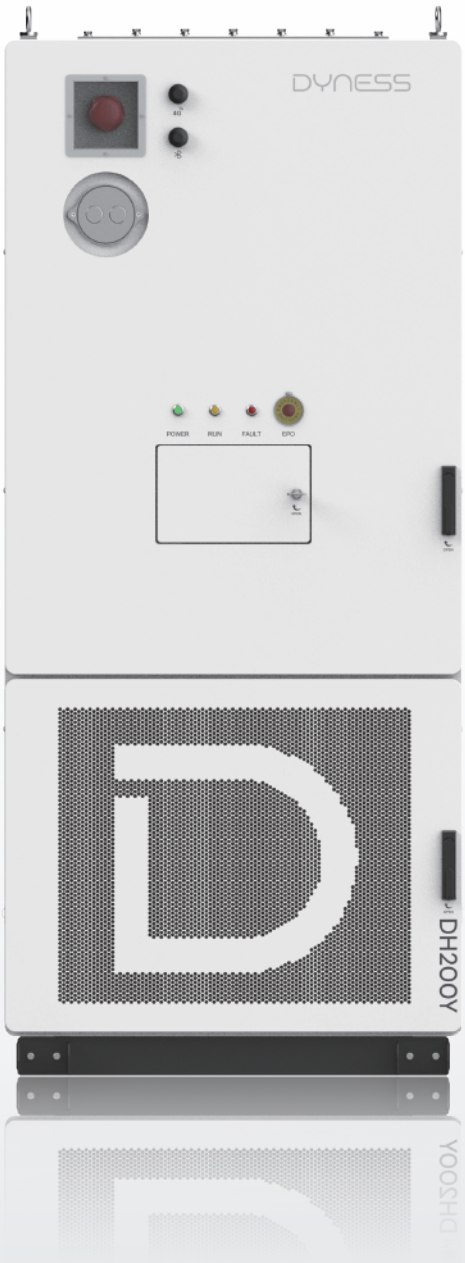
DYNESS



DH200Y-C260

USER MANUAL

EnerCore
Liquid-cooling All-in-one Cabinet

Version: 20260825-V1.3-EN,the version is subject to update without notice.

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Revised History

Revised Version	Revision Date	Revision Reason
1.0	2026.04.30	First publication
1.1	2026.07.15	Update the introduction of the product rear door
1.2	2026.08.14	Added the back-to-back installation layout diagram; updated the product foundation installation requirements diagram and system maintenance Items; added the 99.9 kW model
1.3	2026.08.25	Updated Table 3-2, Table 3-8,Table 3-9;updated 4.5 chapter and Water Fire System contents.

1. Manual Usage Guide

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 liquid-cooled integrated 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 liquid-cooled integrated cabinets, as well as users who perform daily operations. Readers should have certain 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 Meaning

	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, need professional recycling, do not put in the trash can
	Manual (User Manual) symbol
	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

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Table 1-2 Abbreviation Definitions

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

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2. Safety Instructions

2.1. General Safety Rules

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

PROHIBITION

- Any action that may damage the battery system or cause personal injury 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.

2.3.Environmental Safety Requirements

- Do not install and use the product in environments with temperature below -25°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;

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- 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 3000m, and it should be derated when above 2000m;
- 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 closing 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.

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-

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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, close the required circuit breakers in the sequence specified in Section 6.1. Do not disconnect any circuit breaker without authorization while the system is operating.

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.

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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 warranty shall be void;
- Do not remove or alter the nameplate;
- Wear work clothes, goggles, masks, and other protective equipment, when replacing coolant or performing maintenance on liquid cooling pipes,
- Do not open the cabinet doors in adverse weather conditions such as rain, snow, freezing conditions, 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 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 System Overview

This product is a commercial and industrial outdoor liquid-cooled grid-tied integrated cabinet, with a system rated capacity of 261 kWh and a rated AC output power of 99.9kW/124.9kW/125 kW.

The system adopts a highly integrated design, integrating PACK battery clusters, a PCS energy storage converter, a BDU smart power distribution unit (including a BMS battery management system), an EMS energy management unit, a security & fire protection system, and a liquid-cooled thermal management system, enabling full-link end-to-end integration.

The product supports diversified energy storage application services including peak-valley arbitrage, peak shaving and valley filling, dynamic capacity expansion, and demand response. It is widely applicable to small and medium-sized commercial and industrial energy storage scenarios such as charging stations, commercial buildings, and manufacturing facilities.

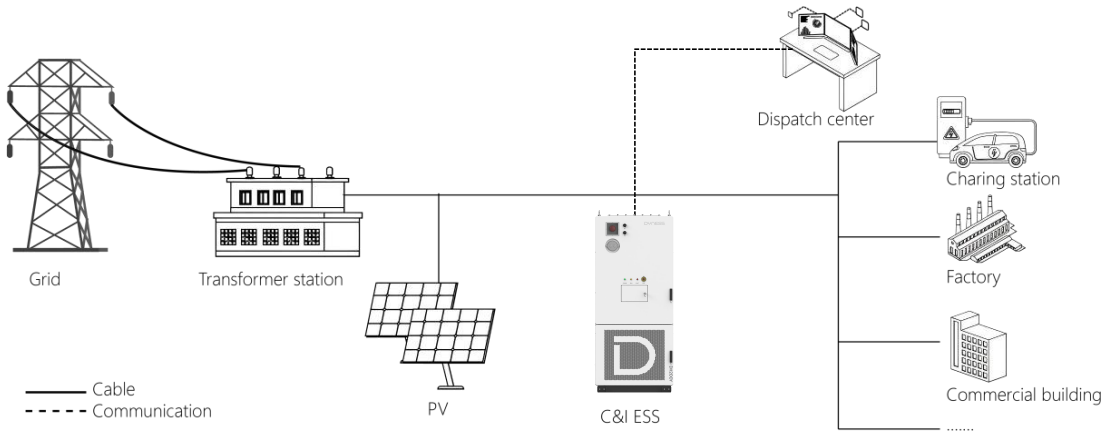


Figure 3-1 Application Scenarios of the Energy Storage System

Product Functions

1)Basic Functions: Grid-connected operation.

2)Expansion Functions:

a. Grid-tied/Off-grid Switching: Can be paired with Dyness SCC-AC grid-tied/off-grid switching cabinet to achieve seamless switching between grid-tied and off-grid modes.

Table 3-1 Grid/Off-grid Switching Expansion Configuration

Scenario	Matching Equipment	Quantity	Max. Supported Cabinets	Total System Power / Capacity
Grid/Off-grid Switching	Dyness SCC-AC	1 unit	4 × DH200Y-C260 (125 kW)	0.5MW/1.044MWh

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b. Multi-Unit Parallel Collection: Can be paired with Dyness GCC-AC AC combiner cabinet to achieve parallel current collection of multiple units.

Table 3-2 Multi-Unit Parallel Expansion Capacity Configuration

Scenario	Matching Equipment	Quantity	Max. Supported Cabinets	Total System Power / Capacity
Grid-tied Operation	Dyness GCC-AC	1 unit	6 × DH200Y-C260 (125 kW)	0.75MW/1.58MWh

The above table shows the maximum load-carrying capacity of a single Dyness·GCC-AC AC combiner cabinet. One combiner cabinet can connect up to 6 units of DH200Y-C260 energy storage units. Multiple GCC-AC AC combiner cabinets can be deployed for system networking expansion. When multiple cabinets are networked together, the complete system supports a MAX of 20 DH200Y-C260 units operating in parallel.

Note: System expansion must meet on-site installation conditions, power distribution capacity and local regulations.

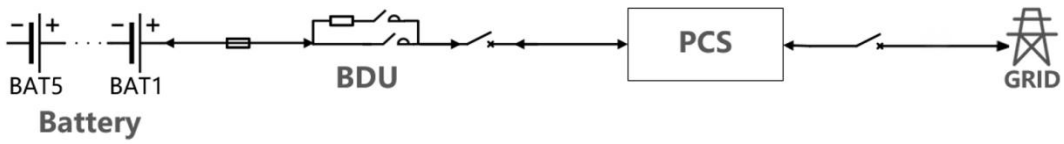


Figure 3-2 System Topology

3.2. Product Model

This manual applies to the Dyness EnerCore series industrial and commercial liquid-cooled energy storage outdoor cabinets, core model: DH200Y series liquid-cooled type.

Model Naming Explanation:

- DH: Dyness High Voltage
- 200: Product Series Number
- Y: Liquid-Cooling System
- C: Capacity Identifier
- P: Power Identifier
- C5: C5 Corrosion Protection Grade (default C3 without this mark)

Table 3-3 Product Model List

Product Model	Rated Capacity	Rated Power	Corrosion Grade
DH200Y-C260P99	261kWh	99.9kW	C3
DH200Y-C260P99-C5	261kWh	99.9kW	C5
DH200Y-C260P124	261kWh	124.9kW	C3

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Product Model	Rated Capacity	Rated Power	Corrosion Grade
DH200Y-C260P124-C5	261kWh	124.9kW	C5
DH200Y-C260P125	261kWh	125kW	C3
DH200Y-C260P125-C5	261kWh	125kW	C5

Note: The numbers following C and P in the model designation are specification identifiers. The actual capacity and power ratings are subject to the product technical specification sheet.

3.3.Product Configuration

The product adopts a modular design for easy installation, operation, and maintenance.

Table 3-4 Product Configuration List

Module Name	Function	Quantity	Configuration
PACK	Used for electrical energy storage, providing stable and continuous power output to the system.	5	Standard
PCS	Realizes bidirectional conversion between DC and AC power.	1	Standard
BDU	High-voltage power supply, battery control unit, system energy management and overall control.	1	Standard
Security & Fire Protection System	Provides intrusion protection, emergency response, fire prevention, and effective fire suppression for the equipment.	1	Standard
Liquid-Cooling Unit	Regulates the operating temperature of the batteries to ensure they run at the optimal temperature.	1	Standard

3.4.System Parameters

Product parameters are subject to optimization and iteration without prior notice:

Table 3-5 DH200Y-C260 System Parameters

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Specification	DH200Y-C260		
Battery Parameters			
Battery Type	Lithium Iron Phosphate (LFP)		
Cell Capacity	314Ah		
PACK Configuration	1P52S*5		
Rated Current	157A		
Max Current	180A		
Battery Voltage Range	754~936Vdc		
Nominal System Capacity	261kWh		
Grid-tied AC Parameters			
Rated Power	99.9kW	124.9kW	125kW
Max AC Current	144A	180A	
Rated AC Voltage	400Vac		
Wiring Mode	3P4L+PE		
Frequency	50Hz/60Hz		
Power Factor	0.99 (leading) ~0.99 (lagging)		
THDi	<3% (rated power)		
Max Parallel Expansion Quantity	20		
System Parameters			
Weight	2800±100kg		
Dimensions (W*D*H)	1055*1475*2400mm		
Max Efficiency	90%		
Liquid-Cooling Unit Power	5kW (cooling capacity), 2kW (heating capacity)		
Operating Ambient Temperature	-25~50° C (derate above 45° C)		

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Specification	DH200Y-C260
Operating Ambient Humidity	0~95%RH (non-condensing)
Protection Grade	IP55
Corrosion Grade	C3 (optional C5)
Cooling Method	PACK liquid cooling + PCS air cooling
Noise	≤70dB
Altitude	3000m (derate above 2000m)
Display	Touch Screen
Fire Protection	Aerosol,Multi-sensor Detector,Coolant Leak Detector,Explosion-proof Ventilation,Audible&Visual Alarm,Water Fire System
Communication	4G/Ethernet/RS485
Certifications	UN38.3, IEC 62619, IEC 63056, IEC 62477-1, IEC 62933-5-2, EN IEC 61000-6-2/-4, UL 9540A (In Progress), C10/11, VDE-AR-N4110, EN 50549-1/-2/-10 + deviation, G99, CEI 0-16/CEI 0-21 (In Progress), (EU) 2023/1542

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3.5. Appearance Design

- Bare unit: 1055*1475*2400 mm
- With mounting brackets:1055*1645*2400 mm

Net weight: Approx. 2800kg
Protection Rating: IP55
Corrosion Protection Class: C3 (C5 optional)

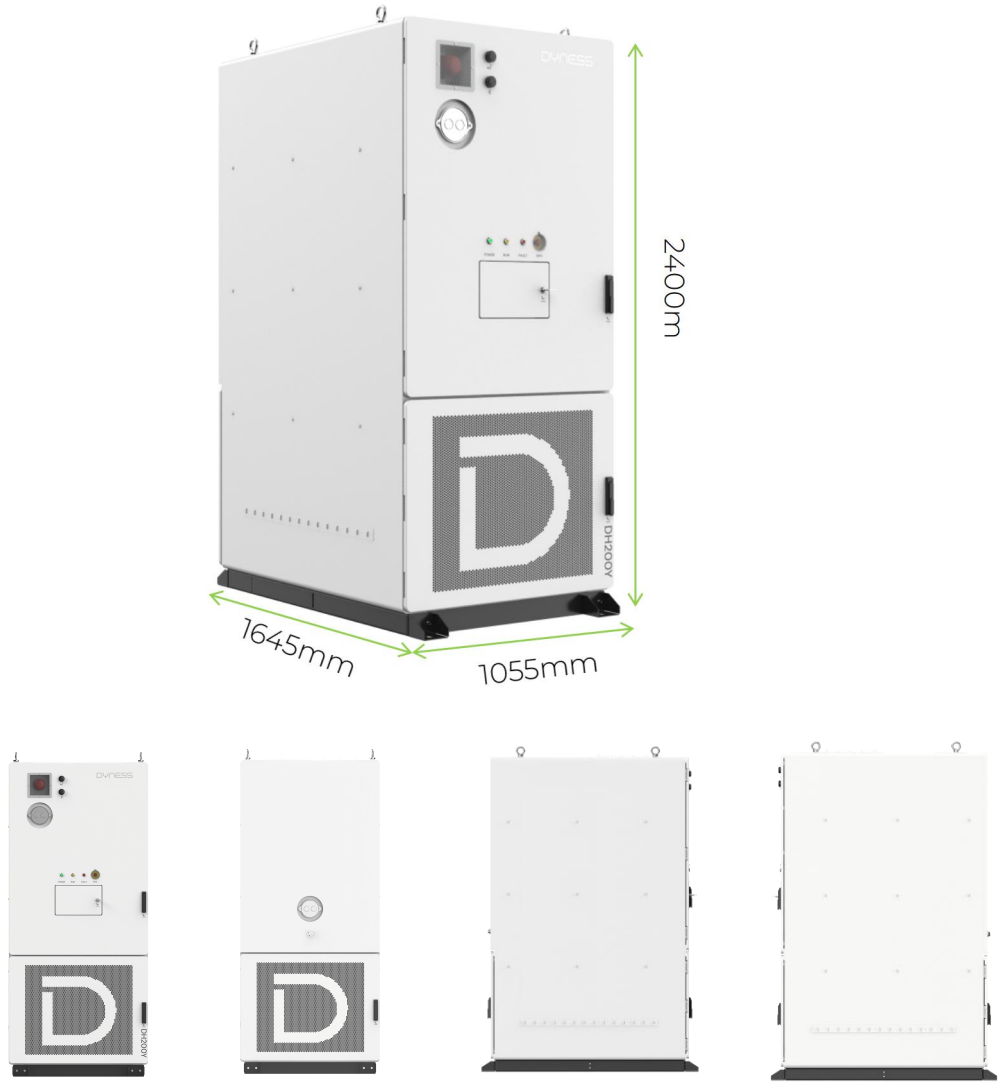
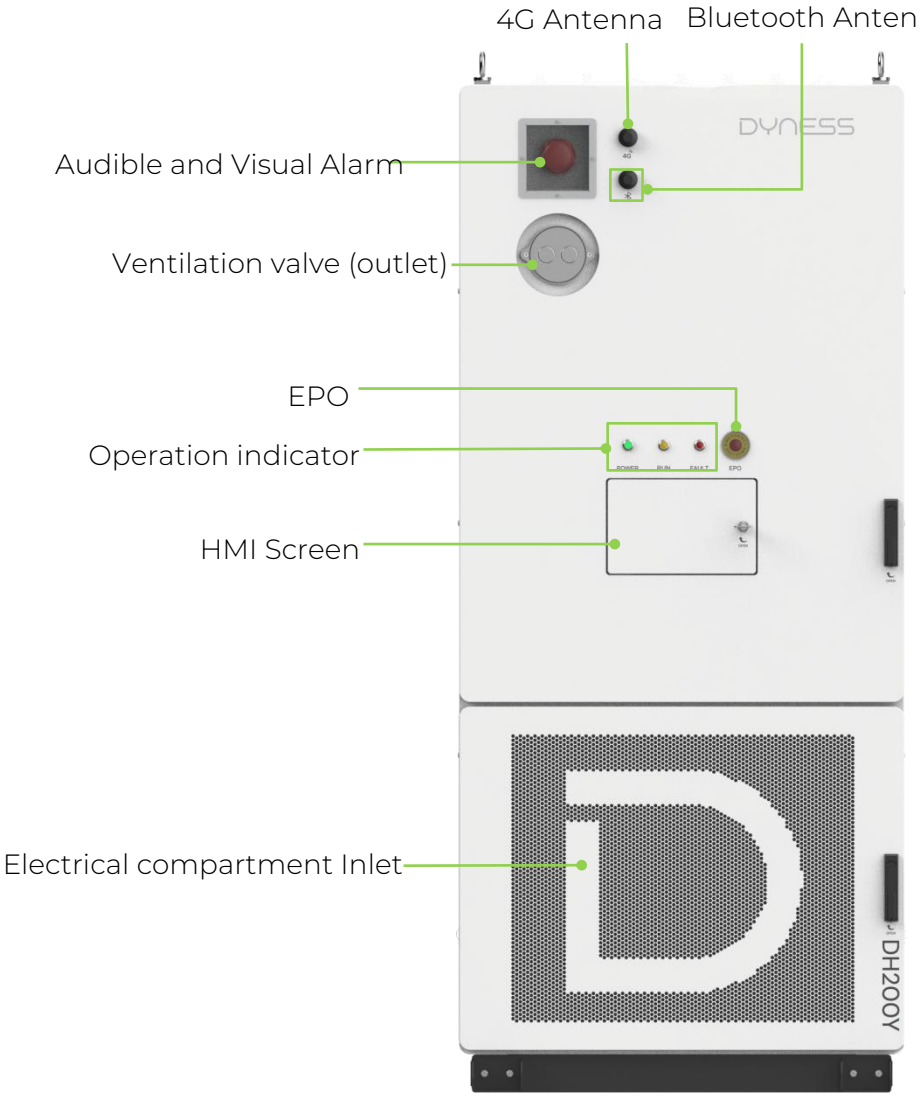


Figure 3-3 Product Appearance

The front of the product is equipped with ventilation valve (outlet), antenna, audible and visual alarm, operation indicator, EPO, HMI screen and electrical compartment inlet;
The back of the product is equipped with ventilation valve (inlet), water fire protection interface, electrical compartment outlet.

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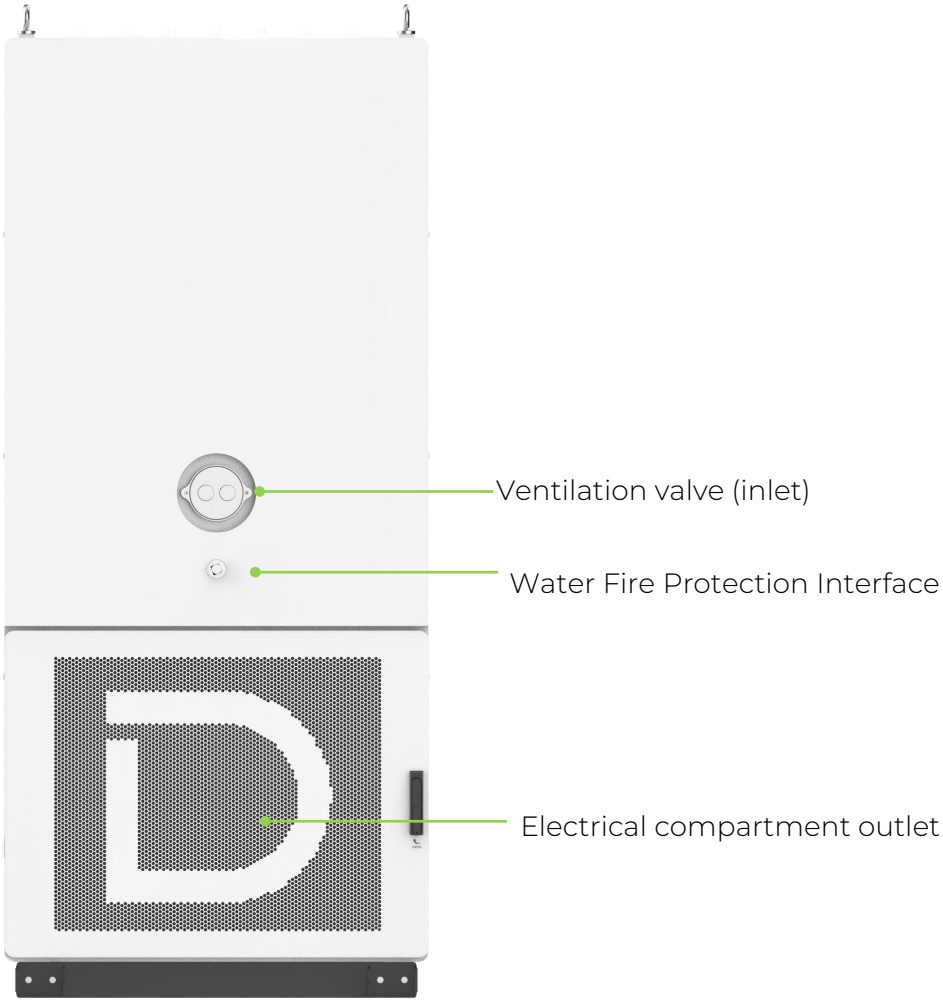


Figure 3-4 Appearance Function Diagram

Table 3-6 Function Definitions of Indicator Lights and Antennas

No.	Appearance	Name	Function
1	●	4G Antenna (Top)	Receives and transmits 4G signals
2	●	Bluetooth Antenna (Bottom)	Receives and transmits Bluetooth signals
3	●	Fault Indicator	Steady-on light indicates a system fault exists
4	●	Running Indicator	Constantly on indicates normal system operation; off indicates standby
5	●	Power Indicator	Steady light means power is connected
6	●	EPO	Stops system operation when pressed
7	●	Audible and Visual	Emits audible and visual alarm

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No.	Appearance	Name	Function
		Alarm	signals during a system alarm
8	/	Inlet/Outlet Vent	Draws in external cold air and exhausts hot air for heat dissipation and temperature balance
9	/	Explosion-proof Exhaust(Inlet/Outlet)	Introduces fresh air and discharges combustible gas
10	/	Water Fire Protection Interface	Connect to the remote water firefighting facilities
11	/	HMI	User-System Interaction Interface

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

When the fault indicator lights up, the system stops running. In this case, check the fault code or contact our company for assistance. The audible and visual alarm is linked to the fire protection system. If the alarm sounds, for safety reasons, keep away from the equipment, disconnect the AC power remotely, and check the fault code remotely or contact our company.

3.6. Internal Design

The product is divided into two parts: battery compartment and electrical compartment.
Battery compartment: PACK, fire protection system
Electrical compartment: PCS, BDU, Liquid-cooling Unit

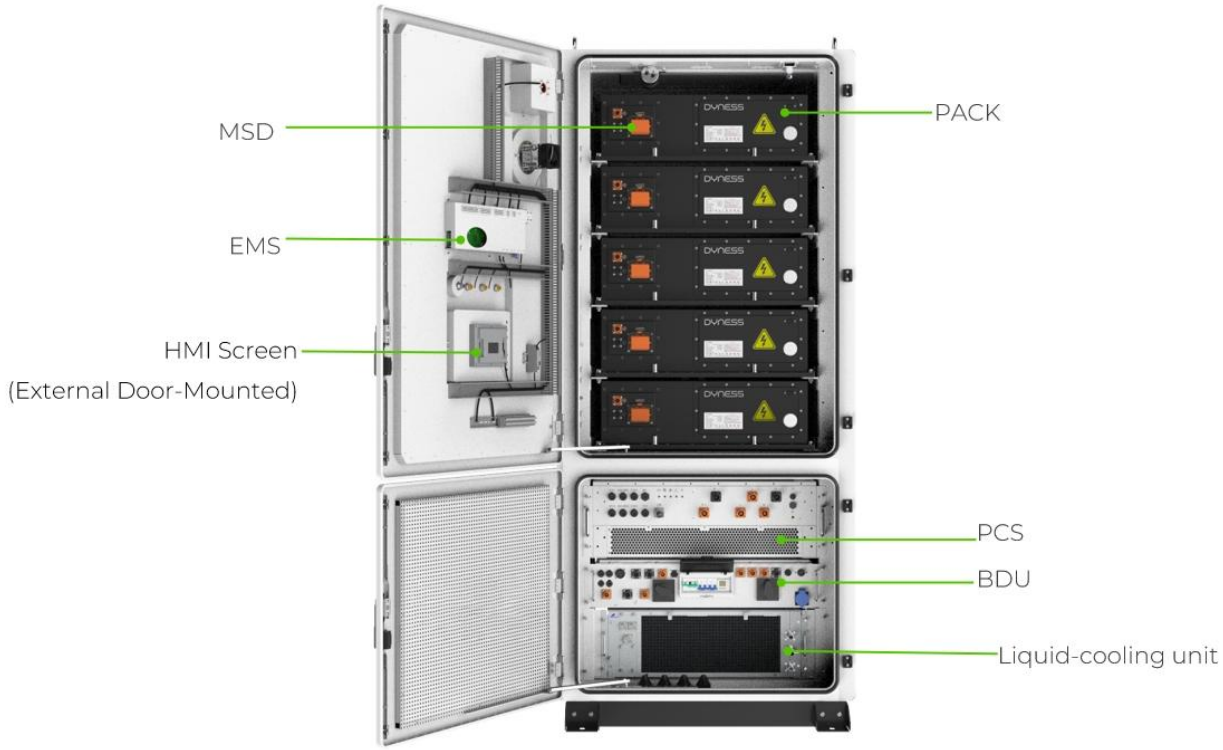


Figure 3-5 Internal View of Product Front Side

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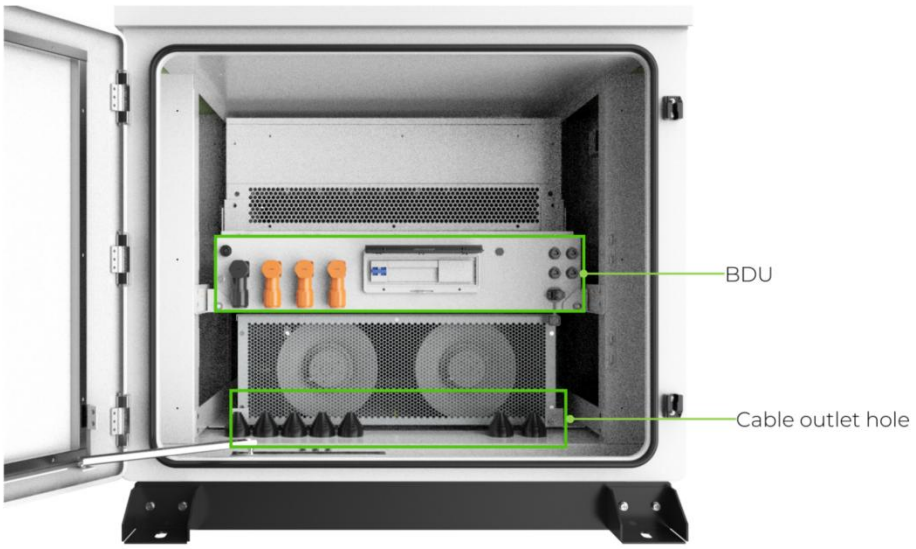


Figure 3-6 Rear Door Open View of Product

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.

The PACK adopts lithium iron phosphate battery with 314Ah cell, excellent safety, 1P52S series-parallel connection, nominal capacity of 52.249kWh, nominal voltage of 166.4V. Each PACK is equipped with 1 BIC module (slave control) for voltage/temperature collection, as well as functions such as cell balancing and thermal management. PACK adopts liquid cooling, IP67 protection, high structural reliability and low maintenance cost.



Figure 3-7 PACK Appearance(For Reference Only)

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Table 3-7 PACK Parameters

PACK Parameter	
Cell Capacity	314Ah
Series-Parallel Mode	1P52S
Battery Capacity	52.249kWh
Nominal Voltage	166.4Vdc
Standard Charging Current	157A
Standard Discharging Current	157A
Max Continuous Charging Current	180A
Max Continuous Discharging Current	180A
Standard Charging Cut-off Voltage	187.2V
Standard Discharging Cut-off Voltage	150.8V
Dimensions (W*D*H)	790*1148*246mm
Communication	CAN
IP Rating	IP67
Weight	approx. 332kg
Storage Temperature	1 month: -30°C ~ 45°C; 6 months: -20°C ~ 35°C
Operating Humidity	0%~95% RH (non-condensing)
Fire Protection	Aerosol
Corrosion Grade	C3

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.

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- When dealing with electrolyte leakage, wear rubber gloves (with an insulation voltage of no less than 10kV).
- 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 Dyness or qualified professionals.

3.7.2. PCS

PCS is a bidirectional controllable conversion device connecting the energy storage battery system and the power grid, realizing bidirectional DC/AC conversion, battery charging/discharging control and energy exchange between battery and grid.This PCS adopts IP66 protection.



Figure 3-8 PCS Schematic Diagram

NOTE: After a period of use, if the dust cover becomes clogged and causes abnormal internal temperature rise, the dust filter must be regularly replaced or cleaned.

Table 3-8 PCS Parameters

Parameter			
DC Side Parameters			
Operating Voltage Range		600~1000V	
Full-load Operating Voltage		700~1000V	
Max Current		245A	
AC Side Parameters			
Rated Voltage		400V	
Rated Voltage Range		-15%~+10%	
Rated Power	99.9kW	124.9kW	125kW

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Parameter		
Max Power	99.9kVA	137.5kVA
Rated Current	144A	180A
Max Current	144A	198A
Rated Frequency	50Hz/60Hz	
Power Factor	0.99 (leading) ~0.99 (lagging)	
Current Distortion Rate	<3% (rated power)	
Overload Capacity	110% long-term	
Max Efficiency	≥98%	
Basic Parameters		
Dimensions (W×H×D)	810 × 275 × 685mm	
Operating Temperature	-40~60°C (derate above 50°C)	
Storage Temperature	-40~70° C	
Humidity	0%~100% RH (non-condensing)	
Protection Grade	IP66	
Altitude	4000m (derate above 3000m)	
Weight	87 kg	
Cooling Method	Intelligent Air Cooling	
Communication	RS485, CAN, Ethernet	
Protection Functions	DC over / under-voltage protection, DC reverse polarity protection,DC surge protection, DC insulation fault protection, AC over / undervoltage protection, AC overcurrent protection, AC residual current protection,AC short-circuit protection, AC reverse phase sequence protection, AC surge protection, anti-islanding protection, resonance suppression, over temperature protection, fan fault protection, communication fault protection,auxiliary power supply fault protection	

3.7.3. Liquid-Cooling Unit

The liquid cooling unit regulates the PACK temperature to keep it operating

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within the optimal range for best system performance. It provides the following functions:

- Accurate measurement and monitoring of coolant temperature.
- Effective heat dissipation when the PACK temperature is high, preventing thermal runaway incidents.
- Preheating the battery when the temperature is low to improve its temperature, ensuring low-temperature charge/discharge performance and safety.
- Thermal management is achieved through the circulation of coolant (a 50% ethylene glycol aqueous solution at-35°C), resulting in more balanced temperature differences between battery clusters.



Figure 3-9 Liquid Cooling Unit Schematic Diagram (For Reference Only)

Table 3-9 Liquid-Cooling Unit Parameters

Parameter	Value
Dimensions, Weight & Installation	
Dimensions (H×W×D)	245×700×900mm
Weight (without coolant)	75kg
Inlet/Outlet Interface	DN20 Quick Connector
Environmental & Performance	
Operating Temperature	-30~+55° C
Storage Temperature	-40~+70° C
IP Rating	IPX5
Coolant	50% Ethylene Glycol Aqueous Solution
RoHS	Compliant
Design Life	10 years

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Parameter	Value
Air Outlet	Rear
Cooling/Heating Capacity	
Cooling Capacity	5.0kW
Heating Capacity	2.0kW
Outlet Water Temperature	18° C
Power Supply	
Rated Voltage	220~240V 50/60Hz
Voltage Range	220V±15%, 50/60±3Hz
Max Current	19.2A

NOTE

The recommended coolant ratio is a 50% ethylene glycol water solution. If the concentration of ethylene glycol is too low, the freezing point of the coolant will increase, and when the temperature is low, it is prone to solidification, which can easily cause damage to the liquid-cooled unit and pipelines. If the concentration of ethylene glycol is too high, the heat dissipation will be affected. The shelf life of the coolant is five years. After five years, it is necessary to replace all of it with new coolant.

3.7.4. BDU

BDU(Battery Distribution Unit) integrates BMS, high-voltage contactor, fuse, circuit breaker and other protection devices, realizing power distribution, electrical protection and status monitoring. It reduces external cables and improves system compactness, ensuring stable operation and providing O&M data support.



Figure 3-10 BDU Schematic Diagram (For Reference Only)

The following is the interface description of the BDU.

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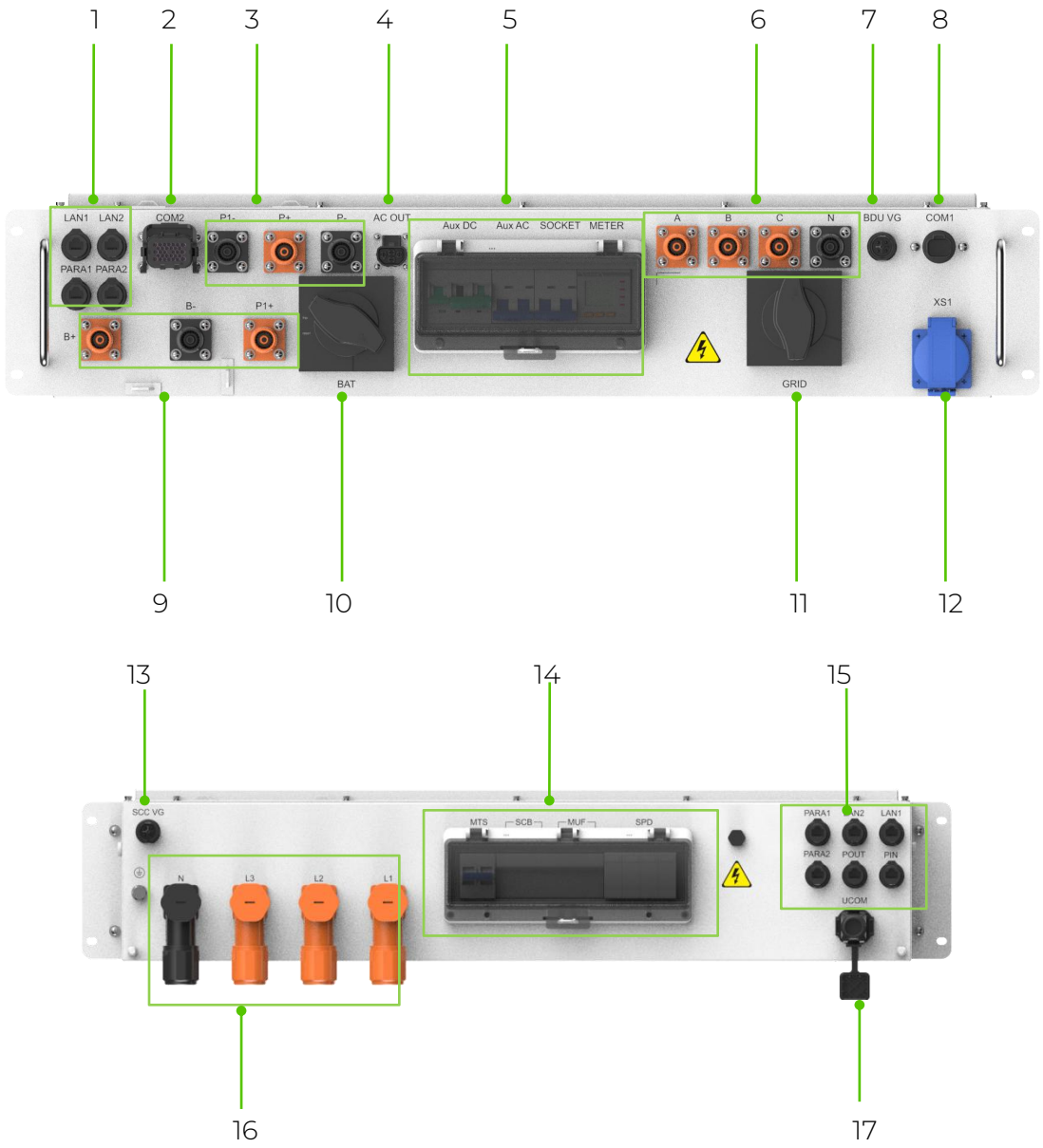


Figure 3-11 BDU Interface Diagram

Table 3-10 BDU Interface Function Definitions

No.	Marking	Function Description
1	LAN1	Third-party EMS/DHCP MODBUS_TCP Interface
	LAN2	Dyness Cloud Platform Ethernet Interface
	PARA1/PARA2	Converter Parallel Interface
2	COM2	Communication + 24V Power Supply Interface
3	P1-	Extended Battery Pack Negative Quick

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No.	Marking	Function Description
		Connector
	P+	PCS Positive Quick Connector
	P-	PCS Negative Quick Connector
4	AC OUT	Liquid-Cooling Unit Power Supply Interface
5	METER	Three-phase AC Meter
	SOCKET	Socket Power Switch
	Aux AC	Auxiliary Power Switch (AC/DC+Liquid-Cooling Unit)
	Aux DC	Auxiliary Power Switch (DC/DC)
6	A/B/C/N	Three-phase PCS Connection Port
7	BDU VG	Voltage Sampling Interface (to PCS)
8	COM1	Daisy Chain Communication Interface
9	B+	Battery Positive Quick Connector
	B-	Battery Negative Quick Connector
	P1+	Extended Battery Pack Positive Quick Connector
10	BAT	Battery Circuit Breaker
11	GRID	Grid Circuit Breaker
12	XS1	European Standard Socket
13	SCC VG	Voltage Sampling Interface (from SCC Switch Cabinet)
14	MTS/SCB/MUF/SPD	Manual Transfer Switch / Surge Protective Device / Meter Fuse / Surge Protector
15	PARA1	Converter Parallel Interface
	PARA2	Converter Parallel Interface
	LAN2	Ethernet Dyness Cloud Platform Interface

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No.	Marking	Function Description
	POUT	EMS Parallel Downstream Interface
	LAN1	Third-party EMS / DHCP / MODBUS_TCP Interface
	PIN	EMS Parallel Upstream Interface
16	N/L3/L2/L1	Grid Inlet Neutral / Phase C / Phase B / Phase A
17	UCOM	External Communication + 24V Power Supply

3.7.5.EMS

The EMS (Energy Management System) is a core component of the energy storage system. It communicates with PCS, BMS, electricity meters, fire protection systems, air conditioning systems and other devices to control the entire energy storage system, enabling functions such as peak-valley arbitrage, peak shaving and valley filling, self-consumption optimization, and time-of-use modes. The EMS collects data and signals from local devices, and ensures the safe, reliable, efficient, and economic operation of the energy storage system through internal control
strategies.



Figure 3-12 EMS Energy Management System Diagram

3.7.6. Security & Fire Protection System

This system is equipped with efficient and reliable security and fire protection systems, providing intrusion protection, emergency response, fire prevention, and effective fire suppression for the equipment.

Security System

- Limit Switch: Installed in the battery compartment to prevent accidental door opening during normal operation. They detect whether the door is fully closed to prevent rainwater ingress.
- Coolant Leak Detector: A coolant leak detector is installed at the bottom of the battery compartment. When liquid accumulation is detected in the

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compartment, the Energy Management System (EMS) will report a fault and trigger system shutdown protection.

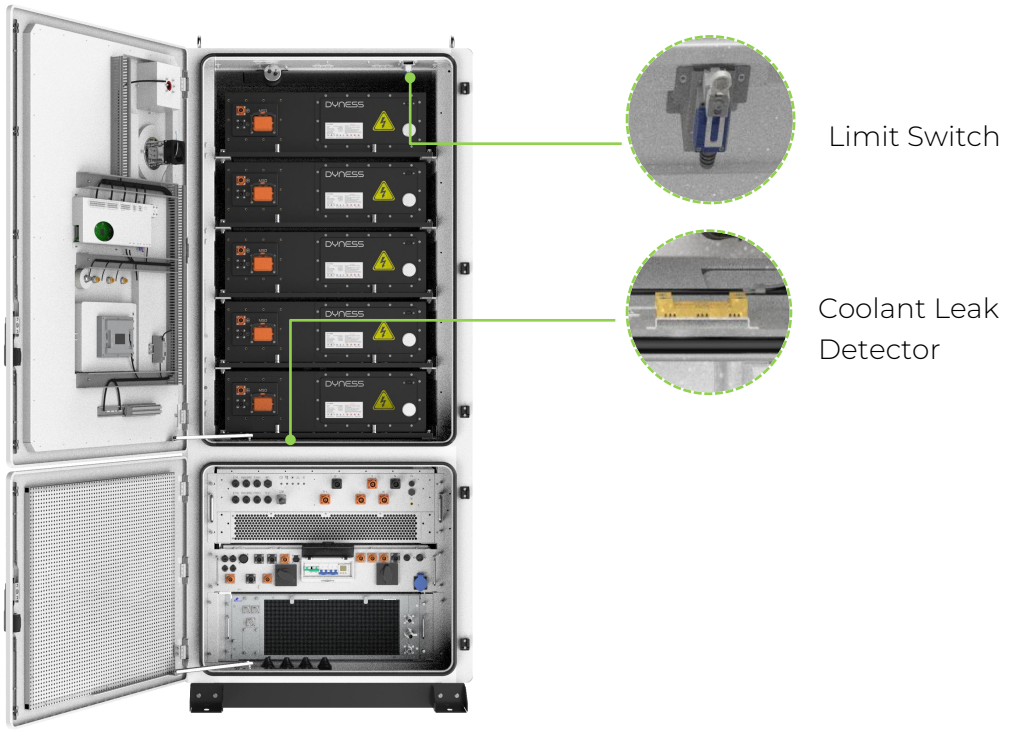


Figure 3-13 Security System Diagram (for reference only)

Fire Protection System

- Audible & Visual Alarm: Triggers a high-decibel sound and high-frequency flashing red light when a fire alarm is activated.
- Fire Ventilation & Explosion-Proof System: It is interlocked with the fire detection system. When the combustible gas concentration in the battery compartment reaches the set threshold, the electrically controlled intake and exhaust valves and the electrically controlled exhaust fan are activated. When the flammable gas concentration drops below the preset threshold or a higher-level fire alarm is triggered, the electrically controlled intake and exhaust valves and the electrically controlled exhaust fan shall be closed.
- Multi-Sensor Detector: Installed on the upper left of the battery compartment, integrating smoke, temperature, CO, and VOC detection functions, and transmits real-time data to the EMS.
- System-Level Aerosol Fire Suppression: Supports two activation modes:
  ① Thermal activation: Triggers when compartment temperature rises rapidly to ~110°C or an open flame is detected, igniting a heat-sensitive wire to release aerosol.
  ② Electric activation: When the multi-sensor detector detects a fire, the EMS immediately sends a 24V electric activation signal to the aerosol module.

If the system-level aerosol is accidentally discharged, stop using the equipment immediately and contact our company.

- PACK-Level Aerosol Fire Suppression: Each PACK has an independent built-in aerosol module that monitors internal conditions in real time. When high temperatures or fires are detected, the module rapidly releases extinguishing agent to achieve precise fire suppression for a single PACK, avoiding impact on other units. This module only supports thermal

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activation with a passive heat-sensitive wire (default trigger temperature: ~175°C).

If the PACK aerosol is accidentally discharged, stop using the equipment immediately and contact our company.

- Water Fire System:

This system serves as a backup emergency fire suppression measure and shall only be activated when a fire occurs in the battery compartment and the aerosol fire suppression system fails to control the fire. Continuous water spraying suppresses the propagation of battery thermal runaway. A DN32 fire connection port is fitted on the rear of the cabinet, with a DN32/DN65 adapter supplied as standard from factory.

During normal equipment operation, it is recommended that the fire-fighting water hose be pre- connected to the cabinet's water fire- fighting port, and the hose's main valve shall remain closed at all times. Opening the main valve or supplying water to the pipeline under non-fire conditions is strictly prohibited, as misoperation may cause water ingress into the battery compartment. The main valve may only be manually opened for fire suppression in the event of a fire.

When the ambient temperature around the sprinkler head reaches 68±3°C, the glass bulb of the sprinkler will rupture automatically to open the nozzle. Water flows into the battery compartment via internal and external cabinet piping to submerge the battery packs inside, achieving cooling and fire extinguishing effects.

a. Water injection pressure: Upper limit 1.6 MPa; stable operating pressure 0.8~1.2 MPa
b. Water injection flow rate: Minimum 3 L/s, with safety margin ≥3.5 L/s
c. This system is not part of the automatic fire-protection interlock and must be activated manually.

WARNING

- It is recommended that users equip and pre-connect the fire water hose to the cabinet's water fire-fighting port, and ensure the hose's main valve is closed, to enable prompt activation of the water fire-fighting system in the event of a fire.

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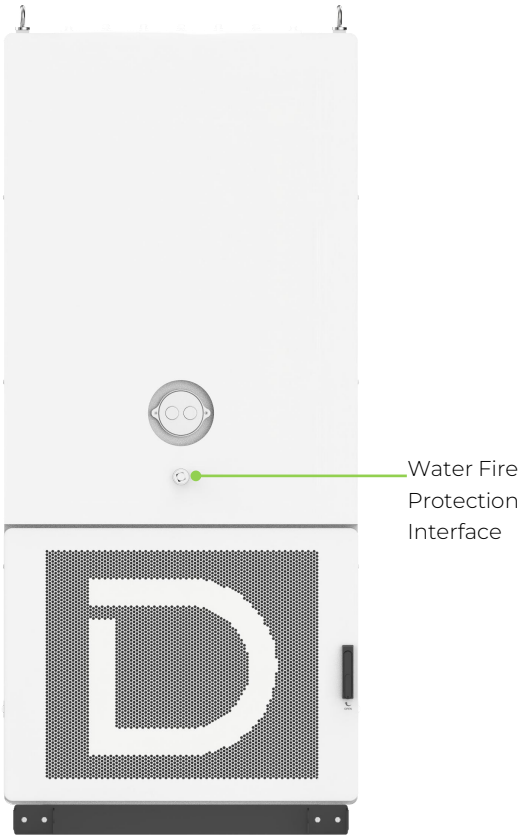


Figure 3-14 Water Fire System Interface Diagram

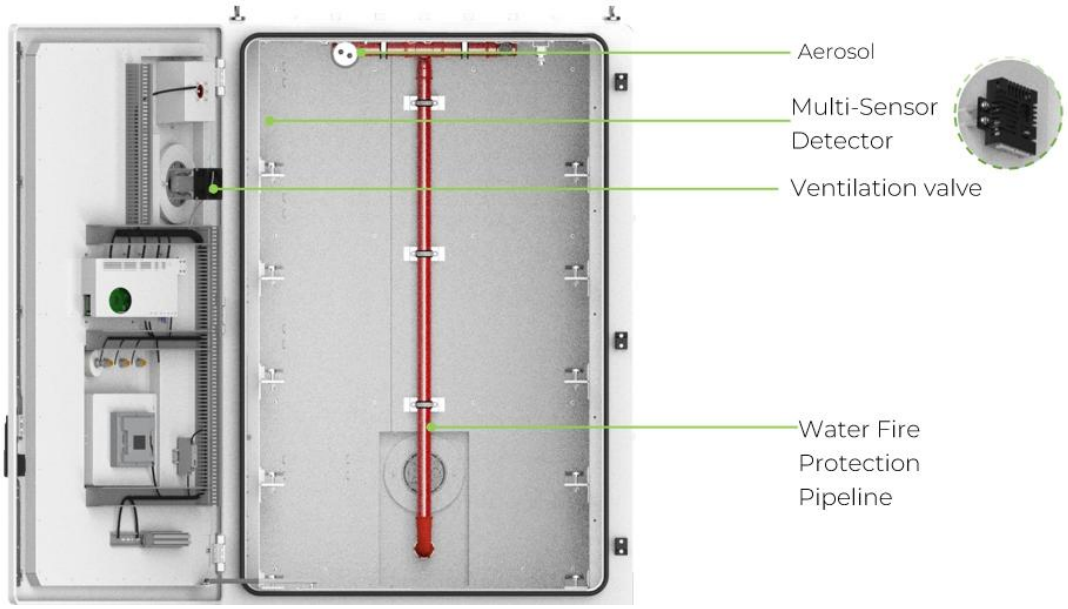


Figure 3-15 Fire Fighting System Diagram

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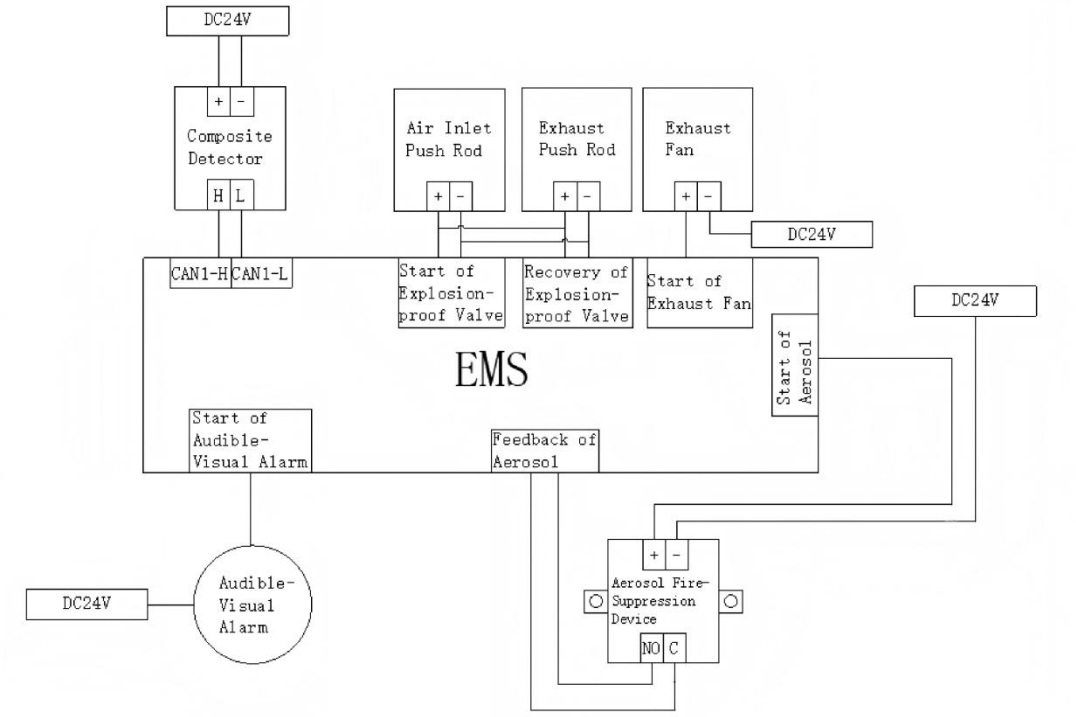


Figure 3-16 Fire Protection Schematic Diagram

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.

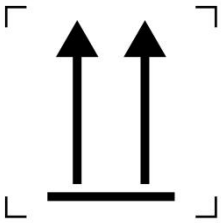
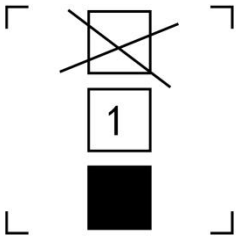
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4. Delivery, Transportation and Storage

Note: Warranty will be void if transportation, use, maintenance and storage do not comply with this manual.

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.
	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.

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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.

4.2. Unpacking and Inspection

- Upon receipt, check all components against the packing list for completeness.
- Confirm the product model matches the ordered specification.
- Inspect for transit damage; contact our company or the carrier immediately if issues are found.

Transportation Requirements

- All internal equipment is factory-installed; ship the unit as a whole.
- Lock all cabinet doors before transport.
- Single units are packaged with wood pallet + EPE foam + PE bag for cushioning.
- Post warning signs to keep unauthorized personnel away from lifting zones.
- Clear obstacles (trees, cables, etc.) from the path.
- Choose periods with favorable weather.

Transport & Handling Equipment

- Select lifting equipment with sufficient load capacity, boom length, and turning radius.
- Additional traction may be needed for slope movement.
- Secure the cabinet's top lifting eyes to the vehicle with ropes to prevent excessive tilt.

4.3. Hoisting Transportation

The unit can be crane-transported on-site. Four lifting eyes (provided loose, to be installed on-site) are located on the cabinet top.

Hoisting Preparation Requirements:

- All lifting equipment used during operation, including lifting rings, slings, and shackles, shall be inspected and verified by a qualified inspection authority and shall be within the valid inspection period. Equipment

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inspection and maintenance shall be completed before operation to ensure good performance.
- All personnel involved in rigging, fastening, and on-site operation commands must hold corresponding professional qualification certificates and complete special safety training before operation.
- Before hoisting, ensure that the cabinet doors are securely locked to prevent safety risks caused by accidental opening during lifting.
- The final placement area of the equipment shall be flat with good drainage and free from obstacles or uneven structures. The ground load-bearing capacity shall meet the requirements of hoisting operations.

Lifting Equipment Selection and Lifting Point Requirements:
- Only use the lifting rings reserved on the top of the equipment. It is strictly prohibited to use cabinet components or the bottom of the cabinet as lifting points.
- Select lifting equipment according to actual site conditions. The rated lifting capacity of the lifting equipment shall not be less than 3 times the weight of the equipment. The lifting slings, shackles, and other lifting accessories shall have sufficient safety margin and shall be pre-checked before use.
- All lifting connection points shall be securely fastened and reliable. The sling lengths connected to the lifting rings/components shall remain consistent to ensure uniform load distribution. Slings fitted with hooks or U-shaped shackles may be used as appropriate. according to site conditions to ensure correct connection between the lifting device and lifting rings.

Hoisting Operation Requirements:
- Vertical lifting shall be preferred. If vertical lifting cannot be performed due to site limitations, inclined lifting may be carried out through the lifting rings at the top of the equipment. The inclination angle shall be ≤30° to ensure that the equipment remains stable without tilting.
- After the equipment is lifted away from the support surface by 300 mm, stop lifting temporarily. Fully inspect the lifting fixtures, slings, and equipment connections. Continue lifting only after confirming that everything is normal.
- It is strictly prohibited to drag the equipment on the ground or other flat surfaces. Avoid collision damage during transportation. Additional protective measures may be used when necessary to ensure stable and safe lifting.
- The entire lifting process must be commanded by professionally qualified personnel. Unauthorized operation or random operation by non-professional personnel is strictly prohibited.

Landing Operation Requirements:
- After the equipment is transported to the target position, slowly release the lifting force and place it steadily. It is strictly prohibited to use tools to forcibly shift the cabinet position after landing.
- Remove the lifting fixtures only after the cabinet has been placed securely.

On-site Safety Requirements:
- As shown in Figure 4-3 Hoisting Operation Illustration, the inner dashed-line area represents the core hoisting operation area, and the outer solid-line area represents the safety boundary. During the entire hoisting operation, personnel are strictly prohibited from entering or staying within

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the hoisting operation area.
Non-operating personnel are prohibited from approaching the hoisting operation area.

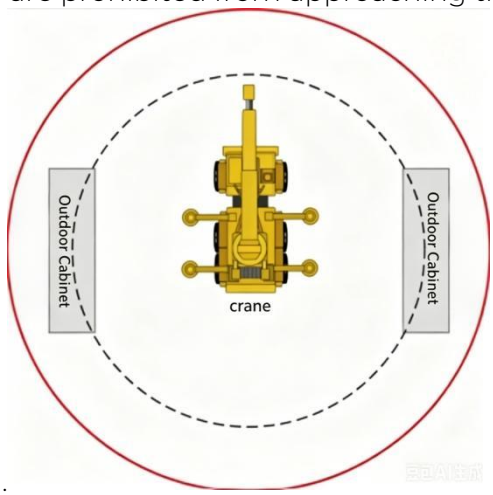


Figure 4-1 Crane Operation Diagram

*The above image is for reference only. The actual received product shall prevail.



Figure 4-2 Lifting and Transportation Diagram(For Reference Only)

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4.4. Forklift Transportation

The cabinet has dedicated bottom fork pockets for forklift handling. For level installation sites, comply with these requirements:

- Transport surface must be level, hard-paved, and obstacle-free.
- Forklift rated capacity must exceed the total unit + pallet weight.
- Fork arms must fully engage the bottom fork pockets.
- Move, lift, lower, and place the unit slowly to avoid shock or sway.
- The placement site must be hard, well-drained, and free of standing water.

Forklift Entry Directions

- Without pallet: Only enter from the front/rear; left/right entry is prohibited.
- With pallet: May enter from any direction (front/rear/left/right; left/right recommended).
- Fork arms must be fully inserted into the cabinet/pallet fork pockets; partial or angled entry is prohibited.

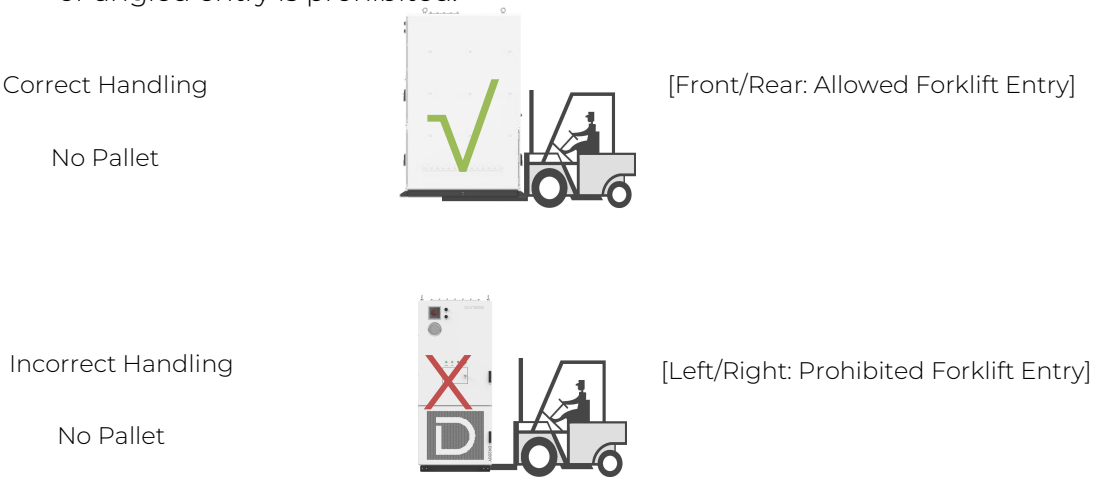


Figure 4-3 Forklift Transportation Diagram

Note: Risk of tipping during forklift handling. Ensure forks are fully inserted into the marked zone. We are not liable for product tipping, personal injury, or property damage caused by non-compliant operations.

4.5. Storage Requirements

Storage Environment

- The product shall be stored in a dry and flat area (flatness shall not exceed 5 mm), with a slope less than 5°, good drainage conditions, sufficient load-bearing capacity, and no vegetation coverage on the ground.
- To prevent internal condensation or rainwater intrusion at the bottom of the product, the product shall be stored at a relatively elevated location.
- The cabinet base shall be raised. The height by which the cabinet base is raised shall be determined reasonably determined according to site conditions, weather conditions, and other factors.
- Temperature: ≤1 month: -30°C ~ 45°C; ≤6 months: -20°C ~ 35°C
- Store in a dry, clean environment with humidity ≤65%RH, no corrosive/explosive gases, out of direct sunlight, and ≥2m from heat sources.
- Protect the PACK from extreme temperature swings and impacts.
- Avoid storage in areas where corrosive gases or dust may be generated. Also avoid storage within 30 km of salt fields, polluted industrial areas, or other corrosive environments.

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- Do not store in areas with strong magnetic fields or high electromagnetic radiation environments.
- Do not store the cabinet in environments contaminated with halogens or sulfur compounds.
- Cabinets are prohibited from being stored in environments with vibration or magnetic field strength exceeding 30 A/m.

Storage Handling

- Do not tilt or invert the packaging.
- Lock all cabinet doors before storage.
- Protect air inlets/outlets from rain and dust ingress.
- Long-term storage (>6 months) of batteries is not recommended due to capacity degradation.
- Before installing long-stored units: Inspect for condensation, check the unit, then power on for testing. If necessary, have qualified personnel test the unit prior to installation.

NOTE

Starting from the date of shipment, when the product is stored under the above conditions, perform a supplementary charge at least once every six months to restore the system SOC to 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 Environment Requirements

Site Selection

- When selecting the installation site, fully consider the characteristics of the surrounding environment (climate, geological conditions such as stress wave emission, groundwater level; no overhead cables above the installation point, no pipelines or other underground utilities below the installation point; maintain a safety distance between the equipment and buildings, with the distance specified in accordance with fire safety regulations).
- The surrounding environment must be dry and well-ventilated.
- Ensure there are no trees around the installation location to prevent fallen branches or leaves from blocking the product's air inlet during strong winds.
- Keep away from areas with concentrated toxic and harmful gases; keep away from flammable, explosive, corrosive, and dust-intensive materials.
- To avoid noise pollution, the equipment installation location must be far

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from residential areas.

Foundation Requirements

- The foundation must provide sufficient load-bearing support for the equipment, with a bearing capacity > 3t/m², service life > 50 years, and foundation levelness deviation < 3mm/m.
- Elevate the product cabinet to prevent rainwater erosion of the cabinet base. The foundation height must be higher than the historical MAX flood level. It is recommended that the foundation be at least 300–500mm above the finished floor level; the actual installation height shall be determined based on the specific installation environment.
- Construct drainage facilities in accordance with local geological conditions and municipal supporting drainage requirements to ensure no water accumulation at the equipment foundation. The foundation construction must meet the drainage requirements for the local historical MAX rainfall, and discharged water must be treated in accordance with local laws and regulations.
- Equipment Fixing Requirements: The M12 expansion bolts matching this equipment are provided with the shipment. Recommended installation parameters: Use a Φ16mm drill bit with a drilling depth of approximately 80mm.

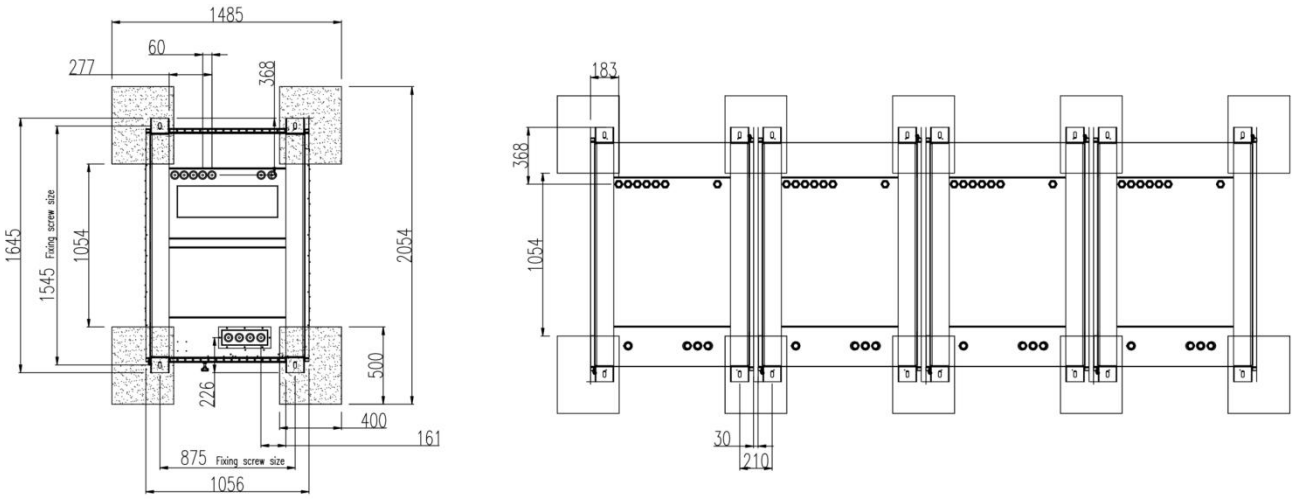


Figure 5-1 Product Foundation Installation Requirements

5.2.Installation Space Requirements

The product adopts front-rear ventilation. To ensure better heat dissipation and maintenance of the equipment, it is recommended to reserve sufficient space around the cabinet:

- Reserved space in front of the product: no less than 2000mm
- Reserved space behind the product: no less than 1100mm
- Reserved space on the left side of the product: no less than 650mm
- Reserved space on the right side of the product: no less than 650mm
- The product supports side-by-side installation; a minimum space of 30mm must be reserved between cabinets.
- The product supports back-to-back installation, with a reserved clearance of no less than 2000mm at the rear.

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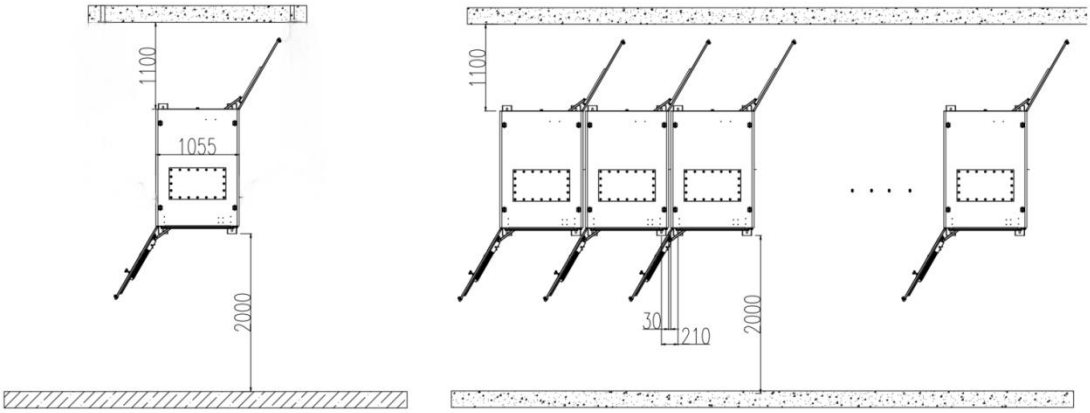


Figure 5-2 Product Installation Space Requirements

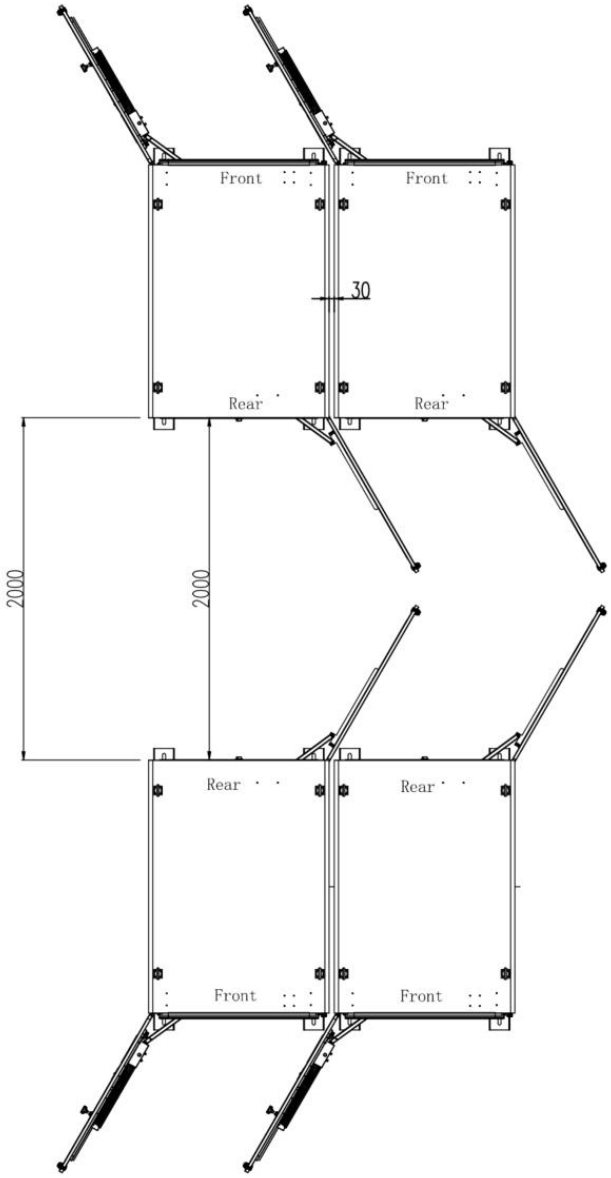


Figure 5-3 Space Requirements for Back-to-Back Installation of Products

The above installation clearances are the minimum recommended distances. Customers may adjust them in accordance with local regulations and actual site conditions.

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5.3. Installation and Wiring Tools

The following tools may be required for installation and wiring. These tools are not included in the scope of supply and must be provided by the customer.



Figure 5-4 Safety Gear

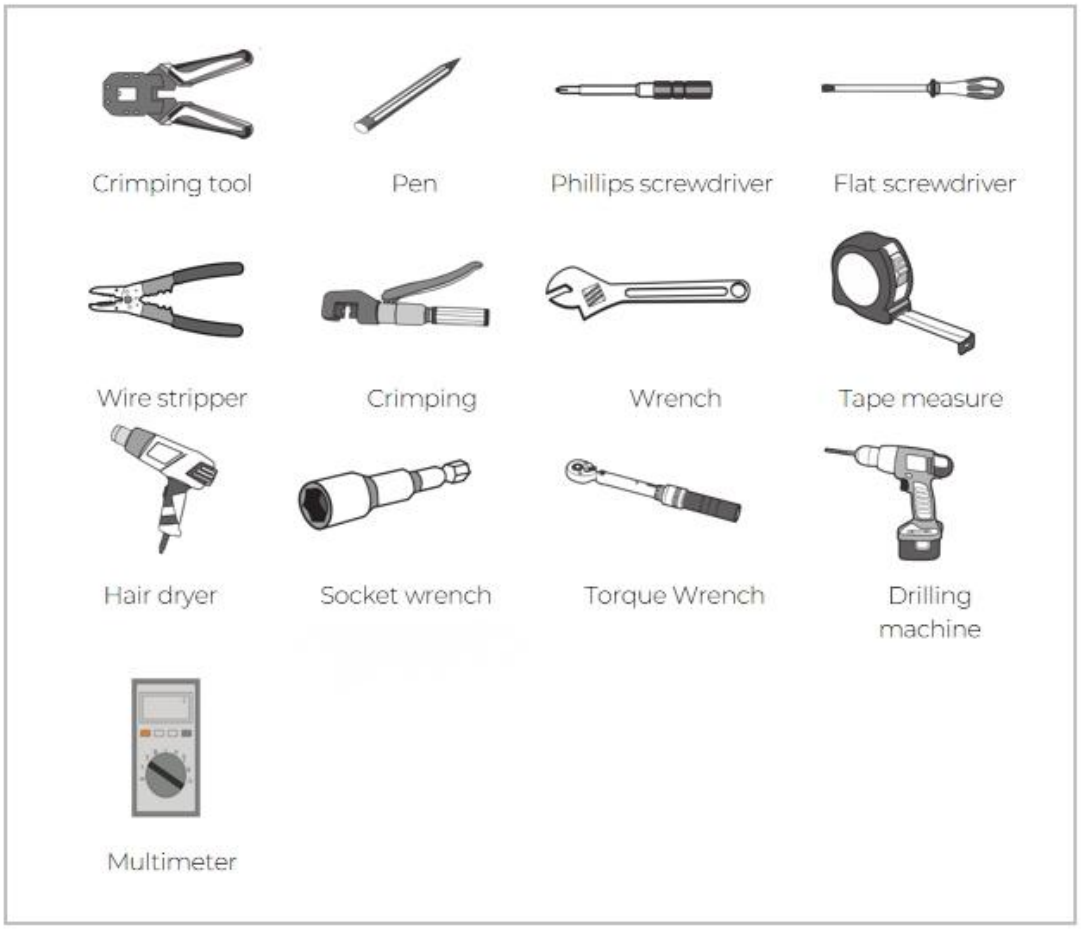


Figure 5-5 Tools

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5.4. Fixed Installation

5.4.1. 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.

5.4.2. Angle Steel Fixed Installation

After transporting the outdoor cabinet to the installation position, base fixation is required. Four mounting points are reserved at the front and rear of the equipment base. This equipment is supplied with L-shaped angle steel fixing brackets and M12 expansion bolts (delivered with the shipment).
Recommended construction parameters for installation: the recommended installation torque for the matching bolts is 80±15N·m, and the corresponding recommended drilling parameters are: Use a Φ16mm drill bit with a drilling depth of approximately 80mm. The position of the L-shaped angle steel fixing bracket is shown in the figure below.

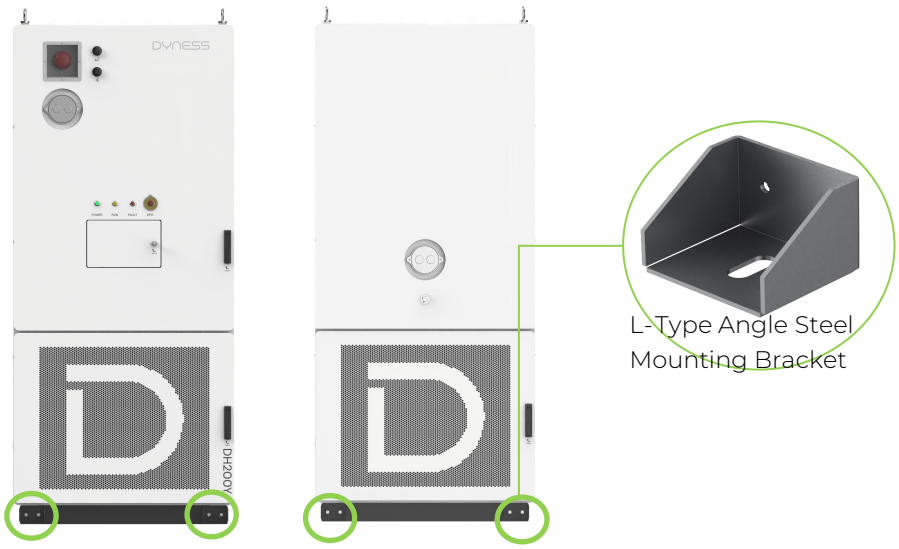


Figure 5-6 Fixed Bracket Diagram

L-shaped Angle Steel Fixing Tools

The following tools may be required for bracket installation: marking pen, electric drill, angle steel, wrench, etc.
These tools are not included in the scope of supply and shall be prepared by the customer.

L-shaped Angle Steel Fixing Steps

① Transport and position the outdoor cabinet to the installation position;
② Use a marking pen to mark the drilling positions of the 4 fixing brackets at the bottom of the cabinet;
③ Use a Φ16mm electric drill compatible with the matching M12 expansion bolts to drill holes according to the bolt length (the hole depth shall be slightly greater than the bolt length, with a recommended depth of 80mm);

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④ Insert the bolts and expansion sleeves into the holes, screw on the nuts, and tighten them to the recommended torque of 80± 15N·m.

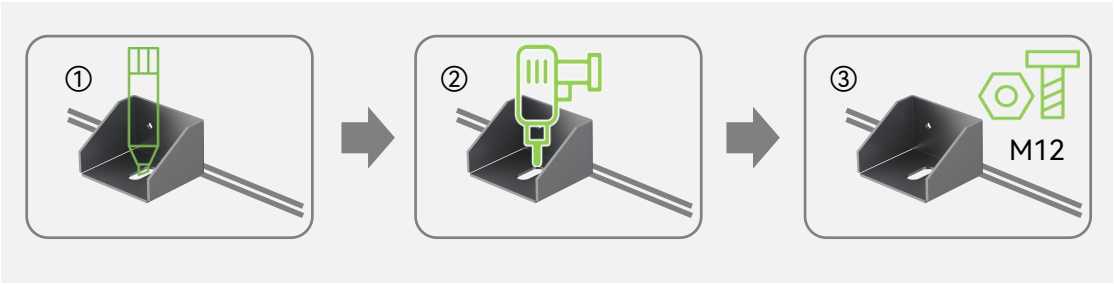


Figure 5-7 Angle Steel Mounting Installation Diagram

5.4.3. Equipment Grounding Installation

For grounding methods, comply with the legal requirements of the installation location. Install the external grounding according to the actual site conditions and follow the instructions of the power station personnel.

① Reserved grounding points may use cables or flat steel for grounding;
② Refer to Section 5.6 in this chapter for grounding cable specifications.

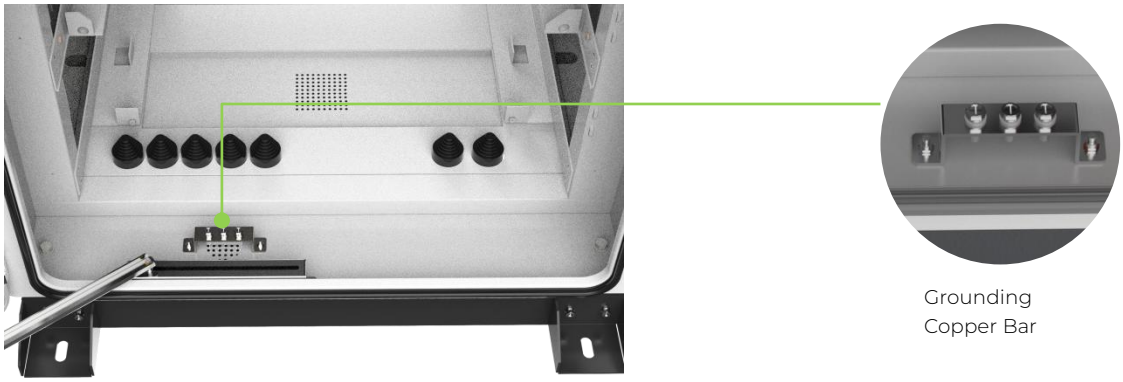


Figure 5-8 Equipment Grounding Diagram

After completing the grounding connection, measure the grounding resistance. The specific grounding resistance value must comply with relevant national/local standards and regulations.

5.4.4.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 under 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.

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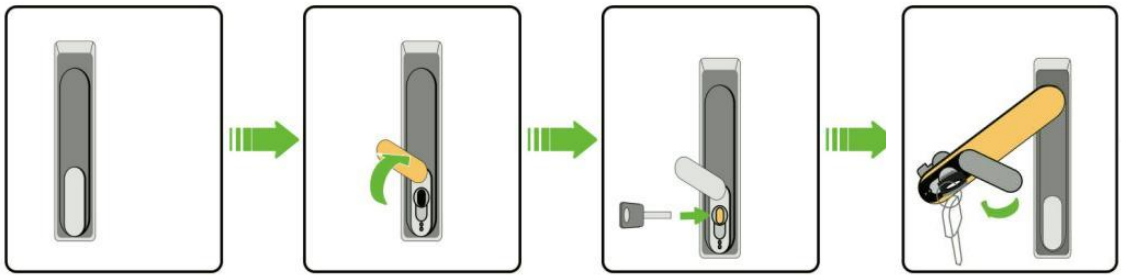


Figure 5-9 Door Open Steps

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.

5.5. Wiring Requirements

- Based on the location and dimensions of the cable inlets and outlets at the bottom of the cabinet, reserve sufficient space for the AC-side cable trench and pre-embed cable conduits during foundation construction.
- Determine the specifications and quantity of cable conduits based on the cable types and the number of incoming/outgoing lines.
- Temporarily seal both ends of all pre-embedded conduits to prevent debris ingress that may hinder subsequent wiring work.
- After all cables are connected, seal all cable inlets, outlets, and joints with fire-resistant clay or other suitable materials to prevent ingress of rodents.

WARNING

- After completing all wiring, all cable entry and exit points must be properly 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 consistent;
- Flame-retardant cables must be selected;
- The cables used must comply with local laws and regulations.

Note:

- Factory-supplied cables: Dyness cable accessories listed in Table 5-1 are provided with the equipment.
- Customer-supplied cables: Customer cable accessories listed in Table 5-2 and other unlisted cables shall be prepared by the customer.
- Observe torque specifications during installation..

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Table 5-1 Dyness Cable Accessories List

No.	Type	Specification	Recommended Terminal Model	Quantity
1	PACK-Transfer Harness	UL10269/200mm Orange	Huzheng FSPC80180P-70A4	4

Table 5-2 Customer-provided Cable Accessories List

No.	Type	Specification	Recommended Terminal Model	Torque	Quantity
1	Power Cable	Choose one of the following: 1. Outdoor single-core copper cable, 70mm² (recommended length ≤100m), rated voltage ≥600Vac 2. Outdoor single-core copper cable, 95mm² (100m < recommended length <260m), rated voltage ≥600Vac	DT/SC 70-8	16N·m	4
			DT/SC 95-8	16N·m	4
2	Grounding Cable (Optional with Grounding Copper Bar)	Choose one of the following: 1. Outdoor single-core copper cable, green-yellow, 35mm² (when phase cable is 70mm²) 2. Outdoor single-core copper cable, green-yellow, 50mm² (when phase cable is 95mm²)	DT/SC 35-8	12N·m	1
			DT/SC 50-8	12N·m	1
3	Grounding Copper Bar (Optional with Grounding Cable)	30×4mm, with M8 bolts	/	/	As required

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4	RS485/CAN Communication Cable	2-core twisted shielded cable, 0.5~0.75mm²	/	/	As required
5	Cloud Platform Ethernet Communication Cable	Cat6a Ethernet cable	/	/	1
6	Third-Party EMS Ethernet Communication Cable	Cat6a Ethernet cable	/	/	1
7	Parallel Unit Ethernet Communication Cable	Cat6a Ethernet cable	/	/	As required
8	Voltage Sampling Cable	1.5mm², rated voltage ≥600Vac	/	1N·m	As required
9	Current Sampling Cable	2.5mm², rated voltage ≥600Vac	/	/	As required
10	DIO Sampling Cable	Multi-core sheathed cable, 0.5~0.75mm², rated voltage ≥300Vdc	/	/	As required
11	24VDC Power Supply Cable	2-core sheathed cable, 0.75mm², rated voltage ≥300Vdc	/	/	As required
12	Primary Meter	ADL400 (original model: ADL400-C)	/	/	As required
13	Primary Transformer	0~5000A/5A (current rating depends on project conditions)	/	/	As required

5.7. Terminal Wiring Method

OT/DT/SC terminals connection steps:

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

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

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fully cover the wire hole. Use a heat gun to tighten the heat-shrink tube.

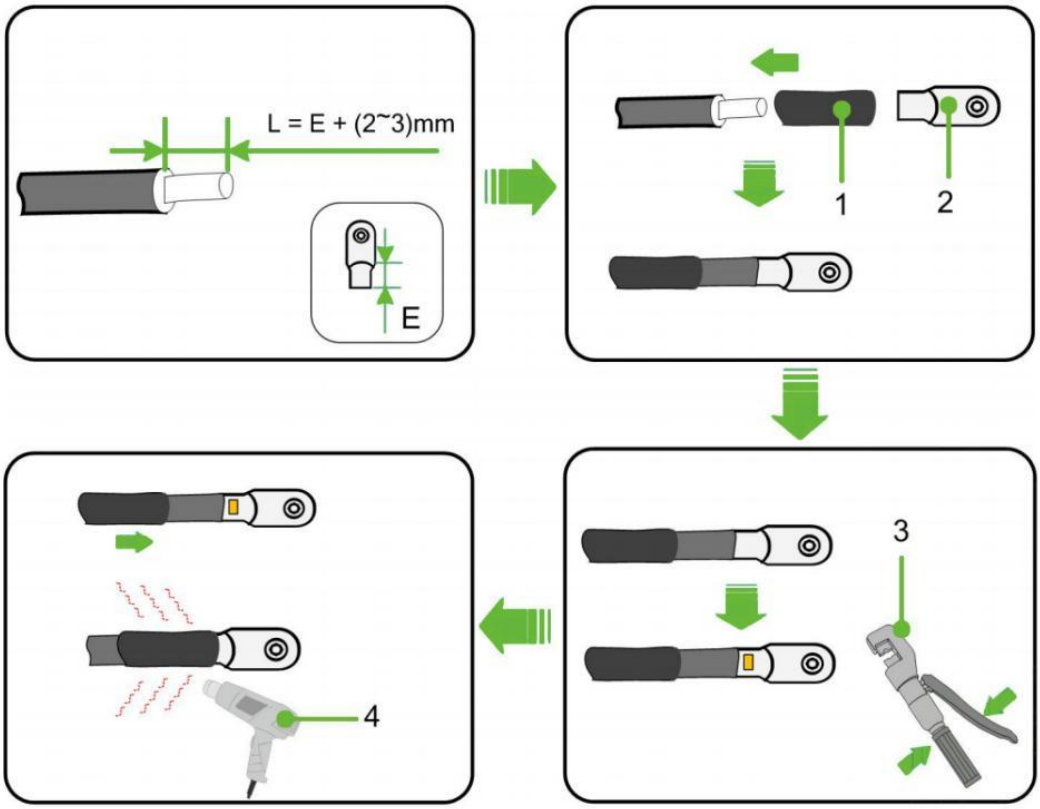
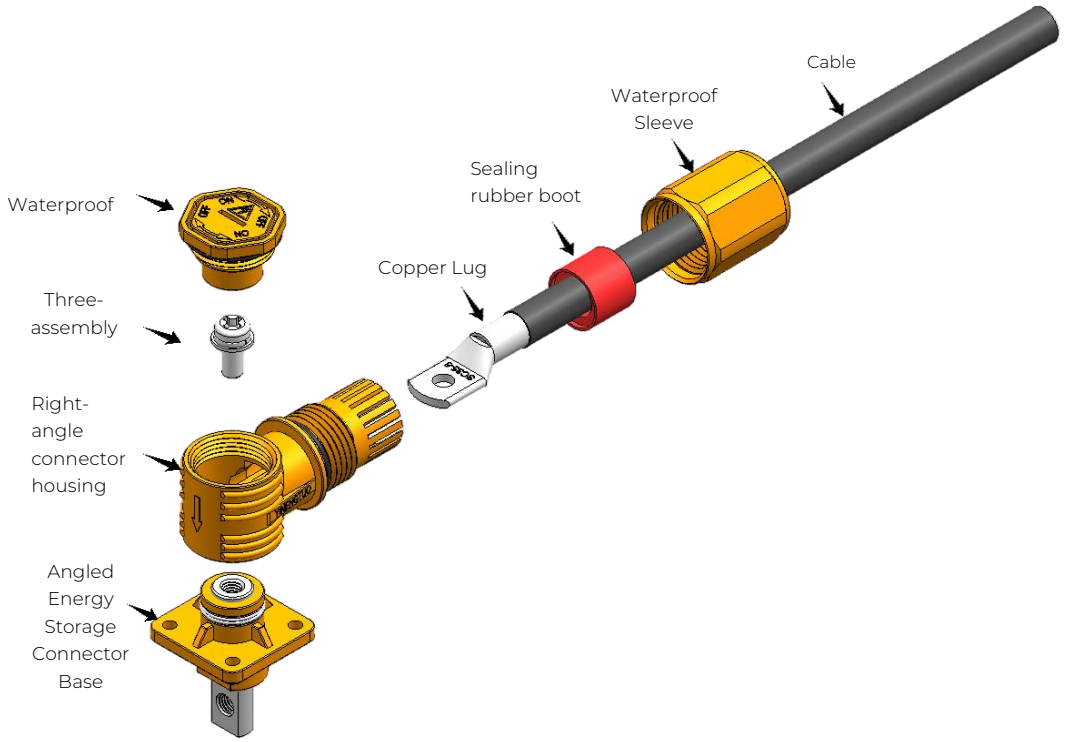


Figure 5-10 The Connection Sequence of Wiring Components

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

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5.7.1.Installation of Grid Incoming Cable



① Strip 16 mm of insulation from the end of the grid incoming cable, crimp the copper lug onto the cable, then thread the waterproof sleeve, sealing rubber boot and right-angle connector housing onto the cable one after another. Ensure the boot is aligned with the clamping groove and fully seated during installation.

② Insert the right-angle connector housing preassembled with cable into the connector base, and secure the copper lug tightly using the three-in-one assembly screw.

③ Finally tighten the waterproof locking nut and waterproof sleeve to finish the integral waterproof assembly.

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5.8. Pre-Wiring Inspection

1) Circuit Breaker Check

Please verify that the circuit breakers and related devices of the following modules are in the **OFF** position:

Confirm the grid connection is disconnected.

(1) Check the grid circuit breaker (marked "GRID" on the BDU).
(2) Check the battery circuit breaker (marked "BAT" on the BDU).
(3) Check the secondary circuit breakers: Aux·DC, Aux·AC, and SOCKET.



Figure 5-11 Circuit Breaker Inspection Diagram

2) Pre-Wiring Checklist

Table 5-3 Pre-Wiring Checklist

No.	Inspection Item	Confirm
1	The cables and terminals for wiring meet the requirements for the specified wire gauge, shielding, and other parameters.	☐
2	All wiring cables are properly marked to ensure full accuracy.	☐
3	All required wiring accessories are prepared and ready.	☐
4	Wiring personnel are wearing appropriate personal protective equipment (PPE).	☐

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No.	Inspection Item	Confirm
5	All circuit breakers are confirmed to be in the OFF position.	☐

5.9. Wiring Interface Description

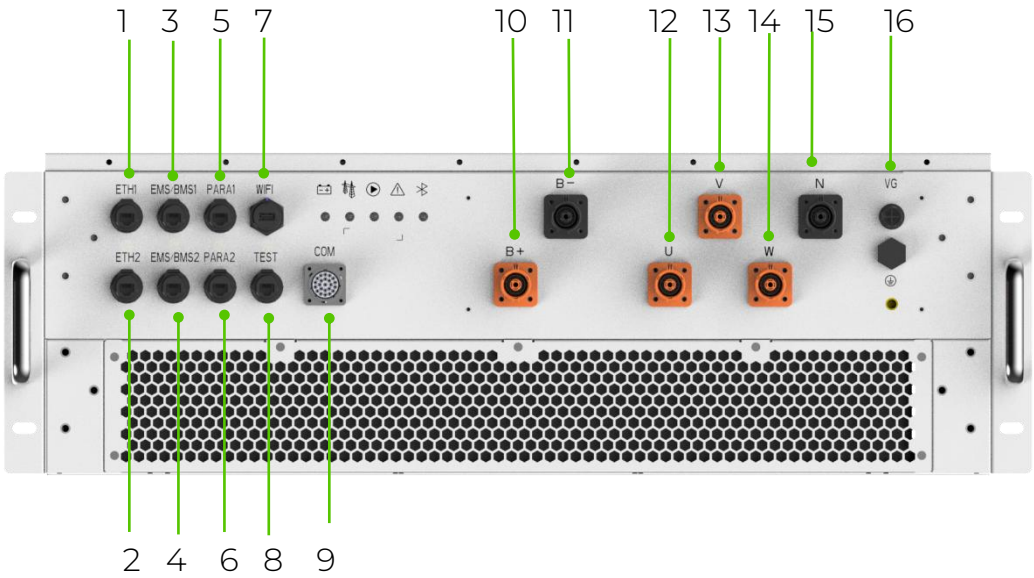


Figure 5-12 PCS Interface Diagram

Table 5-4 PCS Interface Function Definition

No.	Interface Name	Function Description
1, 2	ETH1, ETH2	Ethernet ports. Support IEC61850 and MODBUS/TCP protocols.
3, 4	EMS/BMS1, EMS/BMS2	485 and CAN communication interfaces for EMS/BMS connections. Applicable to BMS/EMS communication, supporting MODBUS·RTU and CAN2.0B protocols.
5, 6	PARA1, PARA2	Used for parallel connection of PCS converters. PARA1 and PARA2 are internally interconnected.
7	WIFI	Used for remote management and control of the PCS.
8	TEST	Factory debugging dedicated communication port; no connection required.
9	COM	COM communication interface.
10	B+	PCS-side battery positive terminal.
11	B-	PCS-side battery negative terminal.
12	U	PCS-side phase line L1.

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No.	Interface Name	Function Description
13	V	PCS-side phase line L2.
14	W	PCS-side phase line L3.
15	N	PCS-side neutral line N.
16	VG	Voltage sampling interface (pinout: 1:A, 2:B, 3:C, 4:N).

Note: For BDU interface descriptions, refer to Section 3.7.4, "Table 3-10 Intelligent Control Box Interface Function Definition".

Connecting the PACK MSD

To ensure circuit safety, the MSD (Manual Service Disconnect) switch on each PACK is removed during transportation. After verifying the power cable connections, connect the MSDs for all 5 PACK modules in sequence.



Figure 5-13 MSD Position Diagram

MSD Connection Procedure

(1) Keep the handle in a horizontal position and align the MSD with the embedded base of the PACK;
(2) Push the handle upward approximately 90° (to Position 1 shown in the figure) until the MSD fits tightly against the PACK without any looseness;
(3) Push the latch downward (to Position 2 shown in the figure); a "click" sound indicates complete locking;
(4) Gently pull the MSD. If there is no looseness, the latch is fully engaged and the handle does not spring back, the installation is confirmed to be in place.

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Figure 5-14 MSD Operation Diagram

5.10. Post-Wiring Inspection

After completing wiring, the following items must be re-inspected and measured to prevent equipment damage and property loss:

Table 5-5 Post-Wiring Checklist

No.	Inspection Item	Confirm
1	Before measurement, open the switches on the battery side and grid side to ensure the PCS DC and AC sides are de-energized.	☐
2	Verify that the interconnections between battery clusters are secure.	☐
3	Measure the phase-to-phase and phase-to-earth insulation resistance using an insulation resistance tester. The test voltage, method, and acceptance criteria shall comply with the project specifications and technical requirements.	☐
4	Verify that the MSD on each PACK is properly connected.	☐
5	Verify that external control cables, grounding cables, and communication cables are securely connected.	☐
6	Confirm all cable connections meet the specified torque requirements.	☐
7	The grounding resistance shall comply with local standards and project design requirements, and the grounding cable is intact with no damage or cracks.	☐
8	Clean the installation area to ensure no tools or foreign objects are left inside.	☐
9	Seal all cable entry/exit holes and gaps around the outdoor cabinet with fire and water-resistant materials.	☐

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6. Operation and Shutdown

6.1. Product Power-Up Procedure

Notes:

- The product may only be put into operation after confirmation by qualified personnel and approval from the local power authority.
- For products that have been idle for a long time, perform a comprehensive and detailed inspection before power-up to ensure all parameters meet requirements.

Pre-Power-Up Checklist

Table 6-1 Pre-Operation Inspection Items

No.	Inspection Item	Confirm
1	Verify all wiring is correct.	☐
2	Verify the MSD on each PACK is properly connected.	☐
3	Confirm the emergency stop button is in the released state.	☐
4	Verify the surge protective device (SPD) is closed.	☐
5	Verify the grounding connection is secure with no ground faults.	☐
6	Use a multimeter to check that AC and DC side voltages meet start-up conditions with no overvoltage risk.	☐
7	Ensure no tools or parts are left inside the equipment.	☐
8	Check for condensation (water film or droplets on surfaces). If present, open the cabinet doors and ventilate until the condensation disappears.	☐
9	Verify the liquid cooling pipeline connections are secure with no leaks.	☐
10	Ensure no bare wire ends, metal shavings, or other foreign objects that could short-circuit signal or power cables are present.	☐

Power-Up Operation Steps:

- Step 1: Close the "GRID" circuit breaker.
- Step 2: Close the "BAT" circuit breaker.
- Step 3: Close the secondary circuit breakers "Aux·AC", "Aux·DC", and "SOCKET" in sequence.



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Figure 6-1 Location of Each Circuit Breaker

- Step 4: Configure the EMS operating mode according to the application. Refer to Chapter 7 for details.

After completing the steps, check if the product indicators light up and the screen displays. If the product status is normal, the "POWER" power indicator and "RUN" operation indicator will light up, and the "FAULT" fault indicator will remain off. The screen will display system operating status and parameters.

6.2.Product Power-Down Procedure

Operation Steps (Refer to the Power-Up Diagram for reference):

- Step 1: Shut down the system via the touchscreen or host computer.
- Step 2: Open the secondary circuit breakers "Aux·AC", "Aux·DC", and "SOCKET" in sequence.
- Step 3: Open the "BAT" circuit breaker.
- Step 4: Open the "GRID" circuit breaker.

WARNING

After completing the steps, the system will stop operating, and the product indicators and screen will turn off. Wait five minutes after the inspection before performing maintenance or repair work.

6.3. Emergency Shutdown

In an emergency, press the red EPO (Emergency Power Off) button marked "EPO" on the front door of the product.

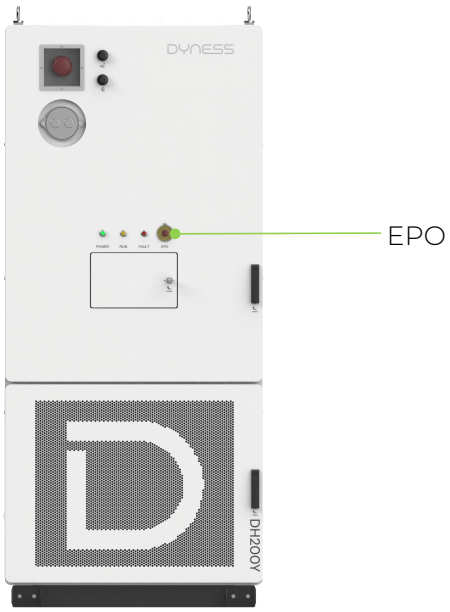


Figure 6-2 Emergency Stop Button Location Diagram

WARNING

Under normal conditions, use the standard power-down procedure to shut down the product.
Emergency shutdown must only be used in urgent situations to ensure rapid response and protect personnel and equipment safety.

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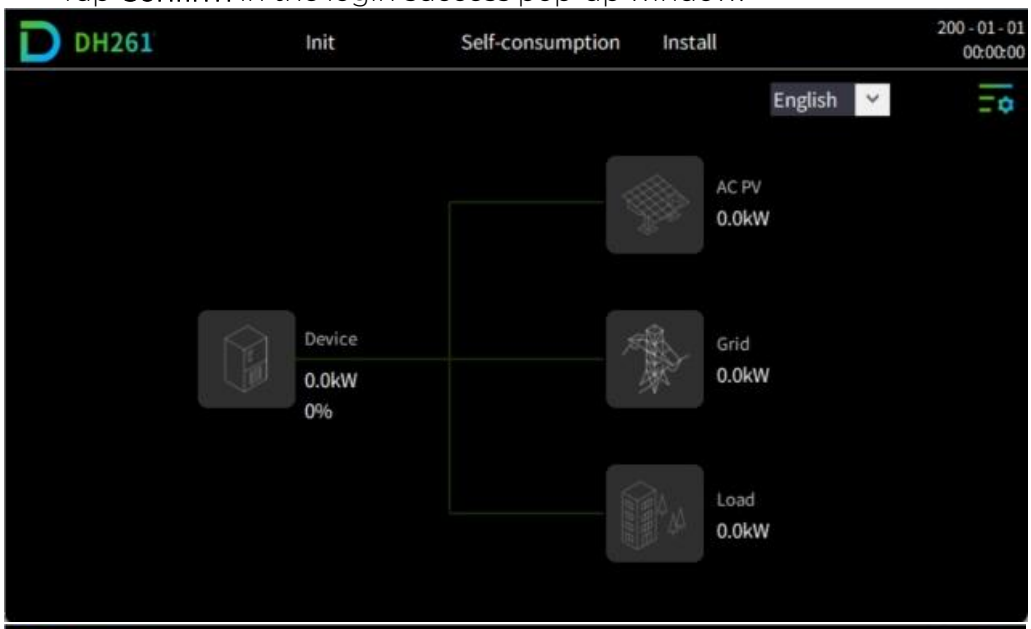
7. HMI Operation Guide

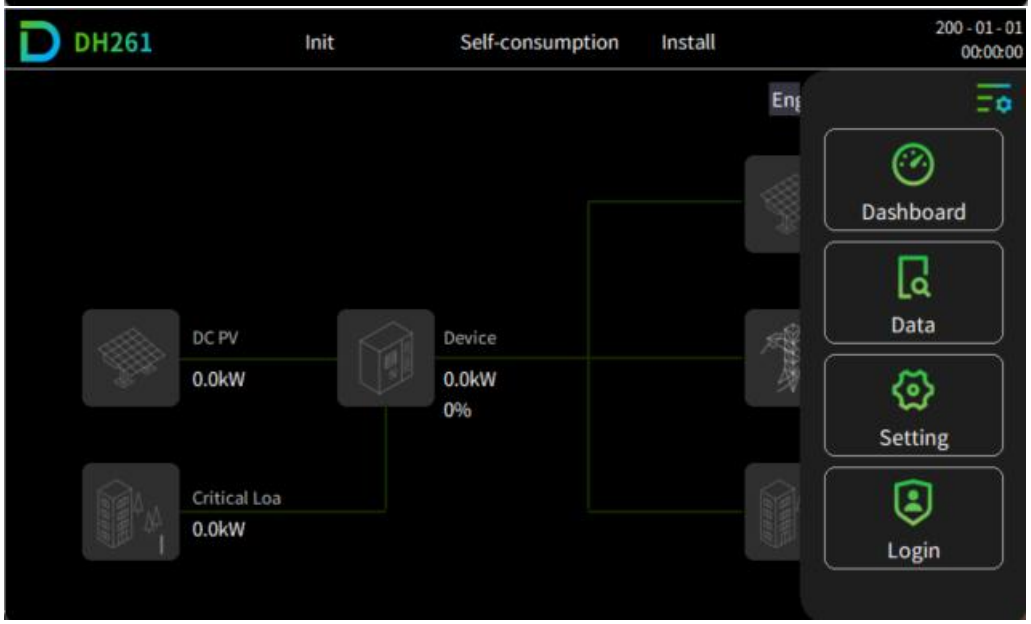
The HMI screen serves as the core interface for operators to interact with the system. It delivers real-time monitoring, operational control, status diagnosis and system configuration to guarantee safe, efficient and stable system operation.

7.1.Operation Steps

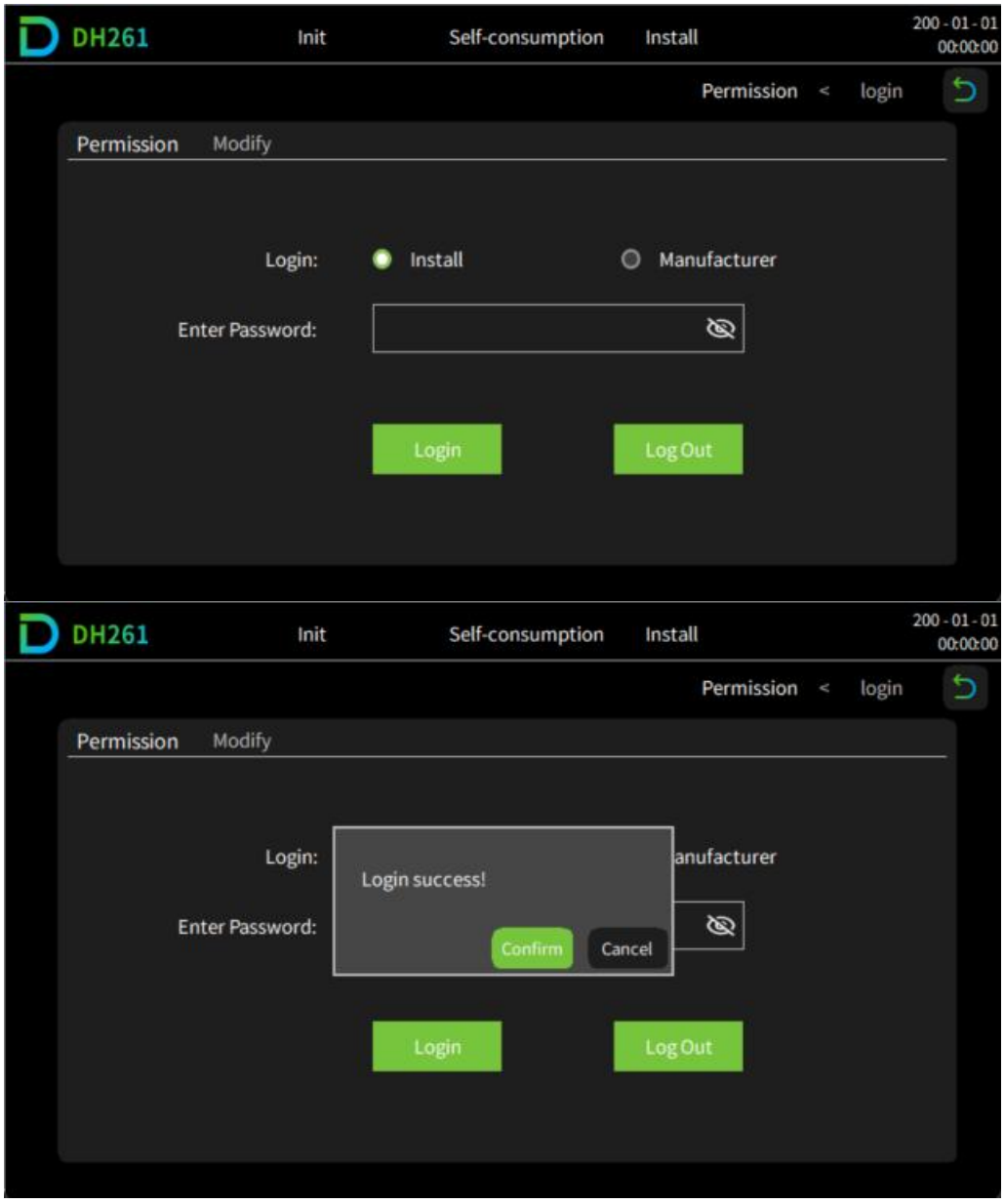
7.1.1.User Login

- Tap the main menu icon in the top-right corner of the home screen.
- Select **Login** in the main menu to enter the user selection interface.
- Choose **Install** in the user selection bar, enter the password (1111), and tap Login.
- Tap **Confirm** in the login success pop-up window.





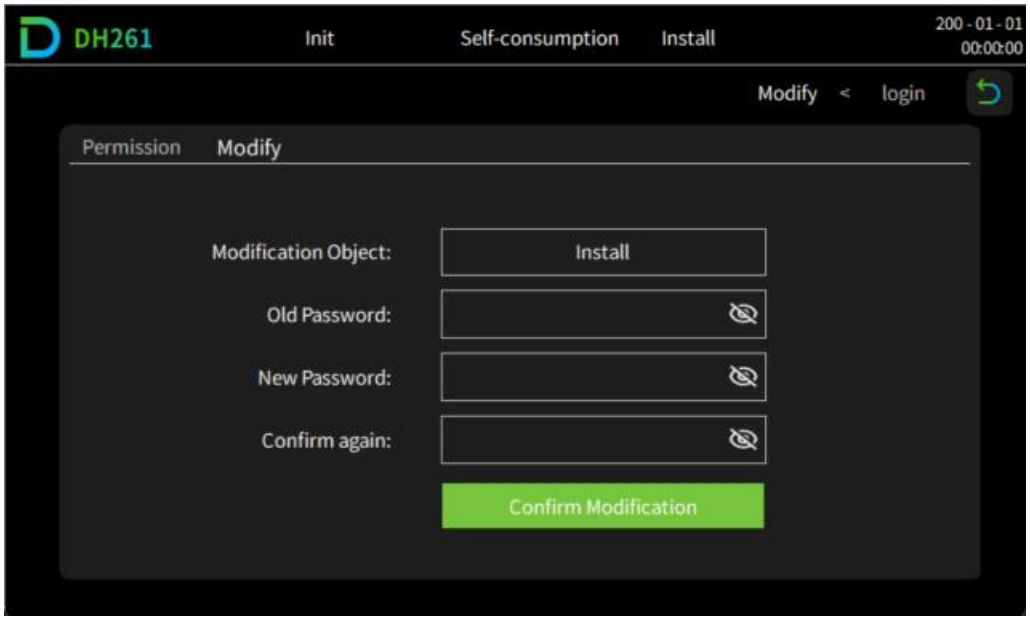
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7.1.2.Change Password

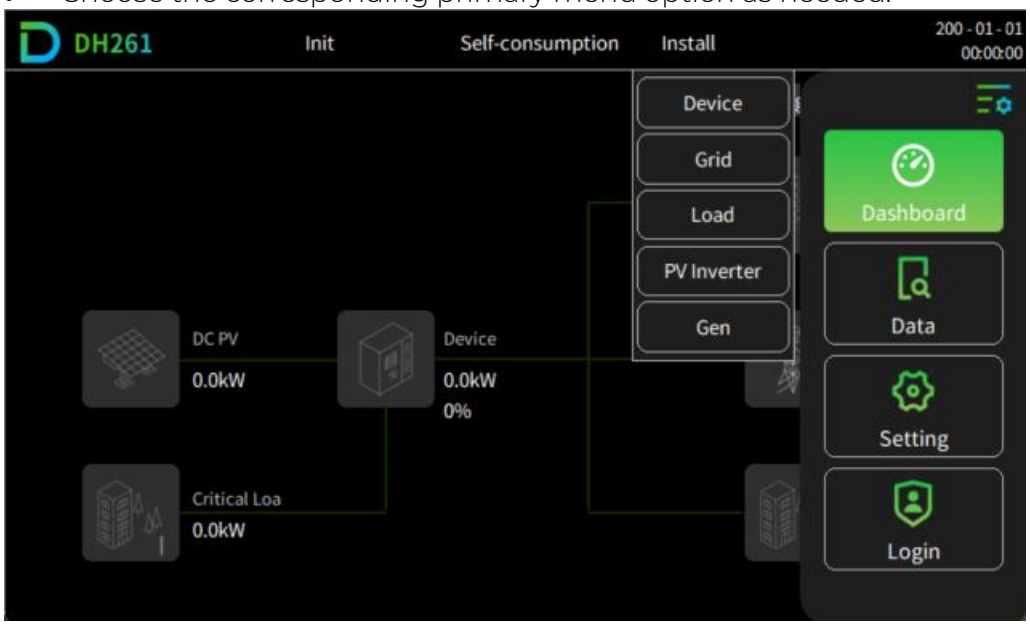
- Log in as Installer (refer to Section 7.1.1 User Login).
- Tap **Modify** in the top-left navigation bar to access the password modification interface.
- Enter the old password and new password on the page; the setting is completed upon verification.

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7.1.3.Operation Information

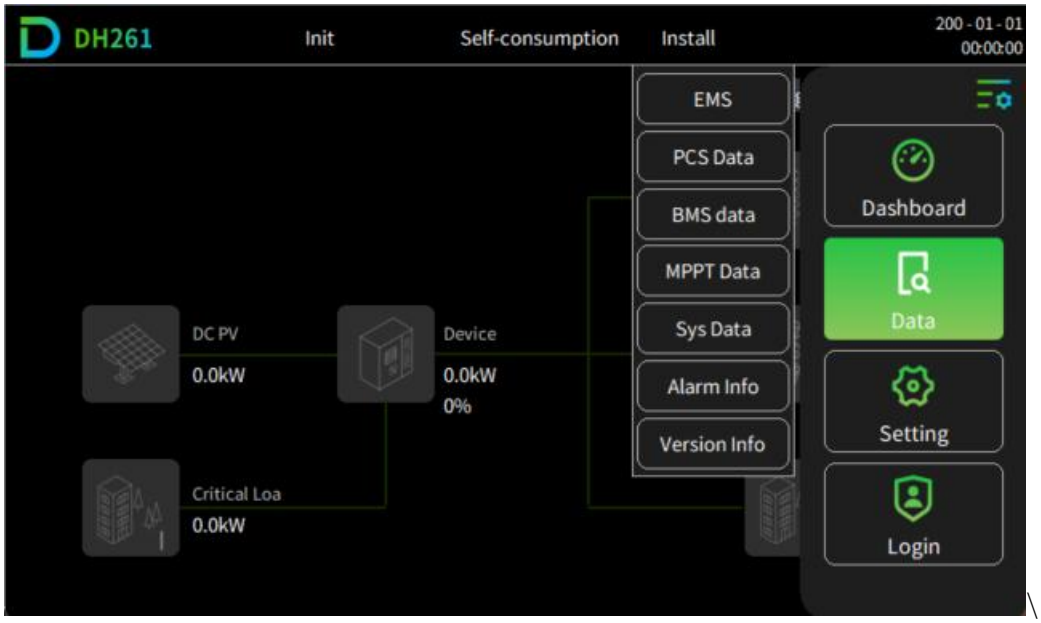
- Tap the main menu icon in the top-right corner of the home screen.
- Select **Dashboard** in the main menu.
- Choose the corresponding primary menu option as needed.



7.1.4.Data Query

- Tap the main menu icon in the top-right corner of the home screen.
- Select **Data** in the main menu.
- Select the corresponding primary menu option to query EMS, PCS, BMS, Sys data, Alarm Info and Version Info.

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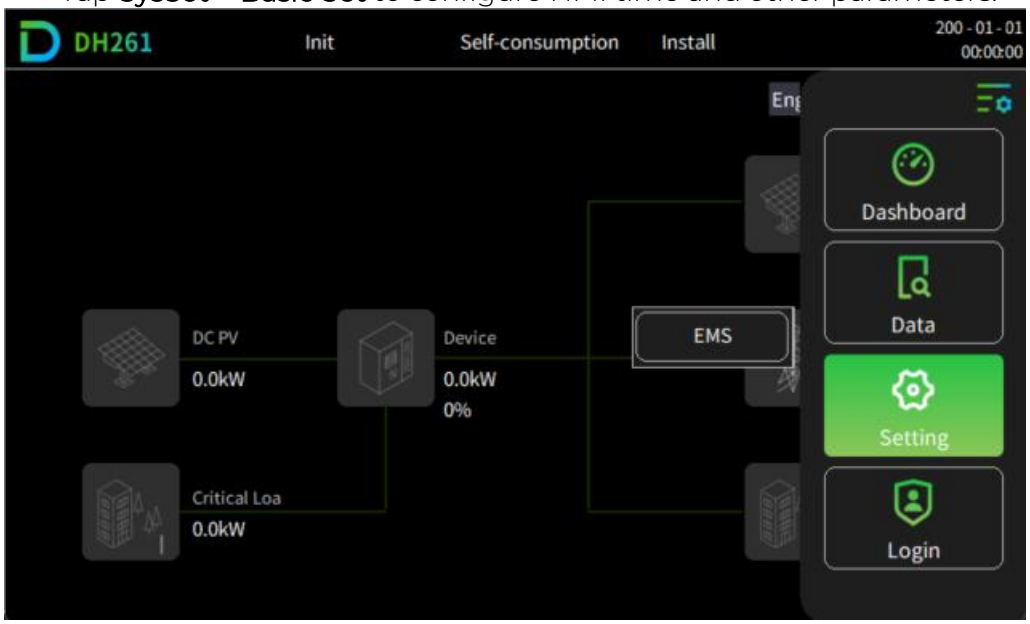


7.1.5.Device Settings

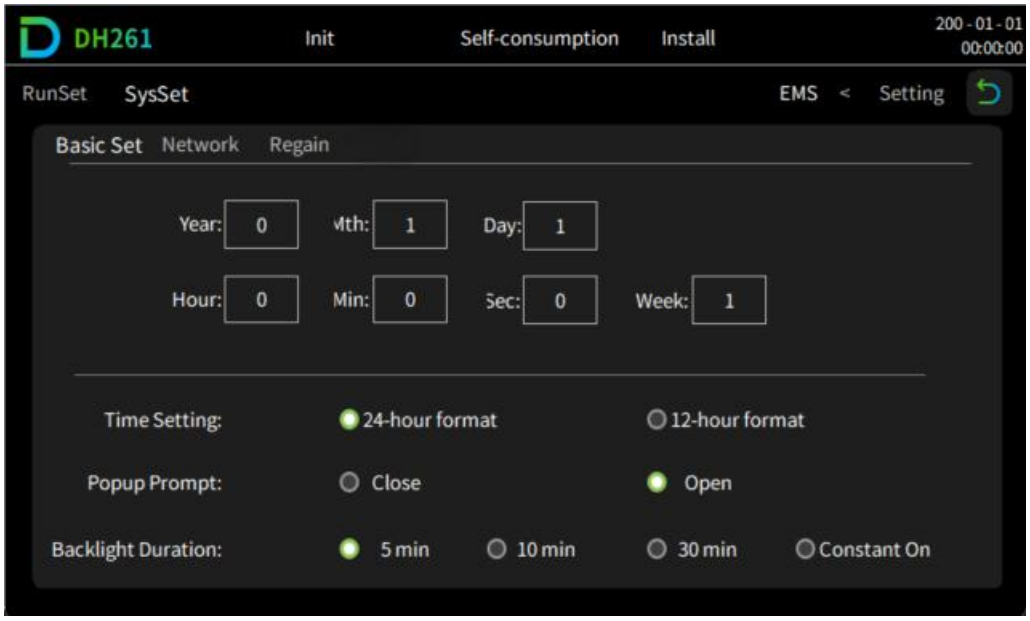
System Settings

① Basic Settings

- Tap the main menu icon in the top-right corner of the home screen.
- Go to **Setting** → **EMS** in the main menu.
- Tap **SysSet** → **Basic Set** to configure HMI time and other parameters.

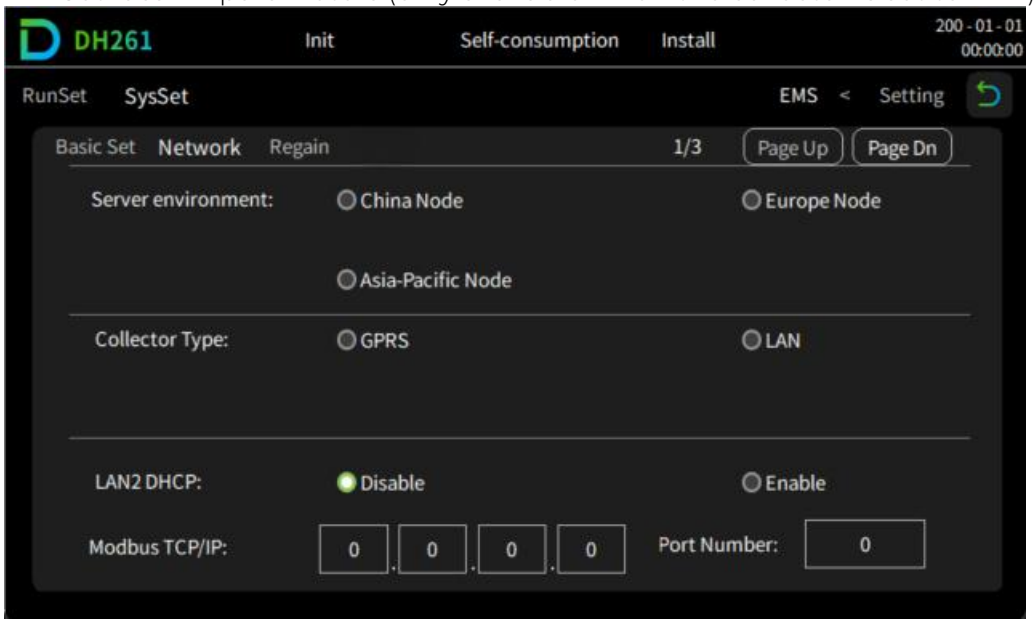


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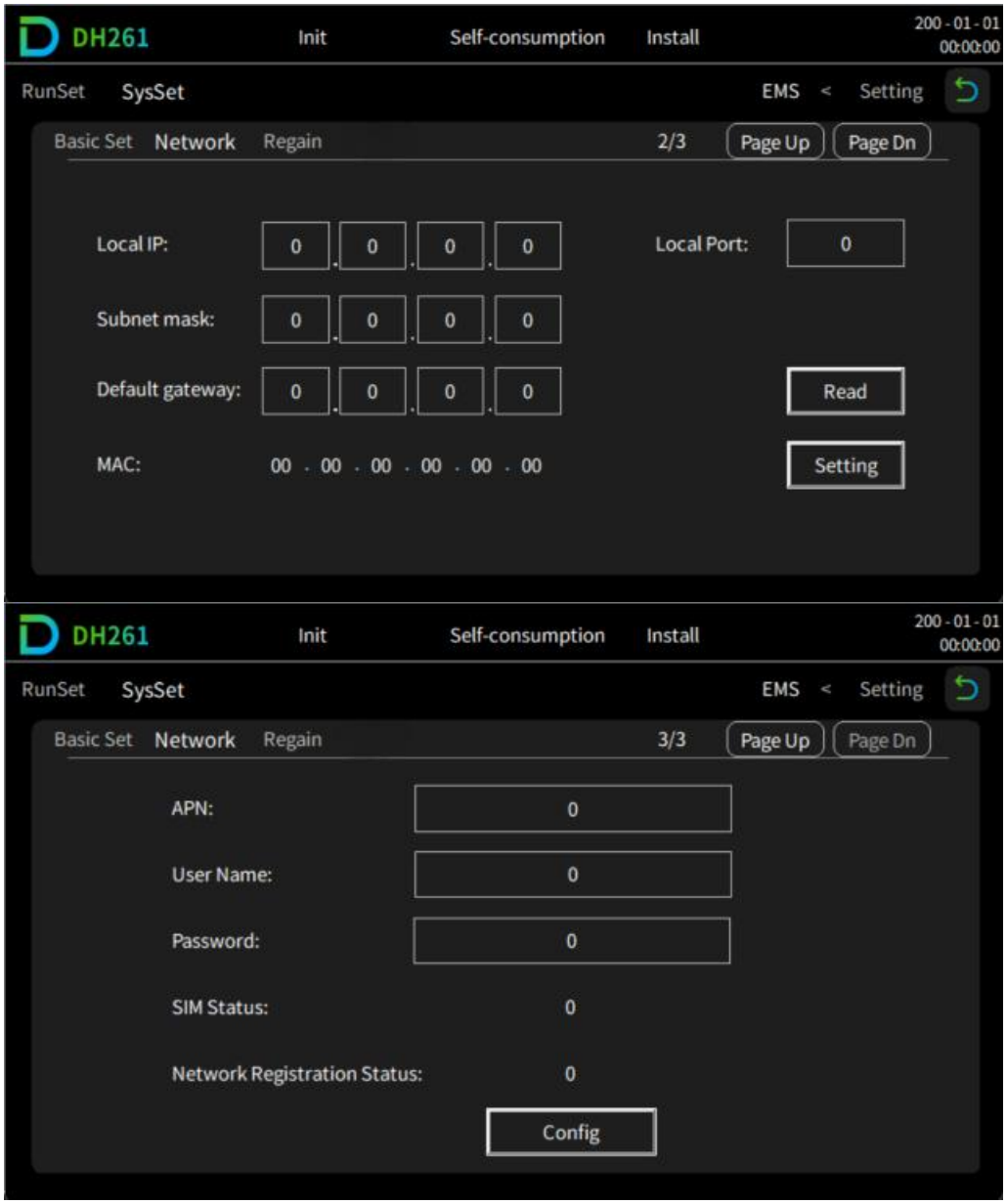


② Network Settings

- Tap the main menu icon in the top-right corner of the home screen.
- Go to **Setting** → **EMS** in the main menu.
- Tap **SysSet** → **Network** to configure cloud platform parameters (server environment, collector type), then tap **Page Dn**.
- Set local IP parameters (only available when the collector is set to LAN).



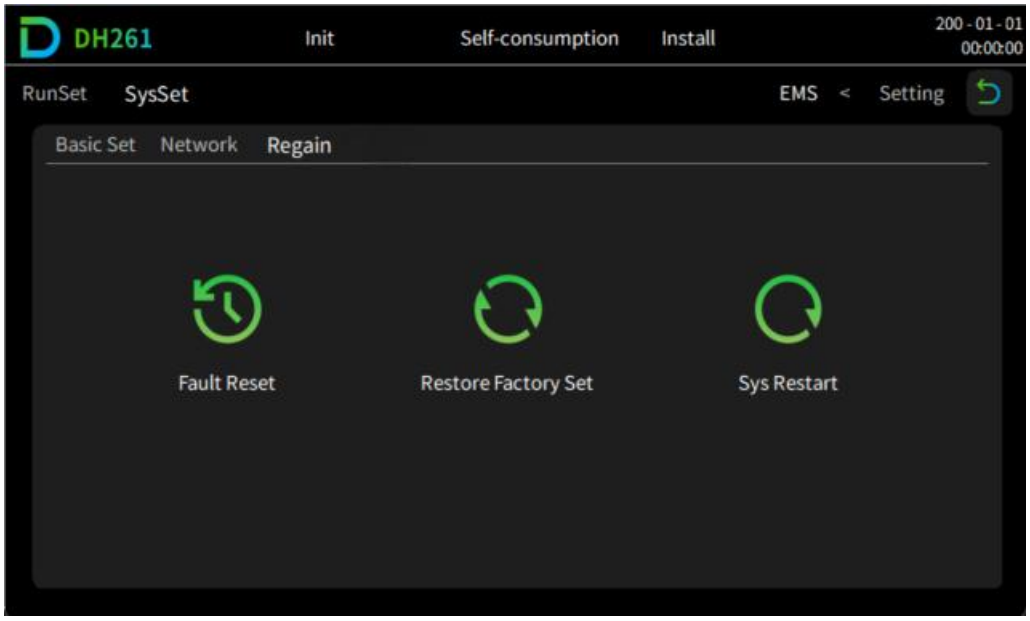
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③ Restore Factory Settings

- Tap the main menu icon in the top-right corner of the home screen.
- Go to **Setting** → **EMS** in the main menu.
- Tap **SysSet** → **Regain** to perform fault reset, factory restoration or system restart.

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7.2.Run Settings

7.2.1.Operating Mode

- User Login (complete login first)
- Enter the **RunSet** interface

① Tap the main menu icon on the home screen.

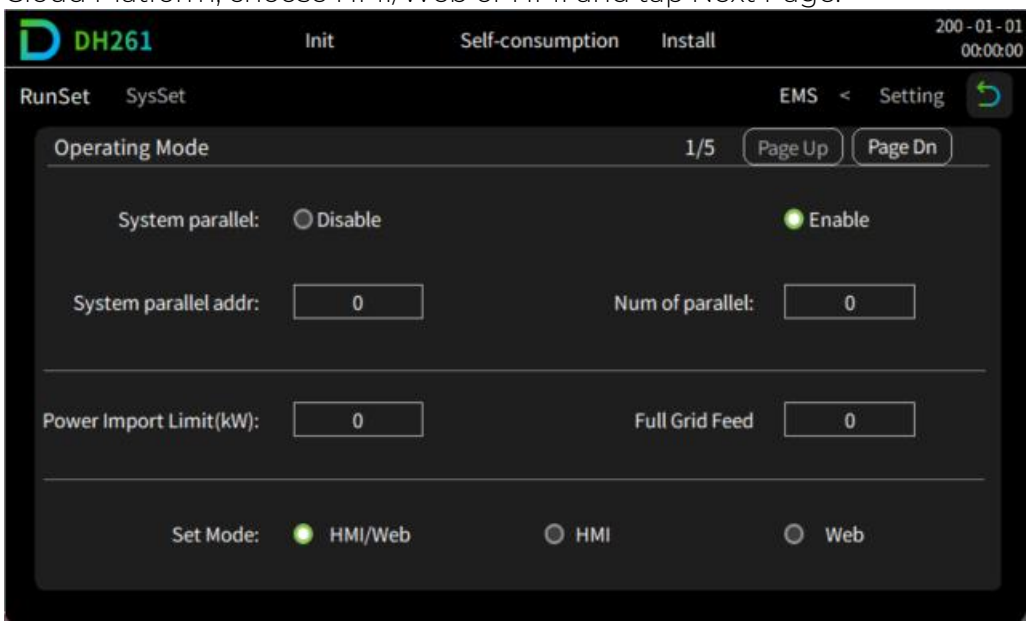
② Select **Setting** in the main menu.

③ Choose EMS under Setting.

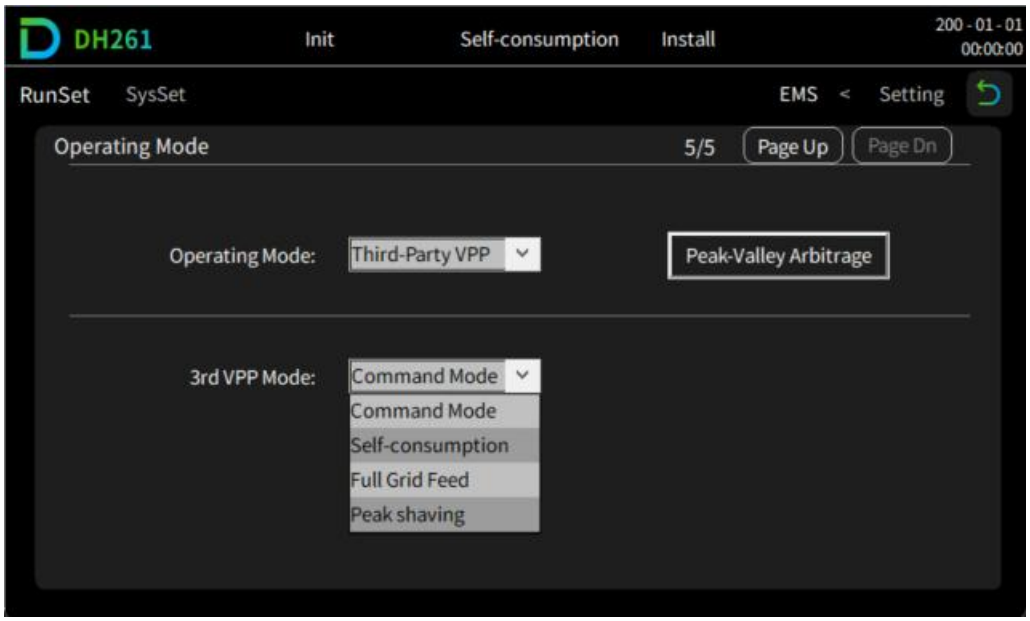
④ Tap **Operation Mode** in the top-left navigation bar to enter the configuration page.

⑤ Set **System Parallel**: set to Disable for a single unit, set to Enable for parallel units, then configure **System parallel addr** and **Num of parallel** (1 = Master Unit, others = Slave Units). Master units proceed to the next step; slave units do not.

⑥ **Set Mode**: Select as required. Choose Web for operations on the Dyness Cloud Platform; choose HMI/Web or HMI and tap Next Page.

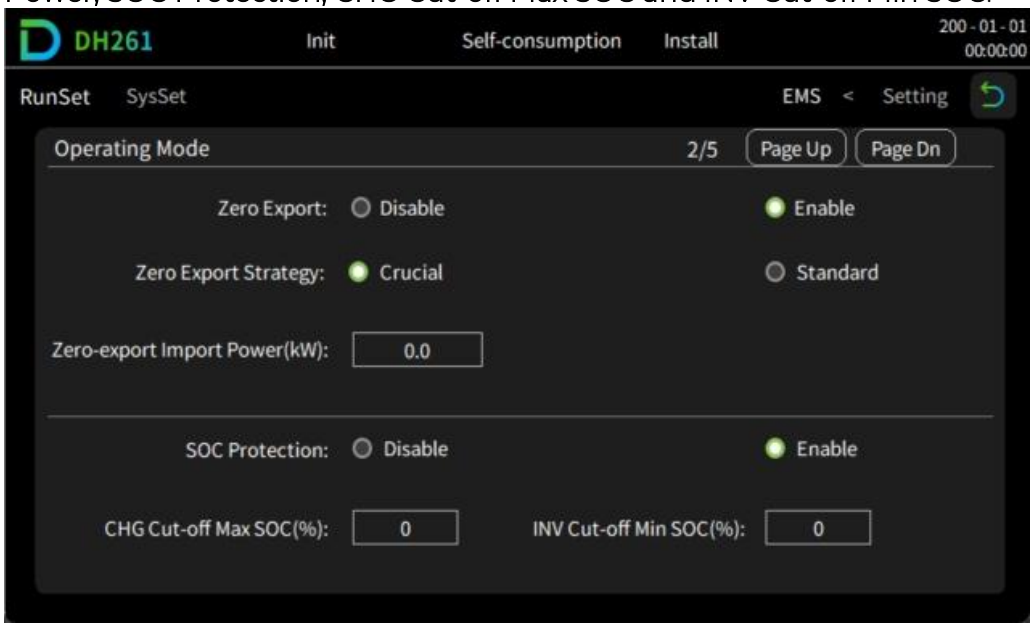


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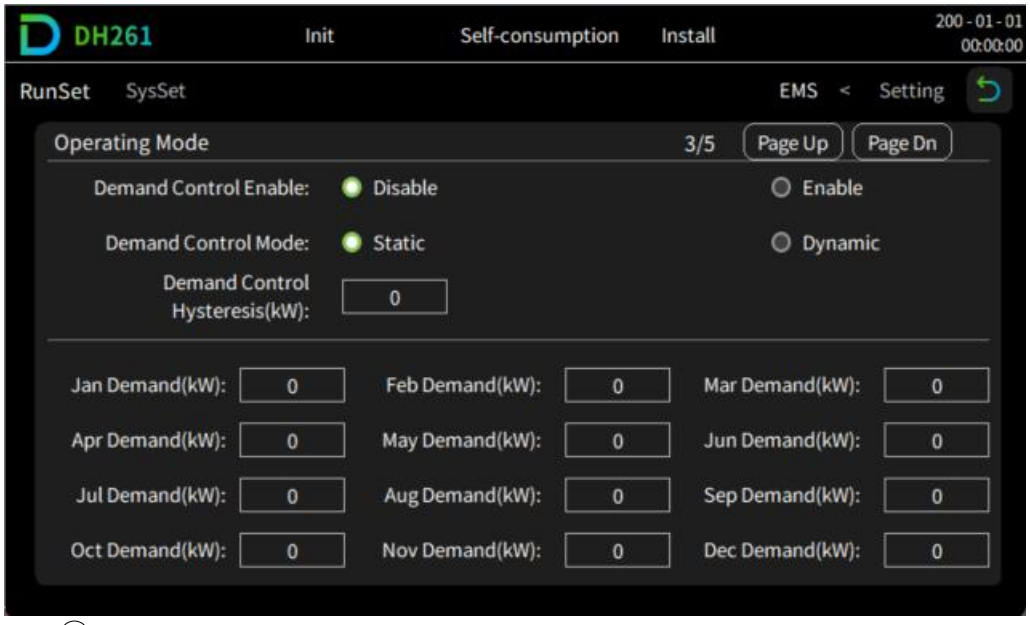
- Configure parameters on the **Operation Mode** page

① On Page 2/5: Set **Zero Export**,**Zero Export Strategy** , **Zero-export import Power**, **SOC Protection**, **CHG Cut-off Max SOC** and **INV Cut-off Min SOC**.

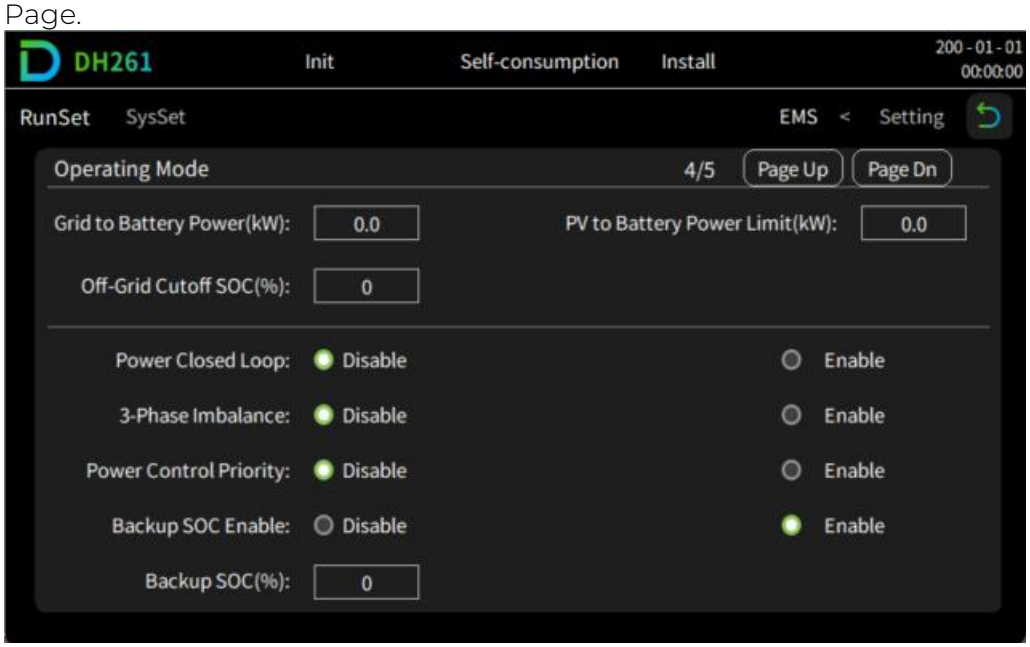


② On Page 3/5: Set **Demand Control Enable**, **Demand Control Mode**, **Demand Control** and other parameters, then tap **Next Page**.

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③ On Page 4/5: Configure **Grid-to-Battery Power Limit, PV-to-Battery Power Limit, Off-Grid Cutoff SOC, Power Closed Loop , 3-phase Imbalance, Power Control Priority, Backup SOC Enable and Backup SOC**, then tap Next Page.



After completing the above settings, configure the **Operation Mode** (system operation strategy). The system supports seven strategies:

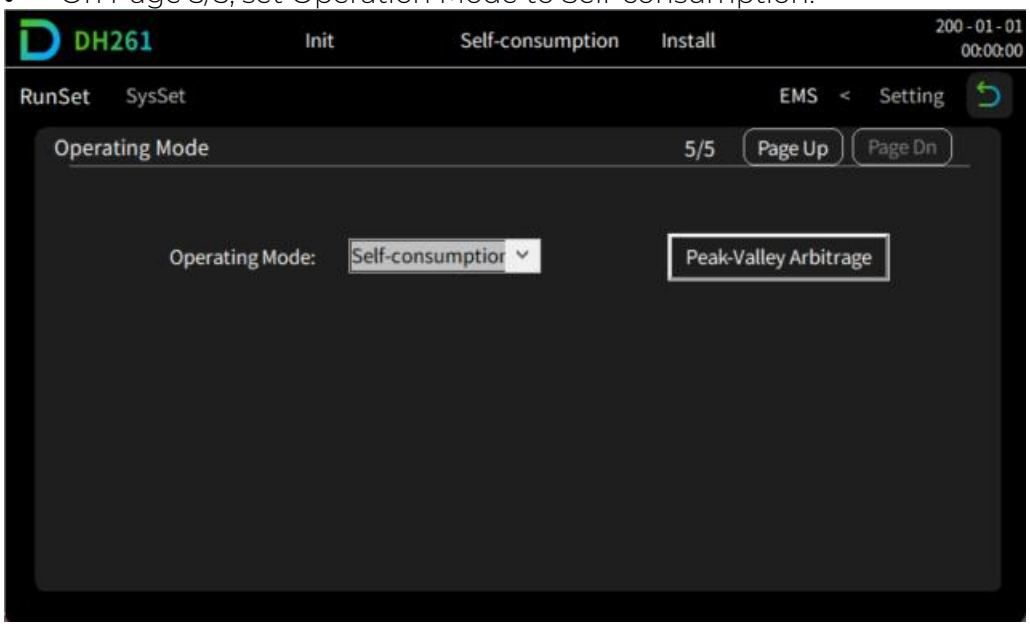
Mode Name	Application Scenario
Self-consumption	Prioritize local load power consumption; surplus power is not fed to the grid
Full Grid-feed	All generated power is fed to the grid
Peak shaving	Charge during off-peak hours and discharge during peak hours to reduce electricity costs
Sch.C/D	Automatic charge/discharge per preset time periods
Time-of-Use	Switch operation strategies by time period for flexible multi-scenario scheduling

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Third-party EMS	Connect to a third-party EMS platform for remote scheduling
Third-party VPP	Access virtual power plants to participate in grid scheduling

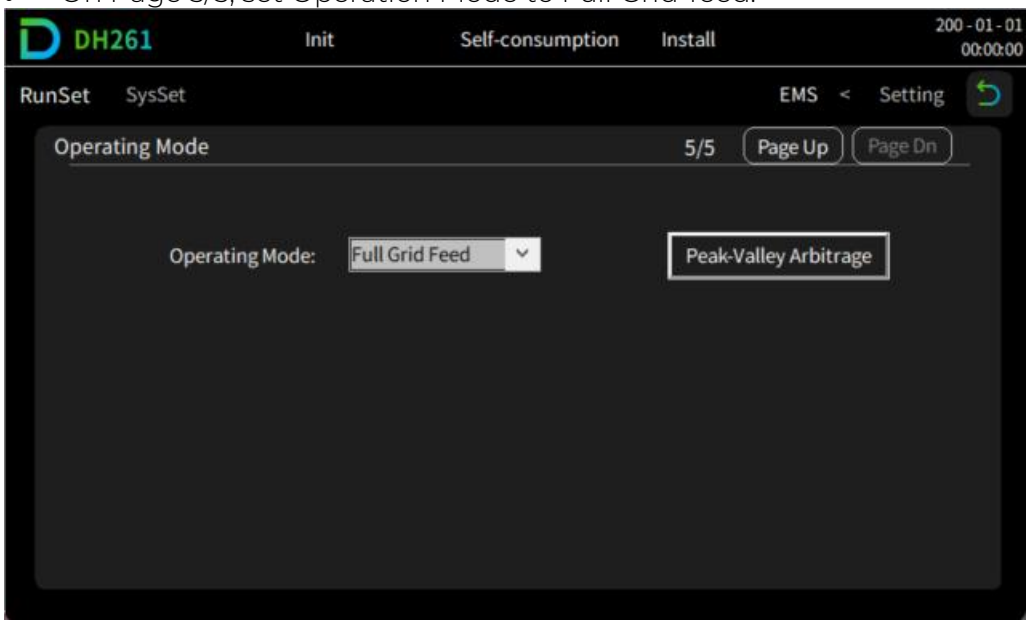
Self-consumption

- On Page 5/5, set Operation Mode to Self-consumption.



Full Grid-feed

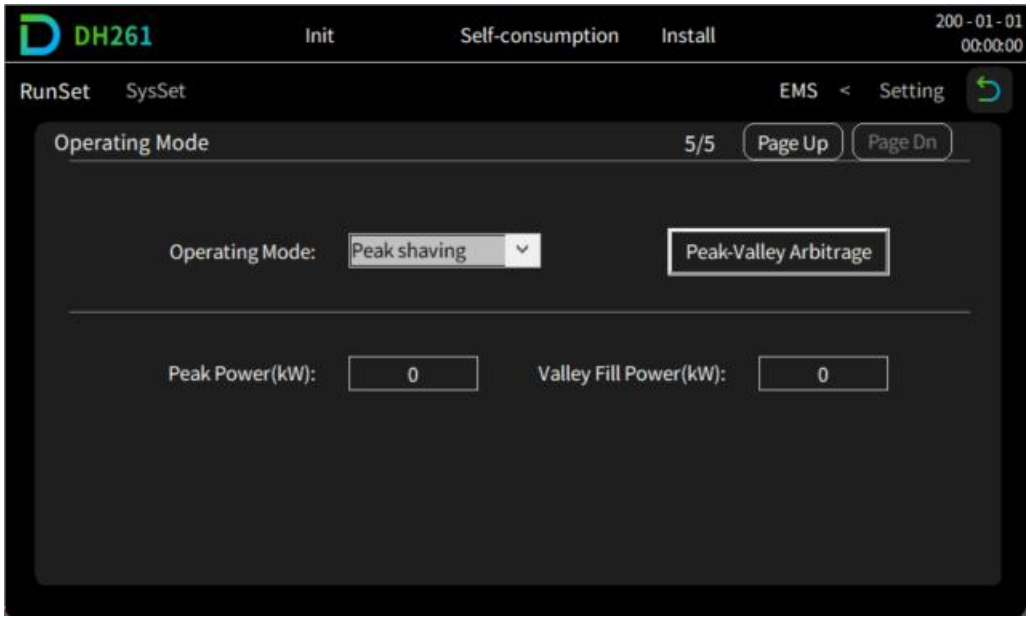
- On Page 5/5, set Operation Mode to Full Grid-feed.



Peak shaving

- On Page 5/5, set Operation Mode to Peak shaving.
- Configure Peak Power and Valley Fill Power.

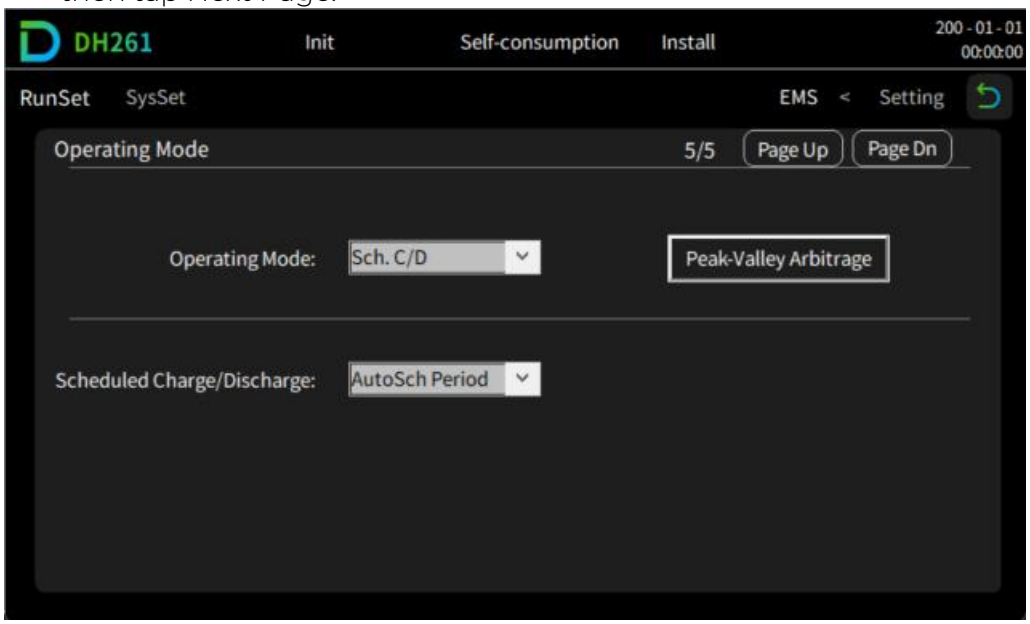
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Sch.C/D

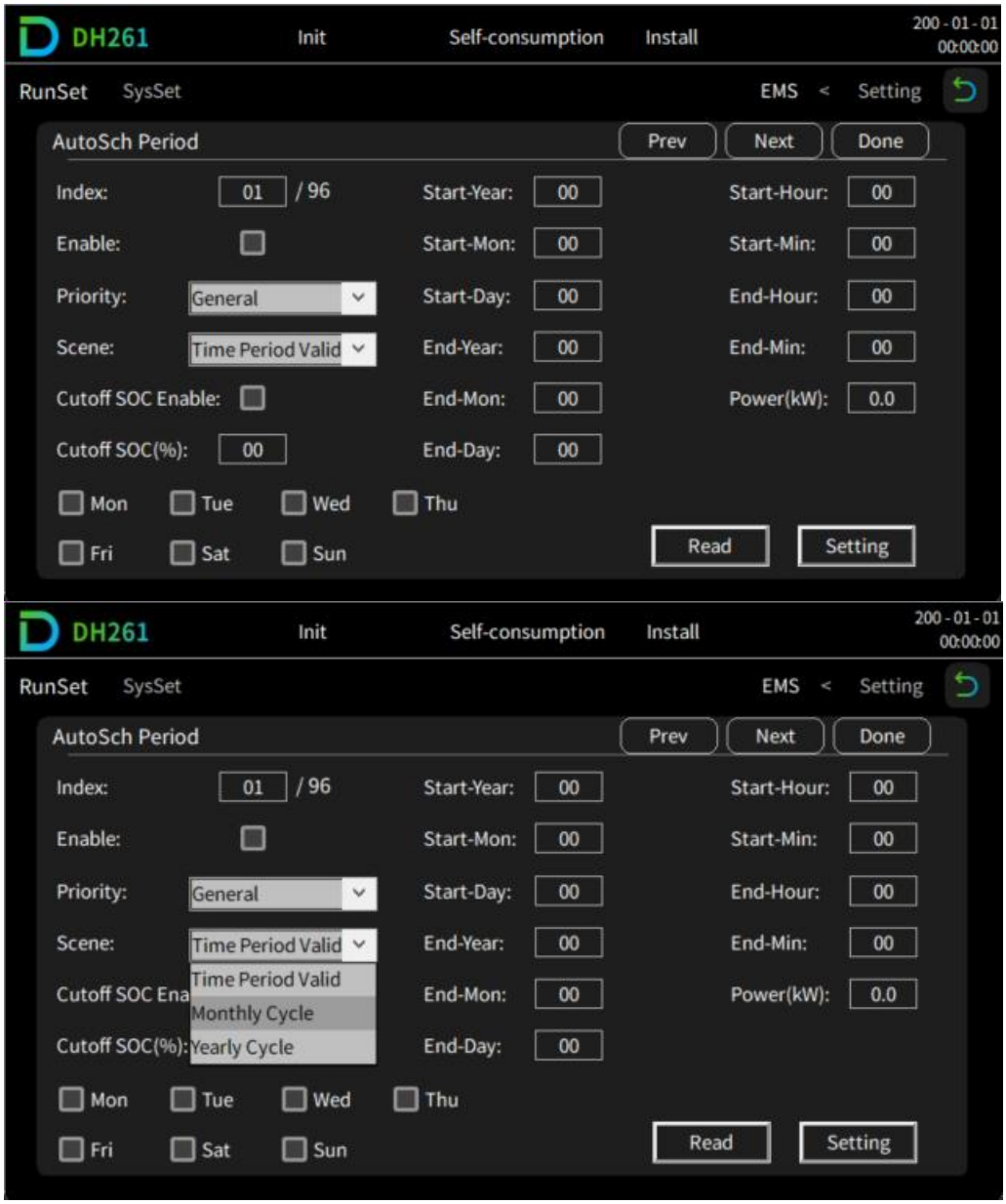
① Autosch Period

- On Page 5/5, set Operation Mode to **Sch.C/D** and select **Autosch Period**, then tap Next Page.



- Switch among 96 time periods (15 minutes per period) via **Pre** /**Next** and select the target **Index**.
- Set **Enable.**
- Set **Priority**: General or Special.
- Set **Scene** :Time Period Valid, Monthly Cycle or Yearly Cycle.
- Configure the start/end time and valid weekdays of the period; enable **Cutoff SOC Enable** and set the target SOC power as needed.
- Repeat the above steps to finish all period settings, then tap **Done** to exit.

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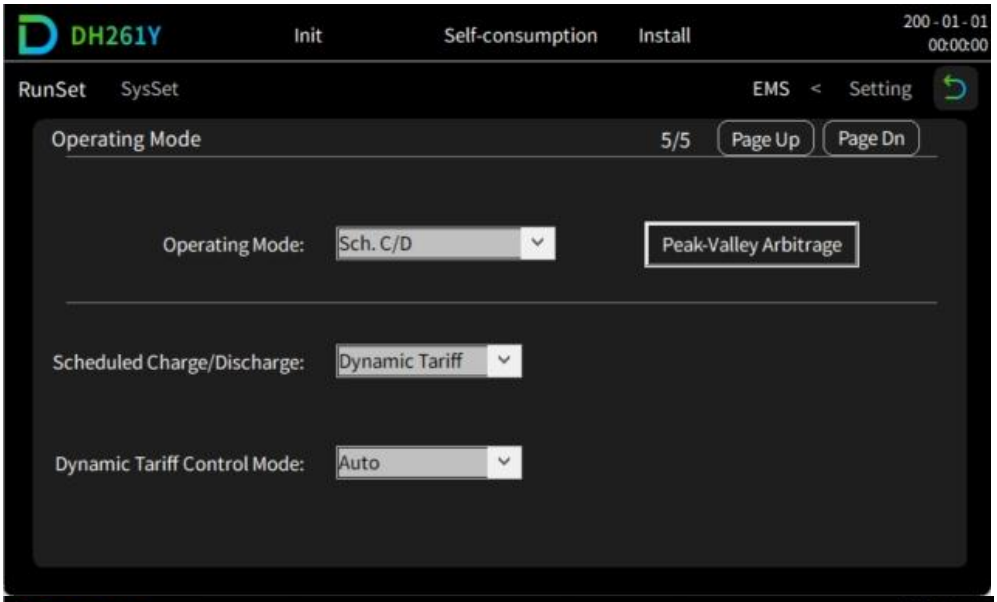


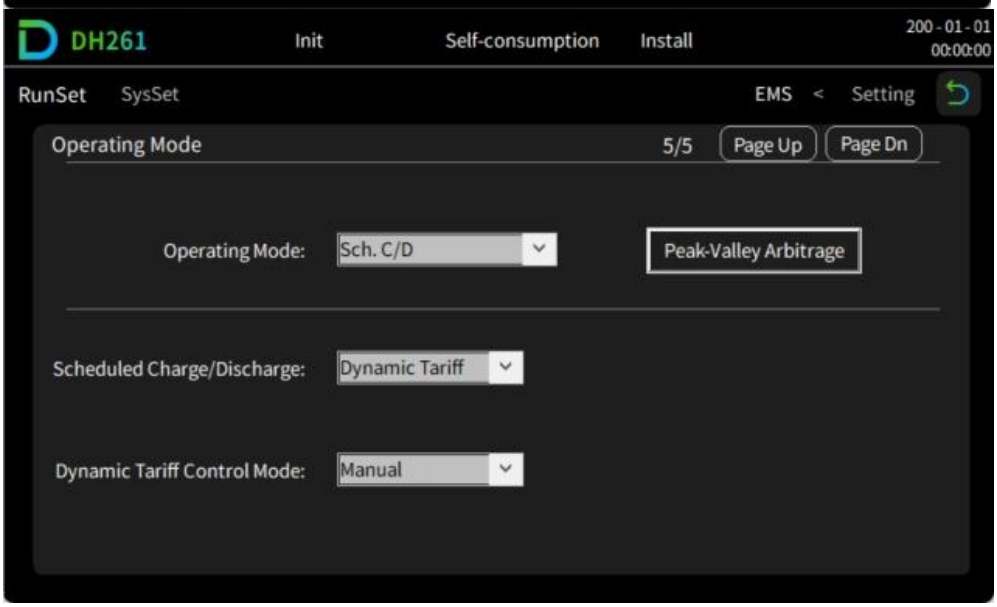
Note: The **Time Period Valid** mode restricts the strategy to the set time window, reserving time for third-party EMS debugging and avoiding strategy conflicts.

② Dynamic Tariff

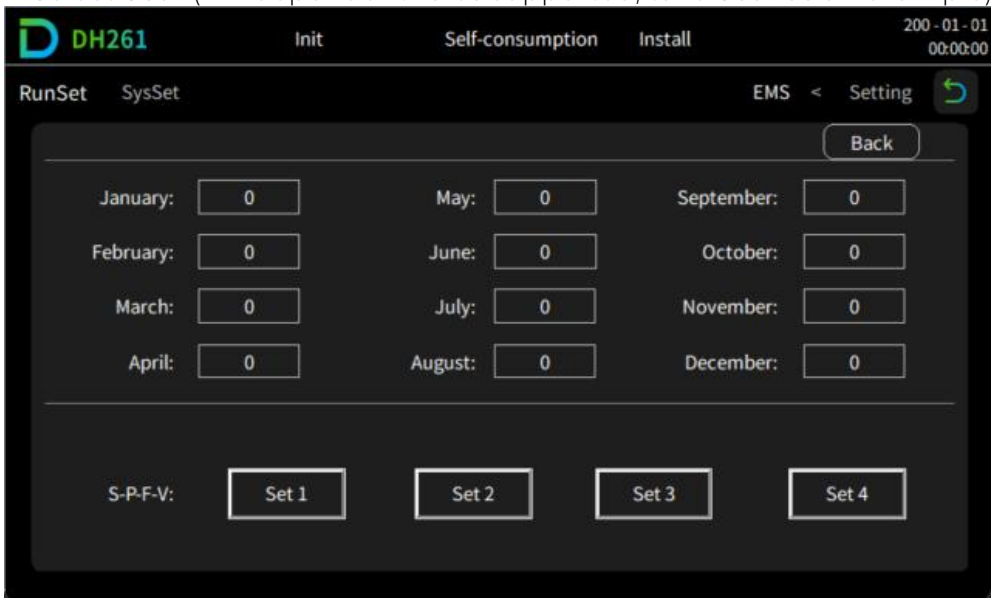
- On the **Operation Mode** page, set **Sch.C/D** to Dynamic Tariff.
  Select Auto: No extra configuration is needed.
  Select Manual: Tap **Next** to enter the peak/on-peak/mid-peak/off-peak tariff configuration interface.

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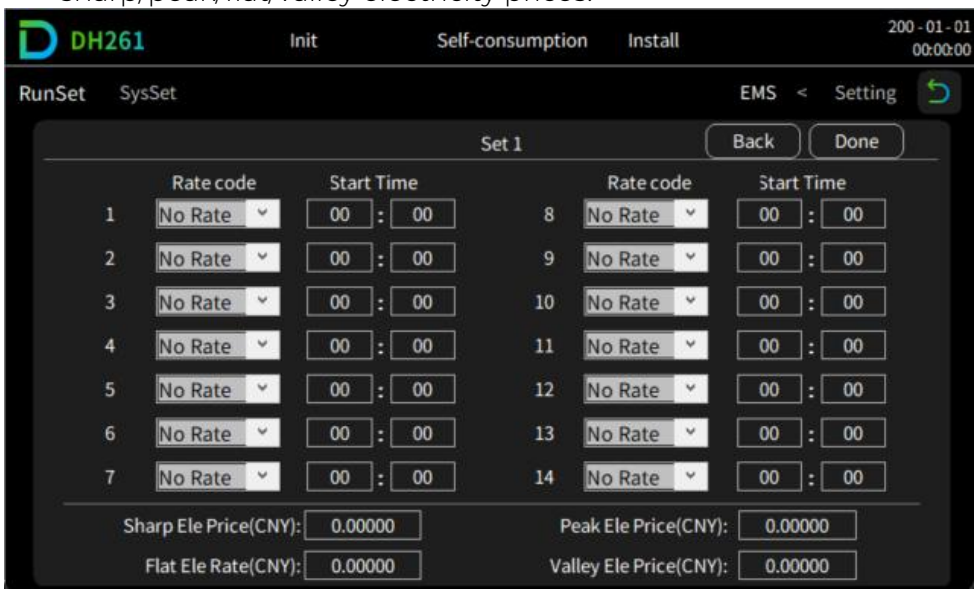


- Select **Set 1** (4 independent rules supported; take **Set 1** as an example)

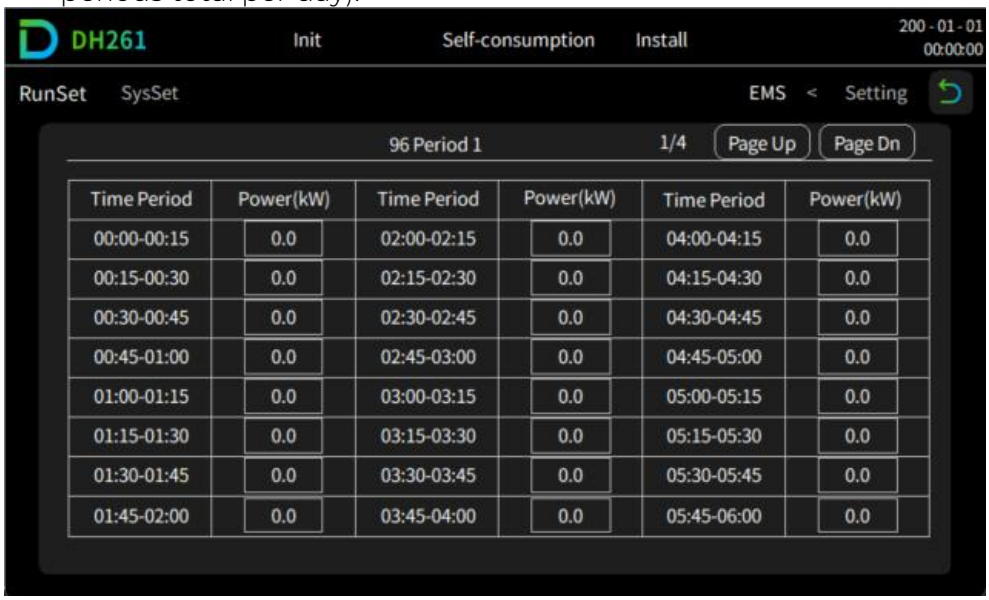


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- Set the start time for each rate code and configure the sharp/peak/flat/valley electricity prices.



- On the **96 Period 1** page, set the power for each 15-minute period (96 periods total per day).



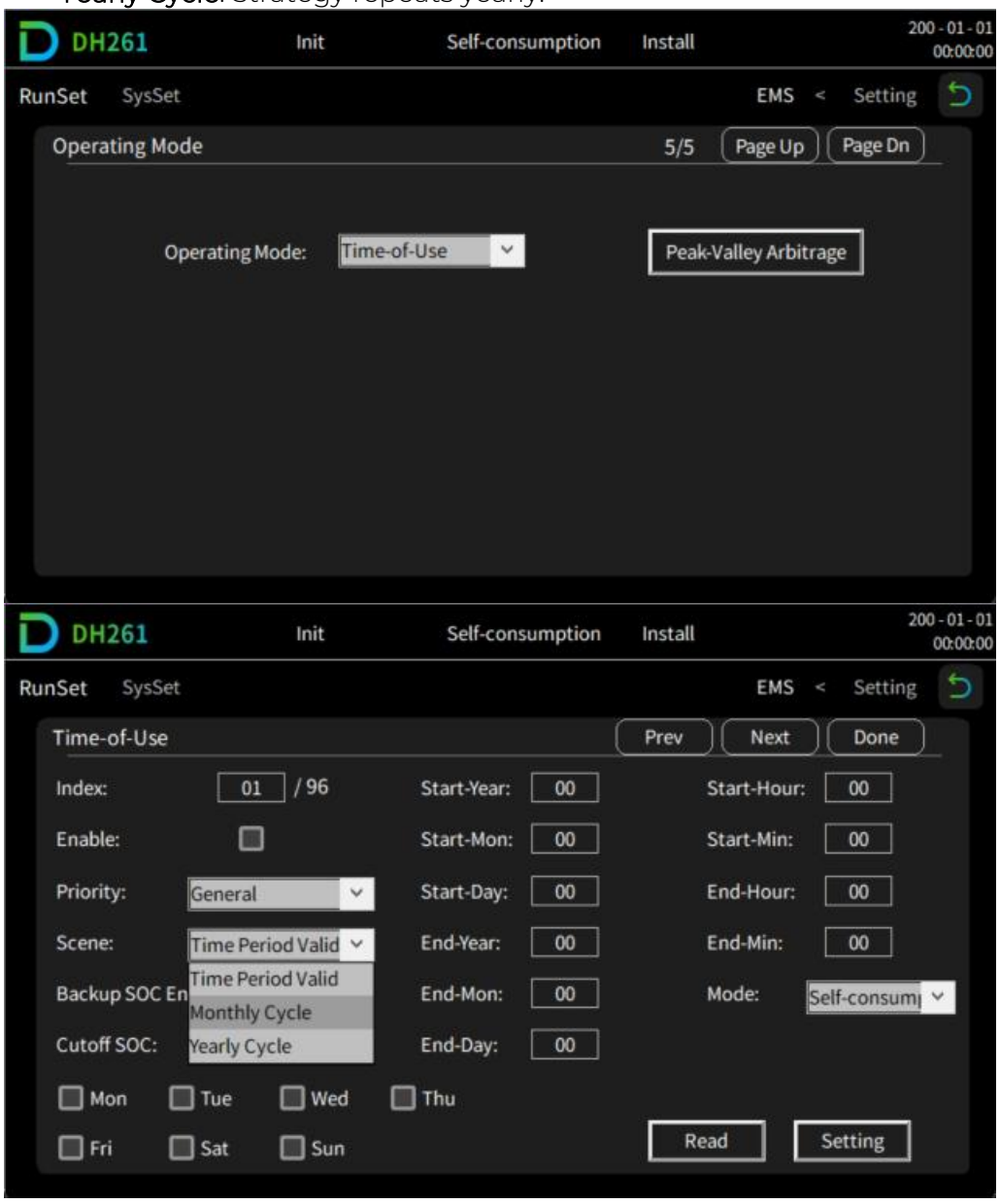
Time of use

- On Page 5/5 of Operation Mode, select **Time of use** and tap **Page Dn**.
- Switch among 96 time periods (15 minutes per period) via **Pre** /**Next** and select the target **Index**.
- Set **Enable.**
- Set **Priority**: General or Special.
- Set **Scene** :Time Period Valid, Monthly Cycle or Yearly Cycle.
- Configure the start/end time and valid weekdays of the period; enable **Backup SOC Enable** and set the target SOC power as needed.
- Select the **Mode** for the period: Self-consumption, Full Grid-feed or Peak shaving.
- Tap **Setting** to save the configuration. Repeat for all periods and tap **Done** to exit.

  Time Period Valid: Strategy only takes effect within the set time window (for

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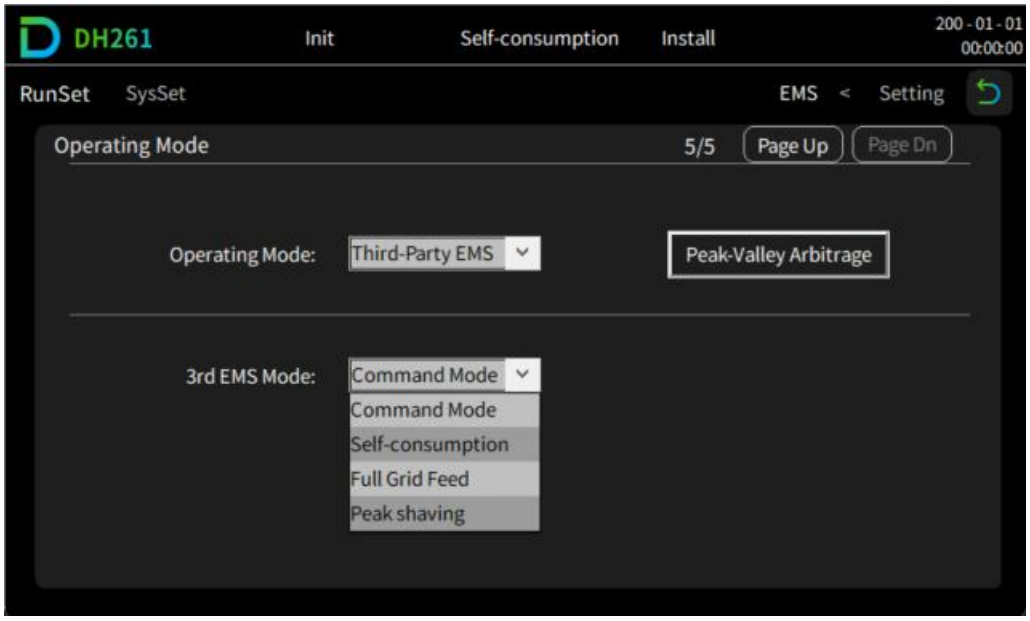
third-party EMS debugging).
Monthly Cycle: Strategy repeats monthly.
Yearly Cycle: Strategy repeats yearly.



Third-party EMS

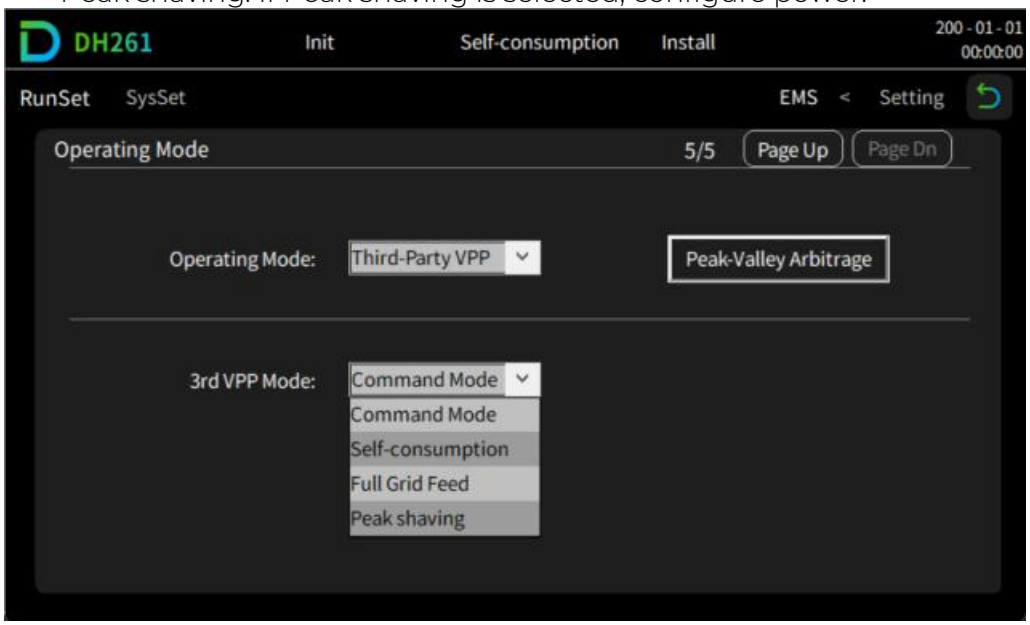
- On Page 5/5, set Operation Mode to Third-party EMS.
- Set Third-party EMS Operation Mode: Self-consumption, Full Grid Feed or Peak shaving. If Peak shaving is selected, configure power.

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Third-party VPP

- On Page 5/5, set Operation Mode to **Third-Party VPP**.
- Set **Third-Party VPP** Operation Mode: Self-consumption, Full Grid Feed or Peak shaving. If Peak shaving is selected, configure power.



Note: The above images are for reference only.

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7.3.Cloud Platform Navigation

The cloud platform supports login via APP and Web terminals.

APP

China

Download on the App Store

Android

Europe

Download on the App Store

GET IT ON Google Play

Scan the QR code to log in to the cloud platform APP.

Web

China Site:https://ems.dyness.cn
Europe Site:https://ems.dyness.com
Asia-Pacific Site: https://apacems.dyness.com
The above sites cover most countries worldwide. Contact Dyness for the country-site mapping details.

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8. Troubleshooting

If the issue is not resolved using the troubleshooting steps provided, contact Dyness.

Table 8-1 Fault Description

Fault Symptom	Troubleshooting
Power indicator off	Check if all circuit breakers are closed.
Run indicator off	Check if the EMS is in operating state.
Alarm indicator on	View alarms via the touchscreen or web interface. Check if the alarm is caused by improper operation. If not, contact the supplier.
Abnormal noise from the system	Check if the system air inlets/outlets are blocked or contain foreign objects. If the noise originates inside the system, contact the supplier.
Door alarm displayed	Verify the cabinet doors are fully closed.
Water immersion alarm displayed	Check if the system has water ingress or if the water immersion sensor wiring is damaged.
Emergency stop alarm displayed	Verify the emergency stop switch is in the released state.
SPD alarm displayed	Check if the surge protective device (SPD) is damaged or if the fault indicator is on. If damaged, contact the supplier for replacement.
Gas detector alarm displayed	Immediately stop use and contact the supplier.
Temperature detector alarm displayed	Immediately stop use and contact the supplier.
Smoke detector alarm displayed	Immediately stop use and contact the supplier.
Other alarms displayed	For all cases except grid-side anomalies, contact the supplier.
Transformer overload alarm	Check if the anti-backflow meter is connected and working properly, or damaged. Check if the transformer capacity setting is too low. If the fault persists, contact the supplier.
EMS-BMS communication abnormality	Power off and check if the communication cable is securely connected and correct. Restart the EMS and check if communication is

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Fault Symptom	Troubleshooting
	restored. If the error persists, contact the supplier.
EMS-fire protection module communication abnormality	Power off and check if the communication cable is securely connected and correct. Restart the EMS and check if communication is restored. If the error persists, contact the supplier.
EMS-PCS communication abnormality	Power off and check if the communication cable is securely connected and correct. Restart the EMS and check if communication is restored. If the error persists, contact the supplier.
EMS-DC/DC communication abnormality	Power off and check if the communication cable is securely connected and correct. Restart the EMS and check if communication is restored. If the error persists, contact the supplier.
EMS-meter communication abnormality	Power off and check if the communication cable is securely connected and correct.Restart the EMS and check if communication is restored.If the alarm persists, contact the supplier.
EMS-liquid cooling unit communication abnormality	Power off and check if the communication cable is securely connected and correct. Restart the EMS and check if communication is restored. If the alarm persists, contact the supplier.
EMS-dehumidifier communication abnormality	Check if the dehumidifier module is connected properly or damaged. If the alarm persists, contact the supplier.
EMS-HMI communication abnormality	Check if the HMI is connected properly or damaged. If the alarm persists, contact the supplier.
SD card detection abnormality	Check if the SD card is working properly; replace it if faulty. If the alarm persists, contact the supplier.
Network connection abnormality (default disabled)	Check the antennas of the 4G/Wi-Fi/LAN modules. If the alarm persists, contact the supplier.
EMS power-fail save abnormality	If the alarm persists, contact the supplier.

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Fault Symptom	Troubleshooting
EMS on-board Flash abnormality	If the alarm persists, contact the supplier.
Parallel slave unit lost alarm	Check if the slave address is set correctly. Power off and check if the parallel communication cable is securely connected and correct. If the fault persists, contact the manufacturer.
Parallel master unit lost alarm	Check if the master address is duplicated. Power off and check if the parallel communication cable is securely connected and correct. If the fault persists, contact the supplier.
Slave address duplication alarm	Check if slave addresses are duplicated. If the fault persists, contact the manufacturer.
Master address duplication alarm	Check if master addresses are duplicated. If the fault persists, contact the manufacturer.
Parallel data synchronization abnormality alarm	Power off and check if the parallel communication cable is securely connected and correct. If the fault persists, contact the manufacturer.
Parallel master unit fault	Check the corresponding fault in the master unit's fault list. Restart the EMS and check if normal operation is restored. If the fault persists, contact the manufacturer.
Parallel slave unit 2 alarm	Check the corresponding fault information for slave unit 2. If the fault persists, contact the manufacturer.
Parallel slave unit 3 alarm	Check the corresponding fault information for slave unit 3. If the fault persists, contact the manufacturer.

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9. System Maintenance

WARNING

- Maintenance operations must comply with local laws, regulations, and the notes in this manual.
- System maintenance must be performed by qualified personnel with electrical knowledge and relevant certifications.
- Before maintenance, ensure the outdoor cabinet is completely de-energized. Correct any non-conformities immediately during inspection.

9.1. System Maintenance Items

The system requires regular maintenance checks. The following items and frequencies are for reference only.

Table 9-1 System Maintenance Checklist

Step No.	Action	Pass Condition	Power State	Frequency
1	Visually check whether the label or nameplate of battery cabinet, pack and control box are complete	Labels must be free of damage and contain accurate information	Shutdown	Once every six months
2	Visually check whether the surface of the rack is deformed, rusted, damaged or peeling off	No visible damage, cabinet coating intact	Shutdown	
3	Check whether the outdoor cabinet is securely fastened with expansion bolts	No loosening or rust	Shutdown	
4	Check whether control box indicators work normally (Run, Fault, Warning)	Indicator light stays on	Run	
5	Observe whether there are animal carcasses or traces of movement in the cabinet	No obvious signs of life activity	Shutdown	
6	Check whether the sealing strip falls off or is damaged	No shedding or damage	Shutdown	
7	Check whether there is abnormal noise in the water-cooled exhaust system	No noticeable abnormal sounds	Run	
8	Check whether the water cooling pipe leaks	No leaks	Run	
9	Check whether there is abnormal deformation, leakage or unusual odors with PACK module	No obvious abnormalities	Shutdown	
10	Check whether the surface temperature of PACK is within normal range	Operating temperature: 0–50℃	Shutdown	
11	Check fan operating status, whether blocked, and abnormal noise	Runs smoothly with no abnormal noise	Run	
12	Check whether voltage and temperature sensor harness is securely connected	No loosening, good insulation	Shutdown	
13	Check operational status of battery relay and precharge relay	Normal operation, no abnormal sounds	Run	
14	Check the water immersion detector at the bottom of battery compartment	No alarms, lines intact	Run	
15	Check that all cable entry holes are properly sealed	No water seepage, fully sealed	Shutdown	
16	Check whether cable connections are	No loosening, insulation	Shutdown	

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	loose or damaged	intact	
17	Communication cable check: broken, connector loosened	No loosening, no damage	Shutdown
18	Check whether grounding copper busbar is securely fastened and measure grounding resistance	Ground resistance ≤4Ω	Shutdown
19	Check emergency stop button function test	Pressing this button will stop the system from running	Run
20	Cloud platform data full-screen screenshot – PCS data	No abnormal data	Run
21	Cloud platform data full-screen screenshot – BMS data	No abnormal data	Run
22	Cloud platform data full-screen screenshot – Fire Protection Module data	No abnormal data	Run
23	Cloud platform data full-screen screenshot – Liquid-Cooled Module data	No abnormal data	Run
24	Cloud platform data full-screen screenshot – Dehumidifier Module data	No abnormal data	Run
25	Cloud platform data full-screen screenshot – Air Conditioning Module data	No abnormal data	Run
26	Connect and launch BMS host computer, initiate data logging, save 3 minutes of data, and name it after the power station	No abnormal data	Run

9.2. Coolant Filling Procedure

(1) **Pre-Operation Check:** Confirm the unit and pipelines are properly installed and secured with no loose connections. Ensure the equipment is powered off, and the pump pipeline is fully drained in advance. Confirm the coolant is the OEM-specified type; do not mix different brands or models.

(2) **Pump Hose Connection:** Connect the outlet of the refilling pump to the liquid cooling unit's filling port (install a check valve as needed). Insert the pump inlet into the coolant barrel.

Note: Open the front filling port valve before adding coolant.



Closed Open

Figure 9-1 Filling Port Valve Status Diagram

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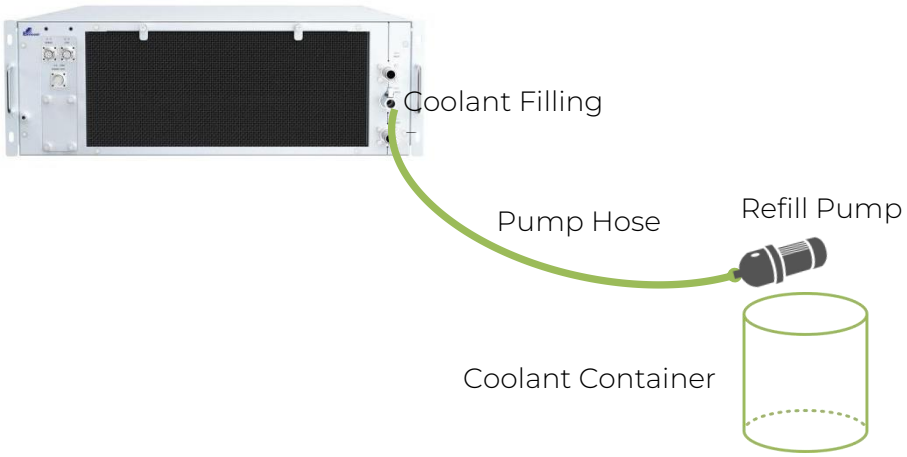


Figure 9-2 Filling Pipeline Connection Diagram (For Reference Only)

(3) **Power On the Pump:** After confirming the unit status is normal, power on the refilling pump to start adding coolant.
(4) **Stop Refilling:** Monitor system pressure during filling. Stop when the static inlet/outlet water pressure reaches **1.2~1.5Bar**.
(5) **Close Valves:** After filling, first close the filling port valve, then power off the pump, and remove the hose and check valve.
(6) **Air Venting and Acceptance:** Complete system venting using the unit's pump venting function. Confirm there are no leaks, system pressure is stable with no drop, and the refilling procedure is complete.
(7) **Alternative Refilling Port:** Coolant can also be refilled via the liquid cooling pipeline port located at the bottom of the electrical compartment, following the same steps above.

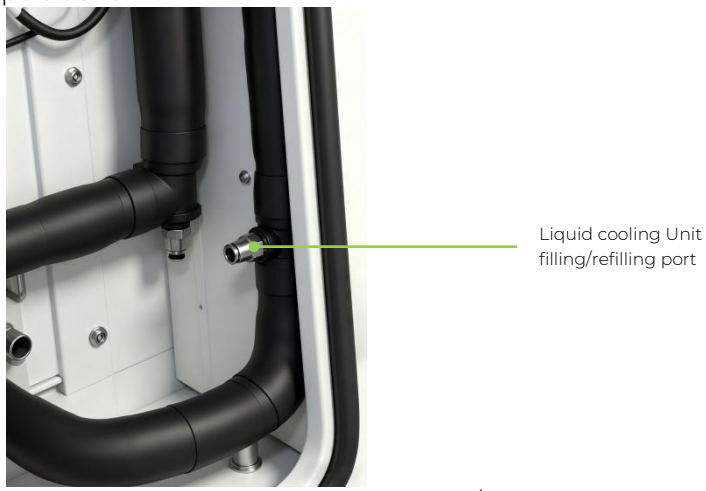


Figure 9-3 Schematic of Liquid Cooling Unit Filling/Refilling Port (For Reference Only)

Note:
Do not mix different types or brands of coolant during refilling, as this may cause pipeline corrosion or performance degradation.
Ensure no air bubbles remain in the pipeline during refilling to prevent air from entering the cooling unit.

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10. Quality Assurance

Warranty period please refer to *Warranty Agreement.*

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

The following is the standard spare parts list provided with the cabinet:

No.	Item	Qty	Purpose
1	MSD	5	Manual Service Disconnect
2	Baffle	2	Fastening Component
3	Lifting Lug	4	Hoisting
4	M12×80 Expansion Bolt	4	Cabinet fixing
5	Fire Adapter DN32-DN65	1	Fire system connection
6	Fire Water Inlet	1	Fire system connection
7	16-core Connector	1	UCOM terminal
8	4-core Connector	1	SCC VG terminal
9	RJ45 Connector	6	Ethernet waterproof
10	250A Elbow Plug (Orange)	3	Grid L1/L2/L3
11	250A Elbow Plug (Black)	3	Grid N
12	120Ω Plug-in Resistor	As needed	Communication terminal
13	Factory Inspection Report	1	Paper
14	User Manual	1	Electronic

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12.Appendix

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

Items.	Checklist	Confirm
1	Appearance and internal components intact.	☐
2	Cabinet assembly secure.	☐
3	Logos and labels clear.	☐
4	GRID cable connected correctly.	☐
5	MSD connections firm.	☐
6	Communication cables connected.	☐
7	Grounding cable intact.	☐
8	Liquid-cooling pipelines leak-free.	☐
9	Meter reading normal.	☐
10	All connections correct and firm.	☐
11	Manual components normal.	☐
12	Circuit breakers functional.	☐
13	Buttons and indicators normal.	☐
14	Verify that the power indicator operates normally.	☐
15	Verify that the run indicator operates normally.	☐
16	HMI displays normally.	☐
17	No tools/debris inside.	☐
18	Cabinet doors operate smoothly.	☐

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