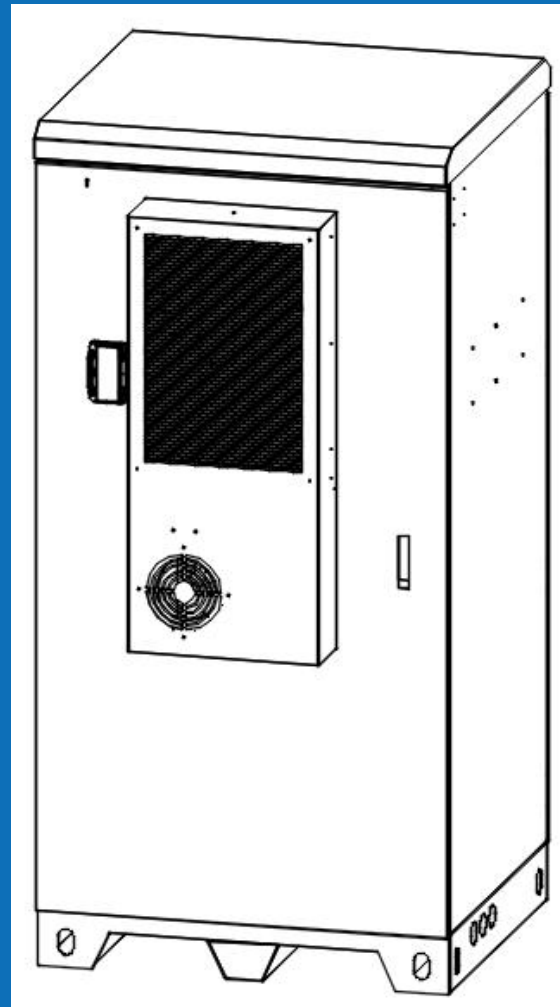


PowerCabinet



Operating Instruction

Small-scale commercial and industrial lithium-ion batteries for energy storage



Catalogue

1 legal notice.....	4
2 disclaimer.....	4
3 Guidelines for the Safe Use of Lithium Batteries.....	5
4 Safety Signs and Terminology Explanation.....	7
5 product description.....	8
5.1 Product Features.....	8
5.2 application scenarios.....	9
5.3 Product Overview.....	9
6 Installation Preparation.....	12
6.1 Unboxing List.....	12
6.2 Required Tools.....	12
6.3 Safety Equipment.....	13
7 installation instructions.....	13
7.1 Installation personnel requirements.....	13
7.2 Installation environment requirements.....	13
7.3 Installation location selection.....	14
7.4 Foundation Requirements.....	15
7.5 Install an energy storage battery cabinet.....	17
8. Electrical Connection.....	18
8.1 Install the inverter.....	18

8.2 Connect to the inverter.....	19
8.3 Air conditioning control inverter.....	20
8.4 The lighting fixture is connected to the inverter.....	20
9 Battery startup/ shutdown process.....	21
9.1 Open the battery system.....	21
9.2 Turn off the battery system.....	21
9.3 Circuit Breaker Reset Operation Instructions.....	22
9.4 Battery Wakeup Function.....	22
10 Inspection, Cleaning, and Maintenance.....	23
10.1 General Information.....	23
10.2 check up.....	23
10.3 cleaning.....	24
10.4 maintenance.....	24
11 Storage.....	24
12 debugging.....	25
13 technical specifications.....	27
14 Transportation Requirements.....	29

1 Legal Notice

- Without the prior written authorization of the manufacturer, no part of this document may be excerpted, copied, translated, annotated, or adapted in any form or manner.
- The storage, use, and disposal of the product must strictly comply with the product instructions, relevant contracts, and applicable laws and regulations.
- It is prohibited to use, in any manner, the data contained in the firmware or software developed by the manufacturer (whether in part or in whole) for any commercial purpose.
- It is prohibited to perform reverse engineering, cracking, or any other action that may compromise the original software design developed by the manufacturer.

2 Disclaimer

In the following circumstances, the manufacturer shall not be liable for personal injury, property damage, product damage, or consequential losses:

- Losses caused by force majeure, including but not limited to earthquakes, floods, volcanic eruptions, landslides, lightning strikes, fires, wars, military conflicts, typhoons, and hurricanes.
- The provisions of this manual were not complied with.
- The installation, operation, and storage environment does not comply with relevant international, national, or regional standards.
- misuse of this product.
- Do not repair, disassemble the product, or perform any other operations by unauthorized or unqualified personnel.
- Use unauthorized spare parts.
- Do not modify products or software or make technical changes without authorization.
- The shipment was sent by you or a third party you authorized.
- The materials and tools you are using do not comply with relevant international, national, or regional standards.
- Damages resulting from negligence, intentional misconduct, gross negligence, or improper operation by you or a third party.

Please read this manual and other related documents carefully and keep them properly stored for easy access at any time.

3 Guidelines for the Safe Use of Lithium Batteries



danger

Read carefully and comply with all safety warnings and instructions. Non-compliance may result in electric shock, fire, severe personal injury, or death. Only qualified personnel may perform battery wiring operations.



warn

- ① This product must not be operated by non-professionals, as doing so may cause damage to the battery system or personal injury. It is for use exclusively by authorized personnel.
- ② Do not remove the connectors during system operation! To move or maintain the battery system, disconnect the power supply and ensure the battery is fully powered off.
- ③ A damaged battery may cause electrolyte leakage. If leakage occurs, do not come into contact with the leaked electrolyte or volatile gases, and immediately contact after-sales service for assistance. If you accidentally come into contact with the leaked substance, follow these steps:
 - Inhalation of leaked substances: Evacuate the contaminated area immediately and seek medical assistance.
 - Eye contact: Rinse with clean water for at least 15 minutes and seek medical attention immediately.
 - Skin contact: Thoroughly wash the affected area with soap and water, and seek medical attention immediately.
 - Intake: Seek immediate medical assistance if vomiting occurs.
 - Do not move the device if the battery system is connected to an external expansion module. For battery replacement or addition, contact after-sales service.
- ④ During a fire, only dry powder fire extinguishers are permitted; the use of liquid fire extinguishers is strictly prohibited.



prudent

Before connecting

- ① After opening the package, first check the product and its packaging list. If you find any damage to the product or missing components, please contact after-sales service.
- ② Ensure the power supply to the grid is disconnected and the battery is turned off.

During connection

- ① The wiring must be correct. Pay attention to the positive and negative terminals of the cable and ensure there is no short circuit connection with external devices.
- ② Do not connect the battery directly to an AC power source.
- ③ The battery system must be properly grounded, with a resistance value $<1\Omega$.
- ④ Ensure that the electrical parameters of the battery system are compatible with the relevant equipment.
- ⑤ Do not connect different types of batteries together.
- ⑥ Do not connect the battery to an incompatible or faulty inverter.
- ⑦ Do not let the terminals come into contact with exposed wires or metal.

In use

If system capacity expansion is required, confirm with after-sales service personnel first, then have a qualified authorized person disconnect the power supply before proceeding with the operation.

Keep this device out of reach of children or animals.

Do not place the battery near sources of fire, heaters, or high temperatures to reduce the risk of explosion or injury.

The battery may explode near a ignition source (such as an open flame), releasing fragments and chemicals. In such a case, immediately rinse the affected area with an ample amount of water.

Avoid immersing the battery in water or exposing it to damp or waterlogged environments.

Do not disassemble or modify the battery in any way.

Do not move the device if the battery system is connected to an external expansion module. For battery replacement or addition, contact after-sales service.

We shall not be liable for any consequences or related responsibilities resulting from violations of safety operating procedures or equipment safety standards.

4 Safety Signs and Terminology Explanation

Characteristic	Description
	Indicates a potential hazard that, if not avoided, may cause equipment damage or personal injury.
	This indicates a flammable hazard; keep away from open flames or heat sources, as doing so may cause a fire or explosion.
	This indicates chemical hazard; the battery contains hazardous chemicals. Self-disassembly or repair is strictly prohibited.
	This indicates a risk of electric shock; failure to comply with safety regulations may result in personal injury.
	Do not use open flames near batteries to prevent fires or explosions.
	When a battery catches fire, it is strictly prohibited to use water for firefighting; only dry powder fire extinguishers are permitted.
	Keep the battery out of reach of children to prevent accidents.
	The battery should be recycled by a professional institution after use.
	The product must not be disposed of as regular household waste; it should be recycled in accordance with local regulations.
	If you notice any abnormalities, contact after-sales service for assistance within 24 hours.
	This indicates that maintenance is for professional personnel only; unauthorized disassembly or modification is prohibited.
	Indicates that the product complies with the safety, health, and environmental requirements of relevant EU directives.

5 Product Description

5.1 Product Features

① This product series is waterproof, dustproof, sun-resistant, and corrosion-resistant. It features a classic external water-guiding groove design, ensuring seamless integration between the cabinet and door without any gaps. The unit operates stably in high-temperature, humid, or dusty environments.

② Intelligent temperature control for heating and cooling, energy-efficient and stable: The intelligent temperature control system operates entirely based on the internal cabinet temperature. The controller uses internal circulation temperature sensors to measure the cabinet return air temperature and compare it with the set point to regulate the compressor and fan operation. This ensures the battery energy storage cabinet remains within the optimal operating temperature and humidity range, guaranteeing stable equipment performance and extending its service life.

③ The internal modular design allows flexible expansion, supporting the series combination of 6 to 12 battery modules to increase voltage and capacity.

④ The cathode material is lithium iron phosphate LiFePO_4 , which exhibits strong thermal stability, poses no risk of fire or explosion, and offers long cycle life. The entire module is non-toxic, pollution-free, and environmentally friendly.

⑤ The built-in Battery Management System (BMS) provides comprehensive protection against overcharging, overdischarging, overcurrent, overheating, and short circuits. It automatically manages the charging and discharging states of each battery cell, monitors cell voltage, current, and temperature data, and balances cell voltage and current to extend cycle life.

⑥ This module features low self-consumption power, providing up to 6 months of operation without recharging; it exhibits no memory effect and demonstrates excellent shallow charge-discharge performance.

⑦ The operating temperature range is from -20°C to 55°C , offering excellent discharge performance and cycle life.

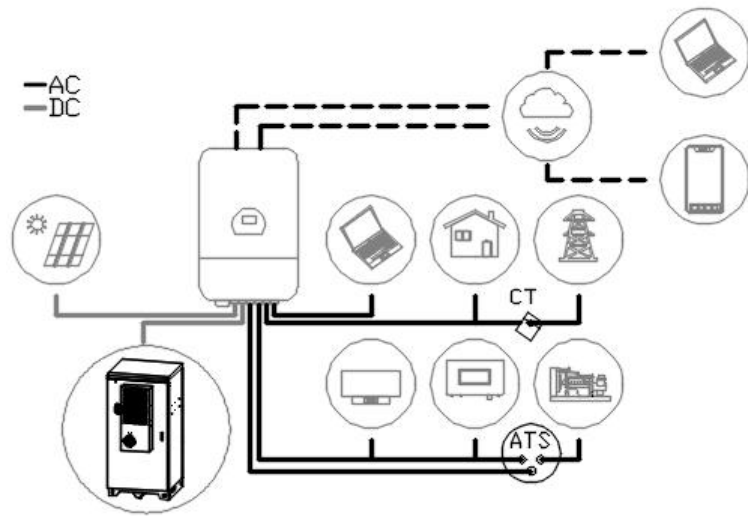
5.2 Application Scenarios

The figure on the right illustrates the basic application of this battery.

In addition, it includes the following equipment to constitute

Complete operating system:

- Generator or public utility facility
- Photovoltaic module
- Low-pressure hybrid PCS (charge-discharge)



Consult your system integrator to learn about other system architectures that may be suitable for your needs.

5.3 Product Overview

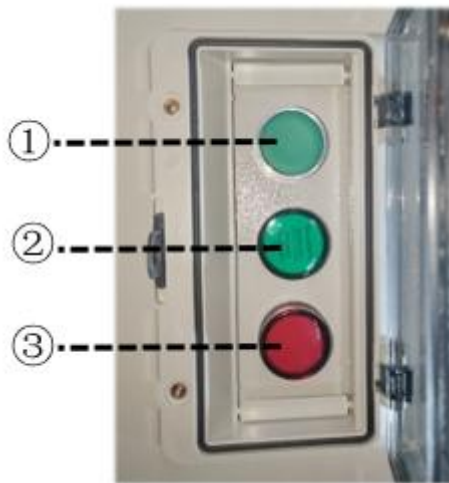
This product series features high integration, exceptional reliability, long service life, and a wide operating temperature range. It comprises a housing, a high-voltage lithium-ion battery energy storage system, and an intelligent temperature control system for heating and cooling.

The high-voltage lithium-ion battery energy storage system features a modular design, comprising one BCU (Battery Control Unit) connected in series with multiple battery modules. Operating within a voltage range of 278.4V to 864V, it is designed for household and commercial energy storage applications and works in conjunction with a high-voltage inverter to achieve energy storage objectives.

The energy storage system incorporates a BMS (Battery Management System), comprising both the master BMS in the BCU and slave BMS in the battery modules, which manages and monitors battery parameters such as voltage, current, and temperature. Additionally, the BMS balances battery charging to extend its service life and features protection against over-discharge, overcharging, overcurrent, and extreme temperatures. The system automatically manages charging, discharging, and balancing states.

The energy storage system product incorporates a soft-start circuit internally, enabling it to support inverters without built-in soft-start functionality.

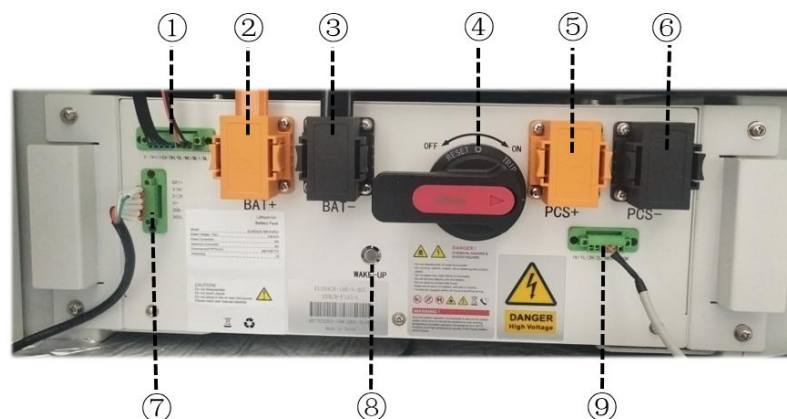
operation panel



Number	Part Name	Description
1	POWER	Power switch: Turn the battery power on/off.
2	Operation indicator light	Indicates the device status for on-site condition monitoring.
3	Alarm indicator light	When an energy storage system experiences abnormalities, failures, or hazards, issue a red light alert to on-site personnel.

BCU (Battery Control Unit)

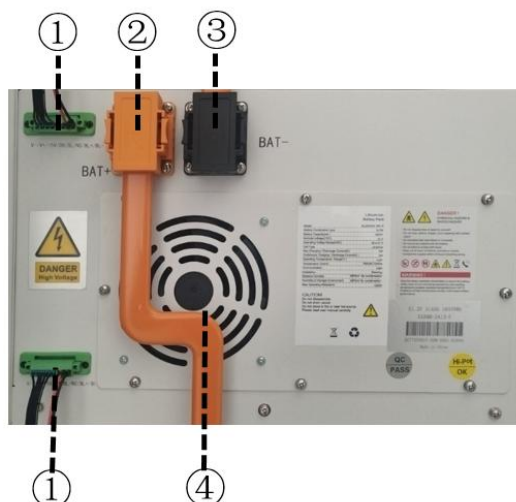
The BCU comprises the main BMS (Battery Management System), DC fuse, soft-start circuit, charging circuit, discharge circuit, and a 24V DC power module.



Number	Part Name	Description
1	Parallel Communication Composite Port	V+/V-: Power interface; + 5V: Address port; OH/OL: Communication port; BL+/BL-: Fan power interface
2	Battery positive terminal input	The total "+" port after connecting the batteries in series
3	Battery negative terminal input	The total "—" port after connecting the batteries in series
4	Moulded case circuit breaker	Turn on/off the battery system
5	PCS+	The "+" port connected to the inverter
6	PCS-	The "-" port connected to the inverter
7	External Operation Composite Port	Connect the external button switch, operation indicator light, and flashing buzzer
8	WAKE-UP	Wake button: Wake battery
9	PCS Communication Composite Port	1 H/1L: Connect to the inverter's CAN communication port; 2 H/2L: Retain the communication port (CAN); 485A/485B: 485 communication ports

Battery module:

The BMS in the battery module collects battery voltage and temperature data and transmits it to the main BMS via the internal CAN bus. The main BMS in the BCU controls the charging voltage/current and discharging voltage/current.



Number	Part Name	Description
1	Parallel Communication Composite Port	V+/V-: Power interface + 5V: Address port OH/OL: Communication port BL+/BL-: Fan power interface
2	Battery positive electrode	The battery's "+" port
3	Battery negative electrode	The battery's "-" port
4	Radiator fan	Battery module cooling

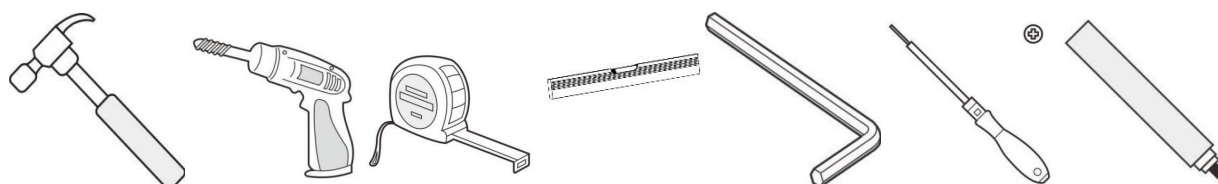
6 Installation Preparation

6.1 Unboxing List

The unboxing list is attached in the internal folder of the cabinet. Upon opening, immediately verify that all accessories are complete.

6.2 Required Tools

The following tools are required for installing the battery: hammer, electric drill, tape measure, level, hex key, and marker pen.



6.3 Safety Equipment

The following safety equipment is recommended when handling battery packs: insulated gloves, safety shoes, and goggles.



Warning! Use well-insulated tools to prevent electric shock or short circuits. If insulated tools are unavailable, wrap the metal parts of the tools (excluding tips) with electrical tape.

7 Installation Instructions

7.1 Installation Personnel Requirements

Installation personnel must meet the following requirements:

- The hoisting, transportation, installation, wiring, operation, and maintenance of battery energy storage cabinets must be performed by qualified electrical technicians in compliance with local regulations.
- The candidate should possess professional knowledge in electronics, electrical wiring, and mechanical engineering, and be proficient in electrical and mechanical circuit diagrams.
- One must be familiar with the structural composition, operating principles, and supporting equipment of battery energy storage systems.
- Be able to respond quickly to hazards and emergencies that arise during installation and commissioning.
- Be familiar with the relevant standards and specifications of the country/region where the project is located.

7.2 Installation Environment Requirements

The installation environment must meet the following requirements:

- The installation ground must be level;
- The surrounding environment during installation should be kept dry and well-ventilated.

- The installation site should be located away from areas with concentrated toxic and hazardous gases, as well as away from flammable, explosive, and corrosive substances.
- The installation location should be kept away from residential areas to avoid noise interference.
- Do not place the device near heat sources or fire sources, such as smoke, heaters, or other heating devices. Overheating may damage the device or cause a fire.
- The installation area should minimize dust and dirt as much as possible.
- The distance between the air outlet of the PCS and the surrounding surface should be greater than 0.5 meters.
- Do not place in areas accessible to children or pets.



pay attention to !

① 、 **Temperature:** Frequent exposure to ambient temperatures outside the range of -20°C to 55°C reduces performance and service life.

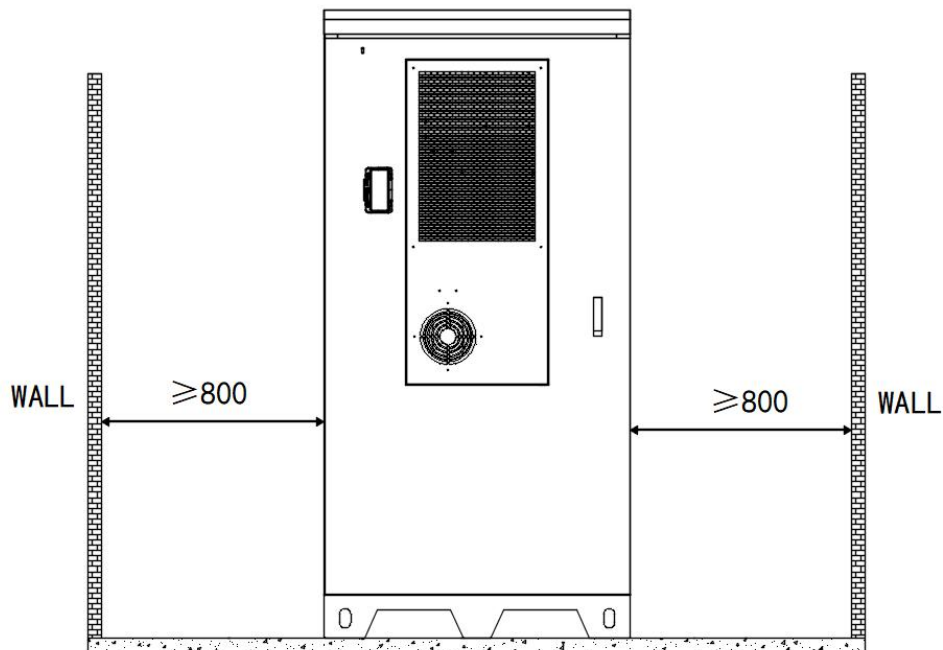
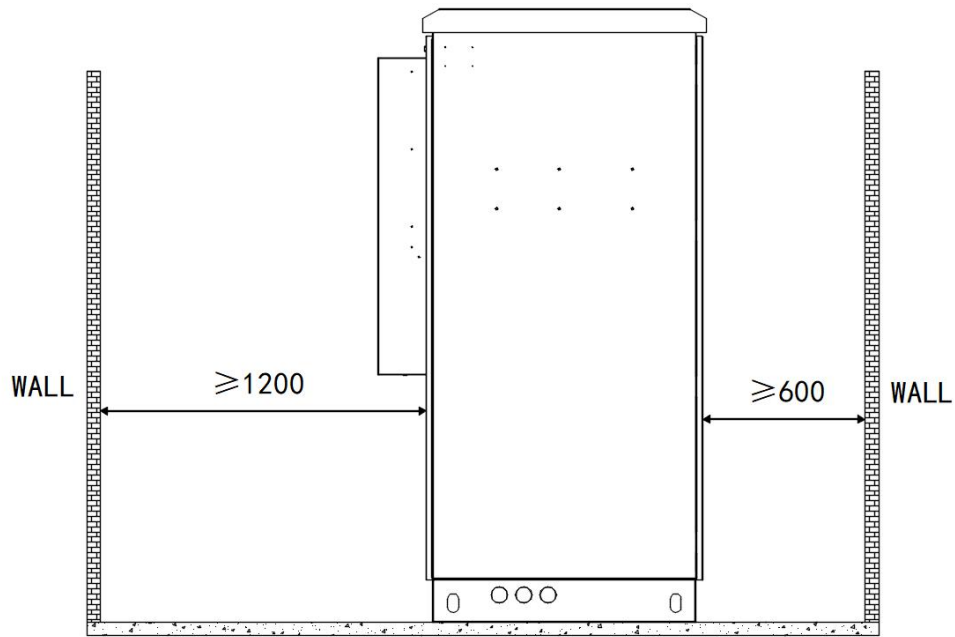
② 、 **Fire Suppression System:** For Safety Reasons, It Is Advisable to Have a Fire Suppression System in Place and to Inspect and Maintain It Regularly.

7.3 Installation Location Selection



pay attention to !

The battery energy storage cabinet should be installed in a clean, flat area away from fire sources, non-residential spaces, and at an appropriate temperature. The recommended installation location must meet the dimensional requirements shown in the figure below:



7.4 Foundation Requirements

Defects in the foundation construction will pose significant challenges to the installation and operation of the energy storage cabinet, not only impairing the smooth functioning of the cabinet doors but also compromising the normal operation of the entire system. Therefore, the foundation of the energy storage cabinet must be meticulously designed and constructed in strict accordance with established standards to ensure it meets all essential requirements for mechanical support, cable routing, and subsequent maintenance and inspection.

During the basic construction process, the following standards must be met at a minimum:

1. Surface material: Install the cabinet on concrete or other non-combustible surfaces.
2. Surface condition: Ensure the surface is smooth, sturdy, and level, with sufficient load-bearing capacity, and free from depressions or tilts.
3. Concrete specifications: Unless otherwise specified, C30 concrete shall be used by default with a thickness of 200 mm.
4. Beyond the cabinet boundaries: 300 mm beyond the edge of each side.
5. Reinforcement: Use HRB400 (Grade III) steel bars with a diameter of 12 mm and spacing of 150 mm.
6. Corrosion prevention measures: In accordance with standard requirements, apply corrosion protection treatment to the steel reinforcement after removing rust.
7. Bed layer: A 100 mm thick C15-grade base layer must be laid beneath the beam.
8. Load-bearing layer: The foundation load-bearing layer must consist of undisturbed soil with a characteristic bearing capacity of ≥ 100 kPa.
9. Drainage measures: Implement drainage during construction to prevent water accumulation in the foundation pit.
10. Excavation Safety: Ensure appropriate safety measures for excavation support.
11. Water protection measures: After excavation is completed, the foundation pit must not be submerged in water. If construction is affected by water, additional excavation and backfilling shall be performed.
12. High requirements: The foundation must be higher than the local historical highest water level and at least 300 millimeters above ground level.
13. Drainage System: Construct drainage facilities in accordance with local geological conditions and municipal drainage requirements to ensure no water accumulation at the equipment foundations. The drainage system must meet the drainage demands of the region's historically highest rainfall events. Water discharged from the drainage system must be treated in compliance with local laws and regulations.
14. Surface flatness: The flatness tolerance between the equipment base and the cabinet contact surface must be ≤ 3 mm.
15. Foundation pit compaction: Before construction, the bottom of the equipment foundation pit must be compacted and leveled.
16. Load-bearing capacity: The equipment foundation should be configured based on the total equipment weight. If the foundation's load-bearing capacity does not meet the requirements, it must be re-verified.

17. Cable Management: During foundation construction, cable interfaces for the energy storage cabinet must be reserved, along with corresponding trenches or cable entry holes.

18. Sealing treatment: Both the reserved holes in the equipment foundation and the feed holes at the equipment bottom must undergo sealing treatment after installation.

Cable trench requirements:

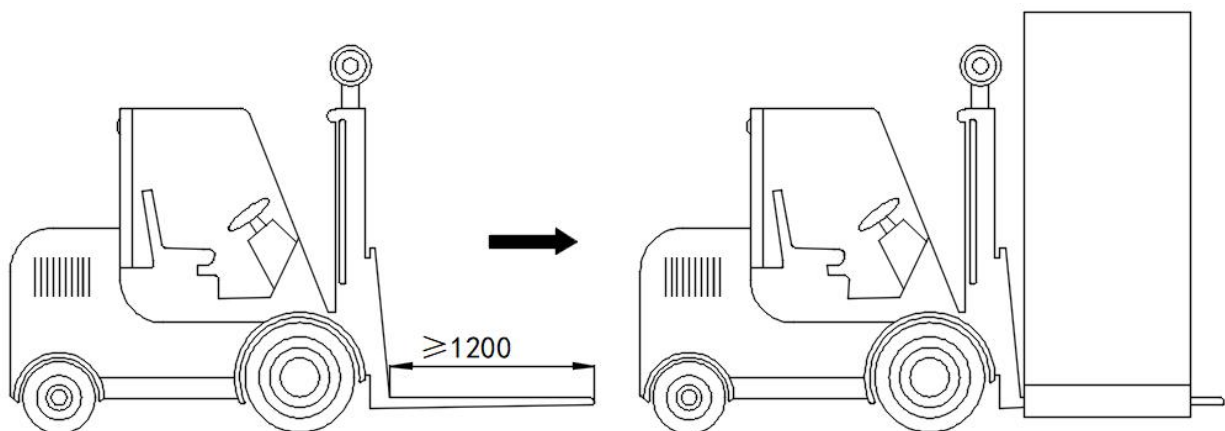
For energy storage cabinets utilizing the bottom cable entry method, a trench must be excavated in advance at the site. The absence of lateral cable entry points effectively prevents foreign object intrusion. The trench must meet the following requirements:

1. Dust and rodent-proof design: To prevent foreign objects from entering the energy storage cabinet, the groove must incorporate effective dust and rodent-proof features.
2. Waterproof and moisture-proof measures: To prevent cable aging and short circuits from affecting the normal operation of the energy storage cabinet, the trench must be treated with waterproof and moisture-proof measures.
3. Sufficient cable bending radius: Given the high rated power of the energy storage cabinet and the requirement for thicker cables, the trench design must account for the cable's cross-sectional area and provide an adequate bending radius.

7.5 Install an Energy Storage Battery Cabinet

A forklift handling device should be used, which is equipped with a dedicated forklift transport fork hole at its base.

The following requirements must be met when using a forklift: The forklift must have sufficient load capacity; its body length must comply with equipment specifications.



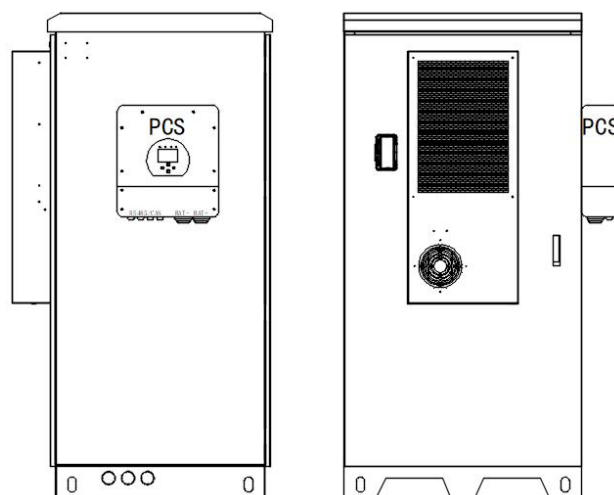
pay attention to !

- During operation, maintain a distance of at least 6 feet (approximately 1.8 meters) from the forklift.
- Before reversing, the forklift operator must inspect the rear and confirm safety before proceeding.
- When reversing in a confined space, the observer should guide the forklift operator.
- It is strictly prohibited for passengers to stand on forklifts or be lifted by them.
- Never overload forklifts or lift goods excessively, as this may compromise overall stability.
- Avoid sharp turns when transporting this equipment.
- When moving this device, the speed should be kept below 3 miles per hour (approximately 4.8 kilometers per hour).
- Before lifting this load on uneven surfaces or floors with a slope of ≥ 5 degrees, handle with care and assess the ground inclination.
- Do not tilt or invert the cabinet during transportation; the tilt angle should not exceed 15° .

8. Electrical Connection

8.1 Install the Inverter

You can select a suitable inverter and install it on either the left or right side of the energy storage cabinet.

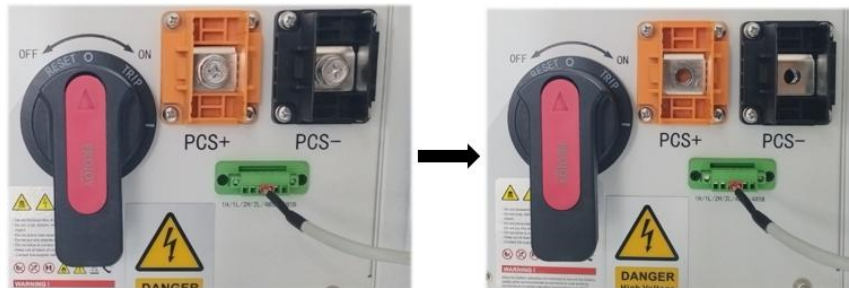


8.2 Connect to the Inverter

Close the molded case circuit breaker; the PCS positive and negative lines can only be installed after the circuit breaker is closed.



Remove the protective cover from the energy storage battery connector, then remove the three external hexagonal screws:



Use the removed hexagonal screw to attach the positive and negative power cables to the energy storage battery connector, then cover it with the protective cover.

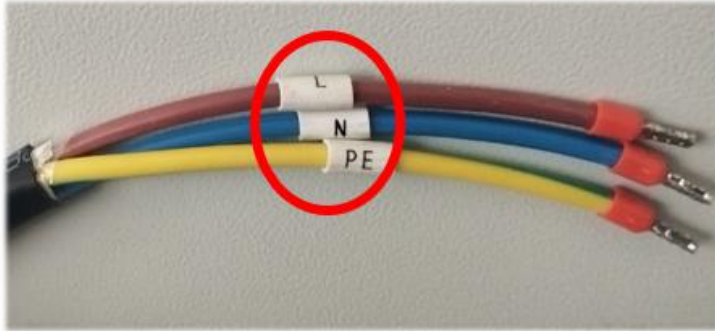


Connect the positive and negative power cables and the PCS communication cable to the inverter:



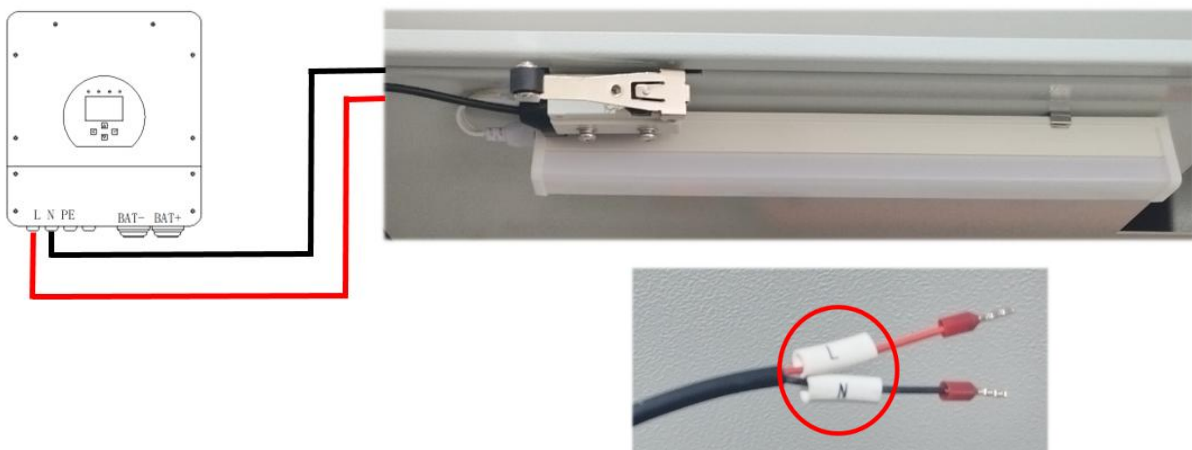
8.3 Air Conditioning Control Inverter

Connect according to the wire markings: Air conditioner wires L (brown), N (blue), and PE (yellow-green) should be connected to the L, N, and PE terminals on the inverter output, respectively.



8.4 The Lighting Fixture Is Connected to the Inverter.

Connect according to the wire markings: The lighting lamps L (red) and N (black) should be connected to the L and N terminals on the inverter output, respectively.



9 Battery Startup/ Shutdown Process



pay attention to !

Before operating the product, ensure:

- ① All cables are properly and securely connected.
- ② All fasteners (including bolts and screws) have been tightened.
- ③ No bystanders or animals shall enter the work area.
- ④ Do not allow foreign objects (especially metals) to come near the battery.

9.1 Open the Battery System

旋转 molded circuit breaker to the ON position, press the power button (POWER), and release it after 10 seconds. The battery enters a self-test mode; upon completion, it enters the pre-charging state.



moulded case circuit breaker



Power button

9.2 Turn off the Battery System

Press the power button (POWER) and release it after 10 seconds; the battery will stop supplying power. Alternatively, simply turn off the molded case circuit breaker.

9.3 Circuit Breaker Reset Operation Instructions

① Fault trip status: After an overload, short circuit, or protection trip, the handle automatically moves to the TRIP position. At this point, the mechanism is locked and cannot be directly closed to the ON position.



② Reset Procedure: Rotate the handle counterclockwise from the TRIP position toward the OFF position to the RESET position. This step resets the internal tripping mechanism and unlocks it. Continue rotating the handle clockwise to the OFF position to complete the isolation. A clear click sound will be heard during the operation, indicating that the internal tripping mechanism has been reset.



③ Normal closing procedure: After confirming the fault has been resolved, rotate the handle clockwise from the OFF position to the ON position to close and activate the circuit. If the circuit trips again immediately after closing, first investigate the line fault; do not force closing the circuit.



9.4 Battery Wakeup Function

If the first step fails to activate the battery system, it indicates that the battery voltage is too low, preventing system startup. In this case, press the power button (POWER) and the wake-up button (WAKE-UP) simultaneously, then release both buttons after 10 seconds. The system will perform a self-check and confirm no faults before the inverter begins charging.

10 Inspection, Cleaning, and Maintenance

10.1 General Information

- ① The battery product is not fully charged. It is recommended to complete the installation within 3 months after delivery.
- ② Do not reassemble the battery into the device during maintenance. Otherwise, battery performance will decrease.
- ③ It is strictly prohibited to disassemble any battery component within battery products or perform any form of battery disassembly.
- ④ After the battery experiences over-discharge, it is recommended to recharge it within 48 hours.
- ⑤ Do not attempt to open or remove the battery! There are no repairable components inside the battery.
- ⑥ Before performing cleaning and maintenance operations, disconnect the lithium-ion battery from all loads and charging devices.
- ⑦ All battery terminals must be disconnected during maintenance.
- ⑧ If you notice any abnormalities, contact after-sales service within 24 hours.
- ⑨ Do not use cleaning solvents to clean the battery.

10.2 Check Up

- ① Check the battery circuit and contacts for looseness, damage, cracks, deformation, leakage, or any other defects. Replace the battery immediately if damage is found. Do not charge or use a damaged battery. Do not touch the liquid inside a cracked battery.
- ② Check the battery charge regularly. Lithium iron phosphate batteries undergo slow self-discharge when not in use or stored.
- ③ Consider replacing the battery if any of the following situations occur:
 - The battery runtime is less than 70% of its original runtime.
 - The battery charging time has increased significantly.

10.3 Cleaning

If necessary, clean the lithium-ion battery with a soft, dry cloth. Do not use liquids, solvents, or abrasives to clean the lithium-ion battery.

10.4 Maintenance

Lithium-ion batteries require no maintenance. To maintain battery capacity, uninstalled batteries should be charged to at least 80% of their capacity annually.



pay attention to !

For refrigeration equipment maintenance, the unit must first be shut down and the power supply disconnected; work may only commence after a 5-minute interval to avoid electric shock risks. Regularly inspect drainage pipes for water accumulation, as poor drainage leading to internal leakage may damage electrical components or cause short circuits. Detailed maintenance requirements and procedures are outlined in the maintenance section of the "User Manual for Intelligent Heating and Cooling Temperature Control Systems."

11 Storage

① Battery products should be stored in a dry and cool environment.

② If the battery is stored for an extended period, it should be charged every six months, and the SOC (State of Charge) must remain no lower than 50%.

③ Under normal conditions, batteries can be stored at room temperature for up to 6 months. If storage exceeds 6 months, it is recommended to check the voltage of each battery module. If the voltage remains above 51.2V, the batteries may continue to be stored. Additionally, the voltage should be checked at least once per month.

④ When the battery module voltage falls below 51.2 V, charging must be performed according to the charging strategy.

⑤ The charging strategy is as follows: Discharge the battery at 0.5 C current until reaching the cutoff voltage, then charge it at 0.5 C current for approximately 3 seconds.

Hours. During storage, the battery's SOC should be maintained between 40% and 60%.

⑥ When storing battery products, avoid exposure to fire sources or high-temperature environments, and keep them away from explosive and flammable areas.

12 Debugging

Users can monitor the operating status, warnings, and alarm information via the inverter's LCD display.

Fault Diagnosis Table

Fault type	Phenomenon	Possible reason	Rx
Battery system startup failure	When the power button (POWER) is pressed, the button indicator light does not illuminate.	The DC circuit breaker of BCU is not closed.	Enable the BCU DC circuit breaker
		The battery is deeply discharged and needs to be charged first.	Press both the power button (POWER) and the wake-up button (WAKE-UP) simultaneously. The system will begin charging once it detects no other faults.
		The fuse in the BCU is faulty.	Replace the fuse
		The voltage of a single battery pack is 51 V or higher, but the battery still cannot be activated.	Please contact the distributor.
		The battery shows no response after charging for 30 minutes or more.	Please contact the distributor.
Charging/Discharging Fault	The battery can be started, but cannot be charged or discharged.	The battery BMS control board is faulty.	Please contact the distributor.
High-temperature protection during charging	An alarm will be triggered at a high temperature of 45°C.	Malfunction in the intelligent temperature control system for heating and cooling	Query: "The Intelligent Temperature Control System for Heating and Cooling"

Fault type	Phenomenon	Possible reason	Rx
	High-temperature (50°C) battery protection		The fault analysis in the "User Manual" and... Methodology Chapter.
Discharge high-temperature protection	High temperature: An alarm is triggered at 50°C; battery protection activates at 60°C.		
Low-temperature protection during charging	Low temperature alarm at 5°C; battery protection activated at 0°C		
Discharge low-temperature protection	An alarm is triggered at -10°C; battery protection activates at -20°C.		
Current Protection	The battery current exceeds the current protection threshold.	The battery protection device is enabled	Stop using electrical appliances that exceed the battery's maximum power load.
Overvoltage Protection	The cell voltage is higher than 3.6 V	The battery protection feature is enabled	Stop charging.
Undervoltage protection	The cell voltage is below 2.6 V	The municipal power outage lasted too long, causing the battery to drain. The battery protection function has been activated. The cell voltages are inconsistent, with some cells exhibiting rapid capacity degradation or excessively high internal resistance.	Stop discharging and charge the battery promptly If the battery cannot be restored due to abnormal protection, contact your local engineer for troubleshooting.
Short-circuit protection failure	The battery output has no current or voltage.	Start under load; inter-pole short circuit	Short-circuit protection failure
Cell voltage acquisition failed	Fault in the cell voltage sampling circuit The cell temperature sampling circuit is faulty.	The cell voltage sampling solder joint is loose or disconnected. The voltage sampling terminal is disconnected The cell temperature sensor is faulty.	Change the data acquisition line Replace the temperature sensor
Connection failure between the battery and the inverter	When the battery is connected to the inverter, the DC circuit breaker trips automatically.	There is a short-circuit point in the circuit between the battery and the inverter.	Check for any short circuit in the circuit between the battery and the inverter; verify whether the inverter is faulty.
Communication failure between the battery and the inverter	When the battery is connected to the inverter, no connection can be established between the battery and the inverter.	The incorrect battery model was selected in the inverter settings.	Select the correct battery model in the inverter settings.

Please verify the above data and send it to after-sales service. We will provide the corresponding solution upon receiving the data.

13 Technical Specifications

Product model			PC-S7RH-96	PC-D5RH-144	PC-D7RH-192	PC-D7RH-241
Battery Type			LiFePO ₄	LiFePO ₄	LiFePO ₄	LiFePO ₄
Maximum charge and discharge current			150/200	150/200	150/200	150/200
Continuous charging and discharging			140/180	140/180	140/180	140/180
Cabinet dimensions (H*W*D) (mm)			2185*660*1150	1973*1100*1210	2257*1100*1210	2257*1100*1355
Module Count	6	Cabinet capacity (Wh)	96460	-	-	-
		Rated voltage (Vdc)	307.2	-	-	-
		Working voltage range (Vdc)	278.4~345.6	-	-	-
		Weight (kg)	Approximately 984	-	-	-
Module Count	7	Cabinet capacity (Wh)	-	112537	-	-
		Rated voltage (Vdc)	-	358.4	-	-
		Working voltage range (Vdc)	-	324.8~403.2	-	-
		Weight (kg)	-	Approximately 1220	-	-
Module Count	8	Cabinet capacity (Wh)	-	128614	-	-
		Rated voltage (Vdc)	-	409.6	-	-
		Working voltage range (Vdc)	-	371.2~460.8	-	-
		Weight (kg)	-	Approximately 1335	-	-
Module Count	9	Cabinet capacity (Wh)	-	144684	-	-
		Rated voltage (Vdc)	-	460.8	-	-
		Working voltage range (Vdc)	-	417.6~518.4	-	-
		Weight (kg)	-	Approximately 1450	-	-
Module Count	10	Cabinet capacity (Wh)	-	-	160768	200960
		Rated voltage (Vdc)	-	-	512	640

Product model			PC-S7RH-96	PC-D5RH-144	PC-D7RH-192	PC-D7RH-241
		Working voltage range (Vdc)	-	-	464~576	580~720
		Weight (kg)	-	-	Approximately 1575	Around 1932
Module Count	11	Cabinet capacity (Wh)	-	-	176844	221056
		Rated voltage (Vdc)	-	-	563.2	704
		Working voltage range (Vdc)	-	-	510.4~633.6	638~792
		Weight (kg)	-	-	Around 1690	Approximately 2071
Module Count	12	Cabinet capacity (Wh)	-	-	192921	241152
		Rated voltage (Vdc)	-	-	614.4	768
		Working voltage range (Vdc)	-	-	556.8~691.2	696~864
		Weight (kg)	-	-	Around 1805	Approximately 2210
Work environment temperature range (°C)			-20~55			
Temperature Control Method			Automatic temperature control			
Chilling capacity/Heating capacity (W)			1500/1000	3200/2000		
Refrigeration/Heating input power (W)			600/1000	1114/2000		
Communication mode			RS485/CAN/RS232			
Levels of protection			IP54			
Working humidity			≤95% RH, no condensation			
Environmental humidity of the storage environment			≤95% RH, no condensation			
Work altitude			≤3000m			
Storage temperature			≤25°C for 12 months; ≤35°C for 6 months; ≤45°C for 3 months			

14 Transportation Requirements

① Battery products should be transported after packaging and during transit. Avoid severe vibration, impact, or compression. Transportation can be conducted using vehicles such as automobiles, trains, and ships.

② Before transporting lithium iron phosphate batteries, ensure compliance with all applicable local, national, and international regulations.

③ In certain cases, the transportation of scrapped, damaged, or recalled batteries may be subject to special restrictions or prohibitions.

④ The transportation of lithium-ion batteries falls under Category 9 of the United Nations Classification of Dangerous Goods (UN3480). When transported by water, air, or land, these batteries are classified under Part 1 Packaging Category PI965. Transport lithium-ion batteries classified as Category 9 using the appropriate Category 9 General Dangerous Goods Label and the United Nations Identification Label. Refer to the relevant transport documents.



Category 9: Other Dangerous Goods and United Nations Identification Tags