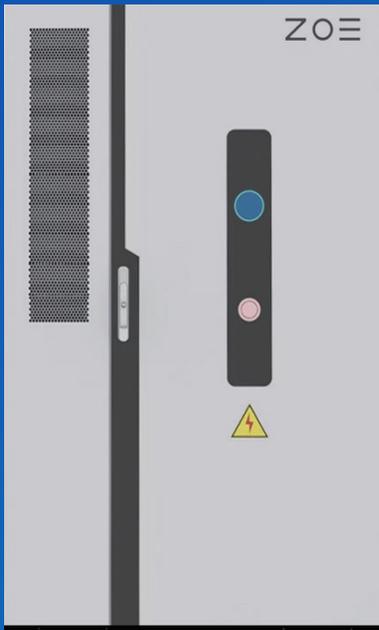


User Manual

Z BOX-H Battery Cabinet



H 372-2H

Product Model: C372L-D-EU

For your personal safety, please be sure to read and comply with the following safety requirements:

Symbols in this manual

This manual uses the following symbols to highlight important information:

⚠ WARNING: Indicates a hazardous situation which, if not avoided, may result in serious injury or death.

⚠ CAUTION: Indicates a hazardous situation which, if not avoided, may result in minor injury or equipment damage.

Note: Indicates important steps or techniques that give the best results, but are not related to safety or damage.

General information

Note: Maintenance personnel are required to hold a qualified electrician's certificate issued by the Safety Supervision Bureau or be authorized by the ZOE to carry out maintenance work.

⚠ WARNING: It is strictly forbidden to touch the high-voltage positive and negative posts of the energy storage system with both hands at any time.

⚠ WARNING: Ensure that the appropriate high and low voltage switches are disconnected before carrying out maintenance work on the energy storage system.

⚠ WARNING: When operating or maintaining the energy storage system, safety helmets, insulated gloves, insulated shoes and goggles are necessary, but metal jewelry such as watches are strictly prohibited.

⚠ WARNING: When cleaning the energy storage system, do not use water to clean the high and low voltage connectors directly.

⚠ WARNING: It is strictly prohibited to manually damage the storage battery by crushing, puncturing, burning, etc.

⚠ WARNING: The operating environment of the energy storage system should be free of corrosive, explosive and insulation-destroying gases or conductive dust, and far away from heat sources.

⚠ WARNING: It is prohibited to step on the top of the cabinet during usage and maintenance.

⚠ WARNING: If you have any questions, please contact the system supplier. Unauthorized operation is prohibited.

⚠ WARNING: Using it in series or parallel with other types of battery products is prohibited.

Maintenance

Environmental requirements

The cabinet is capable of charging and discharging within the operating temperature range specified below. At the extremes of this temperature range, the cabinet may limit the charging or discharging power to extend battery life.

For optimal performance, the average ambient temperature during the system life shall be within the optimal temperature range specified below.

Charge temperature	1~55°C
Discharge temperature	-19~55°C

Maintenance and cleaning

If installed outside, please keep the sides of the cabinet free of leaves and other debris to maintain optimal airflow.

⚠ CAUTION: Do not lean anything over the cabinet, do not hang anything from the cabinet or its wires or conduits.

⚠ CAUTION: To clean the cabinet, use a soft rag or lint-free rag. If necessary, only use the wet rag with neutral soapy water.

⚠ CAUTION: Do not use cleaning solvents to clean the cabinet or expose the cabinet to flammable or irritating chemicals or vapors.

Maintenance

Energy storage cabinets, inlets and outlets do not require pre-scheduled preventive maintenance. The only maintenance required for user is to keep the energy storage cabinet unit clear and free of debris, especially near the air intake and exhaust ports.

Table of Contents

Maintenance	2
1.Important information	4
1.1 Safety precautions	4
1.2 Intended use	4
1.3 About this manual	5
2.Product overview	5
2.1 Product structure	6
2.2 Product specifications	8
2.3 Main features	9
2.4 Product principle	9
3.Transportation and storage	10
3.1 Transportation	10
3.2 Storage	11
4.Installation instructions	11
4.1 Basic installation requirements	11
4.2 Layout requirements	12
4.3 Cabinet installation	13
4.4 Connection of power and communication cables	16
4.5 Check after installation	19
5. Power-on and power-off instructions	20
6. Troubleshooting	23
7. Routine maintenance	24
8. After-sales service	26

1. Important information

1.1 Safety precautions

Symbol	Meaning
	<p>Failure to follow safety precautions may result in mortal danger, injury and equipment damage. Claims arising therefrom will be rejected.</p> <ul style="list-style-type: none"> • Electrical hazard This cabinet must be installed by trained, qualified and authorized electrical installation personnel. Please observe the current standards and installation specifications before the first debugging and maintenance of this cabinet. Refer to “Installation instructions” for details. • Electrical hazard/fire hazard Do not use damaged, worn or dirty cables. • The owner (terminal user) must run the energy storage system in its optimal condition. <ul style="list-style-type: none"> ➤ Regularly check the cables and shell of the energy storage system for damage (visual inspection). ➤ If the energy storage system is damaged, please shut it down and replace it immediately. ➤ Do not conduct maintenance without authorization. Instead, maintenance of the energy storage system must be carried out by the manufacturer. ➤ Do not refit or upgrade the energy storage system without authorization. ➤ Do not remove safety symbols, warning signs, nameplates, labels, pipe marks, etc.
	<p>Caution</p> <ul style="list-style-type: none"> • Risk of damage. • Do not spray water (by garden hose, high-pressure washer, etc.) to clean the energy storage system.

1.2 Intended use

- This is an electrical energy management system (e.g. electrical energy storage and release) for outdoor use.
- Please observe the regulations of the country where the energy storage system is installed and connected.
- For the intended use, please follow the specified environmental conditions in all cases.
- Please abide by relevant safety standards during development, production, inspection and

filing. Failure to comply with the instructions and safety precautions for the intended use may result in property damage or health hazards.

- Please strictly follow the instructions in this manual. Otherwise, safety hazards or safety device failure may occur. Although there are relevant safety precautions in this manual, please observe the safety regulations and accident prevention regulations for proper use.
- Only the PCS can be connected. Do not connect other devices (e.g. power tools and power distribution cabinets).

1.3 About this manual

- This manual is applicable to the following models: outdoor energy storage cabinet C372L-D-EU, C326L-D-EU, C279L-D-EU
- This manual is intended for the following:
 - Terminal customers (outdoor cabinet users)
 - Debugging and service technicians

2. Product overview

This product takes the 372kWh liquid-cooled outdoor energy storage cabinet as the core equipment. Combined with the PCS outdoor cabinet of ZOE, it can manage the energy demand on the user's side. It can also be synchronized to the digital energy cloud management platform of ZOE in order to realize the all-round control of the energy storage site.

The energy storage system is capable of receiving commands from the energy dispatch system and interacting with the energy network and user loads in order to achieve timely storage and release of energy to meet customers' energy needs.

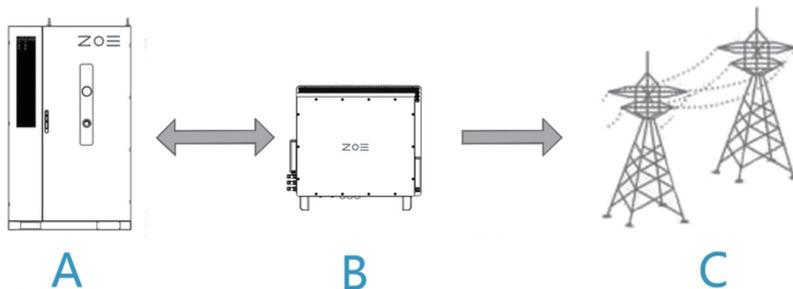


Figure 2-1 System Diagram

- A: Outdoor energy storage cabinet
- B: PCS
- C: Energy network

2.1 Product structure

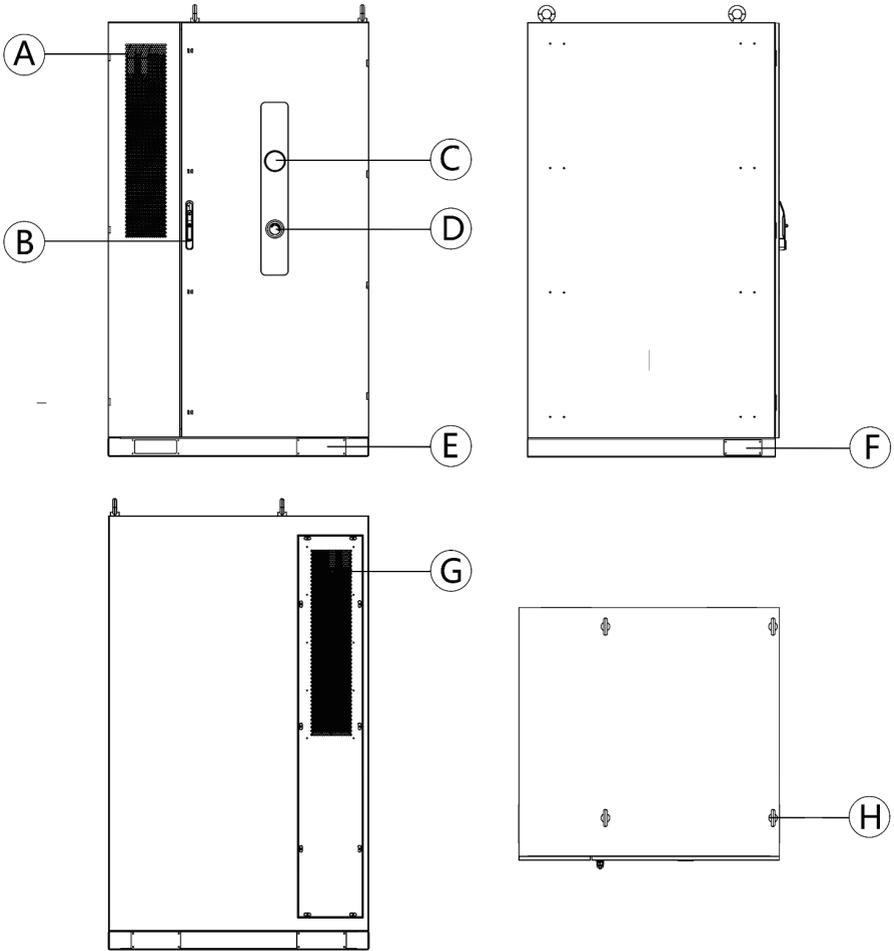


Figure 2-2 Product External Schematic

[A]- Air inlet

[B]- Door lock

[C]- Operation status indicator

[D]- Emergency stop

[E]- Forklift hole

[F]- Side cable entry hole

[G]- Back vent

[H]- M18 ring

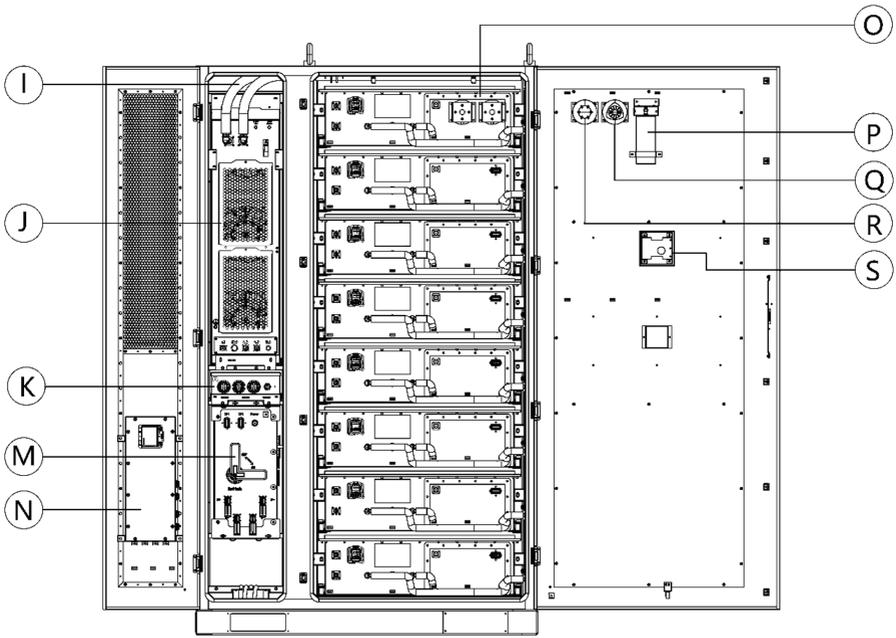


Figure 2-3 Product Internal Schematic

[I]- Liquid-cooling piping

[J]- Liquid cooler

[K]- Control box

[M]- High voltage box

[N]- Power box

[O]- Battery module

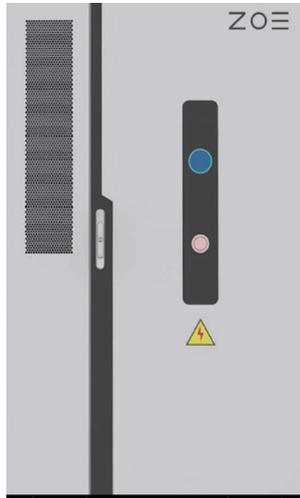
[P]- Thermal aerosol fire extinguisher

[Q]- Point type temperature-sensitive fire detector

[R]- Photoelectric smoke detector

[S]- Light board

2.2 Product specifications



- Cabinet specifications

Rechargeable Li-ion Battery Storage System			
Product Model	C279L-D-EU	C326L-D-EU	C372L-D-EU
Battery Data			
Cell type	LFP		
Rated capacity	280Ah		
Serial-parallel type	1P312S	1P364S	1P416S
Rated capacity per pack	46.592kWh		
Pack number	6	7	8
System rated energy capacity	279.552kWh	326.144kWh	372.736kWh
DC rated voltage	998.4V	1164.8V	1331.2V
DC voltage range	873.6~1123.2V	1019.2~1310.4V	1164.8~1497.6V
Rated DC current	140A		
Max. DC current	160A		
General Data			
DOD	95% DOD		
Degree of protection	IP55 (Battery room)		
Cooling concept	Liquid cooling		
Heating concept	Liquid heating		
Fire suppression system	aerosol		
Operating temperature range	-19~55°C		
Relative humidity	5~95%RH		
Max. working altitude	2000m		
Display	Web/LED		
COM interfaces	RS485/Ethernet		
Dimensions(W*D*H)	1370*1330*2270mm		
Weight	2850±50kg	3200±50kg	3550±50kg

2.3 Main features

- Power grid support to meet user needs for peak shaving as well as peak load and frequency regulation;
- Power expansion for additional power supply in case of insufficient power distribution (e.g. charging stations);
- Smoothing of distributed or centralized photovoltaic power generation;
- Smoothing of the impact of high-power electrical equipment (such as charging stations) on the distribution network;
- Remote intelligent operation and maintenance.

2.4 Product principle

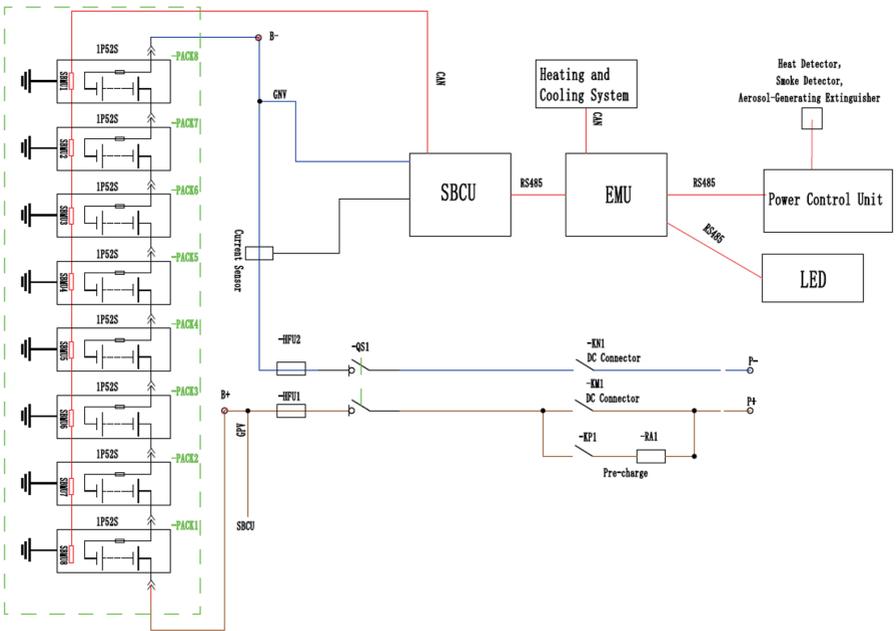


Figure 2-4 Schematic Diagram

3. Transportation and storage

3.1 Transportation

It is adapted to trucks and ships, and should be covered with canopy, protected from sunshine, and loaded and unloaded safely in transportation. In the process of loading and unloading, the energy storage cabinet should be gently moved and put down, and strictly prevented from falling, rolling and heavy loads. It should also be prevented from rain, snow and mechanical impact in transportation.

- **3.1.1 Environmental requirements for transportation of energy storage cabinet**

According to the battery characteristics, the energy storage cabinet should meet the following requirements in storage and transportation to maximize the protection of battery performance:

Average daily storage temperature: $\leq 20^{\circ}\text{C}$; allowable storage temperature: $-19\sim 55^{\circ}\text{C}$;

Humidity: less than 95% RH, non-condensing.

- **3.1.2 Requirements for energy storage cabinet transportation process**

(1) Pre-loading inspection of energy storage cabinet

1) Check the information of the outside package and labels of the goods before loading, to ensure that the outside package of the goods is complete.

(2) Loading of energy storage cabinet

1) Forklift is required to meet the load capacity of the energy storage cabinet for operation. It should be qualified in annual inspection. It is not allowed to move during the lifting operation.

2) The energy storage cabinet is heavy, which should be strapped securely with the corresponding filler and tapes if there are any gaps in the vehicle.

3) After loading, it is necessary to recheck to verify that tapes and protections are secured.

(3) Transportation of energy storage cabinet

1) The vehicle speed shall not exceed the speed specified in traffic regulations.

Transportation on bumpy roads should be avoided as much as possible.

2) Sharp braking and turns are prohibited in transportation.

3) Keep the vehicle in good condition. Always check the vehicle's carriage and provide timely feedback when problems are found.

(4) Unloading of energy storage cabinet

1) Before picking up the goods, it is necessary to prepare suitable unloading tools

according to the packing list.

3.2 Storage

The energy storage cabinet should be stored in a dry warehouse, without exposure to sunlight or rain. Harmful gases, flammable/explosive products and corrosive chemicals are not allowed in the warehouse. The cabinet should be prevented from mechanical shock, heavy pressure, strong magnetic field or exposure to direct sunlight. It should be at least 2m away from heat sources and 50cm away from walls, windows or air inlets.

Average daily storage temperature: $\leq 20^{\circ}\text{C}$;

allowable storage temperature: $-19\sim 55^{\circ}\text{C}$;

Storage humidity: less than 95% RH, non-condensing.

Under the conditions of these regulations:

At least one supplemental charge to 50% SOC is required within 6 months after the product is shipped from the factory. Capacity verification tests and re-inspections are required every 12 months.

4. Installation instructions

4.1 Basic installation requirements

While selecting an outdoor cabinet installation site, consider the following environmental conditions. Accumulated dust or sand may cause premature failure. In addition, according to the fire protection requirements for lithium batteries, the outdoor cabinet should be far away from people.

Ambient conditions	Recommended Range
Ambient temp.	$-19^{\circ}\text{C}\sim 55^{\circ}\text{C}$
Humidity	$\leq 95\% \text{RH}$, non-condensing.
Dustiness	$\leq 1\text{mg}/\text{m}^3$
Corrosive substance	No contaminants, such as salt, acid, smoke, etc.
Vibration	$\leq 1.5\text{m}/\text{s}^2$
Insects, pests, termites	None
Mold	None
Damp	No rain
Fire protection	No flammables at the top and bottom of cabinet

4.2 Layout requirements

- Cabinet layout requirements

Keep a 600mm space behind the back of the cabinet for heat dissipation through the air outlet, as shown below.

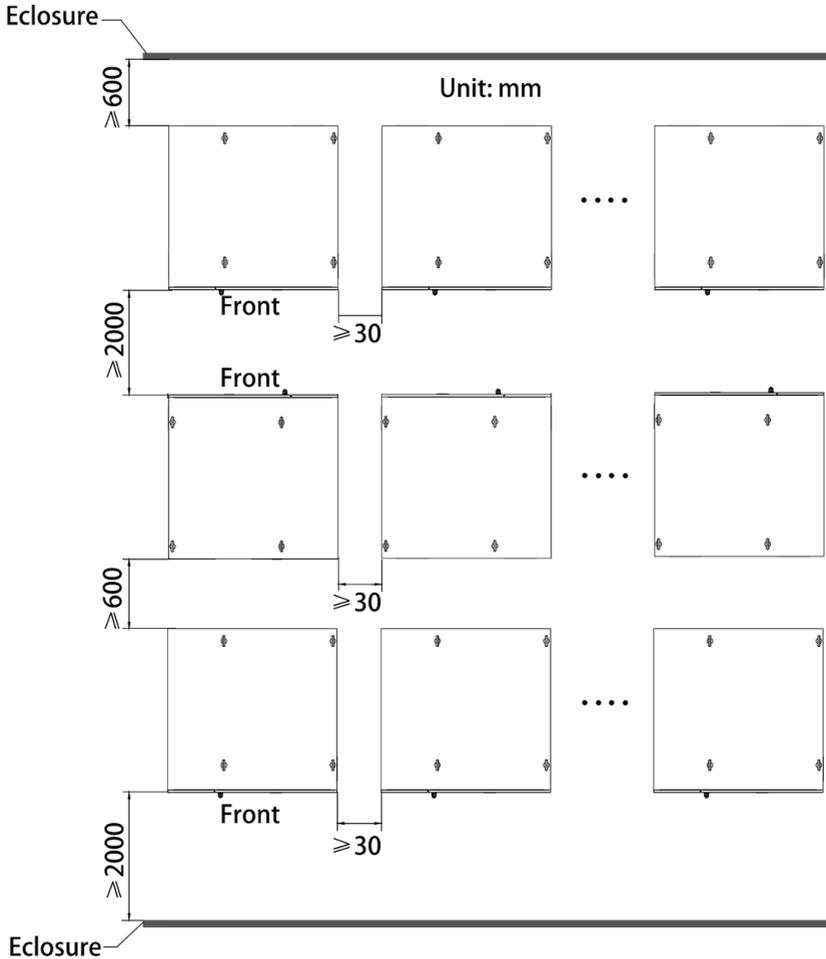


Figure 3-1 Space Requirements for Cabinet Installation

- **Cable layout requirements**

Connect the AC power cable and communication cable along cable trenches through the bottom of the cabinet.

- **Power supply requirements**

Mains supply is the auxiliary power supply of the energy storage system. Considering the electrical reliability of the EMU and fire protection system inside the energy storage cabinet, it is recommended to use an external UPS as the backup power supply.

The AC power cable should preferably be a copper-core cable, with its cross-sectional area adapted to the load. The outdoor power cable should be directly buried or laid in a casing, and separated from the signal cable as much as possible.

- **Wiring requirements**

1) For the power supply of the liquid cooling/ liquid cooling and heating system of the outdoor cabinet, the AWG #10 cable is recommended (min. 3.5kW).

2) For the power supply of the AC220V UPS of the outdoor cabinet, the AWG #16 cable is recommended (min. 100W).

3) The cable length between the outdoor cabinet and PCS cabinet depends on project site conditions. AWG #1 DC1500V power cable is recommended.

4) Category 6 network cables are commended for the outdoor cabinet.

- **Safety protection requirements**

➤ Lightning protection and surge protection.

➤ Lightning protection and grounding systems comply with current national or ministerial standards.

- **Grounding requirements**

Ground cables (AWG #4) shall be grounded reliably.

4.3 Cabinet installation

- **Cabinet lifting**

➤ Take out the four M24 rings and washers according to the packing list. Install them into the holes at the top of the cabinet. Tools: NO. 15 in the tool list of the quick installation guide.

➤ Install the rope through the four rings and conduct lifting to a height of 800mm, so that the rope angle is greater than 60°.

➤ Lift the cabinet slowly via the rope (capacity: ≥4T) and put it down gently.

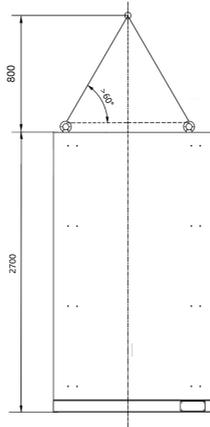


Figure 3-2 Cabinet Lifting

- Handling requirements

➤ Handling by forklift is preferred. The fork length (A) should be greater than 1.5m, as shown below:

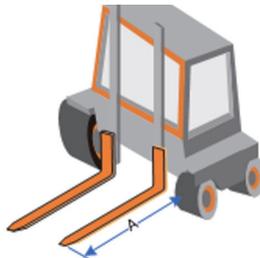


Figure 3-3 Fork Length A (more than 1.5m)

➤ The forklift shall have a capacity of at least 4t. The forks must extend out of the forklift holes, as shown below:

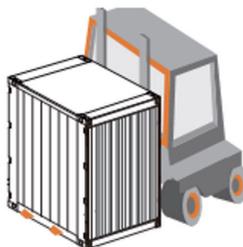


Figure 3-4 Fork Extension out of Forklift Holes

➤ Handle the cabinet gently via the forklift.

- Cabinet dimensions

Cabinet dimensions: (W) 1,370mm * (D) 1,330mm * (H) 2,270mm; weight: 3,550±50kg

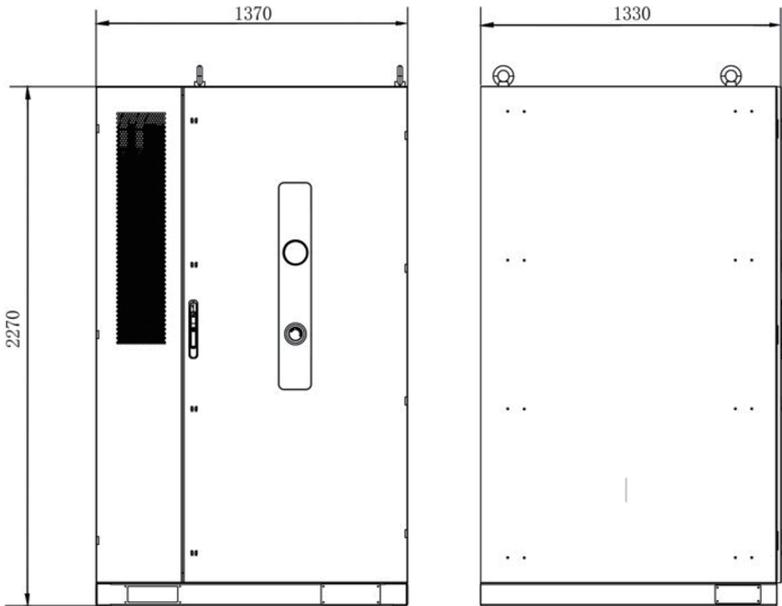


Figure 3-5 Cabinet Dimensions

- Proposed drawing for cabinet installation on base:

Base dimensions

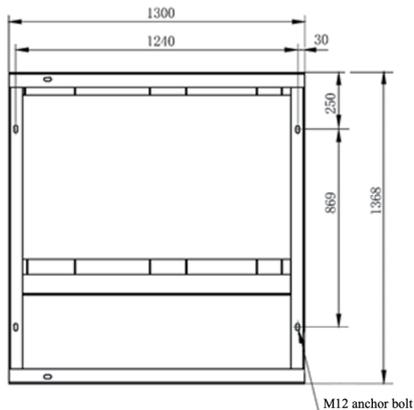


Figure 3-6 Base Dimensions

- **Cement base requirements**

Set up a 1,470mm * 1,430mm planar space with M12 anchor bolts embedded according to the dimensional drawing.

4.4 Connection of power and communication cables

- **Installation requirements**

➤ The AC lead-in wire is routed from the user’s distribution switch and connected to the specified terminals when it is finally ready to power on. The distribution office should be equipped with protection devices against overcurrent, short circuit, and lightning strike.

➤ The DC lead-in wire is routed from the PCS cabinet to the specified terminal of the DC high-voltage box of the battery cabinet. The red and black DC power cables correspond to the terminals P+ and P-, respectively. If there is only one color for power cables, labels indicating cable numbers (or sleeves with markings) should be attached.

➤ Red and light blue AC power cables match AC phase lines and neutral lines respectively. If there is only one color for power cables, labels indicating cable numbers (or sleeves with markings) should be attached.

➤ AC power cables should be placed separately from communication cables.

➤ When cables are laid, no broken terminals, damage, or scratches are allowed.

➤ The length of cables fabricated on site extending from the ground should be at least 1m.

- **Connection steps**

The DC lead-in wire is routed through the bottom of the cabinet and then crimped onto the connector plug, as shown below.

➤ Step 1: Strip one end of the cable by 28 ± 1 with a stripper.



Figure 3-7 Stripping Length

➤ Step 2: Install the connector nut, seal, gasket and plug in turn as follows, and conduct crimping at min. 6mm away from the connector plug. Crimping width: 9 ± 1 mm; crimping height: 9.2 ± 0.2 mm.

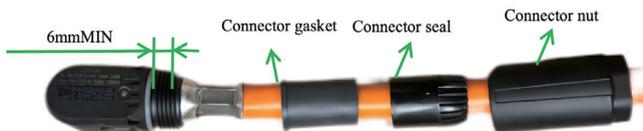


Figure 3-8 Installation of Connector Parts

➤ Step 3: Assemble the connector parts and tighten the connector nut with a torque of max. 3.5N.m.



Figure 3-9 Assembly of Connector Parts



Figure 3-10 Tightening of Connector Nut

Connect the terminals P+ and P- of the high-voltage box. Then, connect PE to the side post, as shown in Figure 3-11.

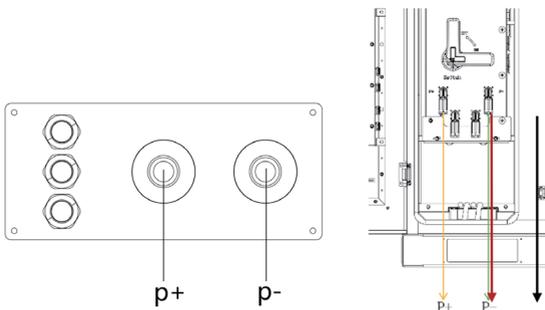


Figure 3-11 Cable Connection

The Grid/UPS input cables are routed through the bottom of the cabinet. The mains cable is routed into the cabinet and connected to the input terminals L/N of the power box XT1 and the terminal L/N of UPS, as shown in Figure 3-12:

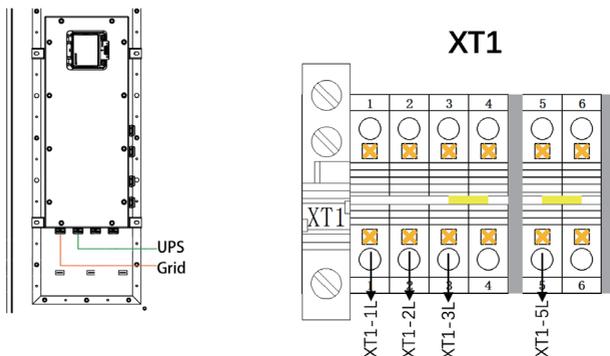


Figure 3-12 Grid and UPS Cable Connection

Terminal	Pin	Definition	Functions
XT1	XT1-1L	Grid-220L	Grid
	XT1-2	Grid-220N	
	XT1-3L	UPS-220L	UPS
	XT1-5L	UPS-220N	

Among them, the mains 220V AC power is not less than 3.5kW, and the UPS power is not less than 100W. The PCS and fire communication cables connected into the cabinet are routed through the bottom of the junction box and then connected to the terminal XT2 of the waterproof power box, as shown in Figure 3-13.

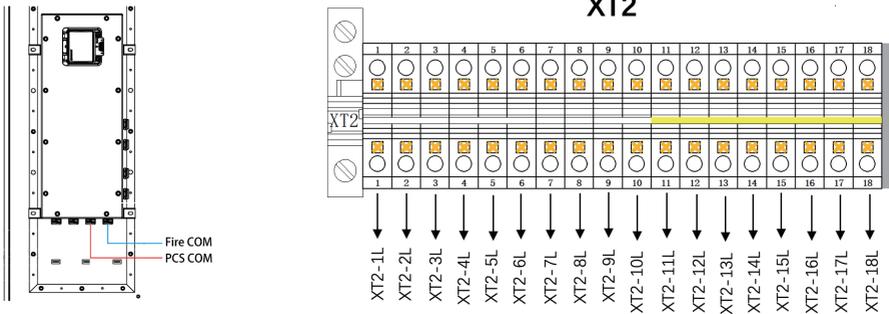


Figure 3-13 PCS and Fire Communication Cable Connection

Terminal	Pin	Definition	Functions	Remarks
XT2	XT2-1L	EMU_485A	PCS COM	EMU↔PCS
	XT2-2L	EMU_485B		
	XT2-3L	BMS_CANH		BMS↔PCS
	XT2-4L	BMS_CANL		
	XT2-5L	DRY1_IN_P		EMU→PCS
	XT2-6L	DRY1_IN_N		
	XT2-7L	DRY3_IN_P		BMS→PCS
	XT2-8L	DRY3_IN_N		
	XT2-9L	DRY1_OUT_COM	PCS→EMU	
	XT2-10L	DRY1_OUT_NO		
	XT2-11L	Connected to CANH of next cabinet	Fire COM	
	XT2-12L	Connected to cluster CANH		
	XT2-13L	Connected to cluster CANL		
	XT2-14L	Connected to cluster CANL		
	XT2-15L	Connected to cluster 485A		
	XT2-16L	Connected to cluster 485A		
	XT2-17L	Connected to cluster 485B		
	XT2-18L	Connected to 485B of next cabinet		

XT2 Pin Cable Definition

➤ The Modbus TCP protocol is applied for external communication of the outdoor cabinet. For Ethernet communication, it is recommended to use the Category 6e network cable, which shall be plugged into the RJ45 interface of the control box, as shown in Figure 3-14.

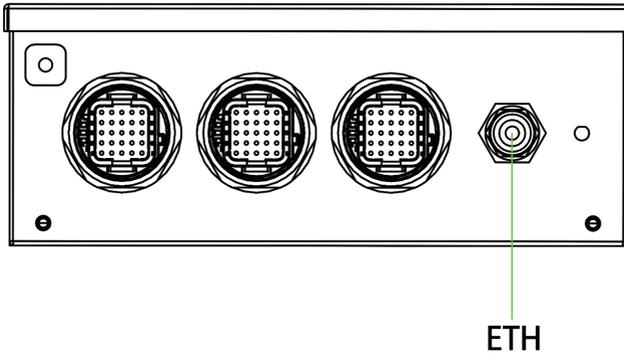


Figure 3-14 Ethernet communication Cable Connection



-
- Priority of connection: ground cable, neutral cable and AC phase cable.
 - Turn off all switches before electrical connection.
-

4.5 Check after installation

1. Tightness

According to the design and protection level requirements, the joint between the bottom of the cabinet and the base must be tight to prevent insects or dirt.

2. Cleaning

- Dispose of all shipping and packaging materials properly in accordance with local regulations.
- Clean up debris inside and around the equipment, such as short cables, tapes, screws and nuts. Do not leave any installation tools on site or inside the equipment (record the types and quantities of tools to avoid missing).
- Wipe the insulation with antistatic cloth. Do not use any corrosive solvent.

3. Check

- Check whether the equipment is secured. Shake the equipment from different directions to check it for no obvious loosening and shaking.
- Check whether the internal components are fastened securely.
- Check whether electrical connections and wires are connected correctly, completely and

securely. Check whether ground cables are grounded reliably.

- Check whether the protection level of the equipment meets the requirements, especially the cable entrance at the bottom of the equipment, and whether the cable holes in the equipment are sealed.
- Check the appearance, marking, integrity and cleanliness.

5. Power-on and power-off instructions

Operation of the energy storage system consists of two parts: power-on and debugging. Power on the system before using it. Once the system is powered on, the debugging personnel appointed by the manufacturer will assist in debugging. After debugging, the equipment will work in the automatic mode. That is, no operation is required.

Power-on steps:

Step 1: First confirm the external AC220V power access, and close the external circuit breaker.

Step 2: Turn on the QF1/QF2 switch of the power box.

Step 3: Press the control power button on the DC high-voltage box. The red indicator of the corresponding secondary circuit button will light up, indicating that the system is powered on.

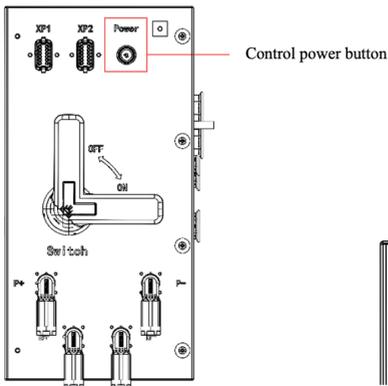


Figure 5-1 System Power-on Status

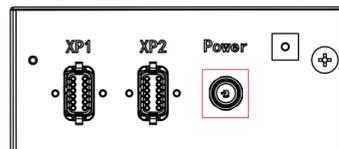


Figure 5-2 Circuit Button Indicator

- The operational status indicator of the cabinet in the power-on status is defined in the table below:

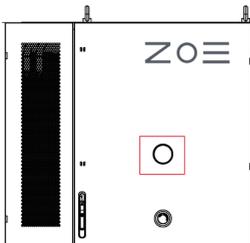


Figure 5-3 Operational Status Indicator

Color	Status	Control Logic	Description	Cycle	
Off		Always off	Abnormal power supply to the indicator board		
White		Always on	Abnormal communication of the indicator board		
Green		Always on	Standby		
		Breathing	Charge	2s/time	
Blue		Breathing	Discharge	2s/time	
		Constantly flashing	System self-test	Power-on self-test time: about 2 min	
Yellow		Twinkling	Level 1 alarm (L1)	Liquid cooling alarm	0.5s on/3s off
			Level 1 alarm (L2)	PCS alarm	0.5s on/2s off
				BMS alarm	
			Level 1 alarm (L3)	Fire control alarm	0.5s on/1s off
				Low SOC alarm	
				High SOC alarm	
				Cluster - Overvoltage alarm	
				Cluster - Undervoltage alarm	
Single cell - Overvoltage alarm	0.5s on/0.25s off				
Single cell - Undervoltage alarm					
Level 2 alarm (L1)	Liquid cooling protection	0.5s on/0.5s off			
Level 2 alarm (L3)	Fire control protection	0.25s on/0.25s off			
	Always on	Level 2 alarm (L2)	PCS protection		
			BMS protection		
			liquid system out-of-control		
Red		Twinkling	Level 3 fault (L1)	Liquid cooling fault	0.5s on/3s off
			Level 3 fault (L2)	PCS fault	0.5s on/2s off
			Level 3 fault (L3)	BMS fault	0.5s on/1s off
			Level 3 fault (L4)	Fire protection fault	0.5s on/0.5s off
			Level 3 fault (L6)	Fire alarm	0.25s on/0.25s off
		Always on	Level 3 fault (L5)	Emergency stop fault	
Hardware fault					

Tips

When the operational status indicator is in the status of Level 1 alarm (L2), Level 2 alarm (L2) and Level 3 fault (L3), it might be that the system is undergoing the heating procedure. The specific heating duration depends on the current ambient temperature. The lower the ambient temperature, the longer the heating duration.

- Power-off steps:

Step 1: Set the cabinet to the standby status and stop charging and discharging.

Step 2: Disconnect the external circuit breakers, including the external auxiliary power supply or UPS.

Step 3: Press the control power button on the DC high-voltage box. The red indicator of the corresponding secondary circuit button will be off, indicating that the system is powered off.

- Emergency stop steps:

Step 1: Confirm the fire alarm (Level 3 fault L6).

Step 2: Squeeze the emergency stop button panel with hands or break it with a hard object.



Figure 5-4 Before Crushing of Emergency Stop Button



Figure 5-5 After Crushing of Emergency Stop Button

Step 3: Press the emergency stop button.

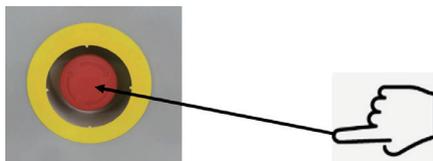


Figure 5-6 Pressing of Emergency Stop Button

6.Troubleshooting

Category	Faulted	Possible Cause	Solution
Overall cabinet	Power indicator off	No power supply	Check the line protection switch and turn it on if necessary. If it is damaged, please contact your service partner.
	Operational status indicator - red	PCS fault	Please contact your service partner.
		Emergency stop fault	Check whether the emergency stop button is pressed.
		Fire alarm	Please contact your service partner.
		Liquid cooling fault	Please contact your service partner.
		BMS fault	Please contact your service partner.
		Fire protection fault	Please contact your service partner.
Liquid cooler	Fan fault	No main power supply	Check the power supply voltage.
		Control board failure	Check the control board for abnormal output voltage or burns.
	Compressor failure	No main power supply	Check the power supply voltage.
		High compressor noise	Check the power supply voltage. Check whether the suction pressure is correct.
		Compressor overheat	Check whether the fan is running properly. Check whether the condenser is blocked.
		QF breaker fault	Check whether the manual load switch is closed.
High voltage box		Invalid collection of total voltage	Check whether the B+, B- and battery pack cables are damaged or disconnected.
	Level 2 alarm (L3)	Communication failure	Check the power supply. Check whether the power button is triggered. Check the communication line for short circuit, etc.

7. Routine maintenance

- No use for a long time
 - Keep SOC at 40% to 50% if the cabinet is not in use for a long time. Do not keep the system below 15% SOC for a long time. In case of long-term no use, disconnect the AC/DC side circuit breakers and component-level circuits in time. Check the energy storage cabinet every 3 months, charge it to 50% SOC every 6 months, and perform capacity verification tests and re-inspections every 12 months.

Tips

If the energy storage cabinet is unused for a long time, it will cause irreversible damage to the battery. Please make sure to carry out regular maintenance.

- Distribution switch check
 - Check the power supply voltage of the distribution box.
 - During the annual inspection, disconnect the corresponding distribution switch for further maintenance of the energy storage system.
- Cable
 - Check whether cables are secured without heating, damage or external stress on a quarterly basis.
 - Check whether cables and switches are connected securely and grounded reliably, whether cables are hot and damaged, whether the insulation resistance of cables meets relevant requirements, whether cable inlet seals are in good condition, and whether holes are tightly sealed on a yearly basis.
- Check of air inlet and outlet
 - Check all inlets and outlets for blockage on a quarterly basis.
- Electrical grounding system
 - Check the grounding system for poor contact arising from rust and oxidation or increase in the grounding resistance. Check whether grounding signs are complete and legible, without any loss or damage, on a quarterly basis.
 - Check the grounding of electrical equipment. Check whether ground cables and terminals are in good condition. Check the grounding resistance with a multimeter for conformity to the grounding requirements, on a yearly basis.
- Visual inspection
 - Check the cabinet for stains on a quarterly basis. Clean the whole cabinet. Check the sheet

metal for deformation, rusting or paint peeling. Conduct painting in time to prevent rusting of the exterior surface.

- Check of liquid cooler

- In case of any leakage inside the cabinet, turn off the distribution box in time, and contact operation and maintenance personnel.

- During annual maintenance, check water-cooling pipes. In case of any damage, contact operation and maintenance personnel immediately to replace them.

- Check of fire protection system

- Check the photoelectric smoke detector on a quarterly basis. It should flash every a few seconds during normal operation.

- Check the point type temperature-sensitive fire detector on a quarterly basis. It should flash every a few seconds during normal operation.

- Maintenance frequency

Inspection items	Quarterly	Semiannually	Annually	Solution
Cabinet appearance	√	√	√	Cleaning
Air outlet	√	√	√	Cleaning
Cable	√	√	√	Test
Distribution switch	√	√	√	Visual inspection
Grounding system	√	√	√	Test
Liquid cooler	√	√	√	Visual inspection
Smoke detector	√	√	√	Visual inspection
Temperature-sensitive fire detector	√	√	√	Visual inspection

8. After-sales service

Users can get the service through our after-sales service phone number.

Service e-mail box: service@zoeess.com

Refer to the contract for the years of free warranty service.

The following conditions are not covered by our free warranty service:

- System damage or failure arising from nonconformity to the requirements in the user manual.
- Failure of wiring and power supply in accordance with relevant electrical safety regulations, or damage caused by poor site conditions or consequent faults.
- Private modifications made by the user, resulting in damage to the system or consequent faults.
- System damage or failure caused by irresistible natural factors such as typhoons, earthquakes, floods, fires or harsh environments (high temperature, low temperature, high humidity, acid rain, etc.).
- The user fails to maintain the initial fault status after a fault occurs, and fails to notify the manufacturer in time but handles the problem on his/her own, making it impossible to make a realistic fault identification of the cause of the fault.



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