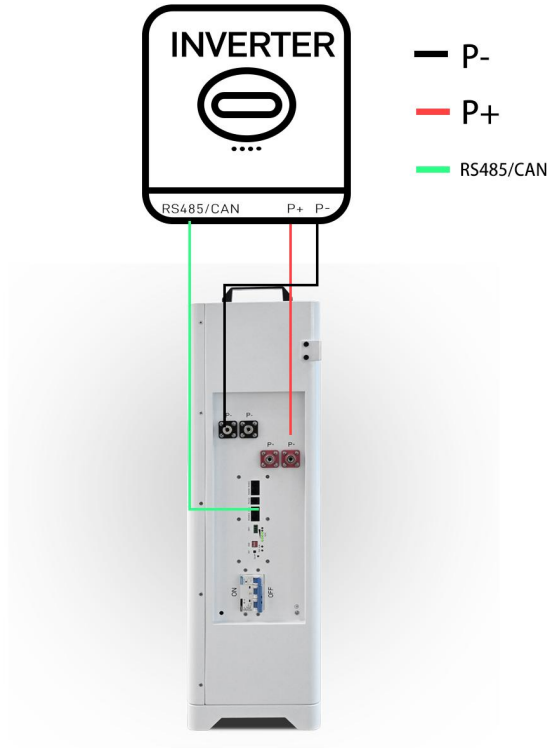
Pin definition

RS485A		CAN	
Pin	Expound	Pin	Expound
1、8	RS485-B	1、2、3、6、8	/
2、7	RS485-A	4	CAN-H
3、6	GND	5	CAN-L

4、5	/	7	GND

5、 Connect to the Inverter

Connection Schematic Diagram to Inverter-Connection Method



Battery Cable Connection

The positive and negative electrodes of the battery utilize M8 locking screw terminals, which can be distinguished by color (red or orange indicates the positive electrode, while black indicates the negative electrode). Installation personnel must wear protective gloves when handling the positive and negative electrodes of the product.

Connect the cable to the inverter's battery connection port, with the other end connected to the battery's positive and negative terminals. Ensure that the screws securing the inverter and battery terminals are tightened to a torque of 9-11 Nm.

Cable connection steps

① First, the battery is in a shutdown state and the inverter is disconnected.

② The cable connects to the positive and negative terminals ofthe inverter's DC port.

3 The negative electrode wire is connected to the negative terminal of the battery.

④ The positive terminal wire is connected to the positive terminal of the battery.

warn The battery and inverter must be powered off before installing the power cable.

Steps for disconnecting cable connections

1 Port inverter switch

2 Press the power button to turn off the battery.

3 Remove the negative terminal cable of the battery.

4 Remove the positive cable from the battery.

5 Remove the connection cables of the inverter.



warn

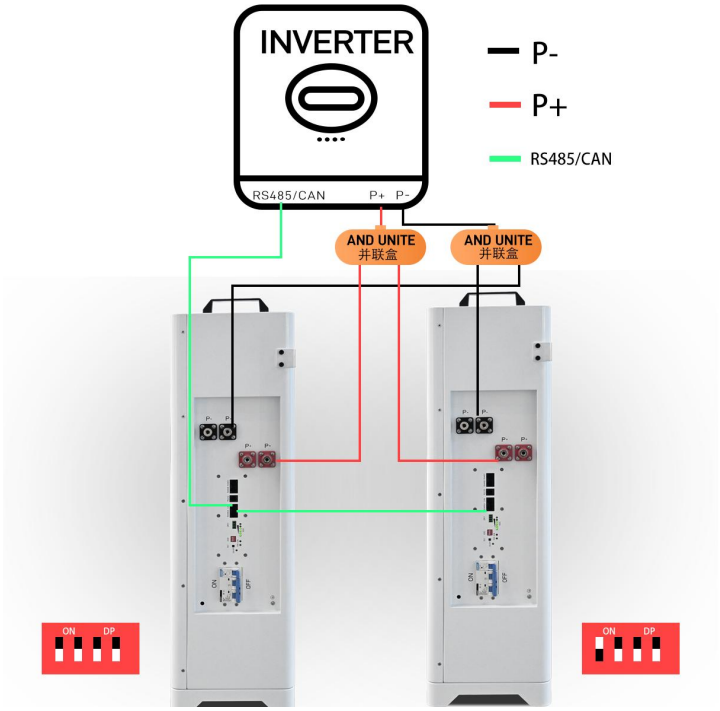
The installation and disconnection of cable lines shall be performed by qualified installation personnel.



warn

During use, ensure that children do not come into contact with power cords.

Battery parallel operation



Two batteries and one inverter

1 Connect port RS485B of battery 1 to port RS485C of battery 2.

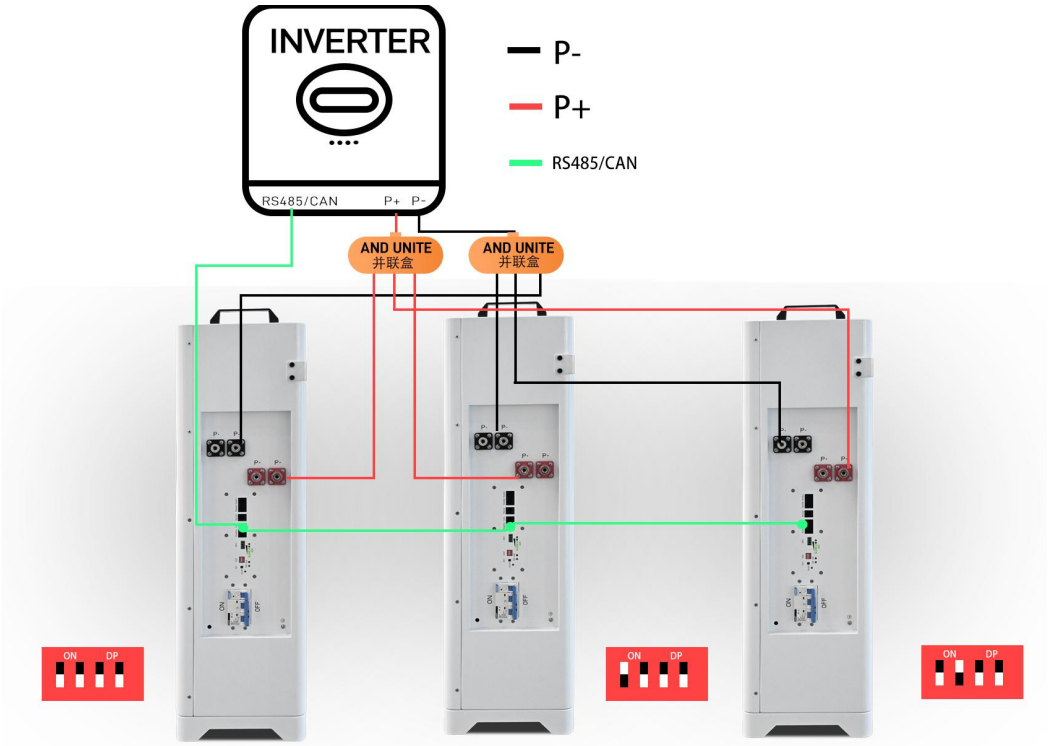
2 Connect RS485A/CAN port of battery 1 to the inverter's RS485/CAN port.

3 The P-cable is connected to the parallel box and then to the DC negative terminal of the inverter.

4 The P+ cable is connected to the parallel box and then to the DC positive terminal of the inverter.

5 Set the dip switch of battery 1 to "0".

6 Set the dip switch of battery 2 to " 1".



Three batteries and one inverter

① Connect port RS485B of battery 1 to port RS485C of battery 2.

② Connect port RS485B of battery 2 to port RS485C of battery 3.

3 Connect RS485A/CAN port of battery 1 to the inverter's RS485/CAN port.

4 The P-cable is connected to the parallel box and then to the DC negative terminal of the inverter.

⑤ The P+ cable is connected to the parallel box and then to the DC positive terminal of the inverter.

⑥ Set the dip switch of battery 1 to "0".

⑦ Set the dip switch of battery 2 to " 1".

8 Set the dip switch of battery 3 to "2".

And Compatible With Inverter Brands

The following inverter brands are compatible with battery packs.

逆变器品牌		协议名称	通信接口	真机调试	匹配型号	协议在逆变器代码
德业 Deye	Deye 德业	低压储能CAN通信协议 Low-voltagehybridinverter CAN communication	CANBUS-500K	是	SUN-5K-SG03LP1-EU	1.BatterySetupMenu->Lithium 2.Advanced Function->BMS_Err_Stop
派能 PYLON	PYLONTECH	protocol 派能CAN总线协议V1.2 PYLON CANBUSProtocolV1.2	CANBUS-500K	否		
		派能低压RS485通信协议 PYLON low voltageRS485Protocol				
古瑞瓦特 Growatt	Growatt	古瑞瓦特低压CAN总线协议REV_05 GrowattBMS CAN-Bus-protocol-low-voltage_Rev_05	CANBUS-500K	是	SPF3000TLHVM-48	1.在05中设LI 2.在36中设置为1，则为CAN通信
		储能机与电池PACK之间RS485通讯协议V2.01 GrowattxxSxxPESS ProtocolV2.01	RS485-9600	是	SPF3000TLHVM-48	1.在05中设LI 2.在36中设置为51，则为RS485通信
维克多 Victron	victron energy	维克多CAN总线协议201707 CAB-BUS_BMS_Protocol_201707	CANBUS-500K	是	CerboGX	
英威腾 Invent	invt 英威腾	英威腾户用储能逆变器低压版BMS通信协议(V1.02) INVTBMS CAN Bus protocolV1.02	CANBUS-500K	是	BD5KTL-RL1	
固德威 GoodWe	固德威 GOODWE	固德威低压CAN总线协议V1.7 (ES/EM/S-BP/BP系列) GoodWeLV BMS Protocol(CAN)V1.7 (ForES/EM/S-BP/BPSeries)	CANBUS-500K	是	GW5000-ES-20	电池类型中选择GoodWe->SECU-A5.4L*1
SMA	SMA	SMA电池与逆变器通信协议 FSS-ConnectingBat-TI-en-10| Version1.0	CANBUS-500K	否		
日月元 Voltronic	Voltronic Power	日月元逆变器与BMS RS485通信协议 Voltronic Power Inverter and BMS 485 communication protocol	RS485-9600	否		1.长按SET键进入设置页面; 2.将05项设置成LIB;
硕日 SRNE	srne	硕日Modbus通信协议 PACE BMS Modbus Protocol for Rs485	RS485-9600	是	HF2430S60100	1.将39设置成BMS 2.将32设置成BMS 3.将33设置成WOW
美世乐 MUST	MUST 美世乐					
首航	SOFAR 首航新能源					

Power on and Off



POWER

Startup steps

1 Ensure the cable connection is correct.

2 Press the power switch of the battery pack to activate the circuit breaker.

3 Battery pack startup.

Shut-down steps

1 Press the power switch of the battery pack to disconnect the circuit breaker.

2 Ensure the power cable is disconnected.

3 The battery pack is powered off.

Battery Communication Interface

The RS485A and CAN interfaces on the battery are designed for communication with inverters, with specific interface configurations varying by inverter model. For pin definitions of these interfaces on the battery side, please refer to the Interface Pin Definition Table.

Move

The inverter settings should be configured according to the inverter manual. After setup, control and monitoring functions will be available. During normal operation, the battery is controlled by the inverter, and the battery power button should remain turned on.



Do not use third-party tools or diagnostic tools for communication between batteries and inverters.

warn

Troubleshooting

If the system does not work properly, follow these steps.

1 Check if the inverter settings are correct.

2 Check whether the crimping method for the inverter terminal interface pin definition is correct.

3 Check if the dial code address on the battery terminal is correct.

6、 Connecting Bluetooth

The 48V battery is equipped with Bluetooth functionality, enabling smartphone apps to monitor battery parameters such as charging status, voltage, current, temperature, and other operational data. These parameters can also be adjusted via Bluetooth.

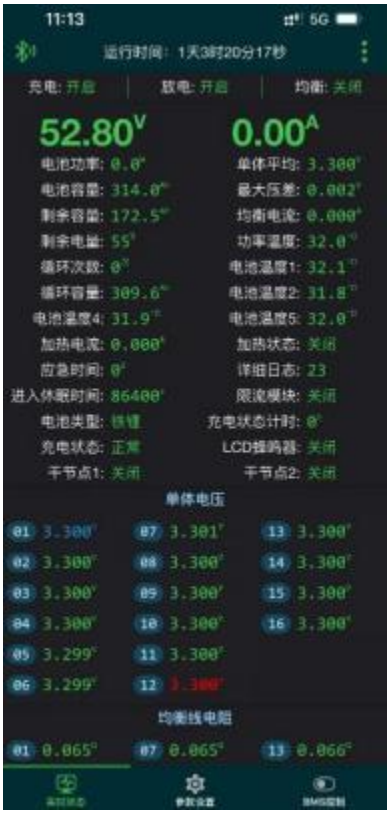
First enable Bluetooth functionality, then open the Bluetooth app and tap the QR code scanning icon in the top-left corner. After scanning completes, select the target device name (e.g., "JK-B1A24S"). During initial pairing, the app will prompt for a password. The default pairing password is "1234", which the app automatically memorizes after connection. Subsequent connections require no manual entry. Upon app launch, tap "Auto Connect" from the device list. Enter the login password in the pairing password field to complete connection. You can then access the real-time status interface for monitoring, as shown in the following diagram.



Device scan



Password pairing input interface



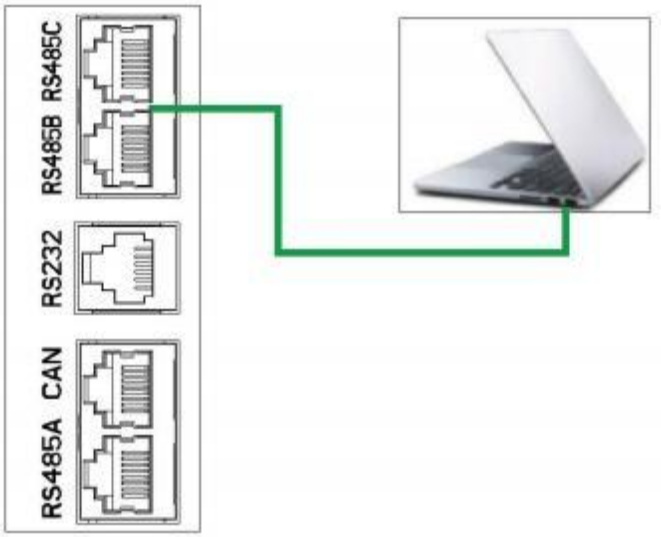
Real-time status display interface

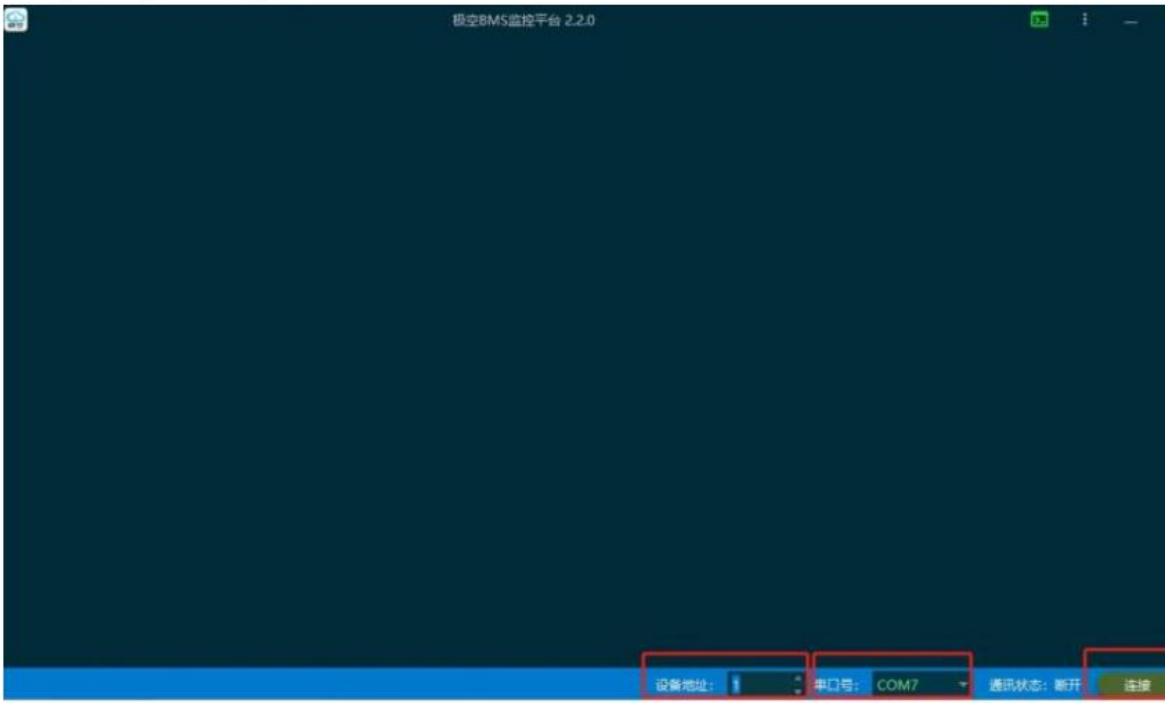


Real-time status display interface

7、 Connect to the Host Computer

Open the host computer software. Connect one end of the host line to the computer and the other end to the battery's RS485B or RS485C port. Set the device address to 1 (also set the DIP switch to 1) and select the corresponding serial port number. Click Connect to establish the host connection and access the real-time status interface, as shown in the figure below.

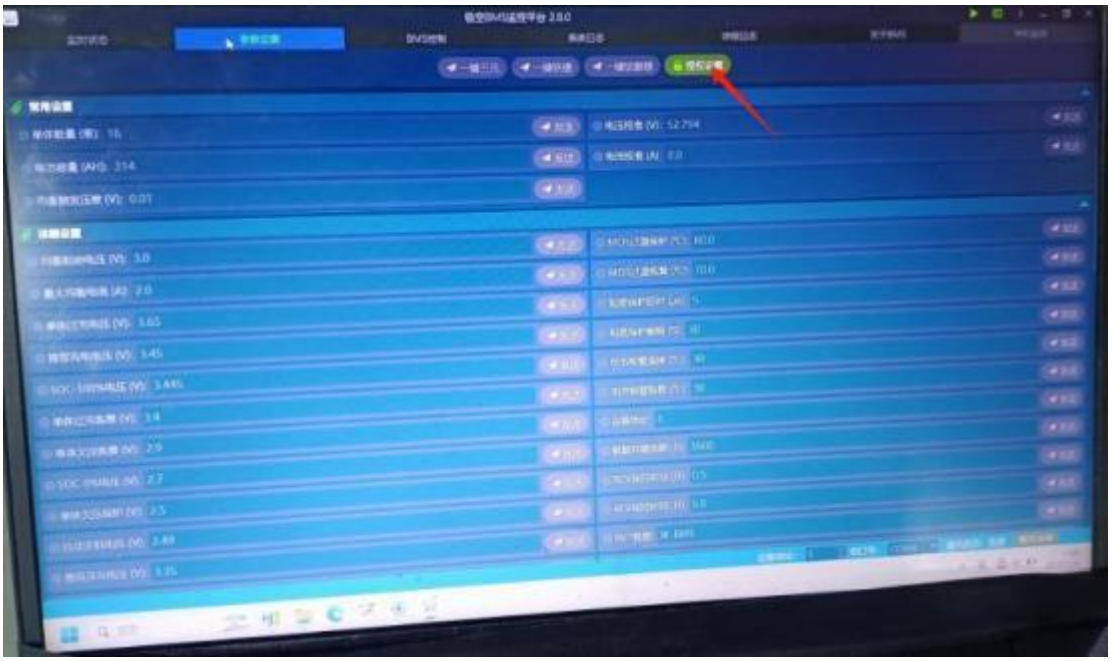






a.The real-time status page displays battery voltage, charging current, abnormal alarms, battery status, and balanced line groups.

b. On the parameter settings page, no parameters can be modified by default. Changes must be made through "Authorization Settings". The default password for the protection board is "123456", which has now been changed to "888888".



8、 How to Manage Emergencies

If your health or safety is at risk, it is recommended that you begin with the following two steps:

1 First contact the fire department or other emergency response teams.

2 Notify all potentially affected individuals to evacuate the area promptly.



warn The following procedures are recommended to be performed only under safe conditions.

In case of a fire:

- Unplug the inverter switch button.
- Press the power button switch of the battery pack and disconnect the circuit breaker switch.
- Cut off all inputs and outputs within the distribution panel.

Odor or smoke:

- Unplug the inverter switch button.
- Press the power button switch of the battery pack and disconnect the circuit breaker switch.
- Cut off all inputs and outputs within the distribution panel.
- Ensure there is no electrical connection to the battery.
- Ventilate the room, eliminate odors, and promptly contact company technical personnel for assistance.

The battery is making abnormal noise:

- Unplug the inverter switch button.
- Press the power button switch of the battery pack and disconnect the circuit breaker switch.
- Cut off all inputs and outputs within the distribution panel.
- Ensure there is no electrical connection to the battery.

9、 When the Product Is Powered off and Not in Use

This battery pack is a lithium-ion battery product and should not be stored for extended periods. If long-term storage is required, please adhere to the storage requirements specified in the following table.

Storage temperature	Short-term storage for less than 1 month	-10°C to +45°C
	Long-term storage should not exceed 3 months	0°C to +45°C



Point out If the battery product is stored for more than 3 months, recharge it every 3 months. If it is not used for an extended period and no maintenance is performed,
The company shall not be liable for battery discharge or malfunction caused by battery charging procedures.