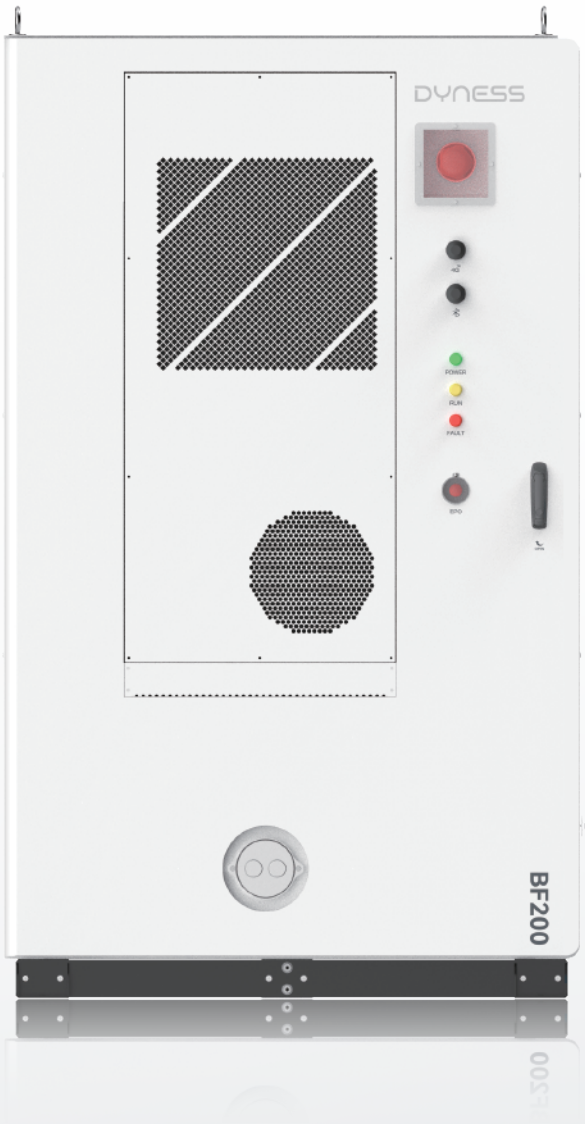
DYNESS



BF200-C260

USER MANUAL

EnerCore
Air-cooling Battery Cabinet

Version: 20260803-V1.4-EN, the version is subject to update without notice.

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When products or technologies are updated, customers can check the information on the website of Dyness.
Website: http://www.dyness.com/
Please note that products can be modified without prior notice.

Revised History

Revised Version	Revision Date	Revision Reason
1.0	2026.01	First publication
1.1	2026.02	Update the content of Chapter Five and revise the wiring harness list.
1.2	2026.02	Update the description of the side-mounted bracket and revise the wiring harness list.
1.3	2026.04	New requirements for product installation layout
1.4	2026.08	Installation layout requirements updated, SOC calibration added to system maintenance inspection, Cable specifications updated.

1. User Guide for the Manual

Note: Before installing or operating this product, please carefully read this manual. Please properly keep this manual for reference.

1.1. Contents of the Manual

This manual mainly covers safety precautions for outdoor air-cooling battery cabinets, product functions and specifications, delivery and storage, wiring installation, power-on and power-off processes of the product, human-machine interface operation, system maintenance, and quality assurance, etc.

1.2. Target Audience

This manual is applicable to professional technicians who install or repair outdoor air-cooling battery cabinets, as well as users who perform daily operations. Readers should have some electrical knowledge and understand electrical principles.

1.3. Symbol and Abbreviation Explanation

This manual and the product cabinet may contain the following symbol signs to emphasize important information to ensure the safety of users during installation of this product or to facilitate efficient use of this manual. Please read carefully.

Table 1-1 Symbol Signs

	Indicates that the interior of the body contains high voltage, be careful of electric shock, causing personal safety issues
	Indicates electrical danger. Before operating or maintaining the equipment, all external power connections must be disconnected
	Protection grounding symbol, indicating this is the protection grounding (PE) terminal. In case of a fault, it prevents electric shock grounding. It is necessary to firmly ground to ensure the safety of the operator
	Recyclable symbol
	Hazardous waste, needs professional recycling, do not put in the trash can
	Manual (User Manual) symbol

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The cabinet may still be live within five minutes after power-off. All operations must be initiated at least five minutes after the cabinet is powered off.

When referring to the following products in the manual, for the sake of convenience in expression, their abbreviations are used instead.

Table 1-2 Abbreviation Definitions

Abbreviation	Full Name
ESS	Energy Storage System
EMS	Energy Management System
BMS	Battery Management System
PACK	Battery Module
BDU	Battery Distribution Unit
SPD	Surge Protection Device
SOC	State of Charge
SOH	State of Health
DC	Direct Current
AC	Alternating Current
RCD	Residual Current Device
CT	Current Transformer
PE	Protective Earthing
PCS	Power Conversion System

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2. Safety Instructions

2.1. Safety Principle

Related safety precautions need to be strictly followed during installation, operation, and maintenance. This product is a combined high-voltage DC and three-phase AC system and should only be operated by authorized personnel.

DANGER

- Deadly high voltages are present inside the product. Please observe and comply with the warning labels on the product.
- Do not touch the power grid or the contacts connected to it inside the product to prevent the risk of fatal electric shock!
- Damage to the battery may result in electrolyte leakage. If the electrolyte leaks, do not touch the leaking electrolyte or volatile gases and contact the after-sales service team immediately for assistance.

WARNING

- Transportation, installation, and maintenance must comply with local regulations and this user manual;
- Installation work must be assigned to a specialized full-time operator.

PROHIBITION

- Risk of damage to the battery system or personal injury or behavior is prohibited;
- Replacement of the modules by the user is prohibited, and the company will not be responsible for any damages caused.

2.2. Operator Qualifications

Only qualified electricians or professional personnel can operate the product. The operator should meet the following requirements.

- Shall be familiar with local standards and relevant electricity safety regulations;
- The operator shall have received professional training related to the installation and commissioning of electrical equipment, and should have the ability to respond to emergencies or unexpected situations that may occur during installation or trial operation.
- The operator shall have certain specialized knowledge of electronics, electrical wiring, and machinery, and be familiar with electrical and mechanical schematic diagrams;
- The operator should be fully familiar with equipment protection and standard maintenance, and operations should comply with established safety standards.

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2.3. Environmental Safety Requirements

- Do not install and use the product in environments with temperatures below -20°C or above 50°C;
- Do not install and use the product near any heat sources or combustible materials;
- Do not install and use the product in areas with frequent movement of personnel;
- Do not expose the product to corrosive gases or liquids;
- Keep the product installation and use away from children and animals;
- The maximum installation altitude for the product should not exceed 3,000 m, and it should be derated when above 2000 m;
- Sufficient space should be reserved for product installation to ensure adequate ventilation;
- Isolation barriers must be set up during installation to prevent any unrelated personnel from entering the site.

2.4. Electrical Safety Requirements

The operator must ensure that all basic information and step-by-step instructions are understood before commissioning and switching off the disconnecting circuit-breaker.

DANGER

Battery Protection Safety

Please ensure that during installation and maintenance of the equipment:

- The battery is completely disconnected;
- Have a visible warning sign at the break point to ensure no accidental reconnections.

Ground Fault Protective Safety

- When a ground fault occurs, the original non-electrified part may carry high voltage, and accidental electric shock can lead to personal safety! Ensure that there is no ground fault and take necessary protective measures before operation.

Safety Of Live Line Measurements

- Given the presence of high voltages in this equipment, protective measures (e.g., wear insulated gloves, etc.) must be taken during live line measurements, and the operator must be accompanied by a person to ensure personal safety.

Arc Protection Safety

- Avoid arc, fire, and explosion hazards caused by improper operation;
- Prohibit touching uninsulated cables that may be energized;
- When a loose connection occurs in the power cable, or a screw or other component falls out accidentally, do not operate it without authorization, and it must be handled by a qualified professional to avoid causing a larger malfunction.

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2.5. Transportation and Installation Safety Requirements

WARNING

Personnel Operation Regulations

- Forklifts, cranes, and other construction machinery must be operated by qualified operators if required on site.
- The operator must wear insulated protective equipment that complies with safety regulations during installation;
- When connecting the power on-site, a professional guardian must be assigned to protect the switches that need to be turned off;
- Ensure that it has no electrical connections before installation;
- Each completed project must be checked at least once and cross-checked during the installation process;
- The equipment must be installed in sequence without skipping any steps.

Wiring regulations

- Appropriate measuring devices must be used, appropriate standards and directives must be followed;
- The operating manual of the measuring device must be known before any measurement is carried out;
- Only use equipment specified by Dyness. Failure to use equipment specified by Dyness may result in impaired protection as well as injury to personnel.

Test run after installation

- Only after confirmation by professionals and obtaining permission from local electrical authorities can the equipment be put into operation;
- Before operation, please switch off all distribution circuit breakers, and it is strictly prohibited to disconnect them during product running.

DANGER

- Do not change fuse size or rating value during installation;
- It is not allowed for two or more operators to connect a single wire simultaneously during the wiring process.

2.6. Daily Operation and Maintenance

All operations of the product should follow the instructions in the User Manual. Damage to the equipment caused by violation of these instructions will void the associated liability and warranty. If necessary, contact Dyness Customer Service for repairs.

WARNING

- The software, shell, and components of the product may not be changed without Dyness authorization. If changed, the corresponding liability and

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warranty shall be void;
- Do not remove or alter the nameplate;
- Do not open the cabinet doors in inclement weather such as rain or strong winds.

Battery maintenance
- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.
- When replacing batteries, replace with the same type and number of batteries or battery packs.
- General instructions regarding removal and installation of batteries.

a) CAUTION: Do not dispose of batteries in a fire. The batteries may explode.
b) CAUTION: Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
c) CAUTION: A battery can present a risk of electrical shock and high short-circuit current.
- The following precautions should be observed when working on batteries:

a) Remove watches, rings, or other metal objects.
b) Use tools with insulated handles.
c) Wear rubber gloves and boots.
d) Do not lay tools or metal parts on top of batteries.
e) Disconnect charging source prior to connecting or disconnecting battery terminals.
f) Determine if battery is inadvertently grounded. If inadvertently grounded, remove the source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

2.7. Product Obsolescence

When the product as a whole or individual internal components become aged or damaged and need to be discarded, they cannot be disposed of as regular waste. Some components inside the product can be recycled and reused. Improper disposal of certain components may cause environmental pollution. Please contact a qualified local professional recycling organization for proper disposal of the product and internal components.

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3. Product Description

3.1. Product Overview

This product is a commercial and industrial air-cooled battery cabinet with a system storage capacity of 241/261 kWh. The system integrates a PACK battery pack, a BDU intelligent control unit (with an integrated BMS battery management system and EMS energy management system), a fire protection system, an air conditioning system, etc. It can be paired with a hybrid inverter to convert to AC output and is widely used in small commercial and industrial scenarios such as charging stations, commercial buildings, and manufacturing industries.

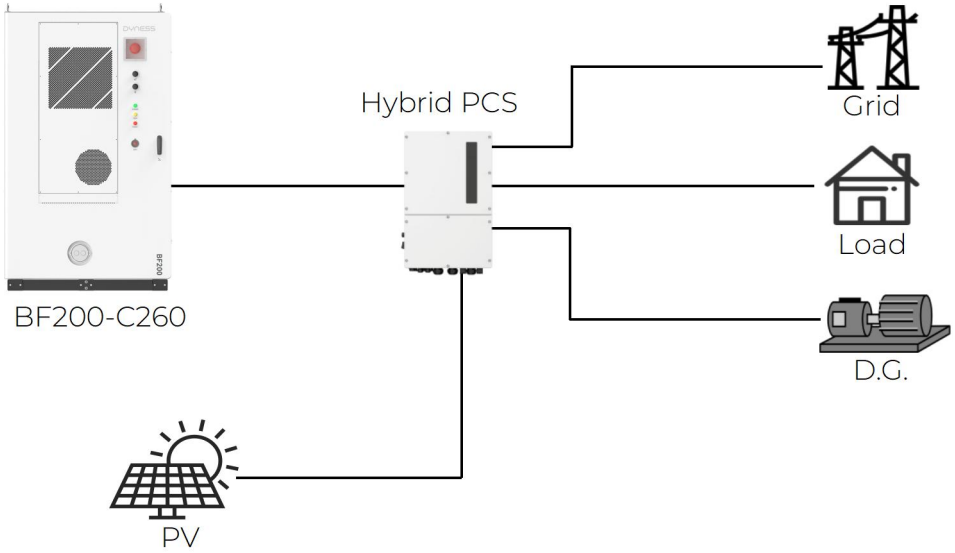


Figure 3-1 System Application Principles

Its system topology is as follows:

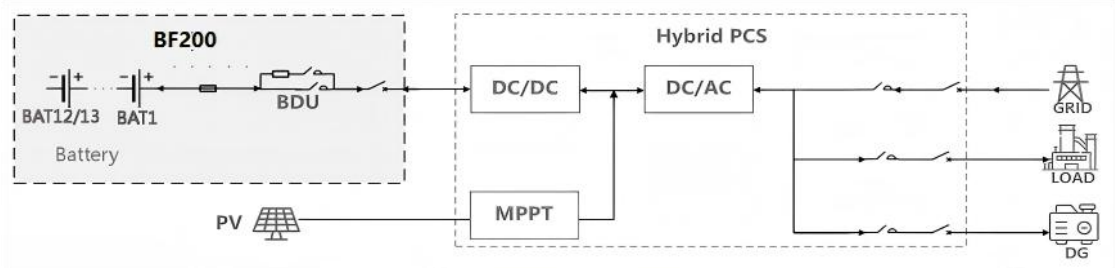


Figure 3-2 System Topology Diagram

3.2. Product Model

This manual is applicable to the BF200-C260 air-cooling EnerCore series of smart energy storage outdoor cabinets. The product name and model explanations are as follows:

- EnerCore: Product series name
- B: Battery, battery system product of Dyness
- F: Air-cooling system
- 200: Product series number
- C: Product Battery capacity

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3.3. Product Configuration

This product adopts a modular design, which is easy to install, operate, and maintain. The configuration list is as follows:

Table 3-1 Product Configuration List

Module Name	Function	Quantity	Module Configuration
PACK	Used for electrical energy storage, providing stable and continuous power output for the system	12/13	Standard
BDU	System energy management and overall control, battery control unit, and high-voltage power supply	1	Standard
Safety & Fire Protection System	Intrusion protection, fire prevention, and effective fire suppression for the equipment	1	Standard
Air Conditioning System	Regulates battery operating temperature to ensure optimal performance	1	Standard

3.4. System Parameters

The product involves optimization and upgrade. Some parameters may be updated without further notice:

Table 3-3 BF200-C260 Parameters

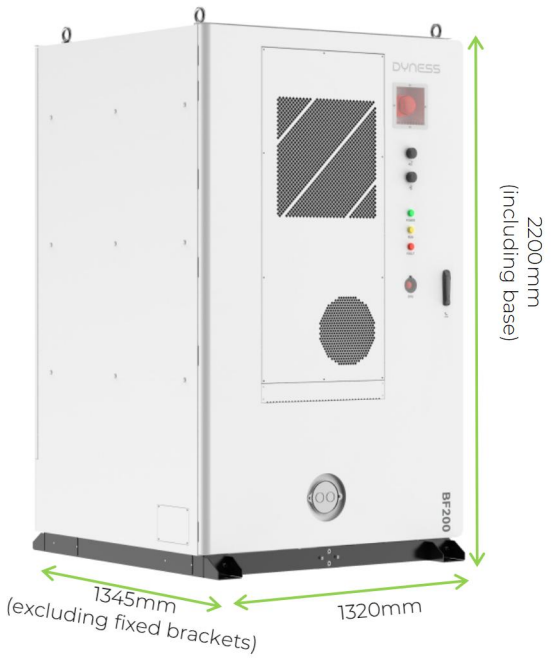
Model	BF200-C240		BF200-C260	
Battery				
Battery Type	LFP (LiFePO4)			
Battery Capacity	314Ah			
PACK Configuration	1P20S*12		1P20S*13	
Rated Current	157A			
Max. Current	180A			
Rated Voltage	768Vdc		832Vdc	
Voltage Range	696~864Vdc		754~936Vdc	
Nominal Capacity	241kWh		261kWh	
System				
Weight	Approx. 2,500 kg (TBD)		Approx. 2,600 kg (TBD)	
Dimension (W*D*H)	1320*1345*2200mm			
Max. Efficiency	94%			
Air Conditioner Power	5 kW (Cooling), 3 kW (Heating)			
Operating Temperature	-20~50℃ (Derating above 45℃)			
Operating Humidity	0~95% RH (Non-condensing)			
Ingress Protection	IP55			
Anti-corrosion Grade	C3	C5	C3	C5
Cooling Method	Air-cooling			
Noise	≤75dB			

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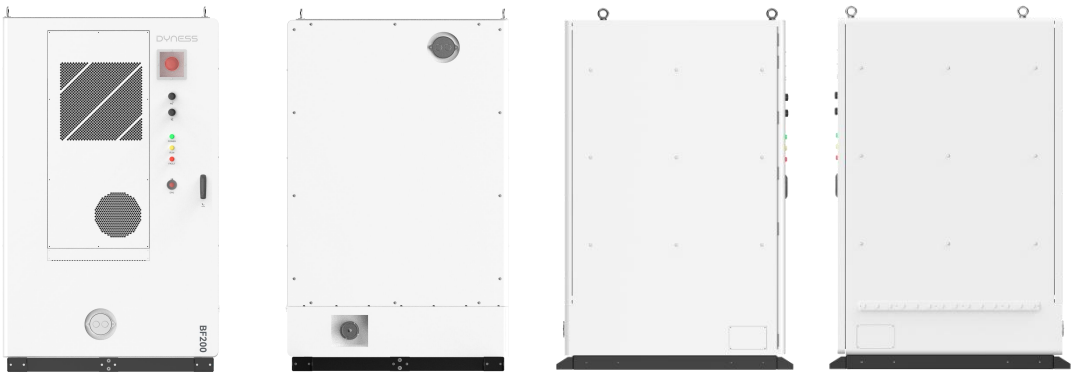
Elevation	3,000 m (Derating above 2000 m)
Display	APP
Fire Protection	Aerosol, Water fire system, Multi-sensor/water ingress detector, Audible&Visual alarm, Explosion-proof ventilation
Communication	Ethernet/4G/RS485/Bluetooth/CAN communication
Certification	EN IEC 61000-6-2:2019/ EN IEC 61000-6-4:2019/ UN38.3/ IEC 62619/ IEC 63056/ IEC 62477-1/ EN 62477-1

3.5. Appearance Design

- System dimensions: Width x Depth x Height 1320*1345*2,200mm (excluding lifting rings and fixed brackets)
- System net weight: Approximately 2,500 kg/2,600 kg
- System protection grade: IP55
- System corrosion resistance grade: C3/C5



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Front Rear Left Right

Figure 3-3 Product Appearance Diagram

The front panel of the product is equipped with 1 emergency stop button, 3 indicator lights showing the main operating status of the product, 2 antennas, and 1 sound and light alarm:

The antennas from top to bottom are: 4G antenna and Bluetooth antenna;

The indicator lights from top to bottom are: power indicator light "POWER", operation indicator light "RUN", alarm indicator light "FAULT", and emergency stop button "EPO".

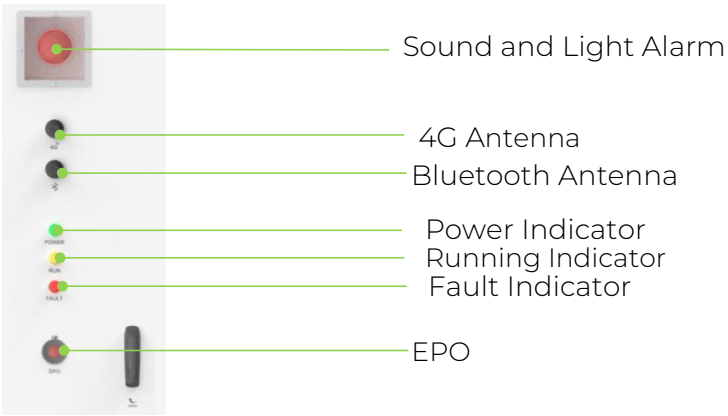


Figure 3-4 Appearance Function Diagram

Table 3-3 Function Definitions of Indicator Lights and Antennas

No.	Appearance	Name	Function
1		Sound and Light Alarm	An alarm sound is emitted and the lights flash when safety hazards or system abnormalities are detected.
2		4G Antenna (Top)	Receives and transmits 4G signals
3		Bluetooth Antenna (Bottom)	Receives and transmits Bluetooth signals
4		Power Indicator	Constantly on indicates that the power is connected and the device can be operated
5		Running Indicator	Constantly on indicates normal system operation, while off indicates standby mode.

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No.	Appearance	Name	Function
6		Fault Indicator	Constantly on indicated that there was a fault in the system.
7		Emergency Stop Button	Stops system operation when pressed

Note: Do not operate the emergency stop button except in an emergency.

The product is supplied standard with a universal side-mount bracket, enabling compatible side-mount installation of inverters from multiple leading manufacturers, as illustrated in Figure 3-5.



Figure 3-5 Schematic diagram of the product side-mounted inverter

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3.6. Internal Design

This product is a battery cabinet, which contains a PACK battery pack, a BDU intelligent control unit, an alarm and fire protection system, and an air conditioning system.

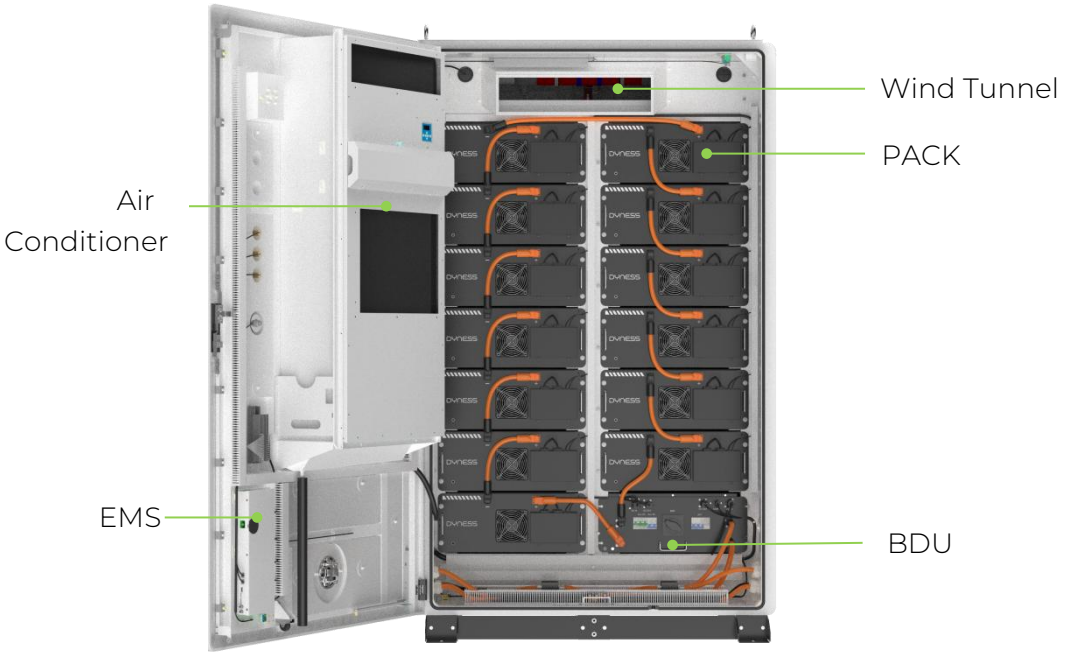


Figure 3-6 Internal View of the Product

3.7. Main Modules

3.7.1 PACK

DANGER

- Do not touch any batteries while the BESS is running;
- Only authorized operators should handle the batteries;
- At the end of the battery's life, it should be decommissioned, disassembled, and disposed of in accordance with the recycling program provided.

This system's PACK uses lithium iron phosphate batteries, with 314Ah cells. The stringing method is 1P20S, and the nominal capacity of the PACK is 20.0kWh, with a nominal voltage of 64V. Each battery PACK is equipped with 1 level 1 BIC module (slave control) for collecting the voltage and temperature parameters of the PACK, and it also has functions such as power balance and thermal management. The PACK module adopts air cooling for heat dissipation, with an IP20 protection level. It has a high structural reliability and low maintenance cost.

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Figure 3-7 PACK Appearance

Table 3-5 PACK Parameter

Model	**HV64314F**
Parameter	Value / Specification
Cell Configuration	1P20S
Energy (kWh)	20
Nominal Voltage (Vdc)	64
Nominal Capacity (Ah)	314
Standard Charge/Discharge Current (A)	157
Dimensions (mm) (W*D*H)	565*887*228
IP Rating	IP20
Operating Temperature (℃)	Charge: 0 to +60 Discharge: -20 to +60
Operating Humidity (RH)	0% to 95%
Storage Temperature (℃)	1 Month: -20 to +45 1 Year: 0 to +35

Warning

- When battery leakage occurs or when there is a pungent abnormal smell from the battery and it is impossible to determine whether the electrolyte has leaked, stop using it immediately, isolate the battery, and contact Dyness or a professional.
- Do not directly touch the leaked electrolyte. If it accidentally comes into contact with the skin, rinse with plenty of water. Seek medical attention immediately if you feel unwell.
- When dealing with electrolyte leakage, make sure the power supply connected to the battery is turned off to prevent fire and sparks, and ensure good ventilation in the environment.
- When dealing with electrolyte leakage, wear rubber gloves (with an insulation voltage of no less than 10 kV).
- Use ordinary medical gauze or other liquid-absorbing solid materials to clean the battery leakage.
- The treated battery should be isolated and not used again.
- All the above operations should be carried out by personnel designated by

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Dyness or qualified professionals.

3.7.2 BDU

The BDU is equipped with multiple control and protection devices, such as BMS (Battery Management System), high-voltage contactors, high-voltage fuses, and circuit breakers. It integrates control, protection, and monitoring functions into one, reducing external cables and independent components, and enhancing the system's compactness. Through efficient power distribution, multiple protections, and intelligent management, it ensures the stable operation of the system and provides data support and operational convenience for maintenance.



Figure 3-8 BDU Appearance

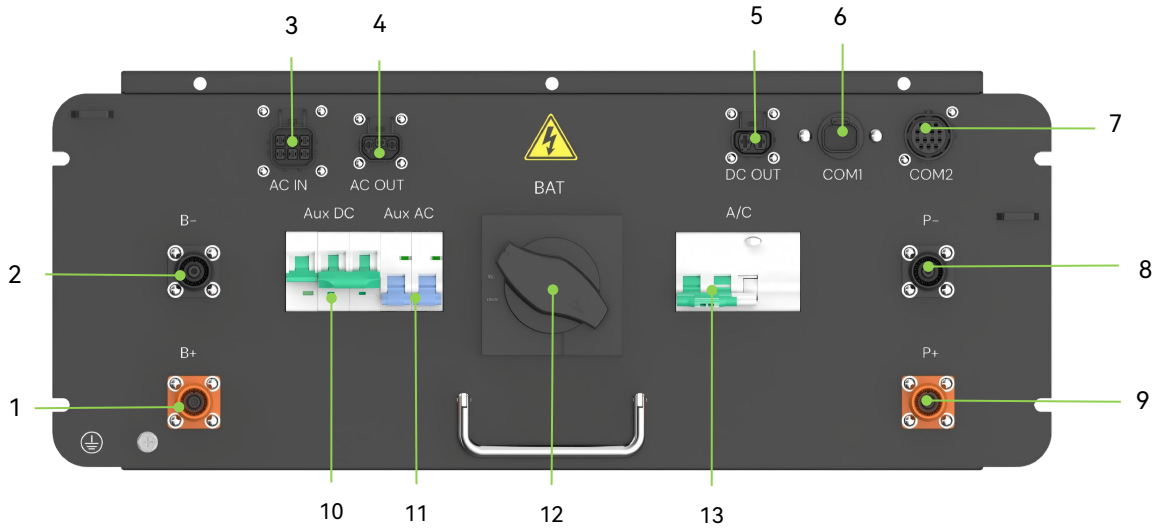


Figure 3-9 BDU Interface

Table 3-6 Function Definition of BDU Interface

No.	Identifier	Function Description
1	B+	Battery Cluster Positive Input
2	B-	Battery Cluster Negative Input

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3	AC IN	Air Conditioning & AC/DC Auxiliary Power Input
4	AC OUT	BDU AC Power Output
5	DC OUT	Fan Power Supply Output
6	COM1	Internal Communication
7	COM2	BCU Communication / Secondary Power Output
8	P-	Battery Cluster Negative Output
9	P+	Battery Cluster Positive Output
10	Aux DC	DC-side Auxiliary Power Supply Switch
11	Aux AC	AC-side Auxiliary Power Supply Switch
12	BAT	Main Switch On The Battery Side
13	A/C	Air Conditioning Switch

3.7.3 Fire Fighting System

BF200-C260 is equipped with an efficient fire protection system, which can provide intrusion protection, fire prevention, and effective fire extinguishing for the equipment.

- **Limit switch:** Install travel switches in the battery compartment to prevent the door from being opened accidentally during normal machine operation. It can detect whether the door is closed tightly to prevent rainwater from entering.
- **Water immersion detector:** Install a water immersion detector at the bottom of the battery compartment. When it detects water in the cabinet volume, EMS will report a water immersion fault and the system will shut down.

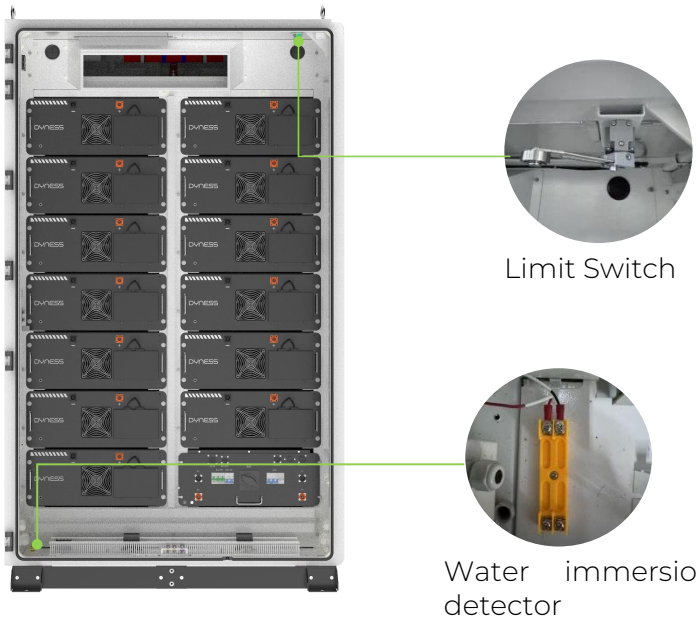


Figure 3-10 Limit switch & Water immersion detector Diagram

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- **Composite detector:** This system installs a composite detector on the top of the battery compartment. It has the functions of detecting smoke, temperature, CO gas, and VOC, and transmits real-time data to EMS.
- **Aerosol fire protection:** System-level aerosol has two activation methods: thermal activation and electrical activation. Thermal activation occurs when the temperature in the battery compartment rises rapidly to around 185℃ or there is a flame. At this time, the thermal-sensitive wire is ignited, triggering the aerosol spray. Electrical activation occurs when the composite detector in the protection area detects a fire, and EMS will immediately trigger the electrical activation signal for the aerosol, providing a 24V power supply for the aerosol electrical activation.
- **Water Fire Extinguishing:** BF200-C260 is equipped with a built-in fire water pipe. In the event of a thermal runaway inside the cabinet, the water valve can be manually opened, and water from the sprinkler on the top of the cabinet will be used to spray and extinguish the fire throughout the energy storage cabinet. No water in water fire protection pipes during normal operation.

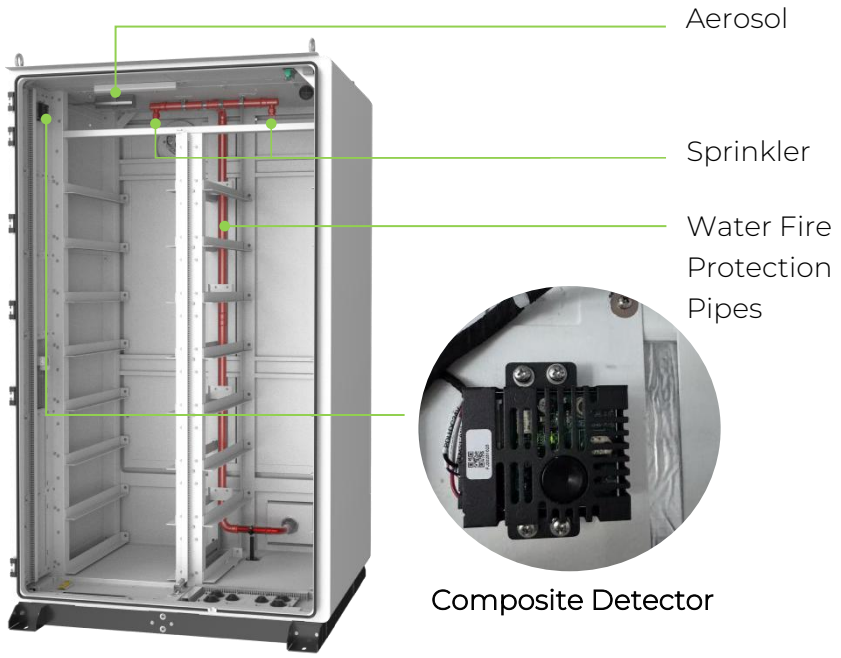


Figure 3-11 Fire Fighting System Diagram

The maintenance of the fire protection system should comply with the fire regulations and rules of the country/region where the project is located. Regular inspections and maintenance of fire equipment should be carried out to ensure that all functional indicators are normal.

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3.7.4 Air Conditioner

This system is a wind-cooled system. It is equipped with one industrial air conditioner with a cooling capacity of 5 kW and a heating capacity of 3 kW.

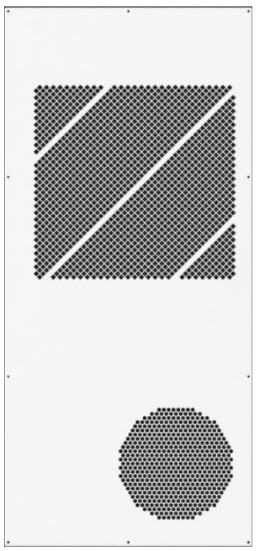
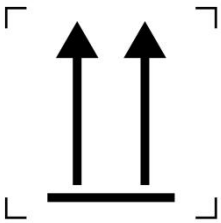


Figure 3-12 Air Conditioning Diagram

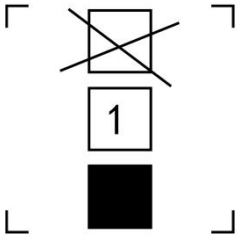
4. Delivery, Transportation, and Storage

4.1. Packaging Marks

Table 4-1 Packaging Marks

Mark	Explanation
	Upward: Indicates that the package should be kept upright during transportation and storage.
	Fragile: Indicates that the package contains fragile items and should be handled with care.
	Keep Dry: Indicates that the package should be protected from rain.

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	Stacking Limit: The number "1" in the illustration indicates the maximum number of identical packages that can be stacked. Refer to the actual illustration for details.
	Center of Gravity: Indicates the center of gravity of the package to facilitate lifting.
	Forklift Insertion Point: Insert the forklift here for moving the equipment.
	Lithium Battery Mark: Indicates that the device contains lithium-ion batteries or battery packs, which are Class 9 hazardous materials.
	UN3480: A United Nations number indicating that the device contains lithium-ion battery packs.

Caution: Failure to transport and store in accordance with the requirements of this manual may void the warranty.

4.2. Unpacking and Checking

- After receiving the product, please check whether all the delivered components are complete against the "supply list."
- Please check whether the actual received cabinet and the received product model are the same as the ordered model;
- Carefully check whether the product is in good condition. The transportation process may lead to damage due to transportation

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collisions. If any problem is found, please contact Dyness or the transportation company in time.

Shipping Requirements

- All the necessary equipment in the product has been installed and fixed in the cabinet before leaving the factory, and the product can be transported as a whole during transportation.
- Please confirm that the cabinet doors of the equipment are tightly locked before transportation.
- Electrical and battery compartment transportation requires wooden pallet + EPE + PE bag packaging for transportation.
- Be sure to set up warning signs or caution tape to prevent unauthorized personnel from entering the lifting and transportation area to avoid accidents.
- Remove any existing or potential obstacles during the moving process, such as trees, cables, etc.
- Whenever possible, choose favorable weather conditions for transporting the equipment.

Requirements for Equipment Transportation and Mobility

- Select a suitable crane or lifting tool according to the site conditions. The selected tool must have sufficient load-bearing capacity, arm length, and rotation radius.
- If movement on slopes or similar conditions is required, additional traction devices may be necessary.
- When carrying out ground transportation, be sure to use ropes to secure the top lifting ring of the equipment to the transport vehicle to prevent.

4.3. Hoisting and Transportation

The top of this product is equipped with lifting rings, which can be hoisted and transported by crane. When lifting and installing the equipment, the following requirements must be met:

- During lifting, the safety on site must be ensured;
- During the hoisting and installation operation, there should be professional personnel directing the entire process on site;
- The strength of the lifting ropes must be able to withstand the weight of the equipment.
- Ensure that all connection points of the lifting ropes are safe and reliable, and ensure that the sections of the lifting ropes connected to the angle pieces are of equal length;
- The length of the lifting ropes can be adjusted appropriately according to the actual requirements of the site;
- During the entire lifting process, ensure that the equipment is stable and does not tilt.
- After the equipment is lifted 300 mm off the support surface, pause, check that the lifting gear is firmly connected to the equipment, and then lift it.
- Take all necessary auxiliary measures to ensure the safe and smooth lifting of the equipment.

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Note: The lifting rings need to be installed on site, and ensure that the bolts of the lifting rings are tightened.



Figure 4-1 Hoisting and Transportation Schematic Diagram

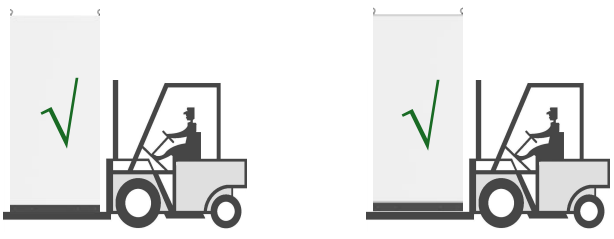
4.4. Forklift Transportation

This product is equipped with special fork holes at the bottom, which are designed for forklift transportation. The product can be moved through these bottom fork holes.

When the installation location is flat, the product can be moved using a forklift. The forklift transportation method should meet the following requirements:

- The forklift should be equipped with sufficient load-bearing capacity;
- The length of the pins should meet the requirements of the equipment;
- The pins should be inserted into the fork holes at the bottom of the workstation;
- During product transportation, the movement and lowering should be slow and stable;
- The products can only be placed on a stable surface. This surface should have good drainage and no obstacles or bulges.
- Under no circumstances can the equipment be moved by inserting the pins into other positions outside the fork holes.

Correct transportation method:



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Incorrect transportation method:



Figure 4-2 Diagram of Forklift Transportation

4.5 . Storage Requirement

Storage Environment Requirements

- The product should be stored on dry, flat (flatness should be no more than 5 mm), solid ground with sufficient load-bearing capacity and without any vegetation cover;
- To prevent condensation inside the product or soaking of the bottom of the product during the rainy season, the product should be stored on higher ground.
- The basement must be raised, and the specific elevation height should be determined according to the site geology, meteorological conditions, and other conditions.
- Storage environment temperature: 0~+35℃ humidity: 0~95% (no condensation).
- Pay attention to coping with the harsh environment around, such as sudden cold, sudden heat, collision, etc., so as not to cause damage to the PACK.

Storage requirements

- Make sure that the cabinet doors are securely locked before storage.
- Effectively protect the product's air inlet/outlet to prevent rainwater, sand, and dust from entering the interior of the cabinet.
- Due to the capacity decay that occurs during long-term storage, it is not recommended to store batteries exceeding six months.
- For products stored for a long period (more than six months), inspect visually before installation to ensure there is no condensation and verify if the equipment is intact. Additionally, checking after powering on.

NOTE

Starting from the date of delivery, perform one charge and discharge cycle for the PACK every 6 months, to maintain the system SOC of 25~40%.

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5. Installation and Wiring

Only qualified electrical engineers may perform electrical connection-related work. Please comply with all requirements specified in the "Safety Precautions" section of this manual. The Company shall not be liable for any personal injury or property damage resulting from failure to observe the safety precautions.

DANGER

- Do not touch the live parts!
- Ensure both AC and DC sides are not energized before installation. All electrical connections must be operated under de-energized condition;
- Check the polarity of all input cables to ensure that each input polarity is correct before wiring;
- Do not place the equipment on surfaces that are flammable.

WARNING

- The ingress of sand and moisture may damage the electrical equipment inside the ESS cabinet or affect the performance of the equipment!
- During sandstorm seasons or when the relative environmental humidity exceeds 95%, electrical connection work should be avoided.
- Wait until there are no sandstorms and the weather is clear and dry before starting any connection work.
- Avoid pulling or tugging on cables or wires forcefully to prevent damage to their insulation performance during electrical installation.

CAUTION

- All cables and wires should be ensured to have a certain amount of bending space.
- Necessary auxiliary measures should be taken to reduce the stress on cables or wires.
- After completing each step of the wiring operation, careful inspection is required to ensure correct and secure connections.
- All electrical connections must be strictly in accordance with the wiring diagram.

5.1. Installation Environmental Requirements

Site Requirements

- When selecting the installation site, full consideration should be given to the surrounding environment (climate and geological conditions, such as stress wave emission, underground water level, no cables in the upper space of the installation site, no pipelines or other underground facilities in the lower part of the installation site, and a certain safety distance should be maintained between the equipment and buildings and people. The length of the distance should be subject to the fire safety regulations of the project).

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- The surrounding environment should be dry and well ventilated.
- Please ensure that there are no trees around the installation location to prevent branches or leaves from blocking the doors or air inlets of the energy storage integrated system during strong winds.
- The installation location should be away from toxic and harmful gases and flammable, explosive, corrosive, and dust-intensive materials.
- The installation location should be away from residential areas to avoid noise.

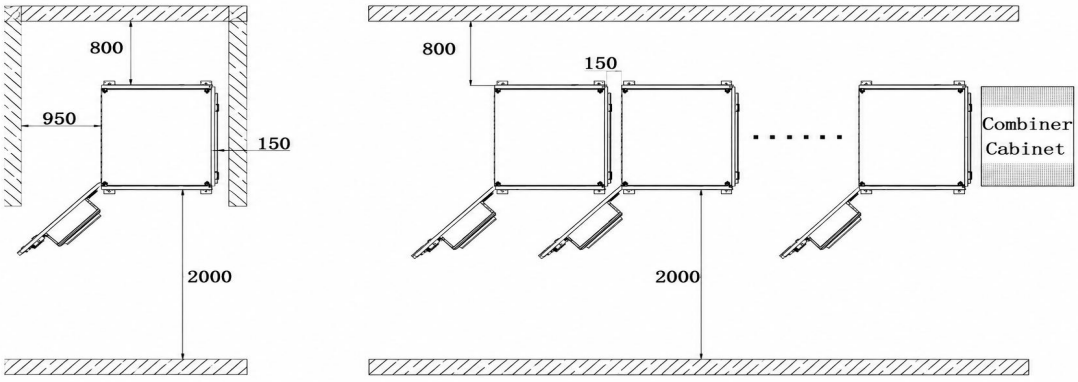
Foundation Requirements

- The foundation should provide sufficient load-bearing support for the equipment, with the foundation's bearing capacity greater than 3t/m^2, a lifespan of more than 50 years, and a levelness of less than 3mm/m^2;
- The height of the base should be higher than the historical highest flood water level;
- Drainage facilities should be constructed in accordance with the local geology and municipal drainage requirements to ensure no water accumulation at the equipment foundation. The foundation construction should meet the drainage requirements for the local maximum rainfall, and the discharged water needs to be treated in accordance with local laws and regulations.

5.2. Installation Space Requirements

To ensure better heat dissipation and maintenance of the equipment, it is recommended to leave sufficient space around the cabinet:

- The space in front of the product should be reserved with a distance of no less than 2000 mm;
- The space at the rear of the product should be reserved with a distance of no less than 800 mm;
- The space on the left side of the product should be reserved with a distance of no less than 950 mm;
- The space on the right side of the product should be reserved with a distance of no less than 150 mm;
- The product can be installed side by side, and at least 150 mm of space should be reserved between the cabinets.
- The product supports back-to-back installation, and a rear clearance of 1200 mm or more shall be reserved for back-to-back installation.



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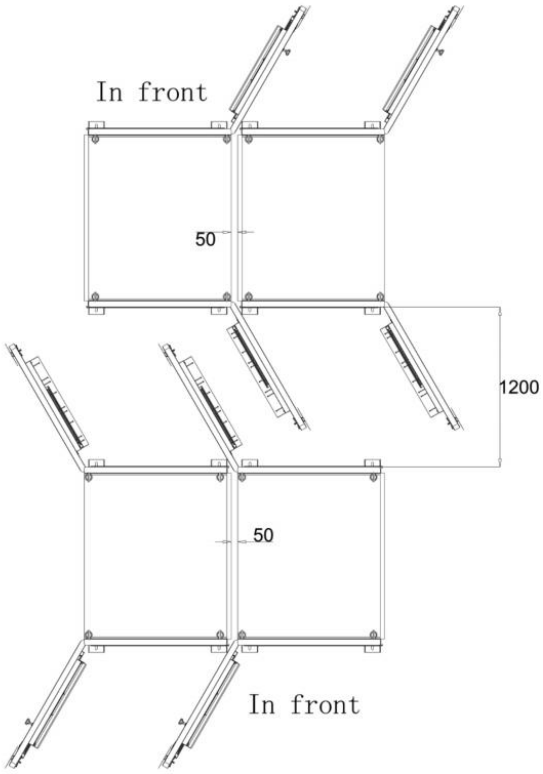


Figure 5-1 Requirements for Product Installation Space

The above-mentioned installation space is the minimum recommended distance. Customers can make adjustments according to local regulations and actual conditions.

To ensure better installation and subsequent maintenance of the equipment, it is recommended to pour the concrete foundation in advance before installing the cabinet. The height and specific dimensions of the concrete pillars are shown in the figure below:

- The height of each concrete pillar is 300-500 mm;
- The center spacing between the front and rear concrete pillars is 1362 mm;
- The width of each concrete pillar is 500 mm;
- The length of the concrete pillar for installing a single BF200-C260 product is 1540 mm;
- The hole spacing on one side of the concrete pillar is 1140 mm;

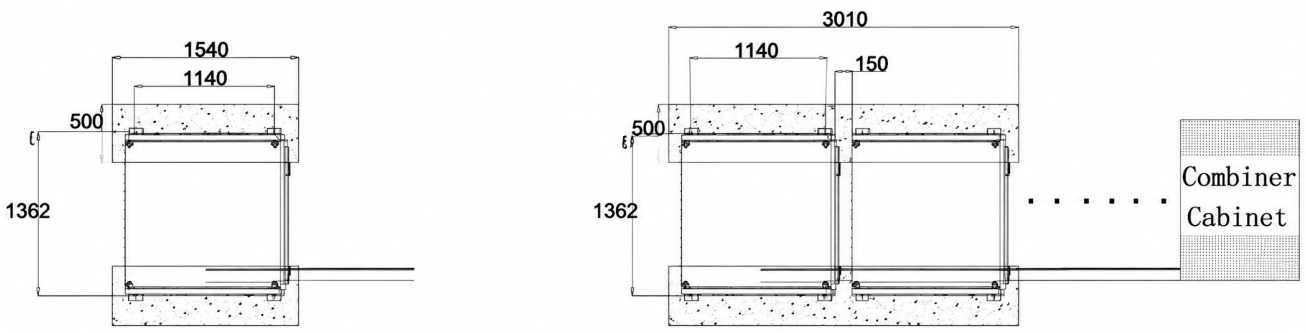


Figure 5-2 Top View Requirement of Product Mounting Base

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5.3 Fix and Install

5.3.1. Check Before Installation

WARNING

Please comply with local safety regulations and operational rules during installation.
Only complete and undamaged equipment can be installed! Please ensure that before installation:

- The product cabinet itself should be complete and intact.
- All equipment in the cabinet should be complete and intact.

5.3.2. Angle Steel Installation

After transporting the outdoor cabinet to the installation location, it needs to be fixed. Four L-shaped angle steel brackets are reserved at the front and rear of the product cabinet base, and the positions are as shown in the following figure.

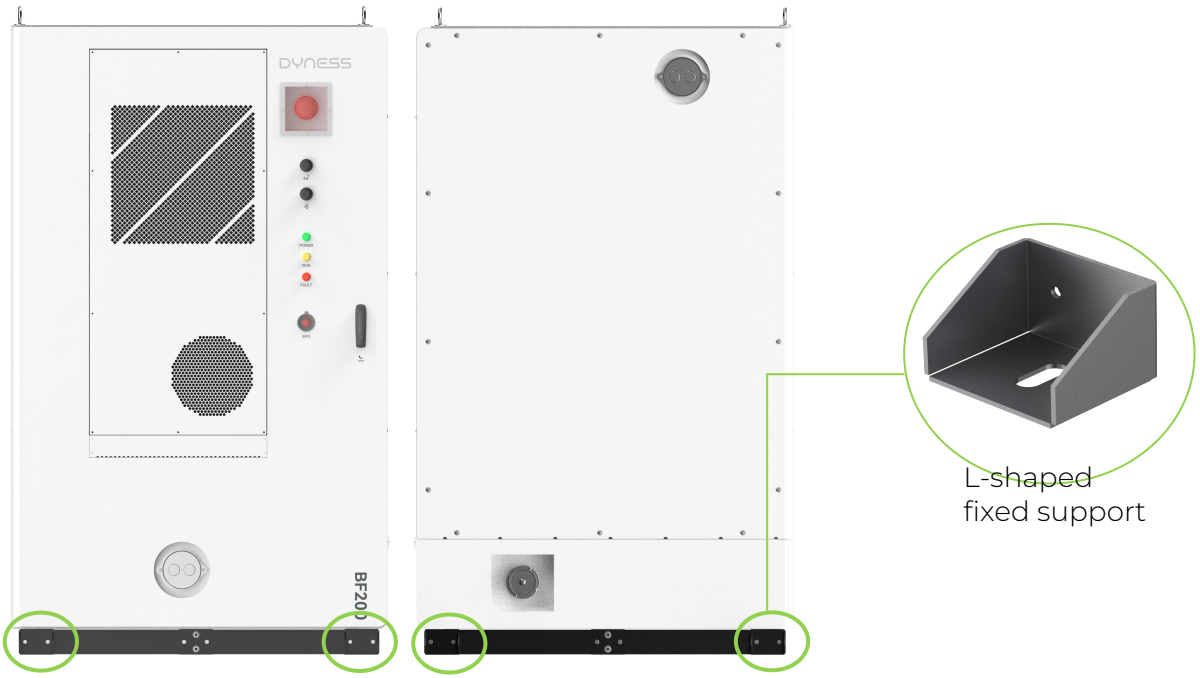


Figure 5-3 Illustration of Fixed Support

Angle Steel Fixing Tools

The following tools may be needed for installing the brackets: marker, electric drill, angle steel, M12 expansion bolts;
The tools are not included in the supply scope and need to be equipped by the customer themselves.

Angle Steel Fixing Steps

① Use a marker pen to mark the drilling positions.
② Choose an electric drill with a diameter matching the bolt's outer diameter, drill holes according to the bolt's length (hole depth slightly greater than

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the bolt length) until reaching the desired depth for installation.

③ Insert the bolt and expansion sleeve into the hole, tighten the nut to the end of the bolt, and use a wrench to tighten it.

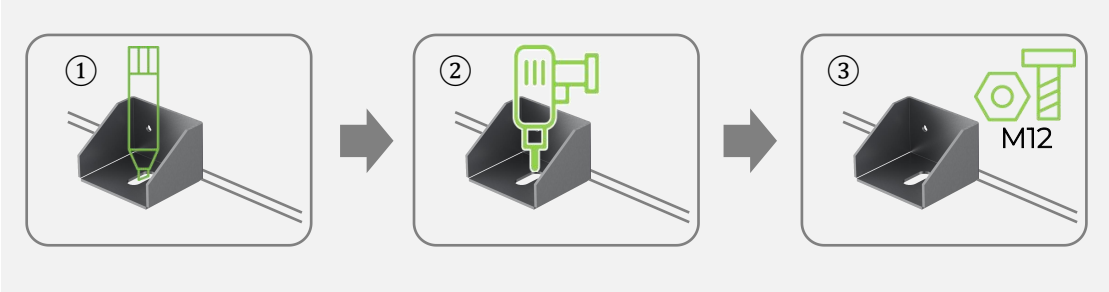


Figure 5-4 Angle Steel Fixing Steps

5.3.3. Grounding Installation

The grounding method should comply with the regulations of the installation location. Please take into account the actual situation on site and follow the instructions of the power station staff when installing the external grounding.

① Reserve grounding points, which can be implemented using cables or flat steel grounding;

② Use 35mm^2 grounding cables. Refer to Section 5.6 "Cable Specification Requirements" of this chapter for grounding cables;

③ The upper figure shows grid grounding, and the lower figure shows equipment protective grounding.

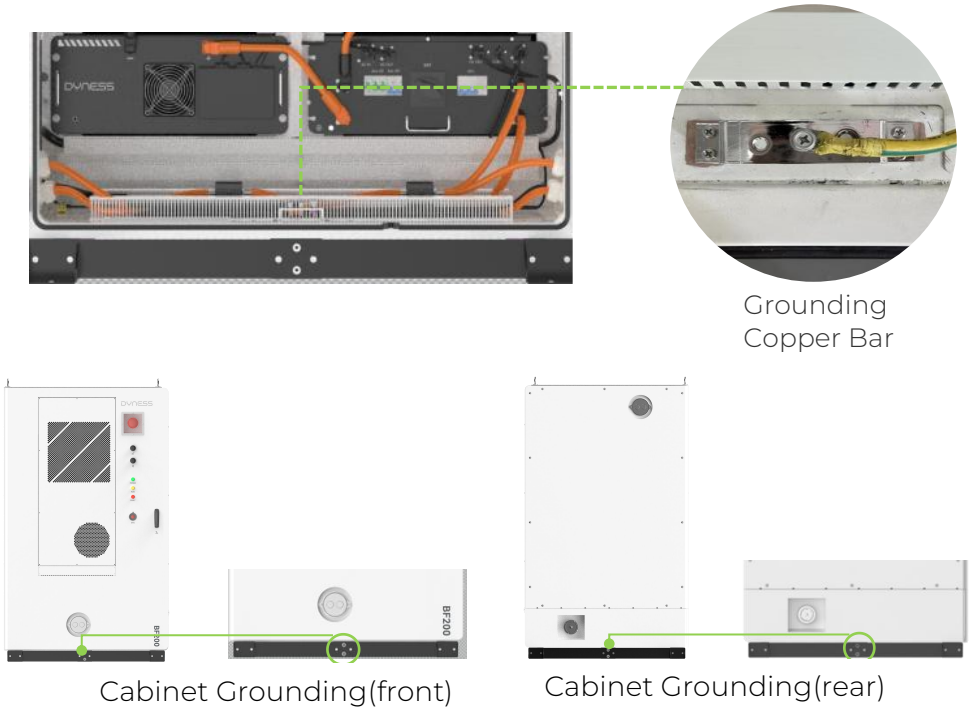


Figure 5-5 Equipment Grounding Diagram

After the grounding connection is completed, the grounding resistance must be measured. The specific grounding resistance value should comply with the relevant national/local standards and regulations.

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5.3.4. Door Operating Procedures

The product cabinet door can only be opened after the product has been securely installed. The steps for opening the cabinet door are as follows:

① Make sure that the equipment is in the lock state.

② Moving the lid up above the locking hole.

③ Getting the key in the door and revolving it clockwise.

④ Rotating the handle clockwise to the position shown in the figure to open the door.

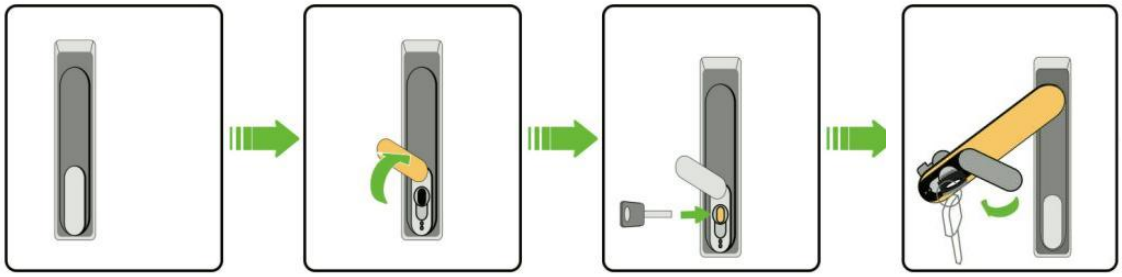


Figure 5-6 Door Open Steps

To close the cabinet door, please refer to the above opening steps (in reverse order) and pay attention to the following warning information!

WARNING

- Before closing the cabinet door, please ensure that there are no foreign objects obstructing it!
- When closing the cabinet door, ensure that both the top and bottom ends are fully closed, otherwise there is a risk of water leakage and rusting inside the cabinet.

5.4. Wiring Tools

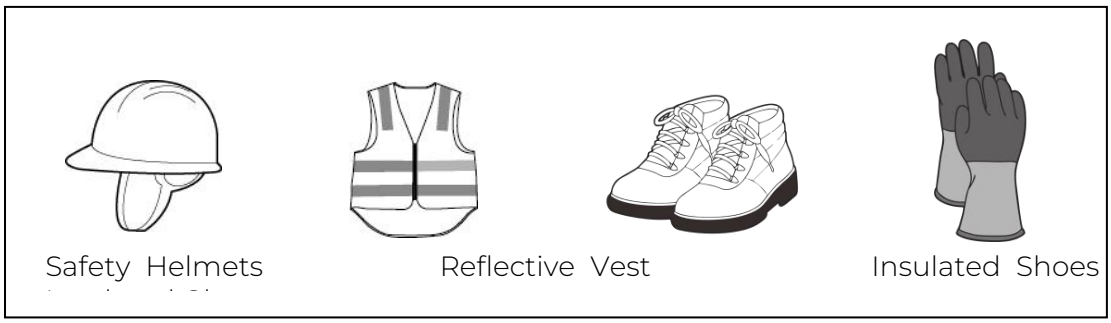


Figure 5-7 Safety Gear

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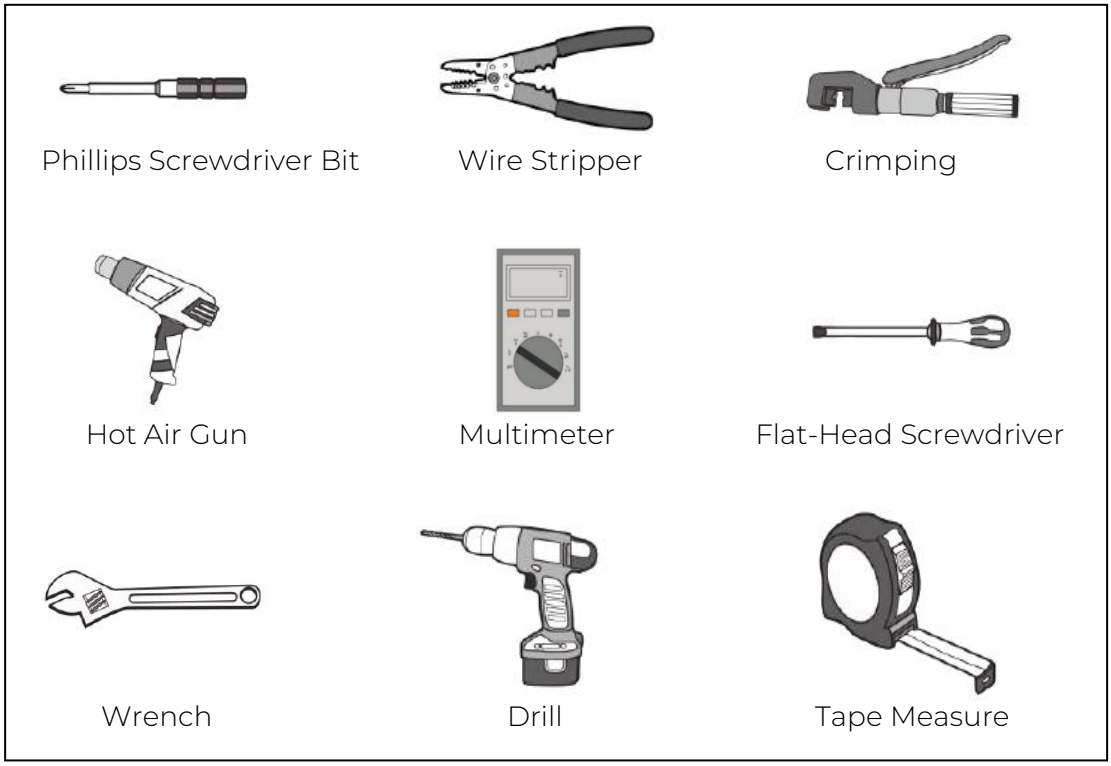


Figure 5-8 Tools

5.5. Wiring Requirements

- Based on the location and dimensions of the cable entry and exit points at the bottom of the product cabinet, sufficient space must be reserved for the AC-side cable tray during foundation construction, and cable conduits must be pre-embedded.
- Determine the specifications and quantity of perforated pipes based on the cable type and the number of incoming and outgoing cables.
- Both ends of all embedded pipes are temporarily sealed to prevent debris from entering and causing inconvenience during subsequent wiring.
- After connecting all cables, the cable entry and exit points, as well as the joints, are sealed with fire-resistant mortar or other suitable materials to prevent rodents from entering.

WARNING

After completing the wiring, all wiring entry and exit points must be sealed!

5.6. Cable Requirements

- The conductor must have sufficient current-carrying capacity, which includes but is not limited to: environmental conditions, conductor insulation material type, cable laying method, cable material, and cross-sectional area;
- The cable diameter must be selected according to the maximum current-carrying capacity, and the length must allow for a margin;
- The specifications and materials of three-phase AC output cables must be

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consistent;

- Flame-retardant cables must be selected;
- The cables used must comply with local laws and regulations.

Please note: When installing, please pay attention to the torque. The power cables, LAN port adapter cables, and other accessories listed below are provided by Dyness, while other cables need to be equipped by the customer. Product specifications vary across different systems, resulting in variations in cable lengths.

Table 5-1 List of Dyness Provided Cables

Item No.	Type	Specification	Length	Quantity	Terminal Model Number	Torque
1	Power Cable	BF241-PACK-Adapter Harness 1 70mm²	240mm	10/11	Futronics: FSE80180P-70A4Z	/
2	Power Cable	BF2410-PACK-Adapter Harness 2 70 mm²	241 mm	1	Futronics: FSE80180P-70A4Z	/
3	Power Cable	BF241-PACK-Main Negative Adapter Harness 70 mm²	225 mm	1	Futronics: FSE80180Q-70B4Z	/
4	Power Cable	BF241-PACK-Main Positive Adapter Harness 1 70 mm²	280 mm/ 495mm	1	Futronics: FSE80180P-70A4Z	/

**Note: Products of two capacities correspond to different quantities of adapter cables and total positive harness lengths.*

Table 5-2 List of Customer-Provided Cable

Item No.	Type	Specification	Length	Quantity	Terminal Model	Torque
1	Three-Phase AC Input	Single-Core Outdoor Copper Cable, 8 AWG	As Required	4	RV1.5-6	5 N.m
2	DC Power Cable (Positive)	Single-Core Outdoor Copper Cable, 70mm²,rate	As Required	1	SC70-10	22.6N·m

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		d voltage ≥1000Vac				
3	DC Power Cable (Negative)	Single-Core Outdoor Copper Cable, 70mm²,rated voltage ≥1000Vac	As Required	1	SC70-10	22.6N·m
4	Cloud Platform Connection	UL2835 4P 24AWG (≈0.2mm²) FTP Cat5e Shielded Cable,	As Required	1	RJ45 Plug	/
5	Connect to third-party EMS	UL2835 4P 24AWG (≈0.2mm²) FTP Cat5e Shielded Cable,	As Required	1	RJ45 Plug	/
6	Grounding Cable	35mm²	As Required	1	SC25-8	25 N.m

**Note: For the cable from the inverter to the grid side, select an appropriate wire gauge for matching installation according to the inverter's power rating.*

5.7. Terminal Wiring Method

OT/DT/SC terminals connection steps:

① Peel off the insulation skin from the cable terminal, and the length should be the depth of the wire hole on the copper terminal, plus an additional 2–3 mm.

② Install the heat-shrink sleeve at the cable terminal and insert the exposed copper core part of the stripped wire into the wire hole of the copper terminal (OT/DT terminal).

③ Use hydraulic pliers to firmly crimp the copper terminally.

④ Slide the heat-shrink tube onto the copper terminal (OT/DT terminal) to fully cover the wire hole. Use a heat gun to tighten the heat-shrink tube.

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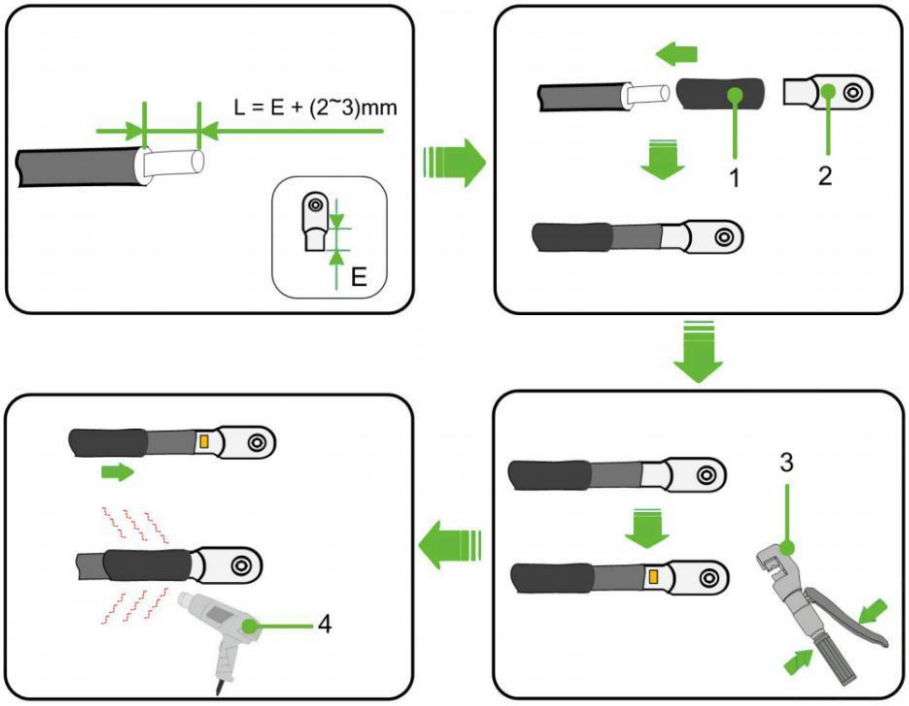


Figure 5-9 The Connection Sequence of Wiring Components

1: Heat-shrink tube, 2:OT/DT/SC terminal, 3: Crimping pliers, 4: Hot air gun

5.8. Checking Before Wiring

1) Checking breakers

Please check whether the circuit breakers and other equipment in the following modules are in the OFF position:

① Check the battery circuit breaker ("BAT") (as shown at position 1 in the diagram);

② Check switches ("Aux DC"、"Aux DC"、"A/C") (as shown at position 2 in the diagram).

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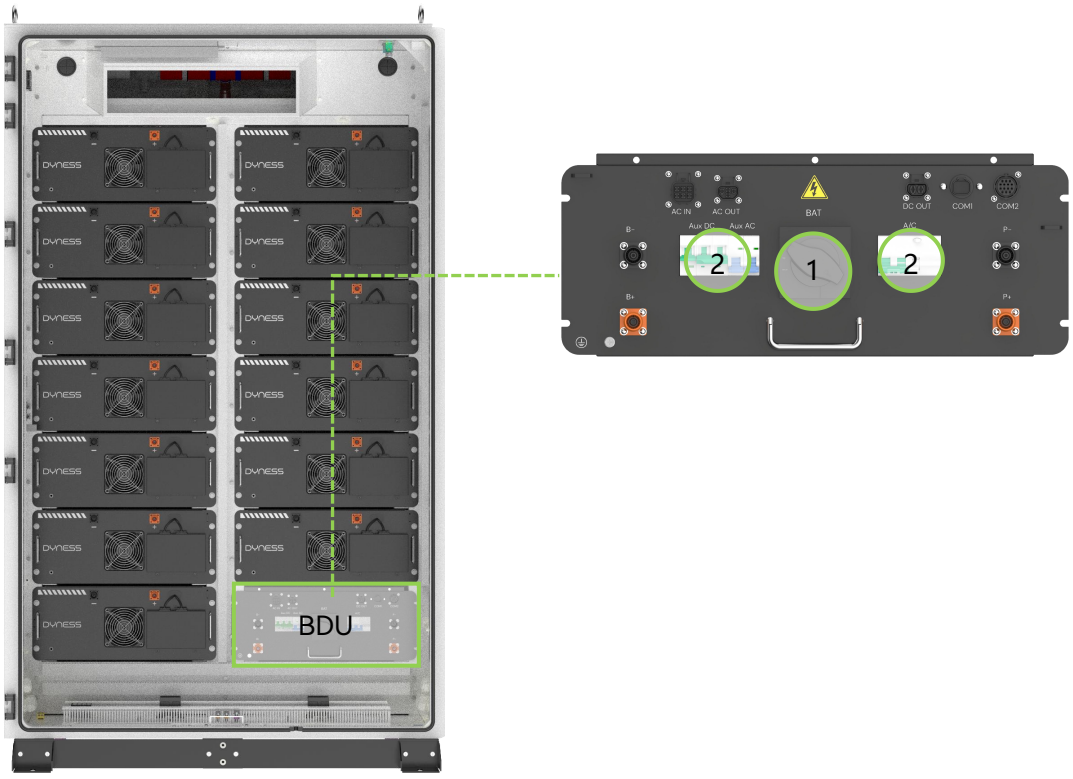


Figure 5-10 Circuit Breaker Position Diagram

2) Checking before wiring

Table 5-3 Checking List Before Wiring

No.	Checklist	Confirm
1	The cables and terminals used should meet the requirements of wire diameter and shielding.	☐
2	The cable is labeled correctly.	☐
3	The related wiring accessories are ready.	☐
4	The wiring operator must wear protective devices.	☐
5	Checking if all the breakers are in the disconnected position	☐

5.9. Wiring Diagram

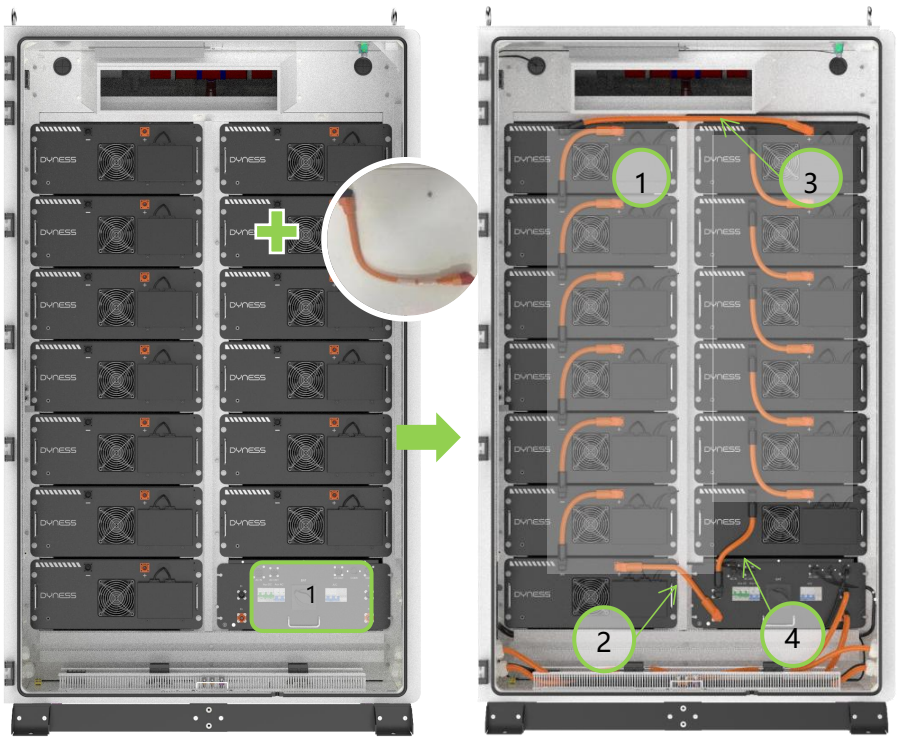
Step 1 Internal Wiring
To ensure the safety of the product, when the product is shipped, the power cable of the battery is sent along with the goods and needs to be installed on-site: (1) Confirm that the battery switch on the BDU is in the off position, as shown in position 1 in the diagram; (2) Battery power connection: Connect the power cables between PACKs in series. The negative terminal of the previous PACK is connected to the positive terminal of the next PACK. The black terminal of the power cable should be connected to the negative terminal of the previous PACK (black), and the orange terminal should be connected to the positive terminal of the

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PACK (orange). Ensure the connection sequence is correct.
Note: The color meanings of the terminals of PACK and BDU are as follows: orange indicates the positive pole, and black indicates the negative pole.

Table 5-4 Pack Power wiring instructions table

No.	Line marker	Figure Label	Designation	Quantity	Unit
1	WLXS0200880	①	PACK series connection line	11	Pcs
2	WLXS0200881	②	PACK series connection line-short	1	Pcs
3	WLXS0200882	③	PACK series connection line-long	1	Pcs
4	WLXS0200883	④	Battery cluster positive terminal to the BDU positive port	1	Pcs



Before wiring After wiring

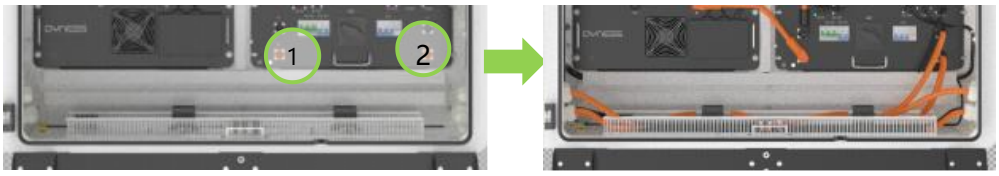
Figure 5-11 Diagram of Series Connection of Battery Power Lines

Step 2 External Wiring (If the circuit has already been connected, do not attempt to reconnect it.)

This device supports external connection to the PCS. The following are the steps for connecting the battery power line to the PCS:
(1) Ensure that the battery switch on the BDU is in the off position, as shown

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in position 1 in the diagram;
(2) Connection of the battery cluster to the PCS power line: At position 2 in the diagram, follow the cable specification in "5.6 Cable Requirements". The power line connected to the orange terminal should be connected to the positive terminal of the battery input port on the PCS, and the power line connected to the black terminal should be connected to the negative terminal of the battery input port on the PCS. Ensure the connection sequence is correct.



Before wiring After wiring

Figure 5-12 Diagram of Battery-PCS Power Line Connection

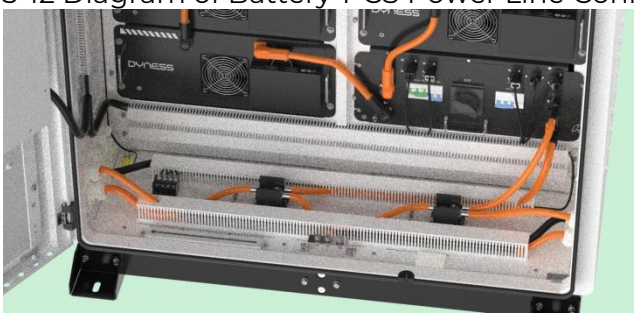


Figure 5-13 Diagram of Battery-PCS Power Line Connection (2)

After all the power lines are connected, connect the communication lines between the battery cabinet and the PCS, as well as lines to the cloud platform. The following are the steps and diagrams for connecting the communication lines:
(1) On the right side of the battery cabinet, reserve the communication ports between the battery cabinet and the PCS on the DZ terminal. Use the cables specified in "5.6 Cable Requirements" to connect from the "5,6,7,8" ports on the DZ terminal to the PCS, as shown in position 1 in the diagram.
(2) Use the cables specified in "5.6 Cable Requirements" at the LAN port inside the right side of the battery cabinet to connect to the cloud platform interface or MODBUS interface, as shown in position 2 in the diagram.

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Figure 5-14 Diagram of External Communication Wiring

Table 5-4 Definition of External Communication Wiring Ports

DZ Terminal		
Terminal sorting number	**Label**	**Function Description**
5	EMS: CAN2_H	PCS Communication
6	EMS: CAN2_L	PCS Communication
7	EMS: 485-6A	PCS Communication
8	EMS: 485-6B	PCS Communication
Ethernet Conversion Terminal		
No.	**Label**	**Function Description**
1	LAN 1	Connection to the MODBUS
2	LAN 2	Connection to the cloud platform

- LAN1 adheres to the TCP/IP protocol, enables communication through an Ethernet connection, and supports integration with third-party EMS platforms.
- The LAN2 interface is connected to Dyness's self-developed cloud platform to enable communication functionalities, including data monitoring and command transmission.

Note: For specific wiring procedures and methods, please refer to the *"Quick Installation Manual."*

5.10. Check after wiring

Upon completion of the wiring, the following items must be thoroughly rechecked to prevent potential equipment damage and property loss.

Table 5-5 Inspection List After Wiring

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No.	Inspection Items	Verify
1	Open the grid-side switch of the user and the DC-side switch of the battery cabinet to ensure that both the DC and AC sides of the PCS are de-energized.	☐
2	The battery and PCS terminals are correctly connected, the AC phase sequence is correct, and all connections are tight. Measure insulation resistance between phases—it should be in the megohm range. If resistance is kilohms or lower, inspect the circuit.	☐
3	The external control cables, grounding wires, and communication lines have been correctly and securely connected.	☐
4	Ensure that all cable connections comply with the specified torque requirements.	☐
5	The grounding wire exhibits a resistance of less than 4 Ω, and the cable remains intact with no signs of damage or cracking.	☐
6	Ensure the installation area is thoroughly cleared to prevent any tools or foreign objects from remaining.	☐
7	The entry and exit openings of the outdoor cabinet, along with the surrounding gaps, shall be securely sealed using fire-resistant and waterproof materials.	☐

6. Power-on and Power-off

6.1. Power-on Process

Precautions:

- The product can only be put into operation after being confirmed by professionals and approved by the local power department.
- For products with a long shutdown time, before powering on, a comprehensive and detailed inspection must be carried out on the equipment to ensure that all indicators meet the requirements before powering on.

Check before power-on:

Table 6-1 Checklist Before Power-on

NO.	Checklist	Confirm
1	Check if the wiring is correct;	☐
2	Check if the emergency stop button is released;	☐
3	Check the PE cable connection to make sure there are no ground faults;	☐
4	Check if the AC and DC voltages meet the start-up conditions and there is no risk of over-voltage with a multimeter;	☐
5	Check to make sure no tools or parts are left inside the device;	☐

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6	Check if there is condensation. If so, open the AC for ventilation until the condensation disappears;	☐
7	Check if the air conditioner is in a normal state and there is no abnormal sound;	☐
8	Check if there are no wire ends, metal shavings, and other objects that may cause short circuits in signal or power cables.	☐

Power-on steps

- Step 1: Turn on the battery circuit breaker ("BAT") on the BDU;
- Step 2: Sequentially turn on the switches (circuit breakers) labeled "Aux DC", "Aux AC", and "A/C" on the BDU.

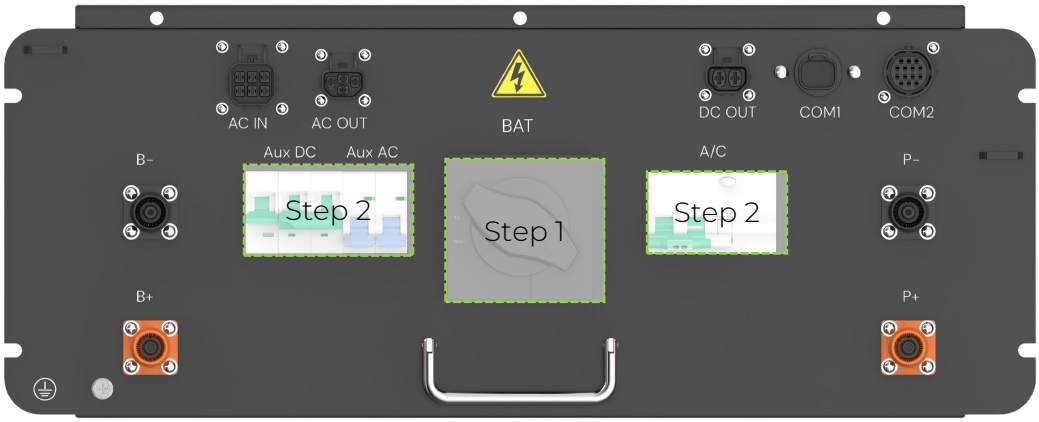


Figure 6-1 Circuit Breakers Location

After following the above steps in sequence, check if the product indicator lights are on. If the product is in normal condition, the power indicator light "POWER" and the operation indicator light "RUN" will be on, while the fault indicator light "FAULT" will be off.

6.2. Power-off Process

Power-off steps (the operation process can be referenced in the product power-on process diagram)

- Step 1: Disconnect the battery circuit breaker ("BAT") on the BDU;
- Step 2: Sequentially disconnect the switches (circuit breakers) labeled "Aux DC", "Aux AC", and "A/C" on the BDU.

WARNING

After operating step by step, the system will stop running, and the product indicators and screen will go out. After the inspection is completed, wait for five minutes to perform maintenance and inspection operations.

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6.3. Emergency Stop

Press the "EPO" red button on the front door in an emergency.

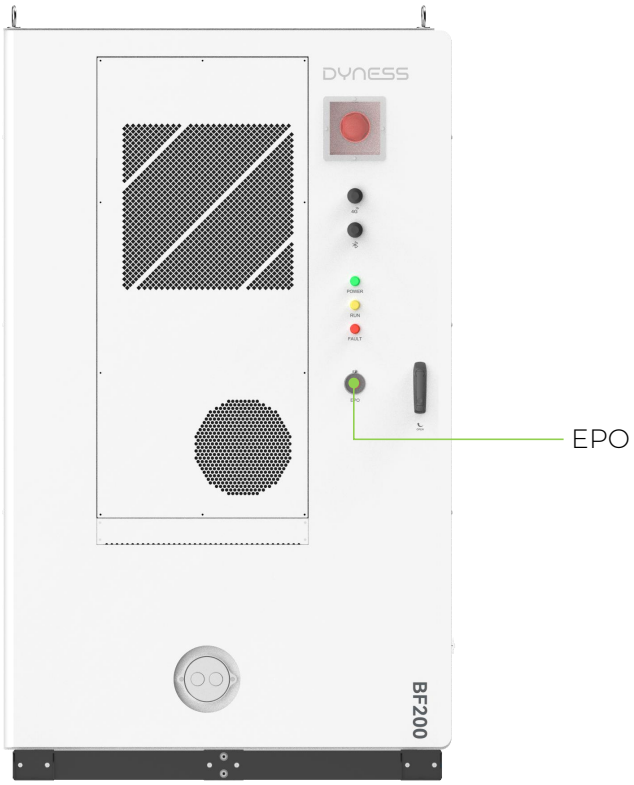


Figure 6-2 EPO Location

WARNING

Under normal circumstances, please use the normal shutdown procedure to power off the product!
In emergency situations, it is necessary to use EPO to ensure a quick response and protect personal and equipment safety!

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7. Bluetooth Proximity Debugging Operation Guide

7.1. Introduction to Proximity Debugging

Bluetooth proximity debugging refers to the process in which users operate within an approximate range of 10 meters from the device. Upon establishing a local connection with the device via the Bluetooth functionality of the "Dyness" application, users can perform operations such as device overview inspection, real-time data reception, alarm notification review, and device parameter configuration.

7.2. APP Download Navigation

Proximal debugging requires operation through the "Dyness" application. You may download the app by scanning the QR code provided below.

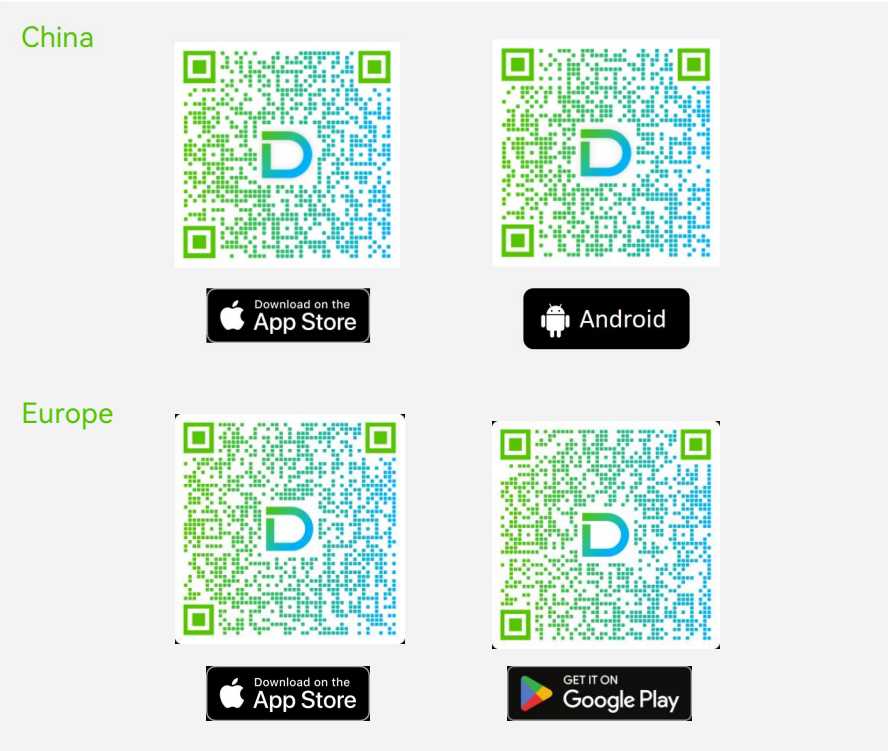


Figure 7-1 QR code of the application

7.3. User Login

The home page of the APP has a login entry for the cloud platform and a local connection entry. Bluetooth near-end debugging enters the user login interface through the local connection entry. The login interface for iOS is different from that for Android. The login steps for the iOS and Android interfaces are listed separately below.

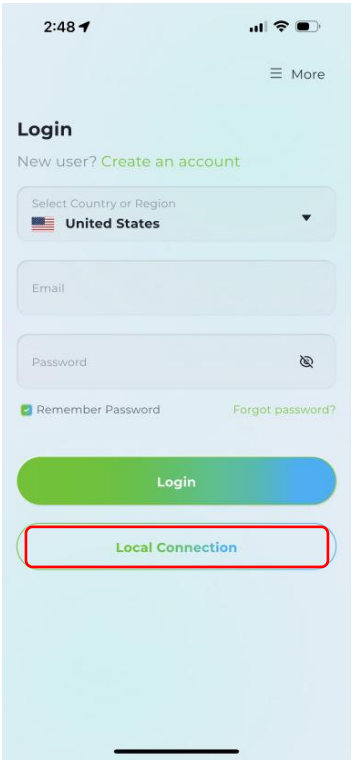
iOS Login Steps

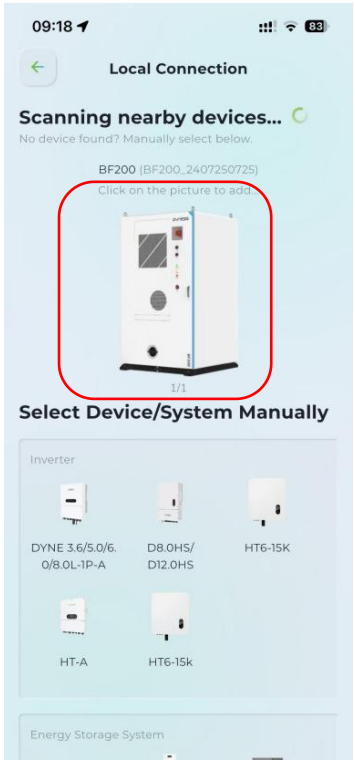
- Step 1: Tap on **"Local Connection"** on the **[login]** interface;
- Step 2: After the phone finishes scanning nearby devices, tap the BF200-C260 picture of the nearby device on the **[local connection]**

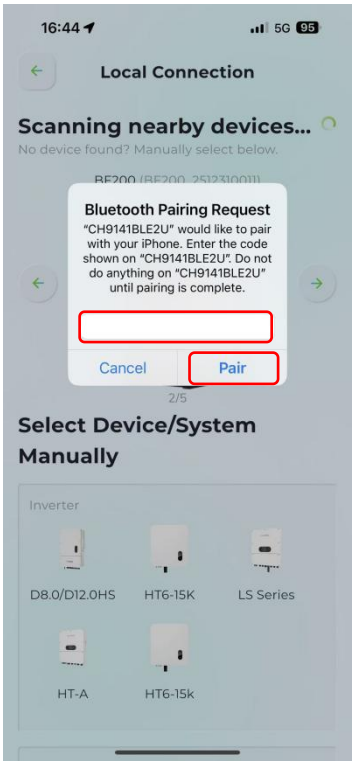
© The copyright of this document belongs to Dyness.

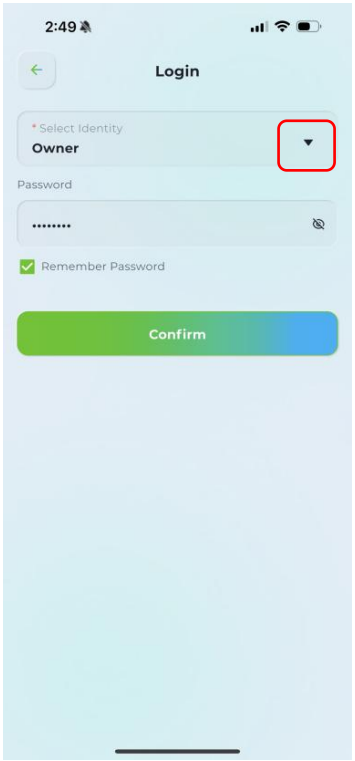
interface;

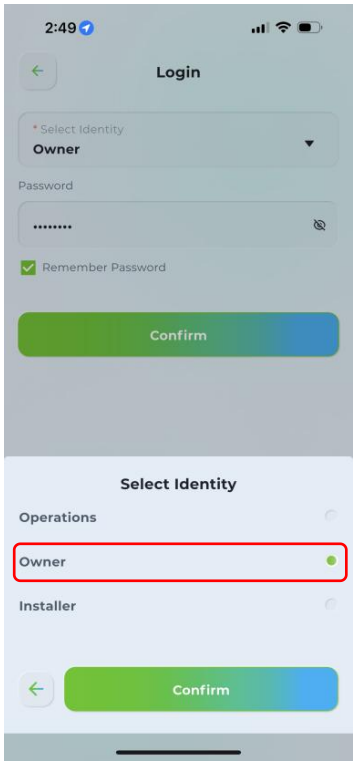
- Step 3: Enter the code displayed on the "BF200-C260" device in the Bluetooth pairing request box. The default code is **"111444"**. After entering, tap **"Pair"**;
- Step 4: On the login interface, select **"Owner"** from the identity tab, then enter the password (default: **"12345678"**), and finally tap **"Confirm";**
- Step 5: If you only want to select the identity and enter the password for the first login, check the "Remember Password" option box and tap "Confirm".











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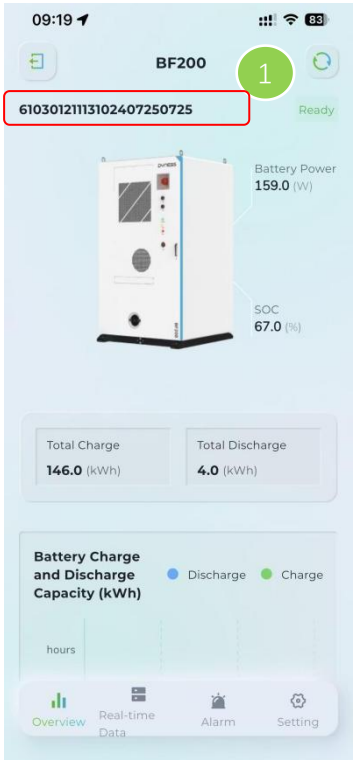
Android login steps

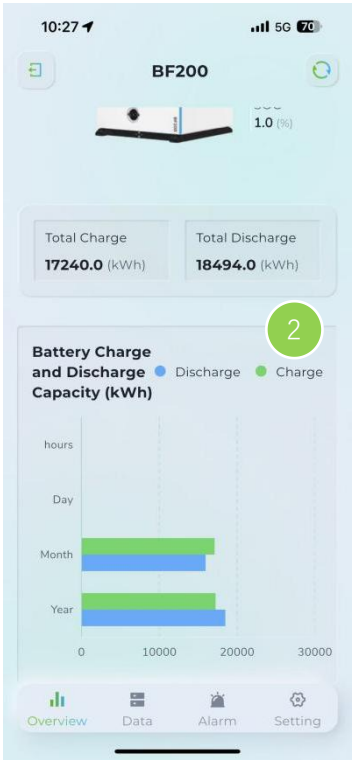
- Step 1: Tap on **"Local Connection"** on the **[login]** interface;
- Step 2: After the phone completes scanning nearby devices, tap on the picture of the nearby device BF200-C260 on the **[local connection]** interface;
- Step 3: In the pop-up pairing request box above, tap **"Pair & Connect"**;
- Step 4: In the pop-up window below, tap **"Pair"** (if this step fails, repeat Step 3);
- Step 5: In the pop-up window, enter the **pairing code.** The default code is **"111444"**, then tap **"OK"**;
- Step 6: On the **[Login]** interface, tap **"drop-down list"** From the Select Identity tab, tap "Owner," then enter the password (default: **"12345678")**, and finally tap "Confirm";
- Step 7: If you only want to select the identity and enter the password for the first login, tap the **"Remember Password"** option box, then tap **"Confirm."——End**

7.4. Operating Information

Upon successful login, the application will automatically navigate to the "**Overview**" page. If you are currently on a different page, you may access the "**Overview**" by selecting the corresponding tab located at the bottom of the screen.

The upper left code on the device overview page is the SN. When the device is normal, "**Ready**" appears in the upper right, marked as "1". During charge or discharge, a real-time line graph shows at position "2".



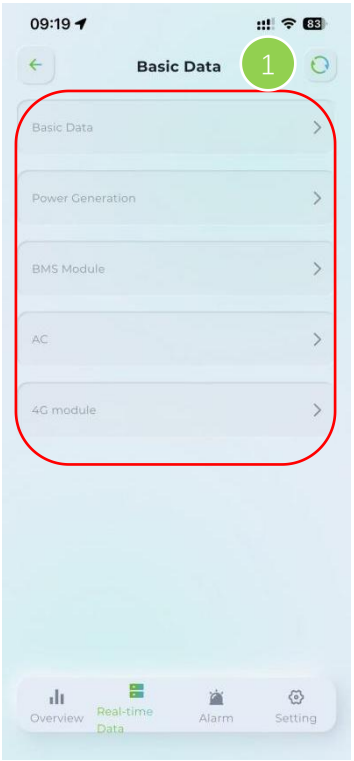


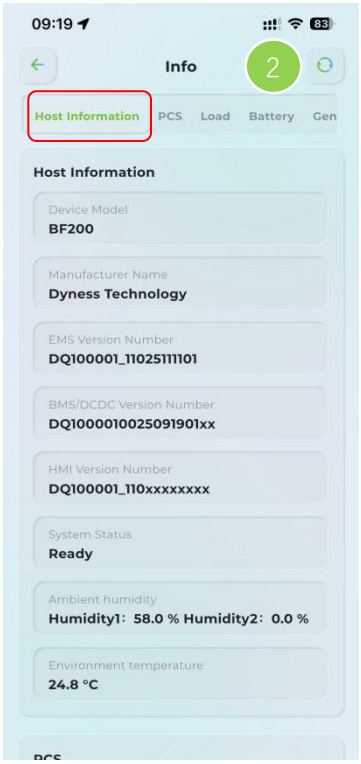
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7.5. Query data

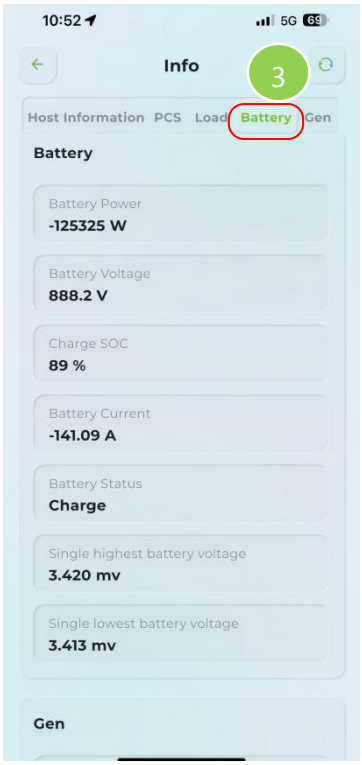
- Step 1: On the main interface of "1", select "**Real-time Data**" from the primary menu located at the bottom.
- Step 2: In the basic data interface labeled "1", users can access corresponding information by selecting different category tabs. Currently, the available tabs include "**Basic Data**", "Power Generation", "**BMS Module**", "**Air Conditioning (AC)**", and "**4G Module**".
- Step 3: Click on "**Basic Data**" to view the basic content of the host information, as shown in "2."
- Step 4: Click on "**Battery**" to view the basic information and content of the battery, as shown in "3."
- Step 5: Click on "**BMS Module**" to view the relevant information about battery energy, as shown in "4".
- Step 6: Click on "**AC**" to view the operation and working information of the air conditioner, as shown in "5".
- Step 7: Click on "**4G Module**" to view the hardware and software version information of the 4G module.

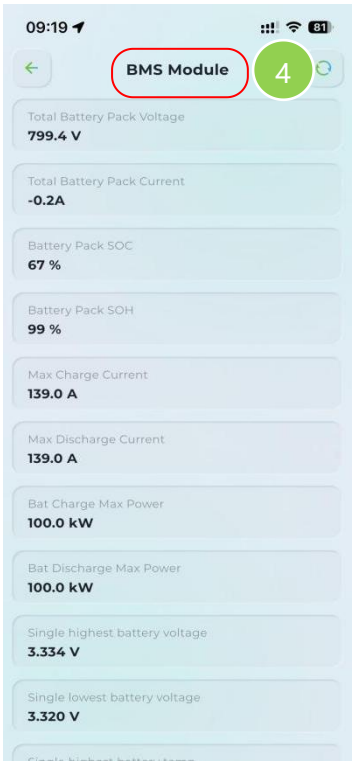
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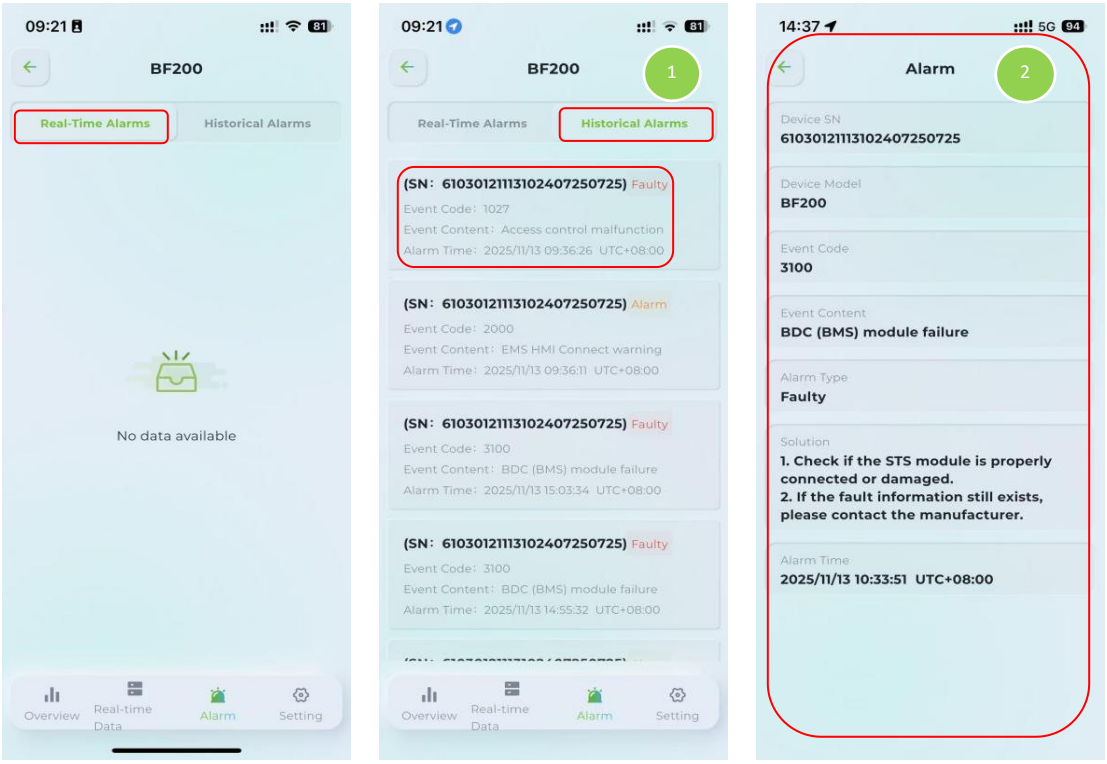


7.6. Warning Information

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- Step 1: Click on "**Alarm**" in the main menu at the bottom of the [BF200-C260] interface;
- Step 2: Click on the "**Real-Time Alarms**" section within the [BF200-C260] interface to review the device's real-time alarm status. If no alarms are present, the system will display "**No data available**," as illustrated in the figure below.
- Step 3: Click on the [BF200-C260] interface and select "**Historical Alarms**" to access the device's historical alarm records. To view detailed information for a specific alarm, click on the corresponding alarm entry in the alarm information column (indicated by "1"), which will direct you to the detailed alarm page (shown as "2").

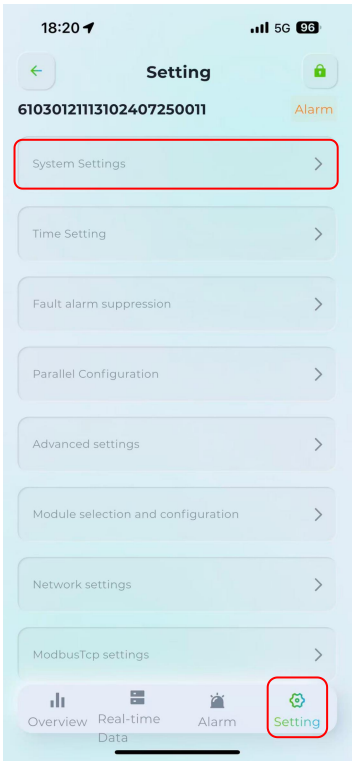
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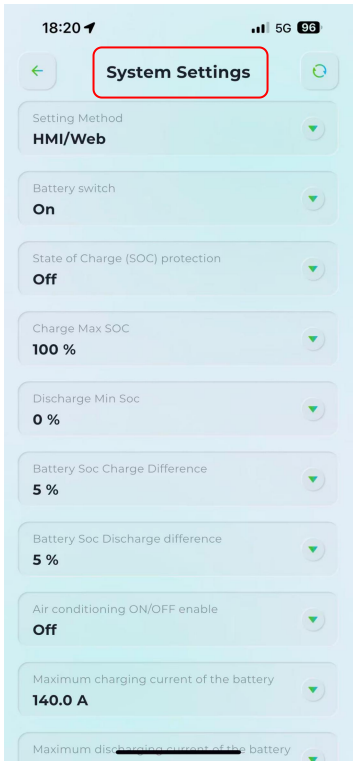


7.7. System Settings

Click "**Settings**" on the bottom main menu bar. This opens configuration options for system settings, time, fault alarms, parallel operation, advanced settings, and network connectivity. Under "**System Settings**" at the top, configure operation mode, battery switch, SOC protection, air conditioner enablement, and max charge/discharge current.

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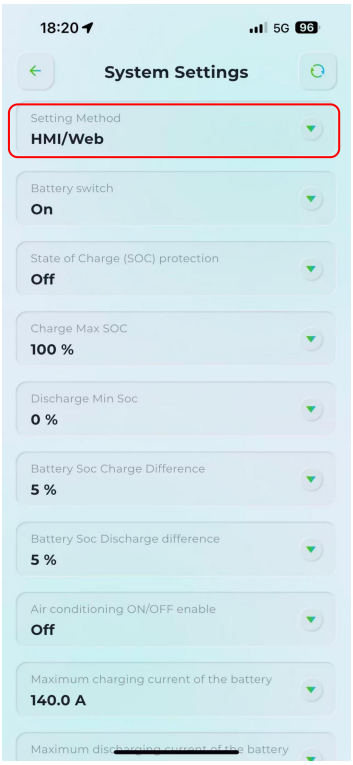


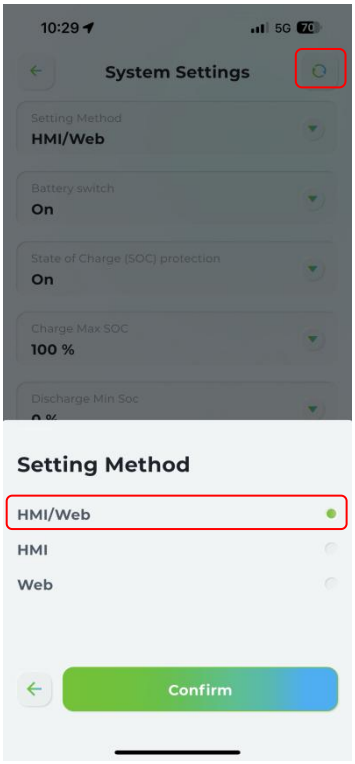
7.7. 1. Setting Mode

- Step 1: Click "**Settings**" in the main menu bar at the bottom of the main interface.
- Step 2: Click "**System Settings**" in the settings interface.
- Step 3: Click on the "**Setting Method**" tab and select according to your needs. For example, if you choose "**Web**", the remaining operations will be carried out on the Dyness cloud platform. If you select "**HMI/Web**" or "**HMI**", click "**Confirm**".

-----End

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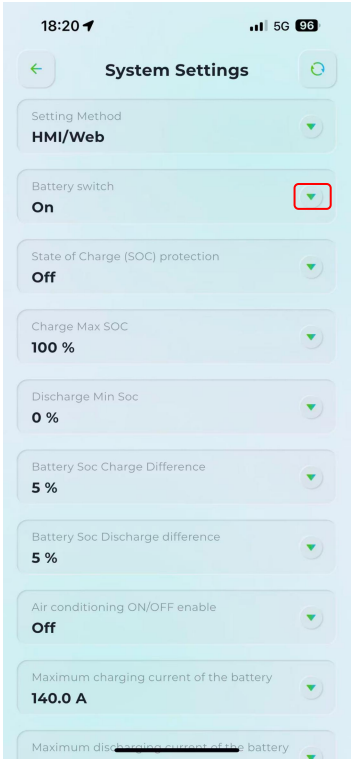


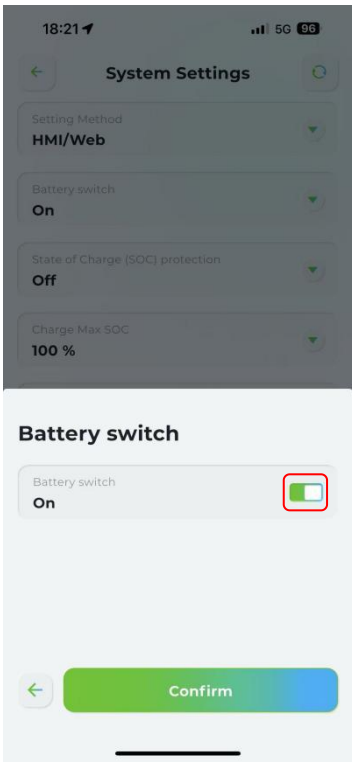
7.7. 2. Battery Switch

- Step 1: Click "**Settings**" in the main menu bar at the bottom of the main interface.
- Step 2: Click "**System Settings**" in the settings interface.
- Step 3: Click the battery switch drop-down tab. In the drop-down list, click " " to turn on the battery switch according to your actual needs, or click " " to switch it to the off state. Then click Confirm.

------End

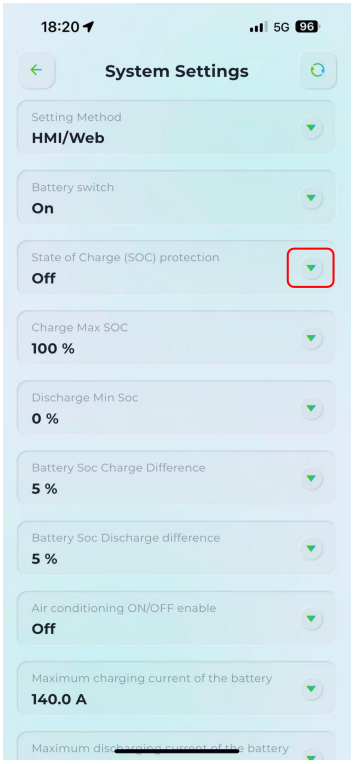
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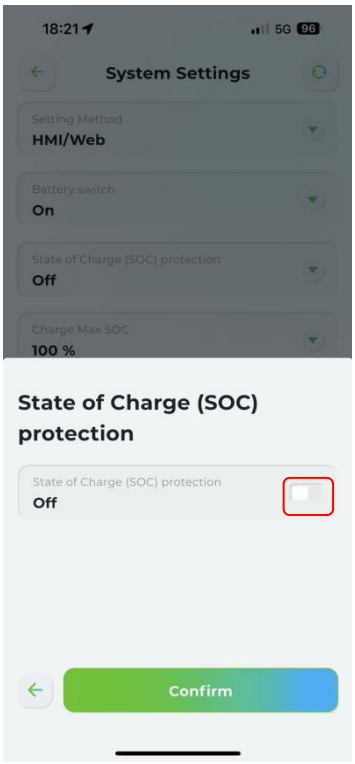




7.7. 3. SOC Settings

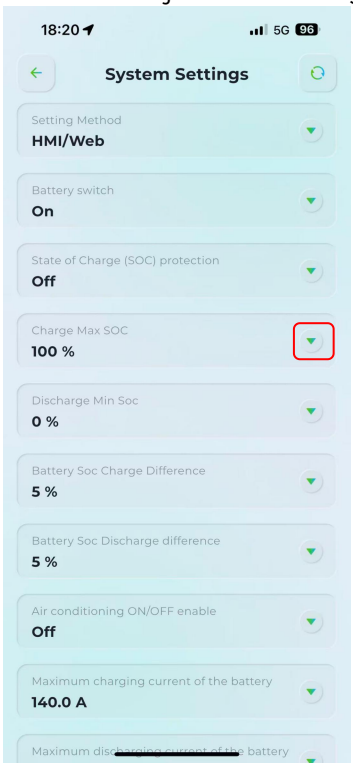
- Step 1: In the "**System Settings"** interface, click the drop-down TAB " " on the right side of the "State **of Charge (SOC) protection"** option bar.
- Step 2: Click the SOC protection switch button according to actual needs. A green " " on the switch button indicates it is enabled, and a gray " " indicates it is off.

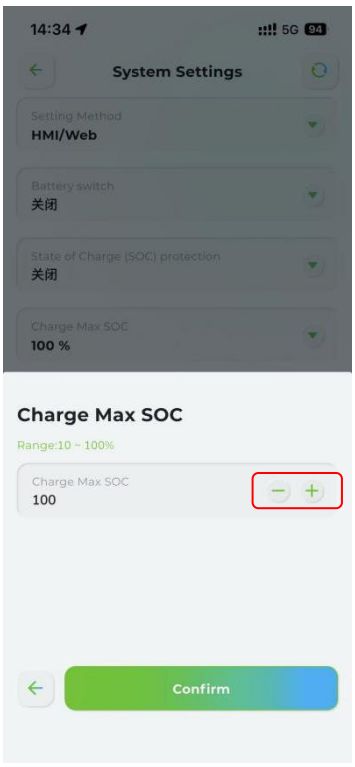




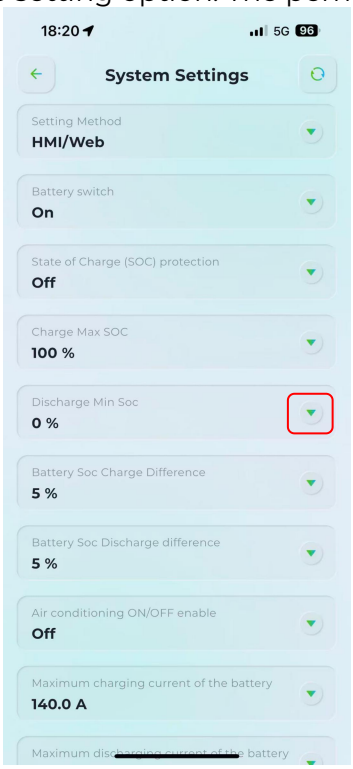
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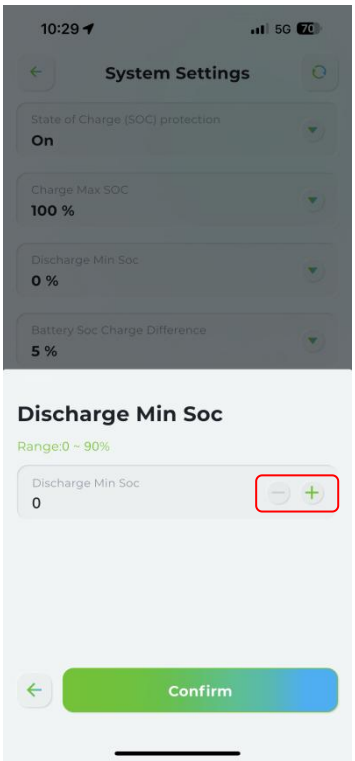
- Step 3: In the "**System Settings**" interface, click on the "**Charge Cut-off Maximum SOC**" drop-down TAB to the right of this option bar. ".
- Step 4: Adjust the maximum state of SOC for charging cutoff as needed. The permissible adjustment range is from 10% to 100%.





- Step 5: In the "**System Settings**" interface, click the drop-down TAB to the right of the "**Discharge Min SOC**" option bar " ".
- Step 6: Adjust the minimum SOC for discharge cutoff as needed by clicking the setting option. The permissible adjustment range is from 0% to 90%.

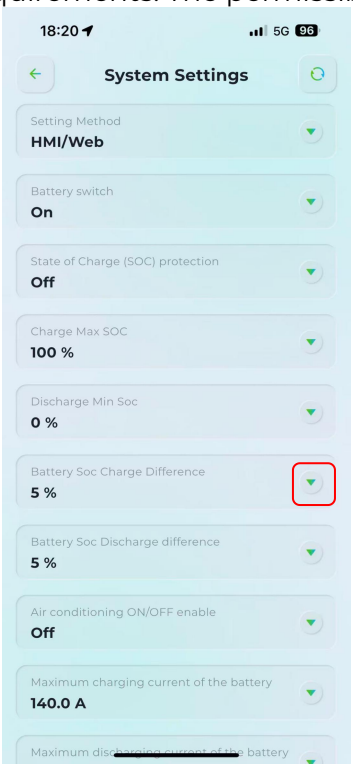


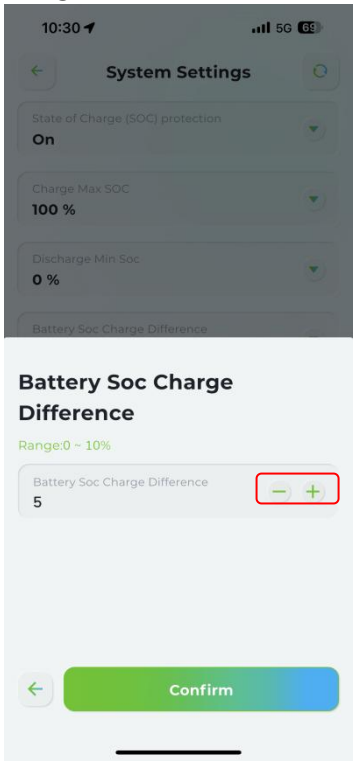


- Step 7: In the "**System Settings**" interface, click the drop-down TAB to the right of the "**Battery SOC charge difference**" option bar " ".

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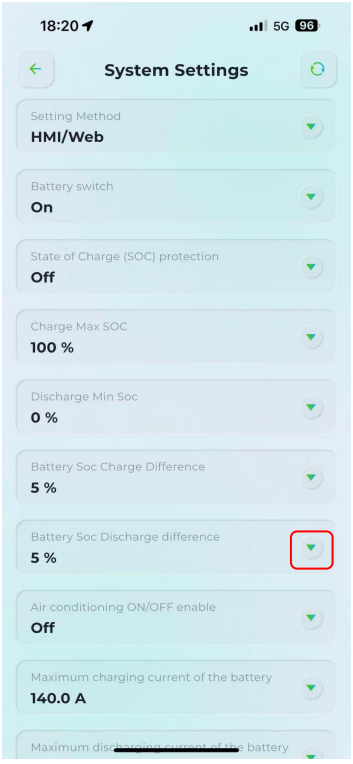
- Step 8: Adjust the battery SOC charge difference according to actual requirements. The permissible adjustment range is from 0% to 10%.

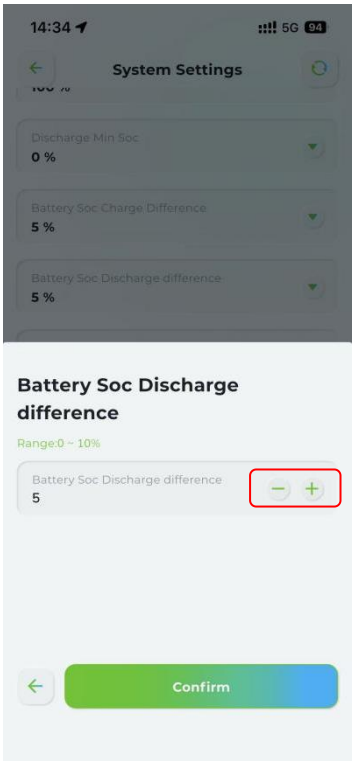




- Step 9: In the "**System Settings**" interface, click the drop-down TAB to the right of the **Battery SOC discharge difference** option bar. ".
- Step 10: Adjust the Battery SOC discharge difference as needed by clicking the appropriate control. The permissible adjustment range is from 0% to 10%.

------End



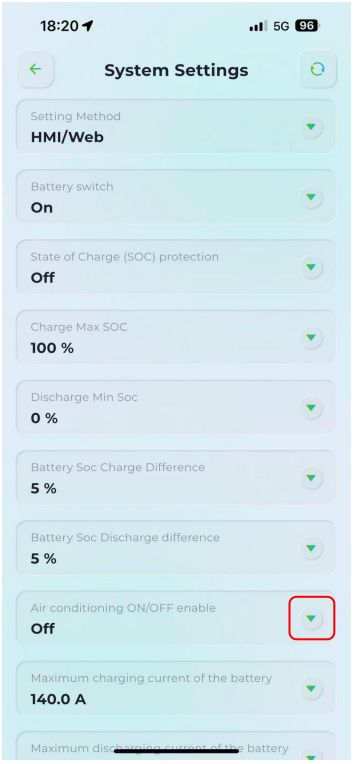


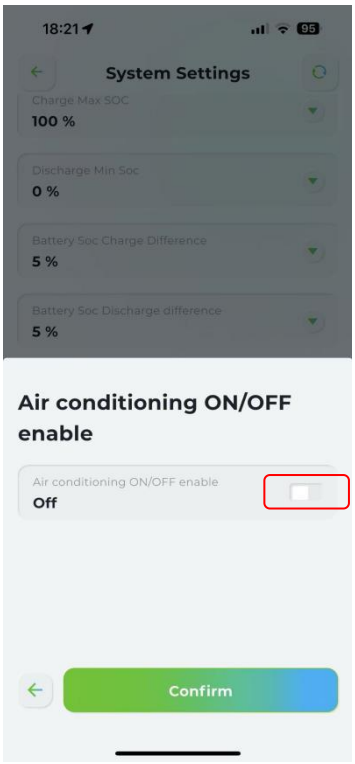
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7.7. 4. Air Conditioning Switch Enable

- Step 1: In the "**System Settings**" interface, click the **Air conditioning ON/OFF enable** the drop-down TAB to the right of this option bar "▾".
- Step 2: Enable the air conditioner function as needed, based on actual requirements.

------End

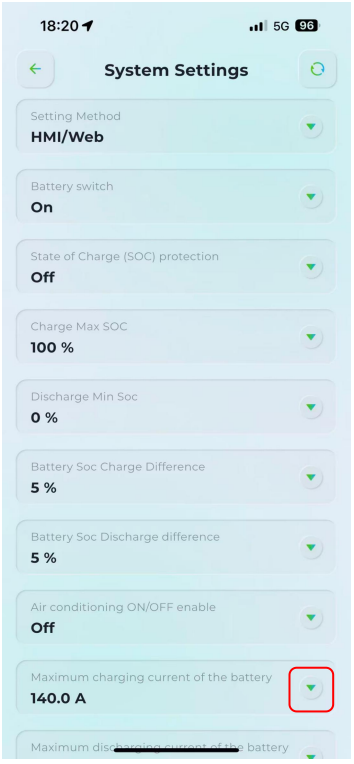


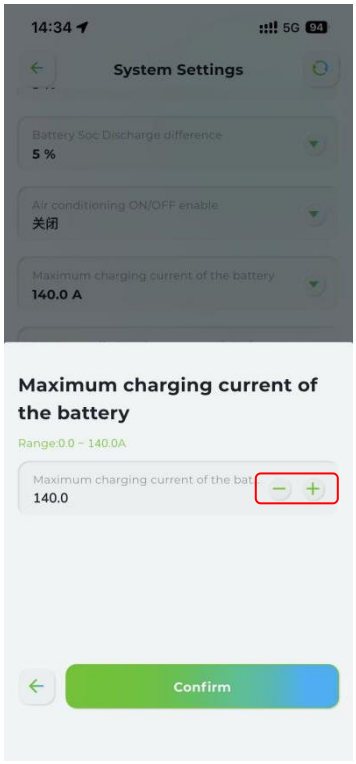


7.7. 5. Battery charging and discharging current

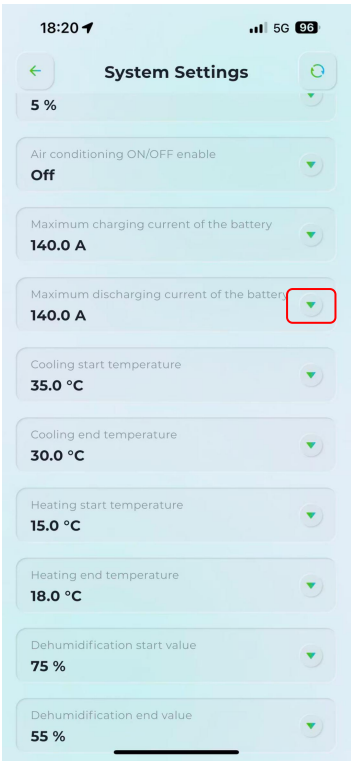
- Step 1: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Maximum charging current of the battery**" option bar "▾".
- Step 2: Adjust the **maximum battery charging current** in accordance with actual requirements. The permissible adjustment range is from 0.0 to 140.0 A.

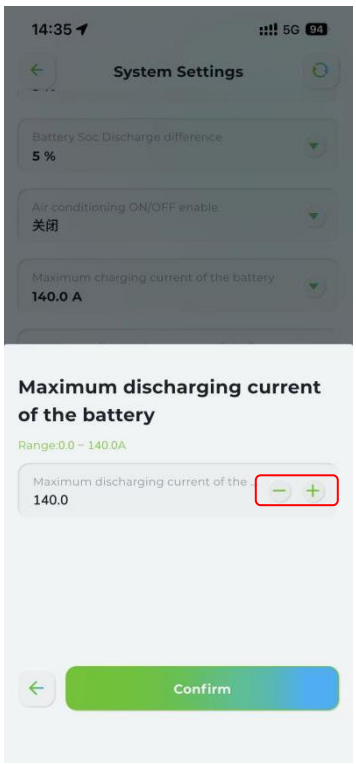
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- Step 3: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Maximum discharging current of the battery**" option bar.".
- Step 4: Adjust the **maximum battery discharging current** in accordance with actual requirements. The permissible adjustment range is from 0.0 to 140.0 A.

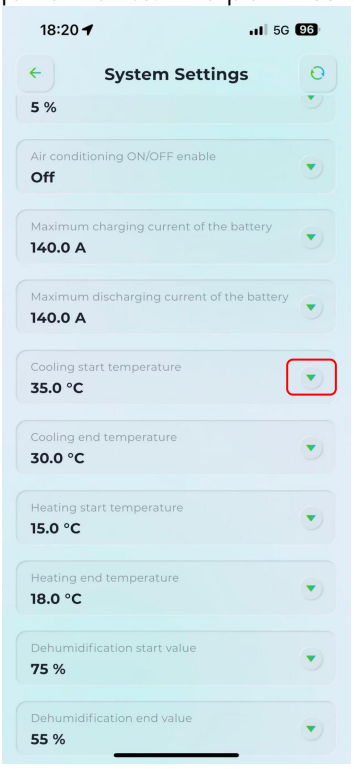


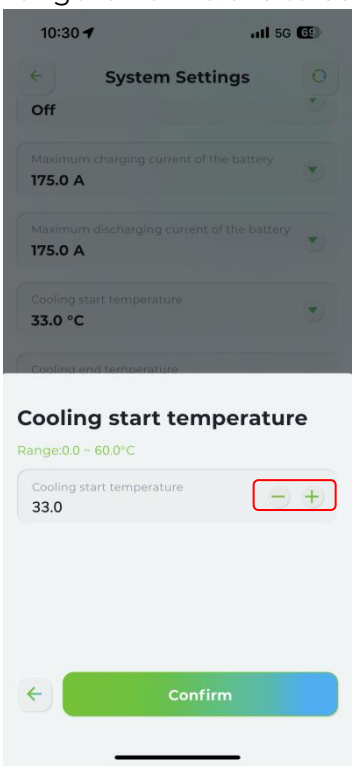


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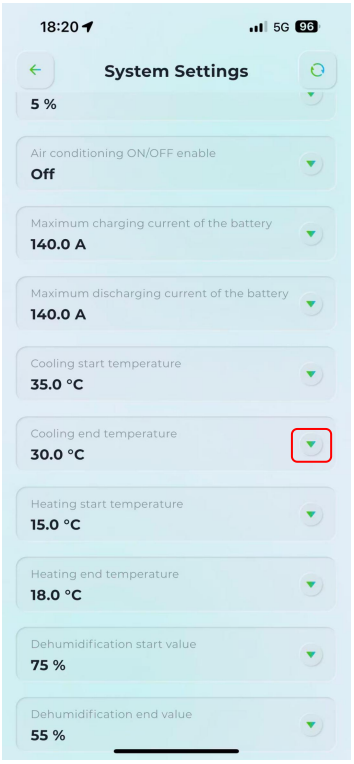
7.7.6 Cooling & Heating and Dehumidification Settings

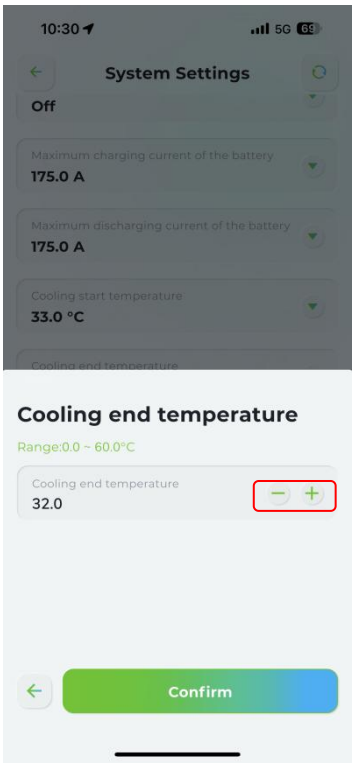
- Step 1: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Cooling start temperature**" option bar "▼".
- Step 2: Adjust the **cooling start temperature** according to actual requirements. The permissible adjustment range is from 0.0°C to 60.0°C.





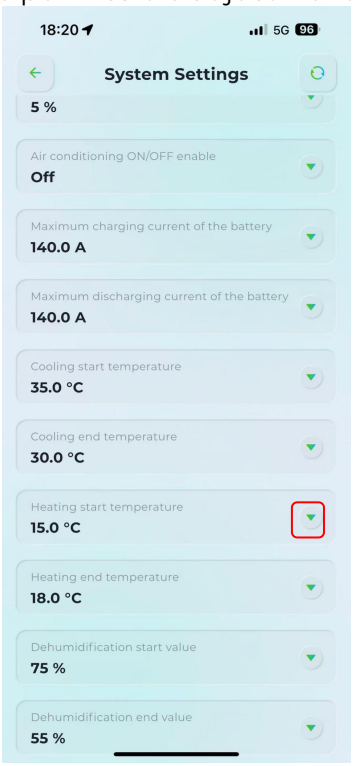
- Step 3: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Cooling end temperature**" option bar"▼".
- Step 4: Adjust the **cooling end temperature** according to actual requirements. The permissible adjustment range is between 0.0°C and 60.0°C.

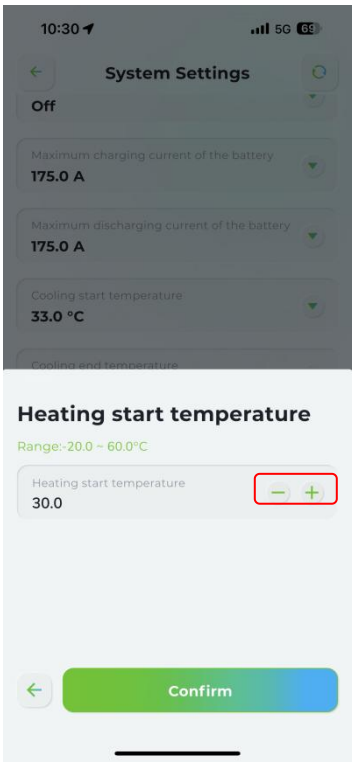




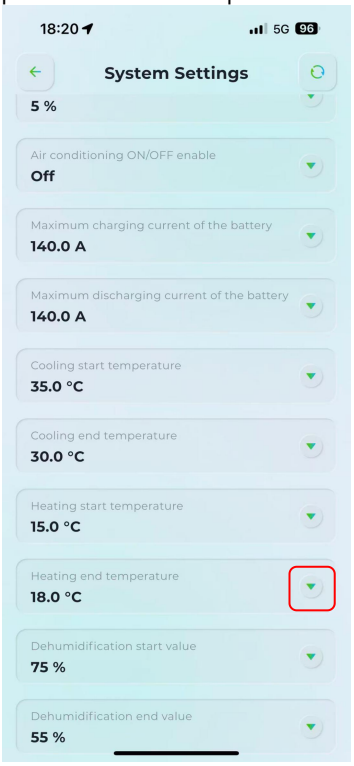
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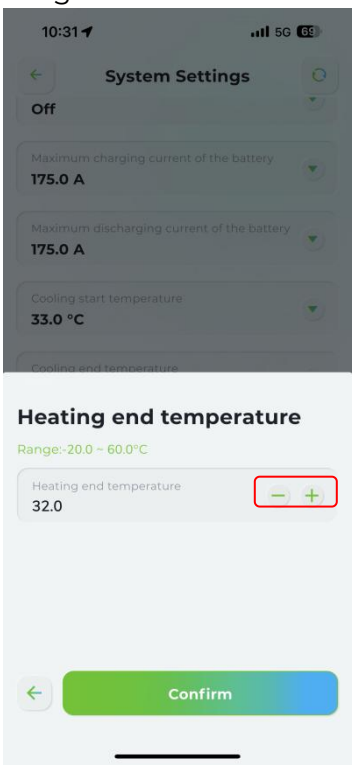
- Step 5: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Heating start temperature**" option bar"▼".
- Step 6: Adjust the **heating start temperature** based on actual requirements. The permissible adjustment range is from -20.0°C to 60.0°C.





- Step 7: In the "**System Settings**" interface, click on the drop-down TAB to the right of the "**Heating end temperature**" option bar.▼".
- Step 8: Adjust the **heating end temperature** according to actual requirements. The permissible adjustment range is from -20.0°C to 60.0°C.



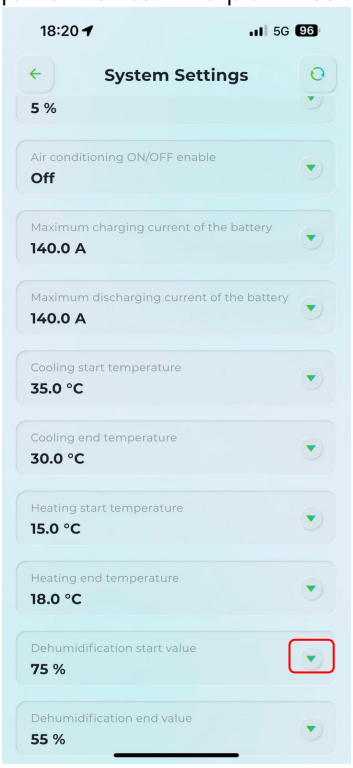


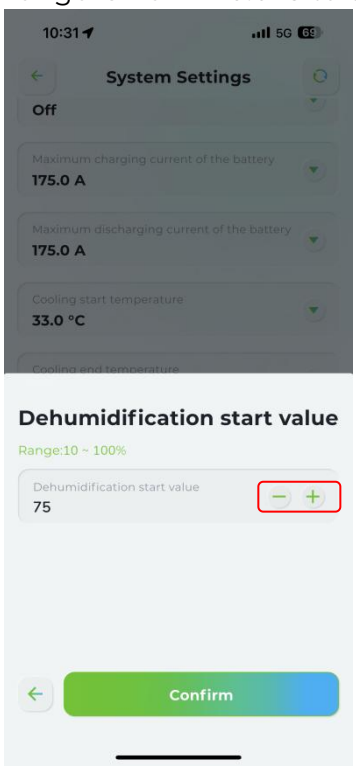
- Step 9: In the "**System Settings**" interface, click on the **dehumidification**

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start value drop-down TAB to the right of this option bar.".

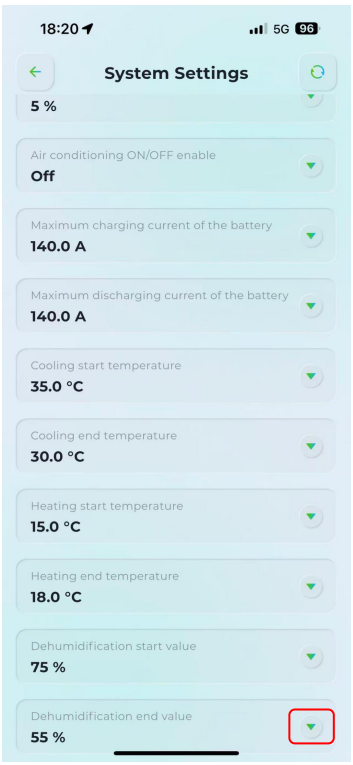
- Step 10: Adjust the dehumidification activation threshold according to actual requirements. The permissible adjustment range is from -20.0°C to 60.0°C.

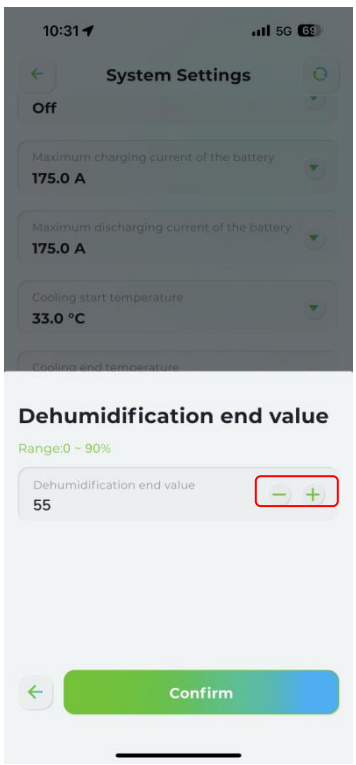




- Step 11: In the "**System Settings**" interface, click on the **dehumidification end value** drop-down TAB to the right of this option bar
- Step 12: Adjust the **dehumidification end value** according to actual requirements. The permissible adjustment range is from -20.0°C to 60.0°C.

------End



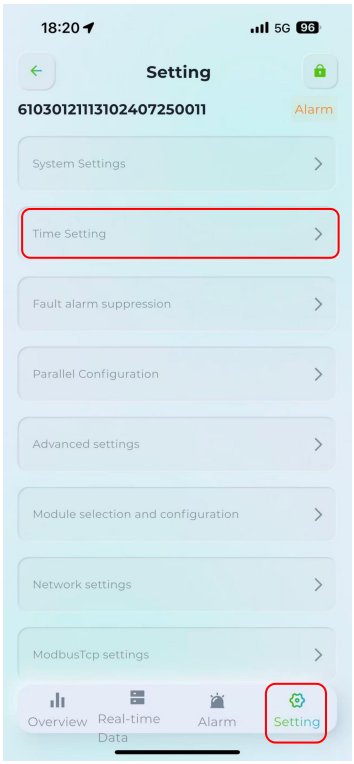


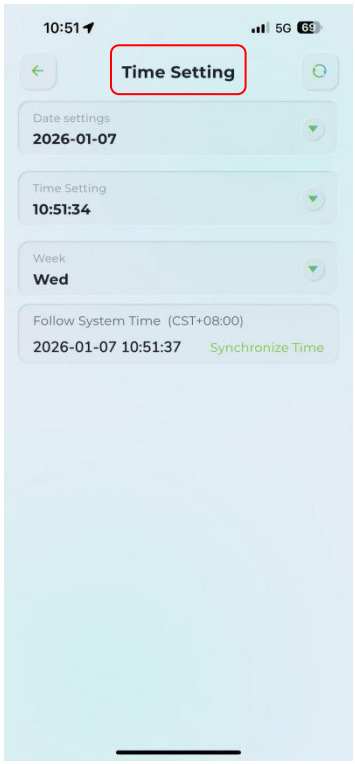
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7.8. Time Setting

In the settings interface, click "**Time Settings**". Upon entering the time configuration page, users can adjust the date, time, and weekday settings. A system time synchronization option is available at the bottom of the page.

------End



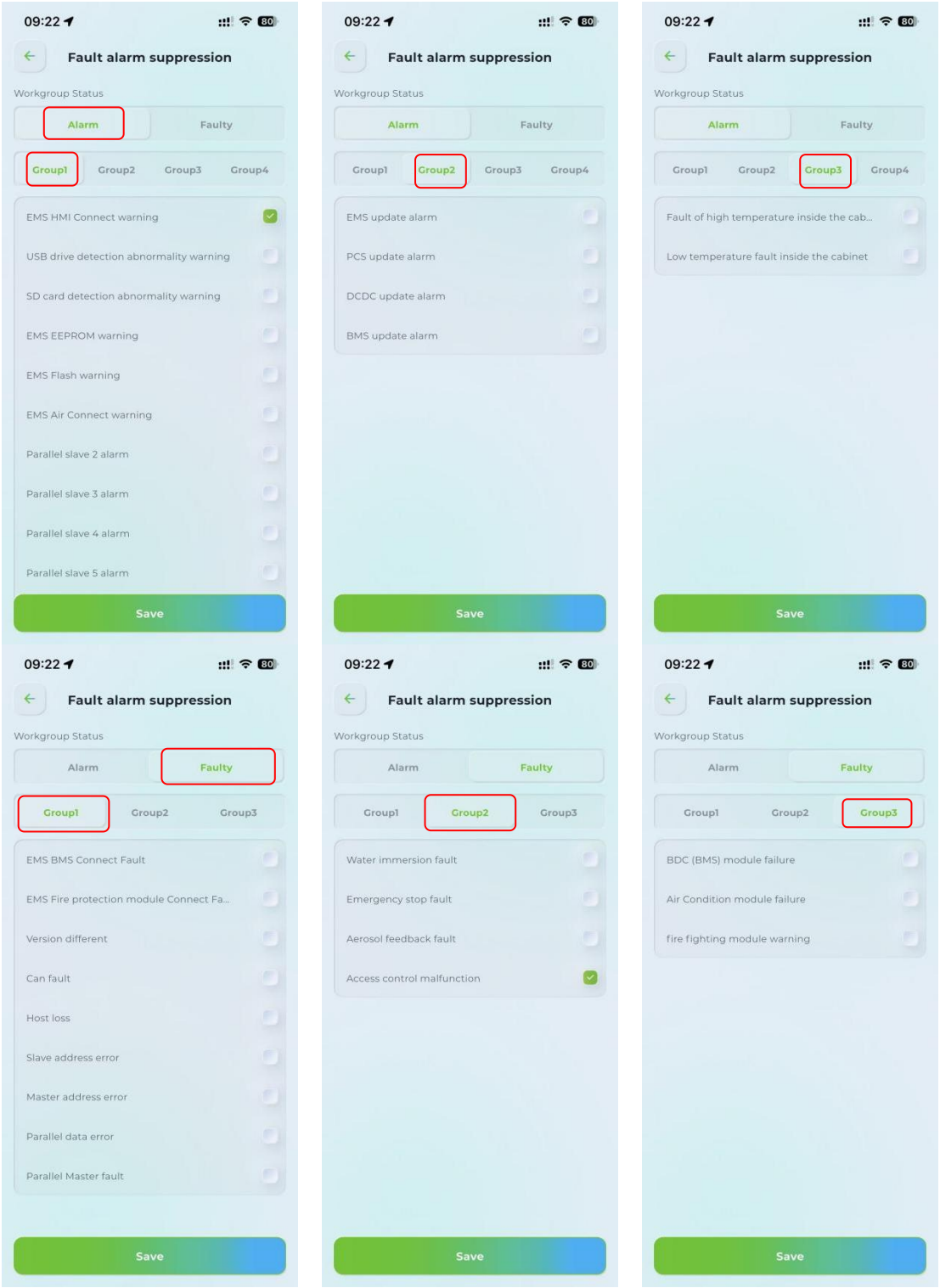


7.9. Fault alarm suppression

- Step 1: Click on "**Fault Alarm suppression**" in the "Settings" interface;
- Step 2: On the "**Fault Alarm Suppression**" interface, click "**Alarm**", then select one of the groups from "**Group 1**" to "**Group 4**" to view the corresponding alarm information.
- Step 3: On the "**Fault Alarm Suppression**" interface, select "**Faulty**", then choose a group from "**Group 1**" to "**Group 3**" to view the alarm information for each respective group.
- Step 4: To block alarm or fault information, click the corresponding group list and select the items intended for blocking.

------End

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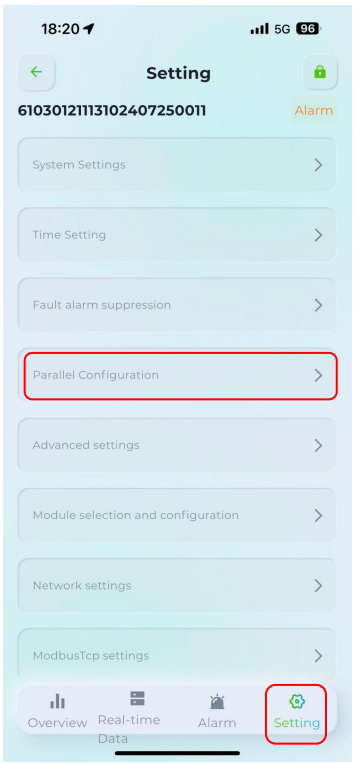
7.10. Parallel Configuration

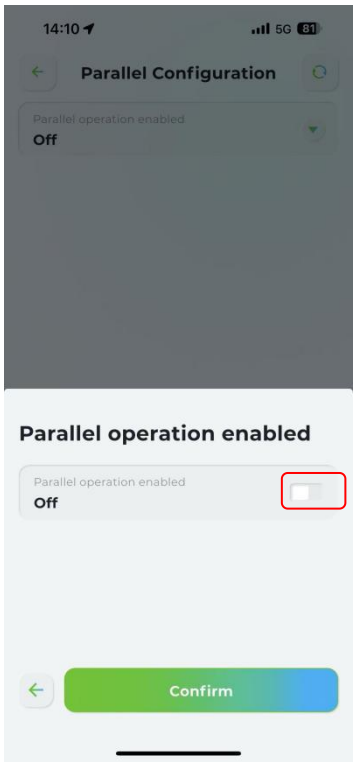
- Step 1: Click "**Settings**" in the main menu bar at the bottom of the main interface.
- Step 2: Click "**Parallel Configuration**" in the Settings interface;
- Step 3: Click "**Parallel Configuration**" and select any position within the "**Parallel operation Enable**" column, or click the drop-down menu located on the right side of the option bar. ".
- Step 4: As required, click the "**Parallel operation enable**" in the pop-up window. The button appears green when parallel operation is enabled and

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gray when disabled. Subsequently, click "**Confirm**".

------End





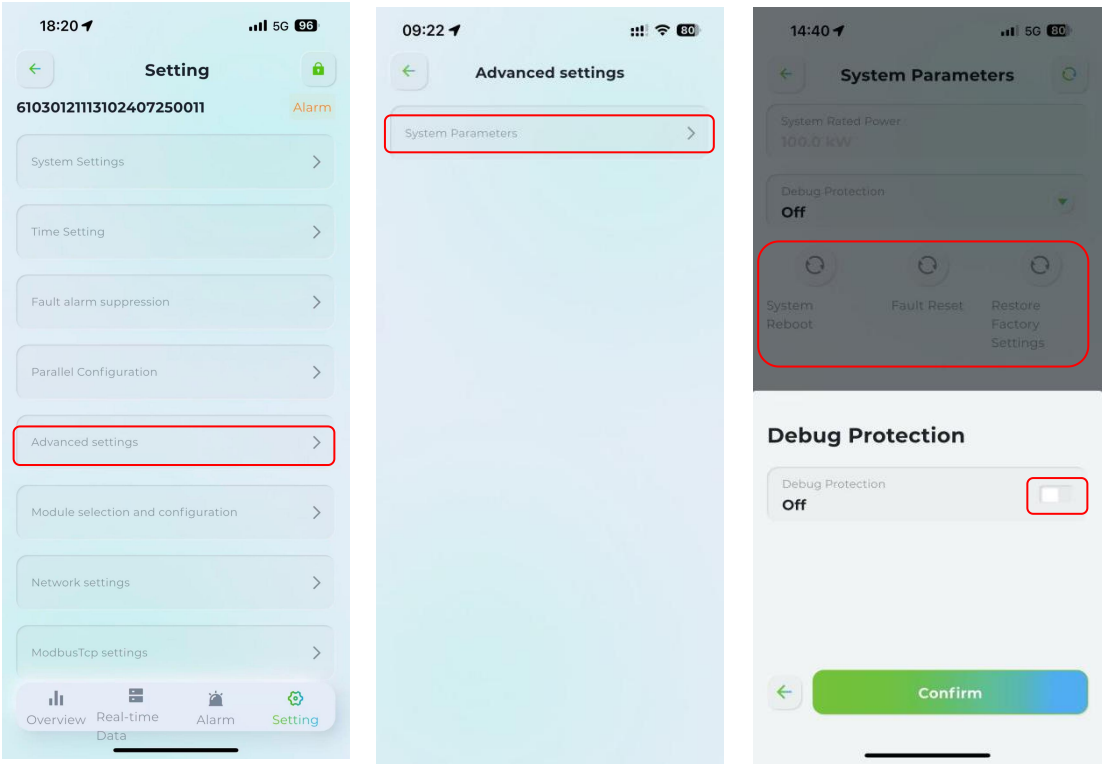
7.11. Advanced settings

- Step 1: Click "**Advanced Settings**" in the "**Settings**" interface.
- Step 2: In the "**Advanced Settings**" interface, click "**System Parameters**"
- Step 3: In the "**System Parameters**" interface, if you need to restart EMS, click "**System Reboot**", and then click "**Confirm**" in the pop-up window.
- Step 4: In the "**System Parameters"** interface, click the "**Debug Protection"** column or its drop-down menu. In the pop-up, use the "**Debug Protection"** Switch Button to enable or disable the feature—green means enabled, gray means disabled. Then click "**Confirm"**.
- Step 5: In the "**System Parameters**" interface, if you need to clear the current user-end settings and restore the factory state, click "**Restore Factory Settings**," and then click "**Confirm**" in the pop-up window.

-----End

Note: Please do not click "**System Reboot**" when the system is operating under normal conditions.

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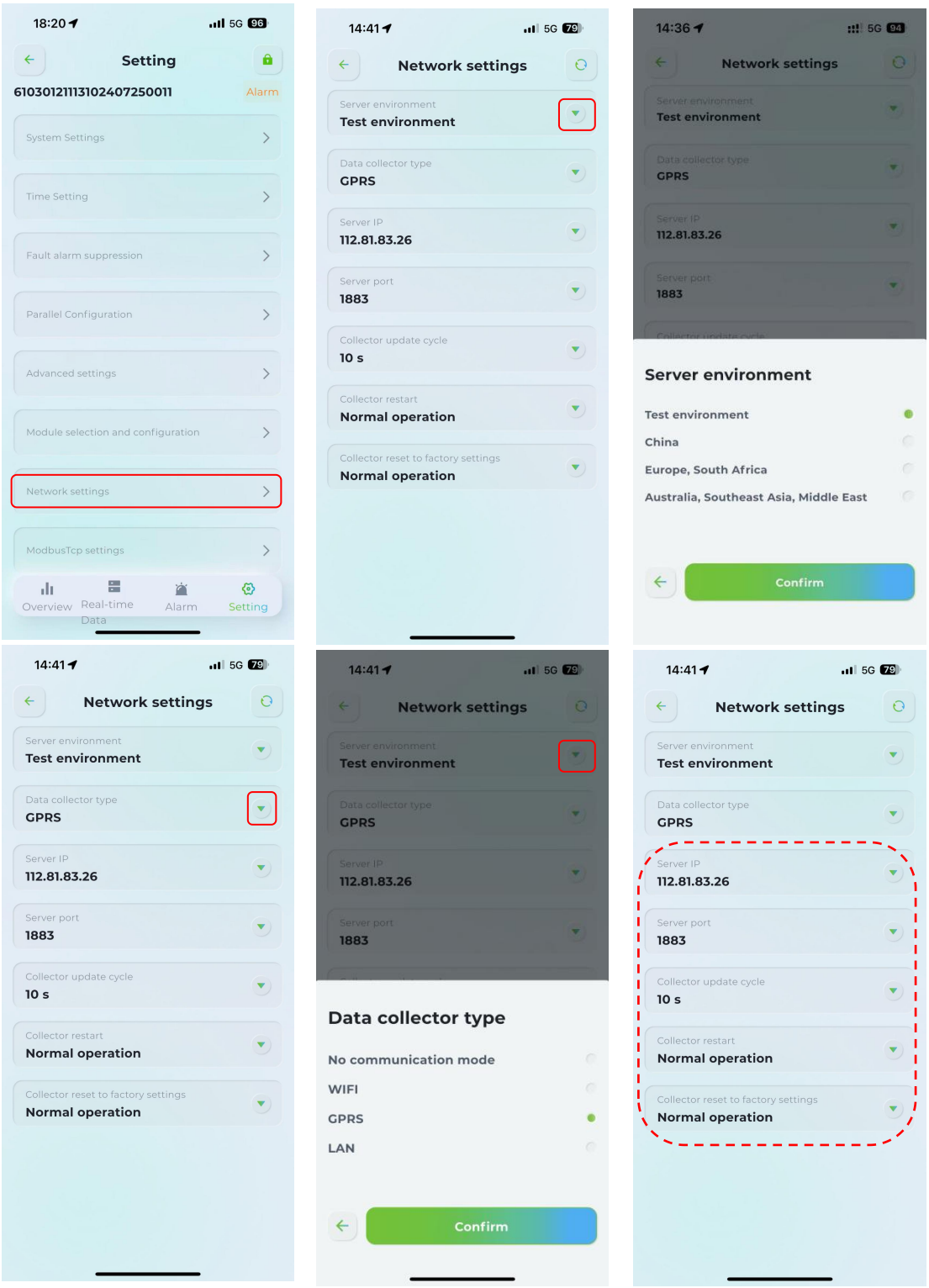
7.12 Network settings

- Step 1: Click on "**Network Settings**" in the "**Settings**" interface.
- Step 2: On the "**Network Settings**" interface, click anywhere in the "**Server Environment**" column or the drop-down tab on the right side of the option bar.".
- Step 3: In the pop-up window, select "**Server environment**" based on the actual situation, and then click "**Confirm**".
- Step 4: On the "**Network Settings**" interface, click anywhere in the "**Data Collector Type**" column or the drop-down tab on the right side of the option bar"";
- Step 5: In the pop-up window, select the "**Data Collector Type**" based on the actual situation, and then click "**Confirm**".

-------End

Note: The items enclosed within the dashed box in the figure below represent the default settings and do not require user configuration.

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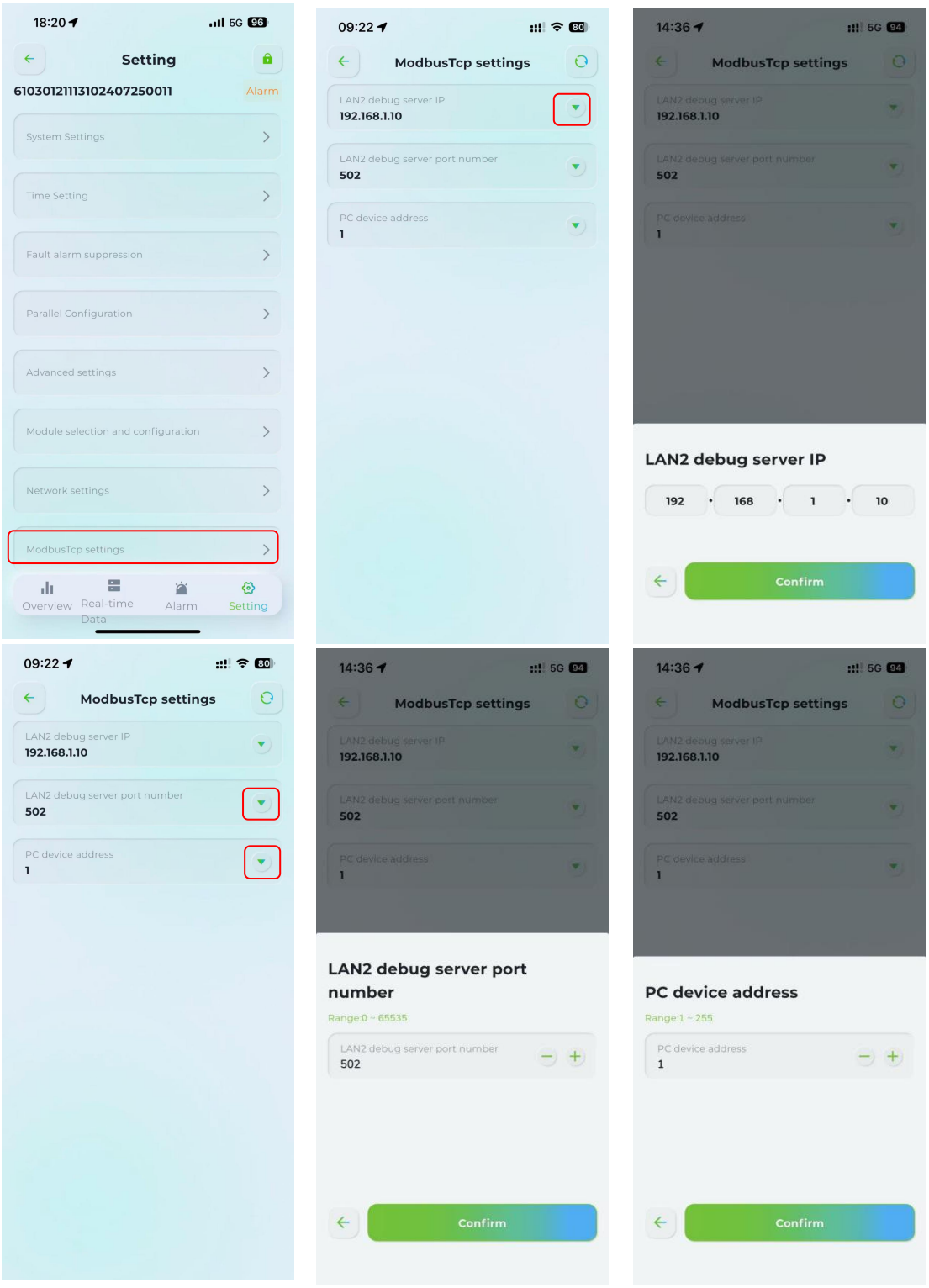


7.12 Modbus TCP Settings

- Step 1: Click "**Modbus TCP Settings**" in the "**Settings"** interface;
- Step 2: On the "**Modbus TCP Settings**" interface, click on the "LAN 2 **debug server IP**" column or the drop-down option bar"▾"; Adjust to the correct debugging IP address.
- Step 3: On the "**Modbus TCP Settings**" interface, click on the "LAN 2 **debug server port number**" column or the drop-down option bar"▾"; Adjust it to the correct server port number.

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- Step 4: On the "**Modbus TCP Settings**" interface, click the "**PC device address**" field or the adjacent drop-down option bar"▼"; configure it with the correct PC device address.



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8. Fault Description

If the solution provided below still does not solve the problem, please contact Dyness.

Table 8-1 Fault Description and Solution

Fault Phenomenon	Solution
Power light off	• Check that each circuit breaker is closed.
Running light off	• Check if EMS is in running state.
Alarm light on	• Check whether there is any alarm through the screen or the web, whether it is caused by improper operation. If not, please contact the supplier.
System Anomaly Noise	• Check the air inlet and outlet for blockages or foreign objects. If you hear unusual noise, contact the supplier immediately.
Show access alarm	• Check if the door is closed.
Show flood alarm	• Check whether the system is flooded, or whether the water sensor line is disconnected or damaged.
Show emergency stop alarm	• Check whether the emergency stop switch is in the released state.
Show SPD alarm	• Check whether the surge protector is damaged and whether the fault light is on. If damaged, contact the supplier for replacement.
Show gas detector alarm	• Stop using immediately and contact the supplier.
Show temperature detector alarm	• Stop using immediately and contact the supplier.
Show smoke detector alarm	• Stop using immediately and contact the supplier.
Show other alarm	• Except for grid-side abnormalities, contact the supplier for other cases.
Abnormal communication between EMS and BMS	• Shutdown to check if the communication cable is firmly connected and correct; • Restart the EMS and check if it functions normally; • If the error message still exists, please contact the supplier.
Abnormal communication between EMS and fire protection module	• Shutdown to check if the communication cable is firmly connected and correct; • Restart the EMS and check if it functions normally; • If the error message still exists, please contact the supplier.
Abnormal communication between EMS and PCS	• Shutdown to check if the communication cable is firmly connected and correct; • Restart the EMS and check if it functions normally; • If the error message still exists, please contact the supplier.
Abnormal communication between EMS and air conditioning system	• Shutdown to check if the communication cable is firmly connected and correct; • Restart the EMS and check if it functions normally; • If the error message still exists, please contact the

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	supplier.
SD card detect abnormality	• Check if the SD card is normal. If not, please replace the SD card; • If the error message still exists, please contact the supplier.
Network abnormality - (default blocked)	• Check the 4G/WIFI/LAN antenna; • If the error message still exists, please contact the supplier.
Data loss due to EMS no power supplied	• If the error message still exists, please contact the supplier.
EMS external Flash abnormality	• If the error message still exists, please contact the supplier.
System version inconsistency abnormality	• Update software to the consistent version; • If the error message persists, contact the vendor.
Incompatible software versions prevent parallel operation	• If the error message still exists, please contact the supplier.
Inconsistent capacities prevent parallel operation	• If the error message still exists, please contact the supplier.

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9. System Maintenance

System Maintenance Items

WARNING

- Operation and maintenance work must comply with local laws and regulations and the precautions in this manual.
- System maintenance work must be performed by professionals with electrical and power engineering knowledge and relevant qualifications.
- When performing system maintenance, wait until the outdoor cabinet's internal equipment is completely powered down before beginning inspection work. If any non-conformities are found during inspection, correct them immediately.

The system needs to be checked regularly. Here are some items to check and the frequency specified. For more details, check out the *Operating and Maintenance Manual*.

Table 9-1 System maintenance checklist

Items	Checklist	Frequency
Cabinet exterior	Check if there are any flammable materials on the ESS cabinet;	Once/year
	Check if the ESS cabinet and expansion bolts are secure and free from rust;	
	Check if there is any damage, peeling paint, and oxidation on the ESS cabinet casing;	
	Check if the cabinet door locks can open smoothly;	
	Check if the sealing strips are securely fixed.	
System status	Check if the ESS cabinet and internal equipment are damaged or deformed;	Once/year
	Check if the warning signs and labels are clear and visible. Replace them if necessary;	
	Check if there are any loose or missing screws inside the ESS cabinet;	
	Check if the cable shielding layer is in good contact with the insulation sleeve;	
	Check if the grounding copper bar is securely fixed in place.	
	Check if there is any oxidation or rust inside the ESS cabinet;	
	Check if the ESS cabinet and internal equipment are damaged or deformed.	
Wiring and cable arrangement	Check if all the inlet/outlet of the ESS cabinet are sealed properly;	Once/year
	Check if there is any water leakage inside the ESS cabinet;	
	Check if the power cables are loose; tighten them according to the previously specified torque;	
	Check if there are any damage to power cables and control cables, especially check for cuts on the insulation	

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	where they contact metal surfaces;	
	Check if the insulation wrapping of cable terminals is falling off;	
	Check if the PE cable connection is correct; the grounding resistance value should not exceed 4 Ω;	
	Check if the equipotential connections inside the ESS cabinet are correct.	
System cleanliness	Check if the inlet/outlet of the ESS cabinet are blocked. Please clean them if needed;	Once/ half year
	Check if the humidity inside the ESS cabinet is within the normal range. Please clean them if needed;	
	check if there are foreign objects, dust, dirt, and condensation inside the ESS cabinet;	
	Check if there is condensation inside the ESS cabinet regularly: Once a year for areas with low relative humidity; Once every half year for areas with medium relative humidity; Once every one to three months for areas with high relative humidity.	
System function	Check if there is abnormal noise inside the ESS cabinet during operation;	Once / two years
	Check if the temperature is too high inside the ESS cabinet;	
	Check if the system operates normally for startup and shutdown.	
Fan	Check the operation status of the fan;	Once/year
	Check if the fan is blocked;	
	Check if there is abnormal noise during fan operation.	
Air conditioner	Check the operation status of the air conditioner;	Once/year
	Check if the air conditioner is blocked;	
	Check if there are abnormal noises during air conditioner operation.	
Safety function	Check the stop function of EPO and screen, and simulate shutdown for testing;	Once/half year
	Check the warning signs and other labels. Please replace them if there is any damage or blur.	
Device maintenance	Perform a regular inspection for rust condition of all metal components (once every half year);	Once/half year
	Annual inspection of the contactor (auxiliary switch and micro-switch) to ensure that the product runs well;	
	Check the operating parameters (especially voltage and insulation parameters).	
SOC Calibration	Complete the calibration operation through full charge and full discharge cycles.	Once /month

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10. Quality Assurance

Warranty period please refer to the *Warranty Agreement.*

Service within warranty period: For Dyness ESS products that fail within the warranty period, we will be responsible for handling and providing proper replacement or repair solutions, offering free services or replacement of failure products. We will require valid invoices and receipts of purchase for warranty. Meanwhile, the Dyness trademark should be visible to ensure the validity of the assurance.

We reserve the right not to provide warranty in the following situations:

- The ESS products exceed the free warranty period;
- Improper installation, modification, or usage;
- Operation under harsh environments beyond those specified in this document or the "Warranty Agreement" or "Technical Agreement," or damage caused by abnormal natural environmental factors;
- Damage or failure caused by installation, modification, and disassembly by unauthorized agencies or individuals;
- Damage or failure caused by the use of non-standard products or unauthorized components and software.

For failures caused by the above situations, Dyness could provide paid maintenance services if the customer requires.

If you have any problems with this product, please contact us. In order to solve your problem more quickly, please provide the following information:

- Original purchase receipt or invoice;
- Contact information, including name, phone number, email address, and shipping address.
- Product information, including product model, product serial number, installation date and location, fault date and fault description, etc.

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11. Appendix

Please check if the following checklist has been completed before the product runs.

Table 11-1 Checklist before operation

Items	Checklist	Confirm
1	Check if the appearance is damaged and if the internal equipment is intact;	☐
2	Check if the assembly is firm;	☐
3	Check if the logo and labels of the ESS cabinet and components are clear or damaged;	☐
4	Check if the communication cable connection is complete;	☐
5	Check if there are any faults in the PE cable;	☐
6	Check if all the connection points are correct and have good contact;	☐
7	Check if there are normal situations of manual components;	☐
8	Check if the circuit breakers are functioning normally;	☐
9	Check if all the buttons and indicators are functioning normally;	☐
10	Check if the power indicator is normal;	☐
11	Check if the running indicator is normal;	☐
12	Check if the fan and air conditioner are running well and there is no abnormal sound;	
13	Check if there are any tools or components left inside the ESS cabinet;	☐
14	Check if the door of the ESS cabinet can open and close smoothly;	☐

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