SOLINTEG
INTEGRATE SOLAR INTELLIGENTLY

INTEG E STORAGE CABINET

Outdoor Air Cooling Energy Storage Cabinet

E2BR-S208/225/241/257K-C



User Manual

ENGLISH VERSION


SOLINTEG
INTEGRATE SOLAR INTELLIGENTLY

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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-S208K-C, E2BR-S225K-C, E2BR-S241K-C, E2BR-S257K-C.

Model	E2BR-S208K-C	E2BR-S225K-C	E2BR-S241K-C	E2BR-S257K-C
System Energy (kWh)	208.9	225.0	241.1	257.2
Dimensions(W×H×D mm)	1100*2393*1300			
Weight(kg)	2170	2280	2390	2500

Target Group

This instruction manual is intended for specialized 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 Specialized training in the installation and commissioning of electrical equipment.

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

④ Obtain locally recognized installation and operation certificates.

⑤ Only personnel meeting the above requirements may perform installation, maintenance and troubleshooting. Unauthorized 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.

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 center 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 en-

sure 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 pack- ing 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 batter- ies 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 applied to Solinteg outdoor air-cooling energy storage cabinet. The energy storage cabinet integrated with battery pack, high voltage control box, and fire extinguish system within cabinet. It can be widely used in different industrial and commercial scenarios.

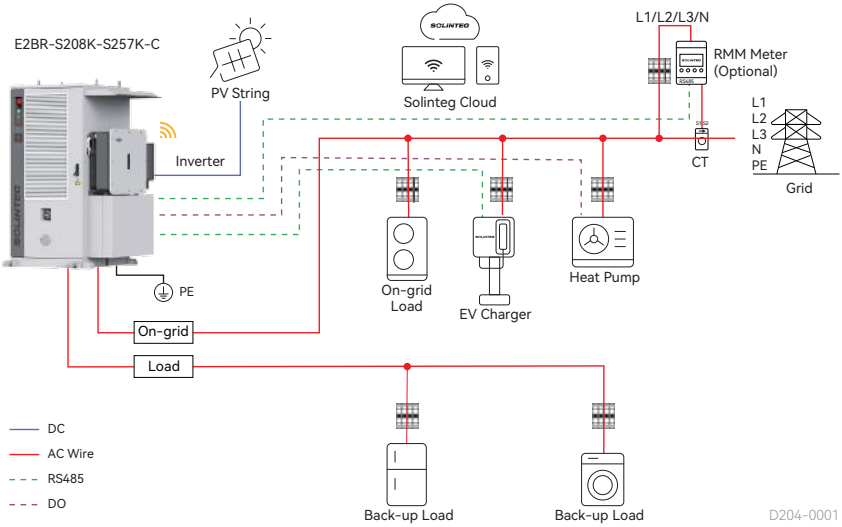
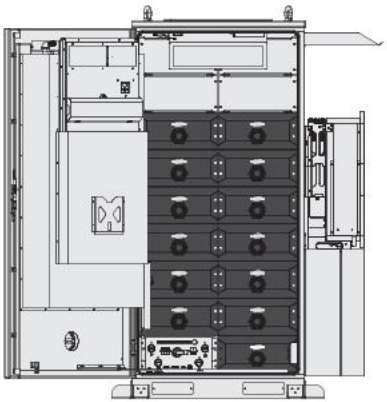


Figure 2-1 System diagram

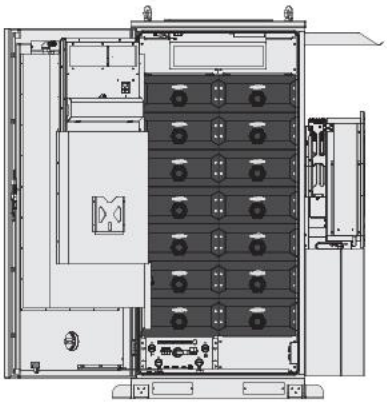
System main equipment table

Name	Description
Energy storage cabinet (E2BR-S160K~S257K-C)	Solinteg outdoor air-cooling energy storage cabinet, which can achieve energy storage and provide stable backup power.
Inverter	Solinteg energy storage inverter, which can realize DC-AC conversion, and electric energy management.
Smart meter+CT (RMM meter+CT)	AC power sampling for inverter
EV charger	Provides power for electric vehicles, and can be linked with Solinteg inverter friendly 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.

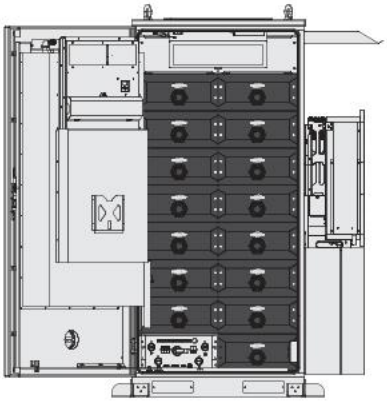
The cabinet includes four models: E2BR-S208K-C, E2BR-S225K-C, E2BR-S241K-C, and E2BR-S257K-C. Pack layout is shown in the schematic diagram below.



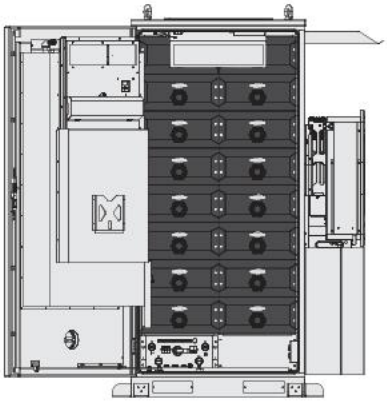
E2BR-S208K-C



E2BR-S225K-C



E2BR-S241K-C



E2BR-S257K-C

D204-0002

2.2 Appearance Dimensions

The cabinet dimension is: 1100(W)*1300(D)*2393(H)mm. The cabinet appearance and dimension drawing are shown below:

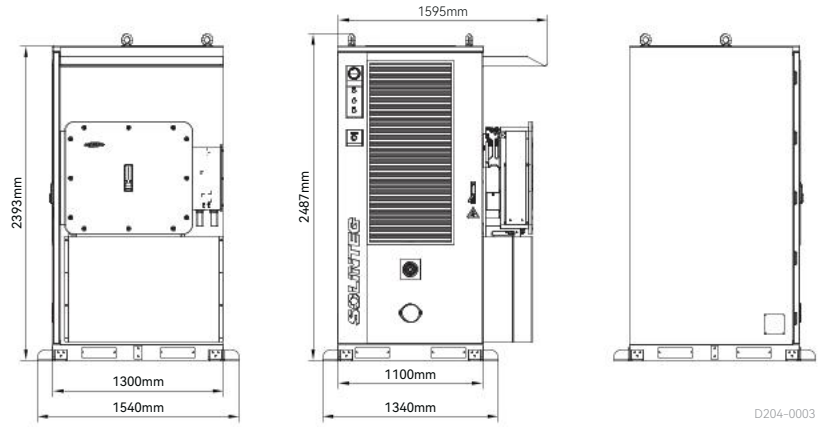


Figure 2-2 Cabinet appearance and dimension drawing

2.3 Product Components

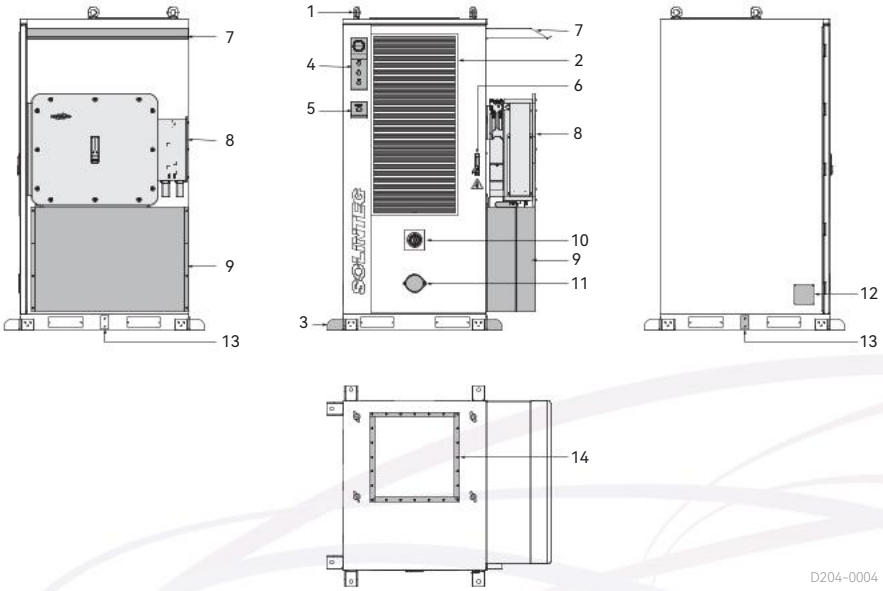


Figure 2-3 Schematic diagram of product components A

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
7	Rain shelters	Protect inverter from rain or snow
8	Inverters**	125kW inverter
9	Cable cover hoods	Cable protection
10	Fire water connection	For connection to external fire water source
11	Explosion-proof valves	Release gas pressure
12	Nameplate	Nameplate for product parameters
13	Cabinet grounding port	For protective grounding of the cabinet enclosure
14	Explosion relief plate (Optional)	Used for cabinet thermal runaway explosion venting

* The four sides of the cabinet support fixed kickstand mounting, users can choose to in- stall 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.

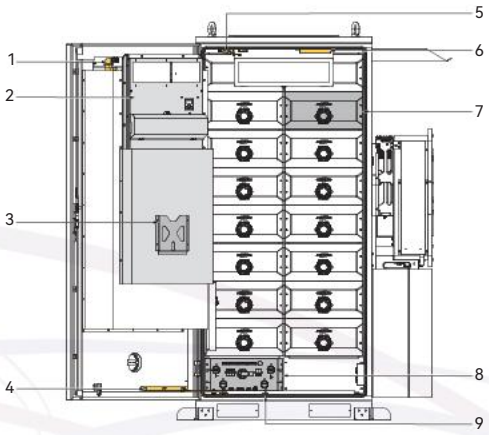
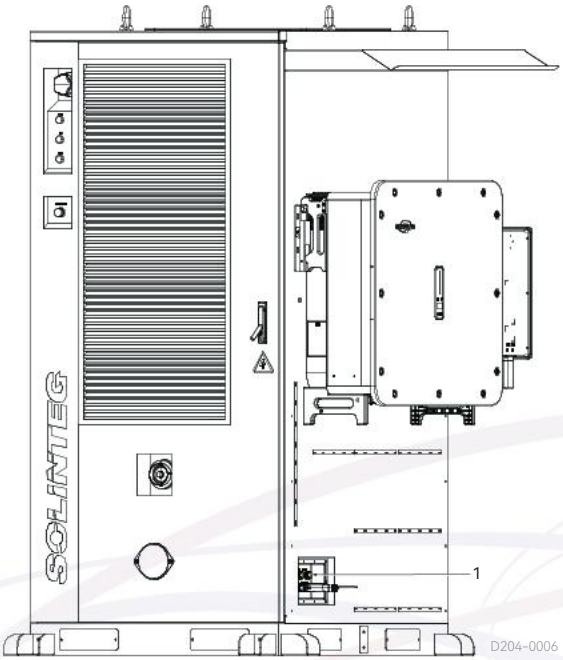


Figure 2-4 Schematic diagram of product components B

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

No	Name	Description
1	Fire water pipelines	Spray water into the cabinet when it catches fire
2	Air-cooling air conditioner	Automatically adjusts the temperature and humidity inside the cabinet by monitoring the temperature inside the cabinet.
3	Documentation frame	For storage cabinet documentation
4	Windproof fixing bar	For windproof fixing of the front door when it is open
5	Fire extinguish system	Equipped with temperature, gas and smoke detectors for automatic fire extinguish control.
6	Aerosol	Automatic fire suppression in the cabin in case of fire occurrence
7	Battery pack	Electrical energy storage unit
8	High voltage box (master control)	Battery information, fire information collection and storage cabinet control
9	Immersion sensor	Check whether there is water in the cabin

2.3.1 Side Crossing Panel



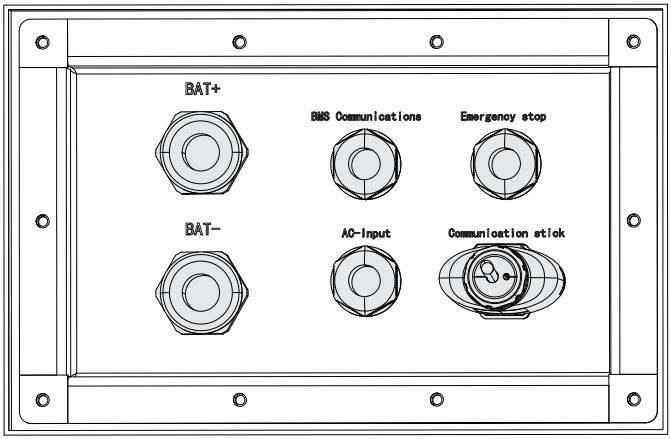


Figure 2-5 Schematic diagram of side crossing panel

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

No	Name marking	Description
1	Side cable crossing boar	Cable feedthrough for connection between inverter and energy storage cabinet
2	BAT +	Inverter and battery pack total positive connection threading hole
3	BAT -	Inverter to battery pack total negative connection threading hole
4	BMS Communications	Inverter and battery communication interface
5	Emergency stop	Inverter emergency stop interface
6	AC-Input	AC input interface
7	Communication stick	Communication stick interface

NOTE

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

2.3.2 Control Power

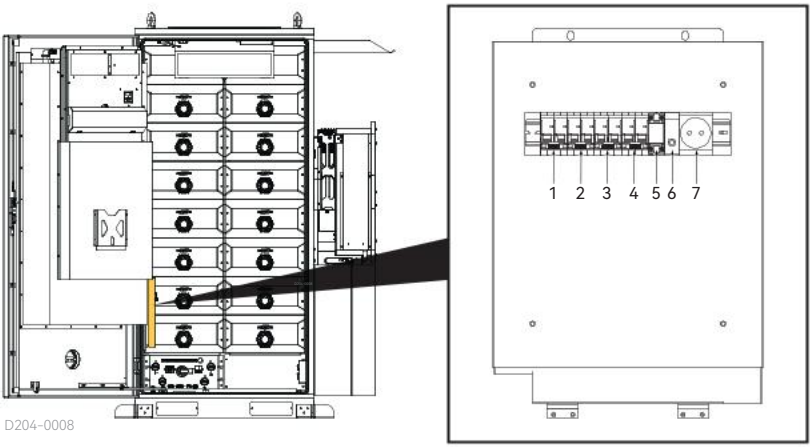


Figure 2-6 Control power circuit component layout

Part numbers and names are shown in the table below

No	Marking	Name
1	QF1	Auxiliary Main Breaker
2	QF11	Controller PDU AC Breaker
3	QF12	A/C Breaker
4	QF13	Socket Power Breaker
5	KA1	Time Relay
6	DC-DC	DC-DC Voltage Conversion Module
7	Socket	EU Socket

2.3.3 High Voltage Box

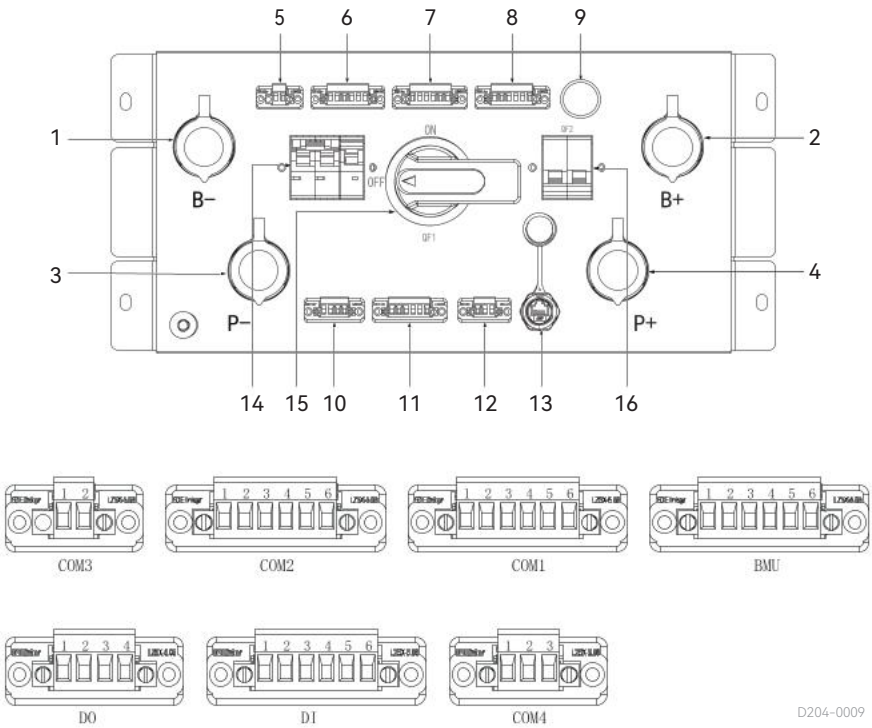


Figure 2-7 High voltage box layout

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-	

No	Marking	Definition	Description
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	
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	

No	Marking	Definition	Description
13	LAN	/	BCU and BAMS communication
14	QF3	/	Controller DC power breaker
15	QF1	/	Controller main control switch
16	QF2	/	Controller ac power breaker

2.3.4 Battery Pack

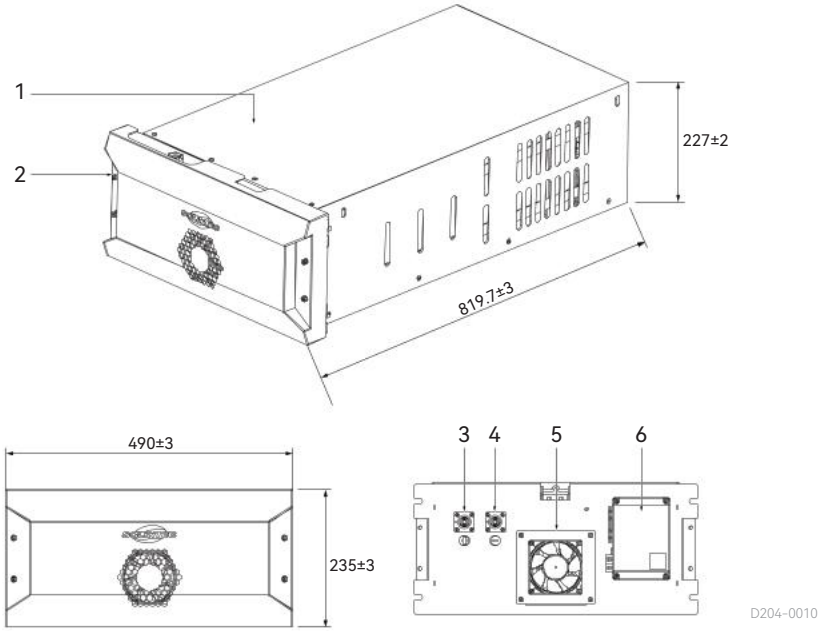


Figure 2-8 Battery pack exterior view

Part numbers and names are listed below:

No	Name
1	Battery pack
2	Mask
3	Battery pack positive
4	Battery pack negative
5	BMU
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℃	/
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	/

2.3.5 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.

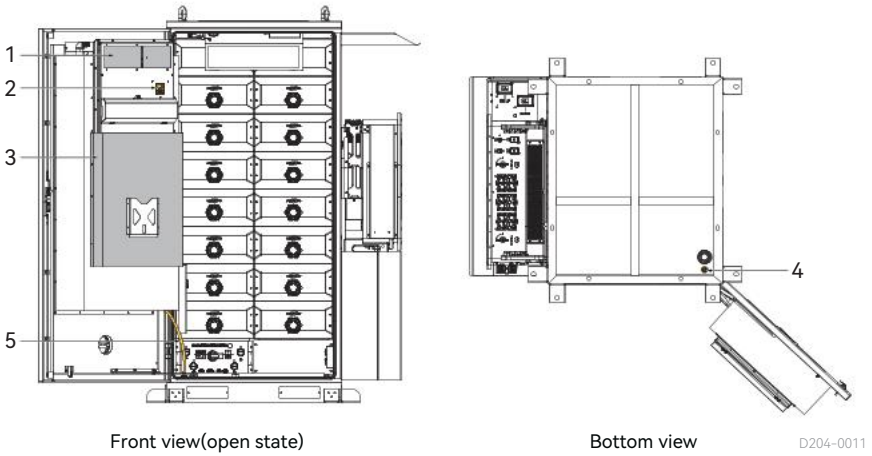


Figure 2-9 Schematic diagram of air-cooling air conditioner

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 cooled air conditioner parameter table:

Item	Unit	Parameter
Rated AC input power supply	-	AC230±10%/50±1Hz
Rated power (cooling/heating)	KW	5.0/3.7
Rated current (cooling/heating)	A	15.0/18.0
Rated cooling capacity	kW	5.0
Heating power	kW	3.7
Maximum operating current	A	18
Recirculated Air Volume	m^3/h	1400
Temperature control range	℃	20~50
Humidity control	-	Yes
Operation temperature	℃	-40~55
Refrigerating fluid	/	R134a

2.3.6 Fire Protection System

NOTE

- Door control switch on the right side of the cabinet top, when the cabinet door is opened, the high voltage control 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.

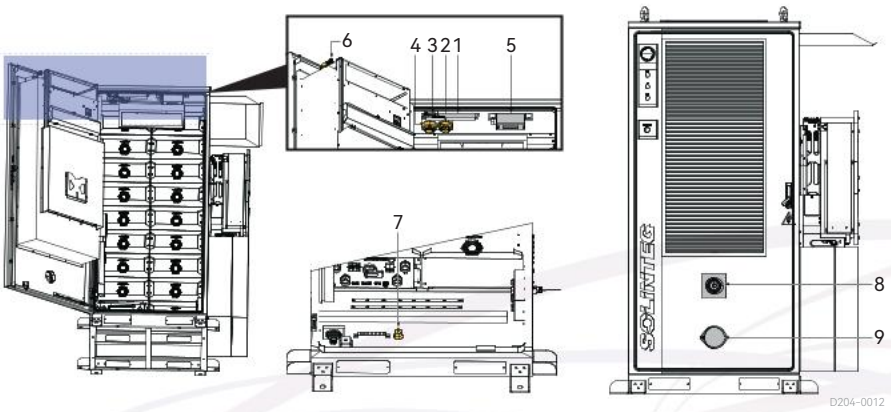


Figure 2-10 Layout diagram of fire protection system

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	Aerosol fire module	Receives fire alarm signals and activates the fire protection system
6	Fire extinguishing nozzles	Fire extinguishing nozzles
7	Flood detector	Detects flooding of the energy storage cabinet and sends a signal to the high voltage box.
8	Explosion-proof valve	Releases gas pressure
9	Fire water connection	Connection for external fire water connection

Description:

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

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. 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.

2.3.7 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.

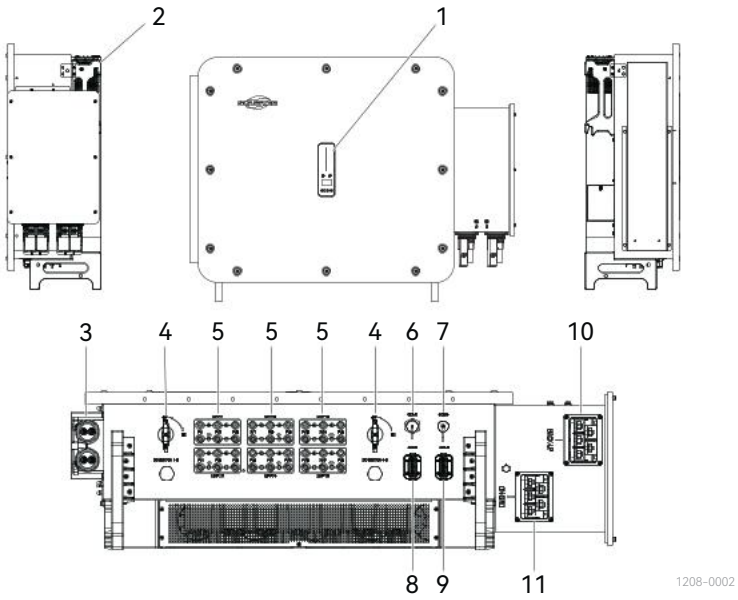


Figure 2-11 M2HT-75~125-300 hybrid inverter diagram

Item	Name	Description
1	Indicator, 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	BAT	Battery connection.
4	DC SWITCH	Used to disconnect/ connect PV input.
5	MPPT	PV string input.
6	COM1	Communication module connection port.
7	COM4	Reserved
8	COM2	For connecting the multifunctional connector, refer to Section 7.2 Multifunction Port for port definitions.
9	COM3	
10	BACK-UP	Used for load cable connection.
11	ON-GRID	Used for On-grid or generator cable connection.

2.4 Electrical System

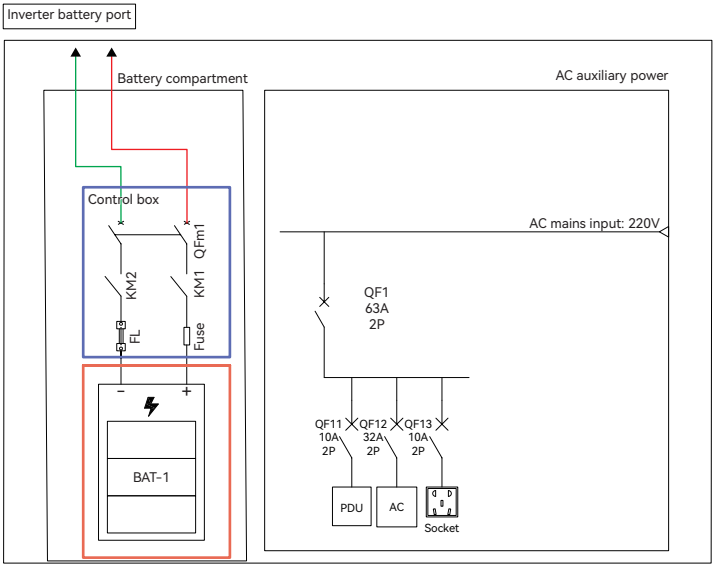


Figure 2-12 Schematic diagram of the electrical system

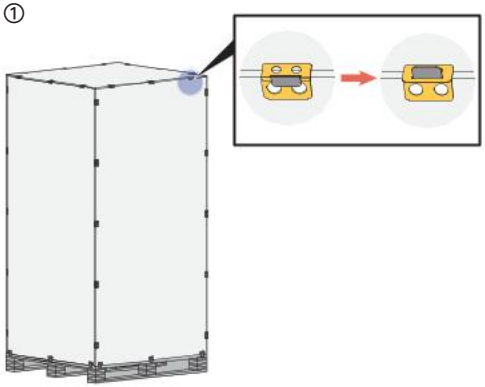
3 Transport and Storage

3.1 Unpacking the Energy Storage Cabinet

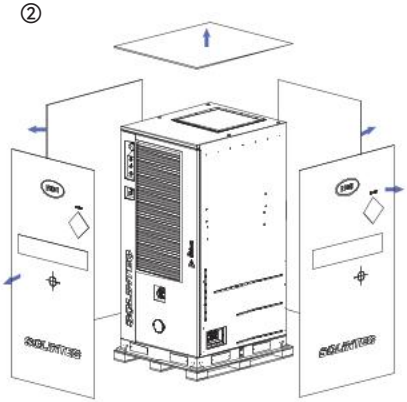
NOTE

· 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;

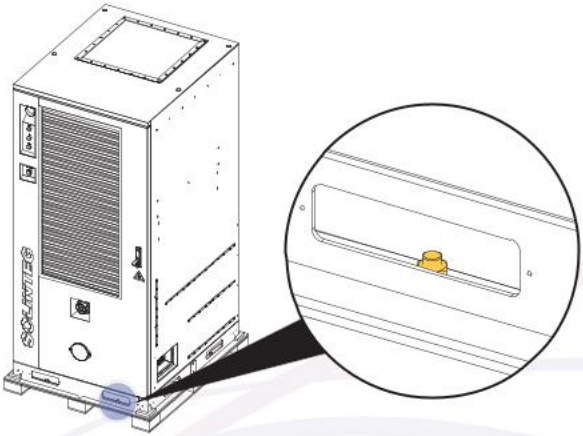
①



②



③



D204-0014

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.

NOTE

- 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 ≥ 3t, 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, take out the ring from the parts carton in the cabinet, install the ring at the mounting hole as shown in the figure below, and connect it firmly.

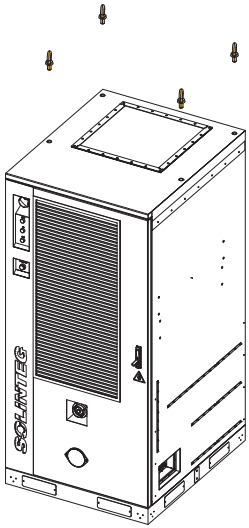


Figure 3-1 Installation diagram of energy storage cabinet lifting ring

3.2.2 Forklift Handing Requirements

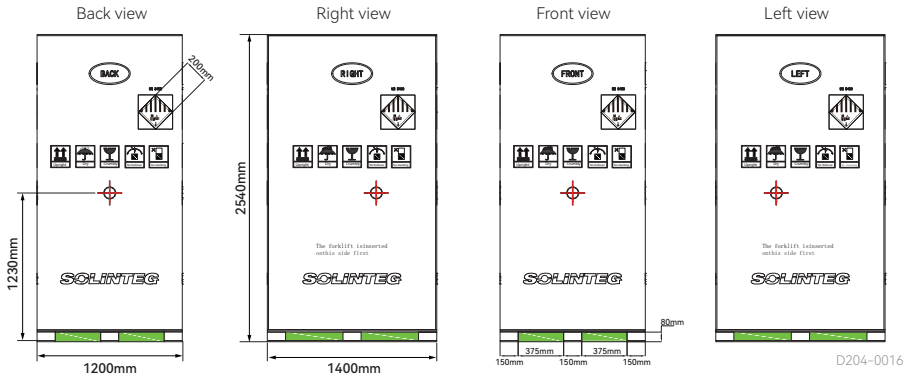
1.Make sure the forklift meets the load-bearing requirements, load-bearing capacity ≥ 3t.

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:



3.3 Cabinet Storage

1. If need long time store, please do not remove the original packaging and check the outer packaging regularly.

2. Please store the product in strict accordance to the warning labels and other information on the package to avoid the product damage .

3. Storage environment requirment: -20 ~ 45 ℃ , 5%-95% RH.

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

Storage Time	Storage temperature	Storage relative hunmidity
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

NOTE

- 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. dry and ventilated; 2. away from heat and ignition sources; 3. free from radiation and chemically pollution; 4. protected from dust and metal- conductive dust; 5. 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, and 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	Packaging
1	Energy storage cabinet	E2BR-S160~257K-C	1SET	Wooden box
2	Key (To open cabinet door)	/	2PCS	
3.1	Rain shelter (with Sealing gasket)	1250*495*80mm,	1PCS	Cartons - parts
3.2	Cable cover 01	1150*805.5*148mm	1PCS	
3.3	Cable cover 02	805.5*229*48.5mm	1PCS	
3.4	Angle foot	100*120*80mm	8PCS	
3.5	Forklift hole baffle	260*80*2mm	8PCS	
3.6	Lifting Ring(with rubber washer)	M24	4PCS	
3.7	M20*150 Expansion Bolt	M20*150	8PCS	
3.8	M5*16 hex screw	M5*16	33PCS	
3.9	M6*16 Hex Screw	M6*16	10PCS	
3.10	M10*16 Hex Screw	M10*16	6PCS	
3.11	M8*25 Hex Screw	M8*25	16PCS	
3.12	Communication Module	/	1PCS	
3.13	PE Line	1.7m, 25mm^2	1PCS	
3.15	Black Corrugated pipe	2m	1PCS	
3.15	Orange Corrugated pipe	2m	1PCS	
4.1	User manual	/	1PCS	Document bags
4.2	Drawings	/	1PCS	
4.3	Product Delivery Report	/	1PCS	

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 Max. weight of product is about 2.5t, installer need 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.

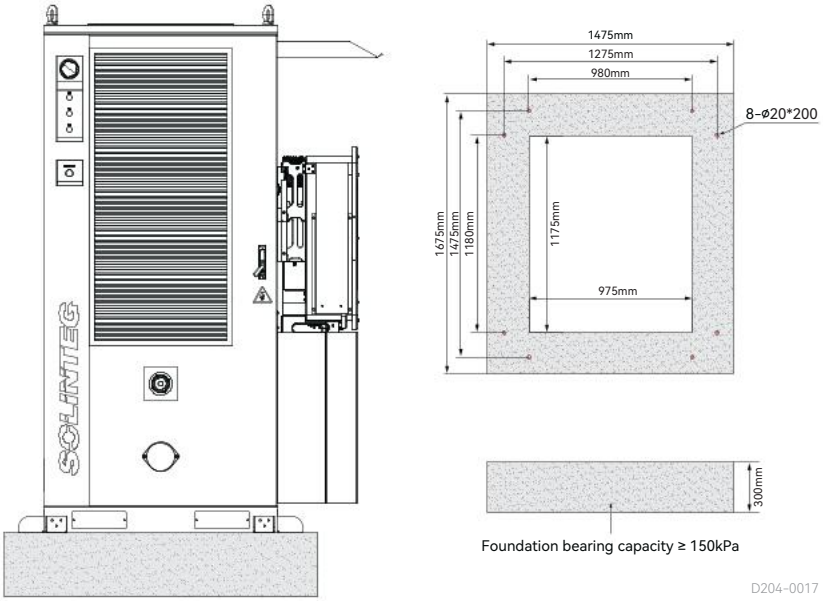


Figure 4-1 Cabinet foundation schematic

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 neighbour 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 illegal acess.

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 meteoro- logical 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;)

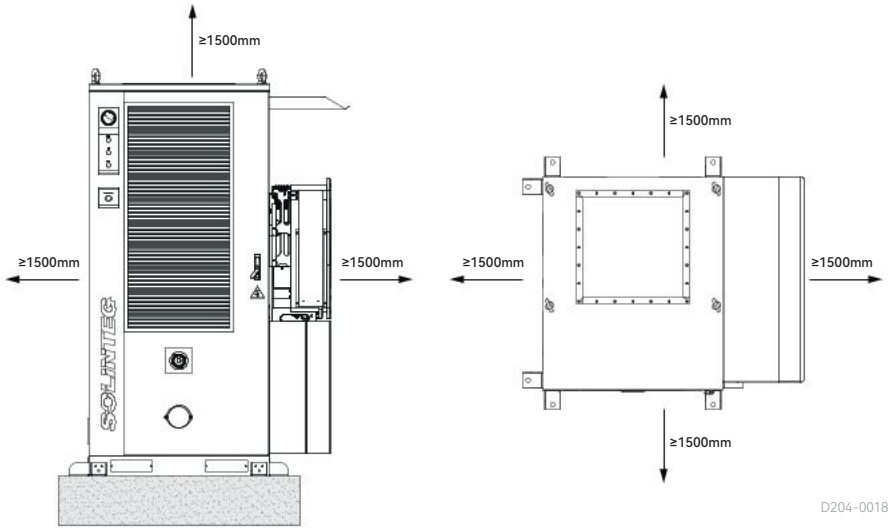
Relative humidity: 5%-95%RH

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, centralized rubbish dumps, sewage treatment stations, etc.	> 500

4.1.4 Installation Distance Requirements

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



4.1.5 Installation Tool Requirements

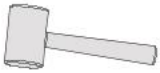
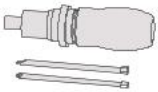
The tools to be used include but are not limited to the following recommended tools. Please use other auxiliary tools according to the needs of the site. Please note that the tools used must comply with local code requirements.

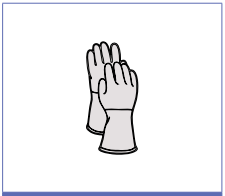

Hammer drill (ø18 mm)


Multimeter(Range: 1500 V dc)

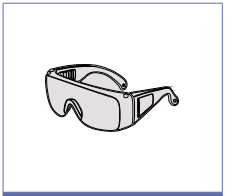

Measuring tape

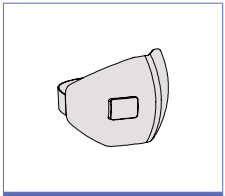

Utility knife

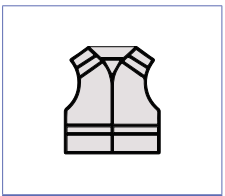
 Marker	 Cross screwdriver	 Flat-head screwdriver	 Wire cutter
 Wire stripper	 Crimping tool for RJ45	 Hydraulic wire crimper	 Rubber mallet
 Torque wrench (M4~M12)	 Torque screwdriver (Phillips head: M4)	 Heat gun	 Heat shrink tubing (ø30~60 mm)
 Diagonal pliers	 Vacuum cleaner	 Cable tie	 Insulated ladder
 Crane	 Steel wire rope (Length>2000mm*4)	 Electric forklift	 Steel pope (ø25~30mm)

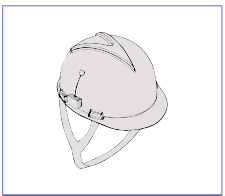

Insulating gloves

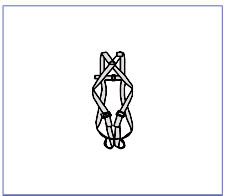

Safety boots


Safety goggles


Anti-dust mask


Safety vest


Safety helmet


Safety belt

4.4 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.

4.4.1 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 8 fixed tripods, 24 pcs M8*25 hexagonal mounting bolts and 8 pcs M20*150 expansion bolts from the parts carton, and mark the holes according to the site conditions and installation hole position diagram;
3. 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.
4. Refer to Fig. 4-2, secure 8 mounting feet with M8*25 screws.
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)

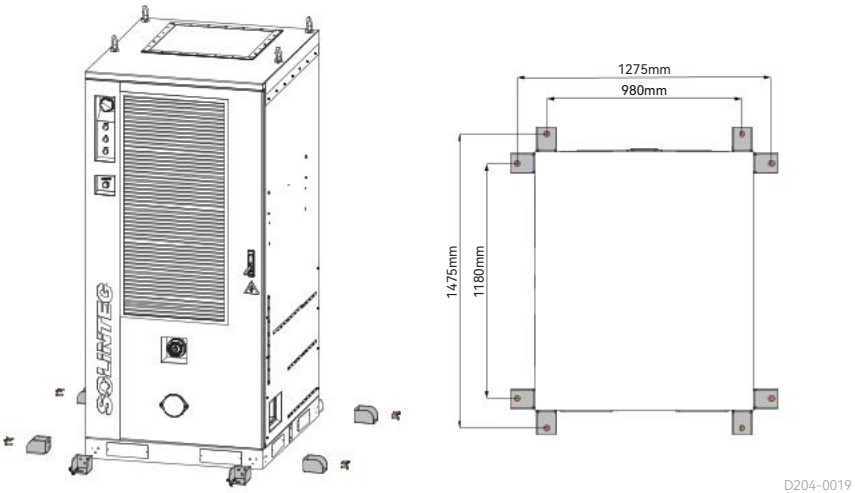
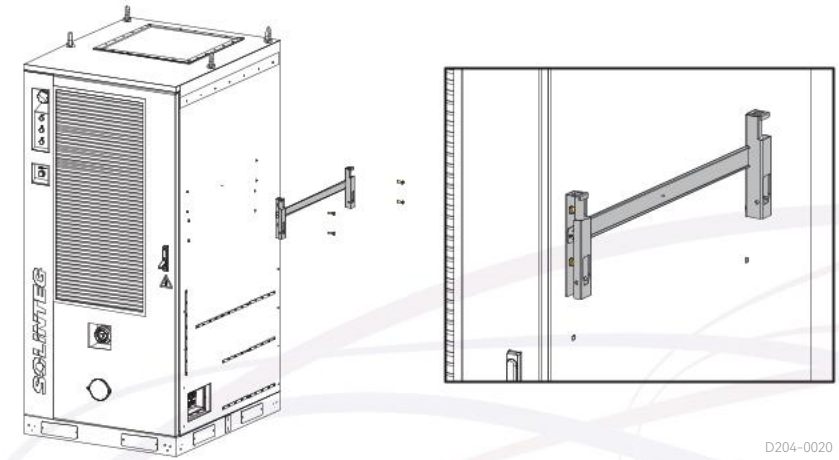


Figure 4-2 Schematic diagram of foundation opening

4.4.2 Inverter Installation

1. Take out 4 pcs M10*25 mounting bolts from the parts carton and fix the inverter back mounting bracket on 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



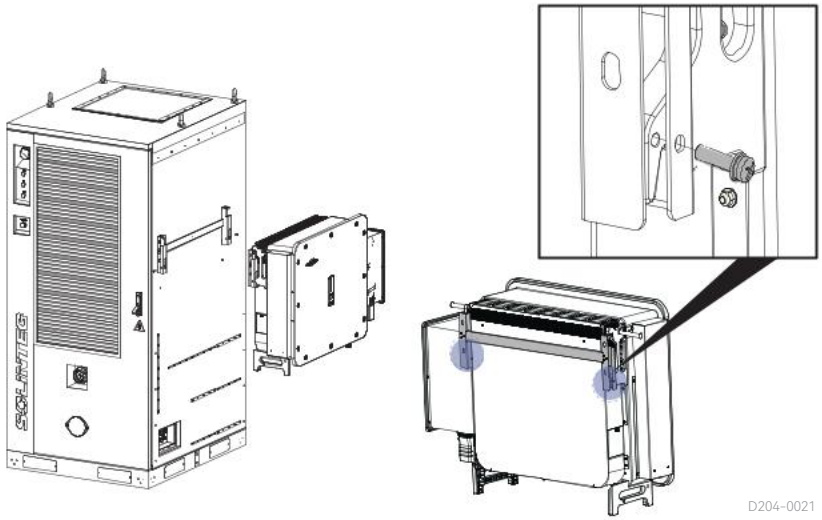


Figure 4-3 Inverter installation schematic

4.4.3 Installation Of Rain Shelter

1. Take out rain shelter, 7 pcs M5*16 mounting bolts and waterproof washers from the parts carton, and pass the mounting bolts through the waterproof washers.

2 .According to the position shown in the diagram, use M5*16 mounting bolts to fix the rain shelter in the upper right side of the cabinet.

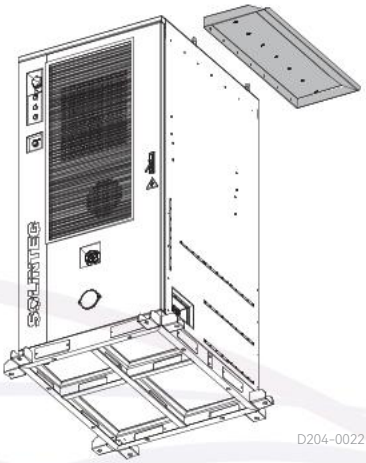


Figure 4-4 Schematic diagram of rain shelter installation

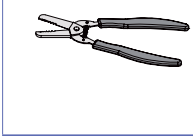
5 Electrical Installation

NOTE

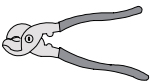
- Please read the manual carefully before installation to fully understand the installation requirements.
- Make sure that the mechanical installation of the cabinet has been completed, and that there are no missing accessories or tools in the cabinet.
- Before installation, please carefully check the 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



Wire strippers



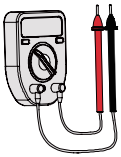
Wire cutters



Crimping pliers



RJ45 connector crimping pliers



Multimeter
(DC range >1100V)



Screwdriver



L-typr allen wrench

5.1.2 Self-prepared Materials

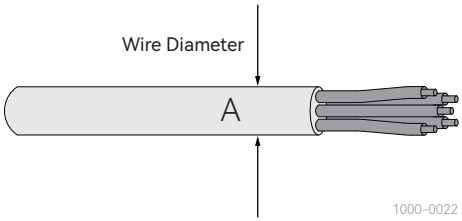
The following are other materials required for the electrical installation of the cabinet, which are to be provided by the user according to the recommended specifications and site conditions.

No.	Name	Recommended specification	Description
1	Grid side cable	4*70mm²+1*35mm²	Connecting the energy storage cabinet to the customer's electrical box
2	Load side cable	4*70mm²+1*35mm²	Connects the energy storage cabinet to the customer's load

No.	Name	Recommended specification	Description
3	Earth wire	Yellow-green PE wire -70mm²	Users choose to use PE wire or grounding flat iron according to the site conditions.
4	Grounding flat iron	Hot dip galvanized flat iron 40*4mm	
5	Wire groove	User selects according to site conditions	Cable laying
6	Blocking material	User selects 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*120mm²+1*70mm²	25-45mm
Load side cable	4*120mm²+1*70mm²	25-45mm



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*25 hexagonal bolts from the parts box, and use 40*4 hot-dip galvanized flat iron (or 70mm² PE wire) to connect the grounding port on the right side of the cabinet with the user's on-site grounding network through bolts according to the diagram;
2. Use anticorrosion paint to do anticorrosion treatment on the incision of the grounding flat iron.
3. It's suggested of ground connected for inverter as following diagram.

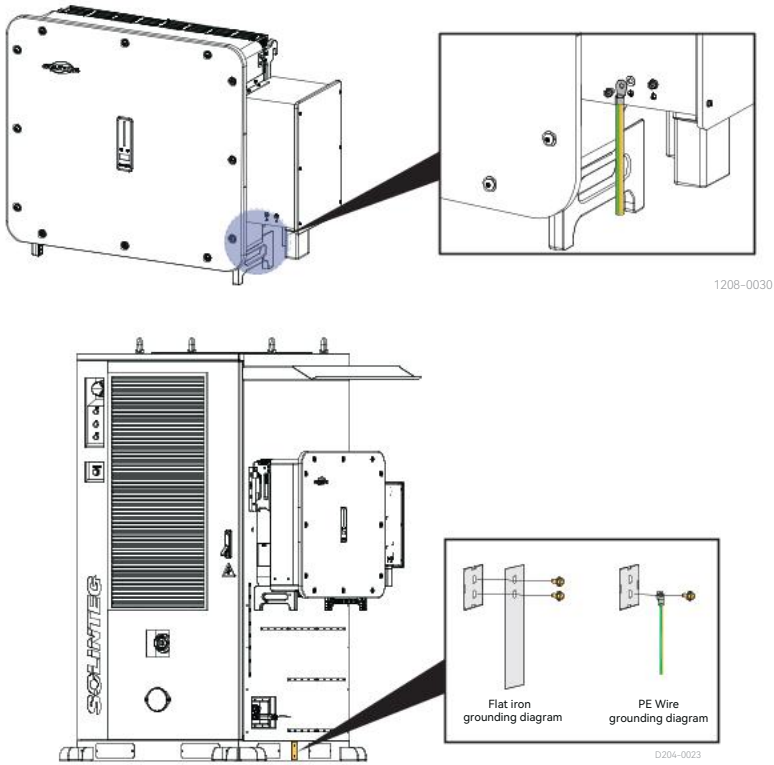


Figure 5-1 Diagram of grounding connection

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.

NOTE

- The connecting cable between the cabinet and the inverter has been configured, and one end has been connected in the 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 installation diagram and inverter manual requirements to complete the cable connection in the following steps, and after completing the wiring, tighten the tightening nut on the top of the gloss head at the wire crossing board.

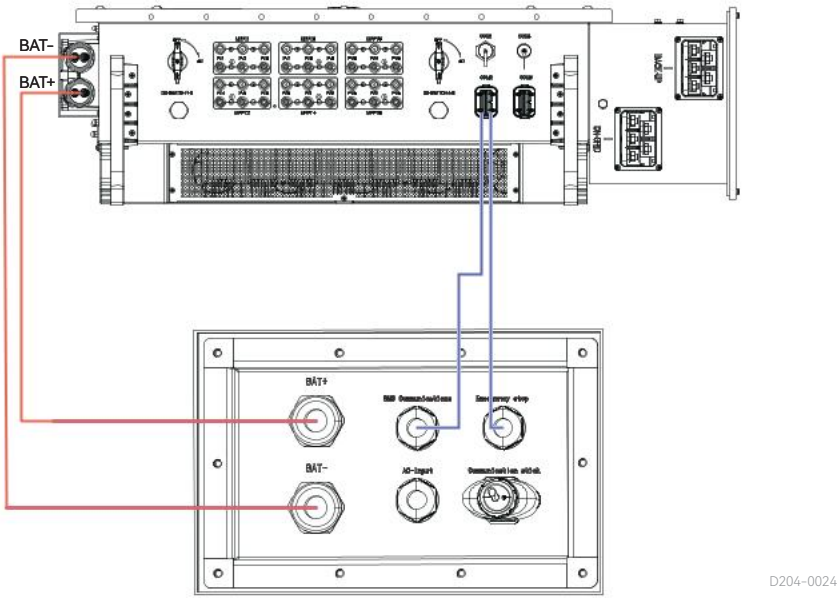
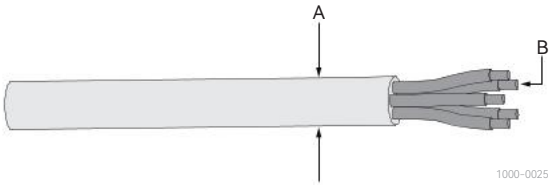


Figure 5-2 Schematic diagram of the connection cable between cabinet and inverter

5.3.1.1 Cable Preparation

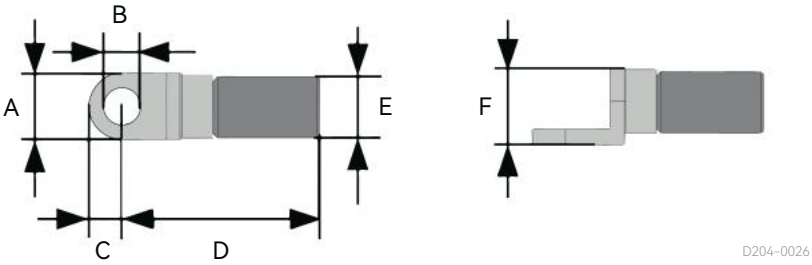
Please select the appropriate cable specifications based on actual conditions. The recommended specifications are as follows:

	Name	Cable outer diameter (A)	Conductor cross-sectional area (B)
On-grid side	5-Core AC Cable	25-45mm	≤120mm²
Back-up side	5-Core AC Cable	25-45mm	≤120mm²



5.3.1.2 OT/DT Terminals

Fixing the AC cable to the terminal block requires the use of OT/DT terminals (not included in the delivery range). Please purchase in accordance with the following requirements.



Item	A	B	C	D	E	F
Dimensional(mm)	≤30.0	Ø10.5-15.0	≤18.0	≤100.0	≤23.0	≤23.0

5.3.1.3 Wiring Procedure

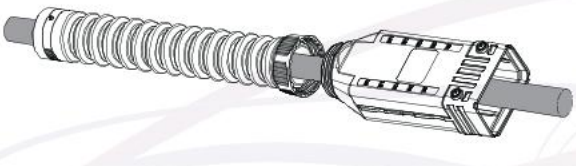
DANGER

High Voltage Danger!

- Ensure all cables are voltage-free before electrical connection.
- Do not close the AC-side circuit breaker until all electrical connections are completed.

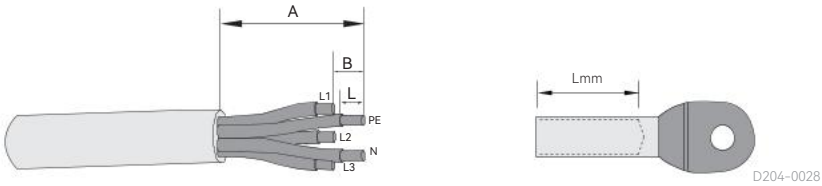
Connect the On-grid and Back-up ports separately according to the following steps.

Step 1: Disconnect the conduit from the main structure, then thread the AC cables sequentially through the conduit and main structure.

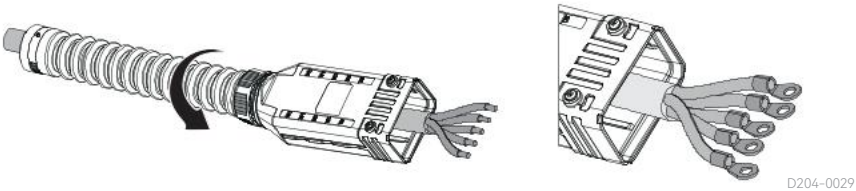


Step 2: Remove 550mm (A) of the outer protective layer of the AC cable, and arrange the L1/L2/L3/PE/

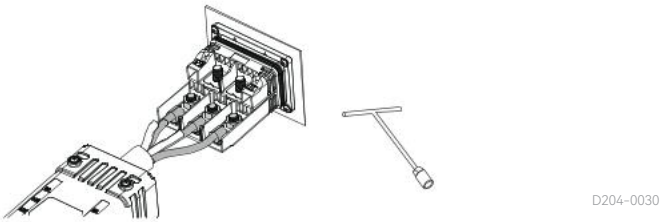
N cables in the following order, where the L1/L2/L3 cables are 40-45mm (B) longer than the PE/N cables. Strip L mm of internal insulation from each of the 3L/N/PE cables according to the crimping length of the OT terminal.



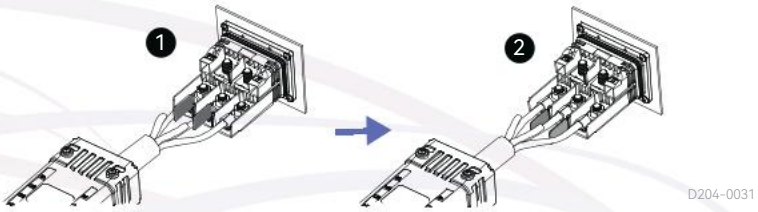
Step 3: Tighten the locking nut using an open-end wrench.
Step 4: Crimp the cables to the OT terminals using a hydraulic crimping tool.



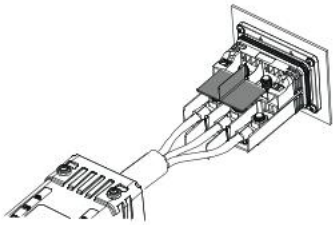
Step 5: After removing the nut, install the OT terminals in the L1/L2/L3 phase sequence and use a hex wrench to tighten the nut.



Step 6: Install the insulation barrier plate to the designated mounting holes.

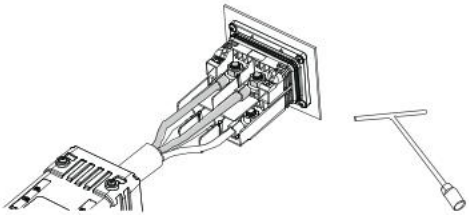


Step 7: Install the N/PE insulation barrier plate to the designated mounting holes.



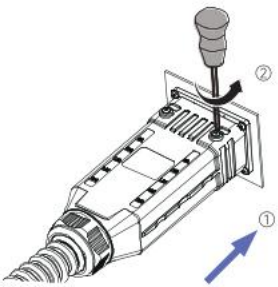
D204-0032

Step 8: After installing the N/PE terminals, tighten the bolts.



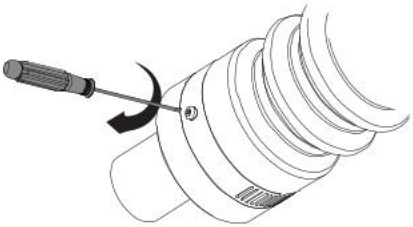
D204-0033

Step 9: Insert the component main body into the panel rubber seal core and secure it with cross-slot screws to complete the installation.



D204-0034

Step 10: Use a screwdriver to tighten the end of the corrugated tube.



5.3.2 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 950V before connecting.
- Before connecting the battery terminals, please make sure the positive and negative polarity of the cables are correct.

1. Remove the cable as shown in the diagram below, and pull the appropriate length of the connection between the inverter and the battery according to the position of the inverter terminal block.

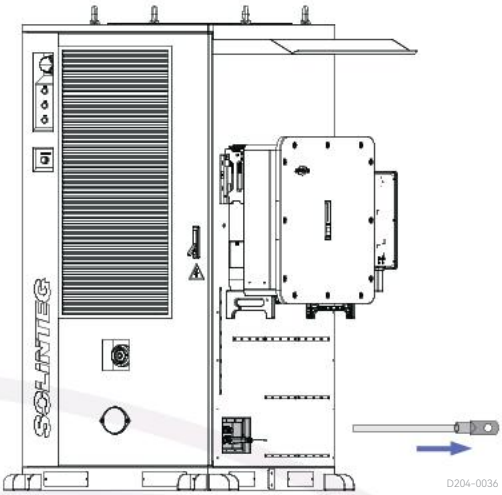


Figure 5-3 diagram of power cable connection between cabinet and inverter

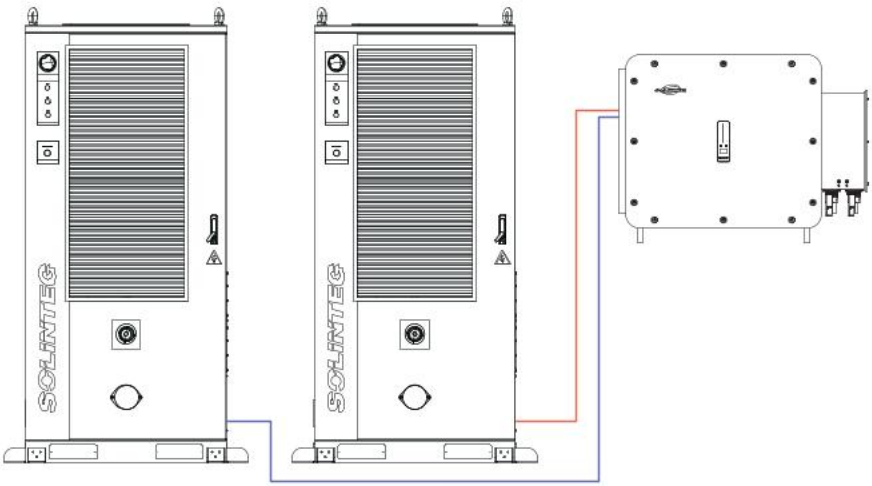


Figure 5-4 diagram of cable connection for 1 inverter connected with 2pcs cabinet

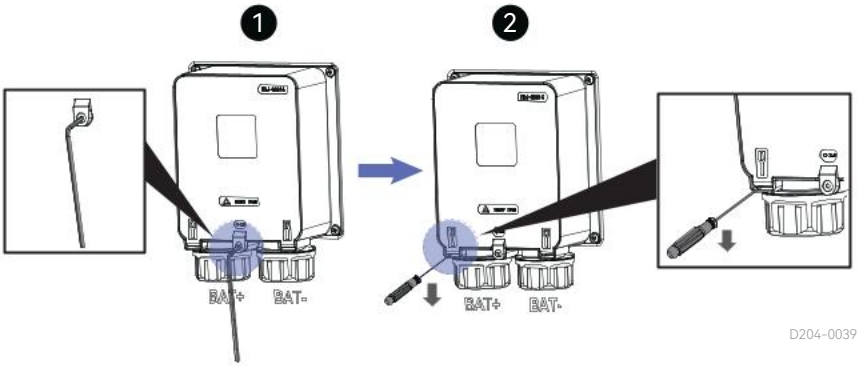
If needed connect 2pcs E2BR cabinet with M2HT-75~125-300, please refer Figure 5-4 and following part contents in page 47.

2. Following the steps below to complete the battery wiring

Battery waterproof seals are available in single-hole and dual-hole specifications, selected based on actual requirements. The single-hole seal is pre-installed inside the waterproof connector at the time of shipment, while the dual-hole seal is placed in the accessory kit. The compatible cable specifications for the waterproof seals are as follows:

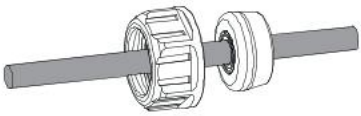
Seal Type	Cable Outer Diameter (mm)				Cross-sectional Area (mm^2)
					35-120
Single-hole	19.0-21.0	16.5-18.5	14.0-16.0	11.5-13.5	
					35-50
Dual-hole	11.5-13.5		9.5-11.5		

Step 1: Remove the bolts on the battery junction box and pry open the box using a flathead screwdriver.



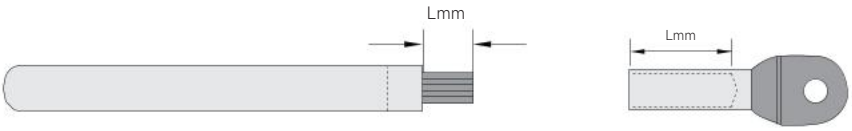
D204-0039

Step 2: Pass the battery cables through the waterproof gland.



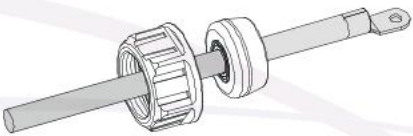
D204-0040

Step 3: Strip the insulation sleeve from the battery cables to the specified length.



D204-0041

Step 4: Use a hydraulic crimping tool to connect the cables to OT terminals.

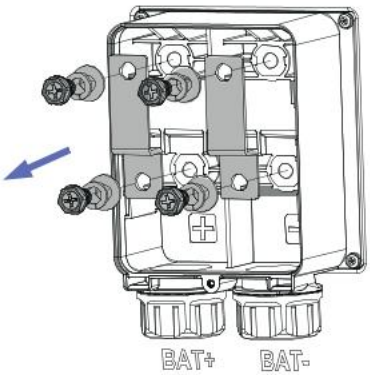


D204-0042

WARNING

- The inverter is shipped by default in a parallel connection configuration. If two battery banks are connected independently, the battery jumper plate must be removed.

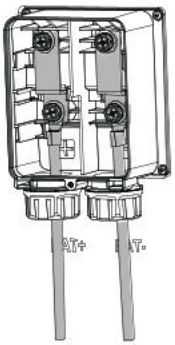
Step 5: For independent connection of dual battery banks, remove the parallel copper busbar between the battery terminals.



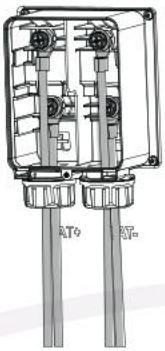
D204-0043

Step 6: After removing the nuts, install the OT terminals according to polarity.

Parallel Battery Connection	Independent Battery Connection

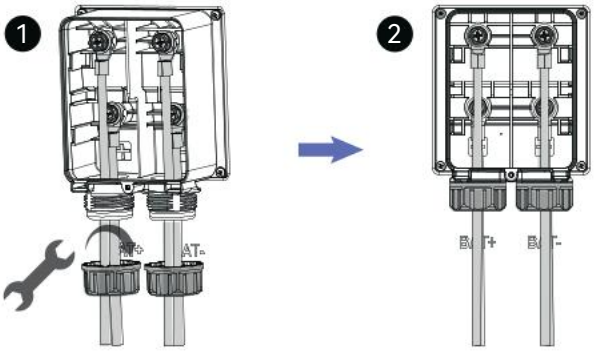


D204-0044

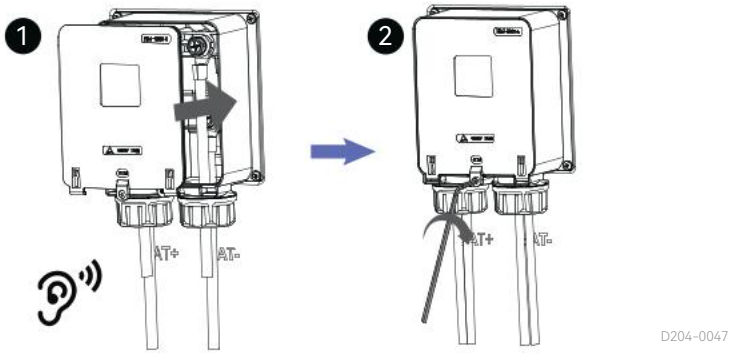


D204-0045

Step 7: After confirming the secure connection, use an open-end wrench to tighten the nuts to the terminal end for proper sealing.



Step 8: Close the battery junction compartment and secure the bolts on the junction box.



5.3.3 Communication Connection Between Inverter and 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. Remove the communication wiring harness and emergency stop wiring harness from the cabinet as shown in the diagram below, and pull the appropriate length of the connection between the inverter

and the battery according to the position of the inverter terminal block.

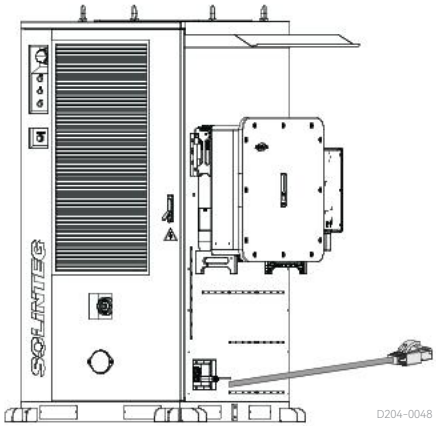
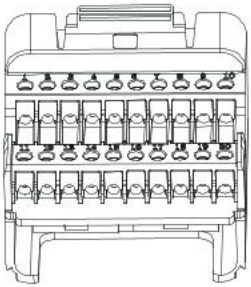


Figure 5-5 diagram of data cable connection between cabinet and inverter

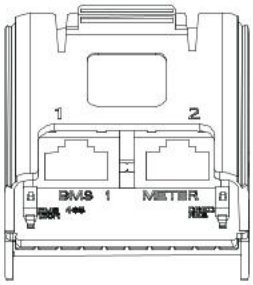
2. Following the steps below to complete the battery wiring COM2 Definition

NO	Port		Function
1	REF/0		Dry Contact Power Control Connect DRED/RCR/§14a devices DRED For Australia and New Zealand RCR for Germany, Austria and some other European countries
2	COM/0		
3	D 1/5		
4	D 2/6		
5	D 3/7		
6	D 4/8		
7	DO3 NO		Reserved
8	DO3 COM		/
9	BK NC		/
10	BK COM		
11	DO 1	NO	Diesel Generator Start/Stop Control Interface or Smart Load Start/Stop Control Interface (Custom Configuration)
12		COM	
13	DO2	NO	Diesel Generator Start/Stop Control Interface or Smart Load Start/Stop Control Interface (Custom Configuration)
14		COM	
15	Em.Stop	IN+	Emergency Stop Interface with Optional Normally Open (NO)/Normally Closed (NC) Contacts
16		IN-	



NO	Port		Function
17	DI 1	IN+	Digital input from ATS device
18		IN-	
19	EMS 485	A	Communicate with the EMS device
20		B	

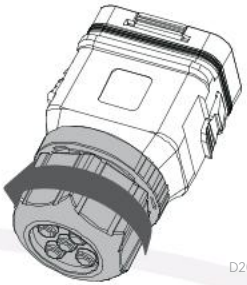
NO	Port	Function
1	BMS 1	Communicate with battery 1 (RJ45)
2	METER	Communicate with smart meter (RJ45)
3	EMS 120R	Connect to EMS, requires enabling the terminating resistor
4	DRED RES	Connect to DRED, requires enabling the terminating resistor



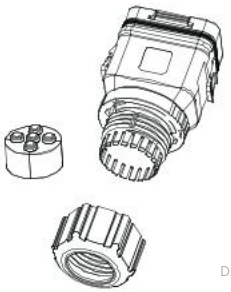
D204-0050

Step1: Split Multi-Function Connector

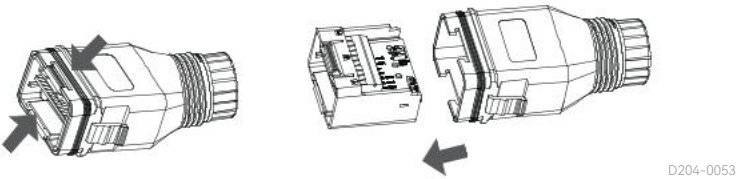
1. Unscrew the swivel nut from the connector.


D204-0051

2. Remove the seal and lead the cable through the cable gland.


D204-0052

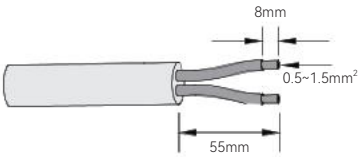
3. Take out the terminal block.



D204-0053

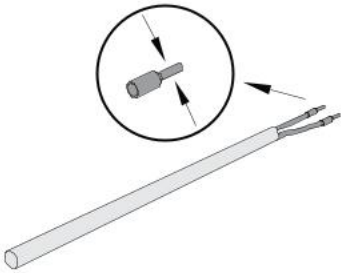
Step2: Terminal Block Wiring

1. Thread the cable of appropriate length through the swivel nut and the housing. Remove the cable jacket and strip the wire insulation.



D204-0054

2. When using a multi-core multi-strand copper wire cable, twist the wires together by hand into a bundle and then press them into the terminal. In case of singlestrand copper wire, skip this step (Optional).



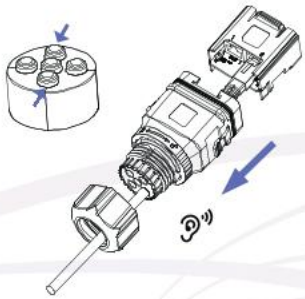
D204-0055

3. Fix all the wires to the terminal plug according to the assignment and tighten to a torque of 1.2+/-0.1N·m with a screwdriver.



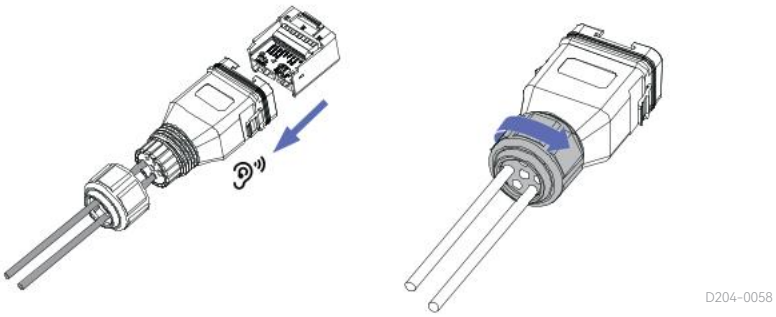
D204-0056

4. Thread the RJ45 plug of appropriate length through the swivel nut, and insert it into the open side of the rubber gasket. Insert one side of the RJ45 plug into the RJ45 port of terminal block.

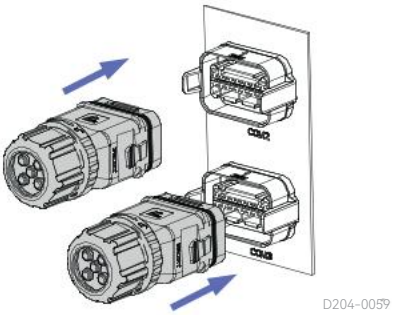


D204-0057

5. Check if the cable is securely installed. Insert the terminal block into the connector until it snaps into place with an audible click. Finally, tighten the locking nut.



Step3: Insert the COM2 and COM3 connectors into the corresponding ports of the inverter.



CAUTION

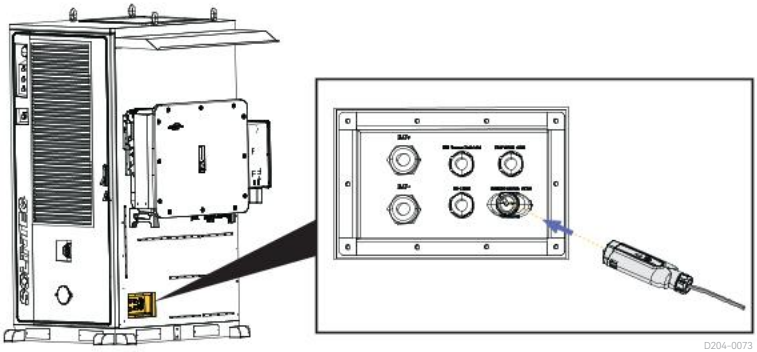
- Please distinguish between COM2 and COM3 terminals. COM3 terminal NOTICE is blue.
- Do not remove the waterproof plug from unused openings.

5.3.4 Battery Communication Stick

NOTE

- Do not mix Battery communication stick with the inverter.

Please reference the diagram, plug the battery communication stick into the corresponding port.



5.3.5 Inverter PV Side Wiring

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

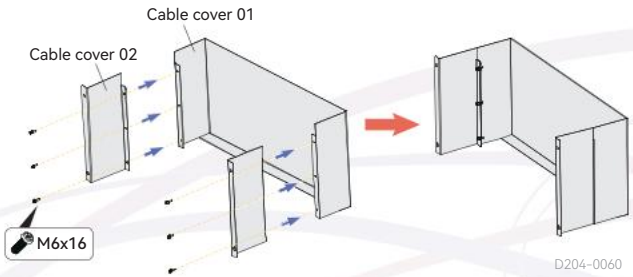
Name	Cable Outer Diameter	Cross-sectional Area
DC Cable	5.9~8.8mm	4 mm^2 (12AWG) or 6mm^2 (10AWG)

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

5.3.6 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 cabinet.

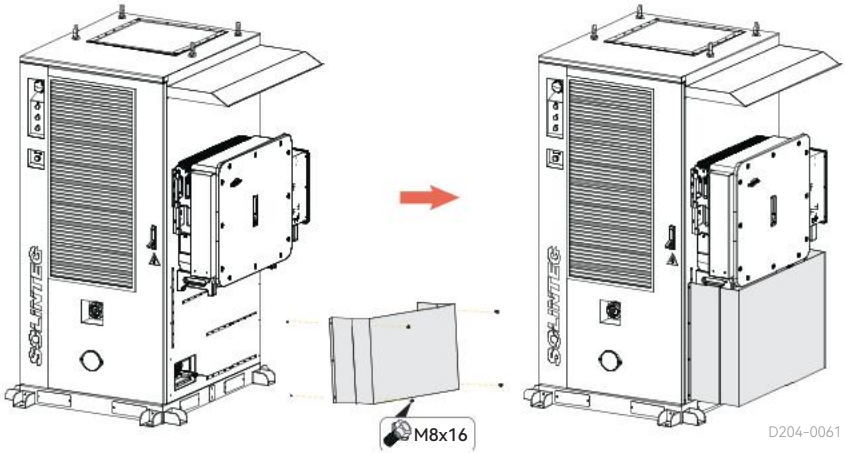


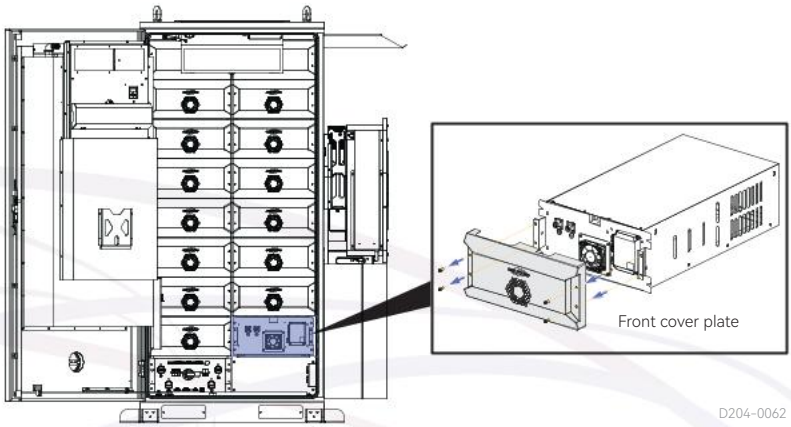
Figure 5-6 Cable cover mounting diagram

5.3.7 Battery Cable Connection

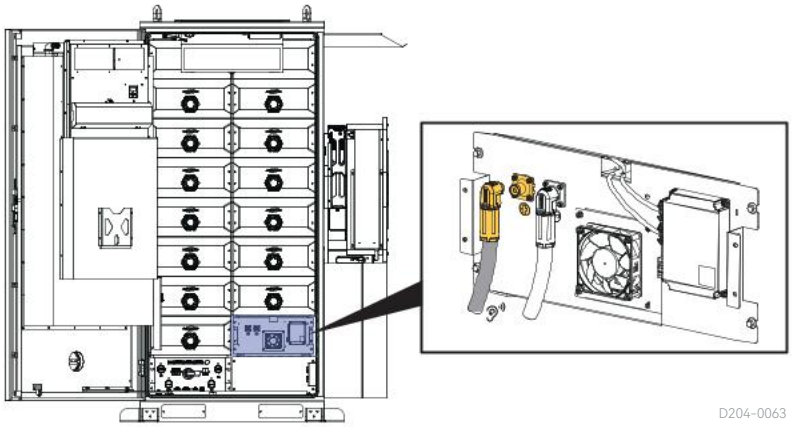
NOTE

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

1. Open the cabinet door with the key.
2. Use a screwdriver to remove the battery pack mounting cover shell on the lower right side of the cabinet, and remove the positive and negative cables of the battery pack.



3. 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.

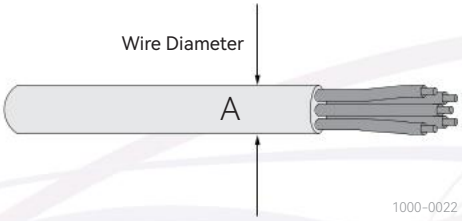


5.3.8 Fire Signal Wiring(Optional)

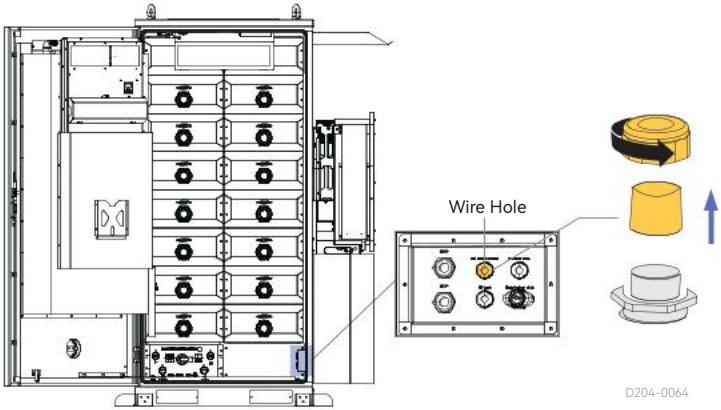
The fire action signal of the energy storage cabinet is a dry contact signal, which is connected when remote monitoring of the fire action of the energy storage cabinet is needed on site, and no wiring is needed if remote monitoring is not needed.

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

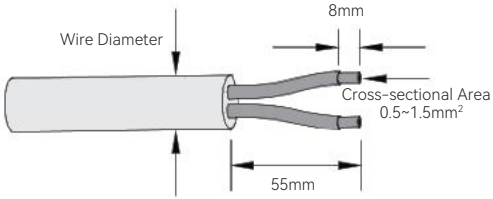
Name	Recommended Specification	Cable Outer Diameter (A)
Fire signal cable	2*1.0mm^{2}or 2*1.5mm^2	10~14mm



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



2. Pass the fire signal cable through the glands, seals and compression nuts of the corresponded holes in the base plate and pull out a sufficient length according to the position of the terminals;
3. Strip the cable sheath and 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 XT1-10-B and XT1-11-B respectively, and loosen the briquette. And pull the cables outwards to check if they are securely connected;

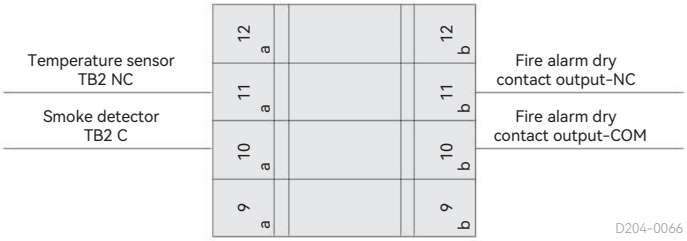
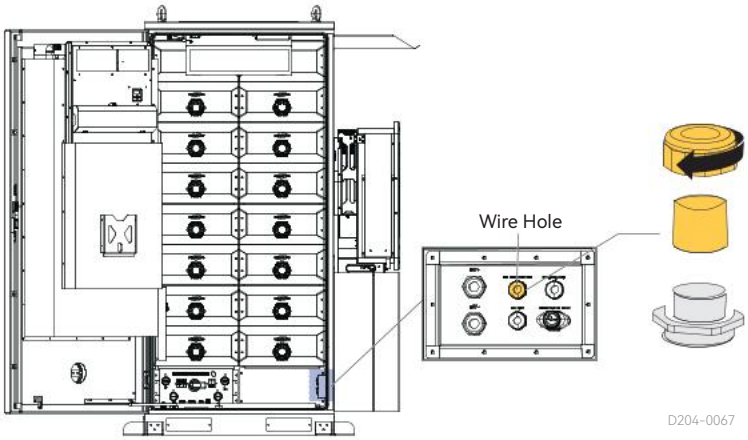


Figure 5-7 Fire signal terminal definition

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



6 Equipment Commissioning

NOTICE

- please make sure both cabinet and inverter dongle well connected;

6.1 Equipment Start-up and Shutdown

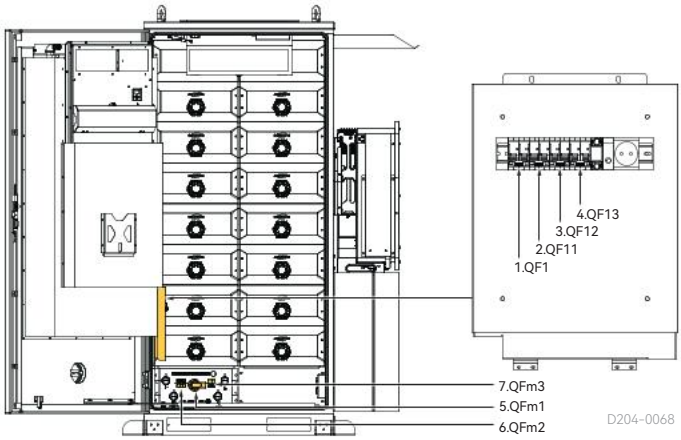


Figure 6-1 Equipment start-up sequence of operation diagram

Equipment Start-up

1. Turn on the QF1 to power on the auxiliary power supply of cabinet;
2. Turn on the QF12 to power on air-conditioner of cabinet;
3. Turn on the QF11 to supply AC power to HV control box;
4. Turn on QFm1 DC power supply breaker on HV control box, then turn on QFm2 to connect battery DC circuit, power on battery system;
5. Turn on QFm3 to supply AC power for HV control box by AC;
6. After BMS powered on, the BMS will execute self-check process, if everthing normal, the red LED will be lighted on first then off, and the Green LED lighted on cabinet;
7. Inverter will execute the self-check process after cabinet powered on and work normally;
8. After load/-s powered on by inverter normally, the system power on process finished.

NOTICE

• please double check cabinet statues according to following table defination. If warning apperaed, please refer troubleshooting guidance on part 7.3 or contact with your supplier.

Status	Name	Status indication
System is running no rmally	Energy storage cabinet	No signal for sound and light alarm 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. Turn off AC source main breaker QF1 to disconect cabinet AC power;

2. Turn off QFm1, QFm2, QFm3 to power off cabinet DC and AC power source susquencyly, then the cabinet, inverter will be powered off, the White and Green LED indicator will be off;

NOTE

• Under emergancy condition, please press the EPO button on cabinet, then cabient DC and AC power will be disconnected. After release EPO button, QF1 also should be turned on manually to supply AC power for cabinet.

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 Operation Status

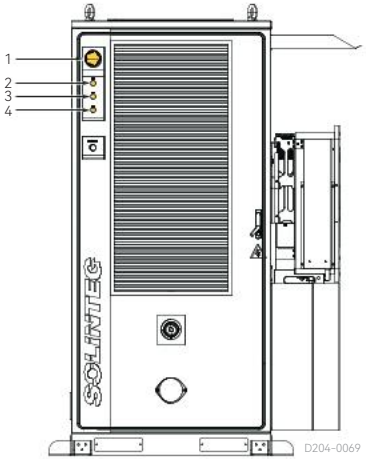


Figure 6-1 Schematic diagram of the operating status of the cabinet

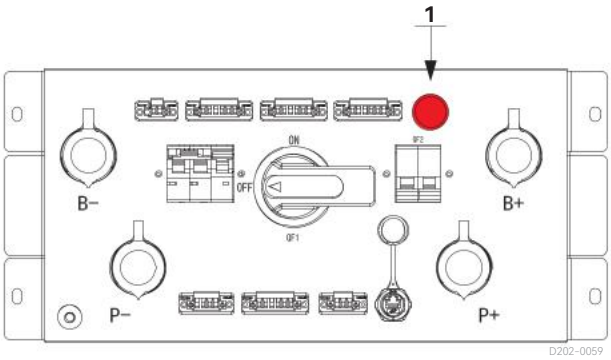
Description of status indication

NO.	Name	Description
1	Sound and light alarm	Alarm when triggered by smoke sensor
2	Power indicator (white)	Indicator light is always on when BMS powered on
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

NOTE

• 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 Statsu



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

6.2.3 Inverter Operation Status

Indicator		Status		Description
	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.
			Always on	Please upgrade to the latest firmware.
		Red	Always on	An alarm or fault is detected, view the fault info on the display
	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.

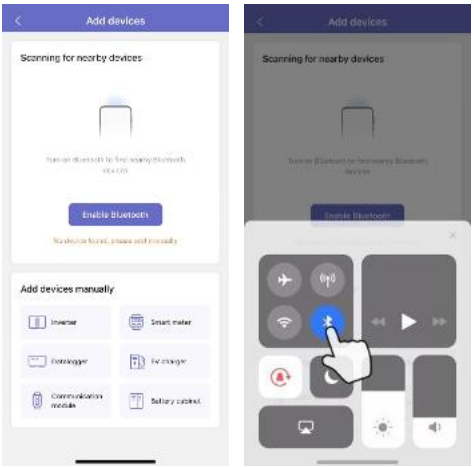
Indicator		Status	Description
	Green	Always on	The inverter communication is running normally
		Flashing	The inverter is communicating with the EMS via RS-485 or is communicating with the master inverter via the CAN bus.
	Orange	Always on	The inverter isn't communicating with Solinteg smart meter.
	Red	Always on	The inverter isn't communicating with the BMS.

6.2.4 Integhub APP Add Equipment, Equipment Distribution Network

6.2.4.1 Add device via Bluetooth

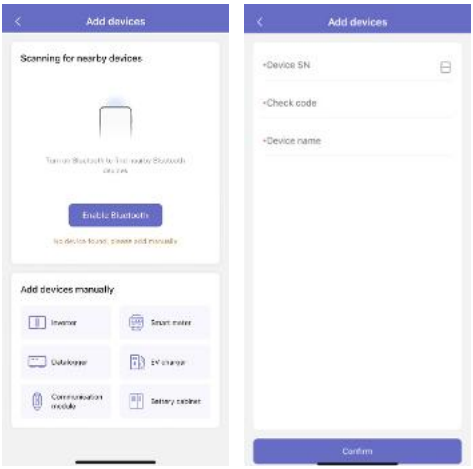
Method 1- Automatic

- Enable your smart phone Bluetooth function, the Integhub APP will scan nearby devices via Bluetooth automatically;
- the Integhub APP will display all available devices for addition, Select the device you want to add.



Method 2- Add devices manually

- Select the type of device you want to add;
- Press <Communication module> and type device's SN, Code and Name.



6.2.4.2 Internet connection

※ WIFI connection

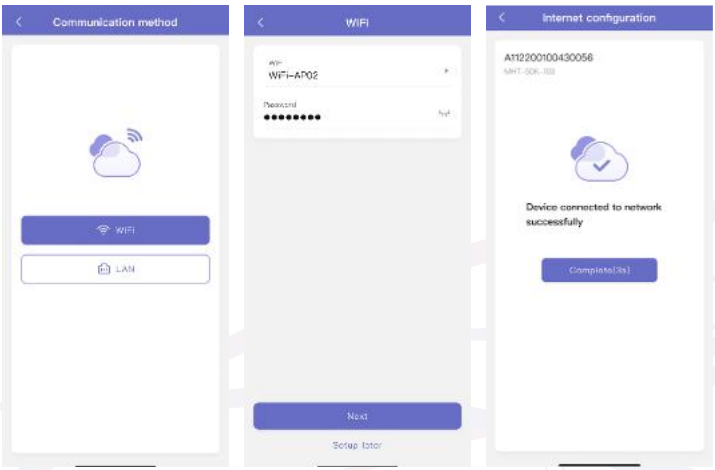
Make sure your smart phone or computer connected with battery WLAN, the WIFI name was named as "WIFI-AP*******", the hided information is the tail number of battery SN;

Open browser and input IP address "10.10.1.254" and enter;

Search the router and input the password, press the config button to finish the WIFI connection.

Note: for data safety and secret act, the username and password needed possible, please input username as "admin" and default password "123456".

※ WIFI connection via Bluetooth



Press “WIFI” after into Communication method, select router name and input password, then press the “Next” to config device internet.

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

※ LAN connection



DHCP function is turned on by default. If needed to reset IP address please turned off DHCP, please contact with Solinteg support if did not effect. Click< Next> to enter the next step, click <Setup later> slightly after.

After logging in the APP, create a power plant according to the APP guidance.

Following operation guidance suite for Solinteg inverter and E2BR series battery.

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	Check the temperature and humidity, corrosion and dust conditions around the equipment; Check the ventilation and water accumulation condition around the equipment;	3 months
Equipment operation status	Check the temperature and humidity, corrosion and dust conditions around the equipment; Check the ventilation and water accumulation condition around the equipment;	1 month
System cleaning	Check the dust condition in the equipment; Check whether the air-conditioning inlet and outlet are blocked;	3 months
Appearance of equipment	Whether there is damage to the equipment shell; Whether there is corrosion of structural parts;	3 months
Electrical connection	Check whether the cable connection is reliable; Check whether the installation of components is reliable; Check whether there is discharge on the surface of the components;	6 months
Battery pack	Check the battery pack for abnormalities such as rattling, deformation and liquid leakage; 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 firefighting 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

Recommended cable specifications

Name	Recommended specification	Cable outer diameter(A)
Grid side cable	4*120mm²+1*70mm²	25-45mm
Load side cable	4*120mm²+1*70mm²	25-45mm

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 color 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 color 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.

NOTICE

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

7.2 Fire Protection System Inspection Requirements

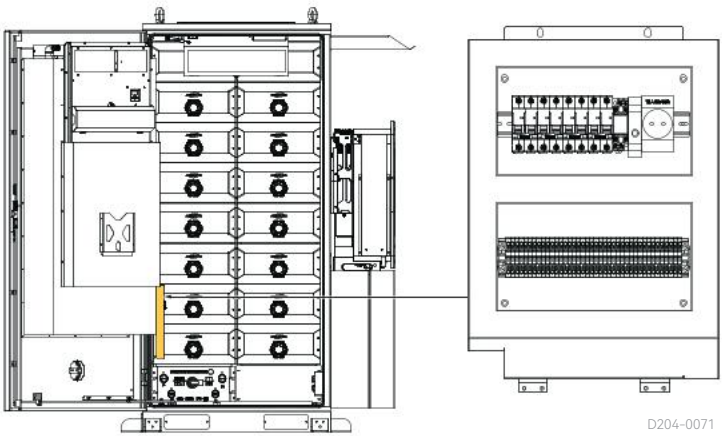
DANGER

- 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.

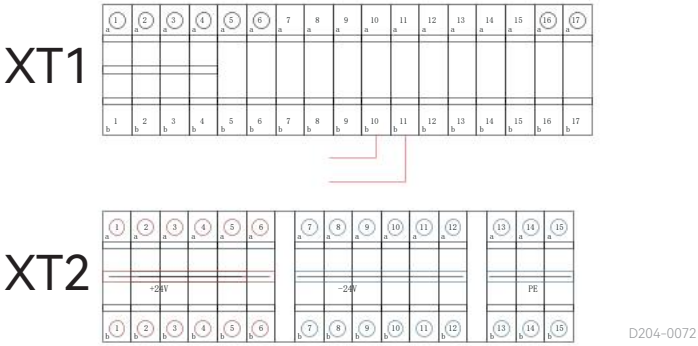
NOTICE

- Before check the fire extinguish system, please disconnect XT2-11a connection to avoide the injection of fire system and demage the product.

1. Test the smoke and temperature sensors according to local requirement after disconnect the XT2-11a connection;



2. Change the multiple meter to ON/OFF mode, touch XT1-10b with multiple meter red pin and XT1-11b with black pin, the meter should indicate tested position connected.



3. Reconnect the XT2-11a to make system original condition and finish test.

7.3 Alarm and Troubleshooting

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

Fault Code	Name	System Action	Handing 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.
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. Check if the voltage deviation between batteries/clusters is ≤ 2.5V. 5. 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.

Fault Code	Name	System Action	Handing Measures
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. 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.
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.

Fault Code	Name	System Action	Handing Measures
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.
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.

Fault Code	Name	System Action	Handing Measures
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. Reduce the enviroment temp. to cool down 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.
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.

Fault Code	Name	System Action	Handing Measures
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.
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.

Fault Code	Name	System Action	Handing Measures
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.
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

Fault Code	Name	System Action	Handing Measures
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.
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.

Fault Code	Name	System Action	Handing Measures
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.
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.

Fault Code	Name	System Action	Handing Measures
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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