SOLINTEG
INTEGRATE SOLAR INTELLIGENTLY

INTEG E STORAGE CABINET

Outdoor Air Cooling Energy Storage Cabinet

E2BR-S64/80/96/112K-C



User Manual

ENGLISH VERSION


SOLINTEG
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Scope of Application

This manual mainly introduces the safety instructions, product introduction, transport, storage, installation, electrical connection, operation, maintenance and troubleshooting of Solinteg outdoor air-cooling energy storage cabinet (hereinafter referred to as "energy storage cabinet"). Please read this manual carefully before installing the equipment.
This document applies to the following models: E2BR-S64K-C, E2BR-S80K-C, E2BR-S96K-C, E2BR-S112K-C.

Model	E2BR-S64K-C	E2BR-S80K-C	E2BR-S96K-C	E2BR-S112K-C
System energy (kWh)	64.3	80.3	96.4	112.5
System usable energy (kWh)	57.87	72.27	86.76	101.25
Ingress protection	IP55			
Dimensions(W×H×D mm)	1050*2262*1140			
Weight(kg)	1101	1214	1327	1440

Target Group

This instruction manual is intended for specialised technicians who install, operate and maintain energy storage cabinets. The following qualifications are required for the operator:

① Some knowledge of electrical and cabling as well as mechanical knowledge and familiarity with energy storage systems and their operating principles.

② Specialised training in the installation and commissioning of electrical equipment.

③ Be familiar with local national/local electrical standards and regulations.

④ Obtain locally recognised installation and operation certificates.

⑤ Only personnel meeting the above requirements may perform installation, maintenance and troubleshooting. Unauthorised personnel must not perform any operations on the equipment.

Explanation of Symbols

This manual contains important safety and operating instructions that must be accurately understood and followed during installation and maintenance of the equipment. To ensure the most accurate use of this manual, please note the following symbol descriptions.

DANGER	Indicates a danger with a high level of risk of death or serious injury if not avoided.
WARNING	Indicates a danger with a medium level of risk of death or serious injury if not avoided.
NOTICE	Indicates a danger with a low level of risk that could result in minor or moderate injury if not avoided.
NOTE	Supplementary explanations to key information in the text to help the user use the equipment more efficiently. "Notice" are not safety warnings and do not relate to personal, equipment or environmental injuries.

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1 Safety Instructions

1.1 Disclaimer

Before transporting, storing, installing, operating, using and maintaining the equipment, please read this manual carefully, fully understand and strictly follow the contents of the manual, and follow the markings on the equipment and all the safety precautions in the manual.

Under any of the following circumstances, Solinteg reserves the right not to assume responsibility for quality assurance:

① Damages caused by improper transportation.

② Damages caused by incorrect storage, installation or use.

③ Damages caused by installation and use of equipment by non-professionals or untrained personnel.

④ Damages caused by failure to comply with the instructions and safety warnings in this document.

⑤ Damages of running in an environment that does not meet the requirements stated in this document.

⑥ Damages caused by operation beyond the parameters specified in applicable technical specifications.

⑦ Damages caused by unauthorized disassembly, alteration of products or modification of software codes.

⑧ Damages caused by unauthorized opening of the equipment's cover and disassembling or replacing internal components.

⑨ Damages caused by abnormal natural environment (force majeure, such as lightning, earthquake, fire, storm, etc.).

⑩ Any damages caused by the process of installation and operation which don't follow the local standards and regulations.

⑪ Products that have exceeded the warranty period.

1.2 Personal Safety

In order to avoid damage to the equipment or personal injury or death caused by improper operation, please read carefully the following instructions on installation precautions before carrying out the relevant work.

① The installer must be professionally trained or obtain electrical related professional qualifications.

② It is strictly prohibited to wear watches, bracelets, bangles, rings, necklaces and other easily conductive objects during installation and operation, so as to avoid being burned by electric shock.

③ It is strictly prohibited to operate with electricity during installation. When removing and installing cables, the sparks and pulling arcs generated by the electrified operation can cause fire or personal injury.
④ During installation and operation, the installer should wear professional protective gear.
⑤ If you need to use a ladder during the installation process, it is prohibited to use a ladder. If electrical operation is involved, a wooden ladder or insulated ladder should be selected.
⑥ Before operation, make sure that the cabinet has been firmly fixed to avoid tilting and collapsing due to unstable centre of gravity of the cabinet, which may lead to injuries and equipment damage.
⑦ The temperature of some parts of the equipment may reach over 60℃ during operation, please keep away from heat sources such as equipment vents and cooling systems during operation to avoid injury.
⑧ Please install the equipment in a place out of reach of children and small animals.
⑨ The equipment must not be used in the following scenarios when in a state of back up:
a. Medical equipment, etc. that is directly related to life;
b. Equipment or precision instruments that may malfunction or be damaged due to power failure or power fluctuation.

1.3 Electrical Safety

① Please regulate the operation strictly in accordance with the contents of the instruction manual.
② Please make electrical connections in strict compliance with local regulatory requirements.
③ When installing the equipment, please disconnect the power supply first and prohibit operation with electricity.
④ Before installing the equipment, install the equipment grounding protection wire. When removing the equipment, remove the grounding wire last.
⑤ Select the cable specification in accordance with local regulations and the instruction manual.
⑥ When installing the equipment, connect the cables securely and tighten the terminal screws.
⑦ If the cable is damaged, it must be replaced by a professional to avoid risks.
⑧ Disconnect the power supply before wiring the power cord and communication cable, and prohibit operation with electricity.
⑨ When installing, do not open the installation cover inside the energy storage cabinet. Except for terminal wiring (as described in this manual), unauthorised opening of the coverand replacement of internal components may result in personal injury, equipment damage, and voiding of warranty.
⑩ When performing lithium battery terminal wiring, disconnect the circuit breaker or air switch first to avoid injury to personnel when the lithium battery is under high voltage.

1.4 Installation Requirements

① Before installation, please carefully check the number of parts of the equipment, as well as the number of tools and materials required to avoid missing, and check the number of installed parts and tools again after installation to ensure that the installation is complete, to avoid tools left inside the equipment. Except for the optional parts, all parts of the equipment should be installed in accordance with the requirements of the completion of the installation.
② Drilling holes in the equipment without permission is prohibited to avoid damaging the performance of the equipment.
③ The equipment should be placed in a well-ventilated area and away from other heat sources to ensure the normal operation of the equipment cooling system.
④ During the operation of the equipment, please ensure that the ventilation openings and the heat dissipation system are kept clear and avoid any obstruction to avoid the accumulation of high temperature which may cause injury to the equipment or lead to fire.
⑤ Please do not open the cabinet door in rainy or high humidity weather, if you have to open the cabinet door in special circumstances, please take protective measures.
⑥ It is strictly prohibited to place the equipment in the environment of flammable or explosive gas or smoke, and it is prohibited to carry out any operation in this environment.
⑦ It is strictly prohibited to place the equipment in a low-lying area, and should be kept away from drainage outlets, air-conditioning outlets, vents and other locations that are prone to water leakage, in order to prevent liquids from entering the interior of the equipment and causing equipment failure and damage.

1.5 Battery Safety

① Carefully check the positive and negative poles of the battery, and it is strictly prohibited to short-circuit the positive and negative poles of the battery. Otherwise, it will cause a short circuit of the battery, generate huge current and a lot of heat, and lead to battery leakage, smoke, release of flammable gas, thermal runaway, fire or explosion.
② It is strictly prohibited to maintain the battery under charged condition.
③ It is strictly prohibited to step on the battery, lean on it, and prohibit people or equipment from squeezing the battery.
④ It is strictly prohibited to place the battery in a high temperature and high humidity environment, please ensure good ventilation, unobstructed heat dissipation, and avoid any shielding to avoid high temperature accumulation causing equipment injury or fire.
⑤ It is strictly prohibited to disassemble, modify, vibrate, drop, collide, crush, puncture with sharp objects, pressure shock or damage the battery, otherwise it will result in liquid leakage, smoke, release of flammable gas, thermal runaway, fire or explosion.

⑥ It is strictly prohibited to carry out welding, grinding and other work around the battery to avoid fire and other disasters caused by electric sparks or arcs generated during the operation.

⑦ It is strictly prohibited to mix different models or brands of batteries.

⑧ It is strictly prohibited to use used or damaged batteries.

⑨ Before operating the battery, please check whether there is irritating, burning and other odours around the battery.

⑩ Batteries must be maintained and handled by professional personnel, and wear safety protective gear (including but not limited to goggles, rubber gloves, gas masks, protective clothing) in accordance with local requirements.

⑪ When the battery is damaged due to puncture, impact, extrusion, external heat, overshooting, etc., it may result in thermal runaway, liquid leakage, or the generation of toxic and flammable gases. To ensure safety, prevent fire, and ensure personal safety and avoid equipment damage, appropriate safety measures must be taken on site in accordance with local requirements.

⑫ When installing and commissioning the battery, it must be in accordance with local laws, regulations and norms, and be equipped with fire protection facilities.

⑬ During the storage and transport of the battery, it must be ensured that the outer packing box is intact and undamaged. When placing or stacking the batteries, they must be placed correctly according to the box markings, and it is strictly prohibited to place them upside down, sideways, standing up, or tilted to avoid damage or scrapping of the batteries due to any impact or fall.

⑭ The equipment should be inspected regularly to avoid loosening, rusting, corrosion, or other foreign objects entering. If any of the above conditions occurs, it must be dealt with in time to avoid excessive connection voltage drop due to false connection of screws, which may lead to large amount of heat generation and burning of the battery when the current is high.

⑮ After the battery is discharged, the battery should be charged in time to avoid damage to the battery due to over-discharge; when the battery is stored for more than six months, it must be inspected and tested by professional personnel.

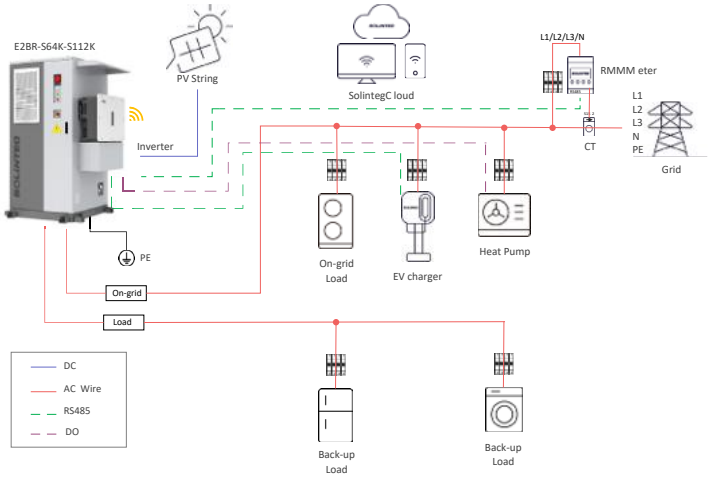
⑯ Prohibit charging when the ambient temperature is lower than the lower limit of the working temperature.

⑰ When the battery is swollen and bulging, and the shell is dented or broken, please stop using it immediately and contact the installer or professional operation and maintenance personnel to remove and replace it. Damaged batteries should be kept away from other equipment or flammable and explosive materials, and non-professionals should stay away.

2 Products

2.1 Product Description

This schematic is applicable to Solinteg outdoor air-cooling energy storage cabinet series. The energy storage cabinet integrates high capacity battery, high voltage box, electrical warehouse and fire protection system in a single cabinet, forming an easy-to-install, easy-to-expand and intelligent outdoor energy storage system together with the inverter. It can be widely used in different industrial and commercial scenarios.

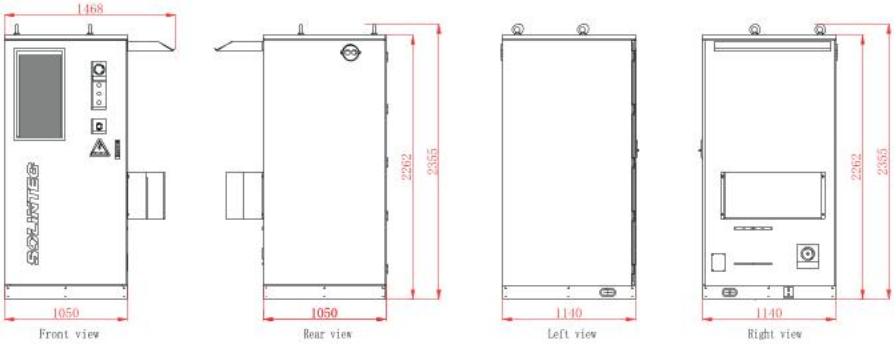


System main equipment table

Model	Description
Energy storage cabinet (E2BR-64K-S112K)	Solinteg outdoor air-cooling energy storage cabinet, which can achieve energy storage and provide stable backup power.
Hybrid inverter	Solinteg optical storage inverter, which can realise DC-AC electric energy conversion, and electric energy management.
Smart meter+CT (RMM meter+CT)	Power generation metering, and communication with the inverter, which can control battery charging and discharging and inverter Internet power.
EV charger	Provides power supplement for electric vehicles, and can be linked to Solinteg inverters in a friendly way through communication.
Solinteg cloud	An intelligent, multi-functional monitoring platform that can be accessed remotely. View relevant data at any time.
Load/Heat pump	The system supports intelligent control of SG Ready heat pumps, which can be configured by users according to their own conditions.

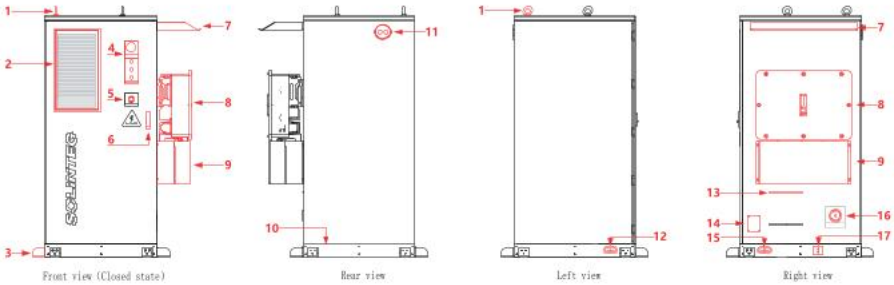
2.2 Appearance Dimensions

Dimensions of the energy storage cabinet: W*D*H-1050*1140*2262mm. The cabinet appearance and dimension drawing are shown below:



Cabinet appearance and dimension drawing

2.3 Product Components



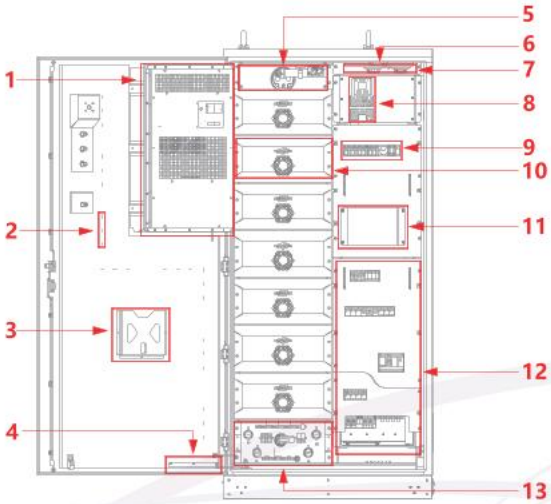
Schematic diagram of product components A

The part number, name and description are shown in the table below:

No	Name	Description
1	Lifting ring	For cabinet lifting
2	Circulation air outlet for air cooling system	Air conditioning system inlet and outlet
3	Fixed stand*	For cabinet fixing
4	Operation indicator	Indicates system operation and fault status
5	Emergency stop button	For emergency stop
6	Door lock	To open or close the cabinet door

No	Name	Description
7	Rain shelters	Protect inverter from rain or snow
8	Inverters**	25-50kw inverter
9	Cable cover hoods	Cable protection
10	Decorative panels	Cabinet surround decoration
11	Explosion-proof valves	Release gas pressure
12	Left side cable routing hole	For cable laying
13	Cable clamp	For cable tying
14	Nameplate	Nameplate for product parameters
15	Right-hand threading hole	For cable laying
16	Fire water connection	For connection to external fire water source
17	Cabinet grounding port	For protective grounding of the cabinet enclosure

* The four sides of the cabinet support fixed kickstand mounting, users can choose to install on the left and right sides or front and rear sides according to the site conditions;
** The energy storage cabinet can provide a mounting position for one inverter, which is convenient for users to install and wire, the inverter in the figure is mounted on the side of the energy storage cabinet.

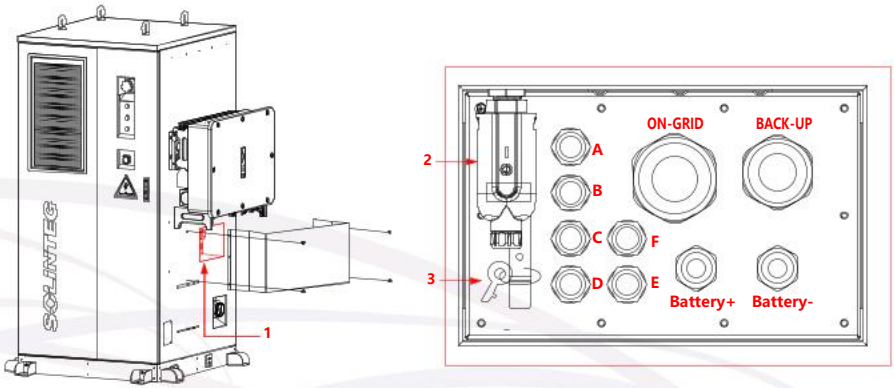


Component diagram B

The part numbers, names and functions are listed in the table below:

No	Name	Description
1	Air-cooling air conditioner	Automatically adjusts the temperature and humidity inside the cabinet by monitoring the temperature inside the cabinet.
2	Cable tie card	For cable tying
3	Documentation frame	For storage cabinet documentation
4	Windproof fixing bar	For windproof fixing of the front door when it is open
5	Fire fighting system	Equipped with temperature, gas and smoke detectors for automatic fire extinguishing control.
6	Sensors	Including temperature and smoke alarm sensors
7	Door control and lighting	Includes door limit switches and cabinet lighting.
8	UPS	Provides stable power supply for important control circuits inside the cabinet
9	Control power supply	Includes control switches for the main control of the high-voltage cabinet, air-conditioning system, UPS and service sockets
10	Battery pack	Electrical energy storage unit
11	Reserve space	Reserve space for equipment expansion
12	Electrical compartment	Power supply system for energy storage cabinets
13	High voltage box (master control)	Battery information, fire information collection and storage cabinet control

2.3.1 Side Crossing Panel



Schematic diagram of side crossing panel

The part numbers, names and functions are listed in the table below:

No	Name marking	Description
1	Side cable crossing board	Cable feedthrough for connection between inverter and energy storage cabinet
2	Communication bar	Transmission of information on the operation of the energy storage cabinet
3	Cabinet key	Energy storage cabinet door key
4	On-grid	Inverter grid cable threading hole
5	Back-up	Inverter load cable feedthrough
6	Battery +	Inverter and battery pack total positive connection threading hole
7	Battery -	Inverter to battery pack total negative connection threading hole
8	A Reserved ports	Reserved ports
9	B Inverter comm	Inverter and battery communication interface
10	C Inverter emergency stop	Inverter emergency stop interface
11	D Reserved ports	Reserved ports
12	E Reserved ports	Reserved ports
13	F Reserved ports	Reserved ports

NOTE

The energy storage cabinet door key is located here, please remove the key after unpacking.

2.3.2 Cabinet Bottom Area

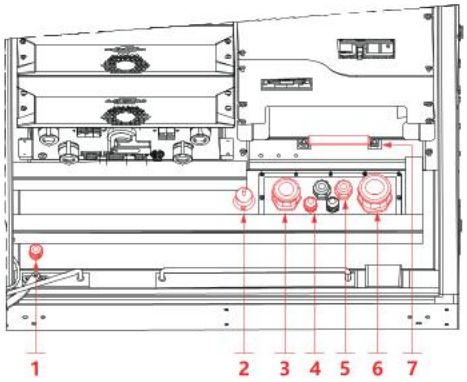
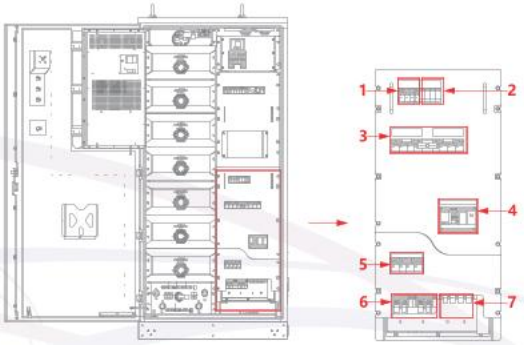


Diagram of the bottom of the cabinet

No	Marking	Description
1	Air conditioner drain	Air-conditioner external drain
2	Flood detector	Detects flooding of energy storage cabinets
3	Load wire hole	Load wire hole
4	Wire hole	Pre-wire hole
5	Wire hole	Wire hole
6	Utility wire hole	Utility wire hole
7	PE	Cable ground port

2.3.3 Electrical Compartment

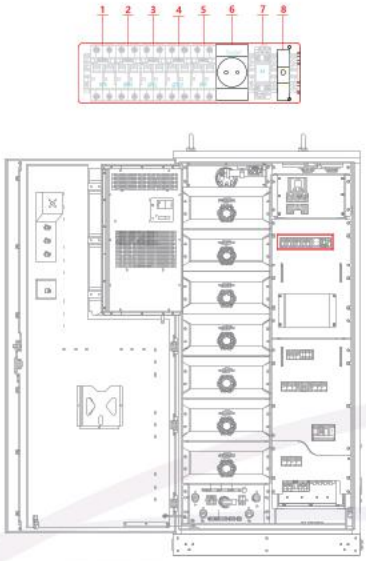


Layout of components in the electrical compartment

The component numbers and names are shown in the table below:

No	Marking	Name
1	QF7	SPD switch SPD breaker
2	SPD	AC lightning protection AC SPD
3	QF6-1/2	Bypass switch (Normal operation and maintenance bypass switching) Bypass breaker
4	QF4	Grid switch Utility breaker
5	QF5	Load switch (Incl. load interface) Load breaker (Load Terminal)
6	Reserved ports	Reserved ports
7	Grid terminal	Grid terminal L1/L2/L3/N Grid terminal

2.3.4 Control Power

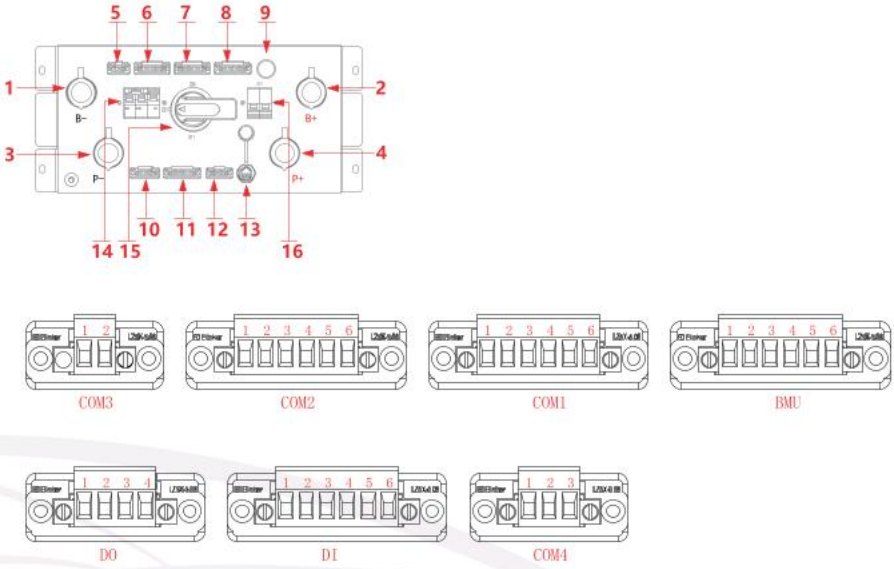


Control power circuit component layout

The part numbers and names are shown in the table below:

No	Marking	Name
1	QF8	Auxiliary main switch Auxiliary main breaker
2	QF81	Air conditioning switch A/C breaker
3	QF82	UPS switch UPS breaker
4	QF821	Controller PDU AC breaker
5	QF9	Socket breaker
6	Socket	Socket
7	Socket KA	Fire signal conversion relay
8	Reserved switch	Reserved switch

2.3.5 High Voltage Box



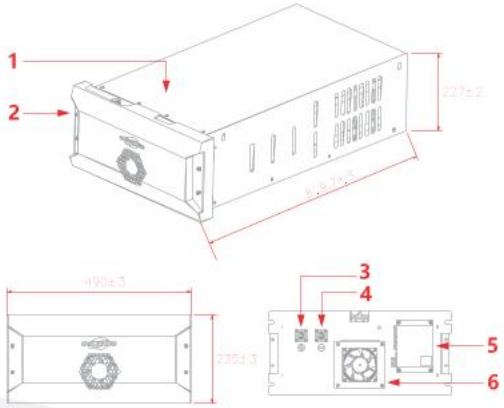
High voltage box layout

The part numbers and names are shown in the table below:

No	Marking	Definition	Description
1	B-	B-	Connects to the negative terminal of the battery pack
2	B+	B+	Connect the positive terminal of the battery pack
3	P-	P-	Connects to the negative terminal of the inverter
4	P+	P+	Connects to the positive terminal of the inverter
5	COM3	COM3-1: DC24V+	DC24V fan power: battery pack fan power supply
		COM3-2: DC24V-	
6	COM2	COM2-1: RS485A	Reserved
		COM2-2: RS485B	
		COM2-3: RS485A	Communication stick communication interface
		COM2-4: RS485B	
		COM2-5: RS485A	Air-cooling air conditioner RS485 communication interface
		COM2-6: RS485B	
7	COM1	COM1-1: DC24V+	DC24V BA power supply
		COM1-2: DC24V-	
		COM1-3: CAN-H	BMS debug CAN port
		COM1-4: CAN-L	
		COM1-5: CAN-H	Inverter communication CAN port
		COM1-6: CAN-L	
8	BMU	BMU-1: DC24V+	DC24V BMU power supply
		BMU-2: DC24V-	
		BMU-3: ADD SET	BMU address setting
		BMU-4: /	/
		BMU-5: CAN-H	BMU CAN interface
		BMU-6: CAN-L	
9	HR	/	High voltage box fault indicator
10	DO	DO-1: NO1	Cabinet operation signal output (Operation indicator lamp)
		DO-2: COM1	
		DO-3: NO2	Cabinet fault signal output (Fault indicator)
		DO-4: COM2	

No	Marking	Definition	Description
11	DI	DI-1	Signal input common terminal
		DI-2	SPD status signal input
		DI-3	Fire status signal input
		DI-4	Flood status signal input
		DI-5	Door control status signal input
		DI-6	Emergency stop button status signal input
12	COM4	COM4-1: AC220V L	AC220V BMS power supply interface
		COM4-2: AC220V N	
		COM4-3: PE	
13	LAN	/	BCU and BAMS communication
14	QF3	/	Controller DC power breaker
15	QF1	/	Controller main control switch
16	QF2	/	Controller ac power breaker

2.3.6 Battery Pack



Battery pack exterior view

Part numbers and names are listed below:

No	Name	No	Name
1	Battery pack	4	Battery pack negative
2	Mask	5	BMU
3	Battery pack positive	6	Fan

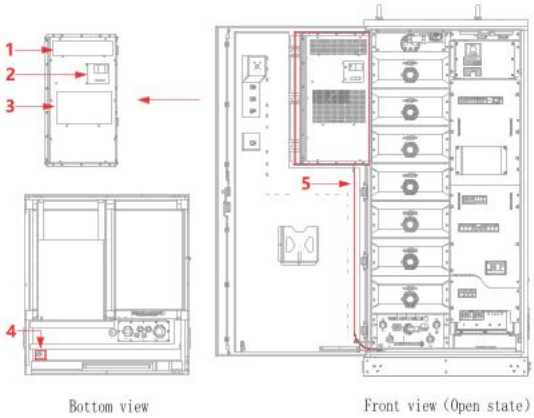
Battery pack parameters

No	Item	Technical specification	Remarks
1	Cell type	MB31	
2	Nominal capacity	314Ah	Cell standard charging and discharging process
3	Nominal voltage	51.2V	Cell 3.2 V
4	Nominal energy	16.076kWh	Standard charging and discharging process of cell
5	Standard charging power	0.5P	
6	Standard discharge power	0.5P	
7	Equalising function	Passive equalisation	
8	Thermal management mode	Forced air cooling	
9	Operating temperature range	Discharge: -20~50℃ Charge: 0 ~ 50℃	
10	Storage temperature	-20~45° C	
11	Fire protection function	Built-in aerosol module	
12	Operating humidity	5%- 95% RH	
13	Storage environment requirements	Short-term less than one month	-30℃ ~+55℃ , 90%RH Max
		More than 3 months	-10℃ ~+45℃ , 90%RH Max
		Recommended storage	10℃ ~+30℃ , 85%RH Max
14	Evel of production	IP20	
15	Weight	114±5kg	Front panel included
16	Size	D791.5±3*w487 ±2*h227±2mm	Excluding front panel
		D819.7±3*W490 ±3*H235±3mm	Including front panel
17	Application altitude	3000m	> 3000m It needs to be derated
18	Enclosure box	SGCC	
19	Front panel	SPCC	

2.3.7 Air-cooling Air Conditioning

DANGER

Keep the air-conditioner drain line clear to prevent damage to the unit due to water pooling in the cabinet caused by poor drainage.
Do not modify the settings of the air-conditioning controller to prevent damage to the unit if the air-conditioner fails to operate properly.



Schematic diagram of air-cooling air conditioner

Part numbers, names and functions are listed below:

No	Name	Description
1	Air outlet	Cooling air
2	Air conditioning controller	Receives temperature and humidity signals, sets and controls temperature and humidity.
3	Return air outlet	Absorbs hot air from the room
4	Air conditioning drain	Condensate drain
5	Air-conditioning drain hose	Condensate drain

NOTE

The end of the air conditioner drain pipe needs to go out of the air conditioner drain port, and it is recommended that the air conditioner drain pipe be led out to the drainage ditch to prevent water from accumulating at the bottom of the cabinet.

Air cooling air conditioner parameter table

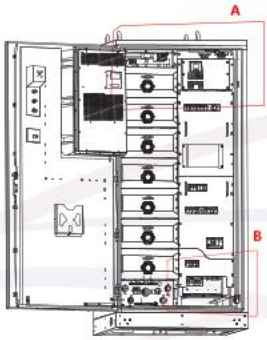
Item	Parameter
Rated AC input power supply	AC230±10%/50±1Hz
Rated power (cooling/heating)	1.0/2.2kW
Rated current (cooling/heating)	4.6/10.2A
Rated cooling capacity	2.0kW
Heating power	2.0kW
Maximum operating current	11A
Internal fan air volume	800 m^3/h
External fan air volume	900m^3/h
Temperature control range	20~50℃
Humidity control	Yes
Operation temperature	-40~50℃
Refrigerating fluid	R134a

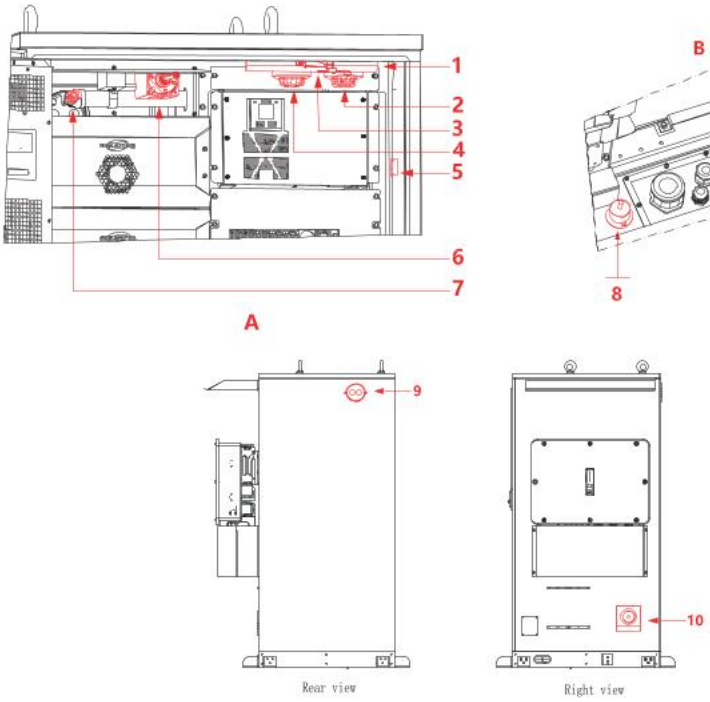
2.3.8 Fire Protection System

NOTICE

Door control switch on the right side of the cabinet top, when the cabinet door is opened, the high pressure box will receive the open door signal. Please close the cabinet door after operation and maintenance are completed to prevent moisture, small animals, etc. from entering and damaging the equipment.

The lighting inside the cabinet is induction type, please keep the lighting switch position, and it will be extinguished automatically 30S after the cabinet door is closed.





Layout diagram of fire protection system

The part number and name are listed below:

NO	Name	Description
1	Induction lighting	Lights up when the door is opened and goes out 30s after the door is closed.
2	Temperature sensor	Detect the temperature inside the energy storage cabinet and send a signal to the fire control system.
3	Door control switch	Monitor the opening or closing status of the cabinet door
4	Smoke sensor	Detects the concentration of smoke in the energy storage cabinet and sends a signal to the fire control system.
5	Fire test terminal	Disconnect here to avoid aerosol fire extinguisher spraying during fire testing.
6	Aerosol fire module	Receives fire alarm signals and activates the fire protection system
7	Fire extinguishing nozzles	Fire extinguishing nozzles
8	Flood detector	Detects flooding of the energy storage cabinet and sends a signal to the high voltage box.
9	Explosion-proof valve	Releases gas pressure
10	Fire water connection connection	Connection for external fire water connection

Description:

Battery pack fire protection: Each battery pack is equipped with an aerosol extinguishing module, which turns on the spray when the fire triggers the thermal line (170° C).

Each battery pack is equipped with an aerosol extinguishing module, which turns on the spray when the fire triggers the thermal line (170° C).

The cabinets are configured for fire protection:

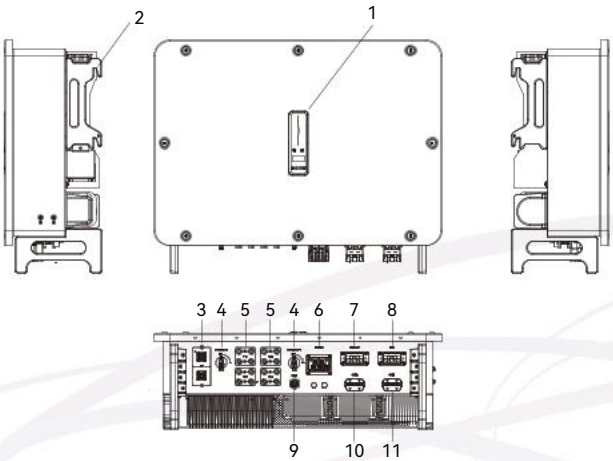
The configuration consists of a separate aerosol fire protection module as standard, and supporting smoke and temperature detectors. The system can automatically detect fire, automatically start the fire extinguishing module, have a dry contact to the BMS feedback injection status, release the extinguishing agent, linkage cut off the main circuit power supply equipment;

Cabinet fire protection configuration.

It is configured as a standard with a separate aerosol fire module, as well as a matching smoke detector and temperature detector. automatically detect the fire, automatically start the fire extinguishing module, connect the dry contact to the BMS to feedback spray state, release The system can automatically detect the fire, automatically start the fire extinguishing module, connect the dry contact to the BMS to feedback spray state, release the fire extinguishing agent, cut off the main circuit power supply equipment, etc.

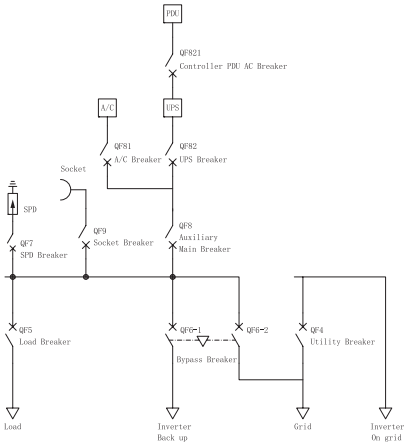
▼ 2.3.9 Inverter

Not part of the scope of delivery of this product, the following figure is only for illustration purposes, please refer to the corresponding specifications of the inverter manual for details.



Item	Name	Note
1	Indicator OLED display and button	Display the operation information and working status of the inverter
2	Hanger	Used to hang the inverter on the wall-mounting bracket
3	Battery input terminal	Battery connector
4	DC switch	Used to safely disconnect the DC circuit
5	DC input terminal	PV connector
6	On-grid output terminal	Used for On-grid output cable connection
7	Back-up output terminal	Used for Back-up output cable connection
8	Generator input terminal	Used for diesel generator AC cable connection
9	COM1 port	Communication module connection port
10	COM2 port	Multi-functional communication connector
11	COM3 port	

2.4 Electrical System



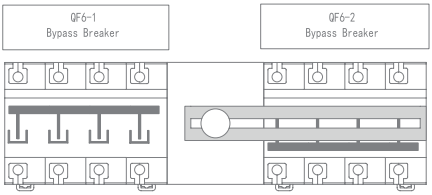
Schematic diagram of the electrical system

Description:

1. When the system is working normally, the system supplies power to the load;
2. When the system fails, the customer can isolate the system and keep the load supplied with power by means of a bypass switch;
3. When both the optical storage system and the power grid fail, the UPS power supply will continue to supply power to the high-voltage box in the storage cabinet and the lighting in the cabinet, but the power supply time shall not exceed 2 hours, and the UPS can not supply power to the user-side load.

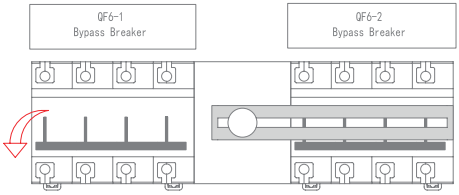
Bypass function:

Description: During normal operation, keep the bypass switch in the left operation state as shown in Figure 1.

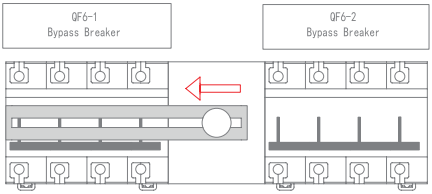


When the power grid is normal but the energy storage cabinet is faulty, please operate as follows to realise the bypass power supply.

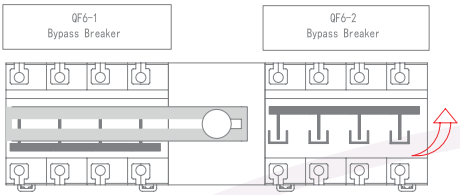
1.Switch off QF6-1 on the left side of the bypass switch as shown in Figure 2;



2.Move the intermediate interlocking mechanism to the left as shown in Figure 3;



3. Close QF6-2 on the right side of the bypass switch as shown in Figure 4;



NOTE

During bypass operation, the energy storage cabinet is unable to supply power to the load, and at the same time the inverter cannot start normally. However, the auxiliary circuits such as the high voltage box, air conditioner, door control and sockets in the energy storage cabinet remain in operation.

3 Transport and Storage

3.1 Unpacking the Energy Storage Cabinet

NOTICE

Please check the outer packing box carefully before receiving the goods, and unpack the box after confirming the outer packing box is intact, if you find the outer packing is damaged, please contact the dealer immediately;

The parts box is located in the cabinet, please open the cabinet door to take it out after unpacking;

After the cabinet is unpacked, please remove the decorative panels around the cabinet and install them according to the installation requirements of the cabinet.

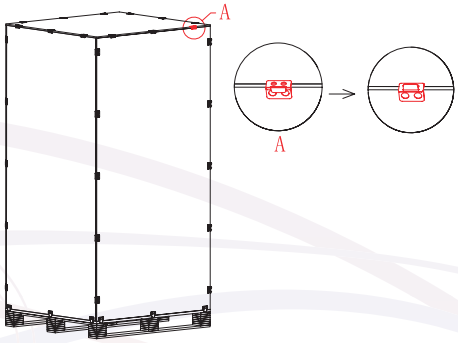
Please prepare 2 movable spanners, 1 ramshorn hammer, 1 one-word screwdriver, 1 vise, 1 ladder (h≥ 1.5m), and gloves and other protective equipment in accordance with the requirements for unboxing.

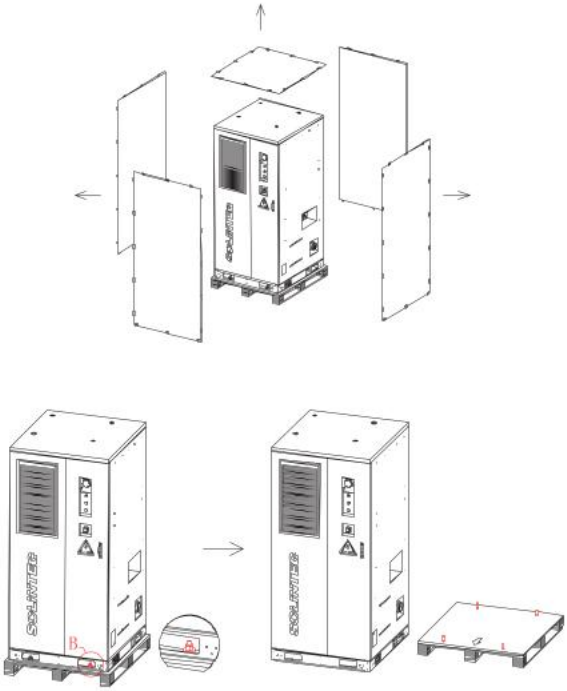
Since the height of the cabinet is more than 2 metres, please take protective measures for overhead work when unpacking.

1. According to the diagram, use a screwdriver, vise, ramshorn hammer to cock the top of the wooden box and straighten it as much as possible, then remove the top cover;

2. Sequentially, cock the clips around the crate and straighten them as much as possible before removing the boards around the crate. Wooden box around the board removal, there should be a person on the sidelines to help, in order to avoid the wooden box dumped;

3. Open the front and rear doors of the cabinet, according to the diagram, use the movable spanner to remove the fixed bolts connected to the tray at the bottom of the cabinet in turn.





3.2 Transport Requirements

DANGER

When transporting the equipment, appropriate protective measures should be applied to prevent water ingress into the equipment, avoid collisions and prohibit placing the equipment upside down. Otherwise, it may lead to equipment damage or even cause fire and explosion accidents.

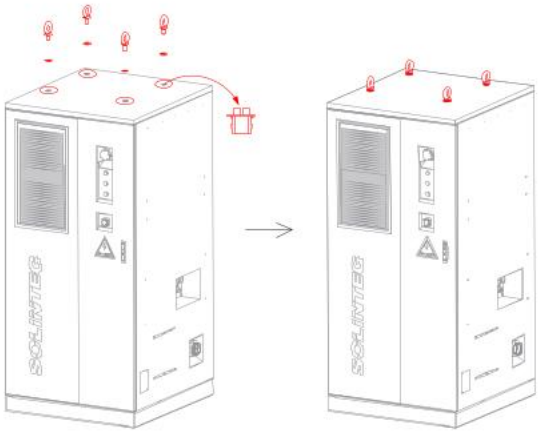
Before transport, please check the product packaging carefully, such as damage, odour, liquid leakage and other abnormalities, it is strictly prohibited to transport the goods, otherwise it may lead to equipment damage, or even cause fire and explosion accidents.

NOTICE

Please pay attention to the warning signs on the outer packing box and body, operate strictly according to the requirements and comply with the transport requirements;
During transport and handling, protective measures should be applied to avoid Noticeping of the fuselage, and the tilt angle of the fuselage needs to be ≤10°;
Suitable mode of transport should be selected according to the condition of the equipment, and necessary protective measures should be taken during transport;
The transport service provider must have a dangerous goods transport licence and strictly abide by the regulations of the corresponding region on the transport of dangerous goods;

▼ 3.2.1 Lifting Requirements

1. When lifting operation, local laws and regulations must be strictly observed. Operators must be trained and qualified, with appropriate operating skills and safety awareness.
2. the lifting facilities shall meet the requirements of local laws and regulations, and have been tested and qualified, and the crane and cable shall meet the load-bearing requirements: lifting capacity of the crane ≥ 2t, radius of the lifting operation ≥ 2m, and the lifting rings shall be installed firmly, without loosening or falling off.
3. Before lifting, the following contents should be confirmed:
a. Lifting tools are complete, qualified, fixed and reliable, cable connection is safe and reliable to avoid falling off or breaking.
b. Operators are trained and qualified, with appropriate operating skills and safety awareness;
c. The equipment door has been closed and locked, and the equipment in the cabinet has been properly placed to avoid accidental opening of the equipment scattered causing equipment damage and casualties;
d. Good weather conditions, no rain, snow, wind and other bad weather.
4. After unpacking the equipment, please take out the lifting ring and rubber gasket from the parts box in the cabinet, and take out the waterproof plug in the mounting hole at the top of the energy storage cabinet, install the lifting ring and rubber gasket in the mounting hole according to the following figure, and connect them firmly.
If there is no need to install the lifting ring on site, please do not remove the waterproof plug, so as to avoid clogging and corrosion of the mounting holes.

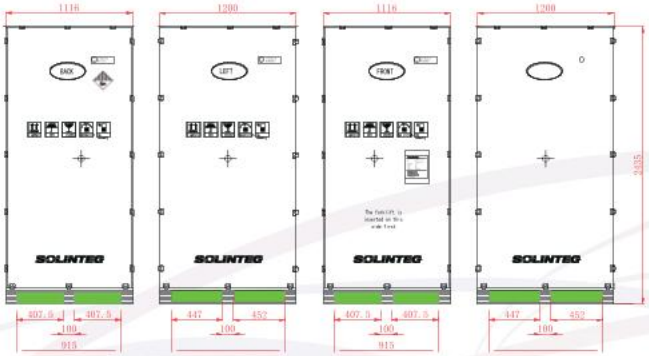


Installation diagram of energy storage cabinet lifting ring

3.2.2 Forklift Handling Requirements

1. Make sure the forklift meets the load-bearing requirements, load-bearing capacity ≥ 2t.
2. There must be professional personnel on the side of the guardianship, to ensure the safety of the operation;
3. Pay attention to the position of the centre of gravity of the equipment when handling, and use the rope and other tools for fixing to prevent the equipment from Noticeping;
4. According to the forklift hole position operation, forklift empty space please refer to the following figure:

Forklift empty space:



Back view Left view Front view Right view

3.3 Cabinet Storage

1. When storing for a long time, please do not remove the original packaging and check the outer packaging regularly.
2. Please store the equipment in strict accordance with the warning labels and other information on the package to avoid damage to the equipment.
3. Equipment storage temperature range: -20 ~ 45 ℃ .
4. Equipment storage relative humidity range: 5%-95%RH.

Please select the appropriate storage environment according to the following table according to the storage time of the equipment:

Storage time	Storage temperature	Storage relative humidity
Short-term less than a month	-20℃~+45℃	90%RH Max
More than 3 months	-10℃~+45℃	90%RH Max
Recommended storage	10℃~+30℃	85%RH Max

NOTICE

As batteries are already installed in the cabinet, battery storage requirements must also be observed when storing the device;

DANGER

Batteries need to be stored indoors. The storage area must meet the following requirements: 1. protected from direct sunlight or rain; 2. dry and ventilated; 3. away from heat and ignition sources; 4. free from radiation; 5. chemically safe; 6. protected from dust and metal-conductive dust; 7. equipped with fire protection facilities.

Battery storage should be in strict accordance with the warning signs and other information on the packaging.

Battery storage should avoid mixing with other electronic equipment, chemicals, or other items that may cause interference or danger.

Reasonable arrangement of the stacking height of the batteries, to avoid the bottom layer of batteries under pressure deformation or damage.

WARNING

Long-term storage of batteries is not recommended. If there are special circumstances that require long term storage, please recharge the batteries regularly to avoid damage to the batteries.

If the battery has been stored for more than six months, it must be inspected and tested by a professional before use.

3.4 Packing list

Serial number	Name	Specification	Quantity
1	Energy storage cabinet	E2BR-S64-112K-C	1SET
1.1	Key (To open cabinet door)	/	2PCS
1.2	Decorative cover	/	4PCS
1.3	Power cable to inverter grid port	3L+N+PE	1PCS
1.4	Power cable to inverter backup port	3L+N+PE	1PCS
1.5	Battery cable	BAT+	1PCS
1.6		BAT-	1PCS
2	Accessory box	/	1SET
2.1	Rain shelter (With sealing gasket)	1000*415*80mm	1PCS
2.2	Cable cover 01	830*150*400mm	1PCS
2.3	Cable cover 02	398.5*166.7*53.5mm	2PCS
2.4	Angle foot	100*120*80mm	4PCS
2.5	Lifting ring(With rubber washer)	M24	4PCS
2.6	M6*16 hex screw	M6*16	11PCS
2.7	M8*16 hex screw	M8*16	10PCS
2.8	M8*25 hex screw	M8*25	12PCS
2.9	M5*10 flat head screw	M5*10	24PCS
2.10	M20*150 expansion bolt	M20*150	4PCS
2.11	Communication module	/	1PCS
2.12	Sealing ring	M42-26	1PCS
2.13	OT Terminal - utility grid	SC50-8	4PCS
2.14	OT terminal - PE	SC16-8	2PCS
2.15	Terminal - load	C45-25	4PCS
2.16	Battery communication wiring	/	1PCS
2.17	Inverter emergency stop cable	/	1PCS
3	Filepocket	/	1SET
3.1	User manual	/	1PCS
3.2	SLD	/	1PCS

NOTE

If the cable terminals in the parts box do not match the user's cable, the user has to deal with it by himself.

4 Mechanical Installation

4.1 Installation Requirements

4.1.1 Installation Site Requirements

Please combine the product system requirements, local fire and laws and regulations, choose the installation location that meets the requirements.

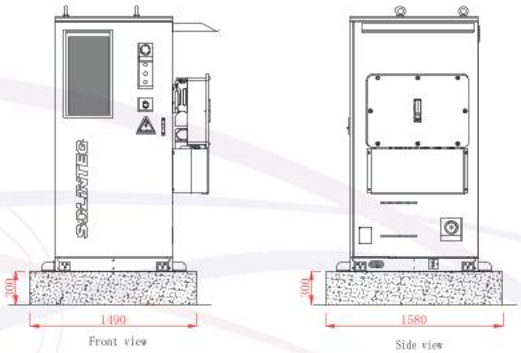
1. The installation location of this equipment must meet the following requirements:
2. Local laws and regulations and electric power related standards and regulations should be strictly followed.
3. The installation location should meet the requirements of local fire codes and be equipped with fire-fighting equipment and water fire-fighting system interface.
4. The installation area should avoid bad soil quality such as deformation and settlement easily, and keep away from corrosive pollution areas such as salt and alkali.

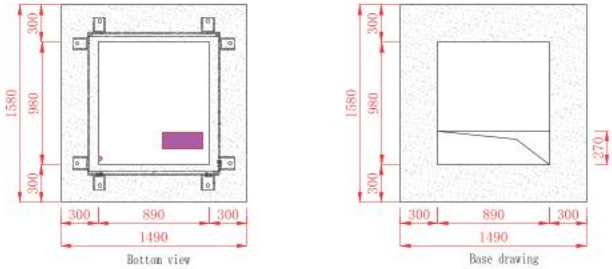
4.1.2 Equipment Foundation Requirements

The total weight of the equipment is about 2t, users need to select the site for construction according to the local seismic design code and geological conditions, and the load bearing of the foundation should meet the needs of the equipment and installation personnel. The foundation material should be concrete, solid brick or steel, etc. The bottom of the foundation must be tamped and filled, flat (horizontal error ≤ 3mm, tilt angle ≤ 5°), the installation area is prohibited to have depression, tilting situation.

The foundation of the equipment should be reserved for the trench or wire holes, when building the foundation, please avoid the pre-buried underground pipelines.

The following figure shows the schematic diagram of the cabinet foundation for reference only. Users should design and construct the cabinet foundation according to the site conditions and local requirements.





Cabinet foundation schematic

4.1.3 Installation Environment Requirements

1. The distance between the equipment installation area and the residence, the crowded public place and the production building should be in accordance with the local fire code and standard, when it is impossible to satisfy the safety distance requirement, it can be added between the equipment and the neighbouring building in accordance with the local fire code of the firewall. At the same time, it is recommended to install a locking fence around the equipment installation area to prevent the intrusion of the very 2.

2. Equipment installation area should be away from heat, fire and other high-temperature environment, away from flammable, explosive substances and dusty areas, away from corrosive substances and corrosive gases in the region, away from strong electromagnetic field interference areas, away from strong vibration, strong noise sources.

3. The equipment safety area should be well drained, and the equipment should not be installed in low-lying water areas, and should be configured according to local meteorological information to meet the requirements of the drainage system and water-blocking facilities.

4. The equipment installation area should also meet the following requirements:

Ambient temperature: -20~50° C (Discharge: -20~50° C; Charge: 0~50° C;)

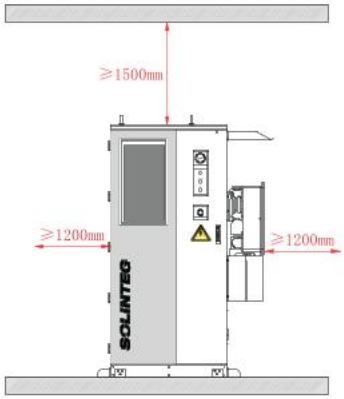
Relative humidity: 5%-95%RH

Altitude requirement: ≤ 3000m

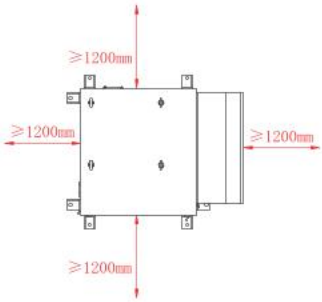
Name	Installation spacing (m)
Distance to coastal area	> 2000
Distance to smelters, coal mines, thermal power plants and other heavy pollution source areas	> 1500
Distance to medium pollution source areas such as chemical industry, rubber, electroplating, etc.	> 1000
Distance from lightly polluted areas such as foodstuffs, leather, heating boilers, slaughterhouses, centralised rubbish dumps, sewage treatment stations, etc.	> 500

4.1.4 Installation Distance Requirement

When installing the energy storage cabinet, please follow the spacing requirements below.



Front view

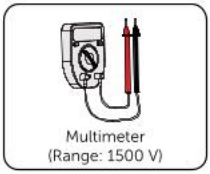


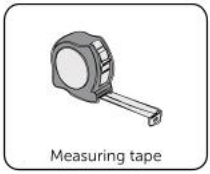
Plan view

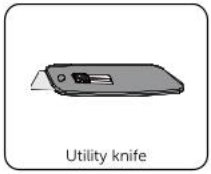
4.1.5 Installation Tool Requirements

The tools to be used include but are not limited to the following recommended tools. Please use other auxiliary tools according to the needs of the site. Please note that the tools used must comply with local code requirements.

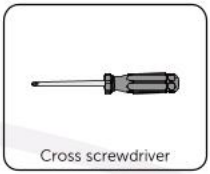

Hammer drill (Ø16 mm)

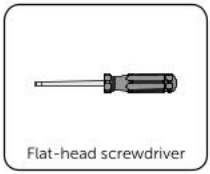

Multimeter
(Range: 1500 V)

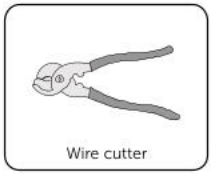

Measuring tape

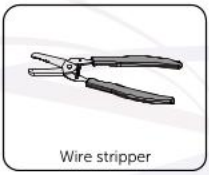

Utility knife

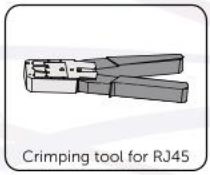

Marker

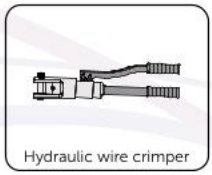

Cross screwdriver

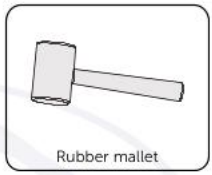

Flat-head screwdriver

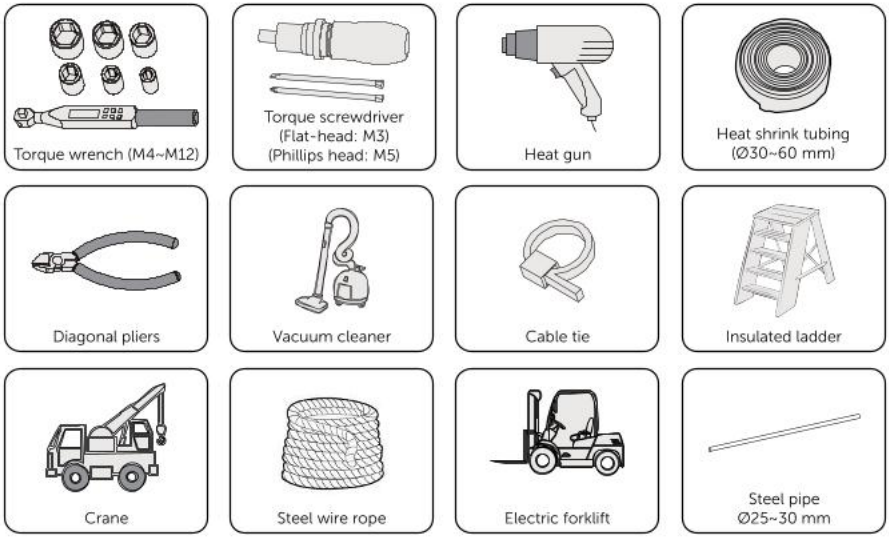

Wire cutter


Wire stripper


Crimping tool for RJ45


Hydraulic wire crimper


Rubber mallet



4.2 Mechanical Installation

Please take out the mounting accessories in the cabinet and check the number of accessories before installation so that the installation will not be affected by missing accessories.

DANGER

Outdoor installation, wiring and operation of the equipment is prohibited under severe weather conditions such as lightning, rain or snow.

When carrying out drilling, excavation and other construction work, shall check and avoid the surrounding buried pipelines, lines and so on.

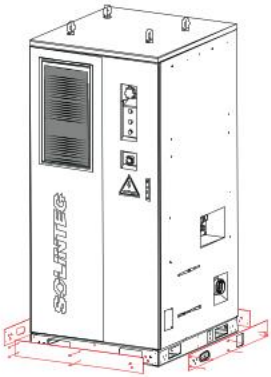
Before installing the equipment, wear personal safety protection equipment in accordance with the regulations.

When installing the equipment, it is necessary to protect the equipment by covering, and when installing in the cabinet, it is necessary to protect the components by covering, so as to avoid the debris from entering into the internal equipment, and to clean the equipment after the installation is completed.

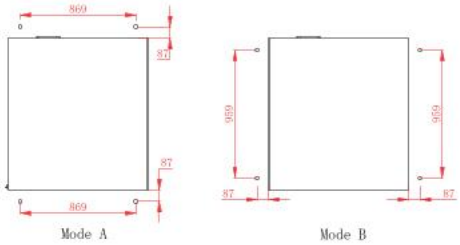
▼ 4.2.1 Cabinet Installation

1. According to "3.2.1" lifting and "3.2.2" forklift handling requirements, use the appropriate handling methods to place the cabinet at the selected location;

2. Take out 24 M5*10 countersunk head bolts from the parts box and use screwdriver to fix the decorative plates around the cabinet to the corresponding positions around the cabinet according to the requirements shown in the drawing.



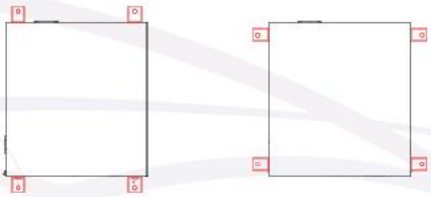
3. Take out 4 fixed tripods, 12 sets of M8*25 hexagonal mounting bolts and 4 sets of M20-150 expansion bolts from the parts box, and select any set of mounting methods in the front-back direction or the left-right direction according to the site conditions and the mounting holes shown in the schematic notation for marking the holes;



Mode A Mode B

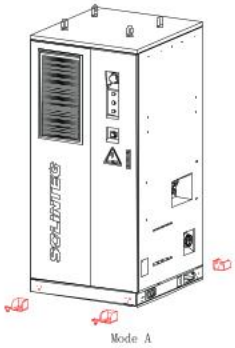
4. Use the impact drill to drill holes drilling size recommended: ϕ25, hole depth 150mm. after drilling the holes with a hoover to clean up the holes.

5. Insert M20-150 expansion bolts into the holes with a rubber hammer and fix the stand on the ground (no crimping bolts are needed for the time being);

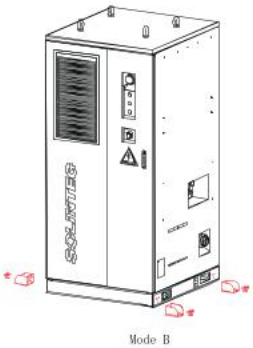


Mode A Mode B

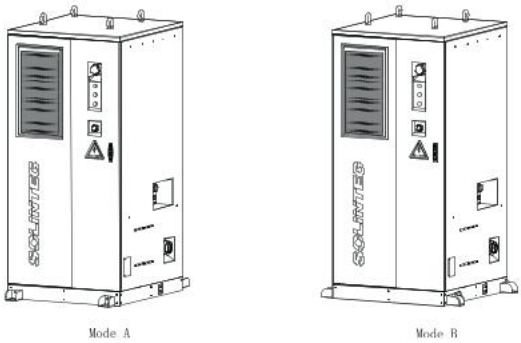
6. According to the schematic diagram of connecting the fixed kickstand to the cabinet, use M8*25 mounting bolts to connect the kickstand to the side of the cabinet, and press all mounting bolts uniformly after the connection is completed.



Front and rear direction mounting schematic



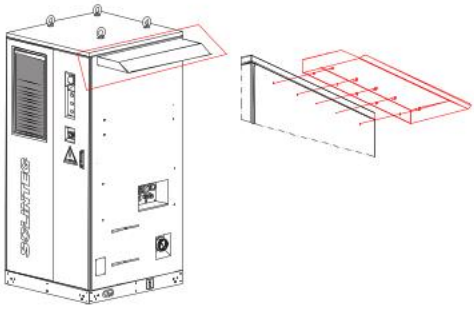
Left and right direction mounting schematic (optional)



Assembly diagram

4.2.2 Installation of Rain Shelter

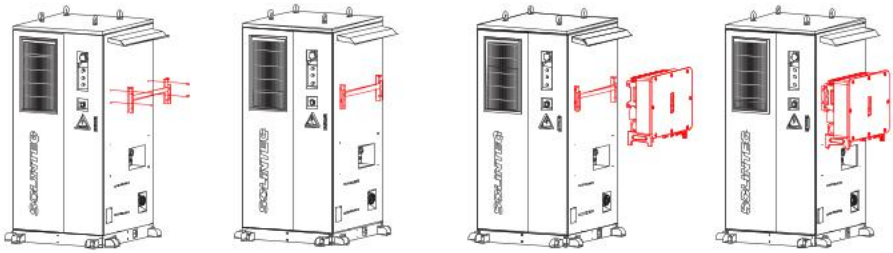
1. Remove the canopy, 5 sets of M6*16 mounting bolts and waterproof washers from the parts box and pass the mounting bolts through the waterproof washers;
2. Use the M6*16 mounting bolts to fix the rainproof canopy to the mounting area above the right side of the energy storage cabinet according to the position shown in the diagram.

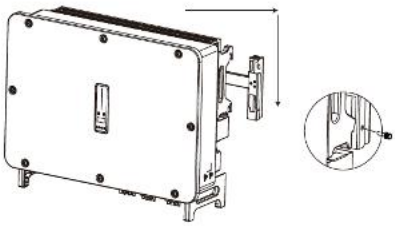


Schematic diagram of rain shelter installation

4.2.3 Inverter Installation

1. Take 4 sets of M8*16 mounting bolts from the parts box and fix the inverter back mounting bracket to the right side of the cabinet according to the diagram;
2. Use professional tools to lift the inverter and hang the back rail of the inverter on the back hanging bracket;
3. Tighten the M6 screws on both sides to fix the inverter according to the inverter manual





Inverter installation schematic

5 Electrical Installation

NOTICE

Please read the manual carefully before installation to fully understand the installation requirements.
Make sure that the mechanical installation of the cabinet has been completed, and that there are no missing accessories or tools in the cabinet.
Before installation, please carefully check the sealing of the incoming cable holes, do not remove the waterproof plugs in the reserved cable holes, and seal the cable holes according to local requirements after the installation is completed.

5.1 Installation Requirements

5.1.1 Installation Tools

Wiring tools: wire stripping pliers, wire cutting pliers, crimping pliers, RJ45 crystal head crimping pliers, multimeter (DC range>1100V), screwdriver, hexagonal socket wrench, etc.


Wire strippers


Wire cutters


Crimping pliers


RJ45 connector crimping pliers


Multimeter (DC range >1100V)


Screwdriver


L-typr allen wrench

5.1.2 Self-prepared Materials

The following are other materials required for the electrical installation of the energy storage cabinet, which are to be provided by the user according to the recommended specifications and site conditions.

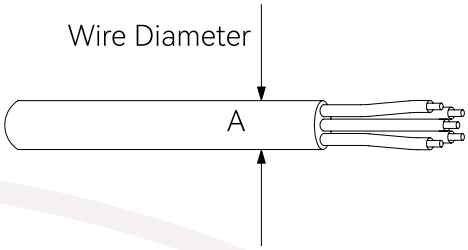
No	Name	Recommended specification	Description
1	Grid side cable	4*35mm²+1*16mm² or 4*50mm²+1*16mm²	Connecting the energy storage cabinet to the customer's electrical box
2	Load side cable	4*25mm²+1*16mm² 4*35mm²+1*16mm²	Connects the energy storage cabinet to the customer's load
3	Earth wire	Yellow-green PE wire-50mm².	Users choose to use PE wire or grounding flat iron according to the site conditions.
4	PE OT terminal	SC50-8	
5	Grounding flat iron	Hot dip galvanised flat iron 40*4mm	
6	Wire groove	User selects according to site conditions	Cable laying
7	Blocking material	User-selected according to site conditions	Plugging of cable penetration holes

Please select the appropriate cable specification according to the actual situation, the recommended specifications are as follows:

Name	Recommended specification	Cable outer diameter (A)
Grid-side cable	4*35mm²+1*16mm² or 4*50mm²+1*16mm²	37~ 44mm²
Load side cable	4*25mm²+1*16mm² or 4*35mm²+1*16mm²	22~ 32mm²

NOTE

When the cable OD is less than the recommended value, it can be sealed with a scotch head seal or fire plugging mud in the parts box.



5.2 Cabinet Grounding

DANGER

Always connect the cabinet earth wire first after the cabinet is installed. When removing the cabinet, be sure to remove the cabinet grounding wire last. Avoid any danger to personal safety and damage to the equipment due to cabinet grounding faults.

During the commissioning and operation of the equipment, be sure to keep the cabinet grounding good, so as not to endanger personal safety and cause equipment damage due to cabinet grounding faults.

1. Take out 2 M8*16 hexagonal bolts from the parts box, and use 40*4 hot-dip galvanised flat iron (or 50mm² PE wire) according to the diagram to reliably connect the right grounding port of the cabinet to the user's on-site grounding network through the bolts;
2. Use anticorrosion paint to do anticorrosion treatment on the incision of the grounding flat iron.

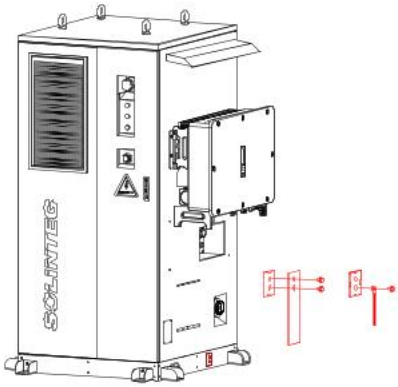


Diagram of grounding connection

5.3 Cable Connection

DANGER

Before connecting the cables, please make sure that all power switches are disconnected, otherwise it may cause injury or equipment short circuit.

Before connecting the cables, make sure that the grounding of the cabinet is reliably connected, otherwise it may cause injury or death.

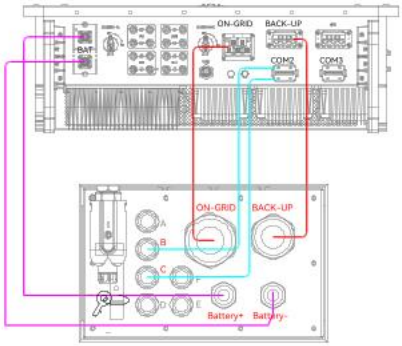
The cable terminals must be locked and made sure that they will not loosen after prolonged use, otherwise damage to the equipment may result.

NOTICE

The connecting cable between the energy storage cabinet and the inverter has been configured, and one end has been connected in the energy storage cabinet, users need to check whether the cable is broken or not after unpacking, and connect the other end to the inverter according to the requirements.

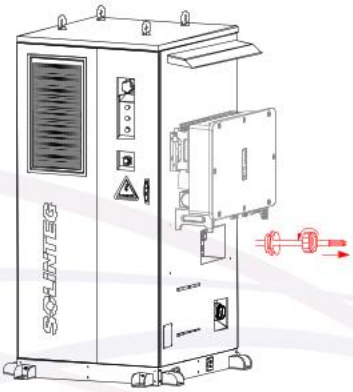
5.3.1 Inverter Side Wiring

According to the following installation diagram and inverter manual requirements to complete the following steps cable connection, and after the completion of the wiring will be over the board at the top of the glen head compression nut tightened.



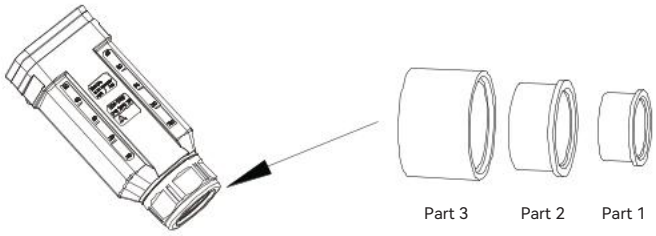
Schematic diagram of the connection cable between the energy storage cabinet and the inverter

Loosen the top clamping nut of the glands at the cross-over board as shown in the figure below, and pull out the inverter on-grid cable and backup cable in the wire holes to a sufficient length according to the location of the inverter terminals at the site.

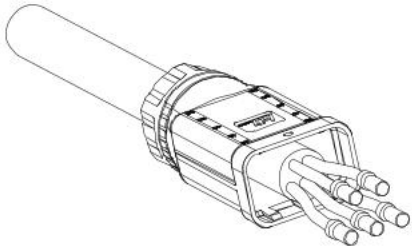


Inverter on-grid AC side

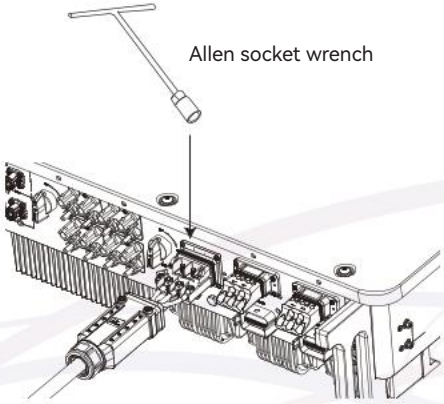
① The cable outer diameter is 22~40mm.
When the cable outer diameter is greater than 24.5mm, remove part 1;
When the cable O.D. is greater than 28.5mm, remove part 2;
When the outer diameter of the cable is greater than 32.5mm, remove part 3.



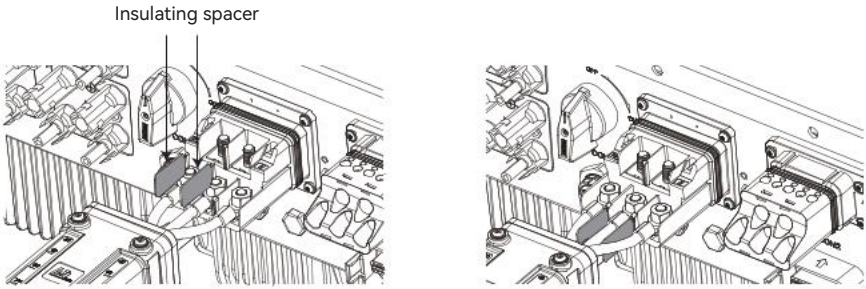
② Thread the cable into the lock nut, plug and body in turn.



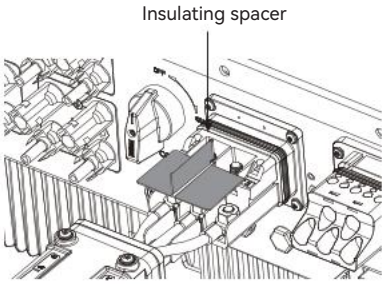
③ Remove the nut, in accordance with the L1 / L2 / L3 in order to install the OT terminal, tighten the screw torque 3.8 ± 0.1N-m.



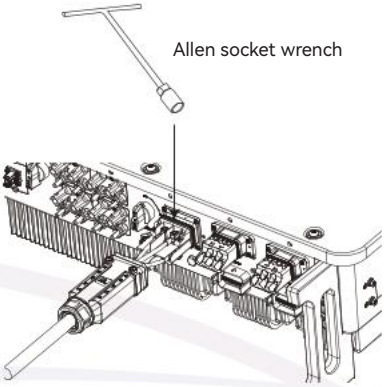
④ Install the insulating spacer into the designated hole of the rubber core.



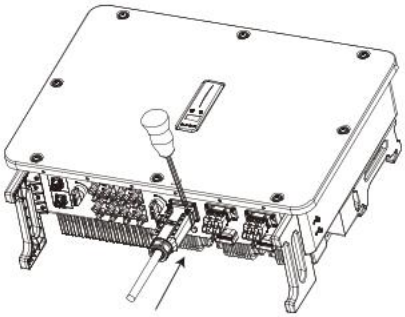
⑤ Install the insulating spacer at the N/PE end into the designated hole.



⑥ After installing the OT terminals in order of N/PE, tighten the screws to a torque of 3.8±0.1N-m.

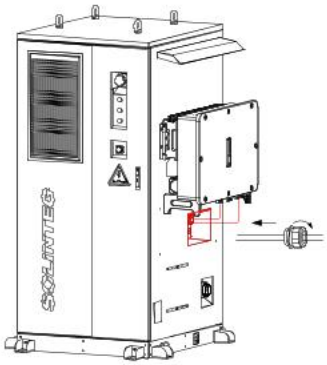


⑦ Insert the main body into the rubber core of the board end, before tightening the Phillips screws.



⑧ Use an open-end spanner to tighten the nut (torque 10.0±0.1N-m).

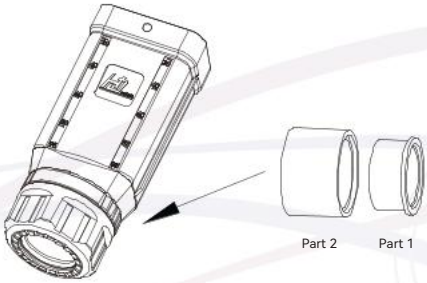
⑨ Thread the excess cable back through the threading holes and reinstall and tighten the force nuts to complete the installation.



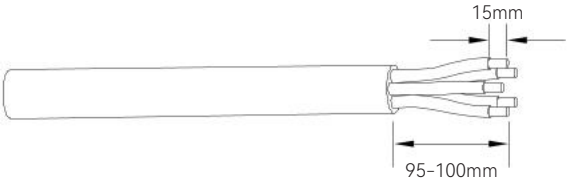
Inverter back-up AC side

NOTICE	Please be careful to distinguish between Back-up connectors and Generator connectors!

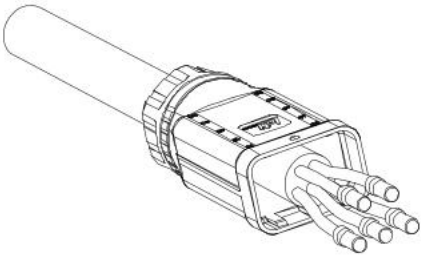
① If the cable O.D. is larger than 24mm, remove Part1 of the connector housing seal.



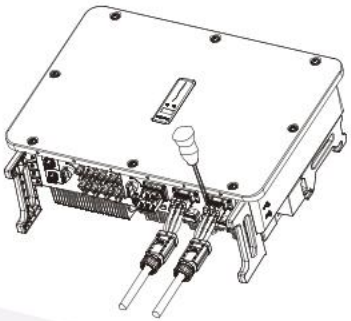
② Use wire strippers to strip the AC cable insulation sleeve by 95~100mm and the end of the 3L/N/PE cable by 15mm.



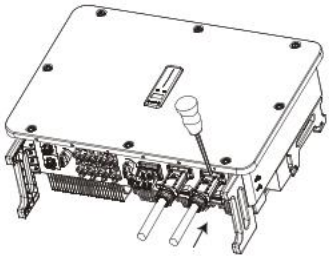
③ Thread the stripped cable into the lock nut and body in sequence (multi-core multi-stranded copper cable needs to be riveted to the terminal block)



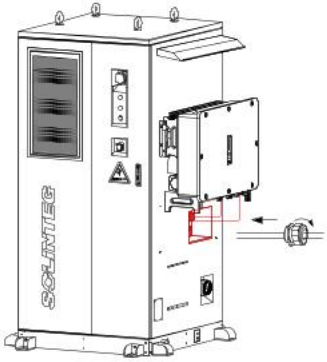
④ Insert the cables into the rubber core in order. Observe the holes and insert the cables in place. Use a screwdriver to tighten the crimp connector screws to a torque of 5±0.1N.m.



⑤ Insert the body into the rubber core and hear a "click", then tighten the nut with an open-end spanner (torque 10.0±0.1N-m), and hear "click, click, click" to indicate tightening.



⑥ Thread the excess cable back through the threading hole, and tighten the compression nut to restore the installation, the installation is complete.



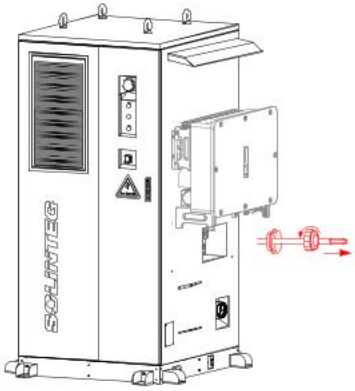
Battery wiring

Before connecting the battery, please disconnect the AC circuit breaker on the grid side, the circuit breaker on the battery side and turn the DC switch of the inverter to "OFF" position.

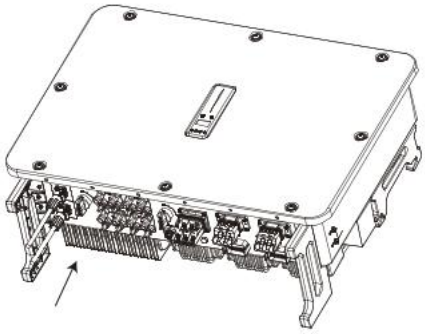
NOTE	Before connecting to the inverter, please use a multimeter to measure the battery terminal voltage and make sure it is within 840V before connecting.

NOTE	Before connecting the battery terminals, please make sure the positive and negative polarity of the cables are correct.

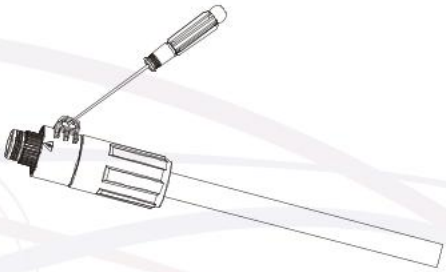
① Loosen the top clamping nut of the glands at the cross-over board as shown in the figure below, and pull out the connecting wires between the inverter and the battery in the wire holes according to the position of the inverter terminals at the site with sufficient length.



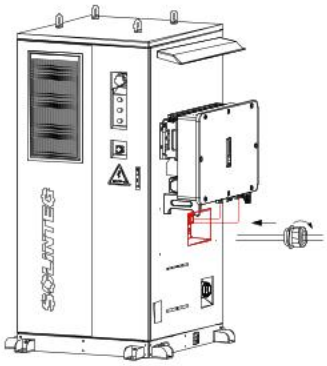
② Insert the positive and negative connectors into the inverter battery terminals, and a "click" sound will indicate that the connection is in place.



③ To unplug, use a screwdriver to press the on/off button before unplugging.



④ Thread the excess cable back through the threading holes and reinstall and tighten the compression nut to complete the installation.

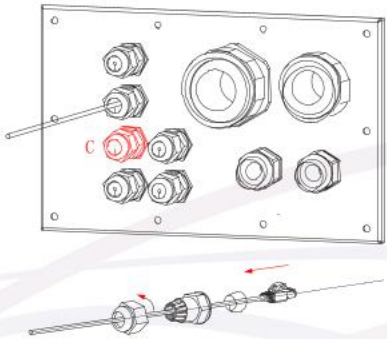


Communication connection between inverter and energy storage cabinet

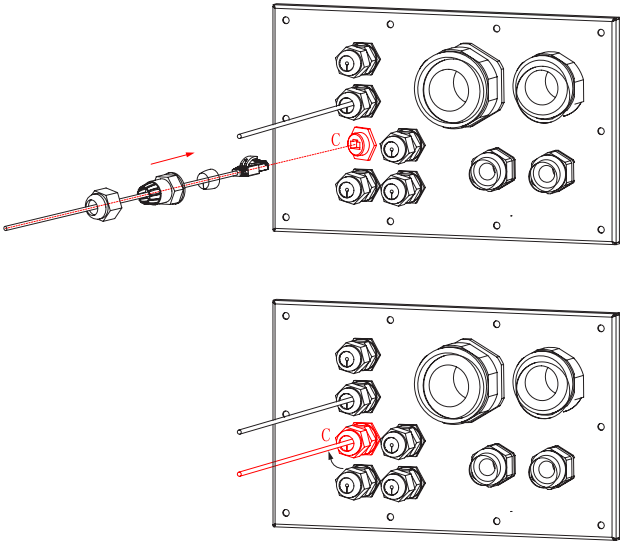
NOTE	Do not ground or connect other equipment to the communication cable that is not being used.

NOTICE	Please use BMS 1 port for communication, BMS 2 port is invalid. The inverter COM3 connectors are all RJ45 terminals.

① As shown in the figure below, loosen the glands of the inverter communication interface B at the over-wire board of the storage cabinet and remove the sealing ring, and pass one end of the communication cable through the holes of the glands and the sealing ring.

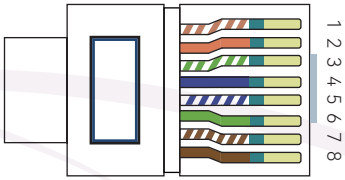


② Insert the communication cable terminal into the inverter communication interface B of the energy storage cabinet, and reinstall the sealing ring and the forcing nut in turn.

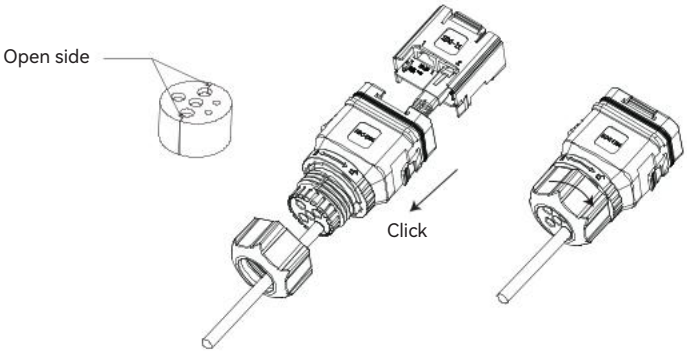


③ Use RJ45 crimping pliers to crimp the RJ45 plug on the inverter end according to the BMS 1 RJ45 port definition.

The BMS 1 RJ45 port definition is shown below:

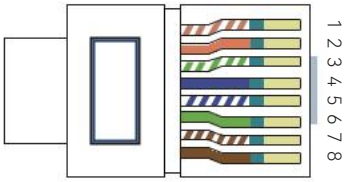
RJ45	No	Color	Meter
	1	Orange & White	RS485_A3
	2	Orange	RS485_B3
	3	Green & White	/
	4	Green & White	CANH_B1
	5	Blue & White	CANL_B1
	6	Green	/
	7	Brown & White	CANL_Debug
	8	Brown & White	CANH_Debug

④ Insert the appropriate length of RJ45 plug through the inverter COM3 swivel nut and into the open side of the rubber washer. Connect the inverter end RJ45 plug to the inverter COM3 connector by inserting the RJ45 plug into the corresponding RJ45 terminal in the connector.



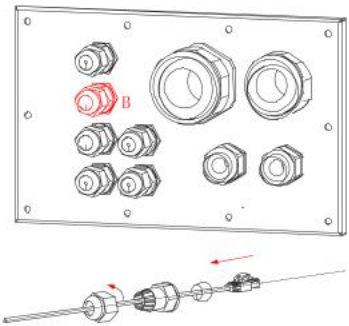
Inverter emergency stop wiring

The emergency stop port is defined as follows:

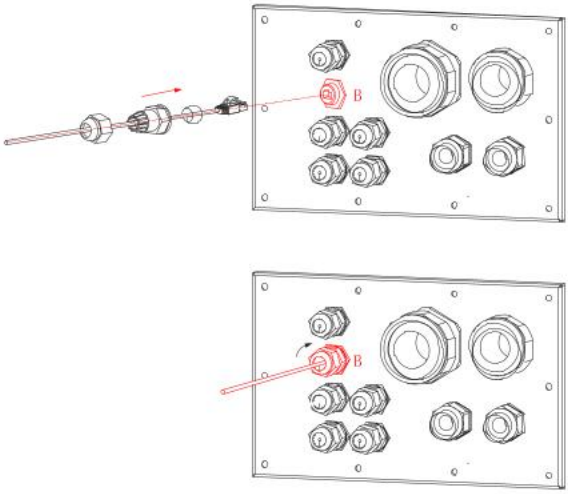
RJ45	No	Color	Meter
	1	Orange & White	Stop+
	2	Orange	
	3	Green & White	Stop-
	4	Blue	
	5	Blue & White	/
	6	Green	/
	7	Brown & White	/
	8	Brown	/

The COM2 connector of the inverter is a quick-plug type (snap type/screw-free) terminal and RJ45 terminal, and the following steps are for the quick-plug type terminal wiring procedure.

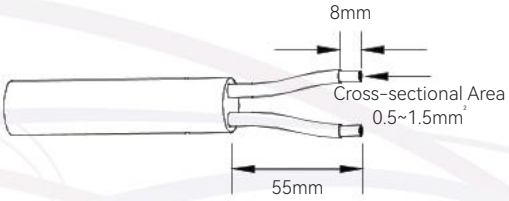
① According to the figure below, loosen the nut and remove the sealing ring of the inverter emergency stop connector C at the over-wire board of the storage cabinet, and pass the side of the communication cable without crimped terminal through the nut and sealing ring hole.



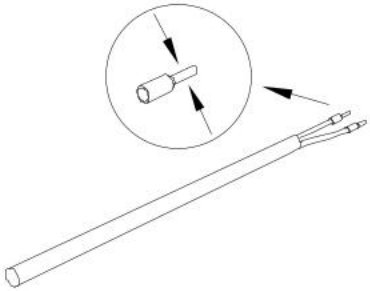
② Insert the emergency stop wire terminal into the emergency stop connector C of the storage cabinet inverter, and reinstall the sealing ring and compression nut in turn.



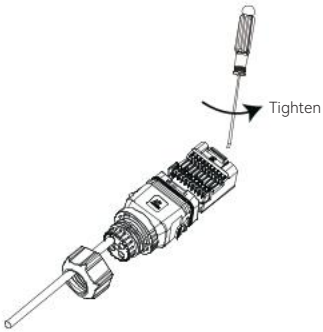
③ Pass the other end of the cable of appropriate length through the inverter COM2 swivel nut and housing. Strip the cable sheath and strip the cable insulation.



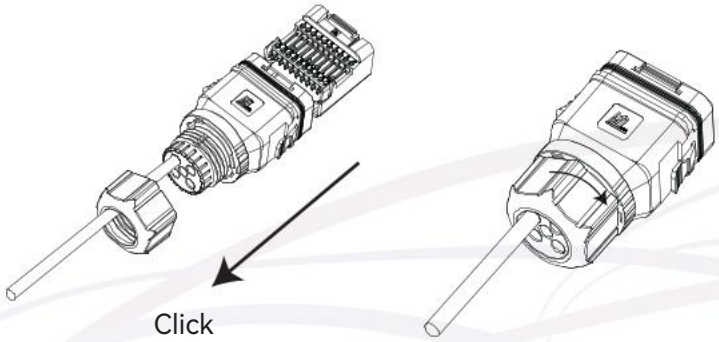
④ Hand twist the multi-core cable into a cluster and crimp onto the pin hole terminals.

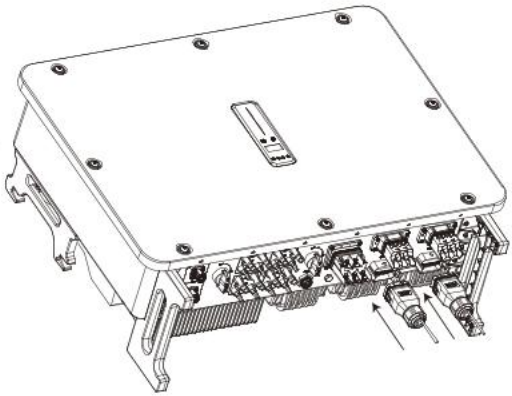


⑤ Following the inverter COM2 terminal definitions, use a one-piece screwdriver to press down on the crimp on top of the terminal and insert the cable into the hole in the terminal sub and release the crimp.



⑥ Pull the cables outwards to check that they are securely connected. Insert the terminals into the connectors until they snap into place and click.





Inverter PV side wiring

Material reparation

Please select the appropriate cable size according to the actual situation, the recommended specifications are as follows:

Name	Cable outer diameter	Cross-sectional area
DC cable	5.9~8.8mm	4 mm^2 (12AWG) or 6 mm^2 (10AWG)

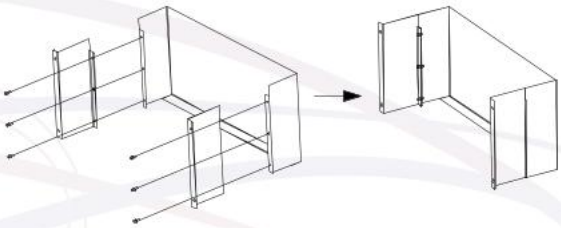
For wiring requirements, please refer to the relevant instruction manual of the inverter.

Installation of the cable cover

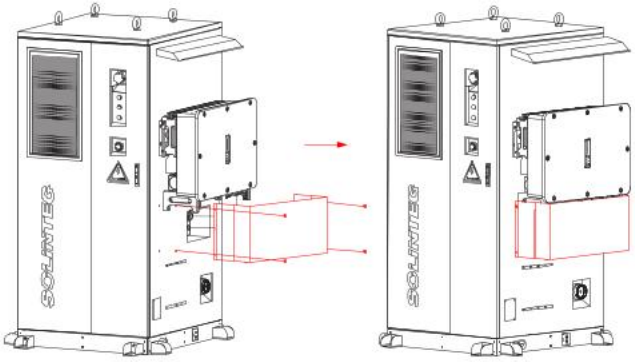
It is recommended to install the cable cover after all cables have been connected and commissioned on site.

① Once the cables are connected, use cable ties to secure the cables to the harness card.

② Take out the side baffle 01, side baffle 02, 6 sets of M6*16 hexagon socket mounting bolts and 4 sets of M8*16 hexagon socket mounting bolts from the spare parts box, and use M6*16 hexagon socket to assemble the cable cover according to the following illustration.



③ Use 8*16 hexagon socket head cap bolts to fix the cable cover on the right side of the energy storage cabinet.



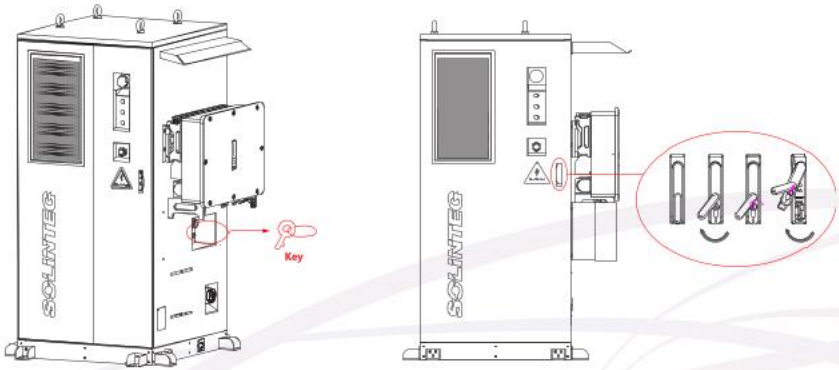
Cable cover mounting diagram

5.3.2 DC Battery Cable Connection

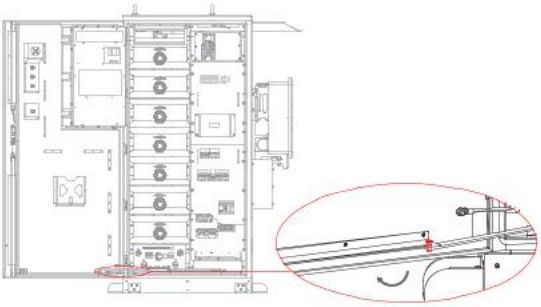
NOTE

Before connecting the battery terminals, please make sure the positive and negative polarity of the cables are correct.

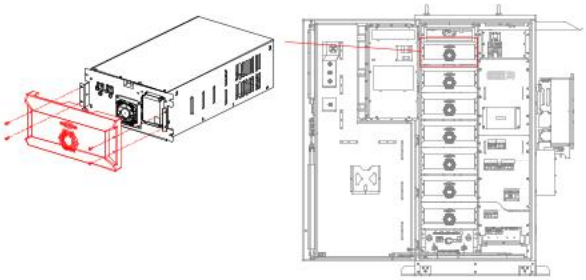
When the energy storage cabinet is to be stored or transported, unplug the total positive and total negative battery pack connection cables after closing the energy storage cabinet.
① Remove the key from the side of the cabinet at the wire crossing panel;



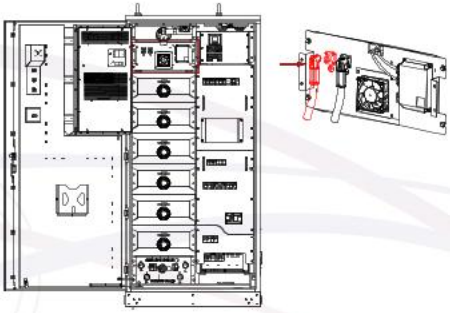
② Pivot the sliding waterproof cover to the left as shown in the diagram below, insert the key and rotate the lock cylinder to the right, lift the handle and rotate it to the left to open the cabinet door. Open the cabinet door to the maximum, the windproof fixing bar automatically locks the cabinet door.



③ Use a screwdriver to remove the battery pack mounting cover on the upper left side of the cabinet;



④ Remove the positive and negative battery cables, take off the cable head protection sleeve, according to the requirements shown in the diagram, the total positive and negative battery connectors are inserted into the terminals on the battery pack in turn, and a "click" sound indicates that the connection is in place; after the connection is completed, the battery cover is restored to the installation.



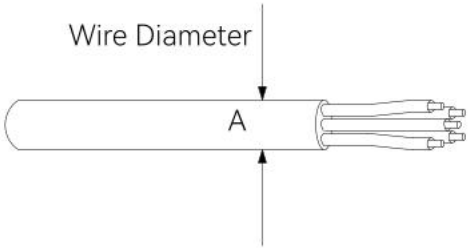
5.3.3 Electrical Side Wiring

Please select the appropriate cable specifications according to the actual situation, the recommended specifications are as follows:

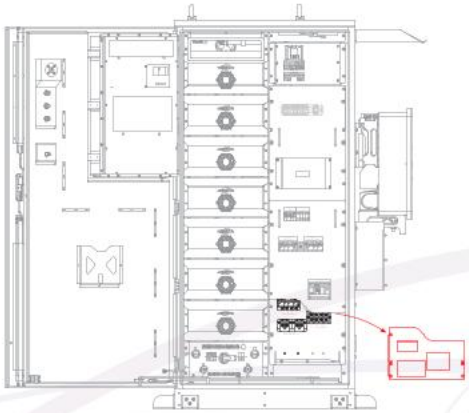
Name	Cable outer diameter	Cross-sectional area
Grid side cable	4*35mm²+1*16mm² or 4*50mm²+1*16mm²	37~ 44mm²
Load side cable	4*25mm²+1*16mm² or 4*35mm²+1*16mm²	22~ 32mm²

NOTE

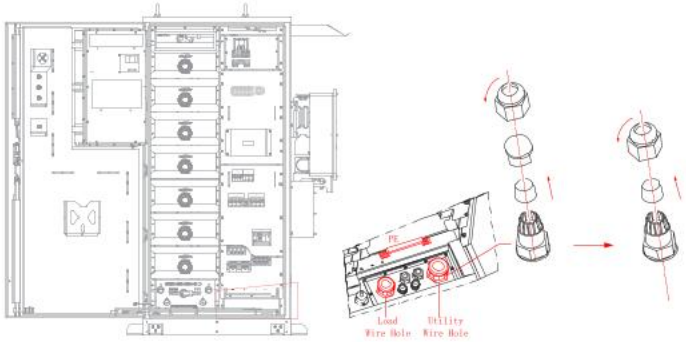
When the cable OD is smaller than recommended, it can be sealed with a scotch head seal or fire plugging mud from the parts box.



① Use a screwdriver to remove the sealing plate underneath the electrical compartment;



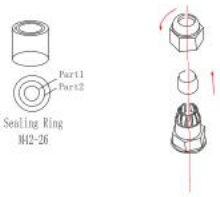
② According to the diagrams, remove the nuts and sealing rings on the glands of the mains and load inlet holes of the energy storage cabinet, and remove the waterproof plugs;

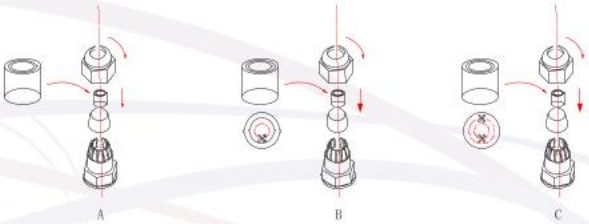


When the outer diameter of the cable is smaller than the recommended value, use the glands sealing ring or fireproof plugging mud in the parts box for sealing.

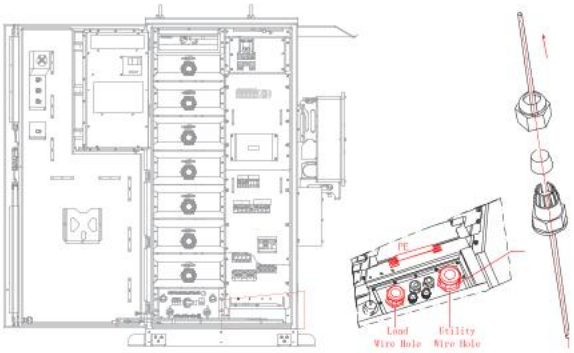
The use of glan head sealing ring M42-26 is as follows, according to the outer diameter of the cable

Name	Cable outer diameter	Cross-sectional area
Cable	22~ 44mm²	A. When the cable O.D. is less than 26mm, add the glen head sealing ring; B. When the outer diameter of the cable is less than 31mm, remove the gland head sealing ring part 1; C. When the outer diameter of the cable is less than 35mm, remove the glen head sealing ring part 1 and part 2;



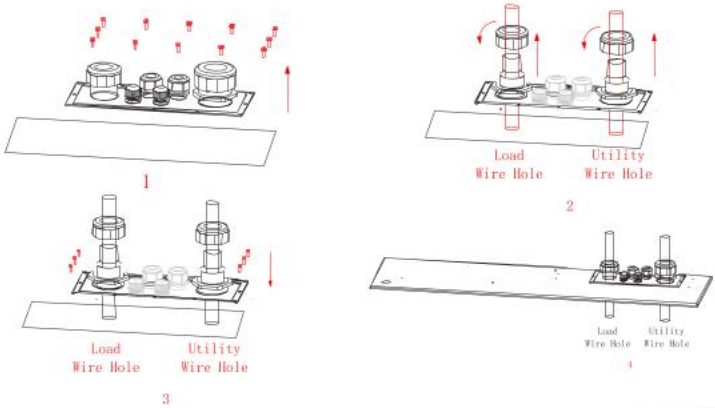


③ Thread the mains and load cables through the glands, seals and compression nuts of the corresponding holes in the bottom plate in sequence as shown in the diagram below, and pull out sufficient lengths in accordance with the terminal positions;



NOTE

When threading is difficult, remove the bottom mounting plate as shown in the following diagram and resume installation after the cable connections have been made.

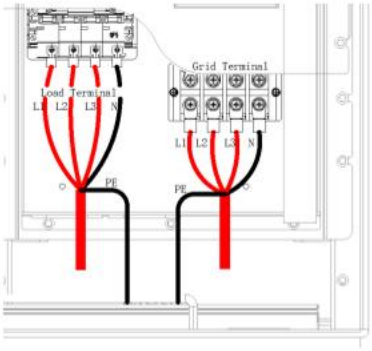


④ Use wire strippers to strip the AC cable insulation sleeve by 95~100mm and the end of the 3L/N/PE cable by 20~25mm.

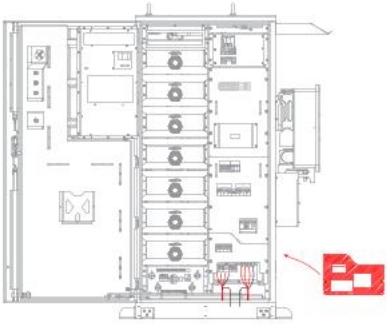


⑤ Take out the utility cable terminal SC50-8, 4pcs; load cable terminal C45-25, 4pcs; PE cable ground terminal SC16-8, 2pcs from the parts box. And use crimping pliers to crimp the cable and OT terminals.

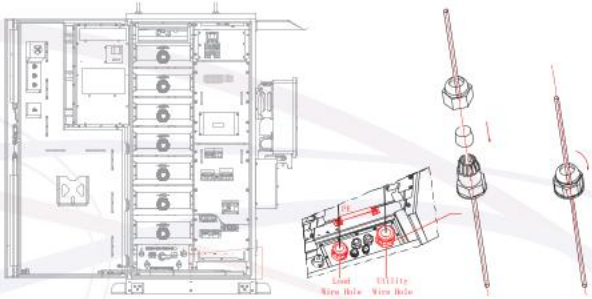
⑥ Connect the crimped OT terminals to L1/L2/L3/N/PE according to the diagram;



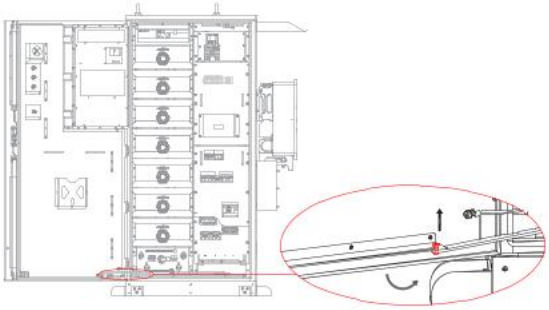
⑦ Reinstall the lower cover plate.



⑧ Reinstall the compression nut and tighten it, if there is a gap between the cable and the hole, it is recommended to use a sealing material that meets the requirements of the local power grid and fire protection to seal the threading hole. Installation is complete.

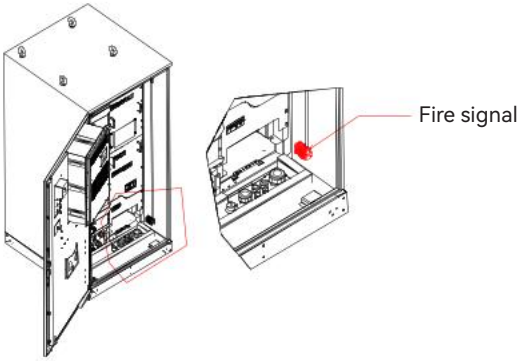


⑨ Pull up the limiting bolt of the windproof fixing bar and close the cabinet door to the right.



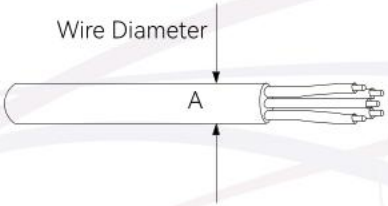
5.3.4 Fire Signal Wiring

The fire action signal of the energy storage cabinet is a dry contact signal, which is connected when remote monitoring of the fire action of the energy storage cabinet is needed on site, and no wiring is needed if remote monitoring is not needed.

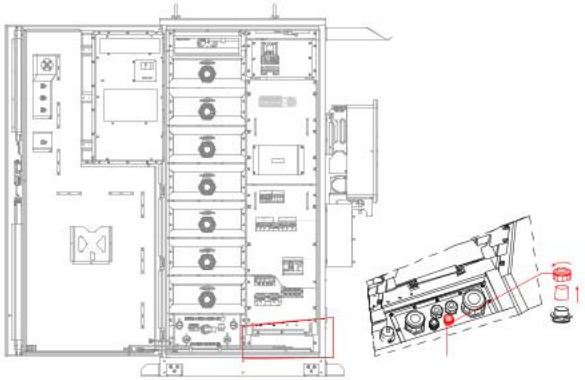


Please select the appropriate cable specifications according to the actual situation, the recommended specifications are as follows:

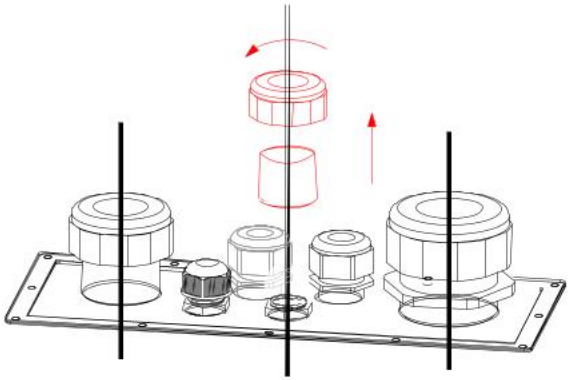
Name	Recommended specification	Cable outer diameter (A)
Fire signal cable	2*1.0mm² or 2*1.5mm²	10~ 14mm²



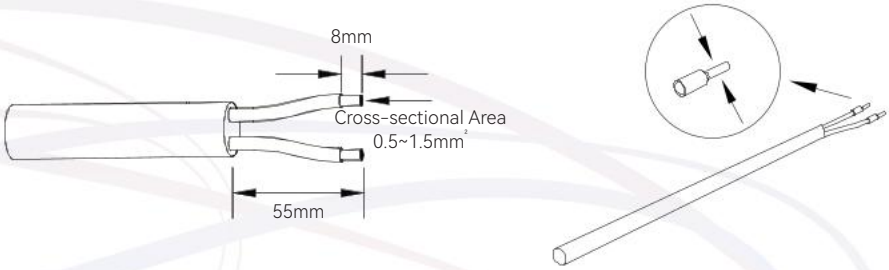
① Remove the nut and sealing ring from the glands of the inlet holes of the energy storage cabinet as shown in the illustration;



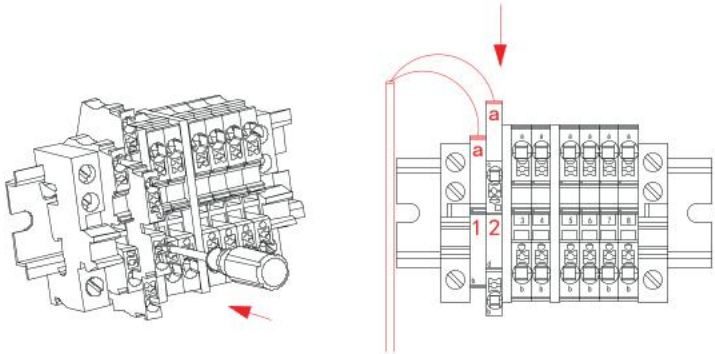
② Pass the fire signal cable through the glands, seals and compression nuts of the corresponding holes in the base plate and pull out a sufficient length according to the position of the terminals;



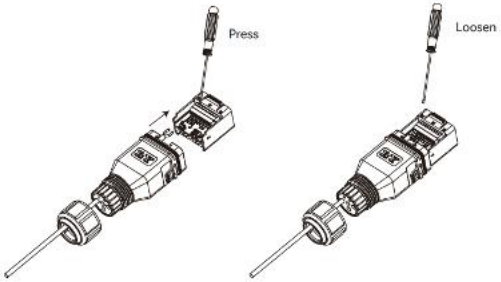
③ Strip the cable sheath and strip the cable insulation. Twist the multi-core cables into a cluster by hand and crimp them onto the pinhole terminals.



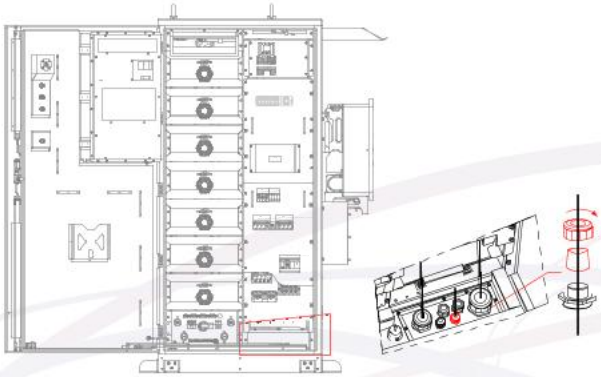
④ Use a flathead screwdriver to press and hold the briquette above the terminal, insert the cable into the terminal blocks 1-A and 2-A respectively, and loosen the briquette. And pull the cables outwards to check if they are securely connected;



Fire signal terminal definition

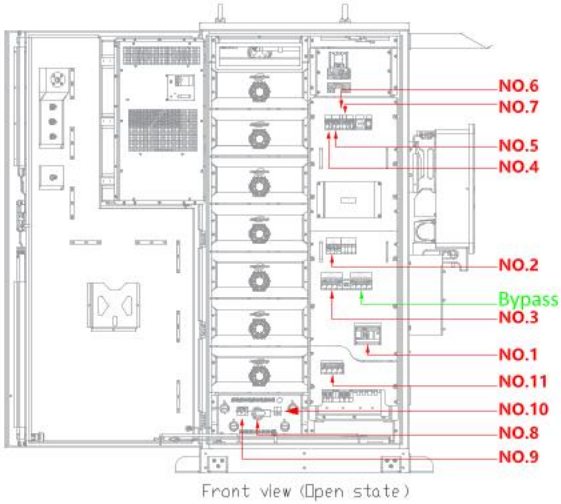


⑤ After tying the cables, restore the tight nuts to the installation and tighten them.



6 Equipment Commissioning

6.1 Equipment Start-up and Shutdown



Equipment start-up sequence of operation diagram

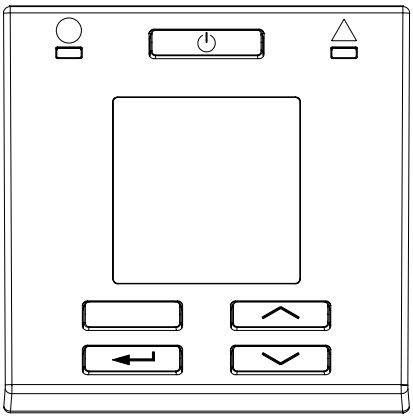
Equipment start-up

1. Close the mains switch QF4, the mains power is put into operation and the white power indicator of the cabinet lights up;
2. Close SDP switch QF7, SPD is put into operation;
3. Closing bypass switch QF6-1, AC system is put into operation;
4. Closing AC control main switch QF8, turning on the control loop power and and the white power indicator of the cabinet lights up;
5. Closing AC power switch QF81 to start the air-conditioning system;
6. Closing UPS switch QF82 to start the UPS*;
7. Closing the PDU high-voltage box power supply switch QF821 to switch on the PDU control power;
8. Closing the high-voltage box master control switch QF1, BMS power-up;
9. Closing the HV box DC power supply switch QF3, the HV box DC control power supply is put into operation;
10. Close the AC power supply switch QF2 of HV box, and the AC control power of HV box is put into operation;

11. BMS carries out self-test, the system is normal without alarm, the red fault indicator of HV box does not light up, and the green operation indicator of cabinet lights up;
12. After the high-voltage box starts normally, the inverter grid-connected self-test, start grid-connected operation;
13. Ensure that the load is normal, close the load switch QF5, the system supplies power to the user load, startup is complete.

CAUTION

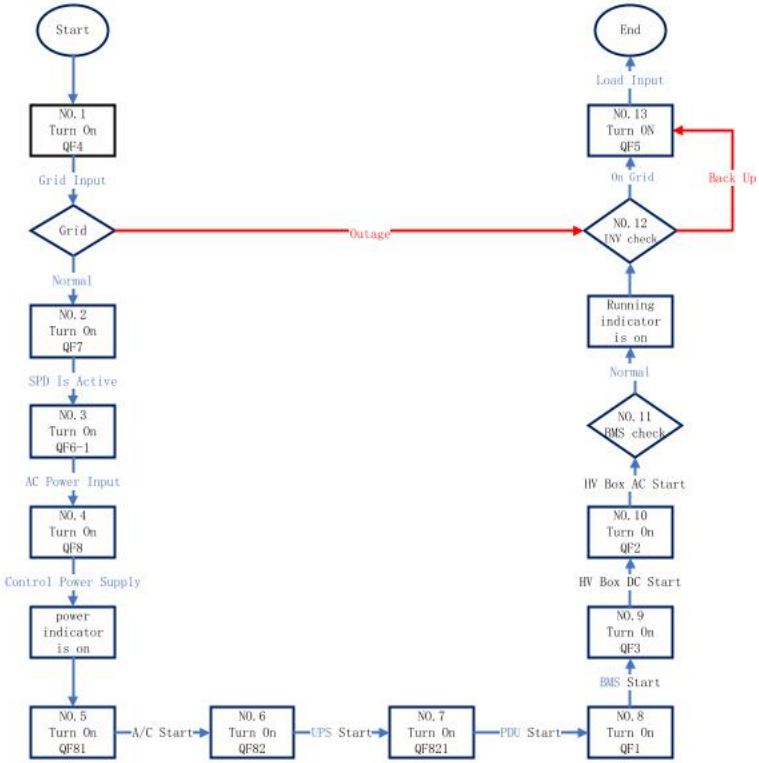
Power-button must be pressed if UPS is first-time powered-on.



NOTE

After the energy storage cabinet is started, please refer to the following table to carefully observe the operation status of the energy storage cabinet, if there is a fault alarm information, please follow 7.3 alarm and troubleshooting operation or contact the supplier.

Status	Name	Status indication
System is running normally	Energy storage cabinet	No signal for sound and light alarm Power indicator (white) is always on
		Running indicator (green) is always on
		Fault indicator (red) no signal
	High voltage box	Fault indicator (red) no signal

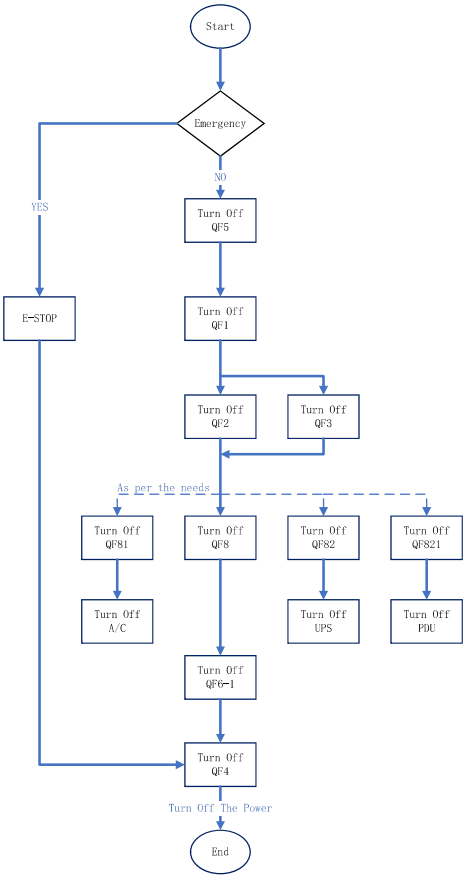


Equipment stop

1. Disconnect load switch QF5 to stop power supply to the load;
2. Disconnect the high-voltage box general control switch QF1, AC power supply switch QF2, DC power supply switch QF3 in turn, at this time, the system DC system, inverter are shut down, the high-voltage box control power supply is closed, the green operation indicator of the energy storage cabinet goes out;
3. Disconnect the AC control main switch QF8 to switch off the control power supply. Other load power supply switches in the cabinet can be disconnected as required;
4. Disconnect bypass switch QF6-1 to switch off the AC power supply;
5. Disconnect QF4 to switch off the mains power supply and the white power indicator of the energy storage cabinet goes out.

NOTE

In case of emergency, you can directly press the emergency stop button on the panel and disconnect the grid side switch QF4. and disconnect QF821 to cut off the UPS output according to the site requirements.



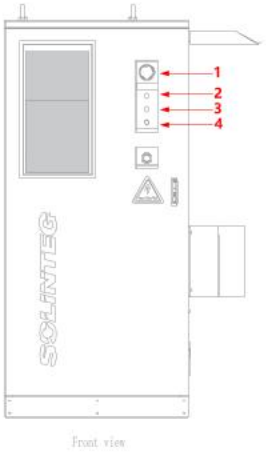
6.2 Operation Status

NOTICE

When the energy storage cabinet is started, please check the cabinet running status to avoid the cabinet startup failure, which will cause equipment power outage.

▼ 6.2.1 Cabinet Operating Status

The fire action signal of the energy storage cabinet is a dry contact signal, which is connected when remote monitoring of the fire action of the energy storage cabinet is needed on site, and no wiring is needed if remote monitoring is not needed.



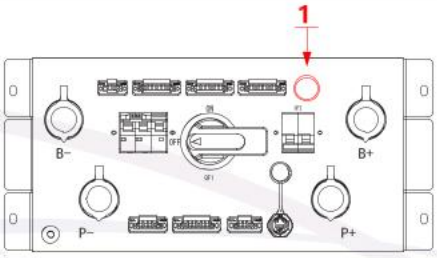
Schematic diagram of the operating status of the cabinet

Description of status indication

No.	Name	Description
1	Sound and light alarm	Alarm when triggered by smoke sensor
2	Power indicator (white)	Indicator light is always on when utility power is applied
3	Operation indicator (green)	When the high voltage box is put into operation, the indicator light is always on.
4	Fault indicator (red)	When the energy storage cabinet malfunctions, the alarm is always on

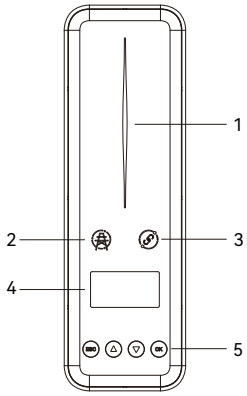
Explanation: Alarm signal occurs during the operation or running of the energy storage cabinet, please check the specific fault information together with the monitoring alarm data.

6.2.2 High-voltage Box Operation Status



No.	Name	Description
1	Fault indicator (red)	Normally illuminated alarm in case of fire fault

6.2.3 Inverter Operation Status



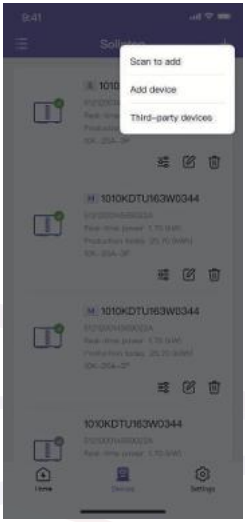
Item	Indicator	Status		Description
1	Power and alarm indicator	Off		No power.
		Blue	Quick flashing	Inverter entered self-test status.
			Slow flashing	Inverter entered waiting status.
			Breathe flashing	Inverter works normal.
		Orange	Breathe flashing	Low battery warning, the battery power is about to reach the SOC protection value.
		Red	Always on	An alarm or fault is detected, view the fault info on the display.
2	Grid indicator	Off		Grid lost.
		Slow flashing		Inverter detected grid but not running in on-grid mode.
		Always on		Inverter works in on-grid mode.
3	Communication indicator	Green	Always on	The inverter communication is running normally.
			Flashing	The inverter communicates with EMS or Master inverter through RS485 or CAN.
		Orange	Always on	The inverter isn't communicating with Solinteg smart meter.
		Red	Always on	The inverter isn't communicating with the BMS.
4	Display	Display the inverter's operational status, parameter settings, etc. Display off to save power, press the button to wake up the display.		
5	Button	Switch display information and set parameters.		

6.2.4 Integhub APP Add Equipment, Equipment Distribution Network

① After logging in the APP, create a power plant according to the APP guidance.
② In the interface of< Plants>, select the plant you want to add new devices, and click into it.



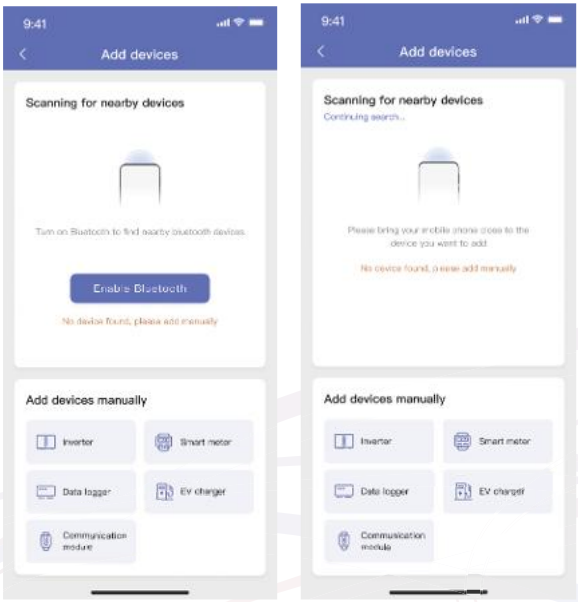
③ After entering <Plants>, click< Devices>, and then click<+> in the upper right corner to add devices.



④ Click <Scan to add>, scan the QR code or SN on the inverter nameplate.



⑤ Click< Enable Bluetooth> to turn on the Bluetooth of your mobile phone. APP will automatically scan the Bluetooth of nearby devices. If you click <Add devices manually> in step 3, APP will jump to the following interface.



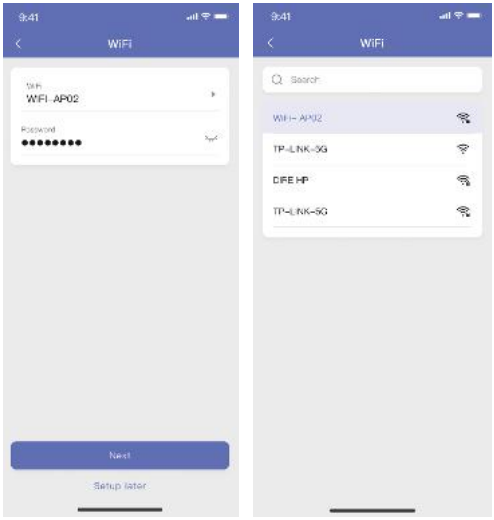
⑥ After scanning, APP will display the devices you want to add. Select the device you want to add.



⑦ Enter the device networking method selection. The inverter has two kinds of networking methods WIFI and LAN.



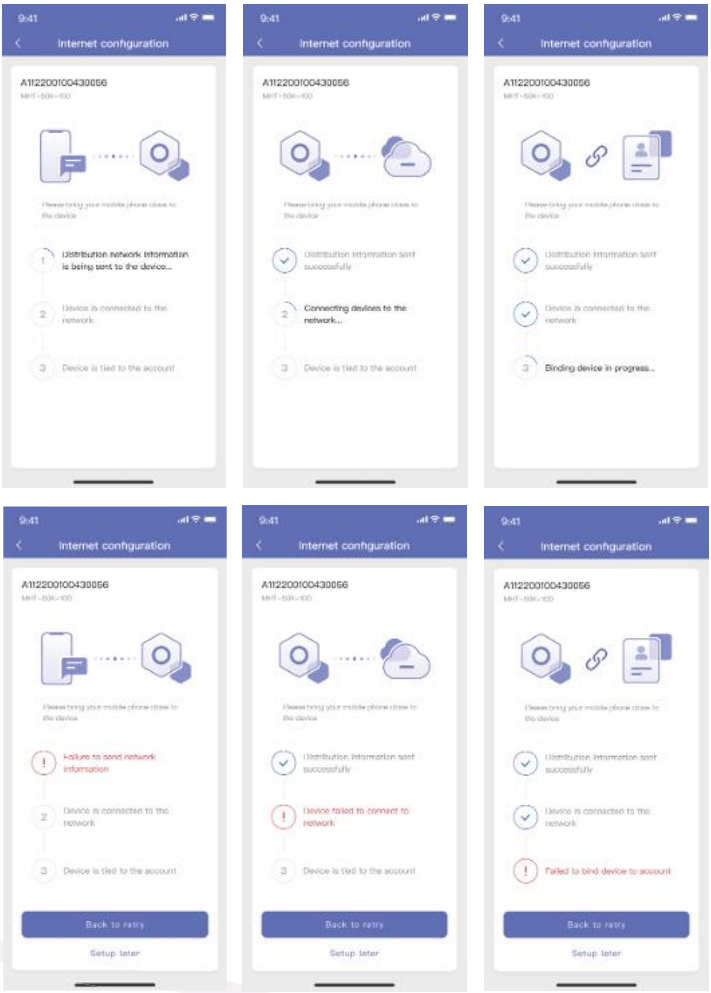
⑧ After selecting Wi-Fi networking, enter the Wi-Fi configuration interface. Select the connected Wi-Fi and enter the password. Click< Next> to enter the next step, click <Setup later> to setup later.



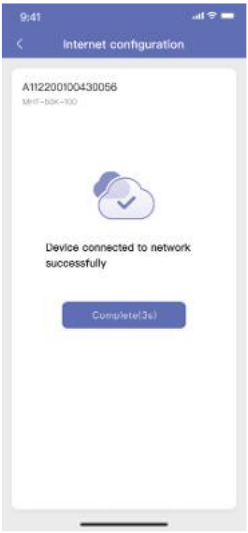
⑨ After selecting LAN, enter LAN configuration interface, DHCP function is turned on by default, after DHCP is turned off, users can set IP address, subnet mask, default gateway, domain name server. Click< Next> to enter the next step, click <Setup later> slightly after



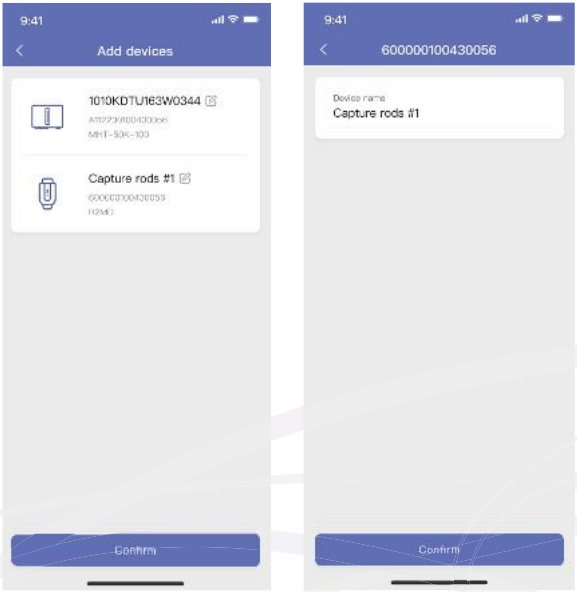
⑩ After configuring Wi-FI or LAN information, APP follows the following three steps to enter network configuration. When each step fails, the failure reason will be displayed.



⑪ After completing the configuration, click <Complete> to complete the network configuration.



⑫ After completing the network allocation, you can add devices. Click the Edit button to rename the device, and click <Confirm> to finish adding the device.



⑬ Enter the device details, you can view the device name, SN, device type, device model, communication mode (Wi-Fi or LAN), device IP address, device MAC address, inverter sub-firmware version number, connection date.



7 Device Maintenance

7.1 Equipment Maintenance Requirements

To ensure the normal operation of the device and prevent damage, please check and maintain the device regularly. When the environment or operating conditions of the equipment are poor, the user should also increase the maintenance frequency according to the site conditions. Equipment maintenance must be carried out by professional personnel.

Inspection and maintenance items	Maintenance requirements	Maintenance period
Equipment operating environment	1. Check the temperature and humidity, corrosion and dust conditions around the equipment; 2. Check the ventilation and water accumulation condition around the equipment;	3 months
Equipment operation status	1. Check the temperature and humidity, corrosion and dust conditions around the equipment; 2. Check the ventilation and water accumulation condition around the equipment;	1 month
System cleaning	1. Check the dust condition in the equipment; 2. Check whether the air-conditioning inlet and outlet are blocked;	3 months
Appearance of equipment	1. Whether there is damage to the equipment shell; 2. Whether there is corrosion of structural parts;	3 months
Electrical connection	1. Check whether the cable connection is reliable; 2. Check whether the installation of components is reliable; 3. Check whether there is discharge on the surface of the components;	6 months
Battery pack	1. Check the battery pack for abnormalities such as rattling, deformation and liquid leakage; 2. Long-term storage, the time shall not exceed six months, and need to replenish the battery according to the remaining battery power (SOC shall not be less than 10%).	1 month
Fire-fighting equipment	Maintenance and replacement by professionals in accordance with local fire fighting requirements.	According to local requirements
Cable replacement	In case of cable breakage at the crossing boards, have a professional maintain and replace the cables according to the recommended cable specifications in Table 1.	According to local requirements

Table 1 recommended cable specifications

Name of the cable	Recommended specification	Cable outer diameter (A)
Grid side cable	4*35mm²+1*16mm² or 4*50mm²+1*16mm²	26~ 45mm²
Load side cable	4*25mm²+1*16mm² or 4*35mm²+1*16mm²	18~ 32mm²

The surface coating of the cabinet may be damaged as a result of bumping during handling, transport and installation of the equipment. Users have to repair according to the damaged area.

1. Please select the appropriate paint or self-painting paint according to the colour code, and prepare tools and materials such as brushes, sandpaper, anhydrous ethanol, cotton cloth, tape, plastic cloth, and so on;
2. Use tape to cover the perimeter of the damaged area with plastic sheeting or other materials to prevent colour contamination;
3. Lightly sand the damaged area with sandpaper to remove surface rust and dirt;
4. Wetting cotton cloth with anhydrous ethanol and wiping the repaired area to remove surface dust and dirt, then wiping with dry cotton cloth;
5. Cover the damaged area evenly with paint using a brush or self-painting paint until the area is completely covered.

NOTE

When the damaged area is too large, please contact professional maintenance personnel for treatment.

7.2 Fire Protection System Inspection Requirements

DANGER

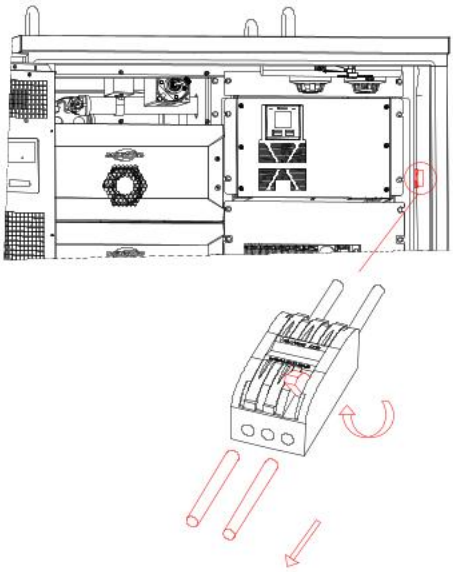
The fire protection system inspection must be carried out by professionals to avoid the failure of the fire protection system, resulting in casualties or equipment damage.

Professional testing equipment needs to be selected for fire detection to prevent secondary pollution to smoke and temperature sensors.

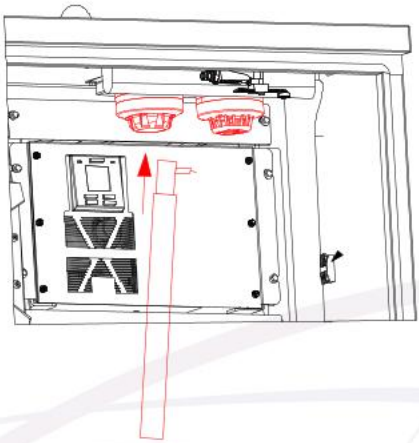
Before the fire coefficient detection, the fire detection quick terminal in the energy storage cabinet must be disconnected according to the requirements to avoid fire sprinkler action and damage to the equipment.

Attention: Corresponding terminal must be disconnected accordingly before fire protection test

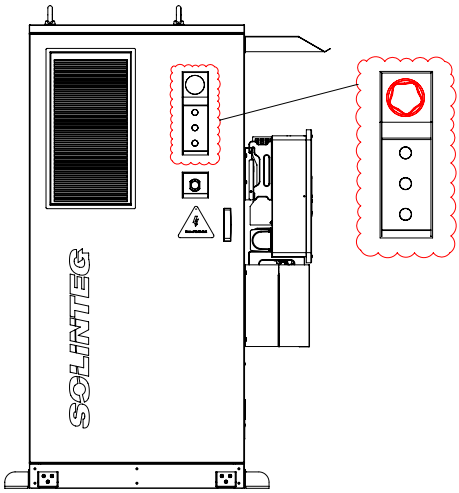
1. Lift the wrench of the fire detection quick connection terminal in the upper right corner of the energy storage cabinet up and pull out the connecting wire below;



2.According to the local fire protection requirements, select a two-in-one smoke and temperature tester for testing to reach the trigger condition;



3.Observe the alarm signal from the acoustic and visual alarm of the cabinet, then the smoke (temperature) status is normal.



7.3 Alarm and Troubleshooting

Troubleshooting and processing should be carried out by professional personnel according to local requirements.

Fault code	Name	System action	Handling measures
E400	BMS Comm	Abnormal communication between Controller and Inverter	1. Check if correct selection of battery ID 2. Check the working status of battery 3. Check the quality of comm. connection between invertererter and BMS 4. Check whether the line sequence of the communication line is correct
E431	Abnormal Battery Voltage	Battery voltage deviatio n >100V (measured value by inverter and value reported by BMS)	1. Check if power cable is connected correctly 2. Check if any leakage or damage of the power cable 3. Check if any alarm and/or protection of battery 4. Reboot battery after removing anomalies and re-installation. If problem remains, contact manufacturer after-sales for solution"

Fault code	Name	System action	Handling measures
E432	Abnormal BAT Parallel No.	Actual paralleled cluster No. is different from configured target No.	1.Check if the target parallel no. is set correctly. If incorrect, revise the target No. into correct value. 2.Check if any communication malfunctions between batteries/clusters and inverter. If any malfunction, resolve it and re-excute the parallel process. 3.Check if each cluster is powered on. If any cluster without power, turn on the DC breaker of each battery/cluster and re-excute the parallel process. 4.Check if there is any alarm or protection in any cluster. If any alarm or protection, resolve it and re-excute the parallel process. 5.Check if the voltage deviation between batteries/clusters is ≤ 2.5V. If anything abnormal, charge or discharge the batteries/cluster to ensure the voltage deviation ≤ 2.5V and then re-excute the parallel process.
E401	Low SOC	Battery is overdischarged (SOC<5% or value set)	1. Check comm. and power connection between battery and inverter. 2. Check if connection between inverter, PV, grid and diesel generator. 3. Check if load is oversized
E402	Low SOH	Battery healthy is too bad	1. Check if no compelete charge/discharge cycles during long-term period 2. Check if there is performance deviation between cells 3. Check if there is performance deviation between batteryteries
E403	BMS Sleeping	Threshold is triggered, which lead to sleep mode	1. Check if grid and/or PV can be stable and contineous for enough time. 2. Check if power connection between battery and inverter.
E404	BAT Voltage Sensor Fault	There might be something wrong with battery voltage sensor	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E405	BAT Temp. Sensor Fault	There might be something wrong with battery temperature sensor	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E406	BAT Internal Comm Fault	There might be something wrong with battery internal comm. circuit	1. Check comm. cable between battery module and controller. 2.Reboot the battery. If problem remains, contact manufacturer after-sales for solution
E407	Input OV Fault	Input voltage on battery is too high	1. Check if power cables are incorrectly connected to other source 2. Check if there is malfunction of invertererter

Fault code	Name	System action	Handling measures
E408	Input Reversed Fault	Input polarity is reversed	1. Check if power cables are reversely connected 2. Check if there is malfunction of invertererter
E409	BAT Relay Checking Fault	There might be something wrong with battery relay	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E410	Cell Damaged Fault	Cell voltage < 2.0V	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E411	Shutdown Circuit Fault	Can not completely switch off the system	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E412	BMIC Fault	Sensor chip is abnormal	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E413	BAT Internal Bus Fault	Battery internal bus is abnormal	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E414	Self-checking Fault	Self-checking failed	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E415	Safety Function Fault	Chip self-checking failed	1. Reboot the battery 2. If problem remains, contact manufacturer after-sales for solution
E416	ISO Fault	Isolation is too low	1. Turn off the whole system 2. Check if any damage or breakage in devices, cables, terminals, etc. 3. Check if any circuit shorted by foreign matters. 4. Reboot battery after removing anomalies. If problem remains, contact manufacturer after-sales for solution
E417	Cell UV	Cell votage is too high, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-charging 2. Check if the external source (PV, utility grid, diesel generator, etc.) stop working, which leads to inexecution of forced-charging 3. Reboot and then charge the battery immediately.
E418	Cell OV	Cell votage is too low, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-discharging 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Reboot and then discharge the battery immediately.

Fault code	Name	System action	Handling measures
E419	Cluster UV	Cluster votage is too high, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-charging 2. Check if the external source (PV, utility grid, diesel generator, etc.) stop working, which leads to inexecution of forced-charging 3. Reboot and then charge the battery immediately.
E420	Cluster OV	Cluster votage is too low, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-discharging 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Reboot and then discharge the battery immediately.
E421	Charge UT	Cluster votage is too high, which triggers the protection	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery and then reboot the battery.
E422	Charge OT	Cluster votage is too low, which triggers the protection	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery and then reboot the battery.
E423	Discharge UT	Temperature is too low for discharge, which triggers the protection.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery and then reboot the battery.
E424	Discharge OT	Temperature is too high for discharge, which triggers the protection.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery and then reboot the battery.
E425	Charge OC	Temperature is too low for charge, which triggers the protection.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not charge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter
E426	Discharge OC	Temperature is too high for charge, which triggers the protection.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not discharge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter

Fault code	Name	System action	Handling measures
E427	Battery Module UV	Battery module votage is too high, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-charging 2. Check if the external source (PV, utility grid, diesel generator, etc.) stop working, which leads to inexecution of forced-charging 3. Reboot and then charge the battery immediately.
E428	Battery Module OV	Battery module votage is too low, which triggers the protection	1. Check if there is any malfunction of invertererter, which leads to inexecution of forced-discharging 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Reboot and then discharge the battery immediately.
E429	Terminal OT	Termianl temperature is too high, which triggers the protection.	1. Check if terminal temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down terminal and then reboot the battery.
E430	Abnormal Leakage	Leakage current is too high, which triggers the protection.	1. Turn off the whole system 2. Check if any damage or breakage in devices, cables, terminals, etc. 3. Check if any circuit shorted by foreign matters. 4. Reboot battery after removing anomalies.
I400	Cell UV	Cell votage is too high, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if there is obvious cell voltage deviation. 3. Charge the battery immediately. 4. If there is cell volatge deviation, fully charge and discharge the battery for several times (>10 cycles). If unsolved, contact manufacturer after-sales for solution.
I401	Cell OV	Cell votage is too low, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately 4. If there is cell volatge deviation, fully charge and discharge the battery for several times (>10 cycles). If unsolved, contact manufacturer after-sales for solution.
I402	Cluster UV	Cluster votage is too high, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if load power is oversized. 3. Charge the battery immediately.

Fault code	Name	System action	Handling measures
I403	Cluster OV	Cluster votage is too low, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately.
I404	Charge UT	Cluster votage is too high, which triggers the alarm	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery.
I405	Charge OT	Cluster votage is too low, which triggers the alarm	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery or reduce the charging current.
I406	Discharge UT	Temperature is too low for discharge, which triggers the alarm.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery.
I407	Discharge OT	Temperature is too high for discharge, which triggers the alarm.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery or reduce the discharging current.
I408	Charge OC	Temperature is too low for charge, which triggers the alarm.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not charge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter
I409	Discharge OC	Temperature is too high for charge, which triggers the alarm.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not discharge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter
I410	Battery Module UV	Battery module votage is too high, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if load power is oversized. 3. Charge the battery immediately.

Fault code	Name	System action	Handling measures
I411	Battery Module OV	Battery module votage is too low, which triggers the alarm	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately.
I412	Terminal OT	Termianl temperature is too high, which triggers the alarm.	1. Check if terminal temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down terminal and then reboot the battery.
I413	Abnormal Fan	Fan of battery module is abnormal	1. Turn off the battery and check if power cable of fan is connected correctly 2. Contact manufacturer after-sales for solution
I414	Abnormal Leakage	Leakage current is too high, which triggers the alarm.	1. Turn off the whole system 2. Check if any damage or breakage in devices, cables, terminals, etc. 3. Check if any circuit shorted by foreign matters. 4. Reboot battery after removing anomalies.
W400	Cell UV	Cell votage is too high, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if there is obvious cell voltage deviation. 3. Charge the battery immediately. 4. If there is cell volatge deviation, fully charge and discharge the battery for several times (>10 cycles). If unsolved, contact manufacturer after-sales for solution.
W401	Cell OV	Cell votage is too low, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately 4. If there is cell volatge deviation, fully charge and discharge the battery for several times (>10 cycles). If unsolved, contact manufacturer after-sales for solution.
W402	Cluster UV	Cluster votage is too high, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if load power is oversized. 3. Charge the battery immediately.

Fault code	Name	System action	Handling measures
W403	Cluster OV	Cluster votage is too low, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately.
W404	Charge UT	Cluster votage is too high, which triggers the warning	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery.
W405	Charge OT	Cluster votage is too low, which triggers the warning	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery or reduce the charging current.
W406	Discharge UT	Temperature is too low for discharge, which triggers the warning.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Increase the enviroment temp. to warm up battery.
W407	Discharge OT	Temperature is too high for discharge, which triggers the warning.	1. Check if battery temp. is reasonable 2. Check if any malfunction of temp. sensors 3. Reduce the enviroment temp. to cool down battery or reduce the discharging current.
W408	Charge OC	Temperature is too low for charge, which triggers the warning.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not charge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter
W409	Discharge OC	Temperature is too high for charge, which triggers the warning.	1. Check if current limitation of battery decreases cause of temp, SOC, etc. 2. Check if invertererter does not discharge according to current limitation 3. Reboot battery after checking or adjusting configuration of invertererter
W410	Battery Module UV	Battery module votage is too high, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to unstopped discharging. 2. Check if load power is oversized. 3. Charge the battery immediately.
W411	Battery Module OV	Battery module votage is too low, which triggers the warning	1. Check if there is any malfunction or incorrect configuration of invertererter, which leads to inexecution protection according to charging voltage limitation. 2. Check if any unsuitable setting and/or configuration , which leads to inexecution of forced-discharging 3. Discharge the battery immediately.

Fault code	Name	System action	Handling measures
W412	BMU Offline	BMU in battery module is offline	Turn off battery and contact manufacturer after-sales for solution.
W413	BMCU Offline	BMCU in controller is offline	Turn off battery and contact manufacturer after-sales for solution.
W414	SN Change of Module	Battery module(s) changed	1. Check if any battery module is removed or added 2. Check if SOC and voltage of all the battery modules are the same when added 3. Contact installer, distributro or manufacturer after-sales for confirmation and elimination.
W415	Abnormal Change of Cluster Voltage	Cluster voltage changes too much in 2s	1. Check if power cable is connected correctly. 2. Check if abnormal change of voltage and SOC. 3. Reboot battery after removing anomalies. If problem remains, contact manufacturer after-sales for solution
W416	Abnormal Cluster △ V	There is visible voltage deviation between clusters	1. Check if power cable is connected correctly. 2. Check if abnormal change of voltage and SOC. 3. Check if battery mode and number in each cluster is the same. 4. Reboot battery after removing anomalies. If problem remains, contact manufacturer after-sales for solution
W417	Abnormal Module △ V	There is visible voltage deviation between battery modules	1. Check if power cable is connected correctly. 2. Check if abnormal change of voltage and SOC. 3. Reboot battery after removing anomalies. If problem remains, contact manufacturer after-sales for solution

8 Disposal

The energy storage cabinet contains batteries, please dispose of the equipment according to local requirements.

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