

COMMERCIAL
BATTERY



E-MATE 125-261

User Manual

EENOVANCE

Update history

Air-cooled energy storage cabinet (E-MATE 125-261-L) user manual			
Version	Change history	Author	Update date
Ver 1.0	New Edition(First Edition)	Cheng Liu	2025/04/03
Ver 2.0	All content layout has been updated, with the addition of EMS operations, software upgrade and update operations, coolant fault handling, on-site emergency response plans, and other contents		2025/10/10
Ver 3.0	1) This product is applicable to water-based fire protection. 2) Add relevant content on water fire protection: layout, installation 3) Add the content of EMS network cable interface conversion 4) Delete the emergency response plan and other contents		2025/11/12

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Preface

Main Contents

This manual describes the E-MATE 125-261-L introduction, transport, installation, operation, maintenance and troubleshooting. Before using this product, be sure to read the manual carefully and operate the energy storage system according to the methods described in this manual, or equipment or personal injury may result.

Target Reader

This document is primarily intended for users:

1. Technical support engineers: responsible for providing professional technical support and consulting to solve technical problems.
2. System Installation Engineer: responsible for on-site installation, wiring and hardware configuration of the energy storage system.
3. Testing engineers: responsible for system debugging and testing to ensure that the system operates normally in accordance with the design requirements.
4. Maintenance engineers: responsible for daily system maintenance and troubleshooting, to maintain long-term stable operation of the system.
5. Product end-users: end-users who utilize energy storage systems and need to understand basic operation and maintenance.

Manual Warning Sign Definition

To help users identify potential safety risks and take appropriate precautions to ensure safety when using the energy storage system. Users should read the manual carefully before using the energy storage system and strictly observe all safety warnings and operating instructions in the manual.

Notation	Descriptions
	Used to warn of an imminently hazardous situation which, if not avoided, will result in death or serious bodily injury.
	Used to convey an equipment or environmental safety warning message indicating a hazard with a medium level of risk that may result in death or severe typhoid fever if not avoided.
	Hazards with a low level of risk of causing minor or moderate harm if not avoided.

1 Safety Precautions

1.1 Safety Instructions

Please strictly observe the terms of the safety regulations in this product manual. In order to avoid possible injury or death and property damage during the use of this product, as well as to improve the service life and use efficiency of this product, please be sure to read the safety regulations carefully.

1. Do not immerse the battery in water;
2. Improper use and storage of the battery poses a risk of fire, explosion, and burns; do not disassemble, crush, incinerate, heat, or throw batteries into fire;
3. Do not expose the battery to fire or prolonged exposure to temperatures exceeding the temperature conditions specified in this manual, as this may result in fire;
4. When batteries reach the end of their useful life, used batteries should be disposed of in a timely manner in accordance with local recycling or waste regulations;
5. Do not disassemble, dismantle or recondition the battery in any way without authorization;
6. Do not mix different sizes and brands of lithium-ion batteries;
7. Do not use the battery if it emits a strange odor, heat, deformation, discoloration or any other abnormal phenomenon;
8. Do not short-circuit the positive and negative terminals of the battery, otherwise strong current and high temperature may cause personal injury or fire;
9. Connect the positive and negative terminals of the battery in strict accordance with the labeling and instructions, and prohibit reverse or series wire charging;
10. Prohibit over charging/over discharging of the battery, otherwise it may cause overheating and fire accidents;
11. Avoid skin and eye contact with the electrolyte when it is leaking. In case of contact, wash the contact area immediately with plenty of water and seek medical help;
12. It is prohibited for any person or animal to ingest any part of the battery or any substance contained in the battery;
13. Batteries are potentially hazardous and must be operated and maintained with appropriate protective measures. Failure to do so may result in serious personal injury and property damage;
14. Prohibit any behavior that may cause deformation of the battery, such as needling, hammering, etc., which may cause a short circuit or fire in the battery.
15. Customer setup for off-grid operation requires grid isolation to avoid grid incoming calls damaging the PCS.

1.2 Personnel Requirements

1. When operating or maintaining the energy storage cabinet, it's necessary to wear a helmet, insulated gloves, insulated shoes, goggles, it is strictly prohibited to wear watches and other metal jewelry;
2. Only qualified electricians and trained personnel can operate and maintain this product, and complete professional electrical equipment is required;
3. Personnel responsible for the installation and maintenance of the equipment must be strictly trained in the correct operation methods, and be aware of the various safety precautions and the relevant standards of the country/region where they work;
4. Replacement of equipment or parts (including software) must be done by authorized professionals;
5. Keep persons other than those operating the equipment away from the equipment.

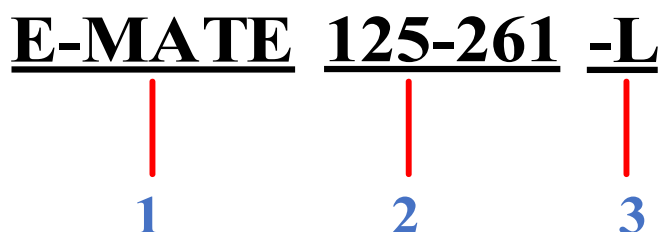
1.3 Electrostatic Protection

Accumulation of static electricity may cause electric shocks, fires, explosions, failure and damage of electronic devices, etc. There are circuit boards or other static-sensitive components in the energy storage cabinet. Board or other static-sensitive components, in order to prevent or reduce the harm of static electricity, it is necessary to do a good job of static protection, and thus inhibit the generation of static electricity, accelerate the leakage of static electricity, static electricity neutralization. The prevention methods include but are not limited to:

1. During the component replacement process, keep all the components that have not been installed in the ESD shielding bag, and the temporarily removed device is placed on a foam mat with anti-static function;
2. Do not touch solder joints, pins or exposed circuitry.

2 Product Introduction

2.1 Naming Rule



NO.	Meaning	Explanation of Parameter Values
1	Series Name	E-MATE
2	Energy Level	125-261: Rated Power 125kW Rated Energy 261kWh
3	Cooling Method	L: Liquid Cooling

2.2 Energy Storage Systems Overview

2.2.1 Systems Overview

This energy storage system adopts the form of one-piece outdoor cabinet, which integrates battery Pack, High Voltage (HV) box, Energy Management System (EMS), Power Conversion System (PCS), Battery Cluster, Heating Ventilating and Liquid Cooling Unit, Water sensor, Fire Extinguishing device, Temperature and Humidity sensor, Smoke Sensor and Combustible gas detector and Water fire protection ,Electric Distribution Unit.

2.2.2 Working Principle

The system consists of 1 PCS 125 kW bidirectional energy storage inverter, 5 PCS battery packs in series and 1 PCS HV box. The main circuit of the HV box is mainly composed of isolation switch, fuse, charging contactor, discharge contactor, negative contactor, pre-charged contactor, pre-charged resistor and hall current sensor. The principle diagram of the system is as follows:

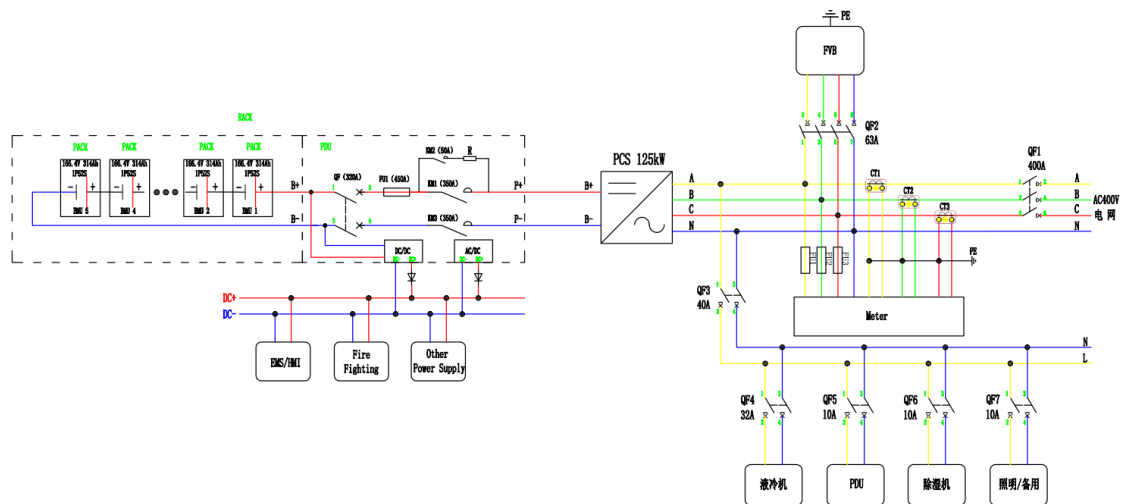


Fig. 2-1 E-MATE 125-261-L System Primary Schematic Diagram

2.3 Energy Storage Cabinet Exterior View





Fig. 2-2 E-MATE 125-261-L Liquid Cooling Energy Storage Cabinet Exterior View

2.4 Technical Parameters

Please refer to 10.Appendix 1 for details.

2.5 Main Components

2.5.1 Cabinet

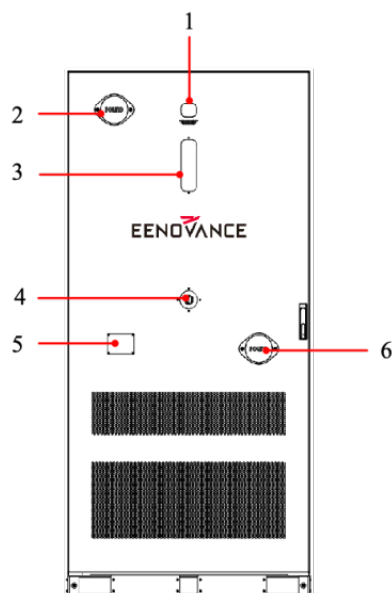
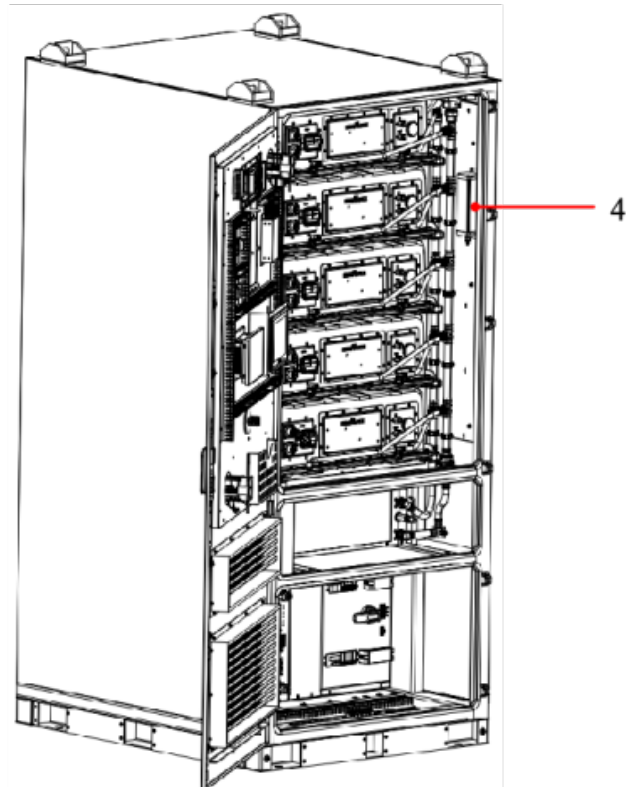
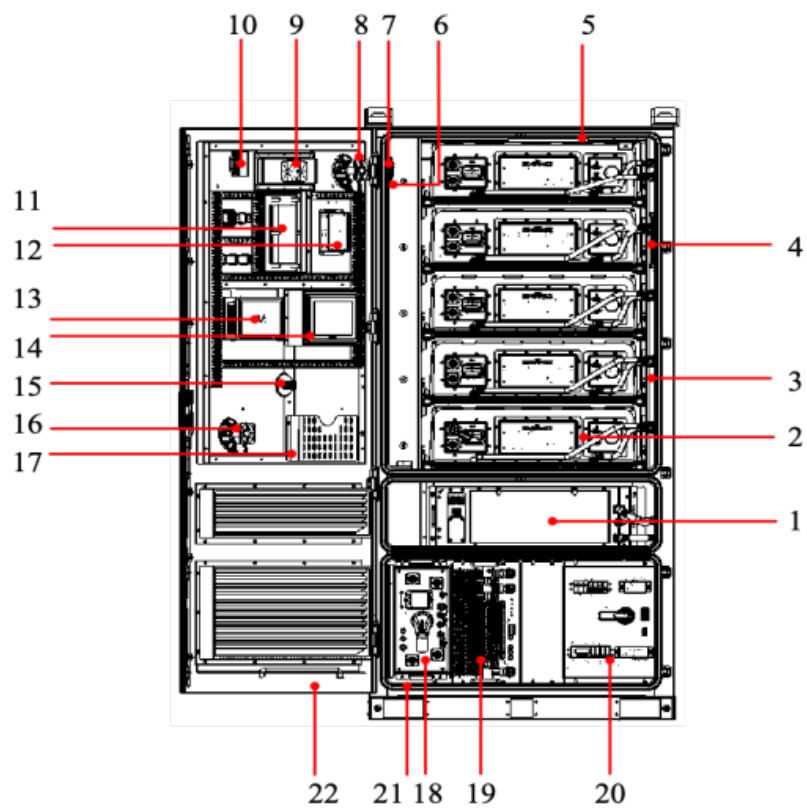


Fig. 2-3 Description of Cabinet Components (Closed State)

Table 2-1 Cabinet Front Door Components

No.	Components	Amounts	Remark
1	Audible and visual alarm	1	For internal equipment temperature, smoke and other abnormal alarm
2	Exhaust valve (air venting)	1	Combustible gas leakage from the interior can be directed to the outside
3	Indicator light display	1	Display power and status indication
4	Emergency stop button	1	Press this button when the device is in emergency.
5	Product nameplate	1	Product information
6	Exhaust valve (air inlet)	1	Combustible gas leakage from the interior can be directed to enter the air



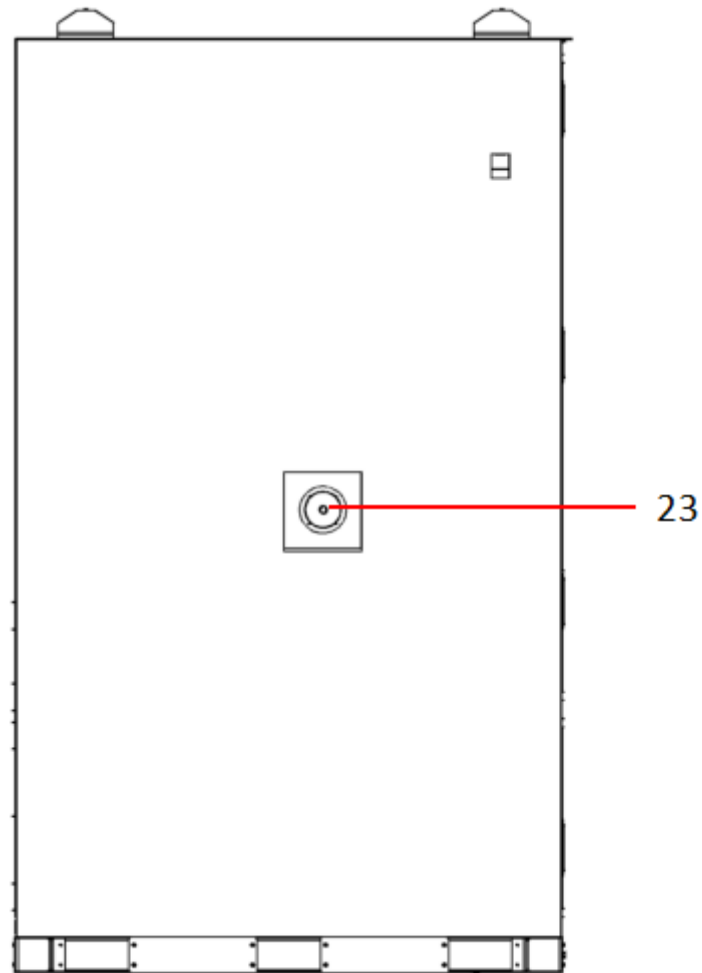


Fig. 2-4 Introduction to Cabinet Components (Open Door State)

Table 2-2 Cabinet Component Configuration

No.	Components	Amounts	Remark
1	Liquid cooling unit	1	Deliver coolant to cool the battery pack
2	Battery pack	5	The battery box is composed of 52 battery cells in series
3	Liquid cooling cable	1	Deliver coolant to cool the battery pack
4	Aerosol fire extinguishers	1	1.69M3
5	Access sensor	1	Monitoring of door opening and closing status
6	Heat detector	1	For temperature detection
7	Smoke detector	1	For smoke detection

8	exhaust valve	1	
9	Audible and visual alarm	1	
10	Combustible gas detector	1	Checking the concentration of combustible gases
11	Indicator Light Panel	1	
12	Serial Port Server	1	
13	EMS HMI	1	Monitor data and scheduling locally
14	BAU DMI	1	
15	Emergency stop button	1	Press this button when the device is in emergency
16	Exhaust valve (air inlet)	1	Suck external air into the battery cabinet.
17	File box	1	File documents
18	HV BOX	1	The management unit of the battery cluster high voltage power circuit
19	PCS	1	125 kW energy storage converter
20	Power Distribution Box	1	
21	Water immersion sensor	1	
22	Cabinet	1	/
23	Water fire protection interface	1	

2.5.2 Battery Pack

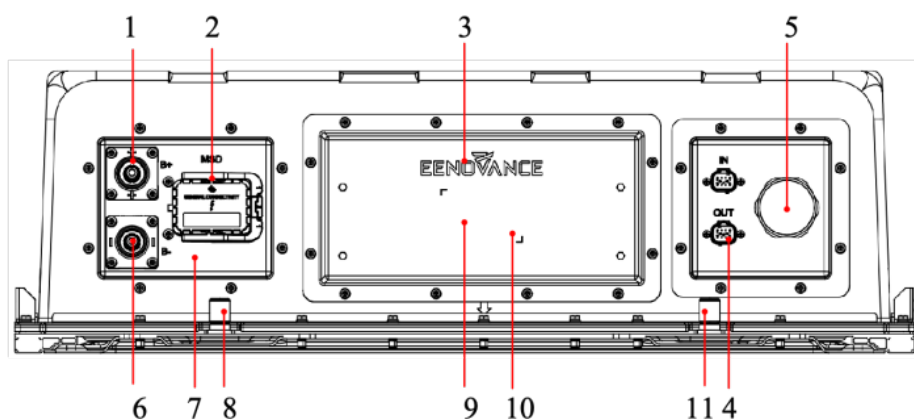


Fig. 2-5 Pack Panel Schematic Diagram

Table 2-3 Pack Device Description

No.	Description	Remark
1	Positive Connector	ESS-250A-70-B/S-OR-01
2	MSD	Service Switch
3	LOGO	/
4	Communication Connector	SFR10A/SFR10C
5	Pressure Relief Valve	/
6	Negative Connector	ESS-250A-70-B/S-BK-01
7	Warning Label	/
8	Liquid Outlet	Coolant Output Port
9	Nameplate	/
10	Bar Code	
11	Liquid Inlet	Coolant Input Port

2.5.3 High-Voltage Box

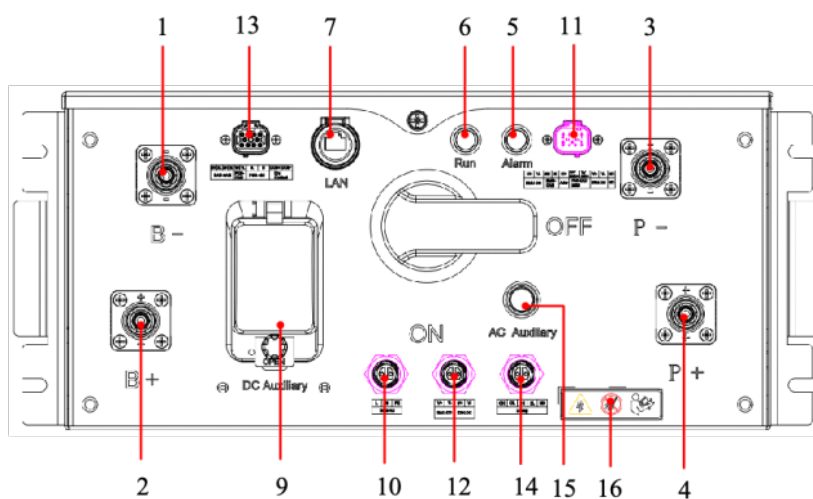


Fig. 2-6 HV Box Panel Schematic Diagram

Table 2-4 HV Box Device description

NO.	Description	Remark
1	B-	Battery cluster total negative
2	B+	Battery Cluster Total Positive
3	P-	PCS Negative interface
4	P+	PCS Positive Connector
5	Alarm	Malfunction warning light, when the system is in fault, it is always on, otherwise it is off
6	Run	Running light, the system is normally on high voltage and no fault is always on, otherwise it is off
7	LAN	External network communication port
8	AC Auxiliary	High-voltage box power-on switch
9	DC Auxiliary	/
10	COM1	/
11	COM2	/
12	COM3	/
13	COM4	/
14	COM5	/
15	Bar Code	High-Voltage Box Information
16	Warning Label	/
17	Logo	Supplier Name

2.5.4 Power Distribution Box

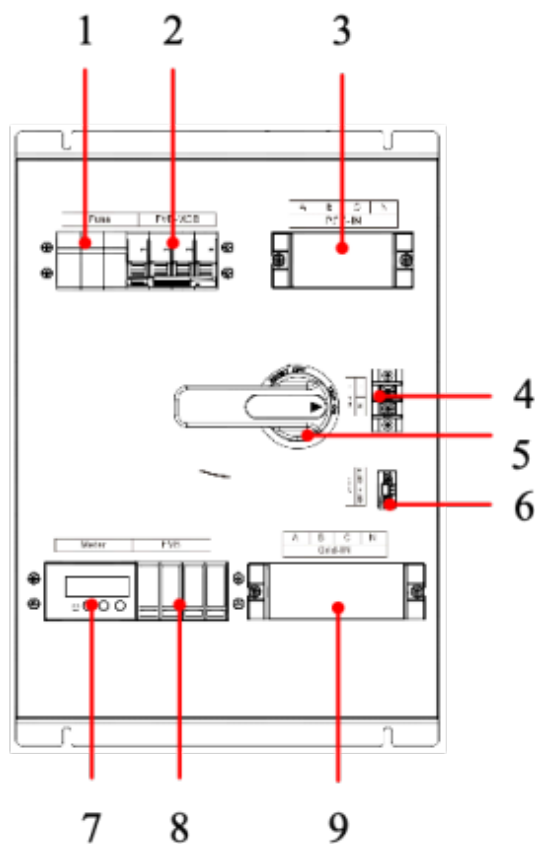


Fig. 2-7 Electrical Distribution Box Panel Schematic Diagram

Table 2-6 Electrical Distribution Box Device Description

NO.	Symbol/Name	Remark
1	Fuse	/
2	FVB MCB	/
3	PCS Input	Power cable input
4	AC Output	/
5	Circuit Breaker	/
6	Liquid unit COM	Liquid unit power supply
7	Meter	/
8	FVB	/
9	Grid Input	Grid cable input

2.5.5 Liquid Cooling Unit



Fig. 2-8 Liquid Cooling Unit Diagrammatic Sketch

Table 2-7 Liquid Cooling Unit Technical Parameters

No	Item	Spec.
1	Operation Temperature	-30~55 °C
2	Rated AC input Power Supply	220VAC~50Hz/60Hz
3	Rated Cooling Capacity	5000 W
4	Rated Power (Cooling/Heating)	5000/2000W
5	Rated Current (Cooling/Heating)	9.2/8.7A
6	Heating Power	2000W
7	Air Quantity	2300m3/h
8	Weight	≤120kg
9	IP Level	IP55
10	Refrigerating Fluid	R410a

2.5.6 PCS

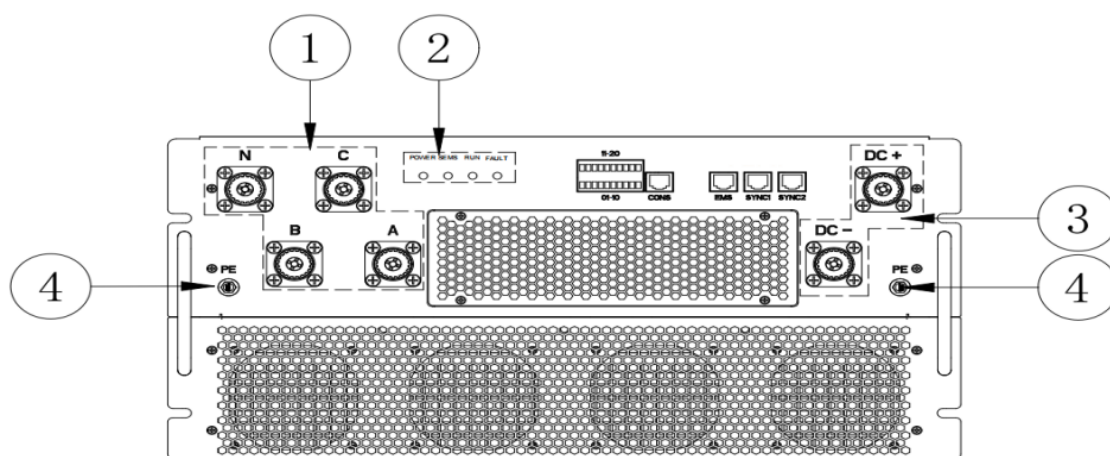


Fig. 2-9 PCS Panel Diagrammatic Sketch

Table 2-8 PCS Technical Parameters

NO.	Symbol/Name	Functional Description
1	AC Power terminal	Grid to PCS
2	Indicator light	Display the working status of the PCS
3	DC Power terminal	HV box to PCS
4	PE Terminal	Grounding Terminal (M6)

Table 2-8 Indicator function description

Indicator	Status	Functional Description
Power (Green)	Always on	Both battery and power grid connected
	Rapid flashing	Battery not connected
	Slow flashing	Grid not connected
	Always off	Both battery and power grid not connected
SEMS (Green)	Rapid flashing	Communication normal
	Always off	Communication abnormal
RUN(Green)	Always off	PCS stop
	Always on	PCS standby
	Rapid flashing	PCS running
FAULT(Red)	Slow flashing	Alarming
	Always on	Error and stop

2.5.7 EMS/HMI

EMS is responsible for monitoring and energy optimization scheduling of battery system BMS, converter system PCS, temperature control system and fire protection subsystem.

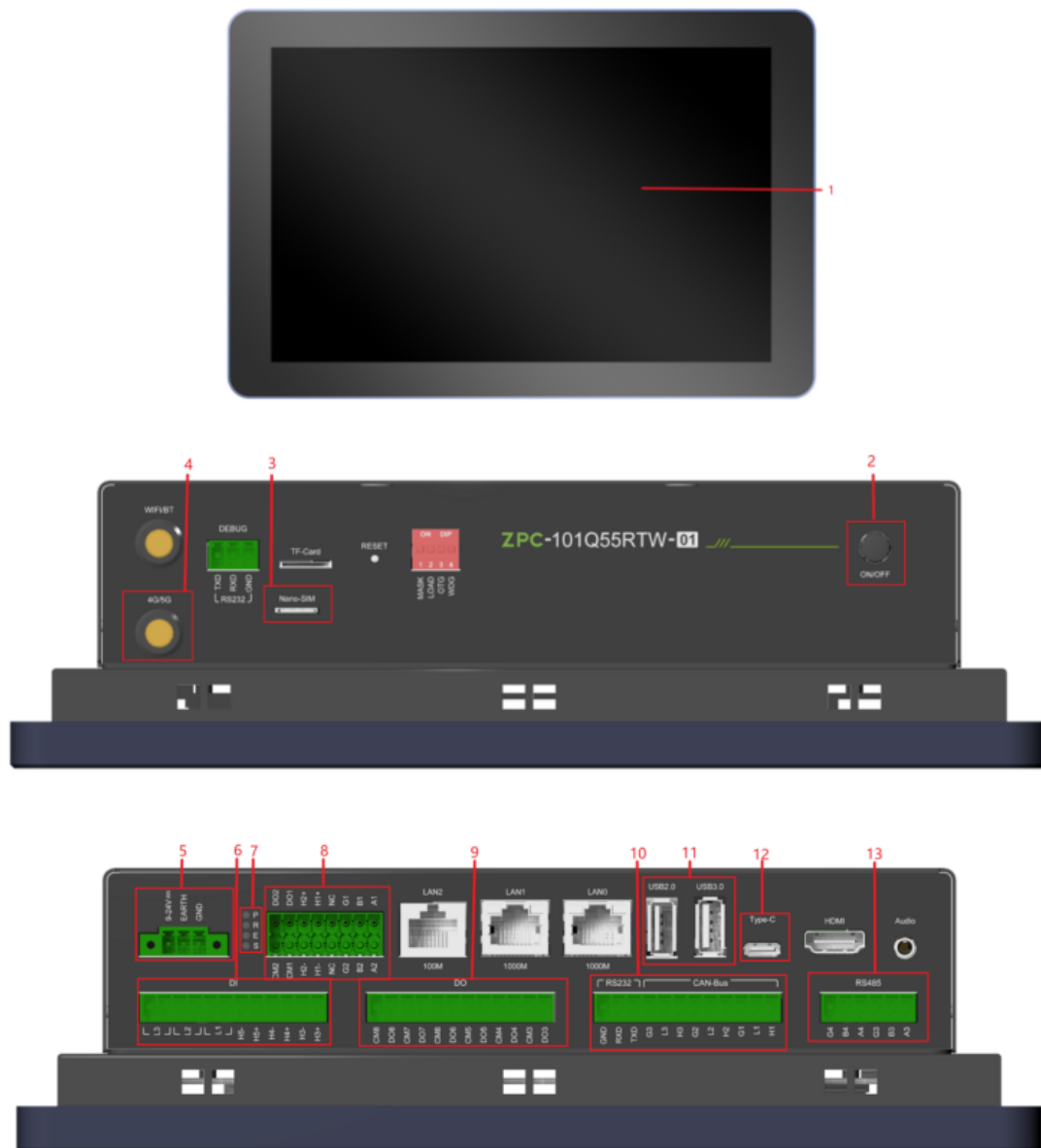


Fig. 2-10 EMS/HMI Schematic Diagram

Table 2-7 EMS/HMI Device Description

NO.	Symbol/Name	In Use	Remark
1	Display Screen	✓	10.1 inches, 1280 × 800
2	ON/OFF	✓	Power Switch Button
3	Nano-SIM	✓	SIM card slot
4	4G/5G	✓	4G sucker antenna interface
5	Power Supply	✓	24V power supply
6	DI	✓	L1 is the water immersion device feedback, L2 is the emergency stop device feedback, L3 is the aerosol device feedback. H3 + is a temperature-sensitive terminal
7	Pilot Lamp	✓	P is the power indicator. R is the running state light of the system. E is the system error state lamp. S is the status indicator
8	DI&RS485	✓	H2 is a smoke-inductive terminal. H1 is the access switch terminal. A1 / B1 is a BMS communication terminal. A2 / B2 is PCS communication terminal
9	DO	✓	Exhaust valve push-out / retraction
10	CAN-BUS	✓	L1 / H1 is the communication line of combustible gas detector
11	USB	✓	Program update
12	Type C	✓	Mirror burning
13	RS485	✓	A3 / B3 is the air conditioning communication terminal. sA4/B4 is the light board communication terminal.

2.5.8 Fire Safety System

The energy storage cabinet fire protection system includes pack-level and cluster-level fire protection. Pack-level fire protection can provide early detection of fire sources at the root of the pack and rapid-fire extinguishing, while cluster-level fire protection can focus on the external fire sources of the system, preventing their spread and inhibiting their growth. The cabinet is also equipped with a water fire protection interface as a last resort for fire suppression. Under normal circumstances, this section of water pipe connected to the cabinet is in a dry state.

2.5.8.1 Cluster-level Fire Protection

Cluster-level fire protection system can be divided into fire extinguishing system and explosion-proof exhaust system. When the battery is out of thermal control and combustible gas leaks, the explosion-proof exhaust system responds in time for air intake and exhaust. When a fire occurs, the fire extinguishing system acts quickly to detect, alarm and extinguish the fire.

Water fire protection is carried out by manually opening the external water valve.

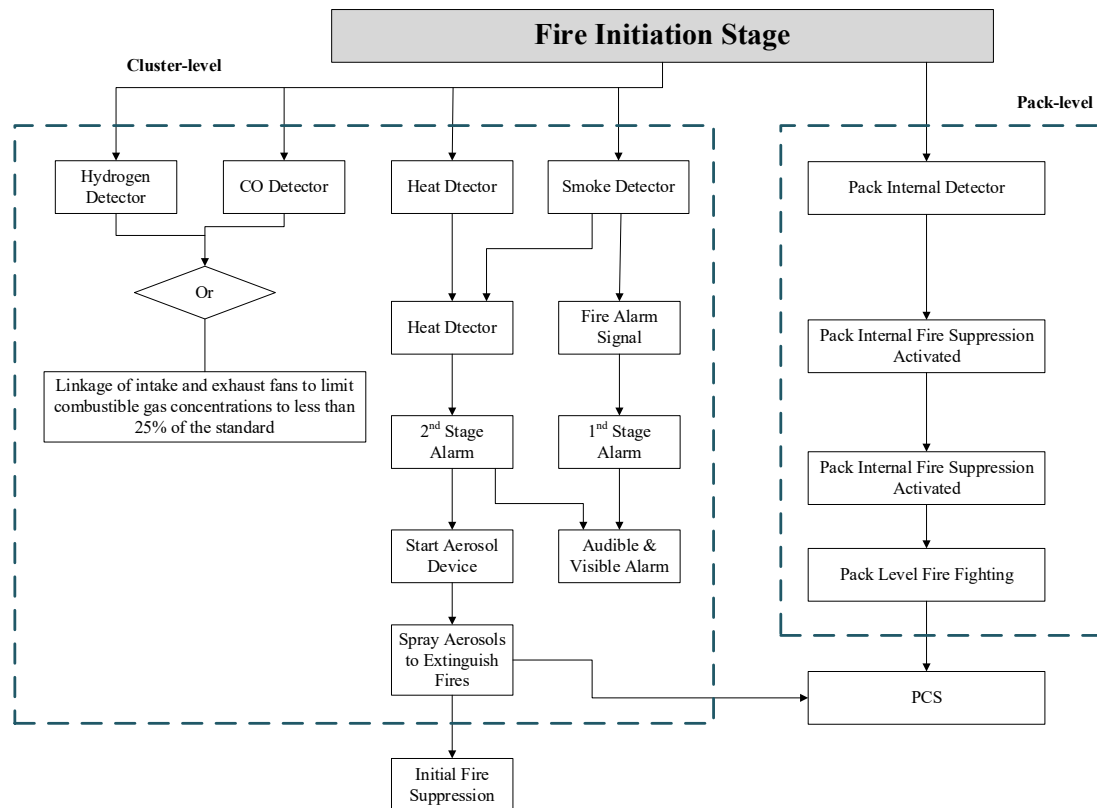


Fig. 2-11 Fire Control Logic Diagram

2.5.8.2 Fire Safety System Components

Table 2-10 Fire Safety System Components

Item	Name	Quantity
1	Temperature detector	1
2	Smoke detector	1
3	Audible and visual alarm	1
4	Aerosol extinguisher	1
5	Fire alarm	1
6	Inlet valve	1
7	exhaust valve	1

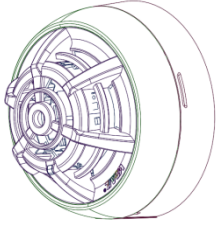
Firefighting Logic:

When the smoke detector inside the cabinet detects a fire, the sound and light alarm outside the protected area will activate immediately to alert personnel to respond. when both the smoke and temperature detectors detect a fire simultaneously, they output an electrical signal, triggering the fire extinguishing device to initiate firefighting, and simultaneously sending a feedback signal to the EMS to notify personnel to handle the situation in a timely manner.

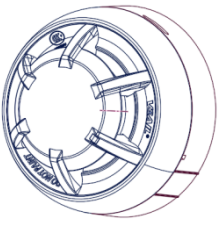
Valve Motion Logic: The explosion-proof ventilation system consists of a flammable gas

detector, intake valves and fans, and exhaust valves and fans. When the flammable gas detector reaches the alarm threshold, it outputs an alarm signal, linking the intake/exhaust valves and fans to ventilate and exchange air, preventing the accumulation of flammable gases and the occurrence of deflagration phenomena.

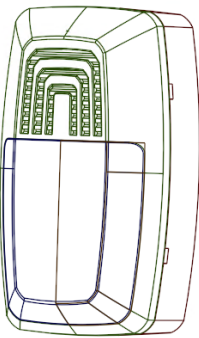
2.5.8.2.1 Temperature detector

Temperature detector	Technology contents	Parameters
	Working Voltage	9VDC~28VDC
	Static Current	$\leq 60 \mu\text{A}$
	Alarm Current	$10\text{mA} \leq I \leq 50 \text{mA}$
	Output Value	DC30V, 1A, Dry contact
	Working Temperature	$-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$
	Ambient Humidity	$\leq 95\%$, no condensing
	Polarity	Yes

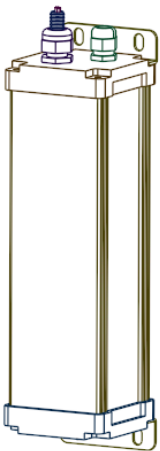
2.5.8.2.2 Smoke detector

Smoke detector	Technology contents	Parameters
	Working Voltage	9VDC~28 VDC
	Static Current	$\leq 60 \mu\text{A}$
	Alarm Current	$10\text{mA} \leq I \leq 50 \text{mA}$
	Output Value	DC30V, 1 A, Dry contact
	Working Temperature	$-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$
	Ambient Humidity	$\leq 95\%$, no condensing
	Polarity	Yes
	Sensor	Infrared photoelectric sensor

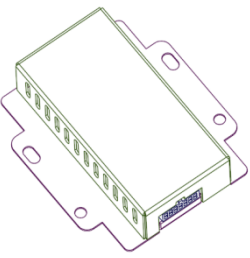
2.5.8.2.3 Audible and visual alarm

Audible and visual alarm	Technology contents	Parameters
	Working Voltage	24VDC (21V~28V)
	Static Current	$\leq 50 \text{mA}$
	Alarm Current	$10\text{mA} \leq I \leq 50 \text{mA}$
	Blinking Frequency	$1.4 \times (1 \pm 20\%) \text{ Hz}$
	Working Temperature	$-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$
	Ambient Humidity	$\leq 95\%$, no condensing
	Sound Pressure Level	88dB~96 dB
	Implementation Criteria	EN54-3

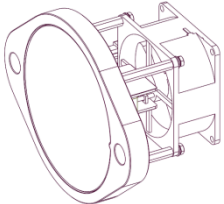
2.5.8.2.4 Aerosol extinguisher

Aerosol extinguisher	Technology contents	Parameters
	Oxidizing Agent	Strontium nitrate 50-58%
	Spraying Time	≤15 s
	Spray Delay Time	≤2 s
	Weight	1145g±30 g
	Working Temperature	-30°C~+70 °C
	Feedback Signal	Dry contact
	Start temperature	≥170 °C
	Start current	≥170 mA
	Protecting Space	3 m ³

2.5.8.2.5 Fire alarms

Fire alarms	Technology contents	Parameters
	Working Voltage	24VDC (9~36V)
	Static Current	≤40 mA
	Working Temperature	-40°C~+70°C (long term operation) -10°C~+60°C (short time operation)
	Start delay time	≤15s
	Alarm Function	Temperature Alarm, Fire Alarm
	Alarm Temperature	80 °C (-40~150°C)
	Alarm Concentration	CO

2.5.8.2.6 Inlet and exhaust valves

Inlet and exhaust valves	Technology contents	Parameters
	Travel distance	30 mm
	Exhaust value	> 35000 L/min
	Start Speed	4 mm/s
	Working Voltage	24 VDC
	Noise	<60 dB
	Fan rated Current/Voltage	24V/1.35A
	IP Level	IP66
	Rated power	37 W

3. Installation Foundation



DANGER

- Prohibition of rough loading and unloading, as this may result in short-circuiting, damage, fire or explosion of the battery.

3.1 Installation Spacing Requirements

Considering the space requirements of the battery energy storage cabinet, the specific installation distance is based on the requirements of local design and installation specifications.



NOTICE

- The maintenance space of the front door of the cabinet is required to be not less than 1.8m (if a forklift is needed to replace the pack, it is recommended to reserve 2.5m).
- The maintenance space on the left and right sides is required to be not less than 0.6m.
- The maintenance space of the back door of the cabinet is required to be not less than 0.6m.
- Environment Humidity: 0~95 °C. non-condensing.
- Altitude: 4000m (>2000m derating).

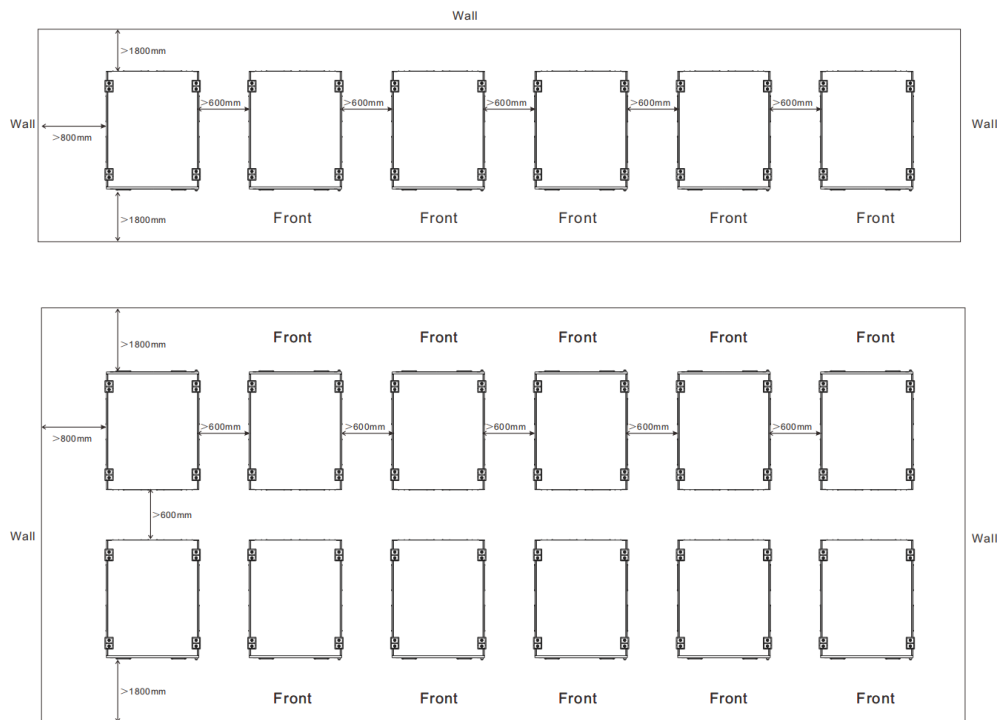


Fig. 3-1 Installation Site Requirements

3.2 Foundation Requirements

- 1) The installation level should be higher than the highest water level in the history of the area and at least 200mm higher than the horizontal ground, and the installation position should not be in low-lying areas. The installation site should have a dry climate, good ventilation, and be located away from areas prone to fire or explosion hazards.
- 2) The energy storage cabinet must be mounted on concrete or other non-combustible surfaces, and the mounting plane must be level, firm, and flat, with sufficient bearing capacity to prohibit depressions or tilting.
- 3) The foundation soil needs to have a certain degree of compactness, and it is recommended that the relative density of the soil at the installation site is not less than 98%. If the soil is loose, corresponding measures must be taken to ensure the stability of the foundation. The equipment foundation is configured according to the total weight of the equipment, if the foundation capacity is not satisfied, it needs to be reviewed.
- 4) Equipment foundation excavation is strictly prohibited after soaking water disturbance, if soaking water disturbance should continue to excavate and replace the fill.
- 5) Equipment foundation and cabinet contact surface level error less 3mm.
- 6) Construction of drainage facilities in conjunction with local geology and municipal supporting drainage requirements to ensure that water does not accumulate at the foundation of the equipment. foundation construction should meet the local historical maximum rainfall drainage requirements, and the discharged water needs to be treated in accordance with local laws and regulations.
- 7) When constructing the equipment foundation, it's important to consider the energy storage cabinet cable outlet and reserve a trench or inlet hole. The trench must incorporate necessary waterproof and moisture-proof designs to prevent cable aging and short circuits, which could affect the normal operation of the energy storage equipment. Due to the high power of the equipment and the correspondingly thick cables required, the design of the trench must take into account the cross-sectional area of the cables adequately.
- 8) The holes reserved for the foundation of the equipment and the holes for the inlet lines at the bottom of the equipment shall be blocked.
- 9) Customers can determine the number of cables supports based on their needs, and the cable supports must fully consider the weight and size of the equipment. When laying cables, communication lines, power lines, and power cables need to be laid separately. Direct current circuits and alternating current circuits should be laid separately, and the distance between different cables should be greater than 300mm.
- 10) Site Location Requirements. The area where the equipment is placed should be firm, level, well drained, and free of obstructions or protrusions.
- 11) The weight of each cabinet is 2.7 T, and the basic load should be met.
- 12) Note: After the completion of civil foundation, it needs to be maintained for 14 days until the strength reaches 100%. If the construction period is short, it needs to wait at least 7 days before placing equipment;
- 13) it is necessary to coordinate the time between foundation construction and equipment arrival on site installation.

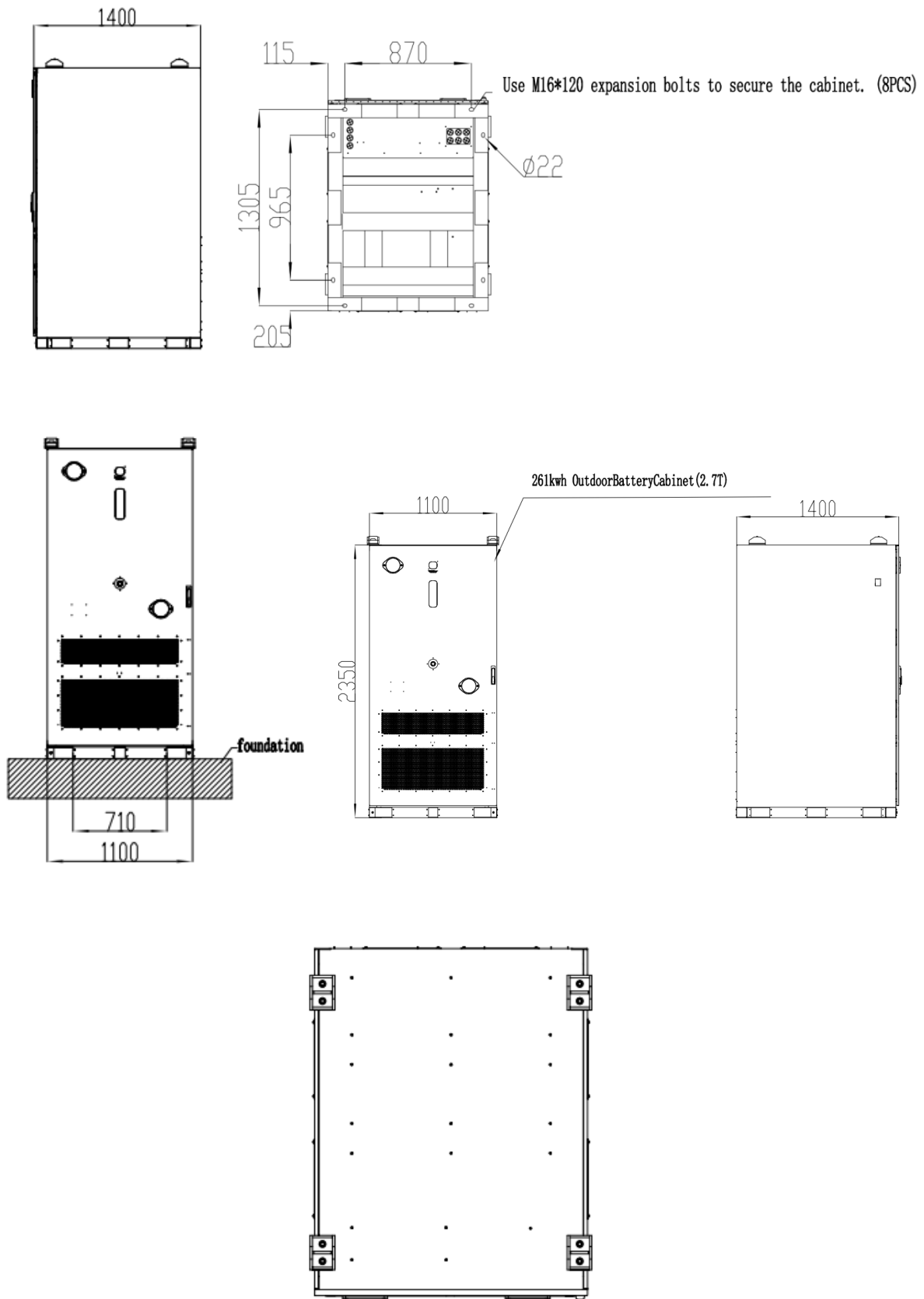


Fig. 3-2 Reference dimensions of equipment foundation

4 Product Lifting And Transport

DANGER

- Prohibition of rough loading and unloading, as this may result in short-circuiting, damage, fire or explosion of the battery.

4.1 Hoisting Operation

•Crane Preparation:

The total weight of the equipment (including packaging) is about 3 tons, please select the crane lifting tonnage according to the total weight of the equipment and the site conditions, recommended tonnage: 5 to 8T.

•The hoisting process must be carried out strictly in accordance with the hoisting diagram. For specific details, please refer to the attached Fig. 2 below.

•After the cabinet is lifted 300mm off the ground, the movement should be paused to inspect the connection of the lifting gear. Only after confirming that the connection is secure, then continue with the lifting process.

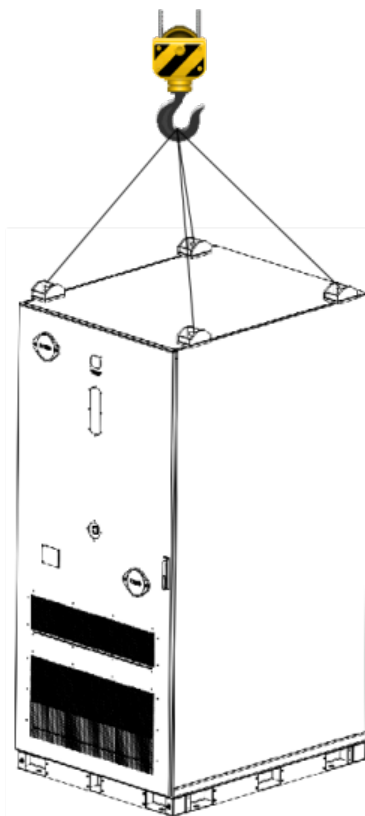


Fig. 4-1 Lifting Schematic

4.2 Forklift Operation

When conducting forklift operations with a forklift, the following conditions must be met:

1. The forklift used should have adequate load capacity (it is recommended to have at least 5 tons).
2. When using a forklift for lifting operations, the fork should be fully inserted into the entire depth of the energy storage cabinet, with the fork length being no less than 1500mm. As shown in Fig. 3 below:

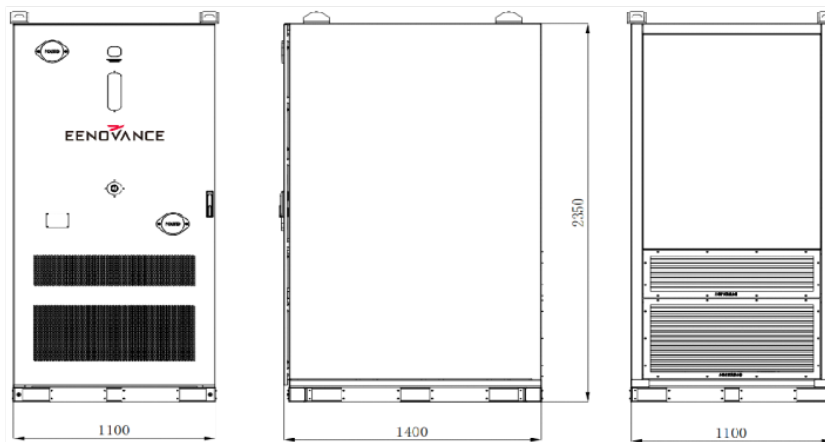


Fig. 4-2 Forklift Hole Diagram

3. For safety considerations during forklift loading, it is recommended that a safety belt be tied around the energy storage cabinet and attached to the forklift crossbar. For specific forklift operations, refer to Fig. 4 below.

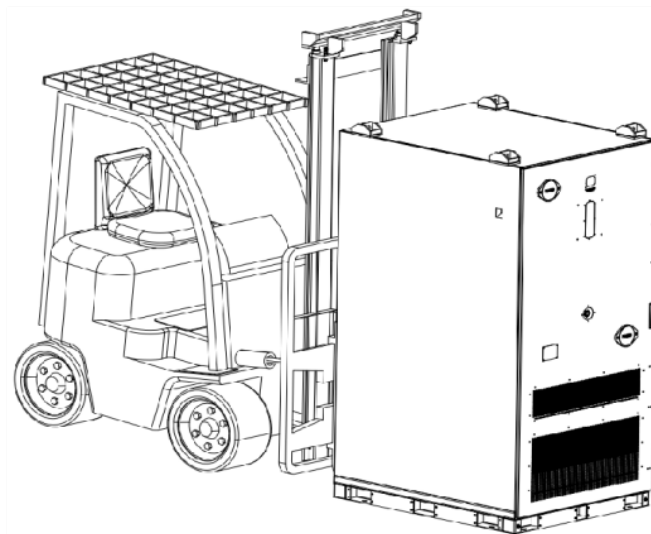
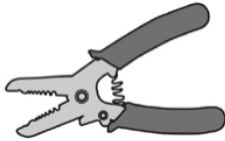
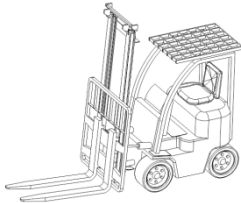
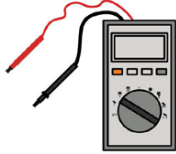
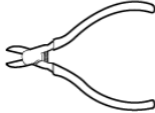


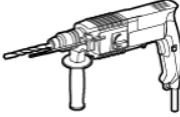
Fig. 4-3 Fork Diagram

5. Equipment installation and fixation

5.1 Installation Tool Preparation

Table 1 Tool Preparation

Tool	Quantity	Illustrative Diagram
Wire Stripper	1	
Electric Forklift Truck	1	
Multimeter	1	
Torque Wrench	1	
Insulated Socket Wrench	1	
Tweezers	1	
Heat Gun	1	

Hand Forklift	1	
Pneumatic Drill	1	
Art Knife	1	
Safety Gloves	1	
Protective Glasses	1	
Insulating Shoes	1	
Safety Helmet	1	

5.2 Cabinet Package Removing & Installation

Step 1:

Remove the outer box packaging

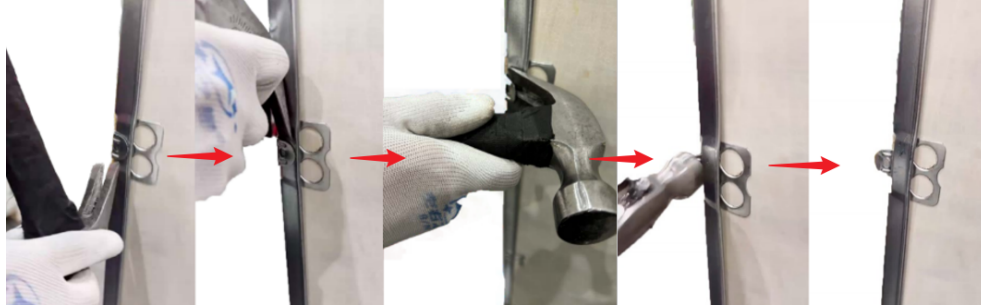


Fig. 5-1 Schematic Diagram of the Removal of the Wooden Box

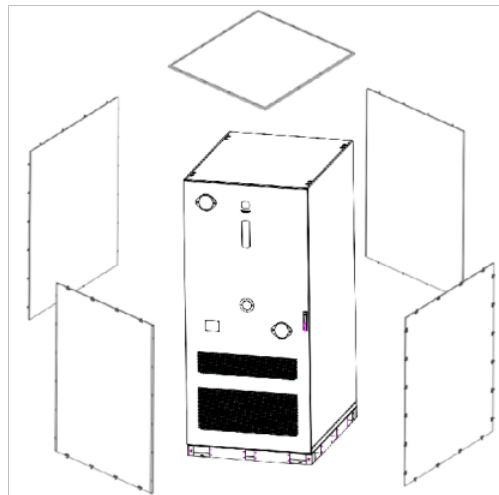


Fig. 6 Removing around Box Graph

Step 2:

Remove the pallet by removing the bolts connecting the energy storage system to the pallet with an adjustable wrench or socket wrench

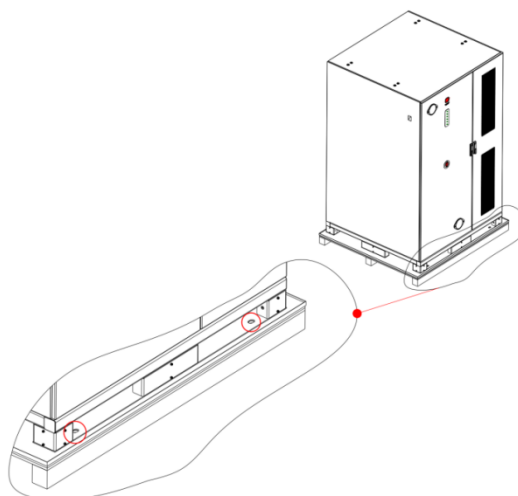


Fig. 5-2 Partial Screw Removal Diagram

Step 3:

Remove the sealing plate of the cabinet base, use a Phillips screwdriver to remove the sealing plate of the base

Step 4:

Open the cabinet door

Step 5:

Pick up the information for the file box, such as packing list, etc.

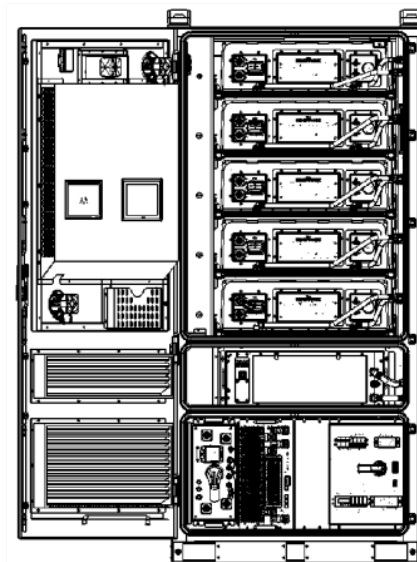


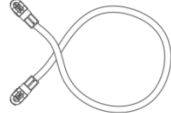
Fig. 5-3 Opening door Schematic

Step 6:

Take out the installation parts supplied with the box, after opening the door, please check the delivery parts and quantity supplied with the box according to the "packing list". As following table:

Table 2 Inspection items

Name	Description	Quantity	Illustrative Diagram
Pack bolts(spare)	Fix the pack on cabinet	20	
Expansion bolts	Fix Cabinet on ground M16*120	8	
Hooking Ring	For crane transportation	4	
Ring Screw	Fix hooking ring on cabinet(M16*45)	8	
Power Cable 3	PDU B- To 1#Pack B-	1	
Power Cable 1 (tied on cabinet)	1#Pack B+ To 2#Pack B- 2#Pack B+ To 3#Pack B- 3#Pack B+ To 4#Pack B- 4#Pack B+ To 5#Pack B-	4	

Power Cable 2 (tied on cabinet)	5#Pack B+ To PDU B+	1	
4G Antenna	/	1	

Step 7:

After closing the cabinet door, move the energy storage cabinet to the designated installation location. When using a forklift to move the equipment, please tie down and fix it according to the actual situation to ensure that there is no risk of tipping over. When using a hoist to move the equipment, use a nylon sling (strap) or wire rope

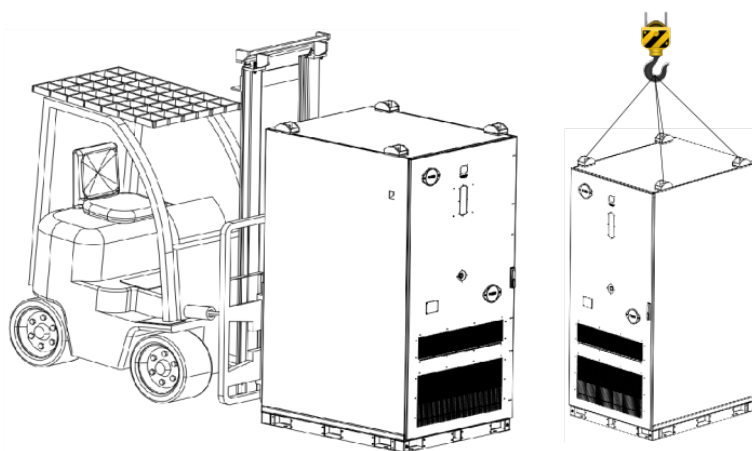


Fig. 5-4 Transportation Schematic

Step 8:

Fixing the energy storage system

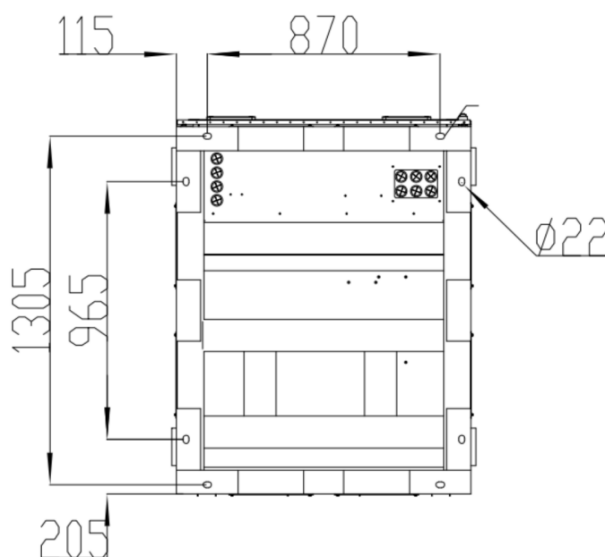


Fig. 5-5 Fixing Schematic

5.3 Water fire protection interface connection



NOTICE

- Notice!:The internal temperature of the energy storage system reaches 68°C, the red thermal glass bulb on the fire extinguishing hose explodes, and water is sprayed to extinguish the fire and cool the energy storage system.
- It is recommended to install water pipes with an external diameter of DN 25.

Single Cabinet Installation:When installing a single cabinet, it is recommended to install an extension. First remove the plug above the cabinet, then connect the pagoda connector to the interface of the cabinet and connect it to the water source to complete the installation of the water pipe (the direction of installation is according to the customer's requirements).

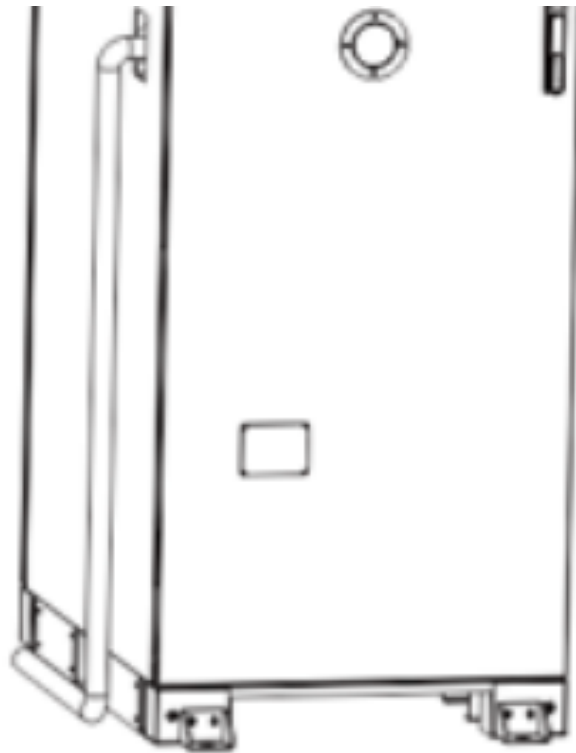


Fig. 5-5 Fire Water Interface

Multiple cabinets water pipe connections: When installing multiple cabinets, it is recommended that extension tubes be installed. Then install the tee connector to connect to the neighboring cabinets. Finally connect the water pipe (water source direction according to customer's requirement).

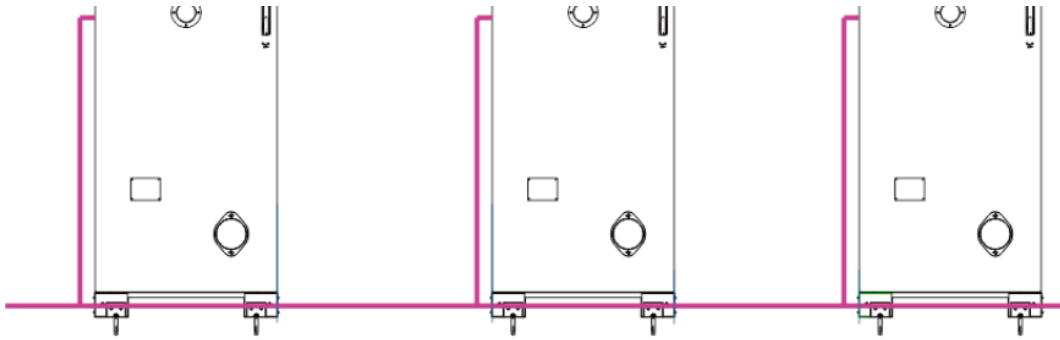


Fig. 5-6 Multiple Cabinets Fire Water Interface

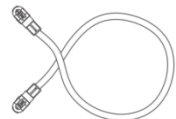
6. Energy Storage System Electrical Connection

The internal work of the energy storage cabinet has been completed before delivery except for the wiring between battery packs, the user only needs to connect the inter-cabinet cable and external wiring can be, the AC terminal is mainly located in the lower right side of the energy storage cabinet, the ground terminal is located in the bottom of the energy storage cabinet.

6.1 Wiring Inside The Cabinet

It's necessary to connect cables between battery packs in the energy storage cabinet, as shown in the following figure

Table 3

Name	Description	Quantity	Illustrative Diagram
Power Cable 3	PDU B- To 1#Pack B-	1	
Power Cable 1	1#Pack B+ To 2#Pack B- 2#Pack B+ To 3#Pack B- 3#Pack B+ To 4#Pack B- 4#Pack B+ To 5#Pack B-	1	
Power Cable 2	5#Pack B+ To PDU B+	1	
4G Antenna	/	1	

Step1:

Take the four power harnesses and install them in a position as shown in the figure 11 below, such as pressing the harness connections into place and hearing a “click” that is, the installation is in place

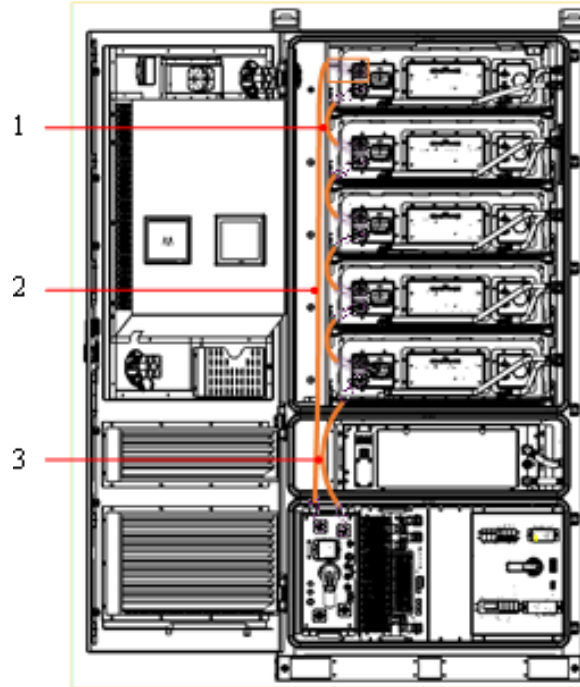


Fig. 6-1 Connect Cables Between Battery Packs Diagram

Step2:

Take the 4G antenna and bring it inside the cabinet from the left side of the cabinet through the threading hole, then place it on the top of the cabinet as shown in the figure below:

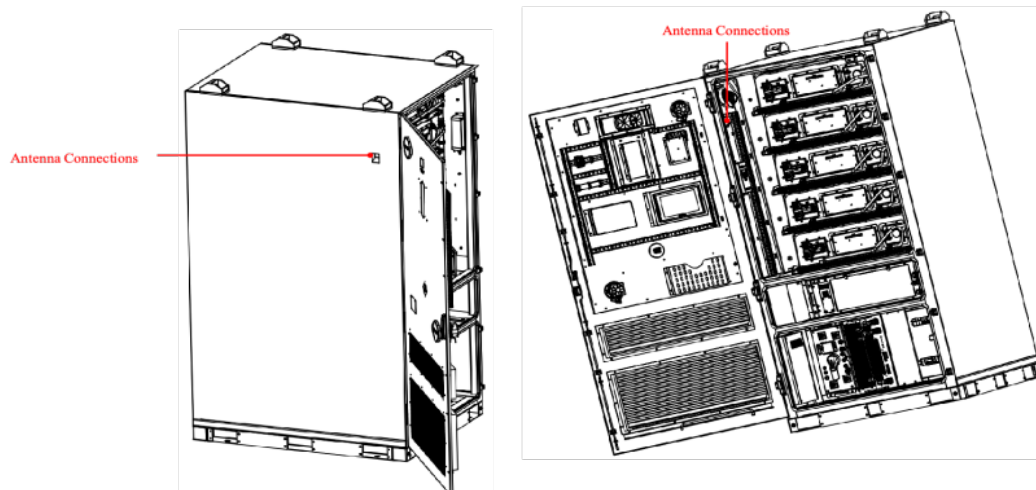


Fig. 6-2 The 4G Module Installation Diagram

Step3:

After crimping the external connection cable A/B/C phase to OT70-10 terminal) and N wire to OT70-6 terminal, lock it in the position as shown below Fig.13

Fixing Torque:(M10:21N.m// M6:5N.m)

This part of AC cable are provided by the customer, as shown in the following

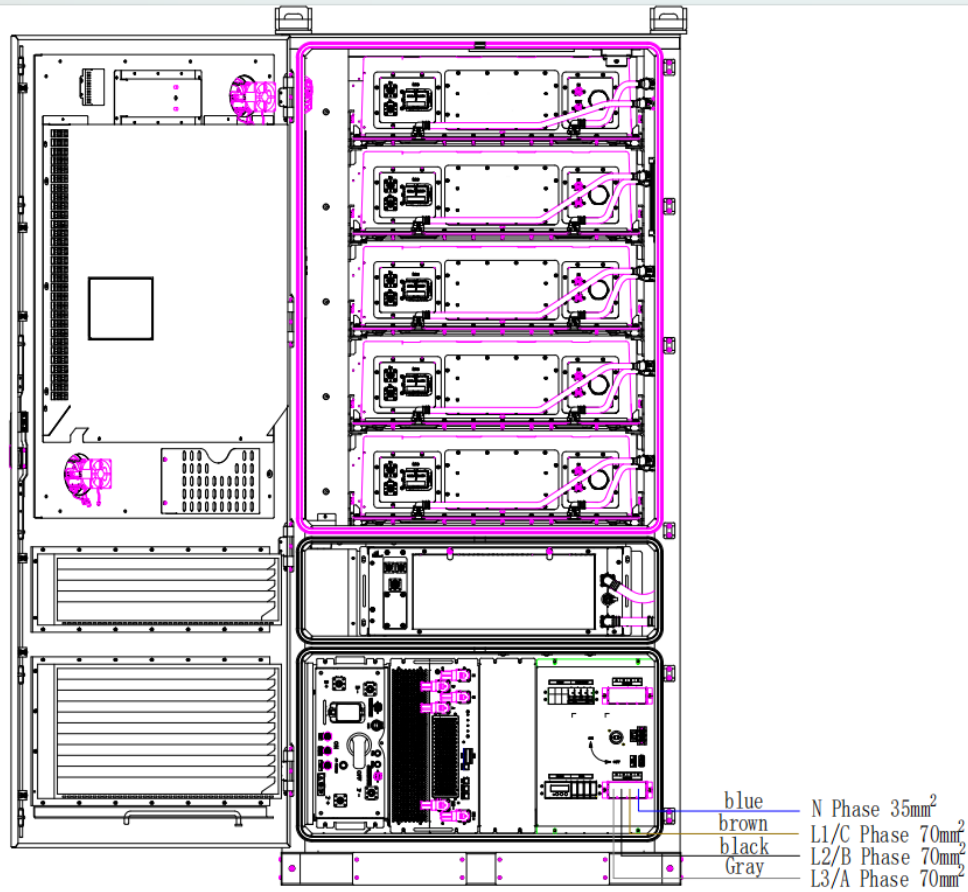


Fig. 6-3 Connect Cables to Grid

6.2 Cable Description Sheet

Connect cables requirements between battery packs in the energy storage cabinet, as shown in the following Table 4

Table 4 Wiring Description Sheet

No.	Name	Cable Specifications	Terminal Specifications	Clarification
1	A Phase	70 mm ²	M10(OT terminal)	Connecting cables between the cabinet and the external power grid
2	B Phase	70 mm ²	M10(OT terminal)	Connecting cables between the cabinet and the external power grid
3	C Phase	70 mm ²	M10(OT terminal)	Connecting cables between the cabinet and the external power grid
4	N Phase	35 mm ²	M10(OT terminal)	Connecting N phase
5	PE	35 mm ²	M6(OT terminal)	Connecting Earth



- Note: The external AC side connection to the grid requires customers to prepare their own cables. The grounding wire must be securely grounded.

6.3 Electrical Wiring

6.3.1 External AC Cable Connection and Procedure

1. Before electrically connecting the energy storage cabinet, it is essential to ensure that the power grid and the cables are in a completely de-energized state, and the AC circuit breaker should not be closed before the electrical connection is completed.
2. Use a wire stripper to strip the corresponding specification ground wire to expose a bare copper core, and the length of the bare copper core should be 3mm longer than the OT terminal connection end.
3. Use a crimping tool to crimp the OT terminal onto the bare copper core.
4. Slide a heat-shrink tube of the appropriate size onto the wiring end of the OT terminal, and the length of the heat-shrink tube (with a voltage rating of at least 1000V) should be 1.5 to 2 times the length of the wiring end.
5. Use a heat gun to shrink the heat-shrink tube tightly, ensuring it grips the terminal and the cable securely, thus completing the cable assembly.
6. Secure the prepared cable at its interface with the corresponding screws (use M10 screws for phases A, B, and C, and M6 screws for phase N and PE).
7. Wiring complete.

6.3.2 Checking the Equipment After Wiring

After completing the wiring, it's necessarily to carefully check whether the phase sequence and the silkscreen correspond to each other, and whether the wiring of the zero row and the ground row is correct.

The connection diagram is as follows:

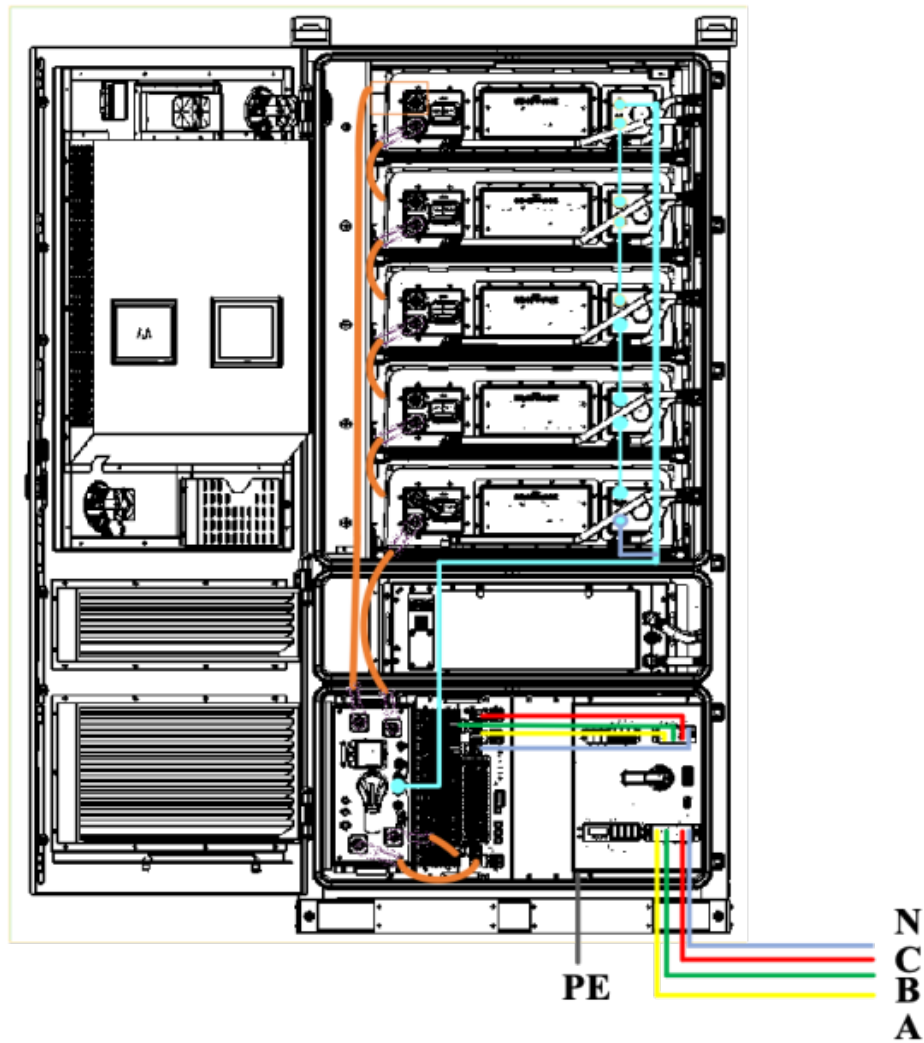


Fig. 6-4 Overview of All Connection Diagram.

Note:

The AC power lines of the cabinet connected to the power grid are L1 (C) brown, L2 (B) black, and L3 (A) gray. N-phase blue.

7. Cabinets Parallel Connection Wiring

The list of parallel machine materials is as follows:

Table 7-1

Serial number	Material name	Quantity	Specification
1	Network cable	It depends on the number of parallel machines.	The length of each network cable for parallel operation is determined based on the actual situation on site.e
2	24V grounding wire	1 set	Length: 1500mm
3	Grounding wire	1 set	Length: 700mm
4	Industrial switch	1 set	/

Table 7-2

No.	Name	Cable Specifications	Terminal Specifications	Clarification
1	A Phase	70 mm ²	M10(OT terminal)	External AC side connection cable
2	B Phase	70 mm ²	M10(OT terminal)	External AC side connection cable
3	C Phase	70 mm ²	M10(OT terminal)	External AC side connection cable
4	N Phase	35 mm ²	M10(OT terminal)	Connecting N phase
5	PE	35 mm ²	M6(OT terminal)	Connecting Earth

The production drawings of each material.

1. The network cable is made as shown in the following picture:

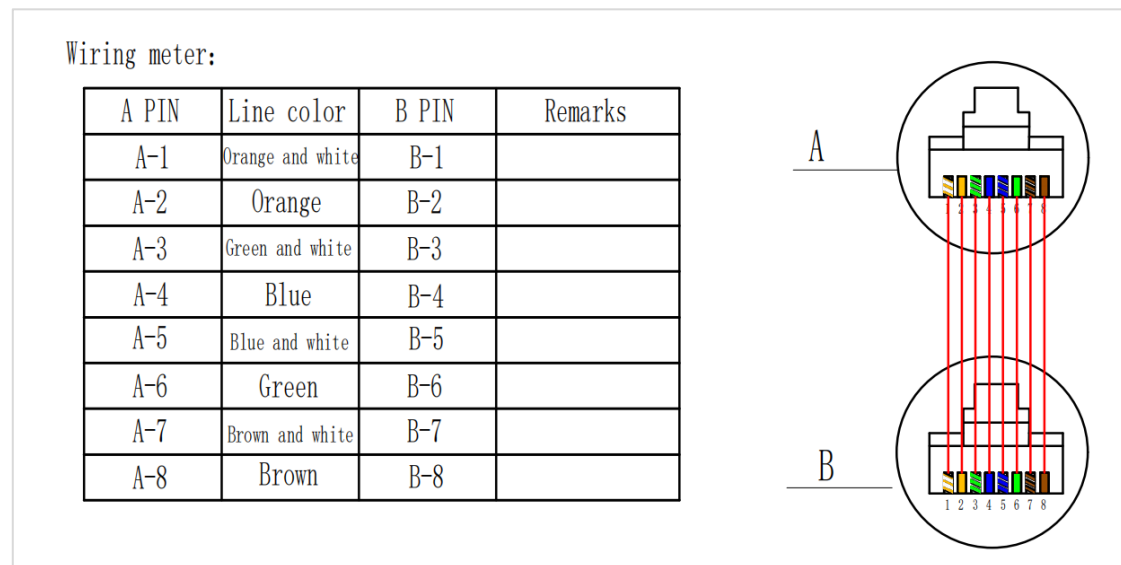


Fig. 7-1

2. The DC24V wire and grounding wire are made as shown in the following figure:

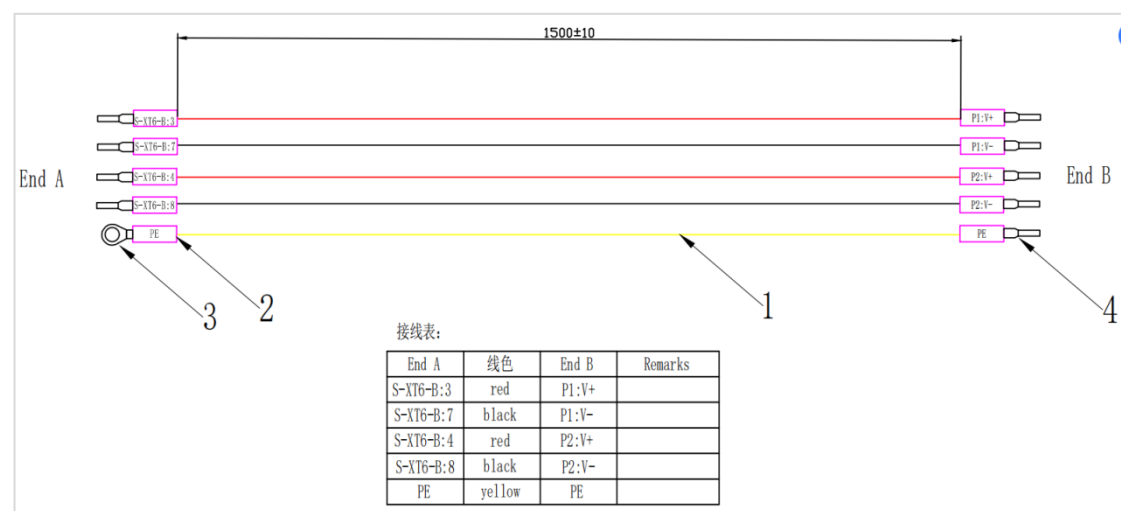


Fig. 7-2

3. The wiring diagram of the network switch is shown in the following figure 7-3:

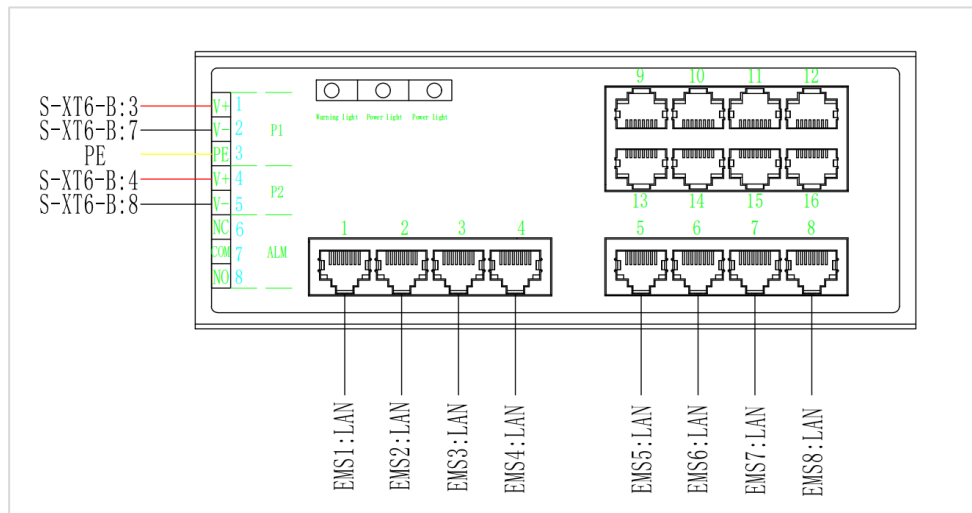


Fig. 7-3

4. System parallel wiring diagram

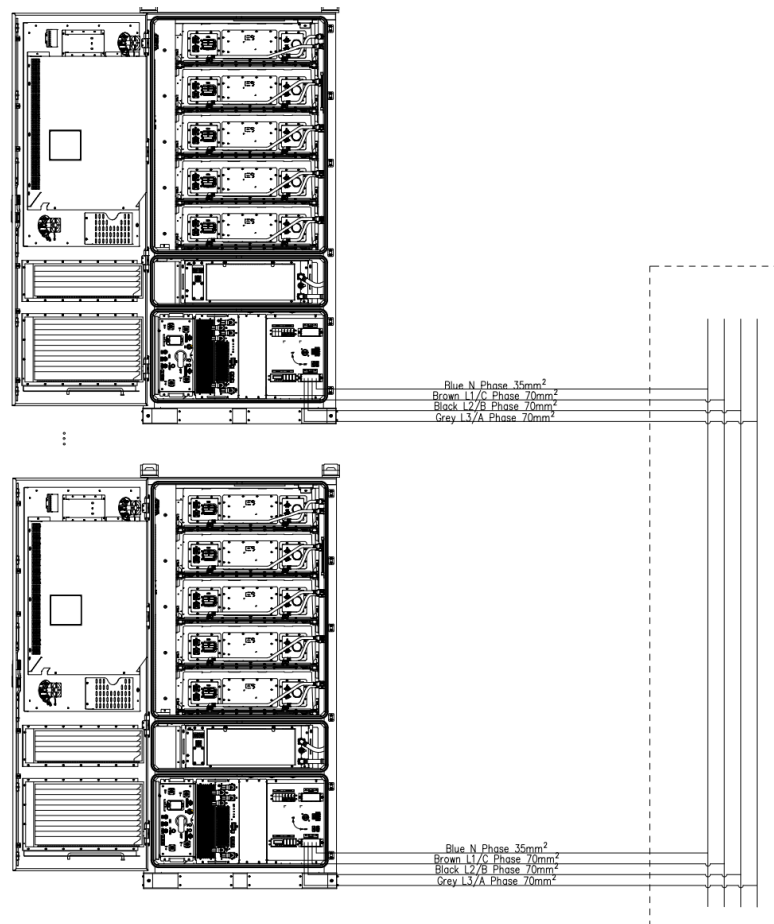


Fig. 7-4

5. Single-cabinet communication diagram

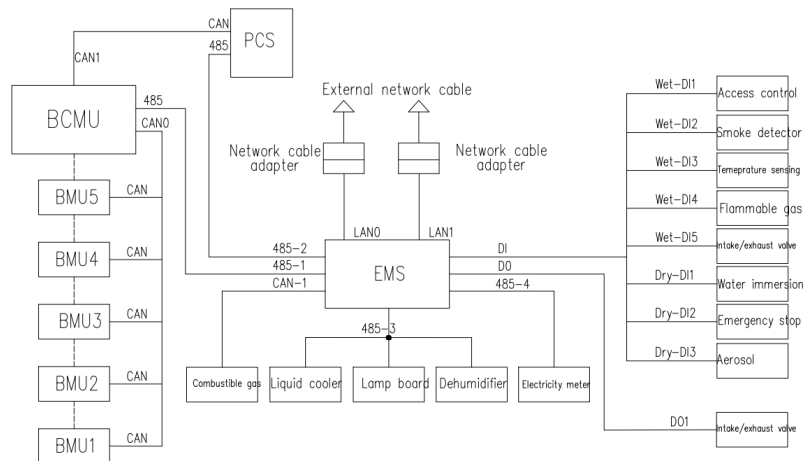
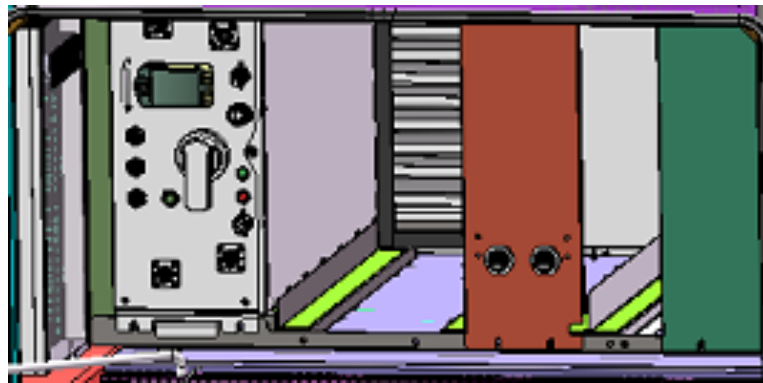


Fig. 7-5 There are two external network cable adapter ports:



6. System parallel network topology diagram

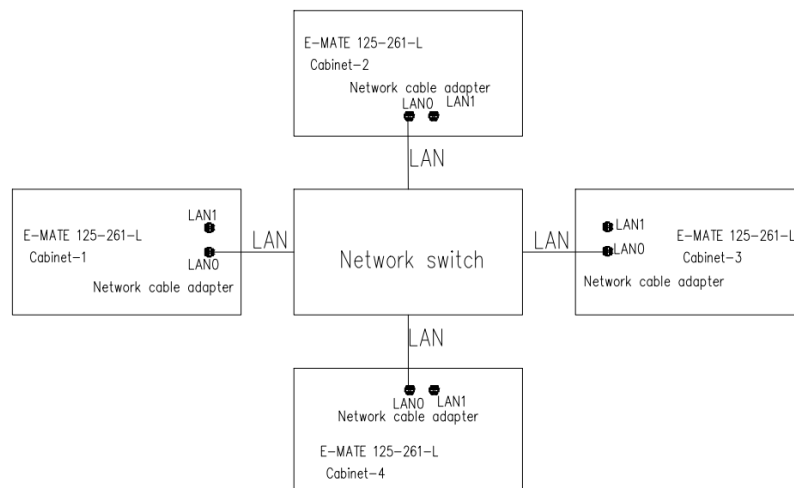


Fig. 7-6

After completing the wiring, it's necessarily to carefully check whether the phase sequence and the silkscreen correspond to each other, and whether the wiring of the zero row and the ground row is corre

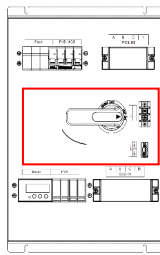
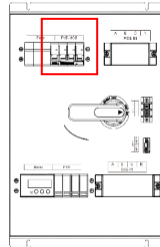
8. Product Operation

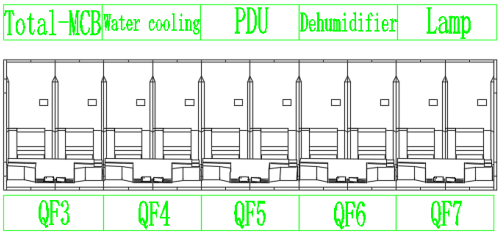
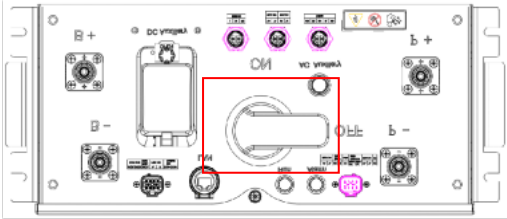
8.1 Energy Storage System Power-up Process

8.1.1 Pre-power-up Check

- Check that the circuit breaker in the electrical compartment inside the storage cabinet is in the disconnected position.
- Check whether the serial power cables between the battery packs and between the battery packs and the high voltage box are connected reliably.
- Check that all communication and power supply cable connection terminals are connected reliably and that the grounding cable is reliable.
- Check that the communication and power harnesses as well as the power cables are properly connected on the high voltage box panel.
- Check that the emergency stop button is released.
- Use a multimeter to check that the DC and AC voltages meet the startup conditions and ensure that there is no overvoltage.
- Check and make sure that there are no unnecessary tools and devices inside the equipment.
- Check all air inlets and outlets for blockages.

8.1.2 Power-up Procedure

Steps	Check Lists	Status
Step 1	Check that the Liquid cooling unit, HV box, Lamp, and FVB switches are in the disconnected state, turn on the main switch for the grid on the distribution box, then observe the meter display information which should be 400 ± 20 V.	
Step 2	Trun on the FVB	

Step 3	Turn on the total MCB QF3, and then QF4, QF5, QF6, and QF7. They are power for Liquid cooling unit, HV box, Lamp, then the lamp will be bright, Liquid cooling unit starts running, and PCS light on	
Step 4	Turn on the main circuit breaker on the high-voltage box, then close the microcircuit breaker on the high-voltage box, and finally press the button. Wait for the system to complete the voltage increase. Check the status of subsystems such as the battery, PCS, air conditioning, fire protection /IO, etc. through the local EMS display screen. The system is normal and the cabinet indicator light is yellow (no fault).	
Step 5	Click the PCS power-on button on the EMS display screen and set the charging and discharging time periods. For details, please refer to 9.1.1 and 9.1.2	/

**WARNING**

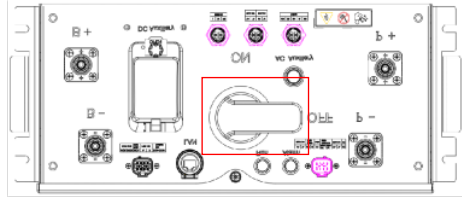
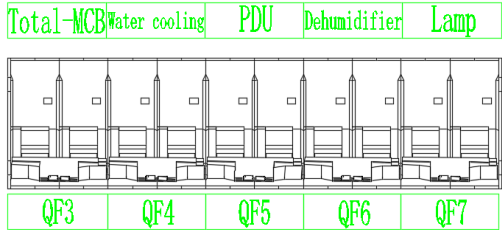
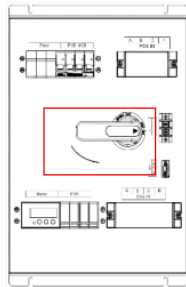
- Please follow the steps strictly to power up
- If there is any abnormality, power down and check carefully step by step

8.2 Power Shutdown Procedure



WARNING

- The system needs to be powered off on both AC and DC sides to ensure personal safety when it is not operating for a long time or during installation and maintenance.

Steps	Check lists	Status
Step 1	Ensure that the system is not in a charged or discharged state, turn off the PCS and cut off the HV box relay through EMS. See section 9.1.3 for details. Then disconnecting the hand operated circuit breaker switch on the high voltage box and pressing the HV box power switch QF.	
Step 2	Turn off the auxiliary power miniature circuit breakers QF4, QF5, QF6 and QF7 on the distribution box inside the battery storage cabinet, and then Turn off QF3.	
Step 3	Turn off the grid molded case switch QF1	

9. Software Setting and Update

9.1 EMS Setting And Update

9.1.1 EMS Setting

The parameter setting part provides the installed configuration and the operation configuration of the system parameters. As shown in Fig. 21:

EENOVANCE Overview STATUS EVENT BMS **SETTINGS** CONTROL SERVICE AUDIO admin

Summary System PCS Battery Liquid Cooler Display NetWork

Install. Cap.(Namepl./Nom) 261 (50~500kWh) Run Mode On-grid

Rated Capacity 261 (50~500kWh) System Grid Frequency 50Hz

Nameplate Power 125 (25~2500kW) Total Rated Batt. Volt. 832 (0~2500V)

System Batt. Type Lithium-Iron Batt. Amp-Hour 314 (100-900Ah)

Batt. Cell Count 260 (1~600) Batt. Rack Count 1 (1~20)

Thermal Management Mode Liquid Cooling Number of Liquid Cooler 1 (1~4)

Number of PCS 1 (1~4) Number of BMS 1 (1~4)

Number of AIR Cond. 0 (1~4) Number of Fire 1 (1~4)

Working Mode Stand Alone Mode

E-MATE 125-261-L 261kWh EMS ID: 1000004002 CANCEL SAVE 32.3°C 58.2% 2025/06/06 04:28:51

Fig. 9-1 EMS Parameter Setting Interface

The control strategy controls the PCS on / off and the battery contactor open / close. At the same time, the control strategy of peak shaving and valley filling can also be set up. As shown in Fig. 22:

EENOVANCE Overview STATUS EVENT BMS **SETTINGS** **CONTROL** SERVICE AUDIO admin

Power Mode Turn On Turn Off Standby Main Cont. Sta. Close Open fault Clear

48 Time Slots For Optimal Control: Time Slot Control Mode Fixed 48 Time Slots

No.	Time Period	Run Mode	Power Control Mode	Grid Power(-137~137kW)
1	00:00~00:30	On-grid	Peak Valley Arbitrage	125
2	00:30~01:00	On-grid	Peak Valley Arbitrage	125
3	01:00~01:30	On-grid	Peak Valley Arbitrage	125
4	01:30~02:00	On-grid	Peak Valley Arbitrage	125
5	02:00~02:30	On-grid	Peak Valley Arbitrage	125
6	02:30~03:00	On-grid	Peak Valley Arbitrage	125
7	03:00~03:30	On-grid	Peak Valley Arbitrage	125
8	03:30~04:00	On-grid	Peak Valley Arbitrage	125
9	04:00~04:30	On-grid	Peak Valley Arbitrage	125
10	04:30~05:00	On-grid	Peak Valley Arbitrage	125

Extern Control Demand Control Anti-Reflex PV AC Coupling PV DC Coupling Capacity Control

E-MATE 125-261-L 261kWh EMS ID: 1000004002 CANCEL SAVE 32.3°C 58.4% 2025/06/06 04:33:26

Fig. 9-2 EMS Control Strategy Interface

9.1.2 EMS Controlled Charge/Discharge Steps

Step 1:

Log in to the EMS using the "Administrator" account and password 654321.

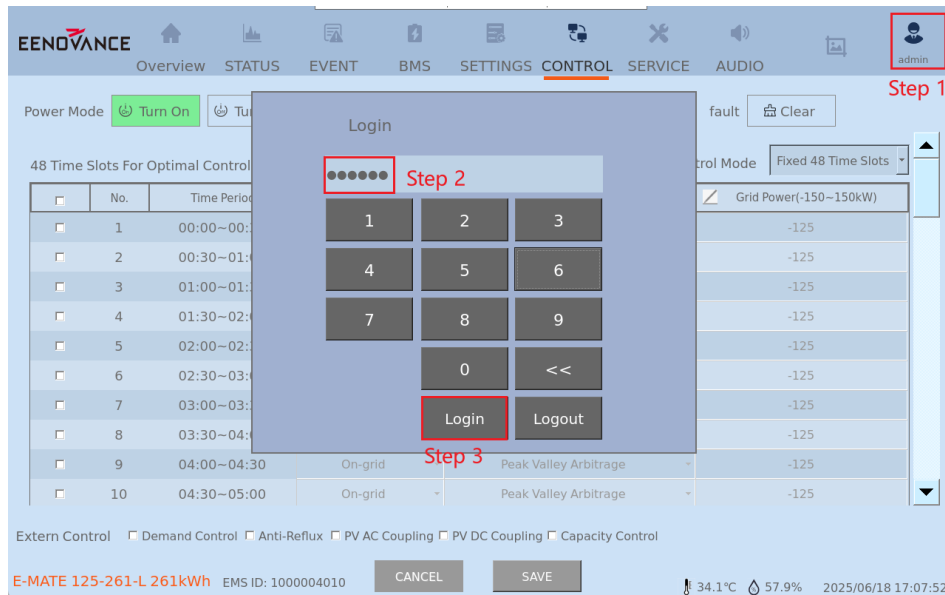


Fig. 9-3

Step 2:

Ensure the system operates normally, no alarm fault. If there are faults on the Event page, first investigate the cause of the fault. For example, if the system EPO fault, first reset the EPO button, click the "Clear" button twice on the "Control Strategy" page to reset the system.

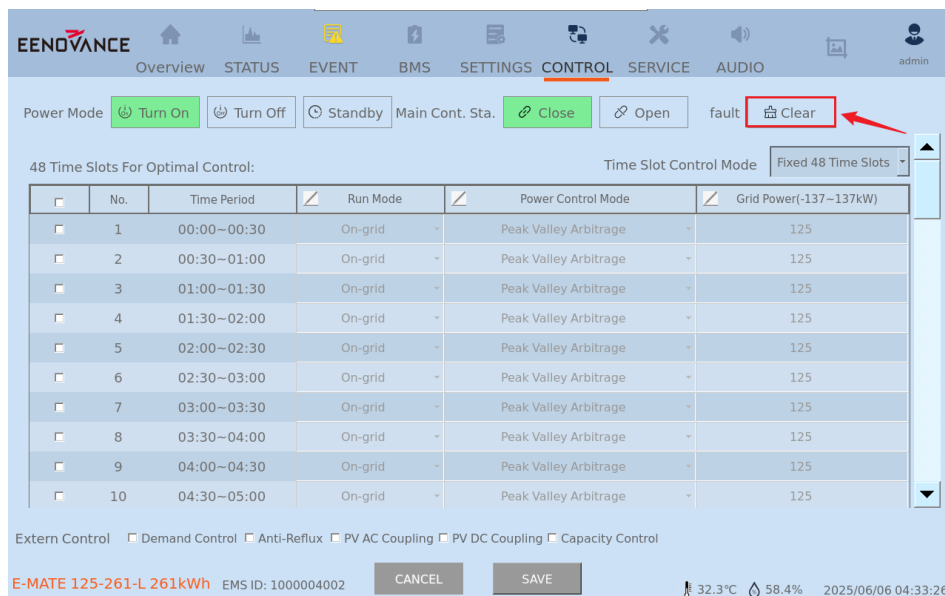


Fig. 9-4

Step 3:

On the Control Strategy page, set the Operation Mode to on-grid, set the Power Control Mode to Peak-Valley Arbitrage, and set the peak, valley and flat values in the Grid Power column. There are two types of setting operations, namely, setting power for a certain time period and setting power for all time periods.

The steps to set power for one time period are as follows:

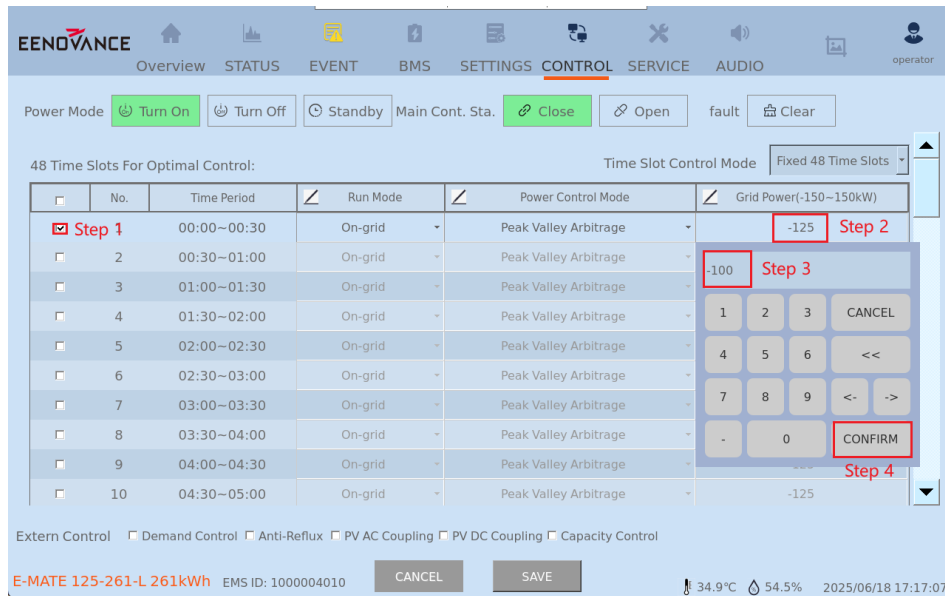


Fig. 9-5

The steps to set power for all time periods are as follows:

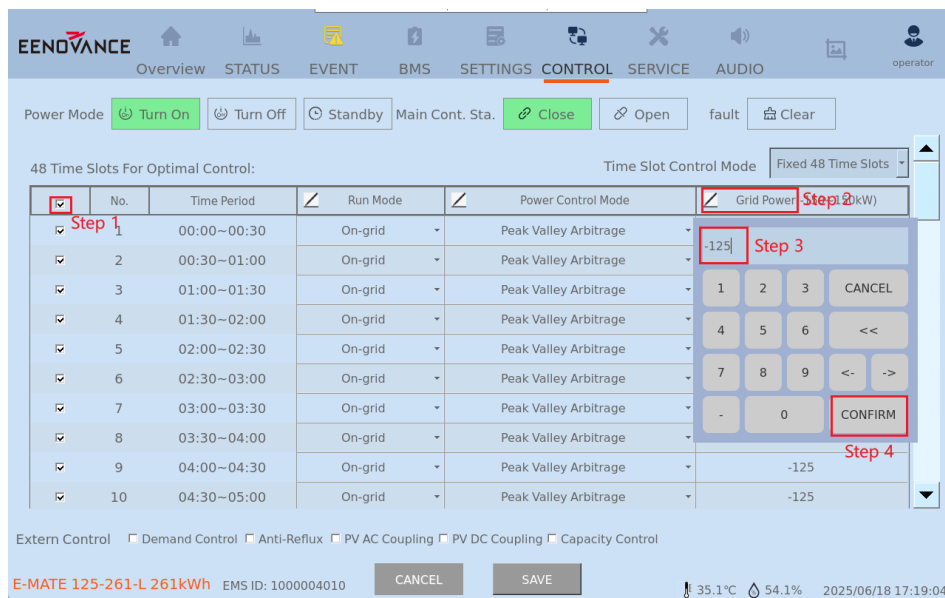


Fig. 9-6

Step 4:

In the “Control Strategy” page, click the “Close” button to close the main contactor.

The screenshot shows the EENOVANCE CONTROL interface. At the top, there's a navigation bar with icons for Overview, STATUS, EVENT, BMS, SETTINGS, CONTROL (active), SERVICE, and AUDIO. Below this, the 'Power Mode' section has buttons for Turn On, Turn Off, Standby, and Main Cont. Sta. The 'Main Cont. Sta.' button is highlighted with a red box, and its sub-menu shows 'Close' and 'Open' buttons. Below this is a table titled '48 Time Slots For Optimal Control:' with columns for No., Time Period, Run Mode, Power Control Mode, and Grid Power(-150~150kW). The table lists 10 time slots, all with 'On-grid' Run Mode and 'Peak Valley Arbitrage' Power Control Mode. At the bottom, there's a status bar with 'E-MATE 125-261-L 261kWh', 'EMS ID: 1000004010', 'CANCEL' and 'SAVE' buttons, and system metrics: 35.3°C, 53.2%, and timestamp 2025/06/18 17:21:59.

Fig. 9-7

Step 5:

On the “Control Policy” page, click the “Turn On” button to power on PCS.

The screenshot shows the EENOVANCE CONTROL interface, similar to Fig. 9-7. In this view, the 'Turn On' button in the 'Power Mode' section is highlighted with a red box. The 'Main Cont. Sta.' button is also visible. The table below it is identical to the one in Fig. 9-7. The status bar at the bottom shows 'E-MATE 125-261-L 261kWh', 'EMS ID: 1000004010', 'CANCEL' and 'SAVE' buttons, and system metrics: 35.3°C, 53.1%, and timestamp 2025/06/18 17:22:30.

Fig. 9-8

9.1.3 EMS Controlled Power Off Steps

Step 1:

On the "Control Strategy" page, click the "Turn off" button to shut down the PCS.

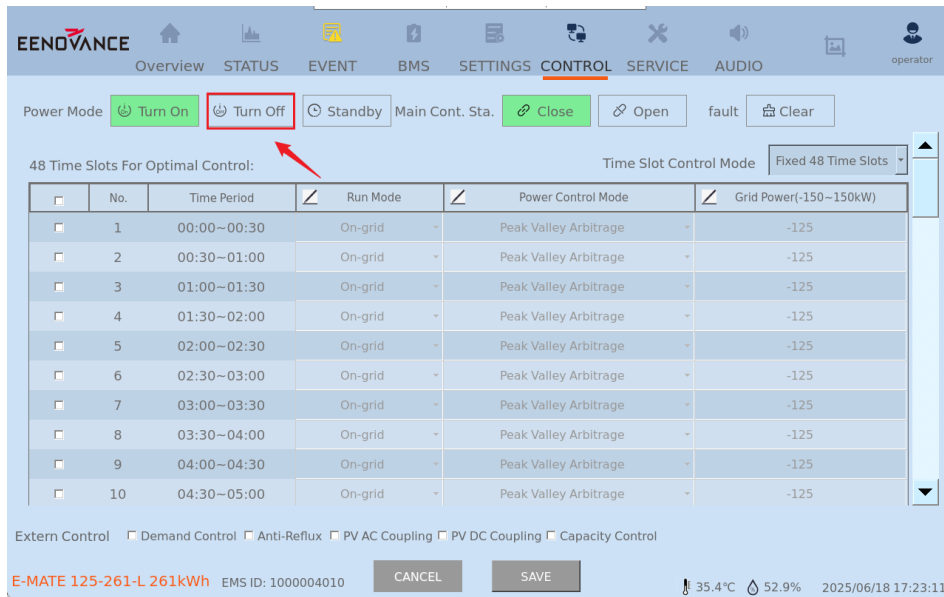


Fig. 9-9

Step 2:

If you need to power off completely, on the "Control Strategy" page, click the "Open" button to disconnect the battery contactor.

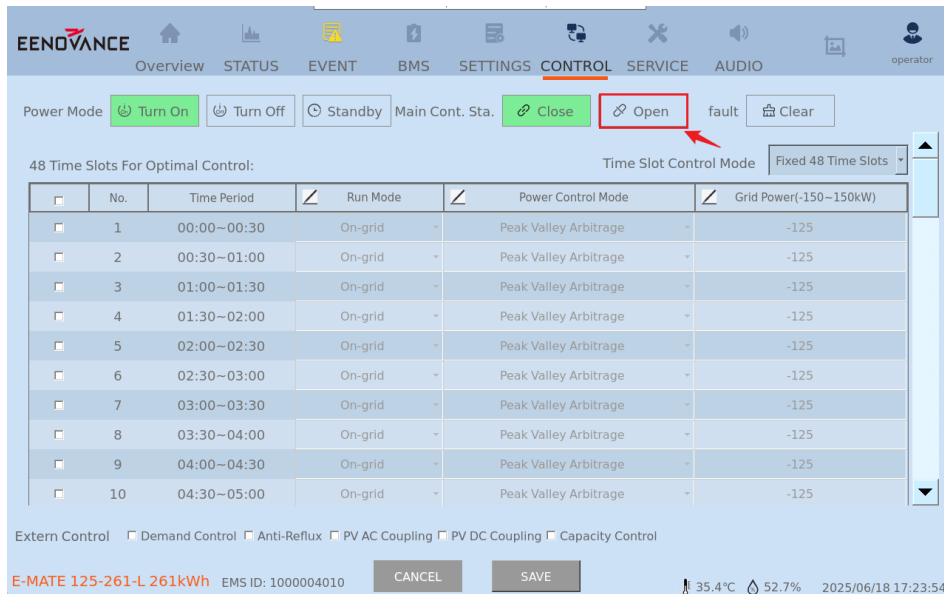


Fig. 9-10

9.1.4 Upgrade EMS

Upgrade Tool: USB flash drive

1. Place the given EMS package in the U disk under the ems file.

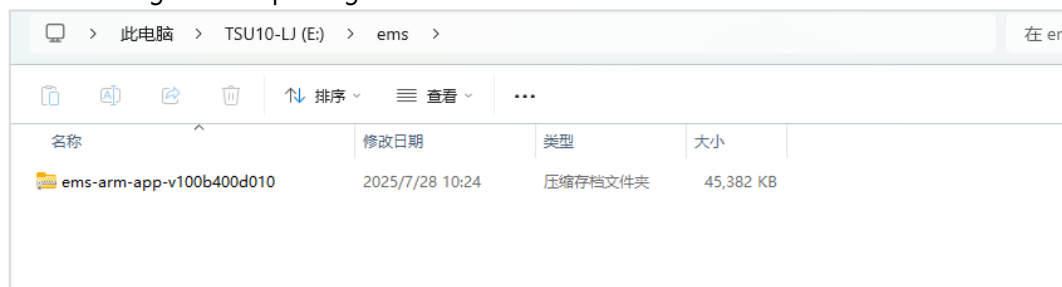


Fig. 9-11

2. Insert the USB flash drive into the USB2.0 port of the display and control all-in-one machine.

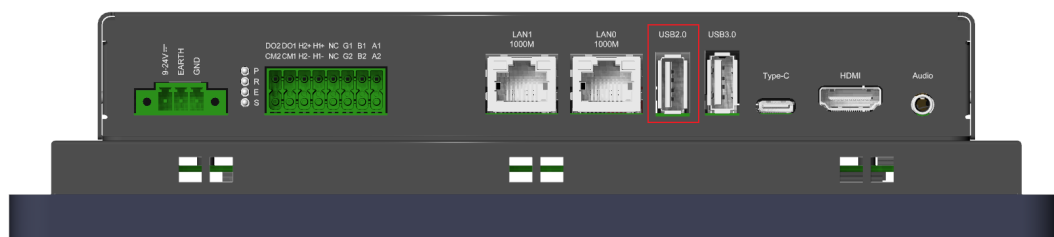


Fig. 9-12

3. Click "Upgrade"

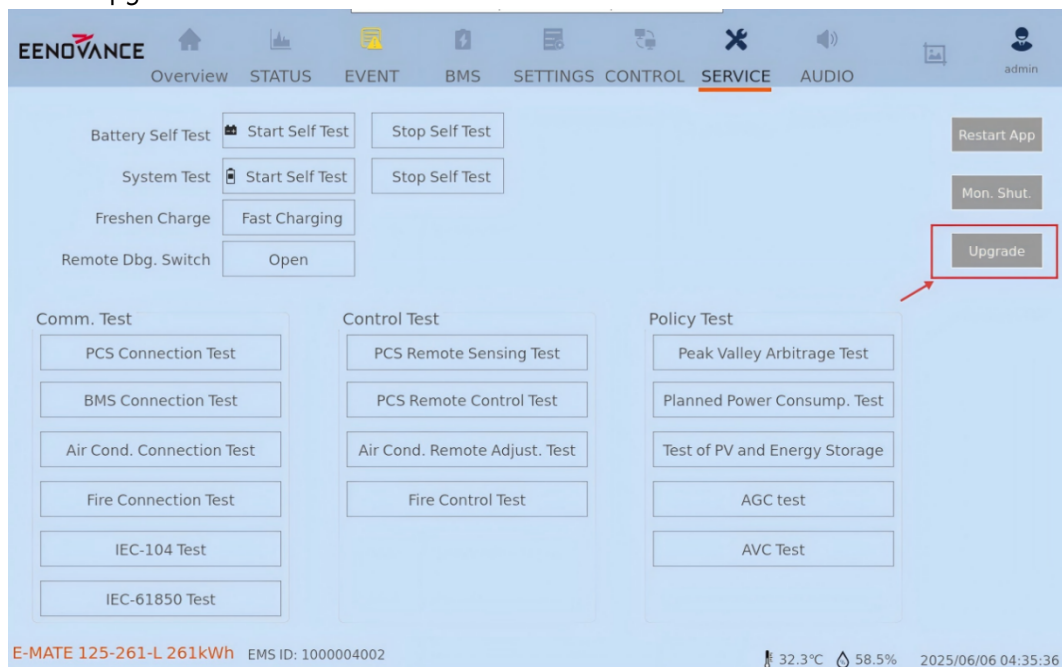


Fig. 9-13

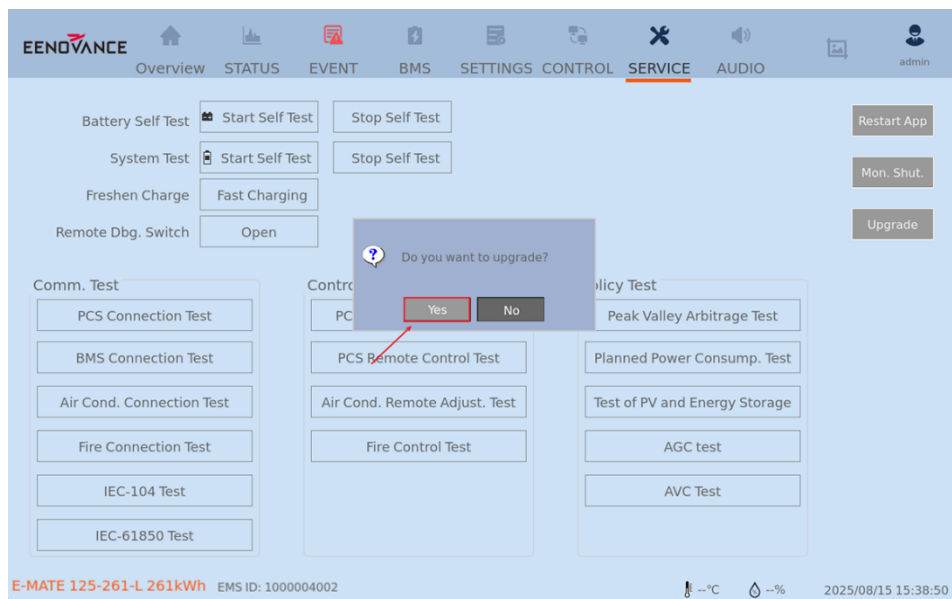


Fig. 9-14

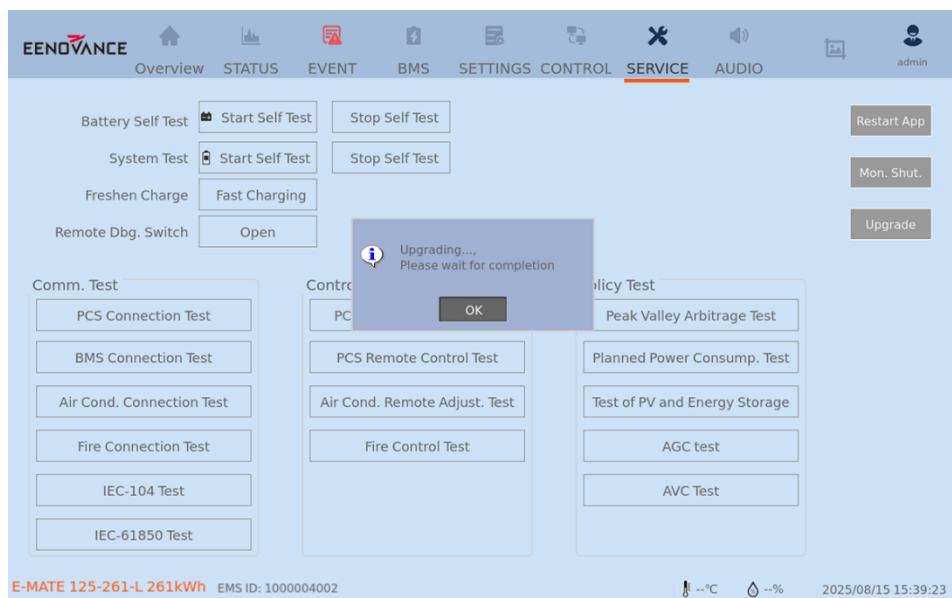


Fig. 9-15

9.2 Upgrade BMS

9.2.1 Host computer CAN box driver installation

Step1:

Find the driver file for the CAN box as shown below:

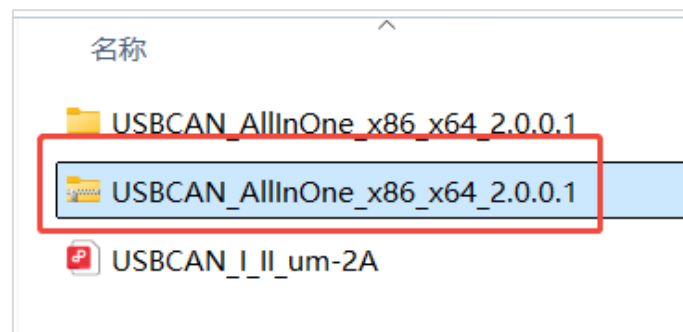


Fig. 9-16

Step2:

After decompression, find the driver file and install it, as shown below:

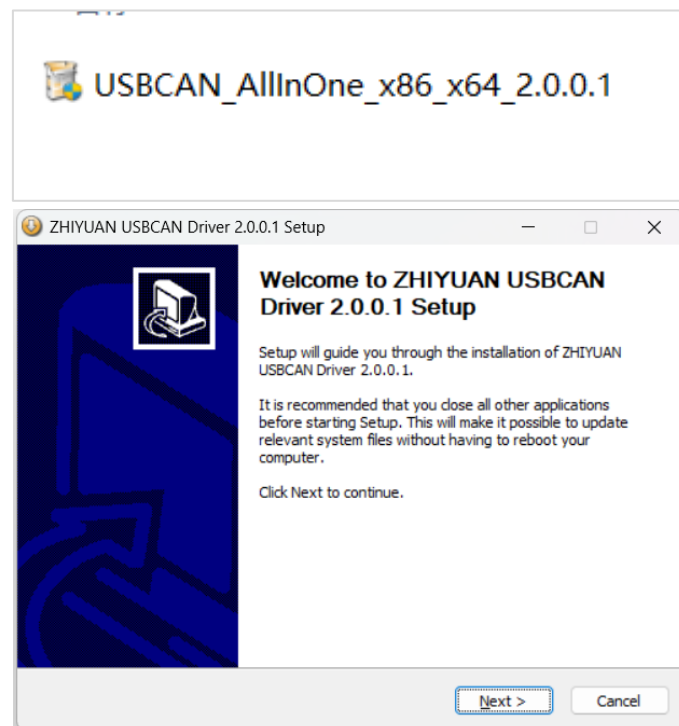


Fig. 9-17

Step3:

Check whether the driver is installed successfully in the computer device manager, as shown below:

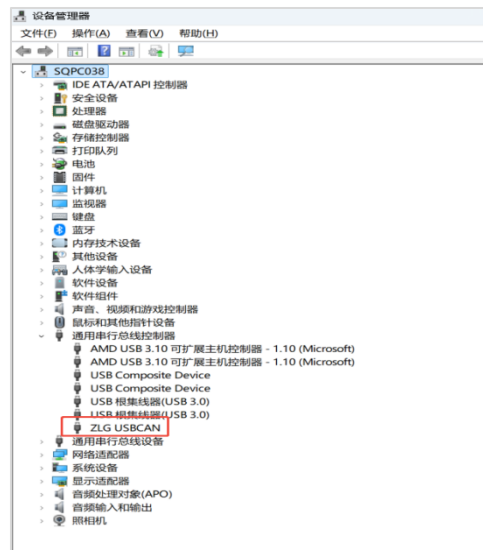


Fig. 9-18

9.2.2 Upper Computer Application Steps Description

Step1:

Connect the H/L wires on the CAN box to the OH/OL terminals on the high-voltage box.



Fig. 9-19

Step2:

Plug the CAN box's USB port into your computer.

Step3:

Open the BMS program to upgrade the host computer software. Find the upgrade software file and double-click to open it. Click to open the upgrade software.

名称	修改日期	类型	大小
文件夹 BMS程序升级上位机 1	2025/8/14 11:20	文件夹	
BMS程序升级上位机	2025/8/14 11:43	WinRAR 压缩文件	3,115 KB

Fig. Fig. 9-20

名称	修改日期	类型	大小
文件夹 kernelDlls	2025/8/14 11:20	文件夹	
borIndmm.dll	2015/12/29 14:05	应用程序扩展	22 KB
ControlCAN.dll	2023/3/22 17:55	应用程序扩展	13 KB
ControlCAN-fxy.dll	2016/2/22 16:16	应用程序扩展	36 KB
EVBSUpdate 2	2023/9/13 17:17	应用程序	684 KB
EvbmsUpdateServer	2024/9/22 8:56	配置设置	3 KB
EvbmsUpdateServer.ini.bak	2023/9/13 17:20	BAK 文件	3 KB
PCI58XX.dll	2015/12/29 14:05	应用程序扩展	28 KB
QTINTF.DLL	2015/12/29 14:05	应用程序扩展	4,046 KB
qtintf70.dll	2015/12/29 14:05	应用程序扩展	3,987 KB
RecvLog	2025/8/15 8:38	文本文档	0 KB
SendLog	2025/8/15 8:38	文本文档	0 KB
UpdateServer	2019/3/13 11:08	配置设置	1 KB

Fig. 9-21

Step4:

BMS program upgrade, Master BCM program upgrade steps

- 1) Enter the corresponding CAN channel information in the Communication Settings section and click Open;
- 2) Confirm that communication is normal (the light turns green);
- 3) Select "E8" for the Master Control Starting Address;
- 4) Select "EVBCM HV5.0" for the Device Type;
- 5) Select "Broadcast" for the Upgrade Method;
- 6) Select the four options in the "Update Parameter Range" section for the upgrade;
- 7) Select "Forced Mode" for the Upgrade Mode;

- 8) After completing the above settings, click Load and select the program to be upgraded;
- 9) After the program has loaded, click Download;
- 10) A pop-up message will appear indicating "Upgrade Completed" or a message will appear at the bottom of the screen;
- 11) After the program upgrade is complete, the corresponding address number in the "Master Control Module" column will turn green for success and red for failure.

Note:

After the upgrade is complete, the BMS power supply must be disconnected and powered on.



Fig. 9-22

9.3 Parallel parameter settings

9.3.1 Master and slave machine parameter settings

Taking two devices as an example,

Master parameter settings:

1. Set the parallel mode to Master, the number of parallel units to 2, and set the Master system scheduling mode to "Host Allocation."

The screenshot shows the EENOVANCE Settings interface with the 'Summary' tab selected. The 'Working Mode' is set to 'Main Mode' and the 'Number of Parallel Units' is set to 2. Both are highlighted with red boxes. The interface includes a top navigation bar with tabs: Overview, STATUS, EVENT, BMS, SETTINGS, CONTROL, SERVICE, AUDIO, and a user profile icon labeled 'admin'. Below the navigation bar are sub-tabs: Summary, System, PCS, Battery, Liquid Cooler, Display, and NetWork. The main content area displays various system parameters and their values, including Install. Cap., Rated Capacity, Nameplate Power, System Batt. Type, Batt. Cell Count, Thermal Management Mode, Number of PCS, Number of AIR Cond., Working Mode, Batt. Amp-Hour, Batt. Rack Count, Number of Liquid Cooler, Number of BMS, Number of Fire, and Number of Parallel Units. The status bar at the bottom shows 'E-MATE 125-261-L 261kWh', 'EMS ID: 1000005001', 'CANCEL', 'SAVE', and the current date and time '2025/06/11 12:08:51'.

Fig. 9-23

The screenshot shows the EENOVANCE Settings interface with the 'System' tab selected. The 'Sys. Schedu. Mode' is set to 'Host Allocation'. It is highlighted with a red box. The interface includes a top navigation bar with tabs: Overview, STATUS, EVENT, BMS, SETTINGS, CONTROL, SERVICE, AUDIO, and a user profile icon labeled 'admin'. Below the navigation bar are sub-tabs: Summary, System, PCS, Battery, Liquid Cooler, Display, and NetWork. The main content area displays various system parameters and their values, including Pre Run Mode, Grid Or Micro. Pref., Power Distrib. Enable, Sys. Schedu. Mode, Sys. Schedu. Strategy, Power Schedu. Priority, Rated Volt. At AC Side, Charging AC Curr. Limit, Max. SOC Protection, Demand Value, Capacity Value, Pre Run Power Control Mode, Preset Run Power Val., Power Cap. of Grid Trans., Up. Ra. of Power Cap. of Grid Trans., System Rated Power, Discharging AC Power Limit, Charging AC Power Limit, Discharging AC Curr. Limit, Min. SOC Protection, Insulation Test Start Time, and Insulation Test Period. The status bar at the bottom shows 'E-MATE 125-261-L 261kWh', 'EMS ID: 1000005001', 'CANCEL', 'SAVE', and the current date and time '2025/06/11 12:09:19'.

Fig. 9-24

2. Set the IP of host LAN0

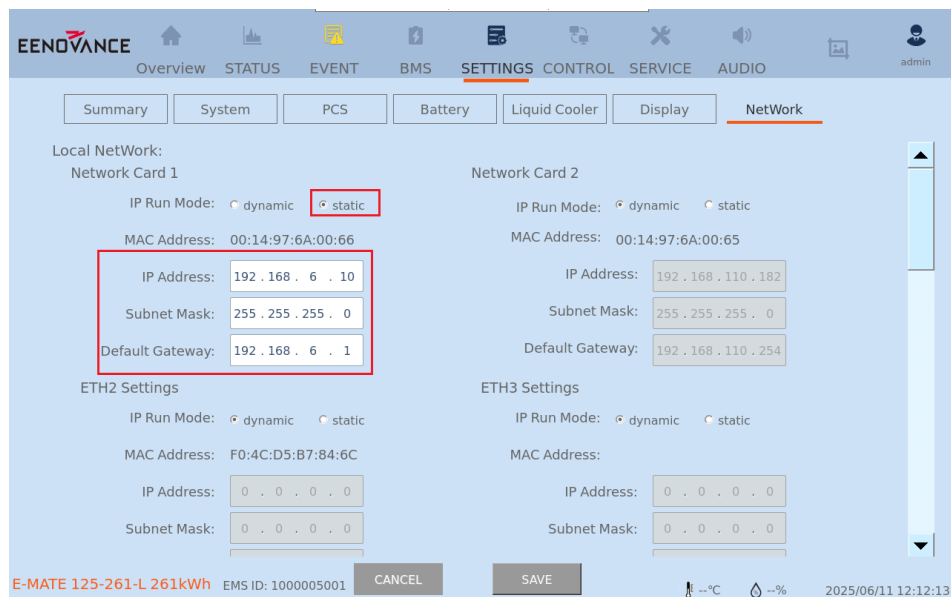


Fig. 9-25

3. Enter the EMS ID of the slave and the static IP of the slave LAN0 port

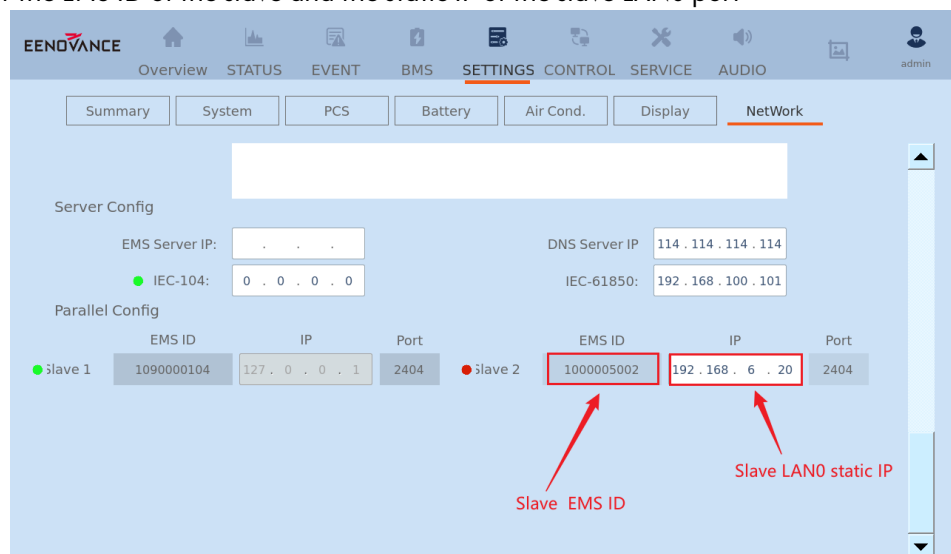


Fig. 9-26

When communication is established successfully, Slave 2 displays a green light.

9.3.2 Slave parameter settings

1. The parallel mode is slave, and the parallel scheduling mode is "Host allocation"

The screenshot shows the 'Summary' tab of the E-MATE 125-261-L 261kWh settings interface. The 'Working Mode' is set to 'Slave Mode'.

Parameter	Value	Range
Install. Cap.(Namepl./Nom)	261	(50~5000kWh)
Rated Capacity	261	(50~5000kWh)
Nameplate Power	125	(25~2500kW)
Run Mode	On-grid	
System Grid Frequency	50Hz	
Total Rated Batt. Volt.	832	(0~2500V)
System Batt. Type	Lithium-Iron	
Batt. Amp-Hour	314	(100-900Ah)
Batt. Cell Count	260	(1~600)
Batt. Rack Count	1	(1~20)
Thermal Management Mode	Liquid Cooling	
Number of Liquid Cooler	1	(1~4)
Number of PCS	1	(1~4)
Number of BMS	1	(1~4)
Number of AIR Cond.	0	(1~4)
Number of Fire	1	(1~4)
Working Mode	Slave Mode	

E-MATE 125-261-L 261kWh EMS ID: 1000005002 CANCEL SAVE 2025/06/11 12:17:23

Fig. 9-27

The screenshot shows the 'System' tab of the E-MATE 125-261-L 261kWh settings interface. The 'Sys. Schedu. Mode' is set to 'Host Allocation'.

Parameter	Value	Range
Pre Run Mode	On-grid	
Pre Run Power Control Mode	Fixed AC Power	
Grid Or Micro. Pref.	Grid	
Preset Run Power Val.	-20	(-2500~2500kW)
Power Distrib. Enable	Disable	
Power Cap. of Grid Trans.	0	(0~100000kW)
Up. Ra. of Power Cap. of Grid Trans.	0	(0~100%)
Sys. Schedu. Mode	Host Allocation	
Sys. Schedu. Strategy	Peak Valley Arbitrage	
System Rated Power	137	(0~4500kW)
Power Schedu. Priority	Power dispatch mode	
Discharging AC Power Limit	137	(0~4500kW)
Rated Volt. At AC Side	400	(300~2000V)
Charging AC Power Limit	137	(0~4500kW)
Charging AC Curr. Limit	180	(0~4500A)
Discharging AC Curr. Limit	180	(0~4500A)
Max. SOC Protection	1000	(800~1000%)
Min. SOC Protection	1	(0~200%)
Demand Value	0	(0~100000kW)
Insulation Test Start Time	05:00:00	
Capacity Value	0	(0~100000kW)
Insulation Test Period	30 Days	

E-MATE 125-261-L 261kWh EMS ID: 1000005002 CANCEL SAVE 2025/06/11 12:17:51

Fig.9-28

2.Slave IP settings

The screenshot displays the 'NetWork' settings page in the EENOVANCE E-MATE 125-261-L 261kWh interface. The page is divided into two main sections: 'Local NetWork' and 'Network Card 2'. Under 'Local NetWork', 'Network Card 1' is configured with a static IP of 192.168.6.20, a subnet mask of 255.255.255.0, and a default gateway of 192.168.6.1. 'Network Card 2' is configured with a dynamic IP, a MAC address of 00:14:97:6A:00:A5, and an IP address of 192.168.110.199. Below these, 'ETH2 Settings' and 'ETH3 Settings' are shown, both with dynamic IP settings. The bottom status bar indicates the device is 'E-MATE 125-261-L 261kWh' with 'EMS ID: 1000005002' and a timestamp of '2025/06/11 12:22:04'.

Network Card	IP Run Mode	MAC Address	IP Address	Subnet Mask	Default Gateway
Network Card 1	static	00:14:97:6A:00:A6	192.168.6.20	255.255.255.0	192.168.6.1
Network Card 2	dynamic	00:14:97:6A:00:A5	192.168.110.199	255.255.255.0	192.168.110.254
ETH2 Settings	dynamic	F0:4C:D5:B7:6A:97	0.0.0.0	0.0.0.0	
ETH3 Settings	dynamic		0.0.0.0	0.0.0.0	

Fig. 9-29

Taking two devices as an example, the network cables from the LAN0 ports of the master and slave are connected to the same switch.

9.4 Cloud Platform Setting

9.4.1 Login

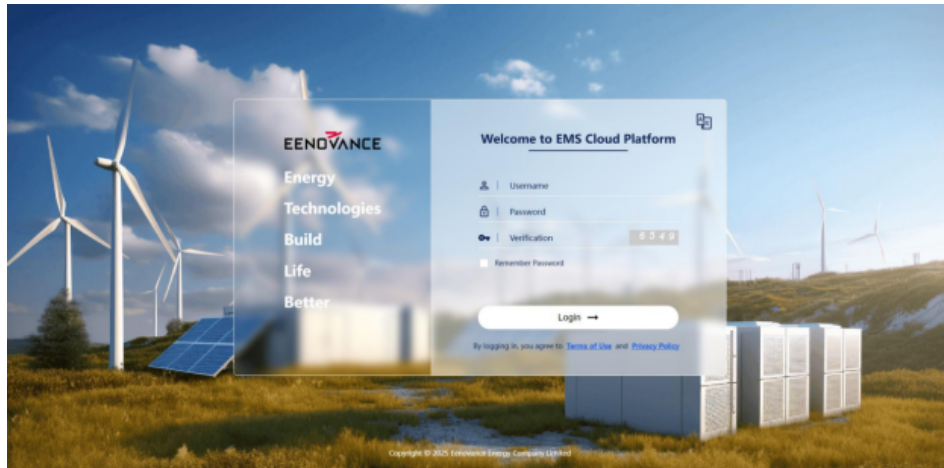


Fig. 9-30

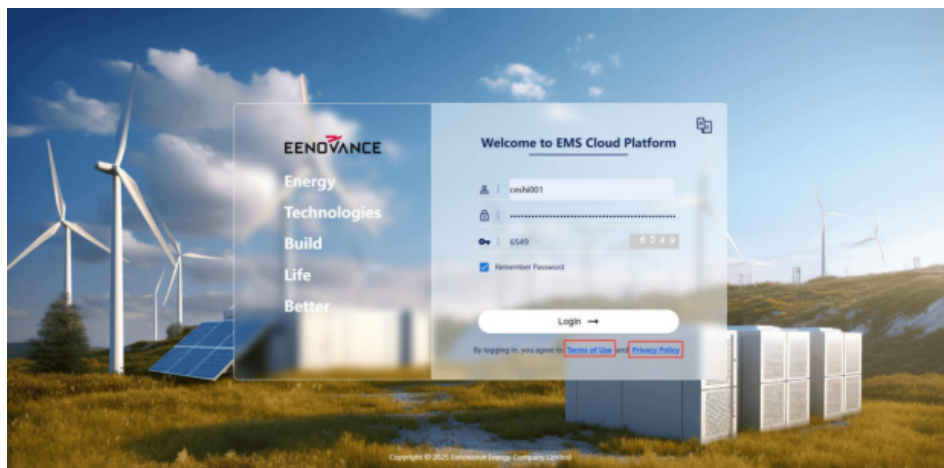


Fig. 9-31

9.4.2 Quick Setup

After first login in the system, you will see the page below.

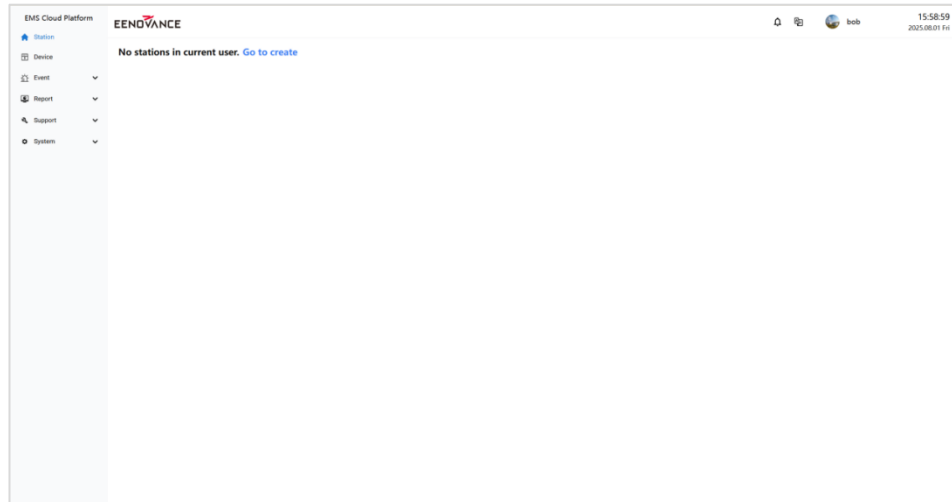


Fig. 9-32

Then click the "Go to create", enter the station creation page.

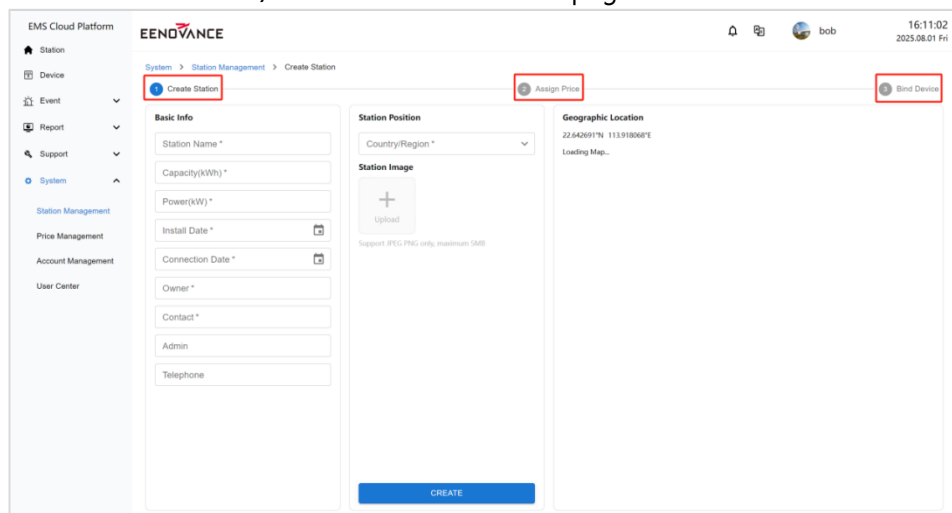


Fig. 9-33

- 1) Create a station; then you will do some price configuration for the station; last but not least, you can bind some devices to your station.
- 2) Input some information of your station. Be aware that fields with a star are required.
- 3) Upload an image of your station, and locate your station position in the map on the right side.

After finishing all these things, click "Create Station" button to create your station.

The screenshot shows the 'Create Station' form in the EENOVANCE EMS Cloud Platform. The form is divided into three main sections: Basic Info, Station Position, and Geographic Location. The Basic Info section includes fields for Station Name (test), Capacity (61), Power (50), Install Date (08/01/2025), Connection Date (08/01/2025), Owner (bob), Contact (123456789), Address (bob), and Telephone (123456789). The Station Position section includes dropdowns for Country/Region (Afghanistan), State/Province (Ghazni), and City (Ghazni), along with a field for Address (xxx). The Geographic Location section shows coordinates (22.642617°N 113.918066°E) and a note that the map service is unavailable. A red arrow points to the 'CREATE' button at the bottom right of the form.

Fig. 9-34

Then you go to next step "Config Price". There are two lists in the page. The right one lists all price strategies used in your station while the left one lists all the remains. You can select any price strategies you want to apply in your station, but be aware that only 1 price strategy will effect at the same time. You do not have any prices, so just skip this step for now.

The screenshot shows the 'Assign Price' step in the EENOVANCE EMS Cloud Platform. The page is divided into two main sections: 'Unselected (0/0)' and 'Selected (0/0)'. The 'Unselected (0/0)' section contains the text 'Prices not used in station'. The 'Selected (0/0)' section contains the text 'Prices used in station'. There are four buttons between the sections: '<', '>', '<<', and '>>'. At the bottom right, there are two buttons: 'SKIP' and 'NEXT'. A red arrow points to the 'SKIP' button.

Fig. 9-35

In the last step, you can bind your devices to your station. Input EMS ID and the validation code of your device and click "Finish" to bind a device. Validation code is a number to make sure you are the real owner of the device in case other users bind your device accidentally.

EMS Cloud Platform

EENDOVANCE

System > Station Management > Create Station

1 Create Station 2 Assign Price 3 Bind Device

EMS ID * 1000002001 10 digit number

Code * 6 digit number

SKIP FINISH

Fig. 9-36

After that, you will finish the quick setup and you will see the station you just created in the station list.

EMS Cloud Platform

EENDOVANCE

System > Station Management > Station List

Station Name Station ID

RESET SEARCH CREATE

Station Name	Installed Power	Installed Capacity	Create Date	Country/Region	Address	Online Status	Alarm Status	Daily Charge	Daily Discharge	Daily Ref. Income	Actions
TEST	50 kW	51 kWh	2025-08-01	Afghanistan		Offline	Normal	0 kWh	0 kWh	\$ 0	  

1-1 of 1

Fig. 9-37

10.Appendix1 Technical Parameters

No.	Items	Spec.	Remarks
System Parameters			
1	Rated Power	125 kW	
2	Rated Energy	261kWh	
3	Rated DC Voltage	832VDC	
4	Rated AC Voltage	400VAC	
5	System Voltage	1000VDC	
6	Battery Charge/Discharge Current	157 A/157 A	
7	Operating Temperature Range	-20°C~+55°C	Derating below -15°C or above 45 °C
8	IP Level	IP55	
9	Corrosion Resistance	C4	
10	Dimension	1100*1424*2350 mm	
11	Weight	2700 kg	
Pack Parameters			
12	Configuration	1P52S	
13	Rated Capacity	314 Ah	
14	Rated Voltage	166.4V	
15	Voltage Range	130V-189.8V	
16	Rated Energy	52.249kWh	
17	Charge /Discharge Current	≤0.5 P	
18	Altitude	2000 m	
19	IP Level	IP65	
20	Dimension	790 *1140 *247mm	W*D*H
21	Weight	335±2kg	
AC Parameters			
22	Rated Output Power	125kW	
23	Rated Grid Voltage	400 V±15%	
24	Rated Current	180A	
25	Rated Frequency	50 Hz	
26	Output THDI	<3%	
27	Power Factor	-1~1	
28	AC Output Type	3W+N+PE	
29	Charge/Discharge Conversion Time	<100 ms	
HV Box Parameters			
30	Rated Voltage	1000 V	
31	Rated Current	250 A	
32	IP Level	IP54	
33	Dimension	480 * 600 * 160 mm	W*D*H
34	Weight	30.5kg	
Other Parameters			

35	Fire Fighting System	Aerosol	
36	Altitude	2000 m	
37	Noise	<75dB	
38	Environment Humidity	0~95°C,non-condensing	
39	Cooling Method	Liquid Cooling	
40	Environmental Requirement	ROHS	
41	Communication Protocol	CAN/RS485	
42	Design Service Life	8000 cycles (25±2°C, 0.5P/0.5P,70% EOL,90% DOD /10 years, whichever comes first)	
43	Battery Working Temperature	Charge : 0°C~55°C Discharge : -20°C~55°C	

11 Appendix2 Maintenance

11.1 System Usage Requirements

11.1.1 Precautions Before Maintenance



WARNING

- To avoid electric shock, do not perform any other maintenance operations beyond this manual..
- If necessary, contact EENOVANCE customer service for maintenance.



Maintenance requires licensed professional maintenance personnel, non-professional maintenance personnel are prohibited to operate.

If necessary, maintenance intervals can be shortened depending on site conditions.

11.1.2 Maintenance (Every two years)

Item	Check method
System status and cleanliness	Check equipment inside the outdoor cabinet for any damage or deformation. Check for any abnormal noises during the operation of the internal equipment. Check whether the temperatures inside the outdoor cabinet and on its exterior are excessively high. Check whether the humidity inside the outdoor cabinet is within the normal range. Check for any signs of oxidation or rust inside the outdoor cabinet.

11.1.3 Maintenance (Once a year)

Item	Check method
System status and cleanliness	• Check the interior of the outdoor cabinet for foreign objects, dust and grime. Remove interior dust if necessary. • Check the air inlet and outlet of the outdoor cabinet for blockages. • Check for any screw detachment inside the outdoor cabinet. • Check for any water ingress within the outdoor cabinet.
Appearance	• Check the enclosure of the outdoor cabinet for damage, paint loss, oxidation, etc. • Check the cabinet door locks, etc. for smooth operation. If necessary, apply appropriate lubricants to door locks, hinges, etc. • Check whether sealing strips, etc. are securely attached. • Properly maintained sealing strips are essential for preventing water ingress into the product. Inspect them carefully, and replace immediately if any sealing strips are found damaged. • Check machine warning signs and other device signs. If any signs are blurred or damaged, replace them promptly.
Cable connections	• Check whether all incoming and outgoing cable holes of the outdoor cabinet are well sealed. • Check cable connections for looseness. Retighten any loose cables according to the specified torque. • Check cables for any damage, particularly for cuts on the surface in contact with metal. • Check the insulating cable ties of cable connection terminals for detachment.
Grounding and equipotential connections	• Check whether grounding connections are correct. The grounding resistance should not be greater than 4Ω. • Check whether equipotential connections inside the energy storage system are correct. • Check whether the cable shielding layers are in good contact with insulation sleeves, and whether the grounding copper bars are reliably secured.
Fire protection system	• Check smoke conditions inside the battery container. • Check the external condition of the equipment for any damages or compressions from nearby equipment. • Check whether the equipment status indicator lights are normal. • Visually inspect the input/output modules. Check the external condition of the equipment for any damages or compressions from nearby equipment. Check whether the equipment status indicator lights are normal.

11.1.4 Storage And Maintenance Requirements For Long Time Unused

1. Check the remaining charge and health of the battery.
2. Ensure that the battery is stored under suitable temperature and humidity conditions to prevent degradation or damage to the battery.
3. Check whether the battery management system (BMS) is working properly and ensure that the safety protection functions of the battery system are effective, including overcharging, over-discharging, short-circuit and thermal runaway protection.
4. Before being put back into service, the energy storage system should be subjected to a comprehensive system test, including battery performance, electrical connections and protective features.
5. Perform cleaning and maintenance of the system, e.g., cleaning battery contacts, checking the cooling system, etc..

11.2 Battery Maintenance

11.2.1 Maintenance Overview



WARNING

Do not leave the product in a low voltage or low SOC condition for a long period of time. Loss of capacity due to the following conditions is not covered by the warranty.

- Battery discharge cell voltage is below 2.7V for 120 consecutive hours.
 - Any cell cluster SOC is 0% for 80 consecutive hours.
 - Single battery discharge cell voltage $\leq 2.2V$.
-
- Read the user manual or instruction manual before maintenance.
 - Ensure that the battery system is shut down during maintenance.
 - Please check and confirm the positive (+) and negative (-) poles before assembly.
 - Check insulation before assembly to prevent short circuits.
 - It must be stored according to the battery storage environment requirements.
 - Maintain the removed batteries and prohibit sunlight and rain.
 - Charging and discharging should be carried out in strict accordance with the requirements of this manual.
 - When the battery reaches the specified end-of-life conditions, it should be discontinued in time.

11.2.2 Battery Storage



NOTICE

- If the system is stored for a long period of time (six months or more) without operation, the system needs to do at least 1 full charge in order to activate the battery before the system is used for the first time.
- Battery storage requires proper storage at the appropriate temperature and humidity, otherwise it will reduce the battery's service life.
- It is recommended to adjust the power of product storage to 30% ~ 50%.

Product storage must be kept away from fire and heat sources. When continuous static storage is required for more than 2 months, maintenance should be performed every two months.

11.3 The Heat Transfer Fluid Storage

The coolant is 50% ethylene glycol, which is a substance that pollutes groundwater and must not be discharged at will.

The procedures for handling coolant leakage are as follows:

1. When installing the energy storage cabinet, lead the coolant leakage diversion pipe inside the cabinet to the pre-buried 20mL sealed container in advance.
2. When coolant leakage occurs, the liquid cooler monitoring system will issue a low pressure fault alarm.
3. The leaked coolant automatically flows into the pre-buried storage container.
4. After receiving the coolant leak, Managers, wearing masks, chemical protective gloves and protective glasses, entered the equipment installation site to inspect the location of the leakage.
5. Cut off all power supplies inside the cabinet and stop the operation of the liquid cooler
6. Wear gloves to seal the leakage outlet.
7. Set up isolation belts and keep irrelevant personnel away
8. Collect and clean up the leaked coolant

Use pumps, shovels and other tools to transfer the leaked liquid to the collection container, label it and store it temporarily.

Use dry sand to adsorb and remove residual liquid, and then rinse the contaminated area with clean water. The washed water should be collected in the emergency pool.

All adsorption materials, cleaning wastewater and leaked liquids shall be treated as hazardous waste and handed over to qualified units for disposal.

9. Environmental monitoring

Use portable detection instruments to monitor the concentration of ethylene glycol in the surrounding air to ensure there is no residual hazard.

10. Personnel health observation

Monitor the health of the person in contact. If symptoms such as dizziness, nausea or breathing difficulties occur, send them to the hospital immediately.

11. Prepare reports on leakage incident.

11.4 Manufacturer Contact Information

Manufacturer: Shenzhen EEnovance Energy Technology.,Ltd.

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