



Liquid-Cooled Energy Storage Cabinet Quick Installation Guide

ASW 125K/261-PT

1 General information

This quick installation guide should be read together with the user manual. In case of doubt and uncertainties, the content in the user manual takes precedence over the content in this guide.

The contents of this guide may be updated or revised due to on-going product development and continuous improvement. The information in this guide is subject to change without notice. The latest version of this document and the user manual for installation, commissioning, configuration and decommissioning are to be found in PDF format at www.solplanet.net.

2 Safety

2.1 Intended use

Although this product has been designed and tested in strict accordance with national and industry standards, there may still be residual risks. To prevent personal injury and property damage, and to ensure the safety of the product

For the long-term operation of the product, please read this section carefully and always adhere to all safety information.

2.2 Important safety instructions

Before installing, operating, or maintaining the equipment, read this document thoroughly and follow all safety instructions (including those on the equipment).

DANGER

Battery strings can produce high-voltage direct current power and can lead to fatal voltage and electric shock.

- Only professionals with electrical equipment related training and electrical knowledge can operate. Non-professionals are strictly prohibited from operating!
- Batteries provide electricity, and short circuits or incorrect installation can lead to burns or fire hazards.
- There is a fatal voltage in the battery terminals and cables. Touching the cables and terminals may cause serious injury or death.

WARNING

Battery system damage is a risk of personal injury. Do not unplug the connector while the system is running!

Non-professionals are strictly prohibited from equipment installation, wiring, maintenance, inspection or component replacement!

- Do not carry out equipment maintenance under the condition of power on, otherwise there is a danger of electric shock!
- Before contact the cable connection terminal or electrical device, please measure whether there is voltage, ensure that the cable connection terminal or device is under no voltage or safe voltage, otherwise there may be a danger of electric shock!
- Do not open or deform the battery module, otherwise the product will be outside the warranty.
- Whenever batteries are used, wear appropriate personal protective equipment such as insulating clothing, rubber boots, goggles, safety helmets and rubber gloves.
- ASW 125K/261-PT system operating temperature range: -25°C ~ 55°C ; optimal temperature: 18°C ~ 28°C . Exceeding the operating temperature range may cause the battery system to overheat/low temperature alarm or protection, which can further lead to reduced cycle life and will also affect warranty terms.

CAUTION

- Improper setup or maintenance can permanently damage the battery.
- Incorrect inverter parameters will lead to further battery failure/damage.

3 EU Declaration of Conformity

Within the scope of the EU directives



- Radio Equipment Directive 2014/53/EU (L 153/62-106. May 22. 2014) (RED)
- Restriction of the use of certain hazardous substances 2011/65/EU (L 174/88, June 8, 2011) and 2015/863/EU (L 137/10, March 31, 2015) (RoHS) AISWEI Technology Co., Ltd. confirms herewith that the product described in this manual are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives.

The entire EU Declaration of Conformity can be found at www.solplanet.net.

4 Overview

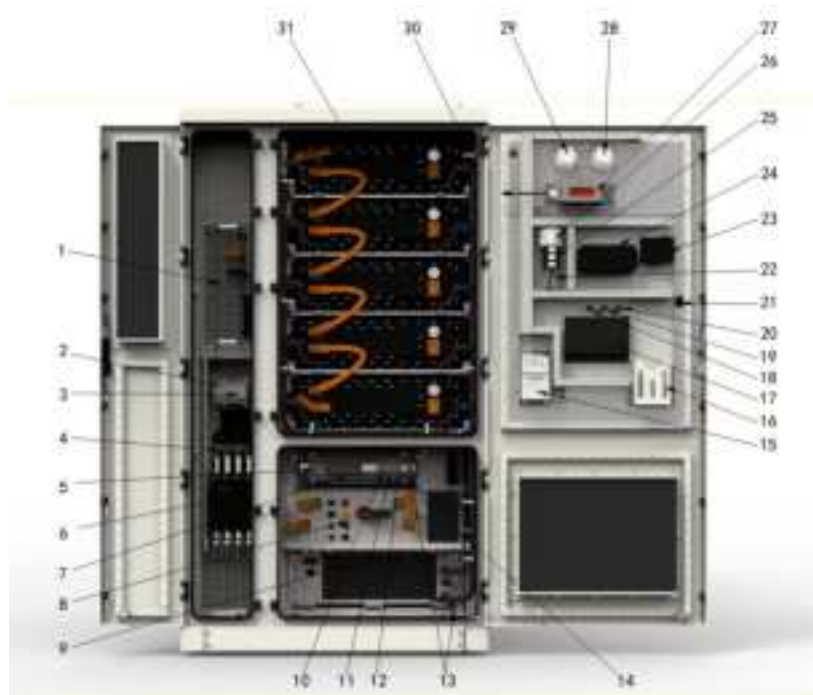
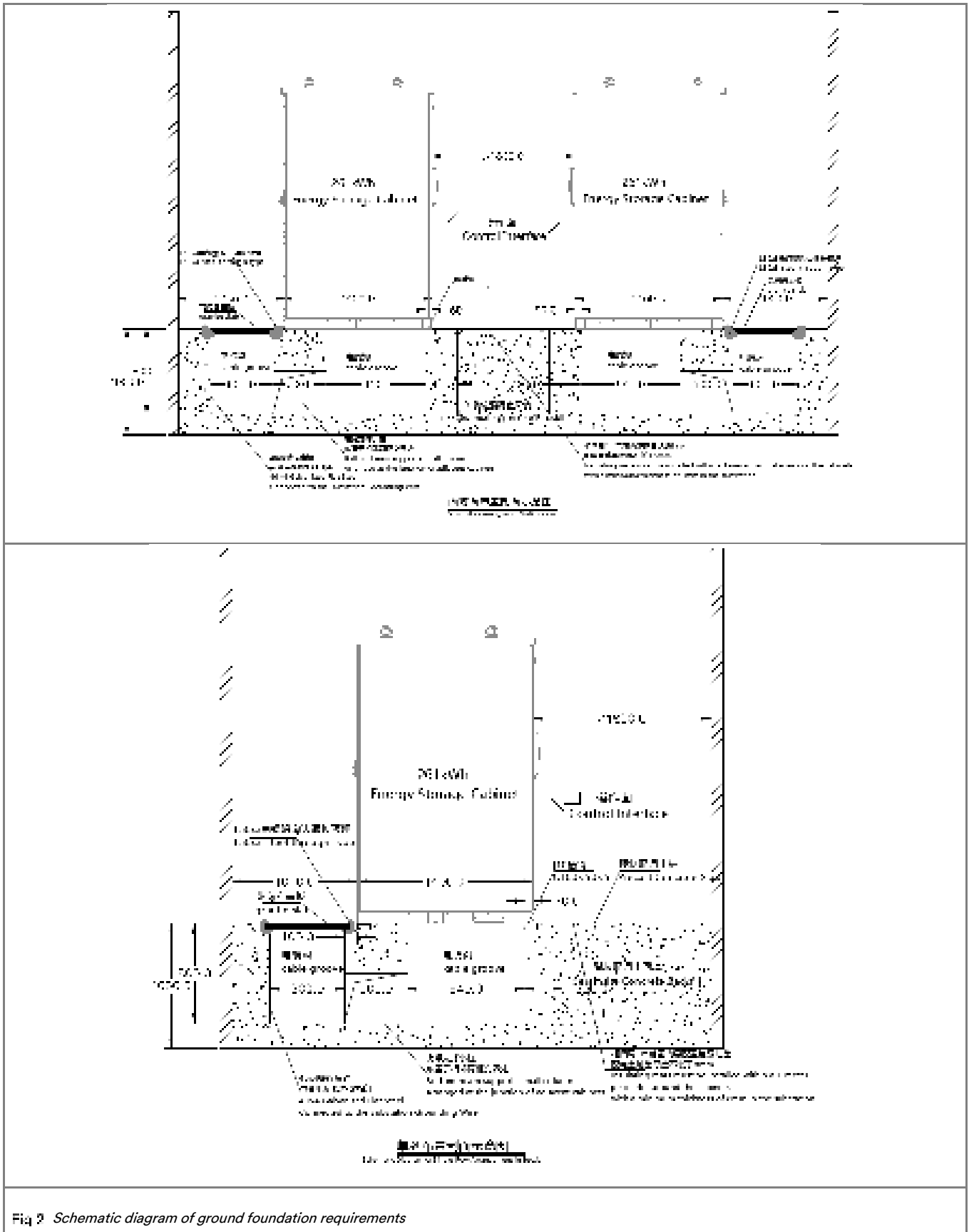


Fig 1 Schematic diagram of internal components of the cabinet

No.	Name	Explain	No.	Name	Explain
1	PCS	Energy storage converter	17	HMI	Display screen
2	SPD	Lightning arresters	18	HR	Fault indicating lamp
3	SCB	Lightning protection	19	HG	Running indicator light
4	CT	Current transformer	20	HY	Alarm indicator
5	PJ	Any meter for measuring electricity	21	SB	Scram button
6	QF	Power grid switches	22	XT4	Terminal board
7	XT1~XT3	Terminal board	23	LYQ	Touter
8	HVB	High-voltage compartment	24	EMS	Control module
9	LJ	Liquid cooling unit	25	KA1~KA3	Electric relay
10	Q1	Cold machine switch	26	DR	Switching Mode Power Supply
11	Q2	UPS entry switch	27	AFC	Aerosol
12	Q3	UPS out switch	28	TL	Thalposis
13	SJ	Water sensor	29	SL	Smoke sense
14	UPS	Back up power	30	SA	Entrance guard
15	CSJ	Dehumidifier	31	Pack	Battery pack
16	Document box	Documentation available			

5 Mounting

5.1 Installation environment



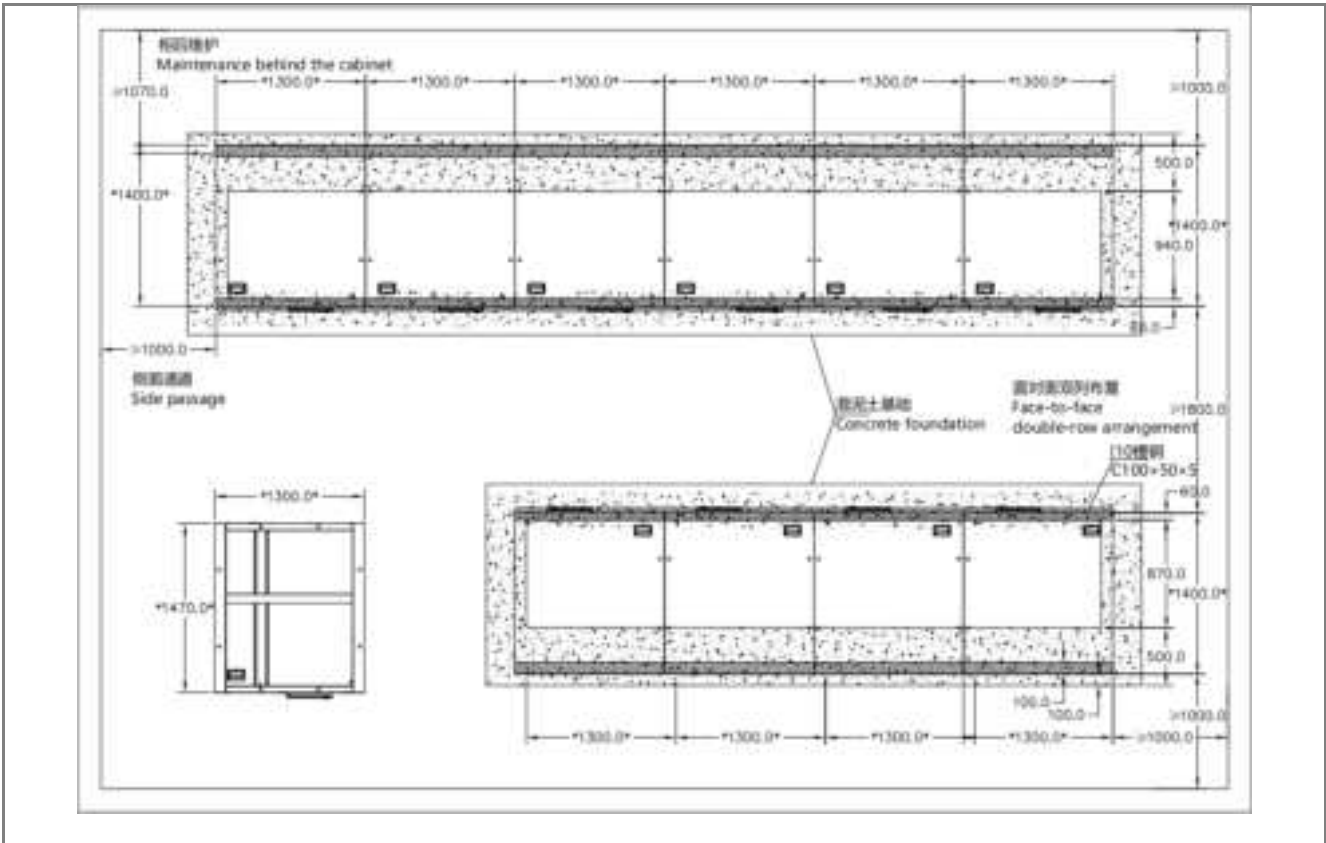
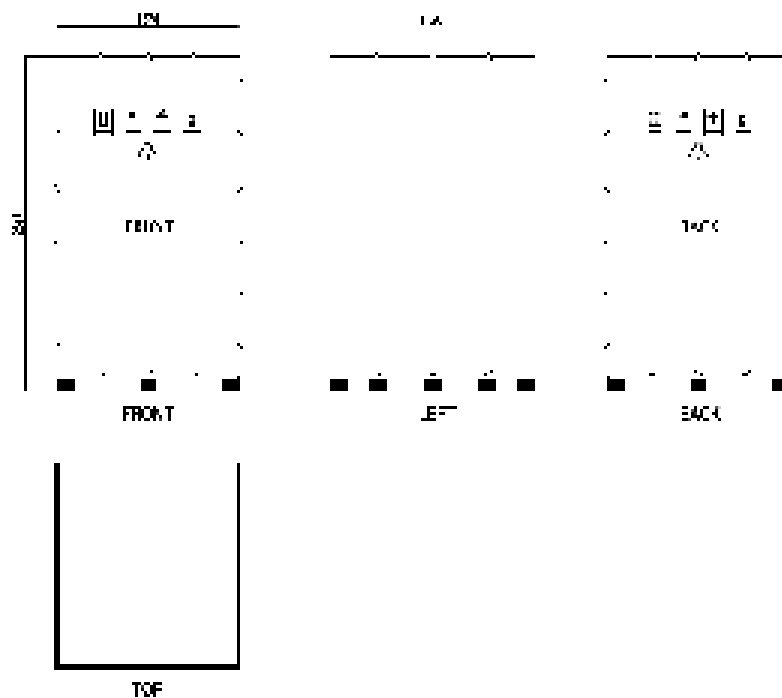


Fig 3. Installation distance diagram

5.2 Packaging disassembly

Step 1: Identify the box structure

- ◇ The steel belt box is composed of the top cover, the bottom tray and the four side plates, which are fixed by the box lock. Please first observe the structure of the box to understand the position of the lock and the steel belt.



Step 2: Open the box lock

- ✧ Find the metal locks connecting the top cover to the side plate and the side plate to the base.
- ✧ Use a crowbar to move the metal lock and then use a rubber hammer to gently tap the wrench part of the lock upward to release it from the locked state.
- ✧ Open all the locks.

Step 3: Remove the wooden box panel

- ✧ After all the locks are opened, knock them with a rubber hammer in turn to remove the top cover and the surrounding side plates.

Step 4: Remove the device from the fixed position

- ✧ The equipment is fixed to the bottom tray with 4 M12*40. Use a wrench to remove the cabinet fixing bolts.

Step 5: Remove the device

- ✧ Use a forklift (rated load 5T) to horizontally remove the equipment from the bottom pallet and move it to the designated location.
- ✧ Do not drag the tray on the equipment to avoid scratching the bottom surface of the equipment.
- ✧ During the process of lifting, lowering and moving, it must be tested to ensure that it is slow and smooth;
- ✧ Safety considerations during forklift handling are recommended. It is recommended to tie a safety belt around the integrated cabinet and connect it to the forklift beam.

Step 6: Remove the wire winding film from the PE bag and pearl cotton corner guard

- ✧ After using a craft knife to cut open the brushed wrapping film and PE bag, 20 pieces of pearl cotton guard are removed.
- ✧ Be careful not to scratch the surface of the cabinet when using the utility knife.

Step 7: Clean up the trash generated by packaging

5.3 Carry

Forklift handling

1. Adjust the width of the forklift foot so that the center of gravity is in the center of the forklift foot.
2. Insert into the position shown below.
3. The forklift opening at the bottom of the energy storage cabinet should be reinstalled with the forklift cover after the equipment is installed.



Fig 4. Forklift handling diagram

Crane handling

NOTE

- Flexible straps or straps should be used. A single strap should be able to bear a weight of more than 4t.
- The binding position is fixed as shown in the figure below.
- Before lifting the crane, test lift to confirm that the straps can bear the weight of the energy storage cabinet and lift without tilting.
- The hook position should be at the center of gravity. After lifting, the swing Angle should be less than 10°.
- Before moving, make sure that the front door lock of the cabinet is locked to avoid injury caused by sudden opening during moving.
- Handle with care during takeoff and landing to avoid shock or vibration.

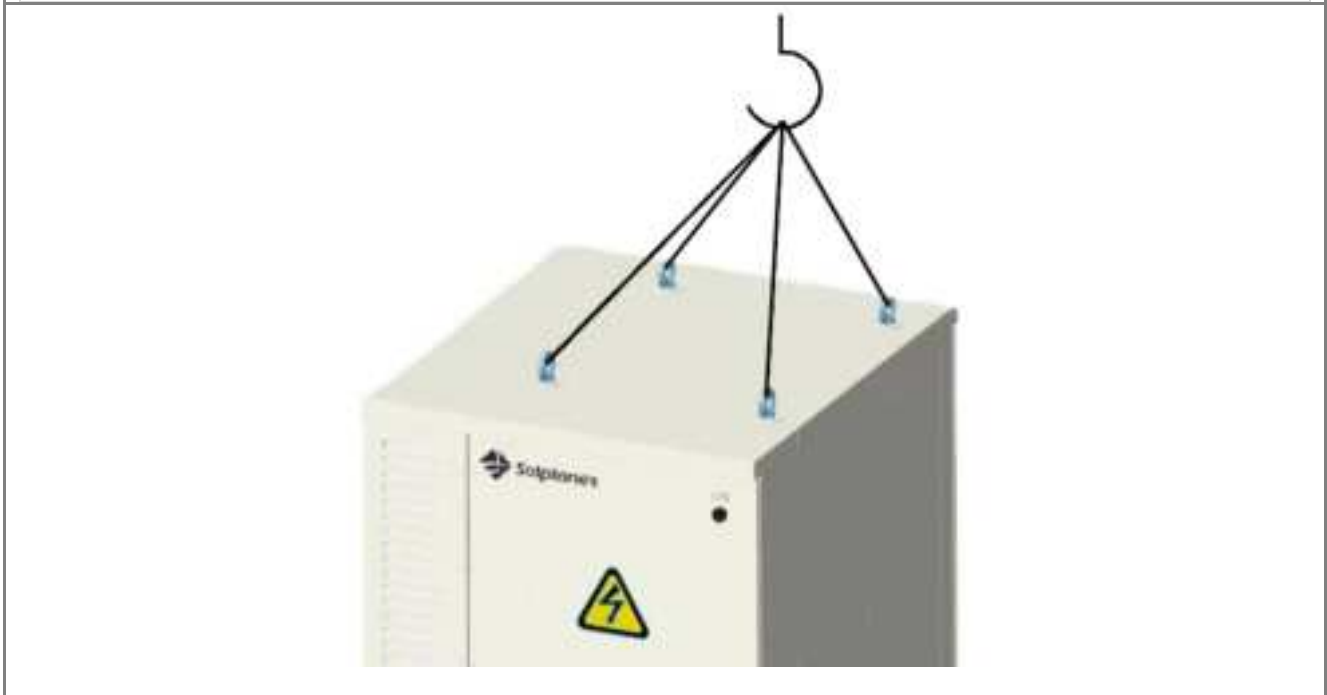


Fig 5. Crane handling diagram

6 Electrical installation

6.1 External cable wiring

6.1.1 Power cable installation

Power line wiring steps and cable construction, protection and other process requirements:

1. Confirm that the output switches of energy storage cabinet, high voltage box front and rear are in the open state;
2. Peel off the insulation skin at the end of the cable. The length of the insulation skin peeled off at the end of the cable should be the depth of the wire hole of the copper nose plus about 5mm;
3. According to the selected cable specification, equip with appropriate wire copper nose for crimping:
 - (1) Put the exposed copper core part of the stripped wire into the wire hole of the steel nose;
 - (2) Use the terminal crimping machine to press the copper nose of the wire, and the number of crimping should be more than two;
 - (3) It is recommended that the cable specification range be $95\text{mm}^2 \sim 120\text{mm}^2$, and the hole diameter of the copper terminal be M10.
4. Installation of heat shrink tube:
 - (1) Select a heat shrink tube that is consistent with the cable size. The length of the heat shrink tube should be about 2cm more than the wire tube of the wiring copper nose;
 - (2) The heat shrink tube is put on the wiring copper nose, so as to completely cover the wire hole of the wiring copper nose;
 - (3) Use a hot air gun to heat the shrink tube and make it shrink tightly.
5. Pass the AC cable through the corresponding wire hole, select screws, spring pads, flat washers and nuts matching with the wiring copper nose to connect and fix the corresponding A/B/C ports and N copper bars, and lock and fix it according to the recommended torque of $16\sim 18\text{N}\cdot\text{m}$

The wiring position diagram of the power line input side is as follows.

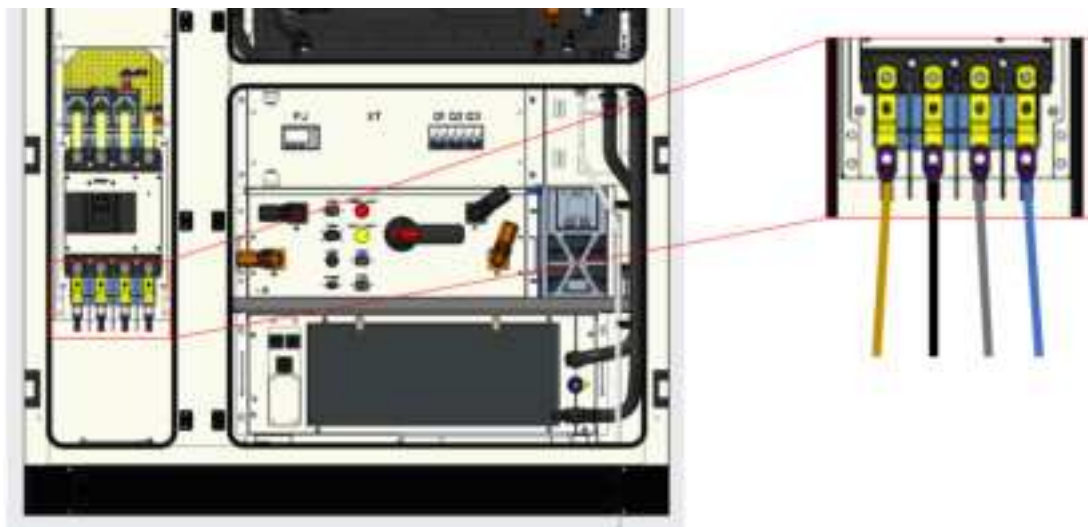


Fig 6. Power line input side diagram (mm)

6.1.2 Pressing the OT/DT terminal

1. OT/DT terminal requirements

- Use copper terminals when copper core cables are used.
- Use copper terminals when copper-clad aluminum cables are used.
- When aluminum alloy cable is used, copper-aluminum transition terminal or aluminum terminal with copper-aluminum transition washer should be used.

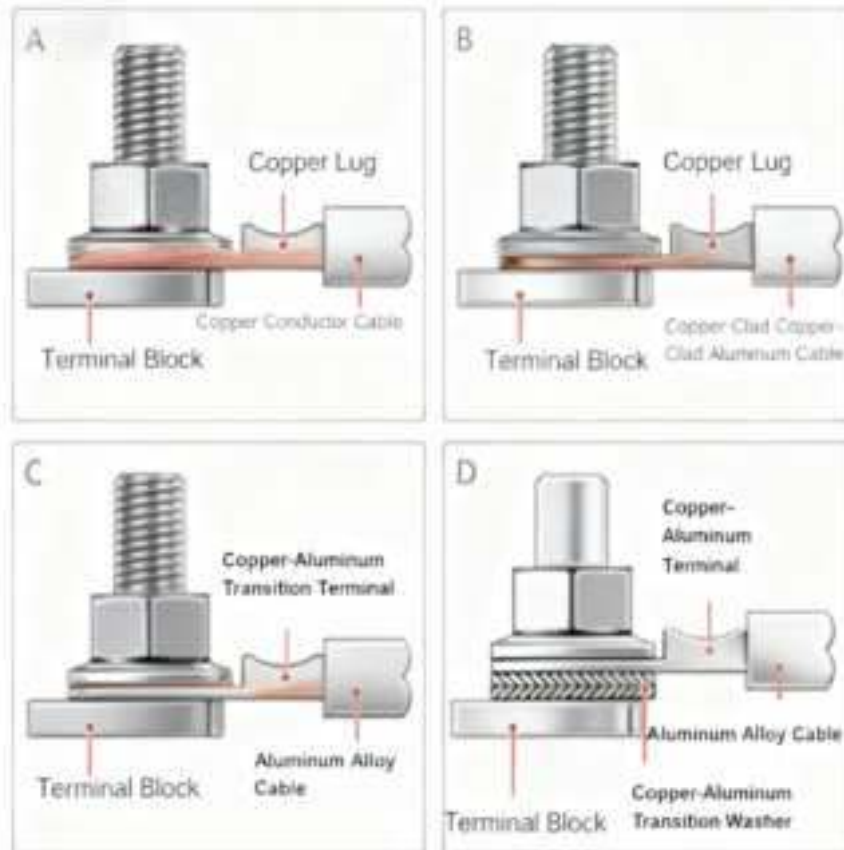


Fig 7 OT/DT terminal requirements

2. Pressing the OT/DT terminal

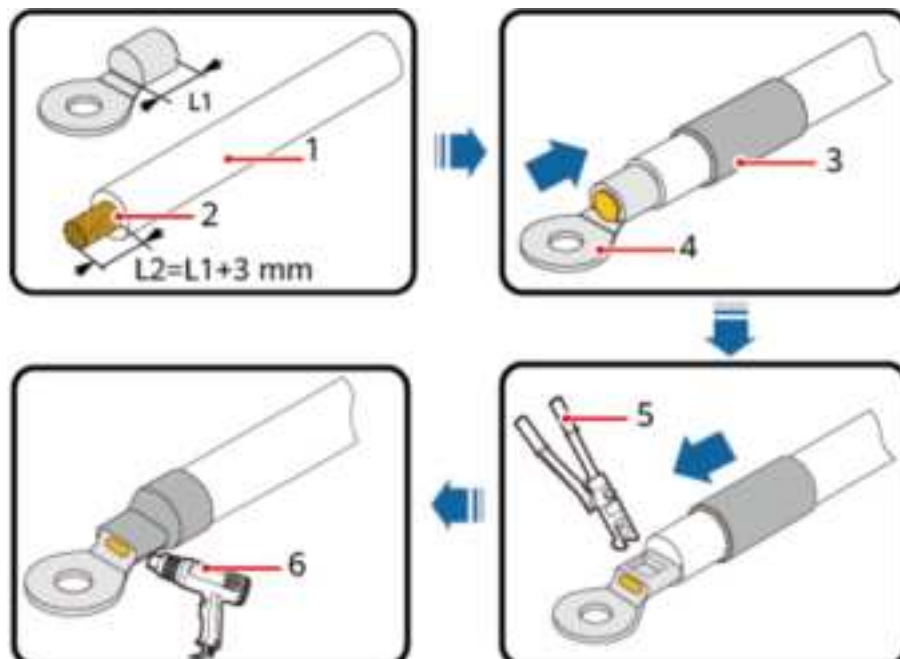


Fig 8. Crimped OT terminals

- (1) cable (2) wire core (3) heat shrink tube
 (4) OT terminal (5) hydraulic clamp (6) hot air gun

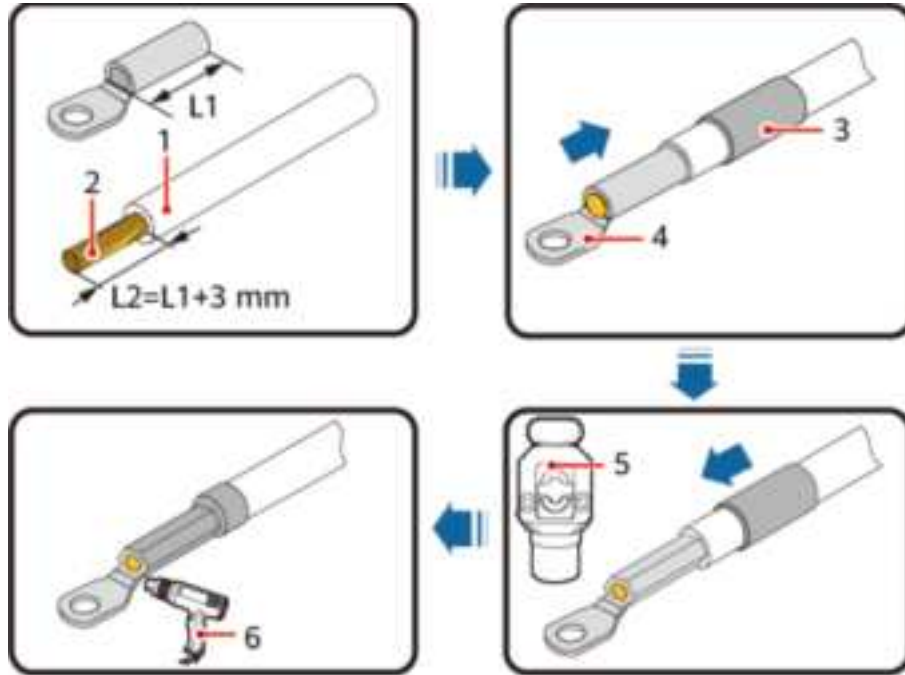


Fig 9. Crimped DT terminals

6.1.3 Communication cable installation

Note: Communication cables are recommended to use outdoor dedicated CAT6 shielded network cable, and the wire diameter is recommended to be 23AWG~24AWG.

Detailed manufacturing steps of pressing process:



- ① Thread the sheath into the network cable;
- ② Peel off the outer skin of the network cable;
- ③ Twist the metal into strips;
- ④ Separate four pairs of core wires;
- ⑤ Peel off aluminium foil;
- ⑥ The core wire is arranged in 568B as orange white, orange, green white, blue, blue white, green, brown white, brown;
- ⑦ Cut the front end of the wire diagonally;
- ⑧ Thread the core wire into the inner plug;
- ⑨ Cut the front end of the wire;



- ⑩ Insert the core wire into the crystal head to the bottom;
- ⑪ Insert the crystal head into the 8P module port of the wire clamp for crimping;
- ⑫ Fix the tail clip on the wire and cut off the excess ground wire;
- ⑬ Use the network cable clamp to press the tail clip;
- ⑭ Push the sheath up and the crystal head;
- ⑮ The wiring is complete.

When using five or more cabinets in parallel, connect the ①EMS hand-in-hand terminals of adjacent energy storage cabinets through CAT6 shielded network cables. The main cabinet requires an additional ②router to link the ①EMS systems. The communication cable connection points are shown in the diagram below.

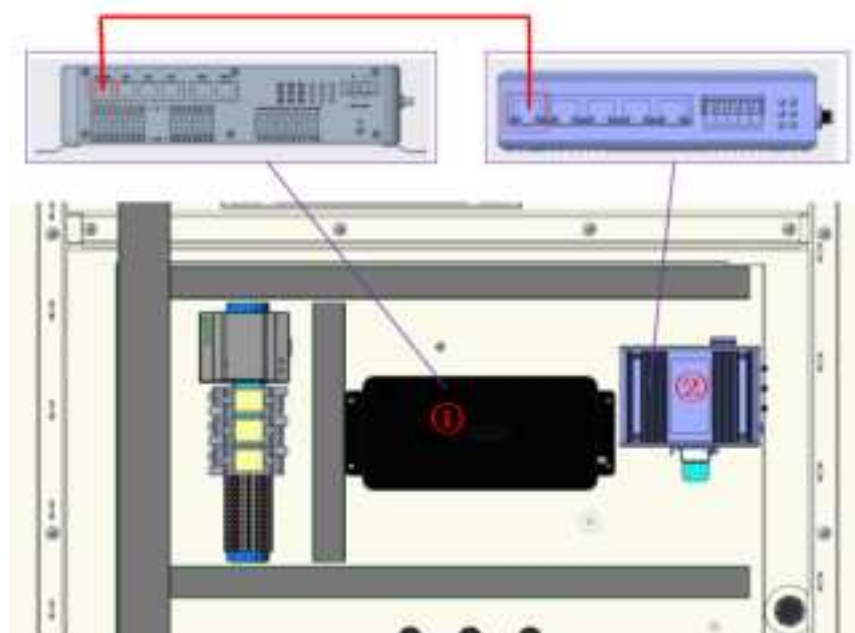


Fig 1. Schematic diagram of communication line access position

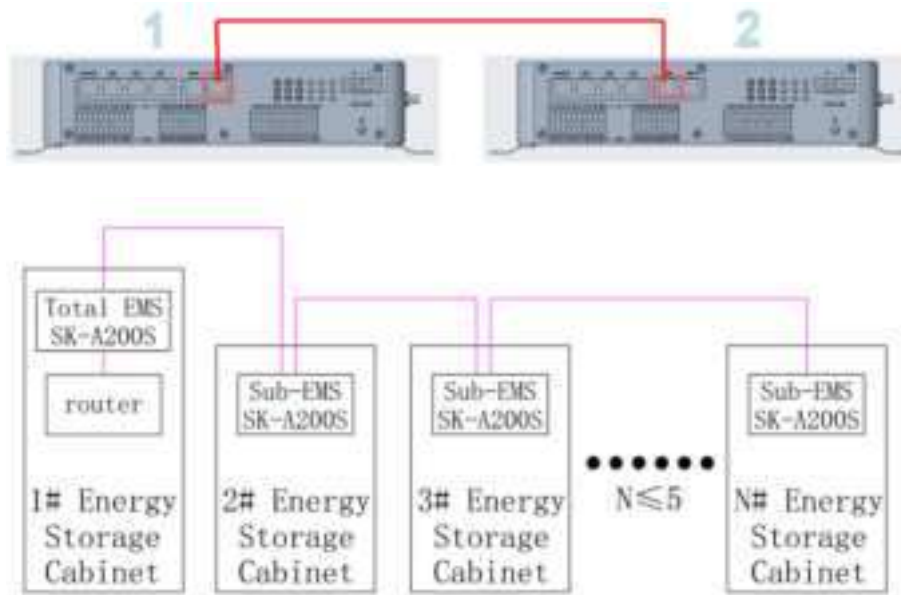
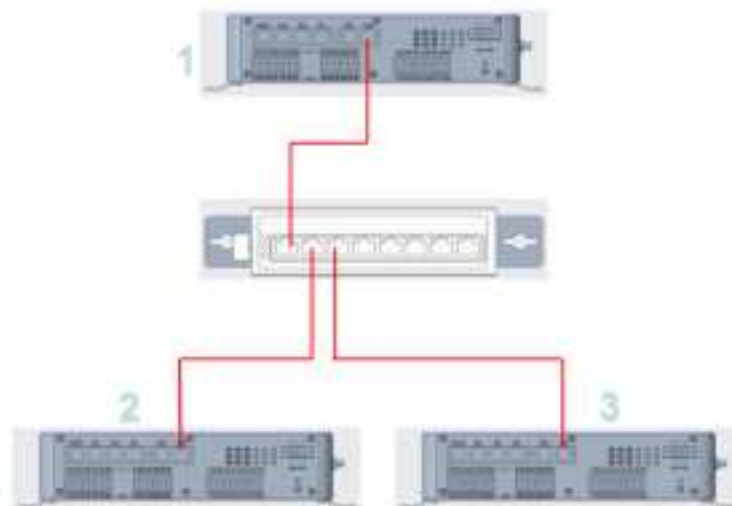


Fig. 11. Schematic diagram of parallel machine wiring

When more than 5 cabinets are used in parallel, additional devices such as a secondary EMS, switch, and router (optional) are required. These devices can be installed in the customer's existing communication cabinet or a newly added communication cabinet.

Main Configuration List

Name	Specification	Remark
Secondary EMS	SK-X200	/
Switch	TL-SF1008	/
Wire Harness	Power Cable, Network Cable	/
Router	MIR655R-W	Optional
Switching Power Supply	HDR-100	Optional
Cabinet	Sizes can be customized	Optional



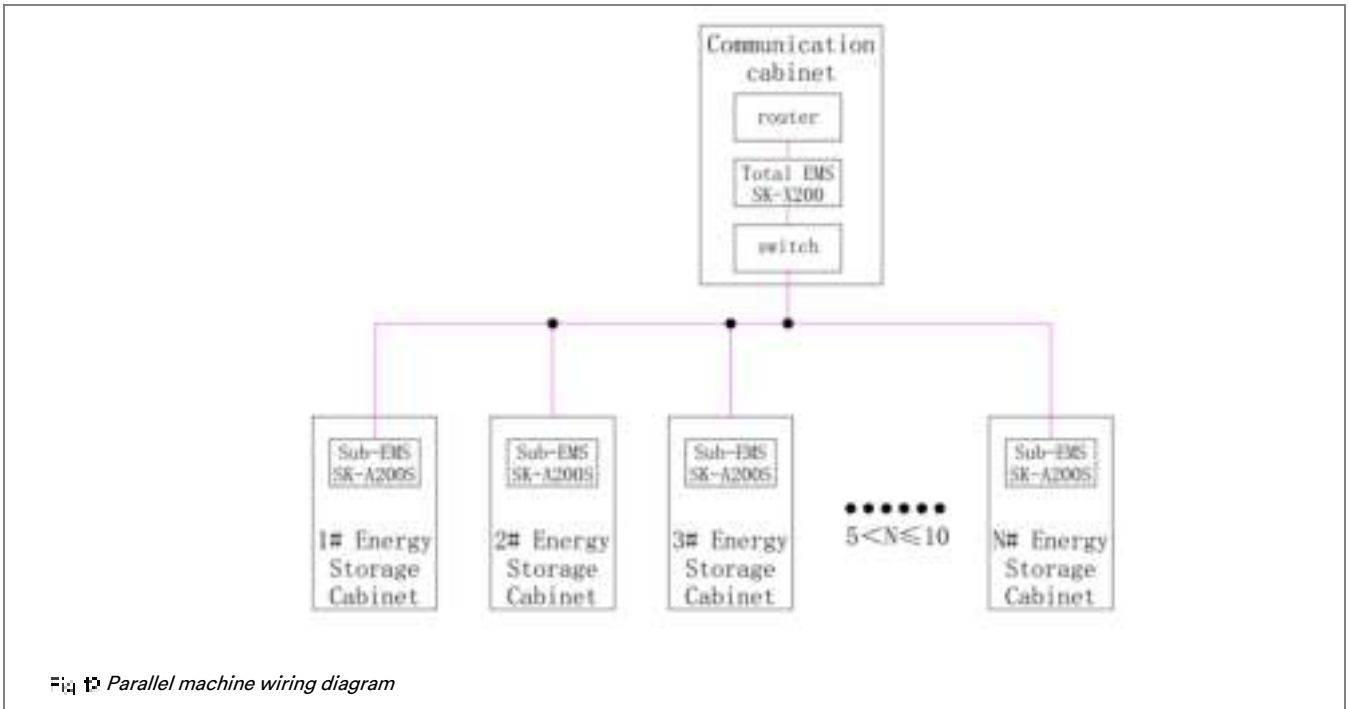


Fig 10 Parallel machine wiring diagram

6.2 Installation of external grounding cable

The cabinet must be reliably grounded and a grounding hole is reserved on the inside side of the cabinet. The grounding hole of the cabinet is reliably connected to the field ground point with cable or galvanized flat steel.

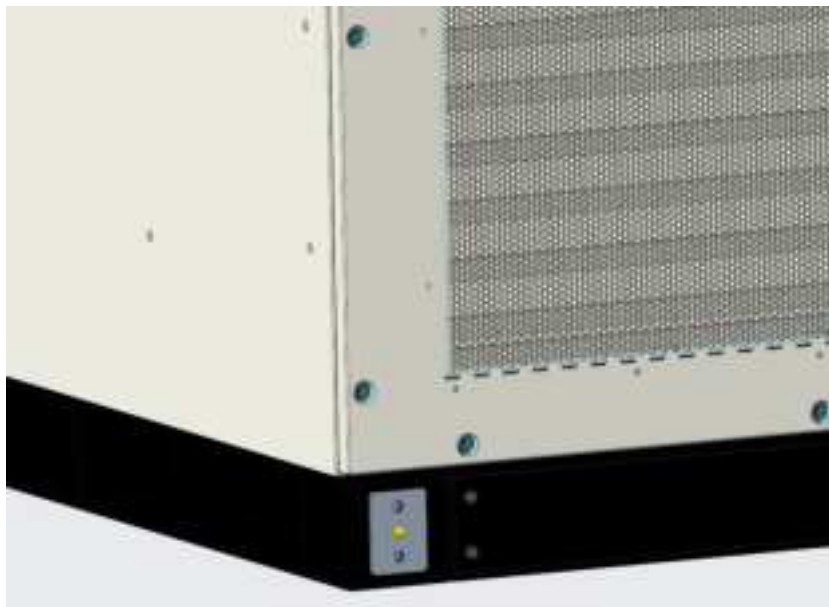


Fig 11 Schematic diagram of grounding point

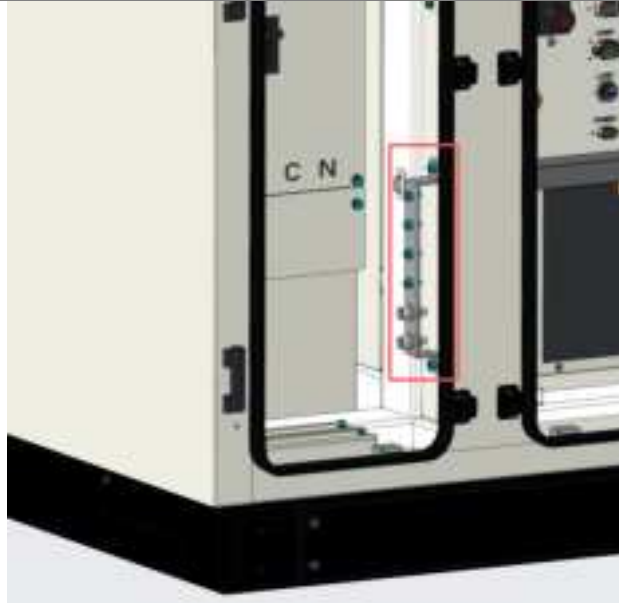


Fig 14 Schematic diagram of grounding point

When multiple cabinets are used in parallel, the cabinets need to be connected at equal potential.

Grounding instructions:

1. The tightening force of the fixed screw (M10) is 14~16N.m
2. Ensure that the cabinet is reliably grounded, and the connection resistance between the cabinet and the field grounding point is less than 0.1Ω .

6.3 Precautions for multi-machine parallel operation and off-grid operation

1. Direct debugging of multiple parallel machines is prohibited. The following steps should be followed:

Single machine debugging: test the charge and discharge function, protection function and parameter accuracy (such as voltage and frequency) of each cabinet one by one;

Multi-machine expansion: after confirming the stability of a single machine, the number of parallel machines should be increased. Each time the number is increased, the load distribution and protection should be retested;

Load test: Connect to the actual load (including inductive, capacitive and resistive loads), run continuously for 72 hours, and record the operating parameters (temperature, current, SOC) of each cabinet to ensure no abnormality.

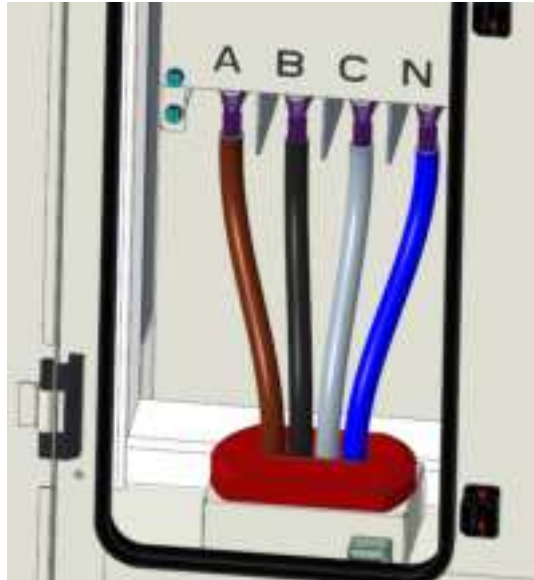
2. Multi-machine parallel off-grid mode:

- 1) Important loads should be concentrated on the bus;
- 2) The load power fluctuates greatly in emergency scenarios (such as temporary operating room suddenly starting equipment), and multiple parallel machines can cope with the fluctuation through redundant capacity. At the same time, it supports "plug and play" and can increase or decrease energy storage cabinets according to actual demand;

3. Fluctuations in renewable energy output require "large-capacity energy storage buffers" (e.g., 1MW photovoltaic power stations need 500-1000kWh of storage capacity). Parallel operation of multiple units enables capacity expansion. Simultaneously, coordinated charging and discharging among multiple units prevents lifespan degradation of individual battery cabinets caused by frequent

charge-discharge cycles (e.g., simultaneous charging of multiple cabinets during high solar output periods versus simultaneous discharging during low output periods).

6.4 Fire sealing



The primary purpose of fire-resistant mud in energy storage cabinets is to seal cable penetrations, cabinet gaps, and other openings, preventing the spread of flames and smoke while providing thermal insulation. The operation must follow the sequence of "preparation → cleaning → shaping → sealing → inspection," with specific steps as outlined below. These procedures should also consider the electrical environment characteristics of the energy storage cabinet (to avoid cable damage and ensure insulation safety):

1. Pre-construction preparation

Select flexible organic fireproof mud that meets the standard (the common type of energy storage cabinet, which is strong in plasticity at room temperature and suitable for cable deformation), check whether the product has a fire certification report, and avoid using expired or lumped fireproof mud (lump can not be molded and the blocking fails);

Basic tools: craft knife (cut fireproof mud / clean rough edges), scraper (press fireproof mud), tape measure (measure gap size), gloves (prevent sticking together + protect hands), cloth (clean surface);

Auxiliary tools: cable protection sleeve (if the cable skin is easy to break, you can first put on a protection sleeve and then seal it), marker (mark the sealing range);

Before construction, the circuit power supply related to the energy storage cabinet should be cut off (or ensure that there is no live part in the working area) to avoid the risk of electric shock;

Wear disposable nitrile gloves (fireproof mud contains a small amount of adhesive, direct contact is easy to remain) and dust mask (if there is dust accumulation inside the cabinet, avoid inhalation when cleaning).

2. Grassroots cleaning and gap inspection

Wipe the cable holes around the energy storage cabinet and the surface of the joint gap of the cabinet with a cloth to remove dust, oil stains, rust and debris (these impurities will cause the fireproof mud to not bond tightly with the base layer and form invisible gaps, which are easy to penetrate by flames);

Measure the width, depth and length of the gap with a ruler to determine the amount of fireproof mud (generally, for each meter of gap, 20mm wide and 20mm deep, about 0.5kg of fireproof mud is needed, which can be estimated according to "volume = length × width × depth");

Check whether the cable is damaged or exposed (if so, it should be repaired with insulation tape first, and then sealed to avoid direct contact between fireproof mud and metal conductor to cause insulation problems).

3. Fireproof clay molding and sealing

Take the fireproof mud as estimated, put it in the palm of your hand or on a flat panel, and rub it repeatedly for 2-3 minutes (so that the fireproof mud is uniform in texture, soft and plastic. If the ambient temperature is lower than 5°C, you can preheat the fireproof mud in about 30°C warm water for 1 minute to avoid stiffness).

Note: The fireproof mud kneaded once should be used up within 30 minutes (if exposed for too long, it will lose water and become hard, and cannot be shaped)

The kneaded fireproof mud is molded into a "long strip" (where the cable is perforated) or a "sheet" (where the plane is narrow) matching the shape of the gap, and the thickness is slightly thicker than the depth of the gap by 5-10mm (reserve space for compaction);

Fill the fireproof mud into the gap slowly to ensure that the inside of the gap is completely filled without cavities and bubbles (you can use a scraper to push the cable into the gap gently to avoid damage to the cable skin with excessive force);

Use a scraper or fingers (wearing gloves) to compact the fireproof mud along the surface of the gap, so that the fireproof mud is tightly attached to the surface of the cabinet and the cable skin, and the surface is smooth without bulging (the bulging part is easy to fall off under external force collision);

Focus on checking the contact surface between the cable and the fireproof mud to form a "seamless package" (if there are small gaps, a small amount of broken fireproof mud can be rubbed into a fine strip to fill them).

4. Overall inspection and repair

Visual inspection: no obvious gap, cavity or bulge at the blocked part, and the fireproof mud is tightly bonded with the cable/cabinet;

Hand pressure check: use fingers to press the surface of fireproof mud, no loosening, falling off, no obvious depression after pressing (if depressed, it means that it is not compacted, and fireproof mud should be added and compacted again);

Use a craft knife to remove the excess fireproof mud (such as the overflow part of the edge), so that the appearance of the blocked part is clean, and does not affect the opening and closing of the energy storage cabinet door and cable maintenance;

If a fine gap is found between the cable and the fireproof mud, rub a small amount of fireproof mud into a thin strip and embed it in the gap and compact it.

7 Contact

Please contact our Service Department if you have any technical questions about our products.

The following information is needed to provide necessary assistance:

- Product serial number
- Fault code
- Installation location
- Warranty card

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