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ESA Series 125kW/261kWh

Commercial and Industrial Energy Storage System

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

User Manual

GOODWE

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NOTICE

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

About This Manual

Overview

This document primarily introduces the product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance content for 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 the materials and more product information from the official website: <https://www.goodwe.com>.

Applicable Model

This document is applicable 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 situation with high potential danger which, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a situation with low potential hazard which, if not avoided, could result in moderate or minor personal injury.

NOTICE

Emphasis and supplements to content, which may also provide product optimization techniques or tricks, helping you solve a problem or save your time.

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1 Safety Precautions

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

WARNING

The equipment has been strictly designed and tested in compliance with safety regulations. However, as electrical equipment, relevant safety instructions must be followed before performing any operations. Improper handling may lead to serious injury or property damage.

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, document content is updated periodically. Unless otherwise agreed, document content cannot replace the safety precautions on product labels. All descriptions in the document are for guidance only.
- Please read this document carefully before installing the device to understand the product and its precautions.
- All operations on the device must be performed by professional, qualified electrical technicians who are familiar with the relevant standards and safety regulations of the project location.
- When operating the device, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear anti-static gloves, anti-static wrist straps, anti-static clothing, etc., to protect the device from electrostatic damage.
- Unauthorized disassembly or modification may cause equipment damage, which is not covered by the warranty.
- Equipment 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 visit 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 that can be sold in the European market meet the following directive requirements:

- 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 must meet the requirements of the following directives:

- 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 cabinet must remain clearly visible. Do not cover, alter, or damage them.
- The following cabinet warning label descriptions are for reference only. Please refer to the actual labels used on the equipment.

No.	Symbol	Description
1		Potential hazards exist during equipment operation. Take protective measures when operating the equipment.
2		High voltage hazard. High voltage exists during equipment operation. Ensure the equipment is powered off before operation.
3		High temperature on equipment surface. Do not touch during operation to avoid burns.

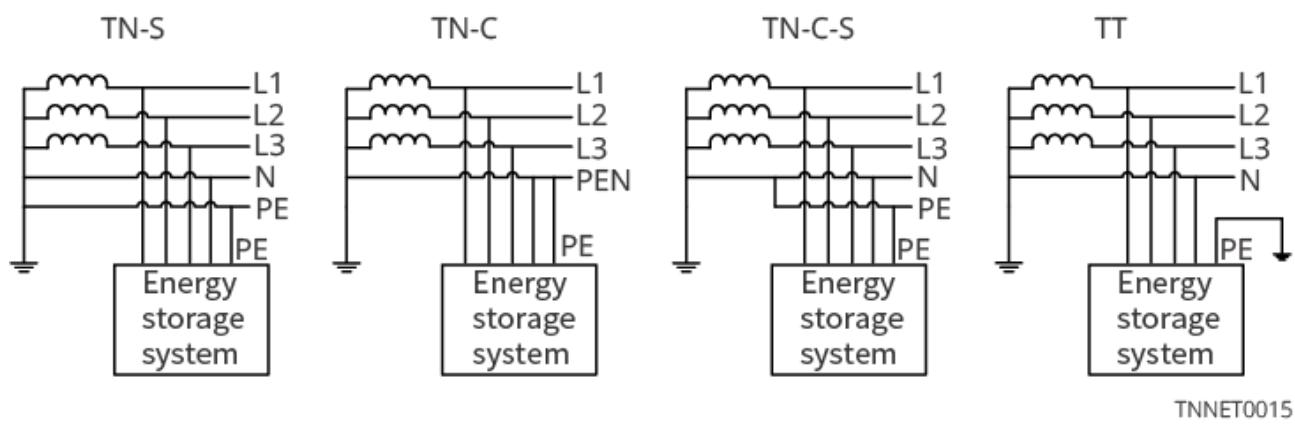
No.	Symbol	Description
4		Delayed discharge. After powering off the equipment, wait 5 minutes for complete discharge.
5		Read the product manual carefully before operating the equipment.
6		Wear personal protective equipment during installation, operation, and maintenance.
7		Do not dispose of the equipment as household waste. Dispose of it according to local regulations or return it to the manufacturer.
8		Grounding point.
9		Recycling symbol. The equipment should be placed in appropriate collection points and recycled according to local environmental regulations.
10		CE marking.
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 featuring high energy density, high power density, and deep 3S integration. This energy storage system integrates 314Ah liquid-cooled PACKs and a 125kW intelligent air-cooled PCS, and is equipped with dual fire protection at both the PACK and system levels. It also supports integration with an STS to achieve grid-connected and off-grid switching.

Supported Grid Types



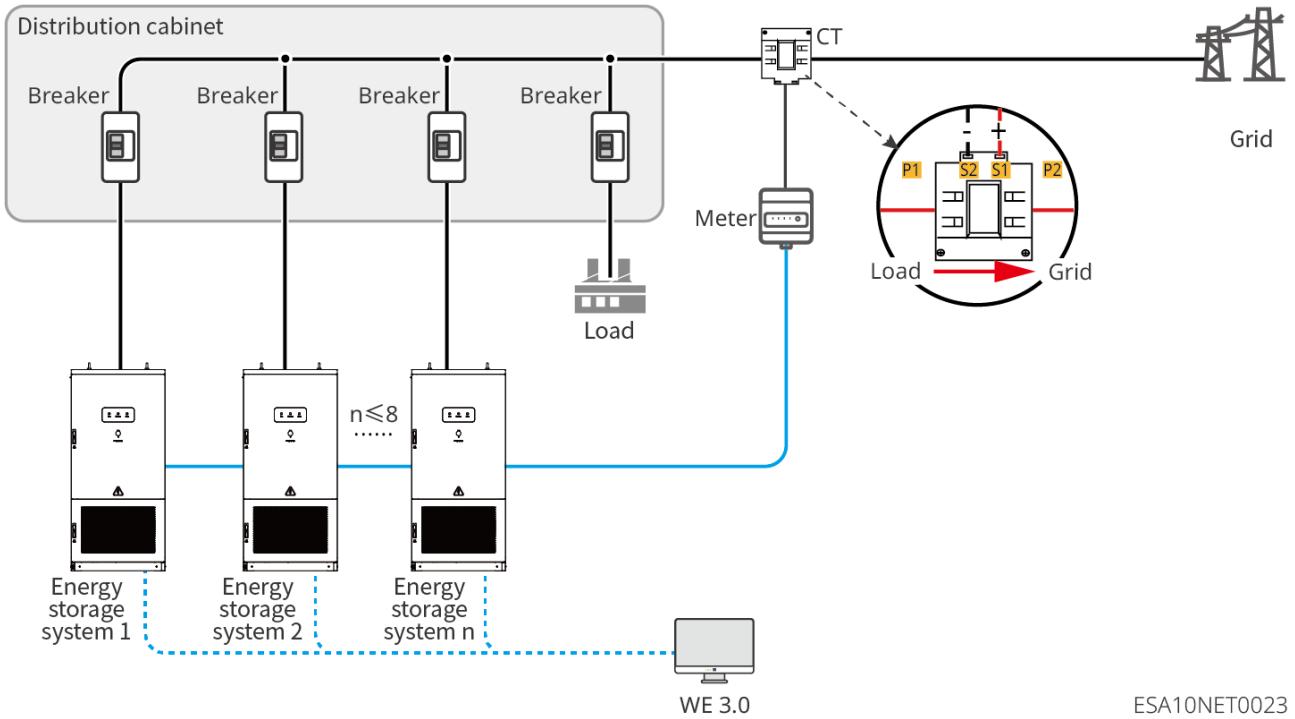
NOTICE

The device does not support direct connection to an IT system type grid. 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 electrical distribution regulations.

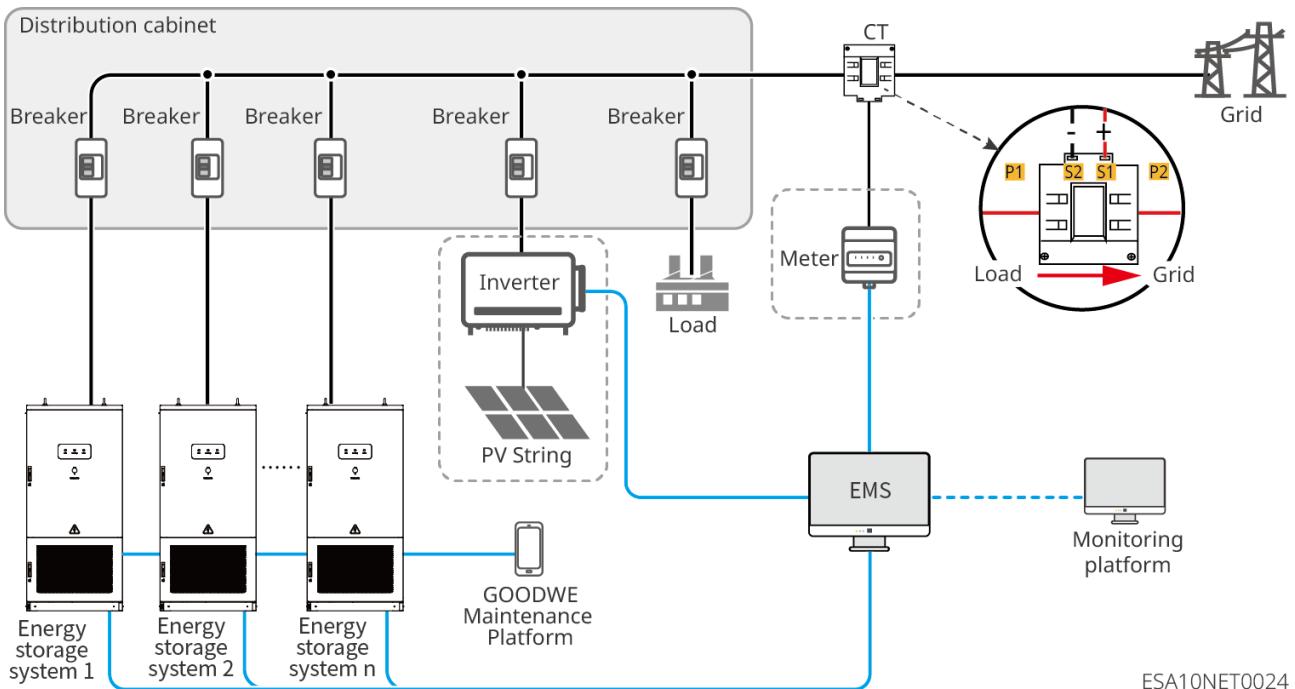
2.2 Application Scenarios

2.2.1 Grid-Connected Scenarios

- Master-Slave Parallel Connection (China Only)



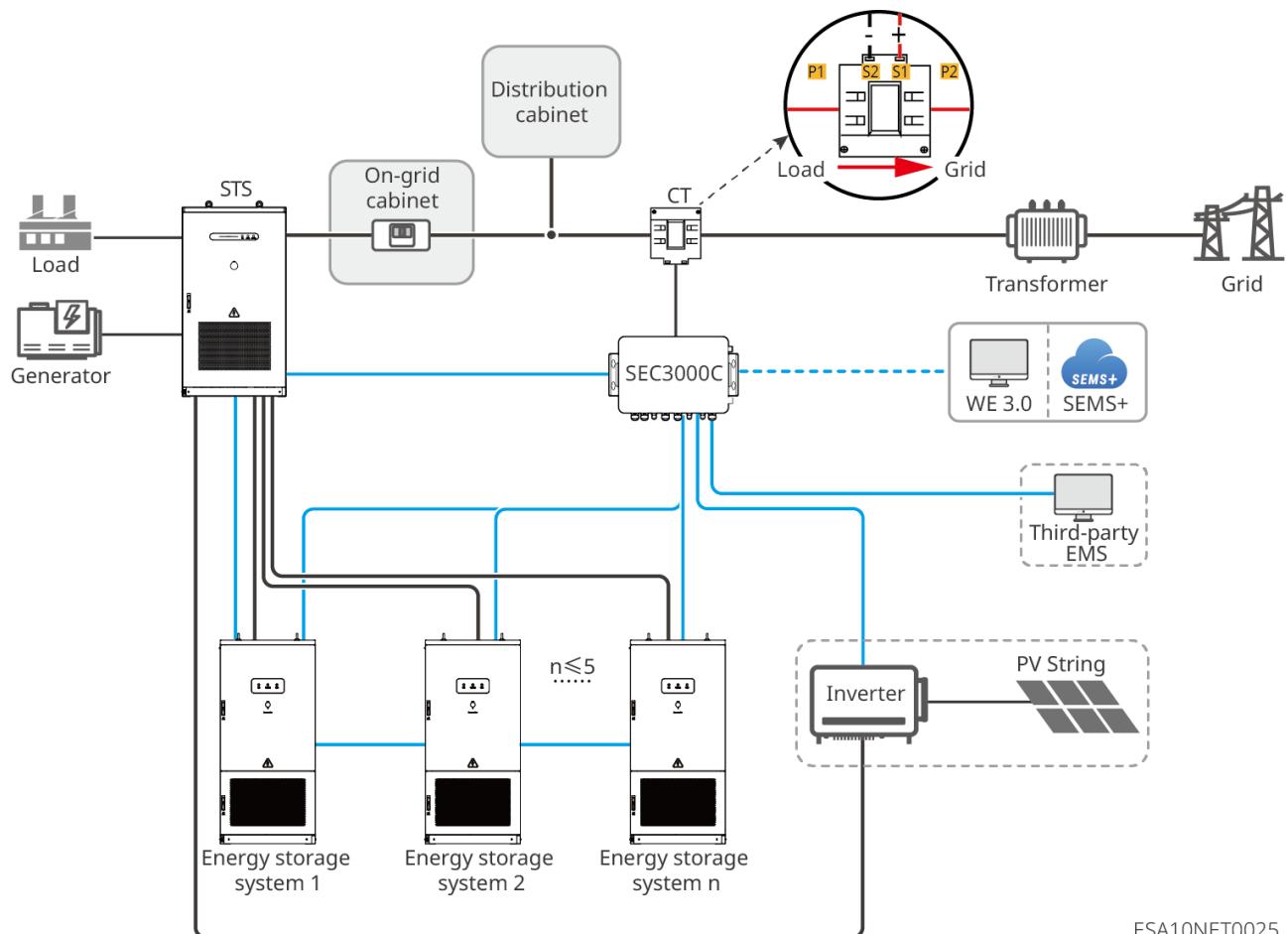
- **Parallel Connection via EMS**



2.2.2 Grid-connected and Off-grid Switching Scenarios

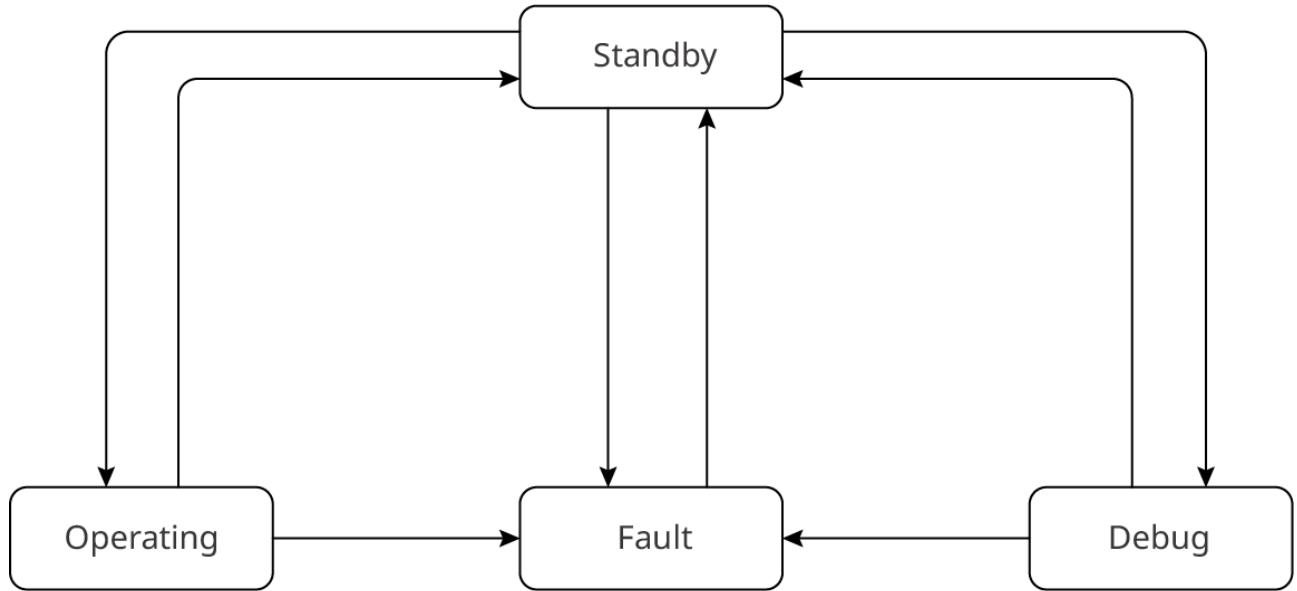
NOTICE

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



ESA10NET0025

2.3 System Operational Status



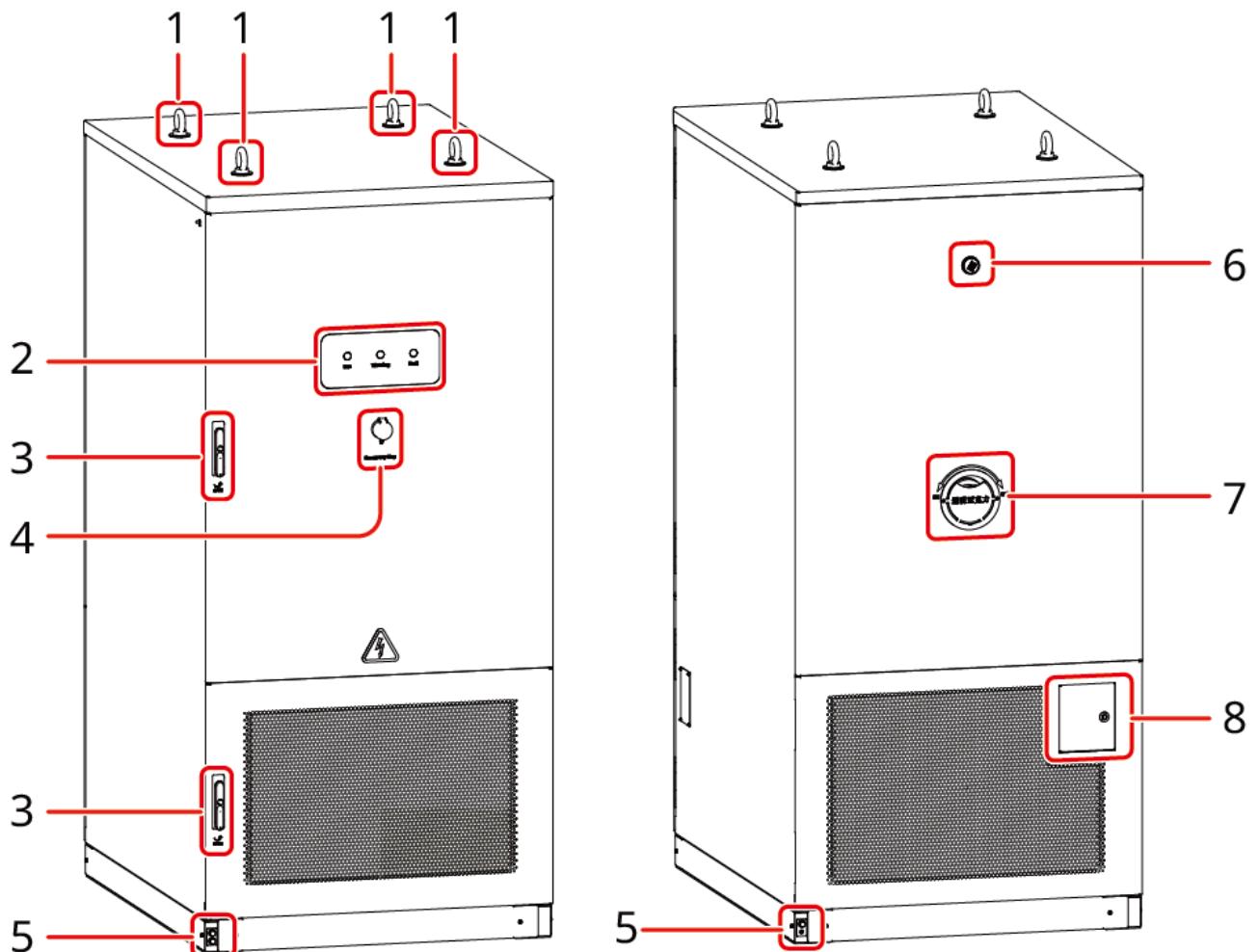
ESA10DSC0007

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"> • If the running state is manually enabled, the energy storage system starts operation. • If self-check is abnormal, it enters the fault state. • If debugging is enabled, it enters the debugging state.
2	Running State	<p>The energy storage system operates normally.</p> <ul style="list-style-type: none"> • If the device running state is manually disabled, it enters the Standby state. • If a fault alarm is detected, it enters the fault state.
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"> • If the debugging state is disabled, it enters the Standby state. • If a fault alarm is detected, it enters the fault state.

2.4 Appearance Description

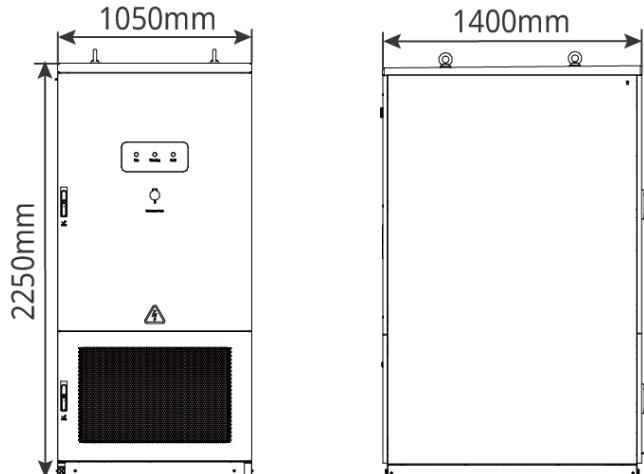
2.4.1 Appearance Introduction



ESA10DSC0003

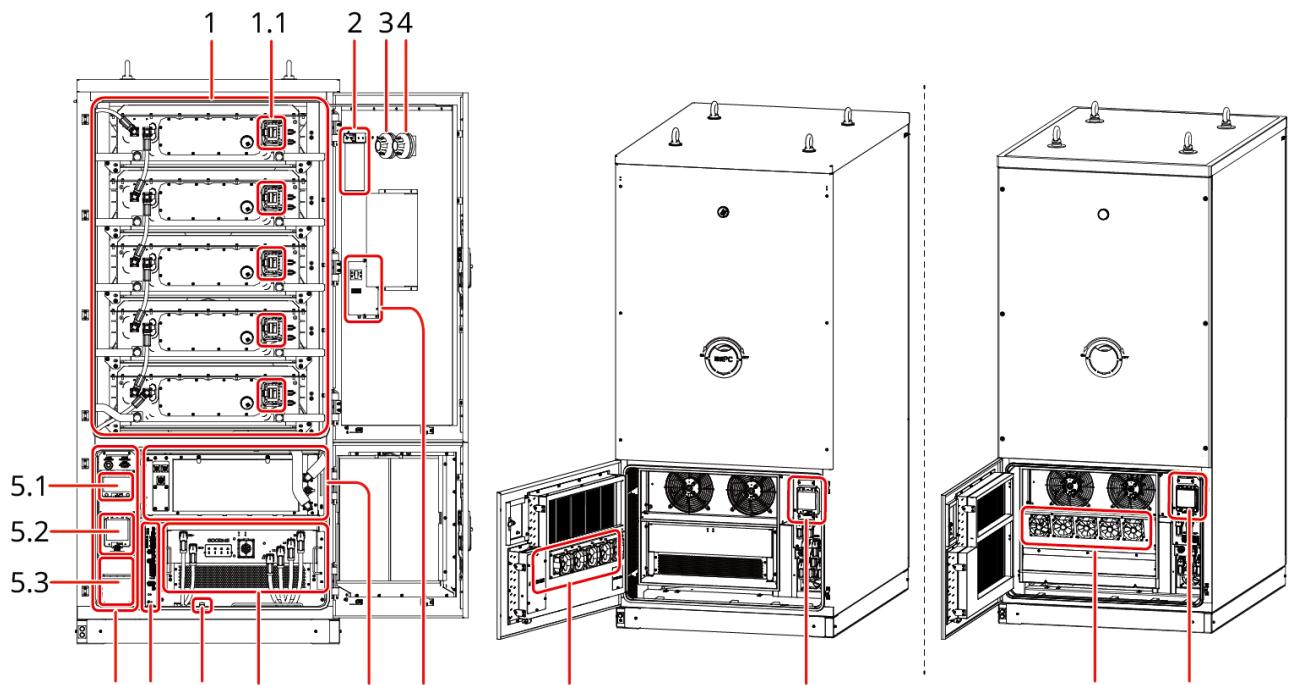
No.	Name	Function
1	Lifting Eye	The lifting eye can be used for hoisting the energy storage system.
2	indicator	Indicates the operating status of the energy storage system.
3	Door Lock	Please use the key to open the cabinet door lock. Close and lock the cabinet door when no internal operation is required.
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	Explosion-proof Valve	Automatically opens to release excessive pressure when abnormal pressure buildup occurs inside the system, preventing risks such as explosion.
7	Water Firefighting Interface	In case of a thermal runaway fire in the system, connect a fire hose here for firefighting.
8	DC Circuit Breaker Operation Compartment	Contains the DC circuit breaker, which controls 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 detects smoke and outputs an electrical signal to the local controller, causing the system to shut down and notifying personnel for timely handling. After the smoke detector alarm is triggered, if the fire spreads, the temperature detector detects high temperature and outputs an electrical signal to activate the fire extinguishing device, implements fire extinguishing, simultaneously outputs a feedback signal to the local controller, causing the system to shut down and notifying personnel for timely handling.
4	Temperature 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 Connection Port	Connects the grid-tied AC cable.
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.

No.	Name	Function
8	Power Conversion System (PCS)	Implements electrical energy conversion between the grid and the battery.
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.

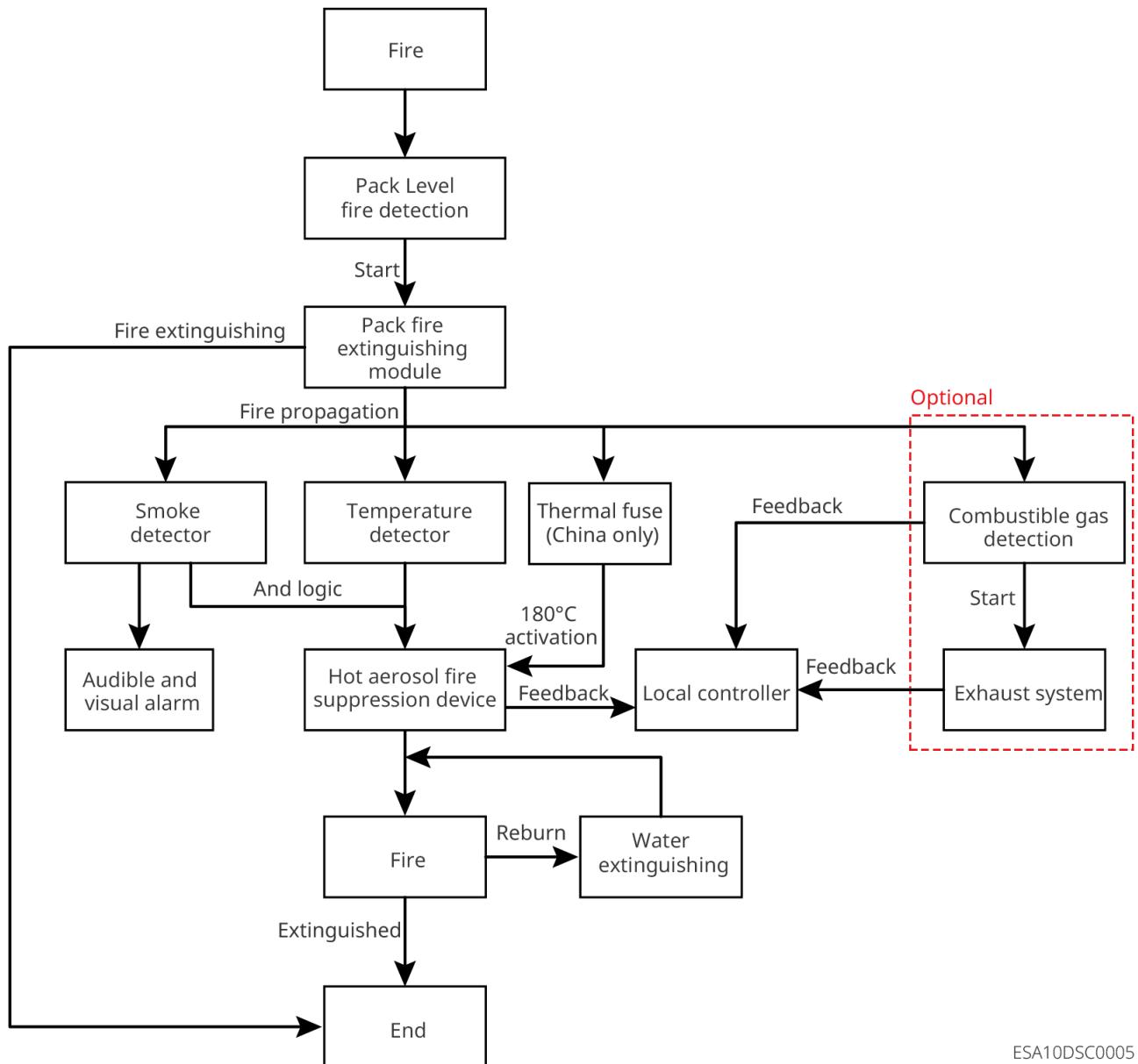
2.4.4 Indicators

Indicator	Description
 Run	White light steady on: Device is powered, in shutdown/self-check state.
	White light off: Device is not powered on.
	Green light steady on: Device is in grid-connected state.
 Warning	Steady on: Device has an alarm.
	Off: Device is normal without alarm, 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 battery cells, PACK-level protection can quickly detect the fire through a thermal wire and activate the firefighting module to implement primary fire suppression. If the PACK fire spreads, cluster-level protection can detect the fire through smoke sensors, triggering a smoke alarm. Accompanying

a rapid temperature rise, temperature sensors detect the fire and activate the fire extinguishing device to implement secondary fire suppression, simultaneously outputting a feedback signal to the local controller to notify personnel for timely handling. If the automatic fire suppression system cannot control fire re-ignition, emergency firefighting water can be connected for emergency disposal to prevent severe consequences such as deflagration or major fires.



3 Check and Storage

3.1 Check Before Receiving

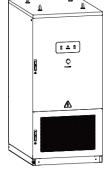
Before receiving the product, please check the following in detail:

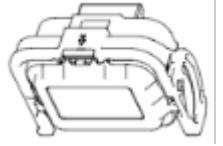
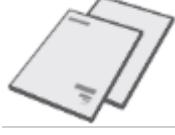
- Check if the outer packaging is damaged, such as deformation, holes, cracks, or other signs that might cause damage to the equipment inside the packaging. If damaged, do not open the packaging and contact your dealer.
- Check if the energy storage system model is correct. If it does not match, do not open the packaging and contact your dealer.

3.2 deliverables

WARNING

Check if the types and quantities of delivered items are correct, and if there is any damage to the appearance. If damaged, please contact your dealer.

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

Part	Description	Part	Description
	PIN terminal ×10		DC circuit breaker operation compartment door key ×1
	MSD switch ×5 (Only equipped for GW125/261-ESA-LCN-G10)		Battery power cable ×2 (Only equipped for 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

Users 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 again after being inspected and confirmed by qualified personnel.
3. The equipment should be packaged in its original shipping 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 back in its packaging 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 for no more than one year at 0~35°C, and no more than one month at -20 ~45°C.
7. Humidity range: 10~95% without condensation. Installation is prohibited if moisture or condensation is present on the interfaces.
8. The equipment should be stored in a cool place, avoiding direct sunlight.
9. Equipment storage should be kept 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. There is a risk of fire in the battery system when the ambient temperature is too high.

4 Installation

4.1 Installation Requirements

Installation Environment Requirements

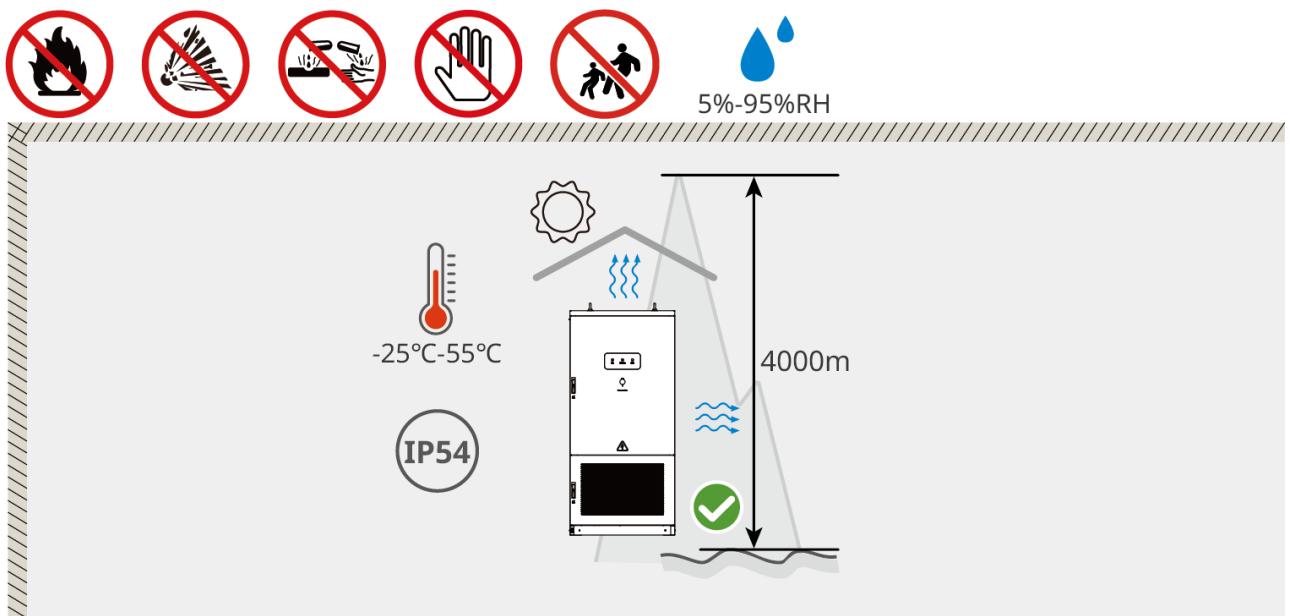
1. The equipment must not be installed in flammable, explosive, corrosive, or similar environments.
2. The temperature and humidity of the installation environment must be within a suitable range.
3. The installation location must be out of reach of children and avoid being in easily accessible positions.
4. During operation, the cabinet temperature of the energy storage system may exceed 60°C. 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. It is recommended to install in a sheltered location. If necessary, a sunshade can be built (the sunshade can prevent the equipment from absorbing heat from direct sunlight, causing the cabinet temperature to exceed the ambient temperature and triggering load reduction).
6. The installation space must meet the ventilation and heat dissipation requirements of the equipment as well as the operational space requirements.
7. The installation environment must meet the protection rating of the equipment. The energy storage system, batteries, and smart communication stick are suitable for indoor and outdoor installation; the electric meter is suitable for indoor installation.
8. The installation height of the equipment should facilitate operation and maintenance, ensuring that equipment indicators, all labels are easily visible, and terminal blocks are easy to operate.
9. The installation altitude of the equipment should 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 from the coast. The affected areas are related to sea breeze, precipitation, terrain, etc.
11. Do not install the energy storage system in noise-sensitive areas (such as

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

12. If the equipment is installed in public places other than work and living areas (such as parking lots, stations, factories, etc.), install protective nets 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 due to accidental contact by non-professionals or other reasons during equipment operation.

13. Stay away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication devices 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 the distance between the energy storage system and the wireless electromagnetic interference device should exceed 30m.
- Other equipment: The distance between the equipment and the wireless electromagnetic interference device should exceed 30m.

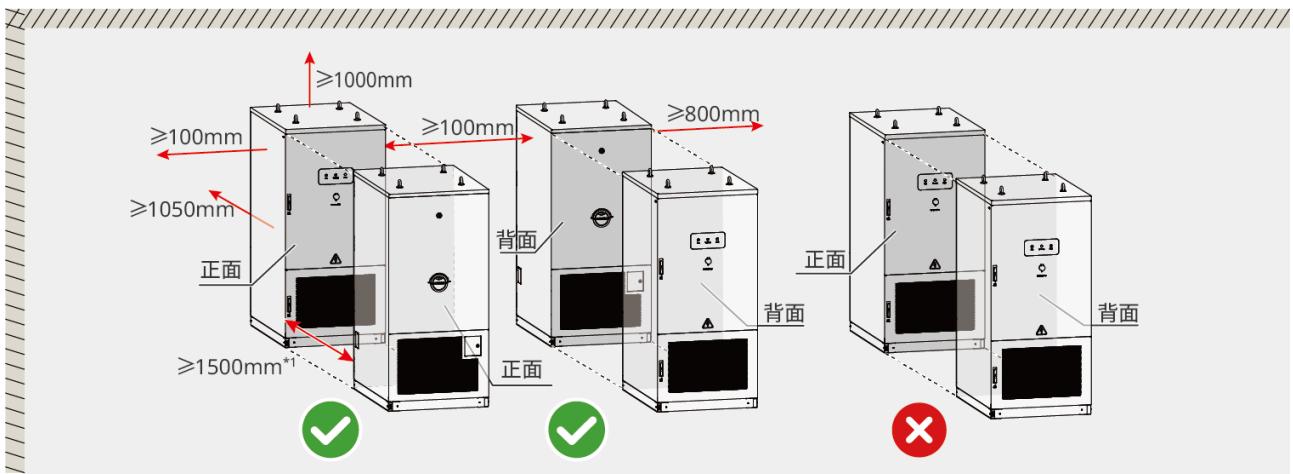


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Installation Space Requirements

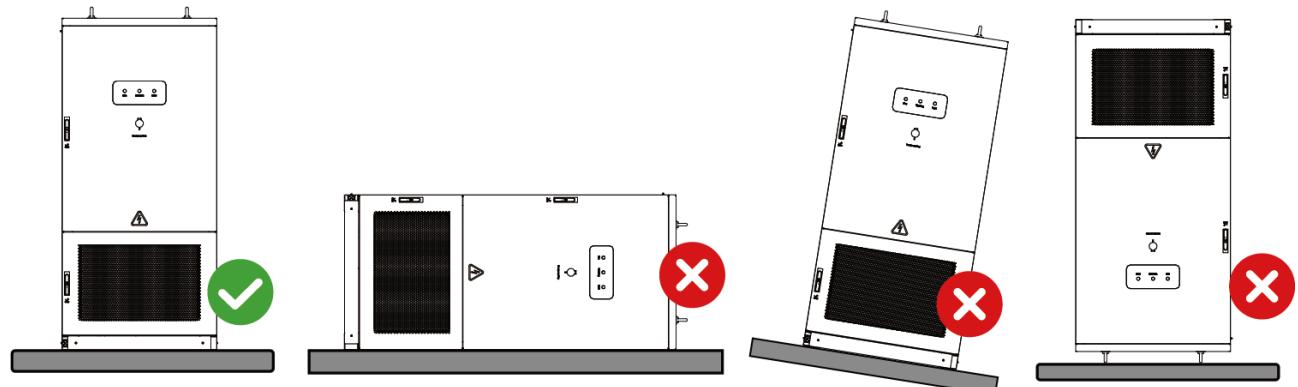
NOTICE

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



ESA10INT0009

Installation Angle Requirements

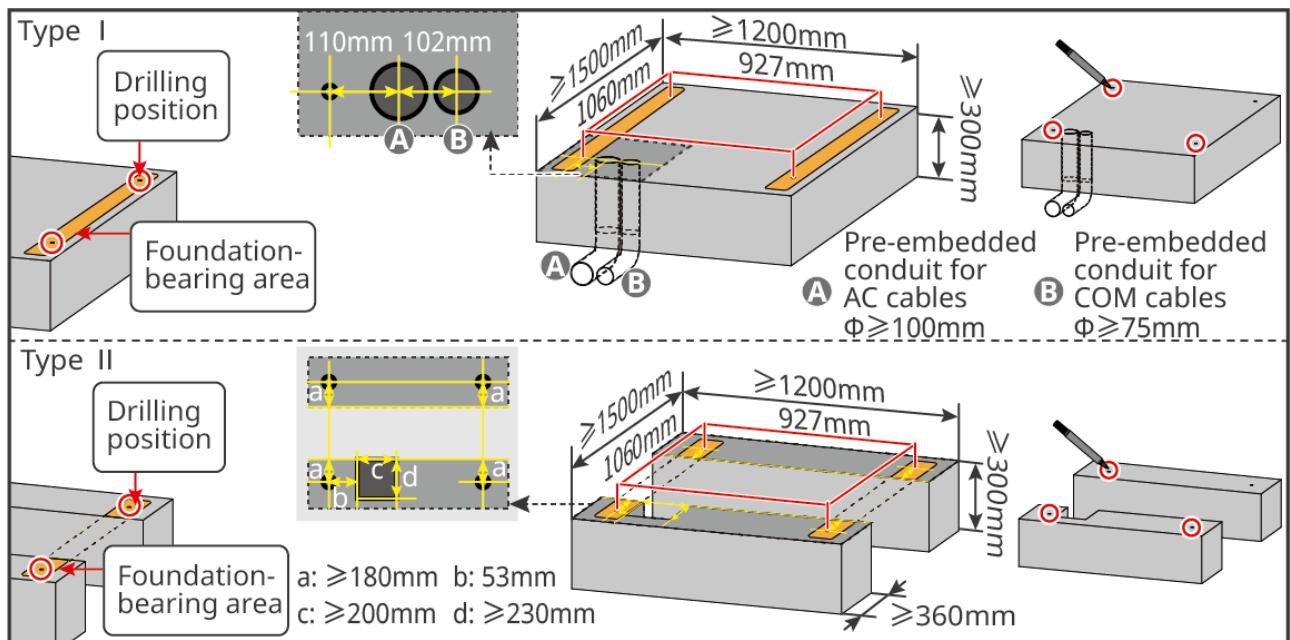


ESA10DSC0006

Installation Foundation Requirements

- The equipment must be installed on a concrete or other non-combustible surface base.
- Before installation, ensure that the base is level, firm, flat, dry, and has sufficient load-bearing capacity. Depressions or tilting are prohibited.
- The base should have pre-buried pipes or reserved cable outlets to facilitate equipment wiring.

- The equipment uses bottom cable entry, so the foundation must have dust-proof and rodent-proof design to prevent foreign objects from entering.
- The foundation must have anti-water accumulation and moisture-proof design to prevent cable aging and short circuits, which could affect the normal operation of the equipment.
- Since the equipment cables are thick, the pre-buried pipes/reserved cable outlets must be designed with sufficient space for the cables to ensure smooth connection and prevent wear.

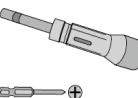


4.2 Tool Requirements

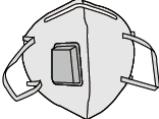
NOTICE

During installation, 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

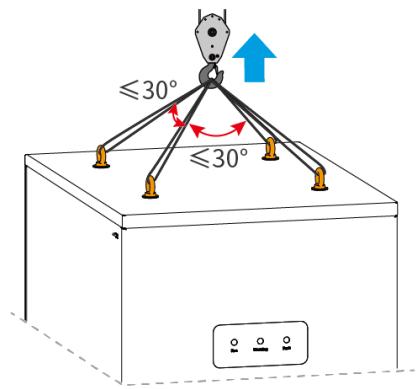
CAUTION

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 the transport personnel are professionally trained. Record the operation steps during transportation and keep the equipment balanced to avoid dropping.
3. Before installation, the energy storage system needs to 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, 配备对应的人员和工具, 以免设备超出人体可搬运的重量范围, 碰伤人员。
 - Ensure the equipment remains balanced during moving to avoid dropping.
 - Ensure the cabinet doors are locked during equipment moving.

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 surface stickers are vulnerable during installation and transportation; please handle with care.

- **Crane Lifting**

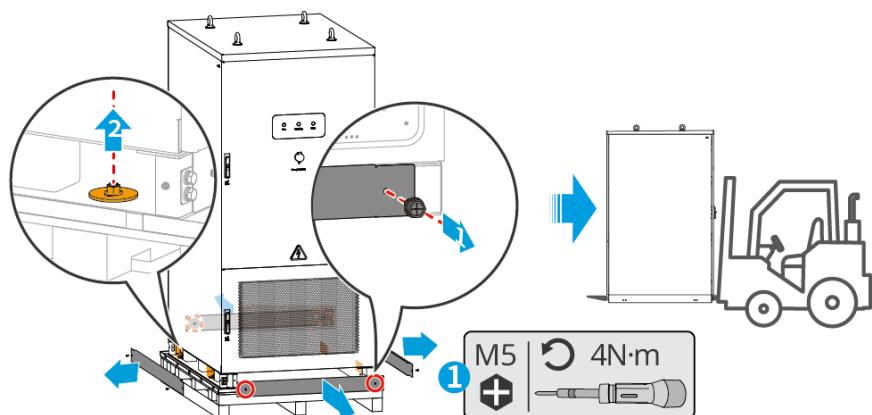


ESA10INT0011

Step 1: Use a lifting sling with a hook or shackle to perform crane lifting operations on the energy storage system.

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

- **Forklift Handling**



ESA10INT0012

Step 1: Remove the front and rear protective panels 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 forks.

4.4 Installing Energy Storage System

NOTICE

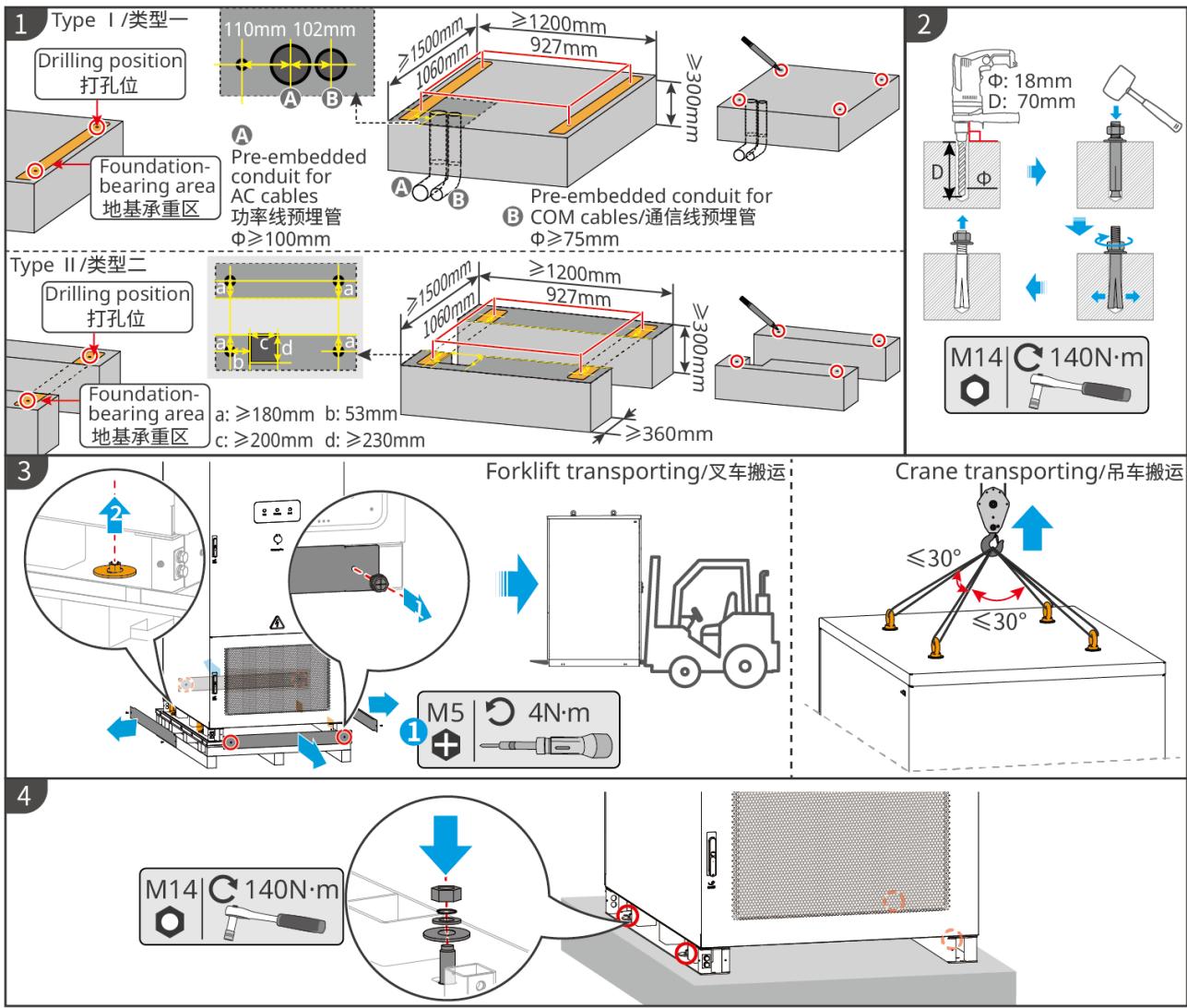
- Ensure the energy storage system is upright and flush with the ground, with no risk of tipping over.
- Ensure the energy storage system is installed securely to avoid tipping over and injuring personnel.
- The antenna and door panel labels are vulnerable during installation and transport; please be careful.

Step 1: Use a marker 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 Connection

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. Do not perform live operations, otherwise dangers such as electric shock may occur.
- Cables of the same type should be bundled together and routed separately from different types of cables. Do not allow them to intertwine or cross.
- If the cable is subjected to excessive tension, poor connections may result. When wiring, 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 is in 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 conditions 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, insulated 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

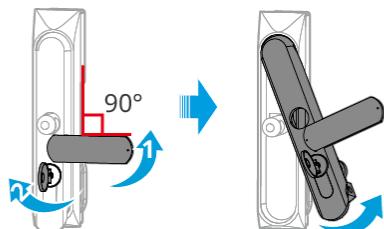
Preparing Cables

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
2	AC cable	Five-core outdoor copper cable is recommended	<p>Conductor cross-sectional area:</p> <ul style="list-style-type: none"> N/PE: 35mm², compatible with LYF35-8 terminal N/L1/L2/L3: 70mm², compatible with SC70-8 terminal 	<p>To be provided by the user</p> <p>The cable specifications recommended in the table are for reference only.</p> <p>When selecting actual cables, users must comprehensively consider factors such as installation ambient temperature, laying method, number of parallel cables, voltage deviation, and thermal stability, and correct the current-carrying capacity using appropriate correction factors. The selected cable must meet the following requirement:</p> <p>Cable current-carrying capacity ≥ Rated current of the overcurrent protection device ≥ Maximum rated current.</p>
3	RS485 communication cable		Conductor cross-sectional area: 0.5mm ²	To be provided by the user

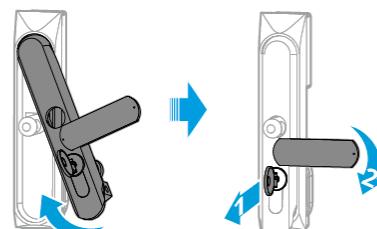
No.	Cable	Type	Recommended Specification	Description
4	CAN communication cable	Outdoor shielded twisted pair cable meeting local standards		To be provided by the user, for master-slave parallel connection only
5	LAN communication cable	Standard CAT 5E or higher network cable with RJ45 connector		To be provided by the user

Cabinet Door Operation

Open the front cabinet door/打开前柜门

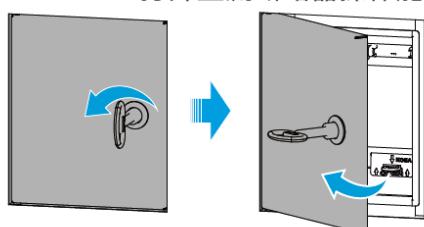


Close the front cabinet door/关闭前柜门

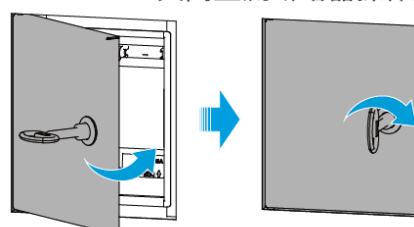


ESA10INT0004

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

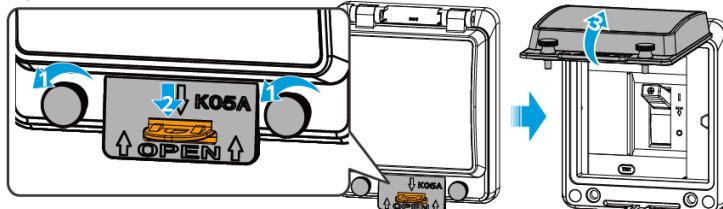


Close the operation cabin door of the DC circuit breaker/关闭直流断路器操作舱门

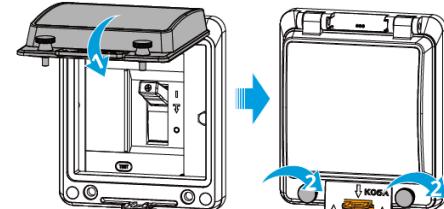


ESA10INT0005

Open the switch door/打开开关盖

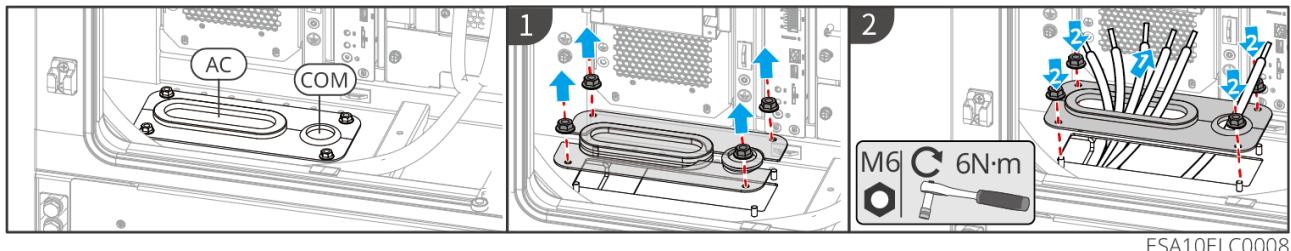


Close the switch door/关闭开关盖



ESA10INT0006

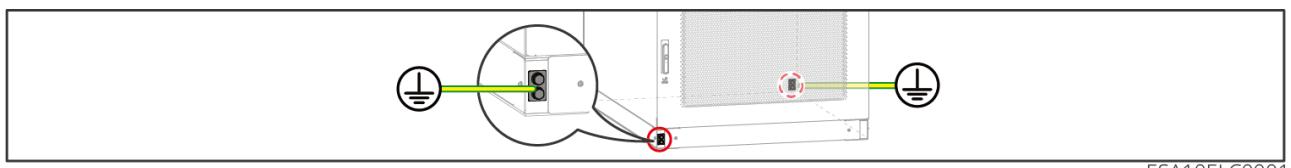
Wiring Port and Wire Protection Plate Operation



5.2 Connecting the PE cable

WARNING

- Before operating the device, ensure that the system is reliably grounded and take relevant protective measures. Otherwise, there may be a risk of electric shock.
- To improve the corrosion resistance of the terminals, it is recommended to fix them at the grounding point in the lower left corner of the cabinet using M10 bolts; after connection and installation are completed, apply silicone or paint on the external part of the grounding terminals for protection.
- Please prepare your own flat steel protective grounding cable that meets local requirements.



5.3 Connecting the AC Cable

DANGER

When the energy storage system is powered on, the AC wiring port is live. For maintenance, ensure the upstream and downstream circuit breakers are disconnected or power down the energy storage system. Failure to do so may result in electric shock.

⚠️ WARNING

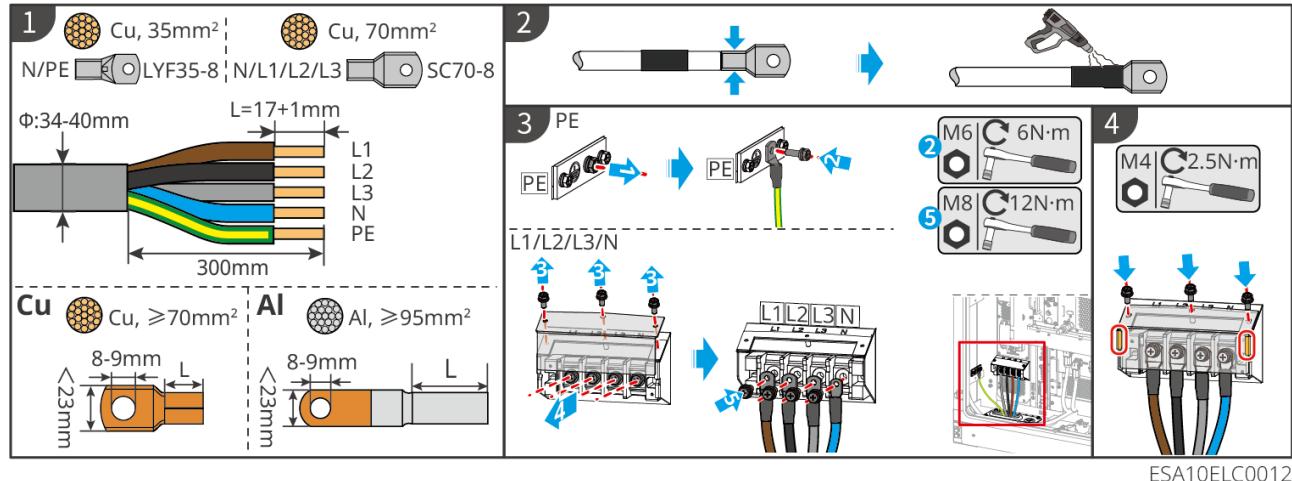
- When wiring, ensure the AC cable matches the L1, L2, L3, and N terminals of the AC port. Incorrect cable connection may cause equipment damage.
- Ensure the wire cores are fully inserted into the terminal wiring holes with no exposed parts.
- Ensure all cable connections are tight. Loose connections may cause terminal overheating during operation, leading to equipment 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.Pre-wiring Preparation\(Page 34\)](#) (terminals are provided in the accessory kit. If the user prepares terminals independently, purchase them according to the recommended dimensions for copper terminals or copper-aluminum terminals).

Step 2: Prepare the AC cable.

Step 3: Connect the AC cable.

Step 4: Install the protective cover.

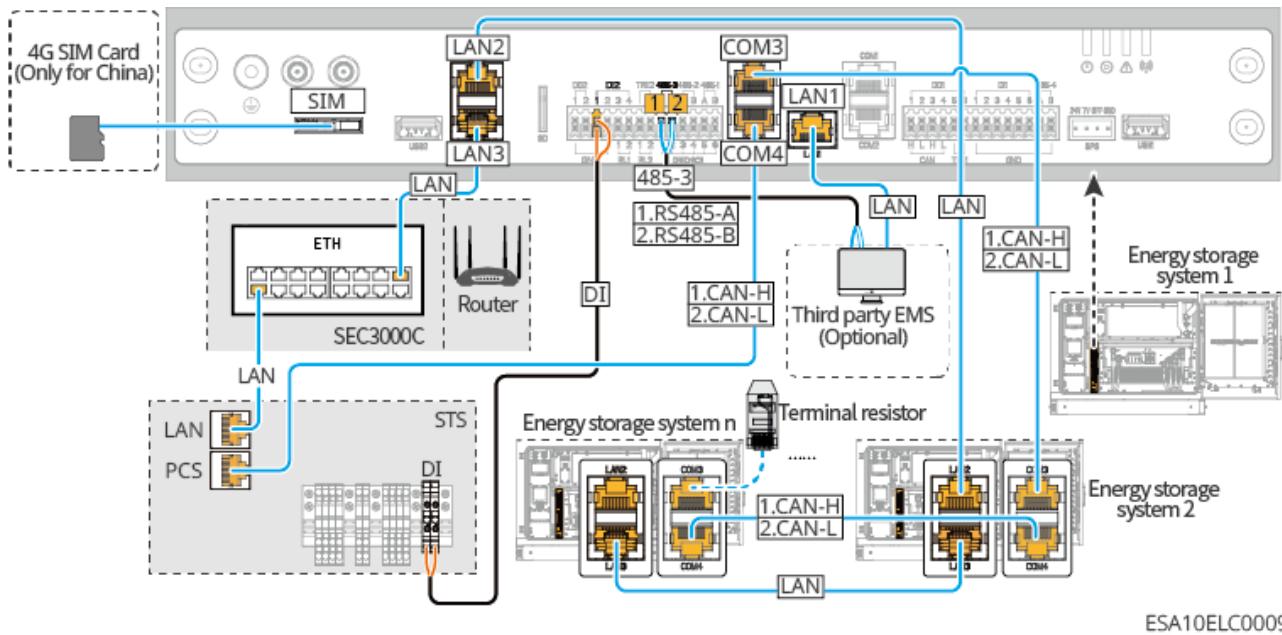


5.4 Connecting Communication Cables

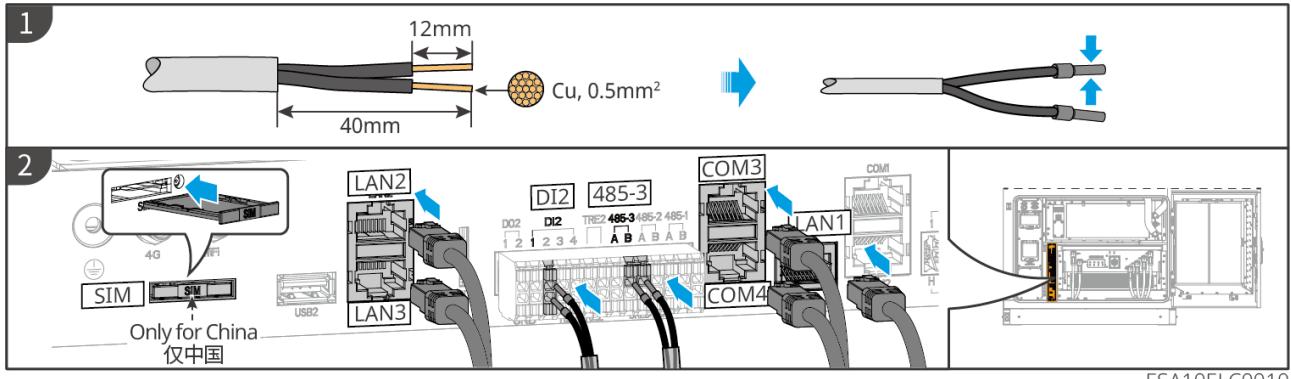
NOTICE

When connecting communication cables, the cable routing path should avoid interference sources, power lines, etc., to prevent affecting signal reception.

Communication Port Introduction



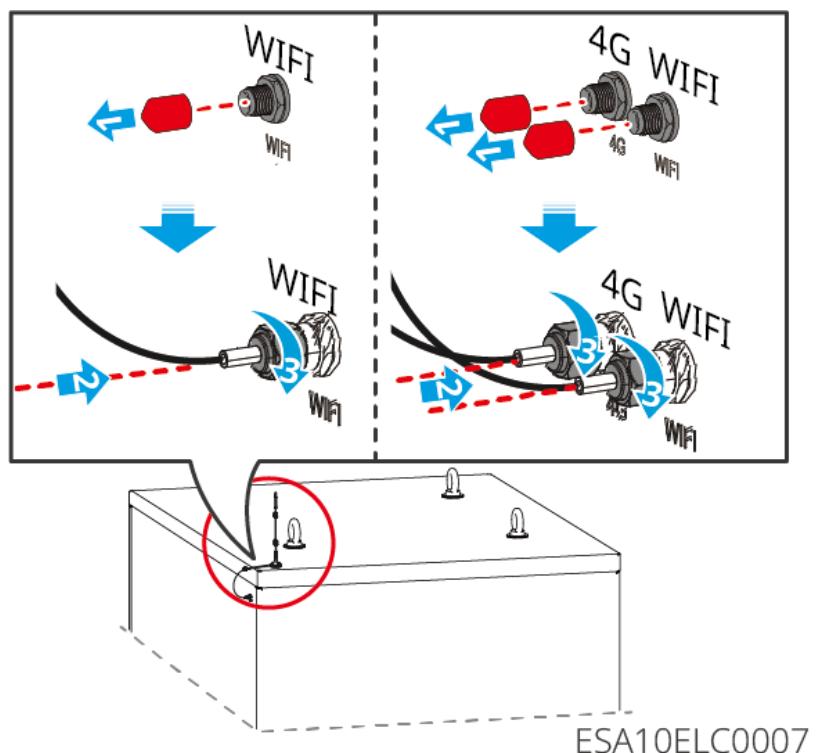
Cabling Steps



Installing the 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-connected. Only the antenna needs to be installed for use.
- For the overseas version, only the WiFi antenna needs to be installed. For the domestic version, both the 4G antenna and the WiFi antenna need to be installed.



5.4.1 Grid-Connected Scenarios

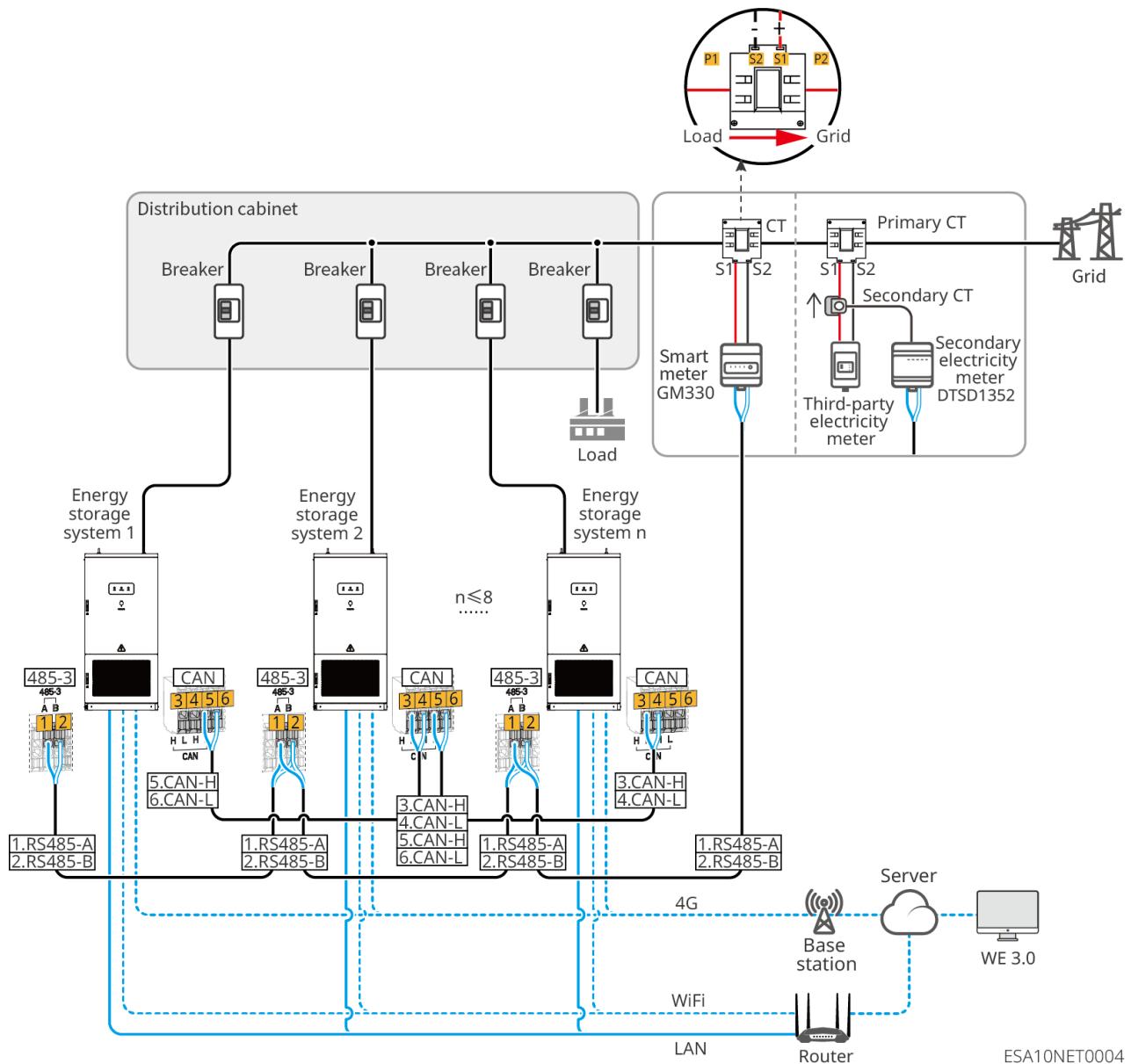
NOTICE

Current transformers (CTs) and electricity meters need to be configured at the grid connection point to enable the grid-connected power limiting function. Please select a suitable solution based on the actual on-site conditions:

- If on-site power outage operations are permitted, primary CTs can be installed at the grid connection point and connected to the GM330/primary electricity meter.
- If on-site power outage is not permitted, secondary CTs should be installed on the existing primary CTs and connected to the DTSD1352/secondary electricity meter.

Master-Slave Parallel Operation

The ESA261 energy storage system supports master-slave parallel operation. The system does not support connection to photovoltaic inverters and can support a maximum of 8 units in parallel.



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. Product mixing is not recommended.</p> <ul style="list-style-type: none"> • GW125/261-ESA-LCN-G10 • GW125/261-ESA-LCN-G11

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

Parallel Operation via EMS

The ESA261 energy storage system supports parallel operation via the SEC3000C or a third-party EMS. The system supports connection to photovoltaic inverters.

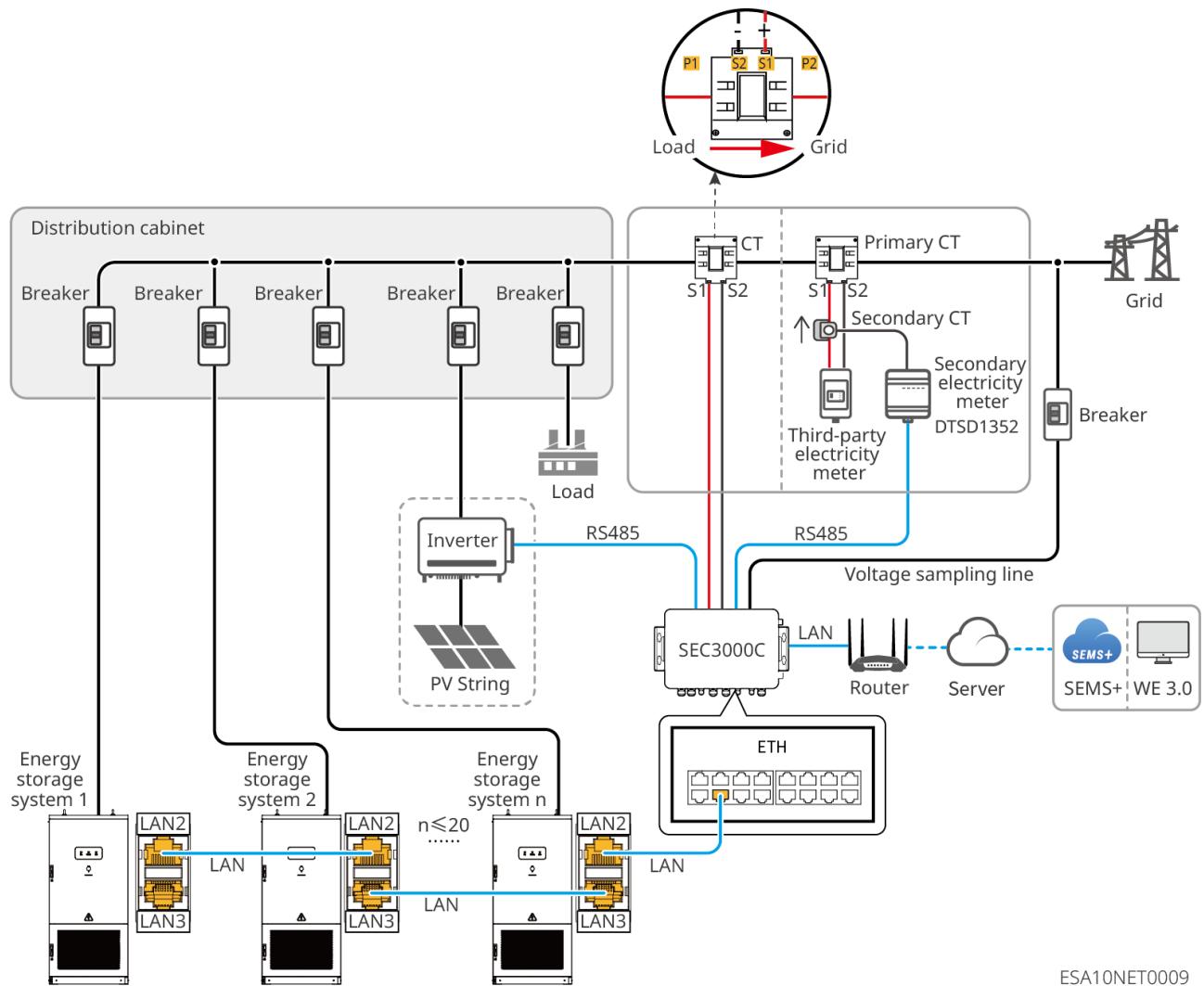
When connected to the SEC3000C, it supports a maximum of 20 units in parallel.

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

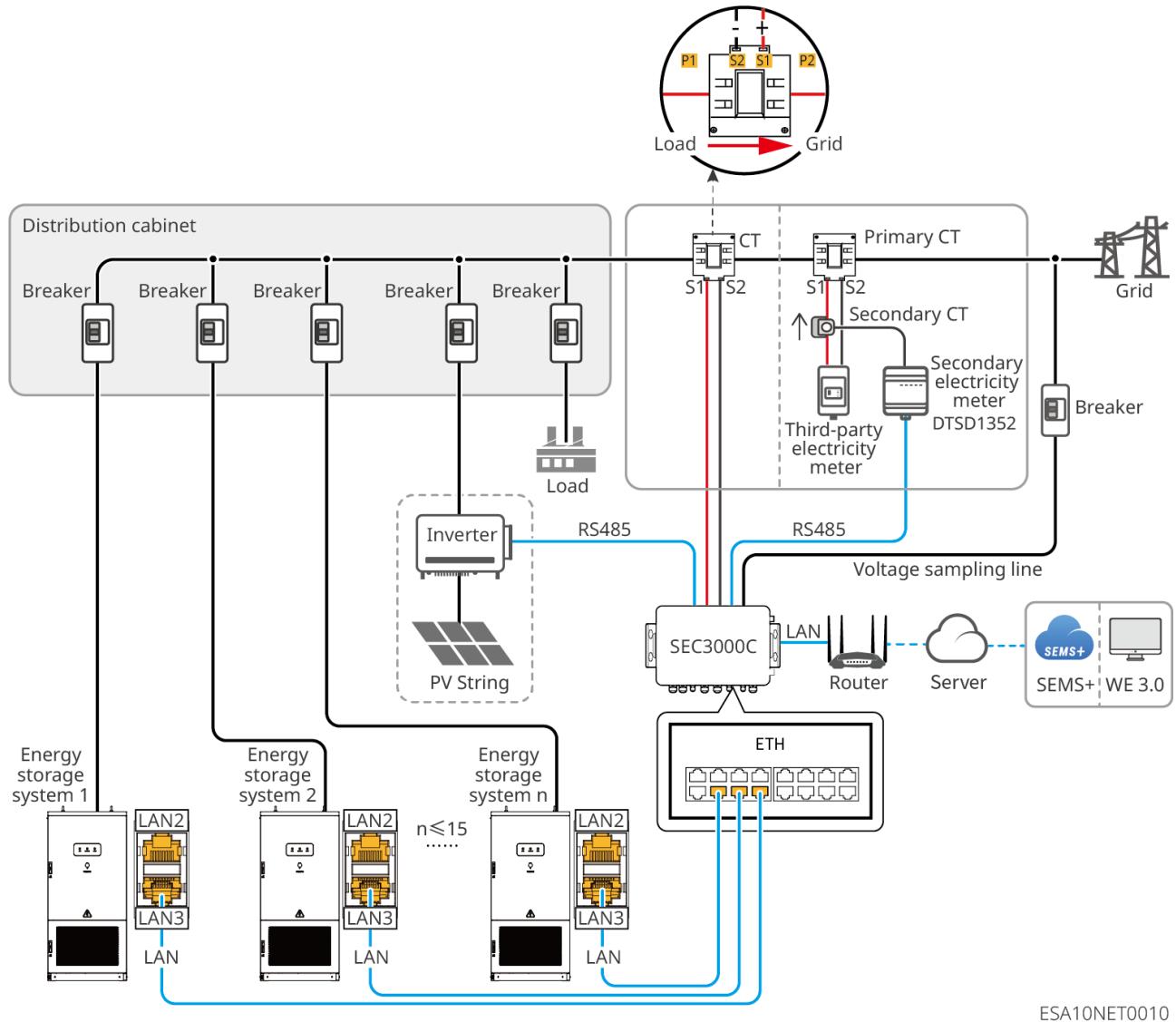
Compatible Device	Communication Method	Connection Method	Maximum Parallel Units	Monitoring Platform
SEC3000C	LAN	Daisy-chain/Daisy-chain Star Hybrid	20	WE 3.0 (Domestic Version) SEMS+ (Overseas Version)
	LAN	Star	15	
Third-party EMS	LAN/RS485	Daisy-chain	N	Third-party Monitoring Platform

- **Parallel Operation via SEC3000C**

- **Daisy-Chain Connection**



- **Star Connection**

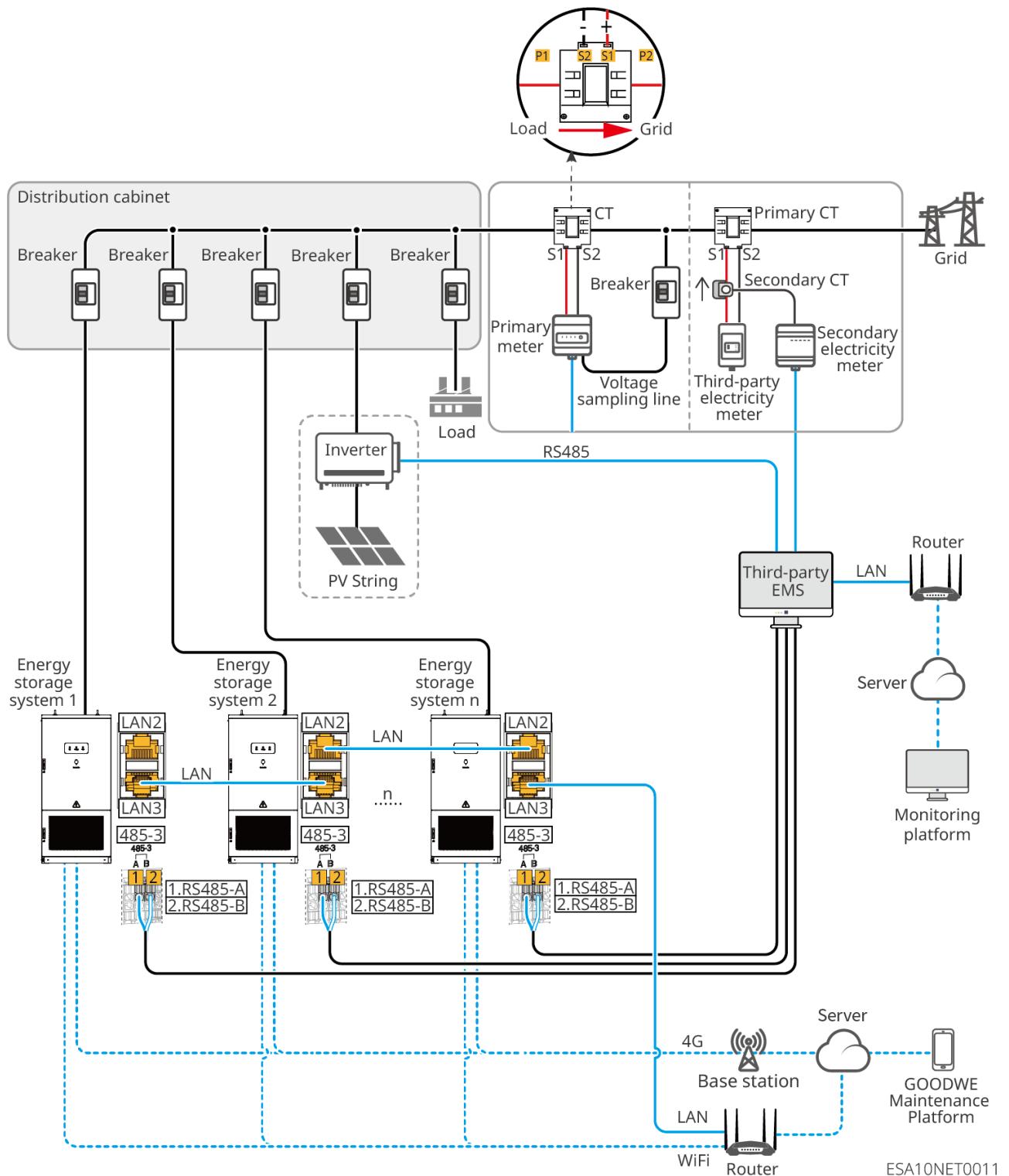


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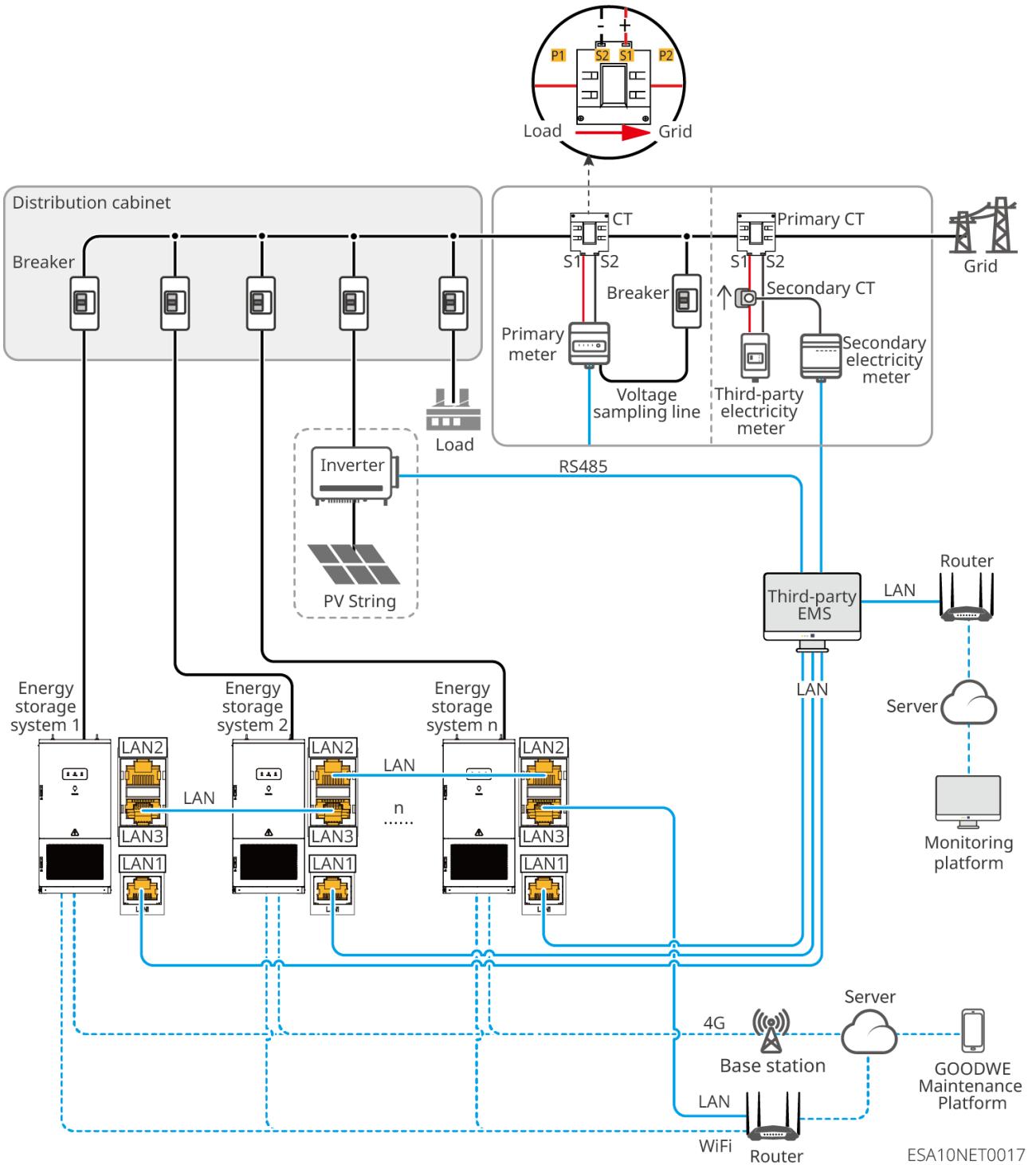
Name	Description
energy storage system	<p>Purchase from GoodWe. For the same project, please keep the energy storage system model and specifications consistent. Mixing products is not recommended.</p> <ul style="list-style-type: none"> • GW125/261-ESA-LCN-G10 • GW125/261-ESA-LCN-G11
breaker	For circuit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

Name	Description
Photovoltaic Grid-Tied Inverter	Converts PV DC power into AC power.
CT	<p>Used with the GM330 smart meter. The CT ratio is: nA/5A.</p> <ul style="list-style-type: none"> • nA: CT primary side input current. The value of 'n' is determined by the actual specifications of the PCC point busbar or cable on-site. • 5A: CT secondary side output current. <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+, enabling 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 Operation 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"> • GW125/261-ESA-LCN-G10 • GW125/261-ESA-LCN-G11
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 based on compatibility with the third-party EMS.
Secondary CT	Used with the secondary meter. Customer purchases separately.
Secondary Meter	Used for grid power limitation. Purchase based on compatibility with 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 and Off-grid Switching Scenarios

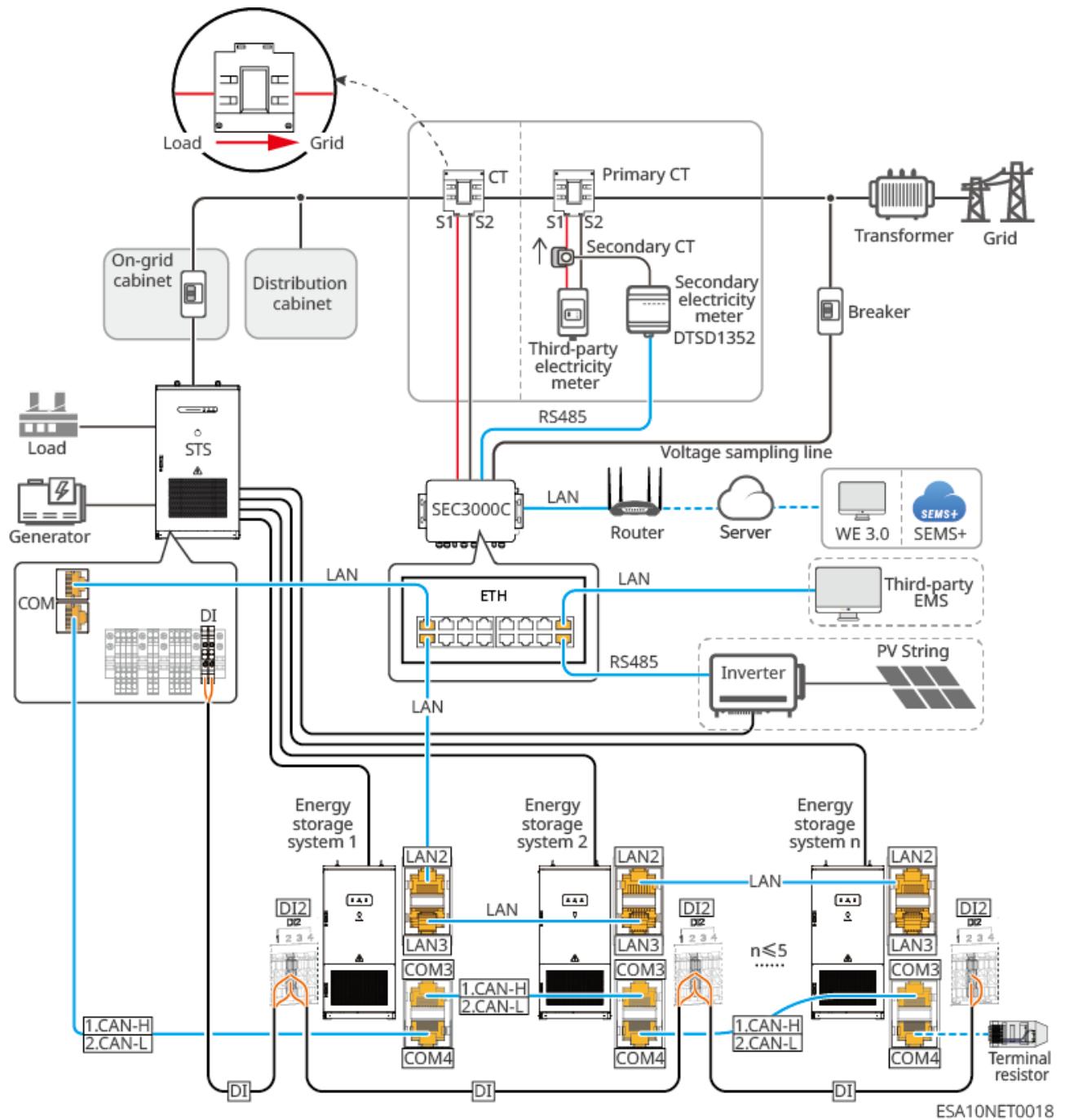
NOTICE

To implement the anti-reverse power flow function, current transformers (CTs) and an energy meter must be configured at the point of common coupling (PCC). Please select the appropriate solution based on the actual on-site conditions:

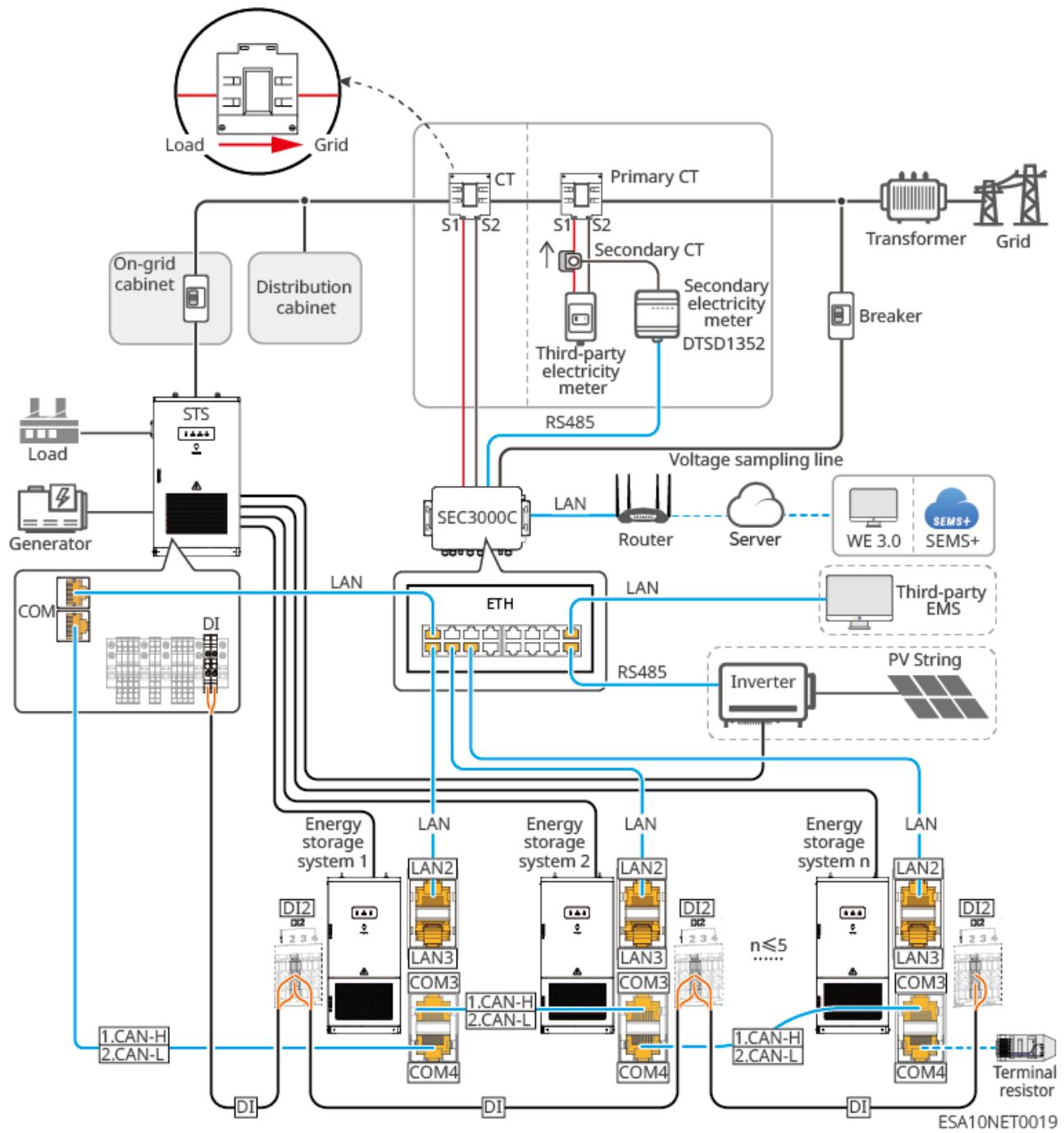
- If a power outage is permissible on-site, install a primary CT at the PCC and connect it to the GM330 smart energy meter.
- If a power outage is not allowed on-site, install a secondary CT on the existing primary CT and connect it to the DTSD1352 secondary energy meter.

The ESA261 energy storage system can achieve grid-connected and off-grid switching by pairing it with an STS grid-connected/off-grid switching cabinet. For energy storage systems 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, the model and specifications of the energy storage system should be consistent; product mixing is not recommended.</p> <ul style="list-style-type: none"> • GW125/261-ESA-LCN-G10 • GW125/261-ESA-LCN-G11
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"> • nA: CT primary side input current. The value of n depends on the actual specifications of the PCC point busbar or cable on-site. • 5A: CT secondary side output current. <p>Customer purchases separately.</p>
GM330 Smart Meter	<p>Used for grid 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 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>

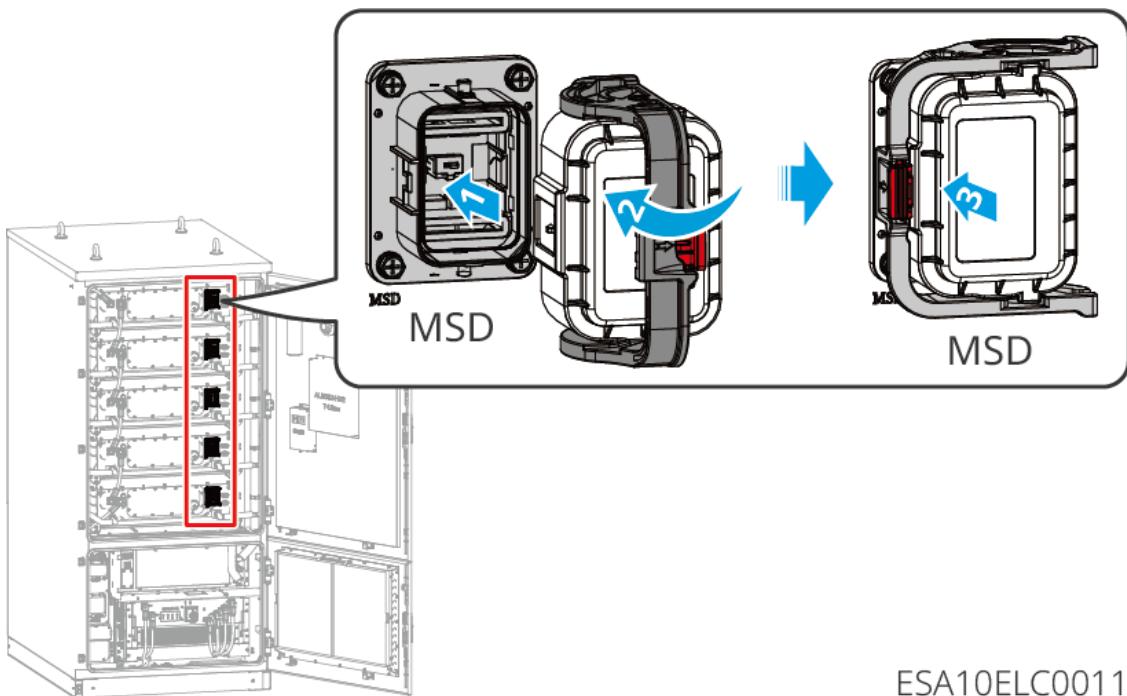
Name	Description
Third-party EMS	<p>Collects system data and sends it to a third-party monitoring platform to achieve centralized monitoring, operation, and maintenance of the system.</p> <p>Customer provides.</p>
SEMS+/WE 3.0	<p>Remotely monitors the operational data of the energy storage system and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

5.5 Install MSD Switch/Battery Power Cable

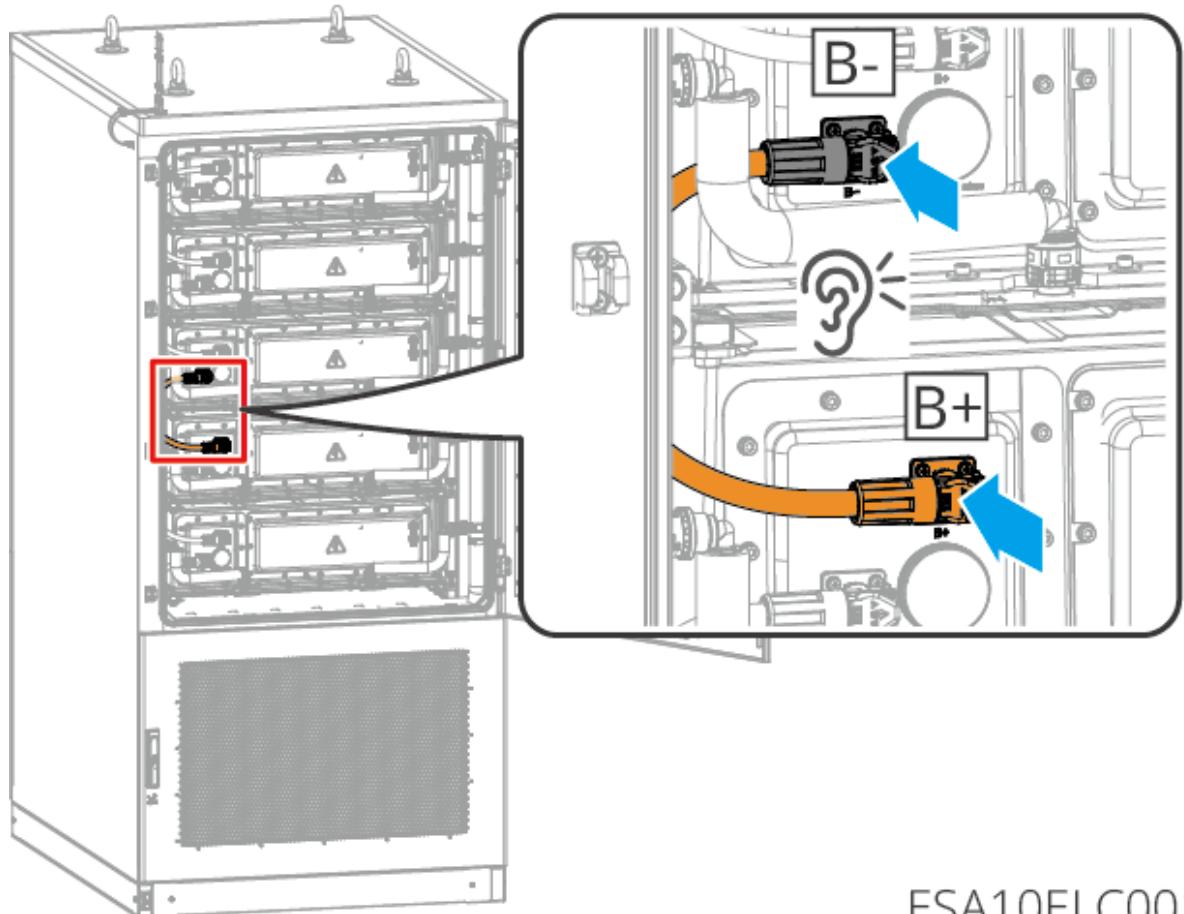
NOTICE

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

Install MSD Switch



Install Battery Power Cable

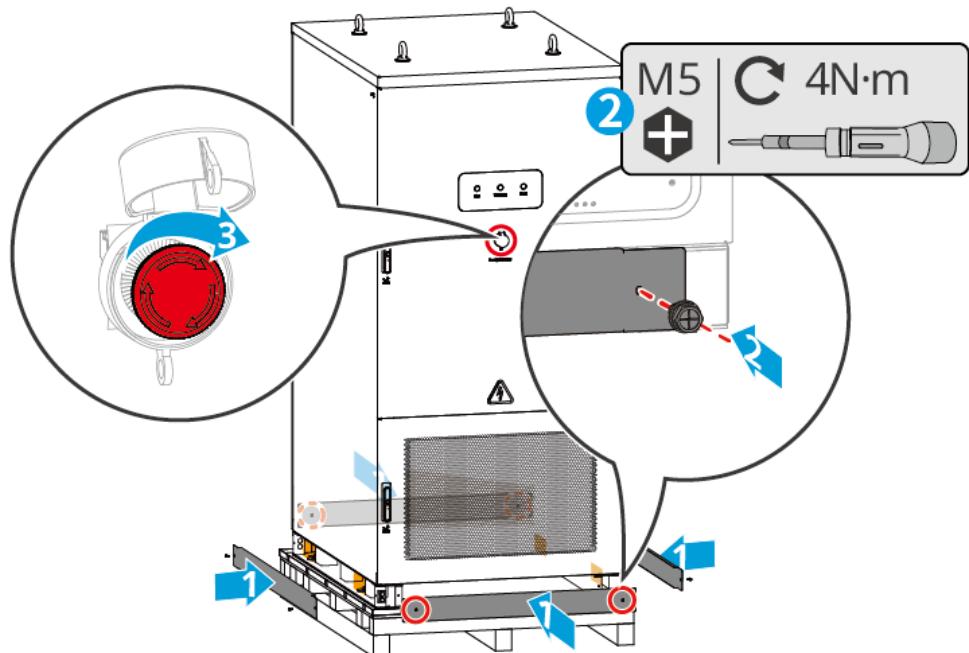


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5.6 Post-Wiring Operations

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-on 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 wiring requirements, is reasonably distributed, and shows no damage.
4	Unused ports are sealed.
5	The voltage and frequency at the energy storage system grid connection point meet the grid interconnection requirements.

6.2 Device Power On

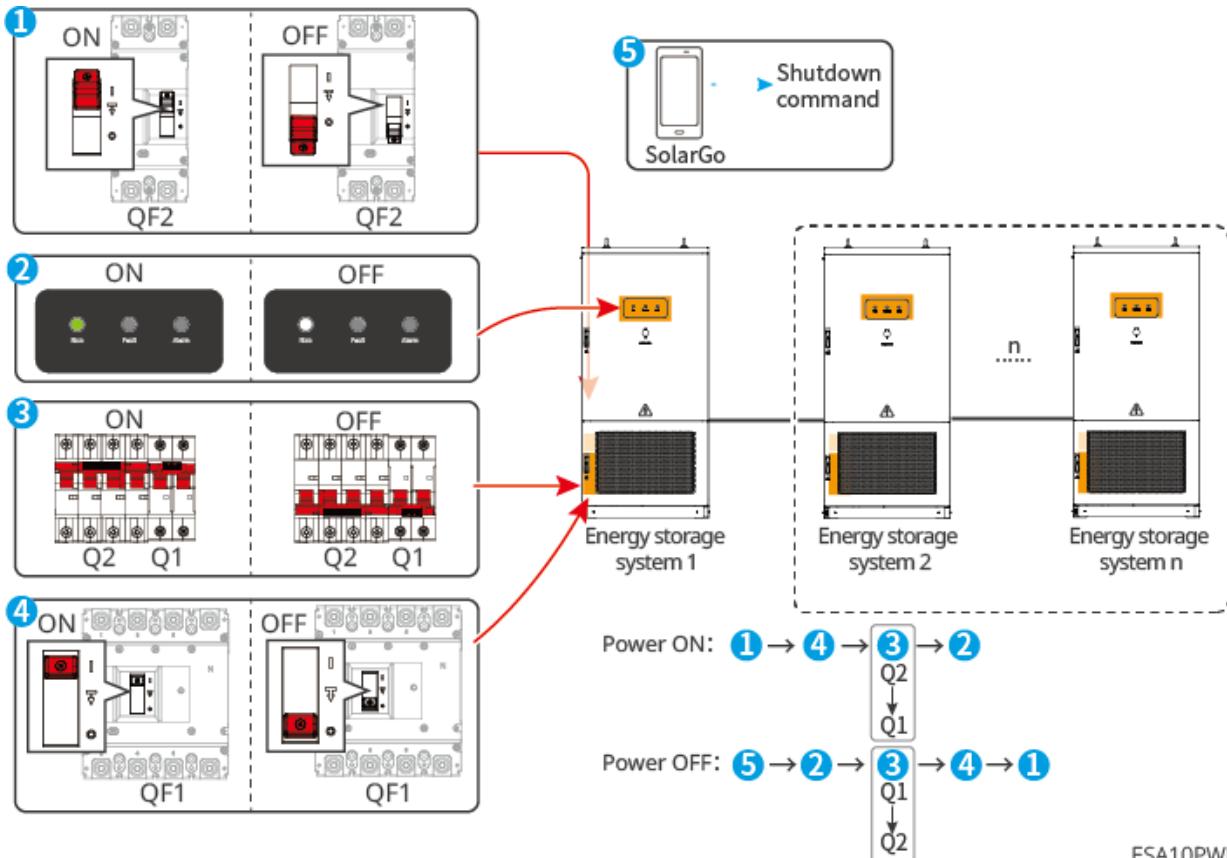
Step 1: Close QF2 (DC circuit breaker).

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 changes from white to green, the system completes grid connection.



7 System Commissioning

7.1 Setting device parameters via SolarGo

SolarGo APP is a mobile application software 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-backflow, 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 photovoltaic power generation system monitoring and management platform. It can be used to collect data from devices in the photovoltaic power generation system, such as grid-tied inverters, hybrid inverters, electricity meters, etc., store logs, and send data to the monitoring and management platform, enabling 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 communicates 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 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, internal components require a certain amount of time to discharge. Please wait according to the time specified on the label until the equipment is completely discharged.

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

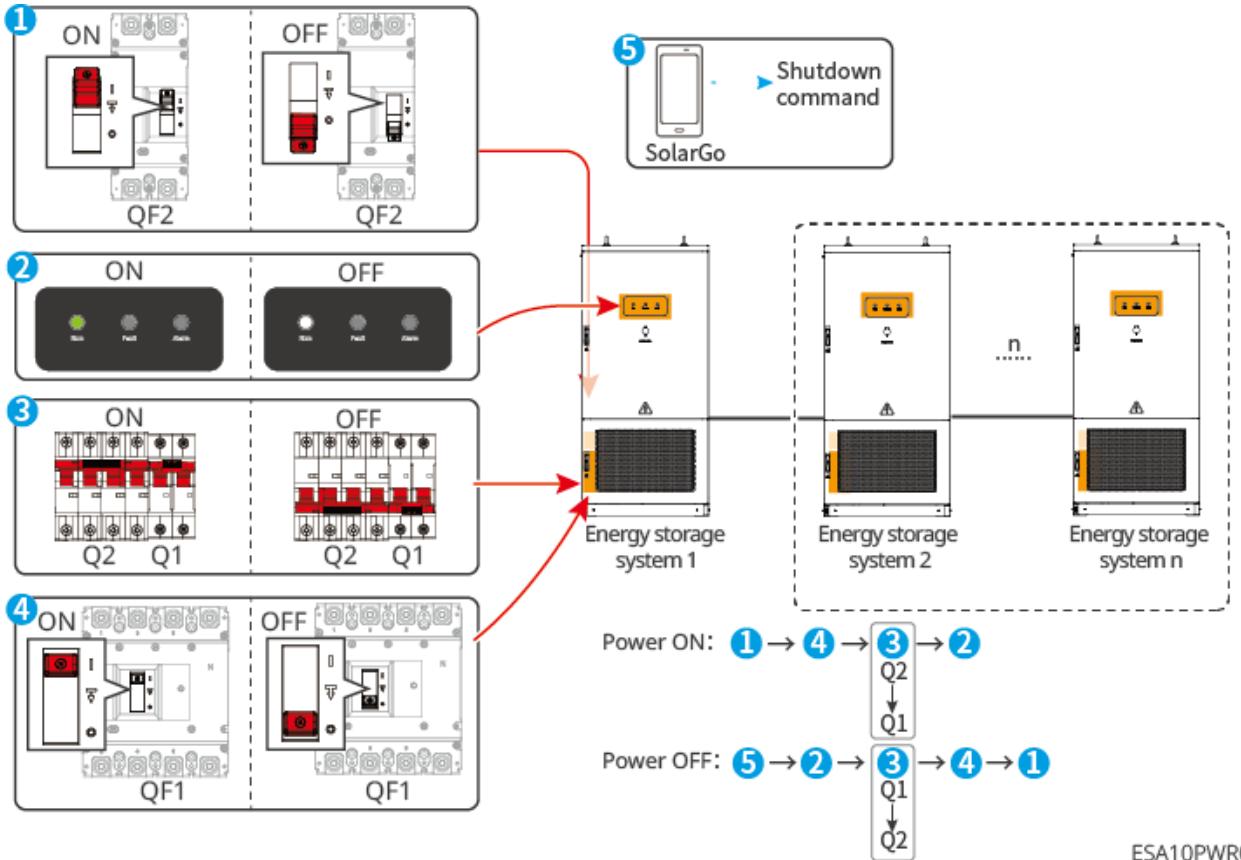
Step 2: Observe that the RUN indicator light is solid white.

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).



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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 cable, Communication cable, MSD switch, battery power cable, and protective ground wire.

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

Step 4: Use a crane or forklift to move and remove the energy storage system from its 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 electrical 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 perform fault diagnosis according to the following methods. If the diagnostic 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, equipment installation time, fault occurrence time, fault frequency, etc.
2. Equipment installation environment, such as: weather conditions, etc. It is recommended to provide photos, videos, and other files of the installation environment to assist in problem analysis.
3. Grid conditions.

Fault Type	Fault Prompt	Troubleshooting
BMS Fault	BMU Hardware Fault	Please contact the distributor/our customer service center.
	BCU Hardware Fault	Please contact the distributor/our customer service center.
	Contactor Sticking Fault	Power down the energy storage system, wait 5 minutes and then 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 if there is any abnormality.</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 then power it back on. If the fault persists, please contact the distributor/our customer service center.
	Insulation Monitoring Device Fault	Power down the energy storage system, wait 5 minutes and then 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 the total voltage exceeds the protection threshold, 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 the total voltage is below the protection threshold, 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 protection 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 the cell voltage is below the protection threshold, 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 protection threshold during discharge, 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 protection threshold during charging, please contact the distributor/our customer service center.
	Discharge Battery Overtemperature Level 1 Alarm	<ol style="list-style-type: none"> 1. Check if the liquid cooling unit's refrigeration is operating normally. 2. Check if the battery temperature exceeds the protection threshold during system operation. If the battery temperature exceeds the protection threshold, please contact the distributor/our customer service center.
	Discharge Battery Undertemperature Level 1 Alarm	<ol style="list-style-type: none"> 1. Check if the liquid cooling unit's heating is operating normally. 2. Check if the battery temperature is below the protection threshold during system operation. If the battery temperature is below the protection threshold, please contact the distributor/our customer service center.
	Charge Battery Overtemperature Level 1 Alarm	<ol style="list-style-type: none"> 1. Check if the liquid cooling unit's refrigeration is operating normally. 2. Check if the battery temperature exceeds the protection threshold during system operation. If the battery temperature exceeds the protection threshold, please contact the distributor/our customer service center.

Fault Type	Fault Prompt	Troubleshooting
	Charge Battery Undertemperature Level 1 Alarm	<p>1. Check if the liquid cooling unit's heating is operating normally.</p> <p>2. Check if the battery temperature is below the protection threshold during system operation. If the battery temperature is below the protection threshold, 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 then 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 the terminal temperature exceeds the protection threshold, 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 the cell voltage difference exceeds the protection threshold, 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 the cell temperature difference exceeds the protection threshold, please contact the distributor/our customer service center.</p>

Fault Type	Fault Prompt	Troubleshooting
	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.
	Grid Voltage Abnormal	<ol style="list-style-type: none"> 1. If the grid returns to normal, manually restore or allow the energy storage system to automatically restore (default is manual restoration) according to the set recovery mode. 2. Ensure the grid voltage and frequency match the specifications. 3. Confirm that the N-line and PE-line connections are good.
	Grid Frequency Abnormal	<ol style="list-style-type: none"> 1. If the grid returns to normal, manually restore or allow the energy storage system to automatically restore (default is manual restoration) according to the set recovery mode.
	Grid Loss Fault	<ol style="list-style-type: none"> 2. Ensure the grid voltage and frequency match the specifications.

Fault Type	Fault Prompt	Troubleshooting
PCS Fault	Grid Overvoltage Protection	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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 may also need to modify the grid overvoltage protection point after obtaining consent from the local power operator.</p> <p>3. If it cannot be restored for a long time, please check if the AC side circuit breaker and output cables are properly connected.</p>
	Grid Undervoltage Protection	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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 may also need to modify the grid undervoltage protection point after obtaining consent from the local power operator.</p> <p>3. If it cannot be restored for a long time, please check if the AC side circuit breaker and output cables are properly connected.</p>

Fault Type	Fault Prompt	Troubleshooting
	Grid Overfrequency	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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 may also need to modify the grid overfrequency protection point after obtaining consent from the local power operator.</p>
	Grid Underfrequency	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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 may 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 a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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 a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention.</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>
	LVRT Undervoltage Fault	
	HVRT Overvoltage	

Fault Type	Fault Prompt	Troubleshooting
	Voltage Waveform Detection Fault	1. If it occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 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.
	Grid Phase Loss	
	Grid Voltage Imbalance	
	Grid Phase Sequence Failure	1. Check if the inverter and grid wiring are in positive sequence. The fault will automatically disappear after correct wiring (e.g., swapping any two live wires). 2. If the fault persists despite correct wiring, please contact the distributor/our customer service center.
	Low Insulation Resistance	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 are any abnormalities in the system DC connectors. 2. If the impedance remains low, please contact the distributor/our customer service center.
	Hardware Export Limit Protection	1. If it is due to an abnormality introduced by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting normal power plant generation, please contact the distributor/our customer service center.
	Internal Comm Loss	

Fault Type	Fault Prompt	Troubleshooting
	AC HCT check Abnormal	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, 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	
	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 the ambient temperature is too high, 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, 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)	

Fault Type	Fault Prompt	Troubleshooting
	PBUS Overvoltage (Slave CPU2)	
	NBUS Overvoltage (Slave CPU2)	
	PBUS Overvoltage(CPLD)	
	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, 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, and if the battery voltage matches the bus voltage after only the battery is powered on. If not, please contact the distributor/our customer service center.
	Battery1 Relay Failure	After powering on the battery, 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	

Fault Type	Fault Prompt	Troubleshooting
	Phase R INV Hardware Overcurrent	No action needed if it occurs occasionally; if this alarm occurs frequently, please contact the distributor/our customer service center.
	Phase S INV Hardware Overcurrent	
	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's compressor is operating normally. If it is, please contact the distributor/our customer service center.
	Outlet Low Temperature	Check if the liquid cooling unit's 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, 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 Voltage Lockout	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. Power on 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 may also need to modify the grid high voltage protection point after obtaining consent from the local power operator.</p>
	System Low Voltage Lockout	<p>1. If it occurs occasionally, it may be due to a temporary grid abnormality. Power on 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 may 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 a temporary machine abnormality. Power on 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		

Fault Type	Fault Prompt	Troubleshooting
EMS	Inverter Undervoltage Lockout	
	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 a temporary machine abnormality. Power on and run again. 2. If it occurs frequently, please contact the distributor/our customer service center.
	Outlet High Pressure Alarm	
	CT Not Connected	Check CT wiring
	CT Reversed	
	Smoke Alarm	1. If it occurs occasionally, it may be due to a temporary sensor abnormality. Power on 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 Fire Alarm	Prepare for firefighting and contact the distributor/our customer service center.
	Cluster-Level Fire Alarm	Prepare for firefighting 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 it down. 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 the conductive lines are found, do not touch them. Please contact after-sales personnel. Disassembly by unauthorized personnel is prohibited.

NOTICE

For detailed maintenance operations, please refer to the "ESA Series 261kWh Commercial and Industrial 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, appearance is normal, and functionality is normal.	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	Turn the switch on and off three times consecutively to ensure normal switch function.	Once a year
Electrical Connections	Check if electrical connections are loose, if cable appearance is damaged, or if copper is exposed.	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 holes meets requirements. If gaps are too large or unsealed, reseal them.	Once a year
Fire Protection System (Aerosol)	<p>Perform a comprehensive inspection and maintenance of the aerosol temperature-sensitive auto-activation fire suppression device:</p> <ol style="list-style-type: none"> 1. Check the aerosol fire suppression device for physical damage; 2. Observe the operation indicator lights of smoke and temperature sensors, check if sensors are functioning normally; 3. Check mounting brackets and related hardware for loose, damaged, or broken components. 	Once a year
Air 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

Technical Data

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
Battery Data		
Cell Type	LFP (LiFePO ₄)	
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)	
AC Output Data (On-grid)		

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%	
AC Output Data (Off-grid)		
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%	
Efficiency		
Max. PCS Efficiency	0.986	
Max. System Efficiency ^{*1}	0.92	
Protection		
Battery Reverse Polarity Protection	Integrated	
Anti-islanding Protection	Integrated	
AC Overcurrent Protection	Integrated	
AC Short Circuit Protection	Integrated	
AC Surge Protection	Type II	

Technical Data	GW125/261-ESA-LCN-G10	GW125/261-ESA-LCN-G11
General Data		
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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