BSL NEW ENERGY TECHNOLOGY CO., LTD

User Manual

Li-PRO Series

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Version History

Version	Date	Version update history	Approval
V1.0	2023-12-18	First edition	
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V1.2	2025-04-14	Third edition	
V1.3	2025-08-15	Fourth edition	

Catalogue

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.

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

1.2 General Security

Notice :

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 environments (force majeure such as earthquakes, fires, storms, floods, mudslides, etc.).Damage caused by the customer's failure to comply with transportation and installation requirements.

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

7. Damage to the hardware or data of the device due to customer negligence, improper operation or intentional damage .

8. Damage to hardware or data caused by customer negligence, improper operation, or intentional misuse.

9. System damage resulting from actions of a third party or the customer, including improper relocation or installation not complying with this manual, as well as unauthorized adjustments, modifications, or removal of identification labels.

10. Defects, malfunctions, or damage arising from events beyond the seller ' s reasonable control, including power outages, electrical failures, theft, war, riots, civil unrest, terrorism, or deliberate acts of sabotage.

 **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.

Notice ：

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

Notice :

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.

Notice ：

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.

2. During maintenance, restrict access to unauthorized personnel. Erect temporary warning signs or barriers for isolation.

3. Contact your distributor immediately for equipment malfunctions.

4. Do not re-energize until malfunctions are fully resolved. Failure to comply may cause expanded failures or equipment damage.

5. Unauthorized opening of covers is prohibited due to electrocution risks. Resulting damages void warranty coverage.

6. Operators and technicians must receive comprehensive safety and maintenance training. Perform tasks only with adequate precautions and personal protective equipment .

7. 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.

8. Battery maintenance must be performed/supervised by personnel trained in battery handling and safety protocols.

9. Replace batteries only with identical types.

10. After maintenance, immediately verify no tools or components remain inside the equipment.

11. 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.

2.2 Model Specifications

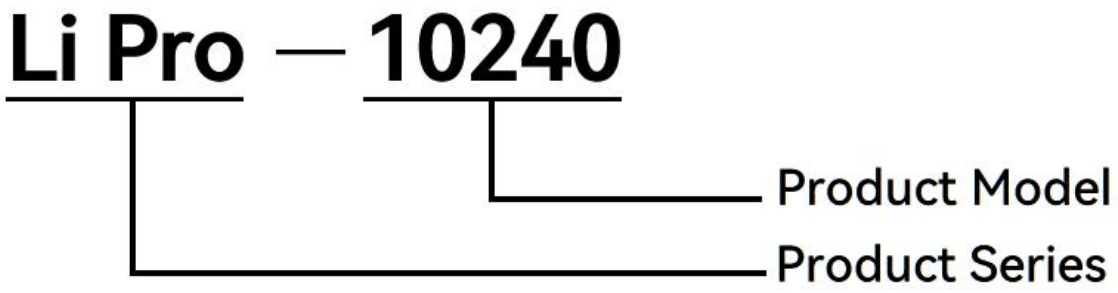


Figure 2.2-1

Notice : The Li-Pro Series wall-mounted battery system offers configurable battery options to match system requirements. The Li-PRO battery is a 51.2V home battery based on $LiFePO_4$ (LFP) technology, available in 5kWh / 10kWh / 15kWh / 16kWh capacities. It supports parallel connection of up to 15 identical units and features IP65 protection rating.

No.	Meaning	Description
1	Product Model	Li-Pro 5120 / Li-Pro 10240 / Li-Pro StyX
2	Product Features	Battery Type: $LiFePO_4$ (LFP) Lithium Iron Phosphate

Table 2.2

Li-Pro 5120:

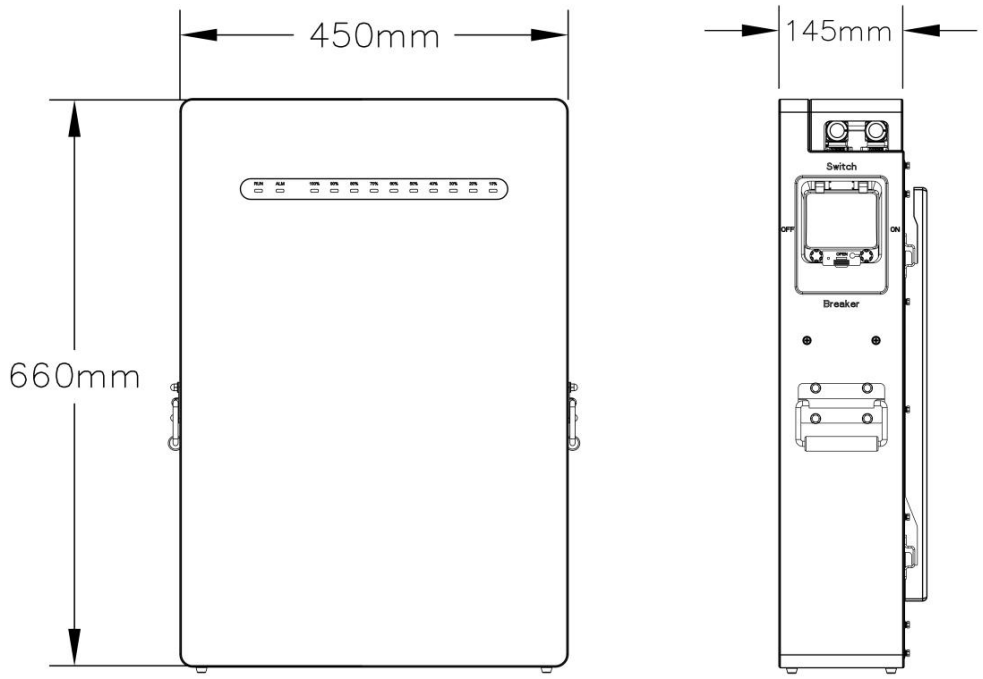


FIgure 2.2-2

Li-Pro 10240

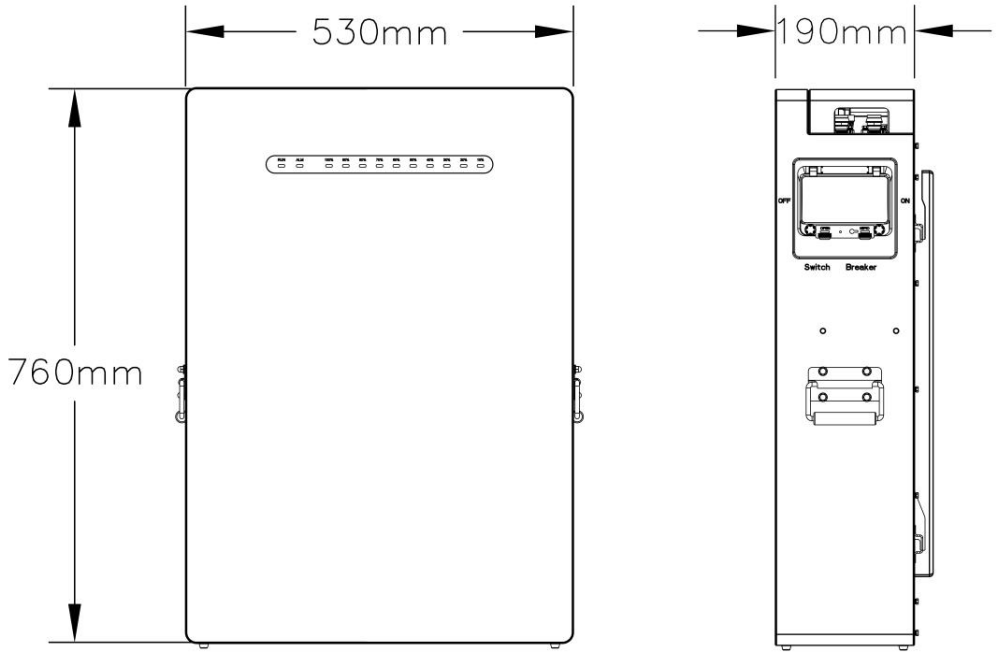


FIgure 2.2-3

Li-Pro StyX:

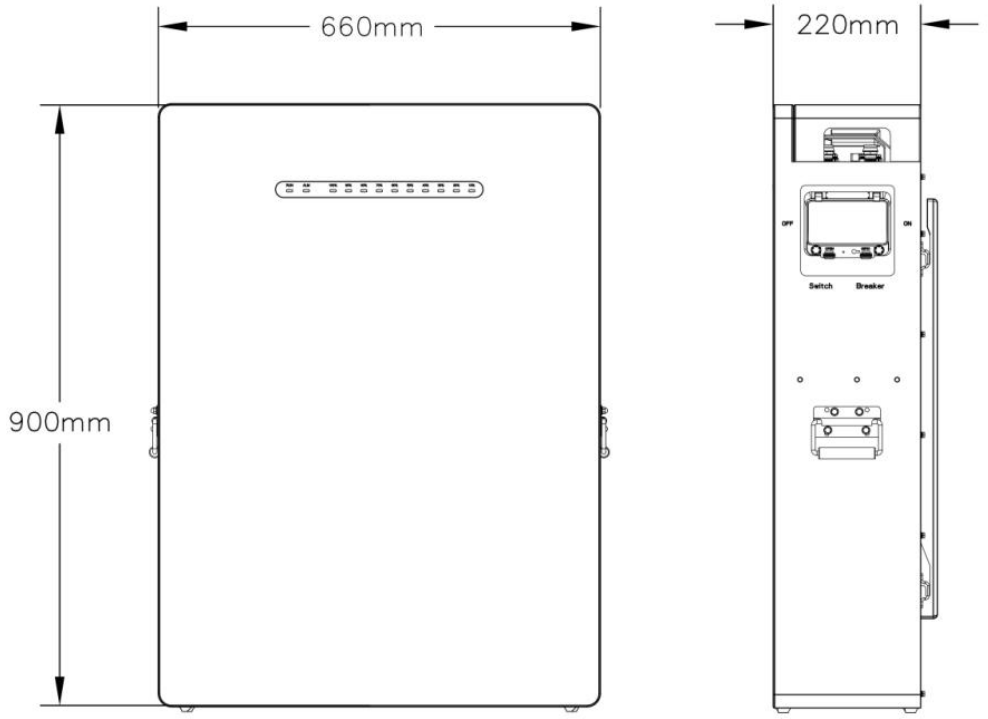


FIgure 2.2-4

Notice ： The actual height may vary slightly. Please refer to the actual installation height for accurate measurements.

2.3 Configuration List

Configuration List Table

Name	Qty	Remarks
Battery Pack	1 set	Includes wall-mounted bracket
User's Manual	1 copy	Electronic version
Matching Harness	1 set	Includes power cable and communication cable
Expansion Screws M8*50mm	1 set	10 pieces in total

Table2.3

2.4 Product Appearance

Li Pro-10240

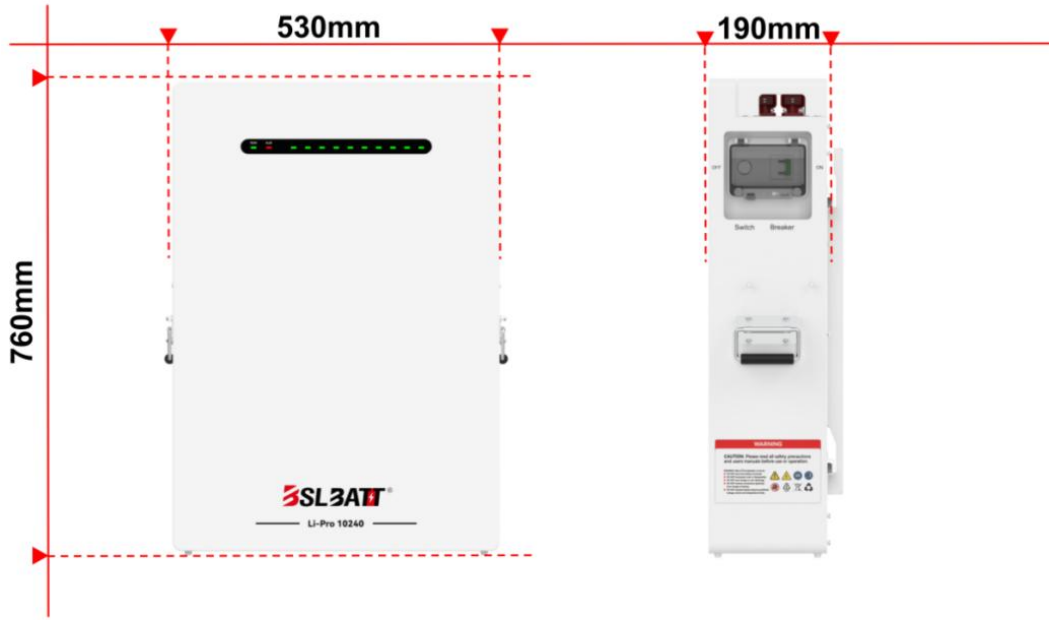


FIgure 2.4

Notice ： Configurations may vary by project. Actual specifications shall be subject to the delivered products.

2.5 Product Specifications

Li-Pro Technical Parameters Table

General Parameter	Li-Pro 5120	Li-Pro 10240
Nominal Voltage	51.2V	
Rated Capacity	100Ah	200Ah
Cell Model (LFP-3.2V)	100Ah	
Pack configuration	16S1P (all models)	
Rate power (Wh)	5120Wh	10240Wh
Charging Voltage	55V	
Float charge Voltage	54.5V	
Discharge Cut-off Voltage	47V	

Rated Current	40A	80A
Max Continuous Charge Current	80A	160A
Max Continuous Discharge Current	100A	200A
Storage conditions	20%~40% SOC, 0℃~35℃, humidity≤60%	
Internal Impedance	≤100mΩ	
Communication protocol	CAN/RS485	
Host software and Communication	RS232	
Operation Temperature Range	Charge: 0~55℃ Discharge: -20~55℃	
Protection level	IP65	
Pack Weight (Kg)	54±3%	96±3%
Dimension(mm)(W*H*D)	660*450*145(±5mm)	760*530*190(±5mm)

Table 2.5-1

General Parameter	Li-Pro StyX	
Nominal Voltage	51.2V	
Rated Capacity	300Ah	314Ah
Cell Model (LFP-3.2V)	300Ah	314Ah
Pack configuration	16S1P (all models)	
Rate power (Wh)	15360Wh	16076Wh
Charging Voltage	55V	
Float charge Voltage	54.5V	
Discharge Cut-off Voltage	47V	
Rated Current	80A	
Max Continuous Charge Current	160A	

Max Continuous Discharge Current	200A
Storage conditions	20%~40% SOC, 0℃~35℃, humidity≤60%
Internal Impedance	≤100mΩ
Communication protocol	CAN/RS485
Host software and Communication	RS232
Operation Temperature Range	Charge: 0~55℃ Discharge: -20~55℃
Protection level	IP65
Pack Weight (Kg)	132±3%
Dimension(mm)(W*H*D)	900*660*250(±5mm)

Table 2.5-2

2.6 Product Details

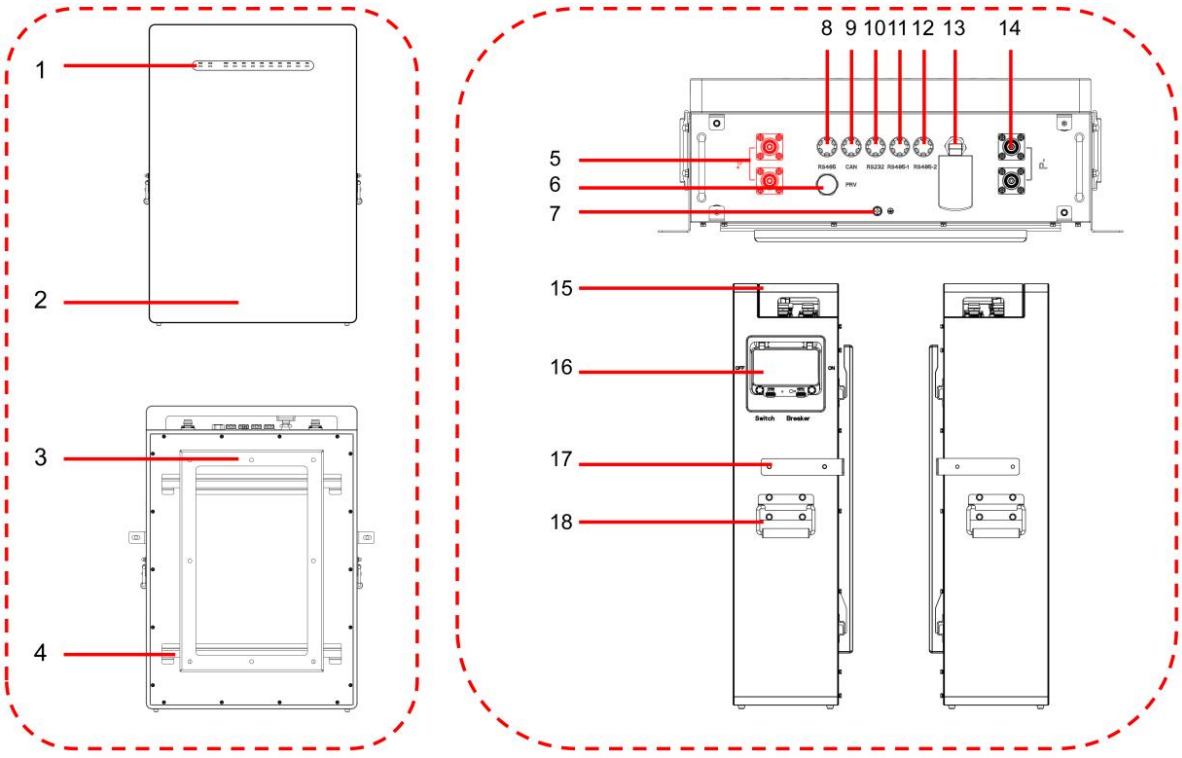


Figure 2.6

Battery Component Description Table

No.	Component Name	Description
1	Indicator Panel	Displays battery SOC for visual monitoring
2	Battery Enclosure	Provides physical protection
3	Wall-mount Bracket	Supports wall installation
4	Parallel Mounting Bracket	Secures wall-mounted equipment
5	Positive Terminal Socket	Connects to battery positive pole
6	PRV (Pressure Relief Valve)	Automatically releases internal pressure during thermal runaway gas generation
7	Ground Terminal	Equipment grounding connection (Prevents electric leakage)
8	RS485 Port	PCS communication interface
9	CAN Port	CAN bus connection to inverter
10	RS232 Port	Host computer communication
11	RS485-1 Port	Parallel RS485 communication
12	RS485-2 Port	Parallel RS485 communication
13	Wi-Fi Port	For Wi-Fi dongle (If Wi-Fi function enabled)
14	Negative Terminal Socket	Connects to battery negative pole
15	Terminal Cover	Prevents foreign object contact
16	Power Switch	Includes: MCB(auto-protection on overcurrent) Button switch(BMS power activation)
17	L-shaped Mounting Bracket	Equipment fixation for floor installation
18	Handle	Facilitates battery transportation

Table 2.6

2.7 Product Applications

This product supports multiple operation modes with the following operational logic:

1. PV Self-consumption with Grid Export Mode

During daylight with sufficient solar irradiation, PV modules generate DC power converted to AC by inverters, prioritizing household loads. If PV generation exceeds load demand, surplus energy charges the battery. When fully charged, excess PV power feeds into the grid. At night or during low-irradiation conditions, the battery powers household loads via inverters. When battery SOC drops critically, loads automatically switch to grid supply.

2. Peak Shaving and Valley Filling Mode

Applicable in regions with significant peak/off-peak electricity price differentials:

Off-peak hours : ESS charges from grid

Peak hours : ESS powers household loads
This strategy reduces grid consumption during high-tariff periods, significantly lowering energy costs.

3. Emergency Backup Power Mode:

During grid outages caused by extreme weather (tornadoes, typhoons, hail) or substation failures, the installed ESS immediately switches to island mode, providing uninterrupted power to critical loads.

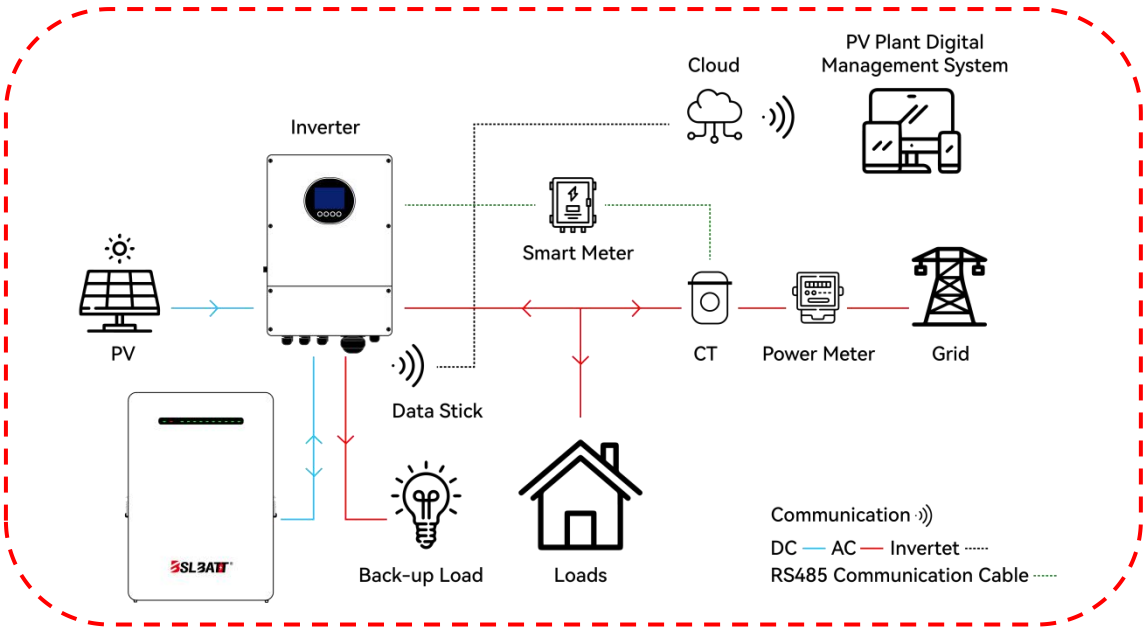


FIgure 2.7-1

Notice : The product application modes and operational logic described above are based on typical scenarios. Actual performance and suitability will depend on various factors including user-specific installation environments, local grid policies and regulations, equipment configuration, and usage habits.

03 Product Installation

3.1 Pre-installation Storage

1. Storage preparation: Ensure the equipment's outer packaging is intact and undamaged (do not remove). Verify the desiccant inside the package is not missing to maintain internal dryness.

2. Storage environment requirements: When storing the equipment, keep it away from flammable, explosive, or corrosive materials. It is recommended to install a sunshade above the battery to avoid direct sunlight, rain, and snow accumulation. Ensure the storage environment is clean with appropriate temperature and humidity ranges, and free from condensation.

3. Battery storage requirements: The equipment has an IP65 protection rating and can be installed outdoors. However, before installation, plan the floor or wall space properly, including passages for installation, maintenance, and potential battery replacement. Ensure installation in a well-ventilated environment for heat dissipation. The selected installation location is critical for ensuring equipment safety, service life, and performance.

4. Storage temperature range: 0℃ to 35℃, with charging required at least once every 3-6 months.

5. Storage humidity range: Storage humidity should be 5-60%RH without condensation. If moisture or condensation is found on battery terminals, do not install the battery system and handle it appropriately.

3.2 Pre-installation Inspection

1. External packaging inspection: Verify the outer packaging is intact and undamaged, including checking for deformation, openings, cracks, or other signs that may indicate internal equipment damage.

2. Equipment model and delivered components inspection: Confirm the equipment model matches the order; verify the types and quantities of delivered components are correct, and inspect for any visible damage.

3.3 Installation Environment

1. Installation environment requirements: The equipment must not be installed in flammable, explosive, or corrosive environments; the installation location should prevent access by children and avoid areas prone to accidental contact; simultaneously note that surfaces may become hot during operation to prevent burn injuries.

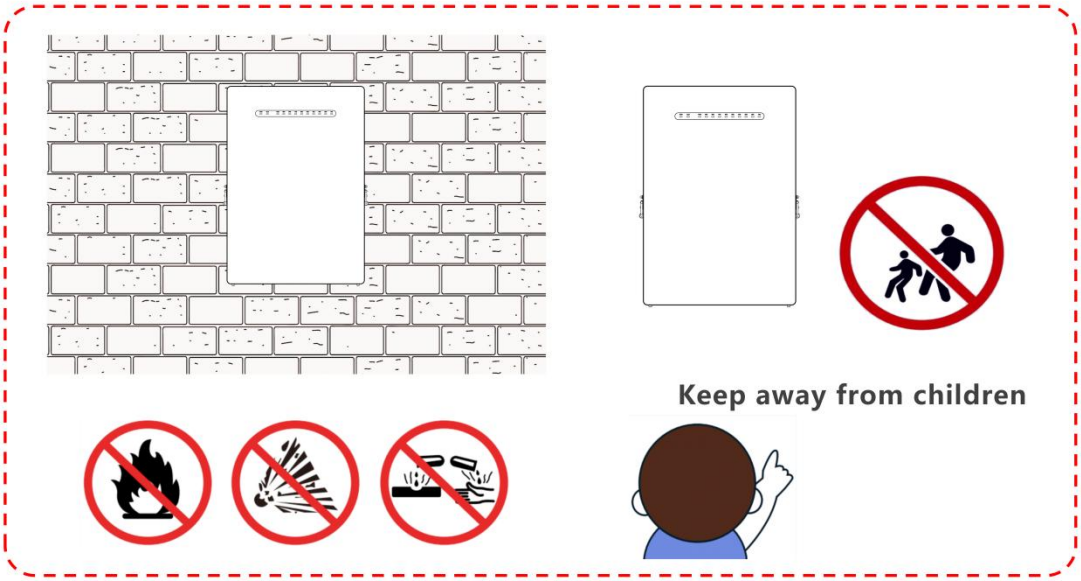


FIgure 3.3-1

2. Installation Location Precautions : Avoid installing where water pipes, cables, or similar utilities exist within walls to prevent damage to the battery; the installation environment must avoid direct sunlight exposure, rain, and snow accumulation. It is recommended to install in a well-ventilated indoor area.

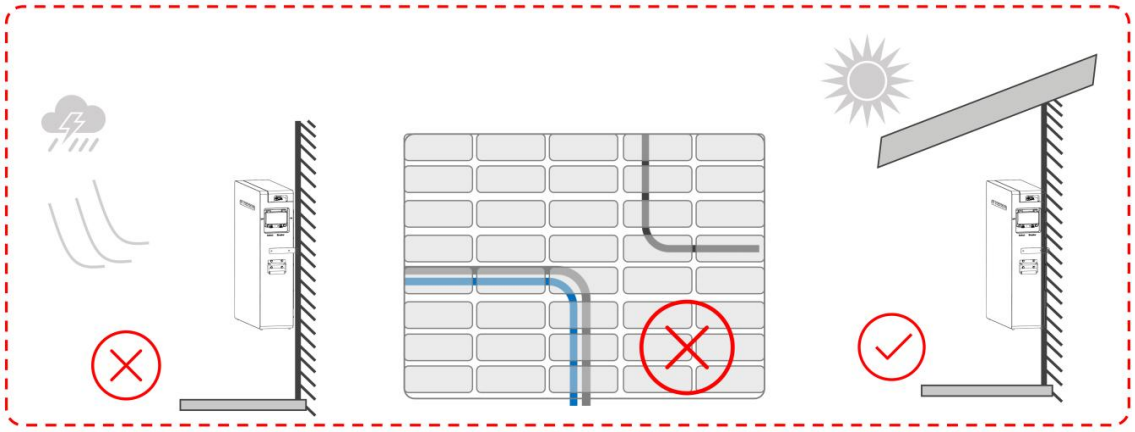


Figure 3.3-2

3. Installation space and environmental conditions : Ensure the installation space meets equipment ventilation, heat dissipation, and operational clearance requirements;

the equipment ' s protection rating is suitable for indoor installation, and ambient temperature/humidity must remain within appropriate ranges.

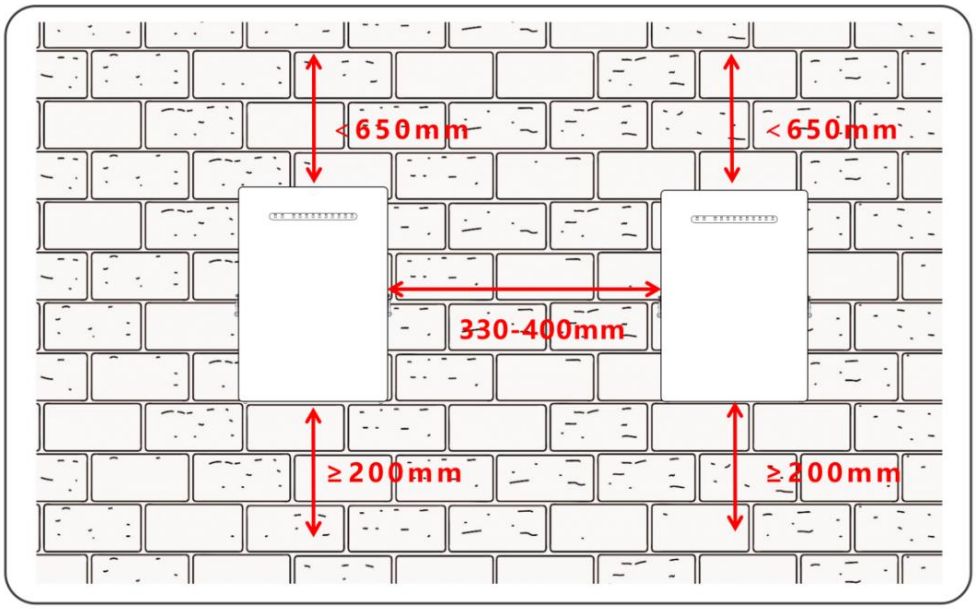


FIgure 3.3-3

4. Equipment installation spacing: The installation height should facilitate operation and maintenance, ensuring indicators, labels are clearly visible and terminals easily accessible; to ensure proper heat dissipation and disassembly, minimum clearance around rechargeable batteries must meet:

For floor/wall-mounted installations: Reserve ≥330mm width between adjacent battery pack edges.

For wall-mounted installations: Maintain 200mm–650mm clearance from floor to battery base.

5. Equipment installation height and protection: Installation height should enable easy operation/maintenance with clear visibility of indicators/labels and terminal accessibility; installation altitude must not exceed 2000 meters.

6. Electromagnetic interference protection: Install batteries >30 meters from strong magnetic fields or radio equipment below 30MHz to prevent interference.

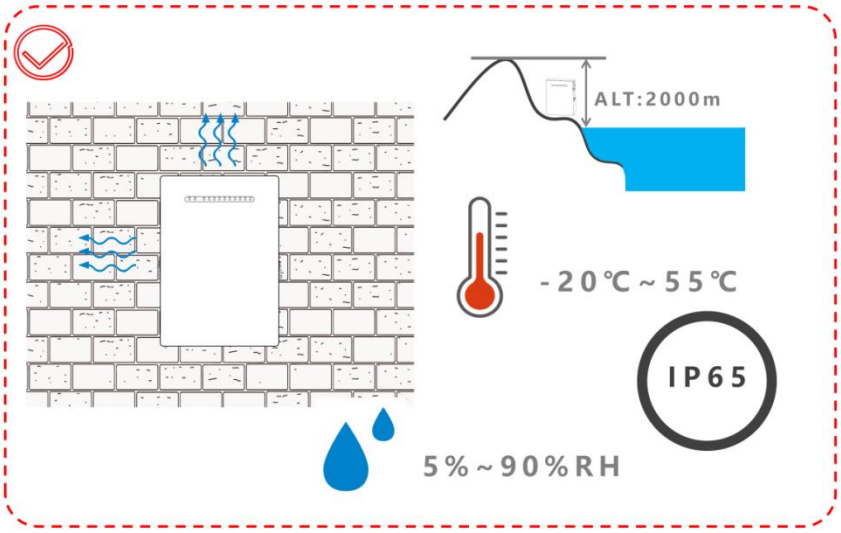


FIgure 3.3-4

7. Installation surface requirements: The selected installation location must bear the product's weight and dimensions, and the supporting surface must be constructed of non-combustible materials (e.g., solid brick/concrete).

8. For both floor and wall-mounted installations: The load-bearing capacity of the battery installation area must exceed 200kg. Ensure wall thickness is ≥100mm at all points. Do not install on wooden walls.

9. Installation angle requirements: The equipment must be installed horizontally without tilting or inversion. Installation shall comply with product technical documentation; where unspecified, vertical installation is preferred with tilt angle not exceeding 5°.

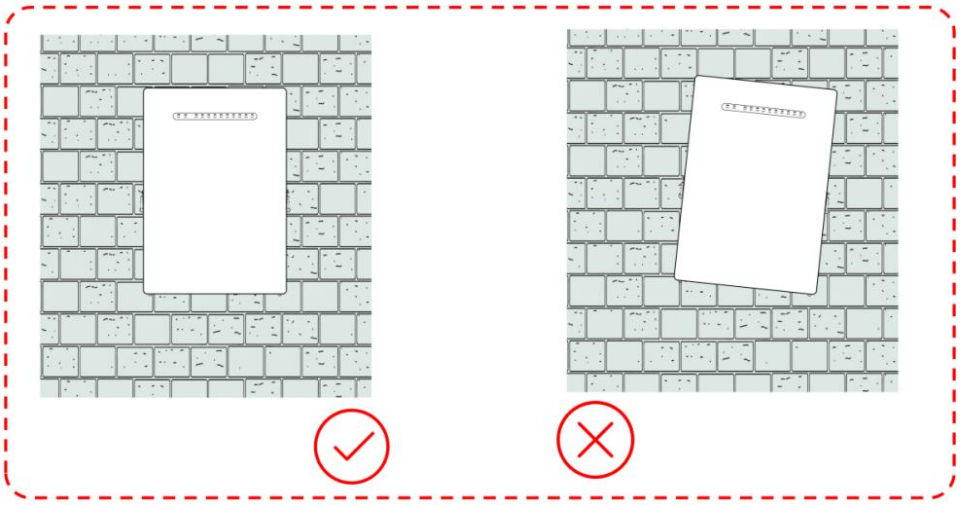


Figure 3.3-5

3.4 Preparation 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 3.4

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

3.5 Mechanical Installation

Warning : Due to the battery weight, two or more persons are required to move the equipment.

Strictly follow installation procedures. The company shall not be liable for any injuries or losses resulting from improper assembly or operation.

Setp 1: Unpacking the Battery

Remove the battery product from its outer packaging while ensuring the mounting wall is sufficiently sturdy to bear the battery weight.

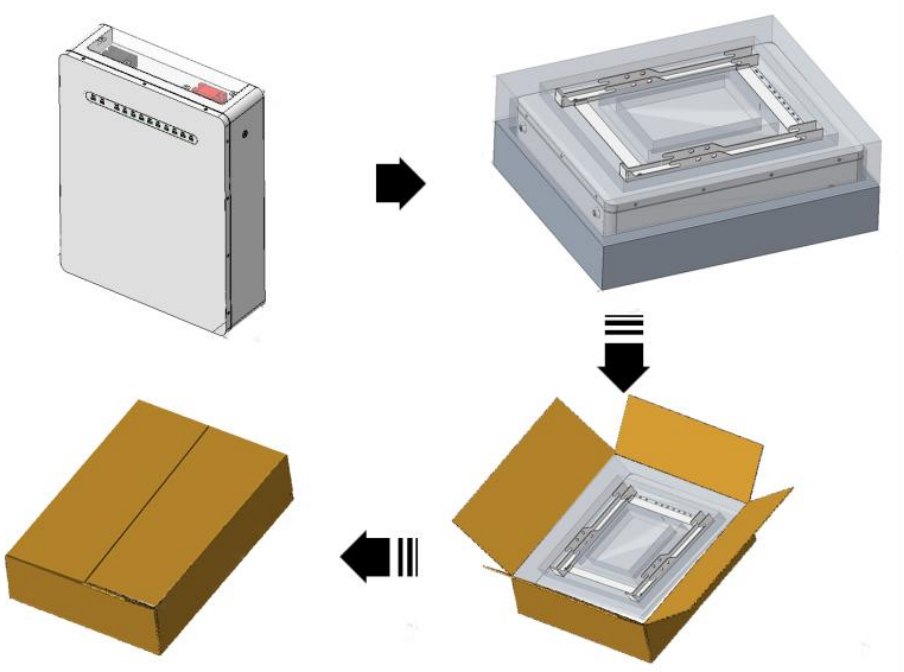


Figure 3.5- 1

Notice :

Products with 5 kWh and 10 kWh capacities are packed in cartons, while those with 15 kWh and 16 kWh capacities are packed in wooden crates.

Exercise caution when handling all packaging materials, as they may be reused for future storage or relocation of rechargeable batteries.

After unpacking, inspect the rechargeable battery for physical damage or missing accessories. If any damage or missing parts are found, contact your distributor immediately.

When selecting a storage method for the battery, refer to the installation environment requirements in Section 3.3.

Step 2: Battery Handling

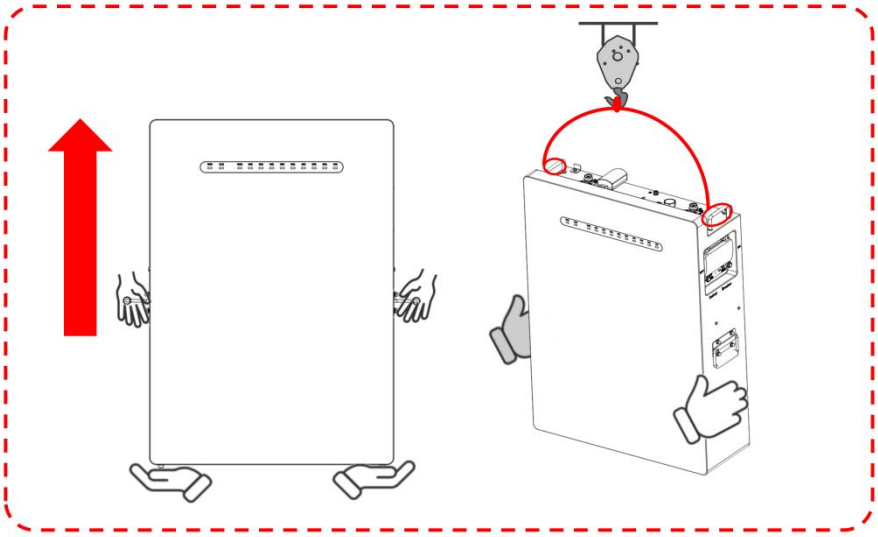


Figure 3.5- 2

Caution :

1.During transportation, handling, and installation, compliance with local laws/regulations and industry standards is mandatory.

2.Based on battery weight, assign adequate personnel to prevent injury from overloading; safety gloves must be worn for hand protection.

3.Ensure the battery remains balanced during handling to avoid drops.

4.Before installing the equipment, connect the grounding cable; refer to Section 4.5.5 "Connecting the Ground Wire" for details.

Step 3: Mounting Bracket Installation

The battery system supports two installation methods: **wall-mounted** and **floor-mounted**.

Wall-mounted:

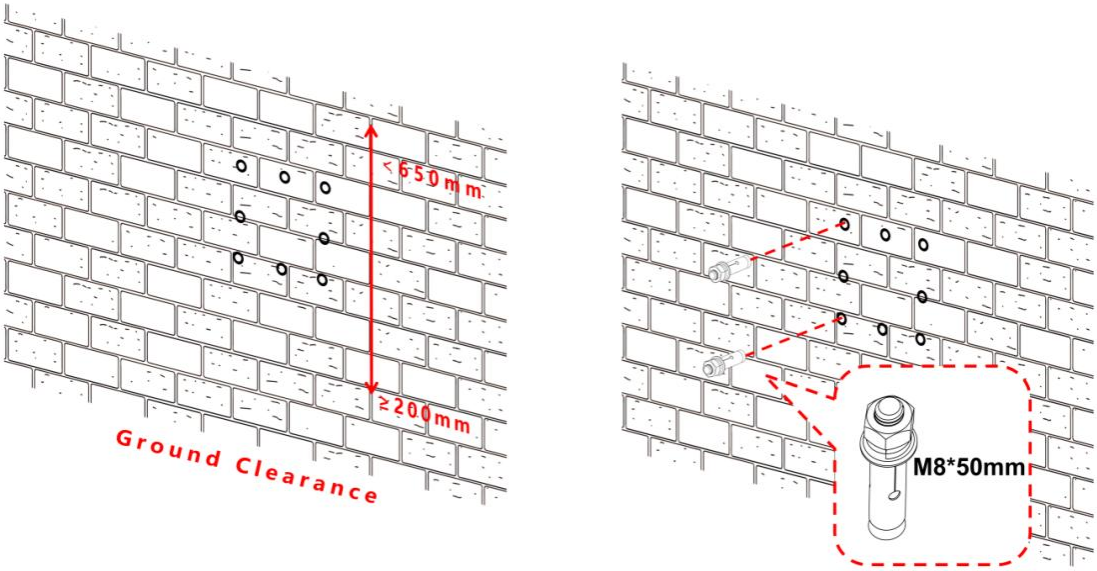


Figure 3.5-3 Driving expansion bolts into the wall

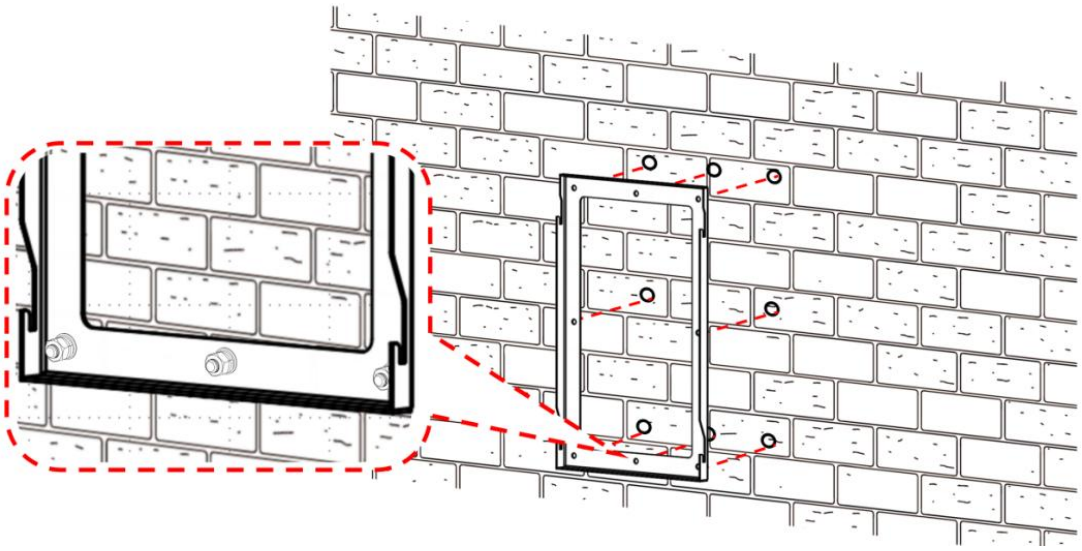


Figure 3.5-4 Securing wall-mount bracket with nuts

① Keep installation points within 650mm from the ground.

② Securely anchor wall-mount bracket using M8×50mm expansion bolts.

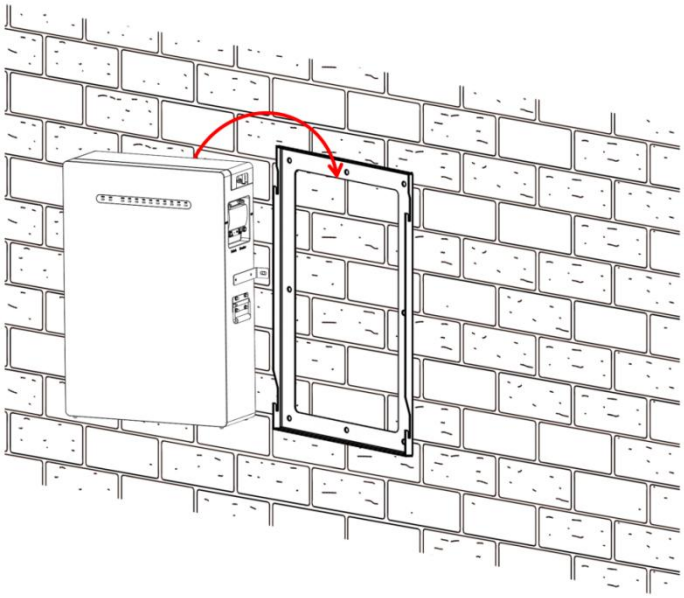


Figure 3.5- 5

Step 4: Rail Mounting

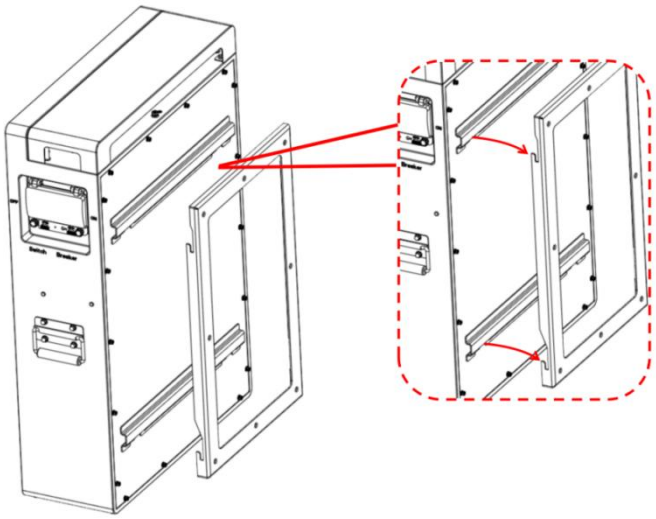


FIgure 3.5- 6

Caution : When using rail support installation, the rail must match the product specifications. Deformed or non-compliant rails shall not be used.

Step 5: L-shaped Bracket Installation

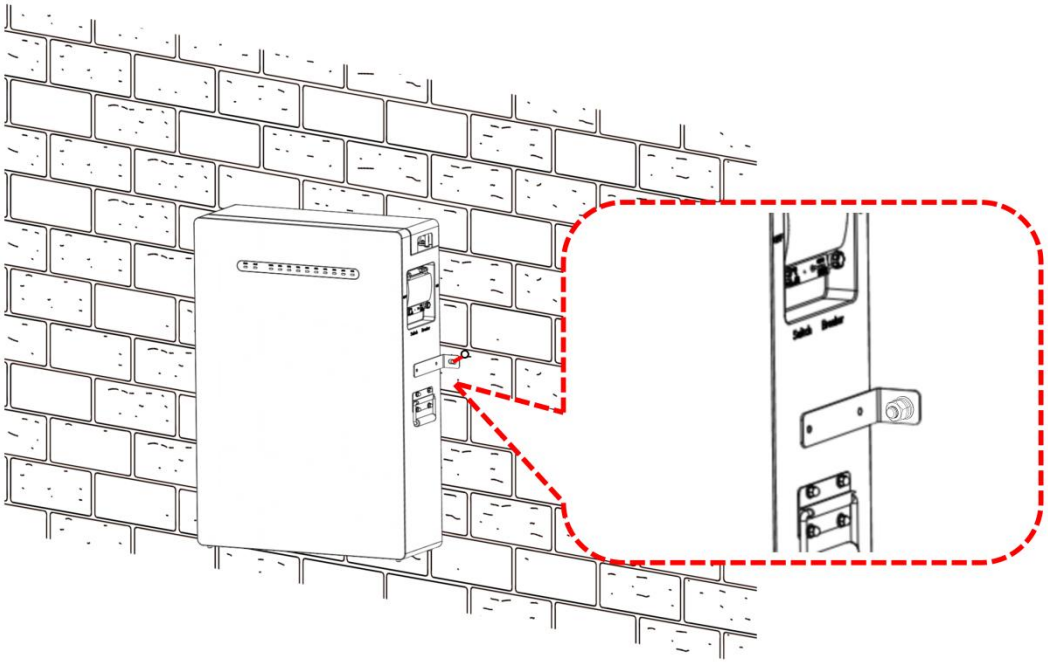


Figure 3.5- 7

Floor-mounted:

Refer to previous installation steps for floor-mounted procedures 1-2.

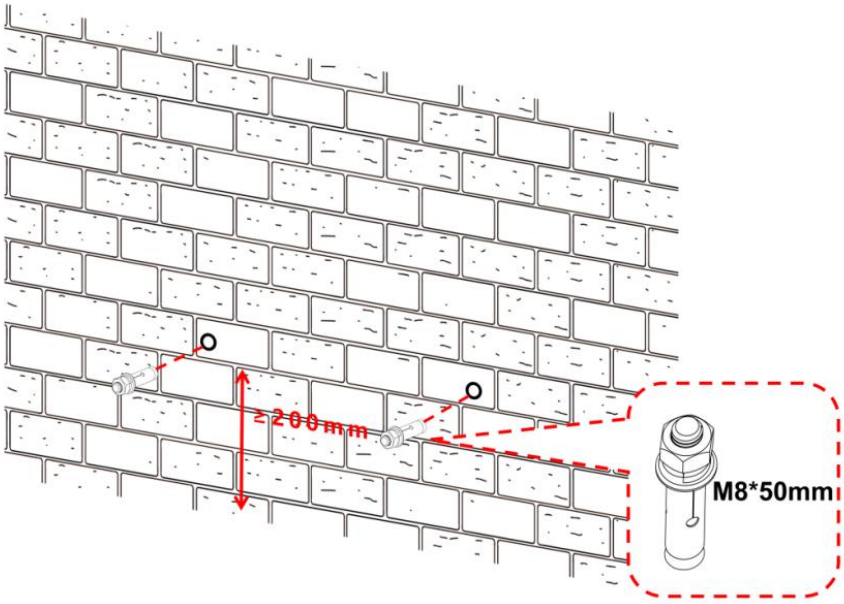


FIgure 3.5- 8

Caution :During floor installation, secure the equipment using L-shaped brackets. When pre-drilling wall holes, reserve corresponding holes for L-shaped bracket fixation

Step 3: L-shaped Bracket Securing

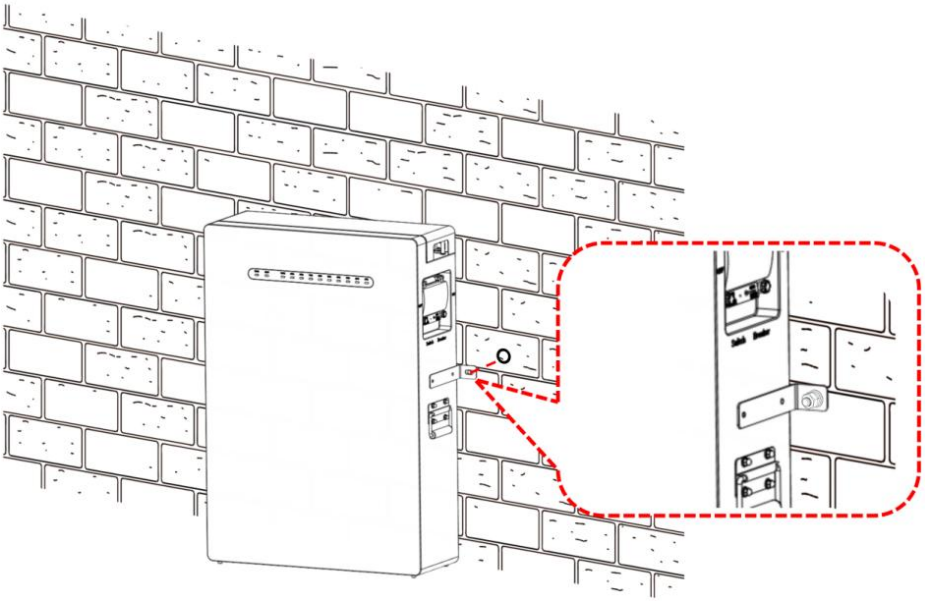


FIgure 3.5- 9

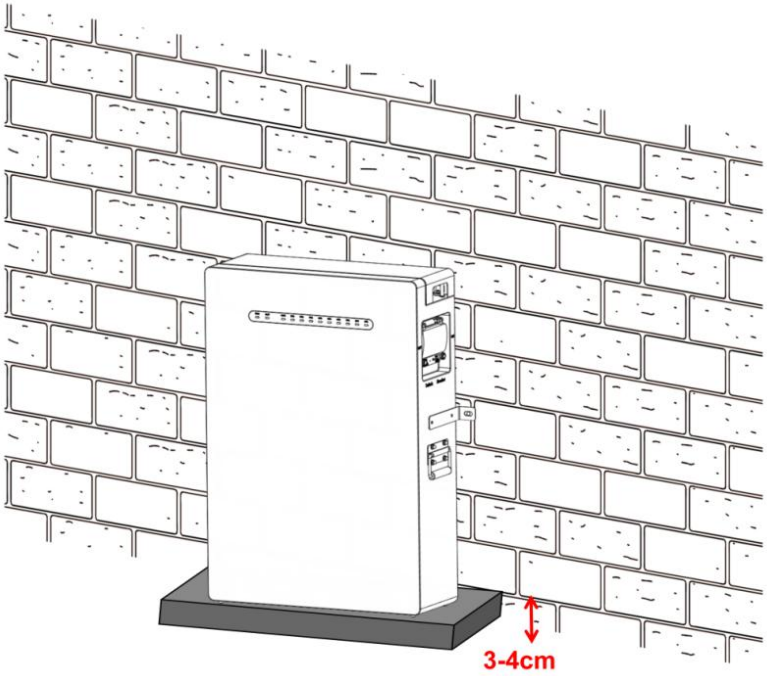


FIgure 3.5- 10

Caution :

① Secure L-shaped brackets to the wall using M8×50mm expansion bolts

② To prevent battery combustion or moisture damage, place a fireproof and moisture-resistant pad (height: 3cm–4cm) beneath the battery.

3.6 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.

3.6.1 Protective Ground Wire Connection

Before the electrical installation of the battery, the protective ground wire should be connected first to ensure safety, and when dismantling the battery system, the protective ground wire should be the last to be removed.

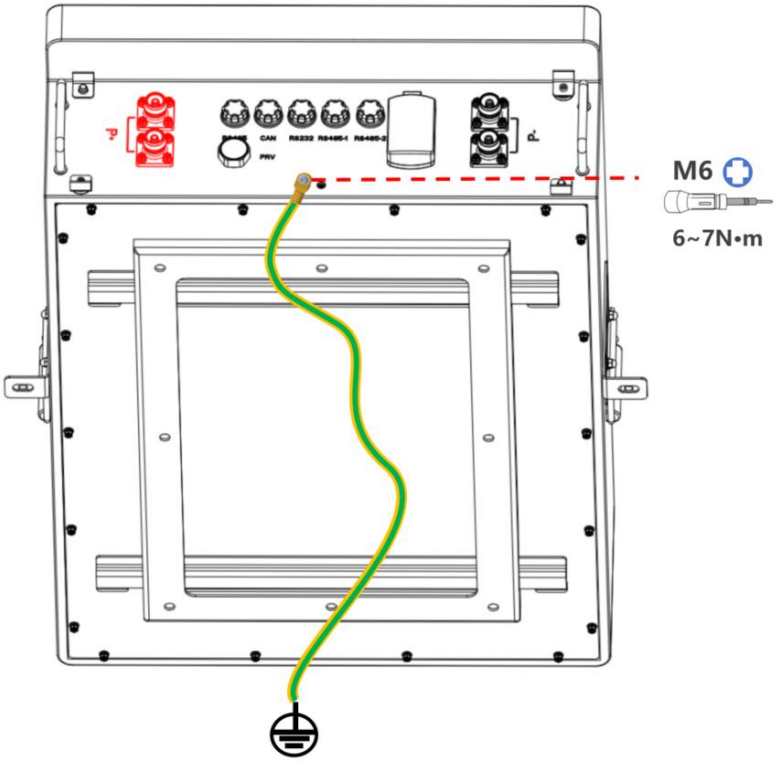


Figure 3.6.1

Caution :

1. Protective ground wire, recommended specifications: Type: outdoor single-core copper wire, conductor cross-sectional area: 6mm^2;

2. Please ensure that after the cable crimping is completed, the fixing is secure and not loose;

3.6.2 Power Cable Connection

External Power Cables (Factory pre-installed)

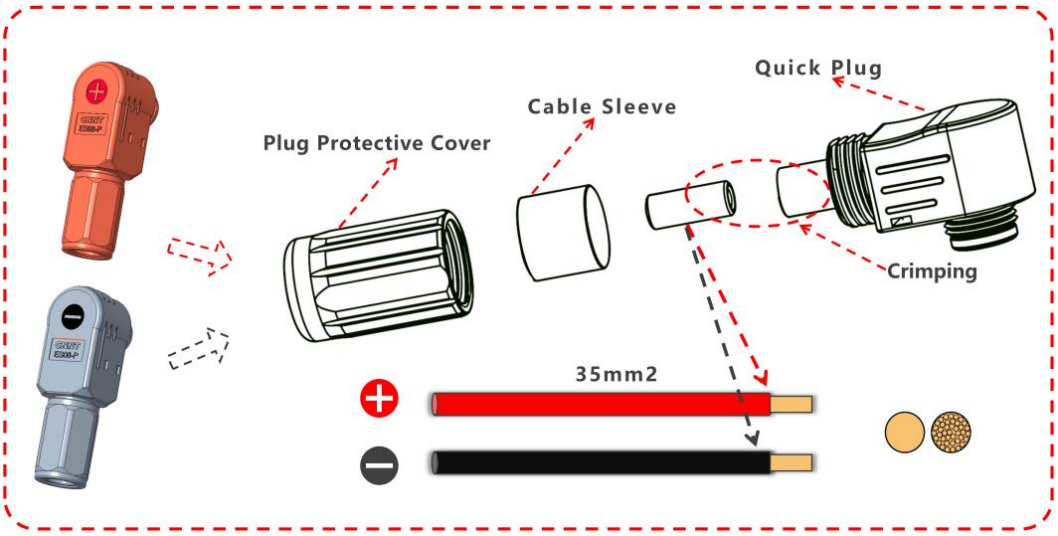


Figure 3.6.2-1

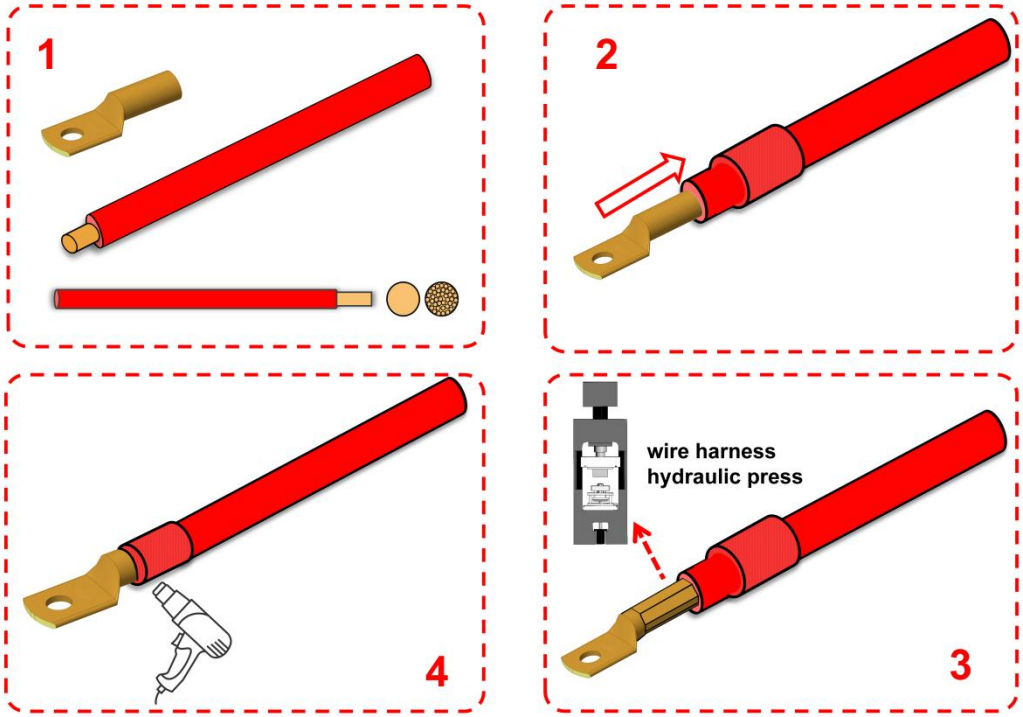


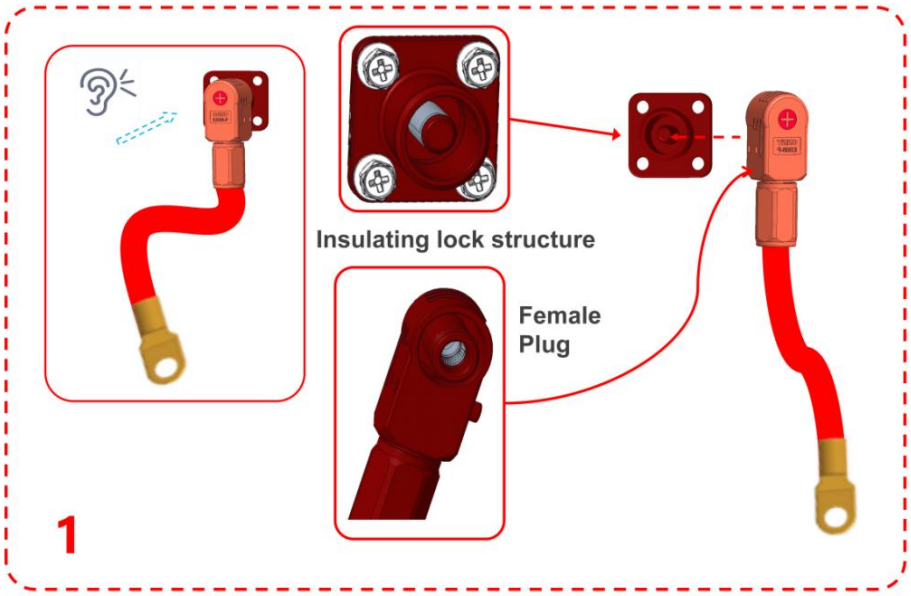
Figure 3.6.2-2

Cable Selection :

Item	Specification	Figure
Power cable-positive	51.2V/100Ah	Red/25mm²/L1500mm
Power cable-negative	51.2V/100Ah	Black/25mm²/L1500mm

Power cable-positive	51.2V/200Ah	Red/35mm²/L1500mm
Power cable-negative	51.2V/200Ah	Black/35mm²/L1500mm
Power cable-positive	51.2V/300Ah/314Ah	Red/50mm²/L1500mm
Power cable-negative	51.2V/300Ah/314Ah	Black/50mm²/L1500mm

Table 3.6.2



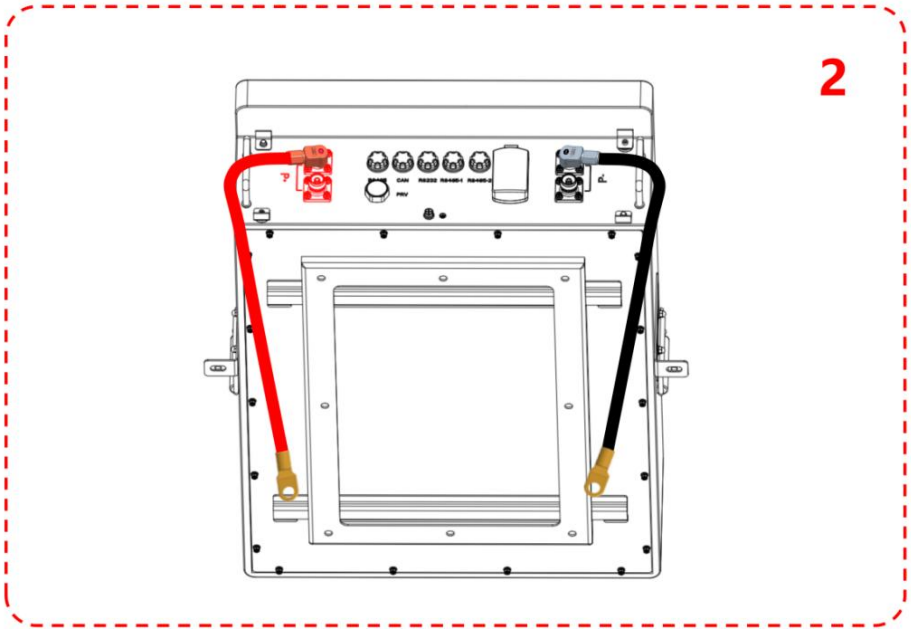


Figure3.6.3-3

Notice ： When connecting power cables:

Align positive/negative terminals with quick-connect ports until a "click" sound confirms full insertion.

The opposite end features cold-press terminals for user connection to inverters.

3.6.3 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.

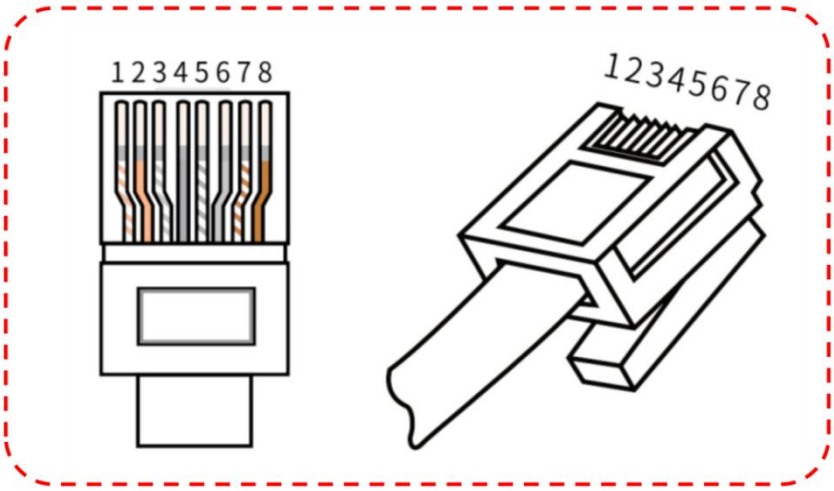


Figure 3.6.3-1

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.

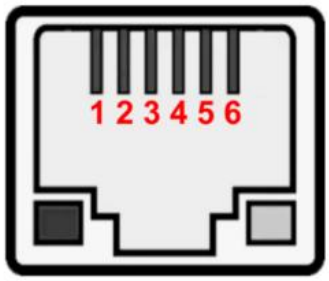
Parallel RS485 Communication: Default baud rate 9600bps. For battery parallel clusters, the master unit uses RS485 for inter-PACK communication, polling data via DIP switch addresses to monitor battery status.

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.

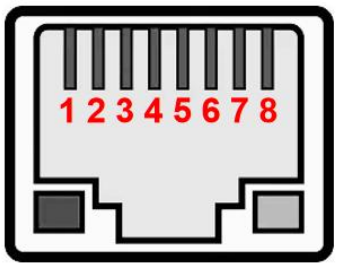
RS232:



RJ11 socket	Definition
PIN	RS232
1	NC
2	NC
3	TX
4	RX
5	GND
6	NC

Figure3.6.3-2

CAN:



RS485:

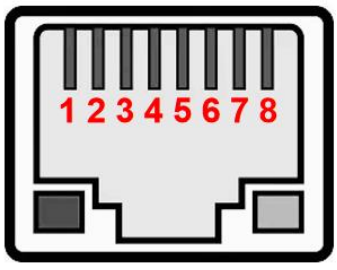


Figure 3.6.3-3

RJ45 socket	Definition	
PIN	RS485	CAN

1	RS485-B1	NC
2	RS485-A1	GND
3	GND	NC
4	NC	CAN-H
5	NC	CAN-L
6	GND	NC
7	RS485-A1	NC
8	RS485-B1	NC

Table 3.6.3-1

RS485-1、RS485-2：

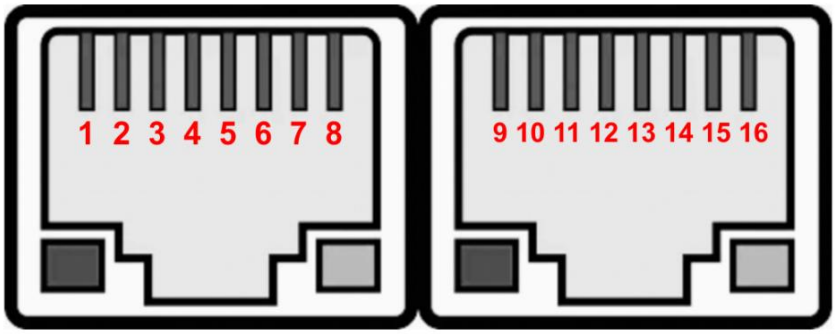


FIgure 3.6.3-4

RJ45 socket	Definition	RJ45 socket	Definition
PIN	**RS485-1**	**PIN**	**RS485-2**
1	RS485-B	9	RS485-B
2	RS485-A	10	RS485-A
3	GND	11	GND
4	NC	12	NC

5	NC	13	NC
6	GND	14	GND
7	RS485-A	15	RS485-A
8	RS485-B	16	RS485-B

Table 3.6.3-2

Item	Figure	Specification
Universal Communication Cable for Inverters (Standard Configuration)	black/1.5m	Double RJ45 plug
Victor inverter communication cable (standard configuration)	blue/1.5m	Double RJ45 plug
Wall-mounted battery and network cable (optional)	white/1.5m	Double RJ45 plug
RS232 serial communication cable (optional)	balck/1.8m	With USB to RS232 conversion,Both ends have USB and RJ11 plugs

Table 3.6.3-3

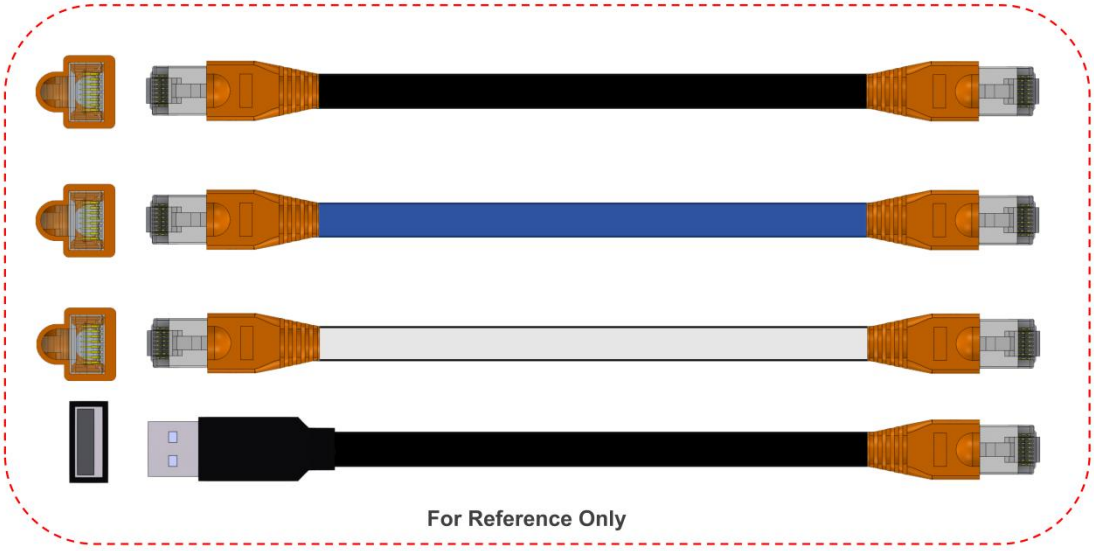


Figure 3.6.3-5

3.7 External Connection of the Battery

In a standalone application, the inverter communicates with the battery serving as the host.

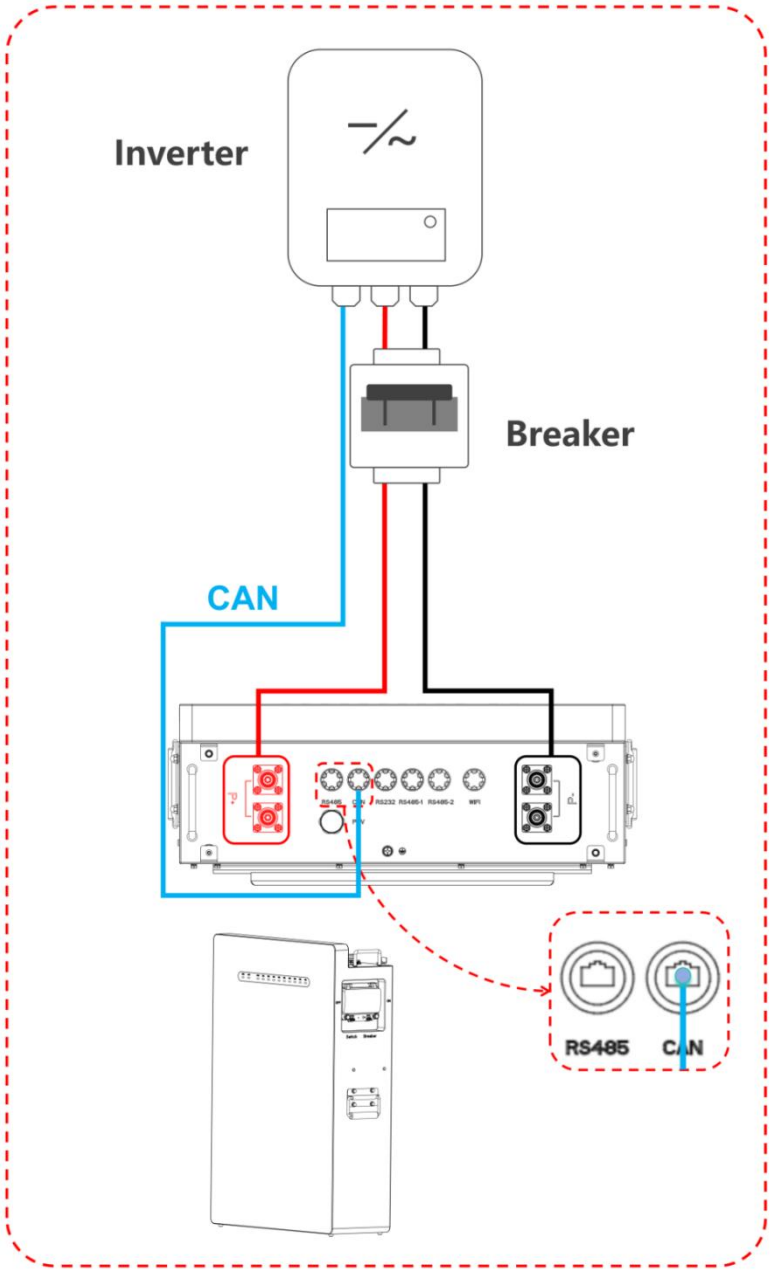


FIgure 3.7-1

Notice : When multiple batteries are connected in parallel, the interior of the battery pack is connected in parallel via RS485-1/2 hardware interfaces and communicates with the inverter through an RS485/CAN bus. This product supports parallel operation of up to 15 devices, with device addresses assigned in sequence by the BMS through an automatic dialing mechanism.

For installed battery projects that require increased battery capacity in the later stage, it is recommended to add new batteries when the existing batteries have been in use for no more than 1 year. This is to prevent a significant difference in SOC between new and old batteries, which could lead to imbalance in the energy storage system.

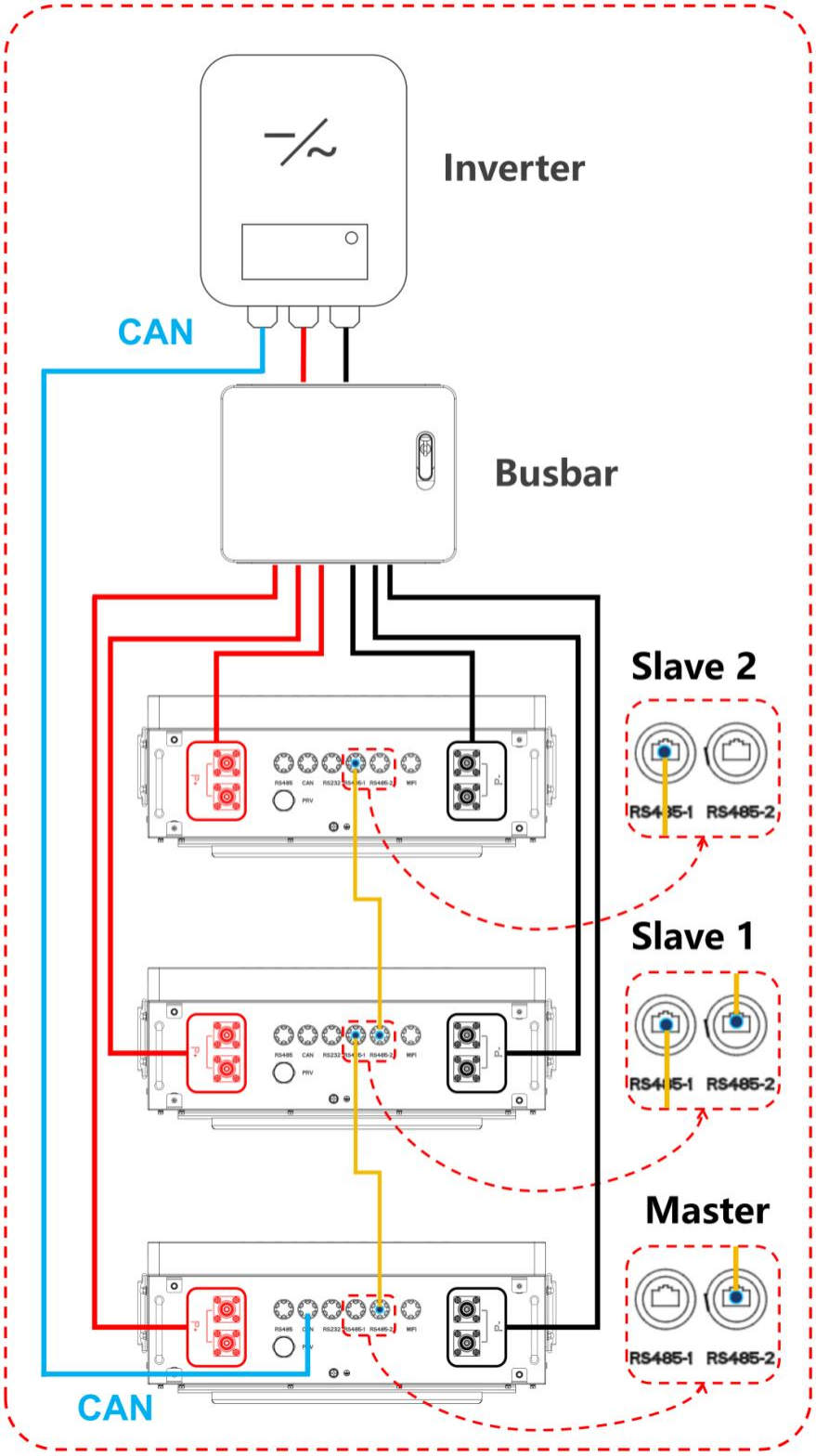


Figure 3.7-2

04 Operation and Maintenance

Danger ：

Please use only specified protective equipment and insulated tools to prevent electric shock or short-circuit faults.

Caution :

1. During energization, monitor continuously. Immediately de-energize the battery if abnormalities occur, investigate the cause, and resume energization only after resolution.

2. After battery installation, debugging, de-energization, or complete discharge, recharge promptly to prevent damage from over-discharge.

4.1 Pre-energization Inspection

Inspection Items and Acceptance Criteria

No.	Inspection Item	Inspection Standard
1	The system is installed in place	Installed correctly, firmly and reliably.
2	Reasonable cable arrangement	Cables are arranged reasonably and meet user requirements.
3	Cable ties are bound neatly	Cable ties are evenly placed, and no sharp corners are left at the cut positions.
4	Reliable grounding	Ground wires are connected correctly, firmly and reliably
5	Switches are turned off	The "inverter" and all switches connected to the battery are in the "OFF" state.
6	Cables are connected in place	DC cables, AC cables and communication cables are connected correctly, firmly and reliably.

7	Unused terminals and interfaces are sealed	Unused terminals and interfaces are fitted with waterproof covers.
8	Installation environment meets requirements	Installation space is reasonable, and the environment is clean and tidy.

Table 4.1

4.2 Power-on Procedure

Step 1: Use a multimeter to confirm grid voltage is within the predetermined range;
Step 2: Close the circuit breaker between the inverter and battery;
Step 3: Press the switch to activate the BMS;
Step 4: Follow the inverter's user manual to perform energization and start the system inverter.

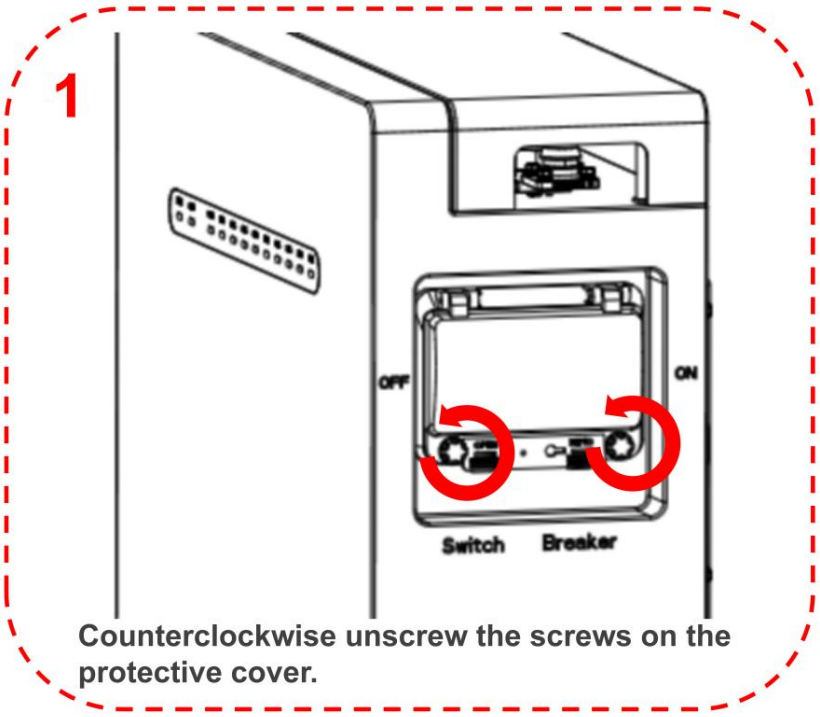


Figure 4.2-1

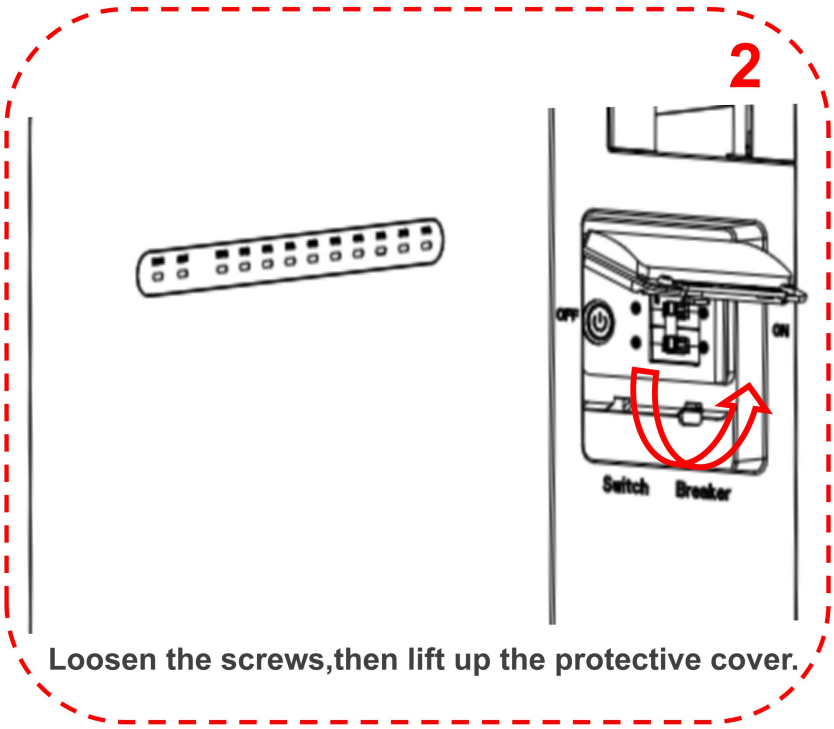


Figure 4.2-2

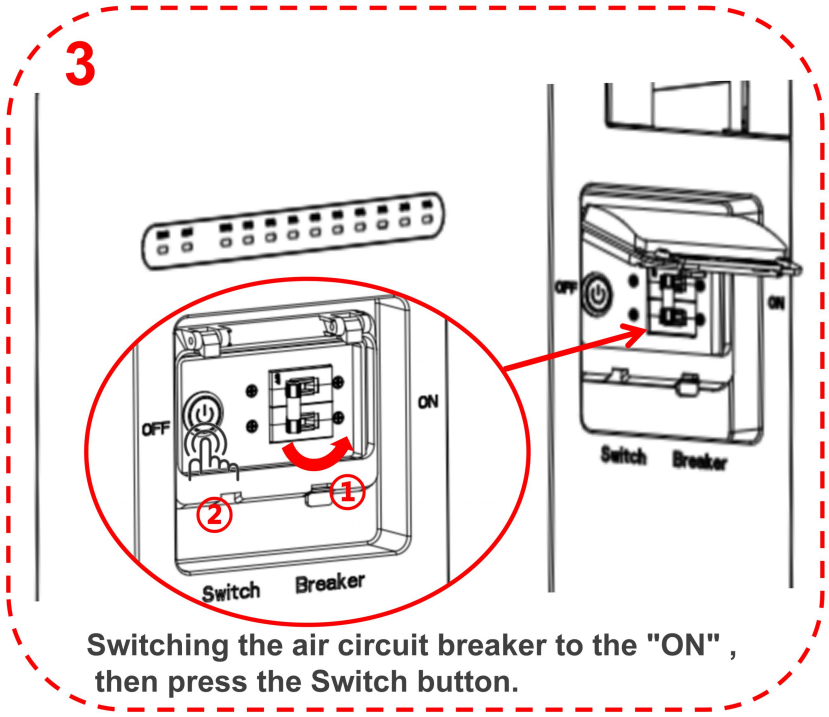


Figure 4.2-3

4.3 Power-off Procedure

Danger ：

When shutting down the battery system, please strictly follow the power-off requirements of the battery system to prevent damage to it.

Step 1: Follow the instructions in the inverter's user manual to perform the power-off operation to shut down the inverter in the system;

Step 2: Press the power button "SWITCH" on the battery system to ensure that all indicator lights of "SWITCH" are off.

Step 3: Disconnect the circuit breaker between the inverter and the battery.

4.4 Mobile App

Notice: After the battery system is energized, specific battery information can be viewed via the mobile app.

Step 1: Scan the code to download the mobile app

IOS

Android

Step 2： WIFI Stick Network Configuration

Turn on your phone's Bluetooth, WLAN, and location functions;

Select “Local Connections”;

Click Search Bluetooth and “select the device number” that needs to be connected (wl1001_2188260000*);

Click the “Change WIFI password” box, select the currently available 2.4G WIFI account, enter the password and confirm.

Network configuration is complete, click “View Data” to enter the Bluetooth data page.

Notice: The same 2.4GWIFI network is required to configure the network on the phone

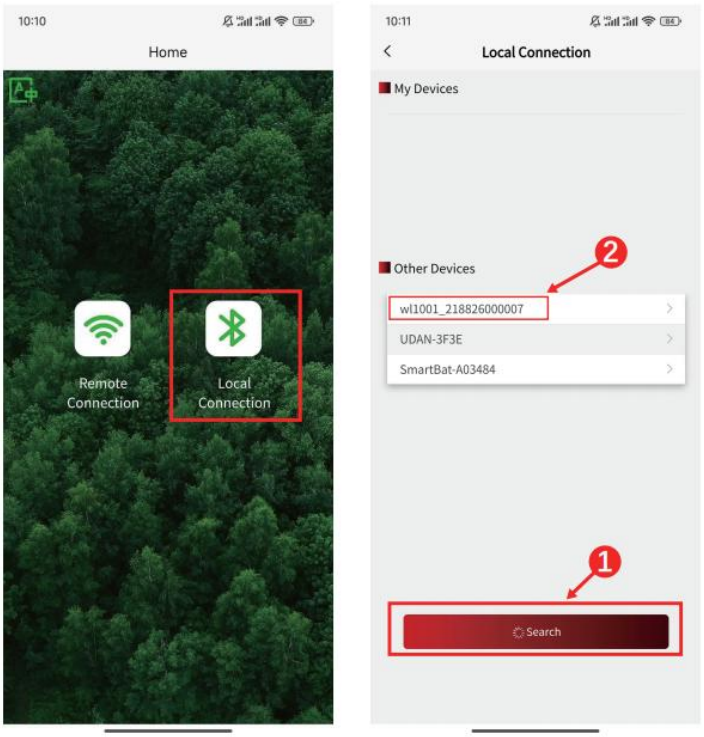


Figure 4.4-1

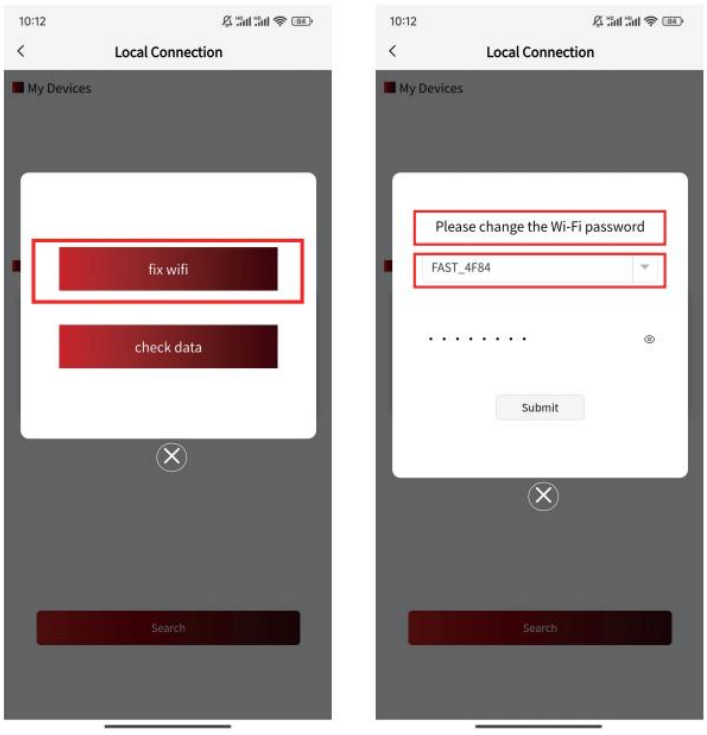


Figure 4.4-2

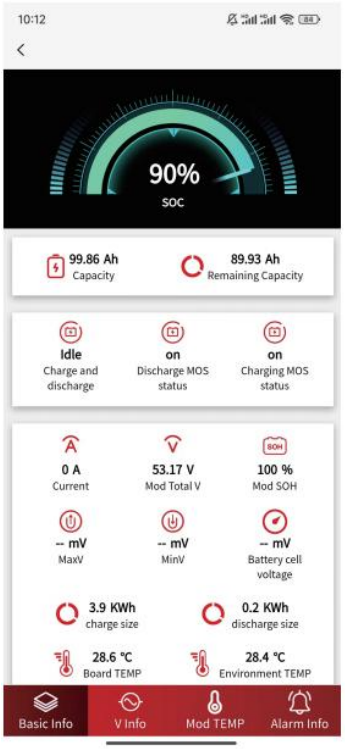


Figure 4.4-3

Step 3: Click "Remote Connection", register a new account and log in;

Click the code scanning function in the upper right corner to scan the QR code on the WIFI Stick and bind the device

Click the WIFI stick number to view remote monitoring data.

Notice: In the WIFI Stick list page, the box in the upper left corner shows green, which means the WIFI Stick network is successfully configured, and it shows gray, which means you need to reconfigure the WIFI Stick network.

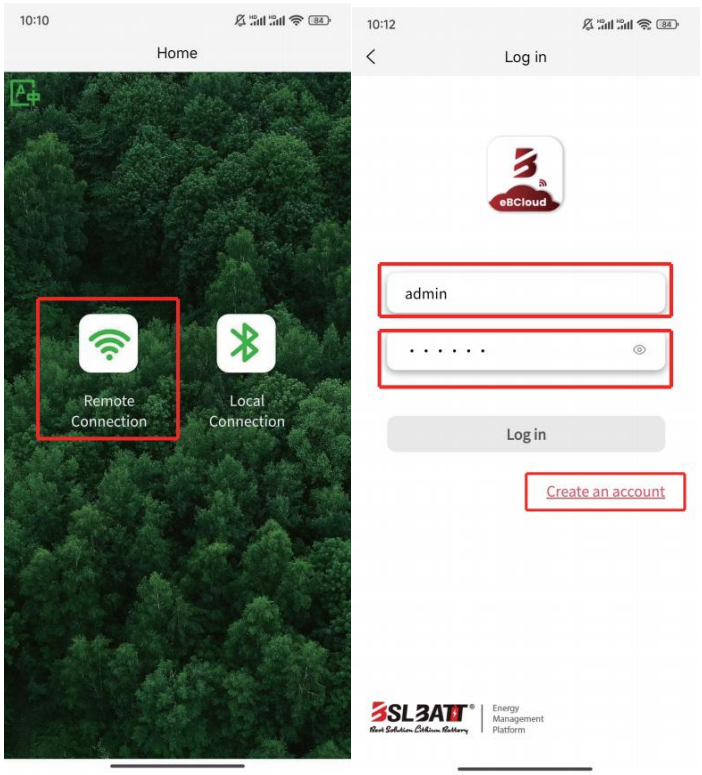


Figure 4.4-4

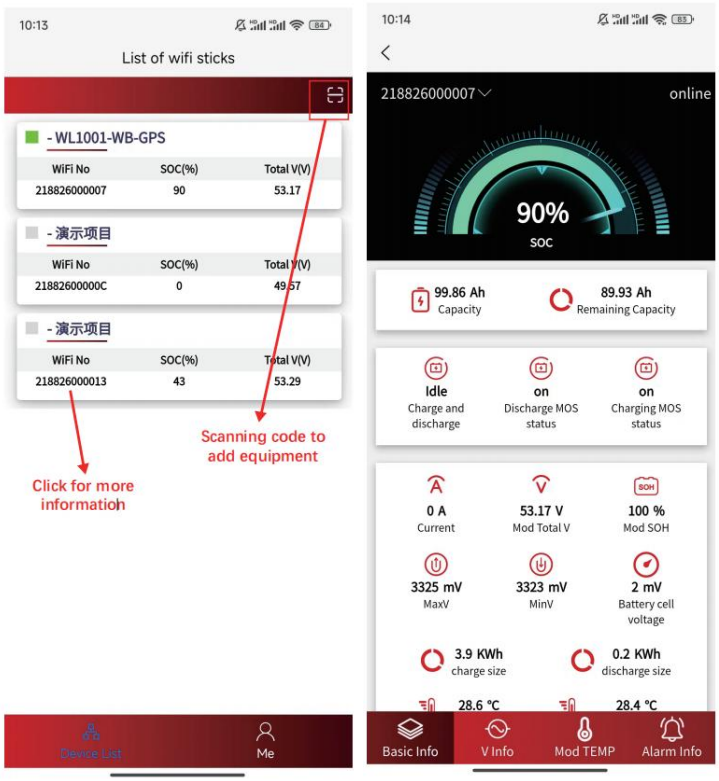


Figure 4.4-5

4.5 PC Cloud Platform

4.5.1 PC Cloud Platform Login

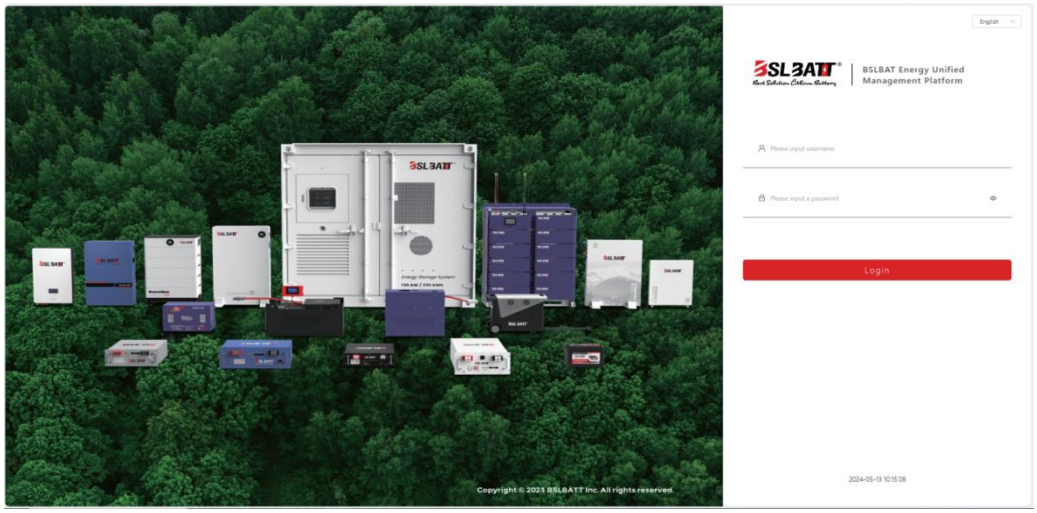


Figure 4.5.1-1

Click http://3.230.167.72/#/login/1481625648143839234 to log in to your assigned account and password on the login screen.

When you enter the home page, it shows “Number of Offline WIFI Sticks”, “Charging Distribution”, “Alarm Distribution”, and “Account Items”;

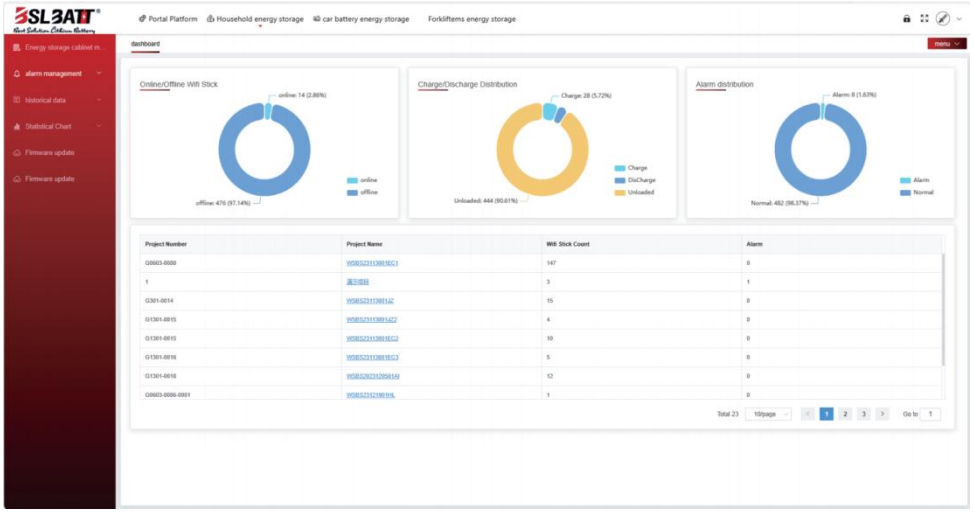


FIgure 4.5.1-2

Click “Project Name” to enter the WIFI management list of your project

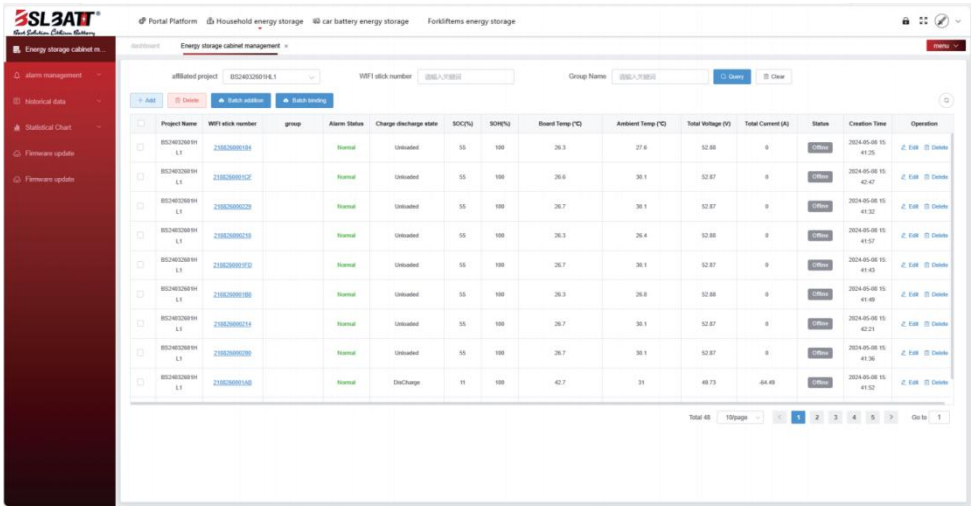
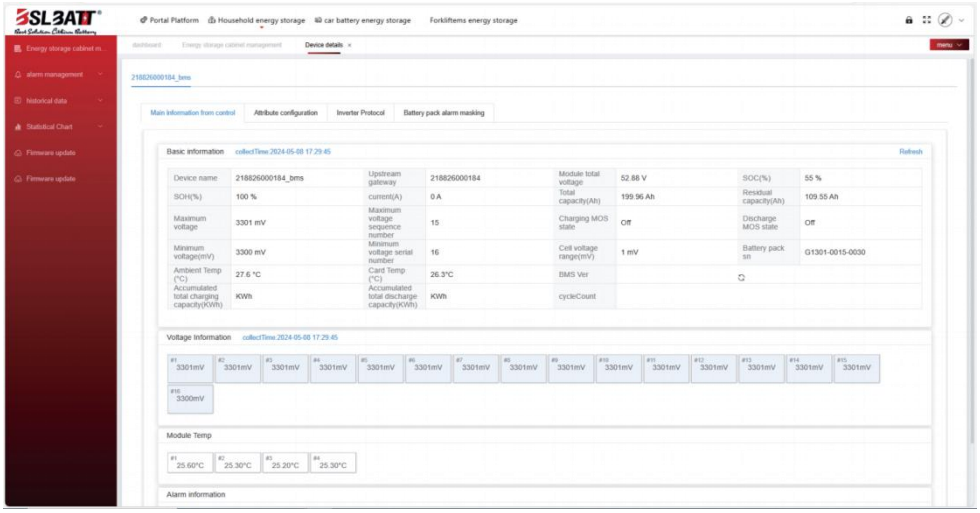


FIgure 4.5.1-3

Click on any “WIFI number” to access the data page of the monitored pack.



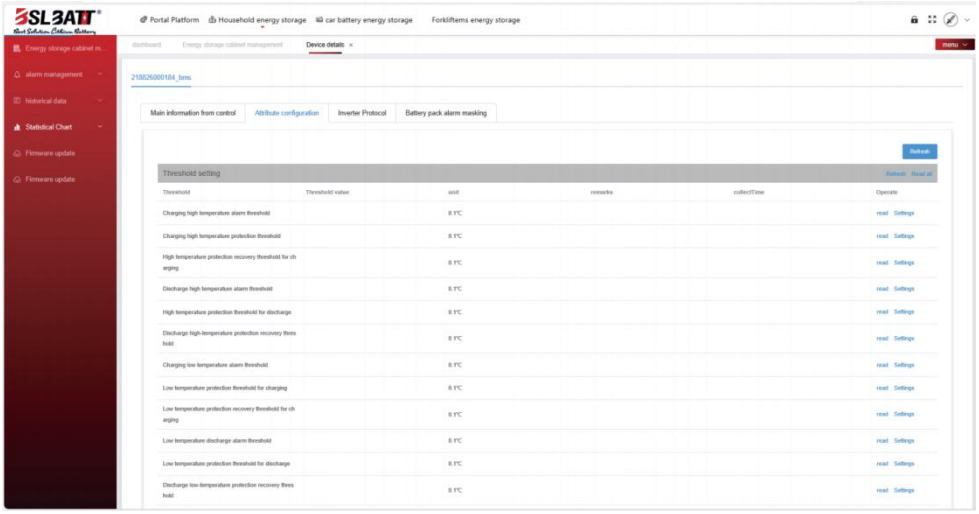


Figure 4.5.1-4

4.5.2 Operating Instructions

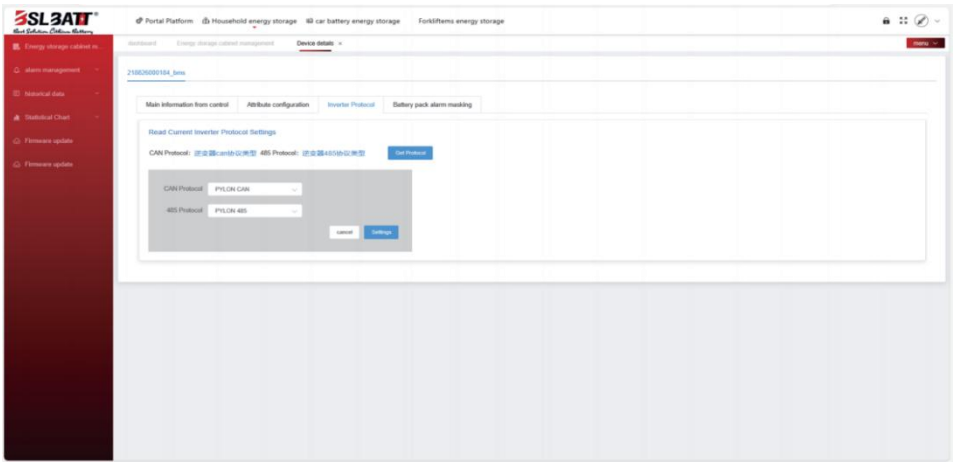


Figure 4.5.2-1

The display includes “individual voltage”, “individual temperature”, “total voltage” and “current” of the battery pack, “Charging MOS status”, “BMS software version”, “cycletimes”, “real-time alarm information”.

Click “Properties Configuration” to display the battery protection parameters, which can be modified.

Click “Inverter Protocol” to display the currently selected inverter protocol, which can be modified.

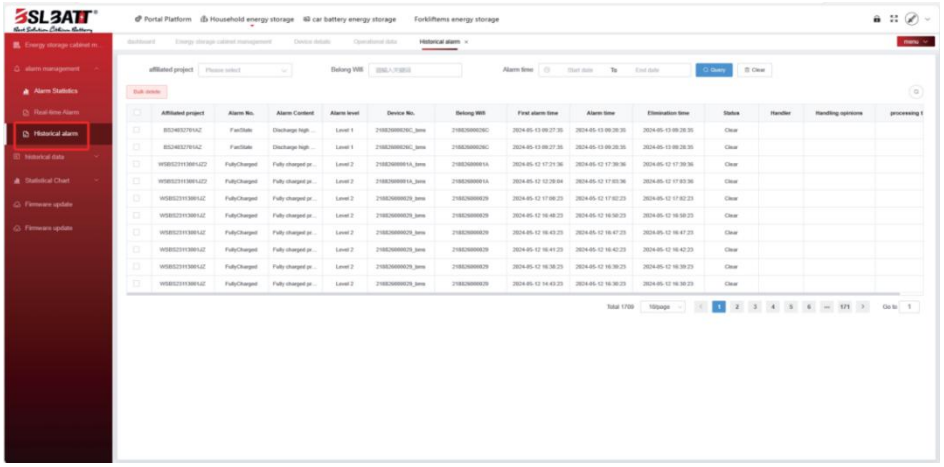


Figure 4.5.2-2

Click “History Alarm” to check the history alarm record of the battery pack.

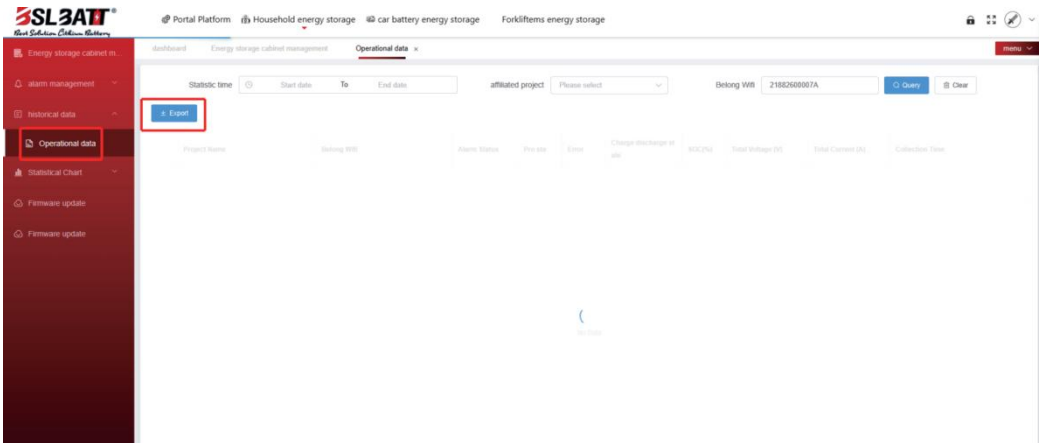


Figure 4.5.2-3

Click “Operation Data”, you can query the voltage, temperature and other historical data of the battery pack operation;

You can query the battery pack data of a certain period of time and export it.

4.6 Upper Computer Monitoring

Caution : Note that before upgrading, ensure that the BMS (Battery Management System) and the battery are in standby mode, turn off the load switch and charger switch, and that the RS232-USB cable has been connected as follows.

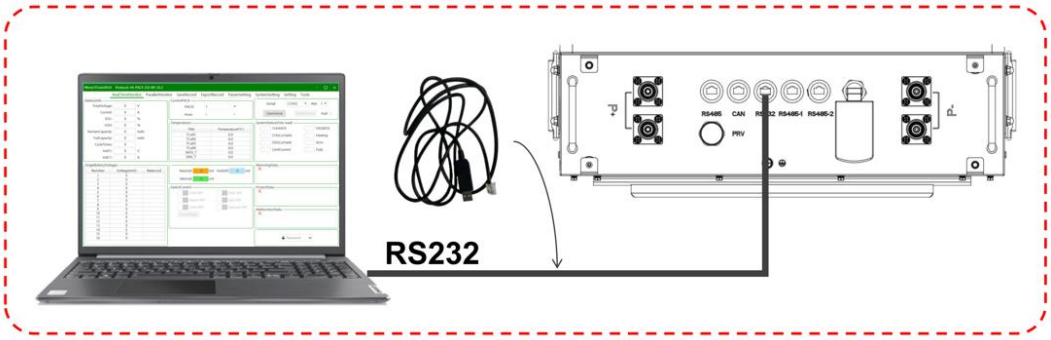


Figure 4.6

4.6.1 Procedure upgrade steps

1. Enter the [Windows Device Manager], in the [Windows Device Manager] click on the[Port: COM & LPT] to find the matching COM port, if you can find the following picture, it means that the RS232 driver installation package has been installed. If you can't find it, it means the driver software is not installed, please install the driver package first.

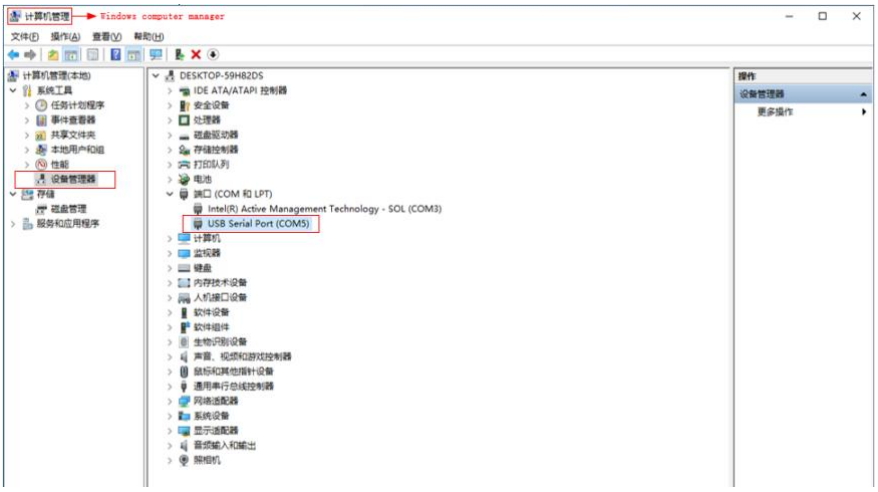


Figure 4.6.1-1

Caution : The above diagram is for reference only.

2. Click on 232 driver installation package.

PL2303_Prolific_GPS_1013_20090319 (1) 2023/9/15 10:04 WinRAR ZIP 压缩... 2,201 KB

3. Double click the application icon "BMS Upgrade V1.0.8.exe" to open the upgrade tool. The specific interface is as follows.

Figure 4.6.1-2

4. Select the correct serial port and baud rate, the default baud rate is 9600, click “Browse”to select the appropriate BIN file.

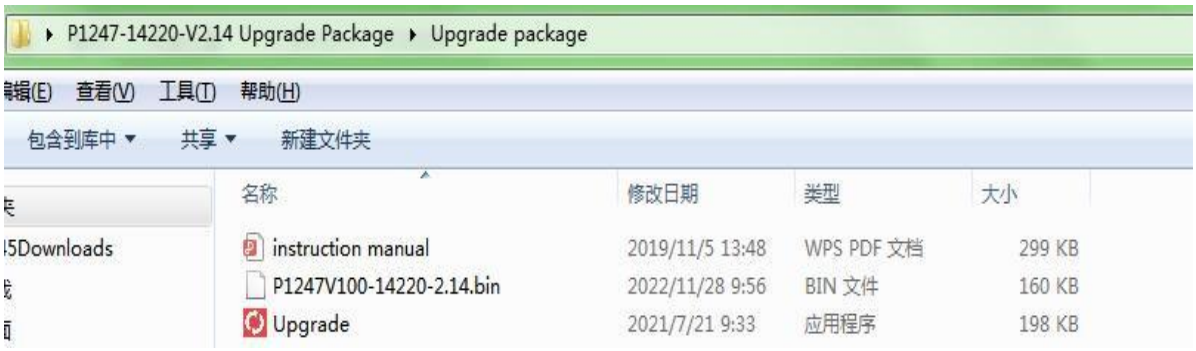


Figure 4.6.1-3

5. After importing the BIN file, select the correct address 0 or 1.

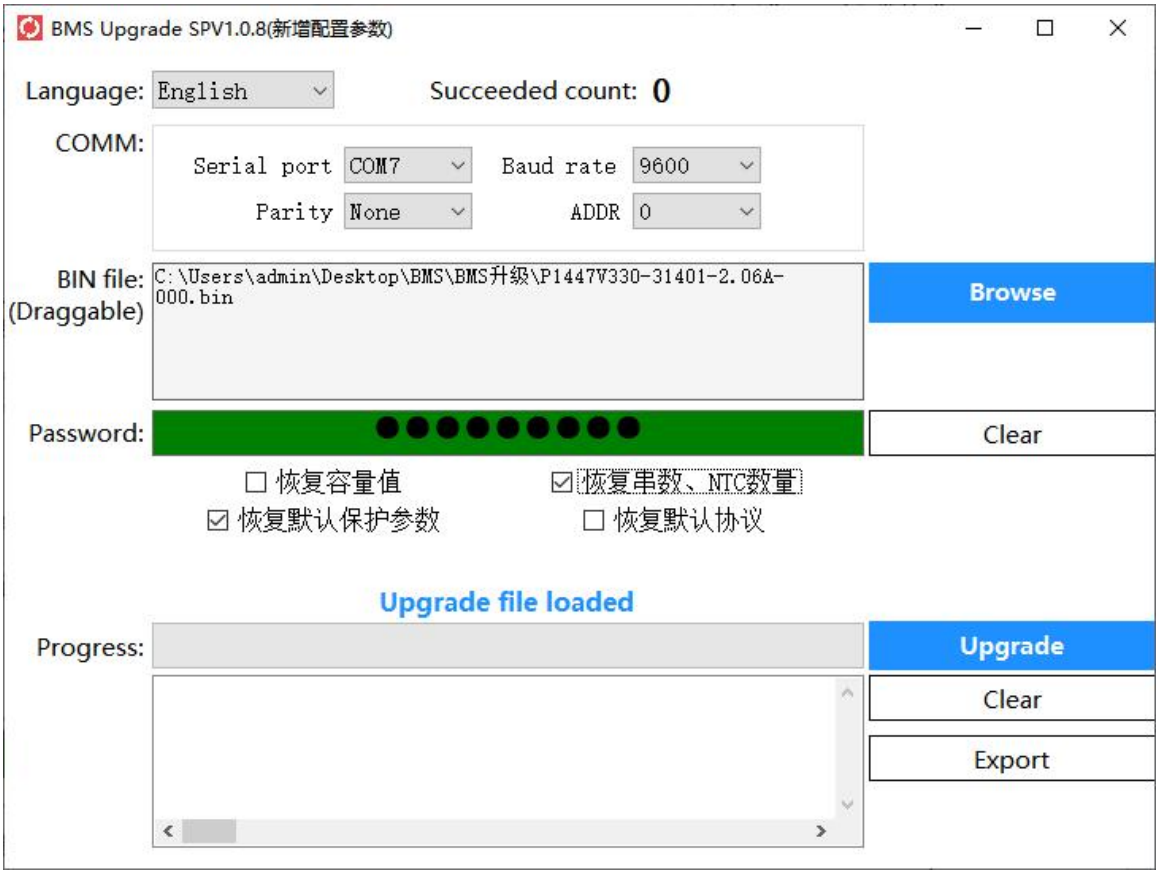


Figure 4.6.1-4

6. Enter the correct password (Password: paceadmin). Click the “Upgrade”button to upgrade. The first upgrade will prompt “Upgrade is ready. Are you sure you want to upgrade”, click “OK” to continue upgrading, there will not be any prompts; click “Cancel” to exit the upgrade. Click “OK” to enter the normal upgrade process. Please ensure that the upgrade completes properly and do not disconnect communication during the process.

Error handling :

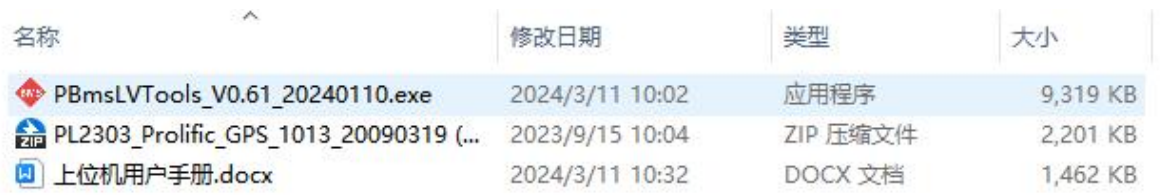
(1) If the bin file is wrong, please make sure the bin file selection is correct or contact the provider to get the correct bin file.

(2) If the response timeout is indicated, please check whether the communication line is connected or has good contact.

(3) If the upgrade process fails, the upgrade must be repeated until successful. If the upgrade is not successful, please contact our technical department.

4.6.2 Installation and selection of upper computer

1. The upper computer can extract the complete folder directly or install it through the installer. After the installation is complete, open the extracted folder, double click the “PBmsLVTools” software to open it and change the language from Chinese to English. See below.



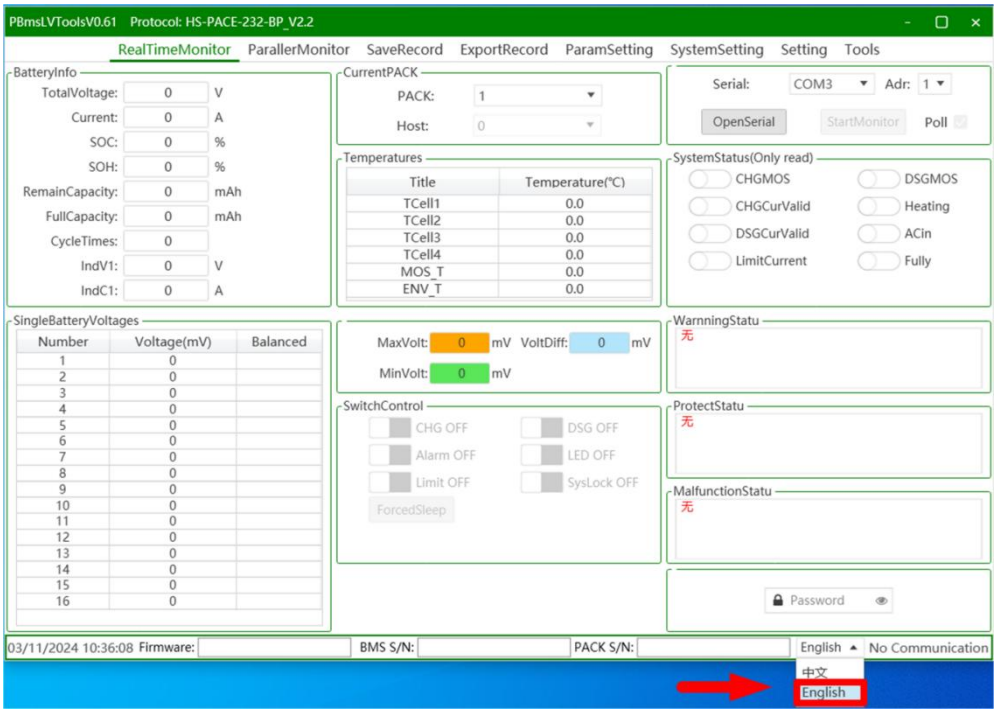


Figure 4.6.2-1

2. Select the serial port and baud rate for communication, then open the serial port

to try to connect.

Select COMMSeting to complete the communication settings:

(1) Link : drop-down option, select the communication link (Serial).

(2) Baud Rate : drop-down option, select the baud rate for communication (9600).

(3) Interval : drop-down option, the interval for reading data from BMS board (1).

(4) PACKNUM : drop-down option,select the number of battery packs.

(5) StartAddr : drop-down option, select the initial address for battery pack polling

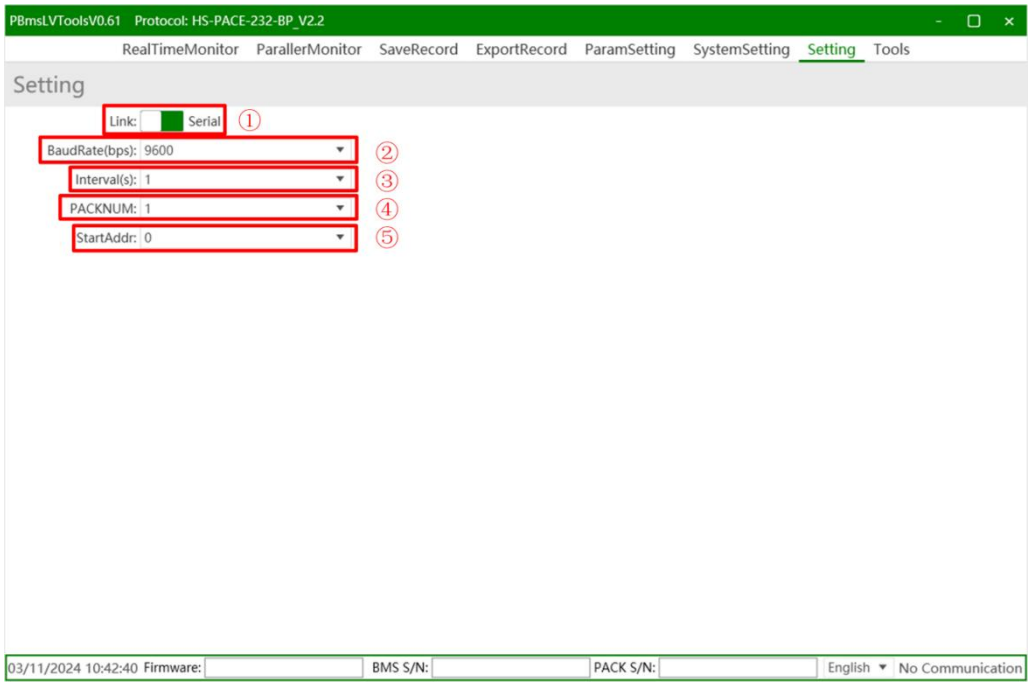


Figure 4.6.2-2

3. Monitoring Page Operation

When the battery pack is correctly connected to the computer, click button 5 to open the serial port, and then click button 4 to start monitoring. Note:When the communication is normal, 9 will display **green normal communication** characters, when **red abnormal communication** characters are displayed, please check whether the RS232 harness and COM are correctly selected.

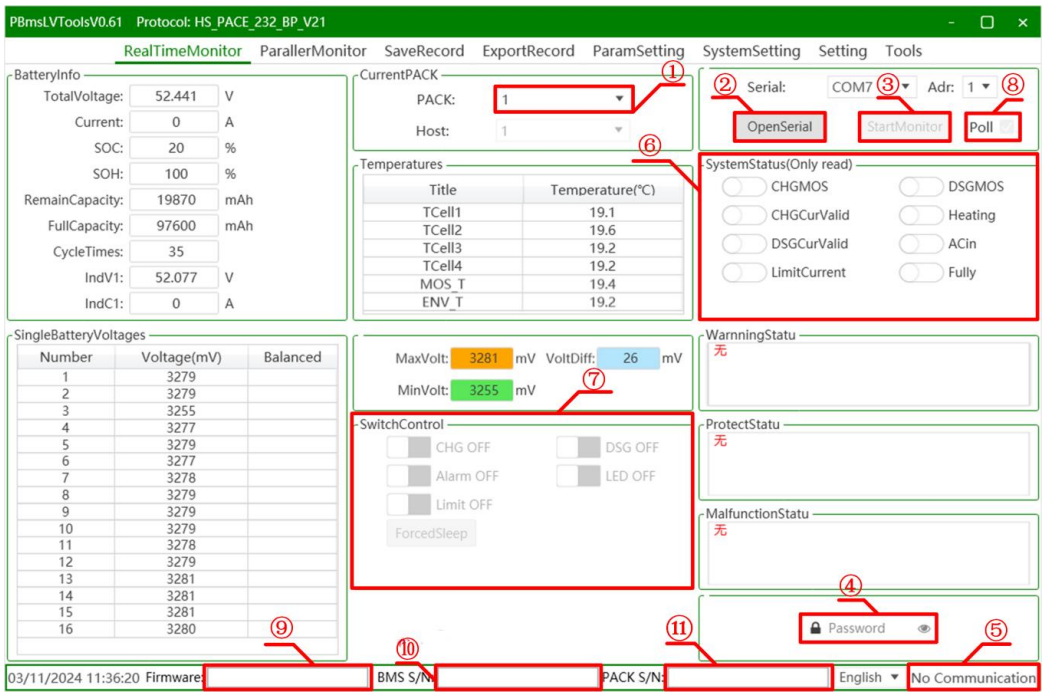


Figure 4.6.2-3

4. Main function introduction:

(1) Current Battery Pack : represents the currently selected battery pack, default is battery pack 1.The drop-down option allows you to select the battery pack you need to view.

(2) Open serial : open it to enable battery pack monitoring and parameter modification.

(3) Start Monitor : read various information on bms, such as voltage, current, temperature, etc.

(4) User privilege : input password 123456 to get the management privilege, and then you can modify the parameters.

(5) Communication status : display whether the current communication is successful or not, successful communication will be prompted to run.

(6) System status (read-only) : view the system charging and discharging MOS, or the limitations and functions of the switch.

(7) Control switching : switch the function switch in the box, such as charging/discharging switch, alarm, LED, etc. Red means off, green means on. Red means off, green means on.

(8) Poll : open the automatic polling function after multiple parallels.

(9) Firmware Version : BMS software version number.

(10) BMS Serial Number : Barcode of the BMS board.

(11) Battery Serial Number : Barcode of the battery pack.

5. After successful communication, if the battery pack has a fault alarm can be viewed at the marked location. If there is any abnormality, please contact the supplier and give feedback on the problem point;

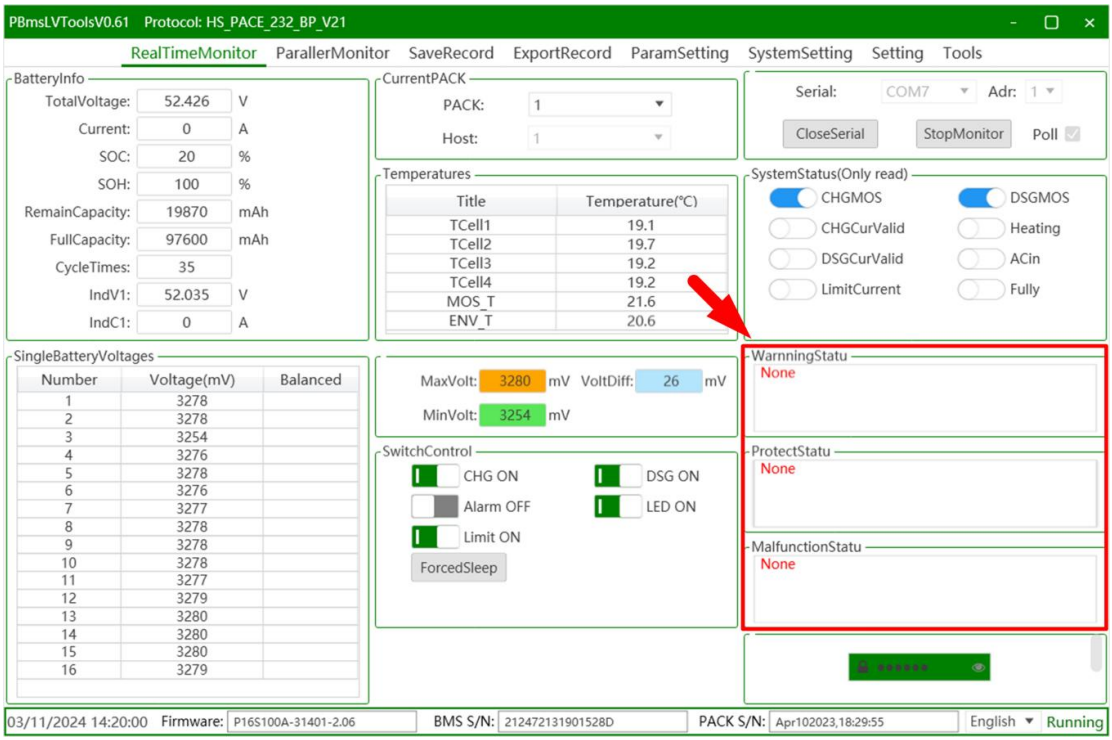


Figure 4.6.2-4

6. If no faults or alarms are generated, enter the administrator password:123456.(When the password is entered correctly, the input box will turn green and you have been granted administrator privileges)

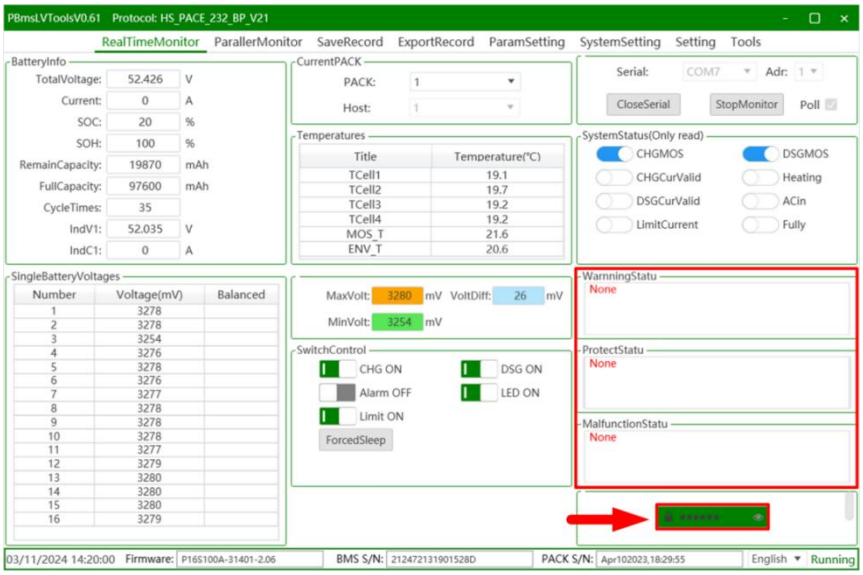


Figure 4.6.2-5

7. Click to enter System Configuration to enter the sub-screen of Settings. Read the current protocol of the inverter.

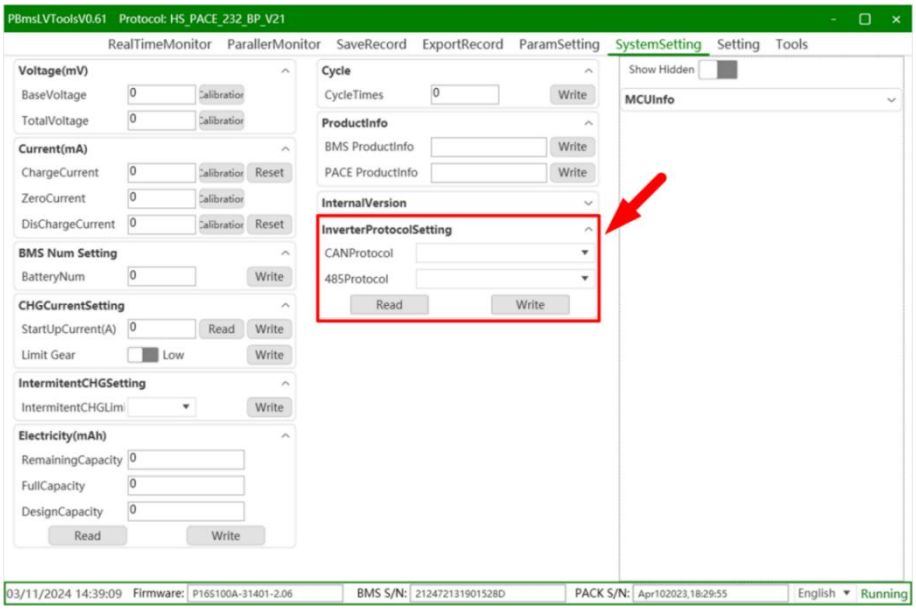


Figure 4.6.2-6

8. Select the inverter protocol to be used and click Write, after a successful write read it again to ensure the required protocol has been written correctly.

4.7 Battery Display Screen

Run-Led	Alarm-Led	Led-10	Led-9	Led-8	Led-7	Led-6	Led-5	Led-4	Led-3	Led-2	Led-1
RUN	ALM	Capacity indicator light									
		100%	90%	80%	70%	60%	50%	40%	30%	20%	10%

Figure 4.7

LED Indicator Status Table

Status	Normal/Alarm /Protection	RUN ●/●	ALM ●/●	Electricity indicator LED ●/●
Power Off	Dormancy or Undervoltage	Off	Off	Off
Stand by	Normal	●Bright	Off	According to the electricity indicator
Stand by	Alarm or SOC<20%	●Bright	●Flash	According to the electricity indicator
Charge	Normal	●Flash	Off	●Turning blue According to the electricity indicator (Remaining SOC LED flowing affect)
Charge	Alarm	●Flash	●Flash	●Turning blue According to the electricity indicator (Remaining SOC LED flowing affect)
Charge	Protection	●Flash	●Flash	●Turning blue According to the electricity indicator (Remaining SOC LED flowing affect)
Discharge	Alarm	●Flash	Off	●Turning green According to the electricity indicator (Flash once every 2 seconds)

Discharge	Alarm	●Flash	●Flash	●Turning green According to the electricity indicator（Flash once every 2 seconds）
Discharge	Protection	●Flash	●Flash	●Turning green According to the electricity indicator（Flash once every 2 seconds）
Invalid	Normal	Off	●Bright	Off

Table 4.7

Notice ： Battery status information can be obtained through LED indicators.

4.8 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 Ambient 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.
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.

4.9 Inspection and Maintenance

Caution : Maintenance personnel for energy storage equipment must hold an Electrician Special Operation Certificate (China) or equivalent electrician license ccergy 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.

Inspection and Maintenance Table

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

Table 4.9

05 Warranty Service

5.1 Warranty Period

Under the condition of proper use of the product, the warranty period shall be subject to the agreement in the commercial contract.

5.2 Scope of Warranty

Within the warranty period, if the product malfunctions due to its own quality issues, our company will provide customers with free repair or replacement of the product. Customers shall reserve a reasonable response time for our company's maintenance, and the replaced products shall be handled by our company. Customers are required to present relevant proof of product purchase and ensure that the product trademark is clearly visible; otherwise, our company reserves the right not to provide warranty services.

5.3 Disclaimer

Our company reserves the right not to provide quality assurance in the following cases, but may still provide paid maintenance services:

1.The warranty period has expired;

2.Relevant proof of product purchase cannot be provided;

3.Damage caused during transportation or loading/unloading;

4.Damage caused by incorrect installation, modification, or repair by unauthorized personnel;

5.Damage caused by operation under abnormal usage conditions or environments;

6.Machine failure or damage caused by using non-Naton components or software;

7.Failures caused by force majeure factors such as fire, earthquake, flood, etc.

Appendix

Appendix A – Explanation of Symbols

	Flammability risk
	Keep the battery away from open flame or ignition sources
	Please read enclosed documentation carefully before using the product.
	Ingress Protection 65
	CE certification
	Restriction of Hazardous Substances
	Danger. Risk of electric shock!
	Recycling
	This marking indicates that this product should not be disposed with other household wastes

Appendix B – Inverter Supported Protocols

Default setting: CANBUS – Victron, RS485-Pylon.

NO	Type	Inverter	Protocol
1	CAN	Pylon	PYLON CAN LV V1.3-2019.03.01
2	CAN	DEYE/Sunsynk	PYLON CAN LV V1.3-2019.03.01
3	CAN	Growatt	Growatt CAN LV V1.09-2020.10.22
4	CAN	Victron	Victron CAN 2021.01.07
5	CAN	Luxpower	Luxpowertek CAN V1.0-2020.02.11
6	CAN	SMA	SMA CAN V2.0
7	CAN	Goodwe	GoodWe CAN Inverter LV V1.7-2020.02.28
8	CAN	Studer	STUDER CAN V1.02-2018.06.14
9	CAN	Sofar	SofarSolar CAN inverter V6
10	CAN	Ginlong/Solis	GINLONG CAN LV V1.0-2019.12.28
11	CAN	TBB_LITHIUM	TBB CAN V1.05-2021.04.20 TBB CAN V1.1-2021.10.21
12	CAN	Daneng	DANENG CAN V10-2022.10.10

13	CAN	Aiswei	爱士惟 AiSWEI	AISWEI CAN V1.0
14	CAN	SAJ	SANJ 三晶	SAJ CAN V1.9-2022.06.30
15	CAN	Sorotec	SOROTEC Power Solutions Expert	PYLON CAN LV V1.3-2019.03.01
16	CAN	MUST	MUST 美世乐	MUST CAN V2.0.2-2021.06.02
17	CAN	Megarevo	MEGAREVO	PYLON CAN LV V1.3-2019.03.01
18	CAN	Schneider	Life Is On Schneider Electric	Schneider can2.0
19	CAN	Afore	Afore 艾伏	Afore Communication protocol CAN
20	CAN	Solax	SOLAX 艾罗能源	PYLON CAN LV V1.3-2019.03.01

NO	Type	Inverter		Protocol
1	RS485	Pylon	PYLONTECH	PYLON RS485 LV-BPB V3.5-2019.08.07
2	RS485	DEYE/Sunsynk	Deye 德业	PYLON RS485 LV-BPB V3.5-2019.08.07
3	RS485	Growatt	GROWATT 古瑞瓦特	Growatt RS485 V2.01-2019.02.13
4	RS485	Voltronic	Voltronic Power Advancing Power	Voltronic RS485 Inverter V1.0-2018.09.11
5	RS485	Phocos	phocos	Phocos RS485 2021.04.07
6	RS485	Luxpower	LUXPOWERTEK	Luxpowertek RS485 inverter V0.3-2020.07.06
7	RS485	SRNE	SRNE 硕日	WOW RS485 Modbus V1.3-2017.06.27

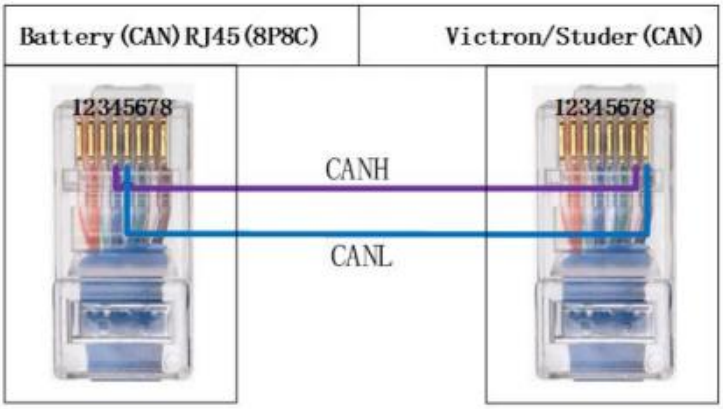
8	RS485	Hypon	HYPONTECH ENERGIZING FUTURE	HYPONTECH RS485 Modbus V2.0-2023.06.29
9	RS485	SUNPLAIN	LU 欧陆电气	Communication protocol for 8-11KW energy storage inverters
10	RS485	Epever	EPEVER	Lithium Battery BMS-Link Communication Address Table V1.6
11	RS485	TALEGENT	Talegent 赋勤创新	B Communication Protocol from Inverter to BMS
12	RS485	ELTEK	ELTEK A Delta Group Company	BatteryModbusDataDefinitions (REV14)
13	RS485	Techfine	Techfine 泰琪丰	PYLON 485 Communication Protocol V3.5
14	RS485	SMKSOLAR	SMK SOLAR Energy · Anytime · Anywhere	Lithium Battery Agreement GT Version 24 Year 7 1.0 Version
15	RS485	Gospower	Gospower	PYLON 485 Communication Protocol V3.5
16	RS485	AOHAI	AOHAI	PYLON 485 Communication Protocol V3.5
17	RS485	SUNGERY	SUNGERY	PYLON 485 Communication Protocol V3.5

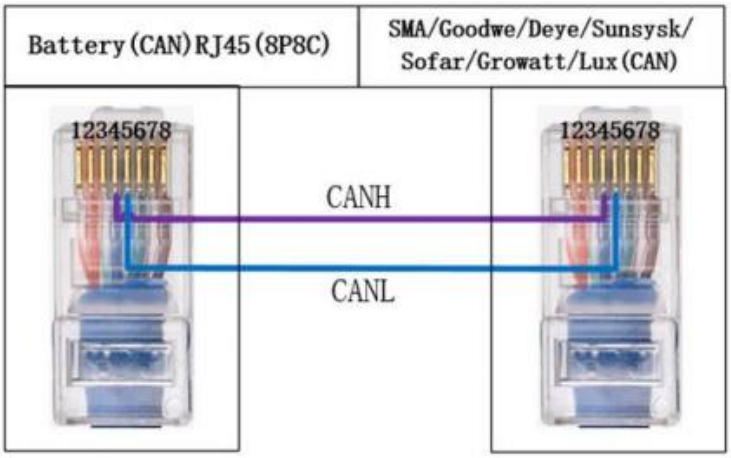
The login password for the host software management should be obtained by contacting the sales team.

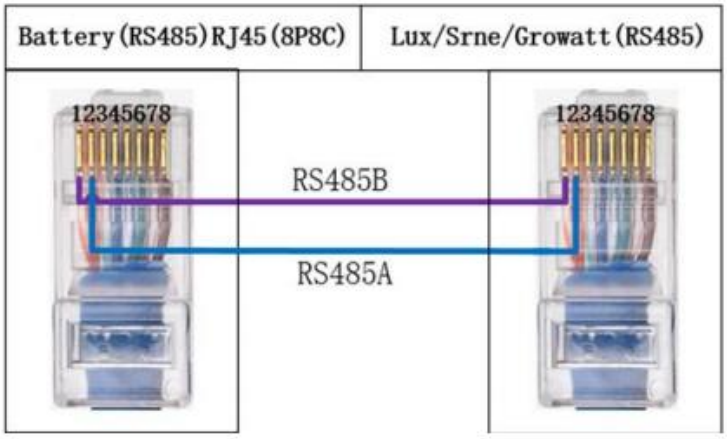
Different inverters have different pin definitions.

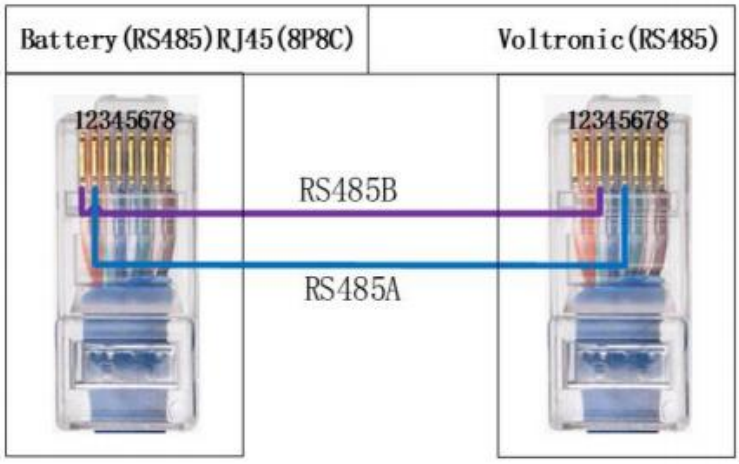
For details on RJ45 network cable wiring, please consult the inverter supplier.

The following lists the connector pin configurations of the above-mentioned inverter manufacturers:


Battery (CAN) RJ45 (8P8C)
Victron/Studer (CAN)
12345678
12345678
CANH
CANL


Battery (CAN) RJ45 (8P8C)
SMA/Goodwe/Deye/Sunsysk/
Sofar/Growatt/Lux (CAN)
12345678
12345678
CANH
CANL


Battery (RS485) RJ45 (8P8C)
Lux/Srne/Growatt (RS485)
12345678
12345678
RS485B
RS485A


Battery (RS485) RJ45 (8P8C)
Voltronic (RS485)
12345678
12345678
RS485B
RS485A

Appendix C - Emergency Handling

When the battery falls or is severely impacted

If the battery falls or is severely impacted during installation, internal damage may occur. It is strictly forbidden to continue using it.

- If there is a obvious odor, damage, smoke or fire, immediately evacuate people and call the police in time. Professionals should use fire-fighting facilities to put out the fire and take other measures under the premise of ensuring safety.
- If there is no obvious deformation or damage in appearance, and no obvious odor, smoke or fire, contact professionals to transfer the battery to an open and safe place, or contact the company for recycling.

In case of flood

- Under the premise of ensuring personal safety, power off the system immediately.
- If any part of the battery is submerged in water, do not touch it to prevent electric shock. Evacuate the scene and report in time.
- Flooded batteries are at risk of electrolyte contamination and cannot be reused. They need to be recycled and scrapped by professional institutions.

When there is smoke or fire

- It is strictly forbidden to open the door and enter when there is a lot of smoke in the battery storage room to prevent the risk of explosion and personnel inhaling toxic gases.
- During the fire fighting process, all rescuers should wear fully insulated fire-proof clothing, fire-fighting filter-type gas masks or air respirators, fire helmets and face masks, insulated shoes and other insulating protective devices. Use inert gas or Class D dry powder fire extinguishers. Do not use water-based fire extinguishing agents (in the initial stage).
- After the open fire is put out, it is still necessary to continue spraying water for cooling until the battery temperature drops to within ±10℃ of room temperature, and monitor for several hours to ensure that there is no sign of temperature rise before dismantling.

In case of electric shock

- Set up a warning tape to isolate the scene and ensure that people stay away from the power source.

- Do not directly touch the injured person before they are disconnected from the power source to avoid being electrocuted yourself. Wear professional insulating gloves/shoes and use insulating tools to separate the electrocuted person from the power source.

- Call the emergency number immediately if the injury is serious. Let the injured person lie flat and monitor changes in their consciousness, breathing and heartbeat. For those in serious condition/without breathing/heartbeat, certified/trained personnel should perform cardiopulmonary resuscitation until medical staff arrive.

When the battery bulges

- Immediately stop using and power off the battery, stop charging and discharging, and disconnect the device power. Do not attempt to charge, freeze or puncture the battery. If the device is found to be heating up or smoking, place it in a fireproof container (metal box/sandbox) and keep away from the device.

- Reference for the degree of battery bulging and handling methods:

(1) Slight deformation, no heat—take it out safely and send it to a recycling point

(2) Shell rupture/leakage—isolated and handed over to hazardous waste institutions for disposal

(3) Accompanied by high temperature/smoke—place in a sandbox for monitoring, cool with water and call the police.

Personal safety shall be the primary principle in all operations. If you are unsure, evacuate immediately and contact professionals

BSLBATT®

Best Solution Lithium Battery

User Manual

BSL NEW ENERGY TECHNOLOGY CO., LTD

www.bsl-battery.com
inquiry@bsl-battery.com
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Website

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