BSLBATT®
Best Solution Lithium Battery

BSL NEW ENERGY TECHNOLOGY CO., LTD

User Manual

B-LFP-PW Series

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Version History

Version	Date	Version update history	Approval
V1.0	2026-3-2	First Edition	

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01 Safety Instructions

1.1 Safety Symbol Description

When installing, operating and maintaining the equipment, please read this manual first and follow all safety precautions marked on the equipment and in the manual. To ensure that users can better use this product and protect personal and property safety, please read the following symbols carefully.

Danger Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

Warning Indicates a situation with a moderately hazardous situation which, if not avoided, could result in death or serious injury.

Caution: Indicates a situation with a low risk of hazard which, if not avoided, may result in moderate or minor injury.

Illustrate:: Emphasis and supplementation of content may also provide tips for optimal use of the product.

1.2 General Security

Illustrate:

This equipment should be used in an environment that meets the design specifications. Otherwise, it may cause equipment failure. The resulting equipment malfunction or component damage, personal safety accidents, property losses, etc. are not within the scope of equipment quality assurance. Local laws, regulations and specifications should be followed when installing, operating and maintaining the equipment. The safety precautions in the manual are only used as a supplement to local laws, regulations and specifications. The company does not assume responsibility for any of the following situations.

1.The installation and use environment exceeds the requirements of relevant international, national and regional standards.

2.Operation not within the conditions of use described in this manual.

3.Unauthorized disassembly, modification of products or modification of software codes.

4.Failure to follow the operating instructions and safety warnings in the product and documentation.

5.Equipment damage caused by abnormal natural environment (force majeure, such as earthquake, fire, storm, flood, mudslide, etc.).

6.Damage caused by the customer's failure to comply with transportation and installation requirements.

7.Damage caused by storage conditions not meeting the requirements of product documentation.

8.Damage to the hardware or data of the device due to customer negligence, improper operation or intentional damage .
9.System damage caused by a third party or customer , including relocation and installation of the system that does not comply with the requirements of this manual, and damage caused by adjustments, changes or removal of identification marks that do not comply with the requirements of this manual.
10.Defects, failures or damages caused by acts, events, omissions or accidents beyond the reasonable control of the Seller, including power outages or electrical failures, theft, war, riots, civil unrest, terrorism, intentional or malicious damage, etc.

Danger:

Elevated voltage is present in the equipment. Non-compliant operation may cause electric shock or fire, leading to death, serious personal injury, or significant property damage. Comply with the operating sequence and safety precautions provided in this manual and other relevant documents, and operate properly:
1.Check that the pre-installed cable connections are secure. Check the equipment for damage, such as holes, dents, or other signs of possible internal damage. Check that components inside the equipment have not shifted. Do not modify the structure or installation sequence of the equipment without authorization.
2.Do not clean electrical components inside the equipment with water. If liquid enters the equipment, immediately press the emergency stop button and notify the on-site manager.
3.Do not perform installation, wiring, maintenance, or replacement operations on live equipment. Before touching any conductor surface or terminal, measure the voltage at the contact point, confirm that the protective grounding wire of the equipment or the component requiring maintenance is reliably grounded, and confirm there is no electric shock risk.
4.Except for personnel operating the equipment, other personnel should not approach the equipment. Do not power on the equipment before installation is complete or without confirmation by a professional. During initial power-on or live main circuit operations, at least two personnel must be present on site.

Illustrate:

1.User operations and tools used during transportation, handling, installation, wiring, and maintenance must comply with the laws, regulations, and applicable standards of the relevant country or region.
2.Reverse engineering, decompilation, disassembly, adaptation, implantation, or other derivative operations on the device software are prohibited. It is forbidden to investigate the internal implementation of the device, obtain the source code of the device software, misappropriate intellectual property rights in any way, or disclose the results of any device software performance testing.

1.3 Personal Safety

Danger:

1.Wear appropriate personal protective equipment during equipment operation. If faults that may cause personal injury or equipment damage are detected, immediately terminate operations, report to the responsible person, and implement effective protective measures.
2.Before using tools, master their correct operation methods to avoid personal injury or equipment damage.
3.During equipment operation, certain internal surfaces may reach high temperatures posing burn hazards. Do not touch.
4.Ensure reliable grounding before use to guarantee personal safety and normal operation.
5.When battery modules fail, temperatures may exceed burn thresholds on touchable surfaces. Avoid contact.
6.Do not open or damage battery modules. Released electrolytes are harmful to skin and eyes. Avoid exposure.
7.Do not place unrelated objects on top of or insert into any part of the equipment.
8.Do not place flammable materials near the equipment.
9.Never expose batteries to fire to prevent explosion and personal danger.
10.Do not immerse battery modules in water or other liquids.
11.Never short-circuit battery module terminals. Short-circuiting may cause combustion.
12.Batteries may pose electric shock and high short-circuit current risks.
13.Do not clean internal or external electrical components with water or detergents.
14.Do not stand, lean, or sit on the equipment.
15.Do not damage any modules of the equipment.
16.If a battery module is dropped or subjected to severe impact during installation, discontinue use immediately. Continued operation poses safety risks (e.g., electrolyte leakage, electric shock).

Warning:
1.Remove watches, rings, or other metal objects.
2.Use tools with insulated handles.
3.Wear rubber gloves and boots.
4.Do not place small tools or metal parts on top of battery modules.
5.Disconnect charging power before connecting or disconnecting battery terminals.
6.Determine whether the battery is accidentally grounded. If accidentally grounded, remove the power source from the ground. Contact with any part of a grounded battery may cause electric shock. If such grounding is removed during installation and maintenance, the possibility of electric shock can be reduced.

1.4 Battery Leakage Handling Measures

Caution:
In the event of electrolyte leakage, take the following emergency measures according to the severity of the leakage.
1.Ensure adequate ventilation. Remove all ignition sources.
2.Quickly evacuate personnel to a safe area, away from the leakage zone and upwind.
3.Use personal protective equipment (PPE). Avoid inhaling vapors, fumes, gases, or dust.
4.If safe to do so, take measures to prevent further leakage or spillage.

5.For minor leaks, use dry sand or inert absorbent materials to contain the leakage. For major leaks, construct barriers to control spread.
6.Contaminated materials or collected residue must be stored in sealed containers and disposed of in compliance with local regulations.
7.Eliminate all ignition sources and use spark-proof tools and explosion-proof equipment.

Danger:

Avoid contact with leaked liquid or gas during leakage incidents. The electrolyte is corrosive and may cause skin irritation or chemical burns. If exposed to battery electrolyte, take these immediate actions.
1.Inhalation: Evacuate the contaminated area immediately; move to fresh air; maintain clear breathing; administer oxygen if breathing is difficult; do not perform mouth-to-mouth resuscitation if the victim ingested/inhaled the substance; if breathing stops, begin CPR immediately; seek urgent medical assistance.
2.Eye Contact: Flush eyes with copious clean water for at least 15 minutes (hold eyelids open); do not rub eyes; obtain immediate medical help.
3.Skin Contact: Remove contaminated clothing immediately; wash affected area thoroughly with plenty of water and soap; seek prompt medical aid.
4.Ingestion: Do NOT induce vomiting; never give oral substances to unconscious persons; seek emergency medical care.
5.First Responder Protection: Ensure medical personnel are informed of the electrolyte's hazards; implement personal protective measures to prevent exposure and cross-contamination.

1.5 Electrical Safety

1.5.1 General Requirements

Illustrate:

1.All electrical connections must comply with the electrical standards of the country/region where the equipment is located.
2.Installation, operation and maintenance must strictly follow the manual procedures. Unauthorized equipment modifications or installation sequence changes are prohibited.
3.Temporary fencing and "No Entry" signs must be installed in work areas. Unauthorized personnel are strictly prohibited from entering.
4.Tools must be registered and inspected for completeness before operation, and counted after operation to prevent being left inside the equipment.

Danger:

Before performing electrical connections, ensure the equipment is undamaged to prevent electric shock or fire hazards. Prior to installing power cables, verify the cable labels are correct and terminal insulation protections are intact. Do not energize the equipment until installation is complete and verified by qualified personnel.

1.5.2 Wiring Requirements

1.Select cables that comply with local laws and regulations. Cables of the same type shall be bundled together, while different types shall be routed separately. Intertwining or cross-routing of cables is strictly prohibited.
2.Remove sharp edges from cable trays/conduit holes. Install protective sleeves at wire penetration points to prevent insulation damage.
3.Maintain a minimum distance of ≥30mm between cables and heat-generating components to prevent insulation degradation due to high temperatures.
4.When installing cables in environments below 0℃:
- All cables must be installed in environments above 0℃;
- If storage temperature was below 0℃, relocate cables to a warm environment (≥0℃) for at least 24 hours prior to installation.

Danger: Never install or remove power cables while energized. Contact between power conductors and terminals may generate electric arcs/sparks, potentially causing fire or personal injury.

1.5.3 Grounding Requirements

1.The equipment must be permanently connected to a protective grounding conductor. Verify reliable grounding before operation.
2.Do not operate the equipment without installing the grounding conductor. Damaging the grounding conductor is strictly prohibited.
3.Grounding impedance must comply with local electrical standards. Regularly test grounding reliability.
4.For three-core socket equipment: Ensure the grounding terminal connects to protective earth. For equipment with high touch current: Ground before connecting to power supply.

1.5.4 Maintenance Requirements

1.Before connecting or disconnecting cables, disconnect the protective switch of the corresponding circuit.
2.Use a multimeter rated for the applicable voltage level to verify de-energization and ensure complete power-off.
3.Hang "Do Not Close" tags on upstream/downstream switches and post warning signs during maintenance. Re-energize only after the malfunction is fully resolved.

Illustrate:
1.Before connecting cables, confirm that the cable labels are correct before proceeding with the connection.
2.For equipment with multiple inputs, disconnect all inputs to the equipment. Operation may only be performed after the equipment is fully powered down.
3.After completing maintenance, remove the grounding wire between the maintenance circuit and the grounding circuit.

1.6 Mechanical Safety

1.When manually handling equipment, assess weight-bearing capacity and wear protective gear including gloves and safety toe boots.

2.Move equipment carefully during handling to prevent impact or drops. Avoid scratching surfaces, damaging components, or compromising cables.
3.During transportation, large equipment may obstruct operator's view; assign assistants to ensure safe movement.

1.7 Maintenance and Replacement

Perform equipment maintenance only after thoroughly understanding this manual and with appropriate tools/testing devices.
1.Before maintenance work, de-energize the equipment and wait for the duration specified on the delayed-discharge label to ensure complete power-off before operation.
1.During maintenance, restrict access to unauthorized personnel. Erect temporary warning signs or barriers for isolation.
2.Contact your distributor immediately for equipment malfunctions.
3.Do not re-energize until malfunctions are fully resolved. Failure to comply may cause expanded failures or equipment damage.
4.Unauthorized opening of covers is prohibited due to electrocution risks. Resulting damages void warranty coverage.
5.Operators and technicians must receive comprehensive safety and maintenance training. Perform tasks only with adequate precautions and personal protective equipment .
6.When relocation or rewiring is required, the power input must be disconnected. After waiting 5 minutes for complete internal energy discharge and verifying the absence of hazardous voltage on DC busbars and maintenance areas using a multimeter, maintenance may commence.
7.Battery maintenance must be performed/supervised by personnel trained in battery handling and safety protocols.
8.Replace batteries only with identical types.
9.After maintenance, immediately verify no tools or components remain inside the equipment.
For prolonged storage: Follow battery preservation and recharging procedures specified in this manual.

02 Product Introduction

2.1 Product Overview

This product is a home energy storage battery system. Comprising an LFP battery pack and BMS, it operates with energy storage inverters to regulate electricity consumption. Simultaneously, it generates power via photovoltaic solar systems, prioritizing supply to household appliances to achieve household green power utilization.

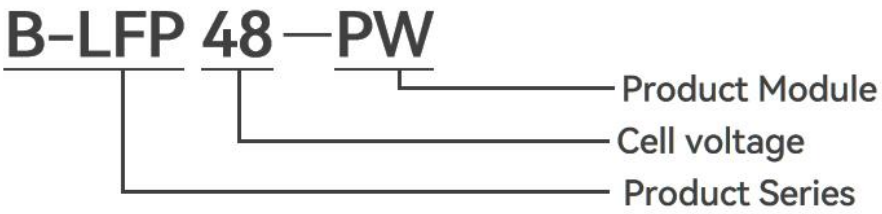


Figure2.1

2.2 Product Appearance

B-LFP24-PW100:

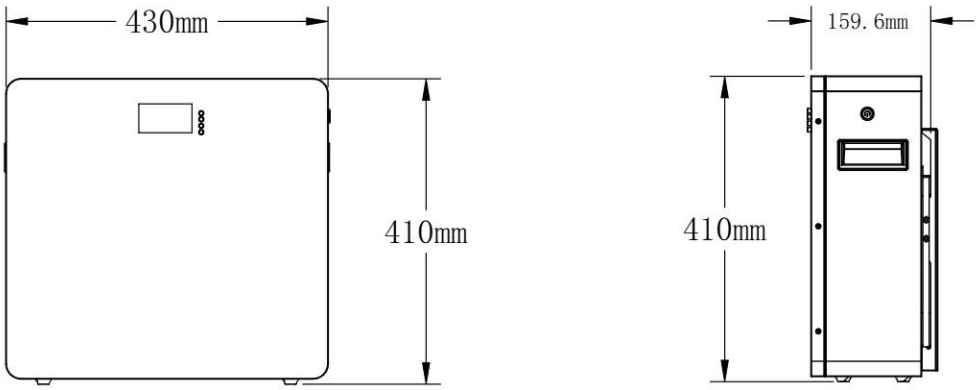


Figure2.2-2

B-LFP24-PW100 (With wheels) :

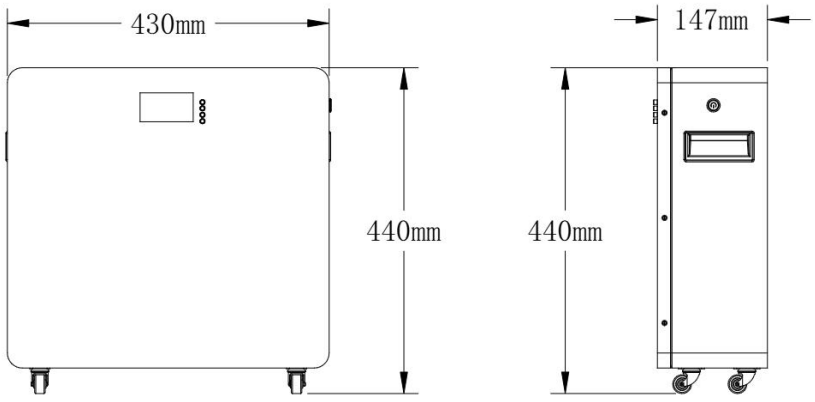


Figure2.2-3

B-LFP24-PW200：

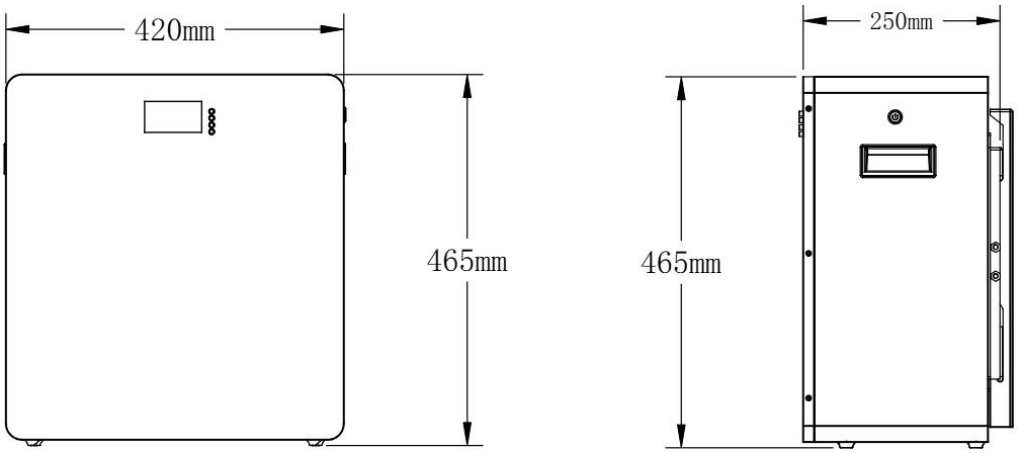


Figure2.2-4

B-LFP24-PW200（With wheels）：

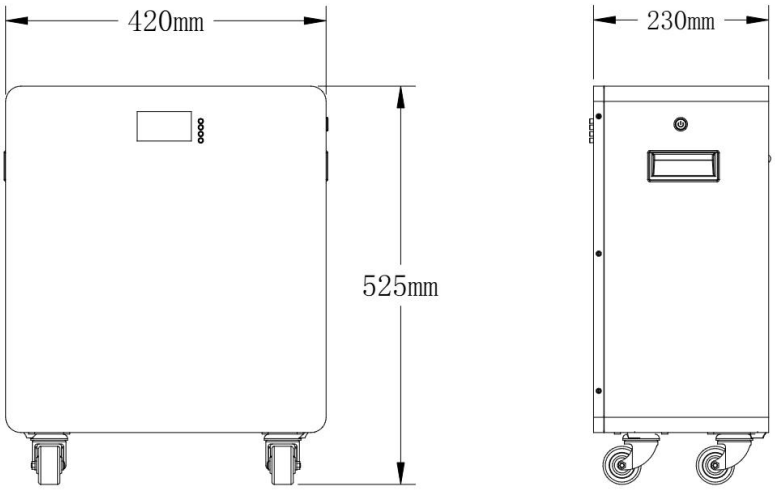


Figure2.2-5

B-LFP48-PW100：

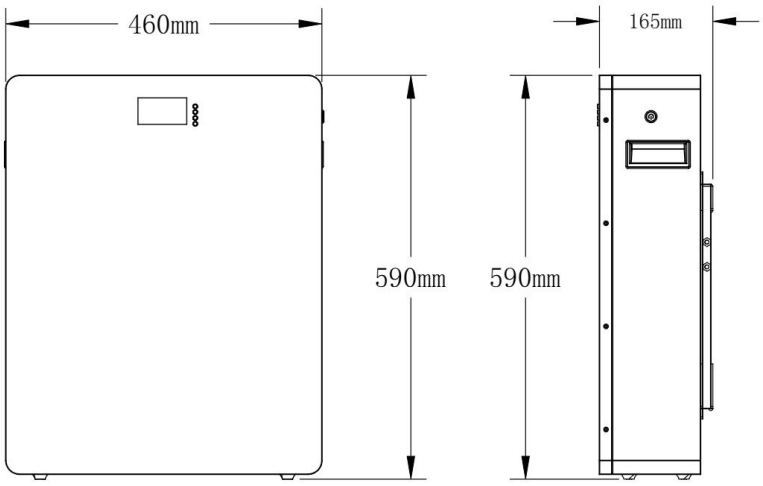


Figure2.2-6

B-LFP48-PW100（With wheels）：

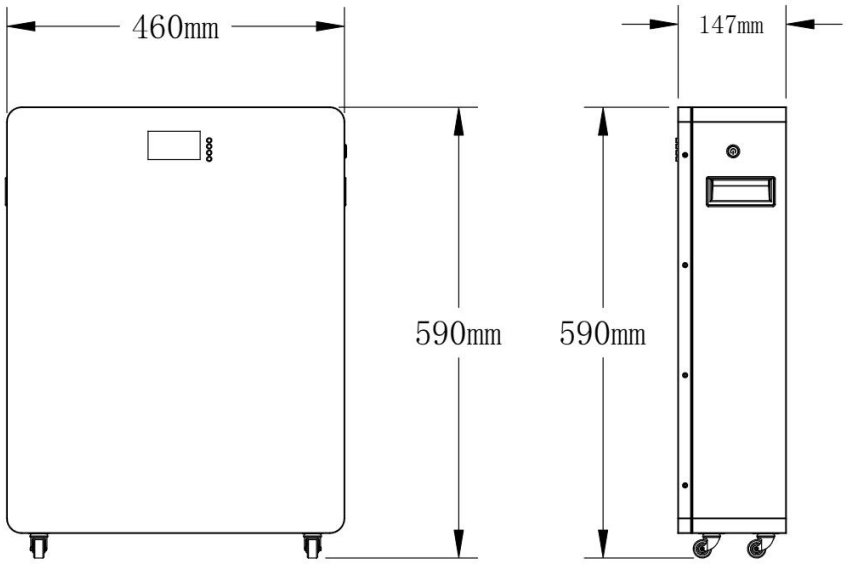


Figure2.2-7

2.3 Product Specification

Item	General Parameter		
Model	B-LFP24-100PW	B-LFP24-200PW	B-LFP48-100PW
Battery Type	LiFePo4		
Nominal Voltage	25.6V		51.2V
Normal Capacity (Ah)	100	200	100
Normal Energy (Wh)	2560	5120	5120
Max. Continuous Discharge Current	100A	200A	120A
Max. Continuous Charge Current	80A	160A	80A
Protection Level	IP20		
Discharge Temperature Range	-20℃~55℃		
Charge Temperature Range	0℃~55℃		

Table 2.3

2.4 Configuration List

Configuration List Table

Name	Qty	Remarks
Battery Pack	1 set	Includes wall-mounted bracket
User's Manual	1 copy	Electronic version
Matching accessories	1 set	Includes power cable and communication cable
Expansion Screws M8*50mm	1 set	10 pieces in total,only when the wall-mounted battery is selected will the configuration be available.

Table 2.4

2.5 Interface Description

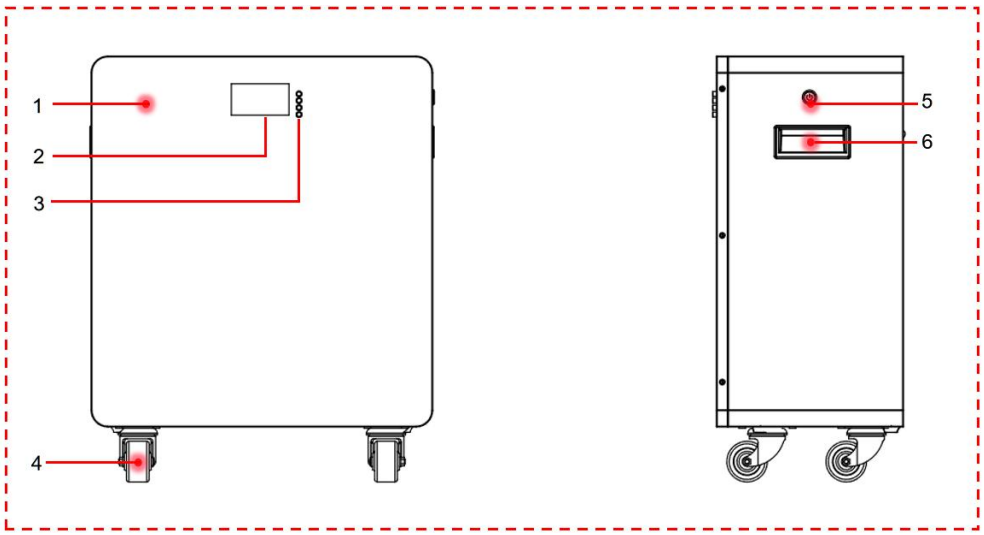


Figure2.5-1

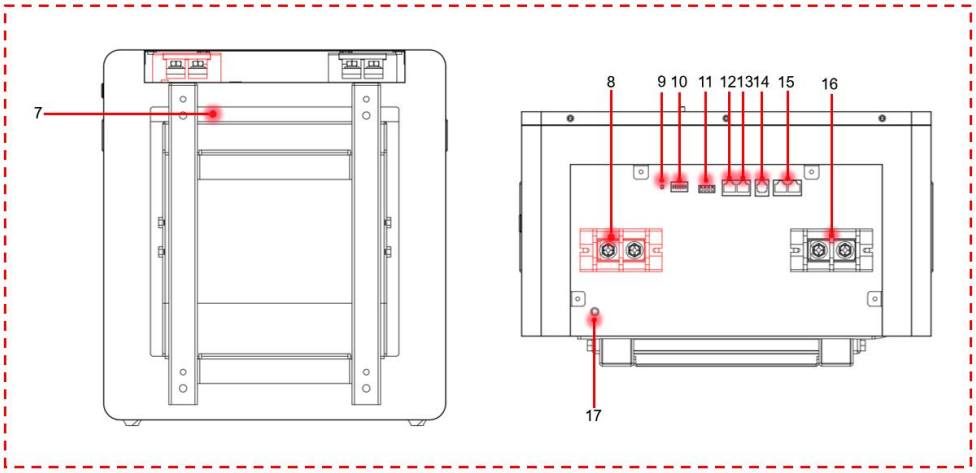


Figure2.5-2 Interface Definition Description

Table1.Battery Pack Front Panel Port Definition

No.	Illustration	Silk-screen	Remark
1	Battery pack	/	Battery pack assembly
2	Battery display screen	/	Used to display battery parameters
3	Operation buttons	/	For operating the display screen
4	Roll wheel	/	Only the models with wheels are equipped with this feature.
5	BMS switch	Switch	Used for activating the BMS
6	Battery handle	/	Facilitates the handling of batteries
7	Battery back support	/	Only the wall-mounted models are equipped with this feature.
8	Battery positive terminal connector	P+	Positive output
9	Reset button	Reset	Restart the battery system
10	Dial switch	DIP	Address setting, range 1~63
11	Dry connection	DRY	Default: Pin1 to pin2 usually open, Fault and protection closing when triggered pin3 to pin4 usually open, Low battery warning activated
12	RS485 Port	RS485	RS485 communication with monitoring equipment or inverter
13	CAN bus port	CAN	CAN bus and inverter connection ports
14	RS232 port	RS232	Communicate with the upper computer
15	RS485-1/2 port	RS485-1/RS485-2	RS485 paralleling communication port
16	Battery negative	—	Negative output
17	Grounding terminal	/	For external grounding of the battery

Table 2.5

03 Product Installation

3.1 Installation Tools

Installation Tools Table

No.	Tool Name	Legend
1	Insulating gloves	
2	Safety goggles	
3	Insulating shoes	
4	Work clothes	
5	Safety helmet	
6	Screwdriver	
7	Wire stripper	
8	Hydraulic clamp	
9	Heat gun	
10	Multimeter	
11	Torque wrench	
12	Marker pen	

Table 3.1

Illustration: This table is for reference only. Actual tools required shall comply with local installation standards.

3.2 Electrical Connection

Danger ：

1.Safe power-off operation

Before performing any operation on the equipment in the battery system, ensure that the equipment is completely powered off to prevent electric shock accidents.

Strictly abide by the safety precautions in this manual and the safety signs on the equipment.

2.Electrical connection specifications

During the electrical connection process, cables and components that meet the requirements of local laws and regulations must be used.

Cables of the same type should be bound together, and arranged separately from cables of different types to avoid mutual entanglement or crossing of cables.

3.Precautions for crimping of terminal blocks

When crimping the terminal blocks, ensure that the conductor part of the cable is in full contact with the terminal blocks.

It is strictly forbidden to crimp the cable insulation with the terminal blocks. This may cause the equipment to fail to operate normally, or cause heat due to unreliable connection during operation, which may further damage the inverter terminal block.

Caution :

1.Electrical connection operations are restricted to professional personnel only;

2.The cable colors shown in the diagrams are for reference only, and the actual selection should be based on specific circumstances;

3.Ensure that the specifications of the cables used comply with local laws and regulations.

3.2.1 Power Cable Connection

External Power Cables (Factory pre-installed)

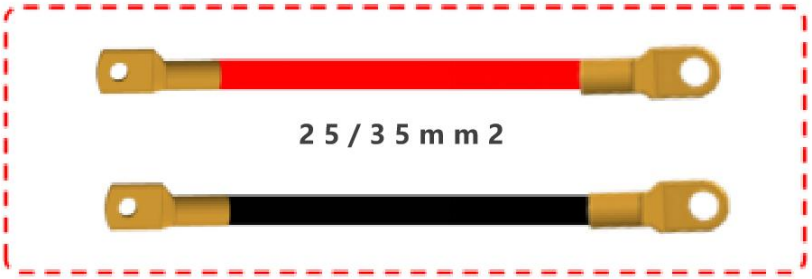


Figure 3.2.1-1

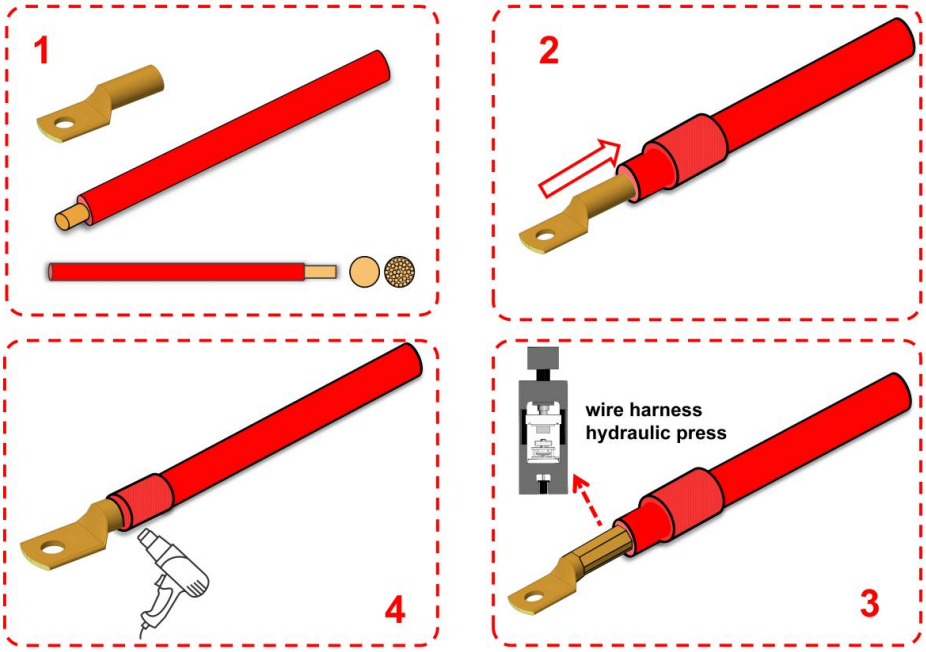


Figure 3.2.1-2

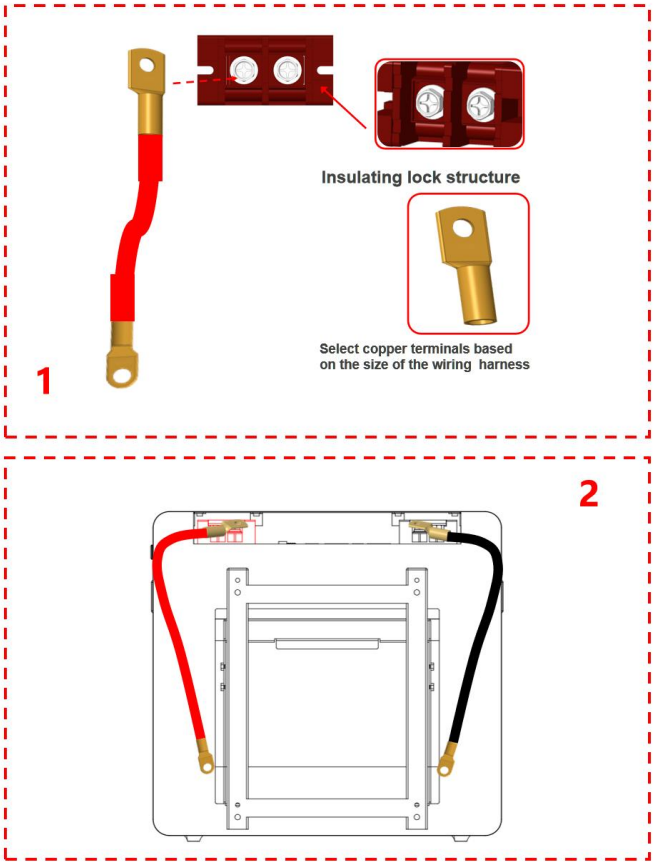


Figure3.2.1-3

Illustration: When connecting power cables:

At both ends of the power cord, there are crimp terminals for users to connect to the inverter.

3.2.2 Communication Cable Connection

Caution :

1.Users should decide whether to use the communication cable provided with the inverter according to installation requirements, and refer to the user manual for cable specifications and connection methods.

2.For communication cables purchased by users themselves or provided by the manufacturer, it is recommended to use standard Ethernet cables with RJ45 crystal connectors as the connection solution.

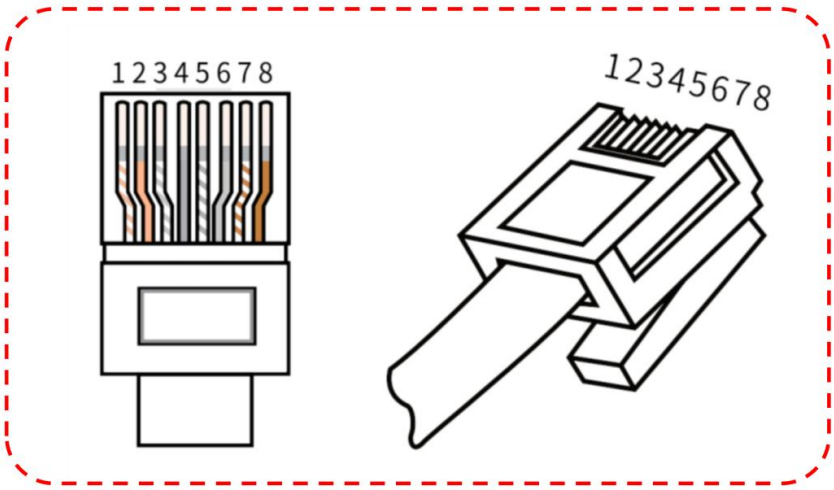


Figure 3.2.2-1

RS232 Communication: The BMS communicates with host computers via RS232 interface, enabling monitoring of battery parameters including voltage, current, temperature, status, and manufacturing data. Default baud rate: 9600bps.

CAN Communication: Default baud rate 500K. This interface connects to inverters. When configured as master, it aggregates slave data for inverter communication.

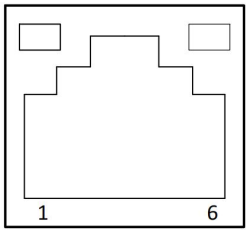
Parallel RS485 Communication: Default baud rate 9600bps. For battery parallel clusters, the master unit uses RS485 for inter-PACK communication, polling data via DIP switch addresses to monitor battery status.

Independent RS485 Communication: Default baud rate 9600bps. Interfaces with inverters. In master configuration, aggregates slave data for inverter communication.

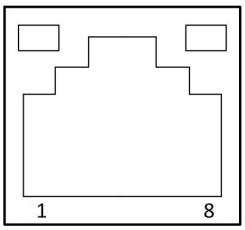
WiFi Communication : The BMS connects to cloud platforms via WIF module, enabling remote monitoring of voltage, current, temperature, status, SOC, SOH, and manufacturing data. Default baud rate: 9600bps.

DIP Switch Settings : During parallel cluster operation, BMS automatically assigns addresses via DIP switches. Master units receive primary addresses; slaves get sequential addresses. All addresses are dynamically allocated by BMS without manual configuration.

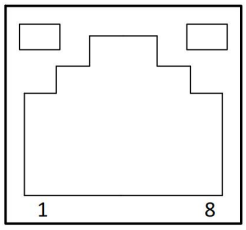
RS232:

Picture	PIN	Description
	1	NC
	2	NC
	3	TX
	4	RX
	5	GND
	6	NC

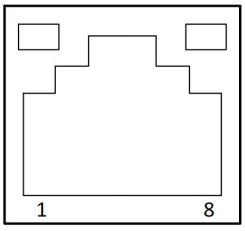
CAN:

Picture	PIN	Description
	1	NC
	2	GND
	3	NC
	4	CAN-H
	5	CAN-L
	6	NC
	7	NC
	8	NC

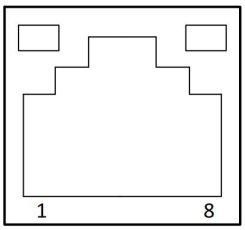
RS485:

Picture	PIN	Description
	1	NC
	2	GND
	3	NC
	4	CAN-H
	5	CAN-L
	6	NC
	7	NC
	8	NC

RS485-1:

Picture	PIN	Description
	1	RS485-B
	2	RS485-A
	3	GND
	4	NC
	5	NC
	6	GND
	7	RS485-A
	8	RS485-B

RS485-2:

Picture	PIN	Description
	9	RS485-B
	10	RS485-A
	11	GND
	12	NC
	13	NC
	14	GND
	15	RS485-A
	16	RS485-B

Item	Figure	Specification
Rack-mounted battery and network cable(Standard Configuration)	white/0.3m	with RJ-45 connector
Victrion inverter connection cable - for connecting inverter(optional)	blue/3m	Customized energy storage battery
Multiple universal connection cables for inverters - for connecting inverters(optional)	black/3m	two-ended crimped crystal connector
RS232 serial communication cable (optional)	black/1.8m	With USB to RS232 conversion,Both ends have USB and RJ11 plugs

Table 3.2.2

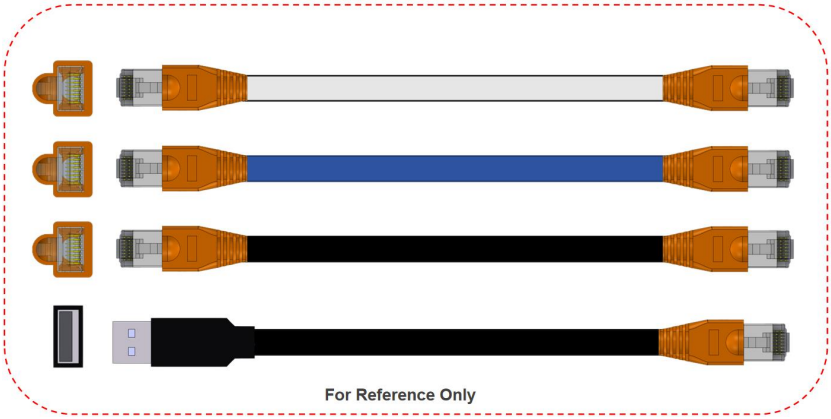


Figure 3.2.2-2

3.3 Installing Battery Strings in Parallel.

Taking two 51.2V100Ah batteries as an example, two parallel power lines（25 mm²） are used to combine the positive and negative outputs of two batteries.

One battery pack's positive relates to another battery pack's positive;negative relates to negative. The communication between the battery packs adopts RJ45 network wire to connect through the RS485, the battery packs dial code address were set as the table below for details.

Set the address of pack Table

Address	Dial switch positi1						Remark
	#1	#2	#3	#4	#5	#6	
1	1	0	0	0	0	0	Set as main Pack1
2	0	1	0	0	0	0	Set as subordinate Pack2
3	1	1	0	0	0	0	Set as subordinate Pack3
4	0	0	1	0	0	0	Set as subordinate Pack4
5	1	0	1	0	0	0	Set as subordinate Pack5
6	0	1	1	0	0	0	Set as subordinate Pack6
7	1	1	1	0	0	0	Set as subordinate Pack7
8	0	0	0	1	0	0	Set as subordinate Pack8
9	1	0	0	1	0	0	Set as subordinate Pack9
10	0	1	0	1	0	0	Set as subordinate Pack10
11	1	1	0	1	0	0	Set as subordinate Pack11
12	0	0	1	1	0	0	Set as subordinate Pack12
13	1	0	1	1	0	0	Set as subordinate Pack13
14	0	1	1	1	0	0	Set as subordinate Pack14
15	1	1	1	1	0	0	Set as subordinate Pack15
16	0	0	0	0	1	0	Set as subordinate Pack16
17	1	0	0	0	1	0	Set as subordinate Pack17
18	0	1	0	0	1	0	Set as subordinate Pack18
19	1	1	0	0	1	0	Set as subordinate Pack19
20	0	0	1	0	1	0	Set as subordinate Pack20
21	1	0	1	0	1	0	Set as subordinate Pack21
22	0	1	1	0	1	0	Set as subordinate Pack22
23	1	1	1	0	1	0	Set as subordinate Pack23
24	0	0	0	1	1	0	Set as subordinate Pack24

25	1	0	0	1	1	0	Set as subordinate Pack25
26	0	1	0	1	1	0	Set as subordinate Pack26
27	1	1	0	1	1	0	Set as subordinate Pack27
28	0	0	1	1	1	0	Set as subordinate Pack28
29	1	0	1	1	1	0	Set as subordinate Pack29
30	0	1	1	1	1	0	Set as subordinate Pack30
31	1	1	1	1	1	0	Set as subordinate Pack31
32	0	0	0	0	0	1	Set as subordinate Pack32
33	1	0	0	0	0	1	Set as subordinate Pack33
34	0	1	0	0	0	1	Set as subordinate Pack34
35	1	1	0	0	0	1	Set as subordinate Pack35
36	0	0	1	0	0	1	Set as subordinate Pack36
37	1	0	1	0	0	1	Set as subordinate Pack37
38	0	1	1	0	0	1	Set as subordinate Pack38
39	1	1	1	0	0	1	Set as subordinate Pack39
40	0	0	0	1	0	1	Set as subordinate Pack40
41	1	0	0	1	0	1	Set as subordinate Pack41
42	0	1	0	1	0	1	Set as subordinate Pack42
43	1	1	0	1	0	1	Set as subordinate Pack43
44	0	0	1	1	0	1	Set as subordinate Pack44
45	1	0	1	1	0	1	Set as subordinate Pack45
46	0	1	1	1	0	1	Set as subordinate Pack46
47	1	1	1	1	0	1	Set as subordinate Pack47
48	0	0	0	0	1	1	Set as subordinate Pack48
49	1	0	0	0	1	1	Set as subordinate Pack49
50	0	1	0	0	1	1	Set as subordinate Pack50
51	1	1	0	0	1	1	Set as subordinate Pack51
52	0	0	1	0	1	1	Set as subordinate Pack52
53	1	0	1	0	1	1	Set as subordinate Pack53

54	0	1	1	0	1	1	Set as subordinate Pack54
55	1	1	1	0	1	1	Set as subordinate Pack55
56	0	0	0	1	1	1	Set as subordinate Pack56
57	1	0	0	1	1	1	Set as subordinate Pack57
58	0	1	0	1	1	1	Set as subordinate Pack58
59	1	1	0	1	1	1	Set as subordinate Pack59
60	0	0	1	1	1	1	Set as subordinate Pack60
61	1	0	1	1	1	1	Set as subordinate Pack61
62	0	1	1	1	1	1	Set as subordinate Pack62
63	1	1	1	1	1	1	Set as subordinate Pack63

Table 3.3

Note: Suggested parallel groups no big than 30

3.4 Electrical Connection Diagram

3.4.1 pack---1 Inverter. Single Mode.

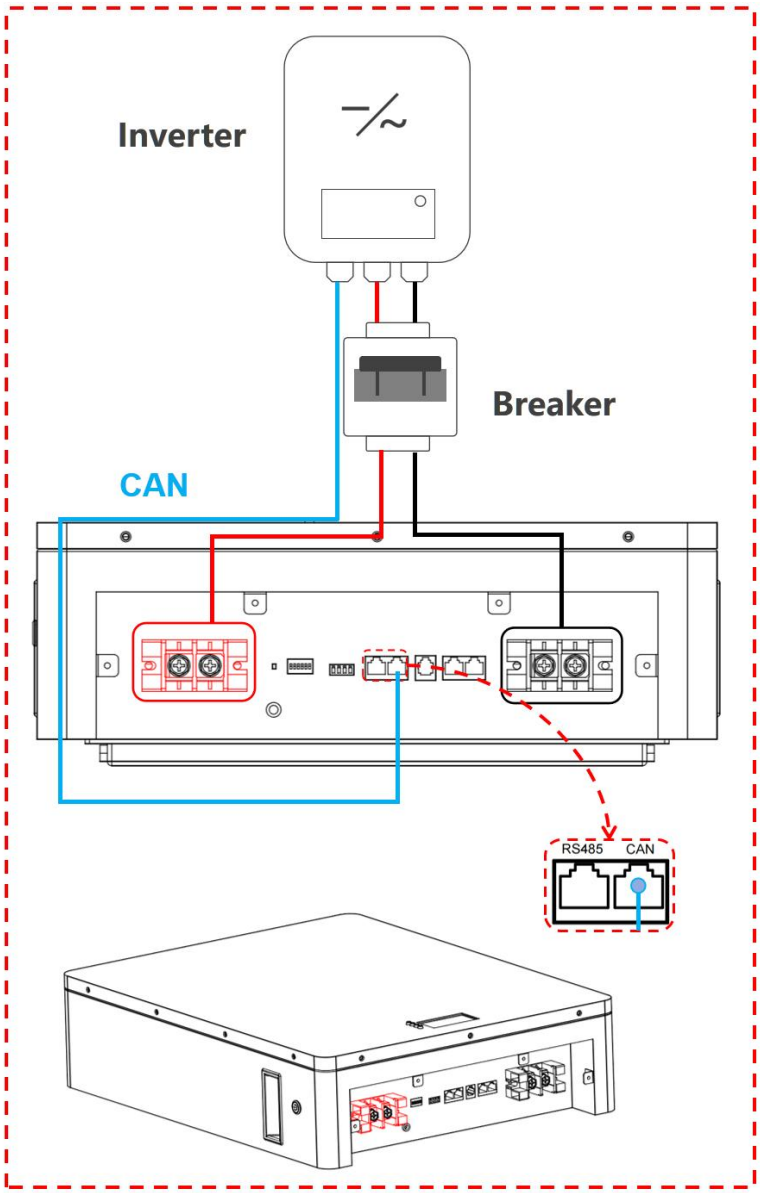


Figure 3.4.1

Note: when a single unit is used, the inverter uses the battery as the main machine to communicate; when multiple batteries are used in parallel, the batteries inside are connected in parallel through the RS485-1/2 hardware interface, RS485/CANBUS communicates with the inverter.

04 Operation and Maintenance

4.1 Battery Display Screen

Figure 4.1-1

Main menu page

After BMS is activated, will show the welcome screen, press the “MENU” button to enter the main menu page. As shown in the figure below ：

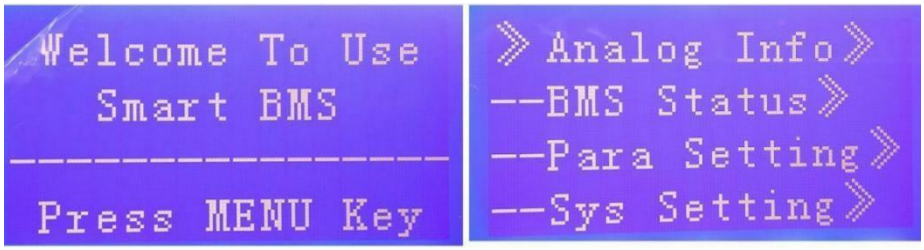


Figure 4.1-2

Analog Info page

When the cursor “》”is point to “Analog Info”，press “ENTER” key will enter the page of battery data, as shown in the figure below ：

Figure 4.1-3

Protocol selection function

（You can switch protocols through the display screen to quickly match inverters of different brands)

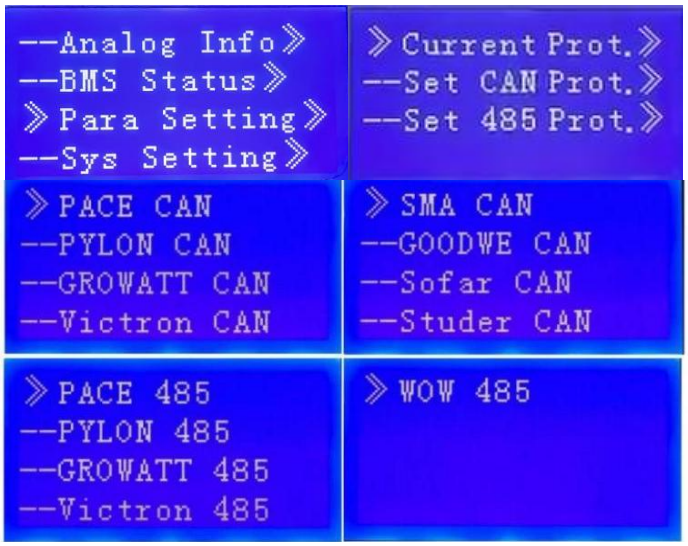


Figure 4.1-4

BMS Status Page

When the cursor “》”is point to “BMS Status”， press “ENTER” key will enter the page of “BMS Status”, as shown in the figure below ：

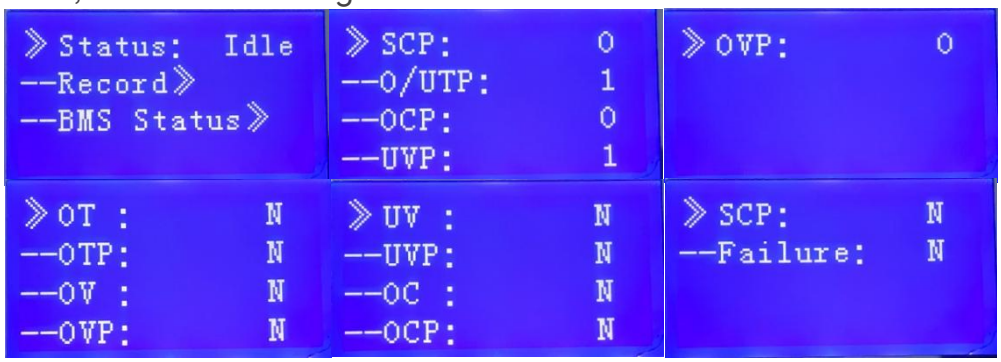


Figure 4.1-5

Key description

SW1----MENU， SW2----ENTER， SW3----DOWN， SW4----ESC.

Each item is “》”or“-- ”as a beginning， among them“》”shows the current cursor position， press “DOWN” key can move the cursor position ；with “》”end of the project， the content of the said project has not shown, press “ENTER” key can enter the corresponding page.

Press “ESC” key can be returned at the next higher level directory ； In any Position, press “MENU ” key can return to the main menu page.

When BMS inter sleep mode, press any key, can activate the screen.

Inter standby mode, with no keystrokes 1 minutes later, LCD will enter Shutdown mode press any key, screen can be activated.

4.2 Pervisory computer monitoring

Caution： Before upgrading, ensure the BMS (Battery Management System) and battery are in standby mode, turn off the load switch and charger switch, and confirm the RS232-USB line cable is connected as follows.

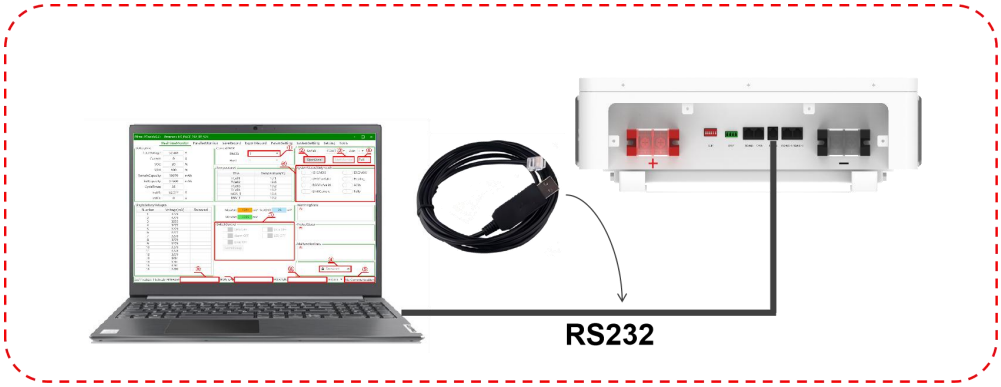


Figure 4.7 RS232 Serial port communication device

When the equipment manufacturer confirms that it is necessary, it can authorize to provide the customer with the host software and operating instructions.

4.3 Battery Fault Handling

If the battery system malfunctions, it may trigger automatic shutdown or partial function abnormalities. Troubleshoot using the methods below. If unresolved, contact the after-sales service center immediately.

Caution : When contacting after-sales service, prepare the following information for efficient troubleshooting:

1.Battery information: e.g., serial number, software version, installation date, failure occurrence time, failure frequency;

2.Installation environment: e.g.,weather conditions (provide photos/videos if possible);

3.Usage history: e.g., operation frequency/duration, charge cycles, maintenance records; simultaneously specify service type (on-site repair, factory return repair, or usage guidance).

Fault Alarm Handling Table

Fault Name	Troubleshooting Methods
Charging High-Temperature Alarm Discharging High-Temperature Alarm	Check the installation environment temperature to ensure the battery system's installation temperature meets the battery's operating temperature range; Turn off the battery and restart it after the temperature returns to normal.
Charging Low-Temperature Alarm Discharging Low-Temperature Alarm	Check the installation environment temperature to ensure the battery system's installation temperature meets the battery's operating temperature range; Turn off the battery and restart it after the temperature returns to normal.
MOSFET High-Temperature Alarm	Check the installation environment temperature to ensure the battery system's installation temperature meets the battery's operating temperature range;

	Turn off the battery and restart it after the temperature returns to normal.
High-Temperature Alarm	Check the installation environment temperature to ensure the battery system's installation temperature meets the battery's operating temperature range;
Ambient Low-Temperature Alarm	Turn off the battery and restart it after the temperature returns to normal.
Single Cell Overvoltage Alarm Single Cell Undervoltage Alarm	Let the battery stand for 0.5 hours, then restart charging immediately. If the problem persists, please contact the after-sales service center.
Total Voltage Overvoltage Alarm Total Voltage Undervoltage Alarm	Let the battery stand for 0.5 hours, then restart charging immediately. If the problem persists, please contact the after-sales service center.
Charging Overcurrent Alarm Discharging Overcurrent Alarm	If it does not recover after 5 minutes, restart the system. If the problem persists, please contact the after-sales service center.
SOC Alarm	Restart the battery and then charge it. If the problem persists, please contact the after-sales service center.

Table 4.8

Warning ： If any fault other than those listed in Table 4.7 occurs, please contact the after-sales service center directly.

4.4 Inspection and Maintenance

Caution ： Maintenance personnel for energy storage equipment must hold an Electrician Special Operation Certificate (China) or equivalent electrician license energy storage systems with proficiency in operational specifications, and possess comprehensive electrical safety protection and emergency response capabilities.

Warning ：

1.If issues potentially affecting the battery system are detected, contact after-sales service immediately; do not attempt disassembly.

2.If exposed copper wiring is observed, do not touch to avoid high-voltage hazards; immediately contact after-sales service; disassembly is strictly prohibited.

3.For other emergencies, contact after-sales service promptly for operational guidance or await on-site handling by technicians.

Maintenance Content	Maintenance Cycle
Check if the installation of the battery system is loose; if so, tighten the corresponding parts	Once every 6 months

Check if the outer shell is damaged; if so, touch up the paint or contact the after-sales service center	Once every 6 months
Check if the exposed wires are worn; if so, replace the corresponding cables	Once every 6 months
Check if there is any debris accumulation around the battery to avoid affecting the battery's heat dissipation	Once every 6 months
Check for water or pests to prevent long-term intrusion into the battery	Once every 6 months
If the battery has not been used for a long time, it must be charged to at least 50% SOC each time	Once every 6 months

05 Appendix

Appendix A-Logo Description

Identification Instructions

	Please read the endorsed documentation carefully
	Danger. Risk of electric shock!
	Hazardous Substance Labeling
	CE certification
	Transportation Safety Certification
	Flammability risk
	Keep the battery away from open flame or ignition sources.
	Recycling
	The danger of voltages. Danger to life due to high voltages in the energy storage system
	This marking indicates that this product should not be disposed with other household wastes

Appendix B-Exceptional Situation Explanation

1. What should be done if the battery pack fails to function properly after being connected to the power supply?

Answer: The most straightforward method is to connect to the host computer. Through the host computer, the fault phenomenon can be detected. Information such as alerts, protection, and faults can be displayed on the host computer interface, allowing for a rough analysis of the cause. This can also provide necessary references for further testing.

2. Under what circumstances will RS232 communication fail?

Answer: The following steps can be taken to eliminate this problem:

1) Ensure that at least one indicator light on the battery pack is on or flashing, indicating that the battery pack is in normal operation.

2) Confirm that the upper computer software selects the correct COM port (refer to the device manager).

3) Confirm that the RS232 communication line is fully inserted into the corresponding communication interface of the battery pack.

3. Under what circumstances will RS485 be unable to perform parallel battery communication?

Answer: The possible causes of parallel battery communication failure are as follows: First, confirm whether the parallel RS485 communication ports are properly connected. Then, ensure that the address dialing position of the battery pack is correct, and make sure that the RS485 terminal plug is in the correct position.

4. What is the fault alarm mechanism?

A: The battery pack has a fault alarm function, which can be checked through the upper computer software.

Faults include:

1) Sampling fault: Communication failure between the analog front-end and the main control chip. When the fault occurs, the charging and discharging function is turned off, and the fault alarm can be automatically cleared after the fault is eliminated.

2) Temperature NTC fault: Mainly detects whether the temperature NTC is short-circuited or disconnected. When the fault occurs, the charging and discharging function is turned off, and the fault alarm can be automatically cleared after the fault is eliminated.

3) Unit fault: The voltage difference between the unit is greater than 1V, or the difference between the total voltage detected and the total voltage of the unit is greater than 5V, or the minimum voltage is less than 0.5V. A broken voltage sampling line also reports the same fault. When the fault is cleared, the fault alarm can be automatically cleared.

After the battery is connected to the system, it exhibits overcurrent protection or short-circuit protection. This is not a problem of the battery pack, but rather an excessive capacity load of the electrical equipment. Charging can eliminate the alarm or extend the pre-charging circuit delay time of the battery pack.

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User Manual

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