

BSL NEW ENERGY TECHNOLOGY CO., LTD

User Manual

ESS-GRID LC125-261 EP

inquiry@bsl-battery.com www.bsl-battery.com Follow us on:

Copy Right @BSL New Energy Technology Co., LTD

Notice:

The products, services, etc. you purchase shall be subject to the commercial contracts and terms of Guangdong BSL New Energy Technology Co., Ltd. All or part of the products and services described in this document may not be within the scope of your purchase or use. Unless otherwise specified in the contract, Best New Energy makes no express or implied representations or warranties regarding the contents of this document.

Due to product version upgrades or other reasons, the content of this document will be updated from time to time. Unless otherwise agreed, this document is only used as a guide, and all statements, information and suggestions in this document do not constitute any express or implied warranty.

Identification Instructions

	Please read the endorsed documentation carefully
	Danger. Risk of electric shock!
	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

Version History

Version	Date	Version update history	Approval
V1.0	2026/8/29	1st edition	

Catalogue

01 Safety Instructions 3
1.1 Safety symbol description 3
1.2 General safety 3
1.3 Electrical safety 5
1.3.1 Wiring requirements 5
1.3.2 Grounding requirements 5
1.3.3 Maintenance requirements 5
1.4 Mechanical safety 6
1.5 Battery safety 6
1.6 Maintenance and replacement 8
02 Product Introduction 9
2.1 Overview of Energy Storage System 9
2.2 Model Description 9
2.3 Product Application 9
2.4 Product Appearance 12
2.5 Product Specifications 12
2.6 Product Details 13
2.6.1 Battery cabinet body 14
2.6.2 Battery Box 14
2.6.3 High Voltage Control Box 14
2.6.4 Liquid Cooling Unit 15
2.6.5 PCS module 17
2.6.6 Thermal Runaway Mitigation System 18
2.6.7 Pressure Relief System 20
2.7 Configuration List 21
03 Transportation and storage 22
3.1 Packaging and Storage 22
3.1.1 Product Packaging 22
3.1.2 Product Storage 22
3.2 Transportation and Handling 23
3.2.1 Product Transportation 23
3.2.2 Product Handling 23
04 Product installation 25
4.1 Installation Environment 25
4.2 Space Preparation 26
4.3 Basic Installation 27
4.4 Preparations Before Installation 28
4.5 Mechanical Installation 30
4.6 Electrical Connections 31

4.6.1Connections within the Battery Cabinet 32
4.6.2 External Connections of the PCS module 34
4.7 Check after Equipment Wiring 35
05 Startup and Debugging 36
5.1 Pre-check before Power On 36
5.2 Pre-check before Startup 36
5.3 Startup Procedure 37
5.4 Power-off Procedure 38
5.5 Communication Debugging 38
06 Operation and Maintenance 40
6.1 Battery System Maintenance 40
6.2 Cleaning and Dust Removal Process 41
6.2.1 Preparations Before Dust Removal 41
6.2.2 Product Dust Cleaning Maintenance 42
6.3 Liquid cooling unit fault symptoms 43
6.3.1 Fault Diagnosis and Handling 44
6.4 PCS Fault Diagnosis 46
6.5 Warranty Service 56
6.5.1 Warranty Period 57
6.5.2 Warranty Scope 57
6.5.3 Disclaimer Statement 57
Appendix 58
Emergency handling measures 58
When batteries are dropped or subjected to severe impacts 58
When a flood occurs 58
When a fire occurs 58
When the sound and light alarm is activated 58
When the exhaust start occurs 58
Emergency handling in case of coolant leakage 59
In the event of a fire extinguishing agent eruption or a fire occurrence 59

01 Safety Instructions

1.1 Safety symbol description

When installing, operating, and maintaining equipment, please read this manual first and follow all safety precautions indicated 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 symbol prompts used below carefully.

Danger: Indicates a highly potential danger that, if not avoided, could result in death or serious injury.

Warning: Indicates moderate potential danger if not avoided, which may result in death or serious injury to personnel.

Note: Indicates a low potential danger, and failure to avoid it may result in moderate or mild injury to personnel.

Illustration: Emphasizing and supplementing content may also provide tips for optimizing product usage.

1.2 General safety

Illustration:

This equipment should be used in an environment that meets the design specifications, otherwise it may cause equipment failure, resulting in abnormal equipment functions or component damage, personal safety accidents, property damage, etc., which are not within the scope of equipment quality assurance. Local laws, regulations, and standards should be followed when installing, operating, and maintaining equipment. The safety precautions in the manual are only supplementary to local laws, regulations, and norms. When any of the following situations occur, our company shall not be held responsible.

1. The installation and usage environment exceeds the provisions of relevant international, national, and regional standards.
2. Do not operate under the usage conditions described in this manual.
3. Unauthorized disassembly, alteration of products, or modification of software code.
4. Not following 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.).
6. Damage caused by the customer's failure to comply with transportation and installation requirements.
7. Damage caused by storage conditions not meeting product documentation requirements.
8. Due to customer negligence, incorrect operation, or intentional damage, the hardware or data of the device is damaged.

9. System damage caused by third-party or customer reasons, including relocation and installation of systems that do not comply with the requirements of this manual, as well as damage caused by adjustments, changes, or removal of identification marks that do not comply with the requirements of this manual.
10. Defects, malfunctions or damages caused by actions, events, negligence or accidents beyond the reasonable control of the seller, including power outages or electrical failures, theft, war, riots, internal strife, terrorism, intentional or malicious damage, etc.

 **Danger:**

The equipment has high voltage, and improper operation may result in electric shock or fire, leading to death, serious personal injury, or significant property damage. Please follow the operating sequence and safety precautions provided in this manual and other relevant documents, and operate in a standardized manner:
1. Please check if the pre-installed cables on the device are securely connected. Check if the equipment is damaged, such as holes, dents, or other signs of possible internal damage. Check that there is no displacement of the internal components of the equipment, and prohibit unauthorized changes to the structure, installation sequence, etc. of the equipment.
2. Do not use water to clean the electrical components inside the equipment. When liquid is found to have entered the interior of the equipment, please immediately press the emergency stop switch and notify the on-site management personnel.
3. Installation, wiring, maintenance, and replacement operations with electricity are prohibited. Before coming into contact with any conductor surface or terminal, the voltage at the contact point should be measured, and it should be confirmed that the protective grounding wire of the equipment or components that require maintenance is reliably grounded, and there is no risk of electric shock.
4. Do not approach the equipment except for personnel operating it. Do not power on the device until it has been installed or confirmed by a professional. At least two personnel must be present on site during the first power on or live operation of the main circuit.

 **Illustration:**

1. The user's operational behavior and tools during transportation, handling, installation, wiring, and maintenance must comply with the laws, regulations, and relevant standards of the country or region where they are located.
2. During installation, operation, and maintenance, it is necessary to first clean the accumulated water, ice, snow, or other debris on the top of the cabinet before opening the cabinet door to prevent debris from falling into the cabinet.
3. Reverse engineering, decompilation, disassembly, adaptation, implantation, or other derivative operations of device software are prohibited. It is not allowed to study the internal implementation of the device, obtain the source code of the device software, steal intellectual property, or disclose the results of any device software performance testing in any way.

1.3 Electrical safety

1.3.1 Wiring requirements

1. Please select cables that comply with local laws and regulations. Cables of the same type should be tied together, and cables of different types should be laid separately. It is forbidden to wrap or cross lay them with each other.
2. If the wiring is completed or briefly left during the wiring process, the cable port should be immediately sealed, the cabinet door should be closed, and small animals should be avoided from entering.
3. The cables used in energy storage systems must be securely connected, well insulated, and meet the required specifications. The position of cable conduit or wire hole must be protected to prevent the cable from being damaged by sharp edges, burrs, etc.
4. After the cable wiring is completed, it is necessary to use cable brackets and cable clamps for reliable fixation. The cables in the backfilled soil area should be tightly attached to the ground to prevent deformation or damage caused by stress during backfilling.
5. The use of cables in high-temperature environments may cause aging and damage to the insulation layer. The distance between the cable and the periphery of the heating device or heat source area should be at least 30mm.
6. To ensure construction safety, all cables should be laid and installed at temperatures above 0 ℃. When handling cables, especially in low-temperature environments, they should be handled with care.

1.3.2 Grounding requirements

1. Do not damage the grounding conductor. The grounding body of the equipment should be permanently connected to the protective grounding grid. Before operating the equipment, the electrical connections of the equipment should be checked to ensure that it is reliably grounded.
2. The grounding impedance of the equipment meets the requirements of the national standard GB 50054 and local electrical standards.
3. It is prohibited to operate the equipment without installing a grounding conductor. When installing equipment that requires grounding, protective grounding wires must be installed first; When dismantling equipment, the protective grounding wire must be removed last.

1.3.3 Maintenance requirements

1. Before connecting or removing cables, the protective switch of the corresponding circuit must be disconnected first.
2. Use a multimeter with the corresponding voltage level to check if the device is live and ensure that it has been completely powered off.
3. If there are live objects nearby, please use insulation boards or tapes to cover or wrap them.
4. After reliably connecting the circuit to be repaired to the grounding circuit using a grounding wire, carry out operation and maintenance.

Illustration:

1. Before connecting the cable, it is necessary to confirm that the cable label identification is correct before making the connection.
2. If the device has multiple inputs, all inputs should be disconnected and the device can only be operated after it is completely powered off.
3. After the maintenance is completed, dismantle the grounding wire between the maintenance circuit and the grounding circuit.

1.4 Mechanical safety

Note:

1. When transporting without wooden crates, the bottom fence must be removed. Take off and land with care to avoid impact or vibration.
2. During transportation, the center of gravity of the box should fall between the two forks on the forklift. Long distance handling, inversion, and tilting are prohibited.
3. When transporting equipment, it may be necessary to arrange auxiliary personnel to assist due to the large size of the equipment blocking the operator's line of sight.
4. To ensure the safety of drilling outside the equipment body, a suitable location should be selected before drilling to ensure that it will not cause short circuits or other impacts. During the drilling process, the equipment should be covered to prevent debris from falling into the interior of the equipment, and debris should be cleaned up promptly after drilling.
5. When handling equipment by hand, preparation should be made for bearing weight, and safety protective equipment such as protective gloves and anti smashing shoes should be worn.
6. Be careful when moving equipment during transportation to avoid impact or falling. Avoid scratching the surface of the equipment, damaging components or cables.

1.5 Battery safety

Illustration:

We are not responsible for any damage caused to the batteries provided by our company due to the following reasons:
1. Due to customer reasons, the battery was not charged and inspected in a timely manner, resulting in expired storage, capacity loss, or irreversible damage.
2. Mechanical damage, leakage, rupture, etc. caused by improper operation or failure to connect the battery as required.
3. Customers or third parties who are not aware of our company may change the battery usage scenario on their own. Including but not limited to: connecting additional loads to the battery by oneself, mixing with other brands of batteries, mixing with batteries of different rated capacities, etc.
4. Direct damage to the battery caused by the inability of on-site equipment operating environment or external power parameters to meet the environmental requirements for normal operation. Including the actual operating temperature of the battery being too high or too low, severe power grid conditions, frequent power outages, etc.
5. The customer has not set the battery operation management parameters correctly or maintained them improperly, resulting in frequent overdischarging of the battery, on-site expansion by the customer, or long-term inability to fully charge.

6. The customer did not perform proper maintenance on the battery according to the operating manual of the supporting equipment, including but not limited to: not regularly checking whether the battery terminal screws are tightened, etc.
7. The battery was stolen and lost.
8. Batteries that have exceeded their warranty period.

Danger:

1. Do not expose the battery to high temperature environments or heat generating devices such as sunlight, fire sources, transformers, heaters, etc. Overheating of batteries may cause fires and explosions.
2. Do not disassemble, modify or damage the battery (such as inserting foreign objects, immersing in water or other liquids, etc.) to avoid battery leakage, overheating, fire or explosion.
3. Thermal runaway of batteries can produce flammable gases, as well as harmful gases such as CO and HF. The accumulation of combustible gases generated after thermal runaway of batteries poses a risk of explosion and explosion, which may cause personal injury and property damage.
4. When installing and maintaining the battery, it is necessary to wrap the exposed cable terminals on the battery with insulating tape. At the same time, avoid foreign objects (such as conductive objects, screws, liquids, etc.) from entering the interior of the battery and causing a short circuit.

Warning:

1. Batteries must be stored in a separate warehouse and in their outer packaging, avoiding mixing with other materials, storing outdoors, and stacking batteries too high. The site must have fire-fighting facilities that meet the requirements, such as fire sand, fire extinguishers, etc.
2. Batteries should be avoided from impact. When handling batteries, they should be carried in the direction required by the battery, and inversion or tilting are prohibited.
3. Please use the battery within the temperature range specified in this manual. When the ambient temperature of the battery is below the lower limit of the operating temperature, charging is prohibited to avoid crystallization caused by low-temperature charging and internal short circuit of the battery.
4. Please dispose of used batteries in accordance with local laws and regulations, and do not dispose of batteries as household waste.
5. If the battery has been charged for more than 8 months, it needs to be recharged. If not recharged as required, it may affect the performance and service life of the battery.

Measures for handling battery abnormalities

Danger:

1. When electrolyte leakage or abnormal odor occurs, contact with the leaked liquid or gas should be avoided. Non professionals are not allowed to approach, please contact professionals immediately for assistance.

2. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If in contact with battery electrolyte, immediately clean the contact area with plenty of water and soap, and seek medical help immediately.
3. After the battery drops (with or without packaging), it is prohibited to continue using it. If there is no obvious deformation or damage to the appearance and there is no obvious odor, smoke, or fire, transfer the battery to an open and safe place for 1 hour before processing, and contact our service engineer, while ensuring safety.
4. When there is a noticeable odor, damage, smoking, or fire after the battery drops, personnel should be evacuated immediately and the alarm should be reported in a timely manner. Professional personnel use fire-fighting equipment to extinguish fires while ensuring safety.

1.6 Maintenance and replacement

Warning:

1. If the device malfunctions, please contact your dealer promptly for assistance.
2. Before carrying out maintenance work, please power off the equipment first, and then follow the instructions on the delayed discharge label to wait for the corresponding time to ensure that the equipment has been powered off before operating it.
3. During the maintenance process, please try to avoid unrelated personnel entering the maintenance site, and temporary warning signs or fences must be erected for isolation.
4. Unauthorized personnel are not allowed to open the cabinet door, otherwise there is a risk of electric shock, and the resulting malfunction is not covered by the warranty.
5. It is prohibited to open the cabinet door in weather conditions such as rain, snow, lightning, dust, and heavy fog.
6. Before removing the components from the cabinet, please confirm that other components on the cabinet are not loose.
7. Operation and maintenance personnel as well as professional technicians should receive sufficient training on safe use and equipment maintenance, and should operate with sufficient preventive measures and personal protective equipment.
8. During equipment maintenance, insulation materials should be used to cover nearby live parts.
9. Before the fan is powered off or stopped rotating, it is forbidden for any object to come into contact with the running fan (such as fingers, components, bolts, etc.).
10. The equipment can only be powered on again after the fault has been resolved, otherwise it may cause the fault to expand or damage the equipment.
11. When conducting live inspection of the system, Note should be paid to the danger warning signs on the equipment to avoid standing at the cabinet door.
12. After the replacement of power components or wiring changes in the energy storage system, manual wiring inspection is required to avoid abnormal system operation.
13. When replacing the battery, please replace it with the same type of battery module.
14. After the maintenance operation is completed, it should be checked immediately to ensure that no tools or other components are missing in the equipment.
15. After completing maintenance and replacement operations, the cabinet door should be locked in a timely manner and the key should be properly kept.

02 Product Introduction

2.1 Overview of Energy Storage System

ESS-Grid LC125-261 EP is a product specifically designed for industrial and commercial (C&I) applications, aiming to meet the long-term power supply requirements in small to medium-sized commercial, industrial and micro-grid scenarios. Each individual battery module has a capacity of 52.2kWh, while the high-density energy storage unit composed of multiple modules can reach up to 261.2 kWh. This product is equipped with a liquid cooling unit for heat dissipation processing, aiming to achieve efficient heat dissipation through the liquid cooling mode and provide high-performance operation for the batteries.

2.2 Model Description

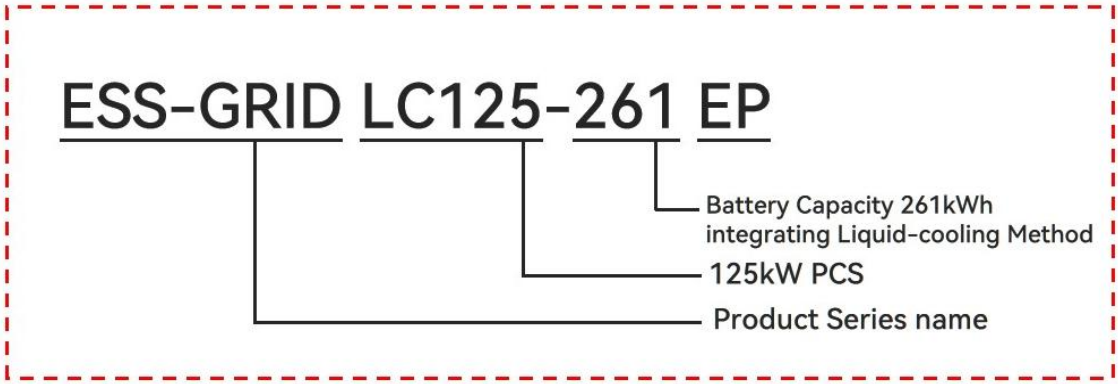


FIgure 2.2

Illustration:

The rated output power and battery capacity can be flexibly configured according to project requirements.

2.3 Product Application

The DC battery cabinet integrates battery packs, high-voltage boxes, battery management systems (BMS), power distribution systems, environmental control systems, fire control systems, and other electrical protection components. The design of this battery cabinet adopts a modular concept, enabling it to be flexibly combined with other components and facilitating future expansion. Moreover, the DC battery cabinet is of front-access maintenance type, which can reduce the floor space and maintenance access, and has the features of safety and reliability, quick deployment, low cost, high energy efficiency, and intelligent management.

In common application scenarios, the pairing strategy for battery systems is as follows:

1.The LC125-261 product is recommended for grid-tied applications. Once connected to the grid, the product can store energy and enable applications such as electricity purchasing, selling, peak shaving, and valley filling.

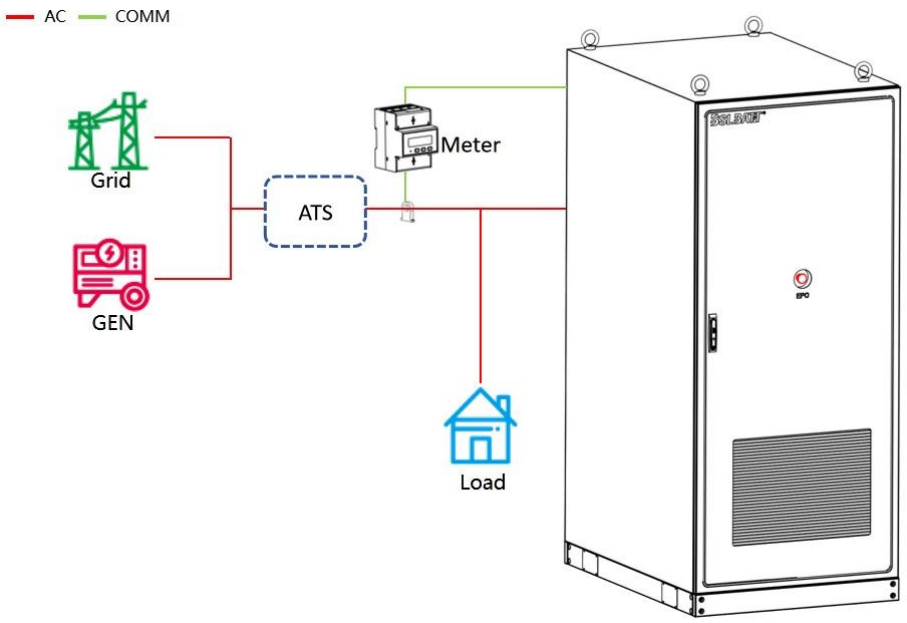
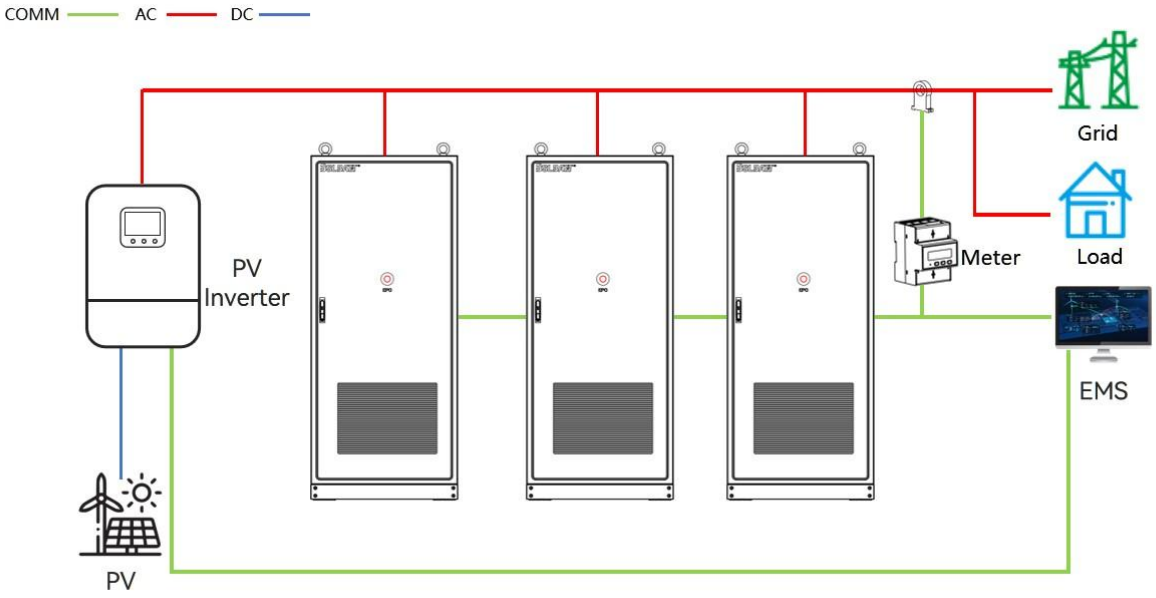


FIgure 2.3-1

2.When connected to the grid, the product supports parallel operation, with the number of units in parallel depending on the upstream transformer capacity. When used with a PV inverter, it enables integrated PV-storage system operation to achieve self-consumption and other applications.



(The limit on the number of LC125-261 parallel units is related to the specifications of the upper transformer.)

FIgure 2.3-2

3.For off-grid applications, the product can be used with an external STS cabinet, generator, and other equipment to build a PV-storage-diesel system, meeting usage requirements in off-grid or weak grid environments.

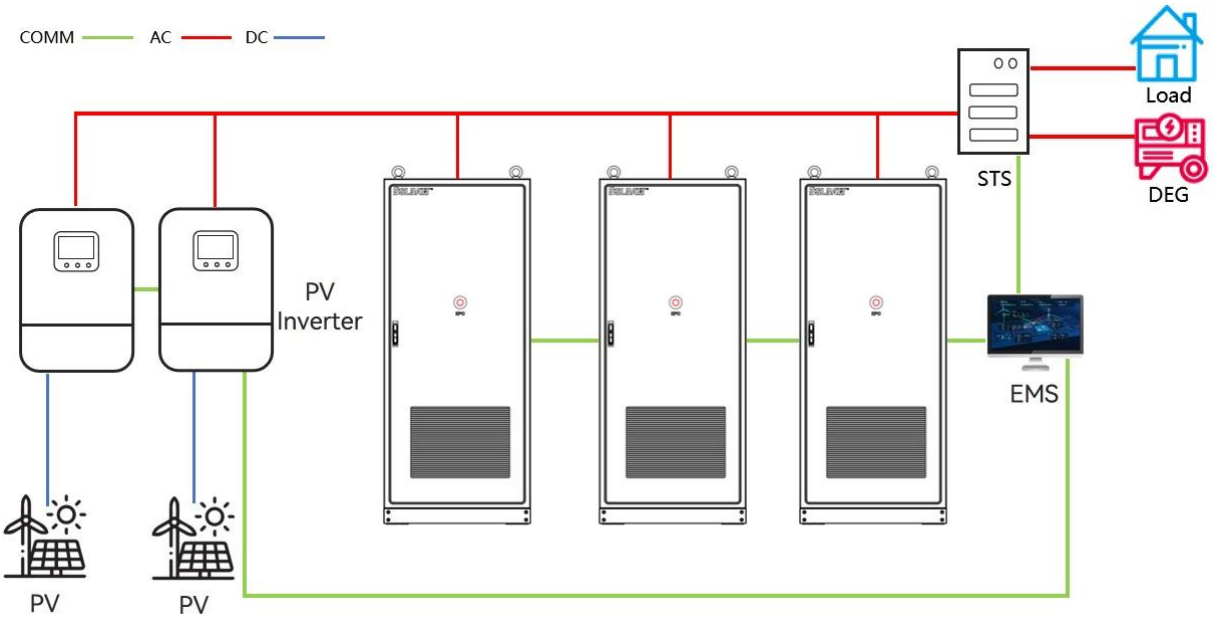


FIgure 2.3-3

4.When equipped with an external STS cabinet, isolation transformer, and diesel generator, and connected to the grid, the system can realize grid-tied and off-grid switching functions, enabling applications such as self-consumption, peak shaving and valley filling, and demand response.

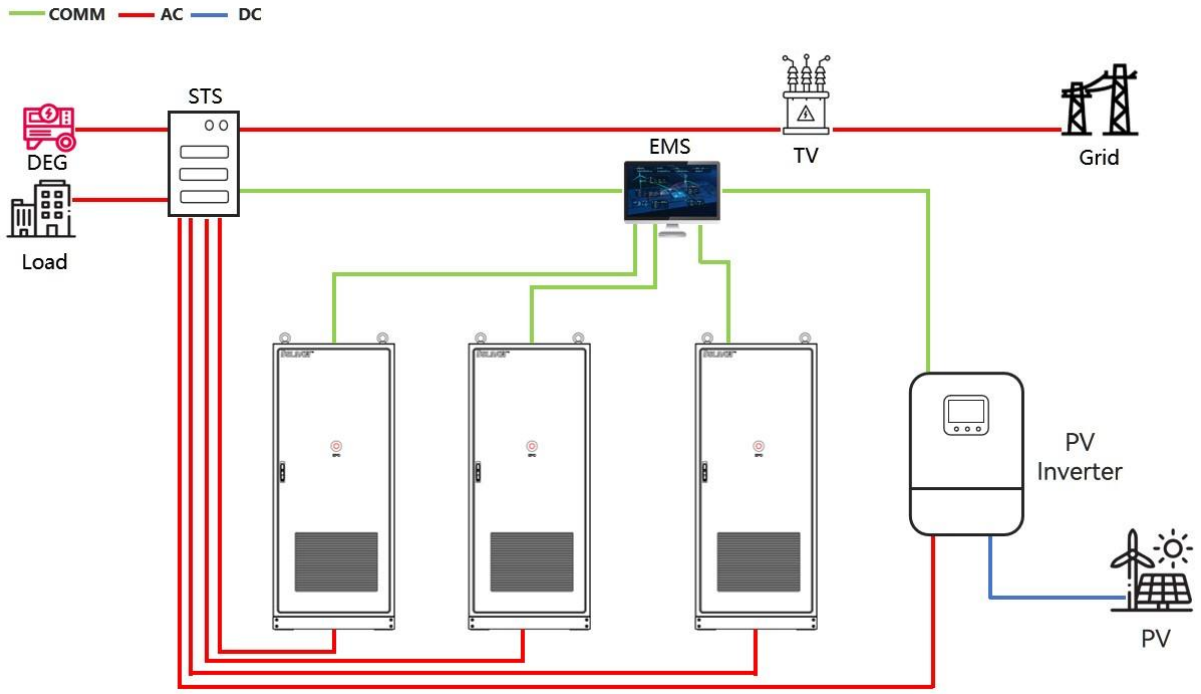


FIgure 2.3-4

Illustration:

Different projects have different configurations and communication methods. The actual situation will depend on the delivery.

2.4 Product Appearance

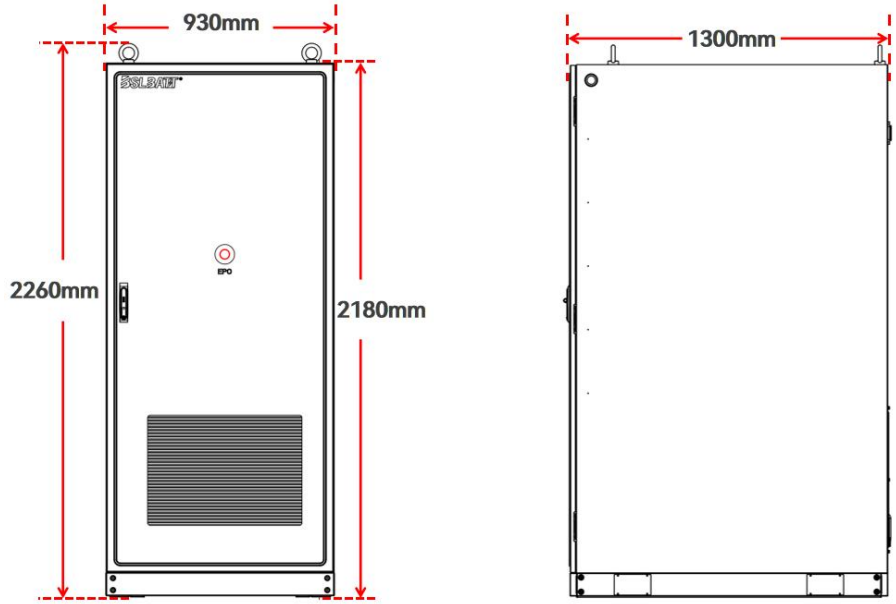


FIgure 2.4

2.5 Product Specifications

ESS-GRID Cabinet series Parameter

Model	ESS-Grid LC125-261 EP
Battery Parameters	
Cell Type	314Ah/3.2V LFP
Battery Cluster Rated Voltage	DC832V
Battery Side Rated Capacity	314Ah
Series / Parallel Configuration	1P*52S*5S
Battery Side Rated Energy	261.2kWh
Battery Side Operating Voltage Range	DC728.0V~910.0V
Rated Charge / Discharge Current	157A
AC Side Parameters (PCS)	
Rated AC Voltage	AC 400V, 3W+PE/3W+N+PE
Rated AC Frequency	50/60Hz(±5)
Rated/Max.AC Power	125kW/137kW
Rated/Max.AC Current	180A/200A
Power Factor	-1~+1
Current THDI	<3%
Overload Capability	1.1x (continuous)
Isolation Type	Non-isolated

Operation Mode	Peak-valley arbitrage, demand management
Protection	Over-temperature, low-temp charge protection, over-current, short circuit, over/under voltage, DC bus protection.
General Parameters	
Operating Temperature	-20℃ to 55℃ (Derated for >45℃)
Operating Humidity	10% ~ 90% RH (No Condensation)
Altitude	3000m
Installation Method	Floor standing
Cooling Method	Intelligent Air Cooling + Liquid Cooling
Fire Protection	Gas fire extinguishing system
Communication	RS485, Ethernet, Modbus RTU/TCP
Ingress Protection	IP55
Dimensions (W*D*H, mm)	930*1300*2180(±5mm)
Weight	2260kg±3%

Table 2.5

Note: The actual parameters have been set according to the customer's requirements before the product was manufactured.

2.6 Product Details

2.6.1 Battery cabinet body

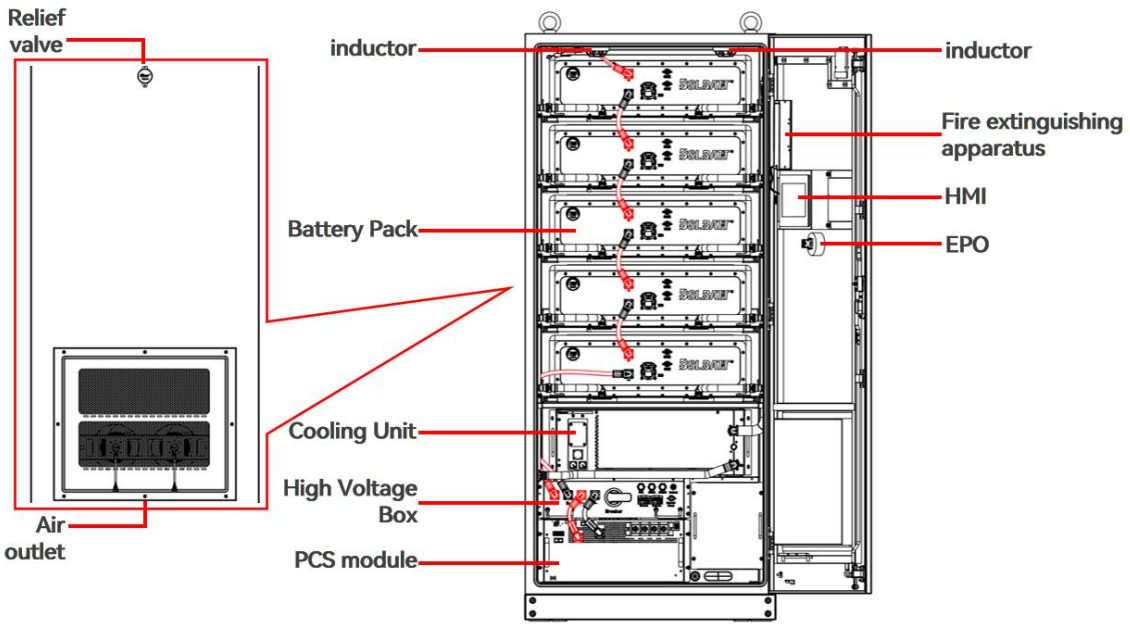


FIgure 2.6.1

2.6.2 Battery Box

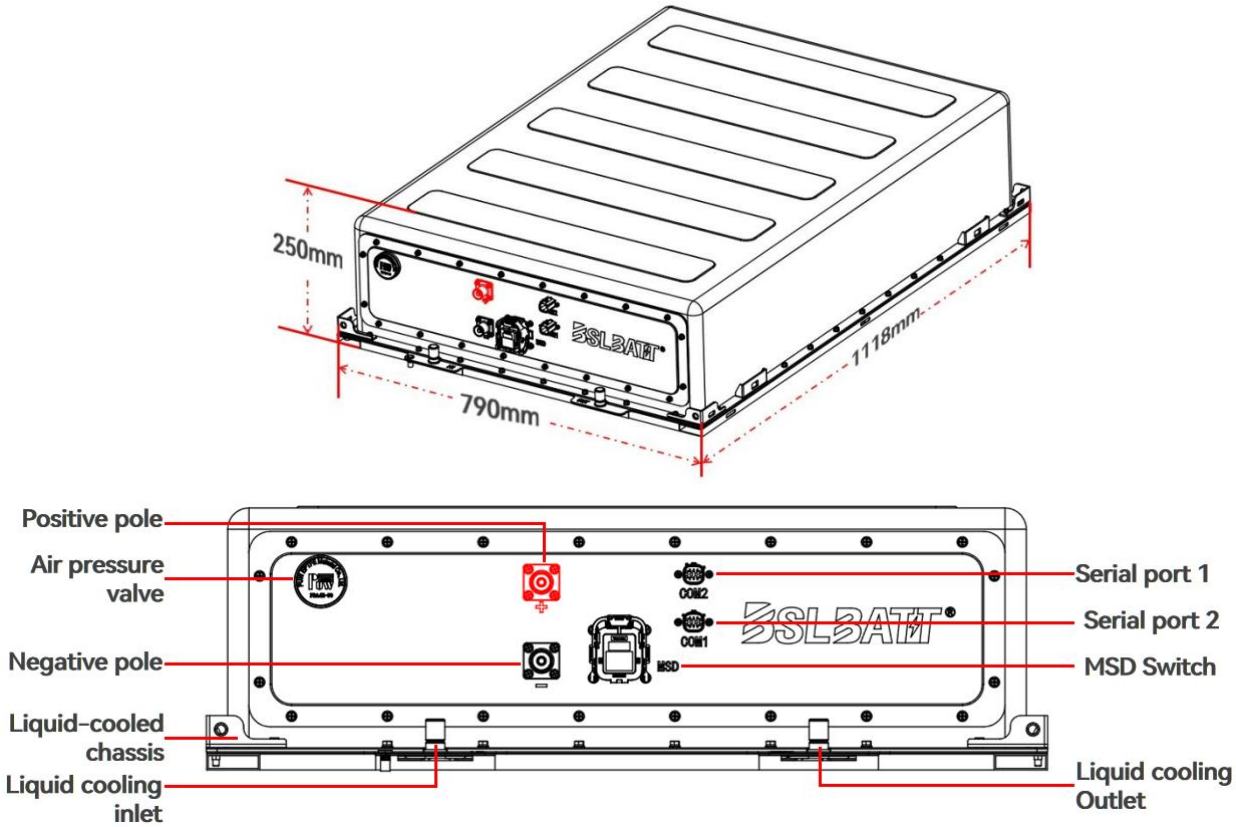


Figure 2.6.2

2.6.3 High Voltage Control Box

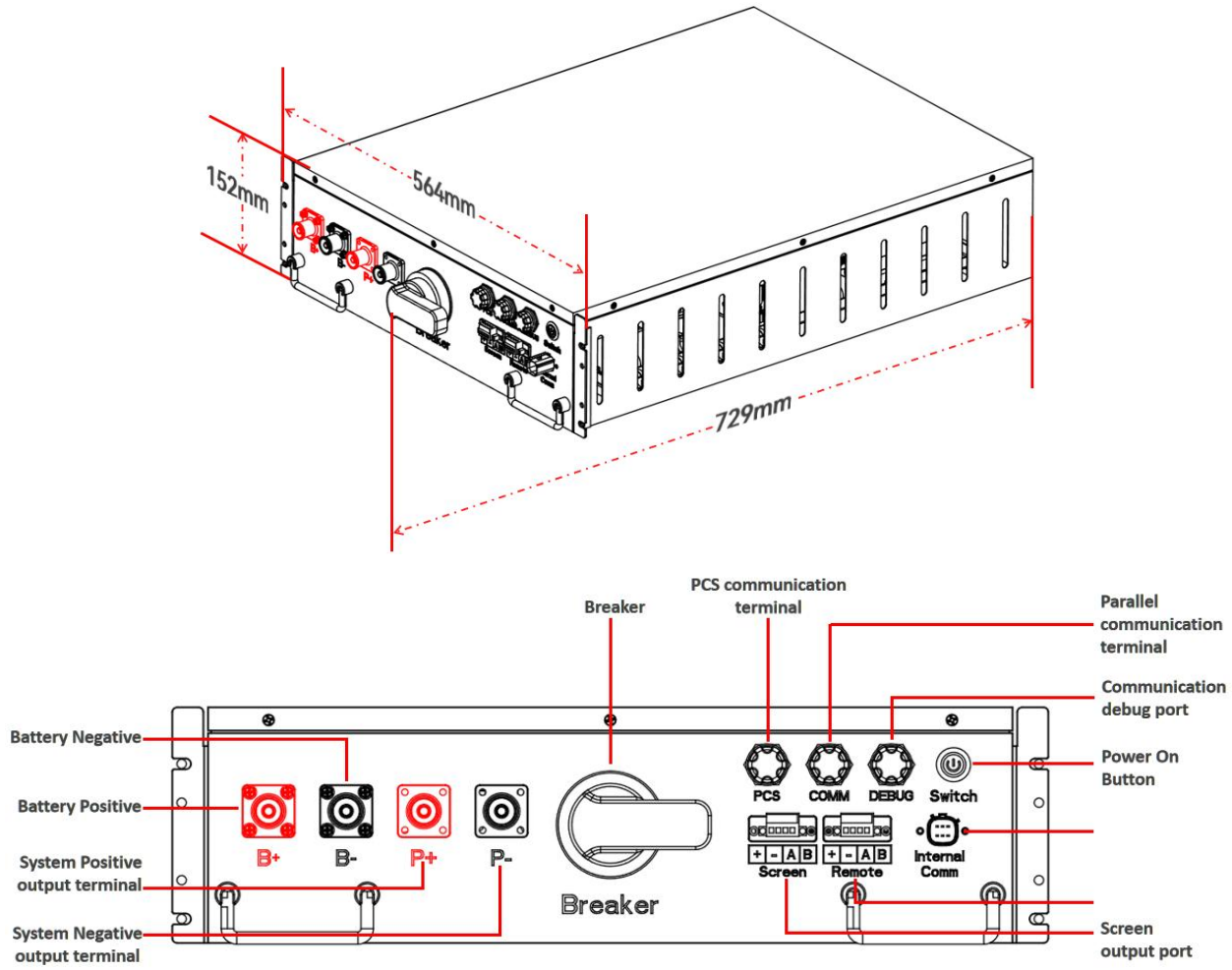
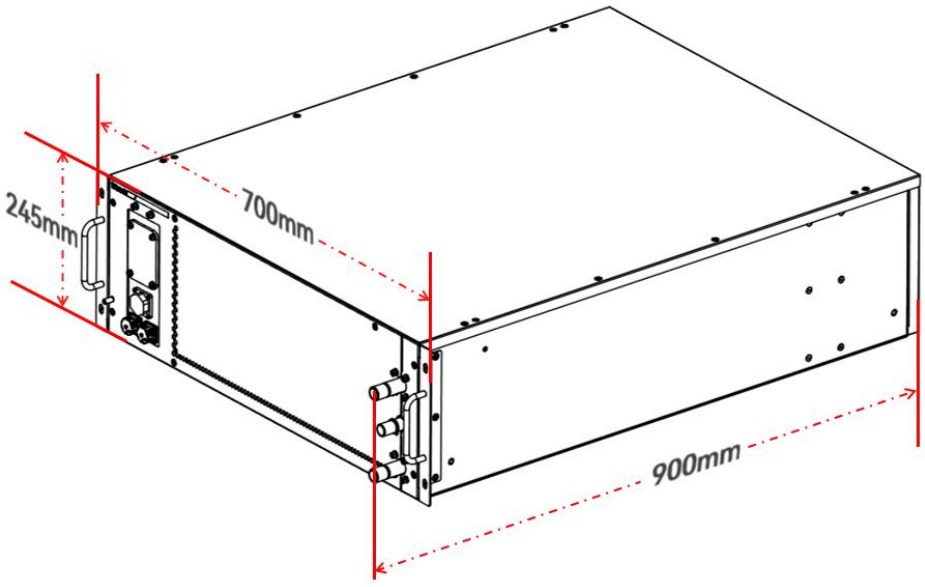


Figure 2.6.3

2.6.4 Liquid Cooling Unit



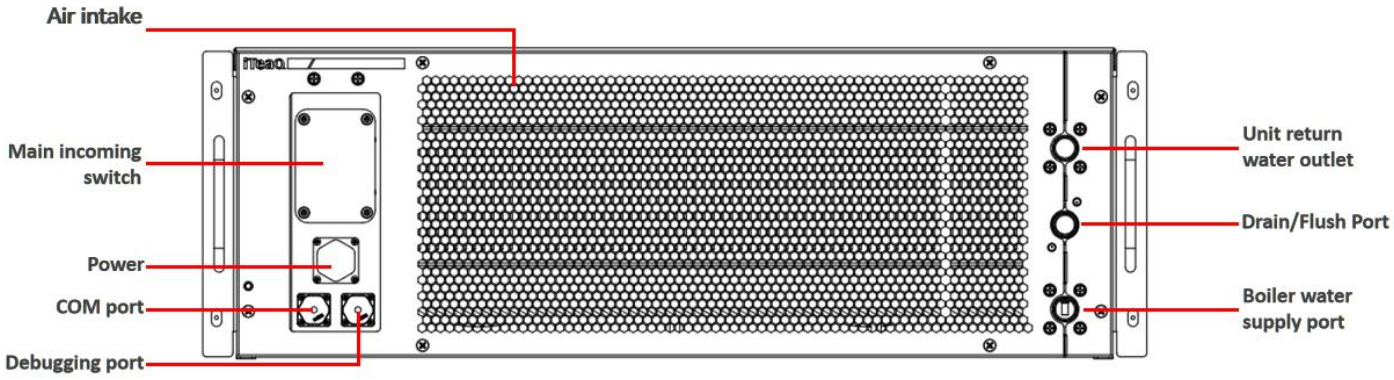


Figure 2.6.4-1

Main parameters of the unit

NO	Component	Descriptions
1	Refrigerating fluid	R134a
2	Cooling liquid	50% ethylene glycol aqueous solution
3	Outlet water temperature (℃)	15℃~45℃
4	Maximum supply/drain water flow rate (L/min)	50
5	Overall dimensions (mm)	W*D*H=700×900×245mm
6	Power form	220±15%~ 50Hz
7	Recommended specifications for the main power supply input line	RVV3*3mm² (L、N、PE)
8	External circulation water supply interface size (mm)	CQC20 Quick Coupling Hub
9	External circulation return water interface size (mm)	CQC20 Quick Coupling Hub
10	Filling/Draining Interface Dimensions (mm)	SAE18 Quick Coupling Head
11	Communication interface	RS485

Table 2.6.4

The lines that need to be connected at the installation site are as follows. The electrical interface of the unit's user is a snap-on aviation quick connector. For detailed information of the interface, please refer to Figure 2.6.4-2 (facing the front of the unit, the electrical interface from left to right corresponds respectively).

1. Unit input power: Recommended cable RVV3*3mm² (L, N, PE).
2. Communication interface: RS485 communication interface.

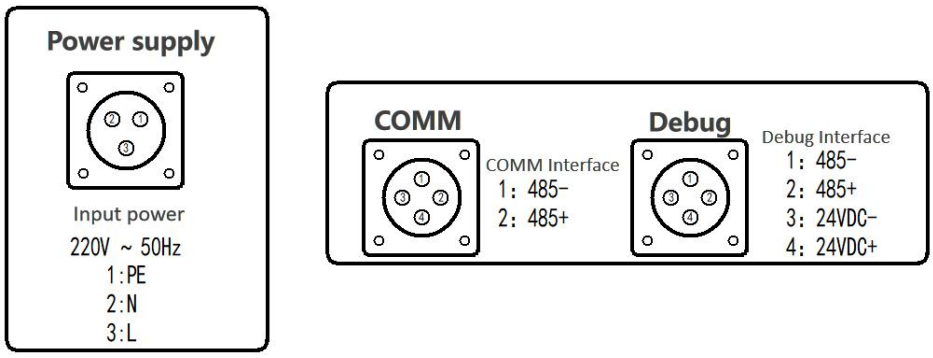


Figure 2.6.4-2

Note:

1. All connections of power lines, control lines and ground wires must comply with the regulations of the national and local electrical engineering standards.
2. Electrical installation work must be carried out by trained professional installers.
3. Before connecting the circuit, measure the input power voltage with a voltmeter and confirm that the power switch has been turned off.
4. If the power line is damaged, it must be replaced by professional maintenance personnel.

2.6.5 PCS module

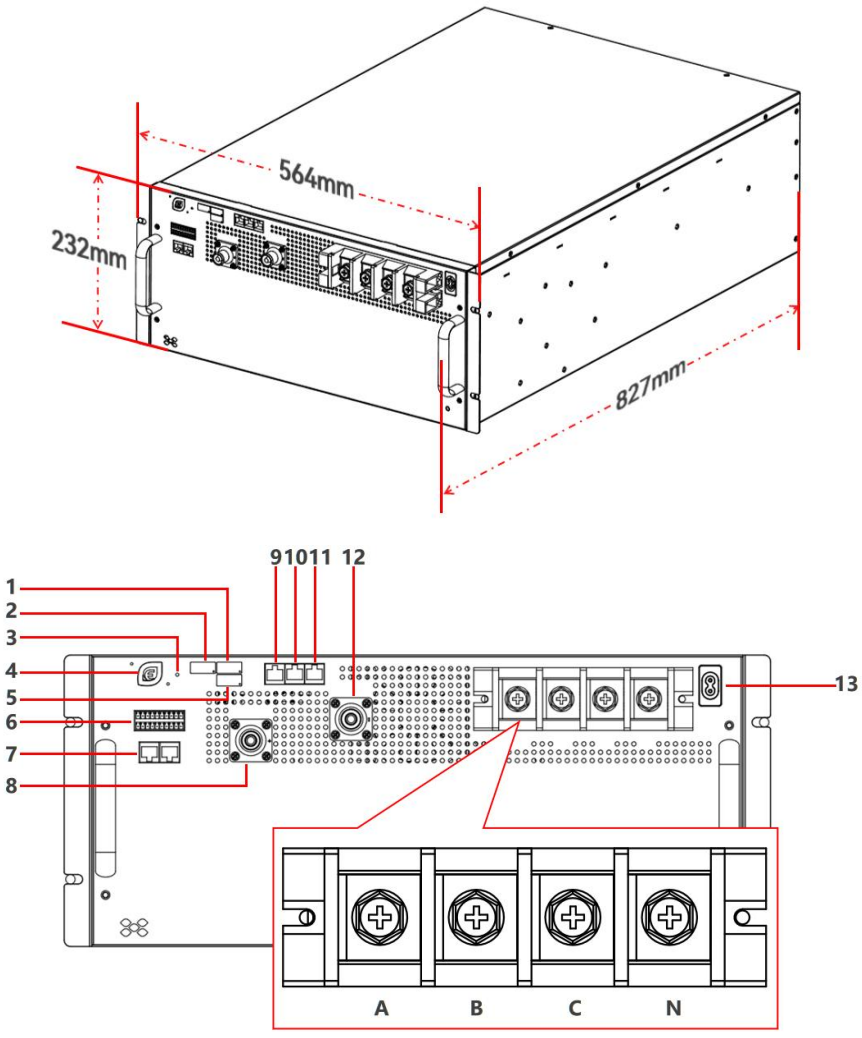


Figure 2.6.5

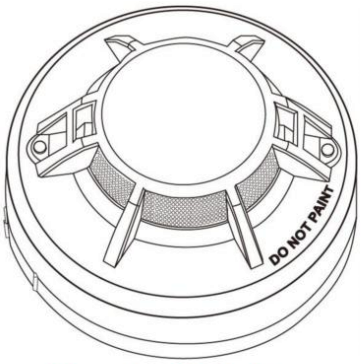
Display and Interface Specifications

NO	Component	Descriptions
1	ADDR	The ADDR is set as the module address (in binary). The 4th bit is the least significant bit (from right to left).
2	USB	Reserved USB interface for upgrading software/configurations.
3	BT	Bluetooth indicator light; When the Bluetooth connection is successful, the blue light will be on.
4	Indicator light	The output power is displayed as a green light when in operation; The green light flashes rapidly for 0.5 seconds when in standby (0kW operation); The green light flashes slowly for 1 second when the device is not turned on and there is no fault; The red light is on for a long time when there is a fault.
5	120Ω	Four-position binary switch. **1.ARM_CAN1** Reserve the CAN1 communication matching resistor. When pulled up, it is connected to a 120Ω matching resistor. **2.ARM_CAN2** CAN2 communication matching resistor. When pulled up, it connects to a 120Ω matching resistor (for CAN2 of COMM3); **3.DSP_CAN1** PCS parallel communication matching resistor. When turned upwards, it is for connecting a 120Ω matching resistor. (CAN1 in COMM1/COMM2/PARA1/PARA2) **4.DSP_CAN2** CAN communication matching resistor. When turned up, it is for connecting a 120Ω matching resistor. (CAN2 in COMM1/COMM2/Phoenix connector)
6	Phoenix connector	External communication signal port.
7	PARA	Used for PCS paralleling or PCS communication with STS.
8	Positive pole of the DC power port	DC side power connection port.
9	ETH	Ethernet port, supporting ModBusTCP protocol, can be connected to EMS or switch.
10	COMM3	Supports CAN and 485 communication.
11	TEST	1/2: DRM0 (reserved); 3 - 7: Back-end debugging communication port (for debugging purposes only).
12	Negative pole of the DC power port	DC side power connection port.
13	Debug the power interface	220V AC power input (for debugging purposes only).

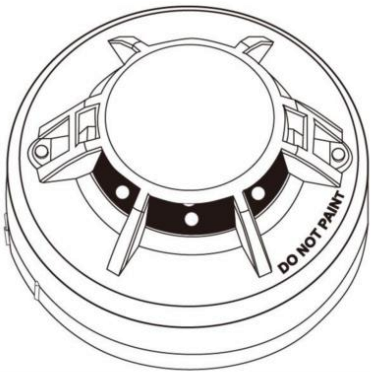
Table 2.6.5

2.6.6 Thermal Runaway Mitigation System

Smoke sensor & Temperature sensor



Smoke Detector



Thermal Sensor Detector

Figure 2.6.6-1

Temperature sensing technology indicators	
Operating voltage	9~28V DC
Operating current	Static current < 60uA
Alarm current	10mA≤I≤50mA
Indicator light	Flashes during monitoring, steady on during alarm.
Operating temperature	-10℃~+55℃
Relative humidity	<95%RH(No condensation)
Smoke sensitivity	0.4dB/m
Alarm temperature level	A2R

Table 2.6.6-1

Illustration： This configuration is an optional one and is not included in the standard configuration.

Fire Extinguishing Device

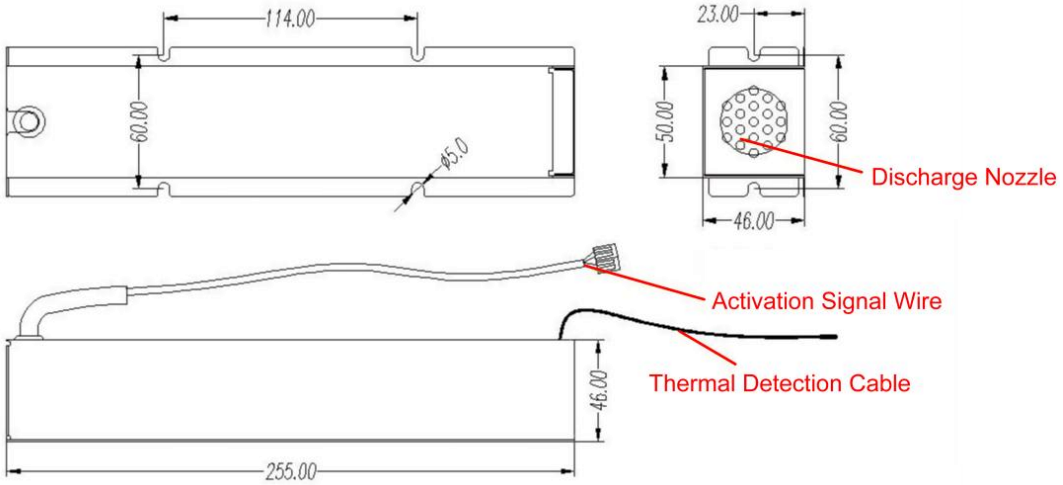


Figure 2.6.6-2

Technical Specifications for the Thermal Runaway Suppression System	
Useful life	10 years
Start method	Hot start，Electric start
Startup temperature	160℃→180℃
Environment temperature	-50℃→+90℃
Protected space	≤ 3 m^3
Thermal aerosol generation dose	300g ± 2%
Spray delay time	≤5s
Nozzle temperature	≤200℃ at a distance of 5mm from the nozzle.
Passive switch quantity feedback signal	Normally open in standby; normally closed after activation (activates when temperature exceeds 80℃).
Device quality	860g Approx.

Table 2.6.6-2

Illustration： This configuration is an optional one and is not included in the standard configuration.

2.6.7 Pressure Relief System

Relief valve

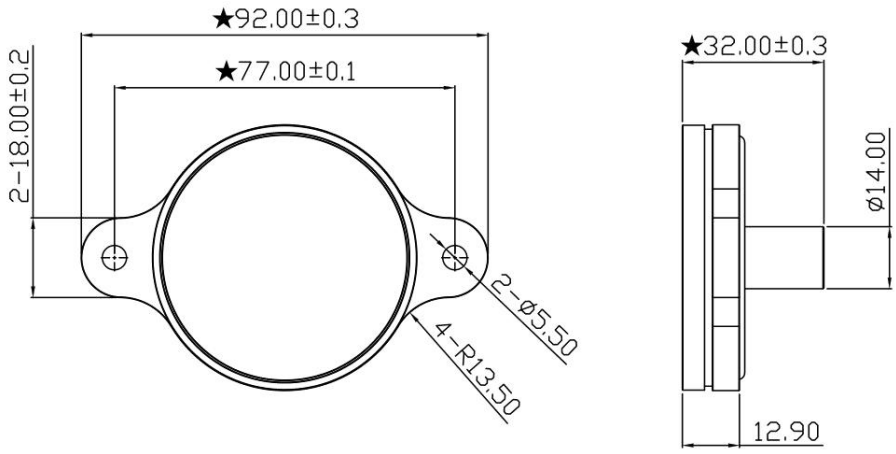


Figure 2.6.7

Technical Specifications for the Pressure Relief System	
Level of protection	IP68(1M/48H)
Air permeability	≥2000 ml/min@1.5kPa
Cracking pressure	4±1kPa
Exhaust area (maximum opening)	1126mm²
Exhaust rate	≥3798 L/min@12Kpa
Open height	8.5mm

Heat resistance	-40~125℃
Resistant to neutral salt spray	720H
Environmental requirement	ROHS2.0 ,REACH
Flame retardant rating	UL94-V0

Table 2.6.7

Illustration:

1.Balance the pressure difference between the inside and outside of the battery cabinet. Under normal operation of the product, when the external environment changes (such as temperature and altitude variations), it will not result in sealing failure due to the pressure difference exceeding its tolerance limit.

2.In case of any abnormality with the battery pack, the product can quickly release the pressure.

The pressure relief valve has undergone multiple tests before leaving the factory. During the receiving and usage process, it is strictly prohibited to disassemble any components. Unauthorized disassembly of the components may lead to the failure of the product's functionality.

2.7 Configuration List

ESS-GRID LC125-261 Configuration List

Part Name	Modle	Qty.	Remark
Battery System	314Ah，261.2kWh	1	With control box
Energy storage converter	BSL-125AC	1	Modularization
Liquid cooling system	CBO5WA，5KW	1	Modularization
Fire extinguishing system	QRR0.3G/S	1	Thermosensitive line activation type
Auxiliary system	Access control, power distribution, smoke and heat detectors, cables, etc.	1	Product accessories
Management system	G720-EMS	1	Product accessories

Table 2.7

Note: The actual supply configuration shall prevail.

03 Transportation and storage

3.1 Packaging and Storage

3.1.1 Product Packaging

To ensure that the product is well protected during transportation, specific wooden boxes are used for packaging. The equipment packaging includes the following basic parameters (and possibly more), which need to be carefully verified according to the project requirements:

Parameter	Explanation
Model	Product model
Dimensions	Size after product packaging
Weight	Total weight after product packaging
Identification	Face up, handle with care, center of gravity position, etc.

Table 3.1.1

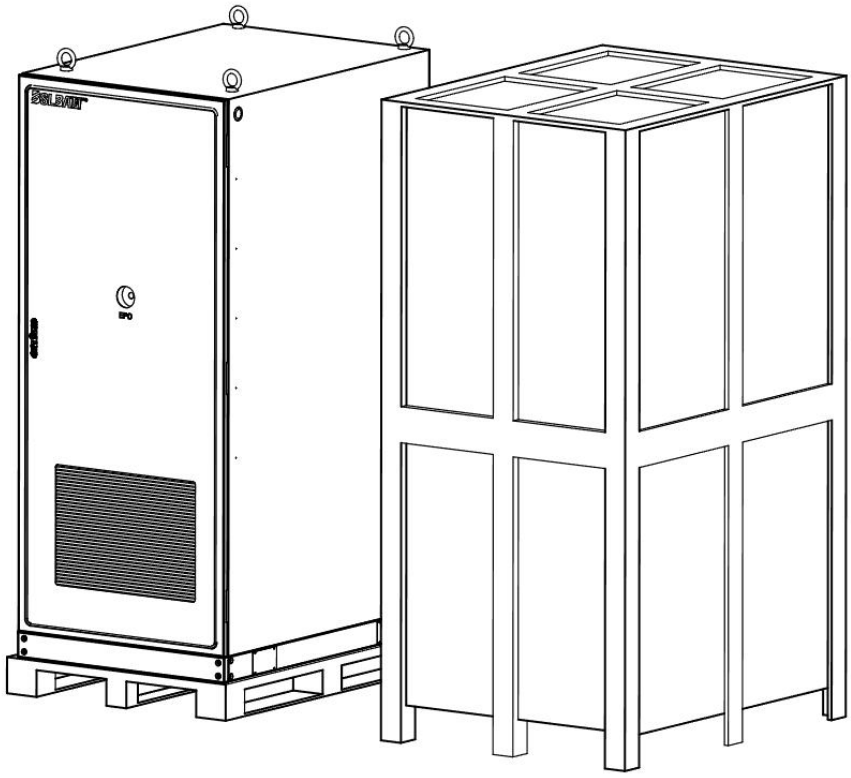


FIgure 3.1.1

Note:

The actual configuration will be subject to the supplier's arrangement.

3.1.2 Product Storage

If the product is not to be transported or installed immediately, it must be stored indoors. The storage location must meet the following conditions:

Parameters	requirements
Storage temperature (excluding the battery)	-25℃~+60℃
Battery	20℃ ~ 30℃
Storage relative humidity	≤90%(No condensation)
Altitude	3000m

Table 3.1.2

Note:

1.The battery should be stored in a dry, ventilated and clean room, away from direct sunlight, rain, radiation sources, corrosive substances, metal dust, heat sources and fire sources, etc., which are all potential hazards.
2.If the battery shows any abnormalities such as carbonization, leakage, swelling or water ingress, it should be immediately transferred to a dedicated hazardous materials storage facility for separate storage. It should be kept at least 3 meters away from flammable materials and be promptly scrapped.
3. When storing the battery, please place it separately from other devices and ensure that qualified fire-fighting equipment is available on site, such as fire extinguishers and fire sand.
4. It is recommended to use the battery as soon as possible. For batteries that have been stored for a long time, regular recharging should be carried out to prevent damage to the battery.

3.2 Transportation and Handling

3.2.1 Product Transportation

1. To ensure the equipment is in a better protective condition, it is recommended to transport it in packaging.
2. During equipment transportation, it should be carried out in accordance with the requirements indicated on the packaging to prevent personal injury and equipment damage.
3. Energy storage batteries are not recommended for railway transportation or air transportation. Speed limit requirements for land transportation: 80 km/h on flat roads, 60 km/h on rough roads. In case of any conflict, local traffic regulations shall prevail.

3.2.2 Product Handling

1.When using a forklift for moving, make sure the forklift has sufficient load capacity and pay attention to the center of gravity of the equipment should be located between the forklift's legs to avoid personal injury and equipment damage.

2. With battery: Forklift loading capacity needs to be ≥ 3 tons; Without battery: Forklift loading capacity needs to be ≥ 1.5 tons.

3. It is recommended that the length of the fork knife be no less than 1.5 meters, with a width ranging from 80 cm to 160 cm and a thickness ranging from 25 mm to 70 mm.

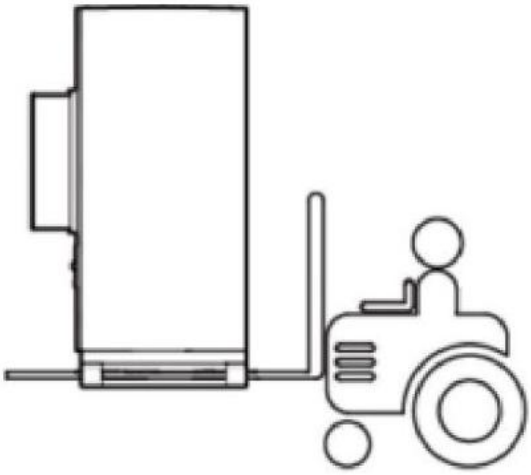


Figure.3.2.2

Note:

Rough handling is strictly prohibited. Otherwise, it may cause battery short circuit, damage (leaking, cracking, etc.), fire or explosion, and also be careful of personal safety.

04 Product installation

4.1 Installation Environment

The installation layout of energy storage systems must meet the fire distance or firewall requirements specified by local standards, including but not limited to the *"GB 51048-2014 Design Code for Electrochemical Energy Storage Power Stations",NFPA 855 Standard for theInstallation of Stationary Energy Storage Systems*. The energy storage system is only suitable for outdoor scenarios and requires outdoor layout. It does not support indoor layout. The general requirements for site selection are as follows:

1. The installation location should be above the historical highest water level in the area. The distance from the airport, landfill, riverbank or dam should be ≥ 2km.

2. Choose a place with good ventilation. When the device is running, do not cover the ventilation openings and cooling system to prevent high temperature fires. Adequate installation space to ensure that surrounding equipment is not affected by the heat generated by the product; Ensure sufficient external wiring space in the installation location. Having convenient transportation conditions and reliable fire suppression system equipment.

3. The installation location should be away from fire sources, and flammable and explosive materials should not be placed around the equipment. If the equipment is installed in a place with lush vegetation, in addition to routine weeding, the ground below the equipment needs to be hardened to prevent overgrown weeds.

4. Do not install energy storage systems outdoors in salt affected areas to prevent equipment from corroding and causing fires. Salt damaged areas refer to areas within 2km of the coast or affected by sea winds.

5. The energy storage system must be equipped with protective measures such as fences and walls, and safety warning signs must be erected for isolation to prevent unauthorized personnel from entering during equipment operation, which may cause personal injury or property damage.

6. The equipment should be installed in an area far away from liquids and should not be installed below water pipes, air outlets, or other locations that are prone to condensation; It should not be installed below air conditioning vents, ventilation openings, computer room outlet windows, and other locations that are prone to water leakage, to prevent liquids from entering the interior and causing equipment short circuits.

Illustration

When the safety distance of the site selection cannot meet the requirements of relevant national standards, it is recommended to reselect the site. Site selection should avoid scenarios that are not recommended by industry standards and regulations, including but not limited to the following locations, regions, and places:

1. Strong vibration, strong noise sources, and strong electromagnetic field interference areas.

2. Places that generate or have dust, oil fumes, harmful gases, corrosive gases, etc.

3. Places where corrosive, flammable, and explosive materials are produced or stored. Within the hazardous range of blasting.
4. Places with existing underground facilities. Densely populated areas, high-rise buildings, and underground structures.
5. There are unfavorable geological conditions such as rubber soil and weak soil layers, which are prone to water accumulation and sinking on the ground.
6. Within the boundary of the mining subsidence (displacement) zone. The area that may be submerged after a dam or embankment collapses.
7. Earthquake faults and seismic areas with a fortification intensity higher than nine degrees. Areas with direct hazards such as mudslides, landslides, quicksand, and caves.
8. Important water source hygiene protection zone.
9. Historical relics and historic sites protection area.
If there is no more suitable location, it is recommended to install a firewall with a fire resistance of no less than 3 hours for security protection, while considering the requirements for equipment transportation, installation, maintenance, and other space. Suggest referring to *T/CEC 373-2020*. The length and height of the firewall should exceed the outer contour of the energy storage cabinet by 1m each.

4.2 Space Preparation

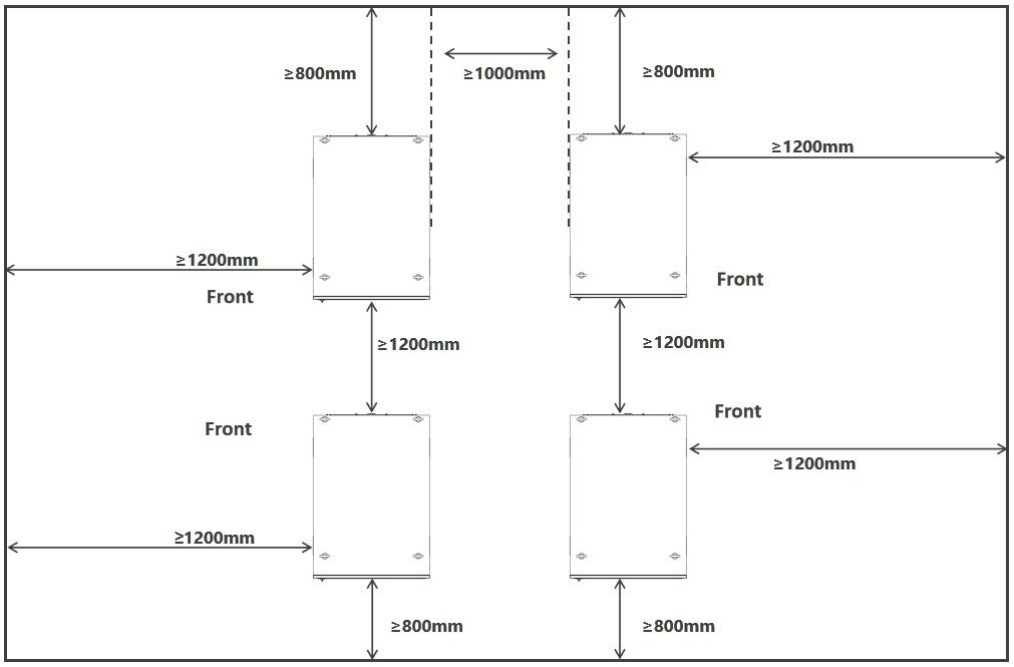


Figure 4.2-1

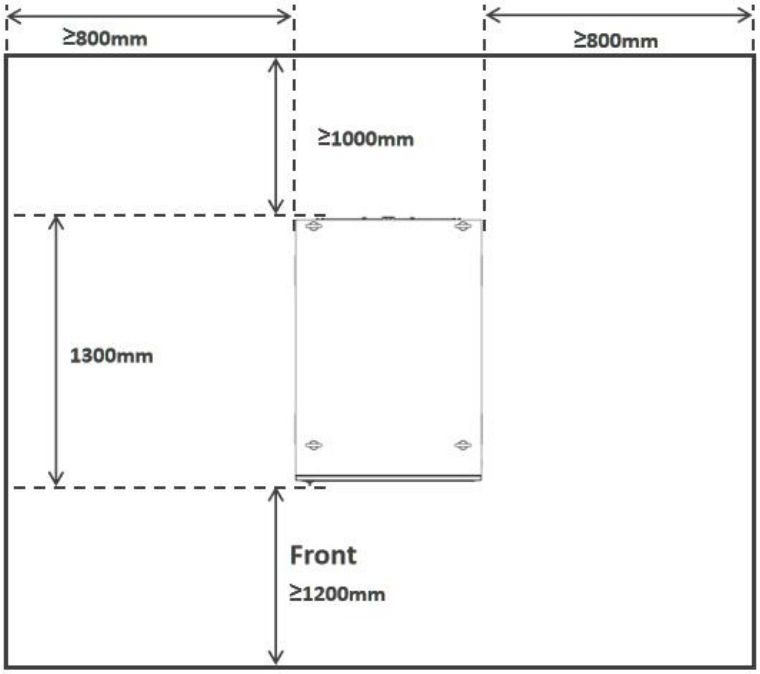


Figure4.2-2

Illustration: The recommended "Spatial Layout Diagram" in the above figure refers to the "*GB 51048-2014 Design Code for Electrochemical Energy Storage Power Stations*", and the safety distance setting should be based on the actual local implementation standards.

4.3 Basic Installation

Foundation reference diagram

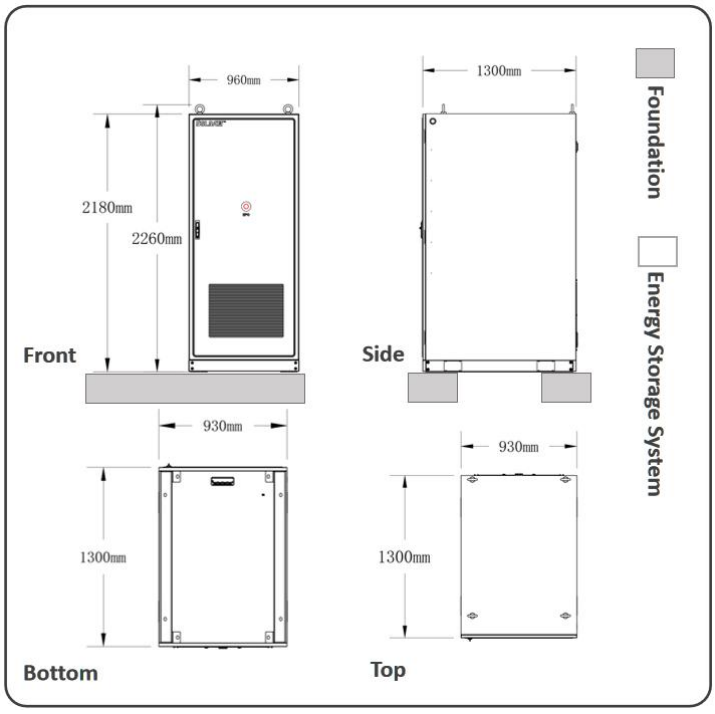


Figure4.3

Illustration: The above diagram cannot be used as the final construction drawing and is for reference only.

Foundation design requirements:

1. The foundation must be higher than the local historical highest water level and at least 300mm above the horizontal ground level;
2. Construct drainage facilities in accordance with local geological and municipal drainage requirements to ensure that there is no accumulation of water at the equipment foundation; The foundation construction should meet the local historical maximum rainfall drainage requirements, and the discharged water needs to be treated in accordance with local laws and regulations;
3. The energy storage system must be installed on concrete or other non combustible surfaces; The installation plane must be horizontal, firm, and flat, with sufficient load-bearing capacity, and no dents or tilts are allowed;
4. The foundation is configured based on the total weight of the equipment. When the bearing capacity of the foundation is not met, it needs to be reviewed; The bottom of the foundation pit must be compacted and filled; It is strictly prohibited to disturb the foundation by soaking in water after excavation. If it is disturbed by soaking in water, excavation should continue and replacement should be carried out;
5. When constructing the foundation, it is necessary to consider the issue of cable outgoing lines for the energy storage system and reserve trenches or entry holes; The reserved holes in the foundation and the bottom inlet holes should be sealed;

Illustration: The survey, design, and construction plan for the on-site foundation must be led by a qualified design institute or professional technical personnel, and strictly follow local regulations, industry standards, and the actual situation of the project for review and confirmation.

4.4 Preparations Before Installation

1. Before installing the product, it is necessary to check whether the product is intact and undamaged. If any signs of damage are found, please keep evidence and contact the equipment manufacturer.
2. If the product is confirmed to be normal, please check according to the delivery list to see if the accessories are complete.
3. Users need to prepare relevant installation tools before installation.

NO.	Inspection Item	Handling Measure
1	Whether the fasteners are tightened	If loose, retighten the screws
2	Whether the space environment meets the installation dimension requirements	If the space is insufficient, it is recommended to redesign before installation
3	Whether the air duct is unobstructed and free of foreign objects	If there are foreign objects, please clean them; if it is not unobstructed, eliminate the cause

Table 4.4-1 Pre-installation checklist

NO.	Name	QTY	Remarks
1	ESS-GRID LC125-261	1SET	Including cabinet door key
2	User Manual	1BOOK	
3	Certificate of Conformity	1PCS	
4	Delivery Inspection Report	1PCS	
5	Packing List	1PCS	

Table 4.4-2 Delivery List

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 4.4-3

Illustration: This table is for reference only. The actual tools should be in accordance with the local installation standards.

4.5 Mechanical Installation

Step 1: After confirming that the product is normal and all accessories are complete, you can follow the following suggestions for mechanical installation:

1. Select the installation position of the equipment according to the product size, and ensure proper positioning and fixation;
2. Based on the product weight, the selected installation position should have sufficient load-bearing strength;
3. Ensure the grounding point is reliable and the grounding resistance is less than 4Ω.

Step 2: After removing the packaging wooden box, first remove the bottom guard plate of the equipment. Store the removed guard plate and screws properly. The equipment should be reinstalled after it is in place.

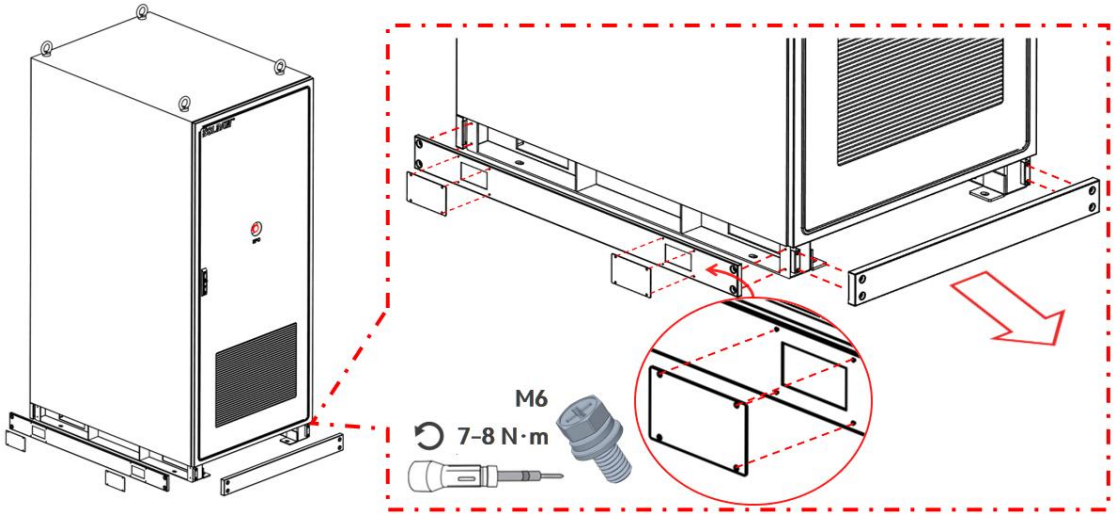


Figure4.5-1

Step 3: Use a forklift to position the equipment onto the foundation, ensuring that the equipment's fixing holes align with the pre-drilled nuts in the foundation.

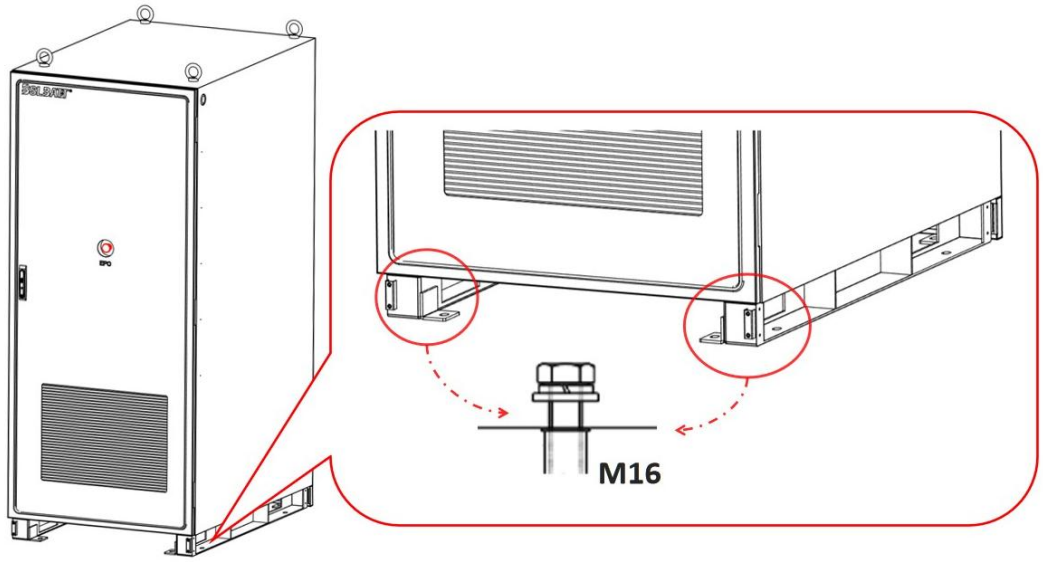


Figure4.5-2

4.6 Electrical Connections

The battery cabinet adopts a modular design with internal wiring pre-installed. During on-site installation, only the output ports of the battery system and electrical cables for external communication need to be connected. Table 4.6-1 provides wiring references based on product power and cable specifications. The selection of cable cross-sectional area must comply with local cable standards. Factors affecting cable selection include: rated current, cable type, installation method, ambient temperature, and maximum allowable line loss.

Cable Wire Diameter Comparison Table

Model capacity	Communication cable	Neutral wire	Ground wire	Positive and negative direct current input (battery side)
50kW	≥3*35mm²	≥35mm²	≥25mm²	≥2*50mm2
100kW	≥3*50mm²	≥50mm²	≥25mm²	≥2*50mm2
125kW	≥3*70mm²	≥70mm²	≥50mm²	≥2*50mm2

Table 4.6-1

Danger:

When conducting electrical installation, the following suggestions can be referred to:

1.Before wiring, check that all switches inside the equipment are in the off position to ensure that the equipment is de-energized before proceeding;

2.Before wiring, disconnect the power grid switch to ensure that the cables are de-energized before proceeding;

3. Verify that the phase sequence of the cables is correct. You can use different colored insulation sheaths or labels to distinguish them and prevent incorrect phase sequence;

4. The connection points between the cable terminals and the copper busbars need to be pressed tightly.The length of the screws should be appropriate to avoid affecting insulation and tightening;

5. The communication cables and power cables should be laid separately.During the laying process, ensure that the insulation layers of the cables are not damaged;

6. The grounding cables must be reliably connected to the grounding copper busbar.The cross-sectional area of the cables must meet the design requirements;

7. All AC cables need to enter the equipment through the bottom inlet holes and be connected to the corresponding phase sequence after entering the equipment;

8. After wiring, seal the wiring gaps with fireproof mud to prevent external insects and rodents from entering and damaging the equipment or cables.

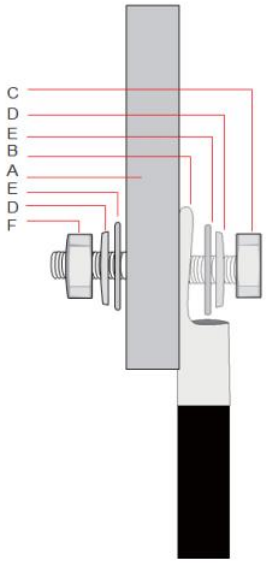
To prevent the wiring terminals from loosening due to force and causing poor contact resulting in increased contact resistance and overheating, it is necessary to ensure that the bolts used to tighten the wiring terminals meet the torque requirements listed in Table 4.6-2:

Screw size	M4	M5	M6	M8	M10	M12	M14	M16

Torque (N*m)	1.8~2.4	4~4.8	7~8	22~29	44~58	76~102	121~162	189~252

Table 4.6-2

The installation illustration of the parts such as terminals and fixing screws used for the connection of the system power cable is as follows:



No.	Name
A	Copper busbar
B	Terminal block
C	Screws
D	Spring washers
E	Large flat washers
F	Nuts

Figure 4.6-1 Installation of wiring terminals

Note:

1. When using copper core cables or copper-clad aluminum cables, please use copper terminal blocks.
2. When using aluminum cables, please use copper-aluminum transition terminal blocks, or aluminum terminal blocks combined with copper-aluminum transition spacers.

4.6.1Connections within the Battery Cabinet

When making electrical connections inside the battery cabinet, align the cable connector with the corresponding interface and insert it. When you hear a clear "click" sound, it indicates that the connector has been correctly inserted and locked in place.

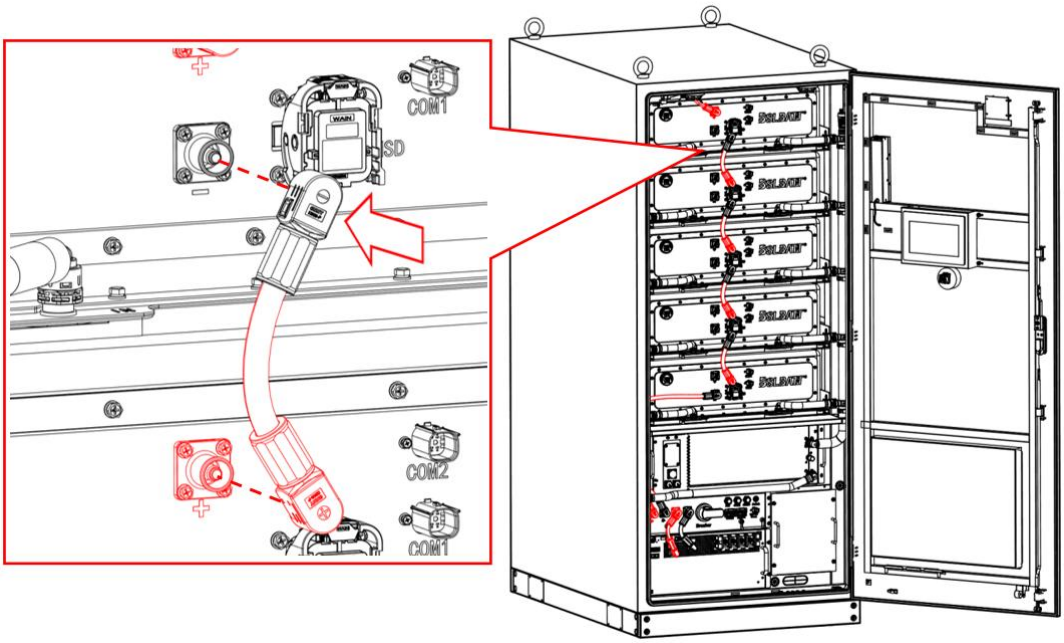


Figure 4.6.1-1

After the power lines of the battery PACK are connected, connect the HV BOX to the PCS module.

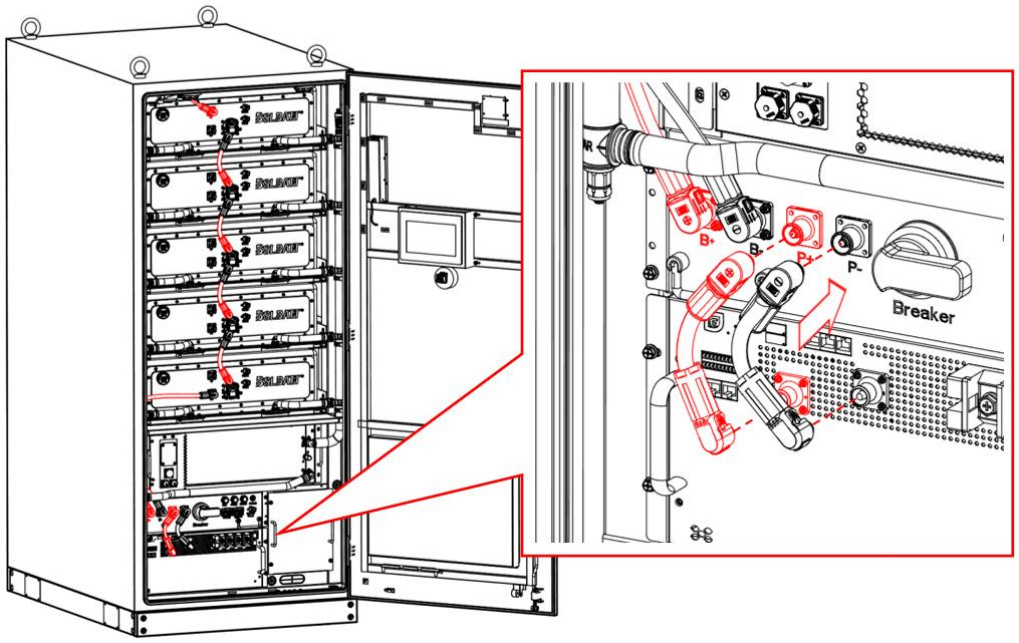


Figure 4.6.1-2

Note:

Before conducting the electrical wiring, please remove the MSD of the battery pack according to the instructions, and then proceed with the electrical connection.

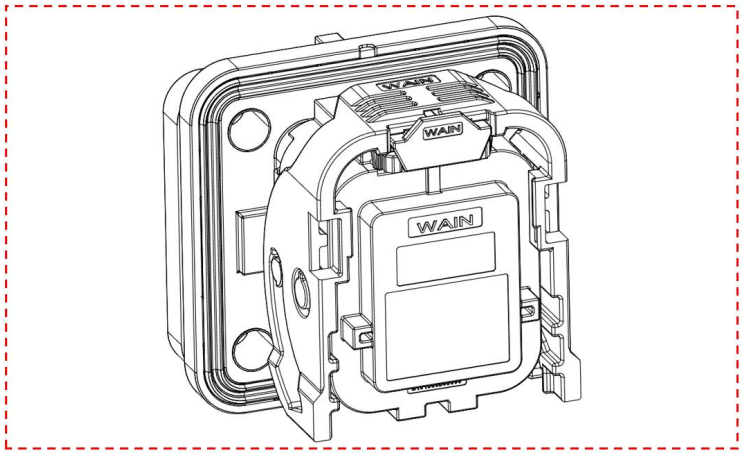


Figure 4.6.1-3 MSD

The electrical connection has been completed as shown in the figure:

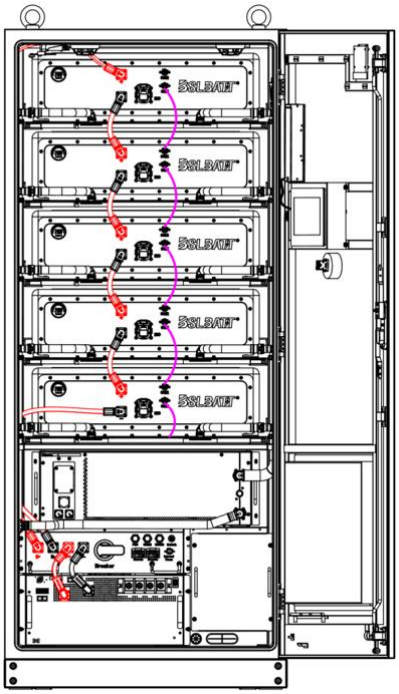


Figure 4.6.1-4

4.6.2 External Connections of the PCS module

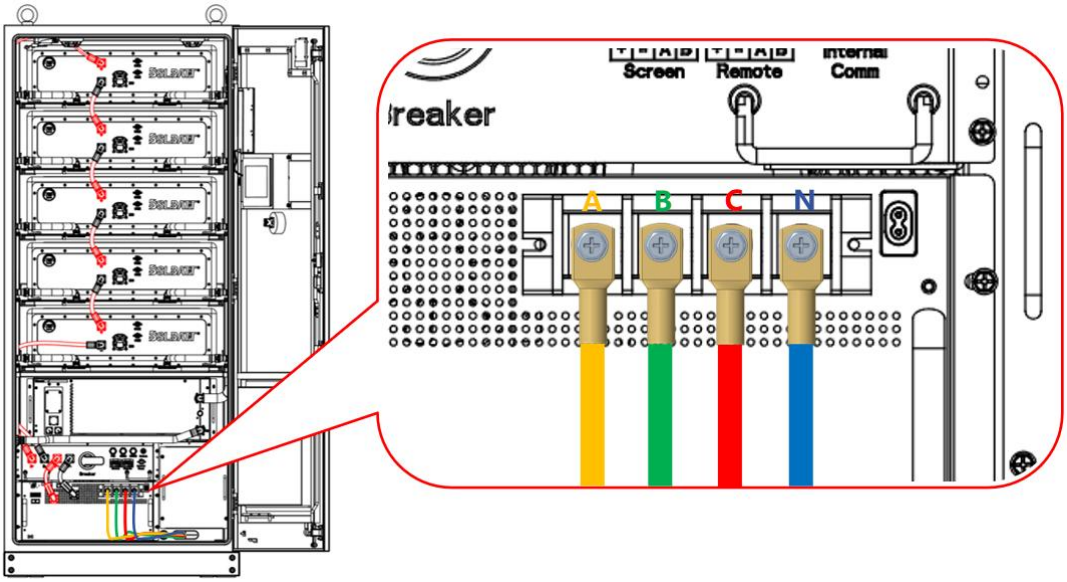


Figure 4.6.2

4.7 Check after Equipment Wiring

Safety Inspection Checklist

NO.	Inspection item
1	Before measurement, disconnect the battery side and electrical side switches to ensure that the energy storage device is not electrified.
2	The positive and negative connections between the battery and the energy storage device are correct, the AC phase sequence is accurate and has been tightened. Measure the resistance between the three phases. It should be in the mega-ohm range. If it is in the kilo-ohm range or smaller, the wiring needs to be checked.
3	The external control cables, grounding wires and communication lines have been securely fastened.
4	The resistance of the grounding wire is less than 4Ω, and the cable is in good condition with no damage or cracks.
5	Clean up the installation area. Ensure that no tools or foreign objects are left behind within the installation area.
6	Fireproof mud is used to seal the gaps in the cables to prevent small animals from entering.

Table 4.7

05 Startup and Debugging

5.1 Pre-check before Power On

1. Check whether the circuit breakers inside the energy storage converter cabinet are in the disconnected state.
2. Verify that all communication and power cable terminals are securely connected.
3. Inspect whether the communication and power wiring harnesses as well as the power cables in the energy storage converter cabinet are correctly connected.
4. Check all communication connections on the modules and the integrated display-control unit inside the energy storage converter cabinet for any issues.

5.2 Pre-check before Startup

Before starting the product, please ensure that the installation has been completed according to specifications and a comprehensive inspection has been carried out. Only when all requirements are met should the product be powered on and put into operation.

1) Appearance Inspection

a. The equipment exterior shall be intact, free from structural damage, corrosion, or paint peeling. If paint damage is found, promptly perform touch-up painting.

b. All equipment labels and markings shall be clear and complete. Any that are damaged or illegible must be replaced immediately.

2) Grounding Inspection

A dedicated grounding point shall be present on the cabinet, and the grounding connection must be secure and reliable. All internal grounding conductors must be reliably connected to the grounding copper busbar.

3) Cable Inspection

a. Cable protective sleeves/jackets shall be intact with no visible damage.

b. Terminal crimping must comply with standards, and all connections shall be firm without looseness.

c. Labels on both ends of each cable shall be clear and correct. Cable routing shall follow the principle of separating power and signal cables. Adequate slack must be left at bends; cables must not be pulled taut.

d. Cable mounting bolts shall be tightened, and cables must not move when gently pulled. All cable entry holes must be properly sealed.

4) Busbar Inspection

Busbars shall show no cracks or significant deformation. Bolts at connection points must be tightened. Phase sequence markings shall be clear and correctly aligned. No foreign objects or debris shall be present on the busbars.

5) Component Inspection

All circuit breakers shall be in the OFF position. The indicator on surge protective devices (SPDs) must show green (normal status).

Note:

1. Insulated gloves are required for operation.
2.For transportation safety, we disconnect one section of the battery module's DC cable, leaving the entire cluster of batteries in an open circuit state. Before powering on, we need to connect the DC cable and insert it into the connector. If you hear a "card" sound, it means it has been inserted into place.

5.3 Startup Procedure

The startup operation procedure for the LC125-261 battery cabinet is as follows:
1. Use a multimeter to confirm that the voltage of the battery system is within the predetermined range.

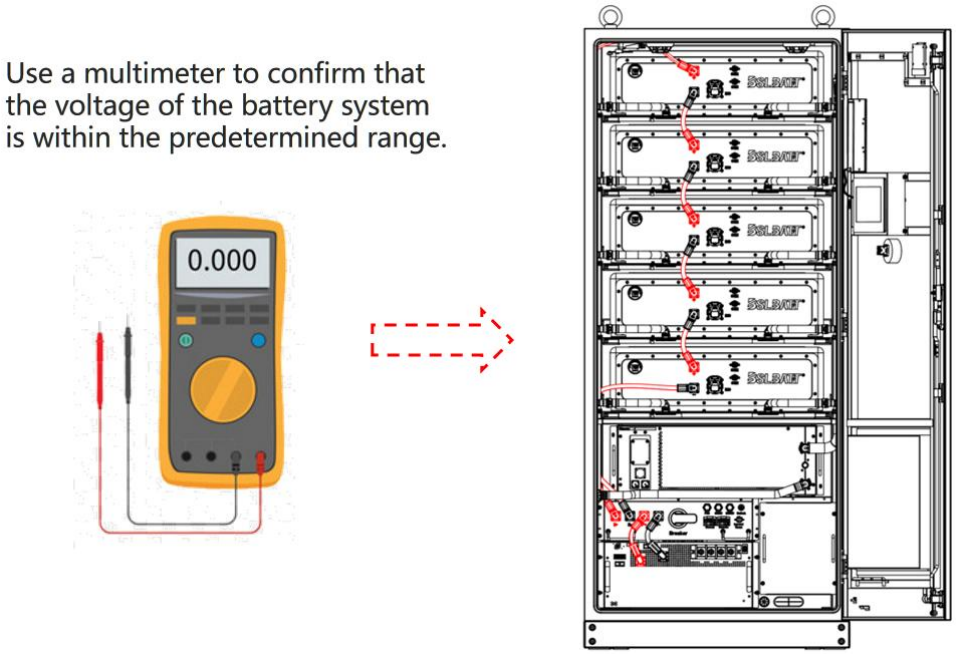


Figure 5.3-1

2. Refer to Figure 5.3-2. Close the disconnect switch of the high-voltage box (rotate it to the "ON" position), and press the "Switch" start button on the high-voltage box.

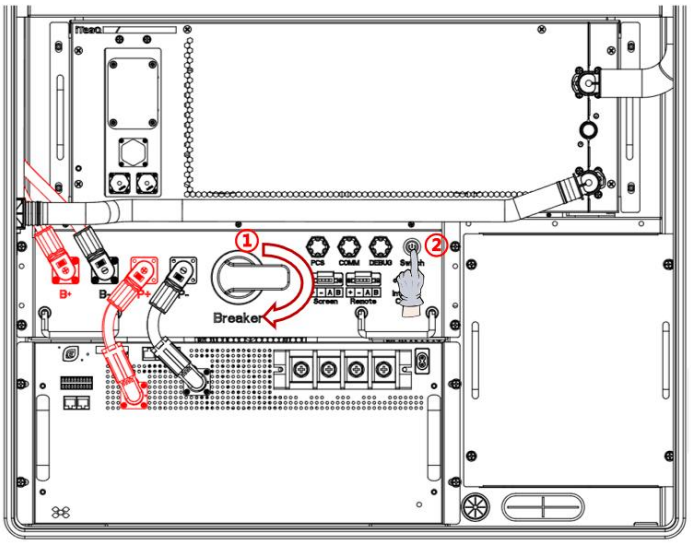


Figure 5.3-2

Illustration:

1. The specific equipment configuration of the product will be determined according to the specific requirements of the project. The actual delivery situation will serve as the final basis.
2. For the exact layout, please refer to the actual packaging.

5.4 Power-off Procedure

To ensure safe and standardized operations, please strictly follow the steps below to execute the system shutdown procedure:
First, use professional testing equipment to confirm that all external devices (including inverters) have been completely powered off.
Only after verifying that all external devices are fully de-energized should you proceed to shut down the product's high-voltage control box:
First, press the "Switch" button on the battery unit;
Then, turn the "Breaker" to the OFF position.
After the system is completely shut down, allow it to remain idle for a period of time. Then, use professional testing tools again to confirm that the entire equipment is in a fully de-energized state. At this point, the entire shutdown procedure is complete.

5.5 Communication Debugging

Notice: Ensure that the host computer software used matches the battery system and is updated to the latest version;Connect to the "DEBUG" port in the battery system to avoid connecting to the wrong port.



Figure 5.5-1

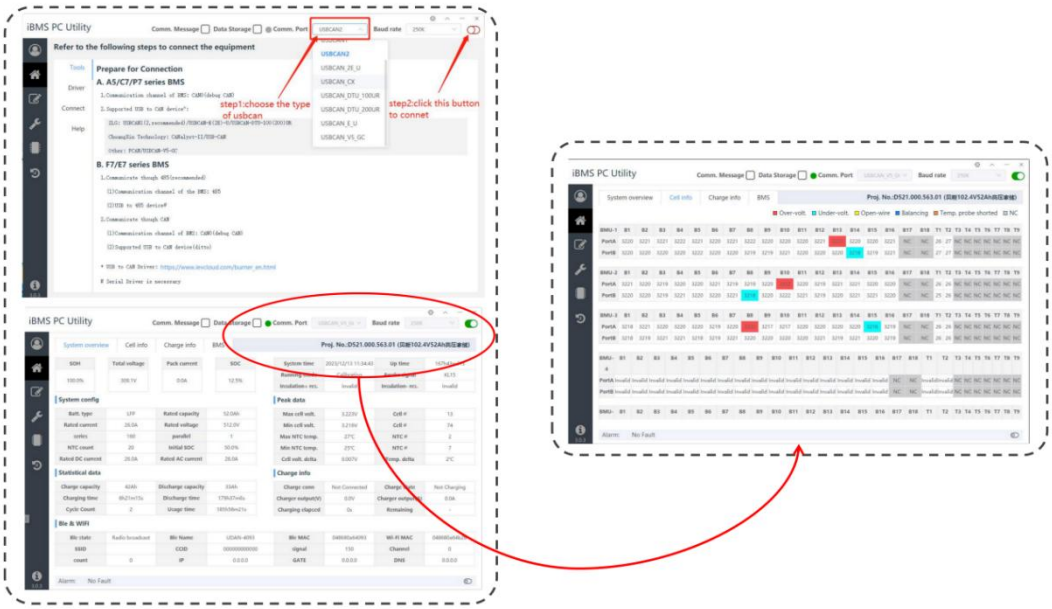


Figure 5.5-2

Illustration:

After connecting the host computer to the battery system, users can monitor and extract a series of data covering the battery's SOC (state of charge percentage), SOH (healthy state percentage), etc.; including the total voltage of the battery system, the voltage of each cell, the total current, and the current data during charging and discharging. At the same time, users can also obtain the temperature of the battery cells and the whole, as well as the battery's usage history, such as the number of charge and discharge cycles, and the accumulated charge and discharge amount. Battery safety information, such as fault codes and insulation status, is also queryable. In addition, users can access detailed information on the system configuration and upgrade and debug the equipment.

06 Operation and Maintenance

6.1 Battery System Maintenance

Before performing maintenance or inspection on the battery system, operators must follow the safety steps below:

1. Disconnect the isolation switch on the high-voltage box panel and ensure it is in the OFF position.
2. Check the firefighting facilities to ensure they are in normal working condition.

After completing the maintenance or inspection work, operators should ensure that:

1. The isolation switch is in the ON position.
2. The firefighting facilities remain in normal working condition.

The NX77 battery cabinet features a high protection rating, making it suitable for outdoor environments. However, long-term operation in harsh conditions may lead to battery aging or damage to internal components. To extend service life and enhance equipment performance, it is recommended to regularly perform the following maintenance checks on the DC battery cabinet: replace aged or damaged parts. Additionally, due to factors such as ambient temperature, humidity, dust, vibration, and aging of internal components, potential issues may arise during system operation. To ensure long-term stable operation of the battery system, maintenance personnel should conduct periodic inspections according to the specifications in Table 6.1, allowing timely identification and resolution of problems. Recommended maintenance intervals are as follows:

1. For systems installed in areas with severe sand and dust, high salt spray, or heavy industrial zones, monthly maintenance is recommended.
2. For energy storage systems located in regions with favorable climate conditions, maintenance every three months is recommended.

Battery System Maintenance Schedule

NO.	Maintenance steps	Reference standard
1	Inspect the overall appearance of the cabinet.	There is no obvious peeling of the coating, scratches or rust; there are no obvious signs of water leakage.
2	Check the ventilation openings of the cabinet	There is no dust accumulation at the ventilation openings.
3	Check the condition of the cabinet door lock	The door lock is in good condition without any damage.
4	Check the noise and vibration of the air conditioner	The fans and compressors are rotating normally without any jamming or abnormal noises.
5	Clean the air conditioning filter	The surface of the filter is clean and there is no blockage.
6	Inspect the appearance of the fire-fighting equipment	There is no obvious peeling of the coating, scratches or rusting.

7	Inspect the wiring of the fire protection device	The connection is tight and there are no broken areas.
8	Check the smoke and temperature sensor wiring harness	The connection is tight and there are no broken areas.
9	Check the switch wiring of the access control system.	The connection is tight and there are no broken areas.
10	Check the communication panel of the high-voltage box	The surface of the panel is clean and there is no blockage.
11	Inspect the contact surfaces of the copper bars in the high-voltage box	No corrosion or discoloration, no dust accumulation
12	Check the noise and vibration of the battery module	The fan rotates smoothly without any stalling or abnormal noise.
13	Inspect the communication wiring of the battery module	The connection lines are not loose or detached.
14	Inspect the contact surfaces of the copper bars in the battery module	No corrosion or discoloration, no dust accumulation

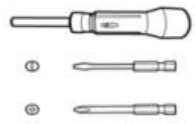
Table 6.1

Note:

The above maintenance operations are routine maintenance measures. If there are any special circumstances not listed here, please contact our production department promptly.

6.2 Cleaning and Dust Removal Process

6.2.1 Preparations Before Dust Removal

 Cross screwdriver	 Multimeter	 Rubber hammer	 Insulated ladder
 Vacuum cleaner	 High pressure water gun		

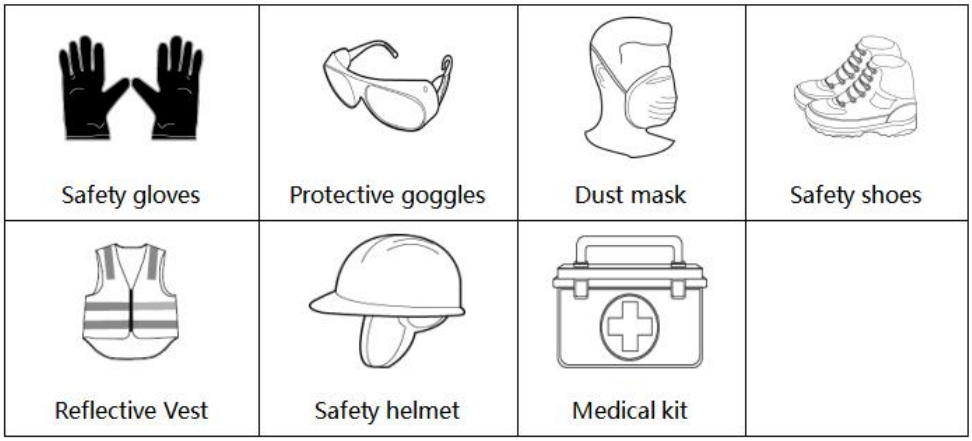


Figure 6.2.1

Note:

Please prepare at least the above tools. If the tools are insufficient, there may be a possibility that the maintenance cannot be completed. The handles of the tools such as the Phillips screwdriver need to be insulated or insulated tools should be used.

6.2.2 Product Dust Cleaning Maintenance

Table of Product Dust Cleaning Maintenance

Category	Motion	Reference standard	System Power-off needed or not
Cabinet	Clean the ventilation openings	There is no dust accumulation at the ventilation openings.	Need
Cabinet	Cleaning dust-proof cotton	No insects, rats, snakes or other animals entered.	Need
Cabinet	Rinsing the appearance	The dust-proof cotton shows no obvious discoloration or impurities.	Need
Air conditioner	Clean the radiator	The surface of the radiator is clean and free of obstructions; the fan rotates normally without any stalling or abnormal noise.	Need
Power distribution area	Is there any foreign object?	Clean and free of any foreign objects within the area	Need
Note: In sand-dust affected areas, it is recommended to clean the filter once after each sandstorm; it is advisable to clean once before the onset of summer; in other areas, ensure that the filter or condenser is free from blockage based on actual conditions; the dust-proof cotton should be used for a maximum of 2 years. Recommended tool: Water gun with a pressure lower than 100 kPa.			

Table 6.2.2

6.3 Liquid cooling unit fault symptoms

List of water chillers' alarms

Alarm type	Alarm Name	Alarm generation conditions	Possible causes for the alarm generation	Solution
Exhaust temperature alarm	Exhaust temperature high alarm	The exhaust temperature has reached the over-temperature alarm threshold.	1. Condenser is severely clogged. 2. There are foreign objects blocking the return air vents of the unit. 3. The fan stopped working due to power failure.	1. Clean the condenser. Stop the cleaning process once the water flowing out from the drainage holes becomes clear. 2. Remove debris from the return air inlet. 3. Check the working condition of the fan.
	Exhaust temperature locking	Three high-temperature exhaust warnings occurred within one hour.		
Supply and return water pressure alarm	Excessive water supply pressure	The water supply pressure is higher than the alarm threshold for high pressure.	1. Coolant circulation system blocked. 2. Coolant overfilled.	1. Check circulation piping for debris. 2. Open drain valve to release a small amount of coolant.
	Backwater pressure is too low.	Backwater pressure is lower than the low-pressure alarm setting value.	Insufficient coolant	Connect refill tool to top up.
Water supply temperature alarm	High temperature alarm for water supply	Supply water temperature above high-pressure alarm setpoint.	1. Compressor, EEV, circulation pump, or fan fault. 2. Coolant leak.	1. Check compressor, EEV, circulation pump, or fan. 2. Check for leaks, repair, and refill coolant.
	Low-temperature alarm for backflow water	Return water temp below low-temp alarm setpoint.	Circulation pump or electric heater fault.	Check circulation pump and electric heater.
Sensor failure alarm	Ambient temperature sensor fault.	Temp sensor fails to detect target temp.	1. Temp sensor wiring loose or cable damaged. 2. Temp sensor fault.	1. Tighten electrical connections or replace cables. 2. Replace temp sensor.
	Supply water temperature sensor fault.			

	Return water temperature sensor fault.			
	Suction temp sensor fault.			
	Low pressure sensor fault.	Low pressure sensor fails to detect pressure.	1. Pressure sensor wiring loose or cable damaged. 2. Pressure sensor fault.	1. Tighten electrical connections or replace cables. 2. Replace pressure sensor.
Compressor or pressure alarm	High-voltage alarm	High-side pressure above high-pressure alarm setpoint.	1. High ambient temp. 2. High-pressure switch wiring loose or cable damaged. 3. Condenser heavily clogged. 4. Return air inlet blocked by debris. 5. Fan off or faulty.	1. Check ambient temp. 2. Tighten electrical connections or replace cables. 3. Clean condenser. 4. Clear debris from return air inlet. 5. Repair or replace fan if not due to power loss.
	Low-voltage alarm	Low-side pressure below low-pressure alarm setpoint.	1. Refrigerant leak. 2. EEV fault.	1. Check for leaks, repair, and recharge refrigerant. 2. Replace EEV.
	High-voltage Locking	Three high-voltage alarms occurred within one hour.	1. Ambient too high. 2. HP switch wire loose/damaged. 3. Condenser clogged. 4. Air inlet blocked. 5. Fan off/faulty.	1. Check ambient temp. 2. Tighten connections or replace cables. 3. Clean condenser. 4. Clear debris from return air inlet. 5. If not power-loss related, repair or replace fan.
	Low-voltage Locking	Three low-pressure alarms occurred within one hour.	1.Refrigerant leak. 2.EEV fault.	1. Check for leaks, repair, and recharge refrigerant. 2. Replace EEV.

Table 6.3

6.3.1 Fault Diagnosis and Handling

Situation	Possible reasons	Inspection & remedies
Troubleshooting of the fan failure		
The fan cannot be started.	Unattended power supply	Check if there is electricity at the input end of the generator set's power supply.
	Breaker tripped	Check whether the circuit breaker is closed.
	Control panel failure	Check main board control output per circuit diagram.
	The fan itself has failed	Replace the fan.
	The fan has become stuck	Check if there are any foreign objects stuck in the fan.
	Connector disengaged	Check fan connector for looseness.
Troubleshooting of the water pump failure		
The water pump cannot be started	Unattended power supply	Check if there is electricity at the input end of the generator set's power supply.
	Breaker tripped	Check the wiring of the water pump.
	The pump itself has failed	Replace the water pump.
Troubleshooting of the refrigeration system		
The compressor cannot be started.	No power on (turned off)	Check the main power switch, circuit breaker and connecting wires.
	Compressor drive overload protection	power-on again.
	Circuit connection is loose	Fasten the circuit connector.
	Compressor coil shorted/burned	Check motor; replace if defective.
	Pump not running	Check coolant system.
Severe high-pressure	Condenser clogged (air-cooled)	Clean condenser (air-cooled).

alarm.	Condenser fan not running	Check the output of the condensing fan.
	Excessive refrigerant filling quantity	Check for excessive subcooling.
Suction pressure unchanged after startup	Compressor reverse rotation or internal leakage	For reverse rotation, swap any two phase wires; for internal leakage, replace compressor.
Severe low-pressure alarm	Insufficient refrigerant in the system	Check for leaks, repair, and recharge refrigerant.
	Dust filter clogged	Replace the filter.
	Improper superheat adjustment	Check superheat setpoint (10–15℃).
	Low condensation pressure	Check for faults in the condenser.
Compressor too noisy	Return fluid	Refer to the handling method for "Suction pressure unchanged after startup"
	Bearing wear due to oil loss	lube job
	Compressor or piping loose	Tighten clamps.
The compressor is overheating.	Compression ratio too high	Check high/low pressure protection settings, condenser blockage, and condenser fan operation.
	Suction temp too high.	Check superheat setpoint (10–15℃) or recharge.
Troubleshooting of the heating system		
Heating system not running.	Start conditions not met	Check pump outlet setpoint & operation.
	Heater burnt out	Disconnect power and check heater resistance with an ohmmeter.

Table 6.3.1

Note:

Some circuits have extremely high voltages that are dangerous and only allow professional technicians to carry out maintenance operations on the equipment. Special caution must be exercised when conducting troubleshooting while the equipment is still powered on.

6.4 PCS Fault Diagnosis

The inverter has comprehensive protection functions and warning information. In case of a fault, the relevant fault information can be read through EMS. Before seeking service, users can perform self-checks according to the prompts in the table, analyze the cause of the fault and find a solution. During the self-check, do not disassemble the machine components. If the problem cannot be solved, please contact the after-sales service.

Equipment inspection items

No.	Fault Name	Trigger mechanism	Fault handling
1	EPO signal	Abnormal External Dry Contact Signal -Default mode (normally closed): Contact closed = normal; contact open = fault. -Custom mode (normally open): Contact open = normal; contact closed = fault.	Power-off reset
2	IGBT hardware overcurrent fault	IGBT Overcurrent Protection (OCP) failure	Power-off reset
3	Bus hardware overvoltage fault	Bus hardware overvoltage fault/condition	Power-off reset
4.	Power module cycle-by-cycle current limiting fault	Power module cycle-by-cycle current limiting	Power-off reset
5	Balancing circuit cycle-by-cycle current limiting fault	Balancing circuit cycle-by-cycle current limiting	Power-off reset
6	24V power supply fault	Internal auxiliary power supply (24V) fault	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
7	Single board connection failure	Internal connection failure	Power-off reset
8	Lightning arrester failure	External dry contact signal anomaly	Power-off reset
9	Inductor overheating fault	Inductor temperature exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
10	IGBT module over-temperature	IGBT temperature exceeds the limit value	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start,

			and 0 indicates stop).
11	Over-temperature fault of the balancing circuit	The temperature of the balancing circuit is higher than the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
12	15V power supply failure	Internal auxiliary power failure	Power-off reset
13	External fire alarm failure	Abnormal External Dry Contact Signal -Default mode (normally closed): Contact closed = normal; contact open = fault. -Custom mode (normally open): Contact open = normal; contact closed = fault.	Power-off reset
14	External BMS dry contact failure	Abnormal External Dry Contact Signal -Default mode (normally closed): Contact closed = normal; contact open = fault. -Custom mode (normally open): Contact open = normal; contact closed = fault.	The device will automatically reset when the fault disappears.
15	Environmental overheating fault	The environmental temperature exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
16	Grid Overvoltage Fault -For three-phase three-wire systems: line-to-line voltage Vab overvoltage; -For three-phase four-wire systems: phase-to-neutral voltage Van overvoltage.	The grid voltage exceeds the limit.	The device will automatically reset when the fault disappears.
17	Grid Overvoltag -FaultFor three-phase three-wire systems: line-to-line voltage Vbc overvoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vbn overvoltage.	The grid voltage exceeds the limit.	The device will automatically reset when the fault disappears.
18	Grid Overvoltage Fault -For three-phase three-wire systems: line-to-line voltage Vca	The grid voltage exceeds the limit.	The device will automatically reset when the fault disappears.

	overvoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vcn overvoltage.		
19	Grid Undervoltage Fault -For three-phase three-wire systems: line-to-line voltage Vab undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Van undervoltage.	The grid voltage is below the limit.	The device will automatically reset when the fault disappears.
20	Grid Undervoltage Fault -For three-phase three-wire systems: line-to-line voltage Vbc undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vbn undervoltage.	The grid voltage is below the limit.	The device will automatically reset when the fault disappears.
21	Grid Undervoltage Fault -For three-phase three-wire systems: line-to-line voltage Vca undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vcn undervoltage.	The grid voltage is below the limit.	The device will automatically reset when the fault disappears.
23	Over-frequency fault of the power grid	The grid frequency exceeds the limit.	The device will automatically reset when the fault disappears.
24	Grid under-frequency fault	The grid frequency is lower than the limit value.	The device will automatically reset when the fault disappears.
25	Grid phase sequence error fault	The phase sequence of the power grid is reversed, with A, B, and C in the opposite order.	Power-off reset, change phase sequence
26	Communication A phase overcurrent fault	Communication: The A phase current exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
27	Communication B phase overcurrent fault	Current of phase B exceeds the limit.	Automatic reset is permitted when the fault

			has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
28	Communication C phase overcurrent fault	Communication: The current of phase C exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
29	Unbalanced fault of alternating current	The difference in the current of phases A, B, and C in the three-phase three-wire system exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
30	N line overcurrent fault	Module N line current exceeds the limit value	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
31	Overvoltage fault of the pre-charging bus	During the startup phase, the bus voltage exceeds the limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
32	Overvoltage fault of the pre-charging bus	During the startup phase, the bus voltage is below the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
33	Busbar overvoltage fault	The voltage of the operating busbar is higher than the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
34	Busbar under-voltage fault	The voltage of the operating bus is lower than the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start,

			and 0 indicates stop).
35	Unbalanced fault of positive and negative busbars	The pressure difference between the positive busbar and the negative busbar exceeds the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
36	Battery under-voltage fault	The battery voltage is below the limit.	The device will automatically reset when the fault disappears.
37	Battery overvoltage fault	The battery voltage is higher than the limit value.	The device will automatically reset when the fault disappears.
38	DC pre-charging overcurrent fault	During the startup phase, the direct current exceeds the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
39	DC overcurrent fault	The running current of direct current exceeds the limit value.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop)
40	Overcurrent fault in the balancing circuit software	The current of the balancing circuit exceeds the set limit during operation.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop)
41	Battery reverse polarity fault	Battery voltage is below the set limit.	The device will automatically reset when the fault disappears.
42	AC pre-charge timeout fault	During charging, the value did not reach the preset level within the specified time.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop)
43	AC pre-charge A-phase overcurrent fault	Overcurrent in the pre-charging stage module	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start,

			and 0 indicates stop)
44	AC pre-charge B-phase overcurrent fault	Overcurrent in the pre-charging stage module	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop)
45	AC pre-charge C-phase overcurrent fault	Overcurrent in the pre-charging stage module	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop)
46	Leakage current fault	Leakage current exceeds the set limit	After a power-off reset, it is recommended to check whether the system connections are normal.
47	Current DC component over-limit fault	The DC component of the current exceeds the set limit.	Check whether the zero-drift value of current sampling is excessive, or whether there is a DC component in the actual current.
48	Power mismatch fault	The set power does not match the actual output power.	Check whether the DC voltage of the PCS is too low, or whether the grid voltage is too high.
49	Control board RAM fault	Read/write error occurred on the control board RAM chip.	Contact the after-sales staff
50	Control panel EEPROM failure	Error occurred during EEPROM reading and writing	Contact the after-sales staff
51	Control board AD zero drift over-limit fault.	The zero drift of the ADC analog sampling channel is excessive.	Contact the after-sales staff
52	Control board background communication protocol fault.	Communication protocol mismatch between DSPs.	Contact the after-sales staff
53	Control board CAN communication protocol fault.	Communication protocol mismatch between CAN nodes.	Contact the after-sales staff
54	Control board CPLD communication protocol fault.	Version mismatch between CPLD and DSP.	Contact the after-sales staff

55	Control board DataLog data fault.	Control board DataLog data fault.	Contact the after-sales staff
56	Software and firmware mismatch fault.	Software and firmware mismatch fault.	Contact the after-sales staff
57	BMS battery status fault.	BMS status	Check BMS operating status.
58	STS communication failure	The system does not detect the STS signal.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
59	BMS communication fault.	The system does not detect the BMS signal.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
60	Parallel system slave communication fault.	The system does not detect the parallel operation signal.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
61	EMS communication failure	The system did not detect the EMS signal.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
62	Pre-charge switch closing fault.	Pre-charge switch closing fault.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
63	Pre-charge switch opening fault.	Pre-charge switch opening fault.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
64	Pre-charge switch closed state error.	Pre-charge switch closed state error.	Automatic reset is permitted when the fault has cleared and the start

			command is set to 1 (where 1 indicates start, and 0 indicates stop).
65	Pre-charge switch open state error.	Pre-charge switch open state error.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
66	AC main switch closing fault.	AC main switch closing fault.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
67	AC main switch opening fault.	AC main switch opening fault.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
68	AC main switch closed state error.	AC main switch closed state error.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
69	AC main switch open state error.	AC main switch open state error.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
70	AC main switch contact sticking fault.	AC main switch contact sticking fault.	If the system is not powered off, contact after-sales service personnel immediately; if it has been powered off, do not power it on again.
71	DC main switch open-circuit fault.	DC main switch open-circuit fault.	If the device is not powered off, contact after-sales service personnel promptly.
72	AC main switch open-circuit fault.	AC main switch open-circuit fault.	If the device is not powered off, contact

			after-sales service personnel promptly.
73	Off-grid operation inverter overvoltage fault - For 3-phase three-wire systems: line-to-line voltage Vab overvoltage; - For three-phase four-wire systems: phase-to-neutral voltage Van overvoltage.	During off-grid operation, the inverter voltage exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
74	Off-grid operation inverter overvoltage fault - For 3-phase 3-wire systems: line-to-line voltage Vbc overvoltage; -For 3-phase 4-wire systems: phase-to-neutral voltage Vbn overvoltage.	During off-grid operation, the inverter voltage exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
75	Off-grid operation inverter overvoltage fault -For three-phase three-wire systems: line-to-line voltage Vca overvoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vcn overvoltage.	During off-grid operation, the inverter voltage exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
76	Grid islanding fault	The phase-locked frequency exceeds the set limit	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
77	System resonance failure	The AC filter capacitor current exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
78	High voltage ride-through timeout fault.	The high voltage duration exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).

79	Off-grid operation inverter undervoltage fault -For three-phase three-wire systems: line-to-line voltage Vab undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Van undervoltage.	During off-grid operation, the inverter voltage is below the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
80	Off-grid operation inverter undervoltage fault -For three-phase three-wire systems: line-to-line voltage Vbc undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vbn undervoltage.	During off-grid operation, the inverter voltage is below the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
81	Off-grid operation inverter undervoltage fault -For three-phase three-wire systems: line-to-line voltage Vca undervoltage; -For three-phase four-wire systems: phase-to-neutral voltage Vcn undervoltage.	During off-grid operation, the inverter voltage is below the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).
82	Off-grid mode synchronization signal missing fault.	During off-grid operation, no phase-locked synchronization signal is detected.	If the device is not powered off, contact after-sales service personnel promptly.
83	Off-grid output short-circuit fault.	During off-grid operation, the inverter voltage is below the set limit and the output current exceeds the set limit.	If the device is not powered off, contact after-sales service personnel promptly.
84	Low voltage ride-through timeout fault.	The low voltage duration exceeds the set limit.	Automatic reset is permitted when the fault has cleared and the start command is set to 1 (where 1 indicates start, and 0 indicates stop).

Table 6.4

6.5 Warranty Service

6.5.1 Warranty Period

Provided that the product is used correctly, the warranty period shall be in accordance with the agreement stipulated in the business contract.

6.5.2 Warranty Scope

If the product is within the warranty period and any malfunction is caused by quality issues of the product itself, our company will provide free repair or replacement of the product for the customer. The customer should reserve a reasonable response time for our company's maintenance. The replaced product will be handled by our company. The customer is required to present the relevant proof of purchasing the product and ensure that the product trademark is clearly visible. Otherwise, our company reserves the right not to provide warranty coverage.

6.5.3 Disclaimer Statement

In the following cases, the company reserves the right not to provide quality assurance, but still can offer paid repair services.

1. Beyond the warranty period;
2. Unable to provide proof of product purchase;
3. Damage caused during transportation or loading/unloading;
4. Incorrect installation, modification or damage caused by unauthorized personnel's disassembly;
5. Damage caused by abnormal use conditions or environments;
6. Machine failure or damage caused by using non-Natong components or software;
7. Faults caused by irresistible factors such as fire, earthquake, and flood.

Appendix

Emergency handling measures

When batteries are dropped or subjected to severe impacts

If there are any obvious odors, damages, smoke emissions or fire incidents:
Immediately evacuate the personnel, call the police and contact professionals.
The professionals will use the fire-fighting equipment to extinguish the fire under the condition of ensuring safety.
If there is no obvious deformation or damage to the appearance, and no unpleasant smell, smoke or fire is emitted:
Warehouse scene: Evacuate the personnel. Professional personnel will use mechanical tools to transfer the batteries to an open and safe area. Contact the service engineer. Let the batteries stand still for 1 hour and monitor the battery temperature (within the range of room temperature ±10℃) before handling.
On-site of the energy storage system: Evacuate the personnel, close the door of the energy storage system, transfer the batteries to a safe place by professionals, contact the service engineer, and handle them after a 1-hour rest.

When a flood occurs

Under the condition of ensuring personal safety, power down the system.
If any part of the battery is submerged in water, do not touch the battery to avoid electric shock.
Do not use the battery that has been soaked in water. Contact the recycling company to have it disposed of.

When a fire occurs

Warning:
Power down the system in a safe manner.
Use carbon dioxide, FM-200 or ABC dry powder fire extinguishers to put out the fire.
Firefighters should avoid contact with high-voltage components to prevent the risk of electric shock.
High battery temperature may cause deformation, electrolyte leakage and release of toxic gases. They should wear respiratory protection equipment, stay away from the scene and avoid skin irritation and chemical burns.

When the sound and light alarm is activated

Do not approach or open the door. Move away immediately.
Cut off the power supply remotely under the condition of ensuring your own safety.

When the exhaust start occurs

On-site personnel protection: Do not operate directly towards the exhaust outlet.
Post-event maintenance:Please contact the service engineer for assessment.

Emergency handling in case of coolant leakage

 Warning:

Immediately cut off the power supply, evacuate the personnel, and prohibit any open flame or spark operations (to prevent explosion).

After the fault is resolved, clean the interior of the system, re-power it and check if the system is functioning properly. If any abnormalities occur, please contact the relevant engineers immediately for handling.

Maintenance points:

Locate the leakage points using a leak detector (check the compressor shaft seal and condenser joints);

Minor leakage: Tighten the seals after recovering the refrigerant;

Major leakage: Replace the components.

In the event of a fire extinguishing agent eruption or a fire occurrence

Suggestions for operation and maintenance personnel:

Evacuate the scene and call the police. Provide information such as the type of battery pack, system capacity, and location distribution.

Do not re-enter the burning area or open the storage system door. Isolate the scene and keep watch.

Remote power-down the system (ensure your own safety).

Provide product information and user manual to the firefighters.

After extinguishing the fire, have professionals handle it. Do not open the door privately.

Contact the service engineer for assessment and maintenance.

Suggestions for firefighters:

Refer to the product information provided by the maintenance personnel.

Do not open the storage system door before ensuring safety.

Use control measures to extinguish the fire to prevent it from spreading to the surrounding storage cabinets.

BSLBATT®

Best Solution Cithium Battery

User Manual

BSL NEW ENERGY TECHNOLOGY CO., LTD

www.bsl-battery.com
inquiry@bsl-battery.com
Follow us on:

Add: Building 2, Area D, Qunyi Intelligent Manufacturing Industrial Park, Tonghu Ecological Intelligence Zone, Zhongkai, Huizhou, Guangdong, China

Website

Tiktok

Youtube