BL-CK48300(51.2V 314Ah) Operating Manual



authorized strength：	examine and verify：	ratify：
date：	date：	date：

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1. Safety Operating Instructions

Before performing any equipment operation, please carefully read this Operation and Maintenance Manual. The safety precautions mentioned in this manual do not represent all required safety measures and are provided as supplementary guidance. When installing, operating, or maintaining equipment, comply with local safety regulations and standards. Installation, operation, and maintenance must be performed by trained professionals only. Our company shall not be liable for losses resulting from violations of general safety requirements or breaches of design, production, and usage safety standards. Installation and maintenance personnel must possess high-voltage and AC power operation skills. During equipment installation, operation, or maintenance, do not wear any conductive items such as watches, bracelets, rings, or similar accessories, and prevent moisture from entering the equipment.

**High pressure hazard:**

High voltage power supply provides power for the operation of the equipment. Direct contact or indirect contact with high voltage power supply through wet objects will bring fatal danger

**Use special tools:**

When working with high voltage and AC power supply, special tools must be used 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, circuit board or chip, ensure that the correct anti-static measures are in place.

**Turn off the power during operation:**

When operating the power supply, you must first cut off the power supply and do not operate with electricity.

**DC short circuit danger:**

The power system provides a DC regulated power supply, and a DC short circuit can damage equipment and cause fatal hazards.

2. product presentation

This lithium iron phosphate battery pack, comprising 16 cells, is designed for home use. Customizable to meet specific requirements, it delivers stable power support for various devices across diverse applications. Key advantages include extended lifespan, high energy density, temperature adaptability, modular design, eco-friendliness, energy efficiency, and space-saving installation.

3. product features

1. The BMS (battery management system) configured in the battery pack has overcharge, over discharge, over current, temperature, short circuit and other protection functions.
2. There is voltage balancing function during charging.
3. High safety performance, long service life, stable and reliable.
4. It has RS485 communication interface and supports parallel expansion of battery pack.
5. Wide operating temperature range (-20 ~ 60℃), high temperature discharge performance is good.
6. Small size, light weight, customizable design, easy to install and maintain.

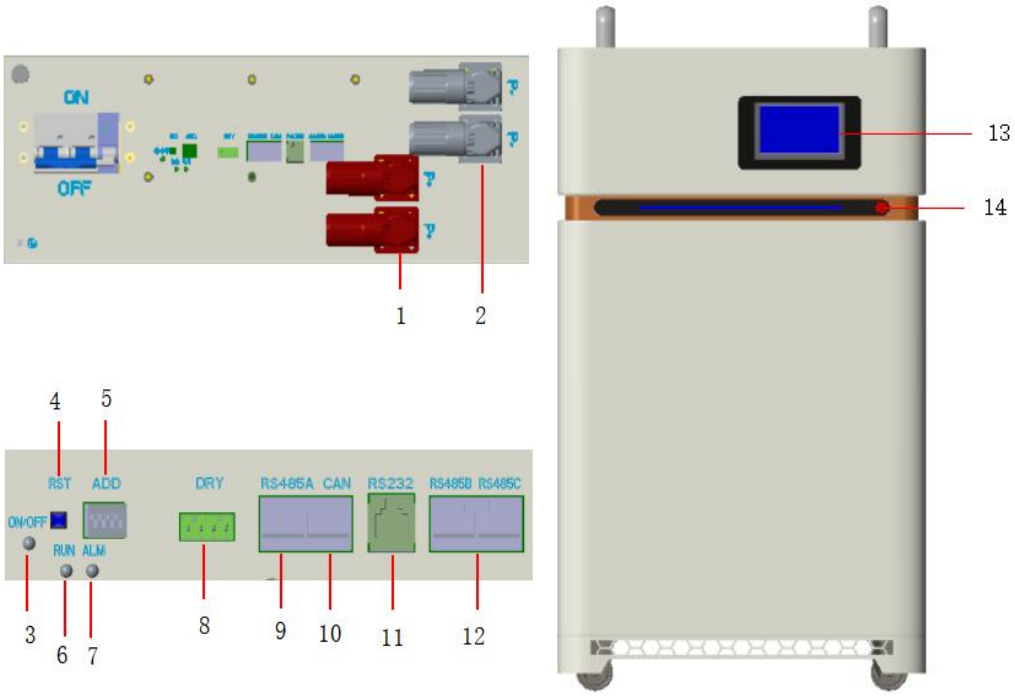
4. Product technical parameters

4.1 essential parameter

project	essential parameter		
product model	51.2V280AH	52.2V300AH	52.2V314AH
rated voltage (V)	51.2	51.2V	51.2V
Working voltage range (V)	43.2-57.6	43.2-57.6	43.2-57.6
rated capacity (Ah)	280AH	300AH	314AH
rated energy (WH)	14336	15360	16076
compound mode	1P16S	1P16S	1P16S

Charging cut-off voltage (V)	58.4V	58.4V	58.4V
Discharge cutoff voltage (V)	43.2V	43.2V	43.2V
Working temperature range (℃)	-20～60℃	-20～60℃	-20～60℃
Recommended charging current (A)	50	50	50
Maximum continuous charging current (A)	200	200	200
Maximum continuous discharge current (A)	200	200	200
product size （mm）	850*500*282mm	850*500*282mm	850*500*282mm
Net weight of product (KG)	125KG	125KG	125KG

4.2 Interface definition



order number	name	definition
1	Positive pole socket	The positive electrode of the DC output of the battery can be connected to the positive electrode of the inverter through a cable
2	Negative terminal socket	The DC output negative electrode of the battery can be connected to the negative electrode of the inverter through a cable
3	Power switch	The power on indicator light is on and the power off indicator light is off

4	Reboot the machine	Power on and off button
5	Bottleneck switch	Set the battery parallel communication and inverter communication
6	Running light	Indicate the normal operating status of the battery
7	guard lamp	Indicate the abnormal state of the battery. If undervoltage or overvoltage occurs, an alarm sound will be generated
8	Dry contacts	The dry contact is normally open by default. When there is protection, the dry contact 1 closes and when there is a fault, the dry contact 2 closes
9	RS485 interface	Communication interface with inverter and host computer
10	CAN CI	Communication interface with inverter and host computer
11	RS232 communication interface	Communication interface of host computer
12	RS485 parallel communication interface	And the communication interface
13	display screen	Display the battery voltage, SOC, temperature, etc
14	button switch	Power on and off button

4.3 Battery management system (BMS)

4.3.1 overvoltage crowbar

During battery charging, if the voltage of a single cell or total voltage exceeds the preset threshold and remains above it for an overcharge protection duration, the system activates overcharge protection. This mode will shut off the charging MOSFET to prevent further charging. When the voltage drops below the recovery threshold, the overcharge protection is automatically released, which can also be deactivated through discharge.

4.3.2 Over-protective

During battery discharge, if the voltage of a single cell or total voltage falls below the preset threshold and remains so for an extended period (exceeding the over-discharge protection duration), the system activates over-discharge protection. This mode immediately disables the discharge MOS, preventing further battery discharge. When over-discharge protection is activated for a battery pack, charging the entire pack will automatically release this protective mechanism.

4.3.3 overcurrent protection

When the battery is charging and discharging, when the current exceeds the set protection current value and the duration reaches the overcurrent protection delay, the system enters the overcurrent protection state, the charging and discharging MOS is turned off, the battery can not be charged and discharged, and the overcurrent protection state is removed, and the charging and discharging are removed.

4.3.4 High temperature protection during charge and discharge

When the battery is charged or discharged, if the NTC detects that the surface temperature of the cell is higher than the set high temperature protection temperature,

the battery system enters the high temperature protection state and the charging and discharging MOS is turned off. In this state, the battery cannot be charged or discharged.

4.3.5 Charge discharge low temperature protection

When the battery is charged or discharged, the NTC detects that the surface temperature of the cell is lower than the set low temperature protection temperature, and the battery system enters the low temperature protection state. The charging and discharging MOS is turned off. In this state, the battery cannot be charged or discharged.

5. Installation and configuration

5.1 Pre-installation inspection

(1) After receiving the battery, the user shall open the packing box to check whether there are any defects such as damage or cracks on the surface of the battery. If there are such defects, do not install the battery. The user shall contact the supplier and wait for the supplier's reply before proceeding to the next step.

(2) Check whether the list of accessories is complete, the accessories contain installation bracket, a pack of 10 expansion bolts, 2 M8*12mm combination screws), a parallel communication line, a communication line connected to the inverter, a communication line connected to the PC, a set of power lines.



5.2 Installation tool list configuration

Before the installation of the battery pack, the user should have the following list of tools, as shown in the following table;

Tools/materials	name	act on
	levelling instrument	Ensure horizontal installation position
	churn drill	Drill holes in walls
	electric wrench	Locking expansion bolts
	More electric screws	Locking the screw
	hammer	Hammer tools
	Pliers	Connect RJ45 terminal

	connection cover cutting pliers	Skinning effect
	monkey wrench	The role of tightening screws

5.3 Wall-mounted installation precautions

1. The wall where the battery is installed 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 it is installed indoors, a certain space should be left during installation to facilitate the installation operation. Attention should be paid to ventilation, and no flammable materials should be placed around the battery.

3. If it is installed outdoors, the battery should be protected around and pay attention to rain protection.

5.4 Installation steps

1. Mark the bracket with the drilling position, and measure it with a level to ensure that it is installed horizontally.
2. Use a percussion drill to drill the hole, the diameter of the hole is about 12mm, the depth of the hole is about 60mm.
3. The bracket is placed firmly against the wall, aligned with the hole and fixed with an M8 expansion screw.
4. Tighten the M8 expansion screw with an electric wrench. Tightening force 20N.m.
5. Loosen the four wheels on the battery and attach it to the specified mounting bracket.

6. Battery connection to inverter steps

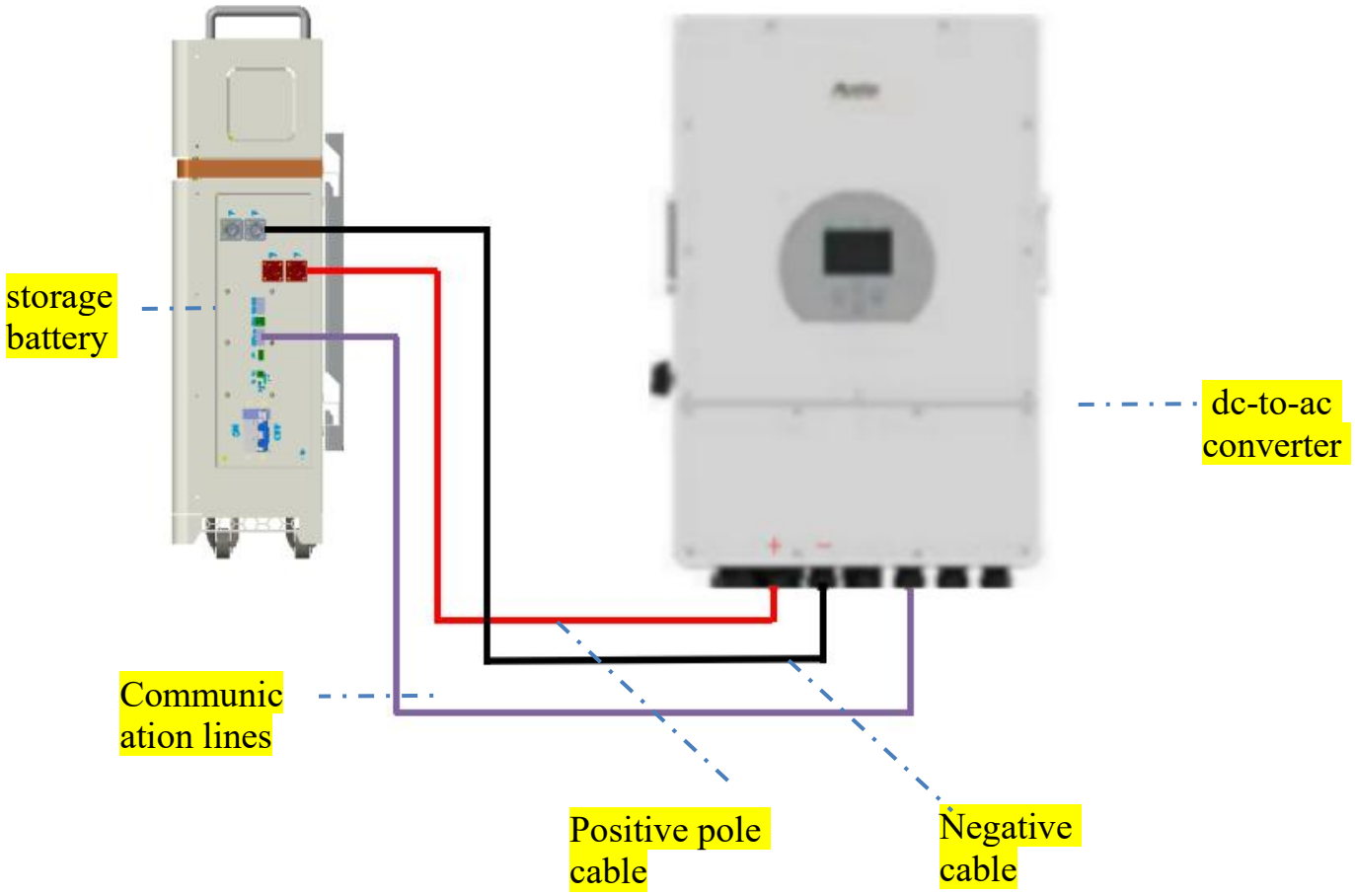
6.1 Precautions before connecting the battery to the inverter

①. Use a multimeter to measure whether the positive and negative cable lines are connected, and check whether the connection of the positive and negative terminals is loose.

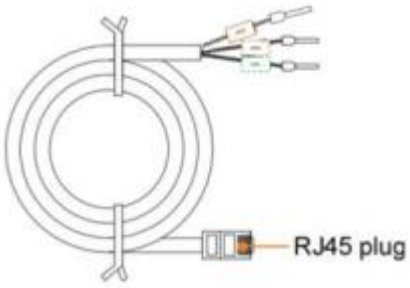
②. The battery should be in shutdown state before wiring to ensure that there is no DC output from the battery.

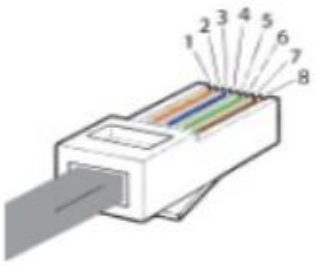
③. Connect the positive and negative terminals of the attached battery first, and then connect the positive and negative terminals of the inverter.

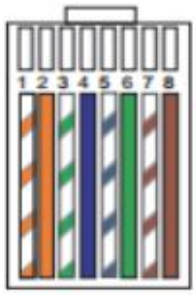
④. The communication line is connected to the RS485/CAN port of the battery end and then to the RS485/CAN port of the inverter end (this communication line is standard configuration of our company).



⑤. The definition order of communication line pins is as follows.







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

6.2 Precautions before connecting the parallel battery to the inverter

①. Use the multimeter to measure whether the positive and negative cable lines are

connected, and check whether the connection of the positive and negative terminals is loose.

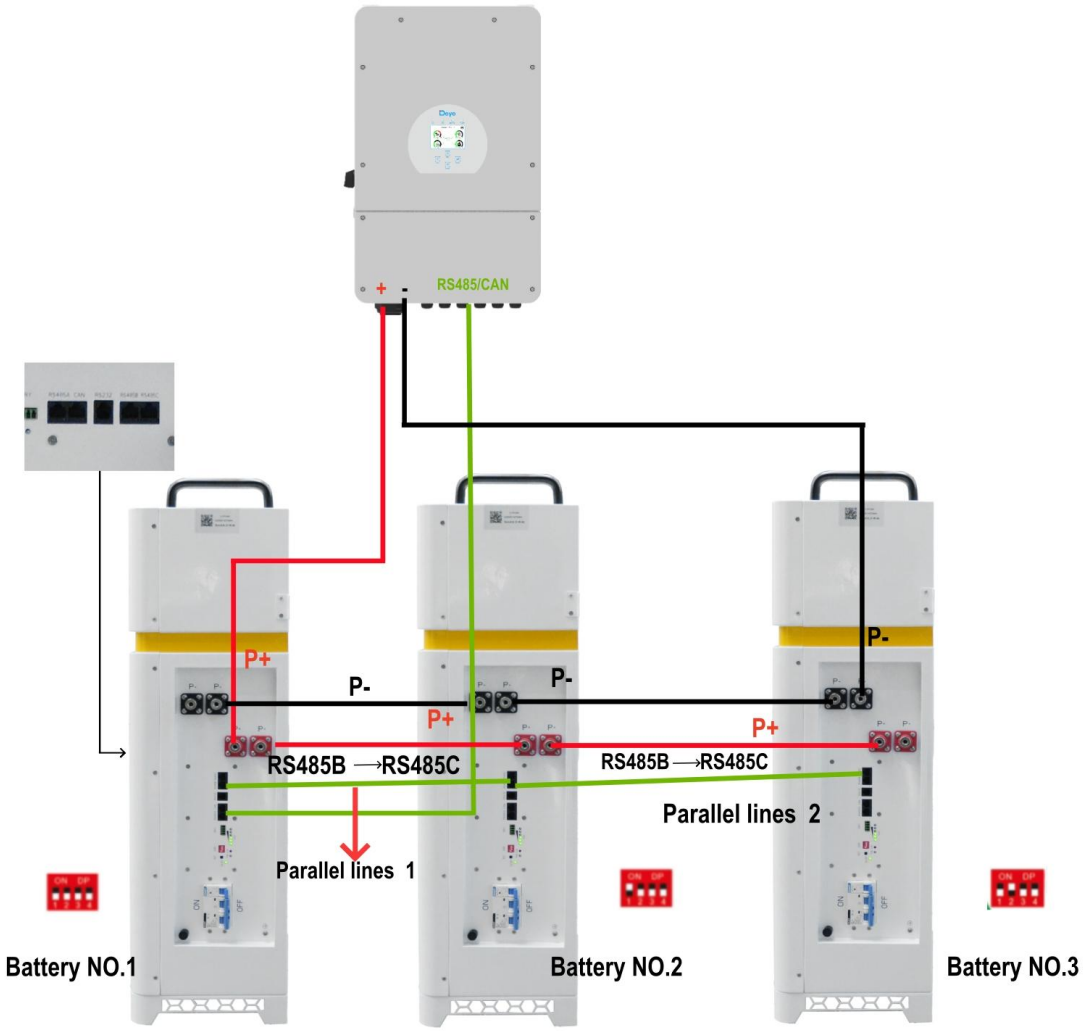
②. The battery should be turned off before wiring to ensure that there is no DC output from the battery.

③. The parallel cable should be locked on the positive pole of the battery first, and then the negative pole of the battery.

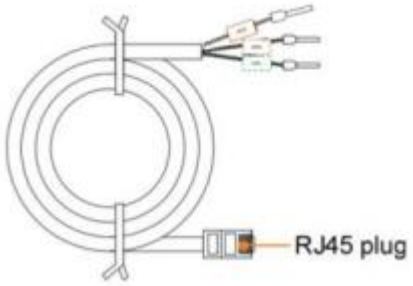
④. Connect the battery RS485 port with the parallel communication line (this communication line is standard configuration of our company).

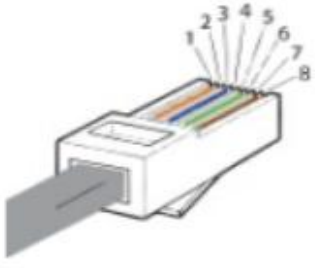
⑤. The positive and negative cables connected to the inverter should be locked to the positive and negative terminals of the battery first, and then connected to the positive and negative terminals of the inverter.

⑥. Connect the inverter communication line to the battery RS485/CAN port, and then connect the inverter RS485/CAN port (this communication line is standard configuration of our company).



⑦. The communication wire pin definition order is as follows.

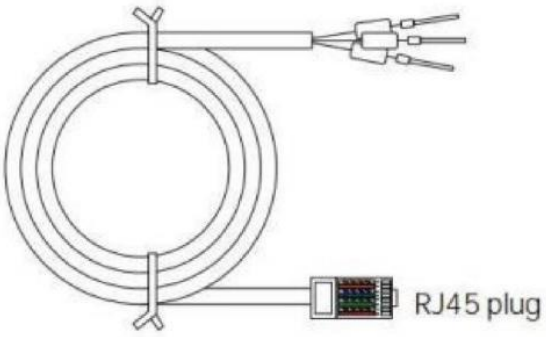


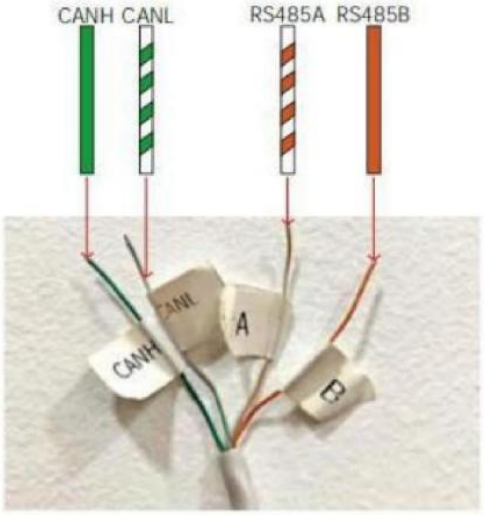


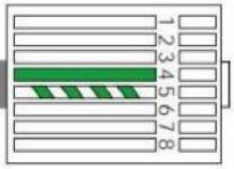
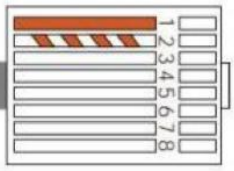
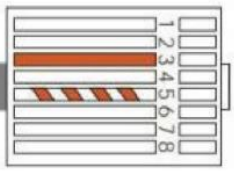


RS485 parallel communication interface definition	stitch	1	2	3	4	5	6	7	8
	definition	RS485-B	RS485-A	GND	NC	NC	GND	RS485-A	RS485-B

RJ45 connected to inverter port diagram:



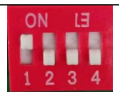
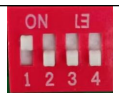
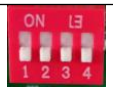
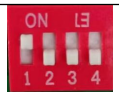
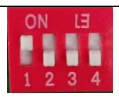
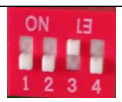
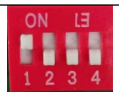
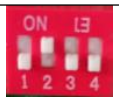
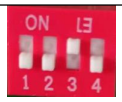
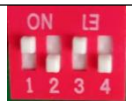


RJ45 Connector Diagrams	Communication
Inverter  Brand: DEYE, Growatt, Goodwe, Solis	CANH->pin4 CANL->pin5
Inverter  Brand: Victron	CANH->pin7 CANL->pin8
Inverter  Brand: Pylon, Growatt	RS485B->pin1 RS485A->pin2
Inverter  Brand: Voltronic	RS485B->pin3 RS485A->pin5
Please set up the RJ45 connector according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

.2

6.3 Dialing switch definition and setting

Multi-machine communication when the battery pack is connected in parallel. The DIP switch can be used to distinguish different Pack addresses. The address can be set through the DIP switch on the board. ADD switch is a 4-bit DIP switch. When multiple battery packs are connected in parallel, the ADD switch setting can be referred to the following figure.

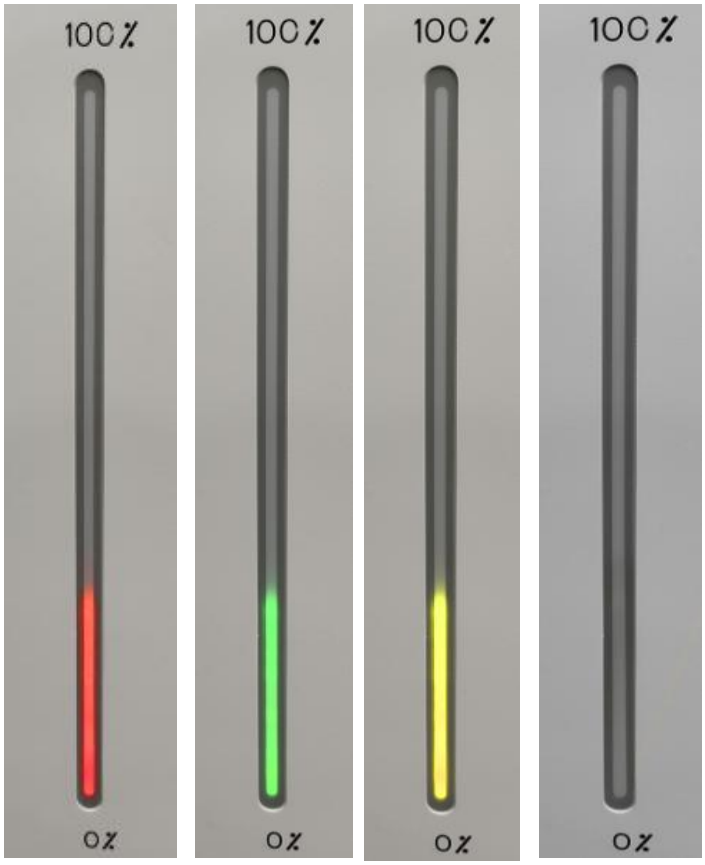
Number of battery packs	The first host	The second slave	The third slave	The fourth slave	The fifth slave	The 6th slave
1 battery						
2 batteries						
3 batteries						
4 batteries						
5 batteries						
6 batteries						

7, LED light strip description

1. Power indicator: 0-100% SOC

2. Indicator light definition:

(1): Battery alarm--red light flashing; (2): Battery protection or fault--yellow and green lights flashing; (3): Power on or working--green light flashing; (4): Charging in progress--green light flashing; (5): Communication error on the board--yellow light flashing; (6): Low battery voltage protection--lights off;



Red light Green light Yellow light Off light

8. Bluetooth operation instructions

The 48V battery is equipped with Bluetooth and WiFi functions, which can detect the information in the battery through the mobile APP, such as battery charging status, voltage, current, temperature and other running information. These parameters can be modified after the lithium battery WiFi

connection.

8.1 Bluetooth connection /WiFi Settings

First, open the Lithium WiFi App. Tap the Bluetooth icon in the top-right corner to enable it. Search

for your target device (e.g., "BL-25F-170-104") under the available devices section.

Connect by clicking the + icon next to the device. Expand settings in the bottom-right

corner, then swipe right to WiFi

settings. Enter the client's WiFi name in the designated field, search for it, input the

password (888888), and click "Set". The system will confirm the successful setup, as

shown in the following screenshot.

Scan the QR code to download.

iOS users can directly search for "Lithium-ion WiFi" in the App Store.

Android users can download it from their phone's app store.

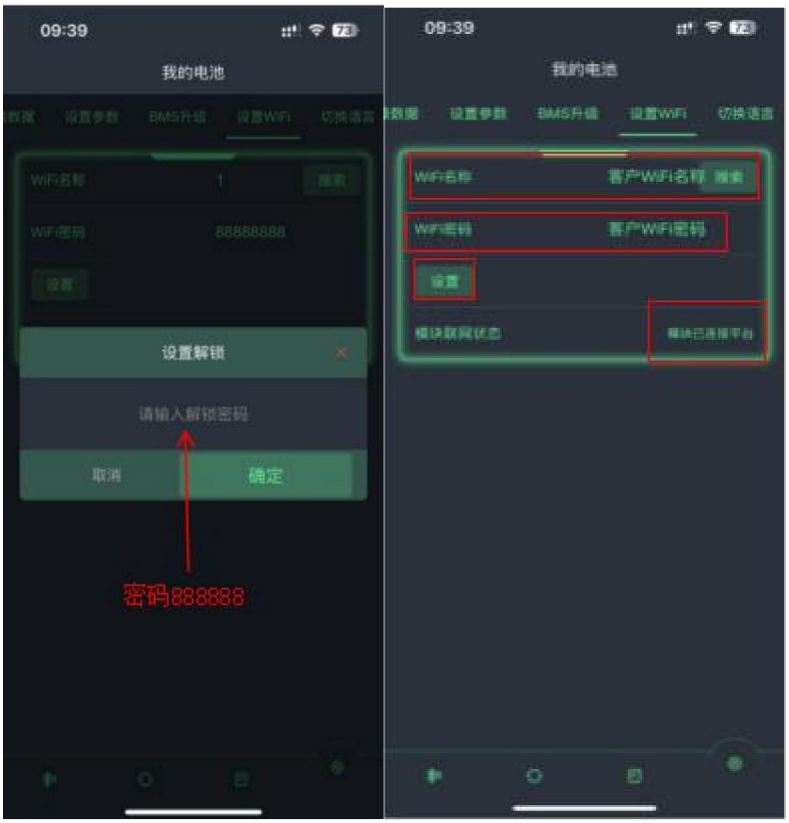




app linkage



Enter the interface and expand the options



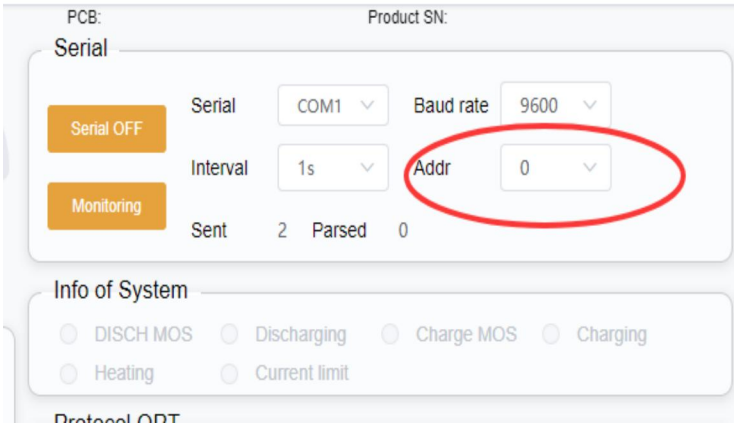
WiFi setup interface WiFi setup interfac

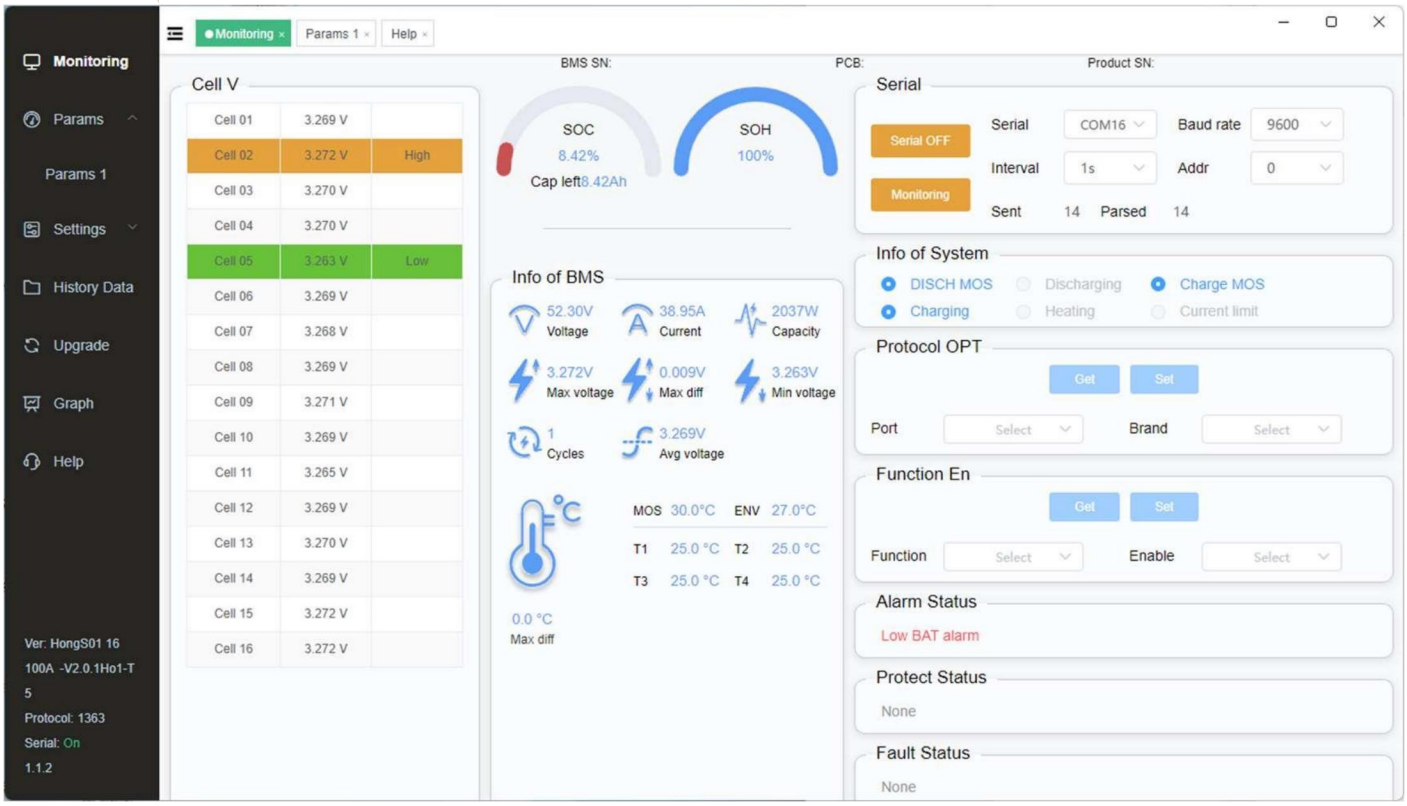
9. Upper computer operation instructions

Open the host computer software. One end of the host computer line is inserted into the computer, and the other end is inserted into the battery RS485 port. Select device address 1 (device address 1, and dial switch 1) and the corresponding serial port number. Click connect to connect the host computer and enter the real-time status page, as shown in the figure below.


RS485A CAN
RS232
RS485B RS485C


RST
ADD
DRY
ON/OFF
RUN
ALM


PCB:
Product SN:
Serial
Serial OFF
Serial
COM1
Baud rate
9600
Interval
1s
Addr
0
Monitoring
Sent
2
Parsed
0
Info of System
DISCH MOS
Discharging
Charge MOS
Charging
Heating
Current limit



a. Real-time status page, which can view battery voltage, charging current, abnormal alarm, battery status, balance wire group, etc.

b. Parameter Settings page. In the default state, no parameters can be modified. You need to enter "Basic Parameters 1" through "Parameters" to change them. The factory default password of the

protection board is "666666".


实时
参数
基本参数1
设置
历史
升级
帮助
Ver: HY04_200Ah1
S200A -V2.2.1Ho21
-T4
协议: 1363
串口: 开启
1.1.8
实时
基本参数1
BMS SN: KBM202508040339
Pack SN:
产品SN: KBM202508040339
清除选中
读取全部
写入选中
停止写入
恢复默认
导入参数
导出参数
写入全部
1
2
单体电压
过放保护 过放告警 当前 过充告警 过充保护
动作 2500 2700 3600 3650
恢复 3000 3000 3380 3380
延时 3000 3000 3000 2000
总体电压
过放保护 过放告警 当前 过充告警 过充保护
动作 40 44 57.6 58.4
恢复 48 48 56 54.4
延时 3000 3000 3000 3000
充电电池温度
低保护 低告警 当前 高告警 高保护
动作 -2 3 50 55
恢复 5 5 45 50
延时 3000 5000 5000 3000
放电电池温度
低保护 低告警 当前 高告警 高保护
动作 -20 -15 55 60
恢复 -15 -5 50 55
延时 3000 5000 5000 3000
环境温度
低保护 低告警 当前 高告警 高保护
动作 -25 -15 55 65
恢复 -15 -10 50 55
延时 4000 5000 5000 4000
电流1
放电保护 放电告警 当前 充电告警 充电保护
动作 215 200 200 215
恢复 195 195
延时 3000 5000 5000 3000
电流2
放电保护 当前 充电保护
动作 250 250
恢复
延时 500 500

BRAUN POWER

10. BMS The brands of communication inverter are shown in the following table Inverter communication protocol matching table

Inverter	Communication method	protocol	Mode	协议备注	Baud rate
古瑞瓦特 Growatt	CAN	GrowattBMS CAN-Bus-protocol-lov-voltage-V1.05	SPF/SPH系列	主动上传	500K
尚科 EACOLAR	CAN	GrowattBMS CAN-Eus-protocol-lov-voltage-v1.05	MHP/BP系列	主动上传	500K
固德威 Goodwe	CAN	Goodwe-固德威-CAN-V1.7-220228-SolarInverterFamily-EN	GW系列	主动上传	500K
日月元 Voltronic	485	Voltronic-日月元-485-V1.0.3-200325	-	MODBUS	9600
首航 Sofar	CAN	Sofar-首航-CAN-V1.00-211117-Rev6		主动上传	500K
索瑞德 (Sorotec)	CAN	CAN协议10(索瑞得CAN协议)		主动上传	500K
古瑞瓦特 Growatt	485	Growatt_BMS_RS485_protocal_1xSxxP_ESS_V2.01古瑞瓦特485通信协议2.0		MODBUS	9600
德业 Deye	CAN	Deye LV-CAN communication protocol	SUN系列	主动上传	500K
德业 Deye	485	485 Modbus Protocol4-deye	SUN系列	MODBUS	9600
锦浪 Solis	CAN	Solis-锦浪-CAN-V10-191228-lovVoltage		主动上传	500K
鹏城 Luxpowertek	CAN	Luxpowertek Battery CAN Protocol_2021	LXP	主动上传	500K
派能科技 Pylon	485	Pylon-派能-485-V35-161216-lova voltage protocol		1363	115200
派能科技 Pylon	485	Pylon-派能-485-V3.5-161216-low voltage protocol		1363	9600
派能科技 Pylon	CAN	Pylon-派能-CAN-V1.2-180408-lovVoltage		主动上传	500K
Sol-Ark	CAN	Sol-Ark CANBus Protocol V1.2.pdf4-25-22		主动上传	500K
硕日 shuori	485	shuori BMS Modbus Protocol for RS485V1.3(2020-11-24)	HF4850S80	MODBUS	9600
美世乐 (MUST)	CAN	PV180OF-CAN communication Protocol1.04.04	PH1800	主动上传	100K

SMA	CAN	SMA-艾思玛-CAN_V1.0.0-210630-FSS-ConnectingBat-TI-en-20w	SI44M-80H	主动上传	500K
迈格瑞觀 MEGAREVO	CAN	深圳迈格瑞能技术混合逆变器_5K_EMS协议V1.01		主动上传	500K
MPP Sola	485	BMS 485communication protocol 20200325(2)		MODBUS	9600
科仕达 Kstar	CAN	Kstar CAN_Protocol-V1.11		主动上传	500K
盛能杰 Senergy	CAN	SenergyINV&BMS_CAN_Protocols		主动上传	500K
维克托 (Victrion)	CAN	Victron-维克托-CAN-V1.00-211135		主动上传	500K
施耐德 Schneider	CAN	Version2 SE BMS Communication Protocol		主动上传	500K
爱士惟 Aiswei	CAN	Aiswe电池协议V1.0		主动上传	500K
SMK	485	锂电协议GT版20220510		MODBUS	9600
Foxess-麦田	CAN	Pylon-派能-CAN-V1.2-180408-lovVoltage		主动上传	500K
SunGrow-阳光	CAN	Pylon-派能-CAN-V1.2-180408-lovVoltage		主动上传	500K

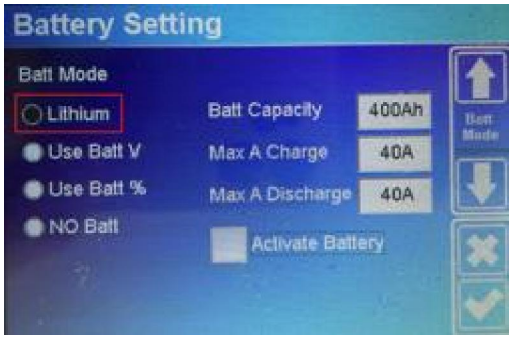
Inverter setup

a. Deye inverter parameter setting Inverter setting steps:

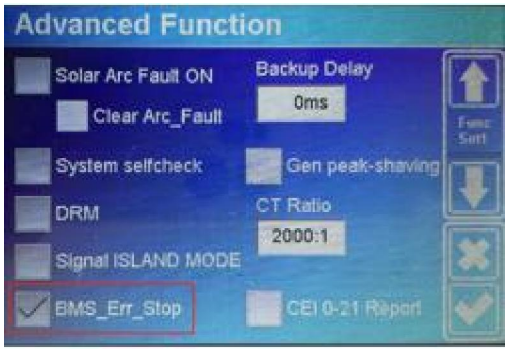
1. Go to the Settings page, as shown below;



2. Click Battery Settings and set it to Lithium, as shown in the figure below;



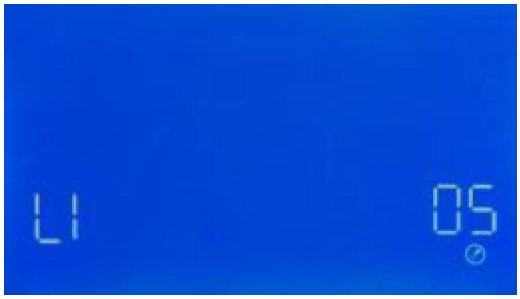
3. Click Advanced Function to set BMS _Err_stop, as shown in the figure below;



b. Growatt parameter Settings

1. Long press Enter key to enter the Settings mode

2. Set 05 items to LI, as shown in the figure below;



3. After the setting is successful, it will jump to 36 items;

4. If RS485 communication is used, the 36 items are set to L01, as shown in Figure 2; if CAN communication is used, the 36 items are set to L51, as shown in Figure 2;





c. Voltronic parameter Settings

1. Long press the SET key to enter the Settings page;

2. Set 05 items to LIB, as shown in the right figure;



d. SRNE parameter Settings

1. Long press the SET key to enter the Settings page;

2. Set 32 items to BMS, as shown in the figure below;



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



3. Set 39 items to BMS, as shown in Figure 3;



11. Storage

a. The external terminal of the battery pack is in an insulated protection state.

b. If the battery pack is not used for a long time, it is recommended to store it with 30% -60% charge.

Do not store it completely without charge.

c. Batteries stored for more than 3 months should be recharged for 0.2C~0.3C 2-3 hours.

d. The battery should be stored in a dry, clean, ventilated and non-corrosive gas environment, away from fire source, and avoid sun exposure.

e. Do not store or place at a high temperature of more than 60 degrees for a long time, otherwise it will cause functional decline and reduced life.

12. Battery warning and precautions

To prevent possible leakage, heating and explosion of batteries, please pay attention to the following precautions
warn !

① It is strictly prohibited to immerse the battery in seawater or water. When not in use, it should be placed in a cool and dry environment.

② It is strictly prohibited to use batteries with reversed positive and negative electrodes;

③ It is forbidden to directly connect the positive and negative electrodes of the battery with metal to short circuit;

④ Do not transport or store batteries with metal, such as hair clips, necklaces, etc.;

⑤ Do not knock, throw or trample the battery;

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

Pay attention to !

① Do not use or place the battery in high temperature (under hot sun or in a hot car), otherwise it may cause battery overheating, fire or failure of function and shortened life; the best
temperature for long-term storage of the battery is 10-45℃.

② Do not throw the battery into fire or heater to prevent fire, explosion and environmental pollution; the scrapped battery should be returned to the supplier or battery recycling point for disposal.

③ Do not use in places with strong static electricity and strong magnetic field, otherwise it is easy to damage the safety protection device of the battery, resulting in unsafe hidden dangers.

④ If a battery leak occurs and electrolyte enters the eyes, do not rub them. Immediately rinse the eyes with clean water and seek medical attention without delay to prevent eye damage. Should the battery develop unusual odors, heat up, discolor, deform, or exhibit any abnormalities during use, storage, or charging, remove it from the device or charger and discontinue use immediately.

⑤ Do not plug the positive and negative electrodes of the battery directly into the power socket. A lithium-ion battery charger must be used.

⑥ Check the battery voltage and connectors before installation. Use only after everything is normal.

⑦ Battery half storage, if the battery has not been used for three months, it needs to be recharged once.

⑧ If the electrode is dirty, it should be wiped clean with a dry cloth before use,

otherwise it may cause poor contact and functional failure.