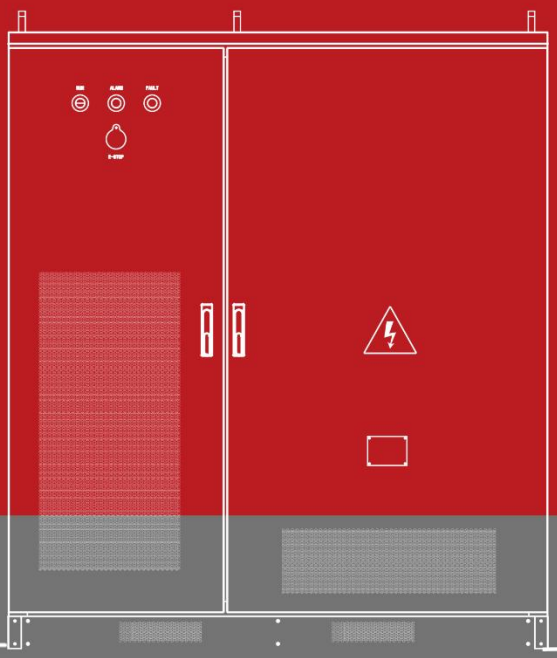
User Manual

Lithium Battery Storage System-OBE261-Y



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Cautions

Customers must abide by the operating specifications and any installation, maintenance, and use of this product must strictly abide by the relevant safety regulations:

- *It is forbidden to store or use at high temperatures, and it must be kept from heat sources. These environments above the safe temperature range will significantly decrease this product's performance and life and even cause serious consequences such as burning and explosion.*
- *It is forbidden to store and use in an environment with high static electricity or electromagnetic radiation. Otherwise, the electronic components in this product will be damaged, which may cause safety hazards*
- *Do not get wet or even immerse in water. Otherwise, it may cause an internal short circuit, function loss, or abnormal chemical reaction of the product and cause fire, smoke, explosion, etc.*
- *Suppose you find smoke, heat, discoloration or deformation, or any abnormal phenomenon during use, storage, transportation, and service. In that case, you should immediately contact the professional department to take appropriate emergency measures and contact technical support immediately.*
- *Do not dispose of discarded products in fires or hot stoves. Waste batteries should be recovered and recycled by professional institutions or organizations.*
- *Installation and maintenance must only be performed by qualified personnel, and the user must strictly comply with all applicable safety regulations. It is strictly forbidden for non-professionals to install or repair the battery system and abuse it beyond the range.*

Declaration

Before you use this product, make sure you have read and fully accept the following information:

- *Zhejiang Chisage New Energy Technology Co., Ltd will not be liable for the loss of personnel and property caused by the violation of the product specifications, conditions of use, scope of work, precautions and other provisions in this document.*
- *There are potential risks and hazards in the process of installation, storage, transportation, use, maintenance and repair of this product. Please perform operations according to the corresponding requirements.*
- *In the use, service and maintenance of products, users should establish correct rules, Zhejiang Chisage New Energy Technology Co., Ltd will give necessary technical support.*
- *Zhejiang Chisage New Energy Technology Co., Ltd reserves the right of final interpretation of all problems of this product. If you have any question or objection to the product, please contact the professional department of Zhejiang Chisage New Energy Technology Co.,*

Ltd.

- *During the storage process, the storage temperature and humidity do not exceed the above requirements and must be protected from rain.*
- *It is strictly prohibited to disassemble product without the permission of Zhejiang Chisage New Energy Technology Co., Ltd Zhejiang Chisage New Energy Technology Co., Ltd is not responsible for the problems arising therefrom.*

Abbreviation

BMS	*Battery Management System*
BOL	*Begin of Life*
CAN	*Controller Area Network*
EOL	*End of Life*
HV	*High Voltage*
LV	*Low Voltage*
OCV	*Open Circuit Voltage*
SOC	*State of Charge*
ESS	*Energy Storage System*
PCS	*Power Conversion System*
MPPT	*Maximum Power Point Tracker*
STS	*Static Transfer Switch*
PV	*Photovoltaic*
SPD	*Surge Protector Device*
BMU	*Battery Monitoring Unit*
ATS	*Automatic Transfer Switch*

Definition

Battery Cell	*The minimum energy storage unit, a basic electrochemical energy storage device, consists of a positive electrode, a negative electrode, an electrolyte, a separator, and a casing, also known as a battery cell.*

Battery Module (Battery PACK)	*A power supply system composed of several battery modules, circuit equipment (protection circuit, cell management system, electrical and communication interfaces), thermal management devices, etc., is used to provide energy for electrical devices.*
Nominal Voltage	*Indicates or identifies the appropriate voltage approximation for the cell or pack.*
Capacity	*The amount of electricity that can be provided by a battery cell that is fully charged under specified conditions. Usually expressed in Ah.*
Energy Capacity	*The energy can be provided by a fully charged battery cell or pack under specified conditions. Usually expressed in Wh or kWh.*
Nominal Capacity	*At the beginning of life (BOL), the minimum capacity that a fully charged cell can be provided under specified conditions is when it is discharged at a rate of 1C (C-rate).*
Unit	*"V" (Volt): Electrical voltage unit;* *"A" (Ampere): Electrical current unit;* *"Ah" (Ampere-Hour): Electrical charge unit;* *"Wh" (Watt-Hour): Electrical energy unit;* *"Ω" (Ohm): Resistance unit;* *"°C" (Celsius degree): Temperature unit;* *"mm"(millimeter): Length unit;* *"s" (second): Time unit;* *"kg" (kilogram): Weight unit;* *"Hz" (Hertz): Frequency unit.*

1. General Introduction

1.1 Scope and Purpose

This product user manual only applies to the energy storage outdoor integrated cabinet OBE261-Y designed by Zhejiang Chisage New Energy Technology Co., Ltd.

The user manual aims to introduce the OBE261-Y product information and installation, operation, and maintenance guidelines. Include product overview, key product parameters ,product composition and other cautions.

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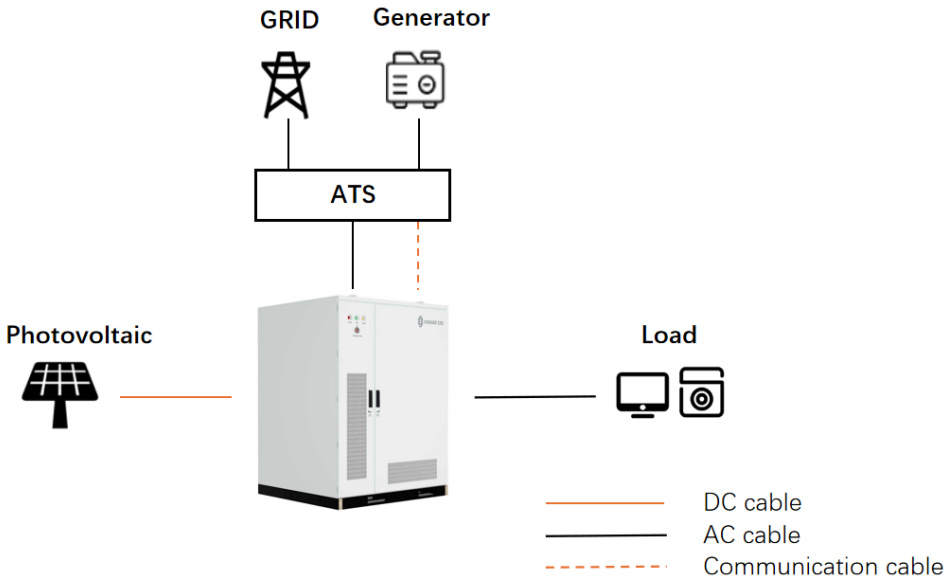
1.2 Brief Introduction

OBE261-Y is designed according to market requirements to meet the client's commercial requirements. You can charge the battery when PV or grid is available and discharge the battery when backup power is required.

Multiple battery systems can be connected in parallel to build a higher-capacity energy storage system to satisfy the long-time energy storage demand.

1.3 Product Application Topology

This product can be connected to a diesel generator via an external ATS, forming a solar-storage-diesel microgrid system.



2. Key Product Parameters

The electrical performance parameters of the 261kWh Integrated Solar-Storage Cabinet Energy Storage System are as follows:

Parameter Table	
Battery Parameters	
Battery Type	*Lithium Iron Phosphate*
Cell Capacity	*314Ah*
Number of Series Strings	*1P260S*
Rated Current	*157A*
Maximum Current	*157A*
Battery Voltage Range	*728~936V*
Cooling Type	*Liquid Cooling*
AC Parameters	
Rated Power	*125kW*
Maximum Power	*137.5kVA*
Rated Voltage	*230V/400V*
Voltage Deviation	*-15%~15%*
Maximum AC Current	*200A*
Wiring Method	*3P4L*
Frequency	*50Hz/60Hz*
Power Factor	*0.99*
Power Factor Range	*-1 (lagging) ~ 1 (leading)*
Maximum Number of Parallel Units	*4*
Grid-connected/Off-grid Switching Time	*<20ms*
AC Voltage	*<3% (linear load)*

Harmonics	
Photovoltaic Parameters	
Rated Input Power	252kW
Maximum Input Power	280kW
Input Voltage	200-728V
Full Load Voltage Range	394-728V
Number of MPPTs	4(1)
System Parameters	
Weight	≈3t
Dimensions (W*H*D)	1650*1950*1300mm
Cycle Life	≥8000 cycles (25°C, 0.5P, EOL 70%)
Operating Ambient Temperature	-20~55℃(derate above 45℃)
Operating Ambient Humidity	0~95% RH (non-condensing)
Protection Rating	IP54
Corrosion Protection Rating	C4
Noise	≤75dB
Altitude	3000 m (>2000 m derating)
Fire Suppression	Aerosol
Communication	Ethernet, RS485
Conforms to standards	CE, UN38.3

(1) The number of MPPT channels can be selected as required (0–4, 2 as standard).

Parameters are subject to change without notice due to product update.

3. Product Composition

3.1 Product Layout

The 261kWh energy storage outdoor integrated cabinet consists of a battery compartment and an electrical compartment. The battery compartment contains batteries, a liquid cooling system, and a fire suppression system; The electrical compartment contains an energy storage converter, STS, a high-voltage box, MPPT, grid, photovoltaic, and load inlet switches, and an energy management system.

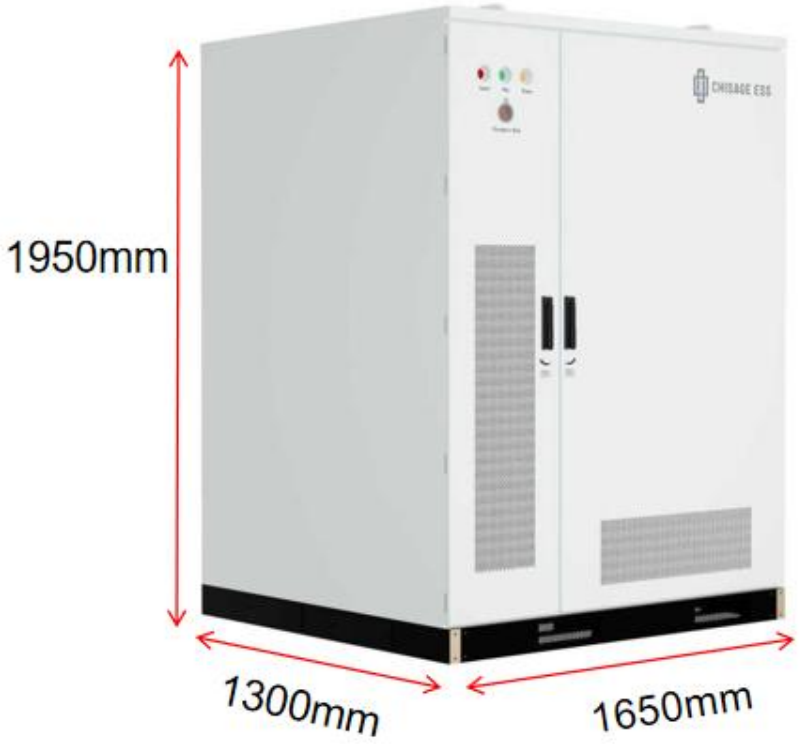


Fig. 3-1 OBE261-Y dimension drawing

The internal layout is shown in the figure below. Local manual operation and strategy settings can be performed via the touchscreen, and remote monitoring and operation can be performed via the cloud.

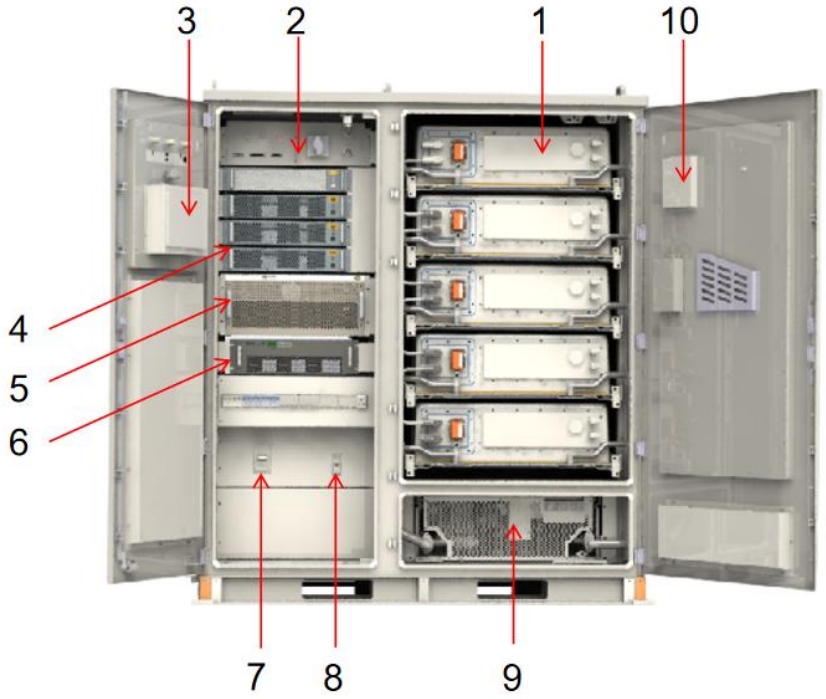


Fig. 3-2 OBE261-Y layout

No.	*Name*	*Function*
1	*Battery Module*	*Electrical Energy Storage*
2	*High-Voltage Box*	*Control and protection of the battery circuit*
3	*HMI & Energy Management System*	*System energy control and equipment monitoring (Energy Management System located at the rear)*
4	*MPPT Module*	*Operates in boost MPPT mode, connected to photovoltaic (PV)*
5	*PCS*	*AC/DC bidirectional conversion*
6	*Static transfer switch*	*Automatic fast switching between grid-connected and off-grid modes*
7	*Grid switch*	*Disconnects and protects the grid side*
8	*Load switch*	*Disconnects and protects the load side*
9	*Liquid Cooling Unit*	*Ensure the battery temperature is within the optimal range.*
10	*Aerosol*	*Fire extinguishing*

3.2 Cell

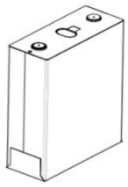


Fig. 3-3 Cell

This system uses 314Ah lithium iron phosphate prismatic aluminum-cased cells. The key parameters are shown in the table below:

Parameter	*Specification*
Rated Capacity	*314Ah*
Nominal Voltage	*3.2V*
Weight	*5.6kg*
Voltage Range	*2.8–3.6 V*
Charging operating temperature	*0-60℃*
Discharge operating temperature	*-30-60℃*

3.3 Battery Module

The battery module is assembled by connecting 1P 52S 314 Ah lithium iron phosphate modules in series, with the 1P 52S_166.4V314 Ah design featuring the positive terminal on top and the negative terminal on the bottom. In addition to the cells, wiring harness, and structural components, each battery box is equipped with one Battery Monitoring Unit (BMU), and each PACK is equipped with a maintenance switch.

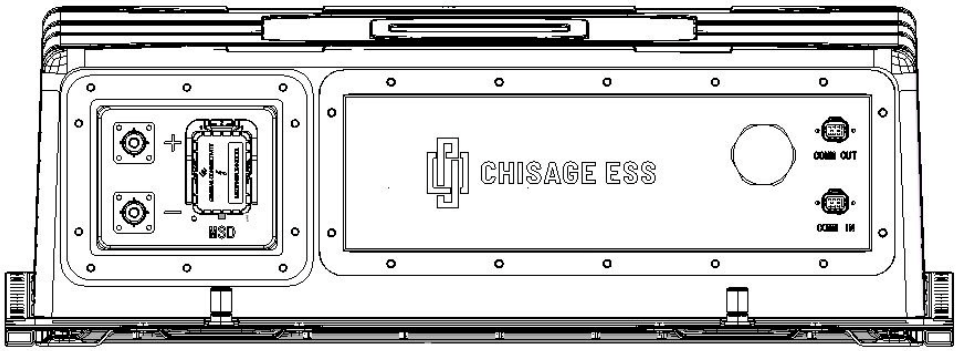


Fig. 3-4 Battery module

No.	Parameter	Specification	Unit	Remarks
1	Nominal Capacity	314	Ah	
2	Number of Cells	52	pcs	
3	Dimensions	1172±2(L)*808±2(W) *242±2(H)	mm	
4	Weight	330±5	kg	
5	Operating Voltage Range	145.6～189.8	V	Cell: 2.8~3.65
6	Nominal Voltage	166.4V@0.5P 25℃	V	Cell: 3.2V
7	Total Energy (BOL)	52249.6±50@0.5P 25℃ BOL	Wh	100%DOD
8	Standard Continuous Charge/Discharge Current	157	A	

3.4 High-Voltage Box

The high-voltage box internally integrates the battery management system main controller, DC power distribution, and uninterruptible 24V power distribution. The battery management system main controller is responsible for collecting the cell temperature and voltage transmitted from

the battery PACK slave controller, and transmitting the data to the EMS. Based on the real-time status, it controls the DC power distribution to protect the battery. The uninterruptible 24V power distribution is used to provide 24V power supply to the battery management system and STS during off-grid operation, ensuring system operation.

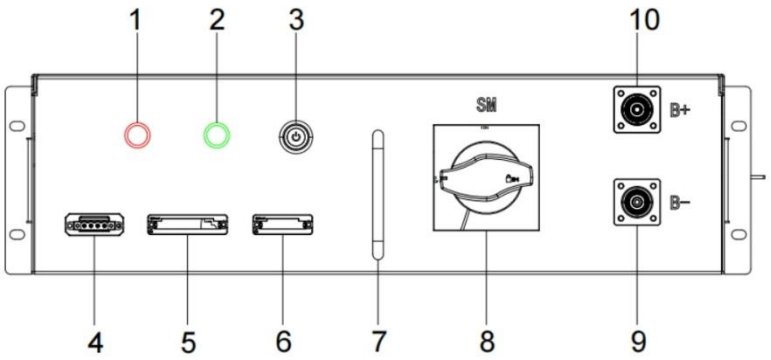


Fig. 3-5 High-voltage box

No.	*Component*	*Function*
1	*Red indicator light*	*When lit, the High-Voltage Box is in a fault state.*
2	*Green indicator light*	*When lit, the High-Voltage Box is in normal state, allowing charge and discharge.*
3	*Button (with light)*	*Press: DC 24V power supply turns on.* *Light on: The High-Voltage Box receives 24V power supply (from DC or AC power source).*
4	*Power interface COM3*	*220V power supply input and 24V output*
5	*External communication interface COM2*	*Includes debugging and EMS communication*
6	*Master-slave communication interface COM1*	*Communication between High-Voltage Box and battery pack*
7	*Handle*	*For easy installation*
8	*Operating handle*	*Disconnect/close the main circuit of the High-Voltage Box*
9	*Battery Positive Terminal Interface*	*Connect to battery positive terminal*
10	*Battery Negative Terminal*	*Connect to battery negative terminal*

	Interface	

3.5 Energy Management System

The Energy Management System (EMS) is an important component of the energy storage system, forming the energy storage system together with the Power Conversion System (PCS), MPPT (optional), STS, Battery Management System (BMS), environmental monitoring equipment, fire protection system, electricity meter, liquid cooling unit, and access control system, and controls the entire system, enabling functions such as grid-connected/off-grid control, peak shaving and valley filling, self-consumption, and scheduled mode.
The EMS collects data and signals from local devices and, through internal control strategies, ensures the safe, reliable, efficient, and economical operation of the energy storage system.



Fig. 3-6 EMS

3.6 Energy Storage Converter

The PCS is a bidirectional, current-controlled converter that connects the energy storage battery system to the grid. Its primary function is to enable energy exchange between the battery and the grid, managing and controlling the battery's charging and discharging. It performs bidirectional DC-to-AC and AC-to-DC conversion, converting AC power to DC to charge the battery, and DC power to AC to supply loads or feed energy back into the grid. This system uses a 125 kW energy storage converter (PCS) with off-grid capability.



Fig. 3-7 PCS

3.7 MPPT

The MPPT is connected to the photovoltaic panels to achieve maximum power point tracking, thereby improving the conversion efficiency of the photovoltaic panels. This module features overcurrent protection, overtemperature protection, low-voltage side overvoltage and undervoltage protection, high-voltage side overvoltage and undervoltage protection, overpower protection, low-voltage side short-circuit protection, reverse polarity protection, and other protective functions;

The DC input voltage on the photovoltaic side must be lower than the battery system's minimum voltage of 728 V; i.e., the high-voltage side of the MPPT module connects to the battery, and the low-voltage side connects to the photovoltaic panels.

Depending on the customer's requirement for connecting photovoltaic panels, 0 to 4 modules can be optionally configured.



Fig. 3-8 MPPT

3.8 Power Distribution Module

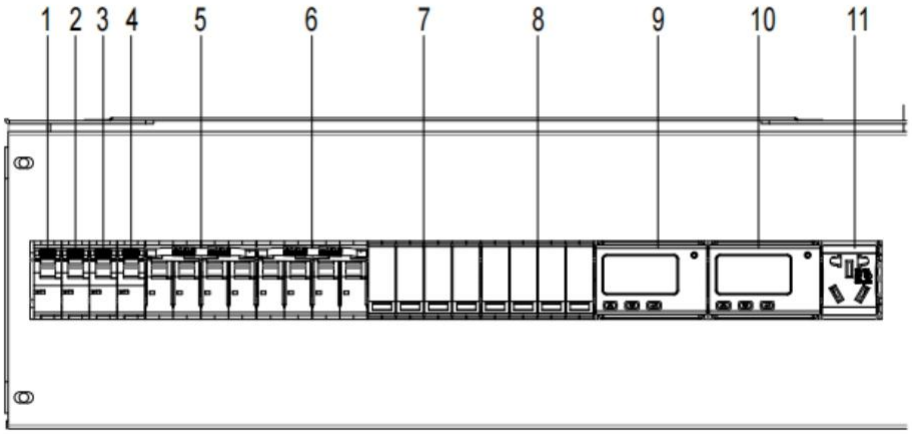


Fig. 3-9 Power Distribution Module

1	*QF16*	*Socket power supply*
2	*QF15*	*Lighting and dehumidifier power supply*
3	*QF14*	*High-Voltage Box and fan power supply*
4	*QF13*	*Liquid Cooling Unit power supply*
5	*QF11*	*SPD1 Backup Protection Circuit Breaker*
6	*QF12*	*SPD2 Backup Protection Circuit Breaker*
7	*SPD1*	*Grid-side Surge Protective Device*
8	*SPD2*	*Load-side Surge Protective Device*
9	*Meter-GRID*	*Grid-side Electricity Meter*
10	*Meter-LOAD*	*Load-side Electricity Meter*
11	*Commissioning Socket*	

The specific module components and layout are subject to the actual product.

3.9 Fire Protection System

Composite Detector: This system is equipped with smoke detectors and heat detectors on the top of the battery compartment. When both detectors within the composite detector unit detect an anomaly, the fire extinguishing agent is released to extinguish the fire. Simultaneously, the

extinguishing agent feedback signal is sent to the EMS, which can then relay the information to the site monitoring system or the user.

3.10 Liquid Cooling Unit

The Liquid Cooling Unit regulates the temperature of the battery pack within the energy storage system to ensure it consistently operates within the appropriate temperature range, thereby maintaining optimal system performance. By coordinating with the EMS for strategy control, minimal auxiliary power consumption of the energy storage system is achieved.



Fig. 3-10 Liquid Cooling Unit

4. Product Packaging, Transportation, Storage, and Installation Instructions

4.1 Packaging

Battery pack When delivered separately to the customer without special packaging requirements, the product shall be placed in a specially designed box, containing desiccant, secured with strapping bands, and each corner protected with corner protectors. If the customer has other packaging requirements, they must be negotiated with Zhejiang CHISAGE New Energy Technology Co., Ltd. before shipment. The packaging box shall contain the following documents:

- *Product Manual*
- *Packing List*
- *Product Shipment Report*

4.2 Transportation

The modules are transported in a partially charged state. During transportation, protect against severe vibration, impact, direct sunlight, and rain. Do not invert, and ensure that no short circuit occurs. During handling, handle gently, and strictly avoid dropping, rolling, heavy pressure, and inversion.

Hoisting and Transportation

This product is equipped with lifting rings on the top, allowing for hoisting and transportation. When hoisting the equipment, the following minimum requirements must be met:

Safety at the site must be ensured during hoisting;

During hoisting, transportation, and installation operations, a qualified professional must supervise the entire process on site; the strength of the slings used must be sufficient to bear the weight of the equipment;

Ensure all sling connections are secure and reliable, and ensure that the slings connected to the corner fittings are of equal length;

The length of the slings may be adjusted appropriately according to actual site requirements; the equipment must be kept stable and not tilted throughout the entire hoisting process; after the equipment is hoisted 300 mm off the support surface, pause and check that the rigging connections to the equipment are secure before continuing the hoist.

Take all necessary auxiliary measures to ensure safe and smooth lifting of the equipment.

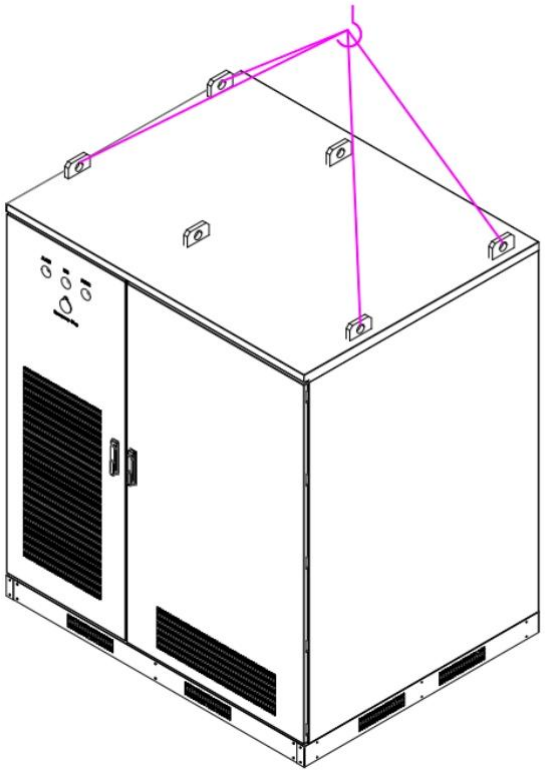


Fig. 4-1 Cabinet Lifting Diagram (without PACK)

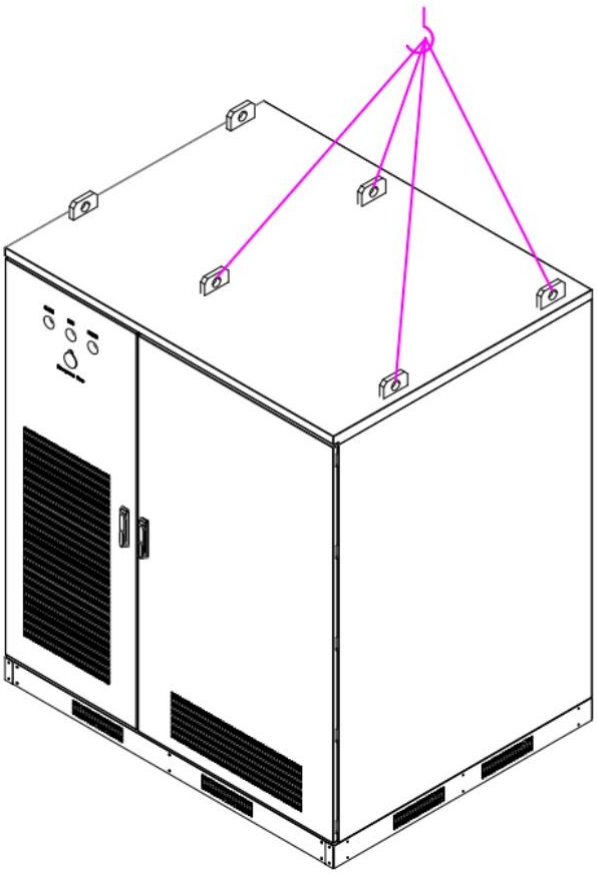


Fig. 4-2 Cabinet Lifting Diagram (with PACK)

Note: The lifting points differ when the cabinet is with or without PACK.

Forklift Transport

The bottom of this product is equipped with forklift pockets specifically for forklift transport. The product can be moved using the bottom forklift pockets on the front and rear sides. When the installation site is level, the product may be moved using a forklift. The forklift transport method shall meet the following requirements:

The forklift shall have adequate load capacity.

The length of the plug pins shall meet the equipment requirements.

The plug pins shall be inserted into the forklift pockets at the bottom of the station.

During transportation, moving and lowering the product should be slow and steady.

The product must only be placed on a level surface. The location should be well-drained and free of any obstacles or protrusions.

Under no circumstances shall the equipment be moved by inserting plug pins into any location other than the forklift pockets.

4.3 Storage

The product storage environment requirements are as follows:

1.Storage temperature: The allowable storage temperature range is -10°C to 35°C. If the product is to be stored for more than 1 month but not more than 6 months, perform one charge/discharge cycle beforehand and adjust the SOC to 20%–50%. Zhejiang CHISAGE New Energy Technology Co., Ltd. shall not be liable for any capacity loss or other damages resulting from storage with SOC outside the 20%–50% range, or from storage exceeding 6 months without charge/discharge maintenance.

2.During actual operation, the two parties shall agree on a supplementary charging strategy based on the shipping SOC and self-discharge conditions.

3.The product shall be stored in a clean, ventilated, and cool environment, protected from direct sunlight, high temperatures, corrosive gases, severe vibration, mechanical shock, and heavy pressure; keep away from heat sources.

4.4 Installation

The installation sequence is as follows:

STEP1	*Transport to the installation location at the project site.*
STEP2	*Remove the battery wooden crate. After confirming that the battery pack shows no external damage, open the cabinet door to install the PACK.*
STEP3	*Connect the PACK power cables and communication cables.*
STEP4	*Install the liquid cooling pipelines and fill the coolant.*
STEP5	*PV Cable Connection*
STEP6	*Grid Cable Connection*
STEP7	*Load Cable Connection*
STEP8	*Product Power-On*
STEP9	*HMI Settings*

4.4.1 PACK Installation

PACK Installation Precautions*:*

- *Protection Requirement: During installation, ensure a sufficient safety distance between PACKs;*
- *PACK Installation Flatness Requirement: To ensure reliable installation of PACKs in the energy storage system, the mounting surface flatness of each PACK shall be ≤0.5 mm;*
- *The installation orientation of the PACK in the energy storage system must be clearly defined during the development phase; it is strictly forbidden to install the PACK in an inverted or tilted orientation that deviates from the defined orientation;*

Precautions:

- *Note the mating orientation of the plug and socket; a guide mechanism is provided. If resistance is too high during plug insertion, do not force the assembly;*
- *When making electrical connections, ensure that the mating connectors are properly matched, and check that the connectors are clean, free of oil and other contaminants, and that no foreign objects such as metal particles have fallen into the connectors. After inserting the connector plug, verify that the latch is fully*

engaged.

- *When performing continuity tests at the customer site, a dedicated test fixture must be used. It is strictly prohibited to insert a multimeter probe directly into the connector for testing.*

4.4.2 Installation Environment Requirements

When selecting an installation site, thoroughly consider the characteristics of the surrounding environment (climatic conditions, geological factors such as stress wave emission and groundwater level; ensure no overhead cables above the installation point and no pipelines or other underground facilities below; the equipment must maintain a specified safety distance from buildings, with the distance determined in accordance with fire safety regulations).
The surrounding environment shall be dry and well-ventilated.
Ensure that there are no trees around the installation site to prevent strong winds from blowing down branches or leaves that could block the product's air inlet.
The installation site shall be away from areas with concentrated toxic or harmful gases, and away from flammable, explosive, corrosive, or dust-laden materials.
To prevent noise disturbances, the equipment shall be installed away from residential areas.

When constructing the foundation, the cable routing requirements of the equipment must be considered, and a trench or other cable outlet openings shall be reserved. The equipment uses a bottom cable outlet method, and cables must be routed through the trench. Therefore, a trench shall be pre-installed on site. For the trench, the following requirements apply: The trench must incorporate necessary waterproof and moisture-proof design to prevent cable aging and short circuits, which could affect the normal operation of the energy storage equipment.
Due to the high power of the equipment, the cables required are thicker, and the trench design must fully take into account the cross-sectional area of the cables. The customer may determine the number of cable supports based on requirements. The cable supports must fully account for the weight and dimensions of the equipment.

Space requirements for the integrated energy storage battery cabinet: The maintenance space

in front of the cabinet door shall be not less than 1.3 m (if a forklift is needed for pack replacement, a clearance of 2.5 m is recommended). The maintenance space on the left and right sides shall each be not less than 0.1 m. The maintenance space behind the cabinet door shall be not less than 0.8 m. Specific installation distances shall comply with local design and installation code requirements.

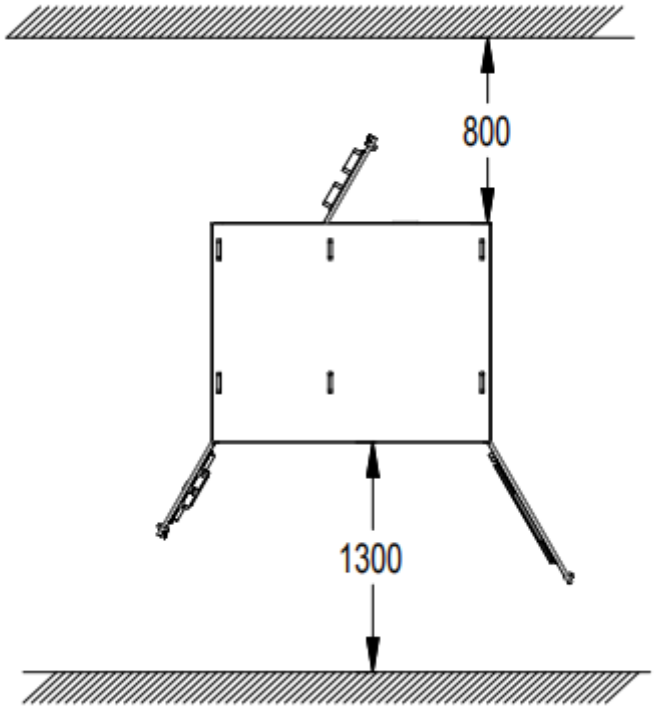


Fig. 4-3 Requirements for single product

4.4.3 Electrical Installation

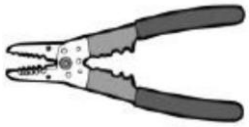
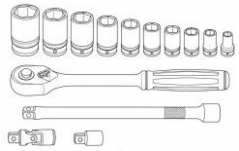
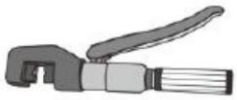
The recommended cables and terminals are as follows:

Table 4-1 List of Recommended External Wiring Cable Specifications

No.	*Type*	*Wiring Specification*	*Terminal Specification*
1	*PV1-PV4*	*50mm²*	*SC50-8*
2	*Grid*	*120mm²*	*SC120-10*
3	*Load*	*70mm²*	*SC70-8*
4	*PE*	*50mm²*	*SC50-8*

Tools Required for Wiring:

Table 4-2 List of Tools Required for Wiring

Name	*Images*	*Name*	*Images*
Wire Stripper		*Socket*	
Crimping Tool		*Phillips Screwdriver*	
Heat Gun		*Insulating Gloves*	
Hex Key		*Insulating Shoes*	
Multimeter		*Safety goggles*	

Photovoltaic wiring

① *Switch the PV circuit breaker down to the OFF position;*

② *Route the cable into the cabinet through the cable entry hole;*

③ *Use wire strippers to strip the cable insulation;*

④ *Use crimping pliers to crimp the terminals;*

⑤ *Use the supplied M8 bolt (hex socket) to secure the connection;*

As shown in Fig. 4-3, red is positive, blue is negative, subject to the actual number of input circuits.

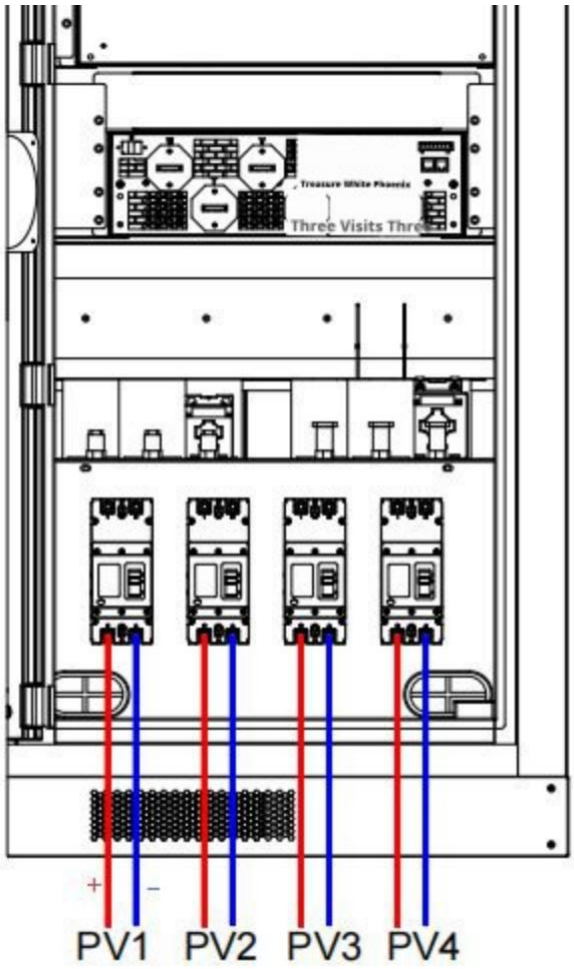


Fig. 4-3 Photovoltaic Wiring Diagram

Grid Wiring and Load Wiring

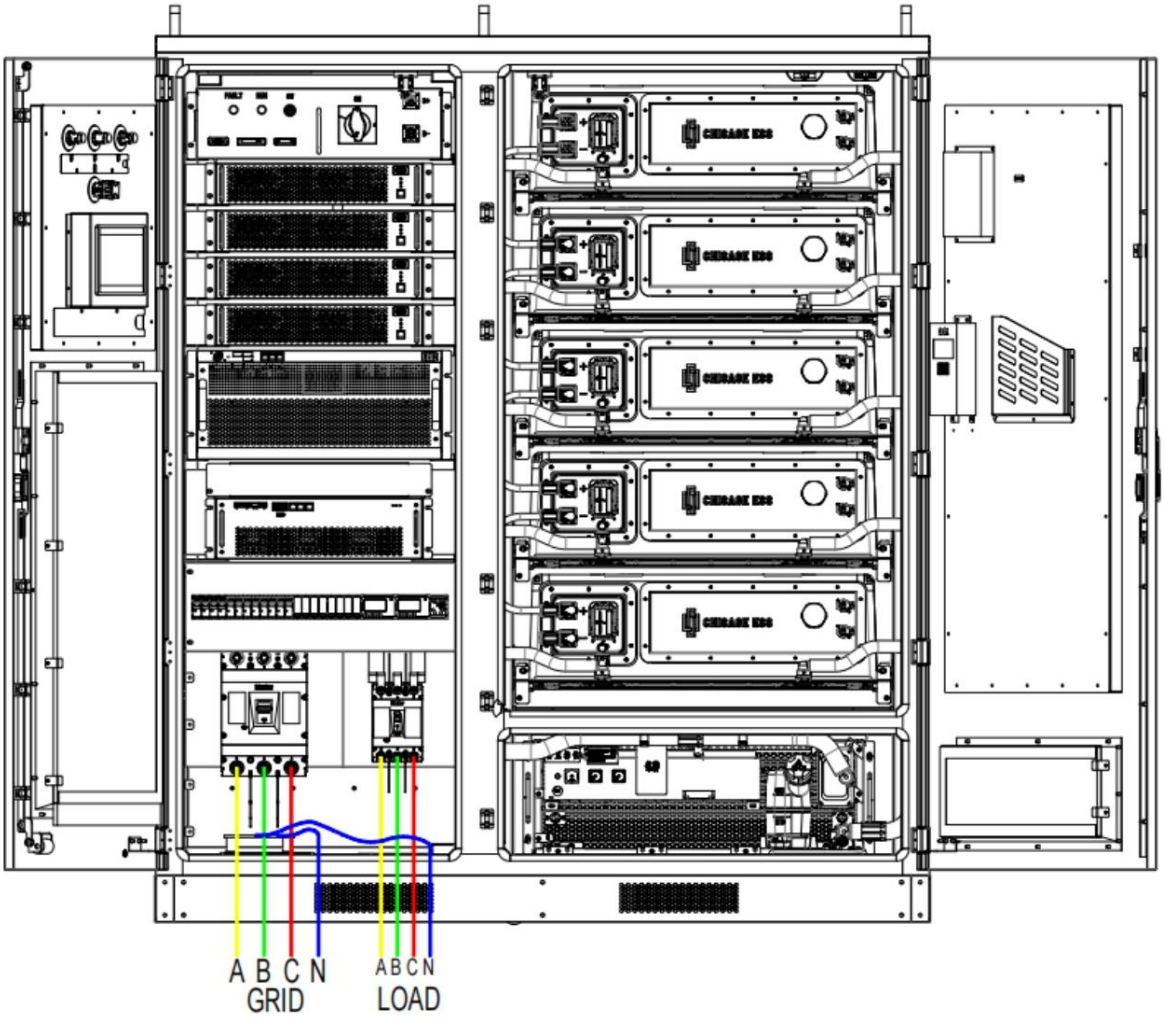


Fig. 5-4Grid and Load Wiring Diagram

M8 cabinet grounding screw

Cabinet grounding can be accomplished using a grounding flat bar or grounding cable.

It is recommended to use a grounding flat steel or a 50 mm² copper grounding cable to reliably connect the grounding point to the cabinet's grounding point.

If a cable is used, it is recommended to use crimped SC50-8 or DT50-8 terminal lugs. Secure the SC/DT terminal to the connection hole using the supplied M8 bolt, and tighten to a torque of 25 N·m.

5. Product Use

The product may only be put into operation after confirmation by qualified personnel;

For products that have been shut down for an extended period, a detailed inspection must be performed before powering on;

5.1 Power-On Procedure

(1) *Use a multimeter to measure the grid-side voltage;*

(2) *Close the grid circuit breaker;*

(3) *Close the load circuit breaker;*

(4) *Rotate the high-voltage box operating handle to the 'ON' position;*

(5) *Press the High-Voltage Box Power Button so that the High-Voltage Box operation indicator light remains steadily lit;*

(6) *Close QF11, QF12, QF13, QF14, and QF15 in sequence;*

(7) *Push upward to close the PV1-PV4 circuit breakers;*

(8) *Use the touchscreen to set the EMS mode based on actual site conditions; after configuration, the EMS will operate automatically;*

5.2 Power-Off Procedure

(1) *Shut down the system via the host computer or touchscreen;*

(2) *Disconnect the load circuit breaker;*

(3) *Push downward to disconnect the PV1-PV4 circuit breakers;*

(4) *Rotate the High-Voltage Box operating handle so that it points to 'OFF';*

(5) *Press the High-Voltage Box Power Button so that it pops out;*

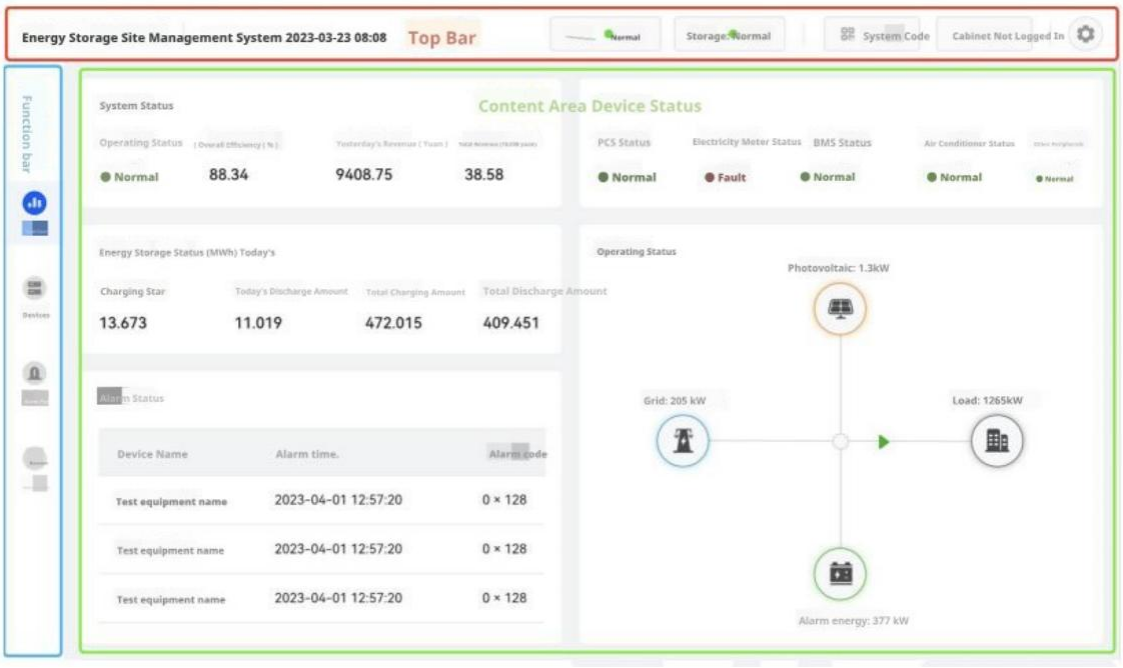
(6) *Disconnect QF11, QF12, QF13, QF14, and QF15 in sequence;*

(7) *Disconnect the grid circuit breaker;*

5.3 Emergency Shutdown

In an emergency, press the "Emergency Stop" button on the door to shut down the equipment.

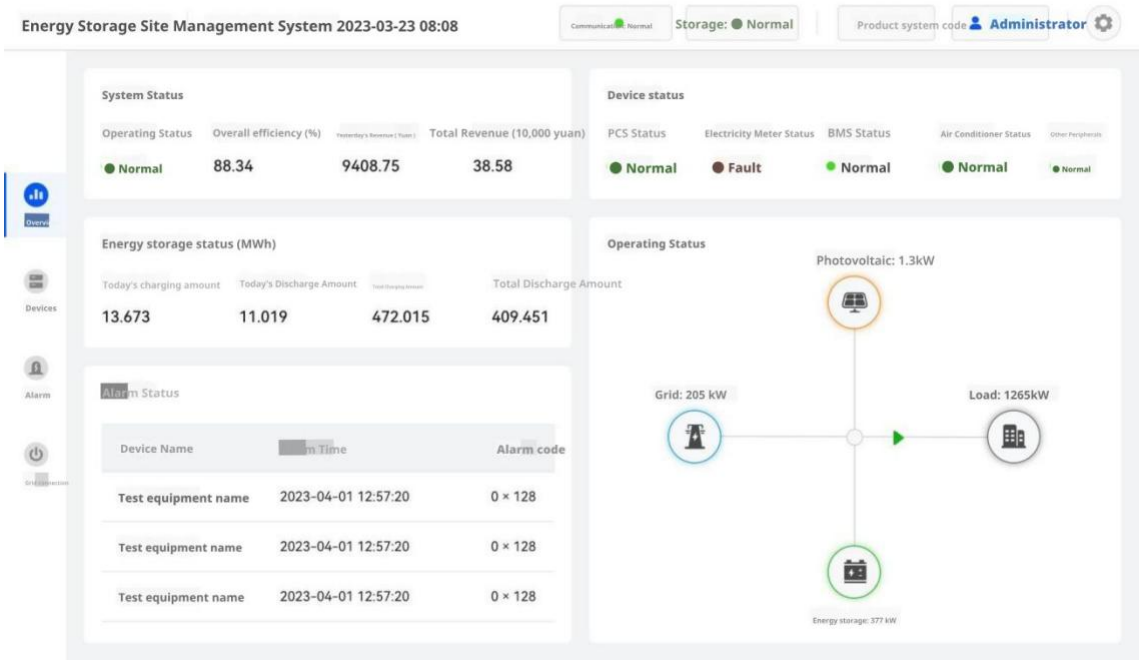
5.4 Touchscreen Usage



Note: Top bar: displays the site logo, current date (year, month, day) and time, communication status, storage status, system code, login button, and system settings. Function bar: supports four functions: Overview, Equipment, Alarm, and Grid Connection. Click to switch to the corresponding function interface. Content display area: displays the details of the corresponding function.

Overview

The display screen shows the Overview interface by default: the content is divided into five areas, namely System Status, Energy Storage Status, Alarm Status, Equipment Status, and Operation Status.



System Status: displays the current operating status, overall efficiency, yesterday's revenue, and total revenue.

Energy storage status: Displays today's charge and discharge energy, and total charge and discharge energy.

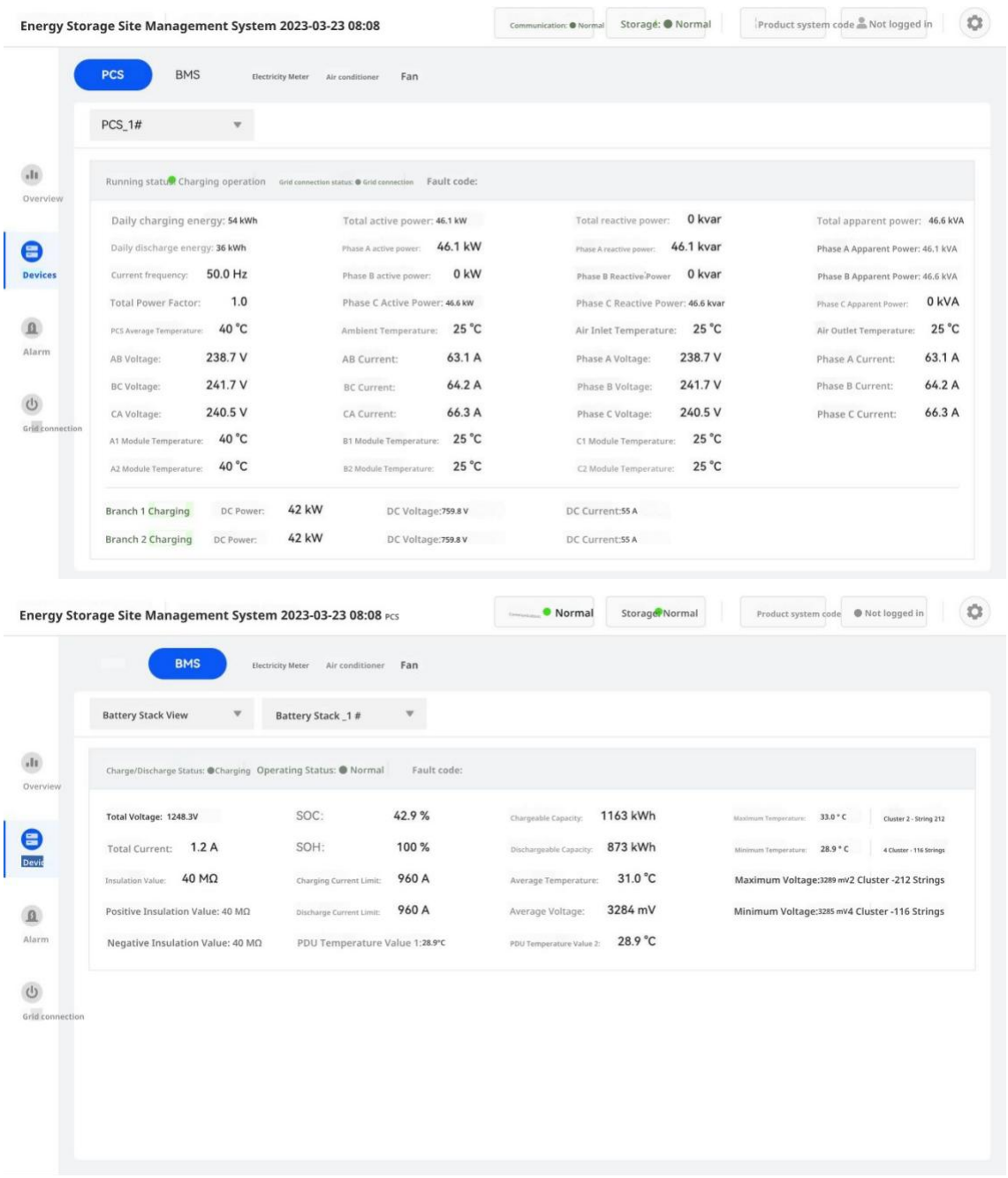
Alarm status: Displays the device name, alarm time, and alarm code for real-time alarms.

Device status: Displays the status of PCS, electricity meter, BMS, air conditioner, and other peripherals.

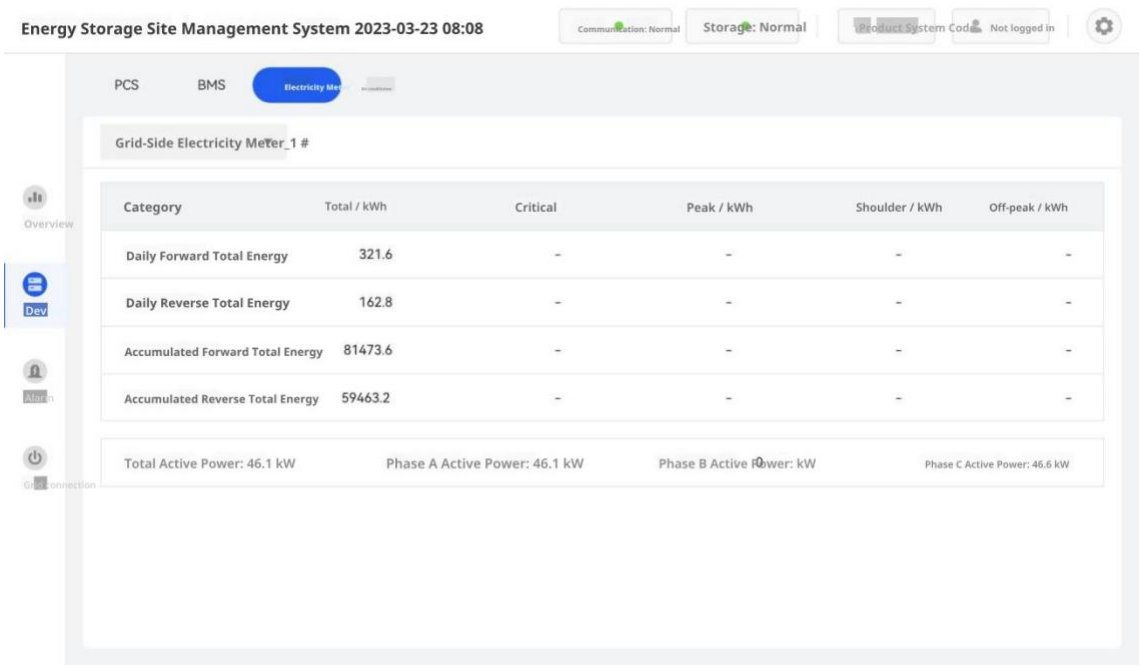
Operation status: Displays the real-time energy flow direction and power among photovoltaic, grid, load, and energy storage.

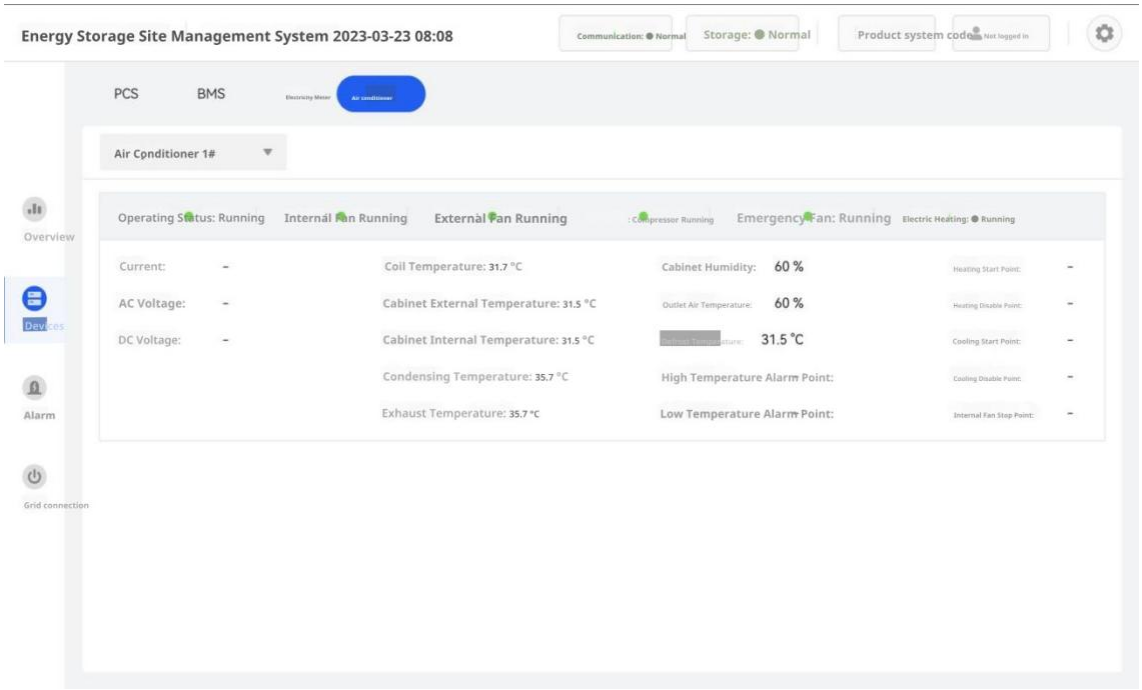
Devices

Device interface: Displays real-time device data in the current system.



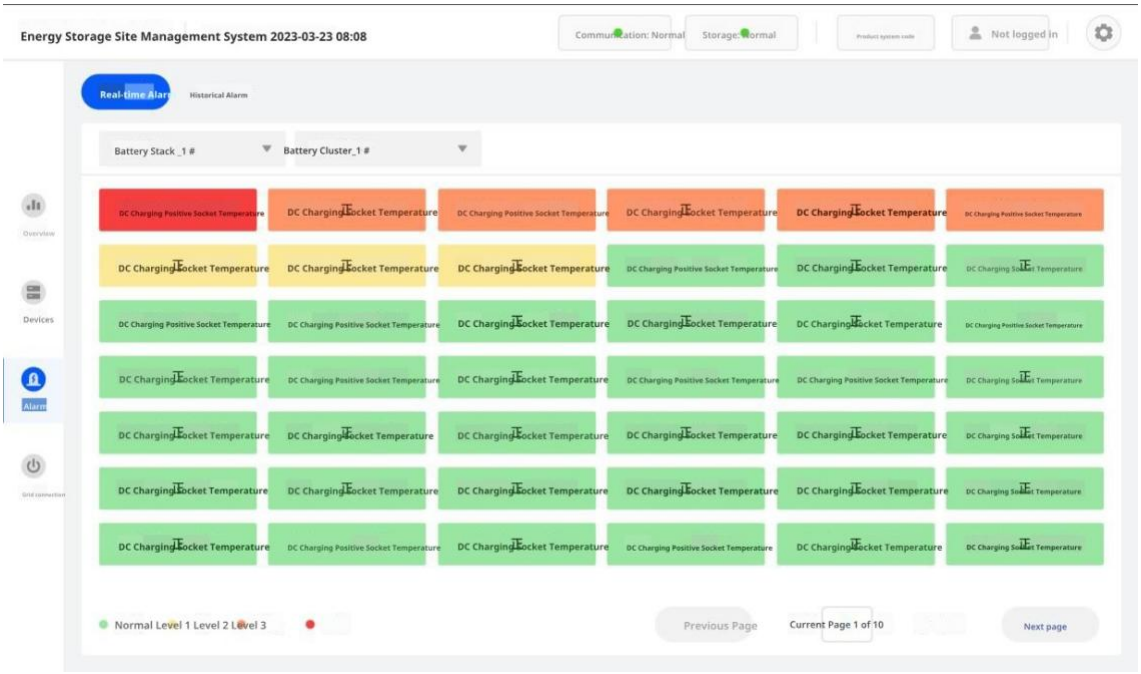
Note: BMS defaults to displaying the battery stack view, i.e., data is displayed with the battery stack as the smallest unit. You can switch between stack, cluster, and cell view.



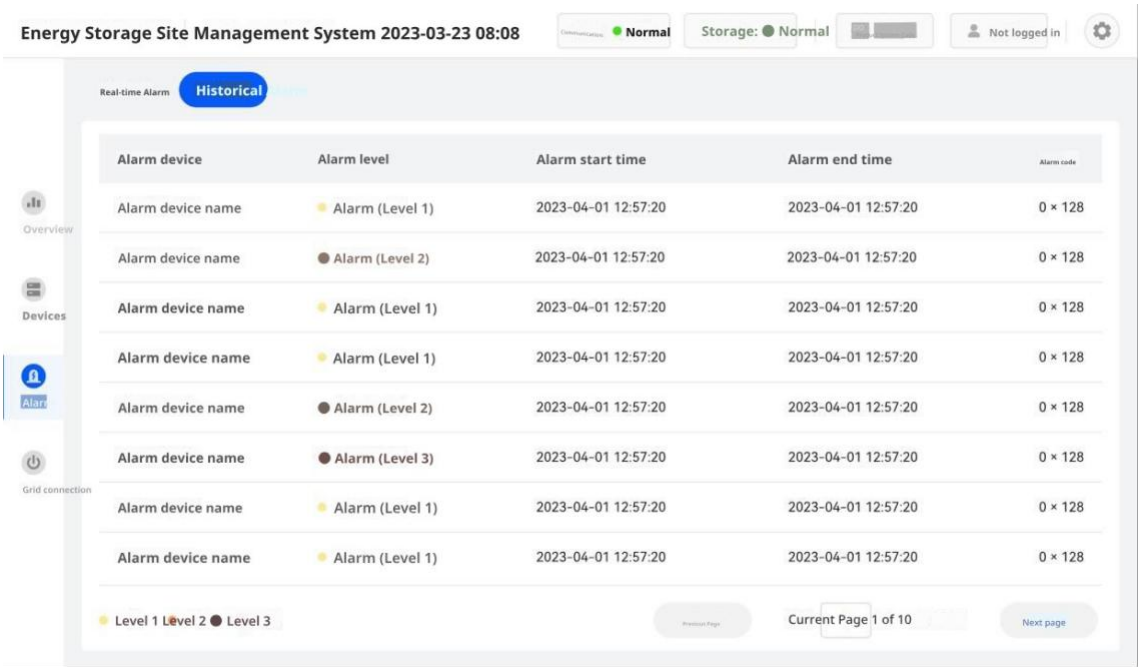


Alarm

Alarms are categorized into real-time and historical alarms. Click to view the corresponding details.



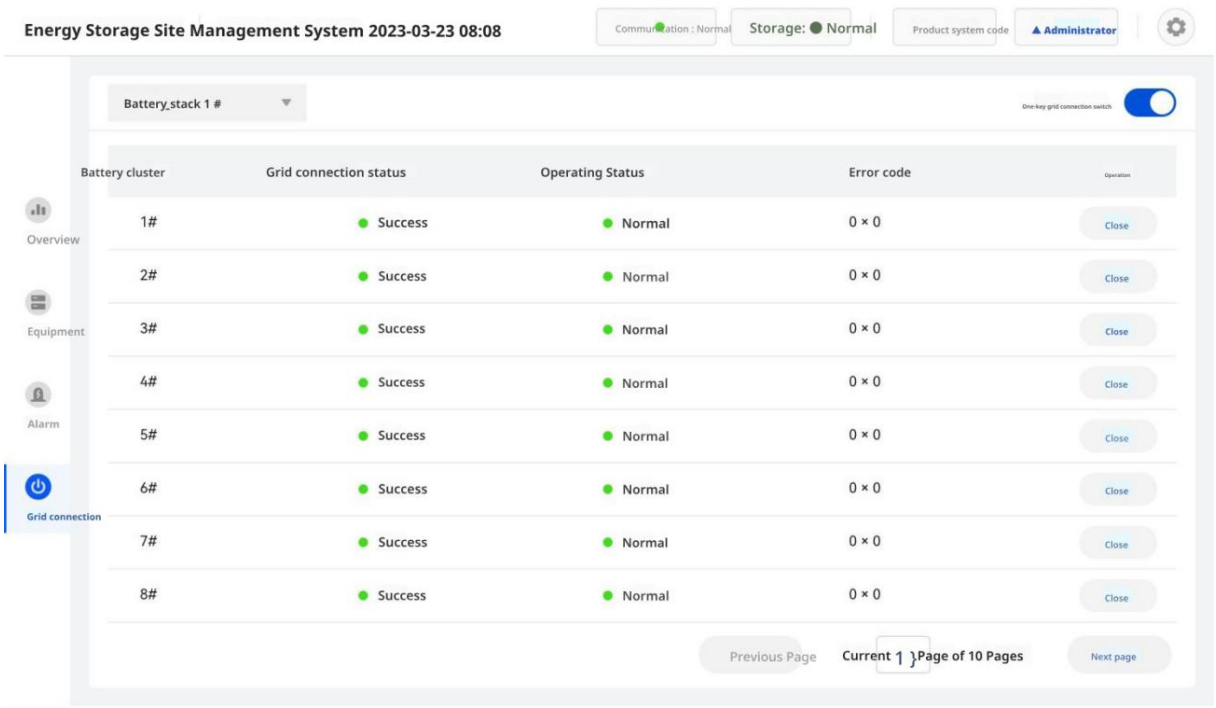
Note: Real-time alarms display all alarm names of the battery cluster, distinguish the current status by color, and are sorted in descending order of alarm severity.



Note: Historical alarms display all alarm records in a list format. Each data record contains the alarm device name, alarm severity, alarm start and end time, and alarm code.

Grid connection

The grid connection function requires user login before operation. Users can view and control the grid connection of battery stacks and battery clusters.



Note:

Grid connection supports a one-key grid connection switch for battery stacks.

Grid connection information of battery clusters within a battery stack is displayed in a list format. Each entry includes the battery cluster serial number, grid connection status, operating status, and error code.

Supports enabling/disabling grid connection for each cluster.

The grid connection function requires user login before operation. Each operation will be executed only after a second confirmation.

5.5 Cloud Platform Usage

For details, refer to the Chisage Cloud Platform User Manual.

6. Incident Handling and Maintenance

6.1 Fault Description

If a fault occurs, a preliminary judgment can be made according to the table below. For faults not listed, please contact Zhejiang CHISAGE New Energy Technology Co., Ltd.

Fault Symptom	*Troubleshooting Method*

Indicator light does not illuminate	*Check whether the EMS is powered on.*
System emits abnormal noise	*Check if the air inlet and outlet are blocked or have foreign objects. If the abnormal noise is inside the system, contact the manufacturer's after-sales service.*
Displays door access alarm	*Check if the cabinet door is properly closed and whether the limit switch rotation is loose.*
Anti-reverse flow anomaly	*Check if the anti-reverse flow electricity meter settings are correct and whether the meter is correctly installed;* *Check if the PE cable of the EMS is grounded;* *If the fault information persists, please contact the manufacturer.*
EMS and BMS communication anomaly	*Shut down and check if the communication cable is securely and correctly connected;* *Restart the EMS and check if it is normal;* *If the error message persists, please contact the manufacturer.*
Communication fault between EMS and PCS	*Shut down and check if the communication cable is securely and correctly connected;* *Restart the EMS and check if it is normal;* *If the error message persists, please contact the manufacturer.*
Communication fault between EMS and DCDC	*Shut down and check if the communication cable is securely and correctly connected;*

	Restart the EMS and check if it is normal; *If the error message persists, please contact the manufacturer.*
Communication fault between EMS and Electricity Meter	*Shut down and check if the communication cable is securely and correctly connected;* *Restart the EMS and check if it is normal;* *If the error message persists, please contact the manufacturer.*
Communication fault between EMS and Liquid Cooling Unit	*Shut down and check if the communication cable is securely and correctly connected;* *Restart the EMS and check if it is normal;* *If the error message persists, please contact the manufacturer.*

6.2 Operation, Maintenance, and Servicing

Power must be disconnected before system maintenance and servicing!

Item	*Inspection Item*	*Frequency*
System Cleaning	*Regularly check the air inlet and outlet for obstructions, dust, and dirt.*	*Every 6 months*
System Function	*Observe energy storage cabinet exterior for any damage or deformation.*	*Every 6 months*
	Listen to the energy storage cabinet for abnormal noise during operation.	*Every 6 months*
	While energy storage cabinet is running, check touchscreen parameters are set correctly.	*Every 6 months*
Electrical Connections	*Check cable connections for looseness or disconnection.* *Check cables for damage, paying particular*	*One year*

	attention to the insulation where cables contact metal surfaces for scratch marks.	
Cooling fan	*Check that the cooling fan air duct is unobstructed.*	*Every 6 months*
Component maintenance	*Check whether the lightning protection display window is green.* *Green: No replacement required;* *Red: Replacement required.*	*Quarterly*

6.3 Incident Handling

After an abnormality or accident occurs in the battery pack, correct and effective handling measures shall be taken promptly to prevent further damage and escalation of losses:

a) Overheating: Under normal conditions, when the battery pack overheats and cannot cool down to the target temperature within the specified time, or the battery pack temperature exceeds the safe operating upper limit, the management system shall issue a warning and require immediate cessation of use. In this case, stop using the battery immediately, notify relevant technical personnel to conduct a comprehensive inspection, and resume use only after the fault has been eliminated.

b) Electrical Leakage: During use, if battery pack leakage is detected, surrounding personnel must be evacuated immediately, and relevant technical personnel must be notified to come to the site to handle the situation. The system may only be used again after the fault is cleared. It is strictly prohibited to operate the battery with a fault or to forcibly continue using it.

c) Over-discharge: When the battery pack's charge is depleted, the overall voltage is too low, or an individual battery voltage falls below its normal operating voltage range, the Management System shall issue a warning and require immediate cessation of battery use. At this point, stop discharging the battery immediately and begin charging it. It is strictly prohibited to forcibly continue discharging the battery at this time, as this will damage the battery's performance. Severe cases may result in permanent battery damage, rendering it unusable.

d) Short Circuit: In the event of a battery pack short circuit caused by any reason, nearby personnel must be evacuated immediately, relevant power sources and electrical equipment must be disconnected (if possible), the battery must be immediately disconnected from the

system, and relevant technical personnel must be notified immediately to arrive on-site for repair and troubleshooting. Batteries that have experienced a severe short circuit must not be reused; they must undergo a comprehensive inspection by the manufacturer before a decision can be made on whether they can be partially repaired and reused.

e) Fire: In the event of a battery pack fire caused by any reason, nearby personnel must be evacuated immediately, and no unauthorized personnel are allowed to approach the accident site within the safety range (due to potential explosion hazard). Professional personnel must use dedicated fire extinguishers to extinguish the fire. After the fire is extinguished, personnel wearing required protective equipment must first disconnect the power connection lines, and the battery pack must be fully discharged using a resistor (until voltage reaches zero volts) before the battery pack can be removed for subsequent operational analysis.

f) Battery Pack Collision: Due to various reasons, if the battery pack is subjected to collision, deformation, or penetration by foreign objects, immediately disconnect the power connection cable of the battery and notify professional technicians to handle the situation on site. If removal of the battery is required, personnel wearing necessary protective equipment shall fully discharge the battery before disassembly work can proceed.

g) Other Accidents: Due to other accidents, when the battery system needs to be repaired or removed, first disconnect the battery circuit, ensure that the battery will not be short-circuited, and then remove the battery pack. Ensure that the battery pack is not damaged by collision, dropping, inversion, or other situations. If such situations occur, please refer to the above provisions for handling.

If necessary, consult the after-sales service personnel of Zhejiang CHISAGE New Energy Technology Co., Ltd.

7. Legal Notice

Before using this product, please carefully read the following information and ensure full understanding:

- *The product design in this product development feasibility technical solution is based on relevant laws, regulations, and industry standards. If any infringement is found, please promptly notify the relevant personnel of Zhejiang CHISAGE New Energy Technology Co., Ltd.;*

- *Zhejiang CHISAGE New Energy Technology Co., Ltd. reserves the final right to interpret all statements in this User Manual. If you have any questions or uncertainties regarding this User Manual, please contact Zhejiang CHISAGE New Energy Technology Co., Ltd.*

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