

V1.5 2026-02-06

**ESA Series 125kW/261kWh**

# **Commercial and Industrial Energy Storage System**

- **GW125/261-ESA-LCN-G10**
- **GW125/261-ESA-LCN-G11**

## **User Manual**

**GOODWE**

# Copyright Statement

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## **NOTICE**

Due to product version upgrades or other reasons, the document content will be updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on product labels. All descriptions in the document are for guidance only.

# About This Manual

## Overview

This document primarily introduces the product information, installation wiring, configuration tuning, troubleshooting, and maintenance content of the energy storage system. Please read this manual carefully before installing and using this product to understand the product safety information and familiarize yourself with the product's functions and features. The document may be updated periodically. Please obtain the latest version of materials and more product information from the official website: <https://www.goodwe.com>.

## Applicable Model

This document applies to the following models of energy storage systems.

Product Model	Nominal output power	Nominal output voltage	Usable Energy
GW125/261-ESA-LCN-G10	125kW	400/380V, 3L/N/PE	261.25kWh
GW125/261-ESA-LCN-G11	125kW	400/380V, 3L/N/PE	261.25kWh

## Symbol Definition

### DANGER

Indicates a highly potential dangerous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a moderately potential hazard which, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a low-level potential hazard, which if not avoided, may result in moderate or minor injury to personnel.

**NOTICE**

Emphasis and supplementary information on the content, which may also provide tips or tricks for optimal product usage, helping you solve a problem or save your time.

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# 1 Safety Precautions

Always adhere to the safety precaution information contained in this document when operating the equipment.

## **WARNING**

The device has been strictly designed and tested in accordance with safety regulations. However, as an electrical device, before performing any operations on the device, it is necessary to follow the relevant safety instructions. Improper operation may cause serious injury or property damage.

## 1.1 General Safety

## NOTICE

- Due to product version upgrades or other reasons, the document content is updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on the product label. All descriptions in the document are for guidance only.
- Please read this document carefully before installing the device to understand the product and precautions.
- All operations on the device must be performed by professional and qualified electrical technicians who are familiar with the relevant standards and safety regulations in the project location.
- When operating the device, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear electrostatic gloves, electrostatic wrist straps, anti-static clothing, etc., to protect the device from electrostatic damage.
- Unauthorized disassembly or modification may cause device damage, and such damage is not covered by the warranty.
- Device damage or personal injury caused by failure to install, use, or configure the device in accordance with the requirements of this document or the corresponding user manual is beyond the manufacturer's liability. For more product warranty information, please obtain it through the official website: <https://en.goodwe.com/warrantyrelated.html>.

## 1.2 personnel requirements

## NOTICE

To ensure the safety, compliance, and efficiency throughout the transportation, installation, wiring, operation, and maintenance of the equipment, the work must be carried out by professionals or qualified personnel.

1. Professionals or qualified personnel include:

- Personnel who have mastered the equipment's working principles, system structure, and knowledge of relevant risks and hazards, and have received professional operation training or possess rich practical experience.
- Personnel who have received relevant technical and safety training, have certain operational experience, can be aware of potential dangers that specific operations may pose to themselves, and are able to take protective measures to minimize risks to themselves and others.
- Qualified electrical technicians who meet the regulatory requirements of the country/region where they are located.
- Personnel who hold a degree in electrical engineering/an advanced diploma in an electrical discipline or equivalent qualification/a professional qualification in the electrical field, and have at least 2/3/4 years of experience in testing and supervising in accordance with electrical equipment safety standards.

2. Personnel engaged in special tasks such as electrical operations, working at heights, and operation of special equipment must hold valid qualification certificates as required by the location of the equipment.

3. Operation of medium-voltage equipment must be performed by certified high-voltage electricians.

4. Replacement of the equipment and its components is only permitted to be carried out by authorized personnel.

## 1.3 EU Declaration of Conformity

### 1.3.1 Equipment with Wireless Communication Modules

Equipment with Wireless Communication Modules sold in the European market must comply with the following directives:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)

- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

### 1.3.2 Devices without wireless communication functionality

Devices without wireless communication functionality that can be sold in the European market meet the following directive requirements:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

## 1.4 Safety Symbols and Certification Marks

### DANGER

- After the equipment is installed, the labels and warning signs on the enclosure must remain clearly visible. Do not cover, alter, or damage them.
- The following enclosure warning label descriptions are for reference only. Please refer to the actual labels on the equipment in use.

No.	Symbol	Description
1		Potential hazard exists during equipment operation. Take precautions when operating the equipment.
2		High voltage hazard. High voltage is present during equipment operation. Ensure the equipment is powered off before performing any operations.
3		High temperature on equipment surface. Do not touch during operation to avoid burns.

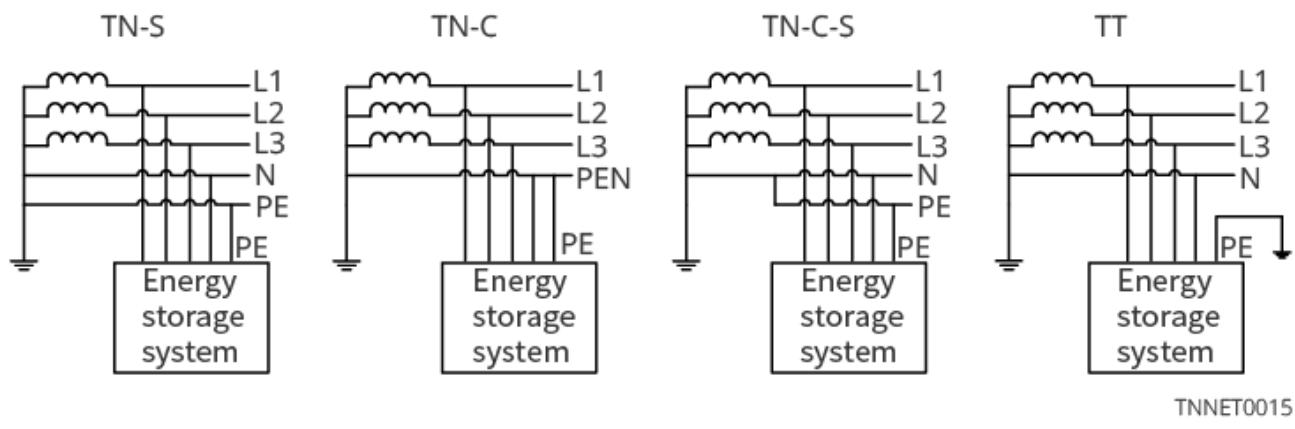
No.	Symbol	Description
4		Delayed discharge. After powering off the equipment, wait for 5 minutes for it to discharge completely.
5		Read the product manual carefully before operating the equipment.
		
6		Wear personal protective equipment during installation, operation, and maintenance.
7		Do not dispose of the equipment as household waste. Dispose of it according to local laws and regulations, or return it to the equipment manufacturer.
8		Grounding point.
9		Recycling symbol. The equipment should be placed in the correct location and recycled in accordance with local environmental regulations.
10		CE certification mark.
11		DRM certification mark.

# 2 Product Introduction

## 2.1 Product Overview

The ESA series 125kW/261kWh industrial and commercial energy storage system is a fully self-developed product with features such as high energy density, high power density, and high integration of 3S. This energy storage system integrates a 314Ah liquid-cooled PACK and a 125kW intelligent air-cooled PCS, and is equipped with dual fire protection at both the PACK level and system level, while also supporting STS for grid-connected and off-grid switching.

### Supported Grid Types



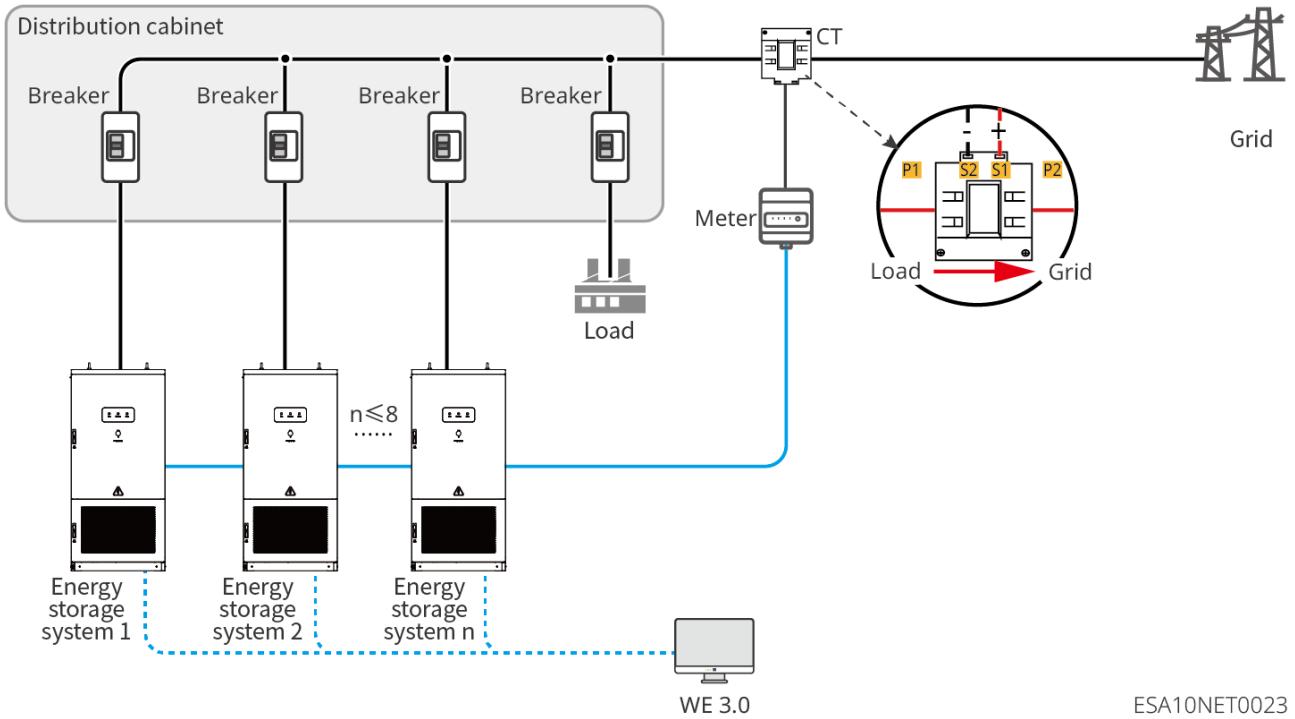
#### NOTICE

The device does not support direct connection to IT system type grids. If the customer needs to connect to an IT system grid, it can be achieved by externally equipping an isolation transformer. The specific wiring method must comply with local power distribution regulations.

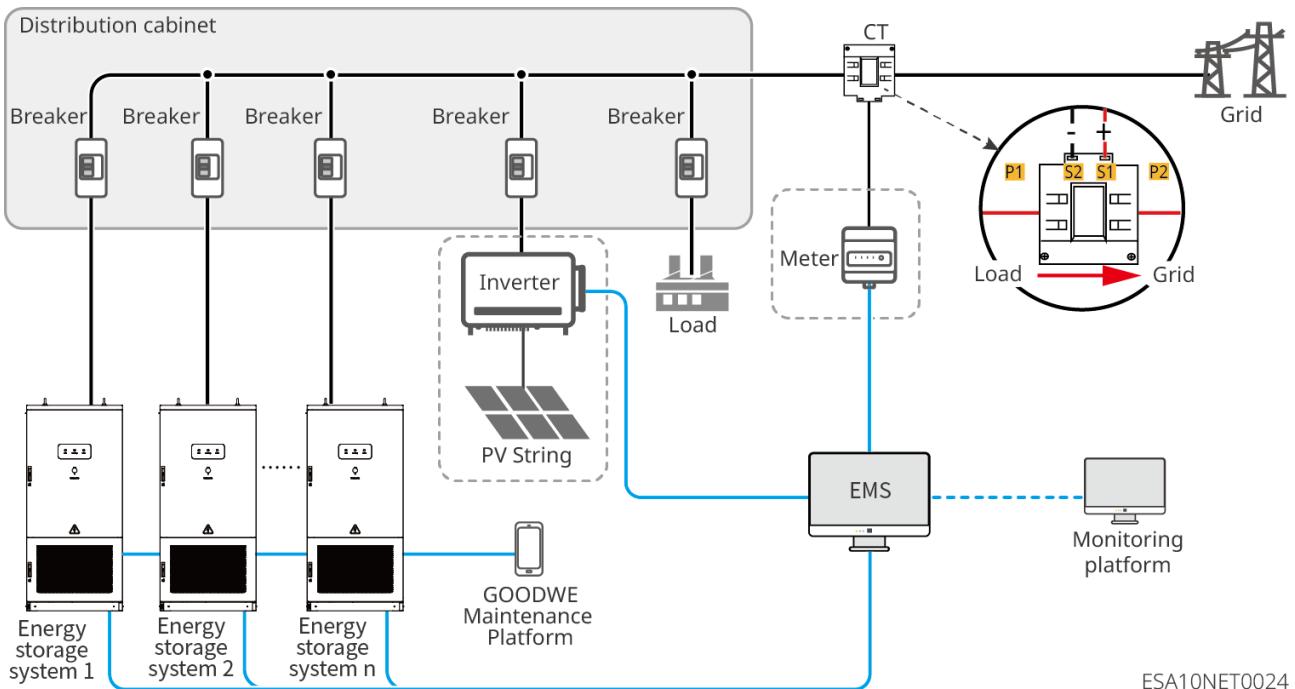
## 2.2 Application Scenarios

### 2.2.1 Grid-Connected Scenarios

- Master-Slave Parallel Operation (China Only)



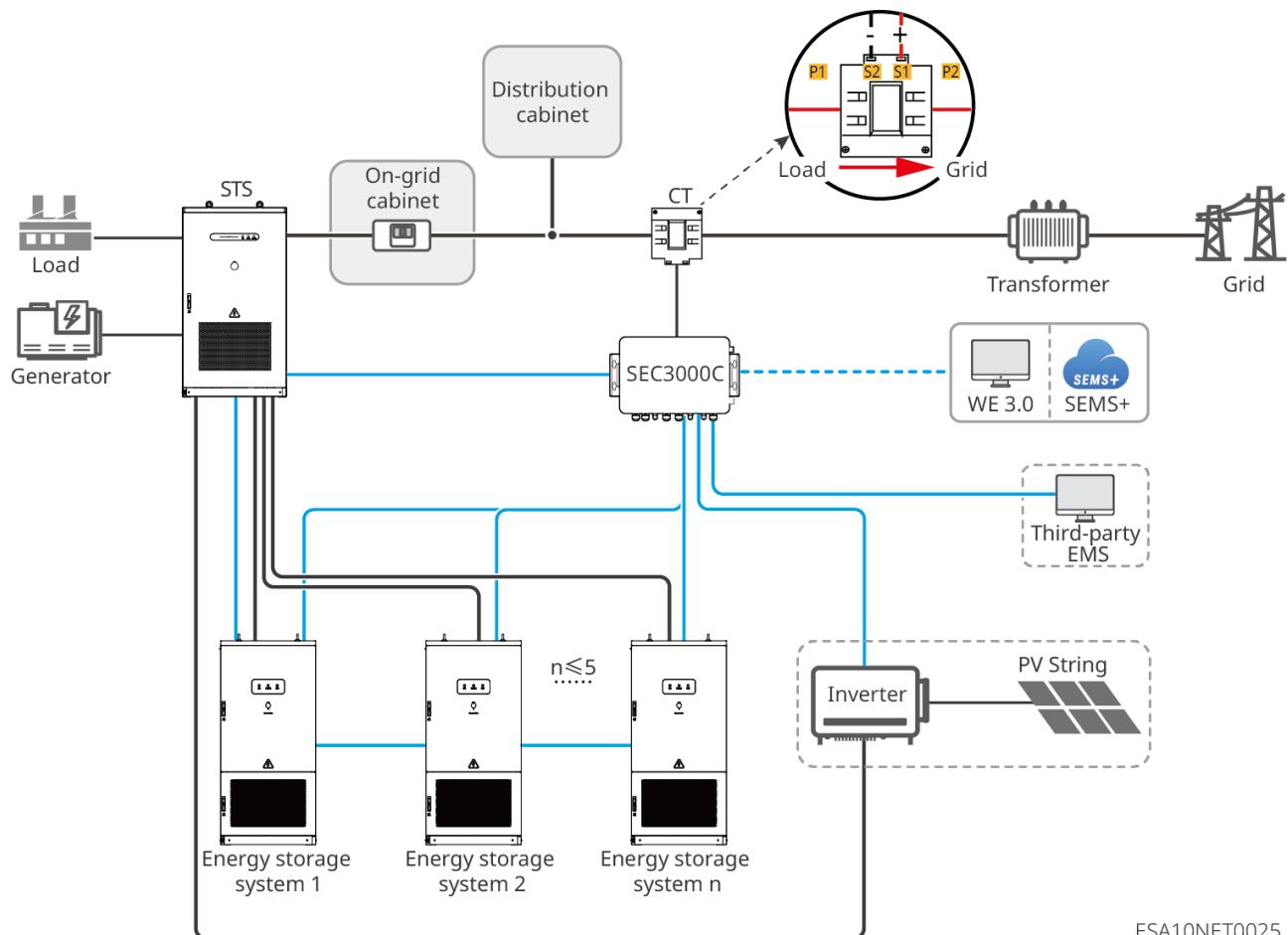
- **Parallel Operation via EMS**



## 2.2.2 Grid-Connected and Off-Grid Switching Scenarios

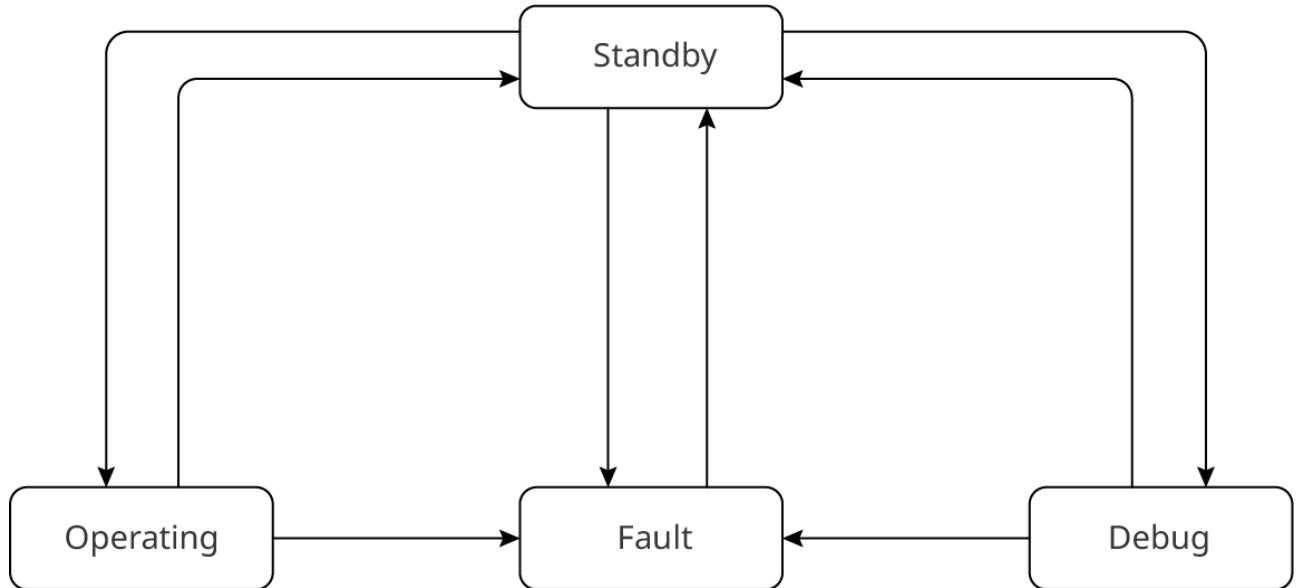
## NOTICE

When switching between grid-connected and off-grid scenarios, set the SOC range of the energy storage system to 10%~90%.



ESA10NET0025

## 2.3 System Operation Status



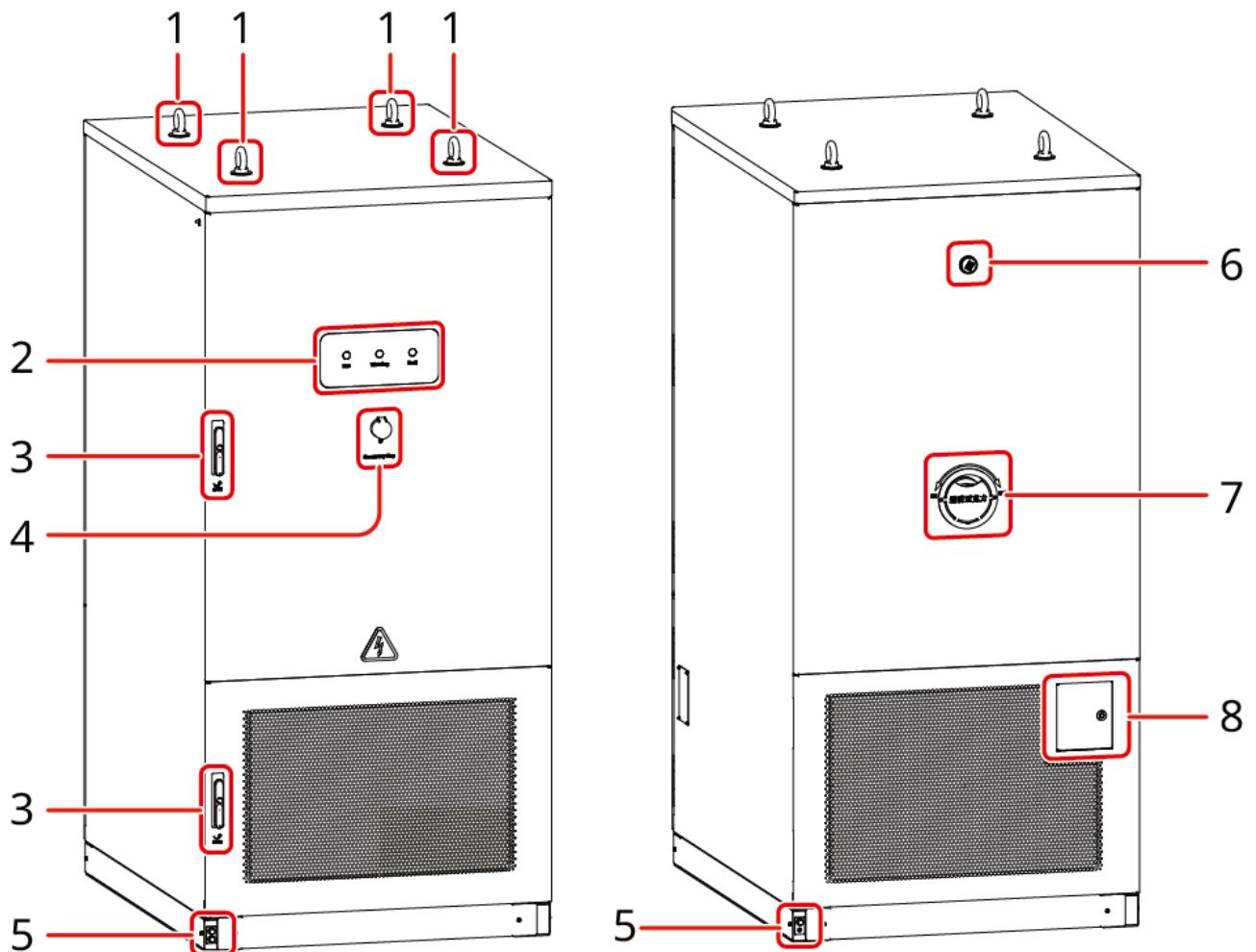
ESA10DSC0007

No.	Name	Description
1	Standby state	<p>The state after the energy storage system starts up, performs self-check, and initialization.</p> <ul style="list-style-type: none"> <li>• If the running state is manually enabled, the energy storage system starts operating.</li> <li>• If the self-check is abnormal, it enters the fault state.</li> <li>• If debugging is enabled, it enters the debugging state.</li> </ul>
2	Running state	<p>The energy storage system operates normally.</p> <ul style="list-style-type: none"> <li>• If the device running state is manually turned off, it enters the Standby state.</li> <li>• If a fault alarm is detected, it enters the fault state.</li> </ul>
3	Fault state	<p>If a fault is detected, the energy storage system enters the fault state; after the fault is cleared, it enters the Standby state.</p>

No.	Name	Description
4	Debugging state	<p>The energy storage system is in debugging state and not operating normally.</p> <ul style="list-style-type: none"> <li>• If the debugging state is turned off, it enters the Standby state.</li> <li>• If a fault alarm is detected, it enters the fault state.</li> </ul>

## 2.4 Appearance Description

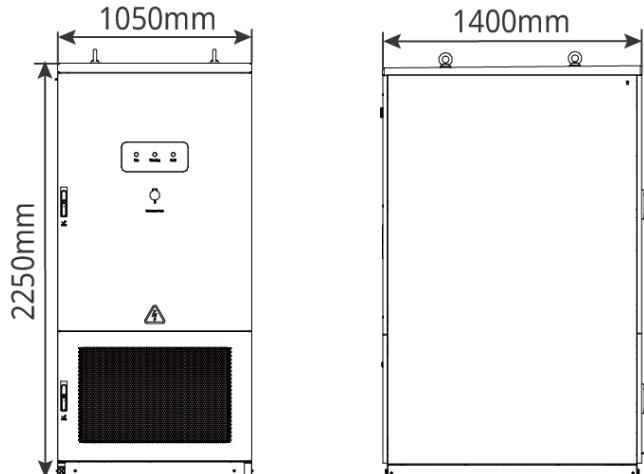
### 2.4.1 Appearance Introduction



ESA10DSC0003

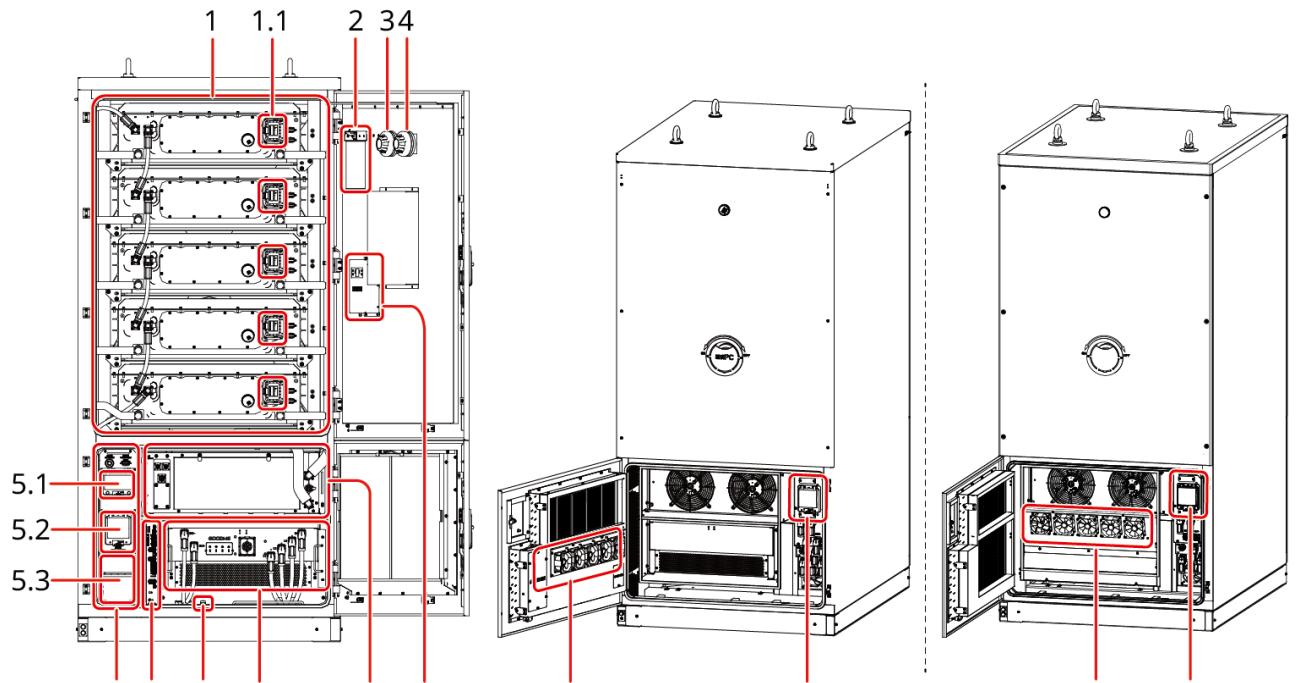
No.	Name	Function
1	Lifting Ring	The energy storage system can be hoisted using the lifting ring.
2	Indicator	Indicates the operating status of the energy storage system.
3	Door Lock	Please use the key to open the cabinet door lock. Close and lock the cabinet door when no internal operation of the equipment is required.
4	Emergency Stop Button	In case of an emergency with the energy storage system, this button can be used to stop the system operation.
5	Grounding Port	Connect the protective earth wire for the energy storage system enclosure.
6	Pressure Relief Valve	Automatically opens to release excessive pressure when abnormal pressure buildup occurs inside the system, preventing risks such as system explosion.
7	Water Firefighting Interface	In case of a thermal runaway fire in the system, a fire hydrant can be connected here for fire extinguishing.
8	DC Breaker Operation Chamber	Contains the DC circuit breaker, which can control the DC power output of the energy storage system.

## 2.4.2 Size Guide



ESA10DSC0001

### 2.4.3 Component Introduction



ESA10DSC0004

No.	Name	Function
1	Battery system	Stores and releases electrical energy.
1.1	MSD Switch	Manually disconnects or closes the high-voltage circuit of the battery pack.

No.	Name	Function
2	Hot Aerosol Fire Extinguishing Device	Monitors fire signals inside the cabinet, implements fire extinguishing, and provides feedback to the local controller via DI signal.
3	Smoke Detector	When a fire occurs in the energy storage system, the smoke detector outputs an electrical signal to the local controller upon detecting smoke, prompting system shutdown and notifying personnel for timely handling. After the smoke detector alarm is triggered, if the fire spreads, the heat detector outputs an electrical signal to activate the fire extinguishing device upon detecting high temperature, implements fire extinguishing, simultaneously outputs a feedback signal to the local controller, prompting system shutdown and notifying personnel for timely handling.
4	Heat Detector	
5	Power Distribution Module	Wiring area, includes auxiliary power circuit breaker and molded case circuit breaker.
5.1	Auxiliary Power Circuit Breaker	Manually disconnects or closes the auxiliary power of the energy storage system.
5.2	Molded Case Circuit Breaker	Controls the connection and disconnection between the integrated energy storage cabinet and the grid/load circuit.
5.3	AC Wiring Port	Connects grid-tied AC cables.
6	Local Control Module	Responsible for energy management within the energy storage system and information exchange with the outside world.
7	Door Access Switch	Automatically pops out when the door is opened, ensuring the energy storage system is powered off.
8	Power Conversion System (PCS)	Realizes power conversion between the grid and the battery.

No.	Name	Function
9	Liquid Cooling Unit	Used to maintain the battery system temperature within a suitable range.
10	Dehumidifier	Used to dehumidify the interior of the machine.
11	Fan	Used to dissipate heat for the PCS.
12	DC Circuit Breaker	Can control the DC output of the energy storage system.

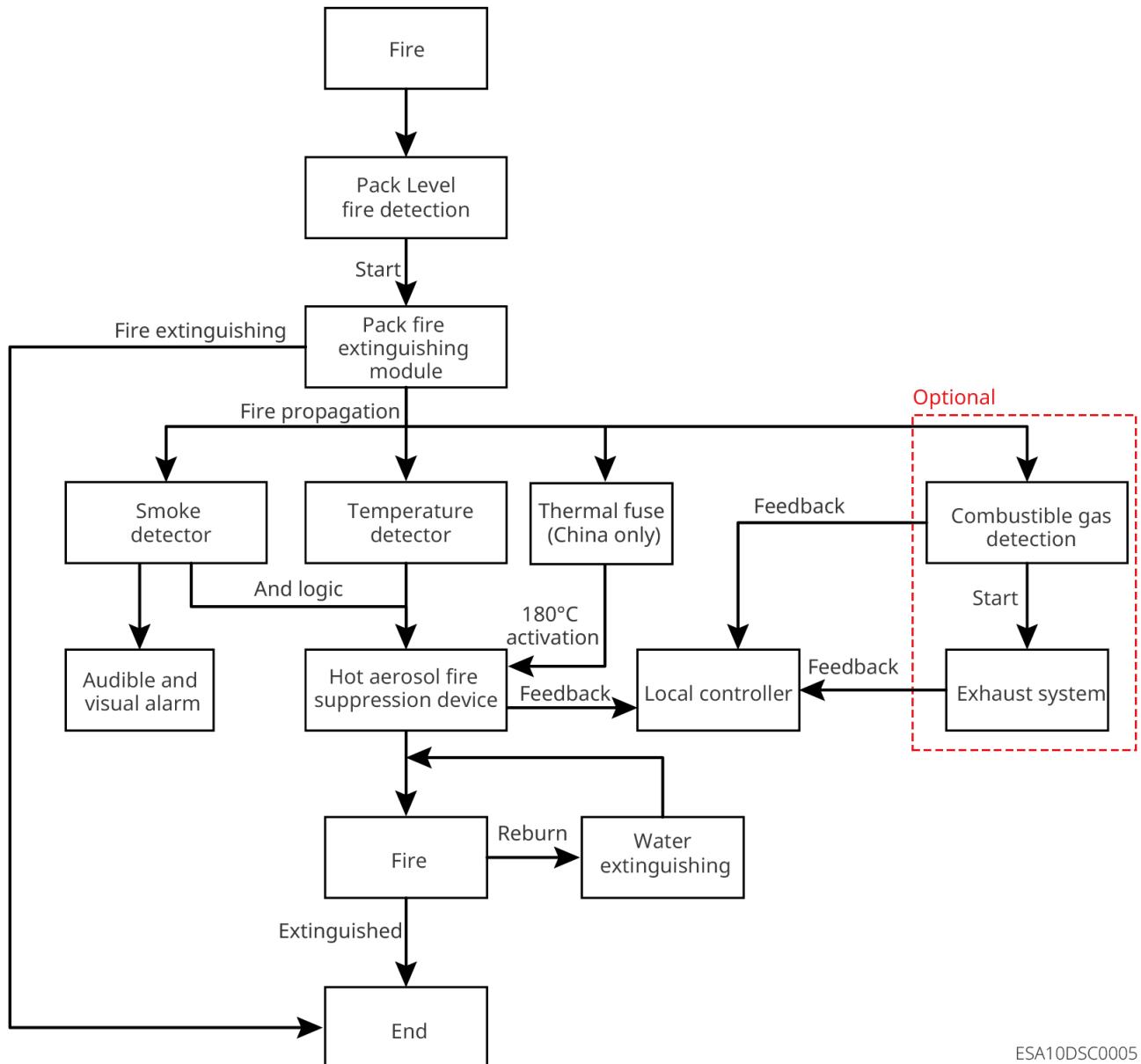
#### 2.4.4 Indicators

Indicator	Description
 Run	White light steady on: Device is powered on, in shutdown/self-test state.
	White light off: Device is not powered on.
	Green light steady on: Device is in grid-connected state.
 Warning	Steady on: Device has a warning.
	Off: Device is normal without warnings, or device is not powered on.
 Fault	Steady on, with beeping sound: Device has a serious fault.
	Off, no beeping sound: Device is normal or not powered on.

## 2.5 Fire Protection System

When a fire occurs due to thermal runaway of a battery cell, PACK-level protection can quickly detect the fire through a thermal wire and activate the fire suppression module to implement primary fire extinguishing. If the PACK fire spreads, cluster-level protection can detect the fire through smoke sensors, triggering a smoke alarm. As the temperature rises rapidly, temperature sensors detect the fire and activate the fire extinguishing device to implement secondary fire extinguishing, simultaneously outputting a feedback signal to the local controller to notify

personnel for timely intervention. If the automatic fire suppression system cannot control a fire re-ignition, emergency fire water can be connected for emergency handling to prevent severe consequences such as deflagration or large-scale fires.



# 3 Check and Storage

## 3.1 Check Before Receiving

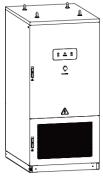
Before signing for the product, please carefully check the following:

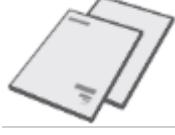
- Check the outer packaging for any damage, such as deformation, holes, cracks, or other signs that could indicate damage to the equipment inside the box. If any damage is found, do not open the packaging and contact your distributor.
- Verify that the energy storage system model is correct. If it does not match, do not open the packaging and contact your distributor.

## 3.2 deliverables

### **WARNING**

Check if the type and quantity of the deliverables are correct, and if there is any damage to the appearance. If damaged, please contact your dealer.

Component	Description	Component	Description
	energy storage system ×1		Expansion bolt ×4
	fireproofing mud ×3		<ul style="list-style-type: none"><li>• Domestic version: antenna ×2 (4G&amp;WiFi)</li><li>• Overseas version: antenna ×1 (WiFi)</li></ul>

Component	Description	Component	Description
	PIN terminal ×10		DC circuit breaker compartment door key ×1
	MSD switch ×5 (Included only with GW125/261-ESA-LCN-G10)		Battery power cable ×2 (Included only with GW125/261-ESA-LCN-G11)
 SC70-8	Power line terminal ×4	 LYF35-8	N line/PE line terminal ×2
	Product documentation ×1		

### 3.3 Storage

The user must complete the installation of the equipment within six months from the date of manufacture of the energy storage system. If the equipment is not installed or used immediately, ensure the storage environment meets the following requirements:

1. Ensure the storage environment is clean, with appropriate temperature and humidity ranges, and free from condensation.
2. After long-term storage, the equipment can only be used after inspection and confirmation by qualified personnel.
3. The equipment should be packaged in its original carton with desiccant placed inside before sealing the carton.
4. If installation is not performed within 3 days after unpacking, it is recommended to store the equipment in its original carton.
5. If battery modules are expected to be stored for more than 30 days, adjust the SOC

to 50%~55% and perform a charge-discharge cycle every 6 months.

6. Storage temperature range: Storage not exceeding one year at 0~35°C, and not exceeding one month at -20 ~45°C.
7. Humidity range: 10~95% without condensation. Installation is prohibited if interfaces show signs of moisture or condensation.
8. The equipment should be stored in a cool place, avoiding direct sunlight.
9. The equipment should be stored away from flammable, explosive, corrosive, and other hazardous materials.
10. Ensure the energy storage system is not damaged during transportation and storage.
11. Never throw batteries into fire, as there is a risk of explosion.
12. When the ambient temperature is too high, there is a risk of fire in the battery system.

# 4 Installation

## 4.1 Installation Requirements

### Installation Environment Requirements

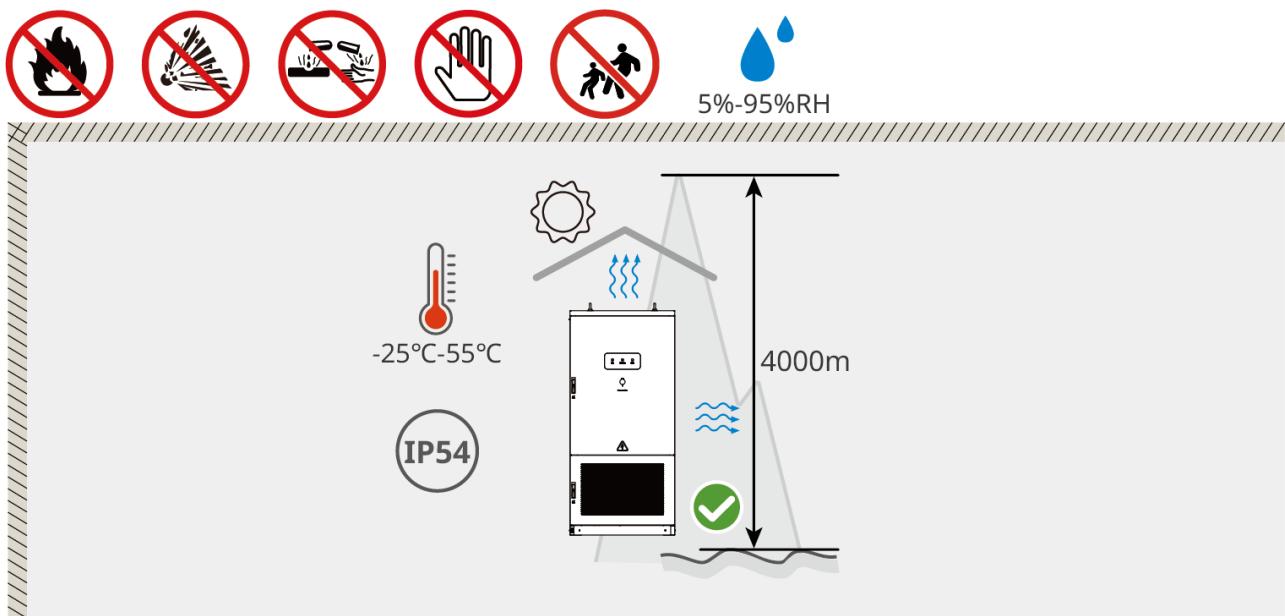
1. The equipment must not be installed in flammable, explosive, corrosive, or similar environments.
2. The temperature and humidity of the installation environment must be within a suitable range.
3. The installation location must be out of reach of children and avoid places that are easily accessible.
4. The cabinet temperature of the energy storage system may exceed 60°C during operation. Do not touch the cabinet before it cools down to prevent burns.
5. It is recommended to avoid installation environments with direct sunlight, rain, snow accumulation, etc. Installing in a sheltered location is recommended. If necessary, build a sunshade (a sunshade can prevent the equipment from accumulating heat due to direct sunlight, which could cause the internal cabinet temperature to exceed the ambient temperature and trigger load reduction).
6. The installation space must meet the equipment's ventilation, heat dissipation, and operational space requirements.
7. The installation environment must satisfy the equipment's protection rating. The energy storage system, batteries, and smart communication stick are suitable for indoor and outdoor installation; the meter is suitable for indoor installation.
8. The equipment installation height should facilitate operation and maintenance, ensuring equipment indicator lights, all labels are easy to view, and wiring terminals are easy to operate.
9. The equipment installation altitude must be lower than the maximum operating altitude.
10. Before installing equipment outdoors in salt damage areas, consult the equipment manufacturer. Salt damage areas mainly refer to areas within 500m of the coast. The affected area is related to sea wind, precipitation, terrain, etc.
11. Do not install the energy storage system in noise-sensitive areas (such as

residential areas, offices, schools, etc.), as this may cause complaints from residents. If installation in such areas is necessary, the installation location must be at least 40m away from the noise-sensitive area.

12. If the equipment is installed in public places other than work and living areas (such as parking lots, stations, factory buildings, etc.), install protective fencing around the equipment and erect safety warning signs for isolation. Unauthorized personnel are prohibited from approaching the energy storage system to prevent personal injury or property damage caused by accidental contact by non-professionals or other reasons during equipment operation.

13. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication equipment below 30MHz near the installation location, install the equipment according to the following requirements:

- Energy storage system: Add ferrite cores with multiple windings at the DC input lines or AC output lines of the energy storage system, or add low-pass EMI filters; or ensure the distance between the energy storage system and the wireless electromagnetic interference equipment exceeds 30m.
- Other equipment: Ensure the distance between the equipment and the wireless electromagnetic interference equipment exceeds 30m.

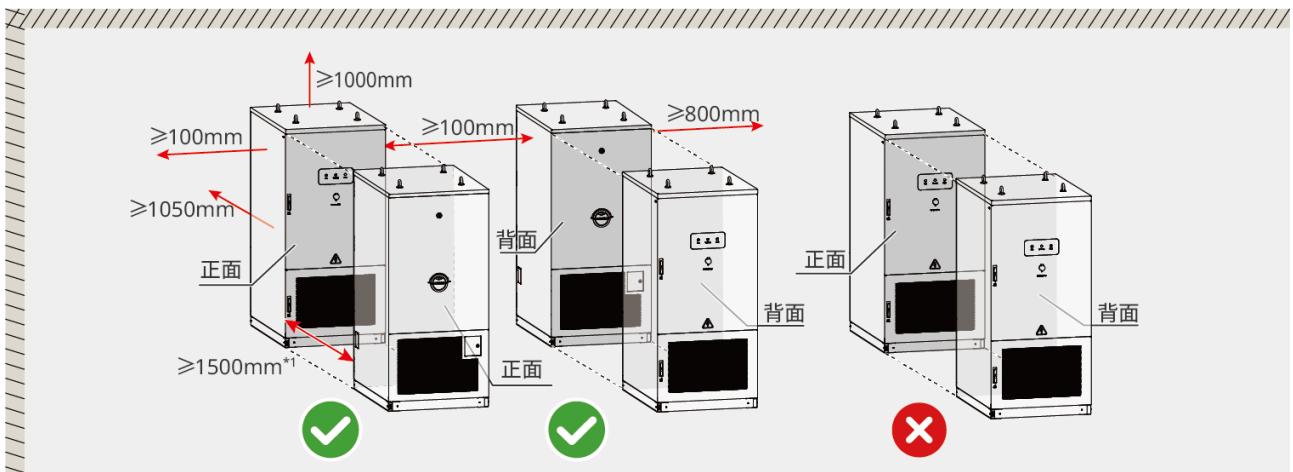


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## Installation Space Requirements

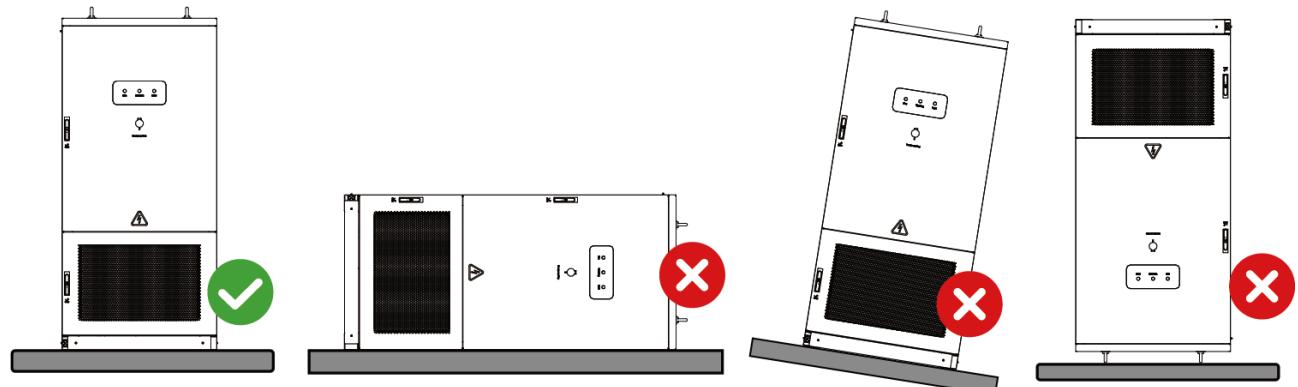
## NOTICE

When using a forklift, the distance between the front and rear of the energy storage system must be greater than or equal to 2.5 meters.



ESA10INT0009

## Installation Angle Requirements

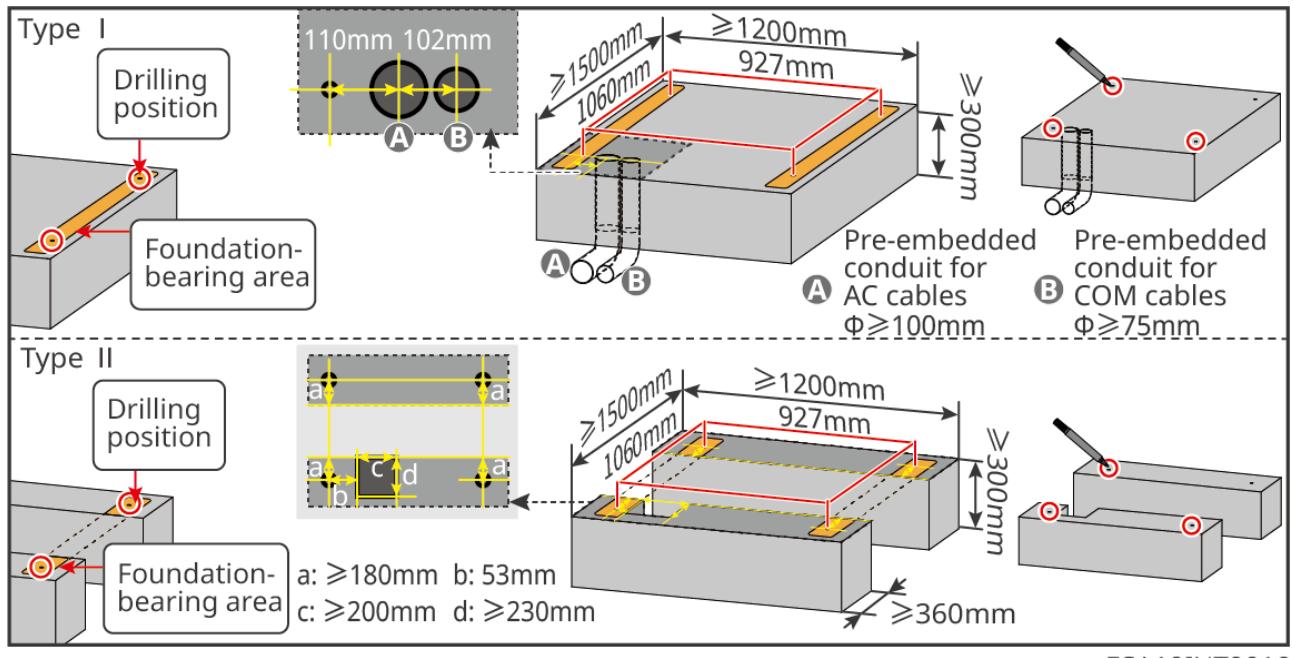


ESA10DSC0006

## Installation Foundation Requirements

- The equipment must be installed on a concrete or other non-combustible surface foundation.
- Before installation, ensure the foundation is level, firm, flat, dry, has sufficient load-bearing capacity, and is free of depressions or tilting.
- The foundation must have pre-embedded conduits or reserved cable outlets to facilitate equipment wiring.

- The equipment uses bottom cable entry. The foundation must have dust-proof and rodent-proof designs to prevent foreign objects from entering.
- The foundation must have water drainage and moisture-proof designs to prevent cable aging and short circuits, which could affect normal equipment operation.
- Due to the thick equipment cables, sufficient space for the cables must be reserved in the design of the pre-embedded conduit/reserved cable outlet to ensure smooth cable connection without abrasion.

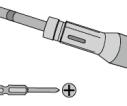


## 4.2 Tool Requirements

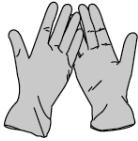
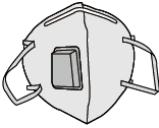
### NOTICE

It is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on-site.

#### Installation Tools

Tool Type	Description	Tool Type	Description
	diagonal plier		RJ45 connector crimping tool
	wire stripper		YQK-70 hydraulic crimping tool
	open-end wrench		PV terminal crimping tool PV-CZM-61100
	hammer drill (bit $\Phi 8\text{mm}$ )		torque wrench
	rubber hammer		socket wrench
	marker pen		multimeter range $\leq 1100\text{V}$
	heat shrink tubing		heat gun
	cable tie		vacuum cleaner

## Personal Protective Equipment

Tool Type	Description	Tool Type	Description
	Insulating gloves, protective gloves		Dust mask
	goggle		Safety shoes

## 4.3 Handling Requirements

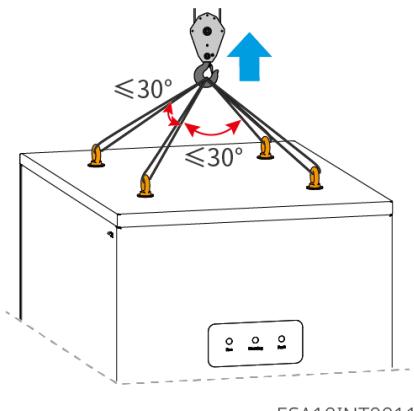
### ⚠️ CAUTION

1. During transportation, handling, installation, and other operations, the equipment must comply with the laws, regulations, and relevant standards of the country or region where it is located.
2. To protect the equipment from damage during transportation, ensure that transport personnel are professionally trained. Record the operational steps during transportation and keep the equipment balanced to avoid falling.
3. Before installation, the energy storage system must be moved to the installation site. To avoid personal injury or equipment damage during the moving process, please note the following:
  - Based on the equipment weight, arrange for adequate personnel and tools to prevent the equipment from exceeding the manual handling weight limit and causing injury.
  - Ensure the equipment remains balanced during movement to avoid falling.
  - Ensure all cabinet doors are securely locked during equipment movement.

## NOTICE

- The energy storage system can be transported to the installation site using hoisting or forklift.
- When using hoisting to transport the equipment, please use flexible slings or straps, and the load-bearing capacity of a single strap should be  $\geq 5t$ .
- When using a forklift to transport the equipment, the forklift's load-bearing capacity should be  $\geq 5t$ .
- The antenna and door panel stickers are vulnerable positions during installation and transportation, please be careful.

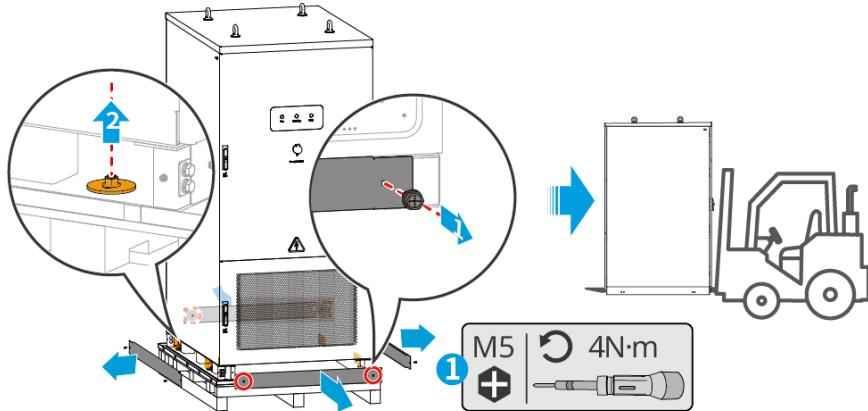
- **Lifting and Handling**



**Step 1:** Use a sling with a lifting hook or U-hook to perform lifting operations on the energy storage system.

**Step 2:** Use a lifting device to hoist and move the energy storage system.

- **Forklift Handling**



ESA10INT0012

**Step 1:** Remove the front and rear baffles of the energy storage system.

**Step 2:** Use a forklift to move the energy storage system, positioning the equipment's center of gravity at the center of the forklift's forks.

## 4.4 Installing an Energy Storage System

### NOTICE

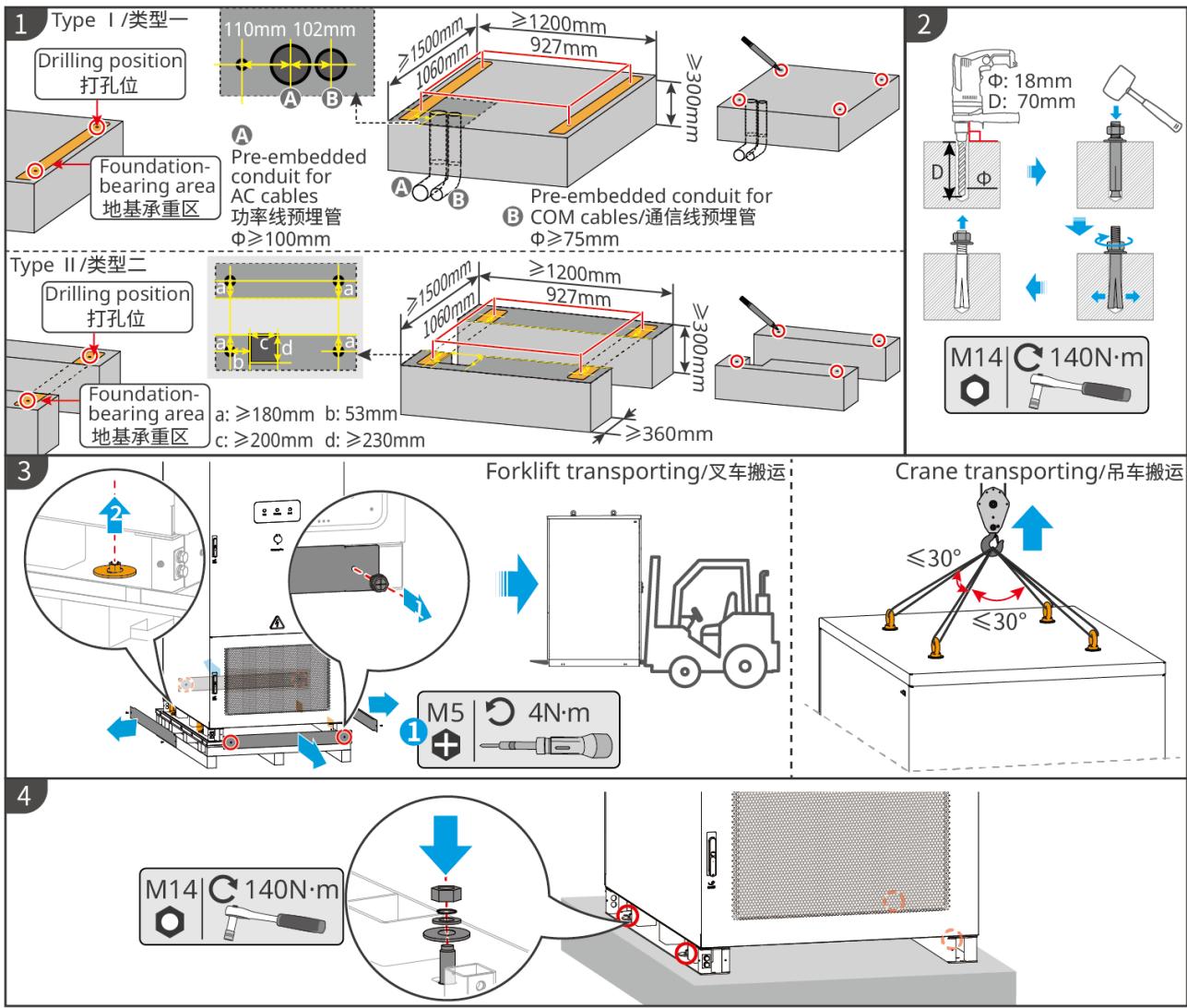
- Ensure the energy storage system is placed vertically and firmly on the ground, with no risk of tipping over.
- Ensure the energy storage system is securely installed to prevent it from tipping over and causing injury.
- The antenna and door panel surface stickers are vulnerable during installation and transportation; please handle with care.

**Step 1:** Use a marker pen to mark the drilling positions on the foundation.

**Step 2:** Use an impact drill to drill holes in the ground and install expansion bolts.

**Step 3:** Move the energy storage system onto the foundation and remove the surrounding panels.

**Step 4:** Secure the energy storage system to the foundation.



# 5 Electrical Connections

## DANGER

- All operations during electrical connection, as well as the specifications of cables and components used, must comply with local laws and regulations.
- Before performing electrical cable connections, ensure all upstream switches of the energy storage system are disconnected.
- Before performing electrical connections, disconnect the AC switch and battery switch of the energy storage system to ensure the equipment is powered off. Live operation is strictly prohibited, as it may lead to hazards such as electric shock.
- Cables of the same type should be bundled together and routed separately from different types of cables. Intertwining or cross-routing is prohibited.
- If the cable is subjected to excessive tension, it may lead to poor connections. When connecting, leave a certain length of slack in the cable before connecting it to the energy storage system's terminal ports.
- When crimping terminals, ensure the conductor part of the cable makes full contact with the terminal. Do not crimp the cable insulation together with the terminal, as this may cause equipment malfunction, or after operation, lead to issues such as heating due to unreliable connections, potentially damaging the energy storage system's terminal block.
- Using cables in high-temperature environments may cause insulation aging or damage. Maintain a distance of at least 30mm between cables and heat-generating components or the periphery of heat source areas.

## NOTICE

- Before electrical connection, please wear personal protective equipment such as safety shoes, protective gloves, insulating gloves, etc., as required.
- Only trained professionals are allowed to perform electrical connection and related operations.
- Please keep the cabinet door key properly.
- The cable colors in the graphics of this document are for reference only. Specific cable specifications must comply with local regulatory requirements.

## 5.1 Pre-wiring Preparation

### Preparing Cables

No.	Cable	Type	Recommended Specification	Description
1	PE cable	Hot-dip galvanized flat steel	Must comply with local AC electrical installation grounding design specifications	To be provided by the user

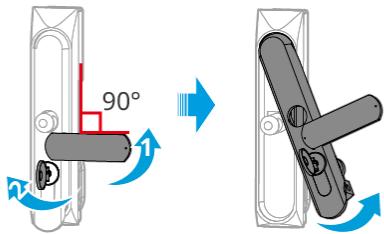
No.	Cable	Type	Recommended Specification	Description
2	AC cable	Five-core outdoor copper cable is recommended	<p>Conductor cross-sectional area:</p> <ul style="list-style-type: none"> <li>• N/PE: 35mm<sup>2</sup>, compatible with LYF35-8 terminal</li> <li>• N/L1/L2/L3: 70mm<sup>2</sup>, compatible with SC70-8 terminal</li> </ul>	<p>To be provided by the user</p> <p>The cable specifications recommended in the table are for reference only. For actual cable selection, users must comprehensively consider factors such as installation ambient temperature, laying method, number of parallel conductors, voltage deviation, and thermal stability, and correct the current-carrying capacity using appropriate correction coefficients. The selected cable must meet the following requirement:</p> <p>Cable current-carrying capacity <math>\geq</math> Rated current of overcurrent protection device <math>\geq</math> Maximum rated current.</p>
3	RS485 communication cable	Outdoor shielded twisted pair cable	<p>Conductor cross-sectional area: 0.5mm<sup>2</sup></p>	To be provided by the user
4	CAN communication cable	meeting local standards		To be provided by the user, for master-slave parallel operation only
5	LAN communication cable	Standard CAT 5E or higher network cable with RJ45 connector		To be provided by the user

## AC Circuit Breaker Preparation

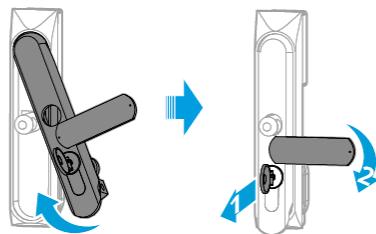
Recommended Specifications	Description	Acquisition Method
Rated Current: 250A (This circuit breaker is dedicated for the upper-level grid-connected cabinet of a single energy storage cabinet and cannot be connected to other loads.)	<p>Recommended specifications are for reference only. Final circuit breaker selection must be comprehensively considered based on actual conditions, including but not limited to: differences in short-circuit breaking capacity and overload capacity among different brands; the impact of environmental factors such as temperature and altitude on performance; and specific functional requirements such as time delay. Final selection must be confirmed by local technical personnel after comprehensive evaluation.</p> <ul style="list-style-type: none"><li>• TT systems require additional RCD configuration. It is recommended to configure a 100mA RCD at the upper-level grid-connected circuit breaker of a single energy storage cabinet.</li><li>• In TN systems, RCD may not be required when the sensitivity of the circuit breaker's short-circuit protection meets the requirements for single-phase ground fault clearance.</li></ul>	User-supplied

## Cabinet Door Operation

Open the front cabinet door/打开前柜门

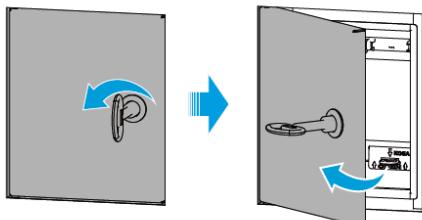


Close the front cabinet door/关闭前柜门

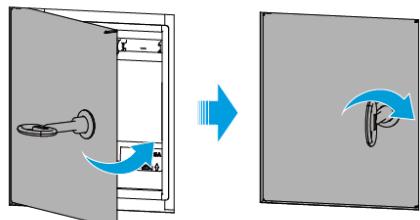


ESA10INT0004

Open the operation cabin door of the DC circuit breaker/打开直流断路器操作舱门

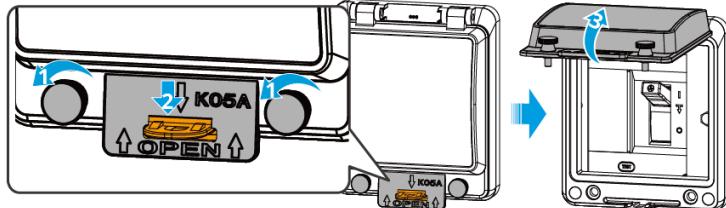


Close the operation cabin door of the DC circuit breaker/关闭直流断路器操作舱门

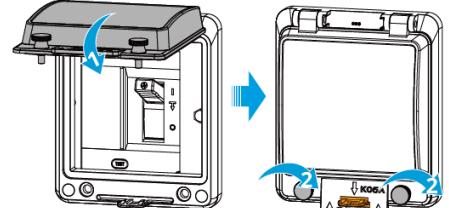


ESA10INT0005

Open the switch door/打开开关盖

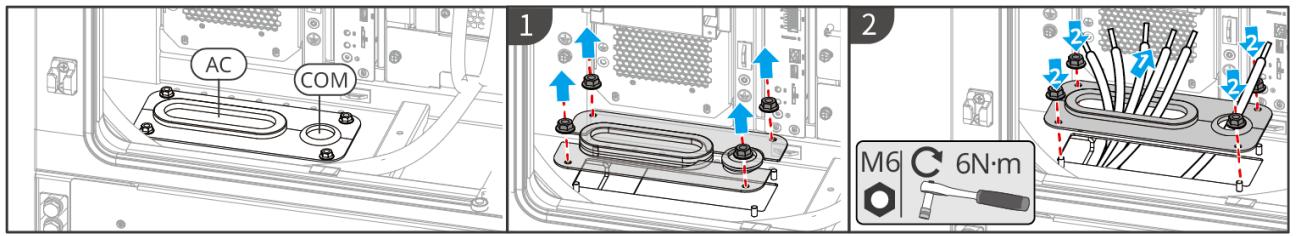


Close the switch door/关闭开关盖



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## Wiring Port and Cable Protector Operation

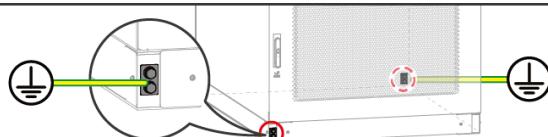


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## 5.2 Connecting the PE cable

## WARNING

- Ensure the system is reliably grounded and all relevant protective measures are in place before operating the device. Otherwise, there is a risk of electric shock.
- To improve the corrosion resistance of the terminal, it is recommended to secure it using an M10 bolt at the grounding point in the lower left corner of the cabinet. After connection and installation are complete, apply silicone or paint to the exterior of the grounding terminal for protection.
- Please prepare your own protective grounding flat steel cable that meets local requirements.



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## 5.3 Connecting the AC Cable

### ⚠ DANGER

When the energy storage system is powered on, the AC connection ports are live. If maintenance is required, ensure that the upstream and downstream circuit breakers are disconnected or the energy storage system is powered off, otherwise it may cause electric shock.

### ⚠ WARNING

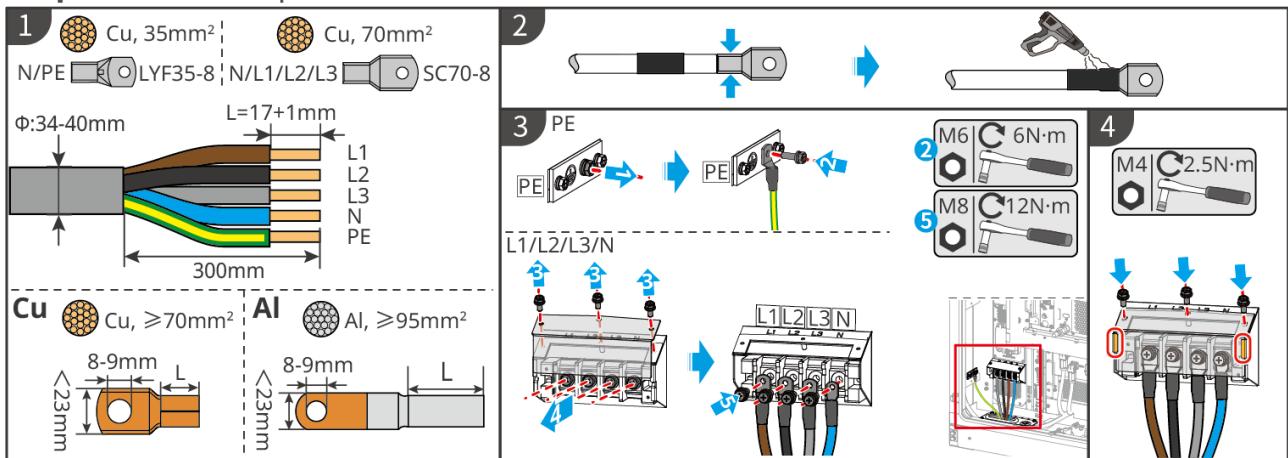
- When wiring, ensure the AC cable connections to the L1, L2, L3, and N terminals of the AC port are correct. Incorrect cable connections may cause equipment damage.
- Ensure the wire cores are fully inserted into the terminal wiring holes with no exposed parts.
- Ensure the cable connections are secure; otherwise, overheating of the terminals during equipment operation may cause damage.
- Ensure all switches on the equipment are turned off.

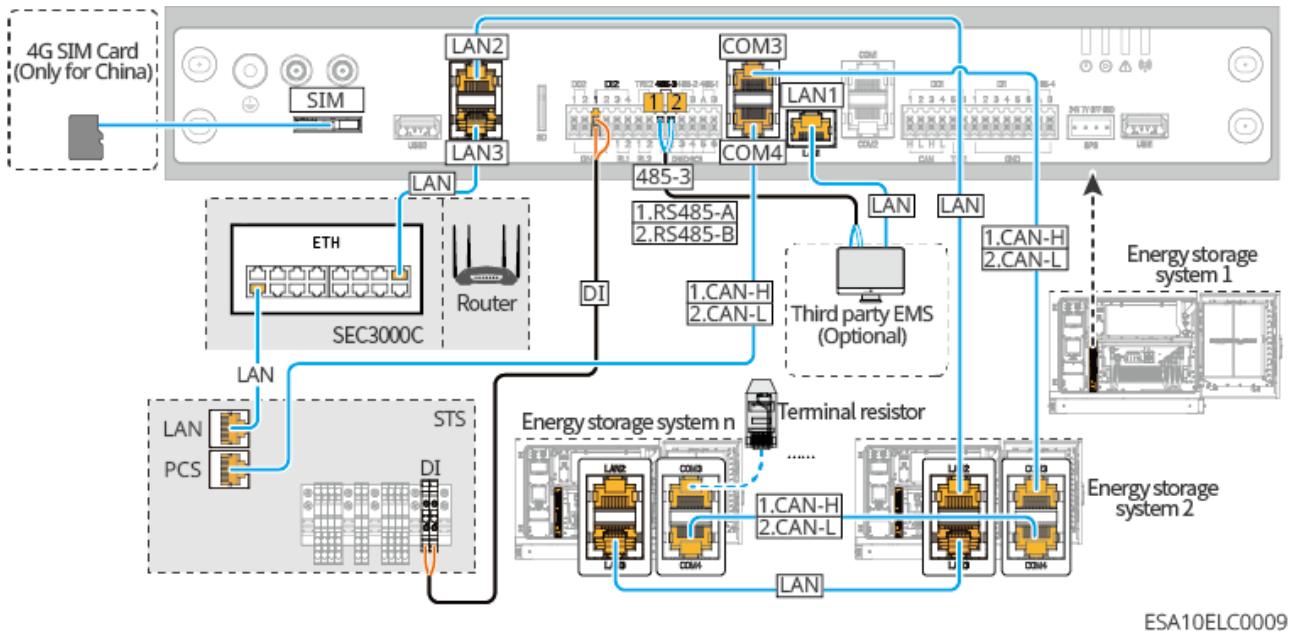
**Step 1:** Prepare the cable and terminals. Ensure the cable selection meets the requirements specified in [5.1.Preparations Before Wiring\(Page 35\)](#) (Terminals are provided in the accessories. If the user prepares terminals themselves, please purchase them according to the recommended dimensions for copper terminals/copper-aluminum terminals).

**Step 2:** Prepare the AC cable.

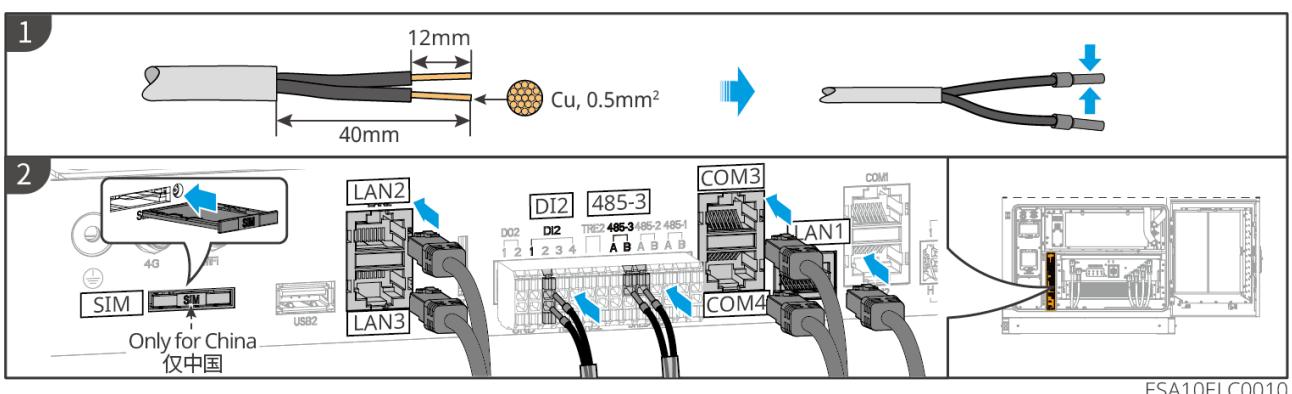
**Step 3:** Connect the AC cable.

**Step 4:** Install the protective cover.





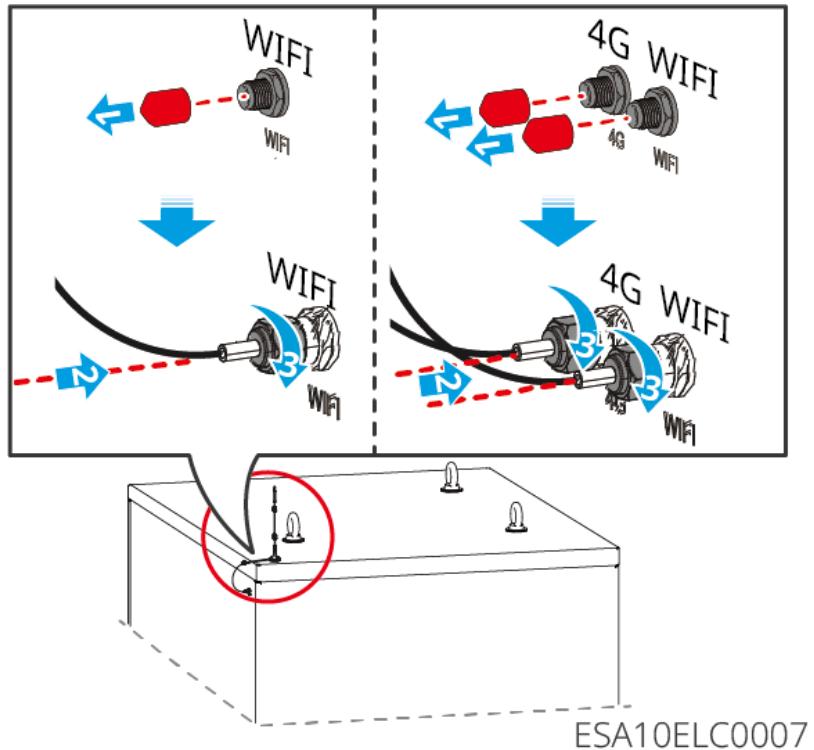
## Connection Steps



## Installing Antenna

## NOTICE

- The communication cable between the local control module of the energy storage system and the WiFi communication port on the top of the system cabinet is pre-installed. Only the antenna needs to be installed for use.
- The overseas version only requires the installation of a WiFi antenna, while the domestic version requires the installation of both a 4G antenna and a WiFi antenna.



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#### 5.4.1 Grid-Connected Scenarios

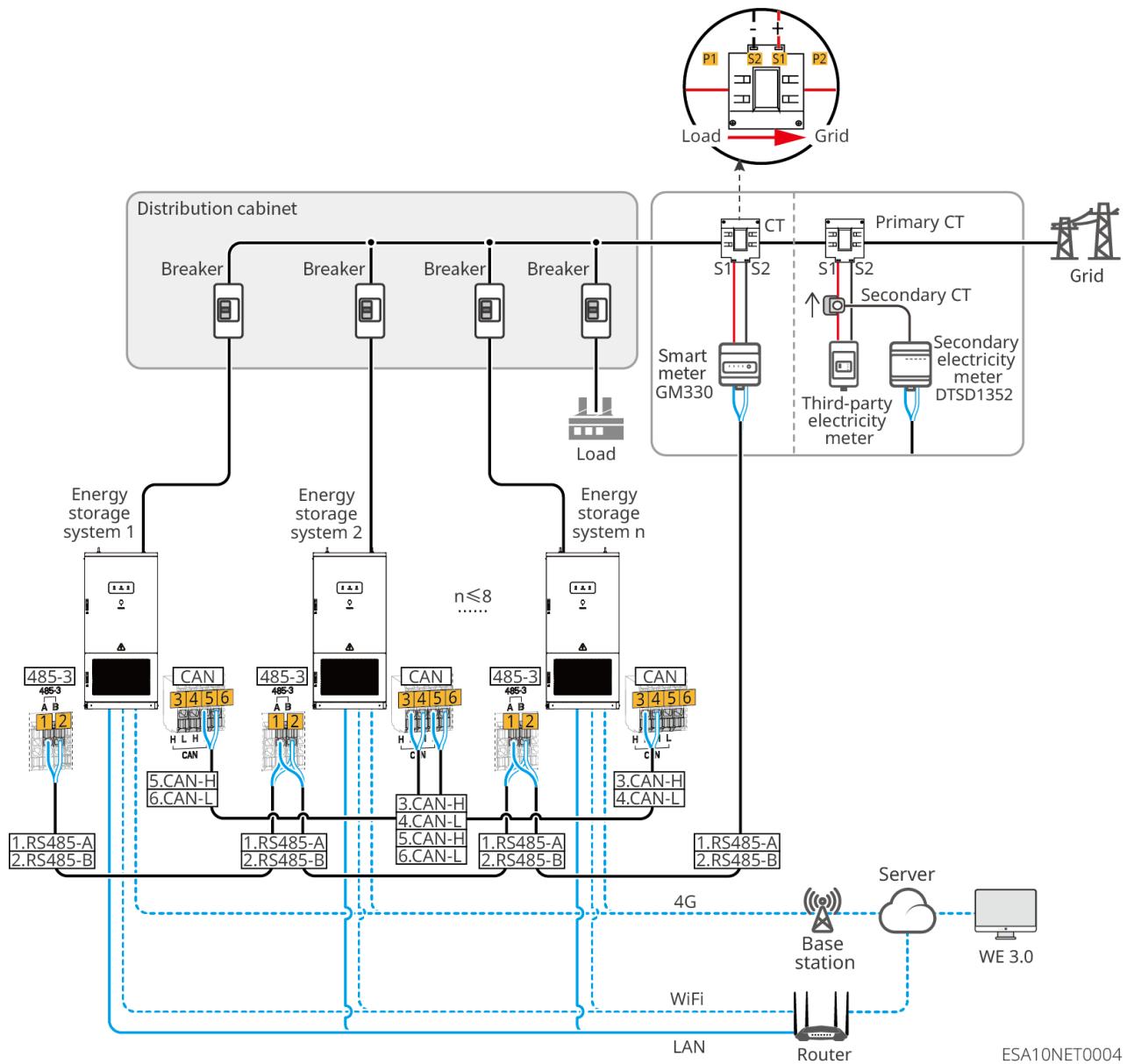
##### NOTICE

To implement the grid-connection power limitation function, current transformers (CTs) and energy meters need to be configured at the point of common coupling (PCC). Please select the appropriate solution based on the actual site conditions:

- If a power outage is permissible on-site, install primary CTs at the PCC and connect them to the GM330/primary meter.
- If a power outage is not permissible on-site, install secondary CTs on the existing primary CTs and connect them to the DTSD1352/secondary meter.

#### Master-Slave Parallel Connection

The ESA261 energy storage system supports master-slave parallel connection. The system does not support connection to PV inverters and can support up to 8 units in parallel.



Name	Description
energy storage system	<p>Purchase from GoodWe. For the same project, ensure the model and specifications of the energy storage system are consistent; mixing products is not recommended.</p> <ul style="list-style-type: none"><li>• GW125/261-ESA-LCN-G10</li><li>• GW125/261-ESA-LCN-G11</li></ul>

Name	Description
breaker	For circuit protection. Recommended specification: 250A. Customer purchases separately.
CT	<p>Used with the GM330 smart meter. CT ratio is: nA/5A.</p> <ul style="list-style-type: none"> <li>• nA: CT primary side input current. The value of n depends on the actual specifications of the PCC point busbar or cable on site.</li> <li>• 5A: CT secondary side output current.</li> </ul> <p>Customer purchases separately.</p>
GM330 Smart Meter	<p>Used for grid-connection power limitation.</p> <p>Purchase from GoodWe.</p>
Secondary CT	<p>Used with the secondary smart meter DTSD1352. CT ratio is: 5A/2mA.</p> <p>Purchase from GoodWe.</p>
Secondary Smart Meter DTSD1352	<p>Used for grid-connection power limitation.</p> <p>Purchase from GoodWe.</p>
WE 3.0	<p>Remotely monitors the operating data of the energy storage system and sets system parameters.</p> <p>Purchase from GoodWe.</p>

## Parallel Connection via EMS

The ESA261 energy storage system supports parallel connection via SEC3000C/third-party EMS. The system supports connection to PV inverters.

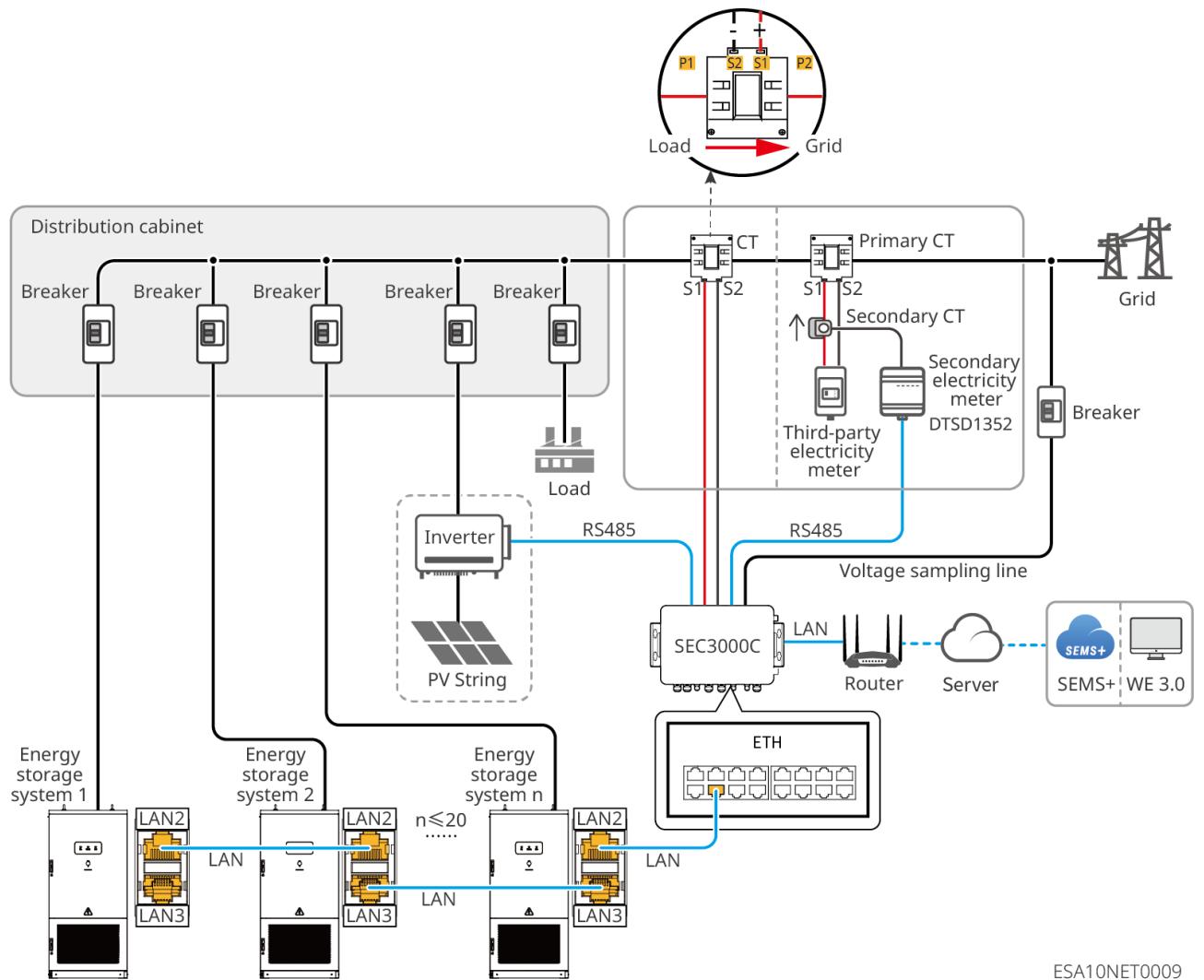
When connected to SEC3000C, it supports up to 20 units in parallel.

When connected to a third-party EMS, the supported number of parallel units is determined by the third-party EMS.

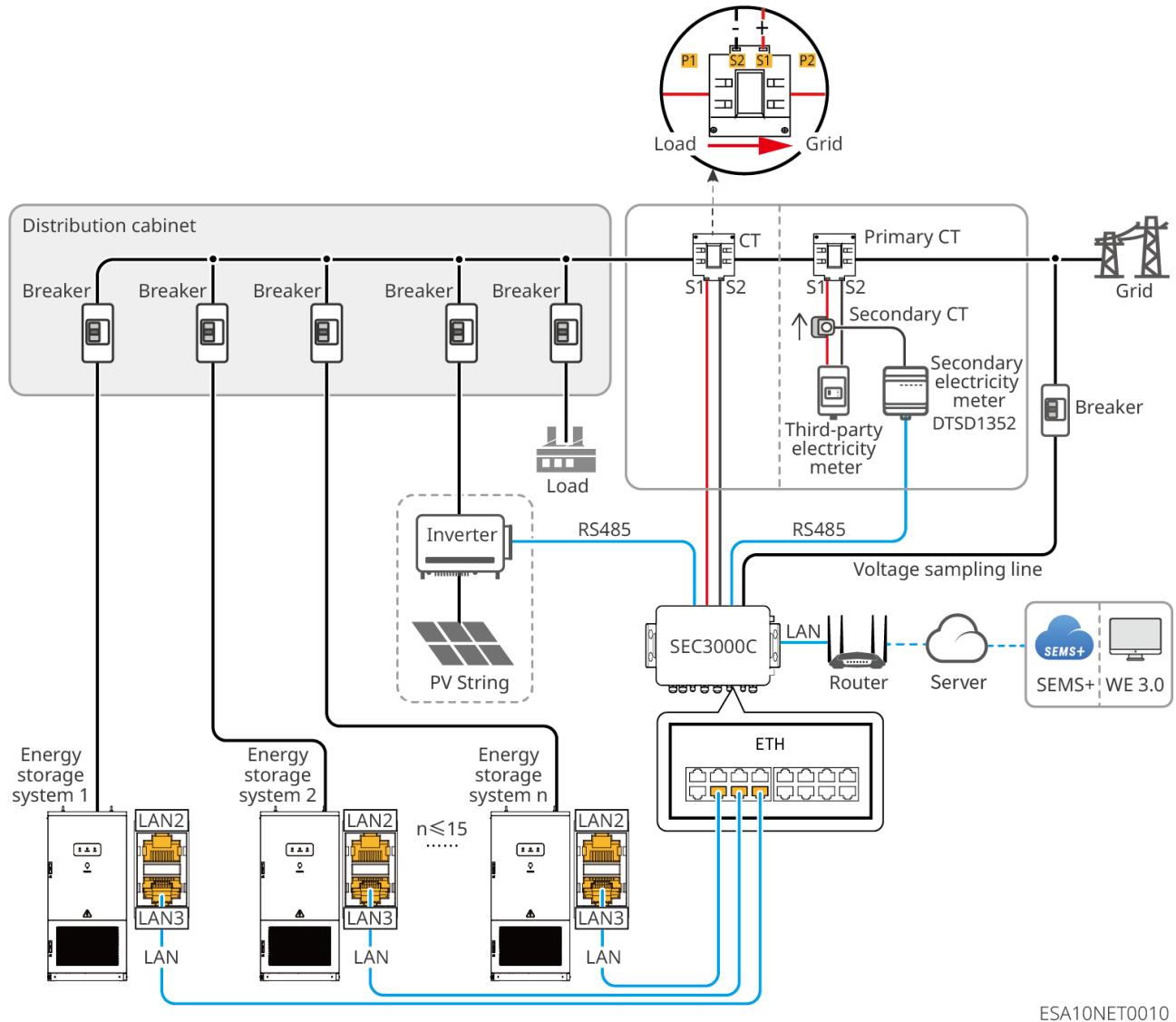
Compatible Device	Communication Method	Connection Method	Max Parallel Units	Monitoring Platform
SEC3000C	LAN	Daisy-chain/Daisy-chain Star Hybrid	20	WE 3.0 (Domestic Version)
	LAN	Star	15	SEMS+ (Overseas Version)
Third-party EMS	LAN/RS485	Daisy-chain	N	Third-party Monitoring Platform

- **Parallel Connection via SEC3000C**

- **Daisy-Chain Connection**



- **Star Connection**

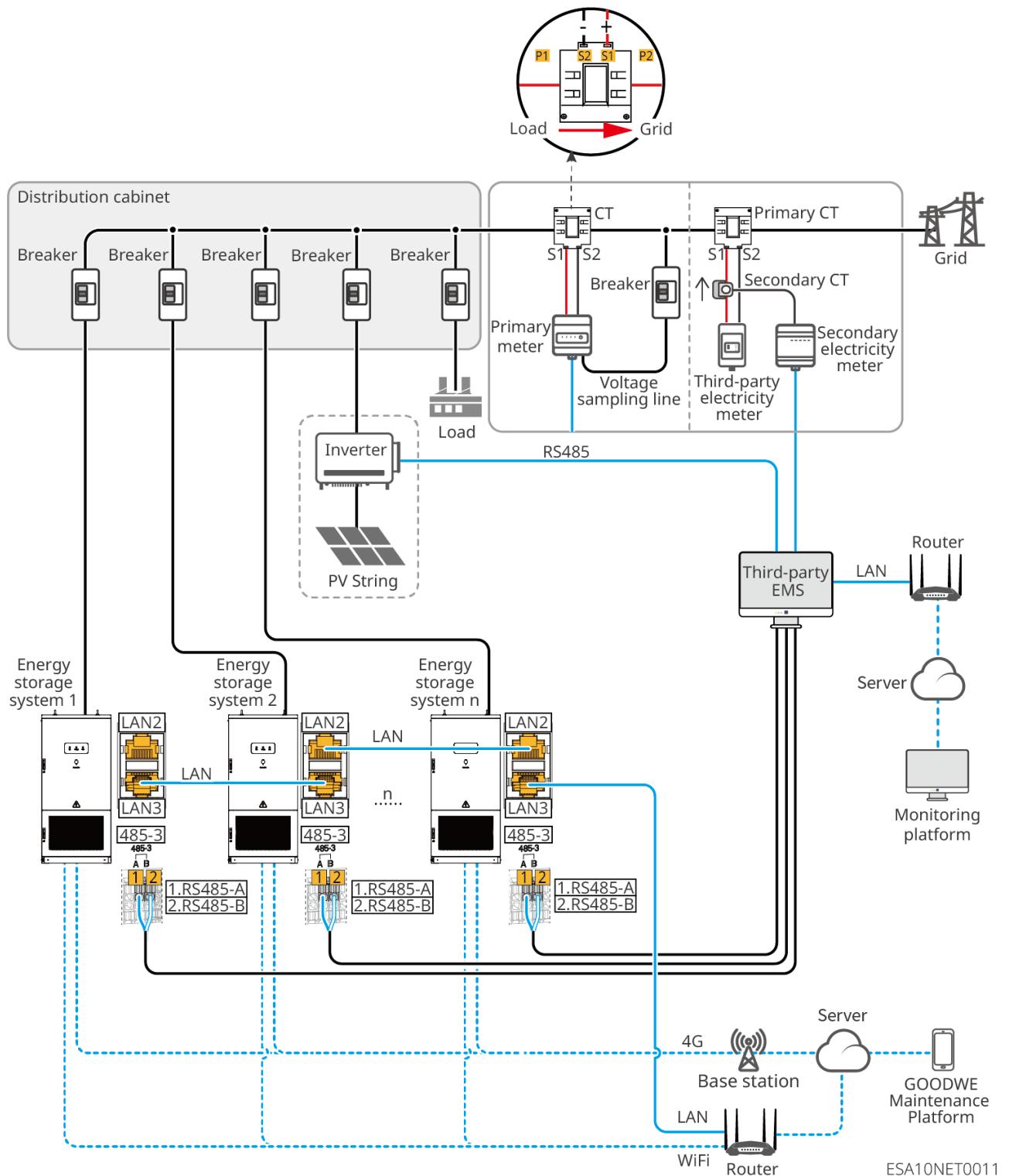


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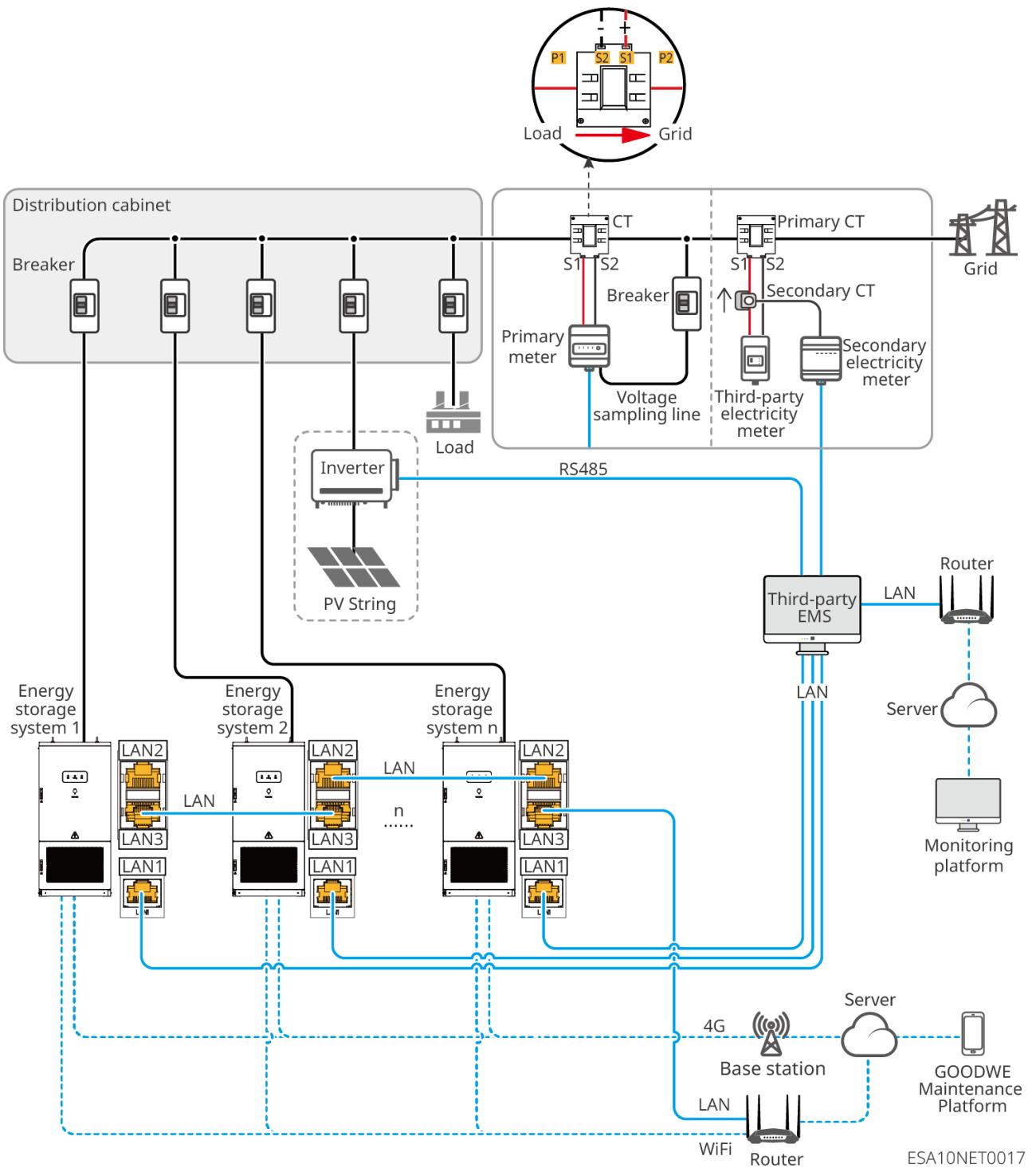
Name	Description
energy storage system	<p>Purchase from GoodWe. For the same project, ensure the model and specifications of the energy storage system are consistent. Mixing products is not recommended.</p> <ul style="list-style-type: none"> <li>• GW125/261-ESA-LCN-G10</li> <li>• GW125/261-ESA-LCN-G11</li> </ul>
breaker	Provides circuit protection. Recommended specification: 250A. Customer purchases separately.

Name	Description
Photovoltaic Grid-connected Inverter	Converts PV DC power to AC power.
CT	<p>Used with the GM330 smart meter. The CT ratio is: nA/5A.</p> <ul style="list-style-type: none"> <li>• nA: CT primary side input current. Depending on the specifications of the PCC point busbar or cable on site, the value of n is determined based on actual conditions.</li> <li>• 5A: CT secondary side output current.</li> </ul> <p>Customer purchases separately.</p>
GM330 Smart Meter	<p>Used for grid connection power limitation.</p> <p>Purchase from GoodWe.</p>
Secondary CT	<p>Used with the secondary smart meter DTSD1352. The CT ratio is: 5A/2mA.</p> <p>Purchase from GoodWe.</p>
Secondary Smart Meter DTSD1352	<p>Used for grid connection power limitation.</p> <p>Purchase from GoodWe.</p>
SEC3000C	<p>Collects system data and sends it to WE 3.0/SEMS+ to achieve centralized monitoring, operation, and maintenance of the system.</p> <p>Purchase from GoodWe.</p>
SEMS+/WE 3.0	<p>Remotely monitors the operating data of the energy storage system and sets system parameters.</p> <p>Purchase from GoodWe.</p>

- **Parallel Connection via Third-Party EMS**
- **Connection via RS485 Cable**



- **Connection via LAN Cable**



Name	Description
energy storage system	<p>Purchase from GoodWe. For the same project, the model and specifications of the energy storage system should be consistent. Mixing products is not recommended.</p> <ul style="list-style-type: none"> <li>• GW125/261-ESA-LCN-G10</li> <li>• GW125/261-ESA-LCN-G11</li> </ul>
breaker	For circuit protection. Recommended specification: 250A. Customer purchases separately.
PV Grid-tied Inverter	Converts PV DC power to AC power.
CT	Used with the primary meter. Customer purchases separately.
Primary Meter	Used for grid power limitation. Purchase according to the compatibility of the third-party EMS.
Secondary CT	Used with the secondary meter. Customer purchases separately.
Secondary Meter	Used for grid power limitation. Purchase according to the compatibility of the third-party EMS.
Third-party EMS	<p>Collects system data and sends it to a third-party monitoring platform, enabling centralized monitoring, operation, and maintenance of the system.</p> <p>Customer purchases separately.</p>
Third-party Monitoring Platform	<p>Remotely monitors the operating data of the energy storage system, sets system parameters, etc.</p> <p>Customer purchases separately.</p>

## 5.4.2 Grid-Connected/Islanded Switching Scenarios

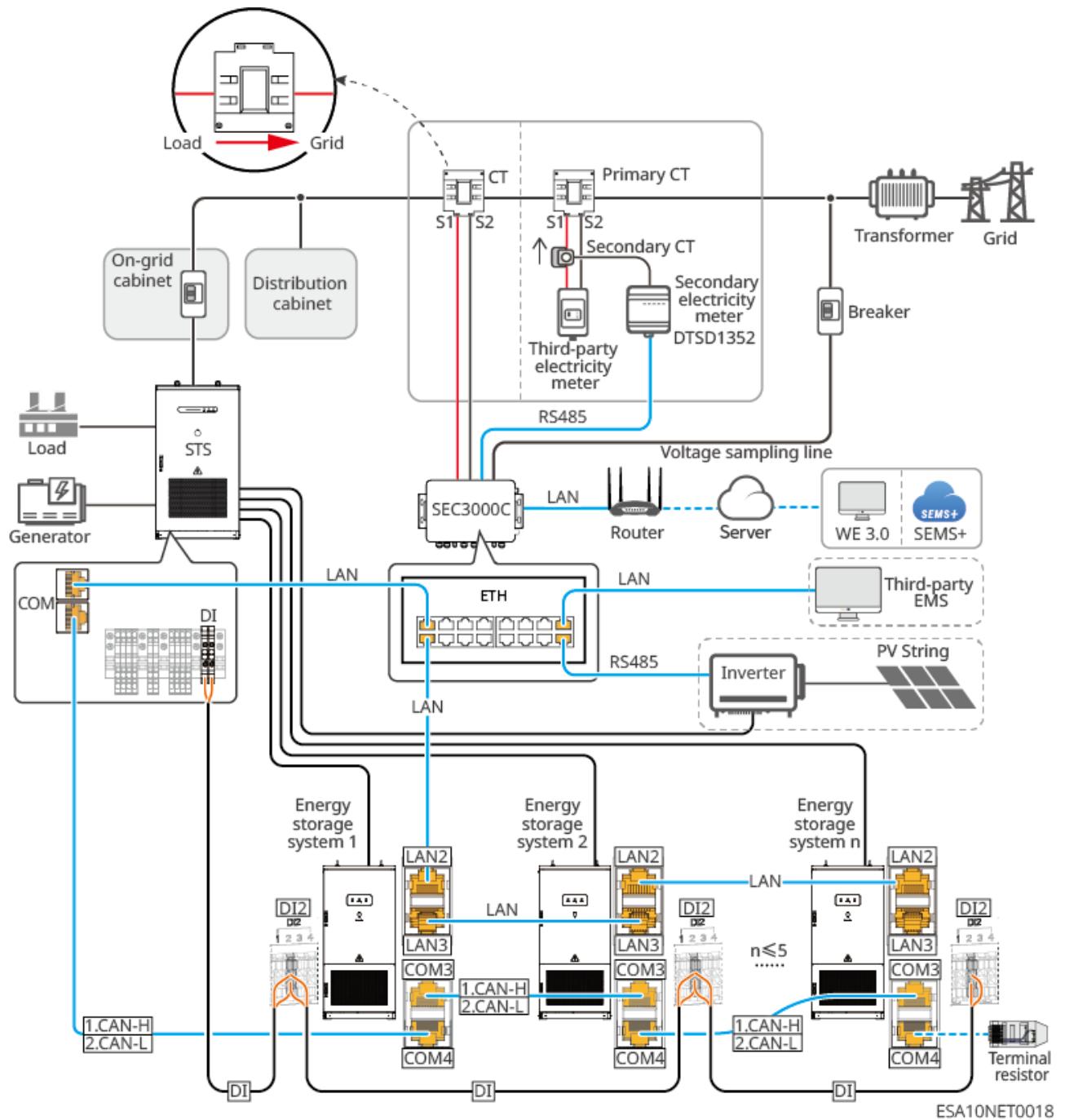
## NOTICE

At the point of common coupling, current transformers (CT) and meters need to be configured to achieve anti-backflow function. Please select the appropriate solution based on the actual site conditions:

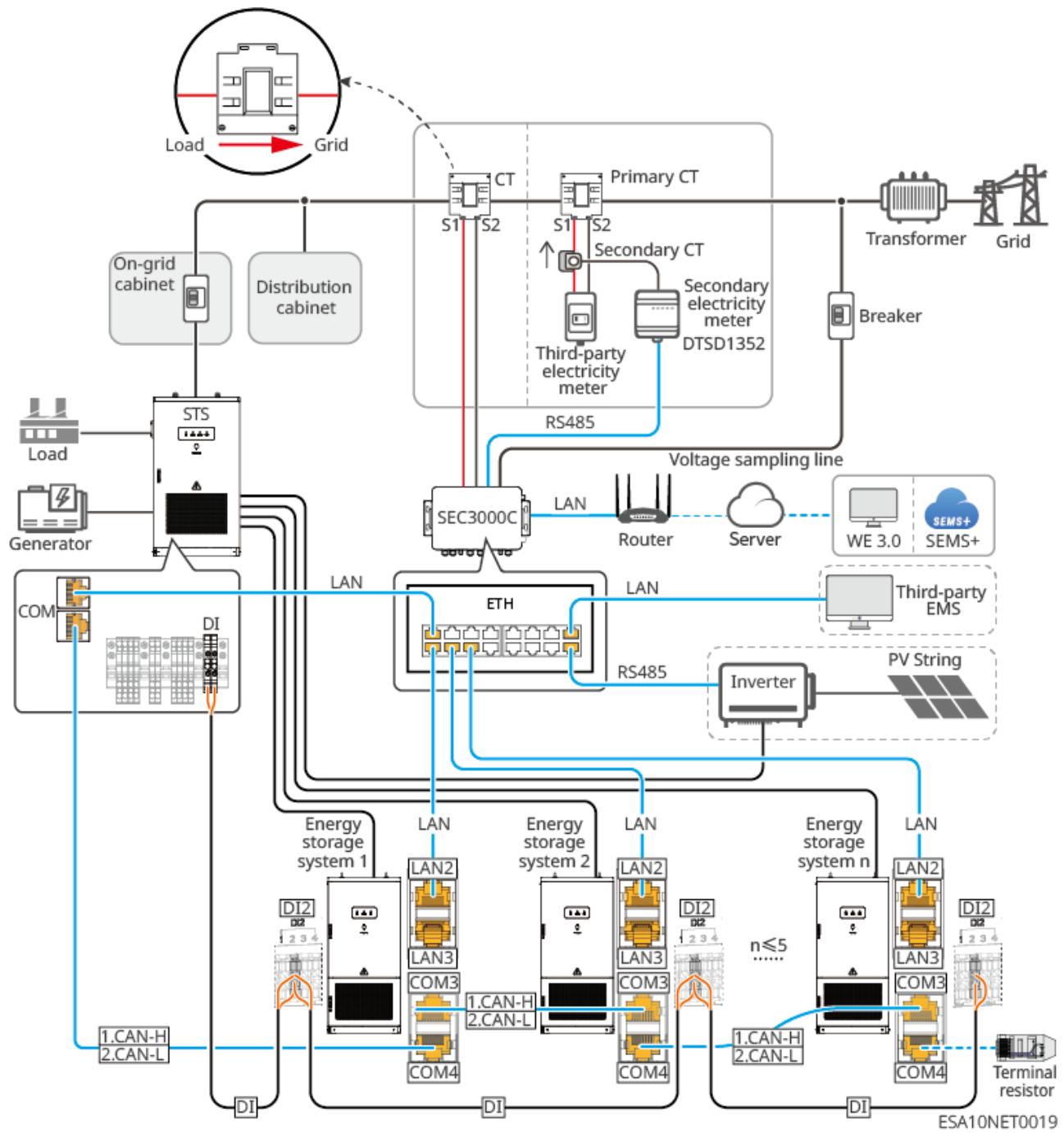
- If the site allows power outage operations, a primary CT can be installed at the point of common coupling and connected to the GM330 smart meter.
- If the site does not allow power outage, a secondary CT should be installed on the existing primary CT and connected to the DTSD1352 secondary meter.

The ESA261 energy storage system can achieve grid-connected/islanded switching by pairing with an STS grid-connected/islanded switching cabinet. For the energy storage system directly communicating with the STS, the distance to the STS must be less than or equal to 30 meters.

### **Method 1:**



## Method 2:



Name	Description
Energy Storage System	<p>Purchase from GoodWe. For the same project, please keep the model and specifications of the energy storage system consistent. Mixing products is not recommended.</p> <ul style="list-style-type: none"> <li>• GW125/261-ESA-LCN-G10</li> <li>• GW125/261-ESA-LCN-G11</li> </ul>
PV Grid-tied Inverter	Converts PV DC power to AC power.
STS	Grid-off-grid switching cabinet.
CT	<p>Used with the GM330 smart meter. The CT ratio is: nA/5A.</p> <ul style="list-style-type: none"> <li>• nA: CT primary side input current. The value of 'n' depends on the actual specifications of the PCC point busbar or cable on-site.</li> <li>• 5A: CT secondary side output current.</li> </ul> <p>Customer purchases separately.</p>
GM330 Smart Meter	<p>Used for grid-connection power limitation.</p> <p>Purchase from GoodWe.</p>
Secondary CT	<p>Used with the secondary smart meter DTSD1352. The CT ratio is: 5A/2mA.</p> <p>Purchase from GoodWe.</p>
Secondary Smart Meter DTSD1352	<p>Used for grid-connection power limitation.</p> <p>Purchase from GoodWe.</p>
SEC3000C	<p>Collects system data and sends it to WE 3.0/SEMS+ to achieve centralized monitoring, operation, and maintenance of the system.</p> <p>Purchase from GoodWe.</p>

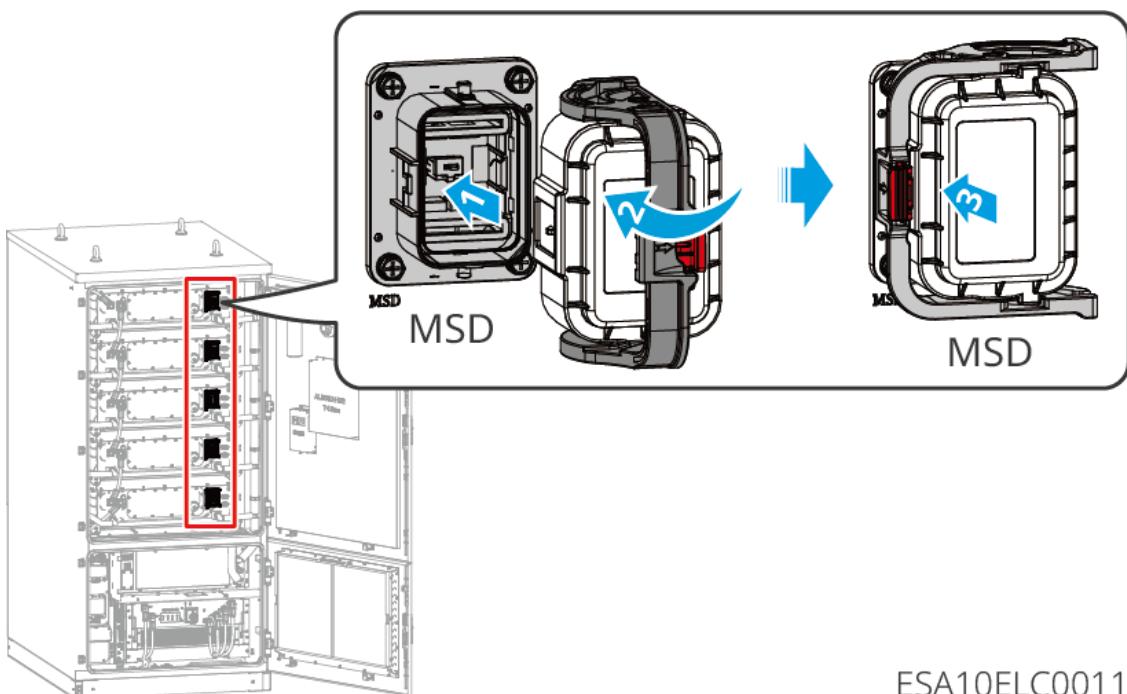
Name	Description
Third-party EMS	Collects system data and sends it to a third-party monitoring platform to achieve centralized monitoring, operation, and maintenance of the system. Customer provides.
SEMS+/WE 3.0	Remotely monitors the operating data of the energy storage system and sets system parameters. Purchase from GoodWe.

## 5.5 Installing MSD Switch/Battery Power Cables

### NOTICE

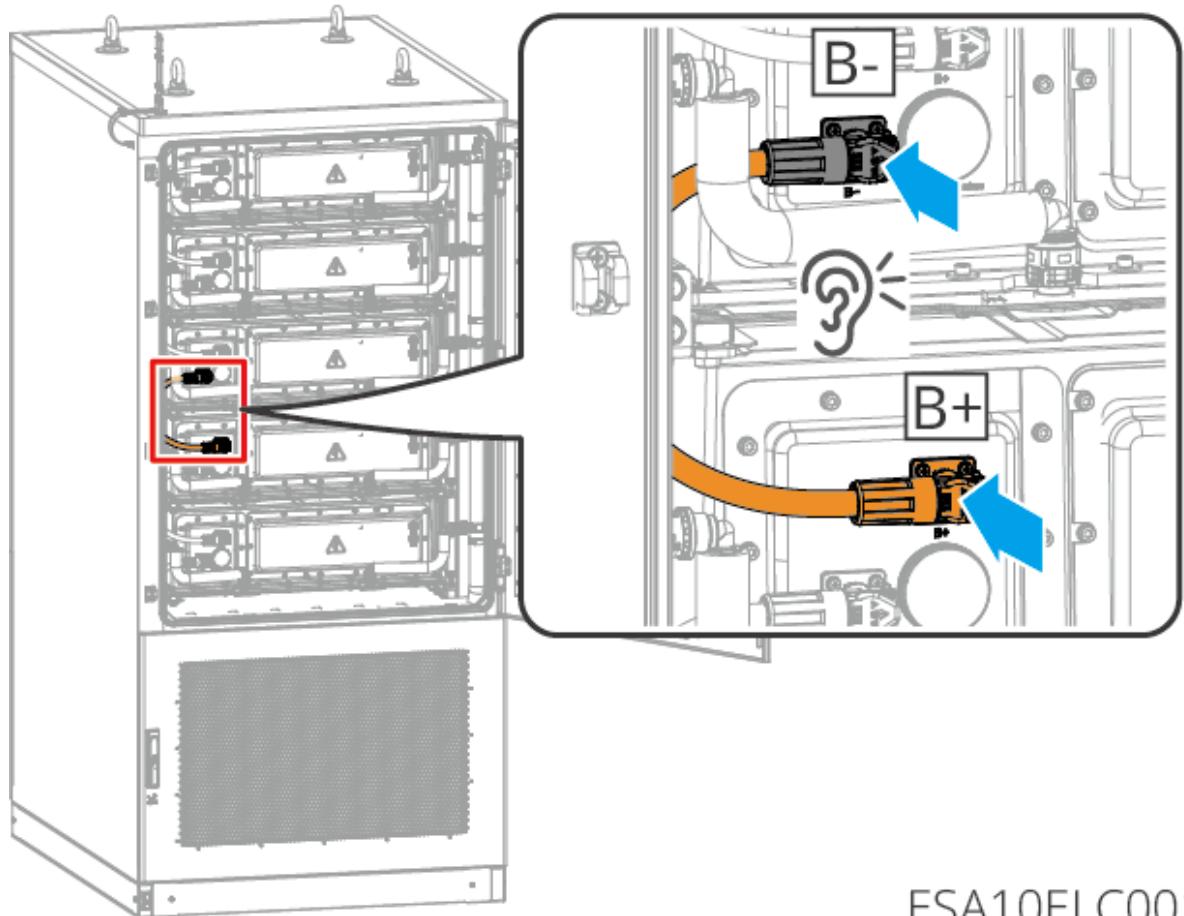
- Only the GW125/261-ESA-LCN-G10 requires installation of the MSD switch.
- Only the GW125/261-ESA-LCN-G11 requires installation of the battery power cable.

### Installing the MSD Switch



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## Installing the Battery Power Cables

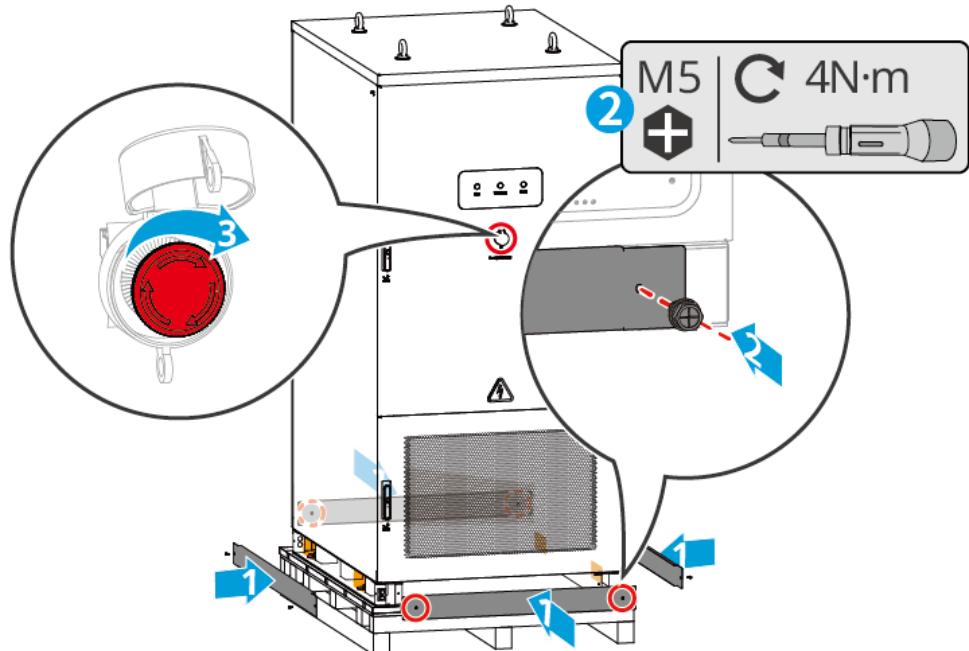


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## 5.6 Post-Wiring Operations

**Step 1:** Install the bottom cover of the energy storage system.

**Step 2:** Release the emergency stop switch.



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# 6 System Commissioning

## 6.1 Pre-Power Check

No.	Inspection Item
1	The energy storage system is securely installed. The installation location facilitates operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The PE cable, battery power cables, AC output cables, and communication cables are connected correctly and securely.
3	Cable bundling meets routing requirements, is reasonably distributed, and shows no damage.
4	Unused ports are sealed.
5	The voltage and frequency at the grid connection point of the energy storage system meet the grid connection requirements.

## 6.2 Device Power On

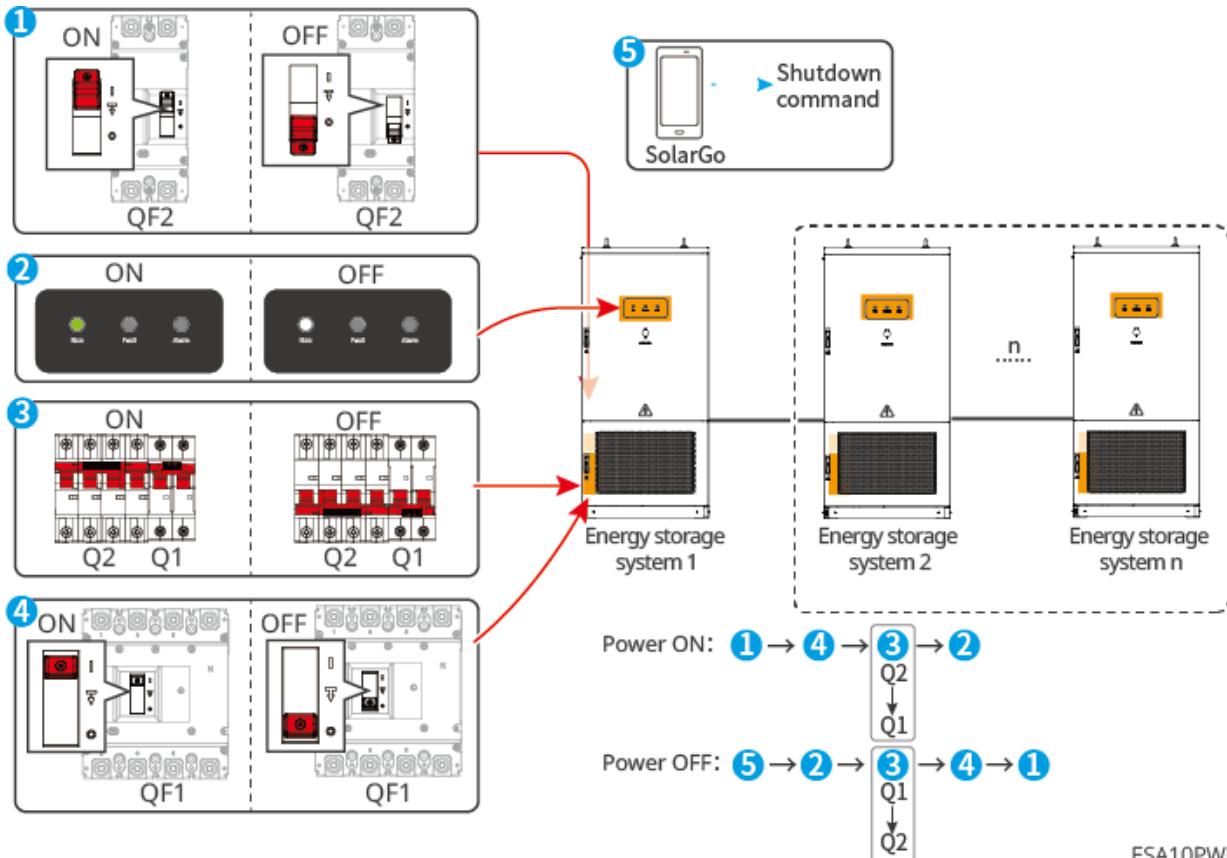
**Step 1:** Close QF2 (DC circuit breaker).

**Step 2:** Close QF1 (AC molded case circuit breaker).

**Step 3:** Close Q2 (DC auxiliary switch).

**Step 4:** Close Q1 (AC auxiliary switch).

**Step 5:** Close the front door, after the RUN indicator light turns from white to green, the system completes grid connection.



# 7 System Commissioning

## 7.1 Setting Device Parameters via SolarGo

The SolarGo App is a mobile application that can communicate with energy storage systems via Bluetooth. The following are common functions of SolarGo:

- View device operation data, software version, alarm information, etc.
- Set device grid parameters, communication parameters, safety regulation regions, anti-reverse flow, etc.
- Maintain the device.

For detailed functions, please refer to the "SolarGo App User Manual". The user manual can be obtained from the official website or by scanning the QR code below.



SolarGo APP



SolarGo APP User Manual

## 7.2 Device Debugging via SEC3000C Embedded Web

The SEC3000C Smart Energy Control Box is a dedicated device for the monitoring and management platform of photovoltaic power generation systems. It can be used to collect data from devices in the photovoltaic power generation system, such as grid-connected inverters, hybrid inverters, electric meters, etc., store logs, and send the data to the monitoring and management platform, achieving centralized monitoring, operation, and maintenance of the photovoltaic system.

For detailed functions, please refer to the [SEC3000C User Manual](#).

## 8 Power Plant Monitoring via SEMS+

SEMS+ is a monitoring platform that can communicate with devices via WiFi/LAN/4G. The following are common functions of SEMS+:

- Manage organization or user information, etc.
- Add and monitor power plant information, etc.
- Maintain equipment.

For detailed functions, please refer to the [SEMS+ User Manual](#).

# 9 Maintenance

## 9.1 Device Power-Off

### DANGER

- When performing operation and maintenance on the energy storage system, please power down the system. Operating the equipment while energized may cause damage to the energy storage system or pose an electric shock hazard.
- After the energy storage system is powered off, a certain amount of time is required for the internal components to discharge. Please wait until the equipment is completely discharged according to the time specified on the label.

**Step 1:** Send a shutdown command to the energy storage system via SolarGo.

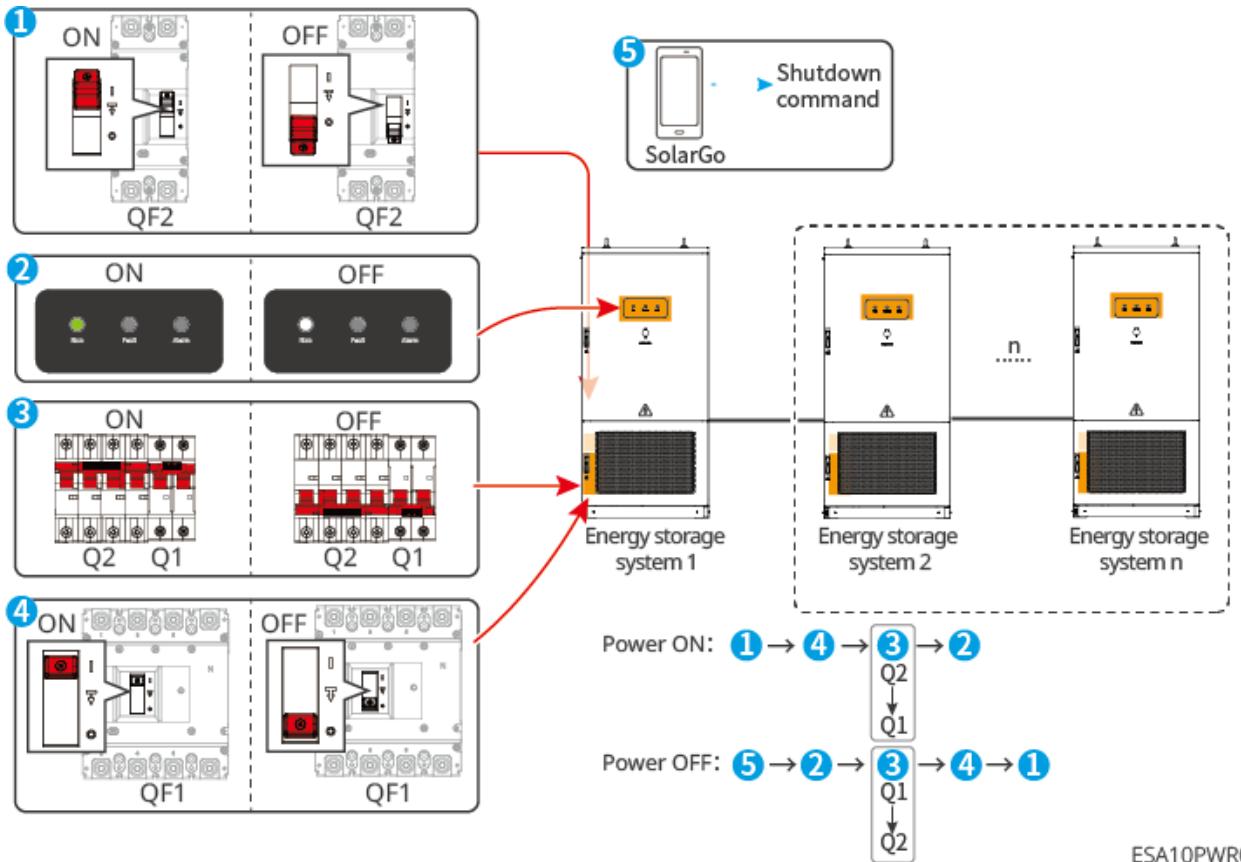
**Step 2:** Observe that the RUN indicator light is steady white.

**Step 3:** Disconnect Q1 (AC auxiliary switch).

**Step 4:** Disconnect Q2 (DC auxiliary switch).

**Step 5:** Disconnect QF1 (AC molded case circuit breaker).

**Step 6:** Disconnect QF2 (DC circuit breaker).



## 9.2 Removing the Equipment

### ⚠️ WARNING

- Before dismantling the equipment, ensure that the energy storage system is powered off.
- Please wear personal protective equipment.

**Step 1:** Open the cabinet door.

**Step 2:** Disconnect all electrical connections of the energy storage system, including: AC power line, Communication cable, MSD switch, battery power cable, and protective ground wire.

**Step 3:** Unscrew the fixing screws on the energy storage system base.

**Step 4:** Use a hoist or forklift to move and remove the energy storage system from the base.

**Step 5:** Store the equipment properly. If it will be put into use again later, ensure the storage conditions meet the requirements.

## 9.3 Disposing of the Equipment

When the equipment can no longer be used and needs to be disposed of, please handle it according to the electronic waste disposal requirements of the regulations in the country/region where the equipment is located. The equipment must not be disposed of as general household waste.

## 9.4 Troubleshooting

Please troubleshoot according to the following methods. If the troubleshooting methods cannot help you, please contact the after-sales service center.

When contacting the after-sales service center, please collect the following information to facilitate a quick resolution.

1. Energy storage system information, such as: serial number, software version, device installation time, fault occurrence time, fault frequency, etc.
2. Device installation environment, such as: weather conditions, etc. For the installation environment, providing photos, videos, and other files is recommended to assist in problem analysis.
3. Grid conditions.

Fault Type	Fault Prompt	Troubleshooting
BMS Fault	BMU Hardware Failure	Please contact the distributor/our customer service center.
	BCU Hardware Failure	Please contact the distributor/our customer service center.
	Contactor Welding Fault	Power down the energy storage system, wait 5 minutes and power it back on. If the fault persists, please contact the distributor/our customer service center.

Fault Type	Fault Prompt	Troubleshooting
	BMU Comm Failure	<p>1. Check if the battery pack communication port connector is properly connected or abnormal.</p> <p>2. If the fault persists, please contact the distributor/our customer service center.</p>
	Current Sensor Failure	Power down the energy storage system, wait 5 minutes and power it back on. If the fault persists, please contact the distributor/our customer service center.
	Insulation Monitoring Device Failure	Power down the energy storage system, wait 5 minutes and power it back on. If the fault persists, please contact the distributor/our customer service center.
	Total Voltage Overvoltage Level 1 Alarm	Check if the total voltage exceeds the protection threshold during system charging. If it does, please contact the distributor/our customer service center.
	Total Voltage Undervoltage Level 1 Alarm	Check if the system total voltage is below the protection threshold. If it is, please contact the distributor/our customer service center.
	Cell Overvoltage Level 1 Alarm	Check if the cell voltage exceeds the protection threshold during system operation. If the cell voltage exceeds the threshold during charging, please contact the distributor/our customer service center.
	Cell Undervoltage Level 1 Alarm	Check if the cell voltage is below the protection threshold. If it is, please contact the distributor/our customer service center.

Fault Type	Fault Prompt	Troubleshooting
	Discharge Current Overcurrent Level 1 Alarm	Check if the discharge current exceeds the protection threshold during system operation. If the discharge current exceeds the threshold during discharging, please contact the distributor/our customer service center.
	Charge Current Overcurrent Level 1 Alarm	Check if the charge current exceeds the protection threshold during system operation. If the charge current exceeds the threshold during charging, please contact the distributor/our customer service center.
	Discharge Battery Overtemperature Level 1 Alarm	<ol style="list-style-type: none"> <li>1. Check if the liquid cooling unit refrigeration is operating normally.</li> <li>2. Check if the battery temperature exceeds the protection threshold during system operation. If it does, please contact the distributor/our customer service center.</li> </ol>
	Discharge Battery Undertemperature Level 1 Alarm	<ol style="list-style-type: none"> <li>1. Check if the liquid cooling unit heating is operating normally.</li> <li>2. Check if the battery temperature is below the protection threshold during system operation. If it is, please contact the distributor/our customer service center.</li> </ol>
	Charge Battery Overtemperature Level 1 Alarm	<ol style="list-style-type: none"> <li>1. Check if the liquid cooling unit refrigeration is operating normally.</li> <li>2. Check if the battery temperature exceeds the protection threshold during system operation. If it does, please contact the distributor/our customer service center.</li> </ol>

Fault Type	Fault Prompt	Troubleshooting
	Charge Battery Undertemperature Level 1 Alarm	<p>1. Check if the liquid cooling unit heating is operating normally.</p> <p>2. Check if the battery temperature is below the protection threshold during system operation. If it is, please contact the distributor/our customer service center.</p>
	Low Insulation Resistance Level 1 Alarm	Power down the energy storage system, wait 5 minutes and power it back on. If the fault persists, please contact the distributor/our customer service center.
	Terminal Overtemperature Level 1 Alarm	Check if the terminal temperature exceeds the protection threshold during system operation. If it does, please contact the distributor/our customer service center.
	High Cell Voltage Difference Level 1 Alarm	Check if the cell voltage difference exceeds the protection threshold during system operation. If it does, please contact the distributor/our customer service center.
	High Cell Temperature Difference Level 1 Alarm	<p>1. Check if the liquid cooling unit is operating normally.</p> <p>2. Check if the cell temperature difference exceeds the protection threshold during system operation. If it does, please contact the distributor/our customer service center.</p>
	Low SOC Level 1 Alarm	Charge the system. If the alarm cannot be cleared when the total voltage is greater than 732V, please contact the distributor/our customer service center.

Fault Type	Fault Prompt	Troubleshooting
Grid Fault	Grid Voltage Abnormal	<ol style="list-style-type: none"> <li>1. If the grid returns to normal, manually restore or the energy storage system will automatically restore (default is manual restore) according to the set recovery method.</li> <li>2. Ensure the grid voltage and frequency match the specifications.</li> <li>3. Confirm if the N-line and PE-line connections are good.</li> </ol>
	Grid Frequency Abnormal	<ol style="list-style-type: none"> <li>1. If the grid returns to normal, manually restore or the energy storage system will automatically restore (default is manual restore) according to the set recovery method.</li> </ol>
	Grid Loss Fault	<ol style="list-style-type: none"> <li>2. Ensure the grid voltage and frequency match the specifications.</li> </ol>
PCS Fault	Grid Overvoltage Protection	<ol style="list-style-type: none"> <li>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</li> <li>2. If it occurs frequently, please check if the grid voltage is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid overvoltage protection point after obtaining consent from the local power operator.</li> <li>3. If it cannot recover for a long time, please check if the AC side circuit breaker and output cables are properly connected.</li> </ol>

Fault Type	Fault Prompt	Troubleshooting
	Grid Undervoltage Protection	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid voltage is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid undervoltage protection point after obtaining consent from the local power operator.</p> <p>3. If it cannot recover for a long time, please check if the AC side circuit breaker and output cables are properly connected.</p>
	Grid Overfrequency	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid frequency is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid overfrequency protection point after obtaining consent from the local power operator.</p>

Fault Type	Fault Prompt	Troubleshooting
	Grid Underfrequency	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid frequency is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid underfrequency protection point after obtaining consent from the local power operator.</p>
	Grid Frequency Instability	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid frequency is within the allowable range. If not, please contact the local power operator.</p>
	Grid Phase Instability	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid frequency is within the allowable range. If not, please contact the local power operator.</p>
	HVRT Undervoltage Fault	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. The inverter will resume normal operation after detecting normal grid conditions, no manual intervention is needed.</p> <p>2. If it occurs frequently, please check if the grid voltage and frequency are within the allowable range. If not, please contact the local power operator.</p>
	HVRT Overvoltage	
	Voltage Waveform Detection Fault	
	Grid Phase Loss	
	Grid Voltage Imbalance	

Fault Type	Fault Prompt	Troubleshooting
	Grid Phase Sequence Failure	<p>1. Check if the inverter and grid wiring are in positive sequence. The fault will automatically disappear after correct wiring (e.g., swap any two phase wires).</p> <p>2. If the fault persists despite correct wiring, please contact the distributor/our customer service center.</p>
	Low Insulation Resistance	<p>1. Check the impedance of the battery cluster to protective earth. If the impedance is low, disconnect the MSD of each battery pack and check if there is any abnormality in the system DC connectors.</p> <p>2. If the impedance remains low, please contact the distributor/our customer service center.</p>
	Hardware Export Limit Protection	<p>1. If it is due to an abnormality introduced by an external fault, the inverter will automatically resume normal operation after the fault disappears, no manual intervention is needed.</p> <p>2. If this alarm occurs frequently, affecting normal power generation of the plant, please contact the distributor/our customer service center.</p>
Internal Comm Loss		
AC HCT check Abnormal		Disconnect the AC output side switch and DC input side switch, wait 5 minutes and then close the AC output side switch and DC input side switch. If the fault persists, please contact the distributor/our customer service center.
AC HCT Failure		
Relay Check Abnormal		
Relay Failure		

Fault Type	Fault Prompt	Troubleshooting
	Cabinet Overtemperature	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range.
	INV Module Overtemperature	2. If there is poor ventilation or high ambient temperature, please improve the ventilation and heat dissipation conditions.
	Boost Module Overtemperature	3. If both ventilation and ambient temperature are normal, please contact the distributor/our customer service center.
	AC Capacitor Overtemperature	
	Bus Overvoltage	Disconnect the AC output side switch and DC input side switch, wait 5 minutes and then close the AC output side switch and DC input side switch. If the fault persists, please contact the distributor/our customer service center.
	P-Bus Overvoltage	
	N-Bus Overvoltage	
	BUS Overvoltage (Slave CPU1)	
	PBUS Overvoltage (Slave CPU1)	
	NBUS Overvoltage (Slave CPU1)	
	BUS Overvoltage (Slave CPU2)	
	PBUS Overvoltage (Slave CPU2)	
	NBUS Overvoltage (Slave CPU2)	
	PBUS Overvoltage(CPLD)	

Fault Type	Fault Prompt	Troubleshooting
	NBUS Overvoltage(CPLD)	
	MOS Continuous Overvoltage	
	Bus Short Circuit	Please contact the distributor/our customer service center.
	Bus Sample Abnormal	Disconnect the AC output side switch and DC input side switch, wait 5 minutes and then close the AC output side switch and DC input side switch. If the fault persists, please contact the distributor/our customer service center.
	BAT1 Precharge Failure	Check if the precharge circuit is good. After only battery power-on, check if the battery voltage matches the bus voltage. If not, please contact the distributor/our customer service center.
	Battery1 Relay Failure	After battery power-on, check if the battery relay operates and if a closing sound is heard. If it does not operate, please contact the distributor/our customer service center.
	INV Software Overcurrent	Occasional occurrence requires no action; if this alarm occurs frequently, please contact the distributor/our customer service center.
	Phase R INV Hardware Overcurrent	
	phase S INV Hardware Overcurrent	

Fault Type	Fault Prompt	Troubleshooting
	Phase T INV Hardware Overcurrent	
	Phase A Software Overcurrent	
	Phase B Software Overcurrent	
	Phase C Software Overcurrent	
	AC SPD Failure	Please contact the distributor/our customer service center.
Liquid Cooling Unit	Outlet High Temperature	Check if the liquid cooling unit compressor is operating normally. If it is, please contact the distributor/our customer service center.
	Outlet Low Temperature	Check if the liquid cooling unit PTC is operating normally. If it is, please contact the distributor/our customer service center.
	Outlet Temperature Sensor Fault	Disconnect the AC circuit breaker, wait 1 minute and then close it again. If the fault is not cleared, please contact the distributor/our customer service center.
	Inverter Communication Fault	

Fault Type	Fault Prompt	Troubleshooting
	System High Pressure Lockout	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. Power cycle and run again.</p> <p>2. If it occurs frequently, please check if the grid voltage is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid high voltage protection point after obtaining consent from the local power operator.</p>
	System Low Pressure Lockout	<p>1. If it occurs occasionally, it may be due to temporary grid abnormality. Power cycle and run again.</p> <p>2. If it occurs frequently, please check if the grid voltage is within the allowable range. If not, please contact the local power operator. If it is, you also need to modify the grid low voltage protection point after obtaining consent from the local power operator.</p>
Exhaust Over-temperature Lockout		<p>1. If it occurs occasionally, it may be due to temporary machine abnormality. Power cycle and run again.</p> <p>2. If it occurs frequently, please contact the distributor/our customer service center.</p>
Inverter Overcurrent Lockout		
Inverter Overtemperature Lockout		
Inverter Overvoltage Lockout		
Inverter Undervoltage Lockout		

Fault Type	Fault Prompt	Troubleshooting
EMS	Inverter Phase Loss Lockout	
	Water Refill Alarm	Please refill the coolant.
	System High Pressure Alarm	1. If it occurs occasionally, it may be due to temporary machine abnormality. Power cycle and run again. 2. If it occurs frequently, please contact the distributor/our customer service center.
	Outlet High Pressure Alarm	
	CT Not Connected	
	CT Reversed	Check CT wiring
	Smoke Alarm	1. If it occurs occasionally, it may be due to temporary sensor abnormality. Power cycle and run again. 2. If it occurs frequently, please contact the distributor/our customer service center.
	Water Leakage Alarm	Power down and check if there is water immersion inside the cabinet. If not, please contact the distributor/our customer service center.
PACK	PACK Fire Alarm	Prepare for fire extinguishing and contact the distributor/our customer service center.
	Cluster-Level Fire Alarm	Prepare for fire extinguishing and contact the distributor/our customer service center.

## 9.5 Routine Maintenance

## DANGER

- When performing operation and maintenance on the energy storage system, please power down the system. Operating the equipment while energized may cause damage to the energy storage system or pose a risk of electric shock.
- If exposed copper wires inside a conductor are found, do not touch them. Please contact after-sales personnel. Disassembly by unauthorized personnel is prohibited.

## NOTICE

For detailed maintenance procedures, please refer to the "ESA Series 261kWh Industrial & Commercial Energy Storage System Maintenance Manual".

Maintenance Item	Maintenance Method	Maintenance Cycle
System Appearance	Keep appearance clean and tidy, ensure operation indicator lights are on.	Once every six months to once a year
WiFi Antenna	Check if the antenna is detached, ensure normal appearance and functionality.	Once every six months to once a year
Cabinet Liquid Cooling Unit Dust Filter	Clean with clean water.	Once every six months to once a year
MSD Switch, Molded Case Switch, Auxiliary Power Switch, Emergency Stop Switch	Toggle each switch on and off three times consecutively to ensure proper function.	Once a year
Electrical Connections	Check for loose electrical connections, inspect cable appearance for damage or exposed copper.	Once every six months to once a year

Maintenance Item	Maintenance Method	Maintenance Cycle
Liquid Cooling System	Check if the sealing of equipment cable entry points meets requirements. If gaps are too large or unsealed, reseal them.	Once a year
Fire Suppression System (Hot Aerosol)	<p>Perform a comprehensive inspection and maintenance of the hot aerosol temperature-sensitive auto-activation fire extinguishing device:</p> <ol style="list-style-type: none"> <li>1. Check the aerosol fire extinguishing device for physical damage;</li> <li>2. Observe the operation indicator lights of smoke and temperature sensors, check if sensors are functioning normally;</li> <li>3. Check mounting brackets and related hardware for loose, damaged, or broken components.</li> </ol>	Once a year
Inlet/Outlet Dust Removal Maintenance	Check air inlets/outlets for foreign objects and dust.	Once every six months
Battery Charge/Discharge	Perform charge/discharge cycles	Once every six months
Dehumidifier	<p>Check if the temperature and humidity display on the screen is normal.</p> <p>Check if the fan operates normally when the dehumidifier is working (there should be sound when the fan is running).</p>	Once a year
Coolant Replacement	Refer to the maintenance manual.	Once every 5 years



# 10 Technical Data

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
<b>Battery Data</b>		
Cell Type	LFP (LiFePO <sub>4</sub> )	
Cell Capacity (Ah)	314	
Module Nominal Energy (kWh)	52.25	
Module Configuration	1P52S	
Module Weight (kg)	348±2	335±8
Number of Packs	5	
Rack Nominal Energy (kWh)	261.25	
Rack Usable Energy (kWh)	261.25	
Nominal Voltage (V)	832	
Operating Voltage Range (V)	676~936	
Max Continuous Charge/Discharge Current (A)	188	
Max. Charge/ Discharge Current (A)	198.5	
Max. Charge/ Discharge Rate	0.5P	
Depth of Discharge	90%~100% (90%Recommended)	
<b>AC Output Data (On-grid)</b>		

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
Nominal Output Power (kW)	125	
Max. Output Power (kW)	137.5@400V AC 130.6@380V AC	
Nominal Apparent Power(kVA)	125	
Nominal Output Apparent Power to Grid (kVA)	125	
Nominal Input Apparent Power from Grid (kVA)	125	
Max. Apparent Power (kVA)	137.5@400V AC 130.6@380V AC	
Max. Output Apparent Power to Grid (kVA)	137.5@400V AC 130.6@380V AC	
Max. Input Apparent Power from Grid (kVA)	137.5@400V AC 130.6@380V AC	
Nominal Output Voltage (V)	400/380, 3L/N/PE	
Output Voltage Range (V)	340~440/323~418	
Nominal Output Frequency (Hz)	50/60	
AC Grid Frequency Range (Hz)	47.5~52.5 /57.5~62.5	
Max. AC Output Current (A)	198.5	
Max. AC Current Output to Grid (A)	198.5	

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
Max. AC Current from Grid (A)	198.5	
Nominal Output Current (A)	180.4@400V AC 189.9@380V AC	
Power Factor	~1 (0.8lag to 0.8lead)	
Output THDi (@Linear Load)	<3%	
<b>AC Output Data (Off-grid)</b>		
Nominal Output Power (kW)	125	
Max. Output Power (kW)	137.5@400V AC 130.6@380V AC	
Nominal Apparent Power(kVA)	125	
Nominal Output Apparent Power to Grid (kVA)	125	
Nominal Input Apparent Power from Grid (kVA)	125	
Max. Apparent Power (kVA)	137.5@400V AC 130.6@380V AC	
Max. Output Apparent Power to Grid (kVA)	137.5@400V AC 130.6@380V AC	
Max. Input Apparent Power from Grid (kVA)	137.5@400V AC 130.6@380V AC	
Nominal Output Voltage (V)	400/380, 3L/N/PE	

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
Output Voltage Range (V)	340~440/323~418	
Nominal Output Frequency (Hz)	50/60	
AC Grid Frequency Range (Hz)	47.5~52.5 /57.5~62.5	
Max. AC Output Current (A)	198.5	
Max. AC Current Output to Grid (A)	198.5	
Max. AC Current from Grid (A)	198.5	
Nominal Output Current (A)	180.4@400V AC 189.9@380V AC	
Power Factor	~1 (0.8lag to 0.8lead)	
Output THDi (@Linear Load)	<3%	
<b>Efficiency</b>		
Max. PCS Efficiency	0.986	
Max. System Efficiency <sup>*1</sup>	0.92	
<b>Protection</b>		
Battery Reverse Polarity Protection	Intergrate	
Anti-islanding Protection	Intergrate	
AC Overcurrent Protection	Intergrate	
AC Short Circuit Protection	Intergrate	
AC Surge Protection	Type II	

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
<b>General Data</b>		
Operation temperature range (°C)	-25~+55	
Derating temperature (°C)	45	
Storage Temperature (°C)	-20~+45 (One Month) 0~+35 (One Year)	
Relative Humidity	10 ~ 95%	
Max. Operating Altitude (m)	4000 (2000 derating)	
Cooling Method	Pack : Liquid Cooling PCS : Smart Fan Cooling	
User Interface	LED, WLAN+APP	
Communication Protocol	Modbus TCP, Modbus RTU	
Weight (kg)	2580	
Dimension (W×H×D mm)	1050*2250*1400	
Noise Emission (dB)	≤70	
Topology	Non-isolated	
Ingress Protection Rating	IP54	
Configuration of safety	aerosol+water-based fire suppression, explosion-proof fan+ explosion-proof plates (optional)	
Anti-Corrosion	C4 (C5 option)	
Charge/ Discharge Switching Time	< 60ms	

# Contact Details

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