V1.0

USER MANUAL

EW-5 PRO ENERGY WALL

LifePO4
Wall Mount
Battery System

SUNBEAT
ENERGY FOR BETTER LIVING

Revision Table

No	Version	Revised by	Content	Revision Date
1	Rev1.0		First release	2024.05.10
2				
3				
4				
5				
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7				
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Definition of Terms

The following acronyms and abbreviations are used in this manual.

BMS	Battery Management System
SOC	State of Charge
SOH	State of Health
DOD	Depth of Discharge
Battery Module	Multiple cells connected together
Cabinet	A carrier that carries multiple modules

1 Overview

1.1 Scope of Application

This document provides comprehensive information on Wall-mounted battery products, including their specifications, operational specifications, maintenance procedures and other relevant details. The wall-mounted battery products are widely used in small and medium-size energy storage fields.

1.2 Target Audience

This manual is intended for professionals and technical personnel who install, operate and maintain the batteries, as well as for end-users who may need to view relevant technical parameters.

1.3 User Manual

Please read the user manual carefully before use to ensure a comprehensive understanding of the product. After reading, please store this manual in a secure location for future reference.

1.4 Disclaimers

Failure to operate this product correctly may result in severe injury to oneself or others, as well as damage to the product or surrounding property. By using this product, you are deemed to have fully understood, acknowledged and accepted all the terms and contents in this document. Users assume responsibility for their actions and any resulting consequences. The company shall not be held liable for damages caused by the user's failure to comply with the provisions stated in this document or the user manual.

The content of this manual will be periodically updated and revised without prior notice. It is recommended to obtain the latest product manual.

2 Product Description

Wall-mounted lithium battery products are suitable for applications in low-voltage small and medium-sized energy storage systems. These products adopt the highest safety performance lithium iron phosphate cells, with a high-precision battery management system (BMS). The BMS monitors and collects real-time data on voltage, current and temperature of each cell within the module. The BMS also has a passive balance function and advanced battery control strategy, further enhancing the performance of the battery pack.

The battery module consists of LFP cells, BMS, housing and wiring. Each module is equipped with comprehensive protection functions. The modules can be establish communication with the external devices through CAN/RS485. The modules interact with each other through RS485. The modules can be connected in parallel to meet the expansion needs, with a maximum support capacity of 16 modules.

3 Safety Instructions

3.1 Label Description

To ensure the user's personal safety when using this product, this manual provides relevant identification information and uses appropriate symbols to alert the user. It is recommended that the user carefully reads the following list of symbols used in this manual.

Table 3-1 Label description

	Potentially Low Risk: May result in mild or moderate impairment if not avoided.
	High Risk: May result in serious injury or death if not avoided.
	The battery terminals must be disconnected before commencing work on the battery.
	The battery could explode and/or be severely damaged if dropped or crushed.
	The battery may explode if exposed to open flames or other extreme sources of heat.
	Grounding: The system must be firmly grounded for the operator's safety.
	This side should be facing up.
	Handle with care to avoid damage.
	Keep dry.
	Keep the battery out of reach of children.
	Do not short circuit.
	Do not reverse connection of the positive and negative terminals.

3.2 Installation Tools

Table 3-2 Installation tool sheet

Tools	Multi-meter 	Protective gloves 	Insulated anti-smashing shoes 
	Protective suit 	Safety glasses 	ESD wrist strap 
Installation Tools	Electric screwdriver 	Cross screwdriver 	Socket spanner 
	Slotted screwdriver 	Wire stripper 	

3.3 Attention Items

3.3.1 Manual Custody

This manual contains important information about the Wall-mounted lithium batteries. A careful reading of this manual will help you become familiar with this product. Please keep this manual in a safe place accessible to maintenance personnel whenever needed.

3.3.2 Product Identity Protection

Warning labels, back panels and front doors of cabinet contain important safety information and are strictly forbidden to be torn and damaged.

3.3.3 Operator Requirements

Only trained and qualified professionals should perform various operations on the product. The operator should be fully familiar with the product's system components, operating principles, and the user manual.

3.3.4 Safety Warning

 During the installation, daily maintenance, overhaul and other operations of products, the following guidelines should be observed to prevent accidental operations and proximity or occurrence of accidents by unrelated personnel: the front and rear switches of the products should be clearly marked to prevent accidents caused by wrong switches; warning signs or safety warning belts should be placed near the operation area to prevent the proximity of unrelated personnel.

3.3.5 Electric Measurement

 Due to the high voltage of the battery that may endanger personal safety, accidental contact may cause serious injury. During measurement operations, please ensure adequate insulation protection (such as using insulating gloves).

3.3.6 Measuring Instrument

 To ensure that the electrical installation meets the requirements, please use the relevant electrical measuring equipment, such as multi-meter and power meters.

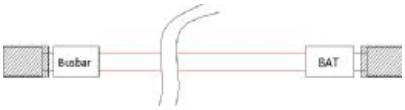
3.3.7 Maintenance

 During maintenance and repair operations, ensure that the energy storage battery cabinet is not accidentally charged. Use a multi-meter to ensure that there is no electricity in the energy storage battery cabinet. Utilize insulating materials to insulate the possible electrical parts of the system. Ensure that the system has necessary grounding connections in place.

4 Main Components

The core components of the battery module are shown in Table 4-1 below:

Table 4-1 Main components sheet

No	Item	Picture
1	Battery Module 51.2V100Ah	
2	Power Cable	
3	Parallel/Communication Cable	

5 Product Description

5.1 Product Introduction

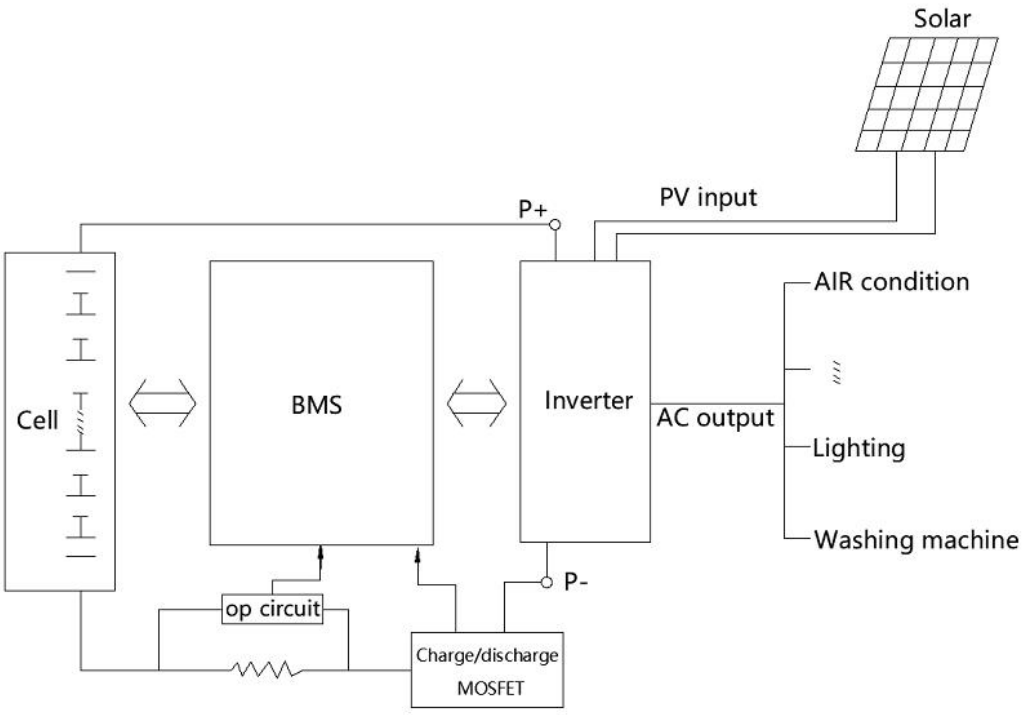
Wall-mounted energy storage products are modular products for energy storage applications and are widely used in small and medium-sized energy storage systems. Each module consists of cells, a BMS and a shell. The BMS in each module is equipped with independent voltage, current, temperature detection and protection functions. The optimal configuration of the entire energy storage system can be achieved by adjusting the number of parallel modules.

5.2 Working Principle

Under normal circumstances, the load is powered and the battery pack is charged by the grid AC power supply, generator, or solar energy system. In the event of a power supply failure or interruption, the system automatically switches to battery power supply to ensure normal operation of the equipment. Once the power supply is restored, the system resumes supplying power to the load and simultaneously recharges the battery pack.

5.3 Connection Diagram

Figure 5-1 Working principle diagram of battery system



6 Module Description

6.1 Module Specification

Wall-mounted battery adopts the highest safety performance lithium iron phosphate battery, with specifications of 51.2V100Ah. Each battery module has a built-in full-featured and high-precision battery management system (BMS). The BMS enables real-time monitoring of voltage, current and temperature, and has a passive balancing function, effectively enhancing battery performance.

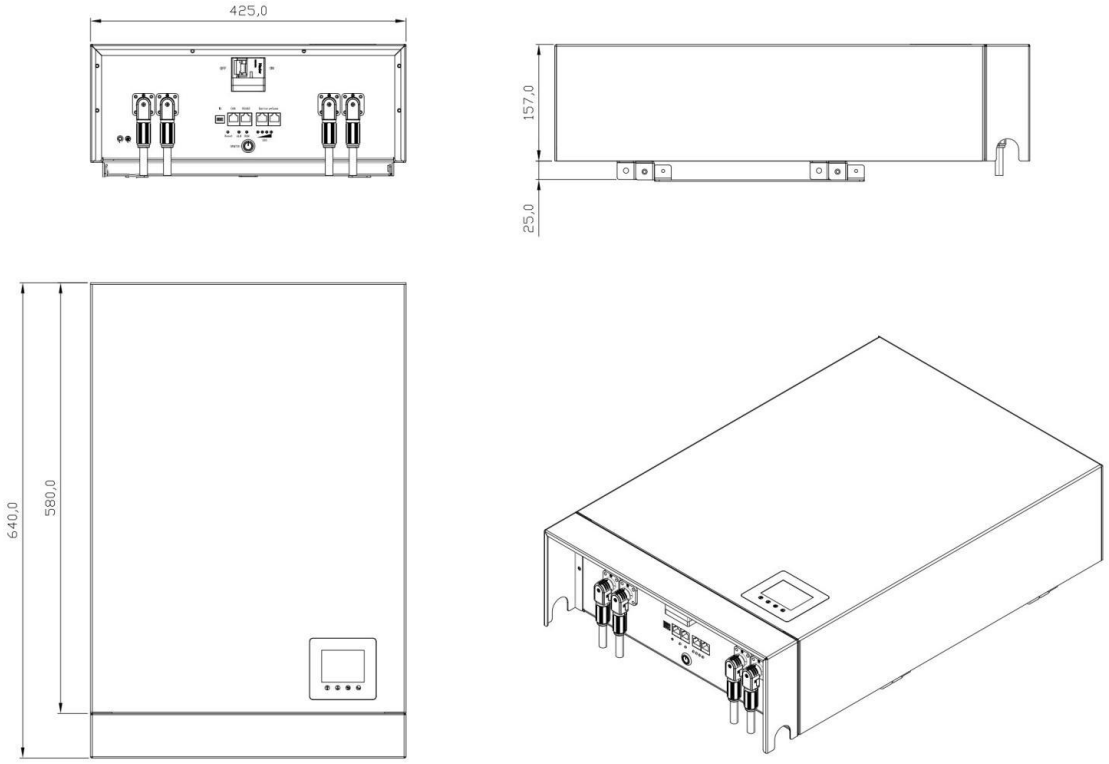
Table 6-1 Wall-mounted battery module specification

Type	Voltage	Capacity	Energy	Width	Depth	Height	Weight
51.2V100Ah	51.2V	100Ah	5120Wh	425mm	640mm	157mm	50.2kg

6.2 Module Illustration and Front Panel Description

6.2.1 Appearance & Dimension Schematic Diagram

Figure 6-1 51.2V100Ah Appearance & dimension drawing



6.2.2 Front Panel Diagram

Figure 6-2 Front panel diagram(For 51.2V battery)

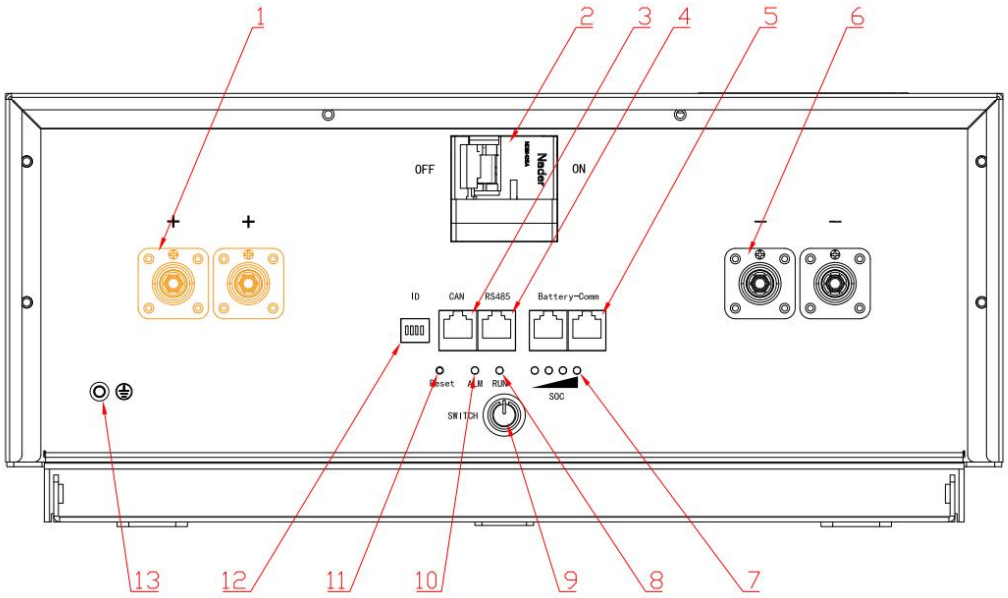
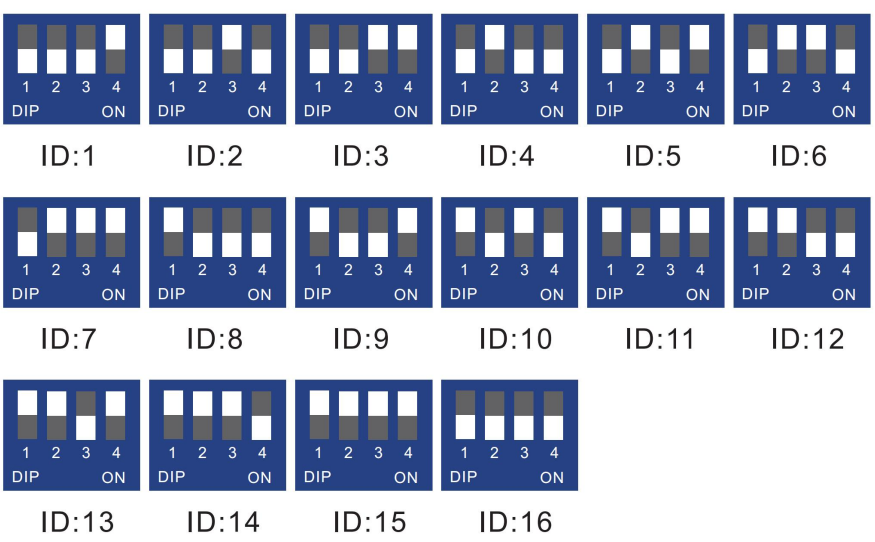


Table 6-2 Front panel interface description

No.	Item	Function Description	Remarks
1	Terminal	Positive	Plug-in type
2	Breaker	Output switch	
3	CAN	CAN Communication interface	
4	RS485	RS485 Communication interface	
5	Battery Comm	Connect inverter communication port	Parallel communication
6	Terminals	Negative	Plug-in type
7	SOC	The state of charge	4 nos green LED
8	RUN	Operating indicates LED	
9	ON/OFF	Button Switch on/off the BMS	On the side
10	ALM	Alarming indicates LED	
11	RESET	Emergency restart button	
12	ID	Assign address of every model	
13	GND	Ground point	

6.3 ID Setting Description

Figure 6-3 ID dialing code address assignment instructions



Notes:

1. The ID code bits correspond to binary digits, with down for "ON" and up for "OFF". The right side of the code bit is the low bit, while the left side is the high bit. The code ranges from 1 to 16, and in communication mode, it can support up to 16 modules in parallel.
2. Reset the battery while configuring the dial code for standalone battery operation or parallel operation.

6.4 LED Indicator Status and Definition

Table 6-3 LED indicator status and definition

Status	Normal/Alarm/Protection	RUN	ALM	SOC Indicate LED	Notes
		●	●	SOC1~SOC4●	
Shutdown / Sleep		OFF	OFF	OFF	
Stand by	Normal	ON	OFF	Based on battery indicator（Each LED indicators 25%SOC）	
Charge	Normal	Flash 1	OFF		
	Alarm	Flash 1	Flash 1		
	End-off Voltage	ON	OFF		
	Over-Temp Protection	OFF	ON		
	Over-current transfer limit -current	Flash 1	Flash 3/OFF		Over-current flash 3, limit-current OFF
Discharge	Normal	Flash 2	OFF	Based on SOC indicator	
	Alarm	Flash 2	Flash 3		
	End-off Voltage	OFF	OFF		Go to sleep
	Over-Temp/Over-current Protection	OFF	ON		

Notes:

Shutdown: All LED lights are off;

Power on: RUN light is always on;

System failure: ALM light is always on;

Each SOC light represents 25% capacity;

Flash 1: flash once every 1 second;

Flash 2: flash once every 1.5 seconds;

Flash 3: flash once every 2 seconds.

6.5 Communication Interface Diagram and Description

Figure 6-4 Communication interface diagram

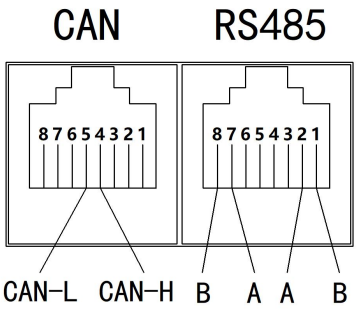


Table 6-4 Communication interface definition

RS485 interface		CAN- interface	
Pin No.	Definition	Pin No.	Definition
Pin-1,Pin-8	RS485 B-(T/R-)	PIN-4	CAN_H
Pin-2, Pin-7	RS485 A+(T/R+)	PIN-5	CAN_L
Others	NC	Others	NC

7 Module Auxiliary Accessories

7.1 Power Cable

The power cable is used to connect the battery modules of the cabinet to carry the operating current. This facilitates the integration of multiple battery modules into a complete power system.

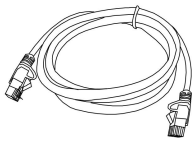
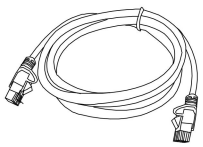
Table 7-1 Power cable specification

Picture	Item	Specification
	Cross-sectional area	25mm²
	Safety Current	100A
	Cross-sectional area	25mm²
	Safety Current	100A

7.2 Communication Cable

The communication line is suitable for the information interaction between modules when the modules are used in parallel.

Table 7-2 Communication cable specification

Picture	Item	Specification
	Communication cable for Voltronic inverter. Follow the cable mark “Battery” and “Inverter” to connect.	
	UL Rating	UL1007
	Parameter	CAT6
	Parallel cable & communication cable. (Straight cable, can use as communication cable to Deye, Growatt etc.)	
	UL Rating	UL1007
	Parameter	CAT6

8 System Installation

8.1 Handling, Transportation, Storage

8.1.1 Handling

Improper handling practices may cause short circuits or damage to the battery pack, resulting in battery leakage or fire. Use forklifts or carts for handling. Ensure that the dimensions of materials do not exceed the width and height of aisles and doors, and maintain a moderate speed. Avoid situations where battery packs are inverted or stacked on top of each other during unloading.

8.1.2 Transportation

To ensure safety, it is recommended to use a forklift or have multiple individuals handle the battery module due to its heavy weight. Avoid dropping, throwing, and exposing the equipment to collisions or strong vibrations during transportation.

Figure 8-1 Handling tool diagram

8.1.3 Storage

Short-term storage (within 3 months): If the battery is not used for a short period of time, the battery can be fully charged and stored in a dry, cool environment with non-corrosive gas. The recommended temperature range is 10~45°C, with a relative humidity of 60±30%. Store the battery away from strong electromagnetic fields and

direct sunlight.

Long-term storage (over 3 months): If the battery is not used for more than 3 months, keep the battery SOC at 50%~70%. Store it in a dry, cool environment with non-corrosive gas. The recommended temperature range is 20~35°C, with a relative humidity of 50±15%. Store the battery away from strong electromagnetic fields and direct sunlight. Charge the battery once every 6 months to avoid irreversible capacity loss caused by long-term storage.

8.2 Open-box Inspection

8.2.1 Unpacking Tools

Table 8-1 Unpacking tools sheet

Item	Tools		
Tools	Slotted screwdriver 	Protective gloves 	Stripper 
	Hammer 		

The products undergo thorough testing and inspection prior to leaving the factory. Upon receipt, please carefully inspect the products and sign for them after confirming their condition. If any damage is observed, please promptly contact the local distributor. When opening the box, please check the following:

(1) Outer Packaging: Ensure that the outer packaging is intact and not damaged.

(2) Quantity and Type: Verify that the quantity and type of goods received match the description provided in the bill of materials.

(3) Internal Equipment: Inspect the internal components to ensure they are undamaged.

8.2.2 Packing List

The Wall-mounted lithium battery system supports up to 16 modules in parallel.

Table 8-2 Packing list

Parts List		
Item	Item name	Qty
1	Battery Module	1
2	Power cable between battery and Inverter (25mm²_1.5m Red/Black)	2
3	Communication cable_1.5m	1
4	Explosion bolt, M8*70	4/6
5	Studs	2
6	Installation Bracket	1
7	User manual/installation instruction	1

8.3 Mechanical Installation

8.3.1 Installation Requirements

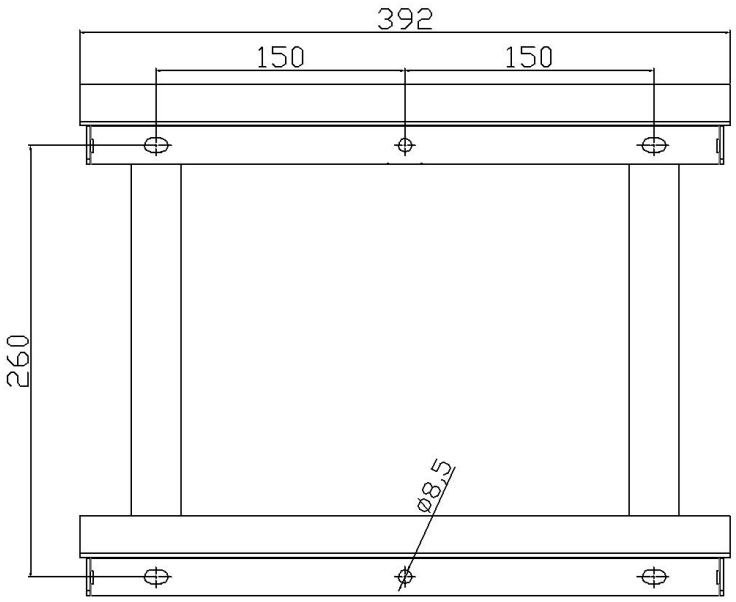
 The position of the battery cabinet during installation has a direct impact on its safety, service life and performance. Ensure that the wiring of the system is convenient and easy to maintain and operate. Avoid placing the battery cabinet in a high temperature and high humidity environment.

1. Installation space and load bearing. Sufficient fixed components should be in place to install the battery. Ensure that the battery mounting bracket or cabinet is strong enough to bear its weight.
2. Cable specifications. Ensure that the power supply lines used for connections match the maximum current requirements of the equipment for proper operation.
3. Layout. Ensure that the whole construction process of power equipment and batteries is in a reasonable manner.
4. Wiring layout. Ensure that the wiring is organized and orderly, taking into consideration measures for moisture-proofing and corrosion prevention.
5. Wear anti-static wristbands throughout the installation process.
6. The installation should involve at least two or more individuals on site.

8.3.2 Expansion Screws Fixing

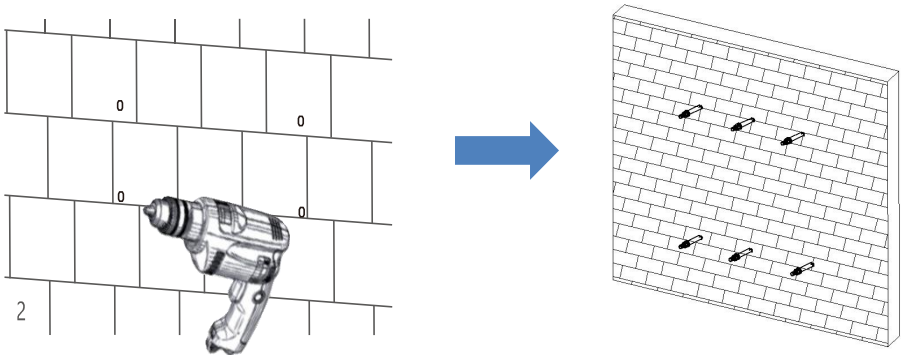
A pen is used to mark the position of the 4~6 holes. The holes distance is:

260mm*150mm*150mm for 51.2V100Ah.



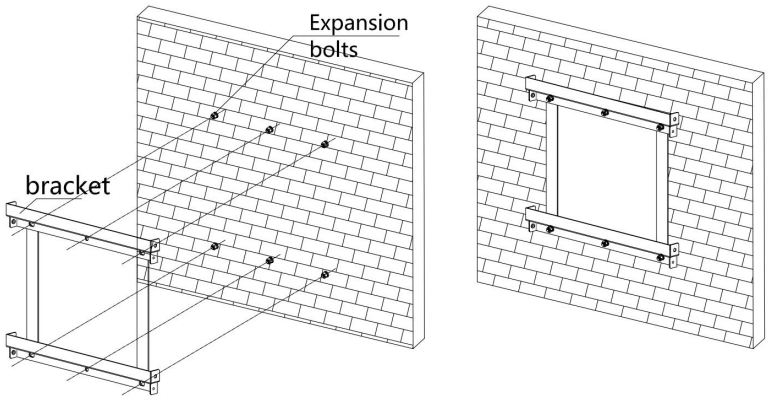
Use a drill to create 8 mm diameter holes and ensure that the depth of the holes is deeper than 50 mm. Install the expansion tubes into the holes and tighten them. Use the expansion screws (packaged together with the expansion tubes) to install and fix it onto the wall.

Figure 8-2 Expansion screws fixing



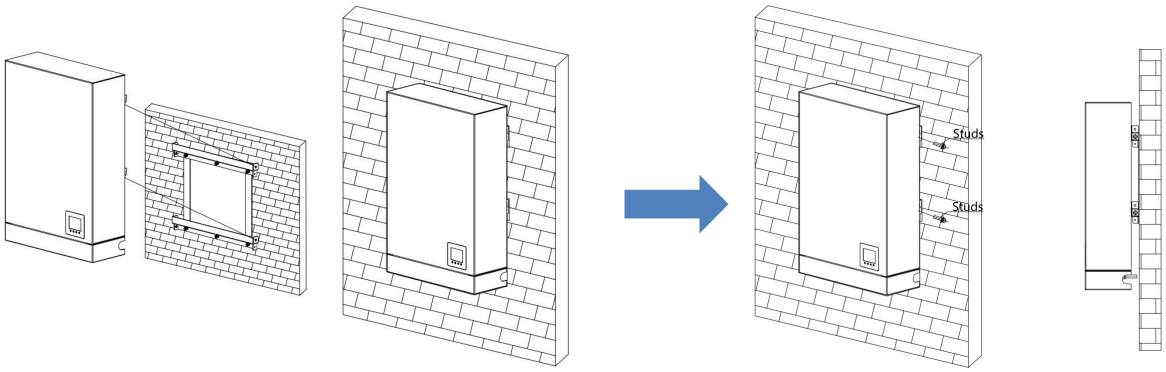
8.3.3 Bracket Fixing

Figure 8-3 Bracket fixing



8.3.4 Install the Battery

Figure 8-4 Battery installation diagram



⚠ Install the battery on the wall and securely attach the battery to the wall using security screws to lock it in place.

1. A single battery module weighs about 50kg. If handling tools are not available, it is necessary to have at least two individuals for safe handling. The handles located on both sides of the battery can be used for lifting and carrying.

2. The battery is equipped with feet for ground application. If wall mounting is not feasible, the battery can be placed on the ground. However, caution must be exercised to prevent tripping.

8.4 Electrical Installation

8.4.1 Tolls Introduction

The following tools are required for electrical connection, as shown in Table 8-3:

Table 8-3 Electrical installation tools diagram

Item	Tools		
Tools	Multi-meter 	Protective gloves 	Screwdriver 
	Electric batch 	Cross screwdriver 	Socket wrench 

8.4.2 Connections

1. Connect the power cable and communication cable to the inverter.

2. When parallelizing multiple battery modules, follow the ID arrangement table to assign unique IDs. Connect the power cable in parallel with power cables and connect communication cables in battery-comm interface with communication cables. Connect the RS485/CAN interface of either the first or last battery module to the inverter.

3. Push the “ON/OFF” button to start the battery system.

4. Check the battery data and ensure the battery is on normal operation.

Remarks:

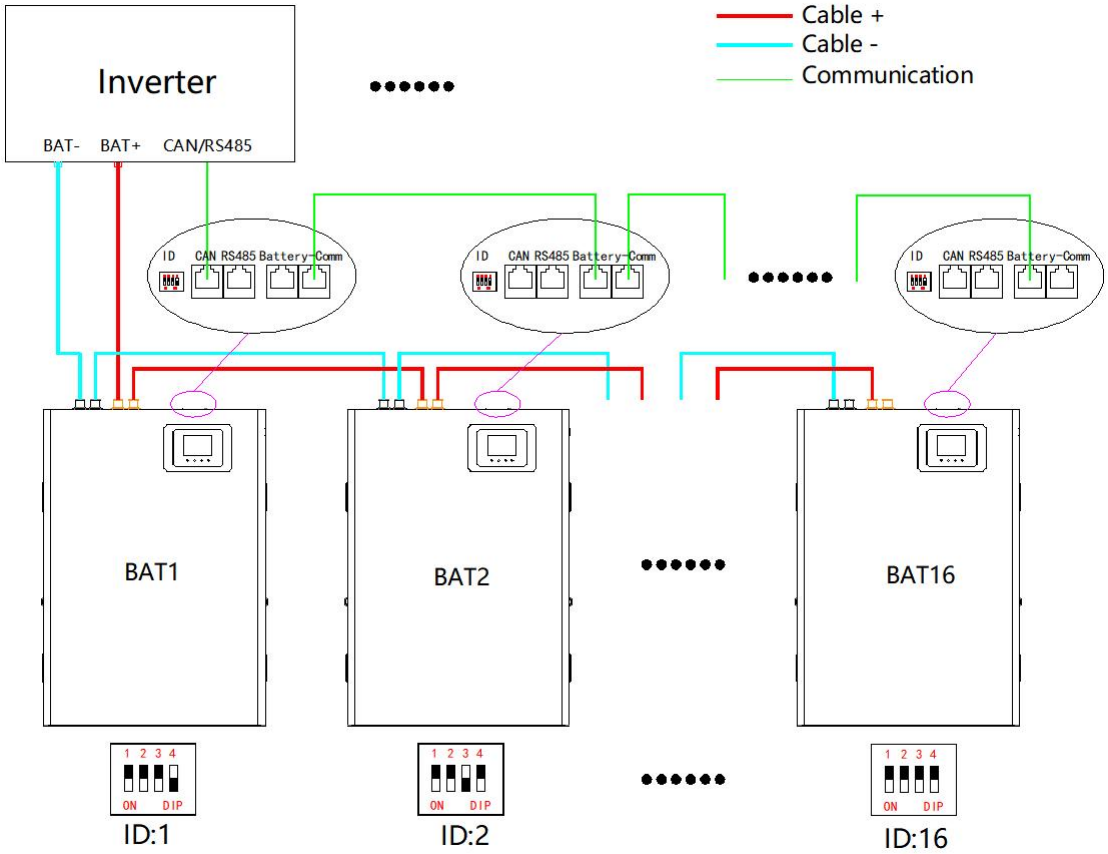
① The package includes spare plug-in terminals. If parallel connection of batteries is required, please use 2AWG cables to fix the plug-in terminals and connect battery in parallel.

② Please assemble the communication cable as the Pin-definition (refer to section 6.5) to inverter if necessary.

Caution: If you have any question about the installation, please stop installation and contact technical support immediately. If the battery fails to start or if the control panel's ALM indicator lights up, please disconnect the power line for inspection and re-install the startup process. If the issue persists, please contact technical support to avoid equipment damage or accidents.

8.5 Multiple Batteries in Parallel

Figure 8-5 Multiple batteries in parallel schematic diagram



When multiple battery modules are used in parallel, the positive and negative terminals of all battery modules are connected to the total positive and negative bus bars, respectively. The batteries are connected to each other with communication cables. Then, connect the positive and negative terminals of the bus bars to the inverter, and connect the communication port of the last battery to the inverter as well.

8.6 System Starting Up

8.6.1 Start Up Checking

After installation or maintenance, the lithium battery system needs to be started up. Before starting up, please check the following precautions carefully to make sure there are no errors.

All electrical connections must be made in accordance with the electrical diagrams in the manual. The DC combiner box must be open. The cables are properly distributed, without mechanical damage, and connected and fastened correctly. The internal protection devices in the combiner box must be firmly installed. No excess parts or

conductive material remains.

8.6.2 Start Up

 After completing the above steps, press the ON/OFF switch on the control panel to turn on the machine. Then, turn on the miniature circuit breaker and turn on the power of the whole system to complete the installation.

8.6.3 System Charge

 During transportation or long-term storage of the battery system, the battery SOH may be low due to self-discharge of the cells and system consumption. The lithium battery needs to be charged after normal start-up and before use.

9 LCD Screen and PC Software

Each module has a built-in LCD display. The PC software is only suitable for installation and maintenance.

9.1 LCD Display Introduction

LCD display is embedded in each battery module. It is used to display some important information about the cells, such as voltage, current, temperature, SOC, capacity, and running status.

9.1.1 Button Description

There are 4 function buttons below the display, with detailed descriptions as shown in the table below.

Figure 9-1 Button description

The corresponding function description for each button is shown in the table below.

Table 9-1 Button description Table

No.	Item	Description
1	Up	Page up
2	Down	Page down
3	Back	Return
4	Enter	Confirm

9.1.2 Screen Wake Up

Press any key to wake up the screen when power is on, and more information will be shown on the display.

Figure 9-2 Main Page information

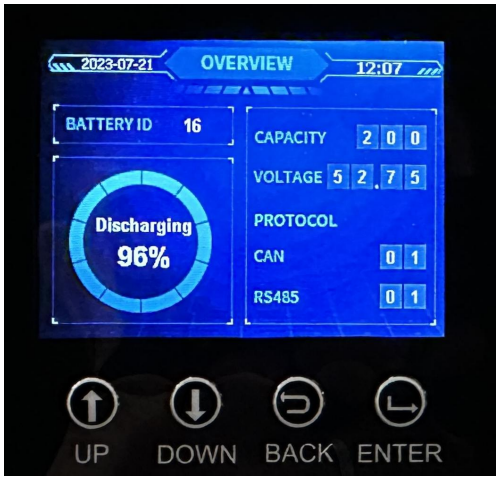


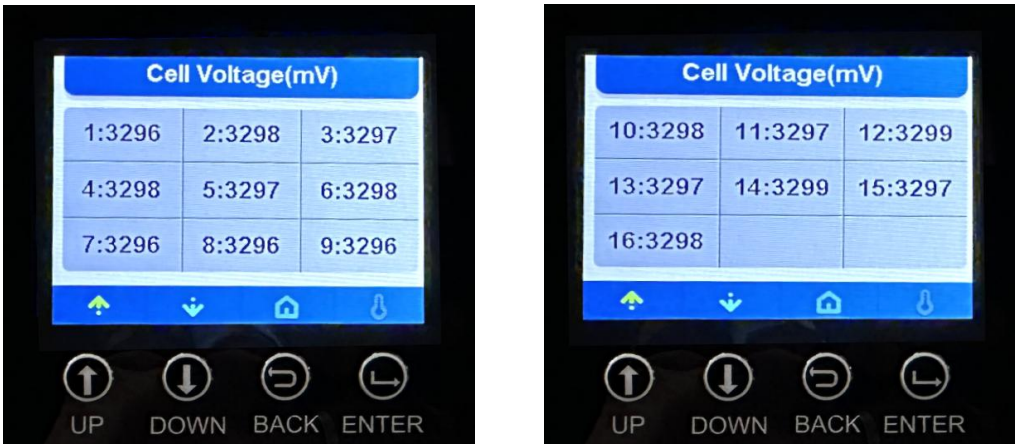
Table 9-2 Main page information introduction (For example)

Battery ID	16	CAPACITY	200Ah
Battery status	Discharging	Battery module voltage	52.75V
Battery SOC	SOC: 96%	PROTOCOL	CAN: 01
System time	2023-07-21 12:07		RS485: 01

9.1.3 Cell Information

Press the “Enter” button, and check the cell information in 2 pages. Press “Up” and “Down” to navigate between the pages. Page 1 is for cell 1~ cell 9. Page 2 is for cell 10 ~cell 16.

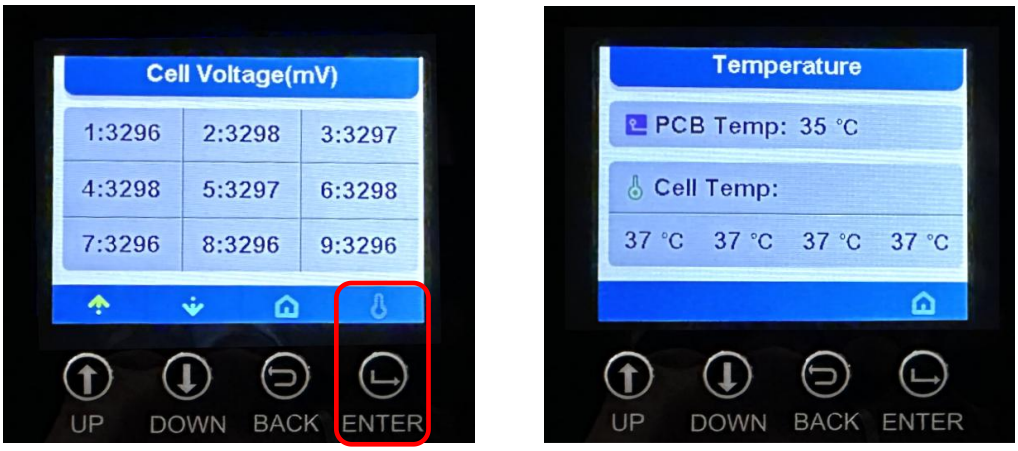
Figure 9-3 Cell information



9.1.4 Temperature Information

In the above interface, click the thermometer icon on the screen and press "Enter" below to view the information under the corresponding icon.

Figure 9-4 Temperature information



9.1.5 Working Communication Protocol Selection

To change the protocol to another, follow the steps:

1. Set the battery ID to No.16 (refer to 6.3) when battery is turn off;
2. Turn on the battery, and press “Back” button for 5 seconds to enter the protocol selection screen;
3. Select the corresponding RS485 program or CAN program;
4. Press “Enter” to choose the protocol from the list;
5. Press the “Back” button to return to the main interface, restart the battery, and the battery will correspond to the program.

Figure 9-5 Working mode selection—RS485

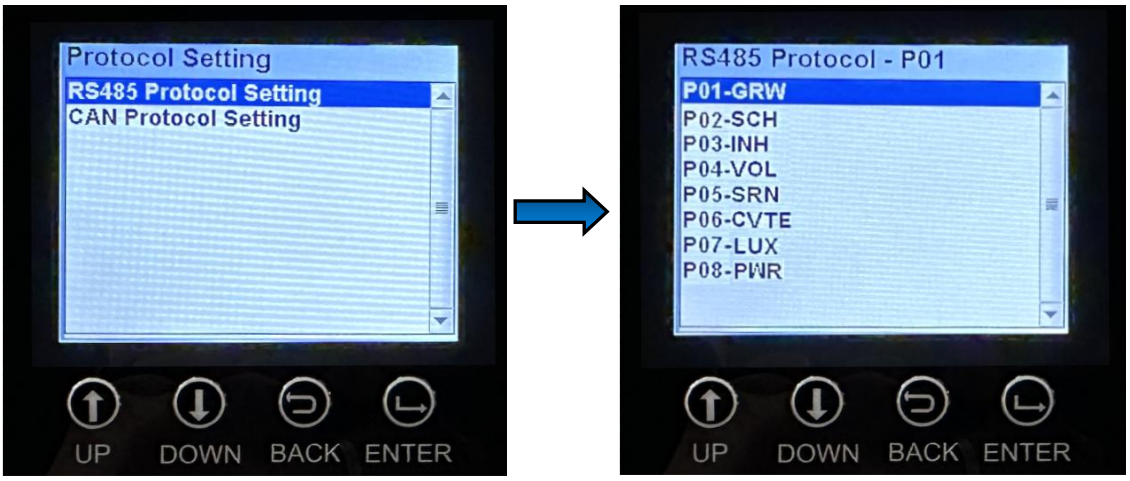
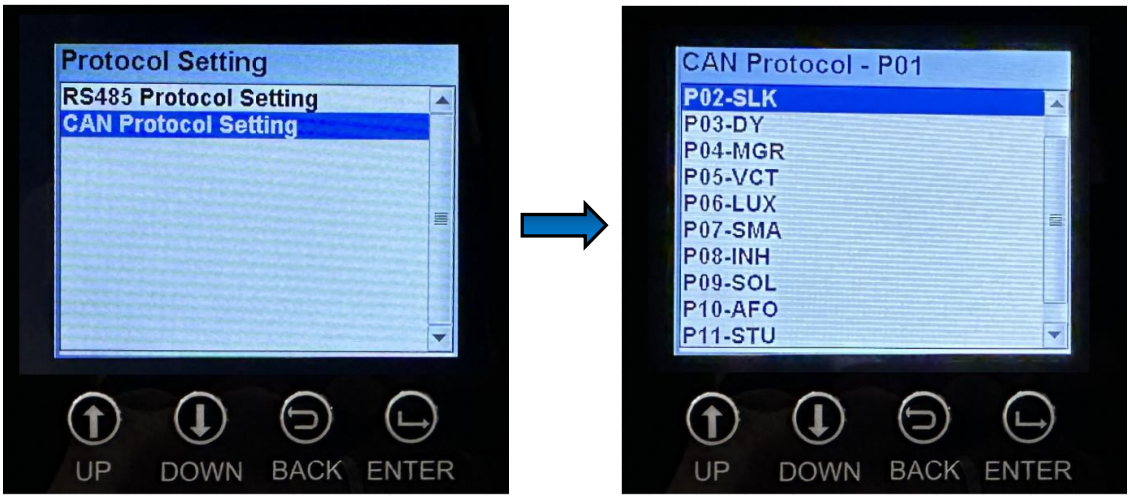


Figure 9-6 Working mode selection—CAN



Notes:

The protocol can only be changed at address No.16. After the change is completed, restart the battery to take effect. Refer to the protocol list below for available options.

Table 9-3 The communication protocol list

RS485			CAN		
Protocol name	Inverter's brand name	Inverter protocol setting	Protocol name	Inverter's brand name	Inverter protocol setting
P01-GRW	Growatt	PECL L01 0363	P01-GRW	Growatt	PECL L51 0363
P02-SCH	Schneider	Setup-Modbus settings-Baud rate 9600	P02-SLK	Sol-Ark	/
P03-INH	Inhenergy	/	P03-DY	Deye	Lithium Mode 00
P04-VOL	Voltronic	PYL 05	P04-MGR	Megarevo	Settings-battery parameter-Lithium battery
P05-SRN	Srne		P05-VCT	Victron	/
P06-CVTE	CVTE		P06-LUX	Luxpower	LI 06
P07-LUX	Luxpower	LI 06	P07-SMA	SMA	"Start the installation assistant"
P08-PWR	PWR		P08-INH	Inhenergy	/
			P09-SOL	Solis	Advanced Settings - Energy Storage Settings - Battery Model selection -Zeta
			P10-AFO	Afore	/
			P11-STU	Studer	/
			P12-MUST	Must	
			P13-SBE	SUNBEAT-S	
			P14-PYL	Pylon	

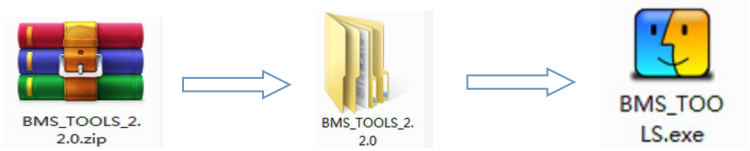
Notes:

"/" means that there is no need to set it on the inverter. Instead, connect the communication cable (network cable) directly.

9.2 PC Software Installation

Contact the supplier to get the latest version of the software for free. Run the BMS_tools.exe program directly after unpacking, as shown Figure 9-7:

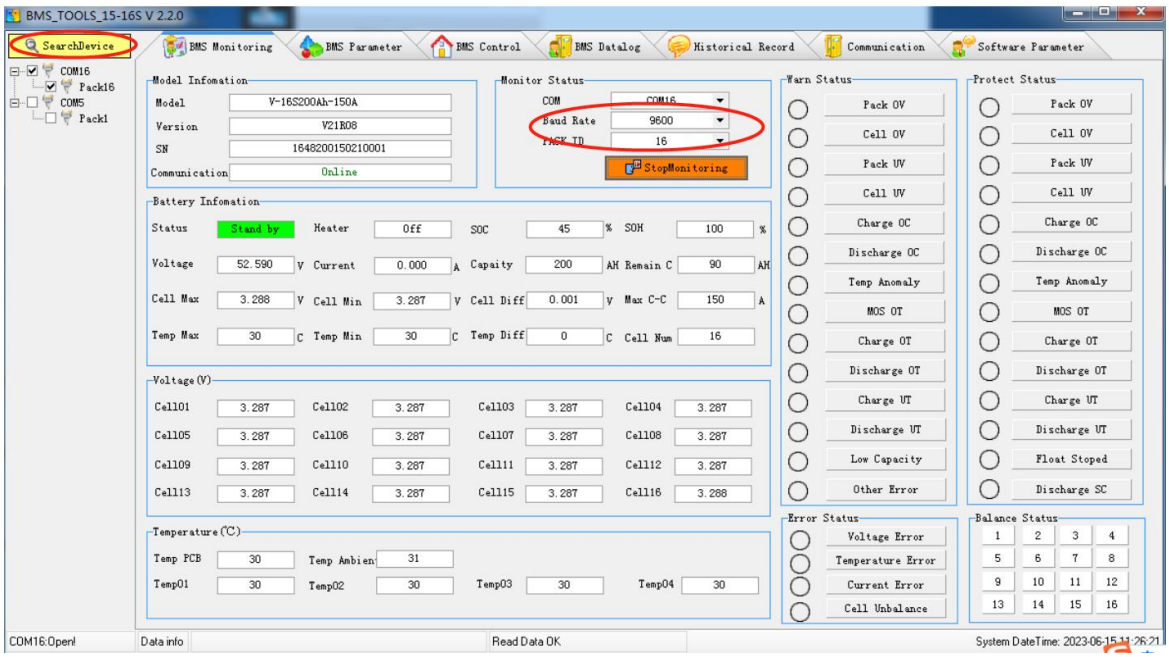
Figure 9-7 PC software installation steps



9.3 Communication Connection

Connect the 485 to USB cable and set the baud rate to 9600. Click on "Find Device" in the upper left corner. The software will automatically identify the connected battery pack. See Figure 9-8 for reference.

Figure 9-8 Communication connection setting



9.4 Software Interface

The software interface is shown as figure 9-9:

Figure 9-9 Software interface

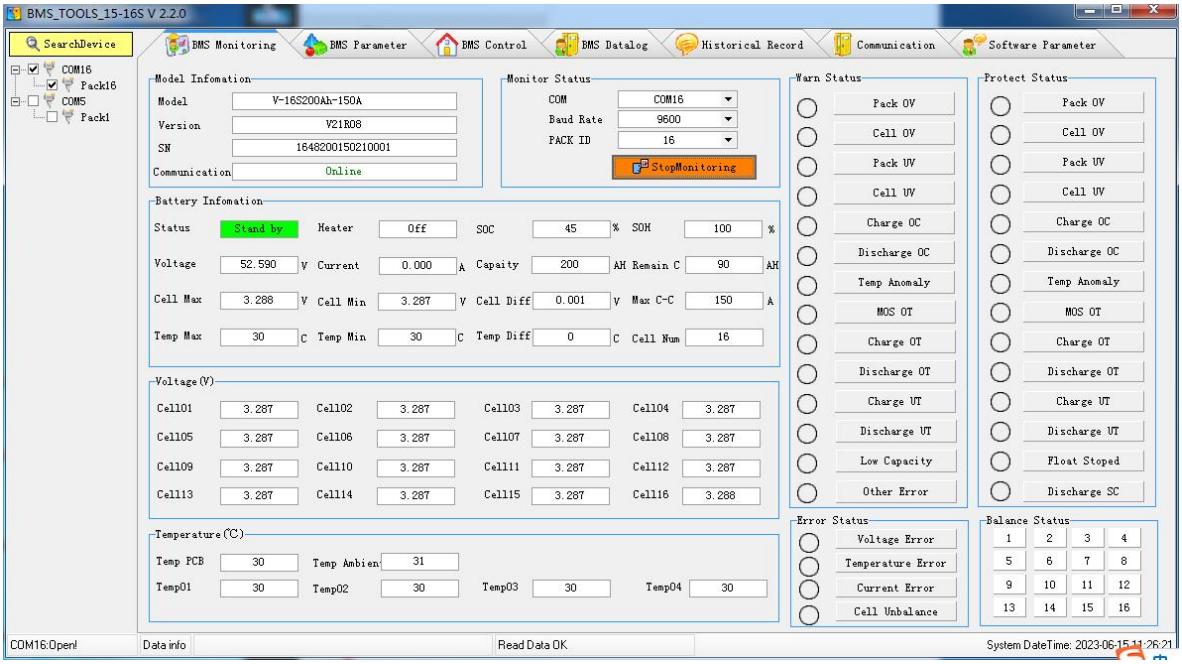


Table 9-4 Interface menu definition

Item	Definition
BMS Real-time monitoring	Real-time data and status monitoring of the BMS
BMS Parameter Setting	BMS parameter Setting management
BMS Control Management	Control state management of BMS (not open)
BMS Data Record（Optional）	BMS operation data logging
Monitoring History	Battery operation data record in this machine (exportable)
Real-time data reception	Record of sending and receiving of battery pack data (mainly for debugging)
Software system parameters	Software configuration, settings and language selection, etc.

10 Maintenance

10.1 Alarm Description and Handling

When the ALM light on the battery control panel is on, it means that the battery has given an alarm or has been protected. Please identify the cause of the failure through the computer and take appropriate measures or go directly to the site for troubleshooting. Common alarm conditions are shown in Table 10-1 below.

Table 10-1 Major alarms and protection

State	Type	Indicator	Disposal
Charge	Over current protection	ALM	Stop charge, check the settings and limitation
	Temperature protection	ALM	Stop charge, wait for the temp recovery
Discharge	Over current protection	ALM	Stop discharge, check if there is an overload
	Temperature protection	ALM	Stop discharge, wait for the temp recovery

10.2 Common Faults (Phenomenon) and Solutions

Common faults and solutions are shown in Table 10-2.

Table 10-2 Common faults(phenomenon) and solutions

NO.	Fault phenomenon	Analysis	Solution
1	Communication failure with inverter	Communication port connect error or battery ID setting error	Refer 8.4.2
2	No DC output	Not close breaker or low voltage	Close breaker or charge the battery
3	Power supply time is too short	Battery capacity lack or not full power	Maintenance or replacement
4	Battery can't be charged fully	Power system DC output voltage falls below the minimum charge voltage	Regulating DC output voltage of power supply to battery suitable charging voltage
5	ALM LED always lights	Power line connection short circuit	Disconnect the power cable and check all cables
6	The battery output voltage is unstable	Battery management system does not operate normally	Press the reset button to reset the system, then reboot the system
7	ALM LED flash 20 times and SOC1 LED on	Unbalance voltage with cell	Examine/balance the cell
8	ALM LED flash 20 times and SOC2 LED on	Unbalance temperature	Replace temperature senor cable
9	ALM LED flash 20 times and SOC3/4 LED on	BMS damaged	Replace BMS
10	Different SOC value of batteries in parallel	Normal phenomenon	No operation
11	Low voltage protection and no LED on	BMS goes into low voltage protection and goes to sleep mode.	Follow the below steps to reboot the module. 1. Charge the battery immediately and it will reboot itself. 2. Switch off and switch on, when it switches on, charge it immediately. 3. Reboot and charge it immediately. If you follow step 1 or step 2 without charging immediately. BMS will protect and go to sleep mode in several minutes.

12	Deep discharged and no LED on	No charging in a long time after deep discharged, the voltage is too low to start the BMS	If the battery sleeps for a long time and the voltage is too low to start the BMS, you have to open the cover of the pack and charge it up to 40V for 51.2V battery before you reboot it.

10.3 Daily Maintenance

Routine maintenance items are shown in Table 10-3 below.

Table 10-3 Routine maintenance items

Item	Maintenance Method	Maintenance intervals
Power Cables 	1. Inspect the power cable for any signs of mechanical damage and ensure that the terminal insulation sleeves are intact without falling off. If any damage is found, please turn off the machine and perform maintenance or replace the cable. 2. Check for any looseness in the power cable. If there are any signs of looseness, please use a standard torque wrench to tighten it. 3. Examine the system for loose screws or discoloration of the copper bus bar. If the screws are found loose, please tighten them with a standard torque wrench. If the copper bus bar is discolored, please contact the manufacturer for after-sales replacement.	Once every 6 months
Communication Cables 	1. Verify that the terminals of the parallel communication cable are securely tightened. If any terminal is loose, re-tighten it. 2. Check the communication cable for any obvious discoloration. If discoloration is present, please shut down the machine to replace the communication cable.	Once a year
Cabinet Cleanliness	Check the cleanliness of the front door, back door and battery module inside the cabinet. If it is dusty, please clean up in time.	Once 6-12 months
System Running Status 	1. Check if all parameters (system voltage, current, temperature, etc.) are normal when the system is running. 2. Check if the main core components of the system, including system switches and contactors, are functioning properly. 3. Inspect the system air inlet, outlet, and air ducts for any blockages or congestion. Clean them if any issues are detected.	Once every 6 months
Charge and Discharge Maintenance	Perform a light load and shallow charge/discharge test to assess the normality of the SOC and SOH status of the battery (using the upper computer software to read the parameters). It is recommended that the depth of discharge and charge/discharge power should not exceed 20% of the rated value.	Once every 6 months

11 Cautions and Warranty

11.1 Cautions

 Please read and comply with the following installation and usage conditions of the battery. Incorrect installation or use of the battery may cause personal injury or damage to the product.

(1) DO NOT throw the battery into water. Store the battery in cool and dry environment.

(2) DO NOT put the battery into fire or heat the battery, as it may cause explosion or other hazardous incidents.

(3) During battery charging, please choose specialized charging equipment and follow correct procedures. Do not use unqualified chargers.

(4) DO NOT reverse positive and negative terminals. Do not connect the battery directly to AC power. Avoid battery short circuits.

(5) DO NOT using batteries from different manufacturers or different types together, and do not mix old and new batteries.

(6) DO NOT use the battery when it is hot, bulging, deformed or leaking.

(7) DO NOT puncture the battery with nails or other sharp objects. Do not throw, stamp on, impact or hit the battery.

(8) DO NOT open or try to repair the battery when it is defective. Warranty becomes invalid if the battery is repaired or disassembled.

(9) Batteries are half charged before shipment. Do not use the battery if it feels hot, bulges, emits an abnormal smell, or exhibits any other abnormalities. Report it to the after-sale department immediately.

(10) If a long-time storage is needed, please charge and discharge the battery every three months to ensure the optimal performance. The recommended state of charge for storage is between 50% and 60%.

(11) Please use the battery within the temperature range specified in the manual.

(12) The state of charge of batteries is 50% before shipment. Please charge the battery before using.

(13) In case of fires, ensure that the following equipment is available near the system: carbon dioxide or Class D fire extinguishers and Personal Protective Equipment (PPE).

Please note that water, carbon dioxide, the Class D fire extinguishers are recognized as effective options against lithium-ion battery fires.

11.2 Description of Warranty

We assure you that within the specified warranty period, our company will provide free repair and replacement services for any product damage or functional failure resulting from non-human or intentional causes. To avail of these services, customers are required to provide a valid purchase invoice or relevant product warranty information. In the absence of valid proof, our company reserves the right to decline providing related services.

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