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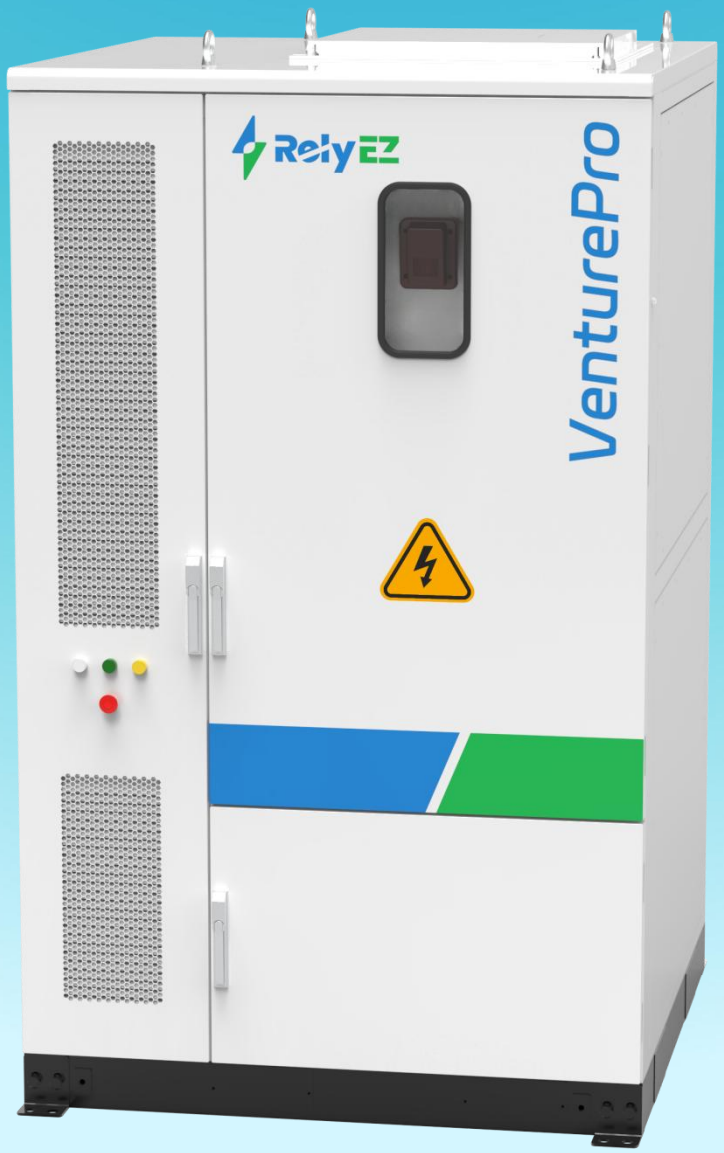

ESS（VenturePro250）
250kWh Liquid-cooled Commercial and Industrial System

YXYK-125K/552314-L

YXYK-125K/552314-M

User Manual

RelyEZ Energy Storage Technology Co., Ltd.

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Forward Preamble

RelyEZ Energy Storage, established in 2019, specializes in developing and promoting sustainable new energy solutions and reliable energy storage products. The company has developed a comprehensive industry chain that includes project development, product R&D, manufacturing, sales, and service. Their solutions encompass diverse scenarios such as large-scale, commercial, industrial, and grid-connected energy storage. The team at RelyEZ brings together extensive professional experience in the new energy industry, with technical capabilities that cover the development and design of both hardware and software, as well as overall system integration. The RelyEZ energy storage has independently led the design and participated in the construction of over 100 projects, with a total project scale exceeding 7GWh.

Currently, the company is headquartered in Shenzhen, China, and operates four intelligent factories located in Zhenjiang (Jiangsu province), Chuxiong (Yunnan province), Dali (Yunnan province), and Jinchang (Gansu province), with a combined production capacity of 20GWh. RelyEZ Energy Storage has established branches, subsidiaries, and representative offices in Singapore, the United States, Europe, and Africa and has obtained multiple certification qualifications in Europe and the United States. It is projected that by 2026, the proportion of international business revenue for RelyEZ Energy Storage will exceed 50%. In 2023, RelyEZ Energy Storage was awarded a Top 10 ranking among global energy storage system origin suppliers by S&P Global Commodity Insights, and its energy storage system (DC side) shipments ranked second globally (as per the CNESA 2023 shipment ranking). The company was also recognized as a Tier 1 global energy storage supplier by BloombergNEF for 2024. The Energy Storage Leader Alliance (EESA) has awarded RelyEZ Energy Storage the honor of "Second in Domestic DC-side Energy Storage System Solution Shipments" and "Fifth in Global DC-side Energy Storage System Solution Shipments" among Chinese enterprises in its 2023 Global Energy Storage Industry Chain Data Ranking. Furthermore, GGII, in its authoritative "Top 10 DC Battery Cabin Energy Storage Enterprises in China in 2023" list, ranked RelyEZ Energy Storage second in terms of DC battery cabin energy storage enterprise shipments in China. In the ESIE 2023 Annual China Energy Storage System (DC Side) Integrator Global Market Shipment Ranking, RelyEZ Energy Storage achieved second place. RelyEZ Energy remains committed to delivering efficient and sustainable energy solutions and storage products to customers worldwide, advancing the global transition to low-carbon energy and collaboratively moving towards a clean and sustainable future.

Disclaimers

The specifications and descriptions contained in this document have been verified at the time of publication to ensure that they are as accurate as possible. However, as RelyEZ Energy's products and their performance are constantly evolving, RelyEZ Energy reserves the right to make changes to the products or documentation at any time without notice.

The images provided in this document are for demonstration purposes only. Detailed information may vary by product version and region.

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Instructions

The safety symbols referenced in this manual are shown in the table below. They indicate to the reader the safety matters to be observed when performing equipment installation, operation, and maintenance.

Symbols	Instructions
DANGER	Indicates a high level of potential danger that, if not avoided, could result in death or serious injury.
WARNING	Indicates a moderate or low potential hazard that, if not avoided, could result in minor or moderate injury to personnel.
ATTENTION	Indicates a potential risk that ignoring these symbols could result in damage to the device, loss of data, degradation of device performance, or unforeseen consequences.
Instructions	Indicates that it is additional information to the body of the text, emphasizing and complementing it.

1. Security Instructions

This chapter focuses on safety precautions. Before performing any operations on the liquid-cooled commercial and industrial integrated cabinet, read the contents of the manual carefully and follow all hazards, warnings, and safety information as instructed in the operating and installation instructions to avoid jeopardizing personal safety or equipment damage due to improper operation.

1.1 Safety Considerations

Before operation, please read this manual and other related materials carefully, especially the precautions and operating instructions in the manual to avoid accidents.

The "DANGER", "WARNING", "ATTENTION" and other items in this manual do not represent all the safety precautions that should be followed, but only supplement the safety precautions in various operations.

Instructions

We shall not be liable for the consequences of any violation of the general safety operating requirements or of the safety standards for the design, production and use of the equipment.

1.1.1 Instructions for safe use

Do not touch any terminals or conductors connected to the grid circuit as this may cause a fatal hazard!

Do not open the housing of the machine without authorization, as there is a risk of electric shock and the resulting malfunction of the machine is not covered by the warranty.

Damaged equipment or equipment malfunctions may cause an electric shock hazard or fire!

- Before operating the equipment, visually inspect it for damage or other hazards.
- Check that other external equipment or circuit connections are secure.

Do not stick your fingers or tools into the operating fan, as this may jeopardize personal safety or damage to equipment.

In case of fire, use a dry powder fire extinguisher; if you use a liquid fire extinguisher, it will cause an electric shock hazard.

Do not allow liquids or other foreign objects to enter the cabinet.

This product is class A equipment, and may cause radio interference when used for residential electricity. At this time, the user needs to take practical measures against the interference.

This product generates a DC current in the PE conductor. When a residual current action protective device (RCD) is used to prevent electric shock, only Type B RCDs are allowed to be used in the equipment above and below this product.

1.1.2 Cabinet identification description

The warning signs inside and outside the liquid-cooled commercial and industrial cabinets contain important information about the safe operation of the equipment and must not be torn or damaged!

Always observe the hazard warning signs on the cabinet. The markings on the liquid-cooled commercial and industrial integrated cabinet are described below:

Markings	Instructions
	Dangerous voltage inside may endanger personal safety; beware of electric shock.
	Consult the product's user's manual for use.
	General Warning.
	Do not dispose of it with ordinary garbage; it has to be recycled in a special way.
	An off-board grounding sign, which needs to be securely grounded for operator safety.
	High surface temperature to prevent burns.

Table 1-1 Cabinet Identification Description

1.1.3 Battery protection

Lethal high voltage exists between the positive and negative terminals of the Battery Rack, and accidental touching can result in electric shock, which can be serious and life-threatening.

When servicing the equipment, first ensure that the maintenance switch in the Battery Rack is completely disconnected, the grid AC switch is in the disconnected state, and warning signs are placed on the disconnections to ensure that accidental reconnections do not occur.

1.1.4 Grounding requirements

High leakage hazard! Grounding is required before making electrical connections. The required grounding terminal must be secured to the earth terminal.

When installing equipment, it must be grounded first; when removing equipment, the ground wire must be removed last.

Tampering with the grounding conductor is prohibited and the equipment should be permanently connected to a protective earth. Before operating the equipment, check the electrical connection to ensure that the equipment is safely grounded.

If a ground fault occurs in a liquid-cooled commercial or industrial integrated cabinet, it can cause certain otherwise non-electrically charged parts to carry lethal voltages, and accidental touching may cause injury. Before proceeding with installation and operation, make sure there is no system ground fault and take appropriate protective measures.

1.1.5 Electrical connections

Electrical connections must be made strictly in accordance with the descriptions in this manual and with the electrical wiring schematic diagrams and internal markings of the equipment.

The configuration and parameters of the grid side, such as voltage, frequency, etc., must comply with the parameter requirements of the technical specifications of the liquid-cooled industrial/commercial integrated cabinet. Grid-connected power generation requires the permission of the local power supply department and professional personnel to carry out the relevant operation. All electrical connections must comply with the electrical installation standards of the country where the project is located.

YXYK-125K/552314-L meets CB standard, YXYK-125K/552314-M meets UL standard, and

the parameter differences are shown in the technical parameter table in Annex A. The output of liquid-cooled commercial and industrial cabinets can be directly connected to the network, please operate according to the following requirements: one to twelve sets of liquid-cooled commercial and industrial cabinets can be connected to the low voltage side of one transformer by connecting the AC side in parallel. For more than twelve units it is recommended to connect one transformer for every twelve units.

1.1.6 Electrically charged measurements

Dangerous high voltages are present in the equipment, and accidental contact may result in a fatal electric shock. For this reason, it is important to take proper precautions (e.g., wearing insulated gloves, etc.) and to have other personnel with you when making measurements with electricity.

Measuring equipment must meet the following requirements:

The range and usable conditions of the measuring equipment are in accordance with the requirements of the site;

Ensure that the connection of the measuring equipment is correct and standardized so as not to cause arcing and other hazards.

1.1.7 Electrostatic protection

Static electricity generated by the human body may cause damage to sensitive components on the circuit boards within the equipment. Non-essential contact with the circuit boards should be avoided; wear an anti-static bracelet and ground the other end of the bracelet safely before contacting sensitive components.

1.1.8 Parameter setting

The setting of parameters is closely related to the operation of the liquid-cooled commercial and industrial cabinets and the equipment inside, therefore, modifications to such parameters need to be made after a reliable evaluation of the system.

Improper parameter settings may affect the functioning of the device and should only be carried out by professionals authorized by RelyEZ Energy.

The operator is solely responsible for the consequences of parameter modifications made without authorization from RelyEZ Energy!

1.1.9 Moisture and sand protection

Intrusion of moisture or sand may cause damage to the liquid-cooled commercial and industrial integrated cabinet!

To ensure proper use of the liquid-cooled commercial and industrial integrated cabinet, please observe the following instructions:

(1) When encountered with dust storms, wind, hail and other harsh environments; (2) When the air humidity is >95% or condensation is generated, do not open the door of the liquid-cooled industrial/commercial integrated cabinet;

Under rainy or wet weather conditions, please avoid opening the door of the liquid-cooled industrial/commercial integrated cabinet for maintenance or overhaul.

1.1.10 Safety warning signs set up

In order to avoid accidents caused by uninvolved persons approaching or misoperating the equipment, please observe the following requirements when installing, routine maintenance or overhauling the liquid-cooled industrial/commercial integrated cabinet:

(1) Warning signs are provided at the battery connections and AC grid connections of the liquid-cooled commercial and industrial integrated cabinets to prevent accidents caused by misclosing.
(2) Install warning signage or safety caution tape in the operating area to avoid injury to personnel or damage to equipment caused by the entry of unrelated personnel.
(3) After maintenance or overhaul, be sure to remove the liquid-cooled industrial/commercial integrated cabinet door key and keep it in a safe place.

1.1.11 Maintenance requirements

If the DC and AC sides have just been de-energized before checking or servicing, you must wait 10 minutes before operating the machine.

At least 2 people need to be on site at the same time during maintenance or troubleshooting. Confirm that the liquid-cooled industrial/commercial integrated cabinet is turned off before operation.

Before performing maintenance operations, observe the following requirements:

(1) Ensure that liquid-cooled commercial and industrial integrated cabinets do not accidentally reconnect.

(2) The internal circuitry of the liquid-cooled industrial/commercial integrated cabinet has been completely disconnected as measured with a multimeter.

(3) When operating, cover adjacent electrical components with an insulating cloth for insulation.

1.1.12 Disposal

Discontinue the use of the liquid-cooled commercial and industrial all-in-one cabinet or internal devices immediately when they reach the end of their maximum useful life. Contact RelyEZ Energy before disposal to ensure quick removal through your installation program or RelyEZ Energy. In addition to this, the following points should be noted:

(1) Do not dispose of batteries in the household trash! Please note that you are legally obligated to return used batteries.

(2) Used batteries, if not stored or disposed of properly, may contain contaminants that can harm the environment or endanger your health.

(3) Batteries contain important raw materials such as iron and lithium, which can be recycled

1.2 Operator Requirements

The operation and wiring work associated with the liquid-cooled commercial and industrial integrated cabinets shall be performed by professionally qualified personnel to ensure that all electrical installations comply with electrical installation standards.

Personnel responsible for installing and maintaining the equipment must be rigorously trained to understand the various safety precautions and master the correct operating

methods before installing, operating and maintaining the equipment. Operators need to meet the following requirements:

Some knowledge of electrical connections, mechanical installations, and familiarity with electrical and mechanical principles;

Familiarize yourself with the components and working principles of liquid-cooled commercial and industrial integrated cabinets;

Familiar with the composition and working principle of the upper and lower equipment of the liquid-cooled industrial and commercial integrated cabinet;

Trained in professional electrical operation, installation and commissioning;

Ability to handle emergencies during installation and commissioning;

Familiar with the relevant standards of the countries and regions where the products are located;

Familiarize yourself with the relevant instructions in this manual.

1.3 Environmental Requirements for Use

The use environment has a certain influence on the service life and reliability of the product. Therefore, please take care to avoid using the product in the following working environments for a long period of time:

High and low temperatures, altitudes and humid locations that exceed the specifications.

Locations are subject to vibration and susceptible to shock.

Locations with dust, corrosive substances, salts and flammable gases.

Poorly ventilated or enclosed premises.

1.4 Other

Liquid-cooled industrial/commercial cabinets are mostly installed in crowded places such as industrial/commercial areas, so please prepare emergency rescue facilities in advance.

All possible auxiliary measures should be taken to ensure the safety of personnel and equipment.

2. Summarize

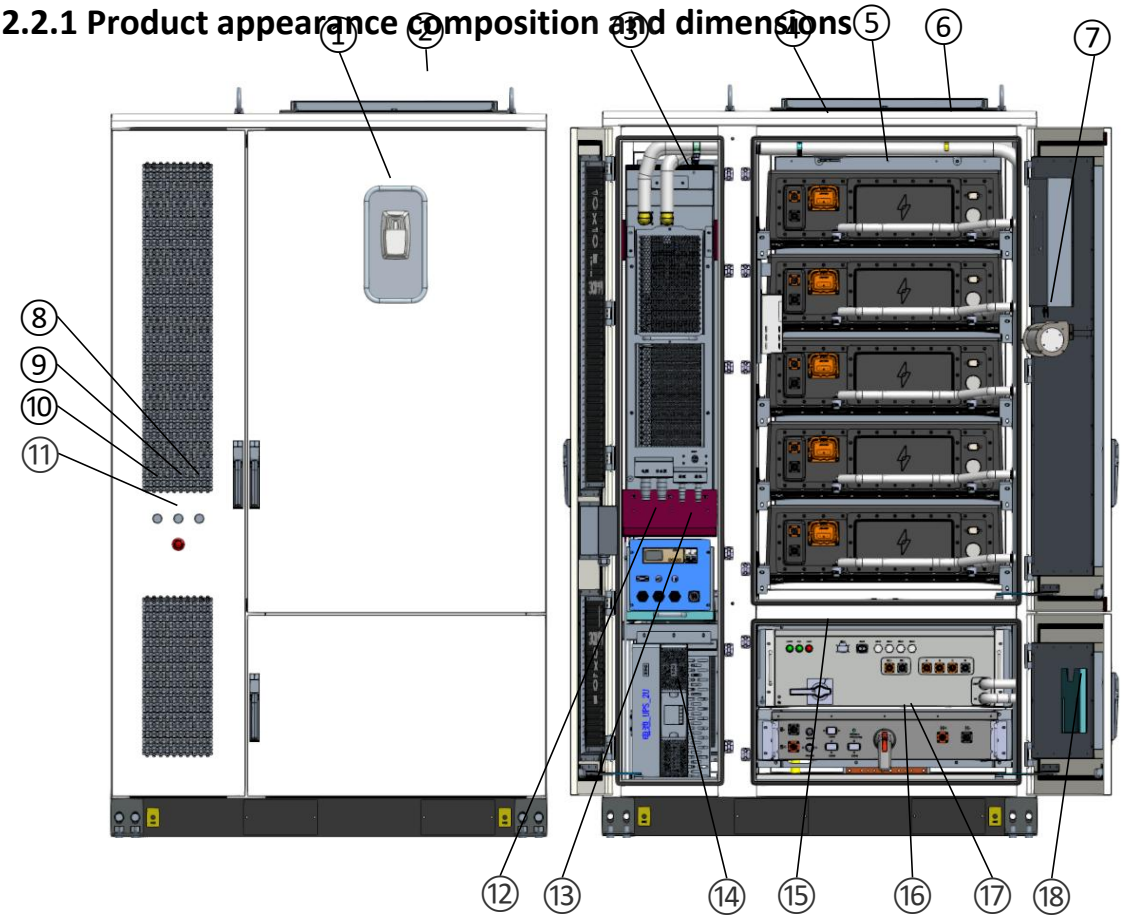
This chapter provides an overview of the product positioning, component composition, and dimensions of liquid-cooled commercial and industrial integrated cabinets.

2.1 Product Positioning

The VenturePro 250 is a customized energy storage solution designed for commercial and industrial users. It integrates advanced energy storage technology with an intelligent management system, enabling users to optimize energy usage, reduce energy costs, and maintain a continuous and stable power supply. The VenturePro 250 offers safe, stable, and reliable energy support for a variety of applications, including peak/valley arbitrage, emergency backup, and load balancing.

2.2 Product Description

2.2.1 Product appearance composition and dimensions



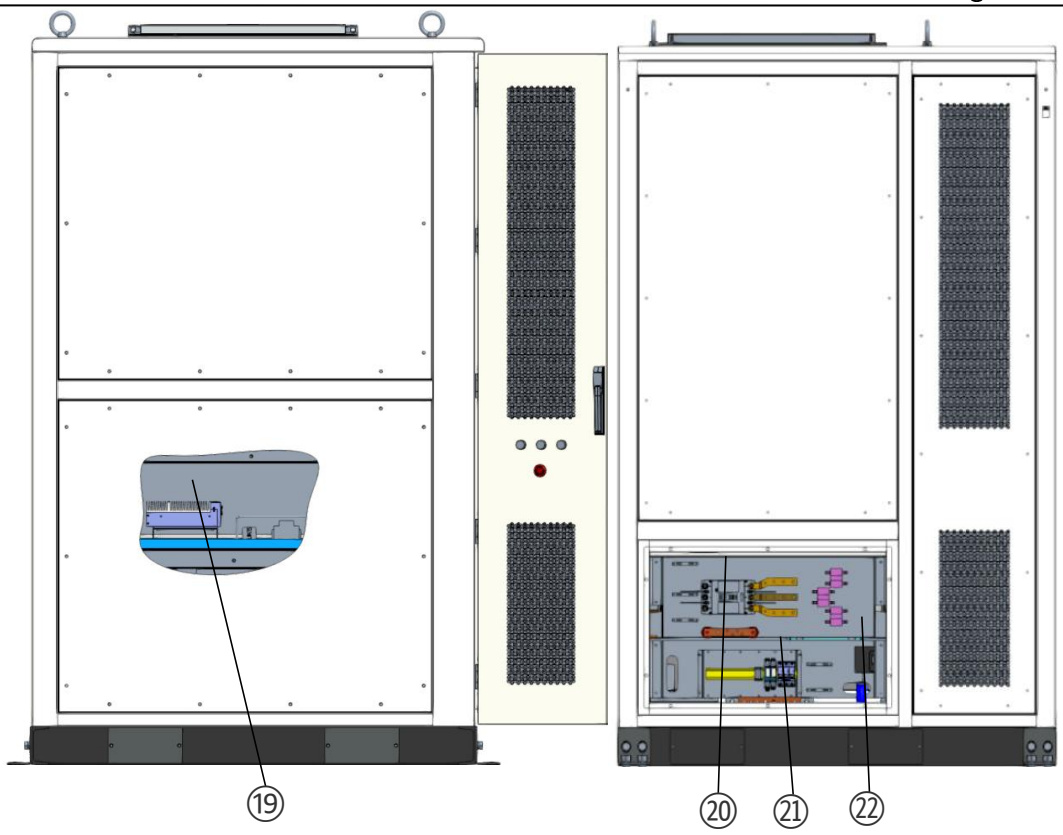


Chart 2-1 YXYK-125K/552314-L Component Composition Drawing

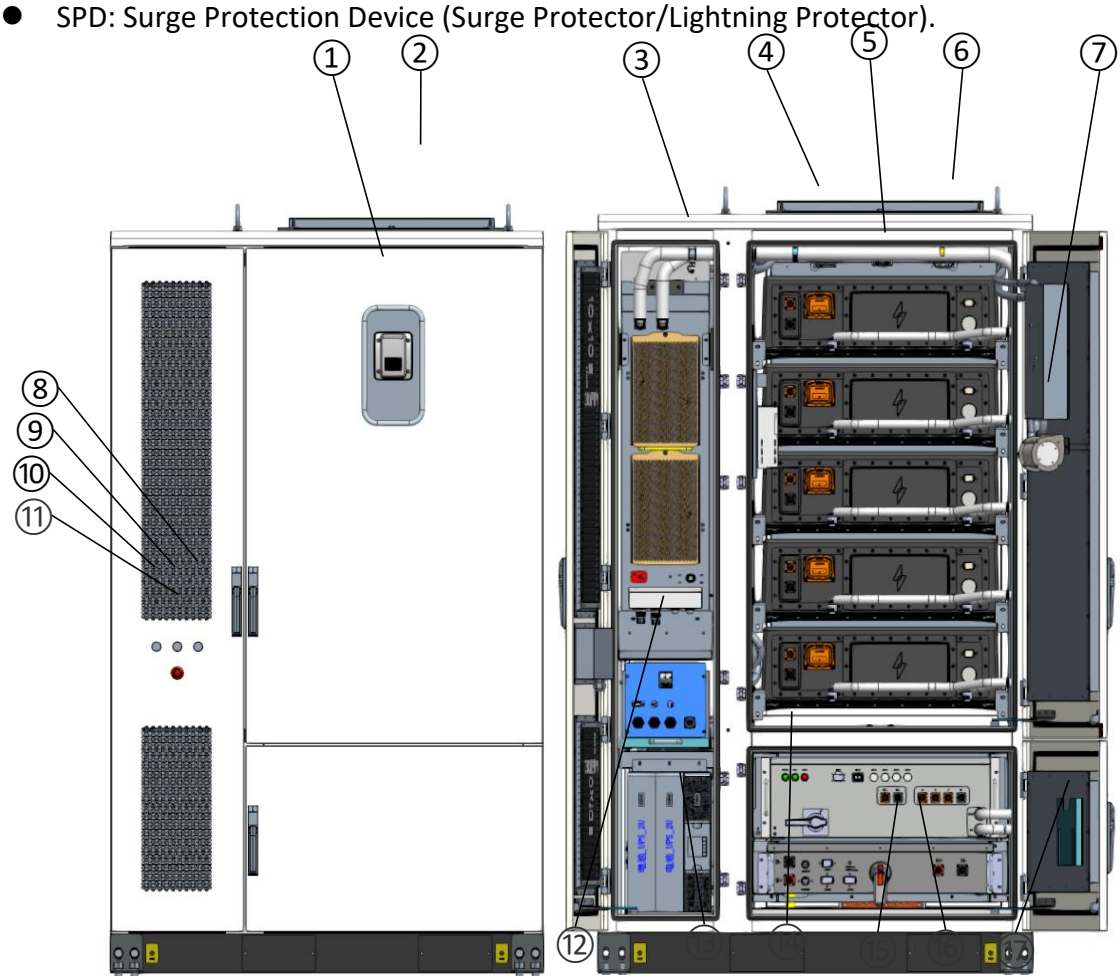
Serial No.	Name (of a thing)	Instructions
①	Audible and visual alarm	The audible and visual alarms will provide an audible and visual alarm when any of the fire detectors in the cabinet are activated. Refer to 2.2.4 for details.
②	Venting plate	When the pressure inside the cabinet reaches the dangerous value, the explosion relief plate will open and release the explosion to ensure the safety of the equipment. Refer to 2.2.4 for details.
③	Liquid cooler	The liquid cooler is filled with liquid coolant and controls the temperature of the battery module and PCS in real time through cooling, heating and self-circulation operating modes. Refer to 2.2.3 for details.
④	Fire Detectors	Fire detectors include smoke detectors, temperature detectors and combustible gas detectors, which can be linked with audible and visual alarms. Refer to 2.2.4 for details.
⑤	Battery module	The battery module consists of battery cell, MSD, liquid cooling plate, series connection aluminum row, end plate, plastic steel tie, shell and SBMU, etc. It adopts modular design, which is convenient for handling, installation and maintenance. Refer to 2.2.2 for details.
⑥	Liquid Cooling Line	The liquid cooling line consists of a primary line, a secondary line, a vent valve, a drain valve, and quick-connect fittings that are responsible for carrying and delivering the coolant. Refer to 2.2.3 for details.

⑦	Aerosol fire extinguishers	Aerosol fire extinguishing devices can be triggered in the event of a fire and are effective in extinguishing electrical fires, liquid fires or fusible solid fires. Refer to 2.2.4 for details.
⑧	Malfunction indicator	A yellow indicator light that will illuminate when the liquid-cooled industrial/commercial integrated cabinet is malfunctioning.
⑨	Operation Indicator Light	A green indicator light that will illuminate during normal operation of the liquid-cooled industrial/commercial integrated cabinet.
⑩	Power indicator	A white indicator light that will illuminate when the liquid-cooled commercial and industrial integrated cabinet auxiliary power is energized.
⑪	Emergency stop button	When the equipment is in an abnormal condition, press the button to an emergency stop. After the fault recovery, turn the emergency stop button clockwise to release the emergency stop.
⑫	Multi-function meter	The multifunction meter measures parameters such as current, voltage, power and electrical energy on the AC side and uploads them to the EMS device.
⑬	QF3	QF3 is the auxiliary power switch and needs to be closed before the unit is used.
⑭	UPS	The UPS and its batteries form an uninterruptible power supply that can safeguard the liquid-cooled industrial and commercial integrated cabinets for a period of time when the input power supply is abnormal.
⑮	PCS	The PCS is responsible for the energy exchange between the grid and the battery, monitoring and managing the exchange process. For details, refer to 2.2.2.
⑯	High Voltage Control Box	The high-voltage control box consists of an SBCU, a current detection circuit, a DC main switch, and a fuse. It is mainly responsible for monitoring and protecting the Battery Rack. Refer to 2.2.2 for details.
⑰	BMS	The BMS contains SBCU and SBMU, responsible for managing the battery status.
⑱	File rack	Paper copies will be stored in the information racks, so please keep them in a safe place.
⑲	EMS	The EMS component is the control core of the liquid-cooled industrial/commercial all-in-one cabinet, carrying a variety of control strategies, which can analyze the equipment operating parameters in real time, control the equipment operation and be responsible for the information interaction with the upper-level equipment. For details, please refer to 4.4.
⑳	QF1	QF1 is the AC main switch, which is responsible for connecting and shutting down the connection between the integrated cabinet and the power grid, and has the functions of short-circuit protection, over-load protection, and opening of AC circuits for the AC system.
㉑	Surge protection circuit	Consisting of a QF2 surge protection switch and SPD, it protects equipment from voltage surge damage.
㉒	AC Terminal Block	Grid power access point.

Table 2-1 YXYK-125K/552314-L Component Description

Description:

- PCS: Power Conversion System, Energy Storage Converter.
- MSD: Manual Service Device.
- SBMU: Storage Battery Management Unit, slave control module.
- EMS: Energy Management System.
- QF: Q (Switching device for power circuit), F (Protection device), QF means circuit breaker.
- UPS: Uninterruptible Power Supply.
- BMS: Battery Management System.
- SBCU: Storage Battery Cluster Unit, main control module.
- SPD: Surge Protection Device (Surge Protector/Lightning Protector).



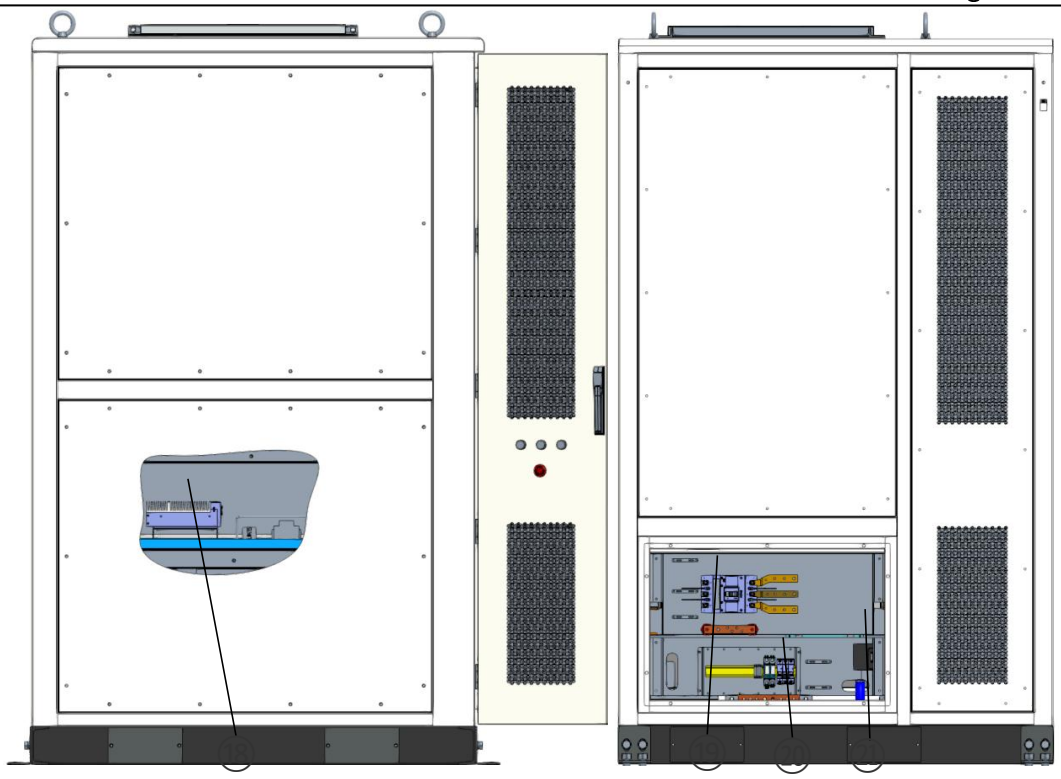


Chart 2-2 YXYK-125K/552314-M Parts Composition Diagram

Serial No.	Name	Instructions
①	Audible and visual alarm	The audible and visual alarms will provide an audible and visual alarm when any of the fire detectors in the cabinet are activated. Refer to 2.2.4 for details.
②	Venting plate	When the pressure inside the cabinet reaches the dangerous value, the explosion relief plate will open and release the explosion to ensure the safety of the equipment. Refer to 2.2.4 for details.
③	Liquid cooler	The liquid cooler is filled with liquid coolant and controls the temperature of the battery module and PCS in real time through cooling, heating and self-circulation operating modes. Refer to 2.2.3 for details.
④	Fire Detectors	Fire detectors include smoke detectors, temperature detectors and combustible gas detectors, which can be linked with audible and visual alarms. Refer to 2.2.4 for details.
⑤	Battery module	The battery module consists of battery cell, MSD, liquid cooling plate, series connection aluminum row, end plate, plastic steel tie, shell and SBMU, etc. It adopts modular design, which is convenient for handling, installation and maintenance. Refer to 2.2.2 for details.
⑥	Liquid Cooling Line	The liquid cooling line consists of a primary line, a secondary line, a vent valve, a drain valve, and quick-connect fittings that are responsible for carrying and delivering the coolant. Refer to 2.2.3 for details.
⑦	Aerosol fire extinguishers	Aerosol fire extinguishing devices can be triggered in the event of a fire and are effective in extinguishing electrical fires, liquid fires or fusible solid fires. Refer to 2.2.4 for details.

⑧	Malfunction indicator	A yellow indicator light that will illuminate when the liquid-cooled industrial/commercial integrated cabinet is malfunctioning.
⑨	Operation Indicator Light	A green indicator light that will illuminate during normal operation of the liquid-cooled industrial/commercial integrated cabinet.
⑩	Power indicator	A white indicator light that will illuminate when the liquid-cooled commercial and industrial integrated cabinet auxiliary power is energized.
⑪	Emergency stop button	When the equipment is in an abnormal state, press the button to emergency stop. After the fault recovery, turn the emergency stop button clockwise to release the emergency stop.
⑫	QF3	QF3 is the auxiliary power switch and needs to be closed before the unit is used.
⑬	UPS	The UPS and its batteries form an uninterruptible power supply that can safeguard the liquid-cooled industrial and commercial integrated cabinets for a period of time when the input power supply is abnormal.
⑭	PCS	The PCS is responsible for the energy exchange between the grid and the battery and monitors and manages the exchange process. Refer to 2.2.2 for details.
⑮	High Voltage Control Box	The high voltage control box consists of SBCU, current detection circuit, DC main switch and fuse, which is mainly responsible for the monitoring and protection of Battery Rack. Refer to 2.2.2 for details.
⑯	BMS	The BMS contains the SBCU and SBMU, which are responsible for managing the battery status.
⑰	File rack	Paper copies will be stored in the information racks, so please keep them in a safe place.
⑱	EMS	The EMS component is the control core of the liquid-cooled industrial/commercial all-in-one cabinet, carrying a variety of control strategies, which can analyze the equipment operating parameters in real time, control the equipment operation and be responsible for the information interaction with the upper-level equipment. For details, please refer to 4.4.
⑲	QF1	QF1 is the AC main switch, which is responsible for connecting and shutting down the connection between the integrated cabinet and the power grid, and has the functions of short-circuit protection, over-load protection, and opening of AC circuits for the AC system.
⑳	Surge protection circuit	Consisting of a QF2 surge protection switch and SPD, it protects equipment from voltage surge damage.
㉑	AC Terminal Block	Grid power access point.

Table 2-2 YXYK-125K/552314-M Component Description

2.2.2 Energy storage components

The energy storage component mainly consists of a battery module, high-voltage control box, BMS system, PCS, and related wiring harness. It is the main functional component of the liquid-cooled industrial/commercial integrated cabinet.

(1) Battery module: 3.2V/314Ah Li-FePO4 cell 1P52S design, each 1P52S battery module consists of four 1P13S cell modules connected in series to form a 166.4V/314Ah with a total energy of 52.2496kWh, and at the same time, there is an internal built-in collection harness and SBMU for collecting the voltage and temperature of the cell.

Chart 2-3 Battery Module Composition Diagram

Serial No.	Name (of a thing)	Instructions
①	Battery module positive/negative quick-insert terminals	Positive/negative output connector for the battery module.
②	MSD	The MSD consists of a maintenance switch plug and socket, which needs to be unplugged and stored properly for transportation, maintenance and storage and plugged back in during actual operation.
③	SBMU	Responsible for single cell voltage and temperature acquisition and battery equalization management within the battery module.
④	Liquid cooling plate water outlet	The liquid cooling plate interfaces with the liquid cooling line.
⑤	Ventilator	Responsible for balancing air pressure inside and outside the battery module.
⑥	Battery Module Communication Terminal	Communication interface between the battery module and the high voltage control box.

⑦	Liquid-cooled plate	Liquid-cooled panels are in direct contact with the battery cells to transfer heat and act as structural load-bearing.

Table 2-3 Battery Module Composition Description

(2) High-voltage control box: It consists of SBCU, current detection circuit, DC main switch and fuse, mainly responsible for the monitoring and protection of Battery Rack.

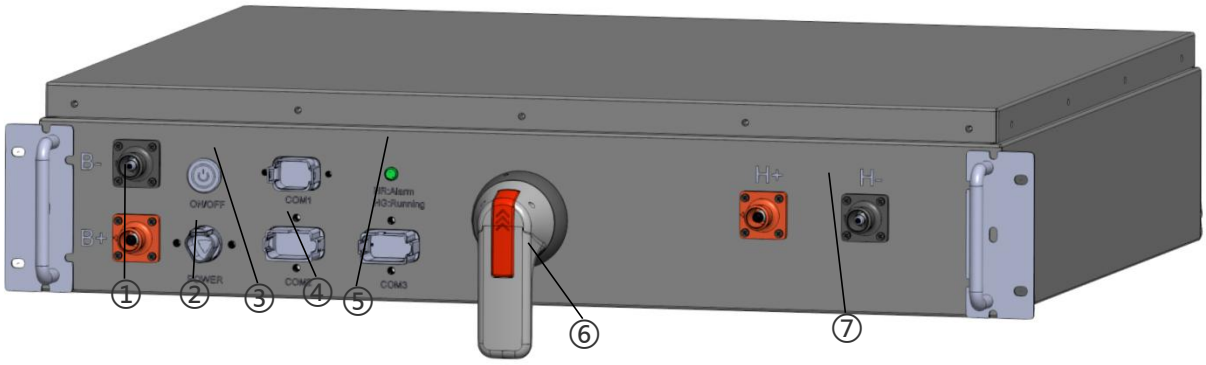


Chart 2-4 High-voltage Control Box Composition Diagram

Serial No.	Name (of a thing)	Instructions
①	B+/B- snap-in terminals	High voltage control box with positive/negative battery connections.
②	Auxiliary power supply quick-connect terminals for high-voltage control box	External auxiliary power connector for the high voltage control box.
③	Lighted Start Button	The lighted start button activates and deactivates the HV control box, and the button light illuminates to indicate that the HV control box is energized.
④	High-voltage control box communication snap-in terminals	External communication interface for the high voltage control box.
⑤	High voltage control box run/fault indicator	A green light is on to indicate operation and a red light is on to indicate a fault.
⑥	DC Main Switch	The DC main switch has the functions of short-circuit protection, overload protection, and opening and closing of DC circuits for the DC system.
⑦	H+/H- snap-in terminals	High voltage control box with PCS positive/negative interface.

Table 2-4 Description of the Components of the High-voltage Control Box

(3) BMS: A device that detects the battery's voltage, current, temperature and other parameter information and manages and controls the battery's status. The BMS has built-in multiple limiting and disconnecting strategies to limit the power of the device or disconnect the connection with the faulty device in the event of an emergency.

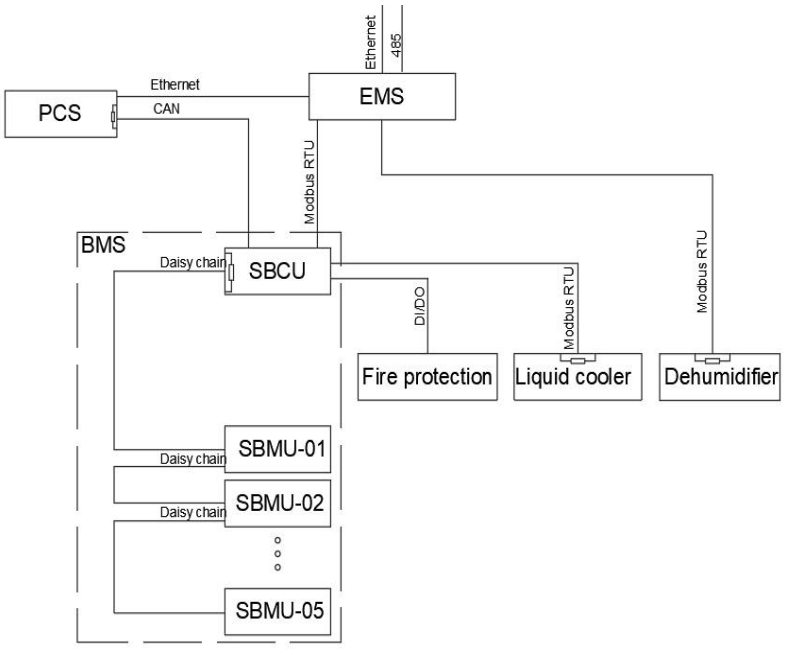


Chart 2-5 BMS Communication Topology

(4) PCS: A non-isolated energy storage converter is built into the liquid-cooled industrial/commercial cabinet. Its main function is to realize the conversion of power between the grid and the battery module and monitor and manage the exchange process. PCS stores the power measured by the grid in the battery module, sends the power from the battery module to the grid when needed, and can communicate with the BMS to carry out a reasonable charging and discharging operation of the battery module.

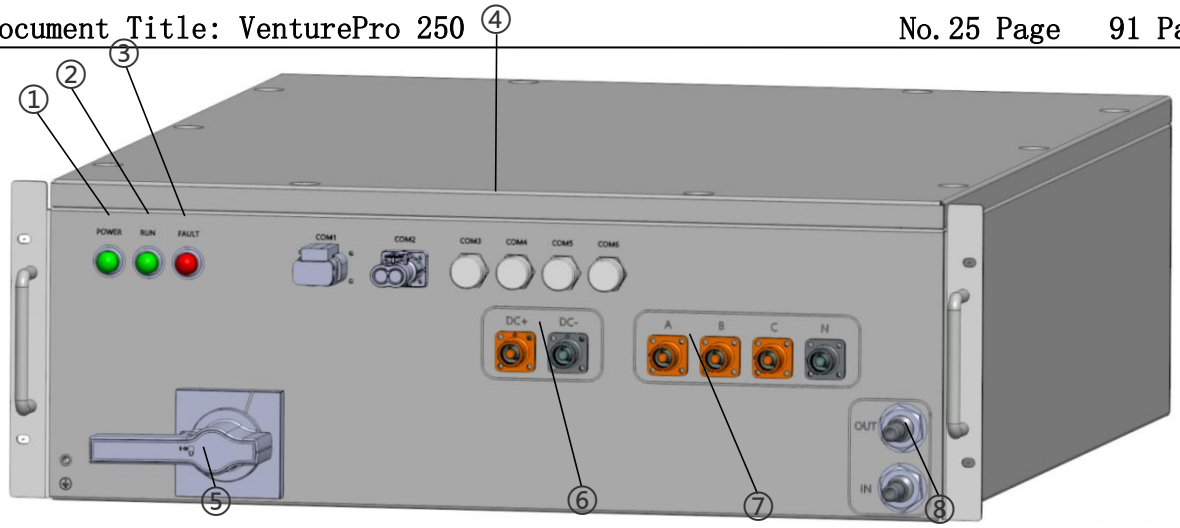


Chart 2-6 PCS Composition Diagram

Serial No.	Name (of a thing)	Instructions
①	PCS Power Indicator	The PCS power indicator will light when the DC side is powered up.
②	PCS operation indicator	The PCS run indicator will be lit during normal operation.
③	PCS Fault Indicator	The PCS malfunction indicator will illuminate when a malfunction occurs.
④	PCS Communication Terminal	PCS external communication interface.
⑤	PCS Disconnect Switches	The DC disconnect switch inside the PCS should be turned ON before operation and turned OFF for maintenance or shutdown.
⑥	DC+/DC- snap-in terminals	H+/H- interface between PCS and high voltage control box.
⑦	A/B/C/N snap-in terminals	The PCS externally outputs an AC power interface.
⑧	PCS water connection	PCS interfaces with the liquid cooling line.

Table 2-5 Description of PCS Composition

2.2.3 Temperature control components

The temperature control module consists of a liquid cooler, liquid cooling pipeline and liquid cooling plate, which is mainly used to regulate the temperature of the battery module and PCS in the integrated cabinet to ensure that they always work within the appropriate temperature range in order to maintain the optimal working condition of the system. It has the following functions:

(1) Precise measurement and monitoring of coolant temperature and pressure.

(2) Effective heat dissipation when the battery module or PCS temperature is high to prevent thermal runaway accidents.

(3) Preheating is performed when the temperature of the battery module is low to raise the battery temperature and ensure charging and discharging performance and safety at low temperatures.

2.2.4 Firefighting components

RelyEZ Energy has configured a dual design of active detection with an alarm system and passive detection with a fire extinguishing system based on the fire hazard characteristics of liquid-cooled commercial and industrial cabinets, including aerosol fire extinguishers, fire detectors, audible and visual alarms, and explosion venting panels.

(1) Aerosol fire suppression units

The aerosol fire extinguishing device is highly efficient firefighting equipment that can be used to fight electrical fires, liquid fires, or melting solid fires. The temperature activation head starts spraying aerosol to extinguish the fire when the temperature reaches 93℃. The safety pin needs to be pulled out before the equipment is put into operation.

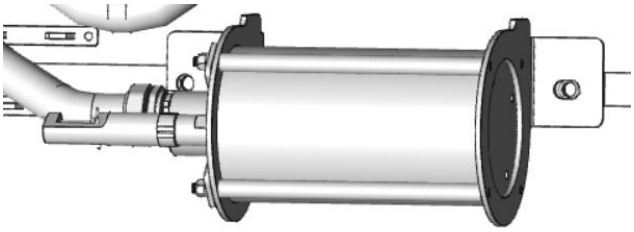


Chart 2-7 Aerosol Fire Extinguishers

(2) Fire Detectors and Audible & Visual Alarms

The cabinet is equipped with a smoke, temperature, and combustible gas detector. When the smoke, temperature, and hydrogen concentration in the cabinet reach a certain

level, the fire detector uploads the alarm signal to the BMS and links to the sound and light alarm.

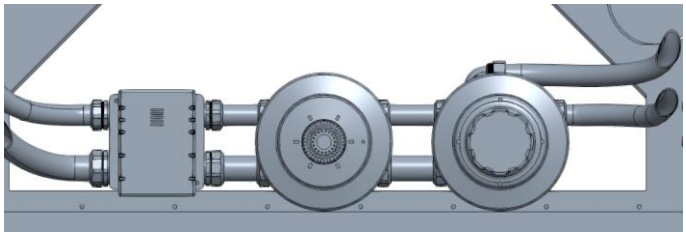


Chart 2-8 Fire Detectors

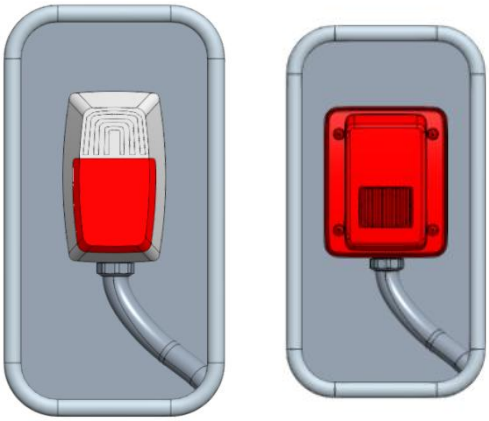


Chart 2-9 YXYK-125K/552314-L/YXYK-125K/552314-M Sound and Light Alarm

(3) venting plate

When the pressure inside the cabinet reaches a dangerous level, the relief panel will open and release the explosion to keep the equipment safe. RelyEZ Energy chose a top-mounted design to minimize damage to people or property in the vicinity.

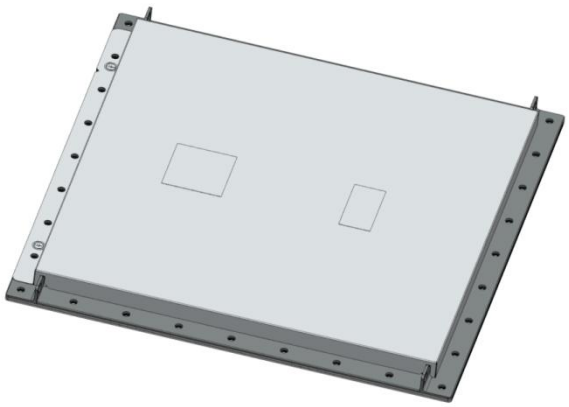


Chart 2-10 Drain Plate

2.2.5 Product size

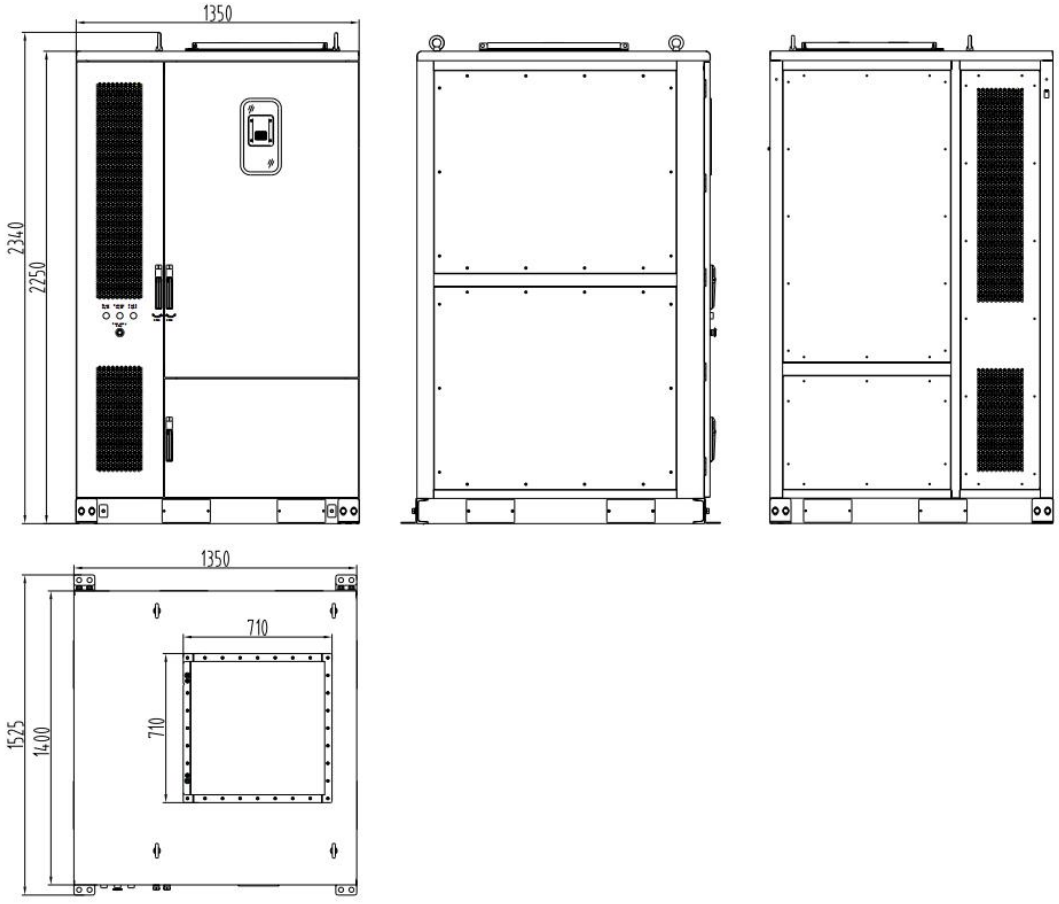


Chart 2-11 Liquid-cooled Commercial and Industrial Integrated Cabinet Dimensions

3. Installation Instructions

3.1 Installation Overview

This chapter describes in detail the safe use instructions, loading and unloading, installation and inspection of the liquid-cooled commercial and industrial integrated cabinet. Staff must operate the liquid-cooled industrial/commercial integrated cabinet in strict accordance with the descriptions of the loading, unloading, installation and inspection matters in the chapter. Failure to do so may result in serious equipment damage, accidental personnel injury, and other accidents.

If, while reading this section, you do not understand the disassembly, installation, inspection and use described therein, please contact RelyEZ Energy immediately to avoid unnecessary damage.

3.2 Installation Safety Instructions

3.2.1 Installer requirements

Personnel involved in dismantling, installing, and commissioning the liquid-cooled industrial/commercial integrated cabinet are required to wear specified protective gear. This includes insulated safety shoes, insulated gloves (for battery-related work), a safety helmet, and cut-resistant gloves (for general work), and it must be within the specified validity period. The main protective equipment is shown in the following diagram.

Chart 3-1 Protective Gear

ATTENTION

Failure to wear the required safety protective equipment during installation may result in accidental injury to personnel.

3.2.2 Dangerous situation

Hazardous situations are generally referred to as lifting hazards, forklift handling hazards, fire hazards, electric shock hazards, etc.

(1) Lifting Hazard: The total weight of this product is about 3500kg, so it is easy to be dangerous when lifting.
(2) Forklift Handling Hazard: Forklift handling is prone to hazards.
(3) Fire Hazard: Lithium-ion batteries can short-circuit and catch fire in a collision or similar event.
(4) Electrocution Hazard: Since the battery is charged, it is easy to touch the positive and negative poles during installation and wiring, resulting in electrocution injury.

3.2.3 Emergency response to personnel security incidents

Emergency response to personnel security incidents can generally be categorized into 2 types of situations: severe and minor injuries.

(1) For minor injuries, after simple on-site treatment, the competent authority will arrange for a vehicle to be dispatched by the supervisor to the nearest hospital at the project site for treatment.
(2) Serious injuries, the first time the scene first aid treatment, depending on the condition of the injured person for bandaging, immobilization, or artificial cardiopulmonary resuscitation and other first aid measures, at the same time to call the local emergency telephone, sent to the nearest hospital for treatment.

3.2.4 Emergency medical kit

The site should be equipped with an emergency medical kit containing gauze, hydrogen peroxide, scissors, iodophor, alcohol, cotton swabs, band-aids, gauze, disposable masks, and thermometers, and the emergency medical kit is placed in the project department at the project site.

Serial No.	Name (of a thing)	Quantities	Unit (of measure)	Note
1	hydrogen peroxide	1	pcs	clean and disinfect
2	scissor	1	pcs	cutting gauze
3	iodophor	1	pcs	disinfection

4	alcohol	1	pcs	clean and disinfect
5	cotton swabs	1	pcs	wipe
6	bandage	10	pcs	bind up
7	gauze	1	pcs	bind up
8	facemask	10	pcs	respiratory protection
9	thermometer	1	pcs	temperature measurement

Table 3-1 Emergency Medical Supplies

The on-site emergency medical kit shall contain, but not be limited to, tabulated medical supplies.

3.2.5 Flammable hazards during installation and emergency measures

In the event of a fall, puncture or impact during the installation of the equipment, there is a potential risk of flammability; the damaged parts should be properly placed 50 meters away from the crowded area and close to the fire extinguishing equipment.

On-site installers and commissioning personnel must be able to correctly use the fire extinguisher. If the fire has spread, use the dry powder fire extinguisher to extinguish the fire under the circumstance of safeguarding one's own safety, and if the fire still does not abate, one should immediately call the fire alarm while the personnel are evacuated in time. Dry powder fire extinguisher operation process: lift up the fire extinguisher →, pull down the safety pin →, press down the handle with force, → aim at the root of the fire source sweeping. See the figure below.

Chart 3-2 Dry Powder Fire Extinguisher Operation Process

3.3 Packaging for Liquid-cooled Commercial and Industrial Integrated Cabinets

3.3.1 Packaging steps

The steps for packing the cabinet are shown below:

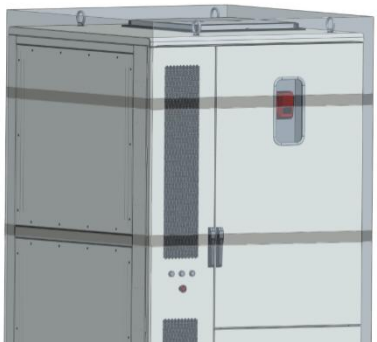
(1) The bottom pallet is placed flat, and the cabinet is lifted or lifted on the pallet with a forklift truck and fixed;

Chart 3-3 Cabinet Placed on Pallet

(2) Use DIN 571-2008 hex head wood bolts, flat spacers to secure the tray to the cabinet at all four corners;

Chart 3-4 The Cabinet is Fixed with the Tray

(3) Cabinet fixed, from top to bottom into the bag, bag mouth wrapped in transparent tape, the top package to both sides to put flat, and transparent tape to be fixed;



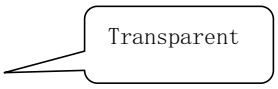


Chart 3-5 Cabinet Exterior in a Bag

(4) The exterior of the cabinet is then wrapped in pearl cotton and packed with packing tape (or tightening tape);

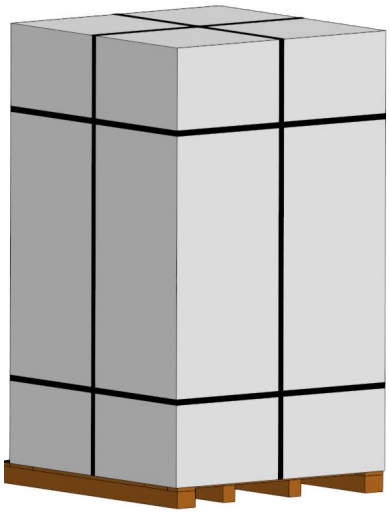


Chart 3-6 Cabinet Wrapped in Pearl Cotton

(5) Install the wrap from the bottom of the pallet (against the ground) upwards with no less than 3 layers of wrap.

3.4 Transportation of Liquid-cooled Commercial and Industrial Integrated Cabinets

3.4.1 Lifting and forklift handling

ATTENTION

When the liquid-cooled commercial and industrial integrated cabinet is lifted and handled by a forklift, no one should be in the surrounding hazardous area.

Liquid-cooled industrial/commercial cabinets require specialized lifting personnel for lifting.

The loading and unloading of liquid-cooled industrial and commercial cabinets generally use cranes and forklifts, and attention should be paid to the position of the center of gravity of the liquid-cooled industrial and commercial cabinets in the process of crane lifting and forklift handling. In order to ensure that the product is not damaged during loading and unloading, there must be auxiliary personnel to cooperate and guide the lifting or handling operation. Forklift handling should be equipped with extended tines.

The total weight of the liquid-cooled industrial/commercial cabinet is about 3500kg, and it can be lifted by using the 4 lifting rings on the top. (Before lifting, it is necessary to install the lifting ring bolts reliably in the threaded holes on the top of the cabinet). Flexible sling can be used for lifting. The single sling should have a load capacity of not less than 3 tons. The hook should be at least 1m away from the top of the cabinet. The tilt of the cabinet should be less than 10°.

Lifting can be categorized into 2 ways: packing and unpacking:

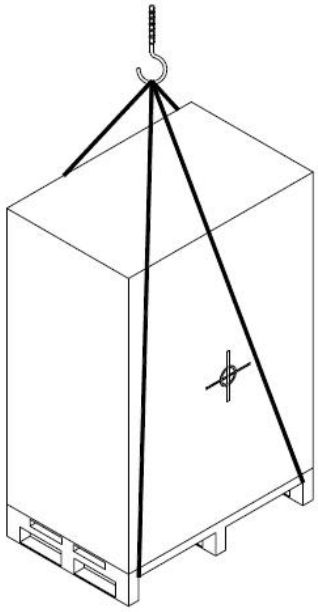


Chart 3-7 Liquid-cooled Industrial/Commercial Cabinets with Packaging and Lifting Schematics

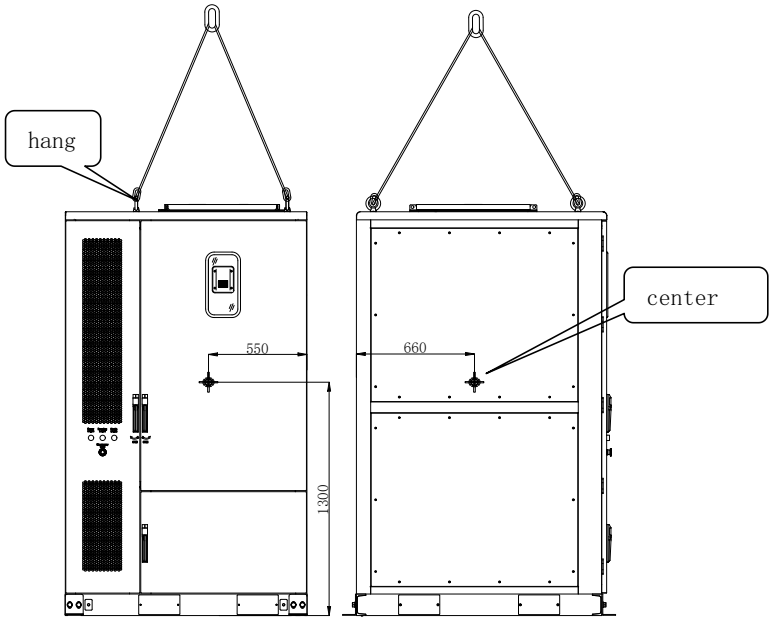


Chart 3-8 Liquid-cooled Industrial/Commercial Cabinet Unpacking and Lifting Schematic Diagram

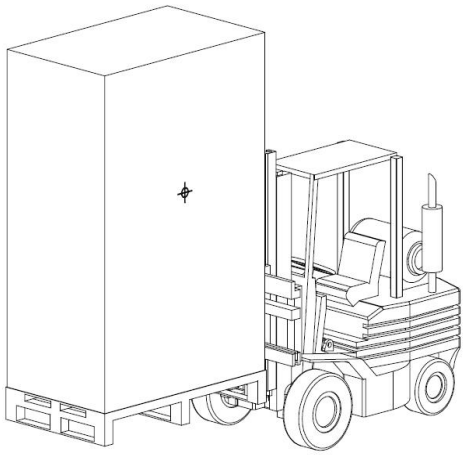


Chart 3-9 Liquid-cooled Commercial and Industrial Cabinets with Packing and Handling Schematics

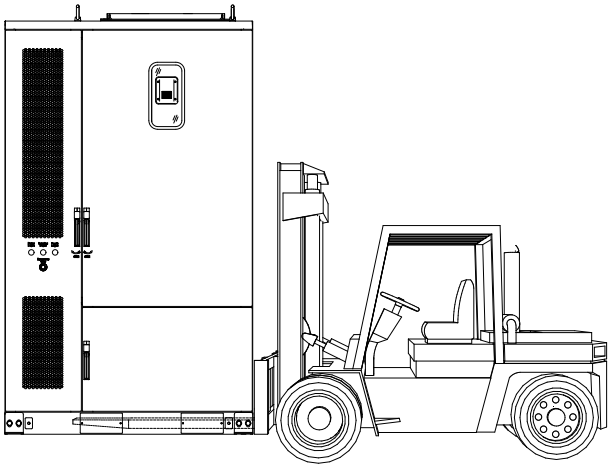


Chart 3-10 Liquid-cooled Industrial and Commercial Integrated Cabinet Unpacking and Handling Schematic Diagram

3.4.2 Transport and lifting precautions

- There are some things to keep in mind during the lifting process of liquid-cooled commercial and industrial integrated cabinets:

(1) When lifting a full load, select the crane/forklift tonnage according to the actual weight, and the operation of a professional with a special operating license is required.

(2) Use specialized shackles, rings, slings, and straps that meet the load requirements, and safety-check the tools before lifting.

(3) A liquid-cooled industrial/commercial cabinet weighs about 3500kg, so it should be loaded and transported as a whole, and a suitable crane should be chosen for lifting.

(4) When lifting, control the total vertical height of the sling, with a static lifting time of 10 minutes, to avoid swinging when lifting, which is not easy to control.

(5) Tipping is strictly prohibited when handling the liquid-cooled commercial and industrial one-piece cabinet and its accessories.

(6) Mechanical shocks, such as violent shaking or sudden lowering or lifting, should be avoided when moving the liquid-cooled industrial/commercial integrated cabinet and its accessories.

(7) The lifting operation should satisfy sufficient lighting conditions and avoid lifting and moving the liquid-cooled industrial/commercial integrated cabinet and its components in rain, fog, wind and other bad weather conditions.

(8) (c) If a fire is started at the hoisting site, comply with the fire regulations. Ropes, ropes and tow ropes at the site of lifting operations shall avoid contact with live electrical lines and be kept at a safe distance.

- There are some things to keep in mind during the transportation of liquid-cooled commercial and industrial integrated cabinets:

(1) Transportation by truck: Use tools such as buckles and straps to fix the liquid-cooled industrial/commercial integrated cabinet in the truck's cargo box; transportation speed: The truck's driving speed on the first and second-class highways shall not exceed 80km/h. The driving speed on the three-level highway shall not exceed 36km/h. Try to keep the speed even and prevent sharp braking and sharp turning.

(2) Transportation by ship: Liquid-cooled industrial/commercial integrated cabinets can be transported in 40'HC containers for ocean transportation. The external dimensions of 40'HC containers are 12,192(L) ×2438(W) ×2896(H); the height of the entrance door is about 2580. Each container can be divided into 8 sets of cabinets. Before transportation, make sure the cabinet's packaging is complete, and pay attention to waterproof and moisture-proofing.

- Precautions to be taken before transportation of liquid-cooled systems:

(1) Ensure that the primary and secondary line connections are assembled in place as shown below:

(2) Visually check that each pipe fitting and quick-connect fitting remains axially threaded and assembled in place;

(3) There are no sharp objects around each line and no fluid leakage.

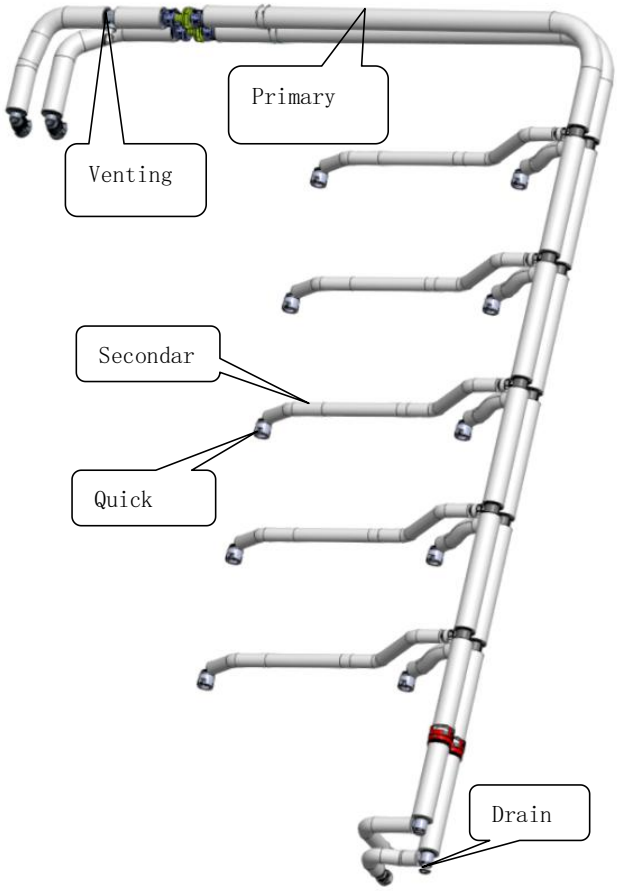


Chart 3-11 Liquid Cooling Tube Schematic

The primary line is installed vertically as shown:

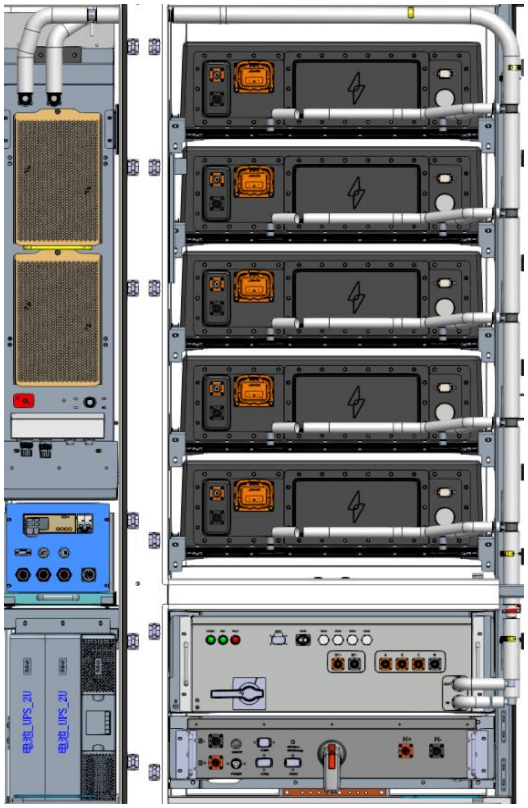


Chart 3-12 Liquid Cooling Pipe Installation Schematic

Ensure vertical axial installation when assembling secondary piping and avoid bending at joints.

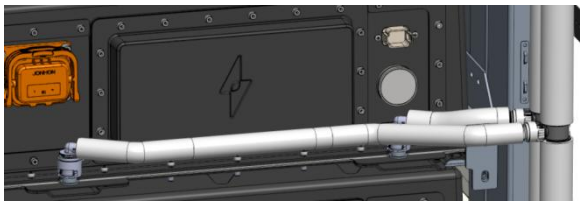


Chart 3-13 Liquid Cooling Pipe Installation Schematic

Must ensure that all pipelines are installed reliably, start the liquid cooler and run it for about 30 minutes without leakage;

There is an air vent valve at the top of the primary line and a drain valve at the bottom of the secondary line. Check for tightness before transportation. As shown in the figure below:

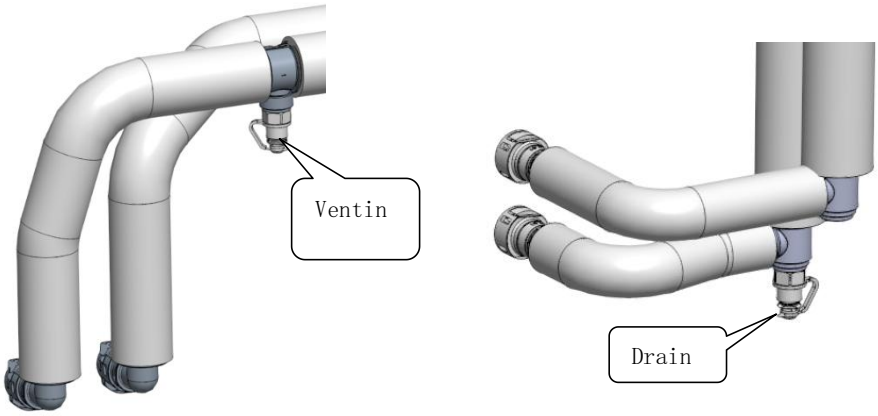


Chart 3-14 Schematic Diagram of Liquid Cooling Tube Exhaust and Drain Valve

3.4.3 Receiving inspection

Liquid-cooled commercial and industrial all-in-one cabinets are fully inspected by RelyEZ Energy quality control personnel and packed securely before leaving the factory. Nevertheless, collision or even damage may still occur during transportation. Therefore, when you receive the product, please make sure that the anti-tipping label on the outside of the product is not shifted, if so, please contact RelyEZ Energy in time.

Check and verify materials against the delivery list to ensure that the liquid-cooled commercial and industrial integrated cabinets arrive complete.

The following items should be checked after opening the box:

Serial No.	Inspection Items
1	No damage, scratches, dents, etc. on the exterior.
2	Products are ordered with a full range of options.
3	The nameplate information matches the model number of the product ordered.
4	Warning labels are free of damage, scratches, blurring, etc.

Table 3-2 Unpacking Checklist

Unboxing Notes:

(1) Liquid-cooled commercial and industrial one-piece cabinets are stored without removing the packaging and are removed when installed.

(2) When receiving goods from the transportation company, it is important to conduct a careful and detailed inspection of the product and check each piece of goods received against the supply list. If the goods are missing or damaged, the transportation company should be notified immediately.

(3) Before opening the box, please check whether the outer package of the product is intact, there is no damage, soaking, moisture, deformation and so on.

(4) Please open the package in hierarchical order and do not knock it violently!

(5) Please check the surface of the product and product accessories for damage, rust, bruises, etc. when opening the box.

3.5 Storage of Liquid-cooled Commercial and Industrial Integrated Cabinets

3.5.1 Storage requirements

Liquid-cooled commercial and industrial all-in-one cabinets have the following storage requirements:

(1) When storing, try to pack in our boxes in their original packaging.

(2) The temperature should be kept between -30° C and +55° C.

(3) The equipment must be placed in a clean and dry space, avoid placing it under water splash, rain, humidity, high temperature or outdoor exposure.

(4) The storage space is free of harmful gases, flammable and explosive products and corrosive chemicals.

(5) When stored for long periods of time, it must be covered or appropriate measures taken to ensure that the equipment is protected from contamination and environmental influences.

(6) Avoid mechanical shocks, heavy pressure, strong electric and magnetic fields.

(7) Avoid direct sunlight, distance from the heat source needs to be ⩾ 2m, the packing box should be padded from the ground needs to be ⩾ 20cm high, from the wall, window or air inlet needs to be ⩾ 50cm.

(8) Regular inspection, not less than once a week. Check whether the outer package is intact to avoid insects and rodents chewing, and take remedial measures immediately if the outer package is damaged.

(9) If you need to store the unit for a period of time, connect the UPS to the grid to recharge the batteries at least every 6 months. The internal battery of the UPS charges to 90% capacity within 3 hours. However, RelyEZ Energy recommends that the battery be charged for 48 hours after long-term storage.

(10) When the liquid-cooled industrial/commercial cabinet ever enters or passes through a humid environment, it is recommended to keep it in a dry and ventilated environment for more than 24 hours.

3.6 Installation of Liquid-cooled Commercial and Industrial Integrated Cabinets

3.6.1 Foundation Requirements

The liquid-cooled industrial and commercial integrated cabinet must be installed on concrete or other non-combustible surfaces, and it must be ensured that the installation plane is horizontal, firm, and level, with sufficient bearing capacity, and depressions or inclinations are prohibited.

(1) Installation ground flatness requirements: in the 2m range of flatness deviation is less than ± 4mm;

(2) Precipitation measures should be taken during foundation construction, and water soaking in the pit is strictly prohibited; safe and reliable support measures should be taken for foundation pit excavation;

(3) C25 plain concrete, floor thickness 200mm. each side protrudes about 200mm from the edge of the electrical cabinet; (C25 plain concrete refers to a kind of concrete, in which "C25" stands for the classification of the bonding strength of concrete. Plain concrete is a

structure made of unreinforced or non-configured reinforced concrete, as opposed to reinforced concrete and prestressed concrete. It is mainly made of cement, sand (fine aggregate), stone (coarse aggregate), admixtures, etc. mixed in a certain proportion with a certain proportion of water. Vegetative concrete has a wide range of applications in construction projects, such as construction right-of-way, crash piers, etc. (C25 vegetative concrete bedding is a form of application of this material for specific engineering needs).

When constructing the foundation, you need to consider the inlet and outlet lines of the liquid-cooled industrial and commercial one-piece cabinet, and reserve the trench or inlet holes before installation, and the cabinet mounting hole diagram can be referred to the following figure.

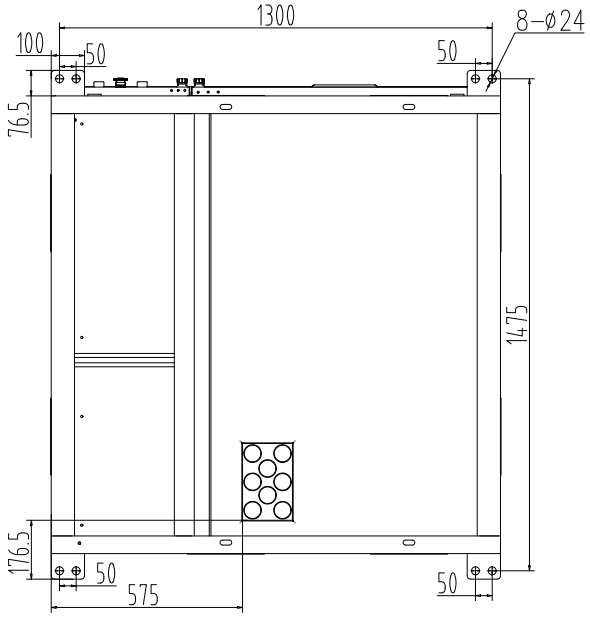
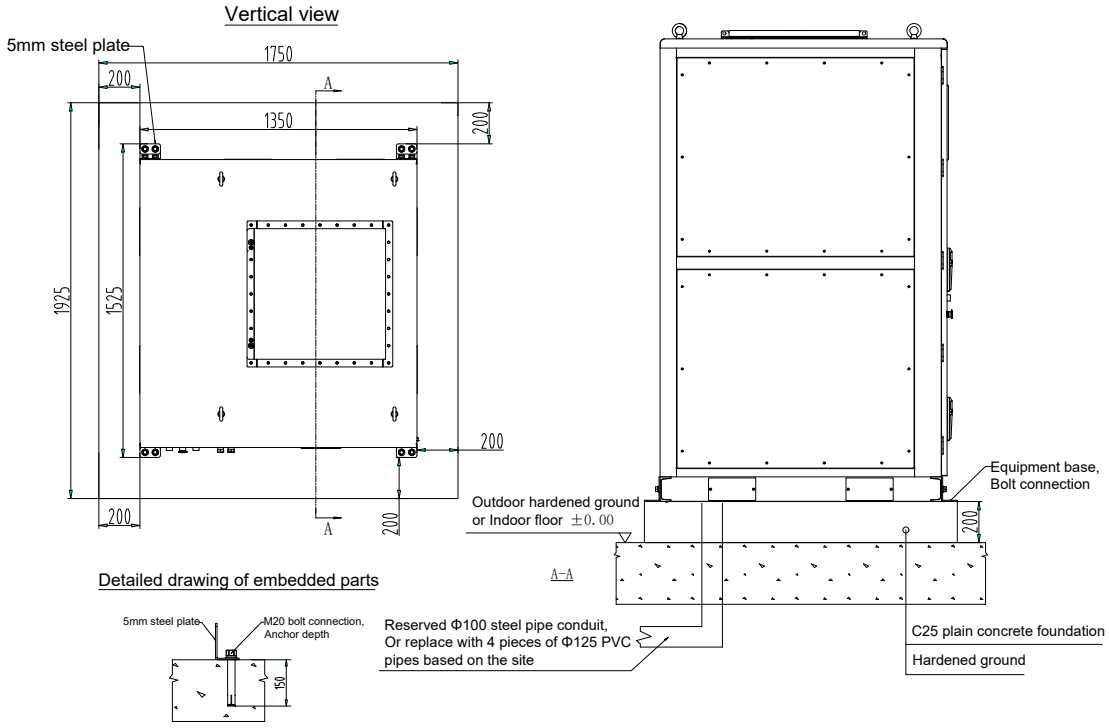


Chart 3-15 Bottom Mounting Hole Location Diagram (unit mm)

- Foundation Description:

The following foundation drawings are not to be considered as final construction drawings and are for reference purposes only. During construction, ensure that the bottom of the equipment is above the highest historical local water level. On-site construction (including pre-buried parts, threading pipes, etc.) is adjusted in conjunction with workmanship and on-site adjustments. The height of the top mark of the foundation of the equipment can be adjusted according to the actual needs of the equipment and the site.

For installation on hard surfaces, a bolted connection is recommended, and the connection points can be adjusted according to the actual situation on site.



- Schematic Description of Hard Surface Foundation Requirements (Expansion Bolts Standard)

(1) The pre-embedded detail above shows the installation schematic of the L-piece at the bottom of the cabinet with expansion bolts between it and the C25 plain concrete;

(2) The threading pipe can be replaced with four Ø125 PVC pipes depending on the site, and there is no need to reserve a threading pipe for indoor environments.

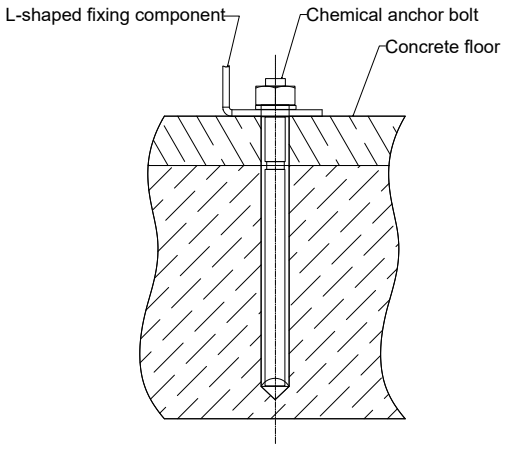


Chart 3-17 Schematic Diagram of Hard Ground Fixed by Chemical Anchors

- Hard floors Fixed with chemical anchors Schematic description (chemical anchors can also be used on hard floors):

(1) Prior to chemical reinforcement planting, the planting surface needs to be cleaned and flushed before proceeding to the next step;

(2) The concrete strength class is C25, and the chemical reinforcement needs to be tested for resistance to pullout;

(3) It is required that the planted chemical anchors have a tensile resistance of not less than two times the design value of the bearing capacity;

(4) Chemical anchors Hilti HVA chemical anchors are recommended;

(5) The construction of chemical anchor bolts should be in accordance with JGJ 145-2013 Technical Specification for Post-anchoring of Concrete Structures;

(6) Measures should be taken to avoid overheating of the anchorage area leading to failure of the reinforcing adhesive if welding takes place;

(7) Adhesives for load-bearing structures must be tested for bonding shear strength. The test, the bond strength standard value; should be based on the confidence level of 0.9, the guarantee rate of 95% of the requirements to determine;

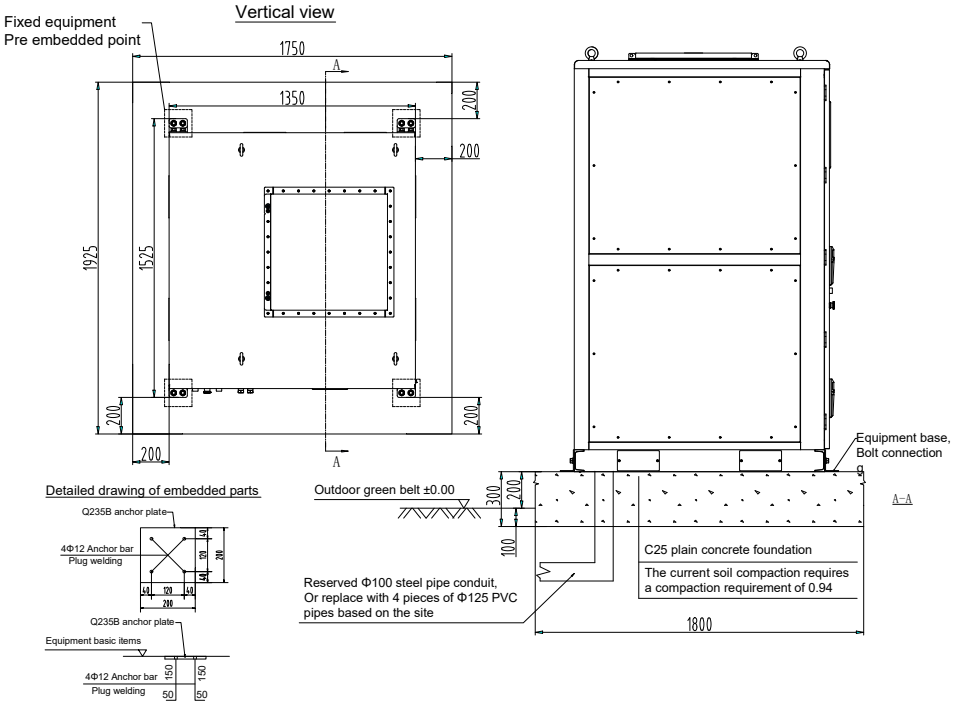


Chart 3-18 Schematic Diagram of Foundation Requirements without Hard Surface (unit: mm)

- Schematic illustration of no hard surface foundation requirements:

If installed in the lawn and other places without hard ground, you need to carry out foundation construction, equipment installation recommended use of welding, that is, the

bottom of the cabinet body to install L-type parts and the bottom of the mounting surface welding, welding is completed after trimming and painting; connecting points can be adjusted according to the actual situation on the site.

Pre-embedded installation can also be used in places where there is no hard surface.

(1) The pre-built detail is a drawing of the bottom of the cabinet mounting L-piece bolted to the pre-built.

(2) The threading pipe can be replaced with 4 x Ø125 PVC pipes depending on the site.

- Gutter Requirements Description:

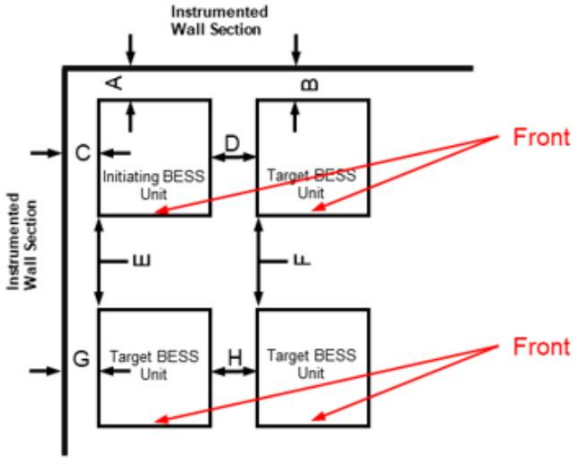
Liquid-cooled industrial and commercial cabinet adopts the way of under-wiring, in order to prevent the entry of foreign objects, liquid-cooled industrial and commercial cabinet is not left on the side of the wiring holes, and needs to be fed through the gutter. Therefore, the site needs to be pre-set gutter. There are the following requirements for the gutter:

(1) As the liquid-cooled industrial and commercial cabinet adopts bottom feeding, the gutter must have the necessary dust and rodent-proof design to prevent foreign objects from entering. There should be necessary waterproof and moisture-proof design in the gutter to prevent the cable from aging and short-circuiting, which will affect the normal work of the liquid-cooled industrial and commercial cabinet.

(2) Due to the higher power of the liquid-cooled industrial and commercial integrated cabinet, the required cables are thicker, and the cross-section area of the cables needs to be fully considered in the gutter design.

3.6.3 Installation space requirement

- According to SGS 9540A test report No. CQES240600052701 dated July 11, 2024, the test installation interval is：



A	200 mm
B	200 mm
C	200 mm
D	10 mm
E	1200 mm
F	1200 mm
G	200 mm
H	10 mm

Chart 3-19 9540A Tests the Installation Spacing (unit: mm)

- Single unit installation space requirements:

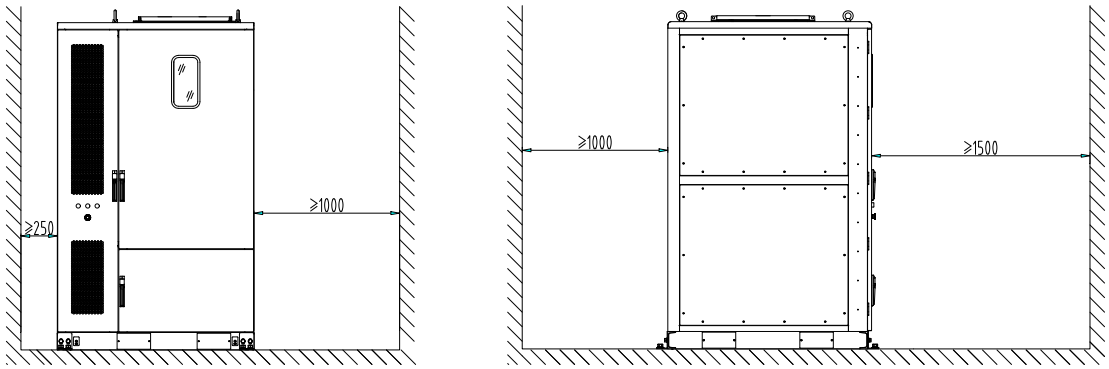


Chart 3-20 Schematic Diagram of Space Requirement for Single Installation (unit: mm)

- Space requirements for parallel installation of multiple cabinets:

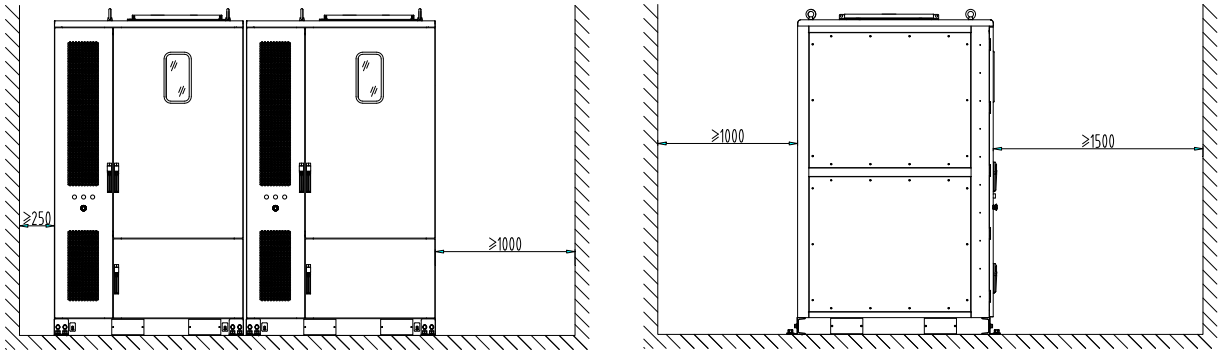


Chart 3-21 Schematic Diagram of Space Requirements for Parallel Installation (unit: mm)

3.6.3 Preparation of equipment for installation

Artifact	Quantities	Instructions for Use
Forklift/crane	1 vehicle	Handling/lifting

Table 3-3 Installation Equipment

3.7 Liquid-cooled Commercial and Industrial Cabinets with Cable Connections

In order to ensure the safety of personnel and equipment during electrical connection, it is important to observe all safety instructions in this manual, especially in this chapter, as well as the relevant safety regulations of the place of installation.

3.7.1 Wiring preparation

See the following table for installation tool preparation:

Artifact	Quantities	Instructions for Use
Torque Wrenches	1 handle	fastening nut
Sockets and wrenches	1 set	Maximum torque should be more than 45N-m
crossbow cutter	2 handles	For M10 bolts
Automatic Head Stripping Machine	1 unit	Strip the cable sheath
Tape rule	1 handle	Measuring wire length
Crimper	1 unit	Crimp the core to the nose

Table 3-4 Installation Tool List

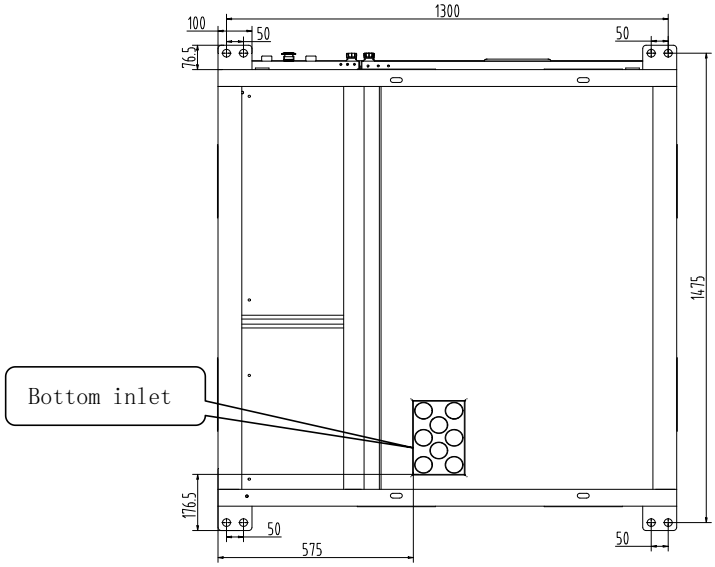


Chart 3-22 Bottom Outlet Hole Location Diagram

After the installation of the liquid-cooled industrial/commercial cabinet is completed, the external connecting cable needs to be installed; the external connecting cable of the liquid-cooled industrial/commercial cabinet is connected to the outside through the outlet hole at the bottom.

3.7.2 External cable connection

When the user's external cable is connected to the liquid-cooled industrial/commercial cabinet, it needs to pass through the bottom feed hole (knockout hole) to enter the interior of the cabinet, and seal the gap with fireproof mud after fixing the cable;

(1) Wiring location: External cable terminal of the electrical unit at the rear of the cabinet;

(2) Wiring fixing method: bolt fixing (M10 bolts, flat pads, spring pads);

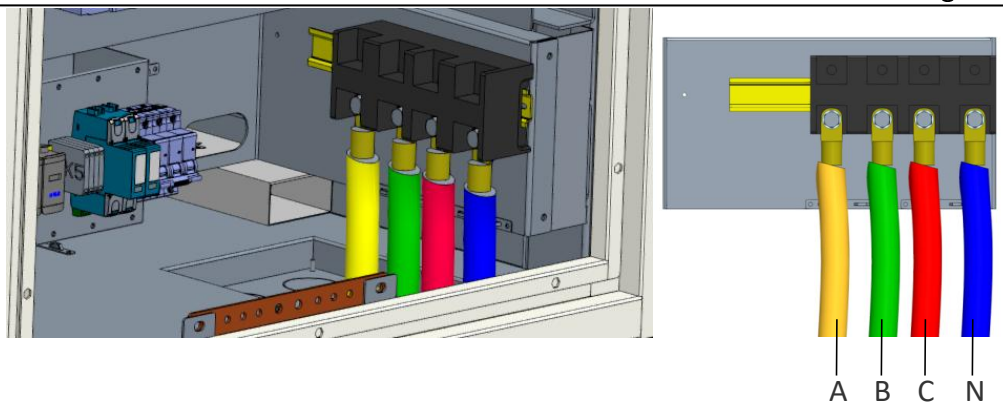


Chart 3-23 YXYK-125K/552314-M Cabinet Wiring Schematic

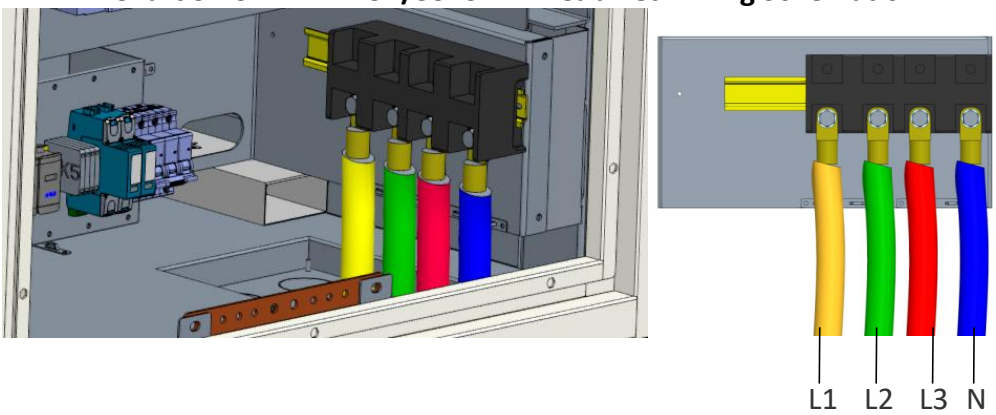


Chart 3-24 YXYK-125K/552314-L Cabinet Wiring Schematic

3.7.3 Ground cable connection

Liquid-cooled industrial and commercial cabinets need to be grounded before installation and use, and the external ground point of liquid-cooled industrial and commercial cabinets and the ground network on site are connected by cable bolts or flat iron welding to connect the liquid-cooled industrial and commercial cabinets with the ground network.

The locations of grounding point 1 and grounding point 2 are shown in the figure below, and either grounding point can be selected for grounding. Use M12 hexagonal flange bolts to fix the grounding wire to the grounding point on the cabinet, M12 fixing torque: 20N.M. The recommended size of the grounding wire bundle diameter is not less than 50mm² (copper conductor) or to meet the local norms.

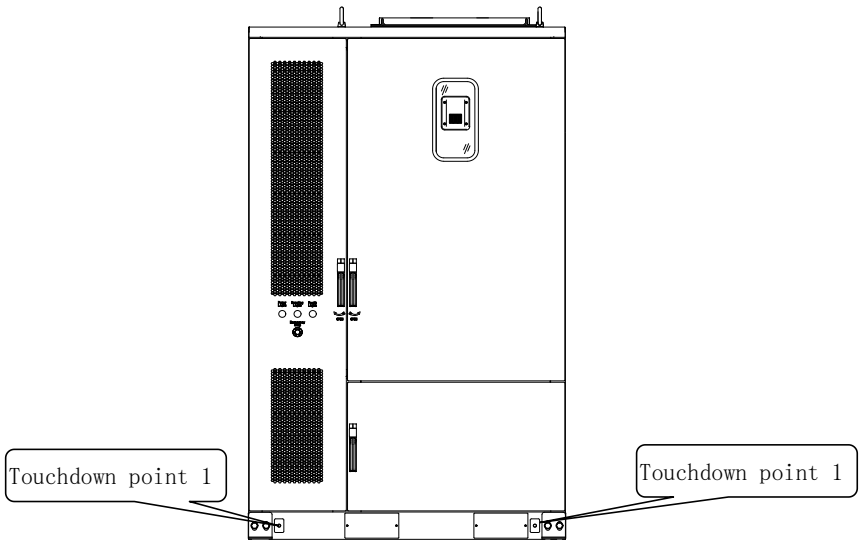


Chart 3-25 External Ground Cable Connection Position Diagram

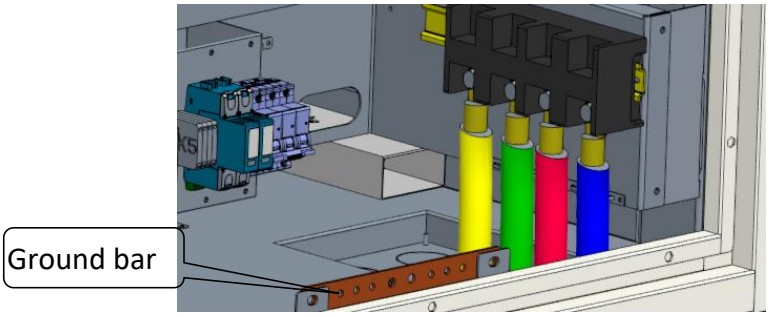


Chart 3-26 Internal Ground Cable Wiring Position Diagram

Liquid-cooled commercial and industrial integrated cabinets are connected to the internal equipment grounding point and internal grounding copper row by cable bolts.

3.7.4 Communication cable connections

Cabinet inside the left side of the middle of the installation of the adapter plate, the adapter plate is equipped with communication cable interface, respectively, for the 485 communication interface and RJ45 interface; 485 communication interface can be with the transformer anti-reverse current table communication, RJ45 interface can be with the upper level of communication.

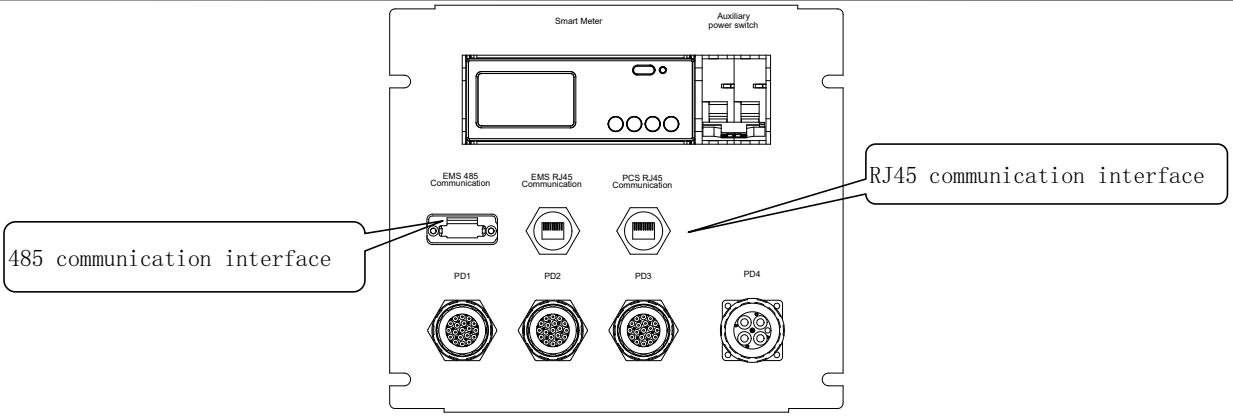


Chart 3-27 Schematic diagram of YXYK-125K/552314-M Adapter Plate

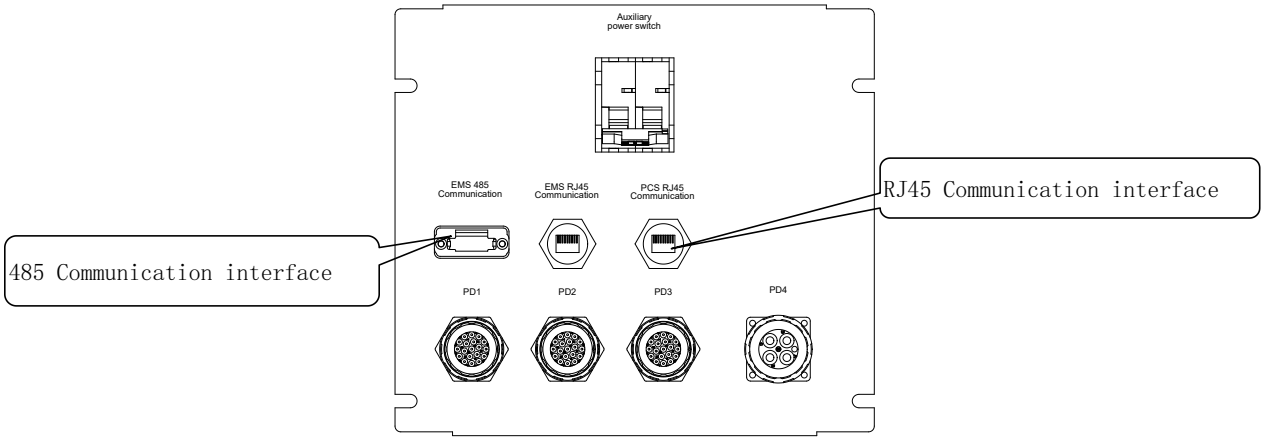


Chart 3-28 Schematic diagram of YXYK-125K/552314-L Adapter Plate

3.7.5 Cable specifications

The recommended cable specifications for liquid-cooled commercial and industrial integrated cabinets are shown below:

Access Cables	YXYK-125K/552314-M Cable Requirements
AC Terminal Block Phase A	The AC terminals of the integrated cabinet have four inputs, each input wire diameter 1/0AWG, with Φ10 nose. The fixing torque of the M10 bolts of the terminal is 30N-m.
AC terminal block phase B	
AC Terminal Block Phase C	
AC Terminal Block N Phase	
Grounding copper conductor PE	Confirm that the resistance of grounding wire is less than 0.1mΩ, wire diameter 2AWG, with Φ6, Φ8 nose. The fixing torque of M6 bolts of grounding copper row is 8N-m; the fixing torque of M8 bolts of grounding copper row is 20N-m.
Communication cable	Use a shielded twisted pair cable with an 18 AWG gauge.
Network cable	Recommended CAT6 Category 6 armored with shielded network cable with Category 6 shielded crystal head.

Table 3-5 YXYK-125K/552314-M Cable Specification

Access Cables	YXYK-125K/552314-L Cable Requirements
AC terminal block L1	The AC terminals of the integrated cabinet have four inputs, each input wire diameter 2/0AWG, with Φ10 nose. The fixing torque of the M10 bolts of the terminal is 30N-m.
AC terminal block L2	
AC terminal block L3	
AC Terminal Block N Phase	
Grounding copper conductor PE	Confirm that the resistance of grounding wire is less than 0.1mΩ, wire diameter 2AWG, with Φ6, Φ8 nose. The fixing torque of M6 bolts of grounding copper row is 8N-m; the fixing torque of M8 bolts of grounding copper row is 20N-m.
Communication cable	Use a shielded twisted pair cable with an 18 AWG gauge.
Network cable	Recommended CAT6 Category 6 armored with shielded network cable with Category 6 shielded crystal head.

Table 3-6 YXYK-125K/552314-L Cable Specification

3.7.6 Plugging of junction holes

Liquid-cooled industrial and commercial one-piece cabinets should be blocked after the external wiring is completed to prevent foreign objects from entering the interior of the cabinet through the wiring holes.

(1) After the wiring is completed, it is necessary to use fire-resistant mud to seal the inlet hole at the bottom of the liquid-cooled industrial/commercial integrated cabinet;

(2) Ensure that the fireproof mud sealing is strong and secure and does not fall off within the effective service life;

(3) Regularly check hole sealing.

4. Instructions for Use

This chapter mainly introduces the operation procedures of liquid-cooled industrial and commercial cabinets. In order to ensure the long-term safe and reliable operation of your energy storage system, please read and comply with the following instructions carefully.

4.1 Preoperation Check

Check the following items before running:

(1) Check whether the liquid-cooled industrial and commercial integrated cabinet and devices have condensation phenomenon (water film or water droplets produced on the surface). If there is, the cabinet door must be opened for ventilation until the phenomenon disappears. Check the piping connections to ensure that there is no liquid leakage.

(2) Measure whether the voltage on the inlet side of the liquid-cooled industrial/commercial integrated cabinet is within the specified range and confirm that no faults, such as phase sequence error, phase loss, short circuit, etc., exist.

(3) Check that the power input terminals (A, B, C, and N)/ (L1, L2, L3, and N) and the external cable must be properly connected.

(4) Check the grounding resistance of the liquid-cooled industrial/commercial integrated cabinet (grounding resistance $\leqslant 0.1\,\Omega$).

(5) Check that the control signal cable wiring is tight and reliable, that the wiring terminals are intact without damage, and that there is no ageing fracture, insulation damage, or other phenomena.

(6) Check that there are no foreign objects, such as wire heads and metal shavings, inside the liquid-cooled industrial/commercial integrated cabinet that can cause short-circuiting of signal and power cables.

(7) Ensure that the external environmental parameters are within the operating range of the liquid-cooled commercial and industrial integrated cabinet.

4.2 Steps for Grid Connection

(1) The AC side is powered up:

Ensure that the AC terminals are properly connected to the grid and that the grid-side parameters meet the operating conditions. Close the QF1 control main switch to connect the

PCS AC side to the grid. Close the QF2 surge protection switch and connect the surge protection circuit.

(2) The auxiliary power supply powers up:

Close the QF3 auxiliary power switch, at which time the status bar of the UPS display should show⏻ .

Press the⏻ key on the front panel of the UPS for at least 2 seconds.

If the⚠ indication is illuminated, resolve the alarm that has occurred before proceeding. See 6.1 Common UPS Troubles and Handling. Restart as needed after correcting alarms.

If the∿ indication is illuminated, the UPS is currently operating normally and providing protection for the subsequent load.

At this time, you should observe the front door white auxiliary power indicator light come on and the dehumidifier display on the left side of the battery unit comes on. The auxiliary power is successfully powered up at this time.

(3) The DC side is powered up:

Before powering up the DC side make sure that the service switch plugs are all plugged into the service switch sockets on the battery module.

Close the DC main switch of the high voltage control box and press the power button of the high voltage control box; at this time, the BMS system enters the self-test and waits for 20 seconds.

If the High Voltage Control Box red alarm indicator is illuminated, resolve the alarm that has occurred before proceeding. See table 6.2 Common BMS Troubles and Handling. Restart as needed after correcting alarms.

If the green running indicator of the high voltage control box lights up, it indicates that the BMS system has passed the self-test. At this time, the AC and DC sides of the PCS are charged, close the PCS DC switch, and the PCS enters the self-test and waits for 20 seconds.

If the PCS POWER indicator and FAULT red alarm indicator are illuminated, resolve any alarms that have occurred before continuing operation. See 6.4 Common PCS Troubles and Handling. Restart as necessary after correcting the alarms.

If the POWER indicator of the PCS lights up and the FAULT red alarm indicator does not light up, it indicates that the PCS has passed the self-test. At this time, the parallel network is successfully powered on.

4.3 Off-grid Power Steps

(1) The AC side is powered up:

Ensure that the AC terminals are properly connected to the consuming load and disconnected from the grid. Close the QF1 control main switch to connect the PCS AC side to the energized load. Close the QF2 surge protection switch and connect the surge protection circuit.

(2) The auxiliary power supply powers up:

The steps for powering up the auxiliary power supply are the same as those for powering up the grid-connected auxiliary power supply.

(3) The DC side is powered up:

The DC side power-up procedure is the same as the grid-connected DC side power-up procedure.

4.4 Charge and Discharge Procedure

4.4.1 Manual charge and discharge

For the manual charging and discharging procedure, please refer to the PCS monitoring interface operation procedure in 4.6.2 Real-time monitoring.

The PCS monitoring interface needs to differentiate between grid-connected and off-grid situations when operating.

4.4.2 Automatic charge and discharge

For the automatic charge/discharge procedure, refer to 4.6.5 Control Strategy Operation Procedure in System Management.

The automatic charging and discharging control strategy should be combined with the actual situation of the site, and the operator will be responsible for the consequences of modifying the parameters without the authorization of RelyEZ Energy!

4.5 Downtime Steps

4.5.1 Normal shutdown

(1) The PCS stops working when the RUN indicator of the panel goes out by manually issuing a shutdown command through the EMS interface.

(2) Press the High Voltage Control Box Power Button to disconnect the High Voltage Control Box DC Main Switch and the Door Operation Indicator Light will go out. Unplug the battery module service switch for maintenance or repair.

(3) Press the key on the front panel of the UPS for 3 seconds, a shutdown confirmation dialog box will appear on the panel, and the UPS will beep after the confirmation indicator light is off.

(4) Disconnect the QF3 auxiliary power switch.

(5) Disconnect the QF1 control main switch and disconnect the QF2 surge protection switch.

ATTENTION

A warning sign is required at the disconnect switch to prevent others from accidentally energizinnit.

ATTENTION

The capacitors inside the liquid-cooled commercial and industrial cabinets still have a residual charge and may still contain high voltages that could jeopardize personal safety. Therefore, it is necessary to leave the equipment for a sufficiently long period of time (≥ 10 minutes) until the charge has been released before maintenance or servicing.

4.5.2 Emergency shutdown

In case of emergency, just press the red emergency stop button on the front cabinet door, the liquid-cooled industrial/commercial integrated cabinet PCS emergency stops and automatically cuts off the AC and DC circuits.

ATTENTION

Under normal circumstances, please follow the normal shutdown procedure for liquid-cooled industrial/commercial integrated cabinets. The emergency stop button is limited to use in emergency situations, the use of this device during normal operation of the equipment is likely to cause damage to the equipment, affecting the service life of the equipment.

4.5.3 Emergency shutdown recovery

When the emergency is lifted, operation can be resumed by turning the emergency stop release button clockwise and following the power-up procedure.

4.6 Description of the EMS Operator Interface

4.6.1 System login

Chart 4-1 System Login

Select User group and enter Username and Password to log into the system.

User login account: Admin Password: 1

The password is the initial password; please change the password through the user management page in a timely manner.

4.6.2 Monitor

(1) Monitoring home page

The system home page includes a header, footer, navigation bar, and main view. The navigation bar is a permanent page; clicking on different navigation bar boxes can take you to different pages. The main view can display different pages, mainly products.

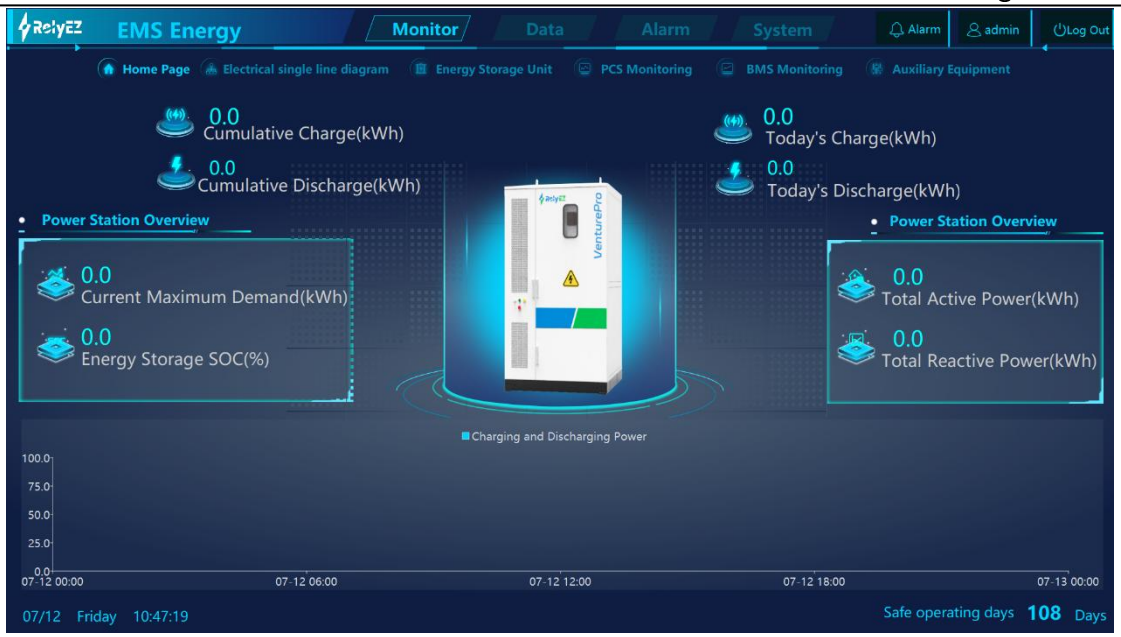


Chart 4-2 Monitoring Home Page

The header displays the modules of the system, which are categorized into four modules: Monitor, Data, Alarm, and System. Click modules to switch between modules; navigation bar to switch; click to switch to real-time alarm page; click to log in user; click to log out.

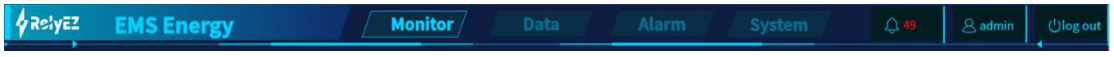


Chart 4-3 EMS System Header

The footer displays the system's time at this moment, month - day of the week - hours, minutes and seconds and the number of days of safe operation.

Chart 4-4 EMS System Footer

The navigation bar displays a secondary menu. Click on the text to switch navigation between modules.

Chart 4-5 EMS System Navigation Bar

Click Monitor, Data, Alarm, and System in the header to switch to different first-level menu pages.

After clicking on a first-level menu, a second-level menu will appear, and clicking on the text of the second-level menu can switch to a different second-level page, and the integrated display of the home page.

The Monitoring Home Page displays the following information:

A. Cumulative charge/discharge amount, today's charge/discharge amount, real-time data display, understand the information at a glance.

B. Power station overview: display of maximum demand, storage SOC display, total active reactive power display, real-time data display.

C. Power graph (charge/discharge power curve). Charge/discharge power display for a certain day's time period.

(2) Electrical single line diagram

Electrical single line diagram shows the energy network diagram of grid, load, PCS, BMS, and other specific information of the equipment (including power, 3-phase current, 3-phase voltage, SOC, etc.) is displayed next to the equipment diagram. Dynamic current arrows are displayed at each device connection line, indicating the normal connection of the device and the direction of the current.

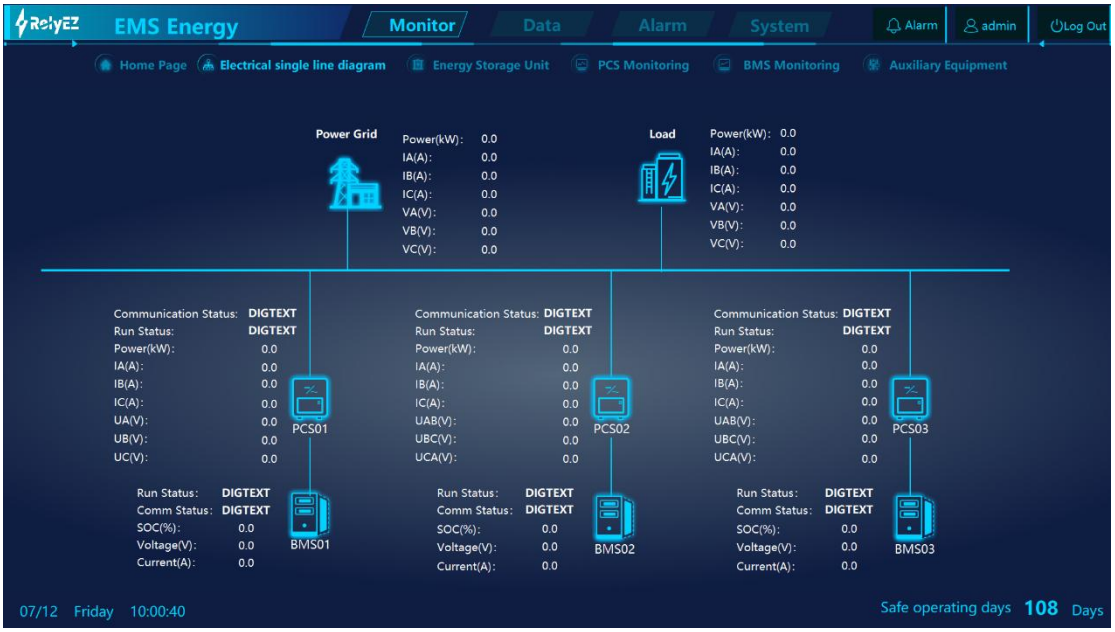


Chart 4-6 Electrical Single Line Diagram

(3) Energy storage unit

Energy storage unit displays the specific information of each liquid-cooled industrial/commercial cabinet under this unit. On the left side, you can scroll down to select a certain liquid-cooled industrial/commercial integrated cabinet to display the basic information and operation information of the liquid-cooled industrial/commercial integrated cabinet.

Included:

A. Display information: operating status, voltage, current, SOC, SOH, power;

B. Basic information: device information, converter, battery cells, battery specifications;

C. Operation information: SOC, SOH, active power, reactive power, available charging capacity, available discharging capacity, upper limit of charging depth, lower limit of charging depth;

D. Power curve graph: display the charging and discharging power curve graph of each period on a certain day.

Chart 4-7 Energy Storage Unit

(4) PCS monitoring

PCS monitoring displays the PCS in the liquid-cooled commercial and industrial integrated cabinet.

Included:

A. Unit Information: Displays the basic information of PCS: battery voltage, DC power, DC current, etc.

B. Runtime Data: three-phase voltage and current, ambient temperature, maximum charging and discharging power, and DC switch fault information display.

C. Power Curve: Display the charging and discharging power curve of each period of a certain day for statistical display.

The PCS monitoring interface also controls the operation of the PCS in the liquid-cooled industrial/commercial integrated cabinet.

Included:

A. If the PCS fails, you can click Fault reset on this screen to reset the fault. Note that you need to make sure that the fault condition has been removed before resetting.

B. Distant state can be selected to set the operation mode of PCS, including power on, power off, standby, charging operation, discharging operation and other modes.

C. The Device startup and Equipment shutdown buttons run and stop the equipment.

D. The Active power total (kW) button sets the input and output power of the PCS.

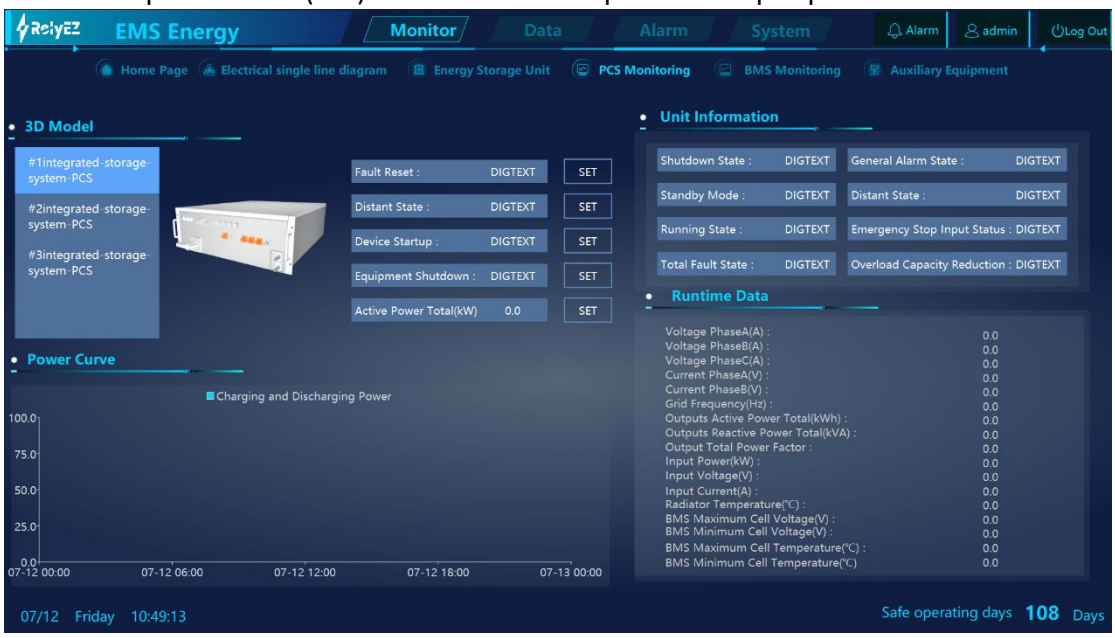


Chart 4-8 PCS Monitoring

(5) BMS monitoring

BMS monitoring displays the BMS in liquid-cooled commercial and industrial integrated cabinets. It consists of four modules: System, Info, Voltage and Tem.

System interface displays BMS information and battery alarm conditions. Including total voltage, current, and system power. If an alarm occurs, the alarm message box of the alarm module will turn red to indicate the current battery system alarm type.

Chart 4-9 BMS Monitoring-System

Info interface displays the Battery Rack information in a list, and on the left side is the liquid-cooled I&I cabinet selection button, clicking which can select different liquid-cooled I&I cabinets. The list shows the cluster temperature, total cluster voltage, resistance value, alarm, SOC, SOH and other information records.

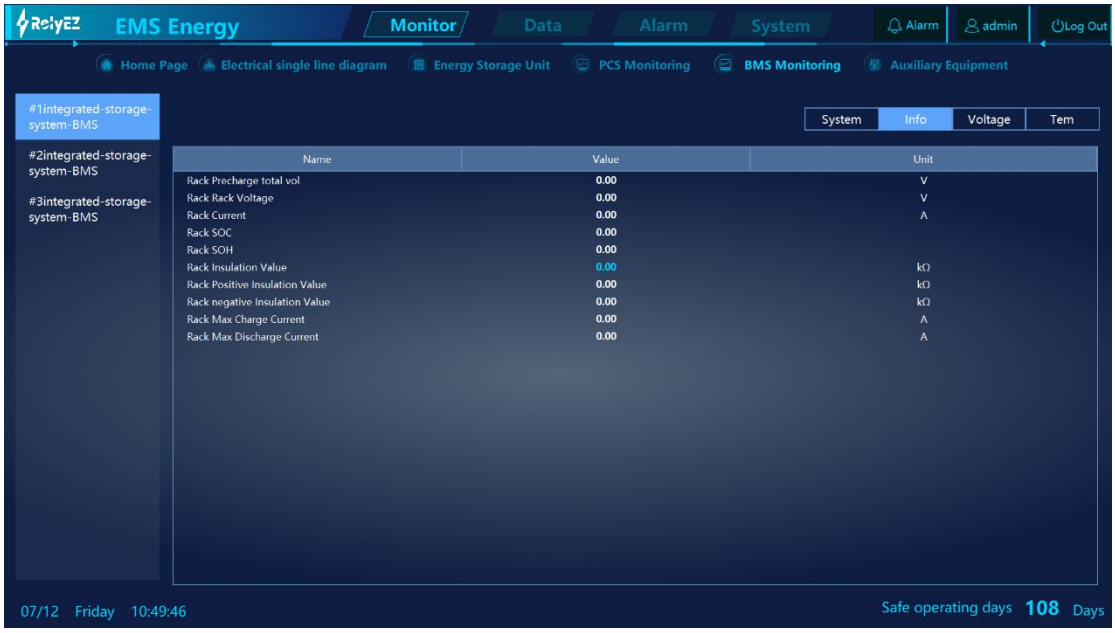


Chart 4-10 BMS Monitoring-Info

Voltage interface can display the voltage information of a single cell. On the left side is the liquid-cooled industrial/commercial cabinet selection button, click on it to select different liquid-cooled industrial/commercial cabinets.

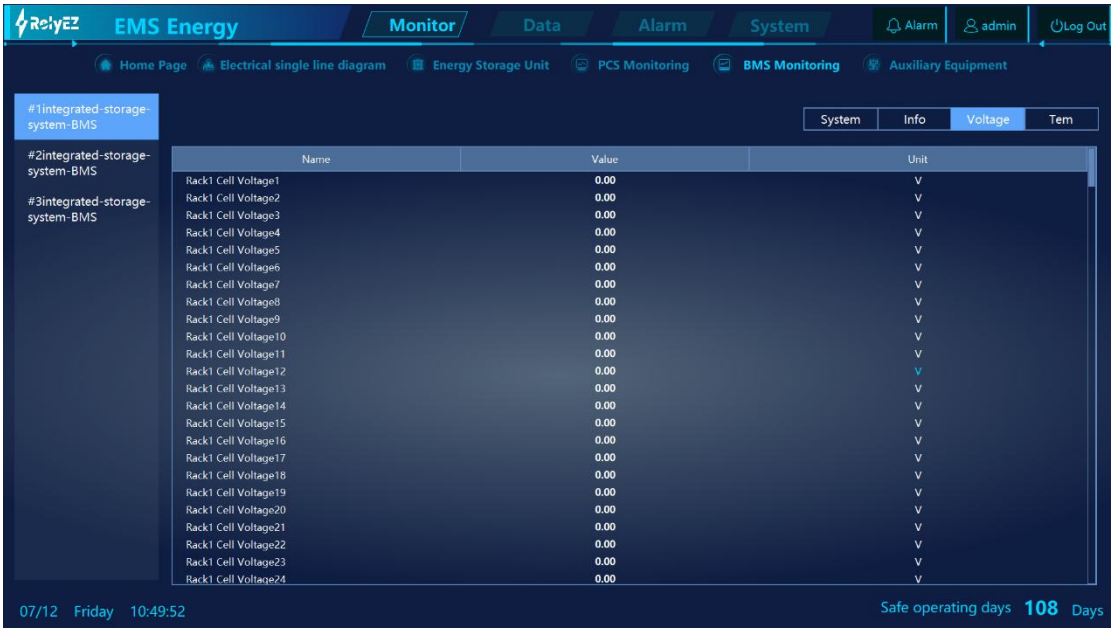


Chart 4-11 BMS Monitoring-Voltage

Tem interface mainly displays the temperature information inside the battery module. On the left side is the liquid-cooled industrial/commercial cabinet selection button, click on it to select different liquid-cooled industrial/commercial cabinets.

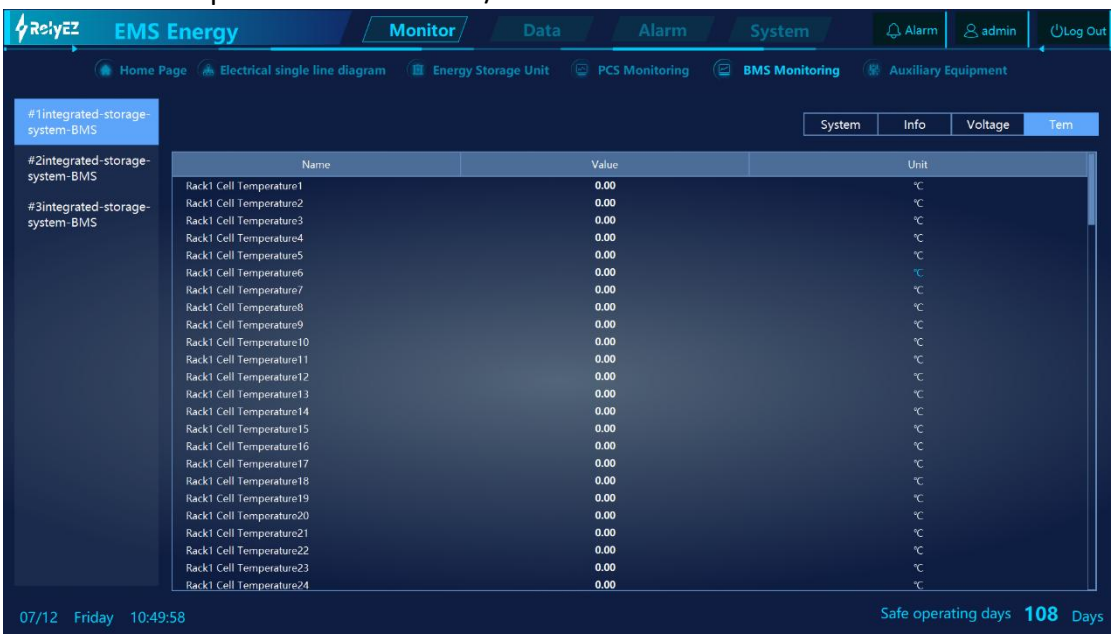


Chart 4-12 BMS Monitoring-Tem

(6) Auxiliary equipment

The Auxiliary Equipment screen displays information about other auxiliary equipment under the liquid-cooled commercial and industrial enclosures. Includes: Liquid Chiller, Fire Protection, Dehumidifier, etc.

Liquid Chiller displays information including: operating status, cooling mode, supply liquid temperature, return liquid temperature, water supply pressure, and return water pressure.

Fire Protection displays information including: fire alarm status.

The Dehumidifier displays information including: communication status, real-time temperature and real-time humidity.

Chart 4-13 Auxiliary Equipment

4.6.3 DATA

(1) Trend analysis

Trend analysis interface displays the trend graph of the plan at different times under each device. Including (real time, second, day, week, month, quarter, year, customized), also support favorite, save image, table mode, curve mode switching function.

On the left side, the devices are displayed in a tree diagram format. Includes branches for each device. After the ticking operation, a graph of the plan trend can be viewed on the right side. The corresponding trend graph is displayed below the currently checked device points and their information. It is also possible to clear the button.

Trend view is used to display the data changes of the selected measurement point, including real-time trend and historical trend. The real-time trend only shows the latest 10 minutes of data from the measurement point, while the historical trend (seconds, days, weeks, months, quarters, and years) allows you to query all the historical data from the measurement point at different levels.

The display mode of the trend view is divided into curve mode and table mode, and you can click the slider in the upper right corner of the interface to switch between the two modes; curve mode displays the change data of the measurement points in the form of a curve, and table mode displays the change data of the measurement points in the form of a list.

Operating instructions:

A. Adding a curve: You can add a curve for the current measurement point by checking the checkbox in front of the measurement point on the left side of the trend curve view. You can also select a measurement point by double clicking on the description of the measurement point.

B. Show Curve: Check the trend curve added at the bottom of the Trend Curve View, and select the check box to set whether the curve is displayed or not.

C. To view a specific value at a specific moment: 1. the value shown in the table below the real-time trend is the real-time value. 2. In the historical trend, you can drag the vertical line to view the value of a specific moment.

D. Favorites function: 1. Insert curves. 2. Click the "Favorites" button in the upper right corner. 3. Input the name of the favorite curve. 4. Click OK. 5. Favorite curves can be viewed or re-edited in Favorites. 6.

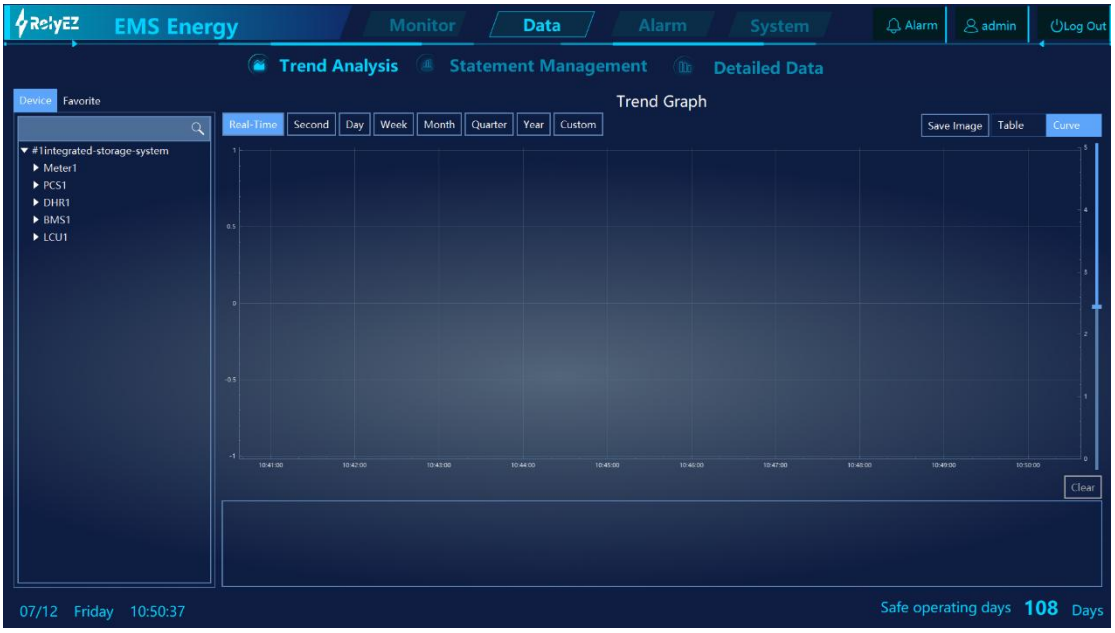


Chart 4-14 Trend Analysis

(2) Statement management

The statement management interface displays daily, monthly, and yearly information reports for each device. It supports querying, favoriting, and exporting tables.

On the left side, the devices are displayed in a tree diagram format. Includes branches for each device. After checking the box, reports can be viewed by looking at the list on the right side. Daily, monthly, and yearly reports can be selected, and custom reports can be customized. Customized reports show: start time_year_month_day_hour_minute; end time_month_day_hour_minute; time interval. After selecting the report, the time can also be

selected for querying, and the corresponding list information will be popped up. Pull up and down the drop-down axis to display more list information.

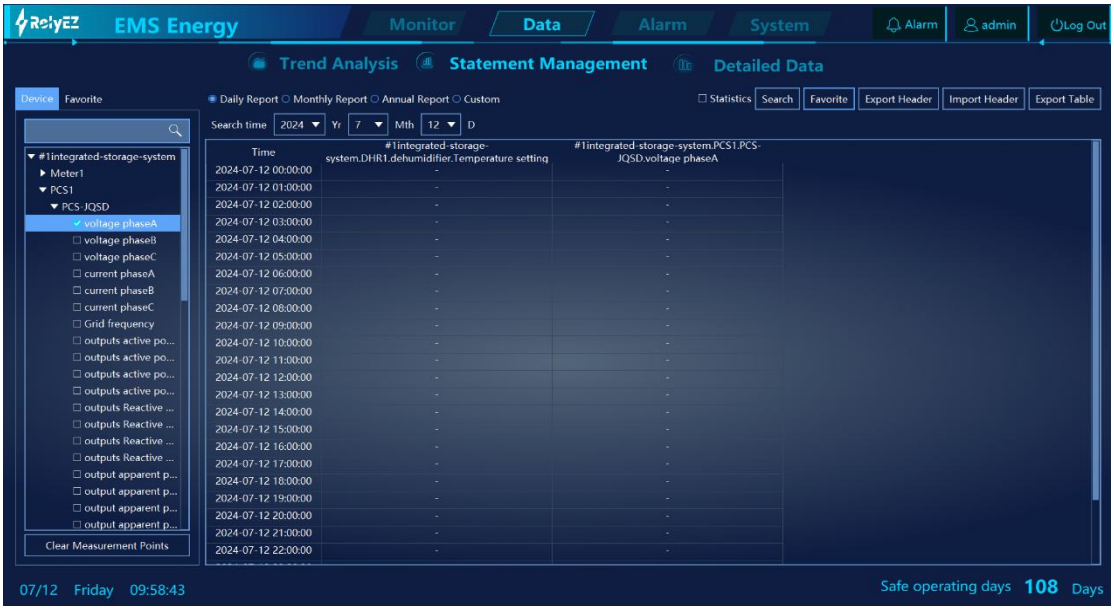


Chart 4-15 Statement Management

(3) Detailed data

The detailed data interface can display detailed data on different equipment operations in a liquid-cooled industrial and commercial integrated cabinet. It supports search and query functions.

Operation guide: From the left display position, you can choose different liquid-cooled industrial and commercial integrated cabinets. You can also select the point type, including mixed volume, analog volume, etc.

The left side has a search function, the tree diagram displays the devices, clicking on a device type allows selection, and the right side appears in the list displaying the device's measurement points, point types, devices, values, and status information.

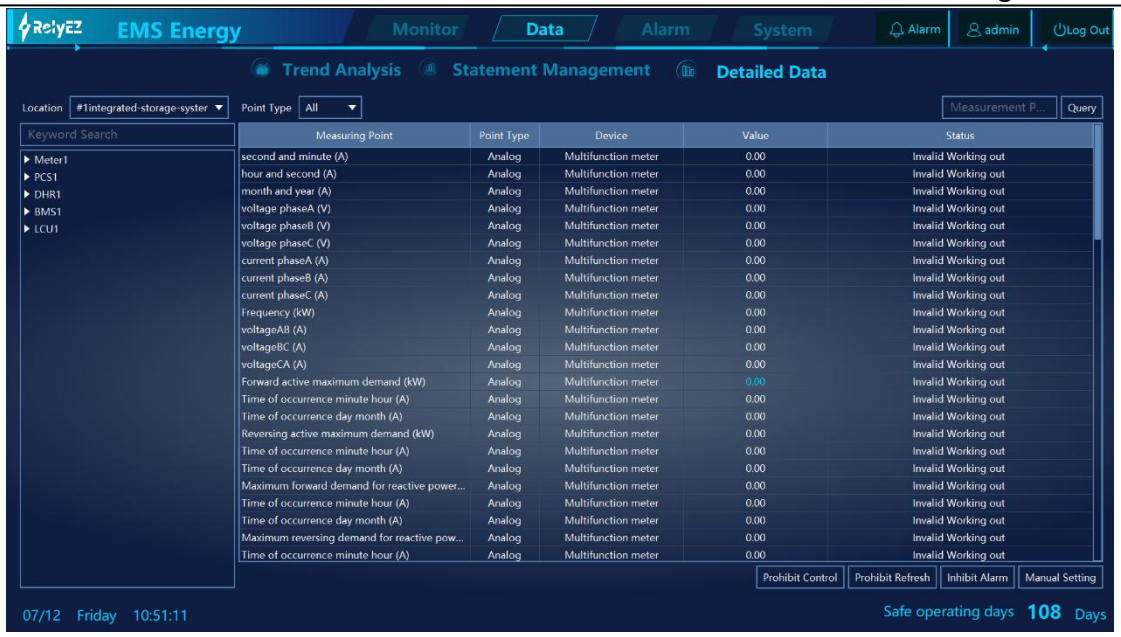


Chart 4-16 Detailed Data

4.6.4 Alarm

(1) Real-time alarms

The Real-time alarms screen displays real-time alarms for each device.

Alarm priority: Categorized into multiple alarm situations. (Emergency, High Emergency, Medium Emergency, Low Emergency, Event, Recovery, Acknowledgement.) Each situation is displayed in a different color. Alarm information is displayed in a scrolling format. There will be Filter, Export, and Disable list buttons on the left side. Tick the device with all-select and all-unselect operation, which is convenient for users. After checking, a list appears, displaying the time (optional), priority, and alarm content information list of the checked information. The alarm button can be operated with all-selected, all-unselected, confirmed, deleted, and disabled.

The alarm display color in the alarm window is jointly determined by the alarm level and the alarm status, which are: 1. alarm status; 2. alarm confirmation status; 3. alarm return status; 4. alarm return confirmation status.

The "Alarm status" and "Alarm return status" are unacknowledged statuses, while the "Alarm acknowledgement status" and "Alarm return acknowledgement status" are acknowledged statuses. The "Alarm Acknowledgement Status" is an acknowledged status.

Acknowledged status is displayed statically in the alarm window, and unacknowledged status is displayed flashing in the alarm window, with a flashing frequency of once per second.

Alarm browsing privileges are configured by the modeling tool. Different users have different alarm browsing privileges; only if the user has the browsing privileges for the alarm the alarm will be displayed on the alarm window; if the user doesn't have the privileges for the alarm and he/she can't see the alarm on the alarm window.

Alarm filtering: When the number of alarms on the alarm window is too large to view conveniently, users can utilize the filtering function to display only some of the alarms. By clicking the filter button on the alarm window, you can filter the alarms according to the alarm level, station, responsible area, type, equipment, time, keyword, and alarm status conditions.

Operation privilege: Alarm operation mainly refers to the confirmation and deletion of alarms. The operation of the alarm requires the user to have alarm operation privileges for the article. When the user does not have the operation privilege, the alarm cannot be operated.

Alarm acknowledgement: When the user is aware of the alarm, select the alarm on the alarm window and click the Acknowledge button in the upper right corner to acknowledge the alarm.

Alarm deletion: When an alarm has been acknowledged, the user can delete it from the interface by selecting it on the alarm window and clicking the Delete button in the upper right corner. After deletion, other user groups will delete the alarm synchronously.

Operating Instructions:

A. Alarm selection:

Clicking on an alarm selects it, and clicking again unselects it.

Drag the mouse to select multiple alarms, and drag or click one of the alarms again to deselect it.

Right-click Select All in the Alarms window to select all alarms.

Right-click All Unchecked in the Alarms window to uncheck all alarms.

B. Alarm acknowledgement:

Click the Footer Acknowledge button to acknowledge the currently displayed alarm in the footer, which disappears in the footer and is displayed in the Alarms window as Acknowledged.

Select multiple raw alarms in the Raw Alarms window, click the Acknowledge button or right-click Acknowledge, and all selected alarms will become acknowledged.

Select multiple smart alarms or original alarms in the Smart Alarms window, click the Acknowledge button or right-click Acknowledge and all selected original alarms and all original alarms under the selected smart alarms become acknowledged.

C. Alarm deletion:

Select multiple acknowledged raw alarms in the Raw Alarms window and click the Delete button or right-click to delete.

Select multiple acknowledged Smart Alarms or Raw Alarms in the Smart Alarms window and click the Delete button or right-click to delete. (Deleting a smart alarm requires that all original alarms under that smart alarm have been acknowledged).

D. Alarm disable (Raw Alarm):

Select an original alarm and right-click to disable alarms, then alarms generated by this measurement point will no longer be displayed in the alarm window.

Click the Disable Alarm List button in the upper left corner to open the Disable Alarm List, and right-click the Cancel Disable Alarm button to cancel the disable.

Restarting the EMS interface clears the disable alarm.

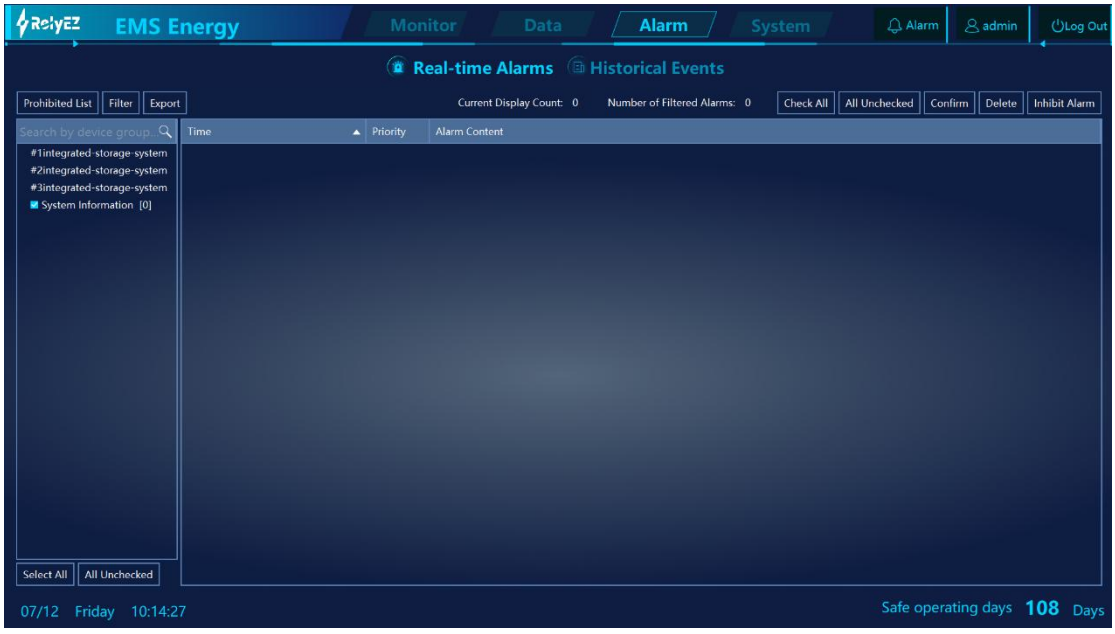


Chart 4-17 Real-time Alarms

(2) Historical Events

Historical events interface can be used to query historical events, each type of event can be displayed up to 10,000, if this limit is exceeded, and a pop-up window will notify the user to modify the query conditions. If the number of events in the event window is too large to be conveniently viewed, you can use the filtering function to display only some of the events. The filtering function will only clear the events displayed on the current event window, but

not the event data on the server. Filtering is performed by clicking the filter button on the event window and filtering by conditions.

Operating instructions:

A. Event window:

Click on the navigation bar Alert Messages to go to the Alert Messages module. From within the module, click here on the secondary navigation bar Historical Events to go to the Historical events page.

B. Event filtering:

Filter by selecting priority, time, and event content at the top of the event window.

Click the Filter button, set the filter conditions in the Filter dialog box and click Confirm.

C. Export:

Click the Export button in the upper right corner of the Event Window and select the export path.

D. Refresh:

Click the Refresh button to update to the latest list of historical events.

If there is a previous alarm, the display alarm color will be different from the previous one. Used to view historical events for operational analysis. The left side displays the number of historical events, and the right side buttons Refresh, Filter, and Export operate on the entire historical event module. The left column is equipped with query operation, the tree diagram form displays the equipment under the cabinet and the integrated cabinet, and it can be checked, divided into all-selected and all-unselected, which is convenient for users to operate. The right side displays the information of the selected devices in the form of list, time, priority and event content.

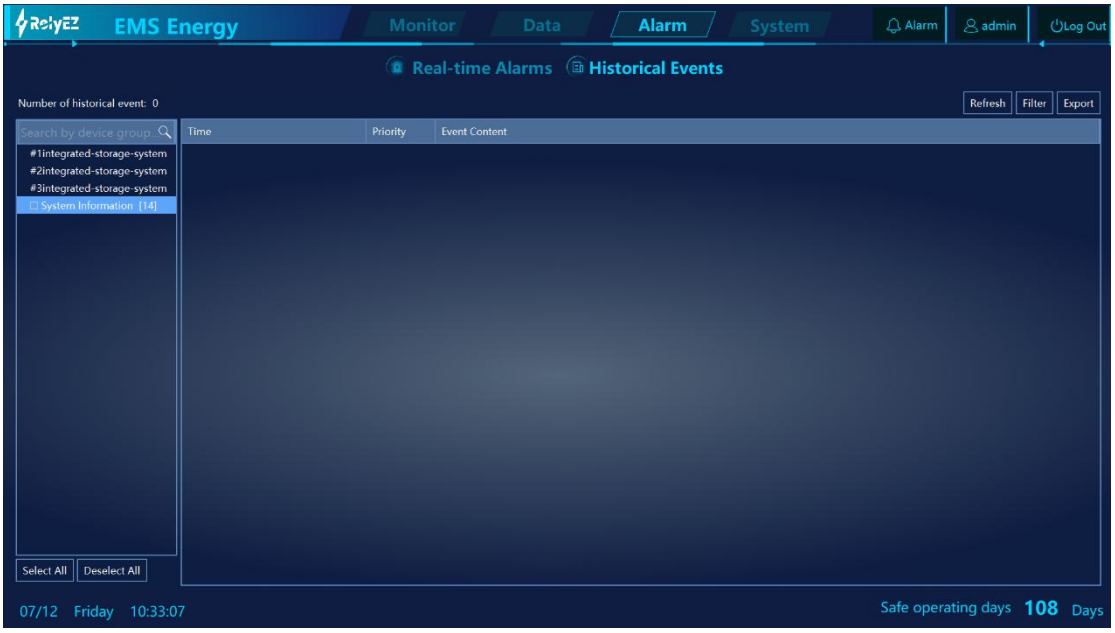


Chart 4-18 Historical Events

4.6.5 System

(1) User management

The User management interface defines the user group to which a user belongs and includes the user's basic information: user name, contact information, user password, account validity time, etc. It also defines the user's departmental information, personal biographical information, and so on.

A. Basic user information.

It can realize the modification of user's basic information, specifically: user's name, contact information, user's password, account effective time, account description and so on.

B. User group definition.

Define the user group to which the user belongs. A user can belong to multiple user groups, but when logging in, you can only select a user group (the user has the privileges of one of the currently selected user groups) to log in.

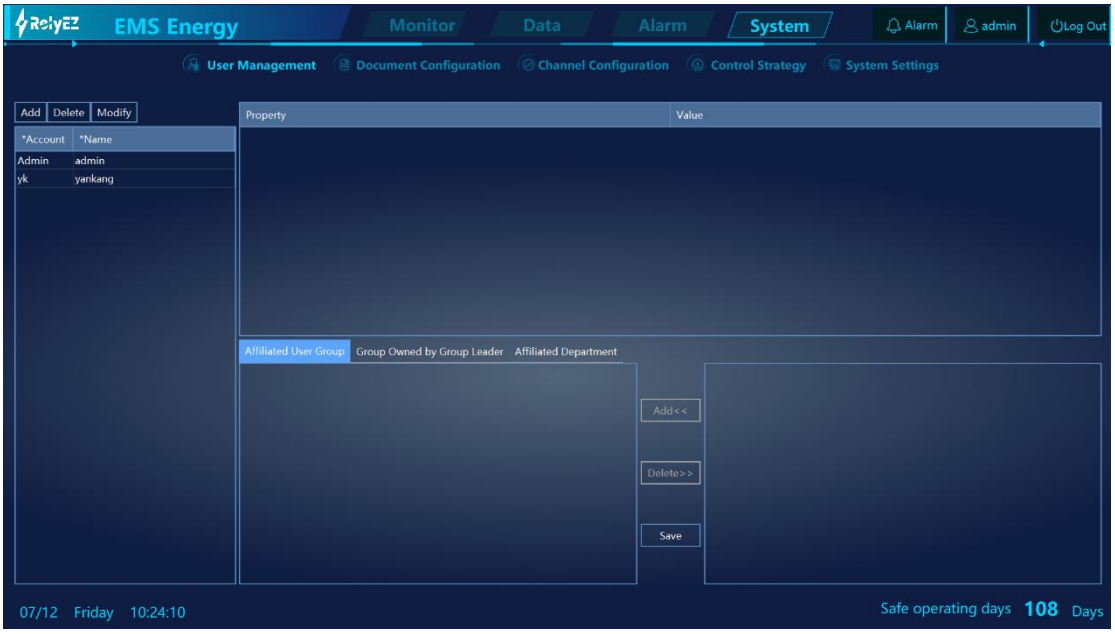


Chart 4-19 User Management

(2) Document configuration

The Document configuration screen displays information such as manuals, company profiles, and Northbound protocol documents. When you click on a selection, specific information about the document appears on the right side: serial number, document name, document modification time, and document path.

Operating instructions:

Click on the Add button and a pop-up window appears: name " [redacted] " then proceed to confirm or cancel the button option.

Click the Modify button and a pop-up window appears: Please select the directory to be modified. Select the directory first before you can modify it.

Click the Delete button and a pop-up window appears: Please select the directory to be deleted. Select the directory first before you can delete.

Click the Upload button and a pop-up window appears: Please select the upload directory. Select the directory first before you can upload.

Click on the download button, and a pop-up window appears: Please select the document before the download operation.

Click the Delete or Open button, a pop-up window appears: Please select the directory to be deleted or opened before proceeding.

If a directory is selected:

Add: Checking a directory will create a new subdirectory under that directory, unchecked directories will add a root directory. (Click on the blank space below to uncheck it).

Modify: Select a directory and modify the name of that directory.

Delete: Select a directory and delete the directory and its subdirectories. Deletion requires O&M privileges.

Upload: Select a directory and click Upload to select a file to upload to that directory.

Download: Select a directory, the list of files in the directory will be displayed on the right. Select a file, click Download, select the download path, and download the selected file to the specified path.

Delete: Select a file to delete it. Deletion requires O&M management function privileges.

Open: Double-clicking a file or selecting a file and clicking Open will open the file using the operating system's default program.

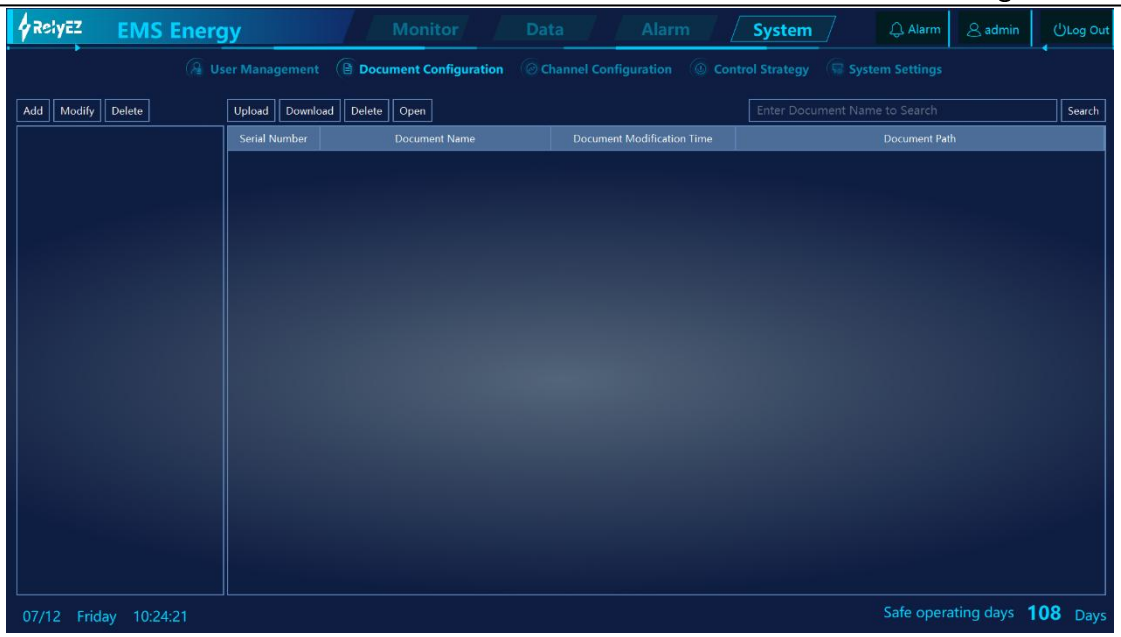


Chart 4-20 Document Configuration

(3) Channel configuration

Channel configuration interface displays the information of network port parameters: channel enable, channel name, channel description, channel IP, port number, local port number information, etc. are displayed in the form of a list. Available operations: confirm modification, restart channel operation.

Chart 4-21 Channel Configuration

(4) Control strategy

The Control strategy interface displays a graphical representation of the configuration of each strategy, which can be selected and then edited, with detailed information about the

strategy displayed on the right. Initially, you can configure basic strategies such as anti-back current, anti-overload, peak and valley shaving, timed charging and discharging, etc. You can also contact RelyEZ Energy to customize the strategies.

Operation guidelines: The middle strategy displays the diagrams that can be operated with the icon tool on the upper left side. The diagram list shows the type of operation, which can be selected. The tree diagram shows the type of policy operation under the device. Clicking on the policy, you can configure the diagram of the policy with the icon operation. On the right side, you can enter the details of the policy.

The Tuple List option displays the range of available strategy operations: input and output, addition, subtraction, multiplication and division. Includes: constants (A), (D), (S); inputs (A), (D); outputs (A), (D), etc., with the option of pulling in the center icon for policy configuration operations.

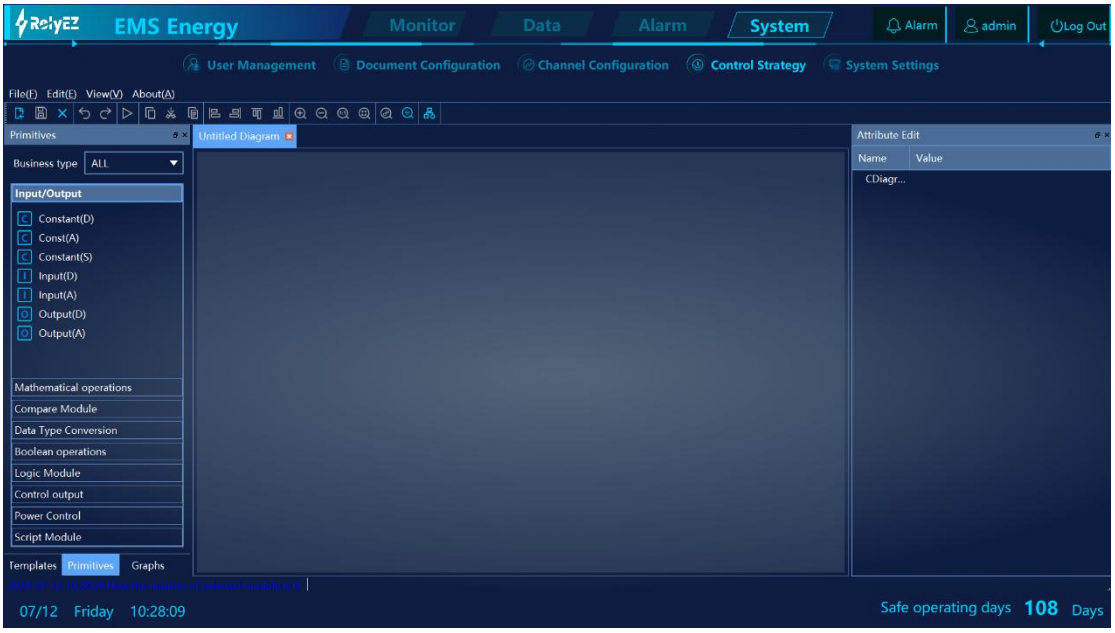


Chart 4-22 Control Strategy

(5) System settings

The system settings screen displays the system's NTP settings, time settings, and IP settings modules. You can fill in the settings, etc.

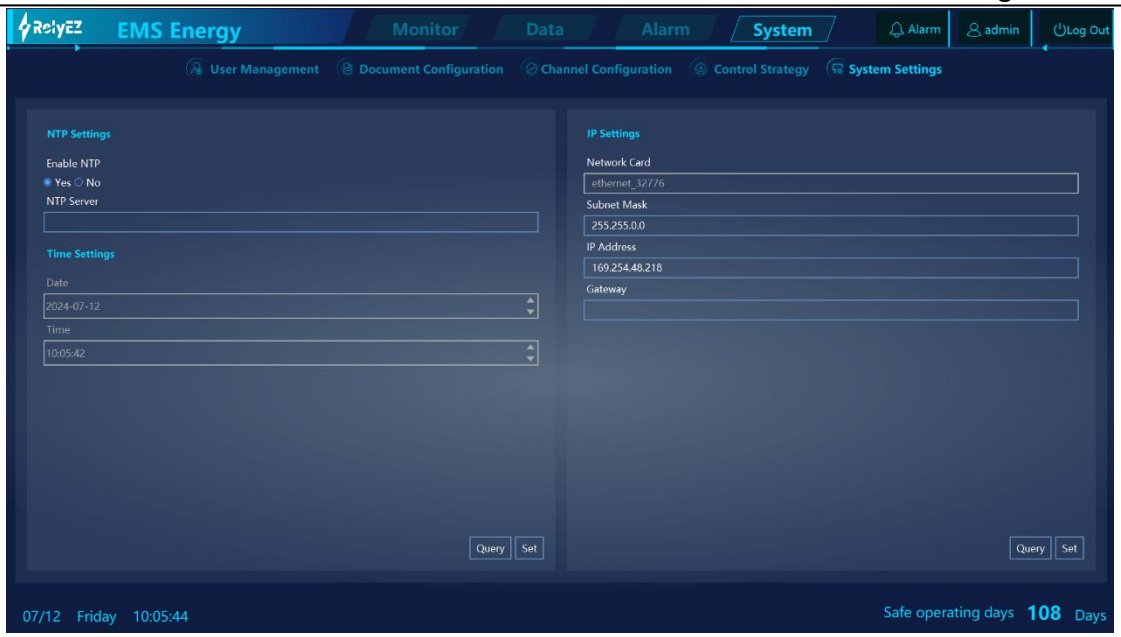


Chart 4-23 System Settings

5. Maintenance Instructions

This chapter introduces the maintenance and safety precautions, cyclic maintenance and maintenance procedures for liquid-cooled industrial and commercial integrated cabinets.

5.1 Maintenance of Firefighting Equipment

(1) Aerosols have a 10-year service life and require maintenance replacement every 10 years.
(2) Regular inspection of temperature sensors, smoke sensors, combustible gas detectors, and the inspection cycle; see the whole machine maintenance guide.
(3) Open the battery unit door when the auxiliary power is on, and observe that the temperature and smoke sensor indicator light flashes every few seconds and the green light of the combustible gas detector is always on; that is, it is in normal working condition.

5.2 UPS Maintenance

(1) If the UPS needs to be removed and replaced, make sure the UPS is turned off and all connections are disconnected.
(2) UPS batteries have a rated life of 3-5 years. The length of service life depends on the frequency of use of the battery and the ambient temperature (in environments above 25 ℃, every 10 ℃ rise in service life is halved).
(3) UPS batteries that typically exceed their useful life will have a severely reduced discharge time. Replace batteries at least every 4 years to ensure that the unit operates at peak efficiency. Low temperatures (below 10° C) will reduce the remaining battery time.

5.3 PCS Maintenance

(1) Prior to maintenance, it must be ensured that the power supply is disconnected on both the DC and AC sides. All operations on the PCS have to comply with the relevant standards of the place of installation.
(2) The inputs and outputs of PCS are strong electricity, and when carrying out various operations such as maintenance and overhaul of the equipment, the relevant personnel should take appropriate protective measures, such as wearing insulated protective equipment, as required.

(3) There is an energy storage capacitor inside the PCS. After powering down, you must wait for more than 10 minutes to confirm that the PCS is in a non-powered state before performing maintenance.

5.4 Liquid Cooler Maintenance

5.4.1 Matters needing attention

(1) If a leak occurs inside a liquid-cooled commercial or industrial integrated cabinet, please contact RelyEZ Energy at the time of shutdown.
(2) The coolant is of a brand recommended by RelyEZ Energy, such as Acwell, Lopal, etc. The coolant must be replaced every five years.
(3) The Liquid cooling system has a low-pressure alarm function. If the liquid level sensor prompts an alarm, that is, the need to replenish the liquid, such as an abnormal alarm, you need to check the pipeline and the valve to see if there is liquid leakage.
(4) If you purchase coolant yourself, you need to choose coolant with a freezing point lower than the lowest local temperature, a recommended 40% 50% glycol concentration, good anti-corrosion performance for aluminum, and maintenance according to the requirements of the coolant supplier. It is recommended that you increase the maintenance frequency. Damage to cabinet components caused by the use of other coolants than those recommended by RelyEZ Energy is not covered by the warranty.
(5) Liquid-cooled piping is observed during annual maintenance and should be replaced immediately if it is damaged. Refer to Chapter 3 for specific replacement instructions or contact RelyEZ Energy.
(6) Refer to the liquid cooler instruction manual for maintenance of the liquid cooler.

5.4.2 Rehydration procedure

Replenishment means replenishing the coolant when the coolant is insufficient during the operation of the liquid cooler, the operation steps are as follows:

A. Operate the liquid cooler into self-circulation.
B. Use piping to connect the outlet of the charge pump to the charge port of the liquid cooler and the inlet port to the external reservoir.
C. Remove the maintenance panel on the underside of the front of the liquid cooler and verify that the ball valve behind the refill port is closed.
D. Turn on the charge pump to pressurize to 1.5Bar and then open the ball valve after the

charge port, and connect the liquid discharge valve on the liquid cooling pipeline to the external liquid storage tank with a transparent pipe.

E. The transparent hose on the drain valve can be pulled out after observing that there are no air bubbles in the transparent hose.

F. Observe the outlet pressure. When the outlet pressure stabilizes between 2.0 and 2.5 bar, the refill is completed.

G. Close the ball valve behind the refill port and continuously observe the liquid cooler running for a period of time.

H. If the outlet pressure is maintained above 2.0Bar then turn off and remove the charge pump and install it back into the maintenance panel under the unit, if the outlet pressure is below 2.0Bar then repeat steps D~G until the outlet pressure stabilizes above 2.0Bar.

5.5 Complete Machine Maintenance Guide

Correct maintenance is the key to long-term stable operation of liquid-cooled industrial and commercial integrated cabinets, please carry out cyclic maintenance according to the cyclic maintenance table. When the equipment is operated in harsh environment, the maintenance cycle should be shortened.

5.5.1 Preventive cyclical maintenance (once a year)

In order to improve the operation efficiency and reliability of the liquid-cooled industrial and commercial integrated cabinet, please carry out the following preventive maintenance operations on an annual cycle (one year is the recommended cycle, which can be reasonably shortened depending on the site conditions).

Inspection Content	Inspection Methods
Cabinet exterior	1. Check whether there are flammable and explosive materials around the cabinet. 2. Check if the lock of the cabinet door is normal. 3. Check the sealing of the cabinet.
Inside the cabinet	1. Check whether there are flammable and explosive materials inside the cabinet. 2. Check the inside of the cabinet for foreign objects, water.

Cord (computer)	1. Check whether the cable arrangement is standardized, whether there is a short-circuit phenomenon of the cable, if abnormal, please correct in time. 2. Check whether each cable connection is loose. 3. Check the cable for damage. 4. Check whether the insulation skin of the cable terminal is peeling off. Note: Cable maintenance needs to wait until the internal equipment of the liquid-cooled industrial/commercial all-in-one cabinet is completely powered off before inspection!
Fan (loanword)	1. Check if the fan is clogged. 2. Check if the fan is functioning properly.
Fire-fighting	1. Check to see if the fire detectors are working properly.
Liquid Cooling Line	1. Check the liquid-cooled piping for deterioration, leaks, etc.

Table 5-1 One-Year Cycle Maintenance Schedule

5.5.2 Preventive cyclical maintenance (semi-annually)

Inspection content	Inspection methods
System operating status and environment	1. Observe whether the liquid-cooled industrial and commercial integrated cabinet is damaged or deformed. 2. Listen to the liquid-cooled industrial and commercial cabinet to run whether the sound is abnormal. 3. Check whether the working condition of the liquid-cooled industrial and commercial integrated cabinet is normal. 4. Check the operating parameters while the system is running. 5. Check whether the key devices are normal. 6. Use tools such as thermal imagers to check whether the liquid-cooled industrial/commercial cabinet enclosure heating is normal and to monitor the system heating. 7. Observe whether the inlet and outlet winds are normal. 8. Check whether the humidity and dust of the environment around the liquid-cooled industrial and commercial integrated cabinet meet the requirements. 9. Check that all air inlet and outlet filtration functions properly. NOTE: Ventilation of the air intake must be checked. Otherwise, the unit may not be cooled effectively causing the liquid-cooled industrial/commercial integrated cabinet to malfunction due to overheating.
Device Maintenance	1. Inspect all metal components for corrosion. 2. Annual inspection of switching devices (AC switches and micro break switches) to ensure that they are in good working order.
Safety function	1. Check that the emergency stop button is working properly. 2. Simulate a shutdown and check that the shutdown signal communication is normal. 3. Check the warning signs and other equipment markings on the cabinet and replace them promptly if they are blurred or damaged.

Software Maintenance	1. Ask RelyEZ Energy if there is a software update for the adapted device. 2. Check the parameter settings.

Table 5-2 Semi-Annual Cycle Maintenance Schedule

5.5.3 Preventive cyclical maintenance (every three months)

Inspection Content	Inspection Methods
System cleaning	1. Check the cleanliness of each component. 2. Check the temperature of the air inlet and outlet as well as the surrounding dust. If necessary, use a vacuum cleaner and open the air ducts for cleaning to avoid affecting the normal operation of the internal equipment. 3. If the equipment does not dissipate heat well or the air filter is obviously clogged, you can choose to replace the air filter (recommended 40PPI, 5mm thick polyurethane filter cotton).
Terminals, Cable Connections	1. Check the main circuit terminals (e.g., terminals of AC-side cables and DC-side cables) for poor contact, and the connection position for signs of overheating. 2. Check if the terminal bolts are loose, if so, tighten them with a tool. 3. Check if there is any color change in the copper rows or bolts. 4. Check connections and cable distribution such as equipment terminals.
Maintenance and replacement of temperature control components	1. Check whether the fan of the liquid cooler is working properly and whether there are debris blocking the air outlet. 2. Check whether there is any abnormal vibration sound when the fan of the liquid cooler is running normally. 3. If there is an abnormality in the fan, it should be replaced in time to avoid the temperature problem, which will lead to the failure of the liquid cooler. 4. Check whether there is a water replenishment alarm for the liquid cooler, if there is an alarm, the coolant should be replenished in time according to the liquid replenishment operation. 5. Use a tester or visual inspection to check the coolant status, including PH value, concentration range, precipitation, dirt, etc. If there is any abnormality, the coolant needs to be replaced.
PCS Maintenance and Replacement	1. Check the PCS for abnormal rattling. 2. Check the PCS for abnormal odor. 3. Check the internal temperature of the PCS and observe if the temperature is normal.

Table 5-3 Quarterly Periodic Maintenance Schedule

Maintenance work such as replacing the air filter, replacing the fan, and fluid filling operations require the removal of the protective grille inside the machine. Be sure to restore the removed grille to its original state after the maintenance work is completed, and make sure all bolts are tightened.

(1) The table only shows the recommended routine maintenance intervals for the product, the actual maintenance intervals should be formulated according to the specific installation and use environment of the product.

(2) If you are in a harsh environment with high wind and sand or thick dust, be sure to shorten the maintenance period and increase the frequency of maintenance.

5.6 Security Precautions

In order to safely and successfully perform maintenance on liquid-cooled commercial and industrial integrated cabinets, knowledge of safety precautions must be observed, compliant tools and test equipment must be used, and qualified maintenance personnel must be involved.

It is important to always keep in mind that dangerous voltages may be present inside the liquid-cooled commercial and industrial cabinets even if the system is not running.

Do not wear easily conductive objects such as rings, watches, etc. when operating the liquid-cooled industrial/commercial integrated cabinet.

Please follow the requirements of this manual to the letter and contact RelyEZ Energy if you have any questions.

6. Fault Handling

This chapter focuses on the treatment options for common malfunctions.

Once a fault occurs, the EMS software or display panel will show the current fault, while the liquid-cooled industrial/commercial integrated cabinet may be shut down as needed. In the event of machine failure, it is strictly prohibited to reboot the machine through the upper computer or touch screen operation, you can confirm that there is no problem by powering off and checking, and then reboot the machine, otherwise it will cause damage to the machine. Typical faults and treatment programs under.

6.1 Common UPS Failures and Treatment

View the event log or fault log method:

Press Enter on the UPS front panel to open the menu options.

Press the key to select Event Logging or Fault Logging.

Scroll through the listed events or faults.

Position	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
Battery Mode  The LED lights up. One beep every 10 seconds.	The grid has failed and the UPS is in battery mode.	The UPS is using battery power to power the load. Please be prepared to shut down your load device.
Battery Low Voltage  The LED lights up. One beep every 3 seconds.	The UPS is in battery mode and the battery is low.	Batteries are running low and about to shut down, alerting the user to protect the load Depending on the UPS load and the number of external battery boxes (EBM), the "Battery Low Voltage" warning may appear before the batteries reach 20% capacity.
battery-free  The LED lights up. Continuous beeping.	Battery not connected.	Verify that all batteries are properly connected. If this condition persists, contact RelyEZ Energy.
battery failure  The LED lights up. Continuous beeping.	Battery self-test fails, either due to a bad or disconnected battery, or if the battery voltage reaches the lower limit value during ABM cycle charging.	Verify that all batteries are properly connected. Start a new battery test: if the condition persists, contact RelyEZ Energy.

The UPS did not provide the expected standby time.	The battery needs to be charged or serviced.	Connect the UPS to the grid to charge the battery for 48 hours. If this condition persists, contact RelyEZ Energy.
bypass mode  The LED lights up.	An overload or fault occurs, or a turn-bypass command is received and the UPS is in bypass mode	The load device is energized but not protected by the UPS. Check for one of the following alarms: high ring temperature, overload, or UPS failure.
Output overload  The LED lights up. Continuous beeping.	Exceeds UPS output capacity	Disconnect some of the load equipment connected to the UPS. The UPS will continue to operate, but may switch to bypass mode or shut down if the load continues to increase. When the condition is removed, the alarm will reset.
UPS over temperature  The LED lights up. One beep every 3 seconds.	The internal temperature of the UPS is too high or the fan has failed. When the temperature reaches the alarm point, the UPS will issue an over-temperature alarm but remain in its current operating state. If the temperature continues to rise by 10° C, the UPS will switch to bypass mode or shut down if bypass mode is not available.	If the UPS is converted to bypass mode, when the temperature drops to the reported The UPS will return to normal operation when the warning point is 5° C or less. If this condition persists, turn off the UPS. Clean the vents and remove any heat sources and allow the UPS to cool. Make sure air can circulate freely around the UPS. Restart the UPS.
The UPS is not activated.	The input power supply is not properly connected.	Please check the input connection.

Table 6-1 UPS Common Fault Handling List

6.2 Common BMS Failures and Treatment

View the event log or fault log method:

View BMS fault alarms through the real-time alarm function of the EMS software.

Fault Name	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
Battery over-voltage alarm	Battery cell/module/cluster voltage greater than the maximum permissible cell voltage	Check that the system battery configuration is appropriate and within the machine's allowable input voltage range; Check whether the BMS sends a signal to prohibit charging and discharging normally, and whether the PCS executes the command.
Battery under voltage alarm	Battery Cell/Module/Cluster voltage less than the minimum allowable cell voltage	Check that the system battery configuration is appropriate and within the machine's allowable input voltage range; Check whether the BMS sends a signal to prohibit charging and discharging normally, and whether the PCS executes the command.

Battery High Temperature Alarm	Battery Rack temperature greater than the maximum permissible temperature during charging and discharging	Check that the ambient temperature is appropriate and within the machine's allowable operating ambient temperature; Check that the liquid cooler is working properly and that the liquid cooler line is not clogged.
Battery low temperature alarm	Battery Rack temperature is less than the maximum permissible temperature during charging and discharging.	Check that the ambient temperature is appropriate and within the machine's allowable operating ambient temperature; Check that the liquid cooler is working properly and that the liquid cooler line is not clogged.
Abnormal insulation impedance	Broken connection cables inside or outside the machine	Wait for the machine to finish discharging internally and check that the internal connection cables are intact; Check the AC and DC side connection cables for damage; Contact the manufacturer promptly.
Abnormal battery voltage differential value	Voltage difference of Battery Individual/Module/Battery Rack is not within the permissible range	Check that the BMS passive equalization system is working; Contact the manufacturer promptly.
Liquid cooler communication failure	Liquid cooler communication is relayed by the BMS and loss of communication causes this fault	Check that the BMS and liquid cooler communication lines are well connected and not reversed.
BMS communication failure	The BMS loses communication with the EMS;	Check that the communication cable connections are good and not reversed.
BMU communication failure	The BMS loses communication with the BMU;	Check that the communication cable connections are good and not reversed.
Current sampling circuit abnormality	Faulty Hall sensor or shunt in HV control box	Wait for the internal discharge of the machine to be completed, overhaul the high voltage control box, if the fault still exists, contact the manufacturer promptly.
Voltage sampling circuit abnormality	Voltage Sampling Harness Failure	Wait for the internal discharge of the machine to be completed, overhaul the high voltage control box, if the fault still exists, contact the manufacturer promptly.
Contactor sticking	DC contactor not closing properly	Wait for the internal discharge of the machine to be completed, overhaul the high voltage control box, if the fault still exists, contact the manufacturer promptly.
BMS Alarms	Alarm signal from BMS system	Wait for the machine's internal discharge to complete, service the BMS system, and if the fault persists, contact the manufacturer.
Flood Alarm	Liquid detected in the electrical unit or battery unit	Check the liquid cooling line for leaks; Check the cabinet for leaks.

Table 6-2 BMS Troubleshooting List

6.3 Common Failures and Treatment of Liquid Coolers

View the event log or fault log method:

View liquid cooler fault alarms through the real-time alarm function of the EMS software.

Fault Name	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
Sensor failure	Loose electrical wiring, damaged cables, or damaged sensors on the corresponding sensors.	Tighten electrical wiring or replace cable; Replace the sensor.
Inverter Communication Fault Alarm	The inverter's communication wiring is loose or the cable is damaged.	Tighten the communication wiring or replace the cable.
Inverter over-temperature alarm	The cooling duct of the compressor inverter is blocked or the ambient temperature is too high.	Clean the cooling ducts of the compressor inverter; Lower the ambient temperature.
Inverter phase loss alarm	The leads from the inverter to the motor are abnormal or the three-phase output of the inverter is unbalanced when the motor is running.	Troubleshoot lead connections; Replace the motor.
System High Voltage Alarm	Outdoor temperature is too high. Loose high pressure switch wiring or damaged cables. Condenser is seriously dirty or clogged. Outside circulating fan disconnected or working abnormally.	Check the outdoor temperature; Tighten electrical wiring or replace cable; Clean the condenser; Repair or replace the external circulation fan when not the cause of the power failure.
System Low Voltage Alarm	System pressure is below the pressure alarm setting.	Check the liquid cooling line for leaks, repair the leaks and then replenish the refrigerant.
Water Replenishment Alarm	Insufficient coolant in the liquid cooler.	Use a charge pump to replenish coolant.
AC under voltage alarm	The power supply grid is unstable.	Check the power supply grid; If it is confirmed that the problem is with the power supply grid, it is recommended to equip the liquid cooler with a power regulator.

Table 6-3 Liquid Cooler Troubleshooting List

6.4 Common PCS Failures and Handling

View the event log or fault log method:

View PCS fault alarms through the real-time alarm function of the EMS software.

Users can follow the instructions in the table below to perform self-test before seeking service, analyze the cause of the problem and find a solution. Please do not disassemble the machine parts during the self-test, if you cannot solve the problem, please contact the agent or directly with our company.

Failures are divided into two categories:

(1) Recoverable Fault: Indicates that the PCS, power grid, battery, and other external conditions are abnormal and automatically shut down, and the device can recover from the fault after the fault is recovered.

(2) Shutdown Fault: Indicates that the PCS, power grid, battery and other external conditions are abnormal, requiring shutdown and power down for inspection, and personnel are required to remove the abnormality in a timely manner.

Fault reset mode: automatic reset.

Auto reset fault means that after a fault occurs, the system will clear the fault by itself every certain period of time, such as if the fault condition is eliminated, the system exits the fault state; if the fault condition still exists, the fault will be re-reported. The number of times a fault can be automatically reset can be set by the function code, when the number of times it can be automatically reset is used up, the fault will no longer be automatically reset until the user manually resets the system and the number of times the fault can be automatically reset is reloaded.

Fault Name	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
Abnormal grid voltage	PCS does not detect grid voltage.	Check that the grid voltage is normal.
High instantaneous grid voltage	Grid transient voltage exceeds the high limit.	Check that the grid voltage is normal.
Grid line voltage rms therefore block	Grid line voltage RMS value exceeds allowable Permission to run range.	Check if the grid voltage is normal.
Grid voltage imbalance	Grid voltage unbalance exceeds high Limit.	Check that the grid voltage balance is normal
Grid frequency anomalies	Grid frequency out of operating range.	Check the AC supply frequency.
DC bus voltage overvoltage	DC bus voltage exceeded the high limit.	Check DC bus voltage and control parameters.

Battery voltage overvoltage	Battery voltage exceeds high limit.	Check battery voltage.
Inverter current sampling offset value malfunctions	Inverter current sampling offset value and The default value is outside the normal range.	Check the current sampling circuit (need to contact the Our company conducts troubleshooting).
Inverter current overcurrent	The inverter current exceeds the high limit.	Check the hall and sample wires.
AC Relay Failure	AC relay closing fault.	Check the AC relay.
IGBT Temperature Over Temperature	IGBT temperature exceeds the limit value.	Check IGBT temperature sampling Line, water machine flow, water machine water intake Port Temperature and Limit Parameters (if necessary) Contact me in advance if you want to change the limiting parameters Division personnel to determine before operating).
DC reverse polarity fault	DC+, DC- DC lines are reversed.	Check DC+, DC- wiring.
Failures of both high and low points	PCS detects high and low penetration beyond the hyperbola Line range.	Check the grid voltage.
AC lightning protection faults	Lightning protection failure occurs.	Check lightning protection fuses and wiring.
Fan Failure	Fan damage.	Detects the fan status.
Leakage current fault detection	Leakage current faults occur.	Check the leakage current signal.
Resonance Fault Detection	The PCS resonates internally and externally.	Adjust the resonance factor.
Reactor warm open fault	A reactor warm open fault occurs.	Check the reactor.
Insulation Testing	The insulation test calculated value is too low.	Check the insulation system.
Communication timeout	CPLD Detection.	Check the core board.

Chip reset	CPLD Detection.	Check the core board.
Water-cooled plate temperature over-temperature	Water-cooled plate temperature exceeds limit values.	Check the water cooling plate temperature sampling line, Water machine flow rate, water machine inlet temperature degree and limiting parameters.

Table 6-4 PCS Recoverable Troubleshooting List

Fault Name	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
High DC bus voltage	DC bus voltage high fault report 3 times or more.	Power down and check that the Battery Rack voltage is normal.
High deviation of DC bus voltage	DC bus deviation voltage high fault Report more than 3 times.	Power down and check that the Battery Rack voltage is normal.
AC Relay Failure	AC relay closing fault.	Check the AC relay.

Table 6-5 PCS Downtime Troubleshooting List

6.5 Common system Failures and Handling

View the event log or fault log method:

View system fault alarms through the real-time alarm function of the EMS software.

Fault Name	Possible Causes of Malfunction	Corresponding Troubleshooting Methods
External Emergency Stop Fault	The external emergency stop terminal receives a stop signal.	Check if the emergency stop is due to some malfunction that needs to be removed before the external emergency stop signal is restored.
Flood sensor alarm	The flood sensor senses a water leakage signal.	Troubleshoot the liquid cooling line for leaks or the cabinet for leaks.
AC Circuit Breaker Disconnect	The AC main switch is in the off position.	Check that the AC current at the time of disconnection does not exceed the disconnection value or that the ambient temperature is not too high, and reclosing the circuit breaker after eliminating the above causes. If this condition persists, contact RelyEZ Energy.

Table 6-6 System Troubleshooting List

Instruction

This manual may not cover all possible situations that may arise during maintenance and troubleshooting, if the liquid cooled commercial or industrial integrated cabinet creates other problems not covered in this manual, contact RelyEZ Energy.

When the liquid-cooled industrial and commercial integrated cabinet is charging and discharging, the user is prohibited from opening the cabinet door.

Stop the machine by stopping the PCS first, otherwise it will cause damage to the high voltage control box contactor!

When the liquid-cooled industrial and commercial cabinet needs to be shut down, the upper computer or display panel must be shut down first, and then switch operation. Otherwise, it is easy to produce faults, which may lead to serious damage to the liquid-cooled industrial and commercial cabinet.

There is still a residual charge on the capacitors inside the liquid-cooled industrial/commercial cabinets, which may still present a high voltage that could jeopardize personal safety. Therefore, the unit should be left for a sufficiently long period of time (≥ 10 minutes) until the charge has been released before disassembling the cabinet.

Attachment (email)

A technical data sheet

Parameters / Name (of a thing)	System Parameter	Note
Rated voltage	230/400V~,3W+N+PE	
Rated current	210A max	
Frequency	50Hz	
Rating	133kW	
Nominal power	250kWh	
Number of battery cells	260	
Number of battery modules	5	
Number of Battery Racks	1	
Battery module series-parallel connection method	1P52S	
Protection class	IP54	
Total weight of liquid-cooled commercial and industrial cabinets	3500kg	Batteries included, weight is for reference only, subject to actual weighing.

Table A-1 YXYK-125K/552314-L Technical Parameter Table

Parameters / Name (of a thing)	System Parameter	Note
Rated voltage	277/480V~,3W+N+PE	
Rated current	195A max	
Frequency	60Hz	
Rating	133kW	

Nominal power	250kWh	
Number of battery cells	260	
Number of battery modules	5	
Number of Battery Racks	1	
Battery module series-parallel connection method	1P52S	
Protection class	IP54	
Total weight of liquid-cooled commercial and industrial cabinets	3500kg	Batteries included, weight is for reference only, subject to actual weighing.

Table A-2 YXYK-125K/552314-M Technical Parameter Table