User Manual

Rechargeable Li-ion Battery system
EverCore-261kWh-125kW-NV

Version 1.1, Release Date:06,2026

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1. Manual Description

1.1. Scope of Application

This manual is applicable to the EverCore-261kWh-125kW-NV integrated energy storage cabinet. Hereinafter referred to as "EverCore".

1.2. Purpose

The purpose of this manual is to provide detailed product information and instructions for system installation, operation, maintenance, and use.

1.3. Manual Usage

Before using this system, carefully read this manual and ensure that you understand all safety precautions. Then, use the product.

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The content of the manual will be continuously updated and corrected. If there are slight discrepancies from the physical objects, users should refer to the purchased physical objects

1.4. Terms and Acronyms

SolisStorage	Ginlong Energy Storage Co., Ltd.
CAE	Computer Aided Engineering
BESS	Battery Energy Storage System
FEA	Finite Element Analysis
EMU	Energy Management Unit
BMS	Battery Management System
BCU	Battery Cluster Management Unit
BMU	Battery Management Unit
PDU	Power Distribution Unit
SOC	State of Charge
SOF	State of Function
SOH	State of Health
OCV	Open Circuit Voltage
EMC	Electromagnetic Compatibility
HV	High Voltage
CAN	Controller Area Network
DVP&R	Design Verification Planning& Report
SOP	Start of Production
BOL	Beginning of Life
EOL	End of Life
DOD	Depth Of Discharge
DV	Design Verification
Hybrid	Hybrid Inverter
PV	Photovoltaic
EMS	Energy Management System
AC Coupling	Alternating Current Coupling
AC	Alternating Current
DC	Direct Current

2. Safety Instructions

This section provides general safety instructions for the operation process. For specific safety instructions regarding the installation procedures, please refer to the corresponding chapters.

2.1. Symbol Usage Instructions

This manual provides relevant information, highlighted with appropriate symbols, for user safety and property protection, and to help users operate the product efficiently and optimally.

The following lists the symbols that may be used in this manual. Please read them carefully to better utilize this manual.

Warnings in the document

DANGER	"DANGER" indicates a high potential for danger. If it is not avoided, it will result in the death or serious injury of personnel.
WARNING	"WARNING" sign indicates a moderate potential hazard. Failure to avoid it could result in the death or serious injury of personnel
CAUTION	"CAUTION" indicates a low level of potential danger. Failure to avoid it could result in moderate or minor injuries to personnel.
NOTICE	"NOTICE" indicates potential risks. Failure to avoid these risks may result in the equipment not functioning properly. Or result in property damage.

Warnings on the product

	Be aware of dangerous voltage This product operates under high voltage. All operations on the product must be carried out in accordance with the instructions provided in the product manual.
	Risk of incorrect operation Personnel must operate correctly. Misoperation may result in serious personal injury or equipment damage.
	Be aware of excessive surface temperature The product may get hot during operation. Please do not touch this product during the operation process.

	Risk of crushing Do not place your hands inside the movable and/or rotating parts of the product
	Risk of high noise levels The product can generate high noise levels. Hearing protection should be worn when operating the equipment.

Product symbols

	Risk of door swing angle The door opening angle is up to 120, and there are labels attached to the door.
	Unlock direction Unlock direction label, which is located on the door
Always pay attention to the danger warning signs on the equipment, including:	
	This sign indicates high voltage inside the cabinet. Touching it may pose a risk of electric shock
	This symbol indicates that this is the PE terminal for protective grounding. It is necessary to ensure a firm connection for the purpose of safeguarding the safety of the operators.

2.2. Safe Usage Instructions

This section presents the general safety guidelines that need to be followed when operating the system. For the safety instructions in the specific usage and maintenance steps, please refer to the warning explanations in the corresponding chapters.

⚠DANGER
Electric shock hazard! Ignoring the following warnings may result in personal death or serious injury. Only qualified personnel are allowed to operate, install and maintain the system. Before work, safety protective equipment must be worn, and the protective equipment should comply with local laws, regulations and standards. Never touch any electrified parts directly. Before installing the equipment, the AC circuit must be isolated from the power grid, and the AC connection must be disconnected. The DC circuit must be isolated from the battery pack, and the DC connection must be disconnected. The equipment should have a grounding cable. If several devices are installed together, each device should be grounded separately. The grounding cable should comply with the corresponding safety standards. Dehumidify the equipment after installation or a prolonged power outage. Then, test the insulation resistance. Do not start the equipment until the insulation test is passed. Requirement: The insulation resistance on both the AC and DC sides must be no less than 1 MΩ. The PCB circuit board may generate high voltage when the equipment is powered on, especially the voltage sampling boards for AC and DC. Therefore, be careful of electric shock when using instruments such as an oscilloscope. When the equipment malfunctions, the main and auxiliary circuits may generate dangerous voltages. Therefore, before working, measure the voltage and ensure that the voltage is below the safe level. Do not operate the equipment when the cover or door is open In rainy weather, do not open the equipment door to avoid water ingress and protect personnel from electric shock.

⚠WARNING

Warning! Ignoring this warning may result in personal injury.

Even if the power of the equipment has been turned off, the cooling fan may still be rotating. Please do not touch the rotating parts.

When disassembling the components of the equipment, please wear gloves to prevent scratches.

After the system is powered off, do not touch the radiator, heater surface, bus bars or capacitors. Maybe they are very hot and could burn you.

Do not collide with personnel during equipment handling.

An isolation area should be set up during installation operations.

During the lifting process, move and transfer the equipment carefully.

The installation of all equipment must be carried out by installation personnel who have received training in handling high-voltage electricity.

Do not use or install equipment with any defects, cracks, or damage.

Do not attempt to open, disassemble, repair, tamper with or modify the equipment.

Do not perform outdoor installation during severe weather such as rainstorms or sandstorms.

To protect the equipment and its components from damage during transportation, handle them carefully.

Do not hit, pull, drag or step on the equipment. Do not subject the equipment to any strong force. To prevent damage, keep the equipment in the transportation packaging until ready for installation

Do not insert any foreign objects into any part of the equipment.

Do not expose the equipment or its components to direct flames.

Do not install the equipment near heating devices.

Do not immerse the equipment or its components in water or other liquids.

Place the equipment on a level surface to ensure it is stable and does not shake or tilt

The installation of the equipment should take into account the load capacity of the installation ground and floor (according to the requirements of the construction drawings).

CAUTION

Caution! Ignoring the following warnings may damage product components.

When installing the equipment, do not place the conductive sweep device in the cabinet, as it may damage the equipment.

Install the equipment on the platform using the specified strength bolts, and the bolts should comply with the installation requirements.

Ensure that the equipment has good heat dissipation, and the ventilation pipe should not be blocked

Ensure that the electrical bolts are always tightened to the exact torque specified in this document.

If the equipment is not powered for a long time, its lifespan will be affected.

Do not use cleaning agents to clean the equipment, or expose the equipment to flammable or irritating chemical substances or vapors.

Do not use components that have not been authorized by Solis

The transfer and lifting diagrams in this document are for reference only. The specific tools and equipment shall be selected according to the actual site conditions.

NOTICE

The power/battery module is too heavy and requires multiple people to move it. Appropriate protective equipment should be worn, and the protective equipment should comply with local laws, regulations and standards.

Unless otherwise specified, all dimensions are in millimeters.

2.2.1.Personnel Requirements

Only professional electricians or personnel with professional qualifications can perform all operations on this product.

Operators should be fully familiar with the composition and working principle of the entire system.

Operators should be fully acquainted with this manual.

Operators should be fully aware of the relevant standards of the project's location area.

2.2.2.Setting of Safety Warning Signs

Please follow the following guidelines when implementing installation, daily maintenance, and inspection operations of this system, in order to prevent irrelevant personnel from approaching and causing incorrect operations or accidents:

Set up clear signs at the front and rear switch positions of the equipment under maintenance to prevent accidental closing of the switch and resulting accidents

Establish warning signboards or set up safety warning tapes near the operation area.

2.2.3.Requirements for Escape Routes

To ensure that staff can evacuate the site promptly in case of an emergency, please follow the following guidelines:

During maintenance, repair, or other operations on the equipment, it is essential to ensure that the escape routes are completely unobstructed.

It is strictly prohibited to pile up any items or occupy the escape routes in any way.

2.2.4.Electrical Measurement

⚠DANGER

There is high voltage in the system. Accidental contact may cause a fatal electric shock hazard. Therefore, when conducting measurements while the system is energized, the following should be done:

Take protective measures (such as wearing insulating gloves).

There must be a companion to ensure personal safety.

2.2.5.Usage of Measuring Equipment

⚠WARNING

There is a high voltage in the system. Accidental contact could lead to a fatal electric shock hazard. Therefore, when conducting measurements while the system is energized, you should.

Select high-quality measuring equipment whose range and operational conditions meet the requirements of the site.

Ensure that the connections of the measuring equipment and the operation follow the correct procedures to avoid potential hazards such as electric arcs

2.2.6.System Parameters Setting

Some EMS parameters in the system software can be set, and they are closely related to the operation of the system. Such EMS parameters can only be set after a reliable analysis and evaluation of the system's operation status.

WARNING

Improper parameter settings may affect the normal operation of the system.

Only professionals are permitted to set the parameters of the system.

2.2.7.Moisture Protection

NOTICE

The ingress of moisture is highly likely to damage electrical equipment! To ensure the normal operation of all system functions, please follow the following items:

When the air humidity is over 95%, do not open the system or equipment doors.

Avoid conducting maintenance or repair operations on the system in rainy or humid weather conditions.

2.2.8. Precautions during Maintenance or Repair

WARNING

After the system stops running, please wait for at least 10 minutes before conducting maintenance or repair operations on the system. After the system is shut down, when performing maintenance or repair operations on the system, be sure to:

Ensure that the system will not be accidentally re-powered.

Use a multimeter or an electric tester to check and ensure that the system is completely de-energized.

Cover the adjacent potentially electrified components with insulating materials.

During the entire maintenance and repair process, ensure that the escape route is completely unobstructed.

2.2.9.Product Scrap

Scrap products shall be immediately recovered and disposed of by the designated qualified manufacturer. In order to avoid safety accidents or serious environmental pollution, it is strictly forbidden to discard discarded products.

2.2.10.Personal Protective Equipment (PPE)

⚠WARNING

It is strictly prohibited to carry out maintenance or repair operations when the equipment is powered on

When conducting maintenance or repair on the equipment, it is recommended that at least two personnel be present on site.

When performing maintenance or repair on the equipment, turn off the system and use a multimeter or an electric tester pen to test to ensure that the system is completely de-energized.

PPE is determined by the incident energy (in Cal/cm²) generated by an arc flash at a specified working distance (typically 18 inches). The PPE requirements for EverCore operation correspond to PPE Category 2.

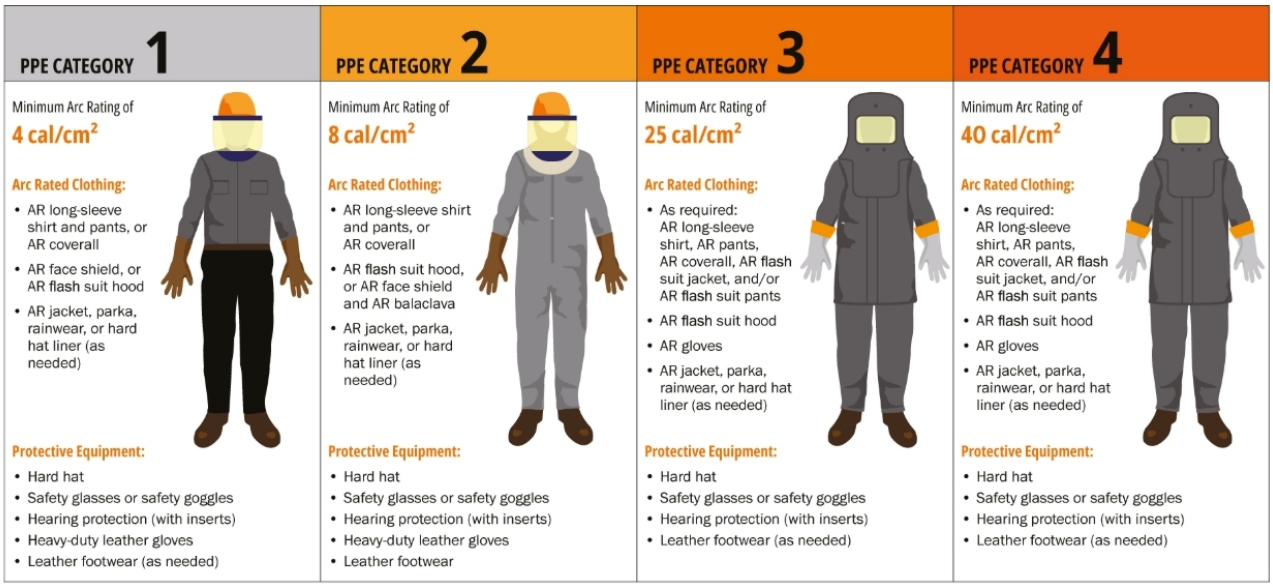


Figure 2-1 PPE Classification

2.2.11.Other Important Notes

In addition, the following protective or emergency measures should be taken according to the on-site needs:

When conducting maintenance, repair, or other operations on the system, relevant personnel should take appropriate protective measures as needed at the site, such as wearing noise-proof earplugs, insulated shoes, insulated gloves, and heat-resistant gloves.

All necessary auxiliary measures should be adopted to ensure the safety of personnel and equipment.

This manual cannot cover all possible situations during operation, maintenance, and repair processes. If there are situations not explained in the manual, please contact SolisStorage in time.

To facilitate users' better reading and use of this manual, a large number of pictures are configured in the manual. All pictures are only for explanatory purposes. Users should refer to the actual product received.

3. Product Introduction

3.1. Product Overview

3.1.1.Product Introduction

EverCore consists of a Solis hybrid inverter (HYI), a battery system, an energy management system (EMU, a fire suppression system (FSS), a thermal management system (TMS), and an auxiliary distribution system (PDU)

Figure 3- 1 Product Appearance

3.1.2.Main Components Introduction

The system consists of a single battery cluster, the battery cluster contains 13 battery packs, each of which is composed of 20 battery cells. The system contains 260 battery cells.

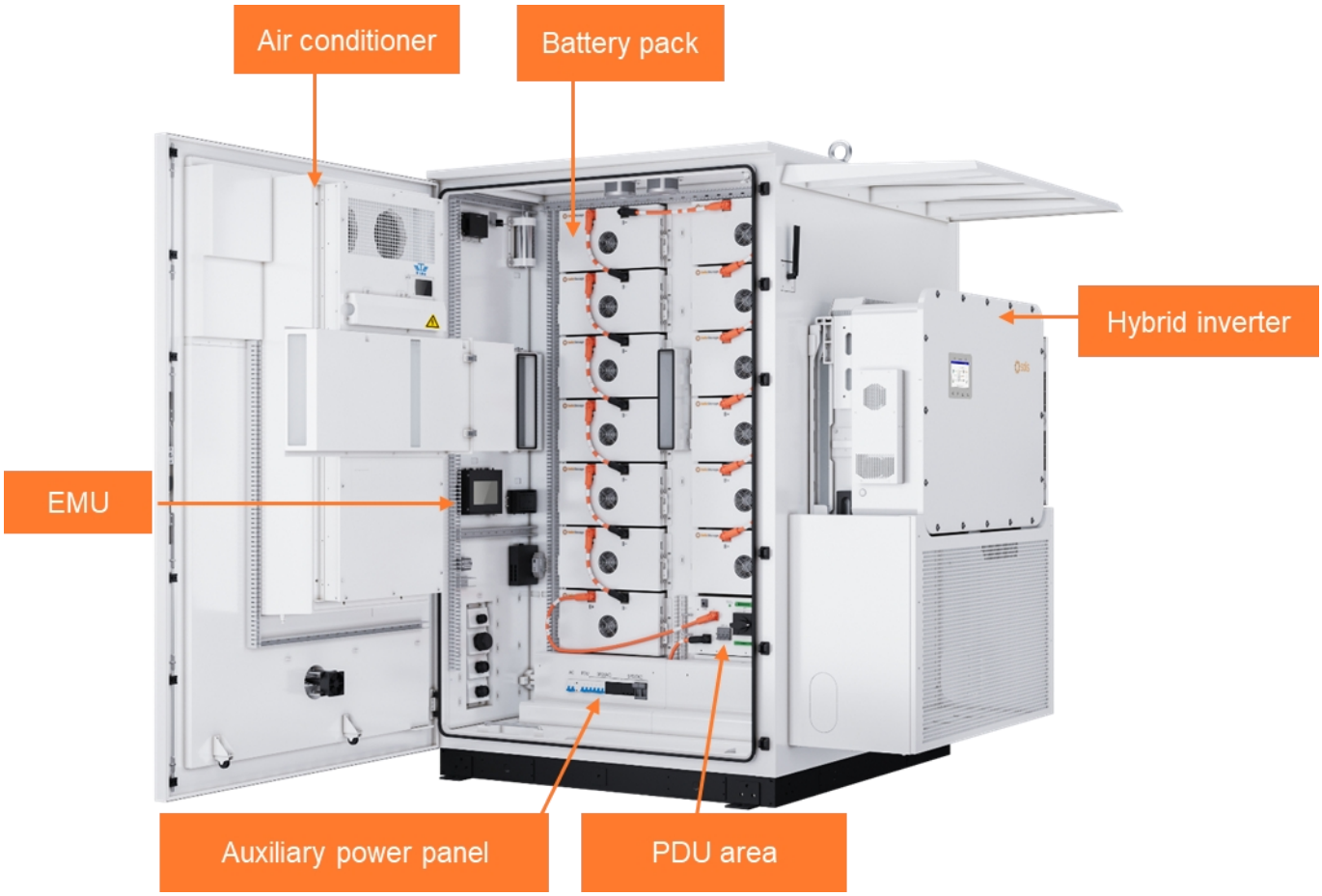


Figure 3- 2 Main components

Table 3- 1 System Configuration

Component	Amount	Remark
Pack	13	Including BMU
EMU	1	Energy Management Unit
Air-conditioner	1	Thermal management system
PDU Area	1	Power distribution unit
Auxiliary power panel	1	LV side device power supply switch
Hybrid inverter	1	Power convert system

Table 3- 2 Product parameter

NO	Item		Specification
1	Pack number		13
2	Nominal Energy		261.248kWh
3	Nominal voltage		832Vd.c.
4	Range of voltage		754~936Vd.c.
5	Ma Charging power		125kW
6	Max Discharging power		125kW
7	Auxiliary power supply	Voltage	220Vac;
		Power	~4kW
8	Operating ambient temperature	Charging	0℃~+55℃
		Discharging	-25℃~+55℃
9	Ambient requirement	Storage temperature	-20℃~+45℃
		Transportation temperature	-30℃~+55℃
		Operating Height	≤4,000m,derating is required when the altitude is above 2000m
10	General	Dimension	1400(W)*1600(D)*2230(H) mm (not including the size of the hybrid inverter)
		Weight	2900 kg
		IP	IP55(cabinet) IP66(inverter)
		Cooling method	Industrial-grade air-conditioning (Cabinet) fan-cooling (Pack) Intelligent fan-cooling (Inverter)
		Communication protocol	TCP/IP, CAN,RS485
		Refrigerating fluid	R134a

11	Compliance standard	System	UN38.3
			IEC 62619
			IEC 63056
			IEC 62477-1
			IEC 61000-6-2/IEC 61000-6-4
			UN3480

*More detailed parameters about hybrid inverter , you can refer to the document on Solis's official website

Battery pack

Series	**Battery Pack (EverCore)**
Model	PACK-1P20S-314-01
Cell brand	EVE
Cell type	LFP 3.2V/314Ah
Cell model	MB31
Cell weight	5.6±0.2kg
Configuration mode	1P20S
Rated voltage	64V
Operating voltage range	58~72V
Charge and discharge rate	≤0.5C
Battery pack capacity	20.10kWh
Battery pack weight	138kg
Dimensions (W*H*D)	435*230*904mm
Cooling concept	Air cooling
Ingress protection	IP20
Storage temperature range	0℃~40℃
Transportation temperature range	-10℃~45℃
Balancing mode	Passive cell balancing
Communications port	CAN 2.0

3.1.3.Product Size (without inverter)

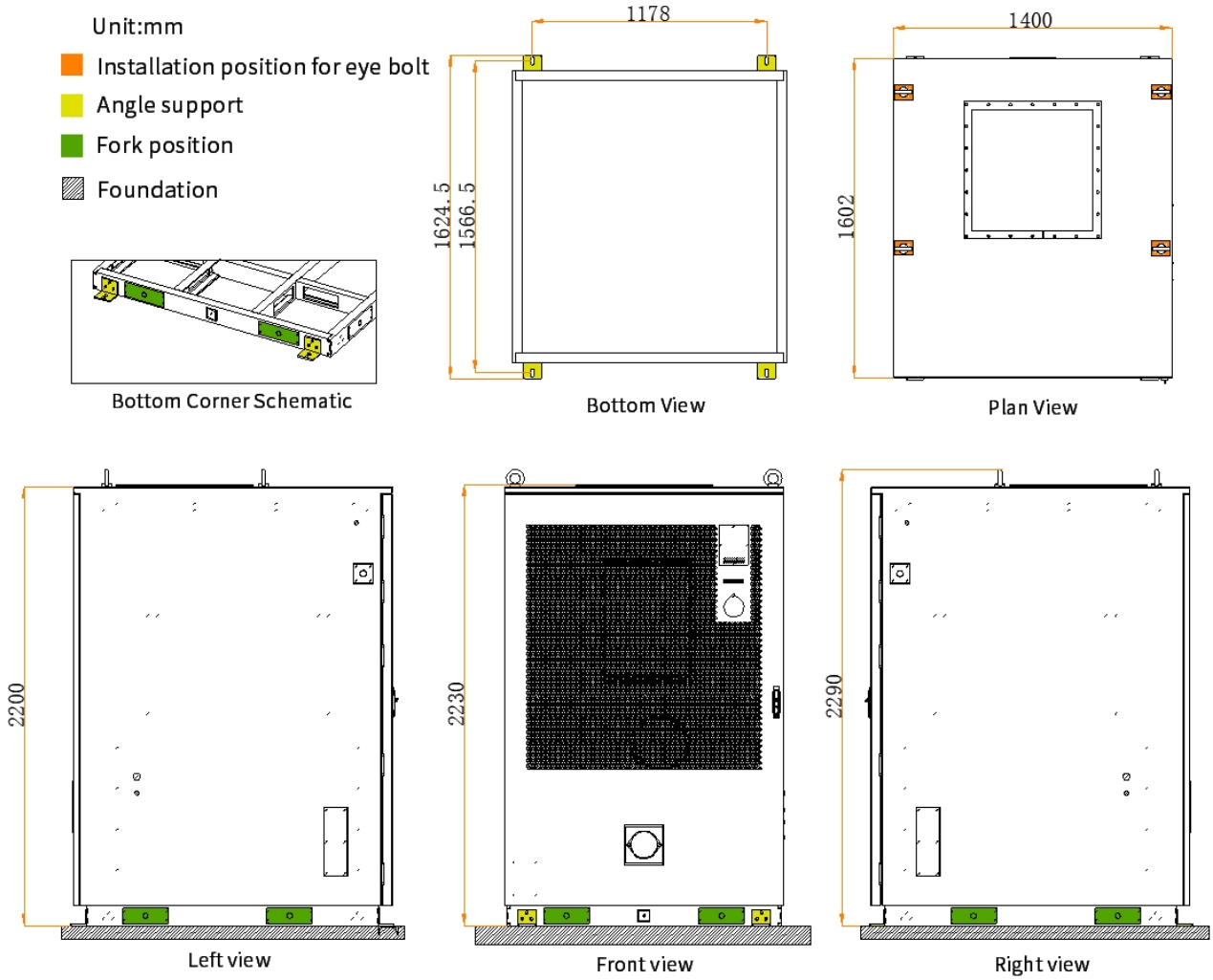


Figure 3-3 Appearance and dimension (without inverter)

3.1.4.Indicator Light Introduction

1. The "Run" indicator light is on (green): indicating the battery system is in charging/discharging mode;
2. The "Fault" indicator light is on (red): indicating a fault currently exists in the battery system;
3. The "Alarm" indicator light is on (yellow): indicating the battery system is in Alarm mode.

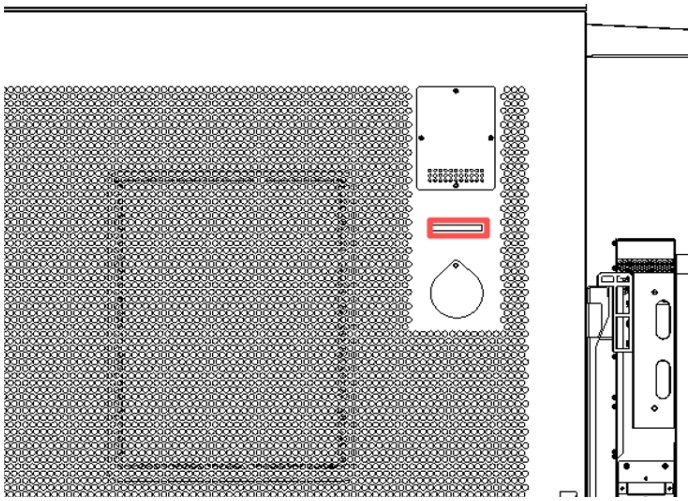


Figure 3- 4 System operation. Indicator

NOTICE

After confirming that the working power indicator light and the working status indicator light on the front panel are both normal, you can proceed with the subsequent operations. Otherwise, you need to first troubleshoot the problem.

3.2. System Power Supply and Distribution System

3.2.1.PDU Area

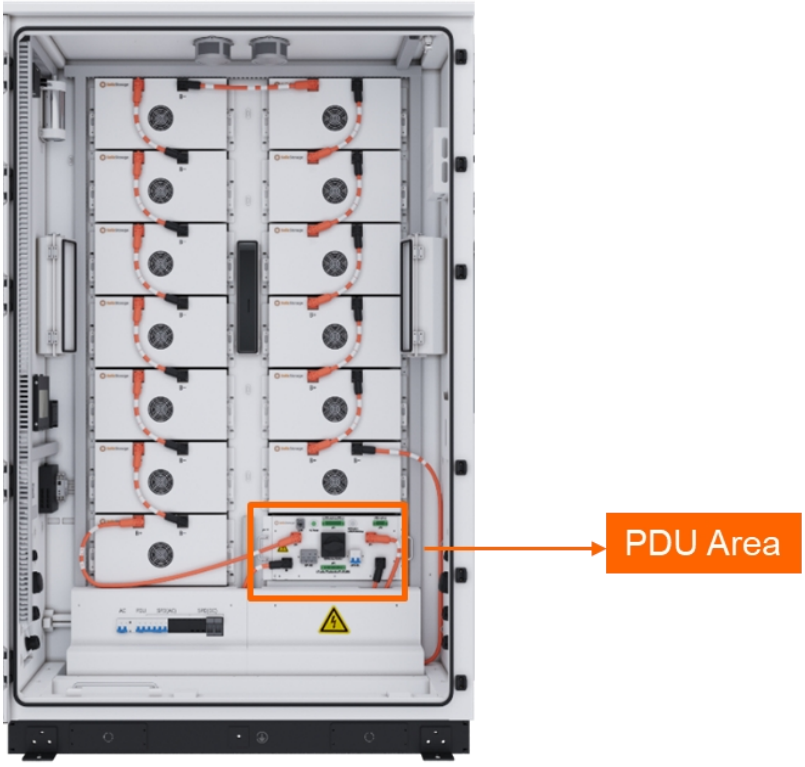


Figure 3- 5 PDU Area position

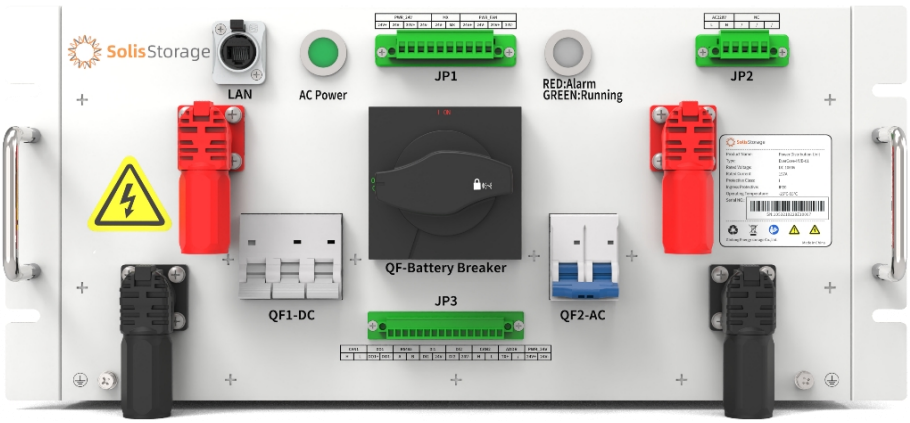


Figure 3- 6 PDU Area panel

No	Item	Description
1	AC power light	Indicate auxiliary AC power supply state –QF2-AC
2	Running status light	System running indicator Red: Alarm Green: Running normally
3	QF1-DC	The switch of auxiliary DC side
4	QF-Battery Breaker	The main switch of system circuit
5	QF2-AC	The switch of auxiliary AC side

3.2.2.Auxiliary Power Panel

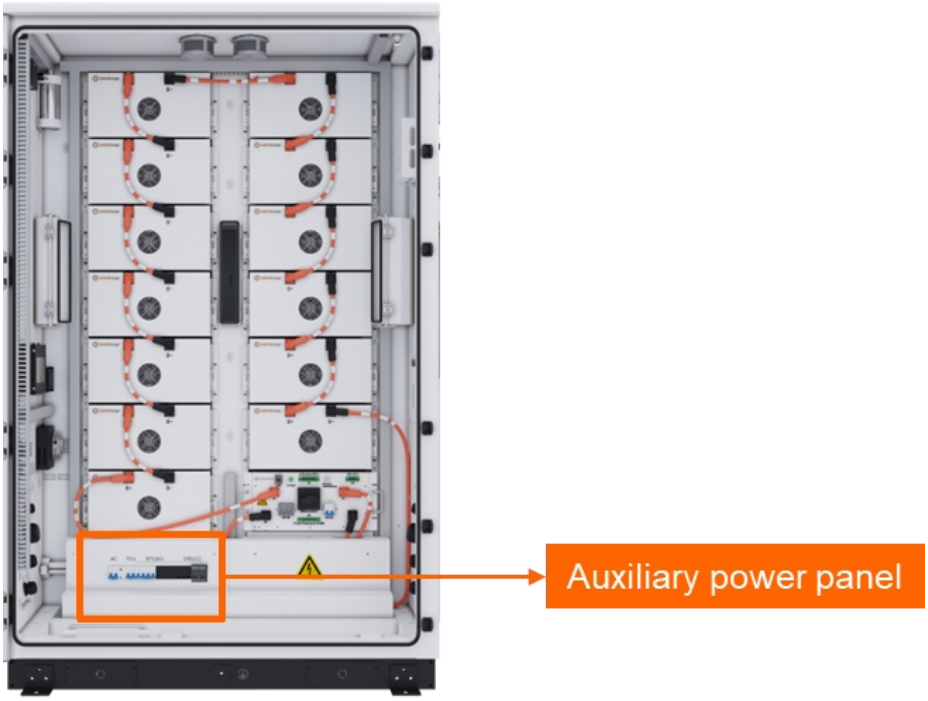


Figure 3-7 Aux power panel position

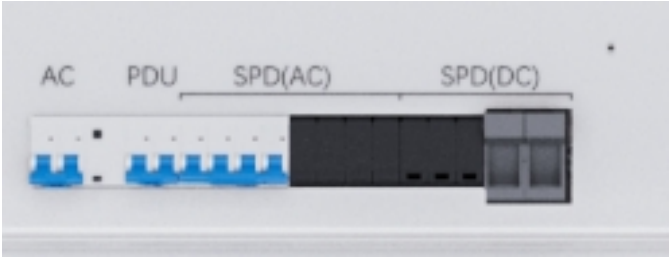


Figure 3-8 Aux power panel

The auxiliary power distribution system is used to provide auxiliary power for the entire control system and air conditioner.

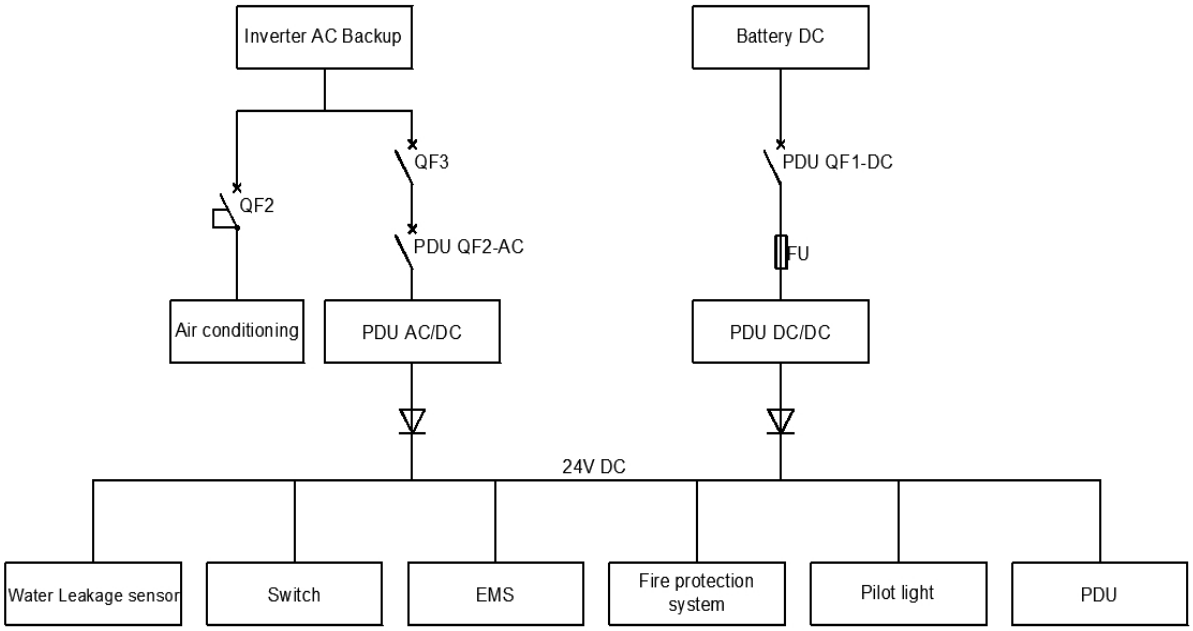


Figure 3-9 Distribution Box Diagram

The character of auxiliary power

The auxiliary power system consists of an AC auxiliary supply and a DC supply. The AC circuit power supply is taken from the Backup port of the hybrid inverter, used for air conditioner and the controller power supply. The DC power supply is taken from the inner side of the battery and is used for powering the control system.

3.3. Thermal Management System

Figure 3- 10 Thermal management system

The Thermal Management System (TMS) consists of an air conditioner, an air duct. It supply the intelligent temperature control of the battery system. The air-cooled management system provides intelligent temperature control management for the energy storage system, ensuring efficient operation of the energy storage system

1. Refrigerant type of air conditioner: R134a
2. Suitable for extreme ambient temperature applications:-40℃~ +55 ℃
3. Each battery cabinet is equipped with an air conditioner that provides 5 kW of cooling capacity
4. Fan-less design

Figure 3- 11 Figure Air conditioner appearance

Table 3- 3　Air-conditioner parameter

Parameter	Specification
Ambient temperature	-40℃～50°C
Power supply	1/PE AC 230V（50Hz/60Hz）
Rated Power (Cooling/Heating)	2.4 / 3.3 kW(50Hz) 2.9 / 3.4 kW (60Hz)
Maximum operating current	17.6A
Anti-corrosion	C4
Appearance color	RAL9003
Net weight	105 Kg
Rated cooling /heating capacity	5 kW (cooling) 3 kW (heating)
Noise level	75dB(A)
Operating mode	Cooling, heating, dehumidification, air supply

3.4. Fire Detection and Alarm System

The detection and alarm system consists of below detectors: smoke sensor, temperature sensor and flammable gas detector (optional configuration), Humidity sensor, water immense sensor and Alarm device, their installation locations are as follows.

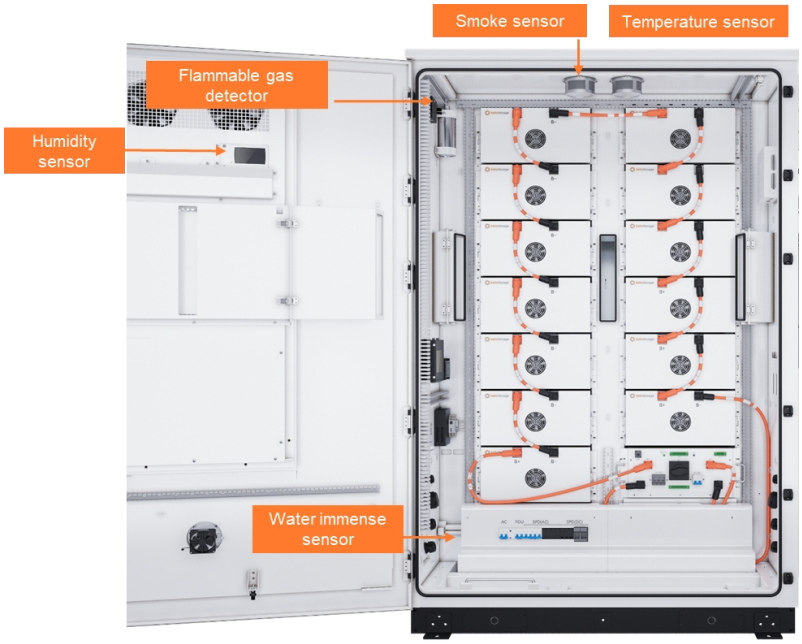


Figure 3- 12 Figure 3-5 Fire Detection System

Table 3- 4 Fire detection system

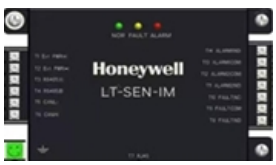
Device	Appearance	Alarm or triggering conditions
Smoke sensor		≥0.15 dB/m (optical signal attenuation)
Temperature sensor		≥ 65 ℃
Flammable gas detector		10% LFL (LFL：lower flammable limit, %VOL)

Figure 3- 13 Audible and visual alarm

3.5. Fire Extinguishing System

(1) Aerosol fire extinguishing system

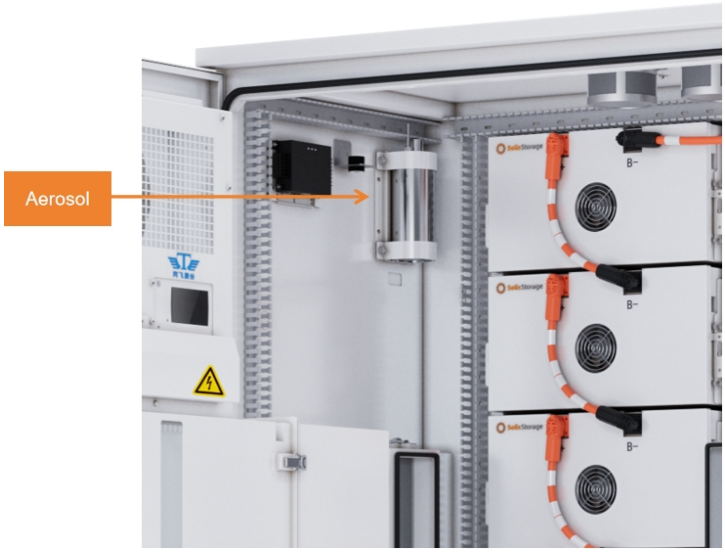


Figure 3- 14 Aerosol device layout

The aerosol is installed on the top of the cabinet. The aerosol is equipped with a temperature-starting detection line. The starting temperature of the detection line is approximately 170℃ ±5℃.

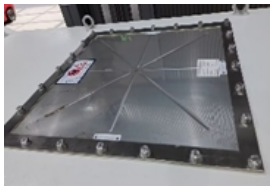
3.6. Explosion and Pressure Relief System

The explosion and pressure relief system consists of pressure relief valve and Explosion relief panel (optional), and the installation position is as follows.

Figure 3- 15 Explosion relief panel and valve position

Figure 3- 16 Relief Valve on the cabinet door

Table 3- 5 Explosion relief system

Devices	Appearance	Alarm or triggering conditions
Explosion relief panel		10kPa (The pressure difference) (under ambient temperature 20℃, the pressure difference between the inside and outside of the cabinet is ≥ 10kPa)
Explosion relief valve		4±1.5kPa（The pressure difference between the inside and outside of the cabinet is ≥ 4±1.5kPa ）

3.7. Water Injection System

Figure 3- 17 Water injection port

1. A DN65 water hydrant is reserved on the rear side of the cabinet, and a corresponding DN65 fire hydrant quick connector is also selected. Before use, the acrylic cover plate should be removed first. There are two usage schemes for this water inlet port:

(1) When configuring the DN65 fire hydrant quick connector, the DN65 quick-connect fire hose can be directly connected.

(2) When there is no DN65 fire hydrant quick connector (or when it is removed), the pre-action pipe network can be connected to this DN65 water pipe connector. (If this method is adopted, periodic inspections shall be performed.)

3.8. Fire Suppression Component

The main components are listed in the table below

Table 3-6 Main components of the FSS system

NO.	Item	component name	amount	Remark
1	Detection and alarm component	Flammable gas detector （Li-ion Tamer sensor）	1	**Optional configuration**
2		Temperature detector	1	Standard configuration
3		Smoke detector	1	Standard configuration
4		Audible and Visual Alarm	1	Standard configuration
5	Explosion relief and pressure release system	Pressure relief valve	1	Standard configuration
6		Explosion proof intake valve	1	**Optional configuration**
7		Explosion proof exhaust valve	1	**Optional configuration**
8		Explosion relief Panel	1	**Optional configuration**
9	Gas fire-extinguishing system	Temperature-starting and electric-starting aerosol	1	Standard configuration
10	Fire Water inlet system	DN65 external thread external pipe connector	1	Standard configuration

3.9. Emergency Plan

(1) Post-Incident Actions

Once the fire has been extinguished or the system has stabilized, professional personnel must carry out the following cleaning and assessment procedures:

- Electrolyte Leakage Cleanup:

Safety Protection: Damaged batteries may leak electrolyte, which is corrosive and toxic. Operators must wear chemical protective suits, acid-resistant gloves, and respirators.

Absorption& Disposal: Cover the leaked liquid with sand, dry earth, or specialized chemical absorbent pads. Do not use water to flush the electrolyte directly.

Waste Disposal: The collected residue is classified as hazardous chemical waste and must be stored in sealed containers and disposed of by a qualified hazardous waste treatment agency.

- Cleaning Fire Suppression Residues:

Water Removal: If the water injection system (via DN65 connector) was used, drain the accumulated water through the cabinet's bottom drain valves or holes. As the firewater may contain chemical pollutants, it should be collected and treated rather than discharged directly into public storm drains.

Aerosol Cleanup: Aerosol discharge leaves fine powder on equipment surfaces. After confirming the power is safely disconnected, use industrial vacuum cleaners or dry cloths to remove the powder to prevent long-term corrosion or moisture absorption by electronic components.

(2) Product Contact Instructions in Emergencies

During an emergency (e.g., thermal runaway, fire alarm, or leakage), contact with the product must strictly follow these rules:

- Prohibited Access: Unauthorized personnel are strictly forbidden from approaching or attempting to open the cabinet doors during a fire or alarm event. Opening the doors may allow oxygen to enter, causing re-ignition or the loss of fire-extinguishing agents (aerosol).
- Safety Radius: During a thermal runaway risk, personnel should maintain a safety radius of at least 10 meters.
- Emergency Connection: Only firefighters wearing full protective gear are permitted to contact and operate the external DN65 fire water inlet.

■ Post-Shutdown Safety: Even after the system has initiated an emergency shutdown and cut off high-voltage power, residual voltage may still exist within the battery strings. Do not touch any internal conductive parts or damaged battery modules until professional personnel verify that the voltage has dropped to a safe level.

3.10. System Load Requirements

The 125kW hybrid inverter backup port supports overload capacity： 1.4 times 10s or 1.6 times 200ms.

For other models in the 125K series, you can refer to the specific datasheet to confirm the overload capacity.

Meanwhile, due to different load characteristics, the Backup port of the hybrid inverter has different load capacities and requirements, as described below.

(1) Resistive and RCD loads: When connecting single-phase resistive loads, it should not exceed 100% of the single-phase power; when connecting RCD loads, it should not exceed 60% of the rated power of the hybrid inverter.

(2) Motor-based loads: For direct motor loads, the starting impact power should not exceed 1.1 times the rated power of the hybrid inverter. For motor loads using frequency converters or soft-start types, the power should not exceed 60% of the rated power of the hybrid inverter.

(3) RLC load: The total load capacity shall not exceed the rated power of the hybrid inverter. The peak current during load switching (peak inrush current) shall not exceed twice the rated current of the hybrid inverter, and the minimum power factor shall not be less than 0.8.

(4) If a hybrid inverter is used for loading, apart from the RLC load, the motor load and the RCD load need to be proportionally reduced.

(5) Isolation transformer: The isolation transformer that comes with the hybrid inverter must be started simultaneously with the hybrid inverter. It is not allowed to start the hybrid inverter first and then put the isolation transformer into operation. Moreover, the inrush current at the moment of transformer start-up should not exceed twice the rated current, and the inrush power should not exceed 1.1 times the rated power of the hybrid inverter. Otherwise, a soft starter needs to be added to the transformer.

(6) The peak current at the moment of load switching (base current + inrush current) does not exceed 1.1 times the rated current of the hybrid inverter.

4. Transportation and Storage Requirements

4.1. Transportation Requirements

The equipment can be transported by sea freight or by land. During the loading and unloading process, handle with care to prevent throwing, rolling and excessive pressure; during transportation, avoid external mechanical impacts.

➢The transportation plan for bulk goods must be evaluated in advance;

➢The speed of vehicles (trucks) must not exceed 100 kilometers per hour and must comply with local laws;

➢During driving, do not make sudden braking or sharp turns;

➢Ensure the vehicles are in good condition and regularly check their status during transportation to promptly identify and resolve problems;

Based on the characteristics of the battery, in order to maximize the performance of the battery, the transportation and storage should meet the following requirements:

⚠CAUTION
1. To reduce the impact of condensation water during transportation on the products, desiccants are installed in each box of the products. Please remove them during operation. 2. The desiccants should not be left in the powered equipment for a long time. If they are not removed in time, they will cause damage to the equipment and may even lead to short circuits or even explosions in the electrical equipment.

➢ Allowed transportation temperature: -30~ + 55 ℃

➢ Humidity: ≤ 85% (no condensation).

➢ Take appropriate protective measures to keep the SOC level at around 50%, and ensure no short circuit occurs, or prevent liquids from entering the EverCore or being immersed in liquids (such as water, oil, etc.).

4.2. Storage Requirements

EverCore should be stored in a location free of harmful gasses, flammable and explosive products, and corrosive chemicals. It should be kept away from mechanical shocks, heavy pressure, and strong magnetic fields, and also far from heat sources.

The battery system must operate within the optimal working temperature range to extend the battery's service life and enhance its safety performance.

Please check the manufacturing date on the battery cabinet nameplate. If the manufacturing date exceeds 6 months, the battery needs to be recharged, and please contact the local technical personnel for support.

5. Site Requirements

5.1. Site Selection Requirements

5.1.1. Basics Requirements

The EverCore system is suitable for general outdoor scenarios. According to local laws and regulations, the site selection requirements are as follows:

1. The installation location should not be in low-lying areas, and the site level should be higher than the historical highest water level in that area.
2. The soil conditions should be good, and the ground should be solid. There should be no poor geological conditions such as rubber soil or soft soil layers. Avoid ground that is prone to water accumulation and subsidence.
3. The equipment should be installed in a well-ventilated area.
4. Stay away from strong vibrations, noise sources, and electromagnetic interference areas. Try to avoid existing underground facilities.
5. Stay away from places that produce dust, smoke, and harmful gasses, and from places that produce or store corrosive, flammable, and explosive substances. The distance from airports, landfill sites, riverbanks, coasts, or dams should not be less than 2000 meters.
6. Select an open location and ensure there are no obstacles from surrounding areas.
7. Maintain a distance of at least 50 meters from residential areas to avoid noise pollution.

5.1.2. System Anti-Vibration Protection Requirements

In EverCore, batteries are connected in series, and the management system and various sensing devices are installed. The whole battery system must be installed firmly and reliably without loosening or shaking. Collision avoidance devices of sufficient strength must be installed at the periphery of the battery system installation space to ensure that no safety incidents (e.g. direct short circuit, overheating and combustion) will be caused by general collisions and will not directly damage the battery system and battery.

5.1.3.Ventilation and Heat Dissipation Requirements

EverCore generates a large amount of heat during operation. Excessive equipment temperature will directly affect its electrical performance and even damage the equipment. Therefore, when designing the placement space for EverCore, it is necessary to fully consider the dissipation of these heats to ensure the normal and efficient operation of the equipment. To meet the ventilation requirements of EverCore, its installation environment must at least meet the following requirements:

1. Avoid installing it in a closed space or a place with poor ventilation. Greater ventilation volume can be obtained through construction measures such as adding air supply grilles or fans.

2. The air inlet should have an adequate supply of fresh air. It is necessary to prevent air short circuit (hot air from the air outlet being sucked in from the air inlet).

5.2. Clearance Requirements

For single system installation，the site should meet requirement as below figure 5-1:

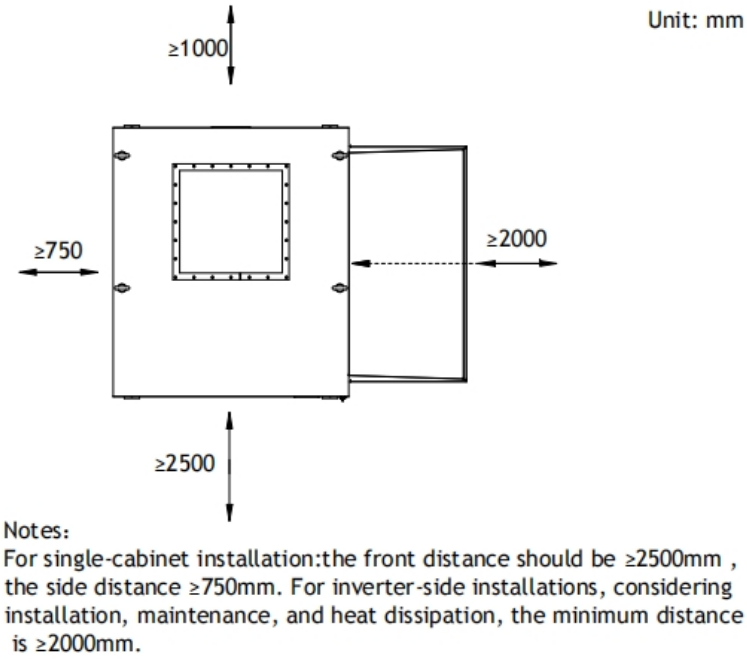


Figure 5- 1 Single system clearance

For multiple system in one site, you can refer to the below figure 5-2

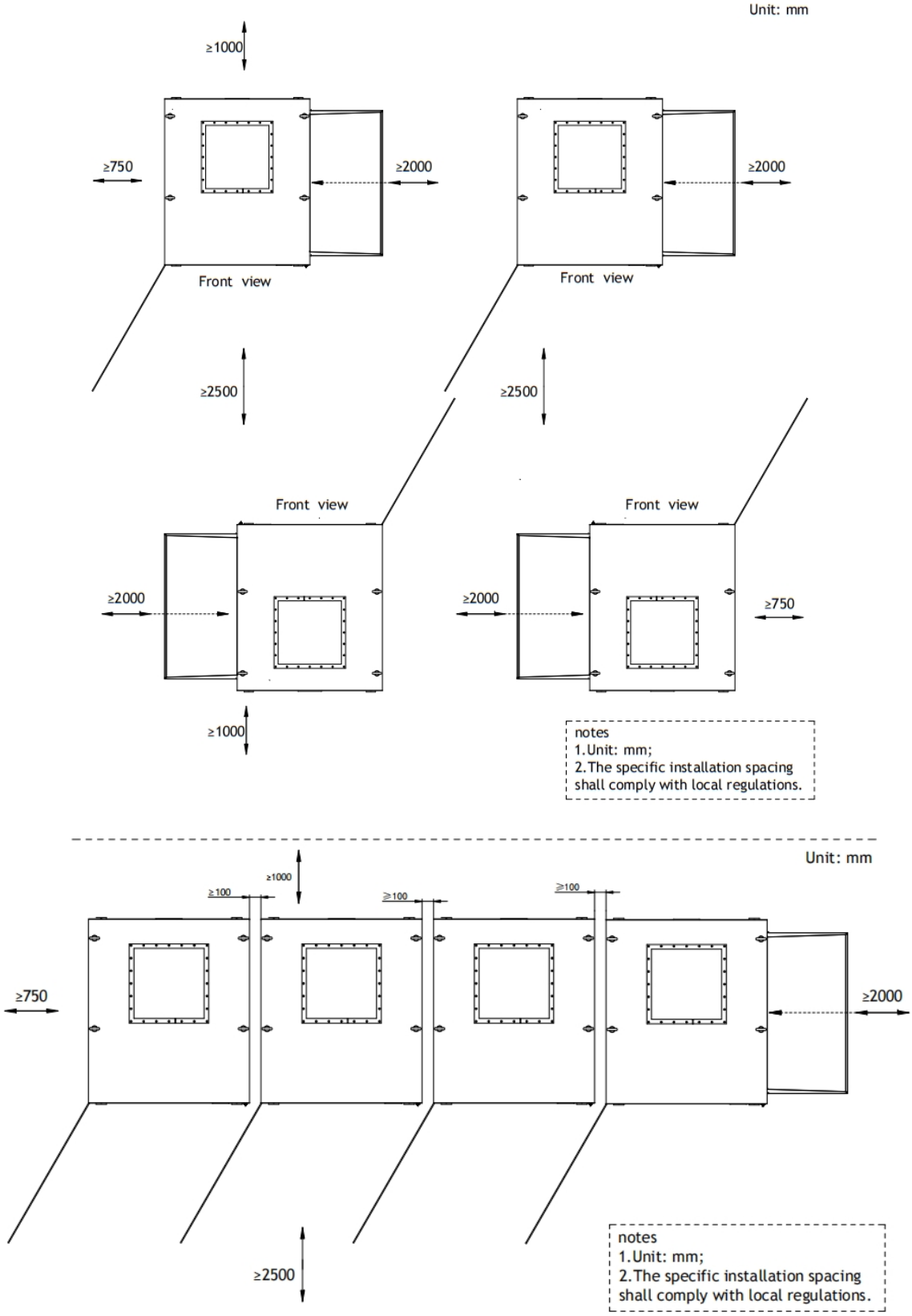


Figure 5- 2 Multiple system layout clearance requirement

1. The minimum distance between back-to-back units is 500mm.

2. The recommended distance when facing each other should be ≥ 2500mm (between air conditioners).

3. The minimum gap between the back of the cabinet and the wall is 1000mm.

4. The recommended minimum distance between the front of the cabinet and the wall is 2500mm (between the wall and the cabinet door).

5. The minimum distance between the cabinet rears is suggested to be 500mm.

⚠CAUTION
The above minimum interval parameters are for reference only. The specific requirements and standards should be in accordance with those of the local fire department.

⚠WARNING
It is essential to ensure the unobstructed flow of air through the intake and exhaust ports; otherwise, it will seriously affect the operation of the equipment.

5.3. Foundation Requirements

The ESS must be installed on concrete or other non-combustible surfaces. Ensure that the installation surface is horizontal, secure, flat, and has sufficient load-bearing capacity. Subsidence or slope is not allowed.

● the foundation shall sustain the total weight of the equipment. If the loadbearing capacity of the foundation does not meet the requirement, a review is required.

● the bottom of the excavated foundation must be compacted and flat.

● after the foundation is excavated, prevent water from entering the foundation. If water enters the foundation, excavate and refill the affected parts.

● the level tolerance between the foundation and the contact surface of the cabinet must be less than or equal to 3 mm.

● the foundation must be above the highest water level of the local area in history and at least 300 mm above the ground.

● Construct drainage facilities based on the local geological conditions and municipal drainage

requirements to ensure that no water will accumulate at the equipment foundation. The foundation construction must meet the local drainage requirements for the maximum historical rainfall. The drained water must be disposed of in accordance with local laws and regulations.

● Reserve trenches or cable inlets for the ESS during foundation construction.

● The reserved holes on the foundation and the cable inlets at the bottom of the equipment shall be sealed.

● the foundation drawings shall not be used as the final construction drawings and are for reference only. For details, contact the product manager of the company to obtain the foundation drawings. The design specifications of the ESS foundation shall be reviewed based on the installation environment, ground bearing capacity, geological features, and seismic resistant requirements of the project site

EverCore system can support both concrete foundation installation and flat ground installation.

Before installing EverCore, please construct the foundation and ditches on the selected ground. The construction requirements for the foundation are as follows:

1. The size of the foundation should meet the installation and bearing capacity requirements of EverCore, as shown in Table 5-1.

Table 5- 1 Foundation Requirements

Type of ground	**Requirement**	**Remark**
Concrete foundation	The ground needs to be able to bear a load of 1.5*n (where n represents the number of parallel machines) tons. Floor Loading Requirement: 7.5 Tons per Square Meter	The ground should meet the following requirements: ◆ Horizontal deviation≤ ±10 millimeters ◆ Plane degree deviation≤ ±4 millimeters per 2 meters
Flat and Level Ground		

5.3.1.Concrete Foundation Requirements

(For a single machine), the concrete foundation should meet the requirements in below figure 5-3.

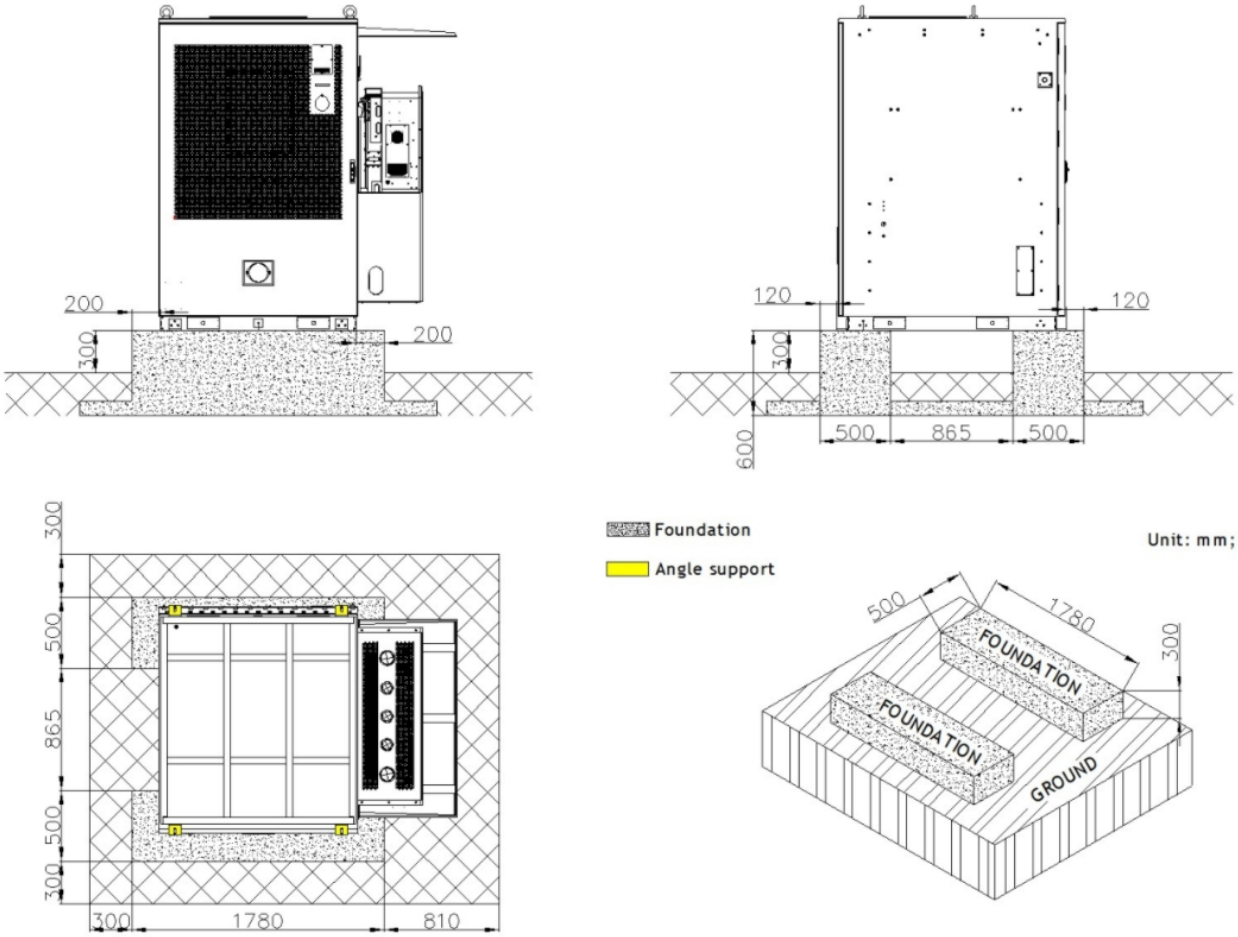


Figure 5-3 Foundation Requirement

5.4. Forklift Requirements

5.4.1.Safety Measures Requirements

1) Remove the sealing plates at the bottom of the front and back of the cabinet to ensure that the bottom of the front and back of the cabinet is unobstructed.

2) Before the forklift's fork arm extends into the bottom of the cabinet, ensure that the height of the fork arm is lower than the bottom of the cabinet, with a gap of no less than 5 centimeters, to avoid colliding with the cabinet. The fork arm slowly penetrates into the bottom of the cabinet to ensure the stability of the product and the forklift during operation.

3) When the fork arm is fully extended and in place, ensure the product is stable. Lift the product

carefully and keep the lifting process at a constant speed to avoid sudden lifting or shaking.

4) During the transfer process, avoid pedestrians or obstacles in advance, keep the forklift at a low and constant speed, pay attention to the surrounding environment, and slow down when turning to prevent the goods from toppling over and falling.

5) After reaching the destination, descend slowly to ensure the goods are safely and smoothly delivered.

5.4.2.Forklift Equipment Requirements

Pallet transverse spacing: 524.5–924.5 mm; Pallet longitudinal spacing: 580 mm–980 mm; When transporting unopened pallets with a forklift, please insert the forks from the side of the box where the center of gravity label is printed.

1) Recommended load capacity: ≥3.5T;

Figure 5- 4 Forklift requirement

2) Vertical insertion: Recommended length of fork arm ≥1.7m

Horizontal insertion: Recommended length of fork arm ≥1.5m

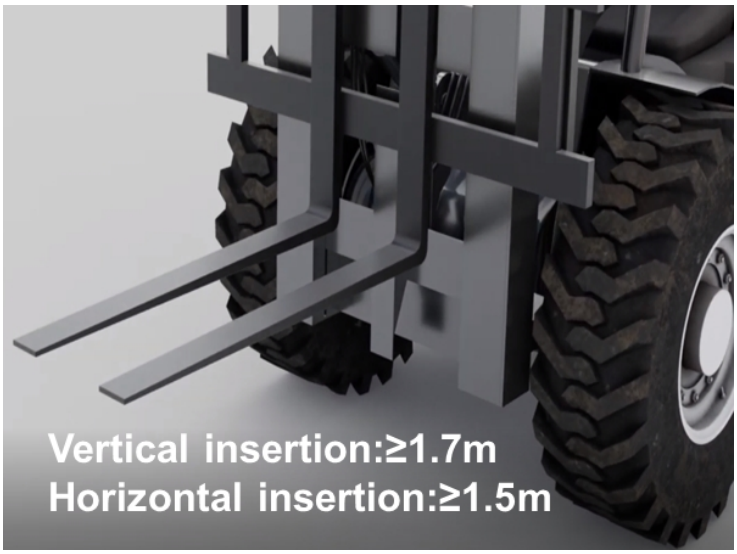


Figure 5- 5 Forklift requirement

3) Vertical insertion: distance between the two fork arms (excluding the width of the fork arms) should =630mm (excluding the width of the fork arms)

Horizontal insertion: distance between the two fork arms (excluding the width of the fork arms) should =574.5mm (excluding the width of the fork arms)

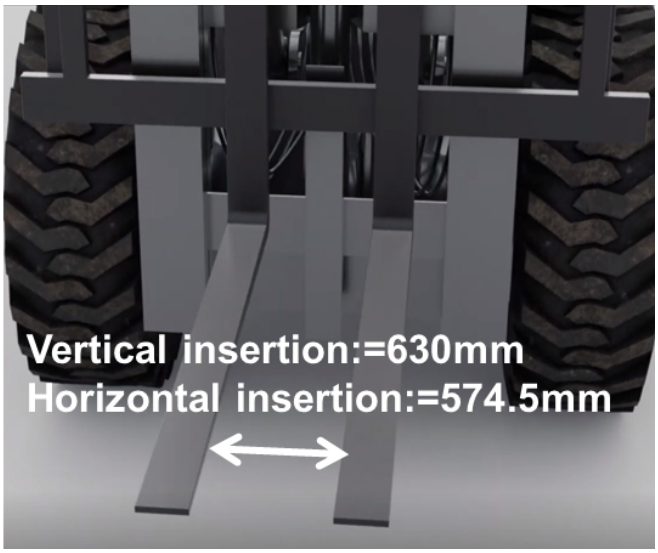


Figure 5- 6 Forklift requirement

5.5. Hoisting Requirements

5.5.1.Safety Measures Requirements

⚠WARNING
To prevent personal injury or equipment damage, safety measures must be followed.

1. Strengthen on-site construction management. Set up a warning zone at the lifting site and assign full-time safety personnel to supervise and warn. Non-operational personnel are strictly prohibited from entering.

2. Carefully complete the preparatory work before lifting. Prepare mechanical equipment and heavy lifting rigging according to the plan requirements. Strictly follow the performance inspection of lifting equipment, inspection of lifting rigging, pre-lifting detection and lifting procedures to ensure the safety and reliability of the lifting operation.

3. Before all personnel involved in the construction work arrive, conduct detailed technical briefings to make them understand the essentials, procedures and requirements of the operation. After the crane enters the site, the crane driver will introduce the lifting plan in detail and clearly define the unified command signals.

4. The operation position of the crane and the walking route should be carried out according to the plan requirements. The legs' pads must be safe and reliable. Use special roadbed box layers under the legs to expand the unit force surface. The lifting operation of the crane should be smooth, with slow movements. Pay close attention to the settlement of the crane legs during the lifting operation.

5. The communication between the on-site commander and the crane driver should be timely and reliable. The command signals, flags and gestures should be clear. If any abnormal situation is found, report it to the overall commander of the lifting site promptly to take effective measures as soon as possible.

6. When the wind force is 5 or above, lifting is strictly prohibited in thunderstorms, foggy weather.

7. Construction personnel entering the lifting operation site must strictly abide by the on-site safety regulations and wear labor protection clothing and safety helmets as required.

8. The lifting operation should be under unified command. Operators should hold their own opinions, closely cooperate, and complete the lifting operation safely and smoothly.

NOTICE
The lifting equipment is provided by the client.
CAUTION
During the lifting process, the center of gravity of EverCore must remain stable.

5.5.2.Hoisting Equipment Requirements

4 hoisting hooks are prepared in accessory package, for customers, they need prepare the hoisting rope,

The rope requirement:

- Load bearing capacity: 3T

(1) Based on the on-site conditions and the performance of the mechanical equipment, select high-performance lifting equipment, rigging, and shackles for calculation and selection; ensure that the crane and the steel wire rope meet the load-bearing requirements.

(2) Before entering the site, all types of slings, including slings and shackles, should be inspected to ensure they are in good condition. Before the formal lifting operation, the specifications and quality should be reconfirmed to meet the requirements of this lifting operation.

(3) The hoisting points are located at the top of the four terminal corners of EverCore.

(4) When installing or dismantling the lifting device, do not drag EverCore. Otherwise, EverCore may be damaged.

Table 5-2 Lifting parameter requirements

Equipment Lifting load-bearing requirements	Length of cable	Number of cables	Acceleration
＞3.5T	＞1m	4	≤0.2g

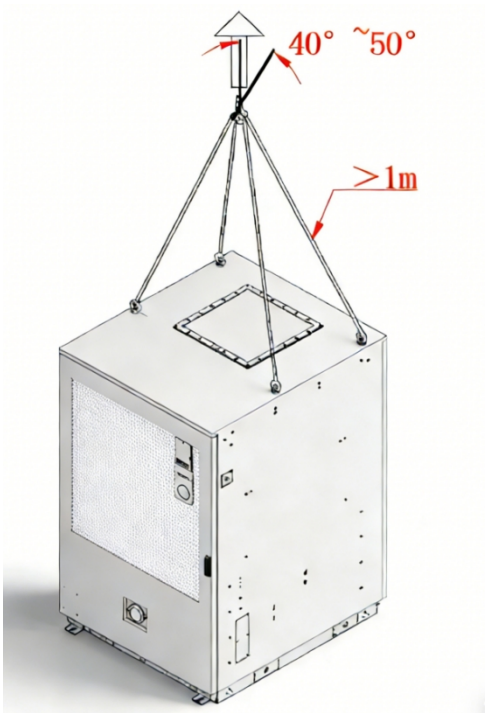


Figure 5- 7 Lifting Installation requirement

Precautions for Lifting Operations

Table 5- 3 Lifting operation

Lifting process	Precautionary measures
Before lifting	The lifting capacity and working radius of the crane meet the requirements. If the on-site working conditions do not meet the requirements, a professional assessment should be sought.
	EverCore for outdoor use, we recommend that you operate the EverCore in clear, windless and rain-free weather conditions.
	EverCore can be lifted using slings with hooks or U-hooks.
	The hook size must match the hole diameter (D=24mm)
	Each hook should have a working load limit (WLL) of at least 1.8 metric tons.
	Before hoisting, ensure that the crane and the steel wire rope meet the requirements.
	Make sure that all the doors of EverCore have been closed and locked.

In the lifting process	Unauthorized personnel are not allowed to enter the lifting area. Do not stand under the crane arm.
	Ensure that the crane is in the correct position. Do not perform long-distance lifting.
	Maintain the stability of EverCore. The diagonal inclination of EverCore should be less than or equal to 5°.
	Lift gently. The cabinet should fall slowly and steadily when dropping to avoid impact on the internal equipment.
	When EverCore comes into contact with the base, the steel cable should be removed after the base is evenly stressed.
	EverCore can only be lifted after it is securely fixed.

6. Unpacking and Accessory Inspection

6.1. Unpacking

Before unpacking the equipment, check the outer packing for damage, such as holes and cracks, and check the equipment model. If any damage is found or the equipment model is not what you requested, do not unpack the product and contact your dealer as soon as possible

Unpacking steps

6.1.1.Steps of Product Outer Packaging

The unpacking steps are as follows:

1. Remove the wrapping film outside the cardboard
2. Remove the top cover of the carton.
3. Remove the white clips from the cabinet.
4. Remove the cardboard enclosure frame.
5. Remove the honeycomb panels from the four sides and the top.
6. Remove the bottom honeycomb panel.
7. Take off the PE bag.

Unpacking is complete.

6.2. Accessory and cable Inspection

6.2.1.Inspection of Pre–installed Cables

EverCore has pre-installed important cables inside the cabinet, so that customers on site just need to install these cables another terminal to hybrid inverter, the storage position of the cables inside the cabinet is indicated by the arrows in the figure below.

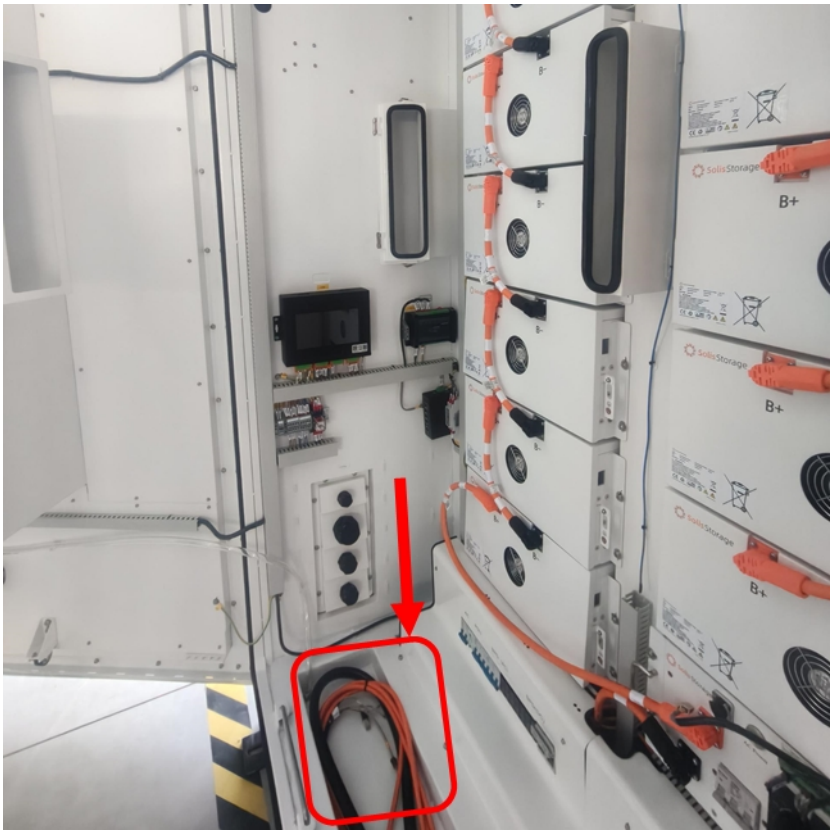


Figure 6- 1 Pre-installed cables inside cabinet

Table 6- 1 Pre-installed cables

Name	Figure	Amount	Usage
Battery DC cables		4 pcs	For inverter battery port connection, they should be connected to inverter battery port
Auxiliary power cable		1 pcs (5 core cable)	Used as auxiliary power cable, they should be connected to inverter backup port

Communication cable		CAN cable (1pcs),	For BMS communication, it should be connected to BMS1 port
		Ethernet cable(1pcs),	For inverter datalogger connection
		EPO Cable (2 pcs)	For EPO function with inverter, it should be connected to EPO terminal on inverter COM1 port

6.2.2.Inspection of Accessories Supplied with Cabinet

Check that the deliverable contents are intact and complete, and free from any damage. If any items listed in the Packing List is missing or damaged, contact your dealer or call SolisStorage service.

Figure 6- 2 Accessory in cabinet

Table 6- 2

NO	Item	Qty	Usage	Remark
1	Base Forklift Access Panel	8	For forklift entry sealing of cabinet bottom 8 position	
2	Lifting Eye Bolt (M24)	4	For cabinet hoisting usage	
3	Torx Screwdriver	1	For rear door disassembly	Spare tool
4	Air Conditioning Water Pipe(1.5m)	1	This pipe is designed to link the drain port of the air conditioner to the customer's on-site drainage outlet.	
5	Slit Corrugated Tube(1.5m)	1	For DC cable protection during battery parallel operation	For parallel
6	Nylon Cable Tie (20mm)	10	For fixing the wiring harness	
7	SMA Male to SMA Female RF Cable	1	For 4G router connection with outside antenna	
8	Inverter Grounding Cable	1	For Inverter ground cable connection with cabinet	
9	SC Type terminal	4	For parallel operation, battery cable terminal crimping on site	For parallel
10	Pin Type Terminal	5	For parallel operation, crimp the L1, L2, L3, L4, and N cores of the secondary cabinet's auxiliary power cable to 4 terminals, with 1 terminal reserved later use.	
11	OT Type Terminal	4	For parallel operation, crimp the PE cores of the secondary cabinet's auxiliary power cable to 1 terminal, with 4 terminal reserved later use	

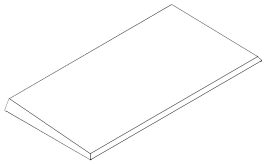
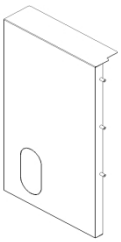
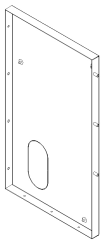
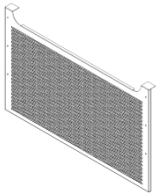
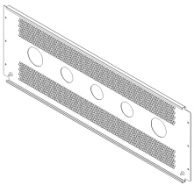
12	Flame-retardant Cloth Tape (Black) 25m	1	For parallel operation, thread the BAT wiring harness through the corrugated tube, then wrap both ends of the tube with cloth tape	
13	Cross Recessed Countersunk Head Screw (M4*8)	2	For LED light fixation	Spare parts
14	Cross Recessed Countersunk Head Screw (M4*20)	2	For temperature sensor, smoke sensor fixation	
15	Cross Recessed Hexagon Head Combination Screw (M4*16)	2	For audible and visual alarm fixation	
16	Cross Recessed Hexagon Head Combination Screw (M6 *20)	2	For pack fixation	
17	Cross Recessed Hexagon Head Combination Screw (M6*12)	2	For PDU PE bar fixation	
18	Cross Recessed Hexagon Head Combination Screw (M8*16)	2	For insulating column fixation	
19	Cross Recessed Hexagon Head Combination Screw (M8*25)	2	For bus bar fixation	
20	Flange Nut (M8)	2	For bus bar fixation	
21	Cross Recessed Hexagon Head Combination Screw	2	For wiring protective baffle fixation	
22	SC Type Terminal	4	For hybrid inverter battery cable connection usage	

23	304 Stainless Steel Padlock	1	For inverter anti-theft	
24	Expansion Bolt	6	For cabinet 4 base feet fixation, 2 reserved for later use	

6.2.3.Inspection of Accessory Kit

Please ensure that the following items are included in the accessory kit:

Table 6- 3 Accessory Package

Number	Name	Amount	Item
1	Sun shade	1	
2	Right side panel	1	
3	Left side panel	1	
4	front panel	1	
5	bottom panel	1	
6	M6*12/304 Steel	12	

7. Installation

⚠DANGER

Electric shock danger! Ignoring the following warnings may result in death or serious injury.

Make sure that no DC voltage is supplied to the equipment and there is no AC voltage on the AC lines; otherwise, it may cause serious injury or death. Provide warning labels to notify all personnel whose devices are not turned on. This label should be hung on the outside of the door and remain clearly visible. Make sure that the external AC side circuit breaker and DC circuit breaker are in the open position.

Do not touch the live parts of the device.

Do not place flammable materials near the equipment

⚠WARNING

The cables or copper bars provided by the user should meet the current-carrying capacity requirements.

It is necessary to comply with all country-specific standards and regulations

Hybrid inverter can only be connected to the public power grid after obtaining authorization from the local network operator

Only professional electricians can perform the operations described in this chapter

All wiring instructions must be followed

All input and output circuits are isolated from the housing

Make sure the electrical insulation meets the requirements before laying the cables

In accordance with EMC regulations, power lines and communication cables should be laid in layers

Provide support and protection for the cables when necessary to reduce their stress

Before wiring, please ensure that the equipment is turned off

Operators are strictly prohibited from operating without training

It is strictly prohibited for workers to work by hand without wearing protective equipment

The key points of connection are: ensuring that the connection is correct, reliable (without looseness), has good contact and no short circuit.

During the wiring process, the positive and negative poles of the DC combiner cabinet must not be reversed

Strictly prevent any form of short circuit during the connection process.

NOTICE

Moisture can damage equipment. For the normal operation of the equipment, please abide by the following rules

Do not open the equipment door when the relative humidity is higher than 95%

Do not maintain or repair the equipment in rainy or other bad weather

The installation and design of the equipment must comply with national and local standards and regulations

The wire dimensions and rated values are provided by the manufacturer in the corresponding table. If other cable sizes comply with local standards or regulations, they can also be used

The size of the grounding wire must be larger than half of the size of the AC or DC cable

7.1. Installation Preparation

7.1.1.Tools Preparation

The main tools used during the installation process can be referred to in the following figure.

Figure 7-1

7.2. Battery Cabinet Securing

As shown in Figure7-2, battery cabinet is provided with 4 fixing points on 4 feet.

Fixing φ14mm holes are pre-reserved at the fixing feet points, which shall align with the openings at the bottom corners of the cabinet base. Secure the cabinet using M12 screws with matching nuts.

In accessory package， 4 explosion bolts is already provided with battery cabinet, Level ground installation is suitable for areas where high water accumulation (≥50 mm) will not occur. If the installation site is prone to water accumulation, it is recommended to add a concrete foundation.

Footing Spec: 80×80×7 Angle Steel (7 mm Thick)

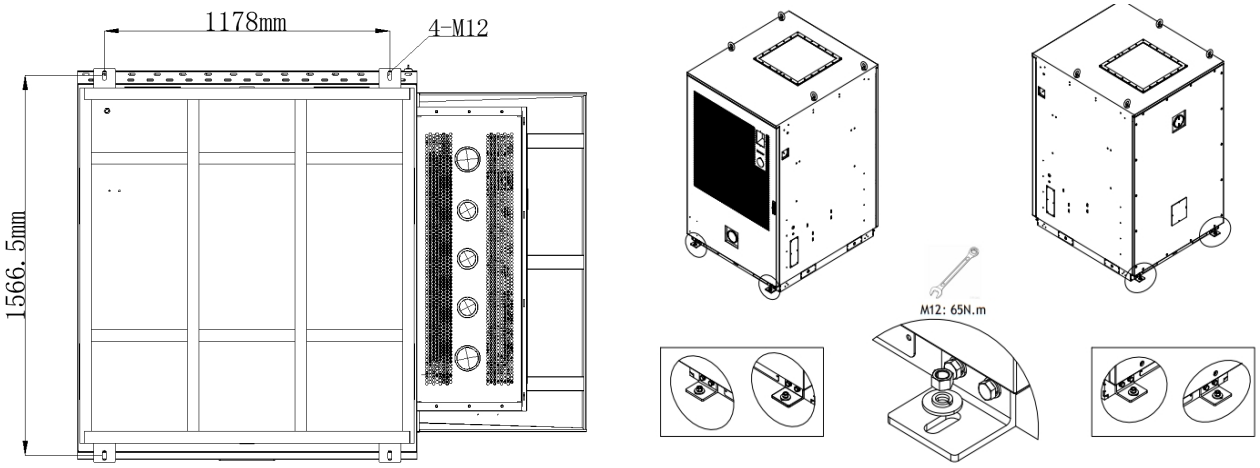


Figure 7-2 Bottom view and Feet position on cabinet

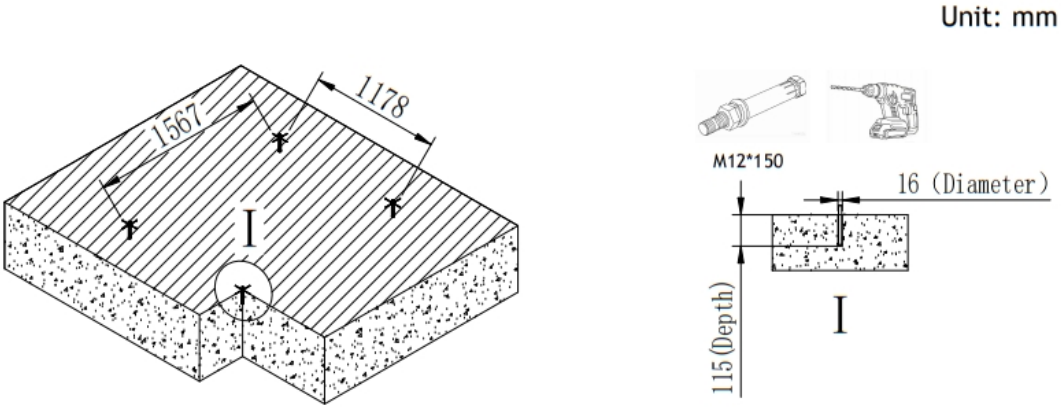


Figure 7-3 Drilling requirements for expansion bolts installation

7.3. Cabinet Ground Cable Connection

As shown in Figure 7-4, EverCore has a grounding connection copper bar. The copper bar has a M8 hole and requires the user to connect a ground cable to the ground point at the site.

The recommended cable diameter is 25mm^2, Use M10*20 Three-piece Screw/Stainless Steel, Torque: 30N.

Figure 7-4 Cabinet ground connection

7.4. Inverters Wall-mounting Installation

The battery cabinet and the hybrid inverter are shipped separately. At the user's site, the hybrid inverter needs to be installed on the battery cabinet first. The installation steps are as follows:

1. Secure the inverter bracket, then hang the inverter on the bracket.

Use M10×16 hexagonal flange bolts to lock the back plate of the hybrid inverter onto the battery cabinet enclosure, and then use a forklift to assemble the hybrid inverter onto the back plate. Lift the hybrid inverter (be careful to avoid physical strain), and align the back plate of the hybrid inverter with the raised part of the installation bracket. Hang the hybrid inverter on the installation bracket and make sure it is firmly installed.

7.5. The Grounding Cable Connection

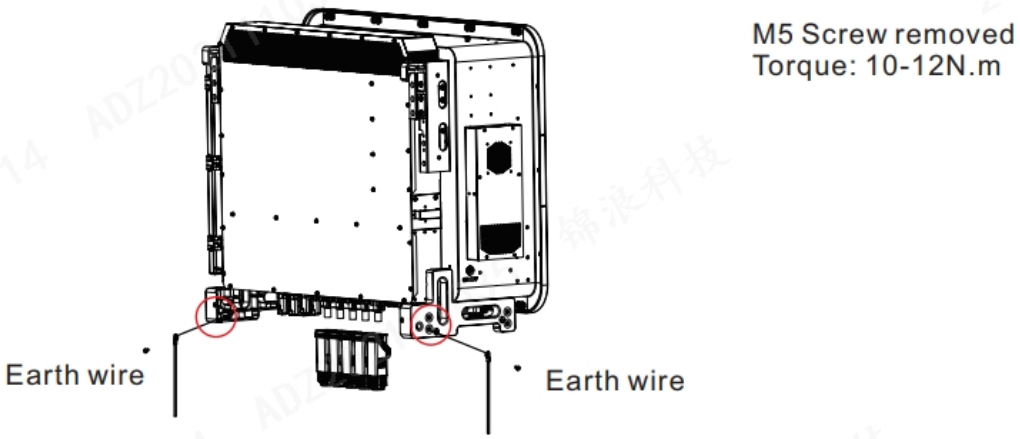


Figure 7-5 Inverter ground point

Figure 7-6 Ground connection with cabinet enclosure

7.6. Sunshade Installation

Installing a Sunshade by using M8×25 hexagonal flange bolts to fix Inverter Sunshade at the upper right position of the cabinet.

Figure 7-7
remove the pre-installed bolts from the cabinet enclosure

Figure 7-8
fixing the sunshade to cabinet enclosure

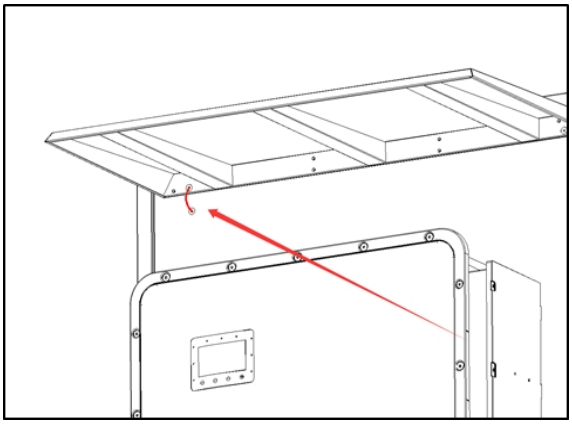


Figure 7-9 connect the ground cable of sunshade to cabinet enclosure

7.7. Threading Pre-installed Cable inside Cabinet

Be careful for using cabinet door stopper to make an enough space for installer to operate.

Figure 7- 10 Door stopper position

For product convenient installation, before leaving factory, some cables already pre-installed inside cabinet, for detailed cable definition, you can refer to **chapter 6.2.1** in this manual.

For the cable entry you can see the skill screen inside the cabinet, below is the cable entry definition

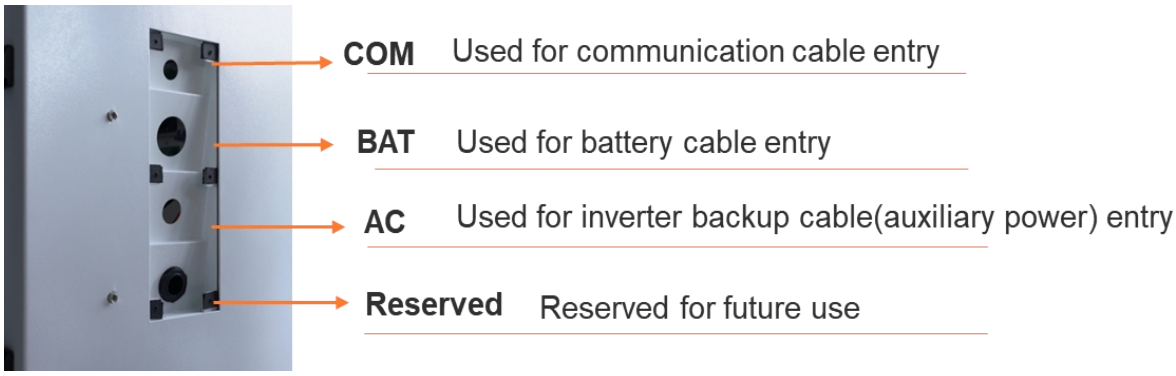
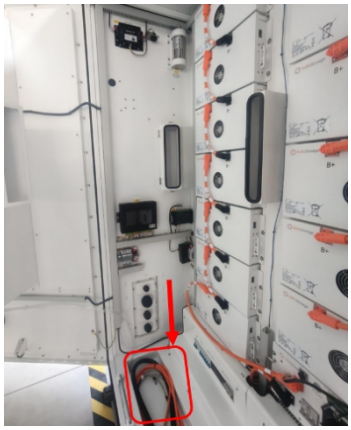
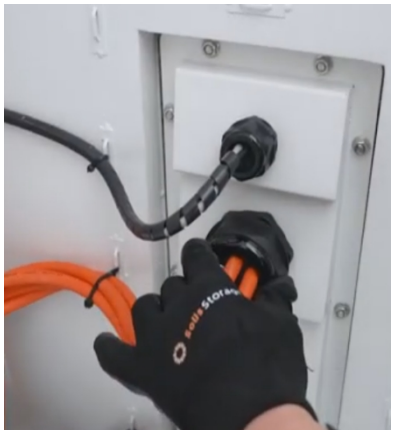


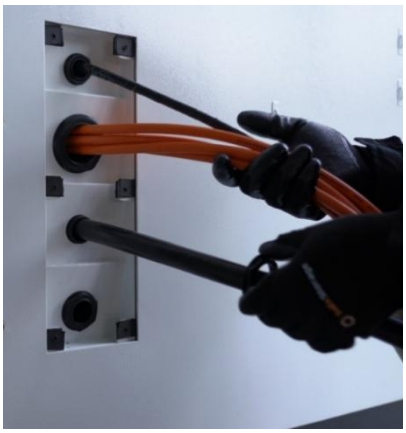
Figure 7- 11 Cable hole



You just need to connect another terminal to inverter



Ensure the cable gland nuts on both ends of the cable hole are fully tightened.



Ensure all cable harnesses are fully threaded into right position

Figure 7- 12 Steps of threading cable

7.8. Cabinet Pre-installed Cable Connection with Inverter

7.8.1.Battery Cable Connection with Inverter

Note: For battery cable, you should crimp the cooper lug on installation site,

Four DC cables pre-installed inside cabinet, their label: battery1\+, battery1\-; battery2\+, battery2\-

Strip the DC cables inside the cabinet in accordance with the following requirements.

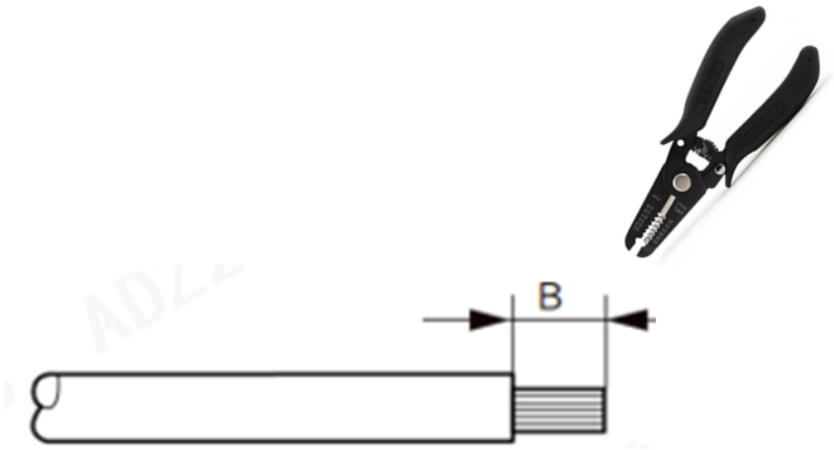


Figure 7- 13

NOTICE
B (insulation stripping length) is 2mm -3mm longer than A (OT cable terminal crimping area).

The outer diameter of the sealing ring at the battery interface is smaller than that of the copper cable lug. Battery cables must be threaded through the tail cover, rear sealing ring, and waterproof housing in sequence before crimping the cable lugs. Copper Lug: M6, Torque: 4–5N•m

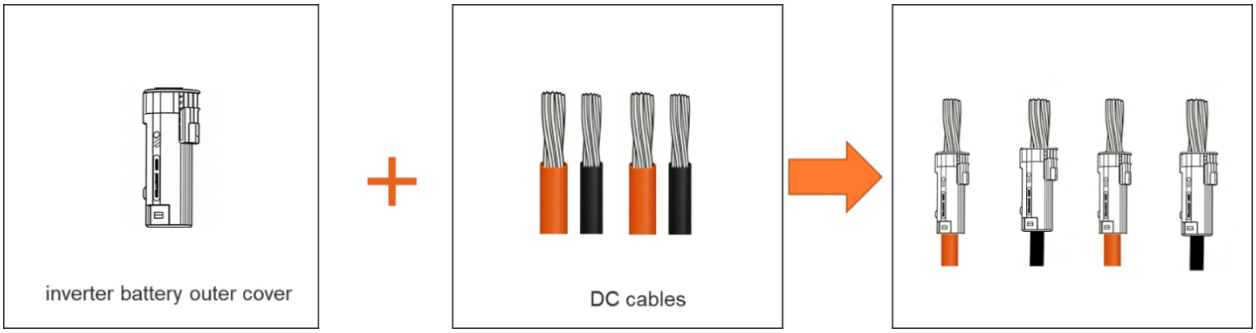


Figure 7- 14 Threading steps

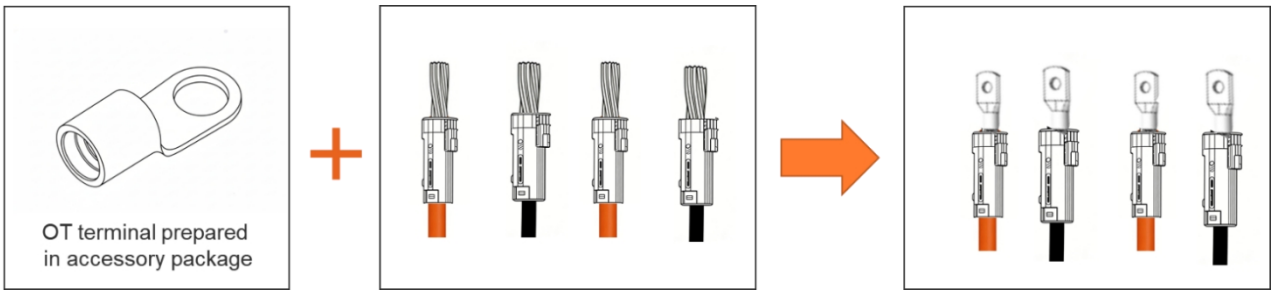


Figure 7- 15 Crimping OT terminal

Fasten the terminal to the flow guide bar using an M6 round washer screw, M6 screw tightening torque: 4.5-5.0 N·m

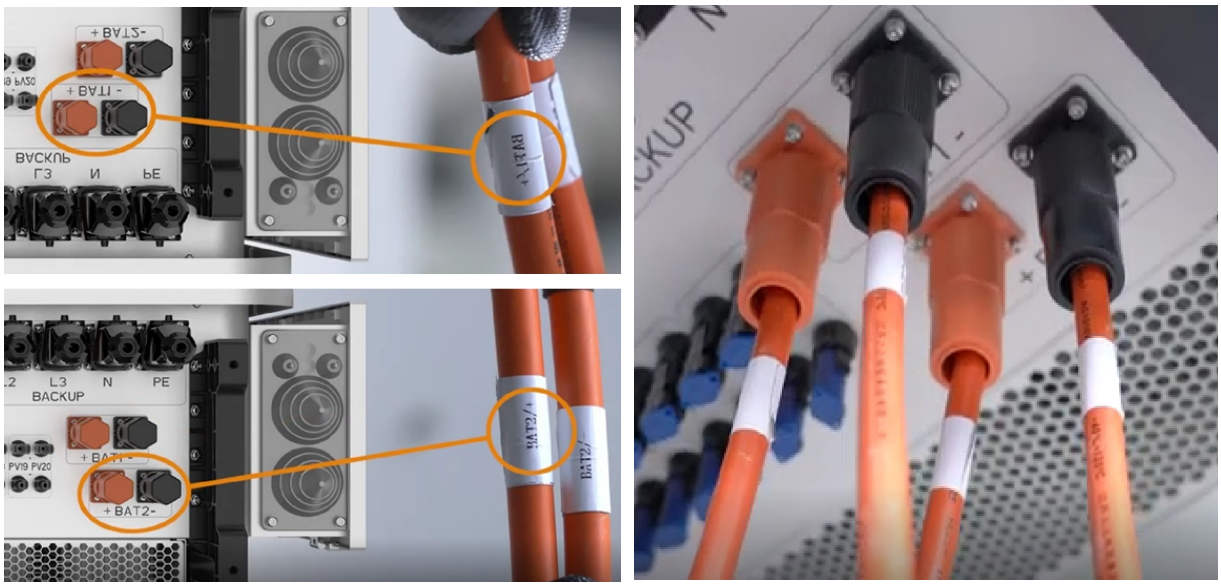


Figure 7- 16 Connecting battery cables to inverter

7.8.2.Auxiliary Power Cable Connection with Inverter

You can find the AC cable inside the cabinet, detailed cable appearance you can refer to chapter 6.2.1.1. Connection precautions for the AC cables at the hybrid inverter (including Smart port/ Backup port /Grid port): the allowed maximum temperature when connecting the ac power and the battery terminals is 85°C.

Figure 7- 17 Auxiliary power cable

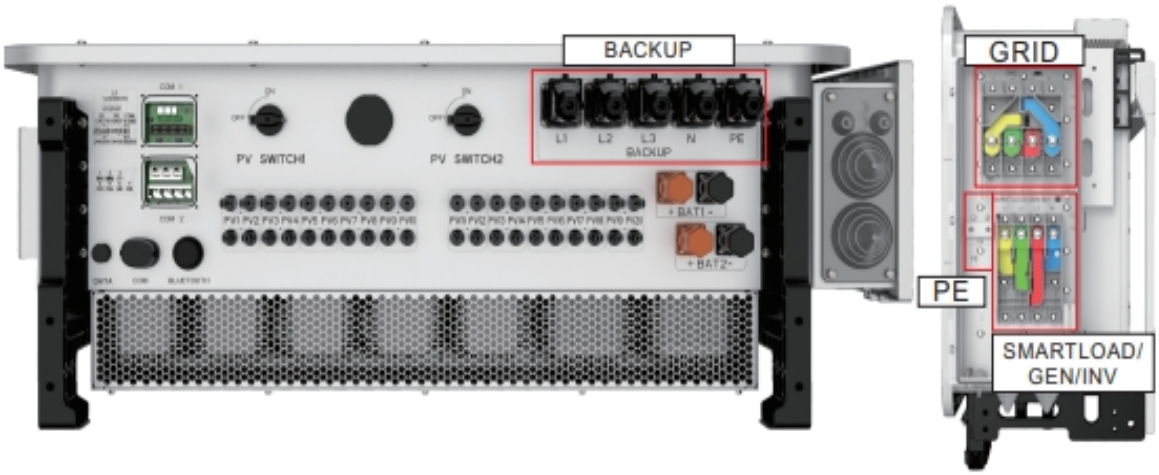


Figure 7- 18 Backup port on bottom of inverter

Figure 7- 19 Backup port auxiliary cable connection

Table 7- 1 Ports connection reference

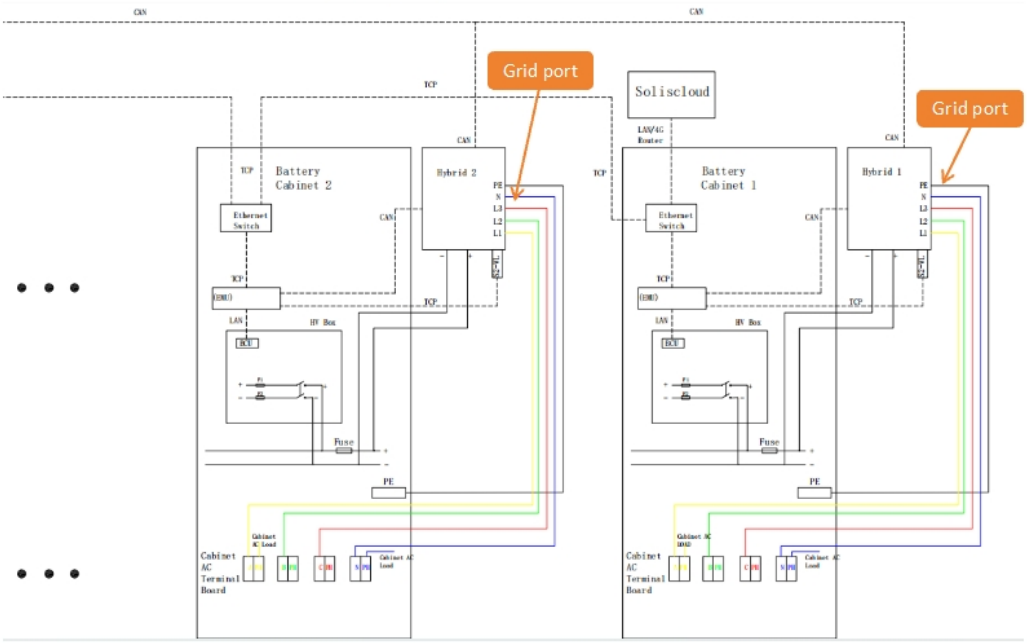
	Backup	SMARTLOAD/GEN/INV	Grid	PE
Wire Size	3/0AWG,	4/0AWG,	4.7/0AWG	2/0AWG
Cable	70-95mm²	70-95mm²	95-120mm²	50-75mm²
Torque	10-12N.m	20-30N.m	20-30N.m	10-12N.m

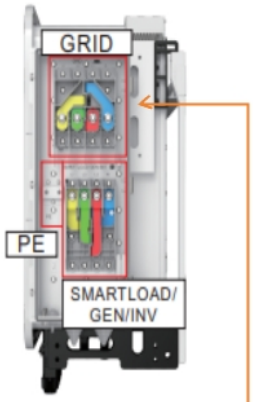
Note: The above method (connecting the auxiliary power line to the backup port) is applicable in cases where there is a backup load: grid-connected and off-grid switching scenarios, as well as pure off-grid scenarios.

If it is the scenario that multiple hybrid inverters are connected in parallel and operate in pure grid-connected mode (with no backup load and no need for on-grid/off-grid switching),The auxiliary power wiring of each battery cabinet needs to be connected to the grid terminal of the hybrid inverter.

The customers need to prepare the terminals for connecting the grid port and the auxiliary power cables, and perform the on-site crimping operation.(The cross-sectional area of the auxiliary power cables are 16 square millimeters. The bolt size for the power grid port are M12 (L1, L2, L3, N), and the PE port is M10(PE).

Multiple hybrid inverters are connected in parallel and operate in pure grid-connected mode (with no backup load and no need for on-grid/off-grid switching),the auxiliary power wiring of each battery cabinet needs to be connected to the grid port.





7.8.3.Communication Cable Connection

1. Battery BMS cable connection

The CAN cable reserved inside the cabinet according to chapter6.2.2.1, Plugging the CAN cable to communication interface-BMS1 of the hybrid inverter COM 2 area.

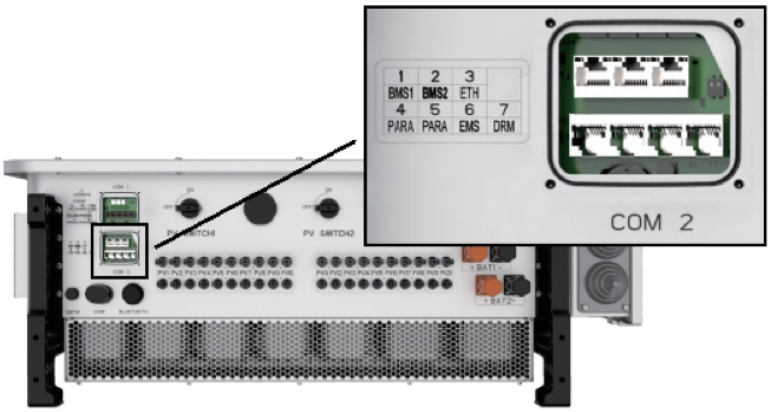


Figure 7-20 Inverter Bottom BMS Interface

2. Data logger Ethernet cable connection.

Follow the connection method shown in Figure 7-21. Find the Ethernet cable inside the cabinet, and connect it to the bottom of data logger, then connect the datalogger to inverter COM port

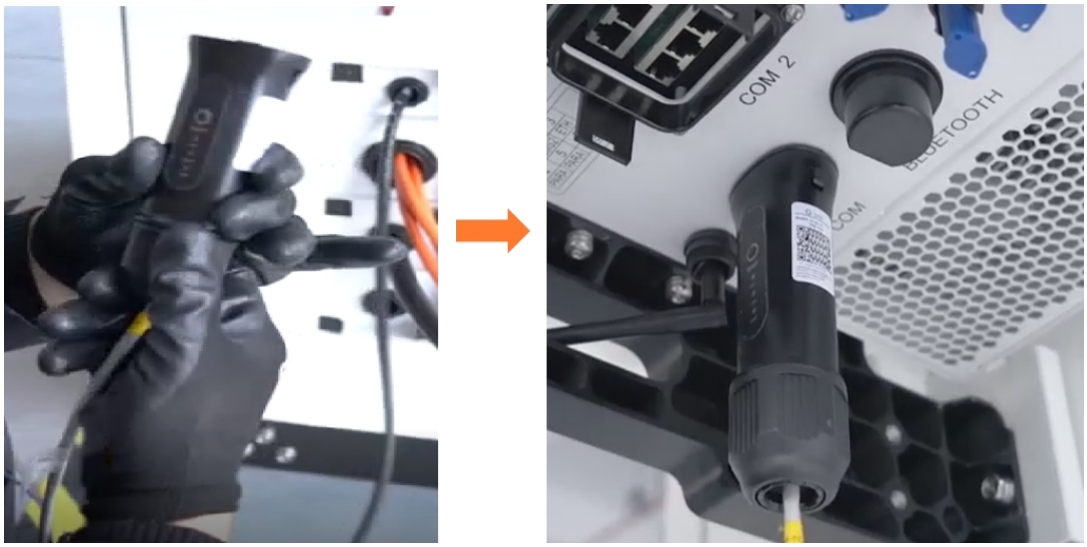


Figure 7-21 Connect the data logger Ethernet cable

3. Inverter EPO cable connection

The Battery cabinet EPO Signal cable should be connected with inverter EPO terminal. FThe following figure is the interface definition. Using the 2 dry contact signal cable (pre-installed inside cabinet) from cabinet to connect the hybrid inverter EPO port

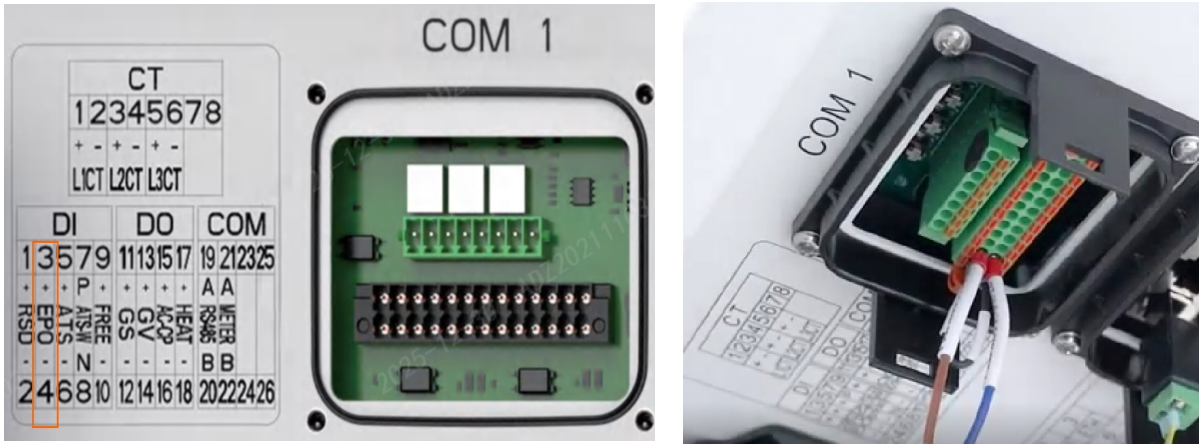


Figure 7-22 EPO Cable connection

7.9. Inverter Cable Connection

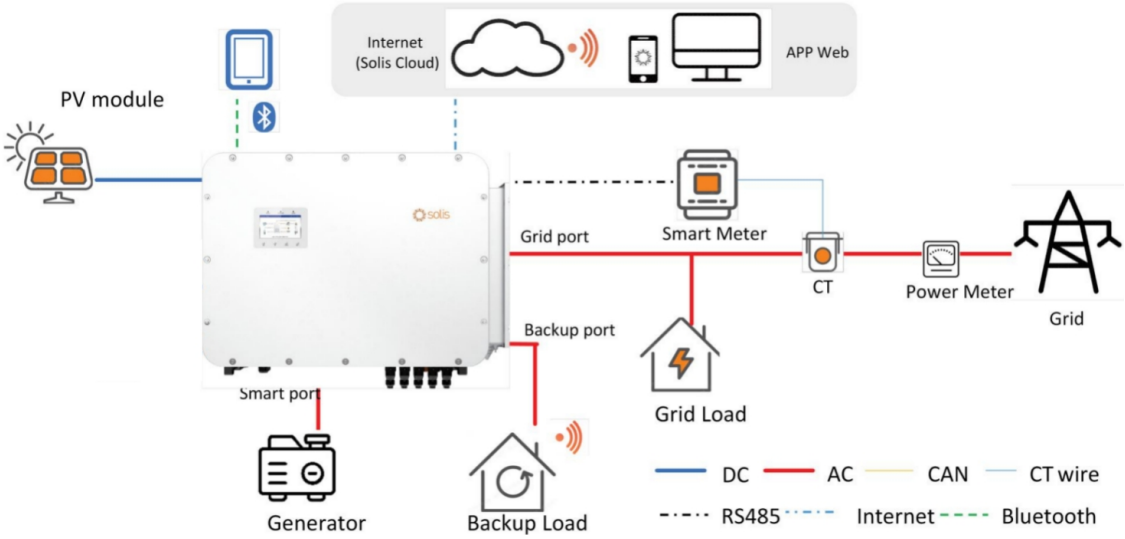


Figure 7-23 Inverter wiring connection diagram(without battery)

Table 7-2 Table 7-3 Ports connection reference

	Backup	SMARTLOAD/GEN/INV	Grid	PE
Wire Size	3/0AWG,	4/0AWG,	4.7/0AWG	2/0AWG
Cable	70-95mm²	70-95mm²	95-120mm²	50-75mm²
Torque	10-12N.m	20-30N.m	20-30N.m	10-12N.m

7.9.1.PV Connection

DANGER

Before connecting the inverter, make sure that the open-circuit voltage of the photovoltaic array is within the limit range of the inverter.

Before connection, confirm that the polarity of the output voltage of the photovoltaic array matches the "DC+" and "DC-" symbols.

Please use the approved DC cables for the photovoltaic system.

The user's on-site PV system should be connected to the hybrid inverter, you can thread the PV cable from left wiring protective panel or bottom panel.

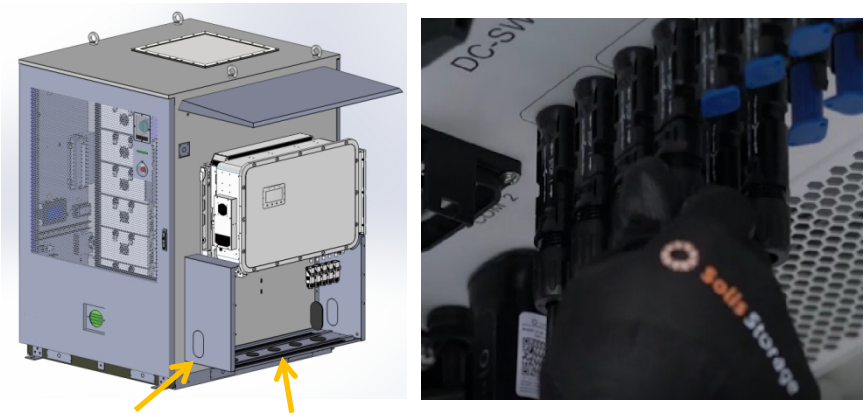
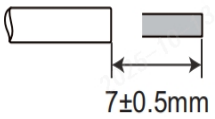


Figure 7-24 PV Wiring

1. PV Cable Installation

1. Select the appropriate DC cable and strip the outer sheath of the wire by 7 ± 0.5 millimeters. Please refer to the table below for specific specifications.



Cable type	Cross section (mm²)	
	Range	Recommended value
Industry generic PV cable	4.0~6.0 (12~10AWG)	4.0 (12AWG)

Figure 7-25

2. Remove the DC terminals of the accessory package, rotate the nut to disassemble it, and remove the waterproof rubber ring.

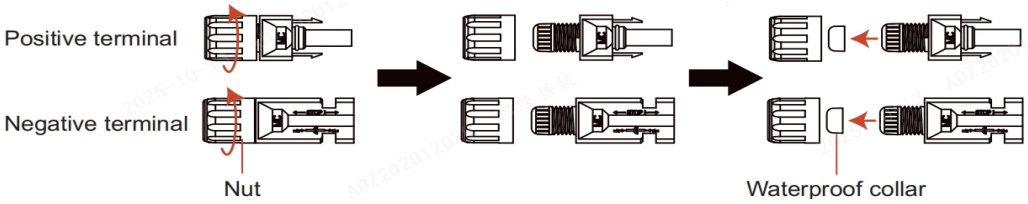


Figure 7-26

3. Pass the stripped DC cable through the nut and the waterproof rubber ring.

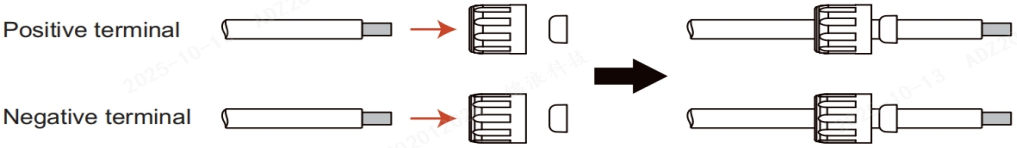


Figure 7-27

4. Connect the wire part of the DC cable to the metal DC terminal, and use the dedicated DC terminal crimping tool for crimping.

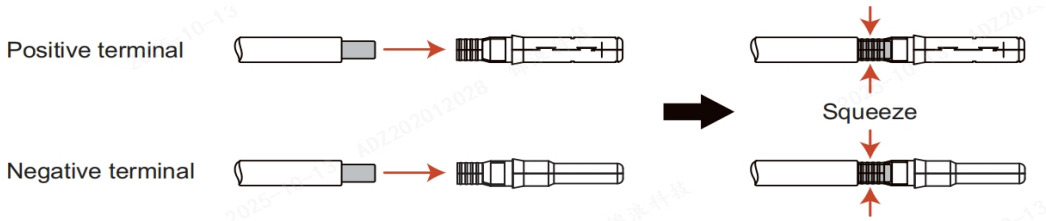


Figure 7-28

5. Insert the press-welded DC cable firmly into the DC terminal, then insert the waterproof rubber ring into the DC terminal and tighten the nut.

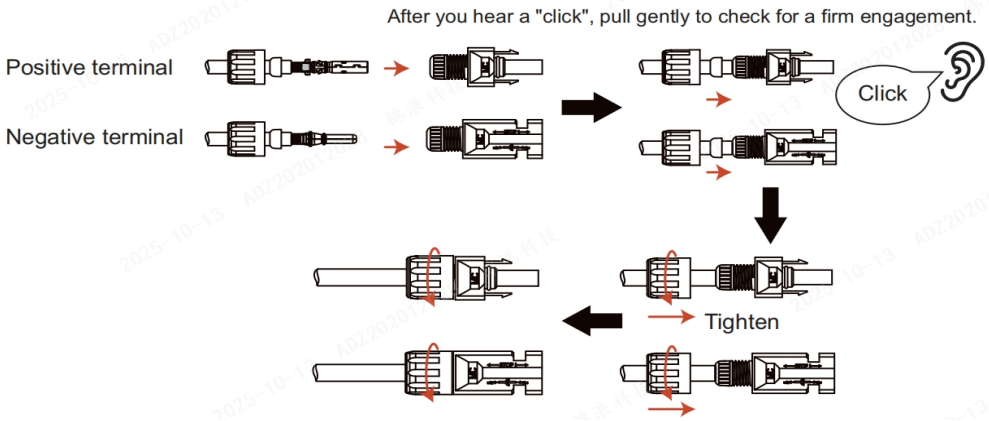


Figure 7-29

6. Use a multimeter to measure the DC input photovoltaic voltage and verify the polarity of the DC input cable.

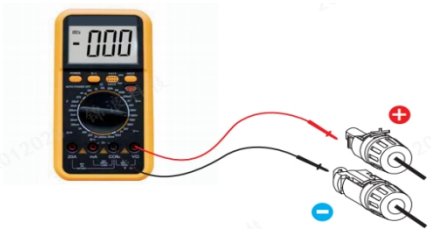


Figure 7-30

7. Connect the already wired DC terminals to the inverter as shown in the figure, and gently tighten the nuts to ensure a secure connection. When you hear a "click" sound, it indicates that the connection is correct and secure.

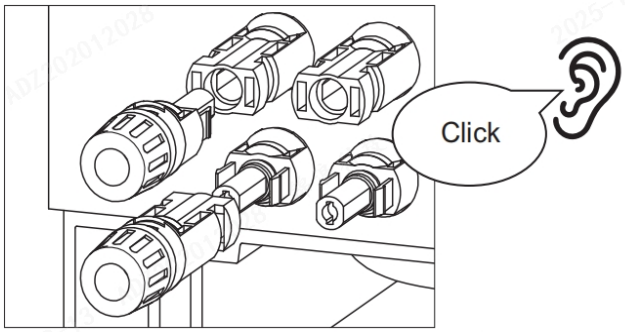


Figure 7-31

When installing, please pay attention to the following points:

If the DC input is accidentally reversed or the inverter malfunctions or operates abnormally, the DC switch must not be turned off. Otherwise, it may cause a DC arc, damage the inverter, and even lead to a fire.

The correct operation is:

1. Use the clamp-type clamp meter to measure the DC series current.
2. If the current is higher than 0.5A, wait until the solar irradiance decreases until the current drops below 0.5A.
3. Only when the current is lower than 0.5A, is it allowed to close the DC switch and disconnect the photovoltaic series.
4. To completely eliminate the possibility of faults, disconnect the photovoltaic series after closing the DC switch to avoid secondary faults caused by continuous photovoltaic energy the next day.

Please note that any damage caused by incorrect operation is not covered by the equipment warranty.

Table 7- 4 PV input requirement

Max input voltage	1000V
Rated voltage	600V
Start voltage	180V
MPPT voltage range	150-950 V
Max input current	10*42A
Max short current	10-60A
MPPT number/Max input strings number	10/20

Please note that the maximum operating altitude is 4,000 meters. However, when the altitude exceeds 2000 meters, the maximum input photovoltaic voltage will decrease. The table below shows the relationship between altitude and voltage.

Table 7- 5

Altitude (m)	Voltage (Vdc)
2000	1000
2700	1000
3000	981
3500	925
4000	875

7.9.2.Utility Grid Connection

About local grid connection with inverter. Please refer to Figure for the wiring procedure:

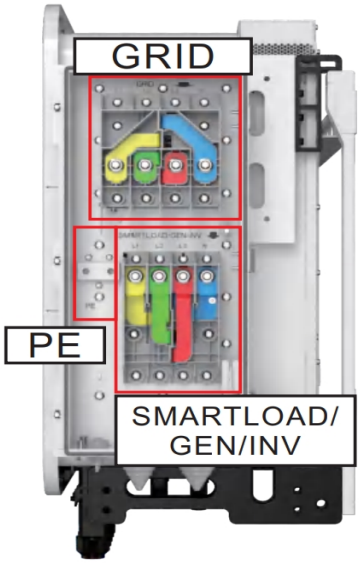


Figure 7-32 Grid port position of inverter

Table 7-6 Connection reference

Position	Terminal type	Recommended Specification	Position	Terminal type	Remark
Grid	Depends on the grid type of client side	95-120mm²	inverter Grid Port	R-type	Torque:20-30N.m
		95-120mm²		R-type	Torque: 20-30N.m
		95-120mm²		R-type	Torque: 20-30N.m
		95-120mm²		R-type	Torque: 20-30N.m
		50-75mm²		R-type	Torque: 10-12N.m

Detailed wiring steps are as follows:

1. Disconnect the AC circuit breaker to ensure it won't accidentally turn on.

2. Strip the insulation sheath from the end of the AC cable to a length B, where B (insulation stripping length) is 2 mm –3 mm longer than A (OT cable terminal crimping area).

3. Place R-type terminals on both ends and perform a secure crimp connection. The crimped part of the terminals must be insulated with heat shrink tubing or insulating tape.

4. Select the matching diameter of the outlet sealing ring according to the diameter of the AC cable.Cut the diameter of the sealing ring to the appropriate size, pass the cable through the sealing ring, remove the nut at the corresponding position of the wiring box, and use a socket

5. Wrench to connect the cable to the corresponding AC terminal block in sequence. The torque should follow the recommended torque in table.

6. When the cable is coming out in right wiring box, there should be no openings or gaps between the tower protective sleeve and the cable.

7. After the AC cable are wired, the cables should be fixed, the installers should use the ribbon to secure the wire harnessed in the holes of the surrounding metal shells.

8. For detailed connection information, refer to the Solis hybrid inverter manual.

7.9.3.Backup Load Connection

The power cable of the user load should be connected to the backup port of the hybrid inverter. The following is the interface definition:

NOTE: The auxiliary power and backup load cable should be connected to a same set of backup terminal, you should lock 2 sets cable in 1 set copper terminal.

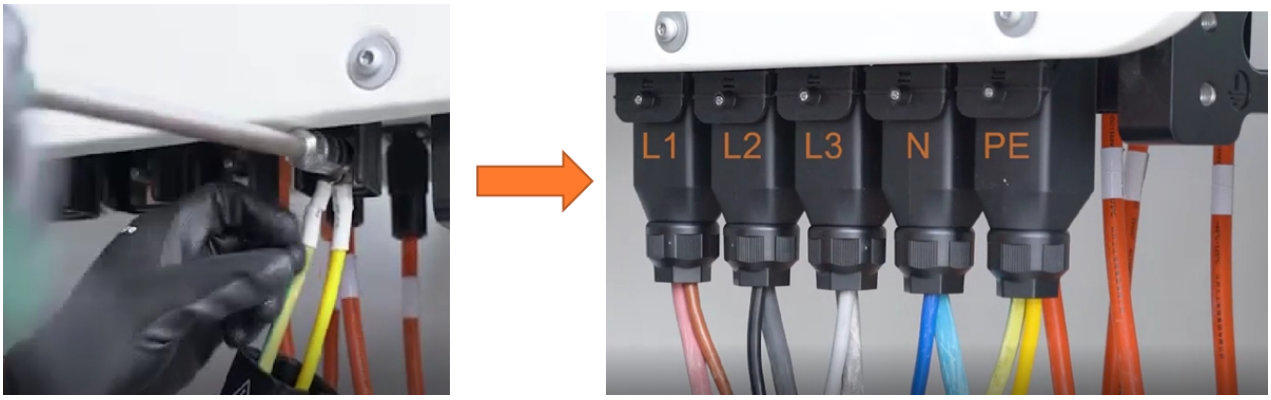


Figure 7-33 Backup Load Connection Position

7.9.4.Generator Connection

The diesel generator is connected to the EverCore hybrid inverter. Please refer to Figure to ensure the connection procedures are correct.

For automatic control function of generator, you should connect the dry contact signal cable to the DO ports in COM1 area of inverter

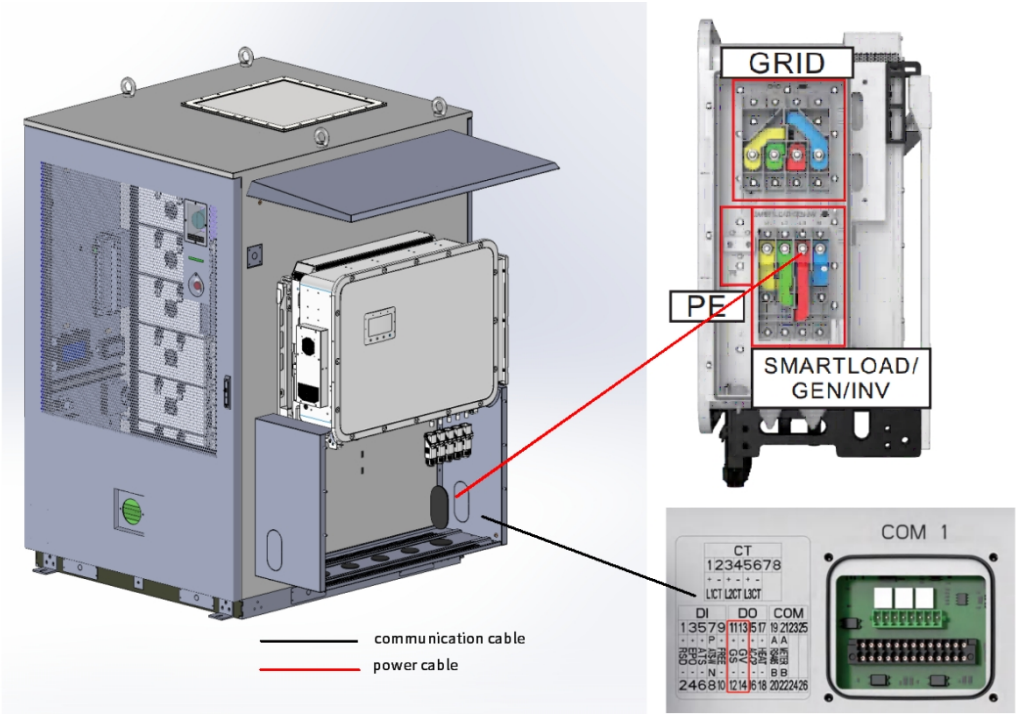


Figure 7-34 Generator Connection Position

- Detailed wiring steps are as follows

1. Disconnect the AC circuit breaker to ensure it won't accidentally turn on.

2. Strip the insulation sheath from the end of the AC cable to a length B, where B (insulation stripping length) is 2 mm – 3 mm longer than A (OT cable terminal crimping area). Place R-type terminals on both ends and perform a secure crimp connection. The crimped part of the terminals must be insulated with heat shrink tubing or insulating tape.

3. When connecting to the grid port and the SMARTLOAD/GEN/INV ports, remove the three screws on the cover of the inverter junction box, and then remove the junction box cover.

4. Select the matching diameter of the outlet sealing ring according to the diameter of the AC cable. Cut the diameter of the sealing ring to the appropriate size, pass the cable through the sealing ring, remove the nut at the corresponding position of the wiring box, and use a socket

5. Wrench to connect the cable to the corresponding AC terminal block in sequence. The torque should follow the recommended torque in table.

6. When the cable is coming out in right wiring box, there should be no openings or gaps between the tower protective sleeve and the cable.

7. After the AC cable are wired, the cables should be fixed, the installers should use the ribbon to secure the wire harnessed in the holes of the surrounding metal shells.

8. For detailed connection information, refer to the Solis hybrid inverter manual.

7.9.5.Smart Meter Connection

The wiring principle between the smart meter and the CT is shown in the following diagram. It mainly consists of two parts: One part is the wiring between the smart meter itself and the CT, and the other part is the wiring between the smart meter and the hybrid inverter. The connections related to the smart meter and CT are mainly divided into voltage input, current input, auxiliary power supply, communication lines, as shown in the following diagram:

1. The voltage measurement cable should be directly connected to the input port of the client's power grid, including L1, L2, L3 and the N line.

2. The current measurement should be detected by CT, CT device must be installed on each phase cable of the power grid. When connecting, be sure to pay attention to the polarity of the CT and ensure that the phase sequence of the CT connected to L1, L2, and L3 is correct; otherwise, it will affect the normal use of the product.

Table 7-7 CT cable sequence

CT cable	Ports on meter
L1 CT cable(white)	20($S1_1$)
L1 CT cable (black)	19($S2_1$)
L2 CT cable (white)	18($S1_2$)
L3 CT cable (black)	17($S2_2$)
L4 CT cable (white)	16($S1_3$)
L5 CT cable (black)	15($S2_3$)

3. Meter Auxiliary power supply: an external 220Vac power supply must be provided separately to power the electricity meter. The power line needs to be connected to the LA (5) and NA (6) terminals of the smart meter.

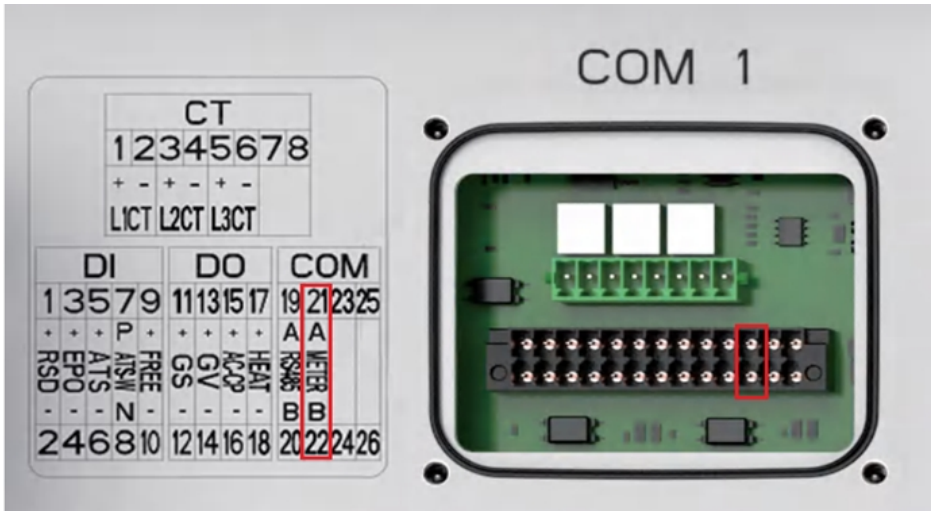


Figure 7-35 Meter Connection Port

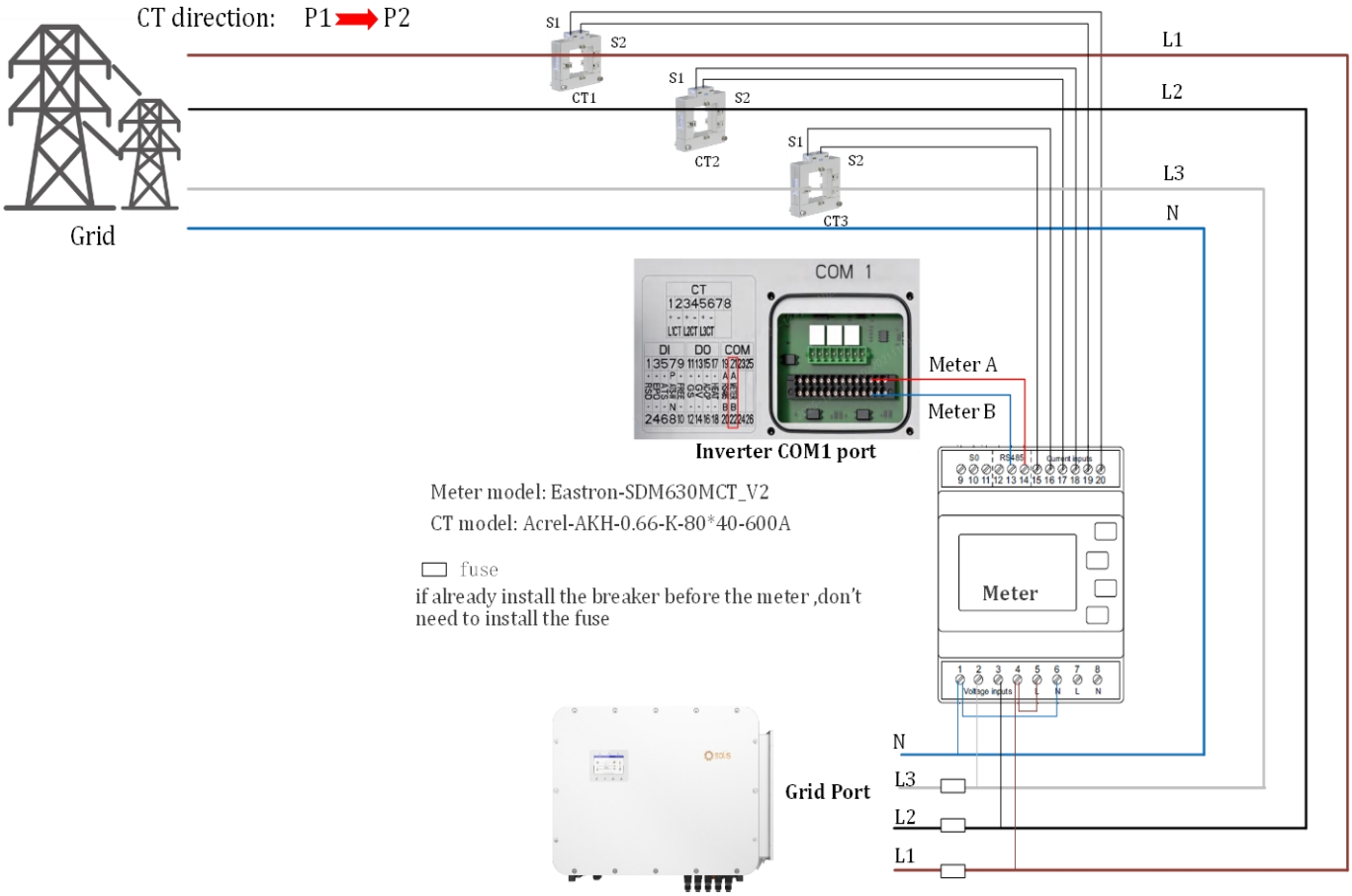


Figure 7-36 Meter Cable Connection

7.10. Wiring Protective Baffle Panel Installation

Securing the left and right side panel firstly, and if you have the load cable or other grid cable, generator cable, you should thread these AC cable to the bottom panel, after that install the bottom panel.

Figure 7-37 Wiring protective baffle panel installation diagram

Using M6×12 hexagonal flange nuts, securing corresponding panels to the right position

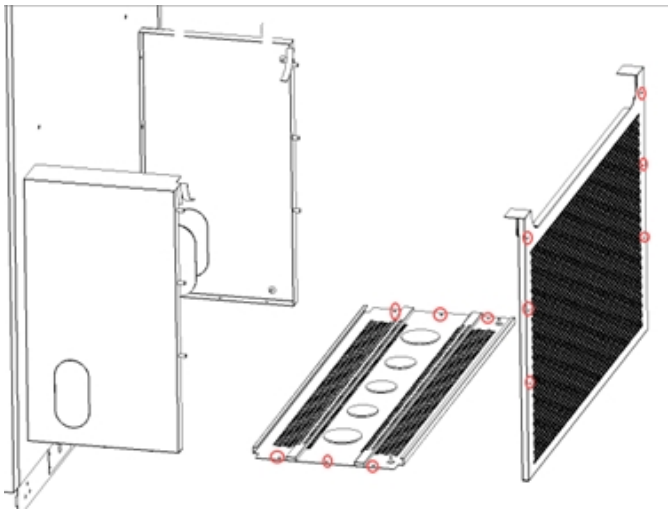


Figure 7-38 Securing position

Connecting the ground cable of the right / left side baffle to cabinet enclosure

Figure 7-39 Panel ground cable installation

Fix the front panel.

After the assembly of the hybrid inverter wiring harness is completed, use M6×12 hexagonal flange bolts to fix front panel at both ends of the side plates.

Table 7-8 Bolt and Nut Torque Gauge

Bolt diameter	Torque(N.m)	Re-twisting torque(N.m)
M6	10	9
M8	20	15
M10	30	25
M12	50	45

7.11. Battery Pack Wiring

The power cables of the battery compartment that have been removed need to be manually connected at the delivery site. The orange ones should be connected to the positive terminal (B+), and the black ones to the negative terminal (B-). The detailed operation steps are as follows:

1. Before installation, it should be confirmed that the pins of the power line connector are not skewed or broken, and should be inserted as vertically as possible.

2. Install the DC power line according to the color and refer to Figure 5-43. When connecting the wire harness, do not pull the wire harness forcefully.

3. After the connector is assembled in place, you should hear a click. Gently pull the connector by hand; it must not be loose.

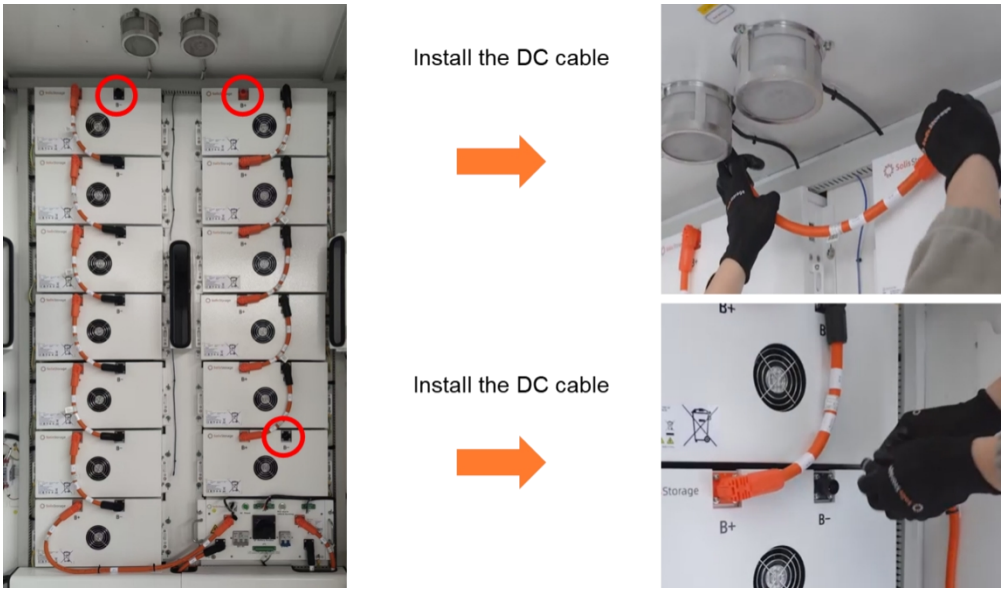


Figure 7-40 Diagram of Power Cables in the Battery Compartment

7.12. System External Dry Contact Signal Connection (optional)

The EverCore system provides a dry contact output for Fire Protection Linkage activation. Upon detecting fire protection linkage system activation, the system will enable the Fire Protection Linkage dry contact to transmit a signal to the client.

Table 7-9 External Dry Contact Interface

Position	Terminal	Definition of terminal	Connector type
EverCore XT3	XT3:1	Fire Protection Linkage	Tubular terminal
	XT3:2		Tubular terminal

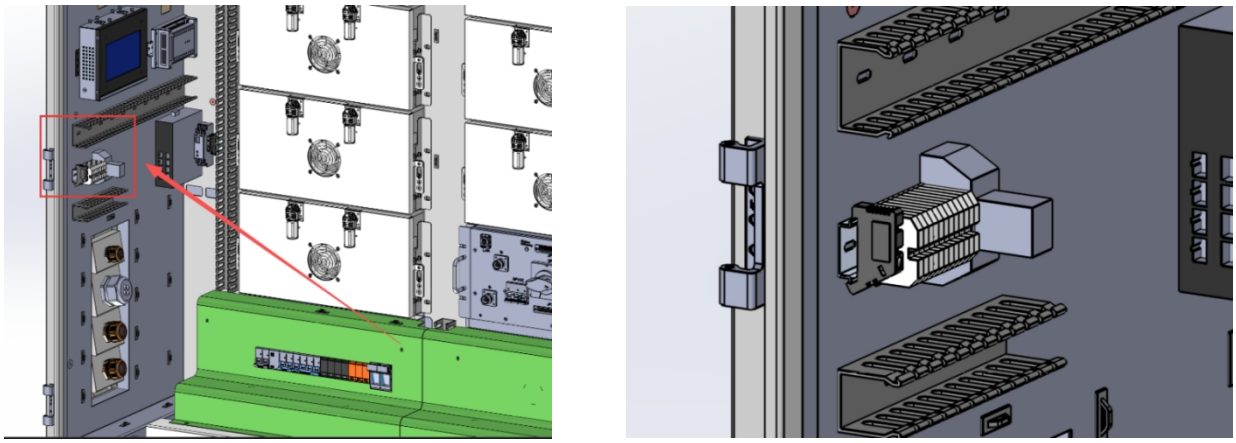


Figure 7-41 External Dry Contact Control

7.13. Broadband Router Installation

Customers need prepare the router by themselves. you can connect the Ethernet cable from switch from left side or right side

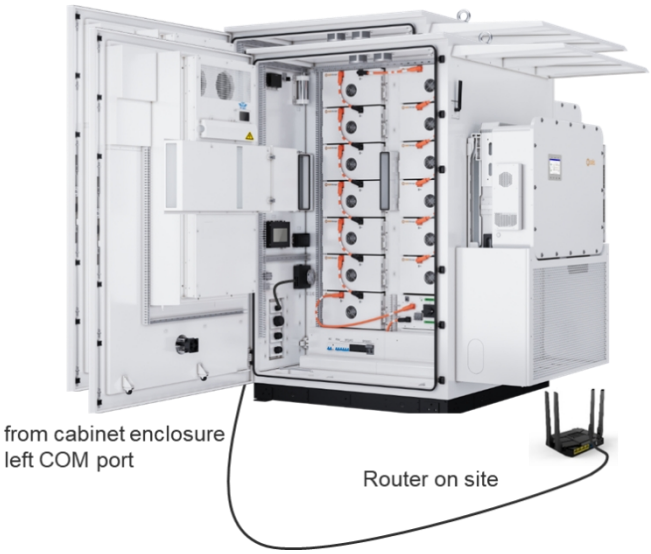


Figure 7-42

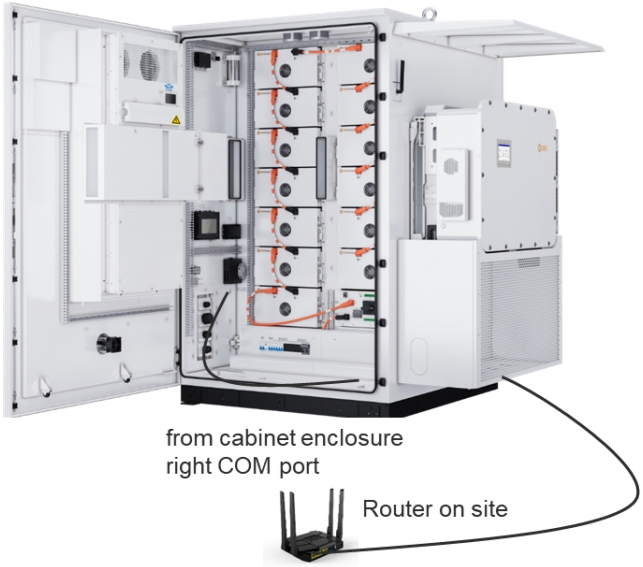


Figure 7-43

7.14. Air-conditioner Drain Pipe Installation (optional)

1. The pipe is prepared in the accessory package, if your installation foundation is like below figure, you should install the drain pipe to divert water to the designated location.

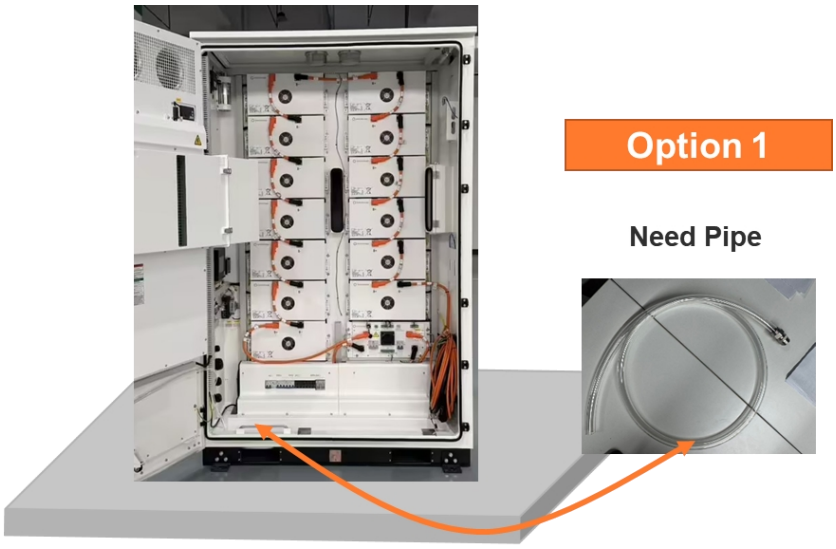


Figure 7-44

Water pipe installation method 1:

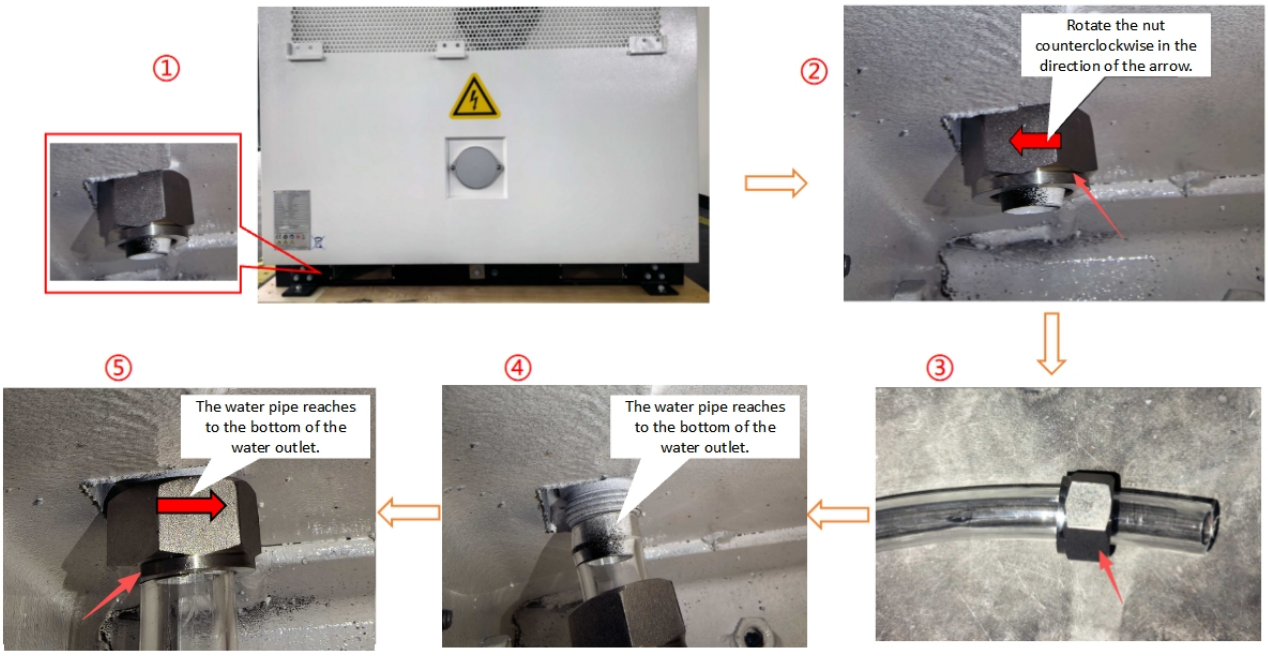


Figure 7-45

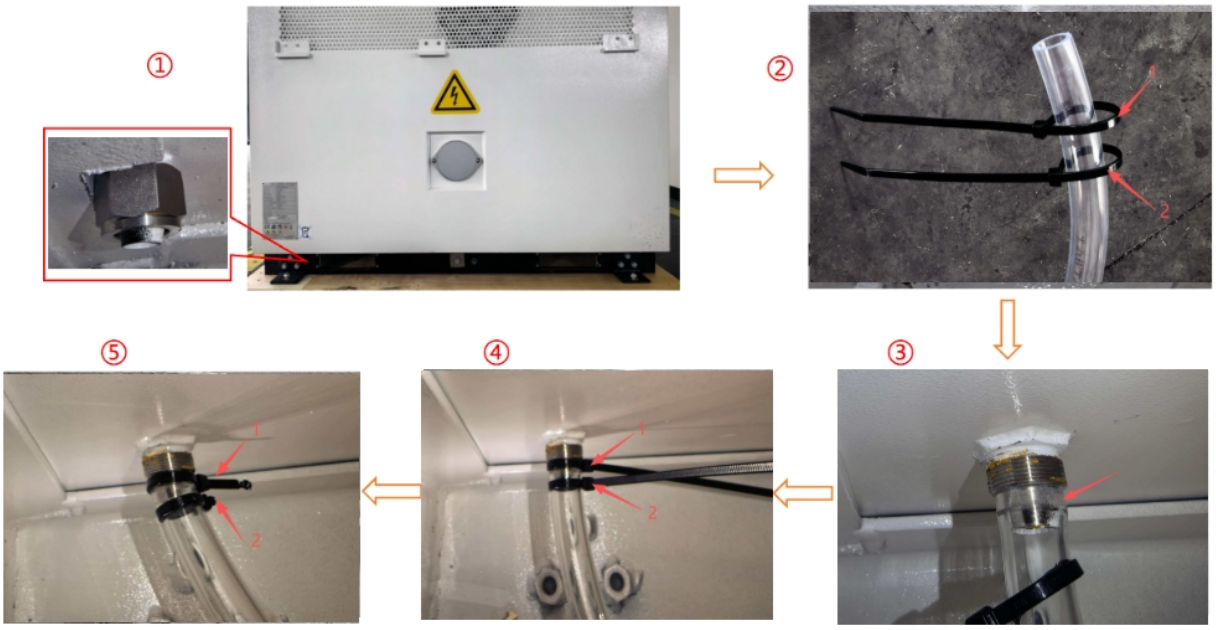
a. Use a 24-inch open-end wrench to rotate and remove the retaining nut at the water outlet.

b. Insert the removed nut into the water pipe (the water pipe is in the accessory package)

c. Insert the water pipe into the bottom water outlet of the cabinet.

d. Use an open-end wrench to tighten the nut.

Water pipe installation method 2:



a. Insert the cable ties(in the attachment package) into the water pipe.

b. Put the water pipe into the water outlet.

c. Tighten the cable ties.

d.Cut off the excess part of the cable ties.

2. If your foundation is like the bellow figure, you don't need the pipe.

Figure 7-46

7.15. Dust cover Installation

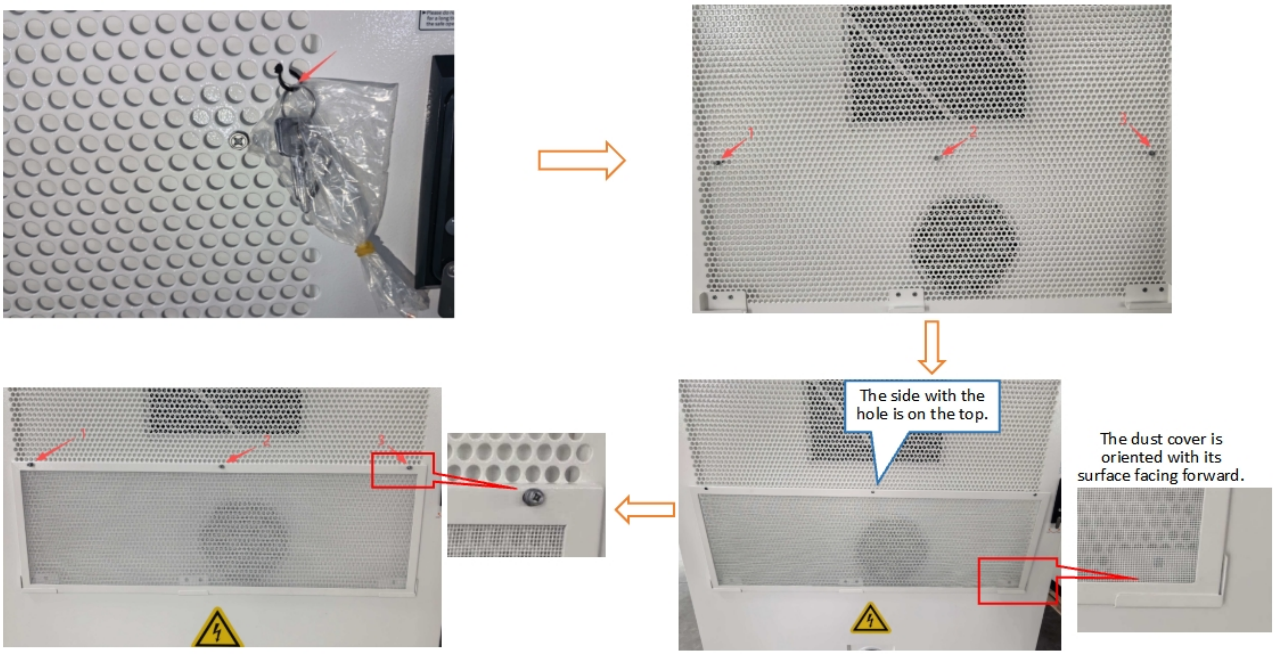


Figure 7-47

a. e. Use the diagonal pliers to cut off the cable ties and remove the cabinet door key.

b. a. Use the Phillips screwdriver to remove the reserved screws on the cabinet door.

c. b. Place the dust filter in the groove of the bracket (the dust filter is in the accessory package).

d. Use the M6*25 hex socket combination screw that was removed to fix the dust filter (recommended torque: 2.5 N.M).

7.16. Anti-theft Lock Installation

For preventing the stealing of inverter, you should install a lock（in accessory package）to the bracket

Figure 7-48 Lock Installation

7.17. Removal of the Cover for the Water Connector

For the convenience of water injection through the fire water connection if a fire breaks out on-site, remove the transparent cover from the water connection after installation is finished.

Figure 7-46 Remove the water inlet cover

7.18. Forklift Entry Panel Installation

After all the cables and necessary components installation are finished, you should seal the forklift entry, the cover panel in the accessory package, the sealing positions are as below figure

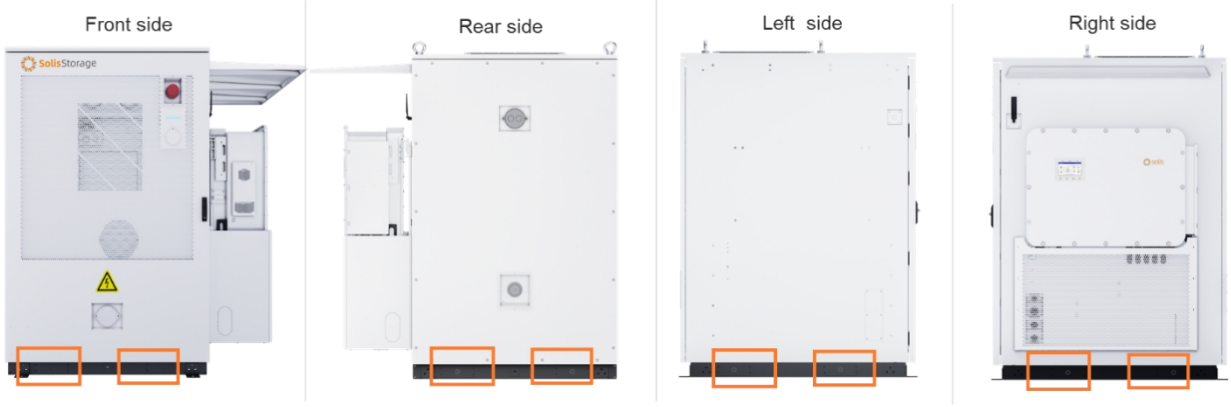


Figure 7-47 Sealing the forklift entry

8. System Commission

8.1. Inspection before Power-ON

8.1.1.Inspection of Wiring Quality

1. Check whether the polarity of the DC cables is correct, whether the nuts are installed properly, and whether the cable labels are correct.

2. Check whether the phase sequence of the AC cables is correct, whether the connection terminals are fixed properly, and whether the cable labels are correct.

3. Check whether the insulation resistance of all equipment meets the requirements.

4. Check whether the positive and negative poles of EverCore are short-circuited, and whether the AC cable terminals L1, L2, L3, N, and PE are short-circuited.

5. Check whether the grounding conductance of the grounding wire is good.

6. Before powering on, check the connection cables of the entire system to ensure reliable cable connections, without aging, cracking, or insulation damage.

7. Check whether all communication cables and terminals are tightly and reliably connected;

8.1.2.Inspection of Components State

Before the trial run, please check the following items:

Table 8- 1 System Inspection

NO	Inspection items
1	Check if all cable connections are reliable.
2	Check if system is well ventilated.
3	Check if system is reliably grounded.
4	Test the AC input items of system to ensure if they are correct.
5	Check if all switches of system are in the off position.
6	Check if the PDU area isolating switch is in the off position.
7	Ensure that the grid voltage and frequency on the AC side are in accordance with the input requirements of system.

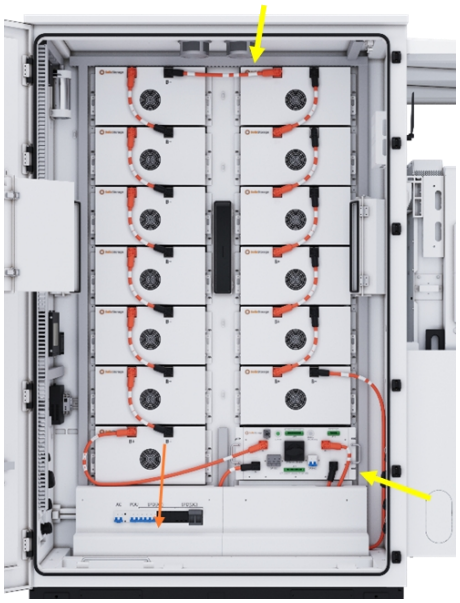


Figure 8-1 Check cable connection

Figure 8-2 Check air duct

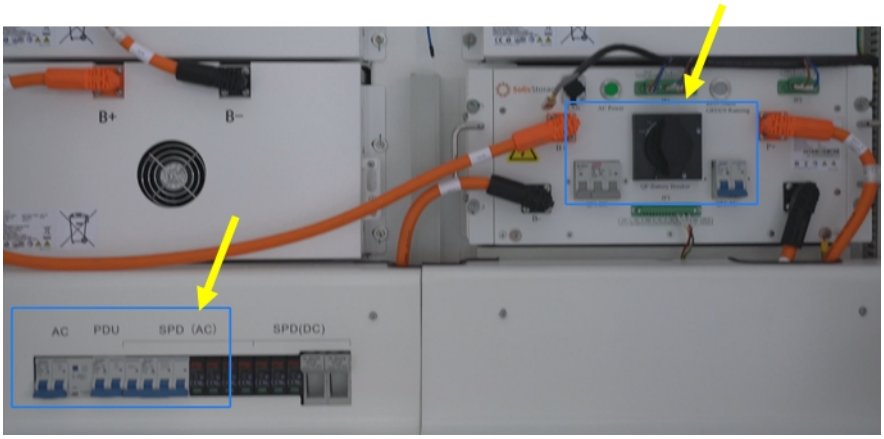
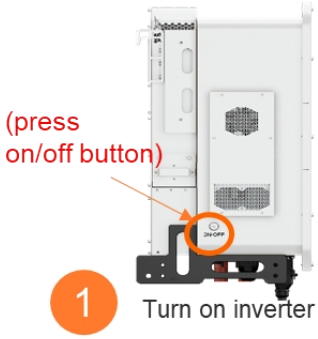
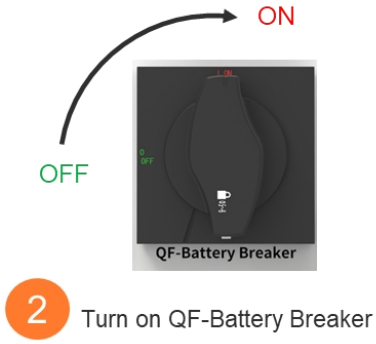
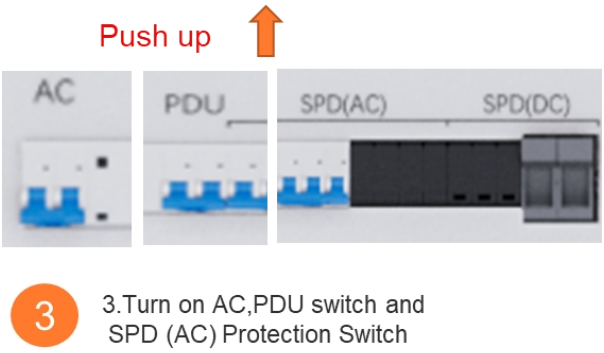
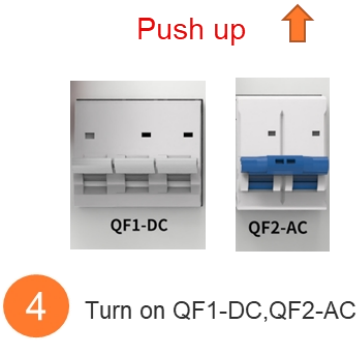


Figure 8-3 Check switch

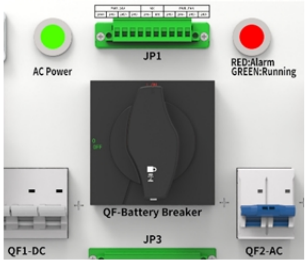
8.2. System Power-On Operation

Don't forget to turn on the PV switch under the bottom of inverter, after that, you should following the following steps.

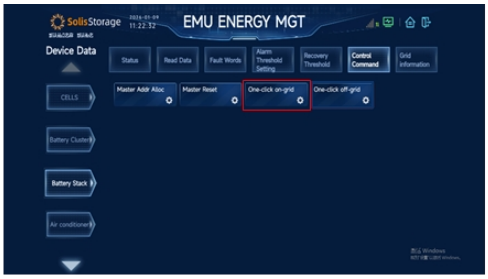
Table 8-2 Power-ON steps

Check indicator lights



5 When the AC Power green indicator light is on, it indicates that the auxiliary power supply on the high-voltage cabinet has been activated.

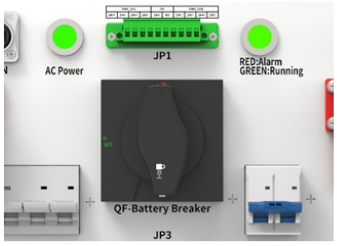


6 enable “On-click on gird” button on EMU screen

Waiting for 30S-60S

Check indicator lights

Power-On Successfully



7 When the system running indicator light changes from red to green, it indicates that the system has been powered on successfully

If you don’t have the PV or grid connected with inverter, in the NO.5 step, the power indicator light will be off, after your NO.6 step, the light will be on.

For “on click on grid” button position, you can refer to clause 8.4 to find it.

After power on successfully, you should do the following power-on inspection

Table 8-3 Inspection items

Export the monitoring data of all devices and check whether the data are normal
Check whether the indicator light status of each device is corresponding to the running status
Check the working status of the flammable gas detector (H2)
Check the indicator light of the smoke sensor
Check the indicator light of the temperature sensor

And you should do the following parameters inspection to ensure the system running at a normal state

Table 8-4 Parameters inspection

Model / Parameter	EverCore-261kWh
Total Battery Charge	0 kWh (New product, initial state, first use)
Total Battery Discharge	0 kWh (New product, initial state, first use)
SOC	5-100%
SOH	100% (New product, initial state, first use)
Total Voltage	754V-936V
Total current	0A (first start)
Direction	Static (first start)
Installed Capacity	261kWh
Min Cell Voltage	2900mV~3600mV
Max Cell Voltage	2900mV~3600mV
Min Cell Temperature	5℃-56℃
Max Cell Temperature	5℃-56℃

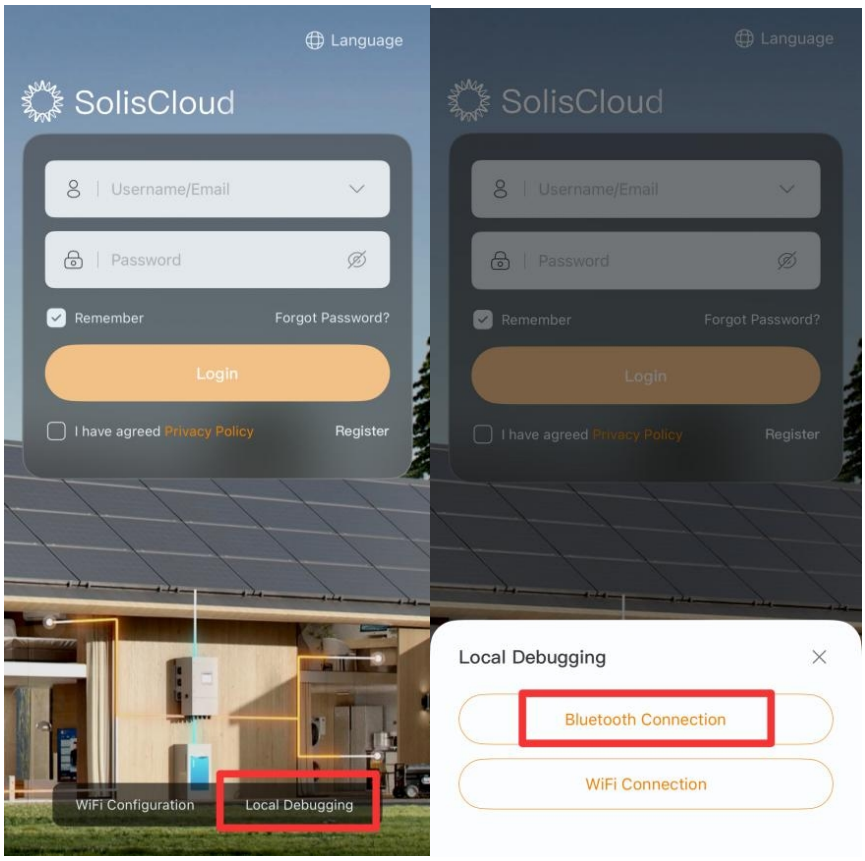
8.3. Quick Setting on APP (SolisCloud)

You can download the app by scanning the QR Code or download it in the App Store in your region, the App version should be higher than V5.1.1

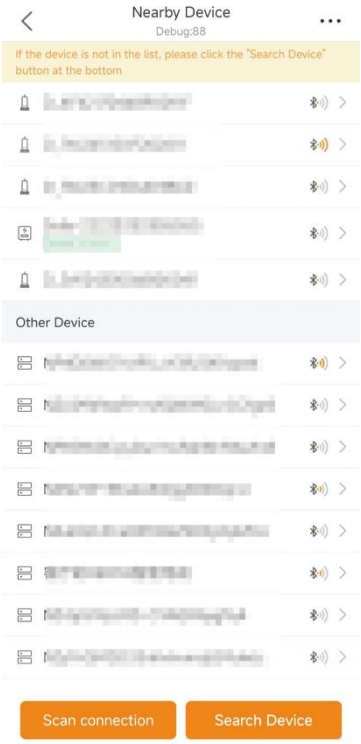
8.3.1.Log in the APP Via Bluetooth

Step 1: Turn on Bluetooth switch on your phone and then open the SolisCloud APP.

Click "Local Debugging"——> "Bluetooth Connection"

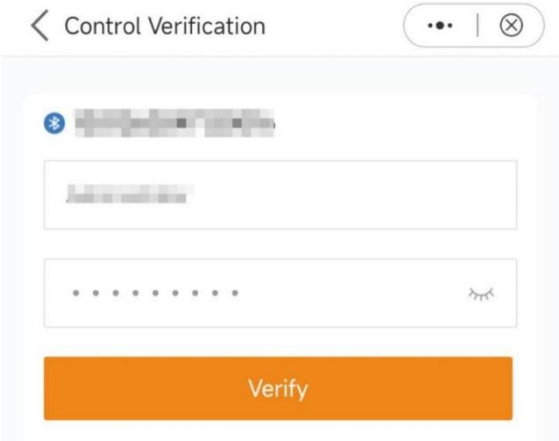


Step 2: Select the Bluetooth signal from the inverter. (Bluetooth Name: Inverter SN)



Step 3: Login account.

If you are the installer, please select the account type as Installer. If you are the plant owner, please select the account type as owner. Then set your own initial password for control verification. (The first time log-in operation must be finished by installer in order to do the initial setup)

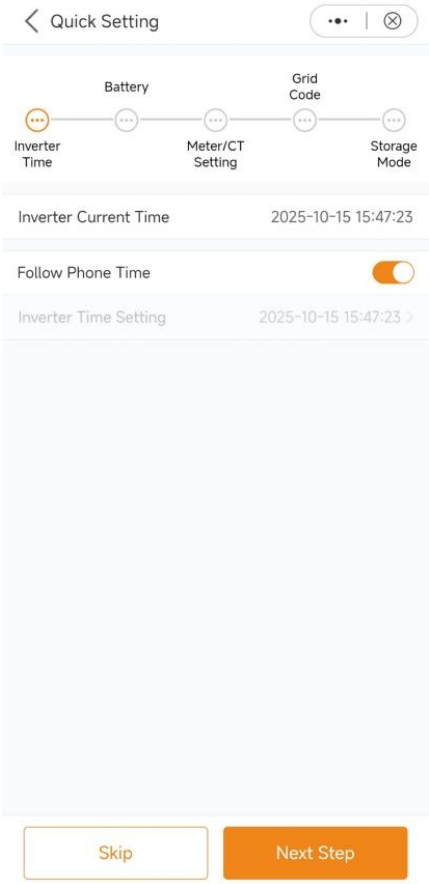


8.3.2.APP Quick Setting

If this is the first time the inverter has been commissioned, you will need to first go through the Quick Settings. Once this has been done, these settings can be changed later.

(1) Inverter Time:

Set inverter time and date, tap the slider next to "Follow Phone Time", then tap "Next step" at the bottom right corner.



(2)Battery:

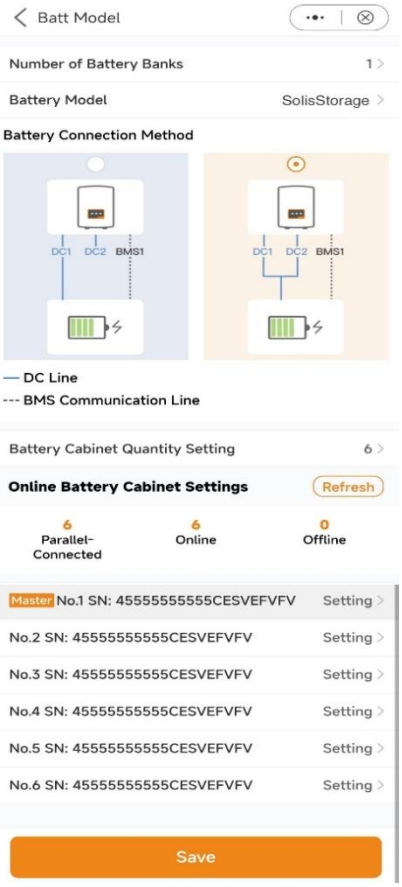
•Select number of battery banks: The default value for EverCore should be **1,**

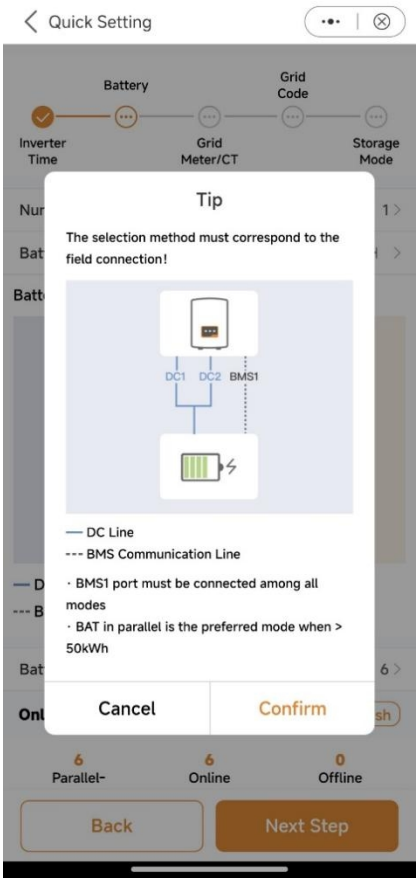
Select battery connect method: for EverCore system, the battery connection default method is 2 batteries in parallel, DC1 and DC2 ports be parallel to one terminal

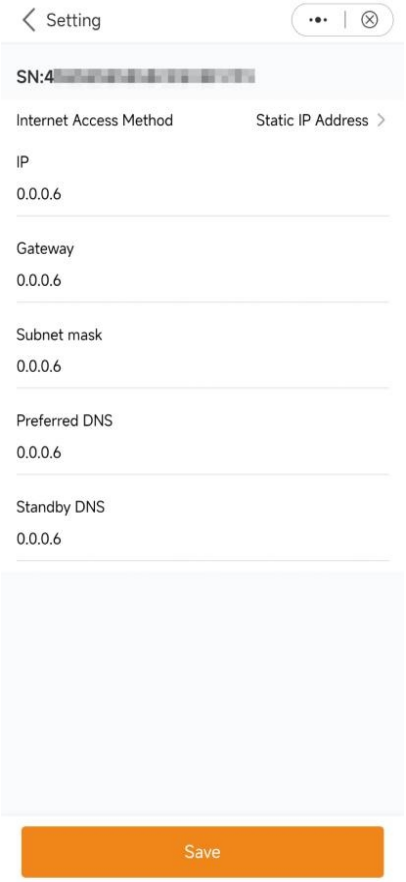
•Select battery model: **SolisStorage**

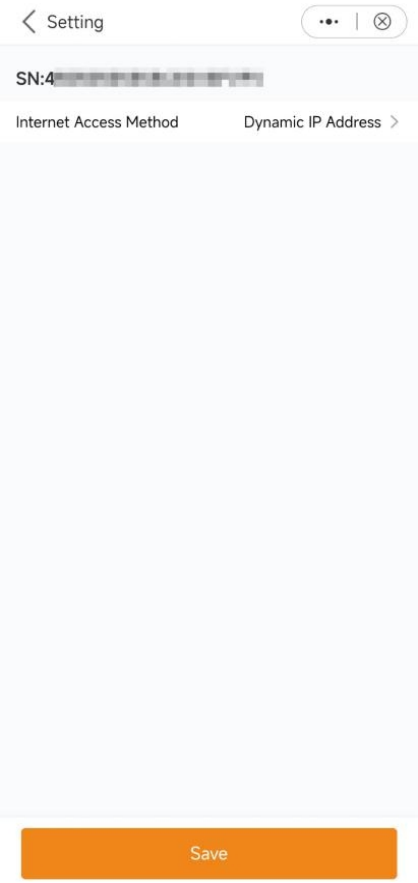
•Select battery cabinet quantity setting; it means the number of parallel cabinet

You can manually configure a dynamic or static IP address for the battery cabinet.


Batt Model
Number of Battery Banks 1
Battery Model SolisStorage
Battery Connection Method
DC1 DC2 BMS1
DC1 DC2 BMS1
— DC Line
--- BMS Communication Line
Battery Cabinet Quantity Setting 6
Online Battery Cabinet Settings
Refresh
6 Parallel-Connected
6 Online
0 Offline
Master No.1 SN: 45555555555CESVEFVFV Setting
No.2 SN: 45555555555CESVEFVFV Setting
No.3 SN: 45555555555CESVEFVFV Setting
No.4 SN: 45555555555CESVEFVFV Setting
No.5 SN: 45555555555CESVEFVFV Setting
No.6 SN: 45555555555CESVEFVFV Setting
Save


Quick Setting
Inverter Time
Battery
Grid Meter/CT
Grid Code
Storage Mode
Tip
The selection method must correspond to the field connection!
DC1 DC2 BMS1
— DC Line
--- BMS Communication Line
· BMS1 port must be connected among all modes
· BAT in parallel is the preferred mode when > 50kWh
Cancel
Confirm
6 Parallel-
6 Online
0 Offline
Back
Next Step


Setting
SN:4
Internet Access Method Static IP Address
IP
0.0.0.6
Gateway
0.0.0.6
Subnet mask
0.0.0.6
Preferred DNS
0.0.0.6
Standby DNS
0.0.0.6
Save


Setting
SN:4
Internet Access Method Dynamic IP Address
Save

(3) CT/Meter setting:

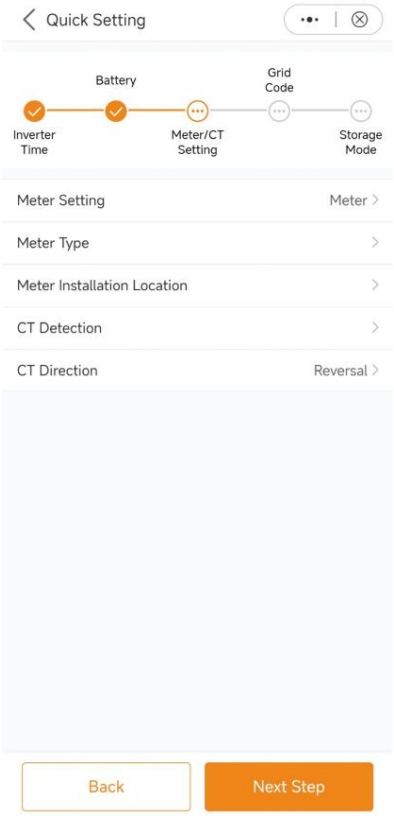
•Select CT or Meter;

•Set Meter type (Solis provide Eastron 3 phase meter, it is self-identifiable).

•Set Meter installation location: Grid side / Load side / Grid+ PV inverter;

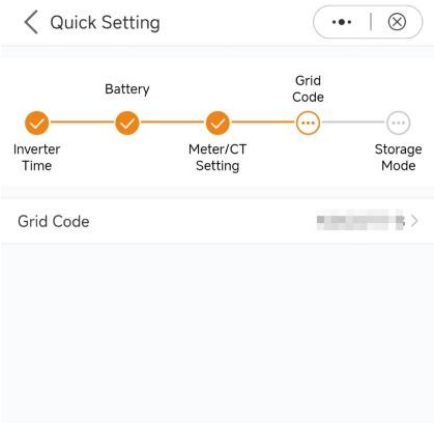
•Set CT ratio: default 60 (Solis provide ESCT-T50-300A/5A CT), if the user installs their own CT, then need to set the CT ratio manually. If the system is connected to the Meter, then the CT ratio needs to be set on the Meter.

•CT direction: When CT is installed correctly, select "Forward"; when CT is installed in the wrong direction, the sampling current of CT will be reversed when calculating the power, select "Reversal" to correct it.



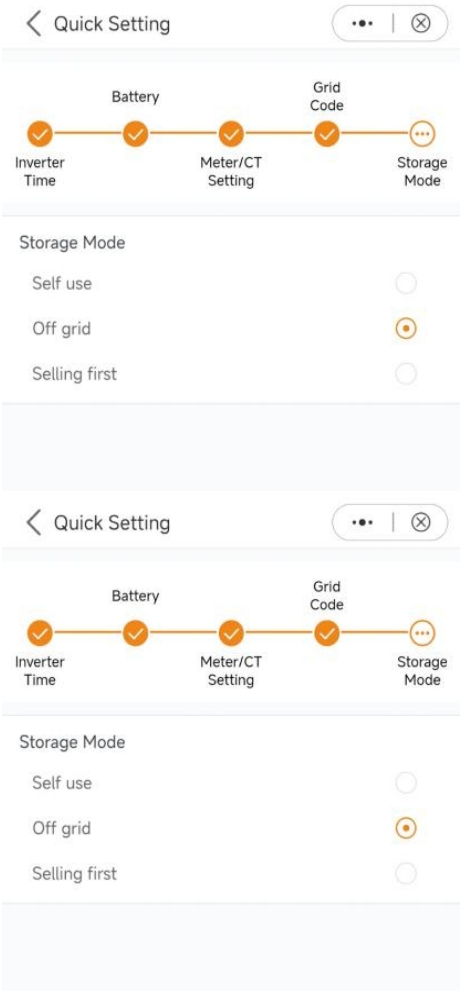
(4) Grid code:

Select grid code that meets the local regulations.

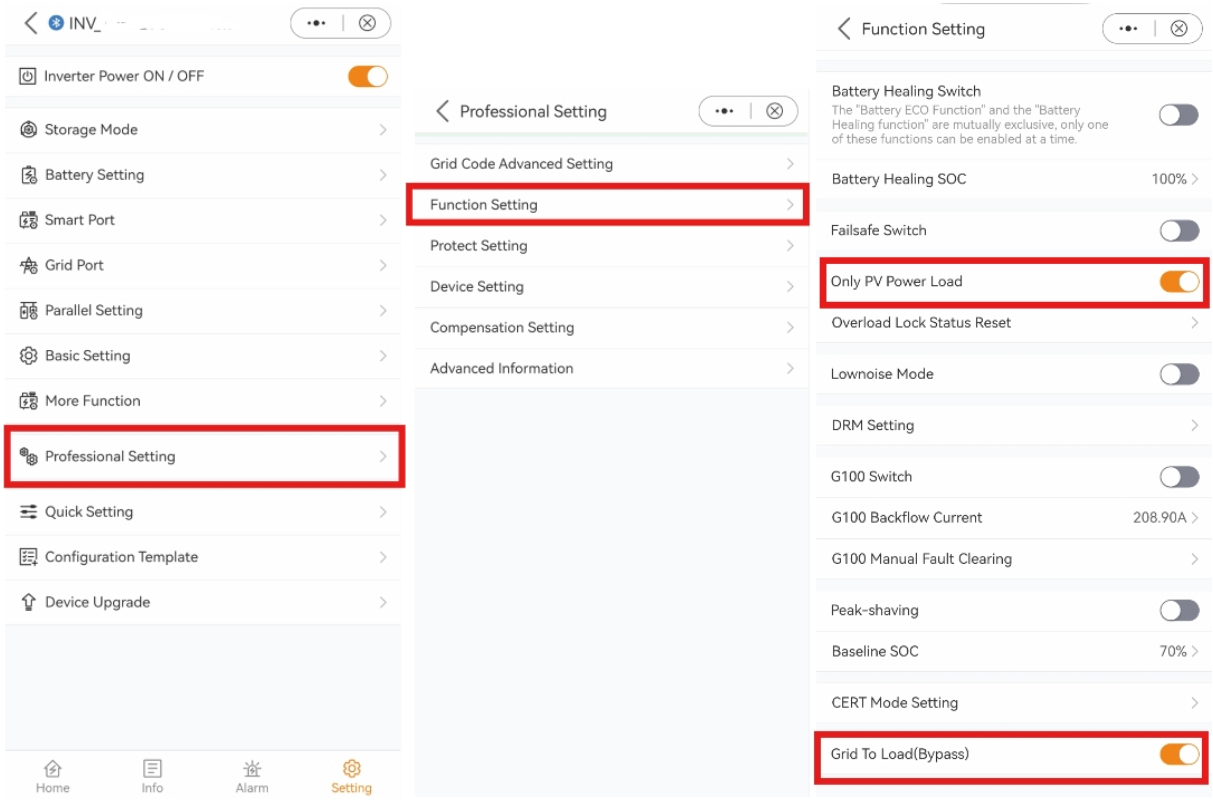


(5) Storage mode:

ALL modes first priority is to use the available PV power to support loads. The different modes determine what the second priority, or use of the excess PV power, will be. Self-use / Selling first / Off-grid are exclusive, the user can select only one mode.



To ensure that the AC backup power source of the battery cabinet can still supply power normally even when only PV or only the grid is available, the "Only PV Power Load" and "Grid To Load (Bypass)" functions need to be enabled in the APP function settings. Click the bottom right corner "Setting", then click "Professional Setting" and "Function Setting" - check and enable both functions.

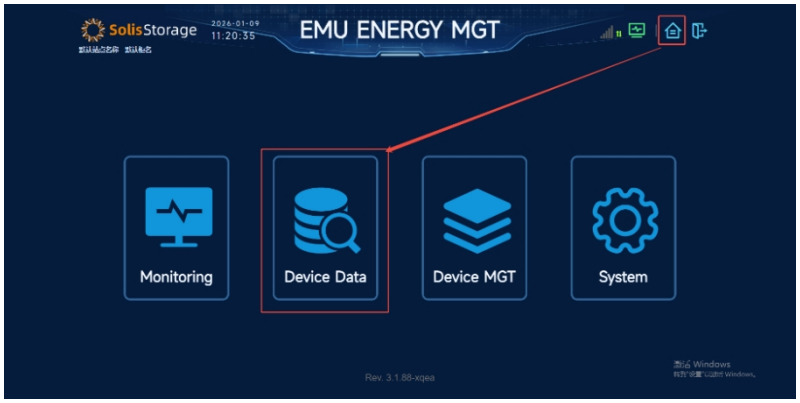


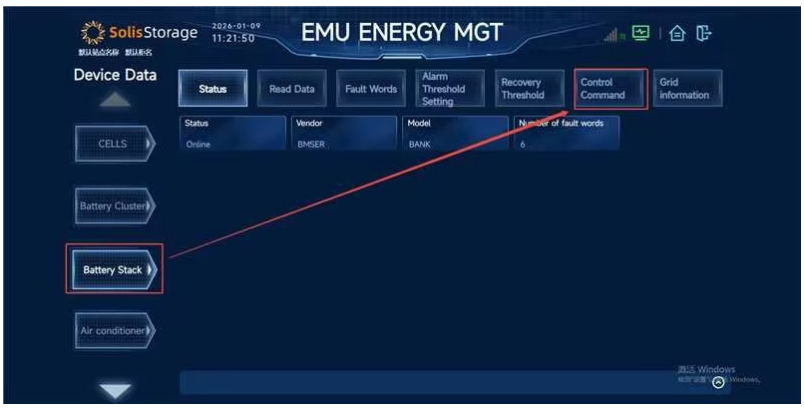
8.4. System Power-Off Operation

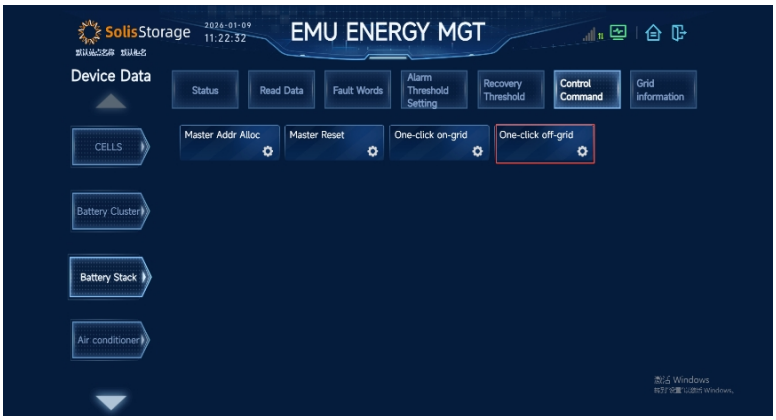
When the system needs maintenance or repair, it must be powered off. The shutdown process must be carried out strictly in accordance with the following steps.

⚠WARNING
After the system stops running, please wait for at least 10 minutes before conducting maintenance or repair operations on the system. After the system is shut down, when performing maintenance or repair operations on the system, be sure to ensure that the system will not be accidentally re-powered. Using a multimeter or an electric tester to check and ensure that the system is completely de-energized. Cover the adjacent potentially electrified components with insulating materials. During the entire maintenance and repair process, ensure that the escape routes are completely unobstructed.

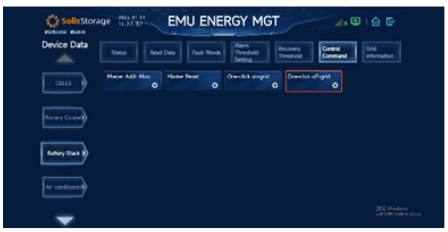
1, find the button: one-click-off on EMU inside the cabinet





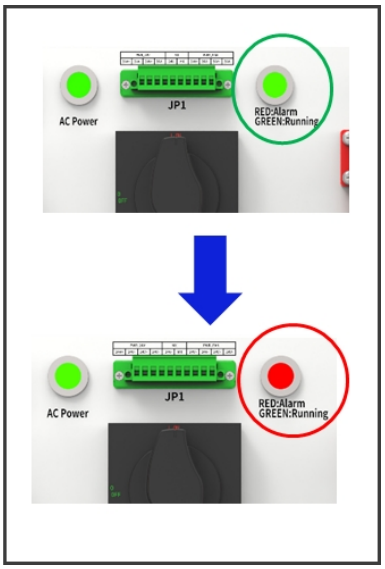


2, following the steps to operate power-off procedures



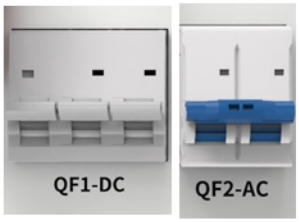
Waiting for 30S-60S

Check indicator lights

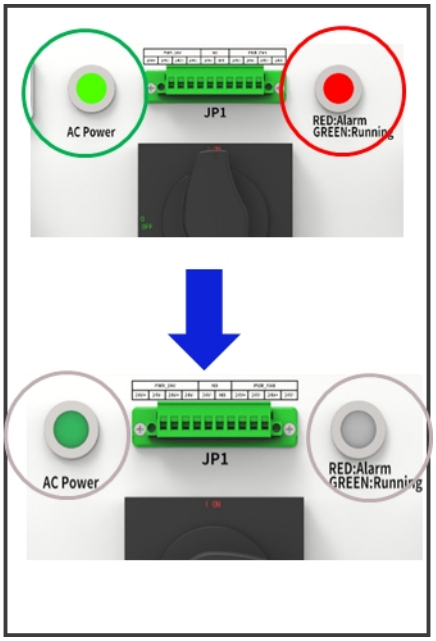


1 Press One click off-grid button on EMU

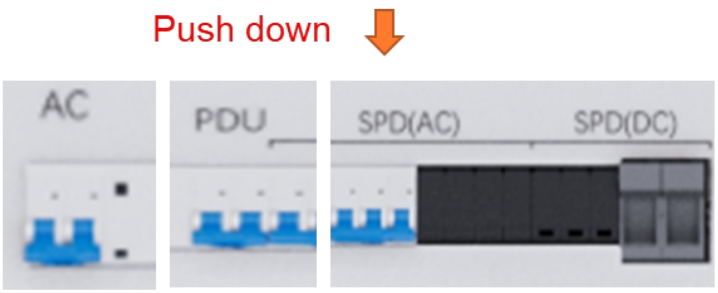
Push down



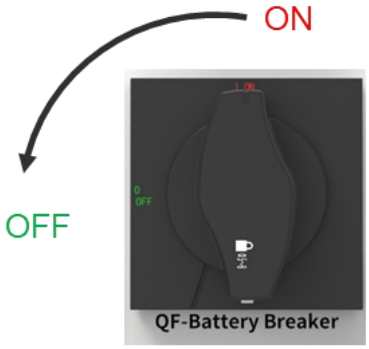
Check indicator lights



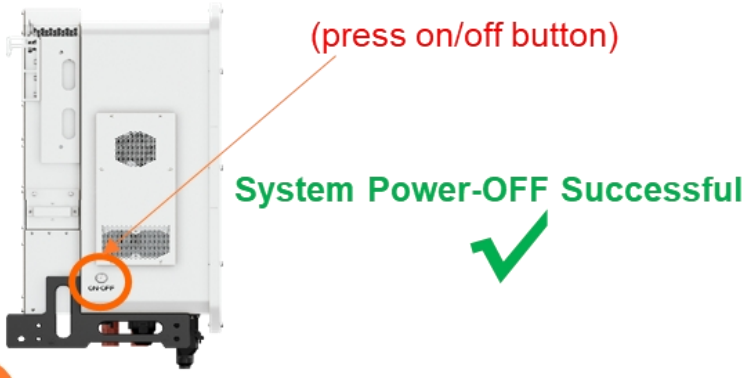
2 Turn off on QF1-DC,QF2-AC



3 Turn off AC,PDU switch and SPD (AC) Protection Switch



4 Turn off QF-Battery Breaker,



5 Turn off inverter

9. Trouble Shooting

WARNING

After the system stops running, please wait for at least 10 minutes before conducting maintenance or repair operations on the system. After the system is shut down, when performing maintenance or repair operations on the system, please note:

Ensure that the system will not be accidentally re-powered.

Use a multimeter or an electric tester to check and ensure that the system is completely de-energized.

Cover the adjacent potentially electrified components with insulating materials.

During the entire maintenance and repair process, ensure that the escape route is completely unobstructed.

9.1. Battery System Failures Trouble shooting

9.1.1.Fault, Alarm Handling and Countermeasures

If there is an alarm message displayed in the "System Alarm Information" tab, or if the battery system malfunctions, please follow the corresponding handling procedures as described in the table below. If the problem still cannot be resolved, please contact SolisStorage.

Table 9- 1 Explanation of Common Fault Information

EverCore Series Energy Storage Cabinets - Alarm Fault Codes and Handling Suggestions					
Version: v1.0					**Date: 2026-1-20**
NO	**module**	**code**	**alarm name**	**Description and Diagnosis**	**troubleshooting advice**
1	EMU-Primary	502231	Too Few High Voltage Online Cabinets Fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

2	EMU-Primary	6600028	Intercluster circulation Level 2 alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Check the inverter 2. Or please contact SolisStorage after-sales for help and support.
3	EMU-Primary	6600029	Intercluster circulation Level 1 alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Check the inverter 2. Or please contact SolisStorage after-sales for help and support.
4	EMU-Primary	500499	Inverter Communication Failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Check the inverter 2. Or please contact SolisStorage after-sales for help and support.
5	Single Cabinet EMU	6600041	EMU and BCU communication failure	Communication timeout, charging current and discharge current are limited to 0A, if the inverter is abnormal, disconnect the DC circuit breaker in the energy storage cabinet	Please contact SolisStorage after-sales for help and support.
6	Single Cabinet EMU	6600042	Flooding sensor alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
7	Single Cabinet EMU	800301	System emergency stop failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
8	Single Cabinet EMU	800120	DC lightning protection alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

9	Single Cabinet EMU	6600035	AC lightning protection alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
10	EMU-Master	6600000	Communication Fault between Secondary EMU and Primary EMU	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
11	Air Conditioner	6600036	High temperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
12	Air Conditioner	6600037	Low temperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
13	Air Conditioner	6600038	High voltage alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
14	Air Conditioner	6600039	Low voltage alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

15	Air Conditioner	200041	Compressor alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
16	Air Conditioner	200048	Internal fan alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
17	Air Conditioner	6600040	Communication failure between EMU and air conditioner	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
18	BMS	500437	The total voltage of the cluster is too low for two levels	The discharge current is limited to 0A.	1. Please charge in time and wait 24 hours for recovery. 2. Or please contact SolisStorage after-sales for help and support.
19	BMS	500438	The total voltage of the cluster is too high for two levels	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
20	BMS	500439	Fast charge overcurrent moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
21	BMS	500442	Discharge overcurrent moderate alarm	The discharge current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.

22	BMS	500443	Low insulation moderate alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
23	BMS	500446	Monomer overvoltage moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
24	BMS	500447	Monomer undervoltage moderate alarm	The discharge current is limited to 0A.	Step 1 Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
25	BMS	500448	Monomer pressure difference large moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
26	BMS	500449	Charging overtemperature moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
27	BMS	500450	Moderate warning of undertemperature charging	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
28	BMS	500451	Discharge overtemperature moderate alarm	The discharge current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
29	BMS	500452	Discharge undertemperature moderate alarm	The discharge current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.

30	BMS	500453	Monomer temperature difference large moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
31	BMS	500456	Battery module overvoltage moderate alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
32	BMS	500457	Battery module undervoltage moderate alarm	The discharge current is limited to 0A.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
33	BMS	500461	The total voltage of the cluster is too low	The charging current is limited to 0A.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
34	BMS	500462	The total voltage of the cluster is too high	The charging current is limited to 0A.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
35	BMS	500463	Fast charge overcurrent serious alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
36	BMS	500466	Severe discharge overcurrent alarm	The charging current is limited to 0A.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.

37	BMS	500467	Low insulation serious alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
38	BMS	500468	SOC is too low serious alarm	SOC too low alarm	Please charge in time to prevent excessive discharge of the energy storage cabinet
39	BMS	500470	Monomer overvoltage serious alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
40	BMS	500471	Monomer under voltage serious alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Please charge it in time and wait for recovery. 2. Check the inverter 3. Or please contact SolisStorage after-sales for help and support.
41	BMS	500472	Severe warning due to high pressure difference of single unit	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
42	BMS	500473	Serious charge overtemperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.

43	BMS	500474	Serious charge under-temperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
44	BMS	500475	Serious discharge overtemperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
45	BMS	500476	Serious discharge under-temperature alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
46	BMS	500477	Serious warning with large single temperature difference	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
47	BMS	500479	Rapid temperature rise severe alarm	Warning if the temperature rises too fast	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
48	BMS	500480	Battery module overvoltage serious alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.

49	BMS	500481	Battery module under voltage serious alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Please fill the energy storage cabinet in time and let it stand for 24 hours to wait for recovery. 2. Or please contact SolisStorage after-sales for help and support.
50	BMS	6600001	contactor failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
51	BMS	6600042	contactor adhesion failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the DC circuit breaker of the energy storage cabinet will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
52	BMS	6600002	circuit breaker failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
53	BMS	6600003	PACK fire trigger	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
54	BMS	6600005	Fuse failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

55	BMS	6600008	BMU communication failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
56	BMS	500491	Voltage acquisition fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
57	BMS	500492	Temperature acquisition fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
58	BMS	500501	CAN Hall sensor failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
59	BMS	500502	CAN Hall sensor communication failure	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
60	BMS	6600010	BCU self-test fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

61	BMS	6600012	The temperature of the high pressure box is too high for two levels	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
62	BMS	6600013	The temperature of the high pressure box is too high	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
63	BMS	6600015	Module pressure difference is too large two	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	1. Wait for recovery 2. Or please contact SolisStorage after-sales for help and support.
64	BMS	6600016	Module pressure difference is too large	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
65	BMS	6600018	BMU self-test fault level 1	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
66	BMS	6600019	Current sensor fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

67	BMS	6600021	NTC fault level 1	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
68	BMS	6600023	Abnormal charge and discharge circuit	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
69	BMS	6600024	Cluster total pressure calibration difference is too large	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
70	BMS	6600025	precharge fault	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.
71	BMS	6600026	BCU Functional Safety Alarm	The charging current and discharge current are limited to 0A. If the power-off feedback of the inverter is not received, the energy storage cabinet relay will be disconnected after 3s.	Please contact SolisStorage after-sales for help and support.

9.1.2.System Fault Diagnosis and Elimination Procedure

(1) Shut down and temporarily stop this unit from operating.

(2) Status recording: Record the phenomena at the time of the failure immediately, try to keep it complete, such as taking photos, making videos, taking screenshots of the screen, and saving the corresponding data.

(3) Fault type identification: Refer to the following fault information description table, preliminarily

determine the fault type, and send the records and confirmation results together to the supplier or technical support engineer. The user's feedback information is extremely important for the maintenance work.

(4) Notify the technical engineer and follow his guidance, combine the diagnostic methods provided in the table above, conduct a preliminary diagnosis, and further confirm the specific type of the fault.

(5) After confirming the specific fault type, contact the engineer to solve the problem on-site immediately.

(6) Fault record: After the failure is resolved, fill in the daily operation fault record form to facilitate retrospect.

9.1.3.Handling of Abnormalities and Accidents

In case of abnormalities or accidents in the battery system, appropriate and effective handling measures should be taken promptly to eliminate further damage and losses:

Overheating:

Under normal circumstances, when the battery in the system overheats, the cooling system of the battery system will automatically operate to dissipate heat and cool the system to the optimal working temperature range. If the battery system fails to reach the target temperature within the specified time or the temperature exceeds the safe usage limit, the management system will issue a warning and require immediate cessation of use. In this case, the battery should be immediately stopped and the relevant technicians should be notified for a comprehensive inspection to eliminate the fault before it can be used again.

Leakage:

During use, if leakage is detected in the battery system, personnel in the energy storage room must be evacuated immediately, and relevant technicians must be notified to handle the situation on site. The system can be used again only after the fault is eliminated. It is strictly prohibited to operate the battery with faults or continue to use it forcefully.

Over-discharge:

When the battery system is completely discharged, the overall voltage is too low or the voltage of some individual batteries is lower than their normal working voltage range. The management system will issue a warning and require immediate cessation of use of the battery and charging. At this time, the discharge of the battery should be immediately stopped, and charging should be started for the battery.

It is strictly prohibited to forcibly continue discharging the battery at this time, as it will damage the battery's performance and, in severe cases, may cause the battery to be permanently damaged and unable to be used.

Short Circuit:

Battery system short circuits caused by various reasons must be immediately evacuated the personnel in the energy storage room, the relevant power sources and electrical equipment must be cut off (if possible), the battery and the system must be disconnected, and relevant technicians must be notified to arrive on site for maintenance and fault elimination. Batteries that have been severely short-circuited cannot be used again. They must be fully inspected by the manufacturer before a decision can be made on whether partial repair and use is possible.

Fire:

Battery system fire accidents caused by various reasons must be immediately evacuated the personnel in the energy storage room. No irrelevant personnel are allowed to approach the energy storage room within the safe range (because there may be explosion risks). Special fire extinguishers should be used by professionals for firefighting. After the fire is extinguished, personnel wearing necessary protective equipment should first cut off the power connection lines, and the battery system should be fully discharged through resistance (to zero volts) before the battery system can be removed for subsequent operation analysis.

Battery system collision:

Due to various reasons, if the battery system is collided, deformed or pierced by foreign objects, it should be immediately disconnected from the power connection line, and relevant technicians should be notified to handle the situation. If the battery needs to be removed, it should be fully discharged by personnel wearing necessary protective equipment before the battery can be removed.

Other accidents:

When the battery system needs to be repaired or the battery system needs to be removed due to other accidents, the battery circuit should be disconnected to ensure that the battery will not be short-circuited. The battery system should be removed under safe conditions to prevent damage from collisions, falls, upside-down, etc. If such situations occur, please follow the above regulations for handling.

9.2. Trouble Shooting for Air conditioner

9.2.1.Trouble Shooting

NO	Fault or alarm phenomenon	Possible causes	Solution
1	Temperature sensor failure	1. The sensor is damaged, broken or short-circuited; 2. Sensor damage.	1.check if the cable connection is tight 2. If the above issues are not resolved, contact SOLIS.
2	System HV alarm	1. The condenser is clogged or scaled; 2. Failure of the external fan; 3. The external circulating air is short-circuited or blocked; 4. Excessive refrigerant was charged during maintenance; 5. Excessively high ambient temperature; 6. False alarm from the sensor in the middle of the condenser.	1. Clean the condensing heat exchanger regularly; 2. Inspect/Replace the condensing fan; 3. The air inlet and outlet of the external mask must be well isolated, and it should be ensured that there are no close-range obstructions directly in front of the on-site cabinet installation. 4. Please have it repaired by professionals and add the appropriate amount of refrigerant as required by the nameplate. 5. Appropriately lower the ambient temperature or add shading devices; 6. If the above issues are not resolved, contact SOLIS.

3	Cabinet high-temperature	1. The condenser is clogged or scaled; 2. Excessively high ambient temperature; 3. The refrigeration system malfunctions; 4. A cabinet with a relatively high heat generation has been added Equipment; 5. The temperature setting is inappropriate; 6. False alarm from the temperature sensor inside the cabinet.	1. Clean the condenser heat exchanger regularly; 2. Appropriately lower the ambient temperature or add shading devices; 3. Please have professionals conduct inspection and maintenance. 4. Reevaluate the calorific value and make adjustments; 5. Re-evaluate the temperature setting value and its deviation; 6. If the above issues are not resolved, contact SOLIS.
4	Cabinet low-temperature	1. The temperature setting is inappropriate; 2. The refrigeration system cannot be turned off. 3. False alarm from the temperature sensor inside the cabinet.	1. Re-evaluate the temperature setting value and its deviation; 2. If the above issues are not resolved, contact SOLIS.
5	The evaporator is frozen	1. Internal air circulation short circuit; 2. Poor air intake or exhaust inside the cabinet; 3. Internal fan failure; 4. The refrigeration system cannot be turned off. 5. The temperature sensor in the middle of the evaporator gave a false alarm.	1. Ensure that there is a certain distance between the internal circulation air inlet and the equipment inside the cabinet, and add an intermediate partition. 2. Ensure smooth air circulation at the air inlet and outlet of the internal circulation without severe blockage. 3. If the above issues are not resolved, contact SOLIS.
6	Abnormal communication	The terminal of the wire harness is loose.	Check if the wiring has come loose.

9.3. Fire Protection System Trouble Shooting

9.3.1.Smoke Detector Fault

NO	Fault or alarm phenomenon	Causes	Solution
1	The test smoke detector did not alarm	The smoke detector is damaged	Replace smoke detector, refer to chapter 7.6
2	The smoke detector gave a false fire alarm	The smoke detector is damaged	Replace smoke detector, refer to chapter 7.6

9.3.2.Temperature detector fault

NO	Fault or alarm phenomenon	Causes	Solution
1	The test temperature detector did not alarm	The temperature detector is damaged	Replace temperature detector, refer to chapter 7.6
2	The temperature detector gave a false fire alarm	The temperature detector is damaged	Replace temperature detector, refer to chapter 7.6

9.3.3.Gas detector alarm

NO	Fault or alarm phenomenon	Causes	Solution
1	The test detector did not alarm	detector is damaged	Replace the detector
2	LED indicator display Continuous yellow	1.cable failure 2need calibration 3.detector is damaged	1.check it 2.re-calibration 3.replace it

9.3.4.Audible and visual alarm fault

NO	Fault or alarm phenomenon	Causes	Solution
1	The detector tested not alarm	The alarm is damaged	Replace it

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Please adhere to the actual products in case of any discrepancies in this user manual.
If you encounter any problem on the inverter, please find out the inverter S/N and contact us, we will try to respond to your question ASAP.