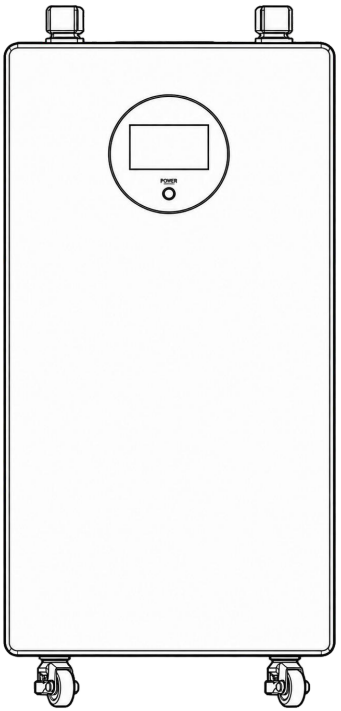
LiFePO4 Battery



User Manual

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1. Safety tips

1.1 Preface

Thanks for choosing our energy storage battery. In order to make you better use and maintain this product, please read the user manual carefully before use.
The features of this product are as follows:

1. Adopts brand new sodium-ion cells; higher safety; in standard conditions, ≥6000 charge/discharge cycles;
2. Highly integrated analog front end; isolated power supply circuit;
3. Integrated serial port IC, high voltage accuracy (≤20 mV), high current accuracy (≤2% @FS);
4. Four-channel battery temperature detection (≤2 ℃), SOC estimation function, SOH estimation function;
5. Short-circuit protection function, adjustable overcurrent protection, multiple sleep and wake-up modes, low power consumption;
6. Dual-port RS485 communication, adjustable parameter settings, buzzer alarm, LED status indicator, and charge balancing function;
7. Wide temperature range: -20 ℃ ~ 60 ℃;
8. Parallel connection (up to 15 units) is supported for expansion, but series connection is not recommended.

1.2 Safety disclaimer

When installing, using and maintaining this product, users must read this chapter carefully and follow the safety precautions required in this chapter. Our company shall not be liable for any injury or loss caused by improper operation.

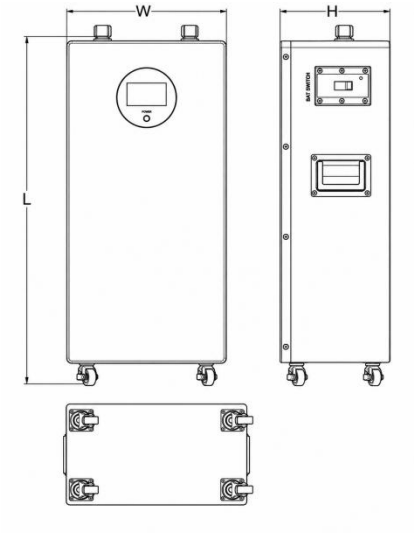
1.3 Description of safety matters

1. Keep the battery out of reach of children and infants;
2. Do not place the battery in an oven or other similar equipment;
3. Do not remove the product label;
4. Do not attempt to open the battery pack;
5. Do not expose the battery to environments above 60 ℃ (140 °F);
6. Do not short-circuit the positive and negative terminals of the battery with wires or other metal objects. Do not transport or store batteries together with metal objects;
7. Do not expose the battery to direct heat or flame. Do not use or store batteries near fire or at high temperatures;
8. Do not immerse the battery in water, salt water or any other liquid, or allow it to get wet;
9. Do not pierce the battery with any sharp object, knock it with a hammer or similar device, step on it, drop it or subject it to strong impact;
10. Do not use the battery if it is damaged or deformed;
11. If the battery gives off an odor, smoke or abnormal heat, stop using it immediately;
12. If battery fluid leaks and contacts your eyes, do not rub them; rinse immediately with plenty of water and seek medical assistance.

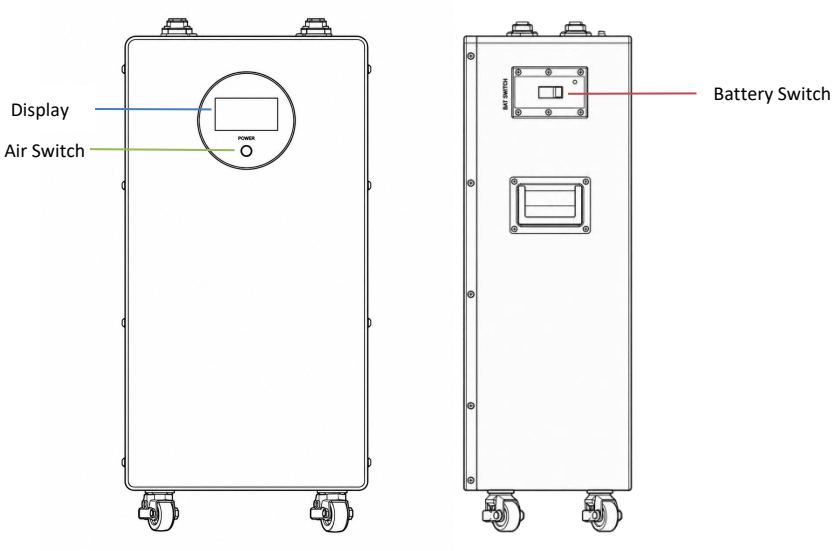
2. Product description

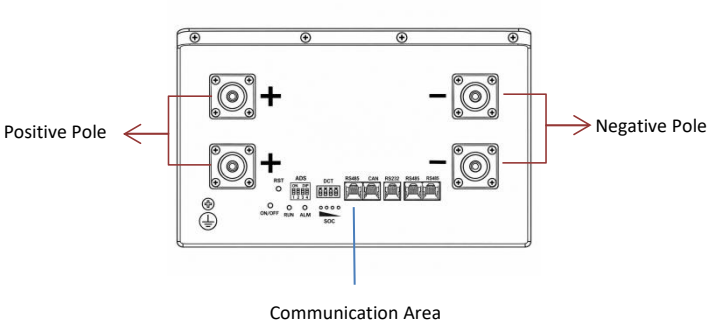
2.1 Product dimension

Model	Size (L × W × H)
DIY-NaCP-MB45200-200A-CH	930mm×420×250

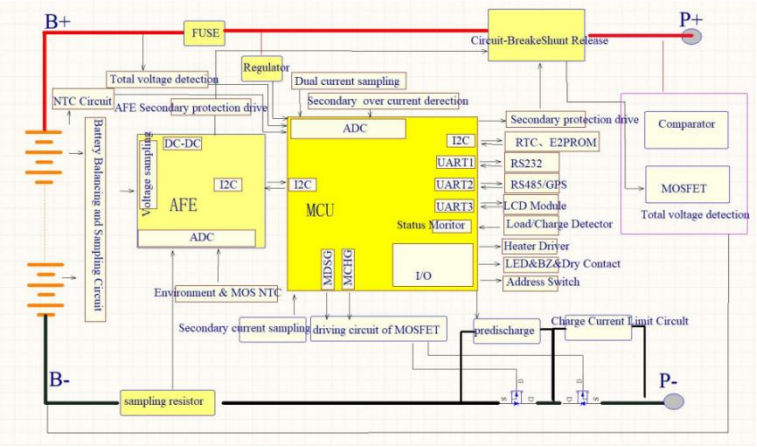


2.2 Product details





2.3 Electrical schematic diagram



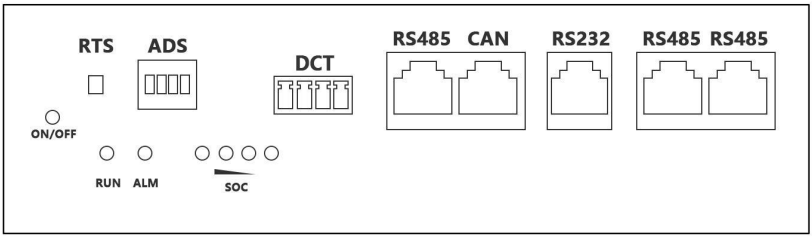
3. Technical specifications

Table 1 Technical specification table

No.	Project	Specifications
1	Model	DIY-NaCP-MB45200-200A-CH
2	Nominal capacity	200 Ah
3	Nominal voltage	45.0V
4	Max. Charging Voltage	58.5.0 V
5	Discharging Cut-off Voltage	27.0 V
6	Standard charging current	0.2C
7	Standard charging mode	At 25 °C, charge to 58.5 V with a constant current of 0.2C5A, then switch to constant-voltage charging at 58.5 V until the current is no greater than 0.02C5A.
8	Maximum charging current	200A
9	Maximum discharge current	200A
10	Charging temperature	0°C to 45°C (32°F to 113°F) at 60 ± 25% relative humidity
11	Discharge temperature	-20°C to 60°C (-4°F to 140°F) at 60 ± 25% relative humidity
12	Storage temperature	-20°C to 60°C (-4°F to 140°F) at 60 ± 25% relative humidity
13	Line joint	200 A self-locking quick-release connector
14	Communication protocol	RS485, RS232, CAN
15	Supported inverter brands	Growatt, Deye, Goodwe, Voltronic Power, Sofar, VICTRON, Solis, Megarevo, SRNE

4. BMS characteristics

4.1 Instructions for LED lights



Four green capacity indicators, a red alarm indicator, a green running indicator and a switch indicator.

4.1.1 SOC capacity indicator

Table 2 SOC indicator status table

Condition		Charge				Discharge			
Capacity indicator lamp		L1	L2	L3	L4	L1	L2	L3	L4
Power (%)	0~25%	Flash 2	OFF	OFF	OFF	ON	OFF	OFF	OFF
	25~50%	ON	Flash 2	OFF	OFF	ON	ON	OFF	OFF
	50~75%	ON	ON	Flash 2	OFF	ON	ON	ON	OFF
	75~100%	ON	ON	ON	Flash 2	ON	ON	ON	ON
Running indicator light		ON				Flash 3			

4.1.2 Status indicator

Table 3 Status indicator status table

Status	Warning/Normal/ Protection	ON/OFF	Run	Alert	LED Battery Level Indicator				Description
		•	•	•	•	•	•	•	
Shut down	Sleep mode	ON	OFF	OFF	OFF	OFF	OFF	OFF	Light off
Standby	Normal	ON	Flash 1	OFF	According to the battery level indication				standby mode
	Warning	ON	Flash 1	Flash 3					Module low voltage
charge	Normal	ON	ON	OFF	According to the power indicator (the maximum LED of the power indicator flashes 2)				The maximum power LED flashes (flash 2), and the ALM does
	Warning	ON	ON	Flash 3					

									not flash during the overcharge.
	Overcharge Protection	ON	ON	OFF	ON	ON	ON	ON	If there is no mains supply, the indicator turns to standby
	Temperature, overcurrent, failure, protection	ON	OFF	ON	OFF	OFF	OFF	OFF	stop charging
discharge	Normal	ON	Flash 3	OFF	According to the battery level indication				
	Warning	ON	Flash 3	Flash 3					
	UVLO	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
	Temperature, overcurrent, short circuit, reversed polarity, FAIL-SAFE	ON	OFF	ON	OFF	OFF	OFF	OFF	Stop discharge
Invalid		OFF	OFF	ON	OFF	OFF	OFF	OFF	Stop charging and discharging

Table 4 LED flashing description

Flashing mode	ON	OFF
Flash 1	0.25 s	3.75 s
Flash 2	0.5 s	0.5 s
Flash 3	0.5 s	1.5 s

4.2 Boot and sleep mode

Sleep mode: the battery enters sleep mode when any of the following conditions is met:

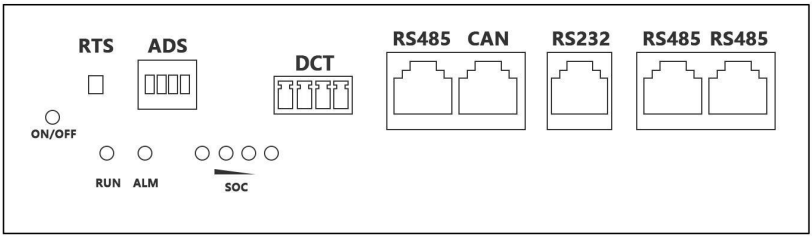
1) Battery or battery-pack over-discharge protection lasts for 30 seconds and is not cleared.
2) Press and hold the power on/off button for 3 seconds, then release.
3) The minimum cell voltage is below the configured "sleep voltage", with no charging or discharging.
4) The battery remains on standby for more than 24 hours with no charging or discharging.
5) Sleep is triggered manually via the host computer.

Wake-up: the battery exits sleep mode when any of the following conditions is met:

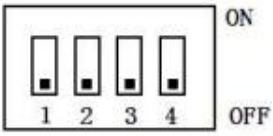
1) The charger is connected and the charger voltage is greater than 48 V.
2) Press and hold the power on/off button for 3 seconds, then release.
3) Connect the communication cable and open the host computer software (unavailable under over-discharge protection).

Note: When over-discharge protection is active, the battery enters sleep mode. The battery will wake up automatically every 4 hours and turn on the charge/discharge MOSFETs. If charging is available, the battery will be charged, otherwise it will return to sleep mode. If woken 10 times without being charged, the battery will no longer wake automatically.

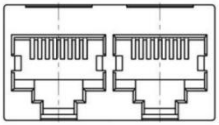
4.3 Communication area

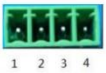


1. RS232: The BMS can communicate with the host computer via the RS232 interface, so as to monitor various information of battery, including battery voltage, current, temperature, status and battery production information, etc. The default baud rate is 9600 bps.
2. RS485: with dual RS485 interface, you can view the pack information. The default baud rate is 9600 bps. If it is necessary to communicate with the monitoring equipment through RS485, the monitoring equipment is used as the host, polling data according to the address, and the address setting range is 1 ~ 15.
3. CAN: CAN communication, baud rate 9600 bps.
4. RS485 and CAN: The user can communicate with the inverter through these two interfaces.
5. RS485 and RS232: Users can connect to the computer through these two interfaces.
6. DCT: Dry contact interface.
7. Rst: reset button.
8. ADS: DIP switch

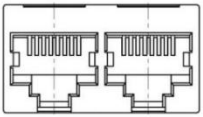


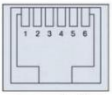
9. Interface diagram


CAN and RS485 interface



Dry contact


Parallel communication port



communication interface

10. Definition of electrical interface

RS232 -- 6P6C vertical RJ11 plug	
RJ11 pin	Definition Description
2	NC
3	TX(Single board)
4	RX(Single board)
5	GND

Table 5 RS485 and CAN Interface

CAN - 8P8C vertical RJ45 socket		RS485 - 8P8C vertical RJ45 socket	
RJ45 pin	Definition Description	RJ45 pin	Definition Description
1,3, 6, 7, 8	NC	9,16	RS485-B1
4	CAN-H	10,15	RS485-A1
5	CAN-L	11,14	GND
2	GND	12,13	NC

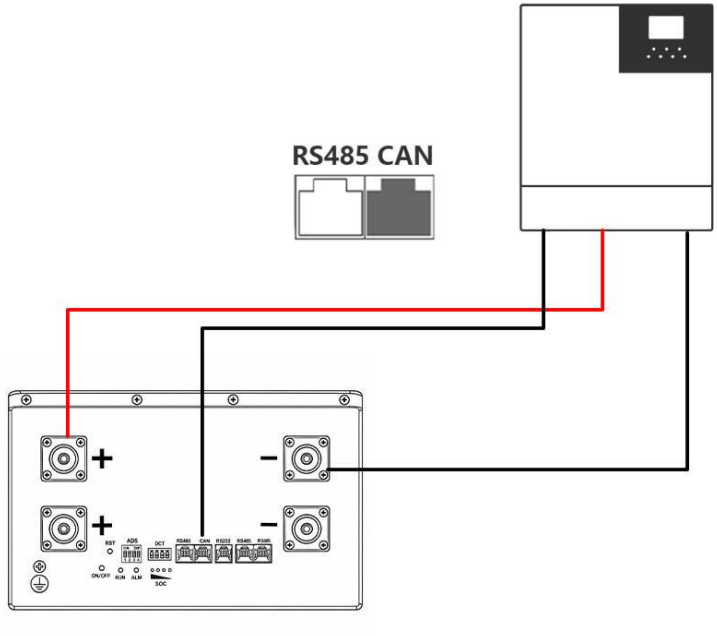
Table 6 Parallel communication port

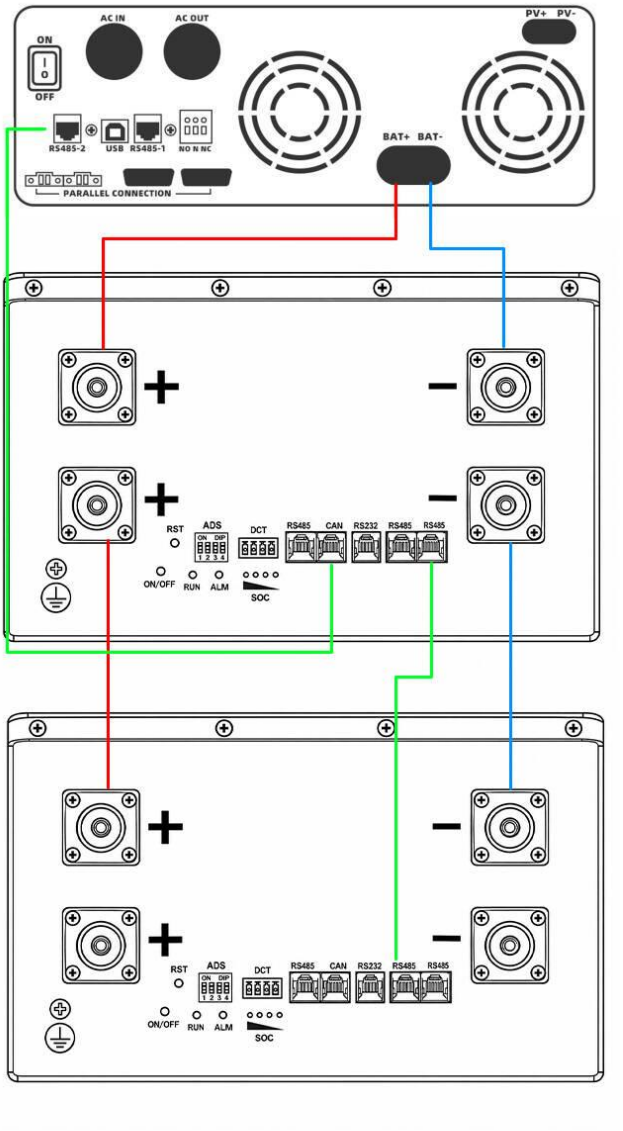
RS485 - 8P8C vertical RJ45 socket		RS485 - 8P8C vertical RJ45 socket	
RJ45 pin	Definition Description	RJ45 pin	Definition Description
1, 8	RS485-B	9, 16	RS485-B
2, 7	RS485-A	10, 15	RS485-A
3, 6	GND	11, 14	GND
4, 5	DN-OP+	12, 13	UP-IN+

5. Description of parallel connection

5.1 Parallel Connection Diagram

If batteries are to be connected in parallel, wire them according to the diagram; up to 15 batteries are supported.
Note: There are 2 parallel connection methods. However, different inverters use different communication protocol interfaces (RS485 or CAN); users must identify the correct type.





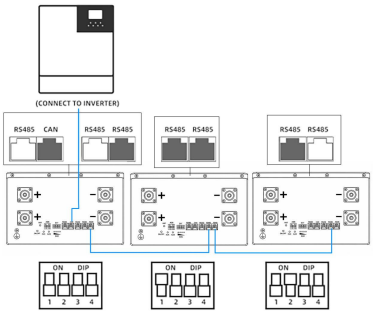
Add: Building A, Xinlida Industrial Park, Junzibu Village,Guanlan Street, Longhua District ,Shenzhen, Guangdong
TEL :0755-23225527 FAX:0755-23225537

5.2 Communication line parallel diagram

The signal line connected to the inverter should use RS485 communication line or CAN communication line. If it is necessary to use batteries in parallel:
① Use an RS485 cable to connect the parallel communication ports; refer to the communication line parallel diagram.
② The battery address must be set; refer to the DIP switch setting table.

Table 7 DIP Switch Setting Table

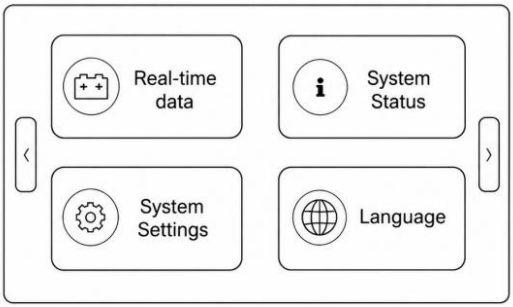
Address	DIP switch position			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON



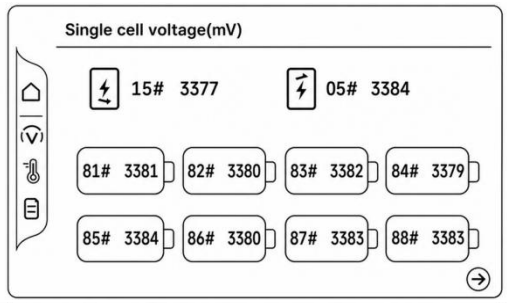
6. Operating instructions

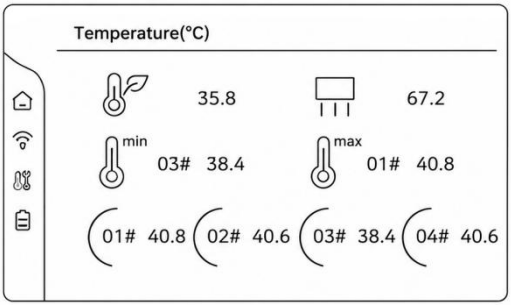
6.1 Display screen

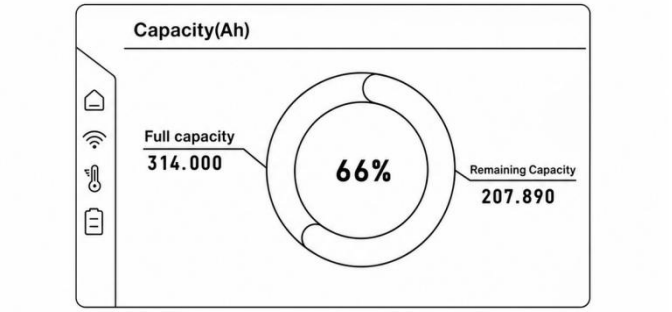
The main menu primarily displays key parameters such as battery voltage, SOC, current, and the maximum and minimum cell voltages. The main menu contains four detail pages for different functions.



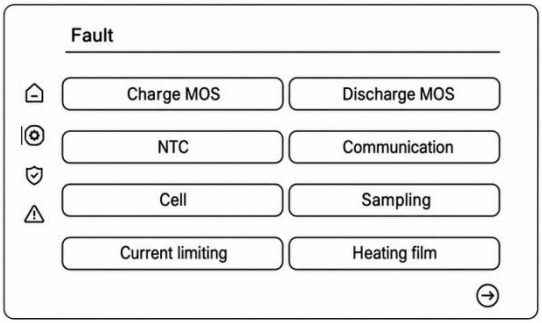
The real-time data page displays the data of all individual cells, as well as temperature and battery pack capacity.



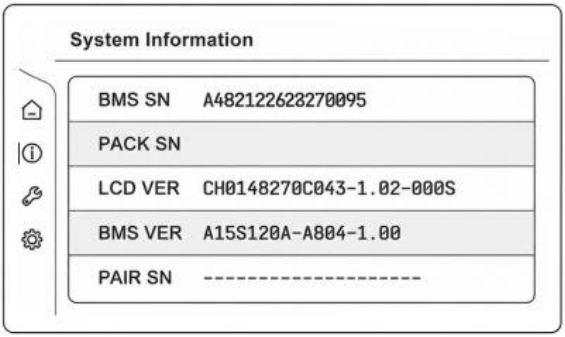


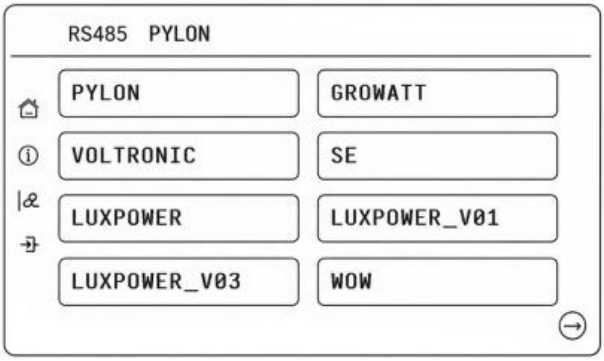


Tap to enter the system status page, which shows detailed data for alarms, protections and faults.



Tap to enter the system information page, where you can view data such as BMS SN and PACK SN, and select or set the inverter protocol.





Tap to enter the language page, where you can select the display language.

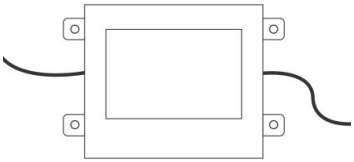


7. Active Balancing Function

The BMS features an active balancing function. The BMS system employs an active balancing circuit, with a balancing activation voltage range as follows: static cell voltage difference greater than 20 mV to activate, and less than 10 mV to deactivate; dynamic cell voltage difference greater than 50 mV to activate, and less than 40 mV to deactivate. The balancing current is ≥2 A, ensuring safe and reliable operation of the balancing module, with a temperature rise not exceeding 50 ℃.

8. Fire extinguishing function (Optional)

The battery is equipped with an aerosol fire extinguishing device. When the battery experiences a short circuit and catches fire, the fire extinguishing device can detect the temperature and automatically extinguish the fire.



Item	Parameter
Model specifications	QRR0.04G/S-MC-40-F-02-11
Working temperature range	-30 ℃ ~ +70 ℃
Relative humidity of working environment	≤95% RH
Start mode	Hot start
Spray time	≤3s
Starting temperature of thermal initiator	170±10℃

9. Bluetooth Wi-Fi function

The universal Bluetooth/Wi-Fi module works with the BMS motherboard for external communication, allowing battery details to be viewed via the mobile app and web backend.

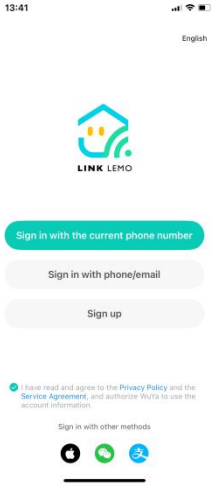
9.1 Download the APP

Scan the QR code below with your browser or search for Wuya in the app store to download.
Note: iOS users can only download from the app store.

QR code download method:
First, scan the QR code above with the browser to enter the download guide interface. Then, it pulls down to find the other version interface, clicks on the latest version (the first one), and on the redirected page, clicks on install. After jumping, it pulls down to find the installation option and starts installing.

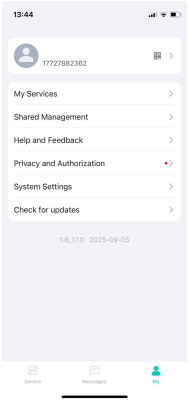
9.2 Sign up

After opening the "Wuya" app, we recommend using the local phone number for one-click login. Users can also choose to use other phone numbers, email addresses, or authorized third-party applications to log in. To log in with your phone number and email address, you need to register before using them.



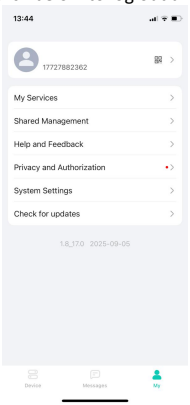
9.3 Personal Center

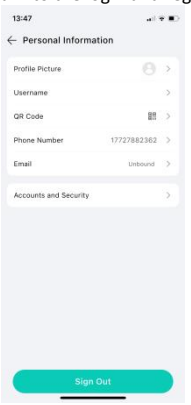
Clicking on 'Mine' at the bottom of the main interface will take you to the personal center interface.



9.3.1 Personal Information

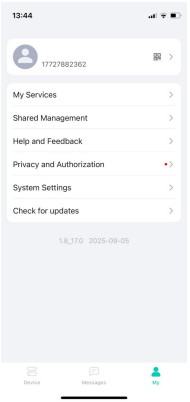
Users can click on the personal information option above to enter the personal information page, where they can set their avatar, username, phone number, and email information. Clicking on the QR code option will display the current user's QR code, which can be scanned to share the device. After clicking on the account and security options, users can perform password changes and account cancellation operations. Click below to log out and return to the login and registration interface.

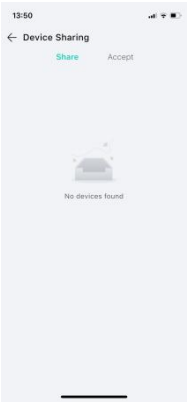




9.3.2 Shared Management

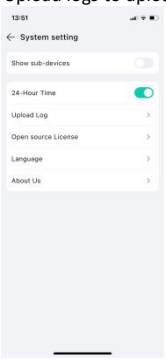
Users can click on Share Management to view the information of shared and received devices for their current account. After clicking on the device on the Share interface, users can tap the plus sign to share the device with others.





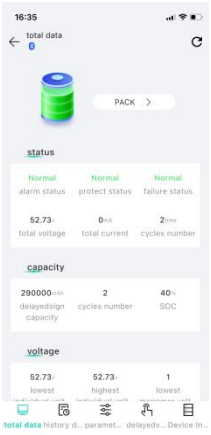
9.3.3 System Settings

Users can view all privacy and authorization information of the app in the system settings interface, as well as set some options for the app. Tap Upload logs to upload app logs and user data.

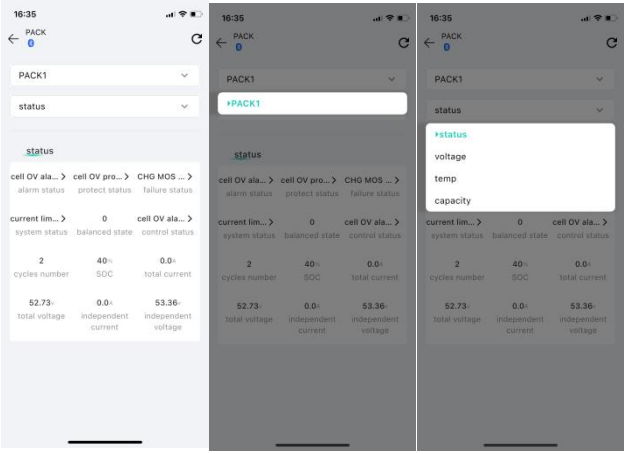


9.4 Device Details

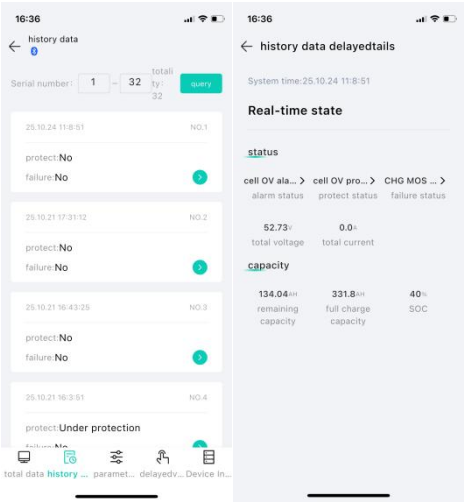
(1) **Summary data:**After clicking on the corresponding device, users can enter the summary data interface and view information such as device status, capacity, voltage, temperature, etc. Click the refresh button in the upper right corner to refresh the current interface. Note: After clicking the refresh button, you need to wait a few seconds for the interface to refresh the latest data.



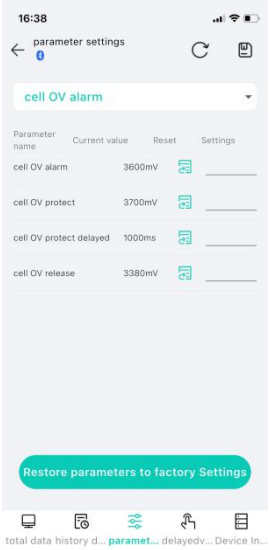
(2) **PACK data:**Users can view the current device status by clicking on "Secondary Detail Data" in the summary data interface. If there is a parallel device, they can choose to view the parallel device data and click the refresh button in the upper right corner to refresh the current interface. Note: After clicking the refresh button, you need to wait a few seconds for the interface to refresh the latest data.



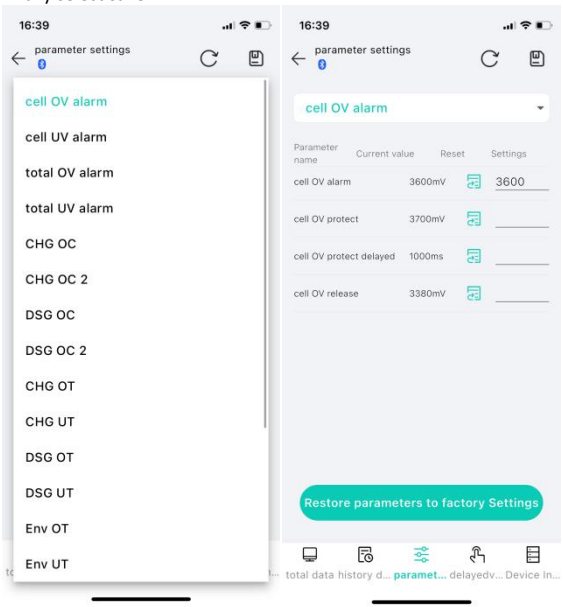
(3) **Historical data:**After clicking on the historical data at the bottom of the summary data interface, users can view the historical data information uploaded by the device. Tapping a data entry displays the historical data details, including the device's status, voltage, temperature, and capacity information. Clicking on the alarm record on the right will display the device's historical alarm information.



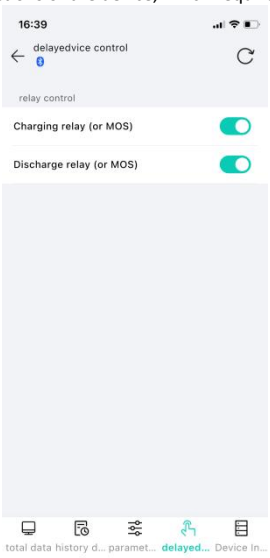
(4) **Parameter Settings:**After clicking on the parameter settings below in the summary data interface, users can set the parameters of the current device or restore the device to its factory settings. Both setting parameters and restoring factory settings require administrator privileges.



Parameter setting method: First, select the corresponding device option, fill in the relevant parameters, and finally select save.

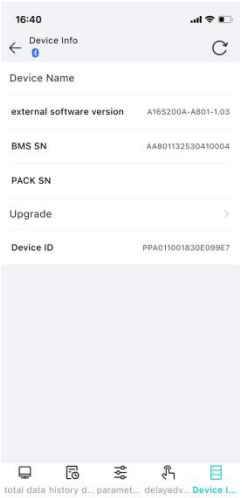


(5) **Device Control:**After clicking on the device control button below the summary data interface, users can control some functions of the device, which requires administrator privileges.



(6) **Device Information:**If the user does not have administrator privileges, clicking on the device management option below will display the external software version number, BMS SN number,

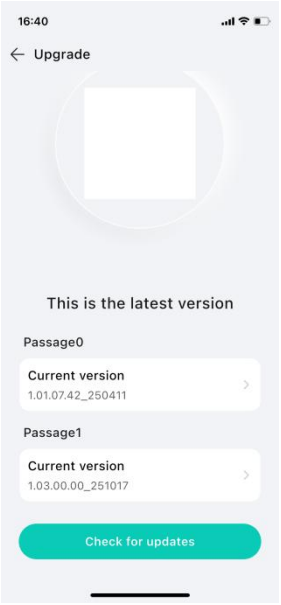
PACK SN number, and device ID information of the device.



If the user has administrator privileges, clicking on the device management option below will not only display the above information, but also show the device's protocol version number, internal software version number, software development version number, system SN number, distribution network SN number, category, master-slave system, CAN protocol, and serial port protocol information.



(7) **Firmware upgrade method:** Click on the firmware upgrade option to enter the firmware upgrade interface, click on the check for updates button below, and if a new version is found, you can click on the new version to upgrade the firmware.



9.5 Wi-Fi Reset Operation Instructions

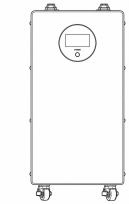
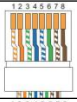
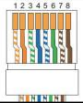
After using the APP to connect to Wi-Fi, the module will be bound to the current Wi-Fi by default. To replace and connect to a new Wi-Fi, press and hold the reset button for 10-13 seconds. After the BMS flow light is fully on, it will turn into a state where one light is on, and then release it (except for the ON/OFF light). Wait 8 seconds; the unbound device will appear in the app, and you can reconnect it to the new Wi-Fi.

10. Heating function (Optional)

The battery protection board features a self-heating function. The heating function is defined as follows: it is activated when the cell temperature is below 0° C and deactivated when the cell temperature is above 15 ° C. The heating power is 200 W.

11. Product list and tools

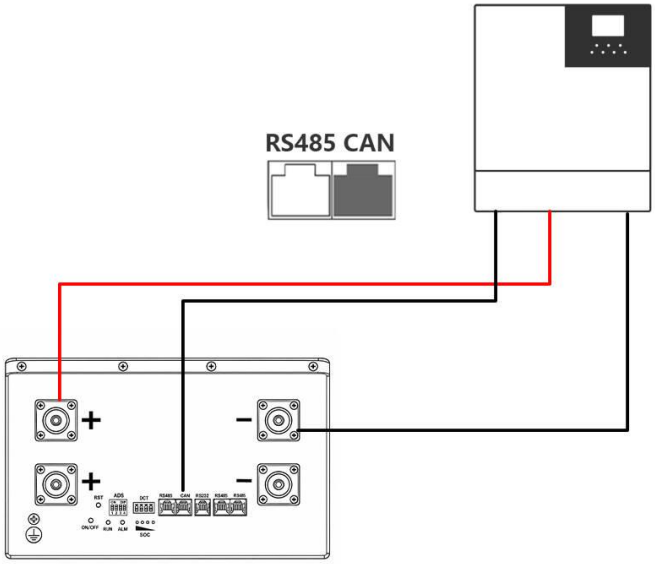
Home energy storage batteries are strictly inspected before delivery, but may be damaged in transit. After unpacking, please check that the following items are complete and confirm that the model, capacity and voltages match the order. If anything is abnormal or inconsistent, contact the distributor as soon as possible.

<table>
<tr><th></th><th colspan="3">Picture</th><th>Description</th><th>Qty</th></tr>
<tr><td>Home energy storage battery</td><td colspan="3"></td><td></td><td>1 piece</td></tr>
<tr><td>Product manual</td><td colspan="3"></td><td></td><td>1 piece</td></tr>
<tr><td>Positive/negative connector plug</td><td colspan="3"></td><td></td><td>Positive/negative each one</td></tr>
<tr><td rowspan="2">Signal line (Optional)</td><td>CAN</td><td>Connect inverter</td><td>RJ45</td><td></td><td>4-CAN-H
5-CAN-L</td></tr>
<tr><td>RS485</td><td>Connect inverter</td><td>RJ45</td><td></td><td>1,8-RS485-B
2,7-RS485-A</td></tr>
</table>

12. Instruction manual

1. Place the battery in an appropriate position, plug the positive/negative connector of the battery into the positive/negative socket of the inverter.
2. Connect the CAN/485 port between the battery and inverter.
3. Turn on the rocker switch and the air switch.
4. Select the inverter protocol and BMS protocol. Ensure the two protocols are fully consistent.

Note: Protocols vary among different inverters. Confirm the inverter protocol first before adjusting the BMS protocol.



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