SOLARESCU ENERGY

BL-EP48330 User Manual

1. Safety Operation Instructions

Before performing any equipment operations, please carefully read this Operation and Maintenance Manual. The safety precautions mentioned herein are supplementary to the required safety measures and do not constitute the entirety of safety protocols. During installation, operation, or maintenance, all local safety regulations and standards must be strictly followed. Only trained professionals are authorized to handle equipment installation, operation, and maintenance. Our company shall not be held liable for any losses resulting from violations of general safety procedures or breaches of equipment safety standards during design, production, or use. Installation and maintenance personnel must possess technical proficiency in handling high-voltage and alternating current power sources. During equipment operation, installation, or maintenance, no conductive objects (e.g., watches, bracelets, or rings) shall be worn, and moisture ingress into the equipment must be prevented.

High pressure hazard:

High-voltage power supplies provide electricity for equipment operation. Direct contact with high-voltage power sources or indirect contact through damp objects poses fatal risks.

Use dedicated tools:

When working with high voltage and alternating current power supply, it is essential to use specialized tools instead of personal tools.

electrostatic prevention：

The static electricity generated by the human body can damage the electrostatic-sensitive components on the board. Before touching the plug-in, circuit board, or chip,

ensure proper anti-static measures are in place.

Power off during operation:

Always disconnect the power supply before operation. Do not operate under live conditions.

DC short-circuit hazard:

The power system provides a DC regulated power supply, and the DC short circuit will damage the equipment and cause fatal danger.

2. product presentation

This product features a lithium iron phosphate battery with 16-cell strings, designed for home use. It offers customizable solutions to meet diverse application scenarios, providing stable power support for various devices. The battery boasts a long service life, high energy density, excellent temperature adaptability, modular design, and energy-saving advantages, while also requiring minimal installation space.

3. product features

a. The battery pack's BMS (Battery Management System) provides protection against overcharging, overdischarging, overcurrent, temperature, and short circuits.

b. There is voltage balancing function in the charging process.

c. It has high safety performance, long service life, stable and reliable.

d. It features an RS485 communication interface and supports parallel expansion of battery packs.

e. The working temperature range is wide (-20～55℃), and the discharge performance is

good at high temperature.

f. Compact and lightweight, with customizable design for easy installation and maintenance.

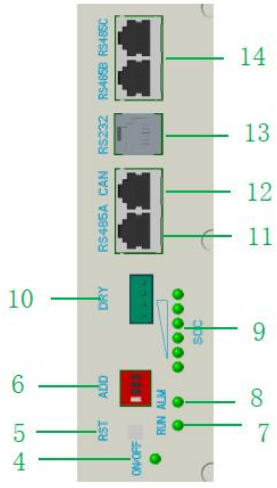
4. Product technical parameters

4.1 essential parameter

project	essential parameter
product model	51.2V330AH
rated voltage （V）	51.2
Operating voltage range (V)	48-55.2
rated capacity （Ah）	330AH
rated energy （WH）	16896
compound mode	1P16S
Charging cutoff voltage (V)	58.4V
Discharge cutoff voltage (V)	41.6V
Operating temperature range (°C)	-20～55℃
Recommended charging current (A)	150
Maximum continuous charging current (A)	200
Maximum continuous discharge current (A)	200

product size （mm）	850*500*282mm
Net weight of product (kg)	126KG

4.2 interface definition



order number	name	definition
1	Negative socket	The negative terminal of the battery's DC output can be connected to the inverter's negative terminal via a cable.
2	Positive socket	The positive terminal of the battery's DC output can be connected to the inverter's positive terminal via a cable.
3	circuit breaker	Protect the battery from overload or short circuit.
4	power light	Turn on when open, turn off when closed
5	reset key	Manual reset switch button
6	ADD dial-up	Set up battery parallel communication and inverter communication
7	Running light	Indicates the normal operating status of the battery
8	guard lamp	Indicates abnormal battery conditions, such as under-voltage or over-voltage, triggering an alarm sound.
9	SCO	6 battery indicator lights to show remaining battery

		level
10	dry contact	Users can connect external alarm devices
11	RS485A	Communication Interface Between Inverter and Host Computer
12	CAN	Communication Interface Between Inverter and Host Computer
13	RS232	Reserved interface
14	RS485 B/C	Parallel communication interface between battery packs
15	button switch	Use to turn the battery pack on or off
16	display screen	Display battery voltage, SOC, temperature, and other parameters
17	light bar	Displays the battery SOC to indicate remaining power level

4.3 Battery Management System (BMS)

4.3.1 overvoltage crowbar

During battery charging, if either the voltage of a single cell or the total voltage exceeds the preset thresholds for either individual or collective voltage, and this

condition persists beyond the overcharge protection delay period, the system activates overcharge protection. The charging MOSFET is then disabled, preventing further charging. The protection is lifted when the voltage drops below the recovery threshold, or it may be released during discharge.

4.3.2 over discharge protection

When a battery discharges and either the voltage of a single cell or the total voltage drops below preset thresholds for either parameter, and this condition persists beyond the over-discharge protection delay period, the system activates protection mode. The discharge MOSFET is then disabled, preventing further discharge. The protection is lifted by charging the battery pack once it has been released.

4.3.3 overcurrent protection

When the current during the charging and discharging process exceeds the preset protection current value and the duration reaches the overcurrent protection delay, the system enters overcurrent protection mode. The charging and discharging MOSFETs are turned off, preventing battery charging and discharging. The overcurrent protection mode is then lifted, and the charging and discharging functions are restored.

4.3.4 high temperature protection for charge and discharge

When the battery is charging or discharging, if the NTC detects that the cell surface temperature exceeds the preset high-temperature protection threshold, the battery system activates high-temperature protection. The charging and discharging MOS switches are then turned off, preventing any further charging or discharging operations.

4.3.5 charge and discharge low temperature protection

When the battery is charging or discharging, if the NTC detects that the cell surface

temperature drops below the preset low-temperature protection threshold, the battery system activates low-temperature protection. The charging and discharging MOS switches are then turned off, preventing any further charging or discharging operations.

5. Install and configure

5.1 Pre-installation inspection

(1) Upon receiving the battery, the user should inspect the packaging for any surface defects such as cracks or damage. If such issues are found, do not install the battery. Instead, contact the supplier and await their response before proceeding.

(2) Ensure the packaging includes the following accessories:

Battery pack

Supporting frame

Inverter Power Cable* 2 Pair

Screw M8*12mm*4PCS

Inverter Communication Cable

Expansion screws

Parallel Communication Cable

Host Computer Cable

5.2 Install tool list configuration

Before installing the battery pack, users must prepare the following tool list, as shown in the table below.

Tools/Materials	name	act on
	levelling instrument	Ensure the horizontal installation position
	churn drill	Drilling holes in the wall
	electric wrench	lock expansion screw
	There are many electric screws.	Locking screw
	hammer	Hammer
	Wire clamp	crimp RJ45 terminal
	connection cover cutting pliers	stripping action
	monkey wrench	Function of Loosening and Tightening Screws

5.3 Precautions for Wall Mount Installation

1. The battery installation wall should be a solid brick or cement wall with strong load-

bearing capacity, and the wall thickness should not be less than 100mm.

2. If installed indoors, ensure sufficient space for installation and proper ventilation, and avoid placing flammable materials around the battery.

3. If installed outdoors, the battery should be protected and kept dry.

5.4 Installation steps

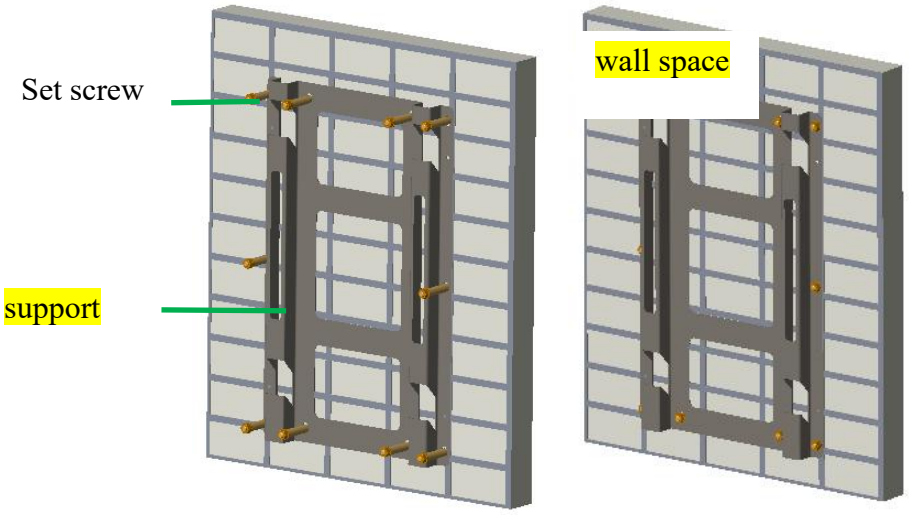
1. Mark the drill hole positions on the bracket and measure them with a level to ensure proper horizontal installation.

2. The drilling was done with impact drill, the diameter of the hole was about 12mm, the depth of the hole was about 60mm.

3. Secure the bracket firmly against the wall, align it with the hole, and fix it with M8 expansion screws.

4. Use an electric wrench to tighten the M8 expansion screw to 20 N·m.

5. Loosen the four wheels on the battery, then attach it to the designated mounting bracket.



(Installation diagram 1)

(Installation diagram 2)

6. Battery Inverter Connection Procedure

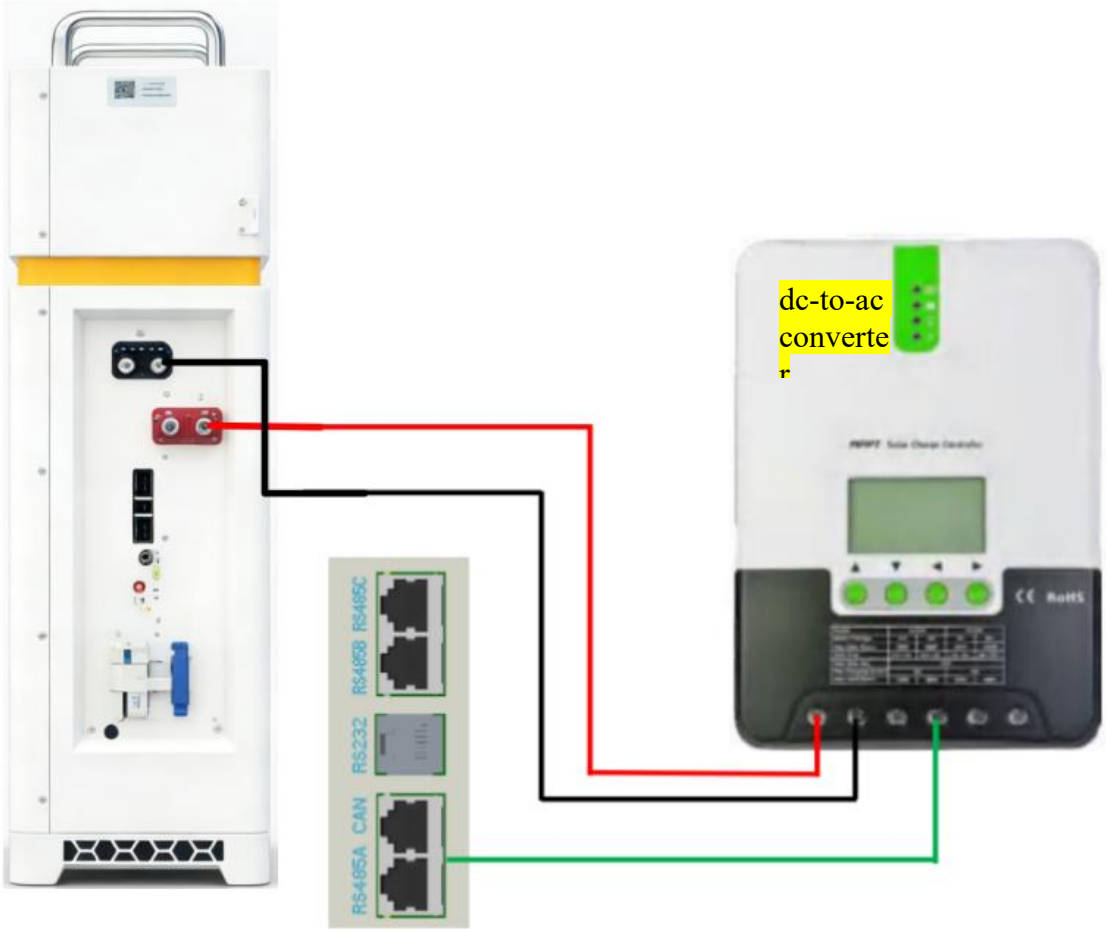
6.1 Precautions for Battery Connection to Inverter

a. Use a multimeter to test the cable's positive and negative terminals for continuity, and check for any loose connections at the terminals.

b. Before wiring, the battery must be powered off to ensure no DC output.

c. Secure the battery's positive and negative terminals first, then connect them to the inverter's terminals.

d. The communication cable connects the battery terminal to the RS485/CAN port, then to the inverter's BMS (RS485/CAN) port. Note that BMS port specifications vary by inverter brand; refer to the inverter manual for details.



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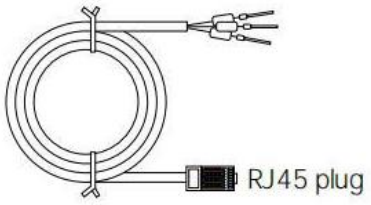
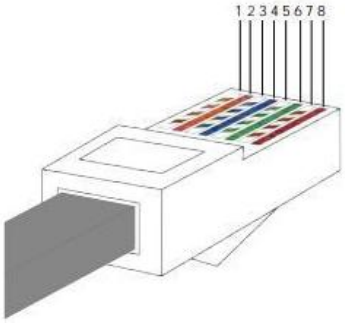
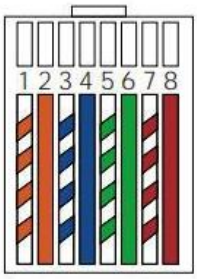
The pin definition order for communication lines is as follows.

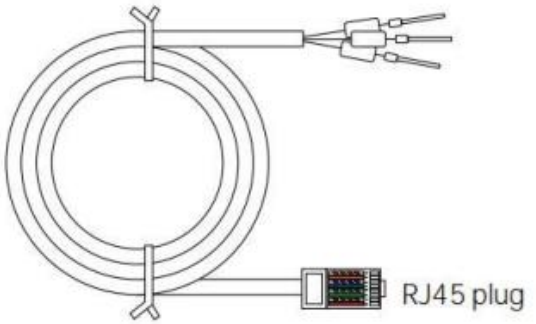


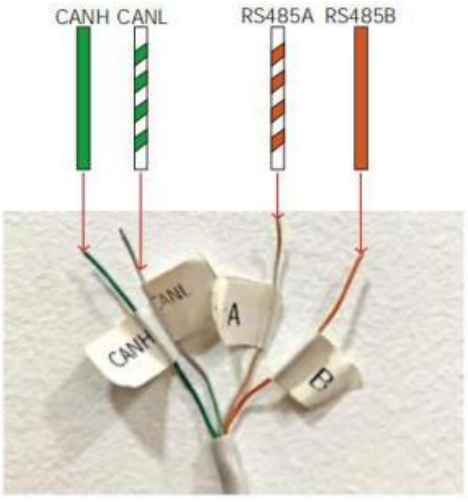




RS485A interface	stitch	1	2	3	4	5	6	7	8
	definition	RS485-B	RS485-A	GND	NC	NC	GND	RS485-A	RS485-B
CAN joggle	stitch	1	2	3	4	5	6	7	8
	definition	NC	NC	NC	CAN-H	CAN-L	NC	GND	NC

RJ45 connector diagram for inverter:





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RJ45 Connector Diagrams	Communication
 Brand: DEYE, Growatt, Goodwe, Solis	CANH->pin4 CANL->pin5
 Brand: Victron	CANH->pin7 CANL->pin8
 Brand: Pylon, Growatt	RS485B->pin1 RS485A->pin2
 Brand: Voltronic	RS485B->pin3 RS485A->pin5
Please set up the RJ45 connector according to the pin definition of the inverter	

6.2 Precautions for Connecting Parallel Batteries to Inverters

a. Use a multimeter to test the cable's positive and negative terminals for continuity, and check for any loose connections at the terminals.

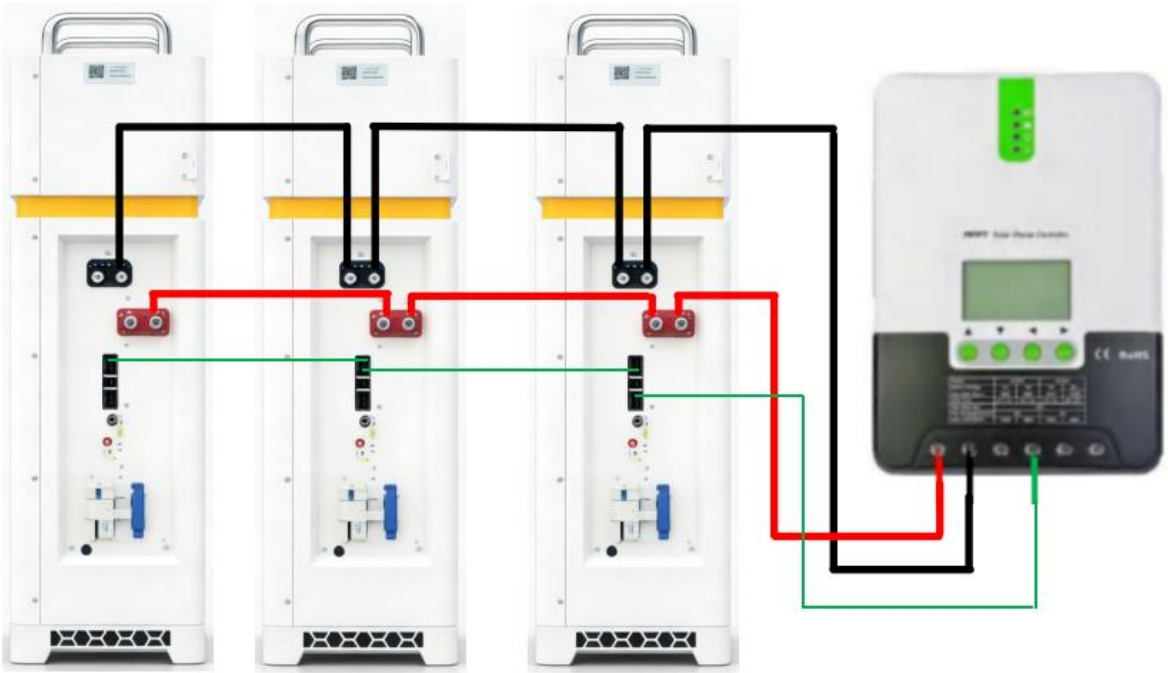
b. Before wiring, the battery must be powered off to ensure no DC output.

c. Secure the parallel cable first to the positive terminal of the battery, then to the negative terminal.

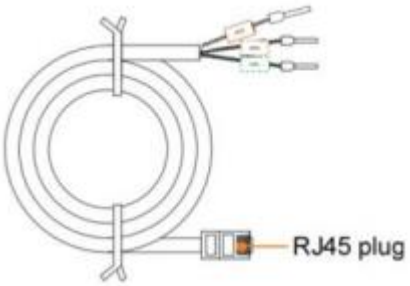
d. The parallel communication cable connects to the battery's RS485 port.

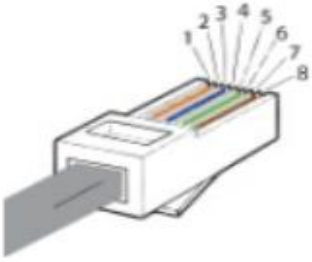
e. First, connect the cables to the battery terminals, then attach them to the inverter's positive and negative terminals.

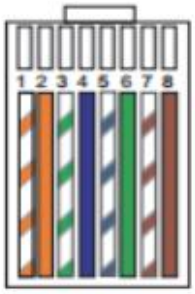
f. The communication cable connects the battery terminal to the RS485/CAN port, then to the inverter's BMS (RS485/CAN) port. Note that BMS port specifications vary by inverter brand; refer to the inverter manual for details.



The pin definition order for communication lines is as follows.



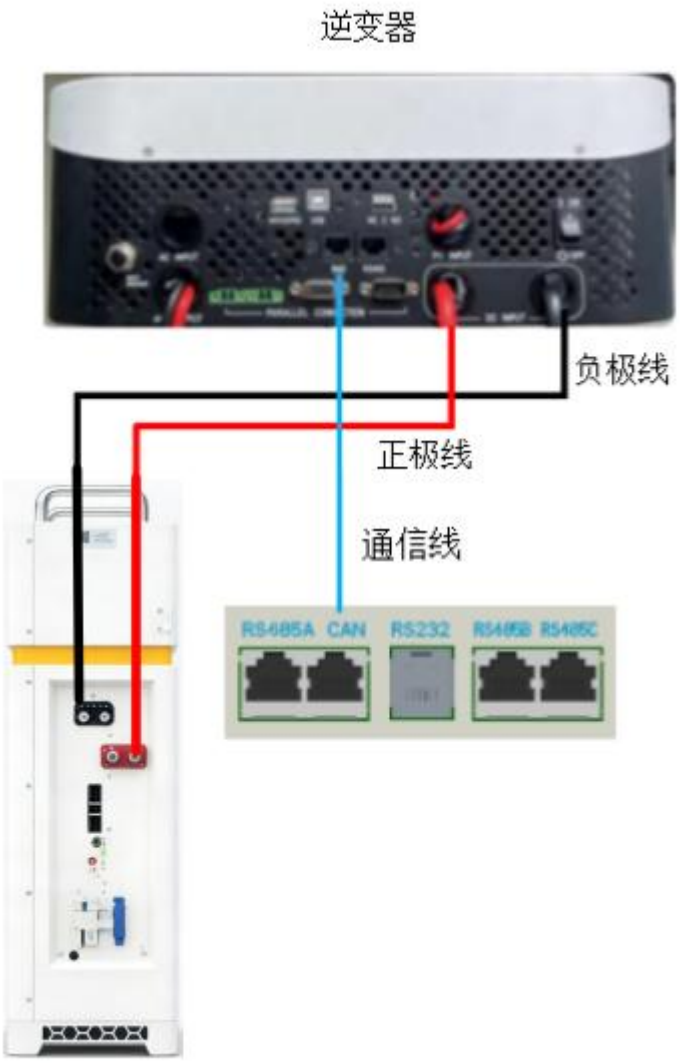




Definition of RS485 Parallel Communication Interface	stitch	1	2	3	4	5	6	7	8
	definition	RS485-B	RS485-A	GND	NC	NC	GND	RS485-A	RS485-B

6.3 Schematic Diagram of Battery and Inverter Connection

Connect the battery's positive and negative terminals to the inverter's DC input terminals. For the power distribution line, plug the RJ45 connector (one end crimped) into the battery's RS485 port. The other end should be connected to the inverter's BMS terminal using the preconfigured RJ45 connector. This completes the battery-inverter connection.



6.4 Definition and Setting of Code Switch

For multi-unit communication in parallel battery packs, a DIP switch is used to distinguish different Pack addresses, which can be configured via the board's DIP switch. The ADD switch is a 4-bit DIP switch. Refer to the diagram below for ADD switch settings when multiple battery packs are connected in parallel.

4-BIT					
Address	Dip Switch Position				Illustration
	#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	

7. Operation

7.1 Pre-startup Inspection

a. Check all positive and negative cables, as well as communication lines, to ensure correct wiring and safety.

b. Check if the battery is securely installed for easy operation and maintenance, and verify proper ventilation.

c. Is the unused port properly insulated?

7.2 Power On

a. Turn on the button switch on the battery.

b. Check whether the LED indicator light is functioning properly.

c. If the electrical connection is correct but the battery system still won't start, contact our after-sales service within 48 hours.

LED power indicator

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											

LED explain

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.

8. Bluetooth Operation Instructions

The 48V battery features Bluetooth integration, allowing users to monitor battery parameters via a mobile app—including charge status, voltage, current, temperature, and other operational data—all of which can be adjusted through Bluetooth.

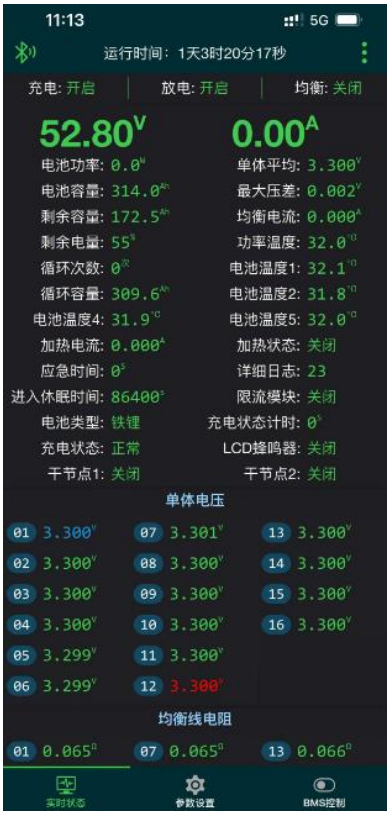
8.1 Bluetooth Connection Instructions

First, enable Bluetooth and open the Bluetooth app. Tap the QR code icon in the top-left corner to scan the device. After scanning, select the device name (e.g., "JK-B1A24S"). During the first connection, the app will prompt you to enter a password. The default

pairing password is "1234". Once connected, the app will automatically save the password, so you won't need to enter it again. After launching the app, tap "Auto Connect" in the device list. Enter the login password in the pairing password field to complete the connection. You can then access the real-time status interface as shown in the figure below.

Device scan

Password pairing interface

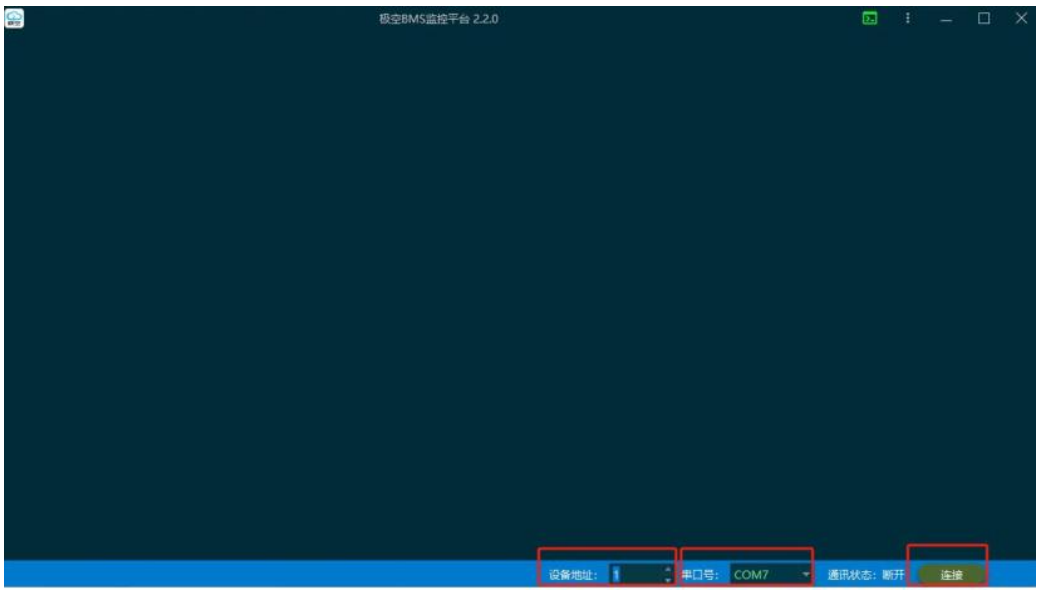


Real-time status display interface

Real-time status display interface

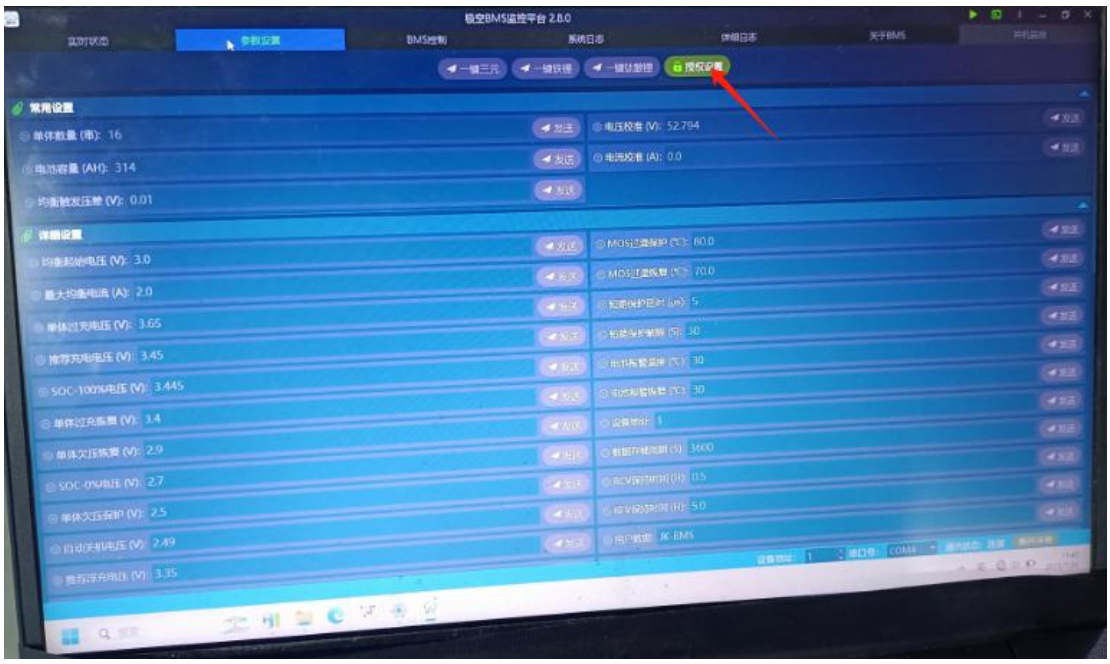
9. PC Operation Instructions

Open the host computer software. Connect one end of the host cable to the computer and the other end to the battery's RS485 port. Set the device address to 1 (also set the DIP switch to 1) and the corresponding serial port number. Click' Connect' to establish the 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 cable groups.

b. On the parameter settings page, no parameters can be modified by default. To make changes, go to 'Authorization Settings'. The default password for the protection board was '123456', which has now been changed to 'mihai'.



10. The BMS-compatible inverter brands are listed in the table below.

inverter communication protocol matching table

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-voltage hybrid inverter CAN communication protocol	CANBUS-500K	是	SUN-5K-SG03LP1-EU	1.Battery Setup Menu->Lithium 2.Advanced Function->BMS_Err_Stop
派能 PYLON	PYLONTECH	派能CAN总线协议V1.2 PYLON CANBUS Protocol V1.2	CANBUS-500K	否		
		派能低压RS485通信协议 PYLON low voltage RS485 Protocol				
古瑞瓦特 Growatt	Growatt	古瑞瓦特低压CAN总线协议REV_05 Growatt BMS CAN-Bus-protocol -low-voltage_Rev_05	CANBUS-500K	是	SPF 3000TL HVM-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 Growatt xxSxxP ESS Protocol V2.01	RS485-9600	是	SPF 3000TL HVM-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	Cerbo GX	
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) INVT BMS CAN Bus protocol V1.02	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) GoodWe LV BMS Protocol (CAN) V1.7(For ES/EM/S-BP/BP Series)	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 | Version 1.0	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	HF2430S60-100	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					

Inverter settings

a. Deye inverter parameter settings

Inverter setup steps:

1. Go to the settings page, as shown below.

2. In the Battery Settings section, select Lithium as shown in the image below.

3. In the Advanced Function section, configure BMS Err.Stop as shown in the figure below.

b. Growatt parameter settings

1. Press and hold the Enter key to enter the settings mode

2. Set item 05 to LI as shown in the figure below.

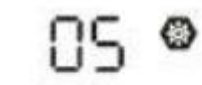
3. After successful setup, you will be redirected to 36 items.

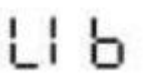
4. For RS485 communication, set item 36 to L01 (see Figure 2); for CAN communication, set item 36 to L51 (see Figure).

c. Voltronic parameter settings

1. Long press the SET key to access the settings page;

2. Set item 05 to LIB as shown in the figure below;





d. SRNE parameter settings

1. Long press the SET key to access the settings page;

2. Configure 32 items as BMS, as shown in the figure below.

3. Set 33 items to WOW as shown in the figure below.

4. Configure 39 items as BMS, as shown in Figure 3 below.

11. Storage

a. The external terminals of the battery pack are in an insulated and protected state.

b. For long-term storage, the battery pack should be kept at 30%-60% charge; storing it fully discharged is strictly prohibited.

c. Batteries stored for over 3 months should be recharged at 0.2C to 0.3C for 2-3 hours.

d. The battery should be stored in a dry, clean, and well-ventilated environment free from corrosive gases, kept away from fire sources, and protected from direct sunlight.

e. Do not store or place for long periods at temperatures exceeding 60°C, as this may cause functional decline and reduced lifespan.

12. Battery Usage Warnings and Precautions

To prevent battery leakage, overheating, or explosion, please follow these precautions

warn！

① It is strictly prohibited to immerse batteries in seawater or water. When not in use, they should be stored in a cool and dry environment.

② It is strictly prohibited to reverse the polarity of batteries;

③ Direct metal connection between battery terminals is prohibited to prevent short circuits.

④ It is prohibited to transport or store batteries with metal objects such as hair clips or necklaces.

⑤ It is prohibited to strike, throw, or step on batteries;

⑥ Direct welding of batteries and piercing them with nails or other sharp objects are prohibited;

pay attention to！

① It is prohibited to use or store batteries in high-temperature environments (such as scorching sunlight or hot vehicles), as this may lead to battery overheating, ignition, functional failure, or reduced lifespan. The optimal storage temperature for

batteries is recommended to be 10-45°C.

② It is prohibited to dispose of batteries in fire or heaters to prevent fire, explosion, and environmental pollution; discarded batteries should be returned to suppliers or battery recycling centers for disposal.

③ It is prohibited to use in areas with strong static electricity or magnetic fields, as this may damage the battery's safety protection device and create potential hazards.

④ In the event of battery leakage, if the electrolyte enters the eyes, do not rub the area; immediately rinse the eyes with clean water and seek medical attention promptly to prevent ocular injury. If the battery emits an unusual odor, exhibits heating, discoloration, deformation, or any abnormal behavior during use, storage, or charging, immediately remove the battery from the device or charger and discontinue its use.

⑤ Directly plugging the battery's positive and negative terminals into a power outlet is prohibited. A dedicated lithium-ion battery charger must be used.

⑥ Before installation, check the battery voltage and connectors. Only use after confirming all components are functioning properly.

⑦ Battery half-life storage: If unused for three months, recharge once.

⑧ If the electrode becomes contaminated, wipe it clean with a dry cloth before use; otherwise, poor contact or functional failure may occur.