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SEC3000C

User Manual

GOODWE

Copyright Statement

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.

About This Manual

Overview

This document primarily introduces the product information, installation wiring, configuration and commissioning, troubleshooting, and maintenance of the Smart Energy Control Box. Please read this manual carefully before installing and using the 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.

Applicable Model

This document is applicable to the SEC3000C Smart Energy Control Box, with SEC3000C referred to as the control box.

Symbol Definition

⚠DANGER
Indicates a high potential danger that, if not avoided, will result in death or serious injury.
⚠WARNING
Indicates a moderate potential danger that, if not avoided, could result in death or serious injury.
⚠CAUTION
Indicates a low potential danger that, if not avoided, could result in moderate or minor injury.
NOTICE
Emphasizes and supplements the content, and may provide tips or tricks for optimal product use, helping you solve a problem or save time.

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1 Safety Precautions

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

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

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, the content of this document is updated periodically. Unless otherwise specified, the document content cannot replace the safety precautions on the product label. All descriptions herein are for guidance only.
- Please read this document carefully before installing the equipment to understand the product and its precautions.
- All operations on the equipment must be performed by professional and qualified electrical technicians who are familiar with the relevant standards and safety regulations of the project location.
- When operating the equipment, 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 equipment from electrostatic damage.
- Unauthorized disassembly or modification may cause equipment damage, which is not covered by the warranty.
- Damage to the equipment or personal injury caused by failure to install, use, or configure the equipment 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://www.goodwe.com/warrantyrelated.html.

1.2 personnel requirements

NOTICE

- Personnel responsible for Installation, maintenance, and servicing of the equipment must first undergo rigorous training, understand all safety precautions, and master the correct operating procedures.
- Installation, operation, maintenance, and replacement of equipment or components may only be performed by qualified professionals or trained personnel.

1.3 Grounding Safety

DANGER

- Before installing the device, ensure the installation location is secure and stable.
- Before operating on the device, ensure it is properly grounded.

1.4 Personal Safety

DANGER

- When operating the equipment, use insulated tools, wear personal protective equipment, and ensure personal safety.
- When the equipment is short-circuited, do not approach or touch the equipment; immediately turn off the power.
- Before making electrical connections to the equipment, disconnect all upstream switches to ensure the equipment is de-energized.

1.5 Device Security

DANGER

Before installing the device, please ensure the installation location is reliable and stable.

WARNING

- When performing operations such as installation or maintenance on the device, use appropriate tools and operate correctly.
- When operating the device, comply with relevant local standards and safety regulations.
- Unauthorized disassembly or modification may cause device damage, which is not covered by the warranty.

1.6 Safety Symbols and Certification Marks

DANGER

- After installation, labels and warning signs on the cabinet must be clearly visible; do not cover, alter, or damage them.
- The following cabinet warning label descriptions are for reference only; refer to the actual labels on the equipment.

No.	Symbol	Explanation
1		Potential hazards exist during device operation. When operating the device, please take protective measures.
2		High voltage hazard. High voltage is present during device operation. When performing operations on the device, ensure that the device is powered off.
3		Before operating the device, please read the product manual carefully.
4		The device must not be disposed of as household waste. Please dispose of the device according to local laws and regulations, or return it to the device manufacturer.
5		CE certification mark.

1.7 EU Declaration of Conformity

1.7.1 Equipment with Wireless Communication Modules

Equipment with Wireless Communication Modules that can be sold in the European market meets 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)

1.7.2 Devices without wireless communication functionality

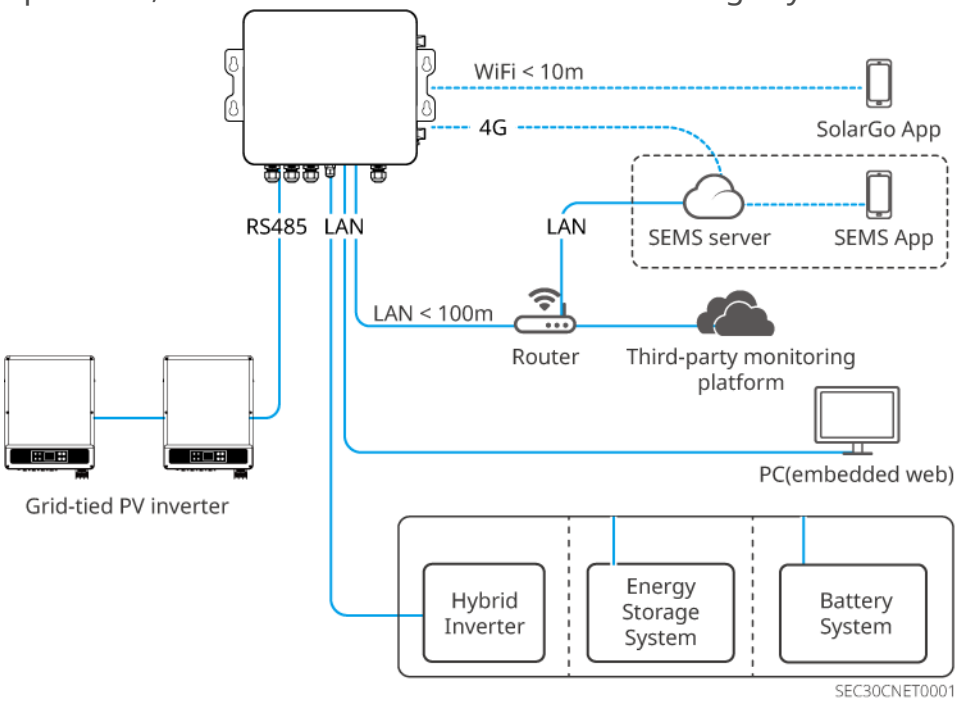
Devices without wireless communication functionality that can be sold in the European market meet the following directive requirements:

- 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)

2 System Introduction

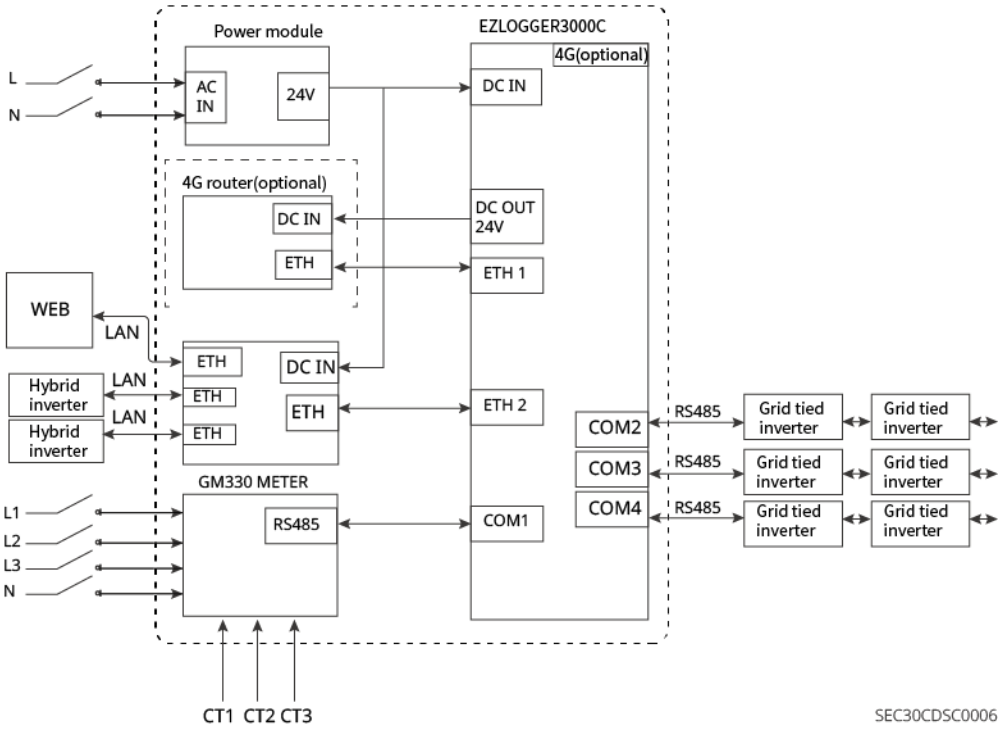
2.1 Function Description

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



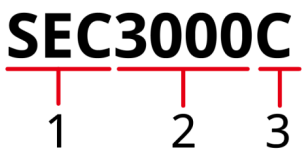
- In the same RS485 line, up to 20 grid-tied inverters can be connected.

2.2 Circuit Block Diagram



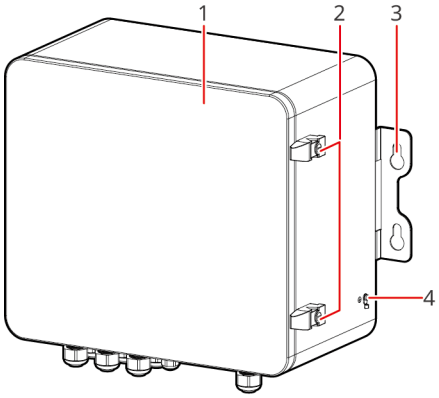
2.3 Model Description

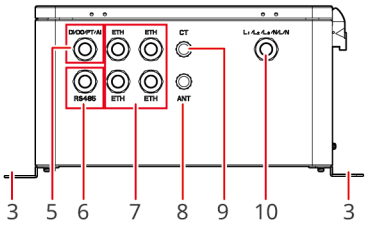
This article mainly covers the following product models:



No.	Meaning	Explanation
1	Product Function	SEC: Smart Energy Controller
2	Generation Code	3000: Third-generation machine
3	Application Scenario	C: Commercial & Industrial PV-Storage System

2.4 Appearance Overview

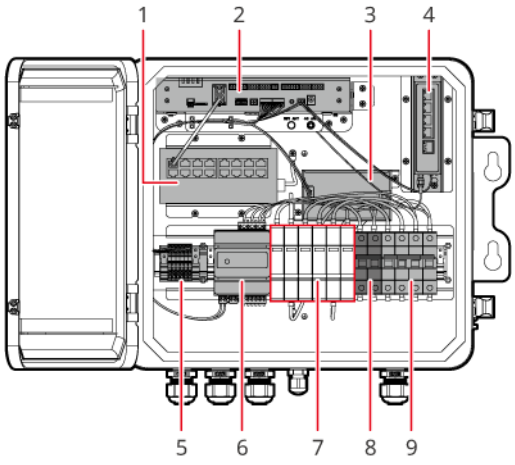




SEC30CDSC0002

No.	Component	No.	Component
1	Cabinet Door	2	Cabinet Door Lock
3	Mounting Bracket	4	Enclosure Grounding Point
5	DI/DO/PT/AI Communication Cable Wiring Hole	6	RS485 Communication Cable Wiring Hole
7	Ethernet Cable Wiring Hole	8	Antenna Cable Wiring Hole
9	Electric Meter CT Cable Wiring Hole	10	AC Power Cable Wiring Hole

2.5 Component Introduction



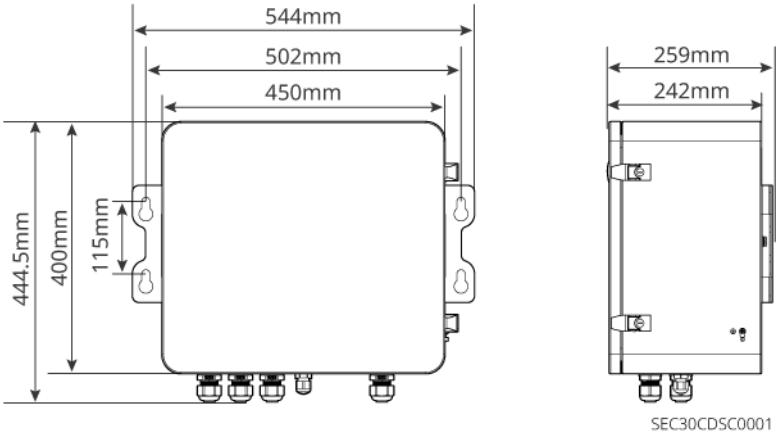
SEC30CDSC0003

No.	Name	Description
1	Switch	• Connect via network cable to the energy storage inverter's smart communication stick or to the energy storage system network port. • For the currently supported inverter models and software version requirements, please refer to the product compatibility list. • Connect to a computer via network cable and log in to the embedded web to debug the device.
2	Data Collector	• Built-in smart data collector, model: EzLogger3000C. • To achieve functions such as RCR and one-touch shutdown, connect third-party devices to the data collector. • ETH1 can be used for external network communication, such as 4G Router. ETH2 is used to connect to the Switch. • Supports optional 4G function.
3	24V Power Module	Used to power the EzLogger3000C and Switch inside the SEC3000C.
4	4G Router	• Optional component, supports purchase from GoodWe or self-purchase. • Reserved DIN rail allows self-purchased 4G Router to be installed inside the SEC3000C enclosure, recommended maximum size: 185*80*155mm; power supply: 24V.

No.	Name	Description
5	RS485 Communication Terminal	• Connect to grid-tied inverters via RS485 communication cable. One RS485 line supports up to 20 grid-tied inverters. • Connect to the grid-tied inverter meter via RS485 communication cable to detect the AC output power of the grid-tied inverter. • Currently supported device models: ◦ For inverter model and software version requirements, please refer to the product compatibility list. ◦ Smart Meter: GM330 or meters supporting high-voltage anti-backflow, such as DTSD1352-CT/C. • A1/B1 ports are occupied, default connected to the internal meter of SEC3000C. If the built-in meter is not used, the occupied port connection lines can be disconnected.
6	Meter	• Built-in GoodWe meter, model: GM330. • Used to detect grid connection point data to achieve grid power regulation.
7	Lightning Protection Module	If the lightning protection module is damaged, please contact the after-sales service center.
8	Single-phase Circuit Breaker	• Connect to the grid or backup power via AC cable to control the power on/off of the SEC3000C system. • Input voltage range: 100-240Vac.

No.	Name	Description
9	Three-phase Circuit Breaker	• Connect to the grid via AC cable to control the power on/off of the internal meter in SEC3000C . • When connected to a three-phase four-wire grid, the supported input voltage range: 172~817Vac (line voltage). • When connected to a three-phase three-wire grid, the supported input voltage range: 100~472Vac (line voltage).

2.6 Size



2.7 Indicator Description

Please check the LED indicators on the SEC3000C built-in data collector and Smart Meter.

Data Collector

The indicator description applies only to SEC3000C with software version 06 and above.

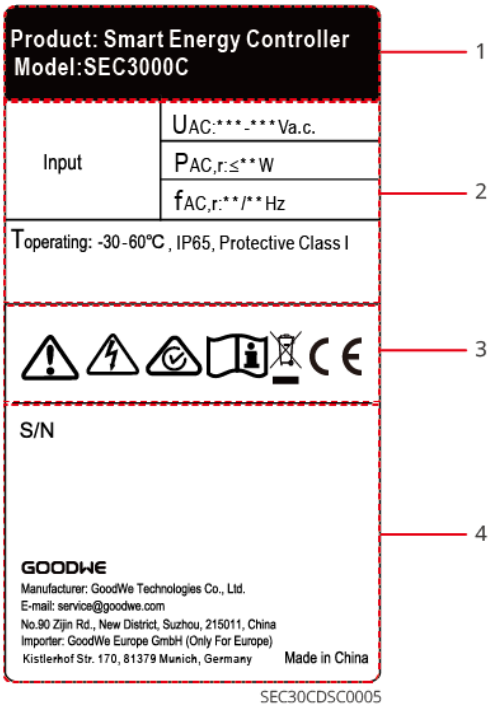
Indicator	Indicator Status	Description
PWR		Steady green: Device power supply is normal.
		Green off: Device is powered off or power supply is abnormal.
RUN		Steady green/off: Device operation is abnormal.
		Green slow flash: Device operation is normal.
NET		Steady green: Device connection to server is normal.
		Green fast flash: Device is connected to the router, but connection to server is abnormal.
		Green slow flash: Device is not connected to the router.
ALM		Steady red: Device has a fault.
		Red fast flash: Device is upgrading.
		Red off: Device has no fault.

Smart Meter

Type	Status	Description
Power Light 	Constantly lit	The meter is powered on, no RS485 communication.
	Blinking	The meter is powered on, RS485 communication is normal.
	Off	The meter is powered off.
Communication Light 	Off	Reserved
	Blinking	Press the Reset button for ≥5s, the power light and buy/sell light blink: meter reset.

Type	Status	Description
Buy/Sell Light 	Constantly lit	buy power from the grid
	Blinking	Sell power to the grid.
	Off	Not buying or selling power.
	Reserved	

2.8 Nameplate Instructions



SEC30CDSC0005

No.	Description
1	Product Type and Model
2	Product Technical Parameters
3	Product Safety Compliance and Certification Marks

No.	Description
4	GoodWe Trademark, Contact Information, Serial Number Information

3 Check and Storage

3.1 Check Before Receiving

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

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

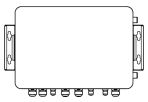
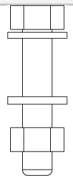
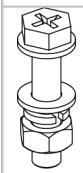
3.2 deliverables

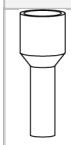
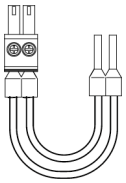
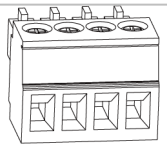
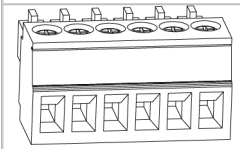
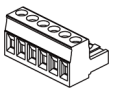
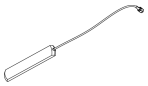
WARNING

- Check if the type and quantity of the delivered items are correct, and if there is any damage to the appearance. If damaged, please contact your dealer.
- After removing the delivered items from the packaging, do not place them on rough, uneven, or sharp surfaces to avoid paint chipping.

NOTICE

*The 4G antenna is optional. N=0 or N=1.

Component	Description	Component	Description
	Smart Energy Control Box x 1		M12 expansion bolt x 4
	M10 assembly bolt x4		PIN terminal x20

Component	Description	Component	Description
	PIN terminal x6 L1/L2/L3/N		Grounding OT terminal x1
	Key x4		4G router power cable x1 Only applicable for scenarios where 4G router is not selected.
	2PIN communication terminal x4		4PIN communication terminal x4
	6PIN communication terminal x2		6PIN terminal x1 Applicable for meter CT.
	4G antenna x1 (optional)		fireproofing mud x1
	Product documentation x1	-	-

3.3 Storage

If the device is not put into use immediately, please store it according to the following requirements. After long-term storage, the device must be inspected and confirmed by professionals before it can be used again.

Time Requirements:

- If the storage time of the device exceeds two years or the time after installation without operation exceeds 6 months, it is recommended to have it inspected and tested by professionals before putting it into use.
- To ensure the good electrical performance of the internal electronic components of the device, it is recommended to power it on every 6 months during storage. If it

has not been powered on for over 6 months, it is recommended to have it inspected and tested by professionals before use.

Packaging Requirements:

Ensure that the outer packaging box is not removed and the desiccant inside the box is not lost.

Environmental Requirements:

- Ensure that the device is stored in a cool place, avoiding direct sunlight.
- Ensure that the storage environment is clean, with appropriate temperature and humidity ranges, and no condensation. If there is condensation on the device ports, do not install the device.
- Ensure that the device is stored away from flammable, explosive, corrosive, and other hazardous materials.

Stacking Requirements:

- Ensure that the stacking height and direction of the device are arranged according to the instructions on the packaging box label.
- Ensure that there is no risk of tipping after the devices are stacked.

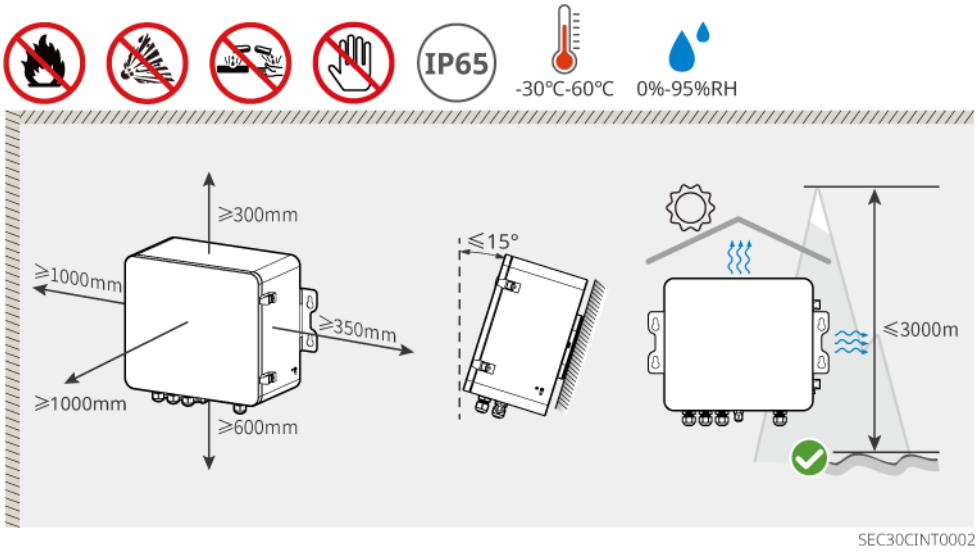
4 Installation

DANGER
Use the delivery items shipped with the device for installation and electrical connection. Otherwise, any resulting device damage is not covered by the warranty.

4.1 Installation Requirements

4.1.1 Installation Environment Requirements

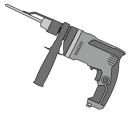
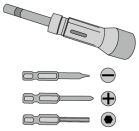
1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The temperature and humidity of the installation environment must be within the suitable range.
3. The installation location must be out of reach of children and avoid easily accessible positions.
4. The device should be installed away from direct sunlight, rain, snow accumulation, etc. It is recommended to install it in a sheltered location. A sunshade can be constructed if necessary.
5. The installation space must meet the device's ventilation, heat dissipation, and operational space requirements.
6. The device's protection rating meets the requirements for outdoor installation.
7. The device installation height should facilitate operation and maintenance, ensuring the indicator lights, all labels are easily viewable, and the terminal blocks are easy to operate.
8. The installation altitude should be lower than the maximum operating altitude.
9. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication equipment below 30MHz nearby, ensure the distance between the device and the wireless electromagnetic interference source exceeds 30m.

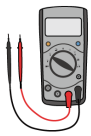
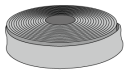
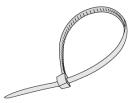


4.1.2 Tool Requirements

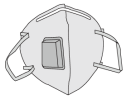
NOTICE
During installation, it is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on site.

Installation Tools

Tool Type	Description	Tool Type	Description
	diagonal plier		crimping tool
	wire stripper		open-end wrench
	hammer drill (drill bit Φ15mm)		torque wrench M4, M5, M7
	rubber hammer		socket wrench

Tool Type	Description	Tool Type	Description
	marker pen		multimeter range ≤1100V
	heat shrink tubing		heat gun
	cable tie		vacuum cleaner
	Level bar	-	-

personal protective equipment

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

4.2 Installing the Control Box

CAUTION

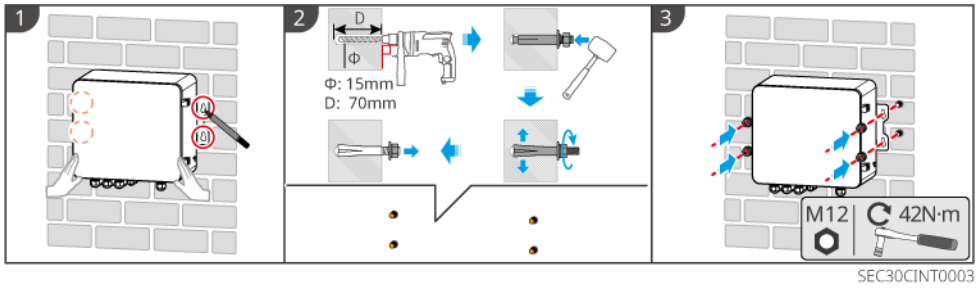
- When drilling, ensure the drilling location avoids water pipes, cables, etc. inside the wall to prevent hazards.
- When drilling, wear safety goggles and a dust mask to avoid inhaling dust into the respiratory tract or getting it into the eyes.
- Ensure the equipment is securely installed to prevent it from falling and injuring personnel.

Wall Mounting

Step 1: Place the device horizontally against the wall and use a marker to mark the drilling positions.

Step 2: Use an impact drill to create holes and install expansion bolts.

Step 3: Mount the device onto the expansion bolts and tighten the bolts using a torque wrench.



Bracket Mounting

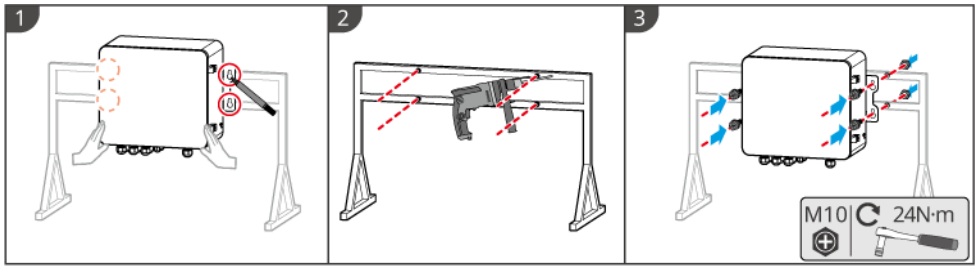
NOTICE

When installing with a bracket, the user needs to prepare their own bracket of appropriate size.

Step 1: Confirm the bracket installation hole positions and use a marker to mark the drilling locations.

Step 2: Use an impact drill to create the holes.

Step 3: Use combination bolts to mount the device onto the bracket and tighten the bolts using a torque wrench.

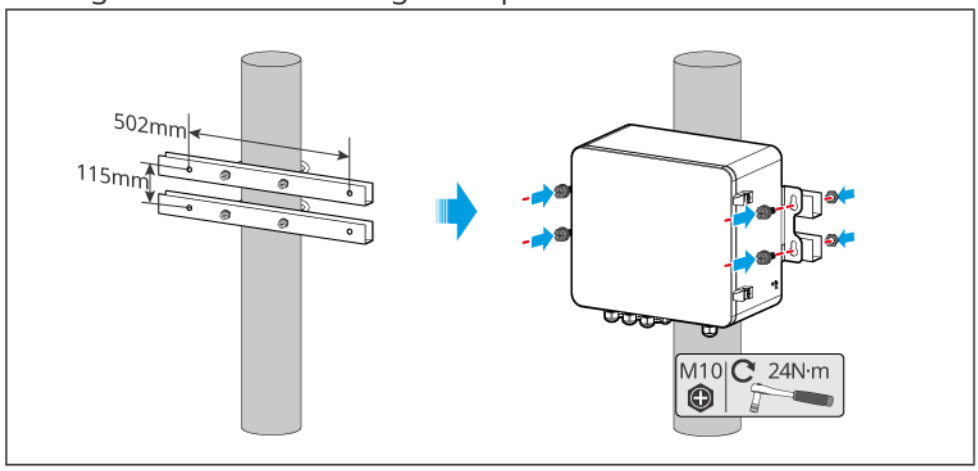


SEC30CINT0004

Pole Mounting

NOTICE
When using pole mounting, users must prepare their own appropriately sized pole mounting accessories.

Step 1: Secure the pole mounting fixture to the mounting pole and tighten the bolts using a torque wrench.
Step 2: Use combination bolts to mount the device onto the pole mounting fixture and tighten the bolts using a torque wrench.



SEC30CINT0010

5 System Wirings

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 any electrical connection, 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 crossing different cable types is prohibited.
- If cables are subjected to excessive tension, poor connections may result. When connecting cables, leave a certain amount of slack before connecting them to the equipment'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 lead to terminal block damage due to unreliable connections and subsequent overheating after operation.

NOTICE

- When performing electrical connections, please wear personal protective equipment such as safety shoes, protective gloves, insulating gloves, etc., as required.
- Only professionals are allowed to perform electrical connection-related operations.
- The cable colors in the graphics of this document are for reference only; specific cable specifications must comply with local regulatory requirements.
- To ensure sealing, after installing the cable gland at the threading hole, please use fireproof mud to seal it.

5.1 Detailed System Wiring Diagram

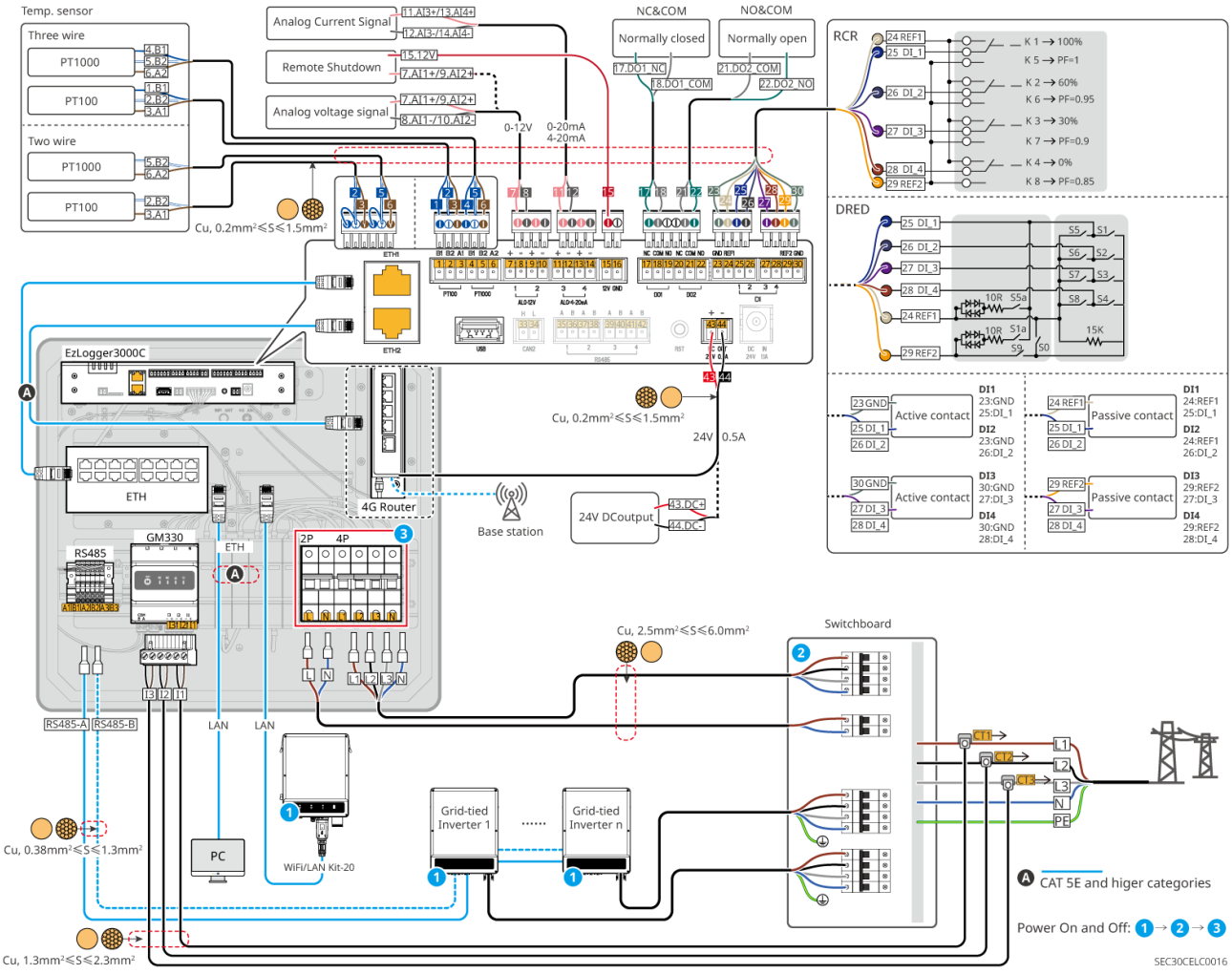
NOTICE

In the wiring diagram, the active power and reactive power adjustment values for the RCR equipment are default values. Please refer to the actual requirements of the grid company for specific values.

SEC3000C+ET40-50kW/ET100kW+grid-tied PV inverter+WiFi/LAN Kit-20

Number of devices supported in the system:

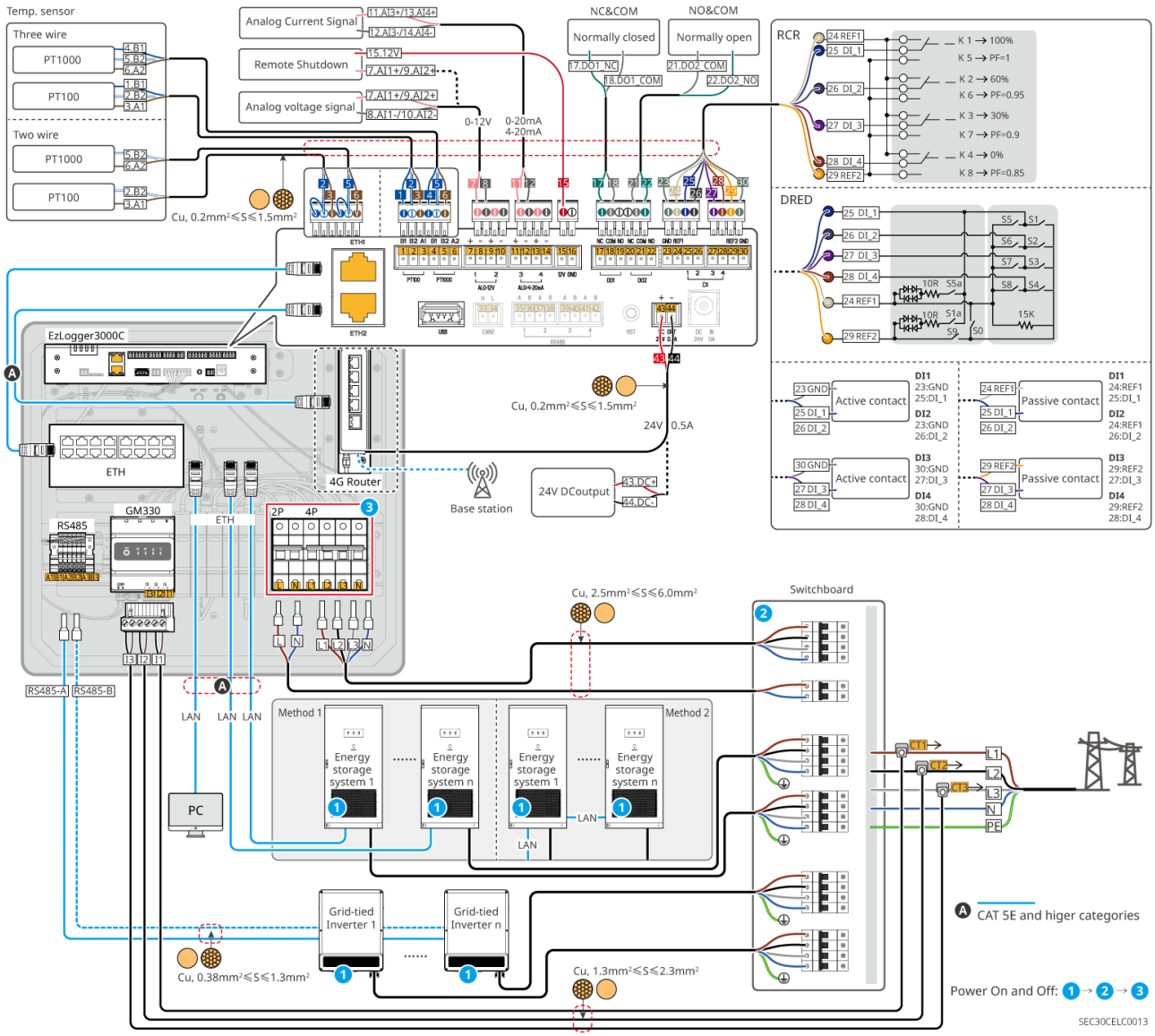
- ET40-50kW series inverter: ≤10
- ET100kW series inverter: ≤15
- grid-tied PV inverter: ≤40



SEC3000C+ESA261 energy storage system+grid-tied PV inverter(low-voltage anti-backflow scenario)

Number of devices supported in the system:

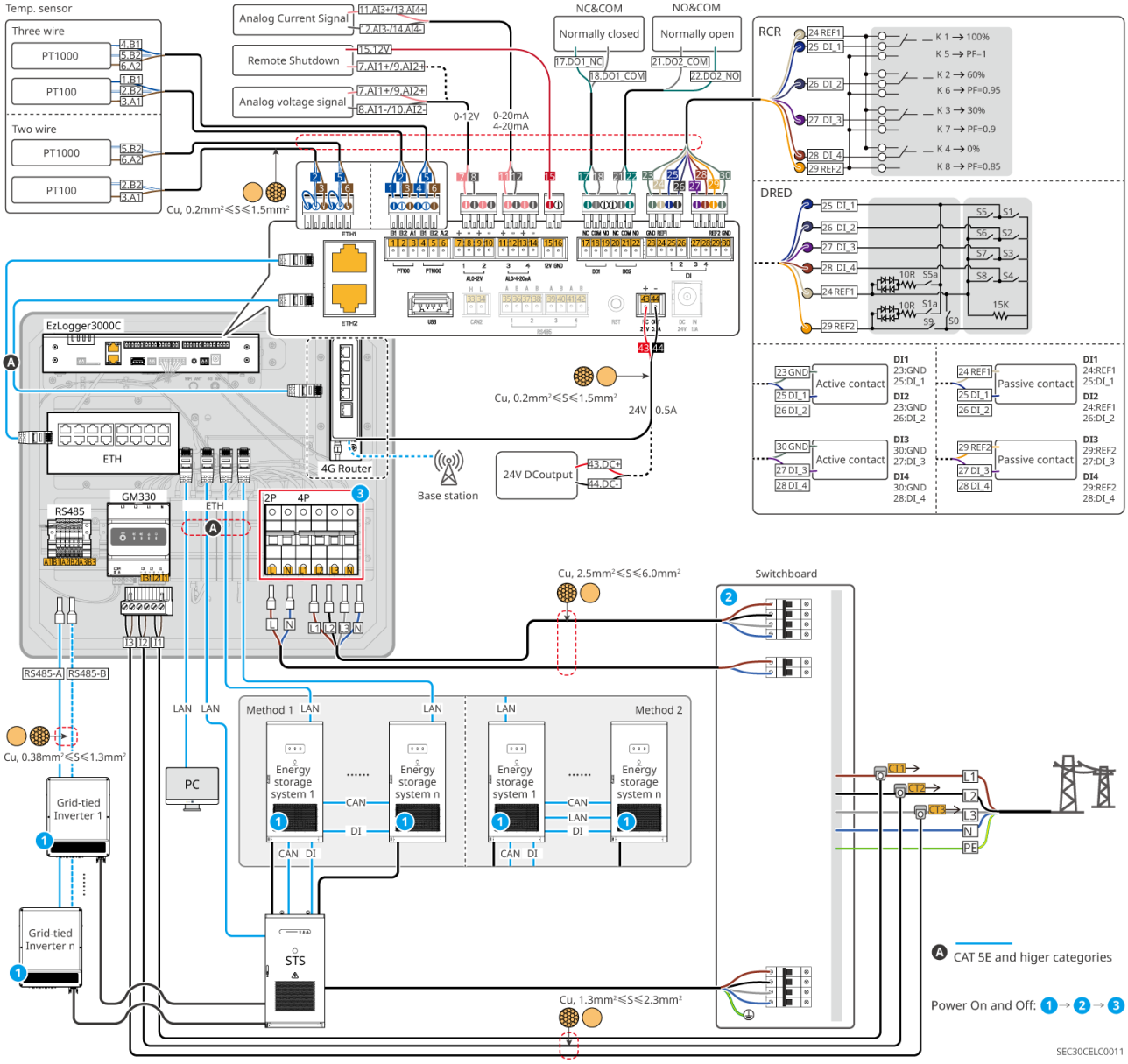
- ESA261 energy storage system: daisy-chain connection/daisy-chain star hybrid connection ≤10; star connection ≤15
- grid-tied PV inverter: ≤40



SEC3000C+-ESA261 energy storage system+grid-tied PV inverter+STS(low-voltage anti-backflow scenario)

Number of devices supported in the system:

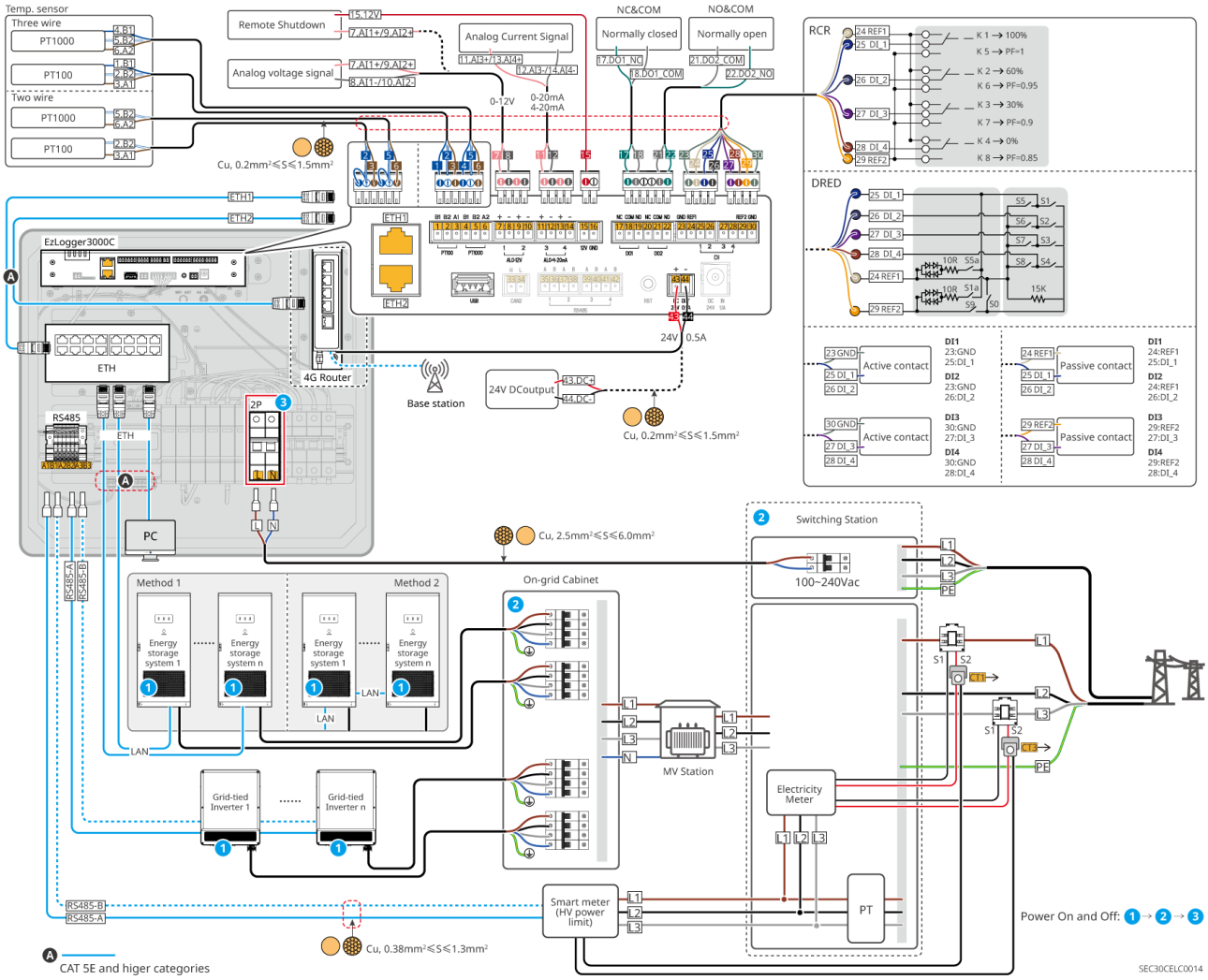
- ESA261 energy storage system: ≤5
- grid-tied PV inverter: ≤40



SEC3000C+ESA261 energy storage system+grid-tied PV inverter(high-voltage anti-backflow scenario)

Number of devices supported in the system:

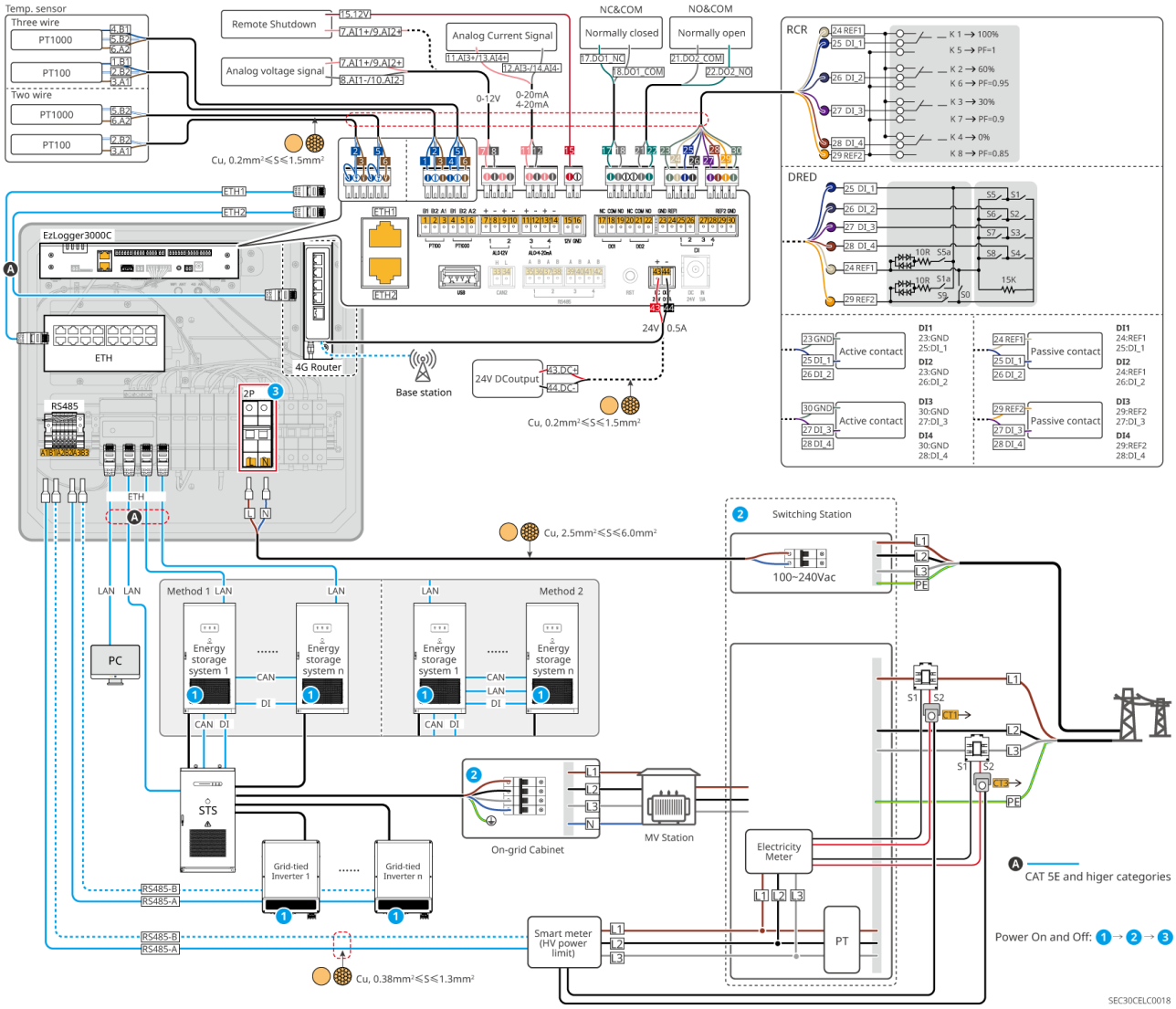
- ESA261 energy storage system: daisy-chain connection/daisy-chain star hybrid connection ≤10; star connection ≤15
- grid-tied PV inverter: ≤40



SEC3000C+ESA261 energy storage system+grid-tied PV inverter+STS(high-voltage anti-backflow scenario)

Number of devices supported in the system:

- ESA261 energy storage system: ≤5
- grid-tied PV inverter: ≤40

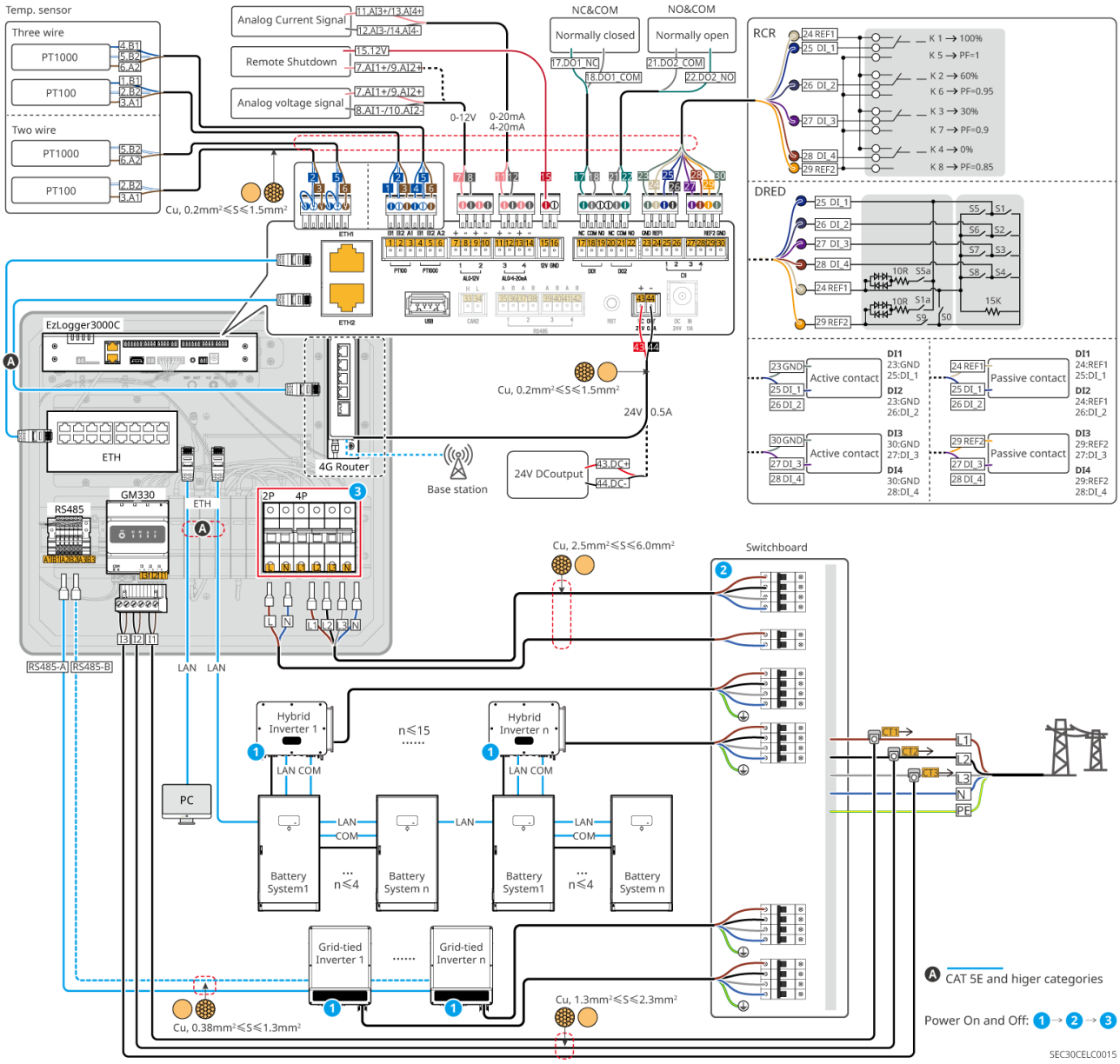


Supported high-voltage anti-backflow meter model: Acrel DTSD1352-CT/C.

SEC3000C+ET100kW series energy storage inverter+BAT100 series battery+grid-tied PV inverter

Number of devices supported in the system:

- ET100kW series inverter: ≤15
- grid-tied PV inverter: ≤40

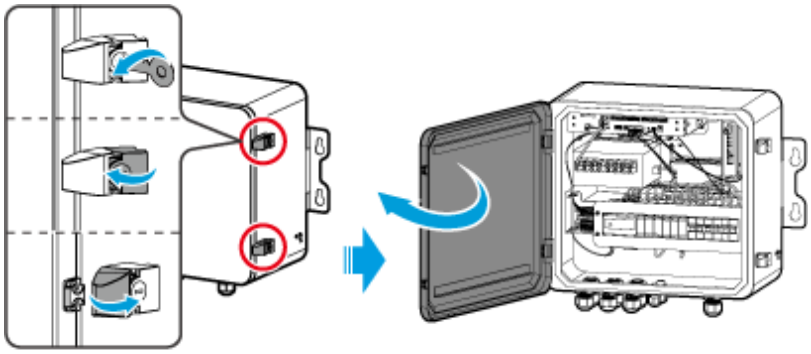


5.2 Pre-wiring Preparation

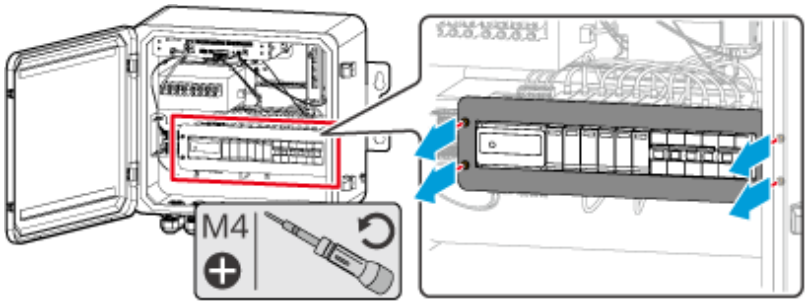
Prepare Cables

No.	Cable	Recommended Specification	Acquisition Method
1	PE cable	• Single-core outdoor copper cable • Conductor cross-sectional area: 2.5mm²-10mm² • Cable outer diameter: 2.5-4.5mm	Self-provided
2	Meter CT cable	• Single-core outdoor copper cable • Conductor cross-sectional area: 1.3mm²-2.3mm² • Cable outer diameter: 2.0-3.0mm	Self-provided
3	Single-phase AC line	• Single-core outdoor copper cable • Conductor cross-sectional area: 2.5mm²-6.0mm² • Cable outer diameter: 2.5-4.0mm	Self-provided
4	Three-phase AC line		Self-provided
5	External device RS485 communication cable	• Shielded twisted pair cable meeting local standards • Conductor cross-sectional area: 0.07mm²-1.3mm² • Cable outer diameter: 1.0-2.5mm	Self-provided
6	External device network cable	• Standard shielded network cable: CAT 5 or above standard network cable and RJ45 connector • Network cable length not exceeding 100m	Self-provided

Open the Cabinet Door and Remove the Wiring Area Cover



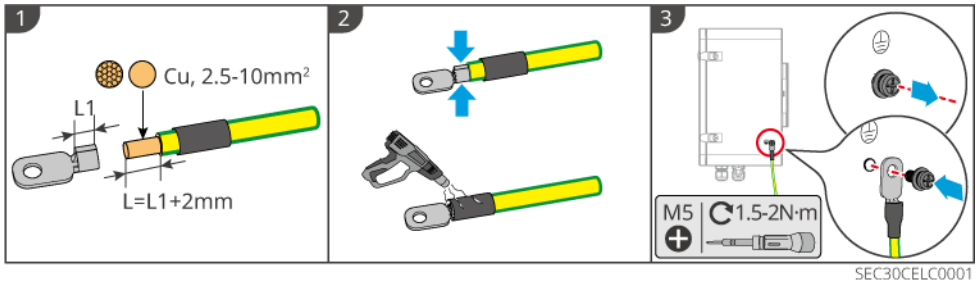
SEC30CINT0006



5.3 Connecting the PE cable

WARNING

- When installing the equipment, the protective grounding wire must be installed first; when removing the equipment, the protective grounding wire must be removed last.
- To improve the corrosion resistance of the terminal, it is recommended to apply silicone or paint on the exterior of the grounding terminal for protection after the protective grounding wire connection installation is completed.

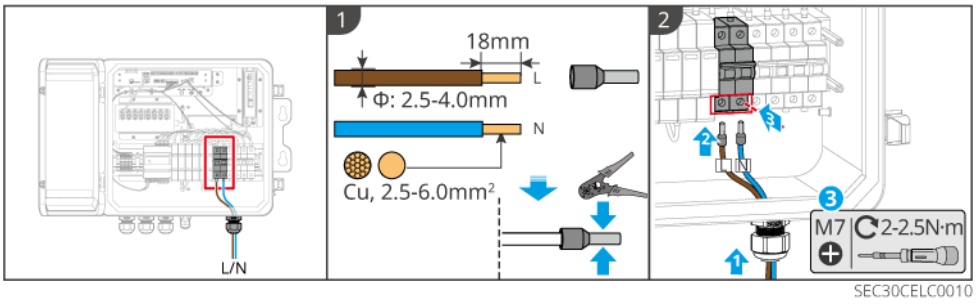


SEC30CELC0001

5.4 Connecting Single-Phase AC Power Lines

NOTICE

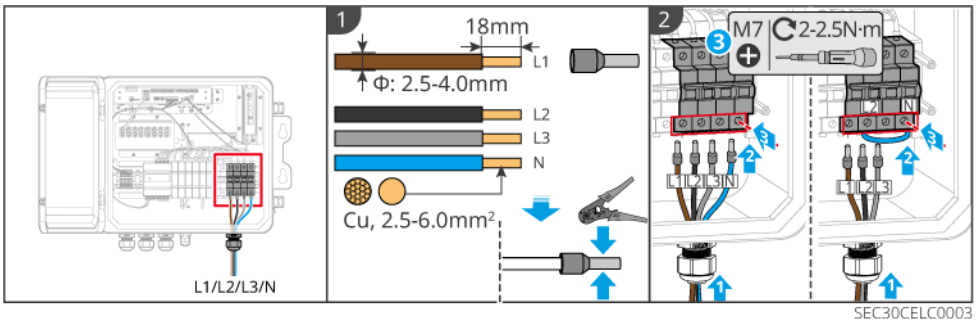
Input voltage range: 100-240Vac.



5.5 Connecting Three-Phase AC Lines

NOTICE

- Supports connection to three-phase three-wire or three-phase four-wire systems. To connect to a three-phase three-wire system, short the L2 and N port.
- If the built-in GM330 meter in the control box is not used, the three-phase AC line connection is optional.



5.6 Connecting Meter CT Wires

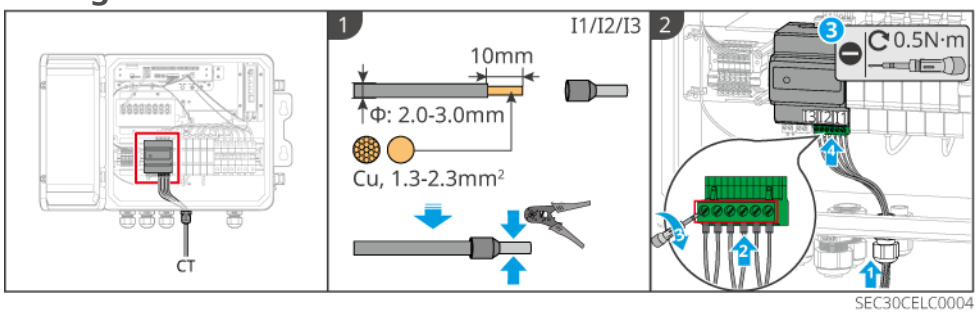
WARNING

In areas with lightning hazards, if the meter cable length exceeds 10m and the cable is not laid with grounded metal conduits, it is recommended to install external lightning protection devices.

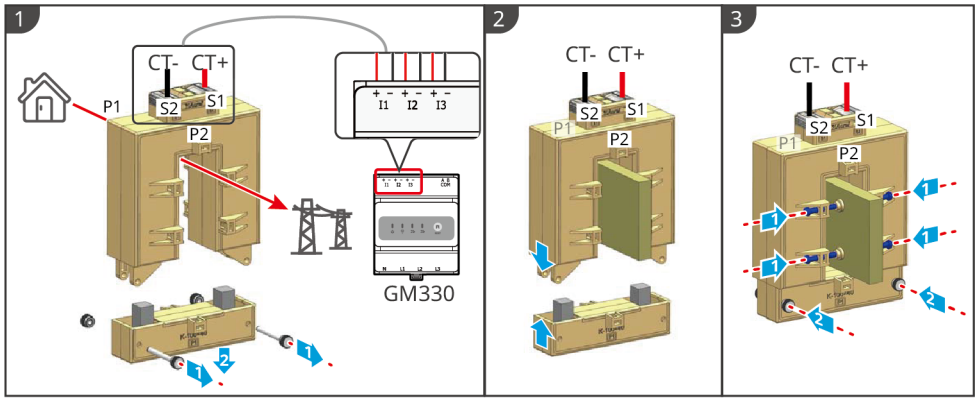
NOTICE

- Applicable only to the GM330 meter. For third-party meters, please refer to the corresponding meter manual requirements.
- Please purchase from GoodWe or prepare your own CT. CT ratio requirement: nA/5A.
  - nA: CT primary side input current, the range of n is 200-5000
  - 5A: CT secondary side output current
- Please ensure the CT connection direction and phase sequence are correct, otherwise monitoring data may be inaccurate.
- The outer diameter of the AC power line must be smaller than the aperture of the CT to ensure the AC power line can pass through the CT.
- To ensure the current detection accuracy of the CT, the recommended length of the CT cable is no more than 30m.
- Do not use network cable as CT cable, as excessive current may cause cable damage.
- The CT provided by the equipment manufacturer may have slight variations in size and appearance depending on the model, but the installation and wiring methods are consistent.

Wiring Method

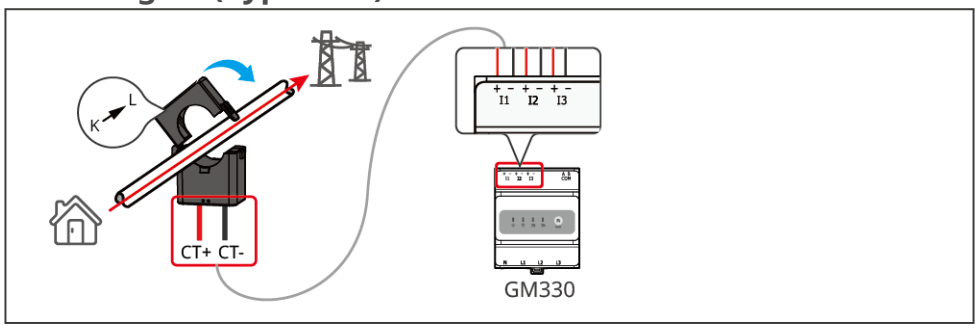


Installing CT (Type One)



GMK10ELC0006

Installing CT (Type Two)

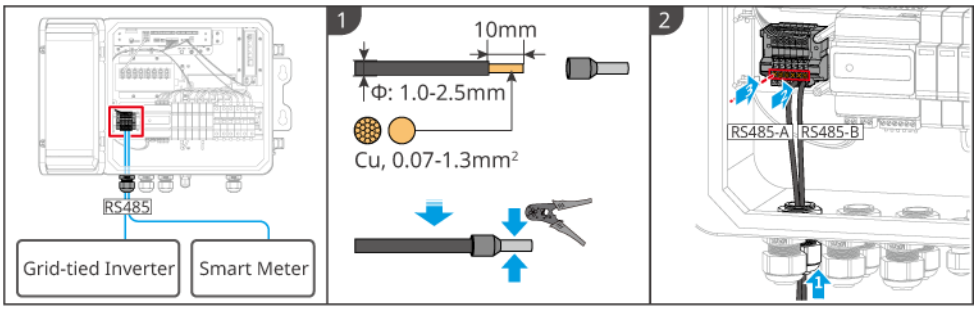


GMK10ELC0007

5.7 Connecting the RS485 Communication Cable

NOTICE

- Supports connection to grid-tied inverters. Currently supported models: GT series, SMT G2 series, SDT-G3 series, HT series, SMT G1 series, UT series, etc. For details, please refer to product compatibility list.
- Supports connection to meters used with grid-tied inverters for detecting the output power of the inverters. Currently supported model: GM330.
- One RS485 line supports a maximum of 20 grid-tied inverters.
- The Smart Energy Control Box provides 3 sets of available RS485 connection terminals. Please connect the RS485 communication cable to any 1 set of RS485 terminals.

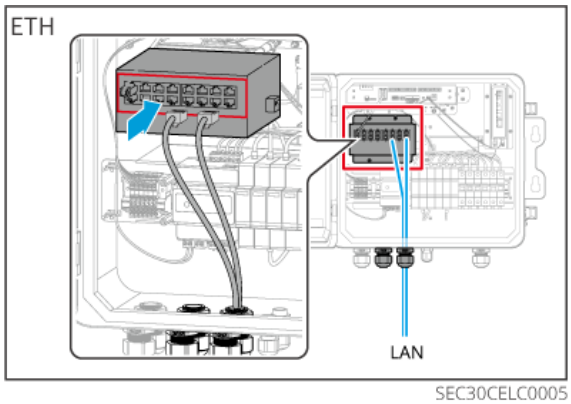


SEC30CELC0008

5.8 Connect the Network Cable

NOTICE

- Supports connection to energy storage inverters via the Smart Dongle. Currently supported models: ET40-50kW series inverters; or direct connection to energy storage systems. Currently supported model: GW125/261-ESA-LCN-G10.
- Please prepare your own WiFi/LAN Kit-20 Smart Dongle for connecting to the energy storage inverter, and ensure the dongle version is not lower than V2.5.49.
- Supports connection to a computer. After connecting the device to the computer via an Ethernet cable, you can log in to the embedded web interface from the computer to configure system parameters.
- When using an Ethernet cable to connect the device to a computer, if the computer only provides interfaces such as USB or Type-C, please prepare your own Ethernet port adapter.
- The Smart Energy Control Box provides 15 available Ethernet ports. Please connect the Ethernet cable to any port according to your actual needs.

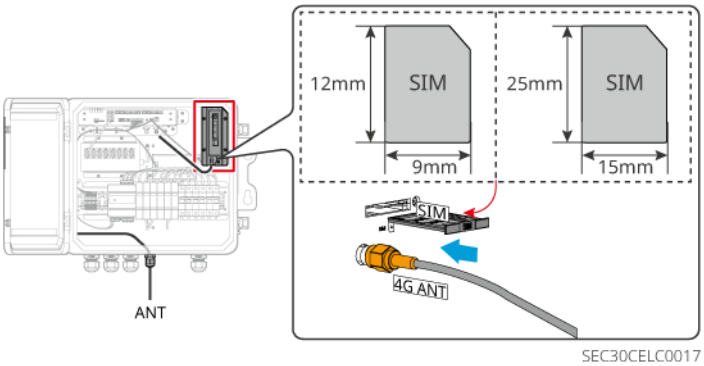


SEC30CELC0005

5.9 Installing the 4G Antenna (Optional)

NOTICE

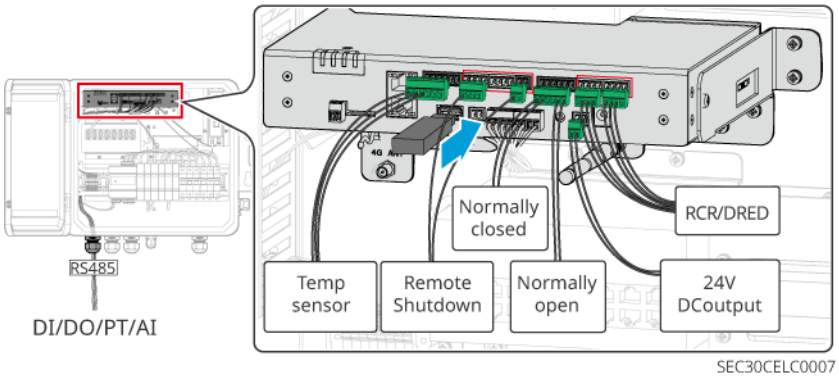
- If the Growatt 4G router is selected, it is pre-installed at the factory.
- Supports optional routers from other manufacturers. If selected, please install the 4G router yourself.
- If you need to install a 4G antenna extension cable, do not cross it with other communication cables, as this may affect the signal.
- The SIM card must be provided by the user. Please use a standard SIM card (size: 25mm*15mm, capacity ≥64KB) or a NANO card (size: 12mm*9mm, capacity ≥64KB) according to the actual slot size.
- The recommended data plan is as follows:
  - When there are N grid-tied inverters in the system, the recommended data plan is 200+100*N MB/month.
  - When there are N energy storage systems in the system, the recommended data plan is 200+600*N MB/month.
  - When there are M grid-tied inverters and N energy storage systems in the system, the recommended data plan is 200+100*M+600*N MB/month.



5.10 Connecting DO/DI/AI/PT Cables

NOTICE

- The Smart Energy Control Box has a built-in data logger. To enable functions such as RCR or one-key shutdown, or to connect external devices like temperature sensors, please connect the corresponding cables.
- The Smart Energy Control Box has reserved cable entry holes for DI/DO/AI/PT. If you need to connect corresponding cables, please route them through these reserved holes.
- If you need to use your own 4G Router, please connect it to the data logger's 24V DC output port to provide power input for the Router.
- For cable requirements and specific wiring steps, please refer to EzLogger3000C User Manual.

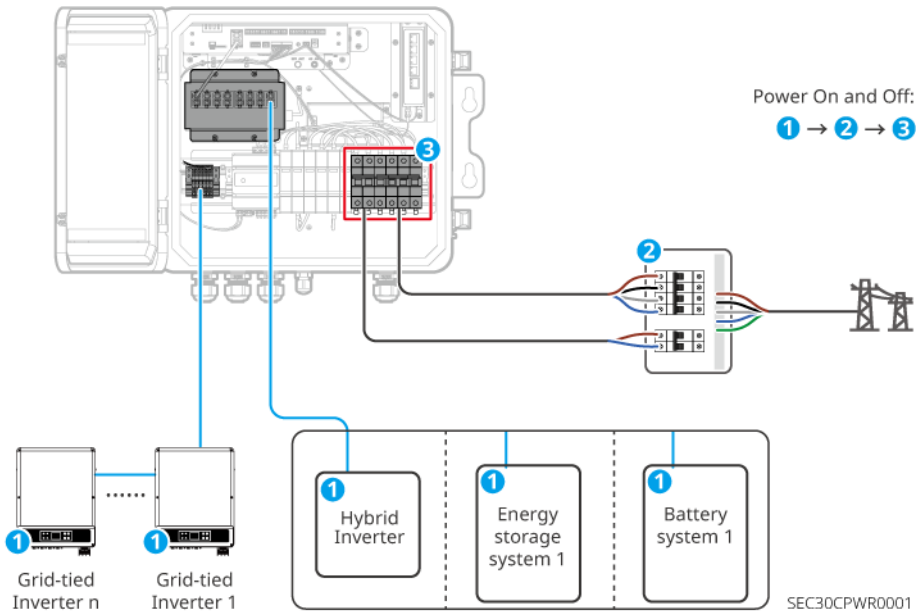


6 System Commissioning

6.1 Check Before Power ON

No.	Inspection Item
1	The equipment 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, AC input cable, and communication cables are connected correctly and securely.
3	Cable bundling meets wiring requirements, is reasonably distributed, and shows no damage.
4	Ensure waterproof covers are installed on unused cable entry holes.
5	Ensure used cable entry holes are properly sealed.

6.2 Power ON



6.3 Indicator Description

Please check the LED indicators on the SEC3000C built-in data collector and Smart Meter.

Data Collector

The indicator description applies only to SEC3000C with software version 06 and above.

Indicator	Indicator Status	Description
PWR		Steady green: Device power supply is normal.
		Green off: Device is powered off or power supply is abnormal.
RUN		Steady green/off: Device operation is abnormal.
		Green slow flash: Device operation is normal.
NET		Steady green: Device connection to server is normal.
		Green fast flash: Device is connected to the router, but connection to server is abnormal.
		Green slow flash: Device is not connected to the router.
ALM		Steady red: Device has a fault.
		Red fast flash: Device is upgrading.
		Red off: Device has no fault.

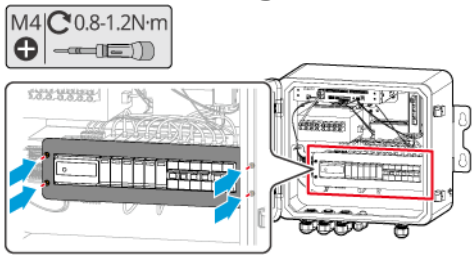
Smart Meter

Type	Status	Description
Power Light 	Constantly lit	The meter is powered on, no RS485 communication.
	Blinking	The meter is powered on, RS485 communication is normal.
	Off	The meter is powered off.

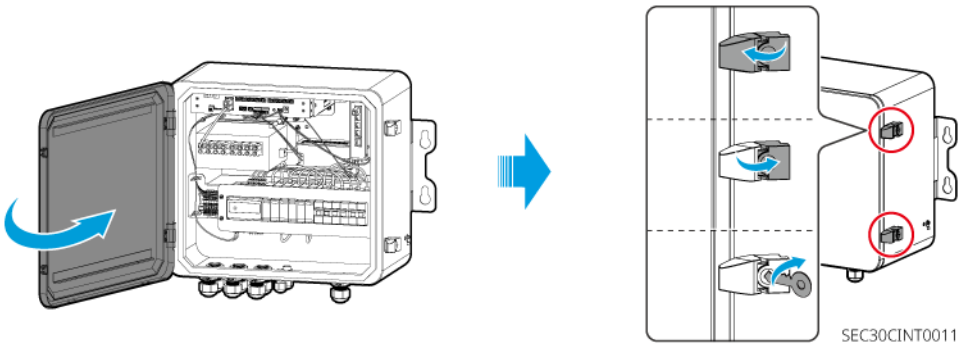
Type	Status	Description
Communication Light	Off	Reserved
	Blinking	Press the Reset button for ≥5s, the power light and buy/sell light blink: meter reset.
Buy/Sell Light	Constantly lit	buy power from the grid
	Blinking	Sell power to the grid.
	Off	Not buying or selling power.
	Reserved	

6.4 Close the Cabinet Door

Install the wiring area baffle and close the cabinet door



SEC30CINT0008



SEC30CINT0011

7 System Commissioning

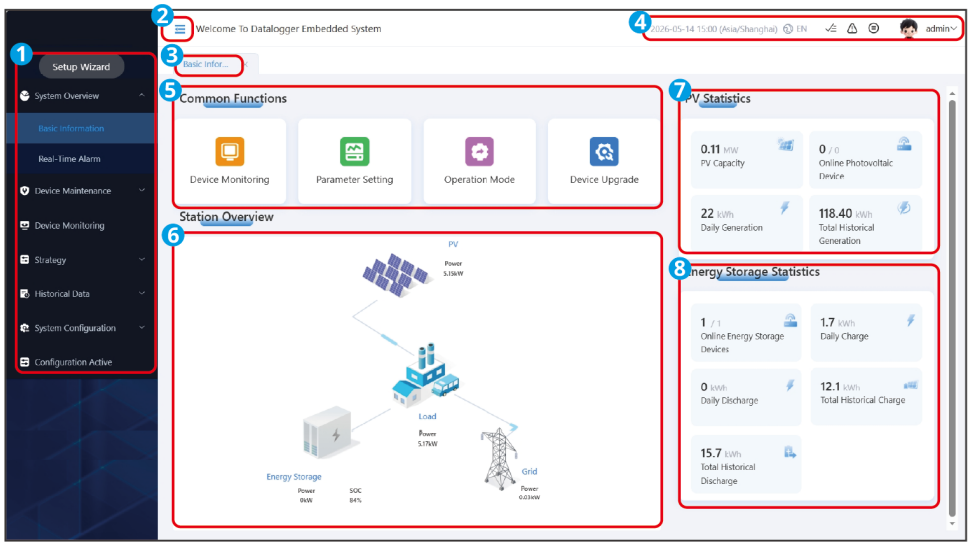
7.1 WEB Interface Introduction

The device supports configuring relevant parameters, viewing device operational information and error information, and promptly understanding the system status through the local WEB interface.

WARNING

- The WEB software version corresponding to the interface images in this article is V4.6.12. Images are for reference only, please refer to the actual situation.
- Parameter names, ranges, and default values may be changed or adjusted subsequently, please refer to the actual display.
- Depending on the type of device connected to the system, the configurable items in the web interface may vary, please refer to the actual display.
- When sending reset, shutdown, or upgrade commands to the inverter, it may cause the inverter to not connect to the grid, affecting power generation.
- Grid parameters, protection parameters, characteristic parameters, and power adjustment parameters for grid-tied inverters, as well as frequency parameters, connection parameters, protection parameters, and other safety regulations parameters for energy storage inverters must be set by professionals. Incorrect setting of safety regulations parameters may cause the inverter to not connect to the grid or not connect according to grid requirements, affecting power generation.

7.1.1 WEB Interface Layout

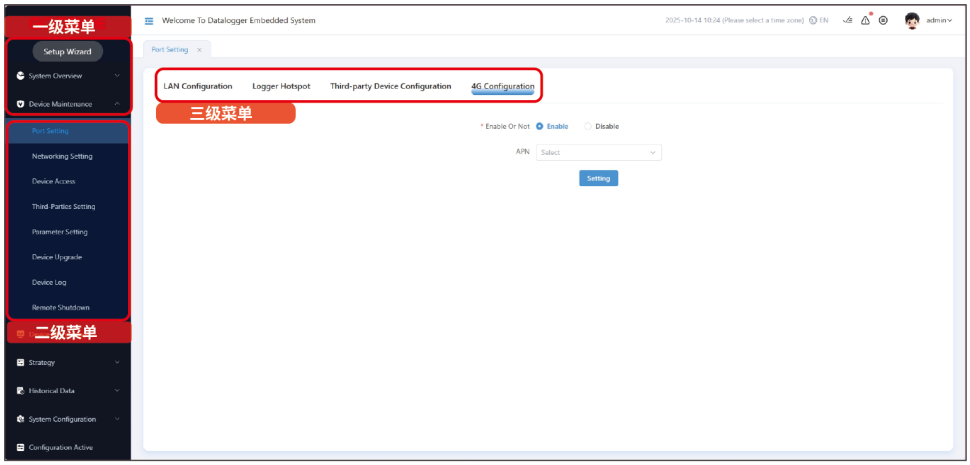


SEC30CCON0025

No.	Functional Area	Description
1	Menu List	• Interface menu area. You can select a primary menu as needed, and after selection, the secondary menu will be displayed. Some primary menus do not have secondary menus. • When the user logs in for the first time, the interface will prompt to quickly configure the system through the initial setup wizard. If you need to enter the initial setup wizard interface again after closing it, click to enter.
2	Menu List Button	Click the menu list button to expand or collapse the menu list.
3	Tabs	Displays the opened menu tabs.
4	System Status	• Displays the system time. • Switches the system language. • Displays alarm information, click to view real-time fault alarms. • Displays product version information. • Displays account login information, click to log out of the account.

No.	Functional Area	Description
5	Common Functions	Displays common setting functions, click to jump to the corresponding setting interface.
6	Power Station Overview	Current power station energy flow diagram and power information.
7	PV Information Overview	Displays the photovoltaic power generation information in the current system. • PV Installed Capacity: The sum of the rated capacity of grid-connected inverters and the PV rated capacity of energy storage inverters in the current system. • Online PV Devices: The number of currently online grid-connected inverters. • Today's Power Generation: The total daily power generation on the PV side of all inverters. • Historical Power Generation: The total historical power generation on the PV side of all inverters.
8	Energy Storage Information Overview	Displays the energy storage information in the current system. • Online PV-Storage Devices: The number of currently online energy storage inverters. • Daily Charging Capacity: The battery's daily charging capacity. If there is cyclic charging, the cumulative charging capacity is displayed. • Daily Discharging Capacity: The battery's daily discharging capacity. If there is cyclic discharging, the cumulative discharging capacity is displayed. • Total Historical Charging Capacity: The cumulative charging capacity of the battery. • Total Historical Discharging Capacity: The cumulative discharging capacity of the battery.

7.1.2 WEB Interface Menu



SEC30CCON0026

Primary Menu	Secondary Menu	Tertiary Menu	Description
Initial Setup Wizard	-	-	Quickly set up networking and other information to complete basic system operation configuration.
System Overview	General Information	-	• Displays information such as PV power generation and system installed capacity. • Sets up common functions, e.g., Device Monitoring, parameter settings, Operating Mode, device upgrade. • Displays the power station operation energy flow diagram. • Displays information such as daily ESS charge/discharge and historical charge/discharge.
	Real-time Fault Alarms	-	Displays fault/alarm name, device SN, and generation time. Click the manual refresh button to update and display the latest alarm list.
Device Maintenance	Port Settings	LAN Configuration	Set LAN communication parameters.
		Wi-Fi Configuration	Set the WiFi password for the control box.

Primary Menu	Secondary Menu	Tertiary Menu	Description
		RS485 Configuration	Set RS485 parameters. Supports connecting third-party devices via RS485.
	Networking Setup	-	Set up system networking.
	Device Access	-	Add devices such as grid-tied PV inverters, hybrid inverters, all-in-one energy storage cabinets, meters, etc.
	Forwarding Configuration	Modbus-TCP	Set Modbus-TCP forwarding parameters.
	Parameter Settings	Data Logger	Set data logger operation log parameters.
		hybrid inverter	Set hybrid inverter parameters. • Quick Configuration: Quickly configure the hybrid inverter's safety standard country and battery connection mode. • Wiring Mode: Only applicable to the ET40-50kW series inverters. Set the inverter's wiring mode. • General Data: Set the hybrid inverter's basic parameters. • Advanced Settings: Set the hybrid inverter's advanced parameters. • Safety Parameter Settings: Set the hybrid inverter's advanced safety parameters. • Generator Settings: Only applicable to the ET40-50kW series inverters. Set parameters for the generator connected to the inverter.
		Meter	Set meter parameters, such as CT ratio, PT ratio, wiring method.
		grid-tied PV inverter	Set grid-tied PV inverter grid parameters, protection parameters, characteristic parameters, power regulation parameters.

Primary Menu	Secondary Menu	Tertiary Menu	Description
		All-in-one Energy Storage Cabinet	Set all-in-one energy storage cabinet parameters. • Select Safety Standard: Quickly configure the all-in-one energy storage cabinet's safety standard country. • General Data: Set the all-in-one energy storage cabinet's basic parameters. • Advanced Settings: Set the all-in-one energy storage cabinet's advanced parameters. • Safety Parameter Settings: Set the all-in-one energy storage cabinet's advanced safety parameters.
		STS	Set STS parameters.
	Device Upgrade	Data Logger	Upgrade data logger version.
		grid-tied PV Inverter	• Upgrade device firmware version. • Supports upgrading DSP version, ARM version, module version, etc.
		hybrid inverter	
		All-in-one Energy Storage Cabinet	
		STS	
	Device Log	-	View device operation logs, such as web login/logout, password changes, etc.
	Remote Shutdown	One-Key Shutdown	Set one-key shutdown parameters. Only applicable to the Germany region.
	Startup/Shutdown	-	Manually start or stop all or part of the devices.

Primary Menu	Secondary Menu	Tertiary Menu	Description
Device Monitoring	-	-	• View the operating status, device SN, version, real-time data, and other information of devices in the system. • Currently supports viewing grid-tied PV inverters, hybrid inverters (including batteries), all-in-one energy storage cabinets, meters, and other devices.
Control Strategy	Operating Mode	-	• Set the hybrid inverter's working mode. Currently supports Self-Consumption Mode, Backup Mode, Delayed Charging, TOU Mode, peak shaving. • Set the SEC3000C's working mode. Currently supports Local Management Mode or Third-party Dispatch Mode. • Set the SEC3000C's SOC management method. • Set the SEC3000C's demand management mode.
	Power Regulation	Export power limit	Set Export power limit parameters.
		RCR	Set DRED parameters.
		DRED	Set RCR parameters.
	Micro-grid Control	-	Applicable to micro-grid systems.
	Communication Exception Configuration		Set handling measures for inverter/ESS/meter communication exceptions.

Primary Menu	Secondary Menu	Tertiary Menu	Description
Historical Data	Historical Faults and Alarms	-	View historical fault and alarm information.
Data Logger Configuration	Maintenance	-	• Restart Data Logger • Restore Factory Settings • Import Full Configuration File • Export Full Configuration File
	System Time	-	Set the system time synchronization clock source. Currently supports GoodWe Cloud Platform synchronization, NTP, Modbus-TCP, manual time setting.
	Security Settings	-	Set security parameters, such as account password.
	Version Information	-	View data logger version information, such as SN, main program version, firmware version, etc.
Apply Configuration	-	-	Save the setting parameters. After modifying networking or parameters, click Apply Configuration to confirm the settings.

7.1.3 Logging into the WEB Interface

NOTICE

- Ensure all devices in the photovoltaic system are correctly installed and powered on.
- Before logging into the WEB interface, ensure the device meets the following requirements:
  - Supports operating systems of Windows 7 or later.
  - Browser: It is recommended to use Chrome68, Firefox78 or later versions.
  - The computer's network port has been connected to the device's switch port using an Ethernet cable.
- After completing the interface configuration, unplug the Ethernet cable from the ETH port.

Logging into the WEB Interface Using the Default IP

Step 1: Connect the computer to any network port on the control box's switch using an Ethernet cable.

Step 2: In the computer system, select "Network & Internet" > "Change adapter options". In the popped-up Network Connections dialog, right-click and select "Properties". Configure the computer's IP address to be in the same subnet as the device's IP address.

No.	IP Parameter	Factory Default	Computer Setting Example
1	IP Address	172.18.0.12	172.18.0.22
2	Subnet Mask	255.255.255.0	255.255.255.0
3	Default Gateway	172.18.0.1	172.18.0.1

Step 3: Enter https://172.18.0.12:443 in the browser's address bar to access the login interface.

Step 4: Select the language as needed. Log into the WEB interface using the initial username and password. Initial username: admin; Initial password: 123456.

Logging into the WEB Interface Using a Dynamic IP

Step 1: Connect both the control box and the computer to a router using Ethernet cables.

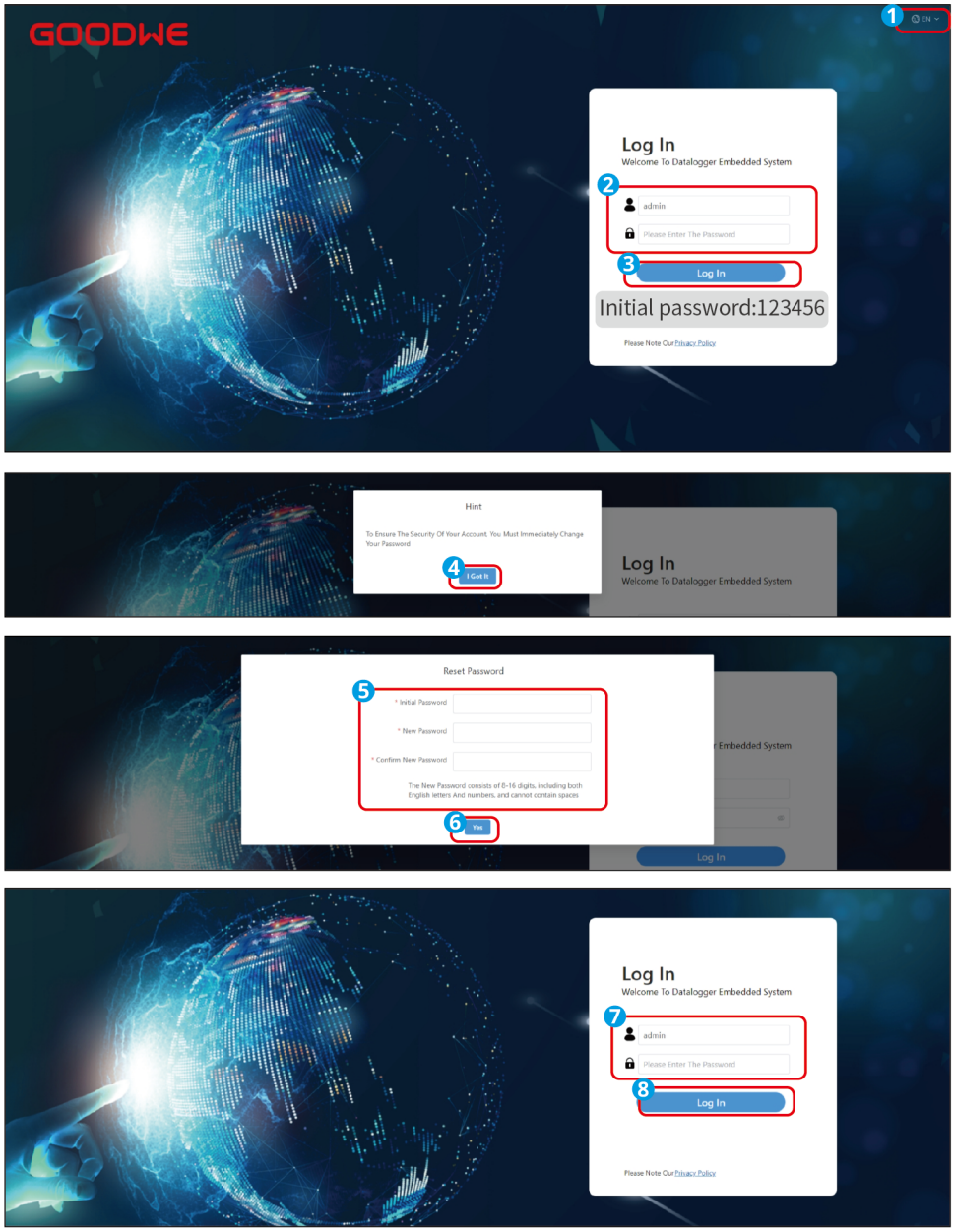
Step 2: Check the router's management page to see the IP address assigned by the router to the control box.

Step 3: Enter the assigned IP address in the browser's address bar to access the login interface.
Step 4: Select the language as needed. Log into the WEB interface using the initial username and password. Initial username: admin; Initial password: 123456.

Logging into the WEB Interface Using WiFi

Step 1: Connect the computer to the data collector's default WiFi name: Log-***, where *** is the device serial number. Default WiFi password: 12345678.
Step 2: Enter https://172.18.0.12:443 in the browser's address bar to access the login interface.
Step 3: Select the language as needed. Log into the WEB interface using the initial username and password. Initial username: admin; Initial password: 123456.

NOTICE
For the first login, please use the initial password and change it as soon as possible. The password must be memorized. To ensure account security, it is recommended to change your password regularly.



EZU30CON0014

7.2 Configuration Startup Wizard

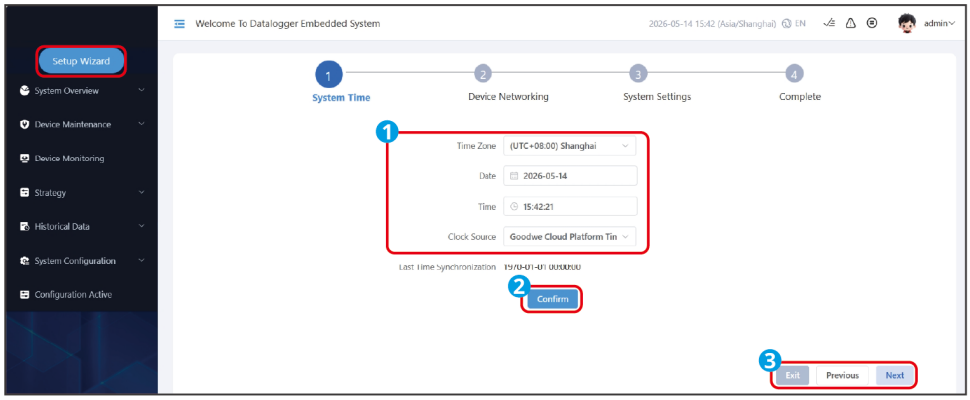
- When a user logs in for the first time, the interface will prompt to quickly configure the system through the startup wizard. Please configure according to the interface prompts and actual requirements. Supports device networking, setting device parameters, etc.
- If system configuration is not needed for the moment, you can click to end the wizard; if configuration of a certain function is not needed for the moment, you can

click to skip.

- If you need detailed information about the setting functions, please refer to the function explanations in the corresponding chapters of the manual.

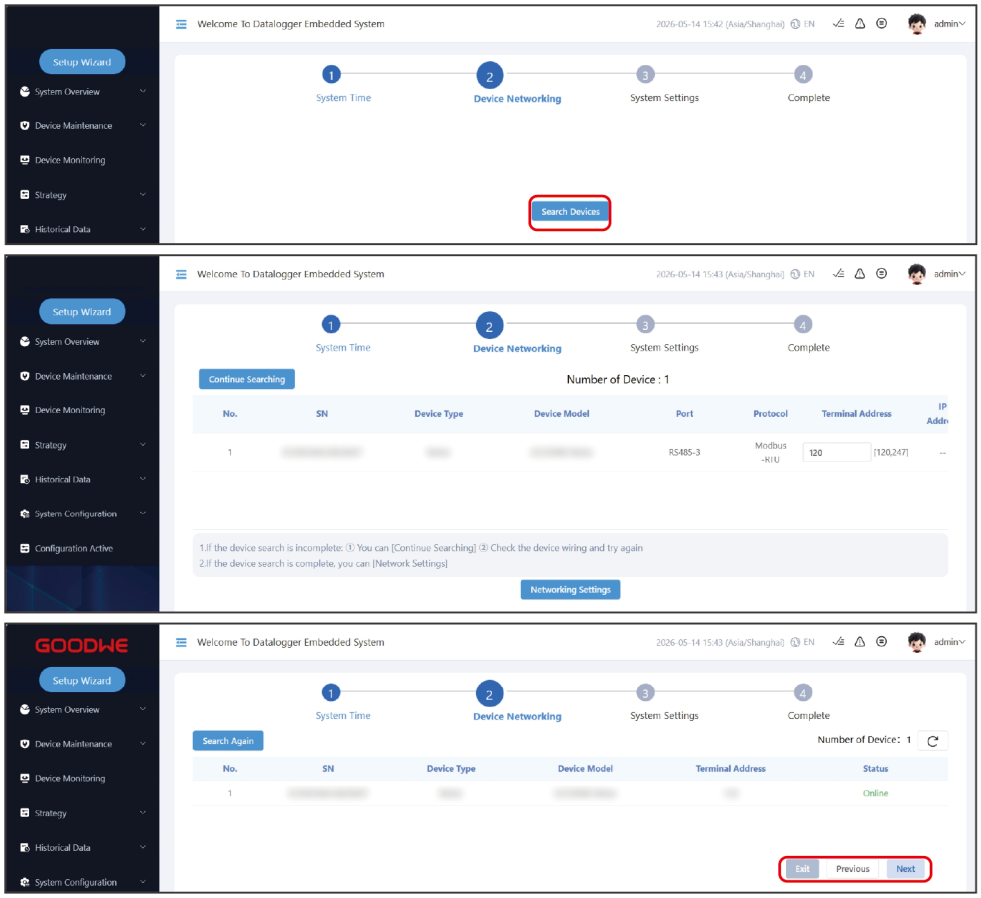
Step 1: When a user logs in for the first time, they can enter the startup wizard interface after logging in. If you have exited the wizard interface, you can click "Startup Wizard" to enter again.
Step 2: During the parameter setting process, please click Previous or Next as needed to make corresponding settings.

- Set the system time according to the actual situation.



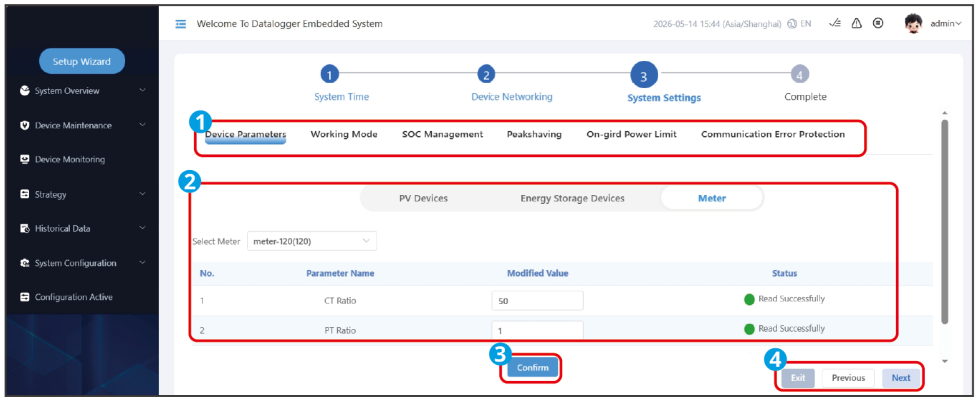
SEC30CCON0027

- Click "Search for Devices" to automatically search for devices in the system and complete networking.



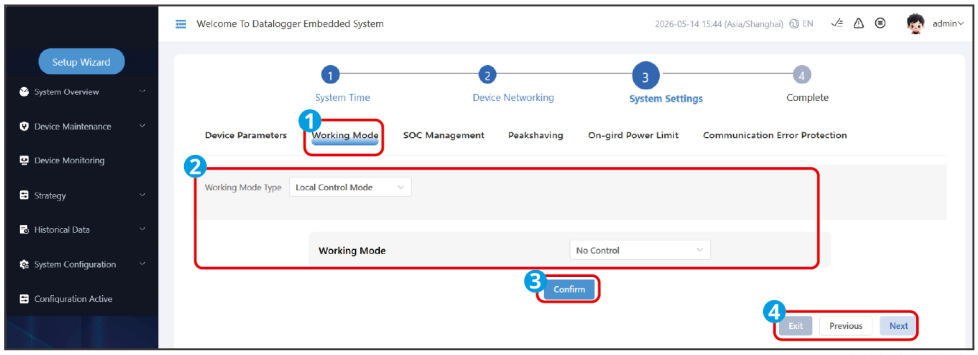
SEC30CCON0085

- System Settings
  - Device Parameters: Set device operating parameters according to the actual situation, such as safety regulation region, meter CT value, etc.



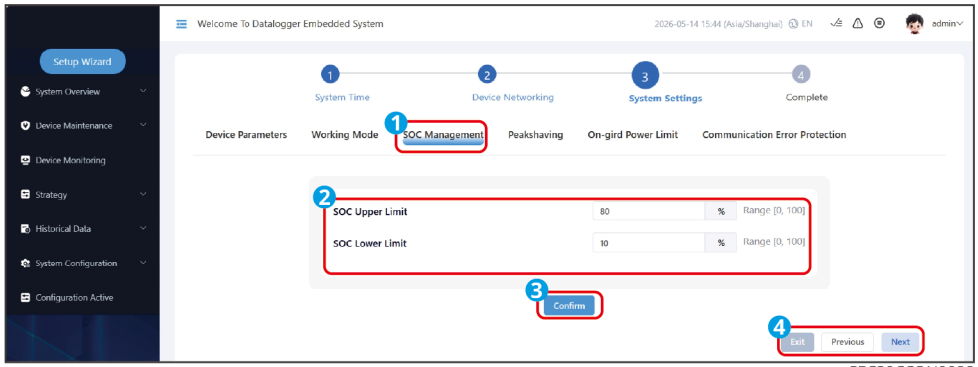
SEC30CCON0084

  - Operating Mode: Set the system operating mode according to the actual situation. For more information, please refer to the chapter 7.8.1.Setting Operating Mode Parameters(Page 106).



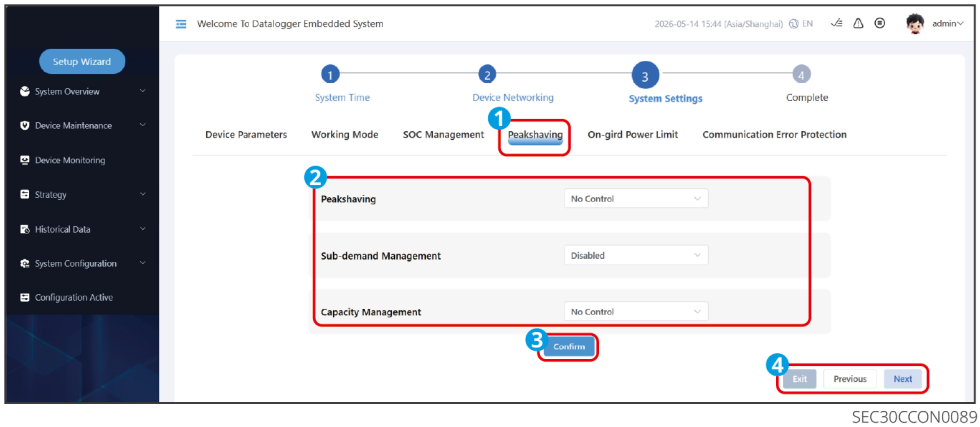
SEC30CCON0087

- SOC Management: Set the upper and lower SOC limits for the energy storage system. For more information, please refer to the chapter Managing SOC Protection for the Integrated Energy Storage Cabinet.



SEC30CCON0088

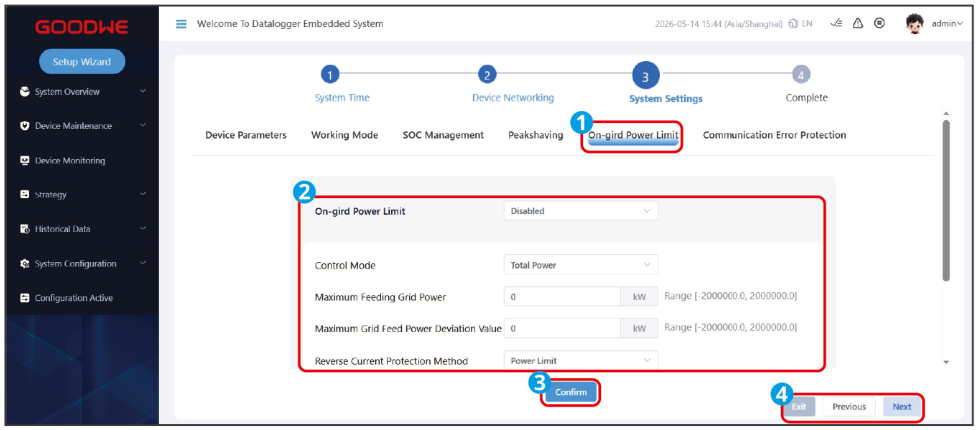
- Peakshaving: Mainly applicable to scenarios with limited peak electricity purchase. It controls battery discharge to supply power, ensuring that the electricity purchased from the grid side does not exceed the limit. For more information, please refer to the chapter Setting the Peakshaving Function for the Integrated Energy Storage Cabinet.



SEC30CCON0089

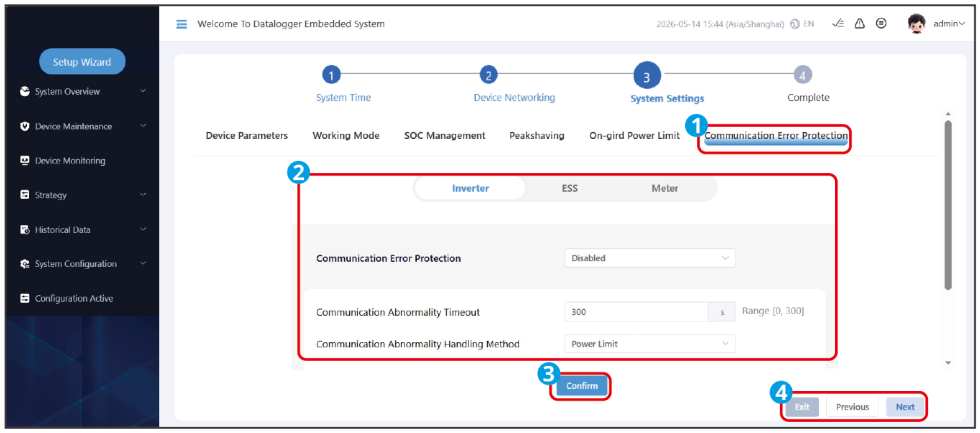
- Export power limit: By setting the export power limit parameters, you can control

the amount of power fed into the grid to avoid exceeding the limit. For more information, please refer to the chapter 7.8.2.1.Setting Power Limit Parameters(Page 115).



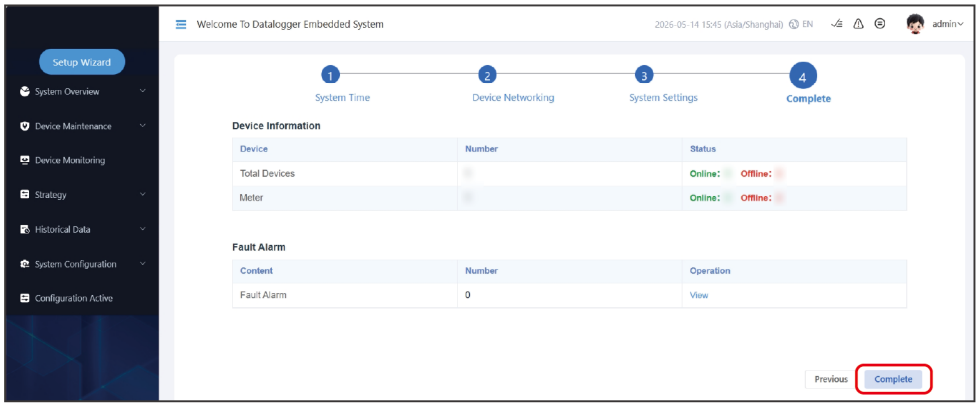
SEC30CCON0090

- Communication Exception Configuration: When device communication is abnormal, the device operates with limited power or disconnects from the grid according to the settings. For more information, please refer to the chapter 7.8.3.Setting Communication Exception Configuration(Page 119).



SEC30CCON0091

Step 3: After completing the startup configuration, you can view the number of devices in the current network, their online status, and alarms. Click "Finish" to exit the startup wizard.



SEC30CCON0086

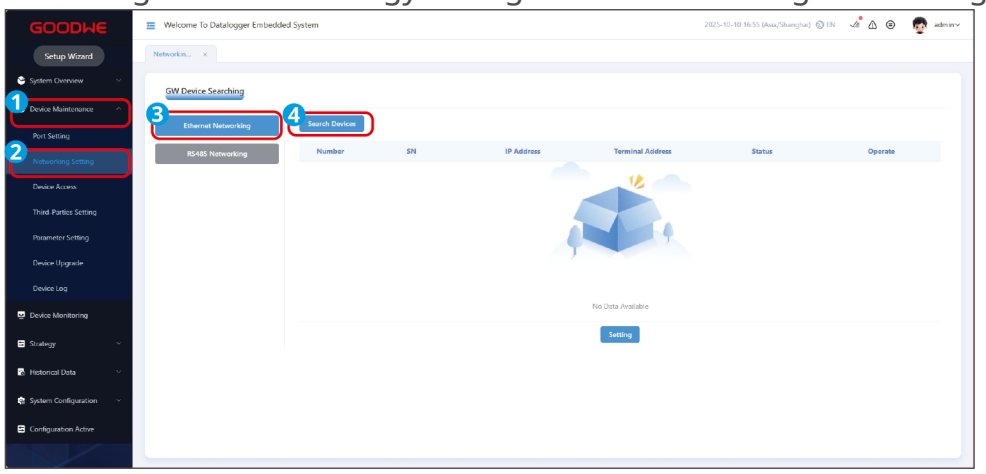
7.3 Manage Devices

7.3.1 Automatically Search and Add Devices

NOTICE

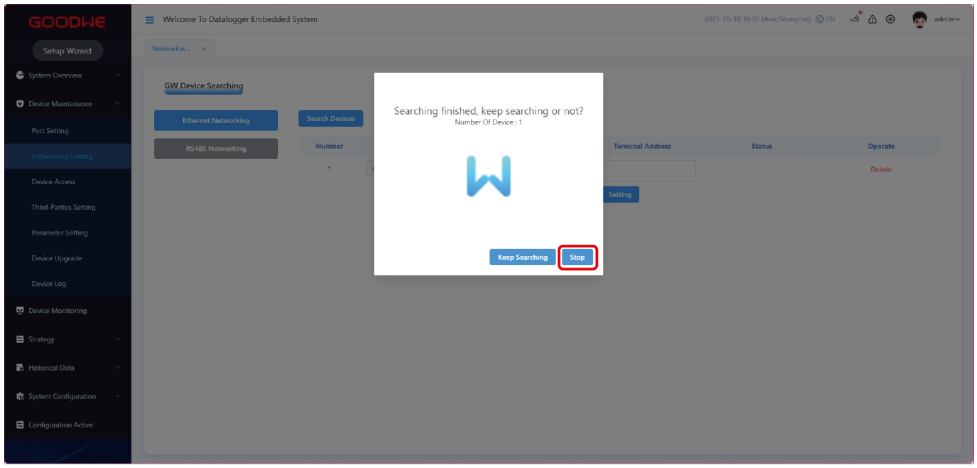
- After successful networking, if you need to add undetected devices, you can use 'Device Access' to Add Device.
- If third-party meters are used in the system, they need to be added manually and cannot be added automatically through search.

Step 1: Navigate to the device networking interface via "Device Maintenance" > "Networking Settings" > "Ethernet Networking". Click "Search for Devices" to start searching for online energy storage inverters or integrated energy storage cabinets.



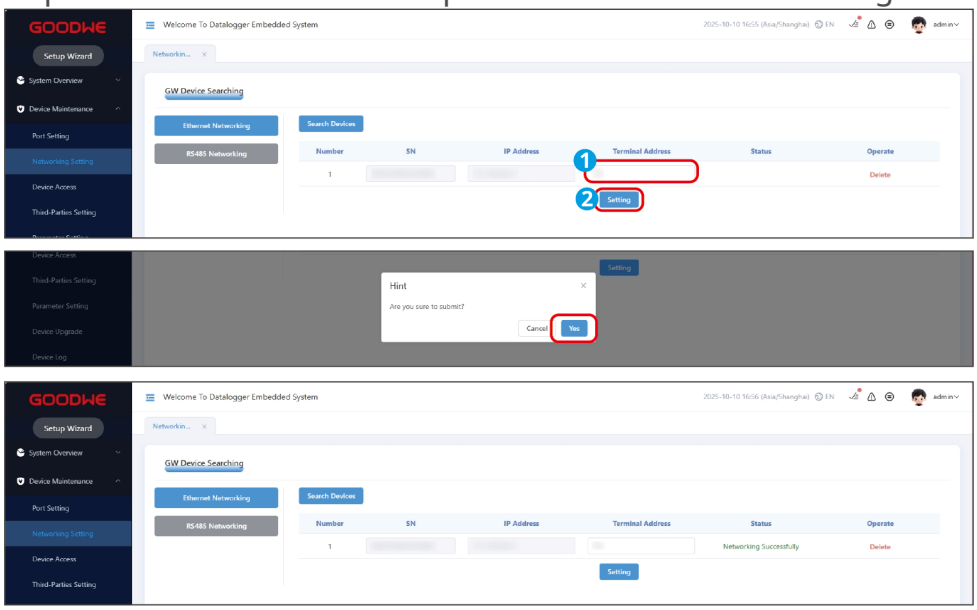
SEC30CCON0028

Step 2: Check the number of devices currently found. When the number matches the actual count, click "Stop Search".



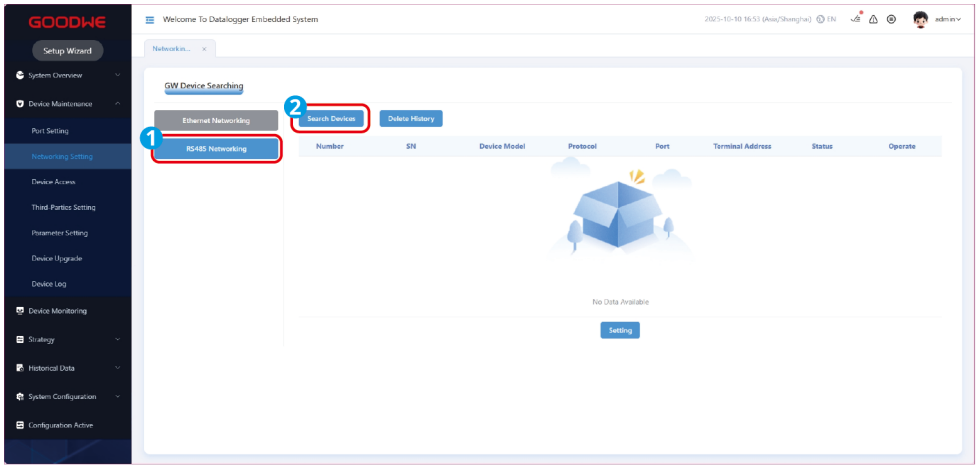
SEC30CCON0029

Step 3: After the device search is complete, return to the device networking interface. Set the device terminal address according to actual requirements. Terminal address range: 1-99. If there are multiple inverters, ensure the terminal addresses are not duplicated. Click "Set" to complete the Ethernet networking.



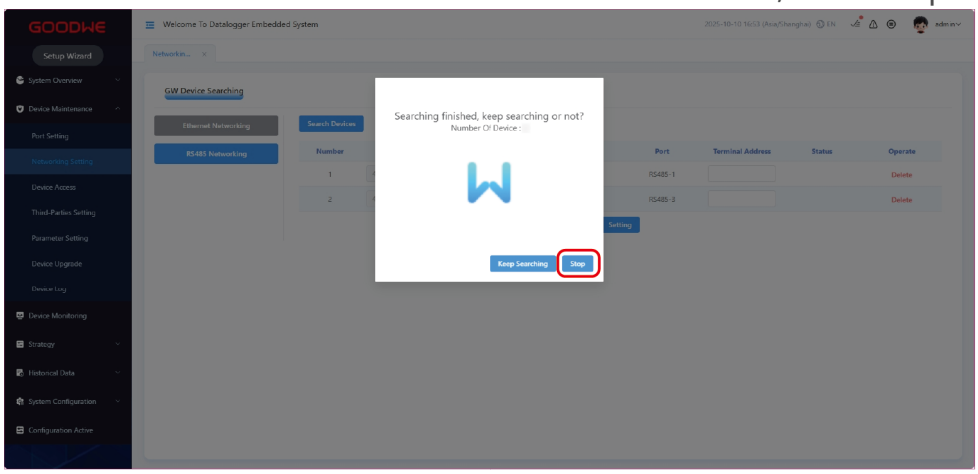
SEC30CCON0030

Step 4: Navigate to the device networking interface via "Device Maintenance" > "Networking Settings" > "RS485 Networking". Click "Search for Devices" to start searching for online grid-tied inverters and energy meters.



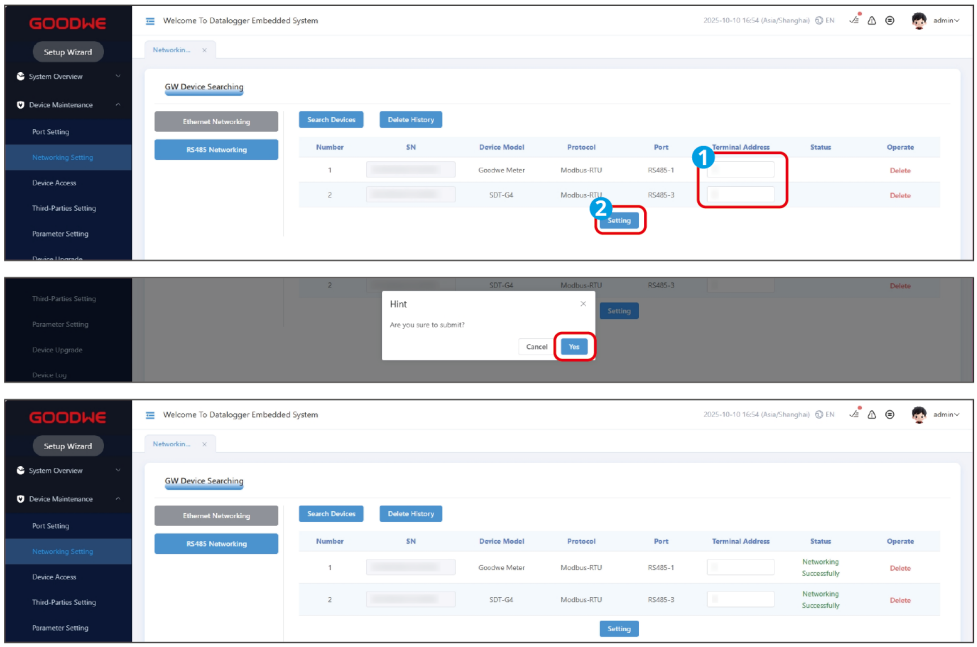
SEC30CCON0031

Step 5: Check the number of devices currently found. When the sum of the inverter count and the meter count matches the actual total, click "Stop Search".



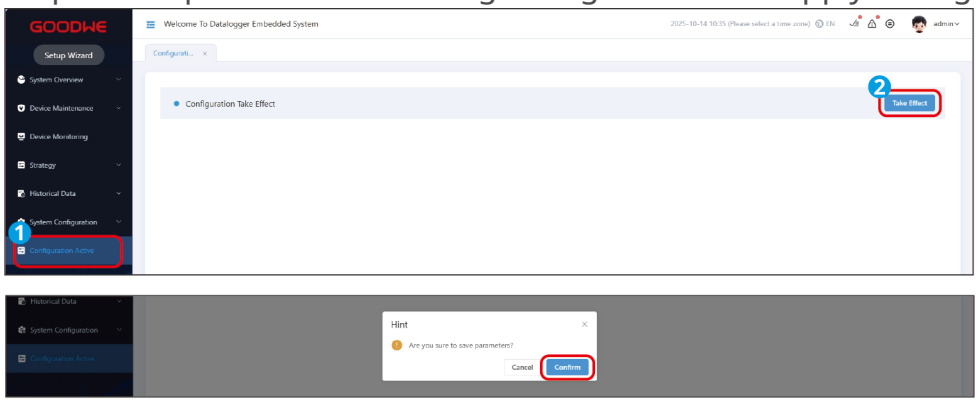
SEC30CCON0032

Step 6: After the device search is complete, return to the device networking interface. Set the terminal addresses for the inverters and energy meters according to actual requirements. Inverter address range: 1-99, Meter address range: 120-200. If there are multiple inverters, ensure the terminal addresses are not duplicated. Click "Set" to complete the RS485 networking.



SEC30CCON0033

Step 7: Complete the networking configuration via "Apply Configuration".



SEC30CCON0034

7.3.2 Manual Add Device

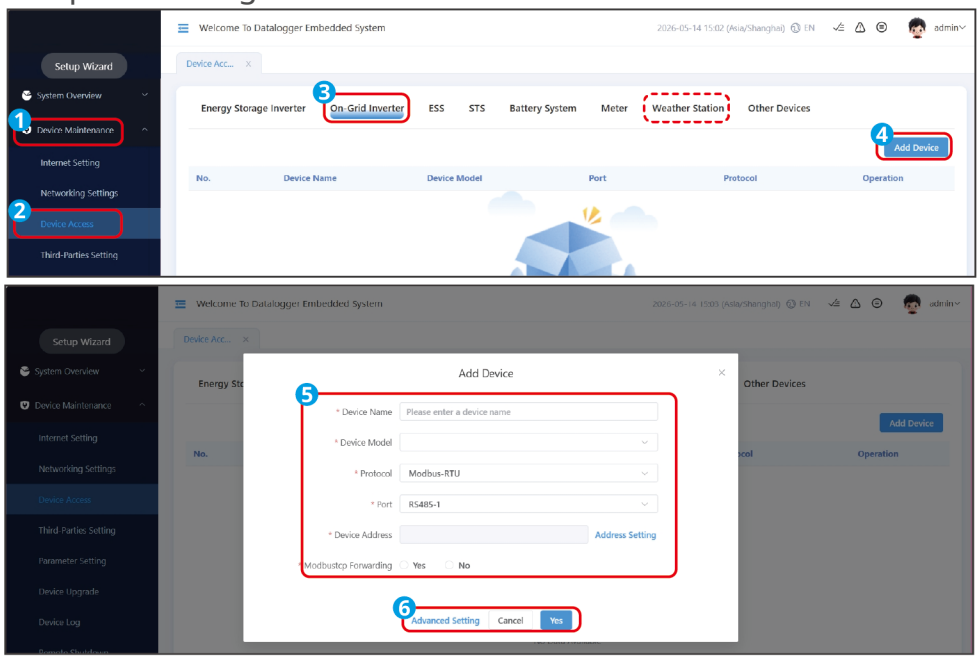
NOTICE

- After successful network setup, if you need to add a device that was not found, you can add the device via "Device Access".
- Click Edit or Delete to modify or remove the parameters of an added device.

Add grid-tied PV inverter/environmental monitor

Step1: Via “Device Maintenance”>“Device Access”>“grid-tied PV inverter/environmental monitor”>“Add Device” to enter the Add Device interface.

Step2: Set device parameters according to actual requirements. Click “Confirm” to complete adding the device.



SEC30CCON0037

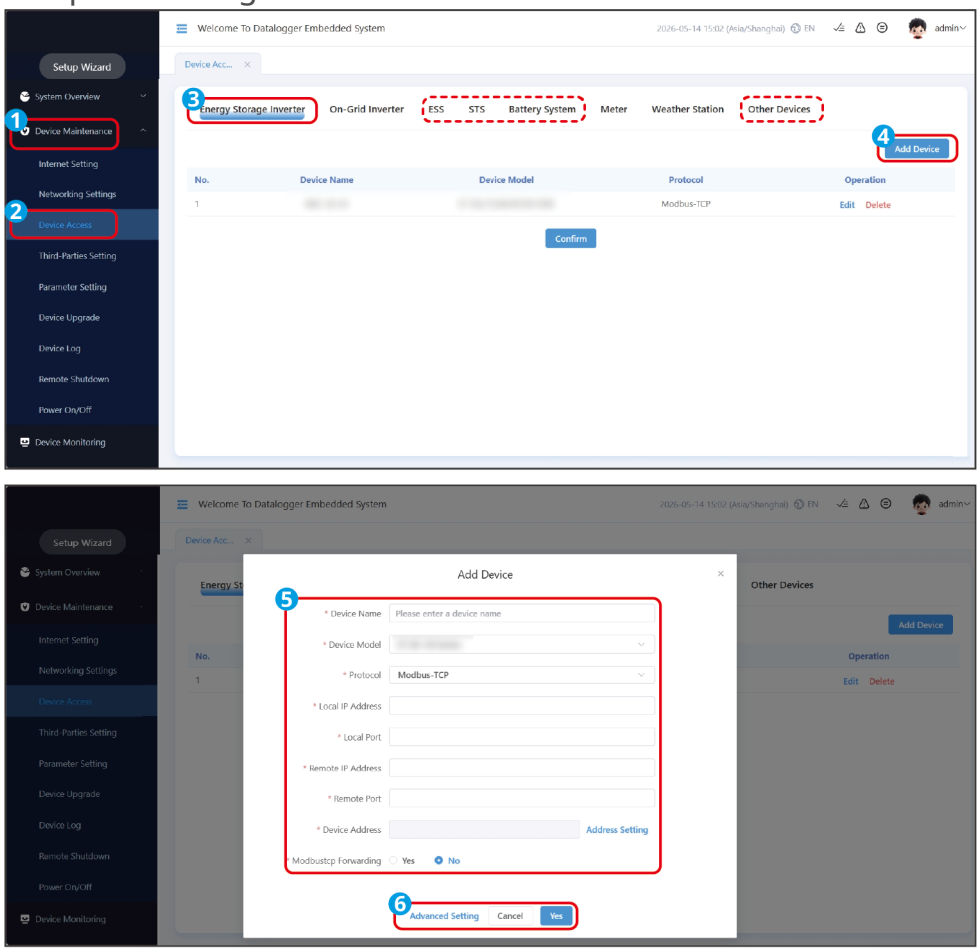
No.	Parameter Name	Description
1	Device Name	Supports custom device name, name it according to the actual situation.
2	Device Model	Select the actual connected inverter model.
3	Communication Protocol	Set according to the inverter's communication protocol. Currently supports: Modbus-RTU.
4	Communication Interface	Set according to the port where the inverter is actually connected to the control box.
5	Terminal Address	• Set the inverter terminal address according to the actual power station plan. If no need to set according to actual situation, you can choose automatic generation. • Please ensure that the addresses of different devices are not the same.

Add hybrid inverter/energy storage integrated cabinet/STS/Battery system/third-party devices

Step1: Via “Device Maintenance”>“Device Access”>“hybrid inverter”/“energy storage

integrated cabinet/STS/Battery system/third-party devices”>“Add Device” to enter the Add Device interface.

Step2: Set device parameters according to actual requirements. Click “Confirm” to complete adding the device.



SEC30CCON0036

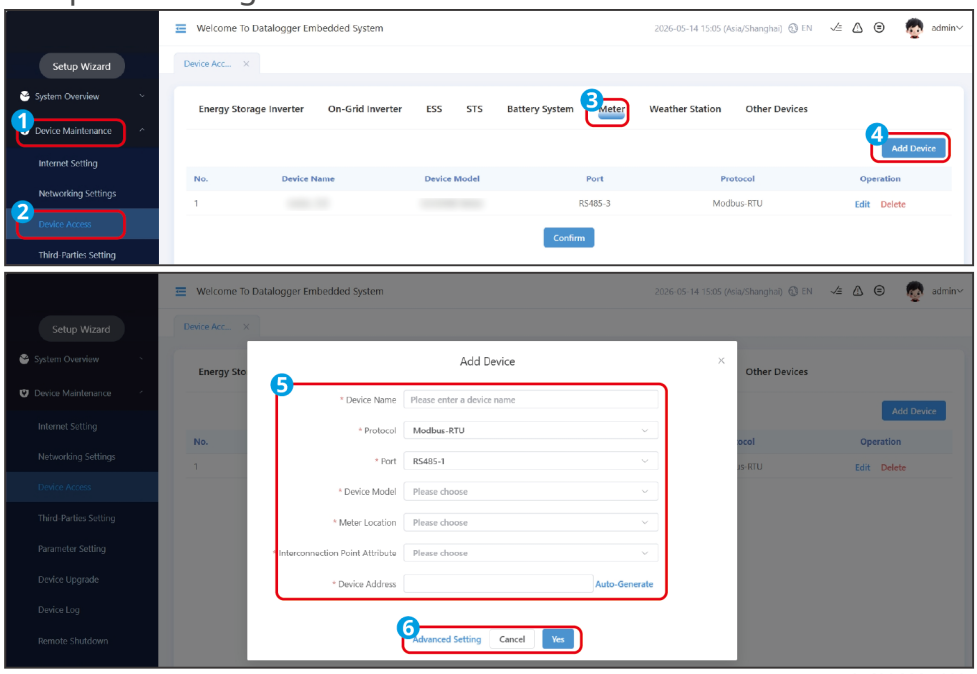
No.	Parameter Name	Description
1	Device Name	Supports custom device naming. Name it according to the actual situation.
2	Device Model	Select the actual model of the connected device.
3	Communication Protocol	Set according to the inverter's communication protocol. Currently supports: Modbus-TCP.
4	Local IP Address	Set to the IP address corresponding to the network port used to connect to other devices.
5	Local Port	Set to the port number of the control box. The default value is 0.

No.	Parameter Name	Description
6	Peer IP Address	Set to the IP address of the WiFi/LAN Kit-20 communication dongle connected to the energy storage inverter, the integrated energy storage cabinet, the STS, or the communication dongle connected to the BAT100.
7	Peer Port	Set to the port number of the other added device. The default value is 502.
8	Terminal Address	Set the inverter terminal address according to the actual power plant planning. If no specific setting is required, you can choose automatic generation.

Add Electricity Meter

Step1: Via “Device Maintenance”>“Device Access”>“Electricity Meter”>“Add Device” to enter the Add Device interface.

Step2: Set device parameters according to actual requirements. Click “Confirm” to complete adding the device.



SEC30CCON0035

No.	Parameter Name	Description
1	Device Name	Supports custom device name, name it according to the actual situation.
2	Communication Protocol	Set according to the meter's communication protocol. Currently supports: Modbus-RTU.
3	Communication Interface	Set according to the actual port where the meter is connected to the control box. Supports: RS485-1, RS485-2, RS485-3, RS485-4.
4	Device Model	Select the actual meter model in use. Supports: GoodWe meter, UGM604PRO, Acrel -DTSD1352-CT/C, Schneider -IEM3255, Janitza UMG604PRO, ITR manual, Mikro DPM680, etc.
5	Meter Purpose	Select according to the actual purpose of the meter. • Grid-side meter: The meter CT is clamped at the point of common coupling (PCC), monitoring PCC data, used for anti-reverse power flow. • Generation-side PV & Storage meter: The meter CT is clamped above the grid-tied inverter and the storage inverter, monitoring the electricity information of both. • Generation-side PV meter: The meter CT is clamped at the grid-tied inverter side, monitoring the generation data of the grid-tied inverter. • Generation-side Storage meter: The meter CT is clamped at the storage inverter side, monitoring the generation data of the storage inverter. • Third-party PV meter: Used to detect the generation data of a third-party grid-tied inverter when it is used in the system.
6	PCC Number	Select according to the transformer number to which the inverter is connected.

No.	Parameter Name	Description
7	Terminal Address	• Set the meter's terminal address according to the actual power plant plan. If no specific setting is required based on actual conditions, automatic generation can be selected. • Do not set the meter address and the inverter address to the same address.
8	Point List	Import the point list according to the actual situation.

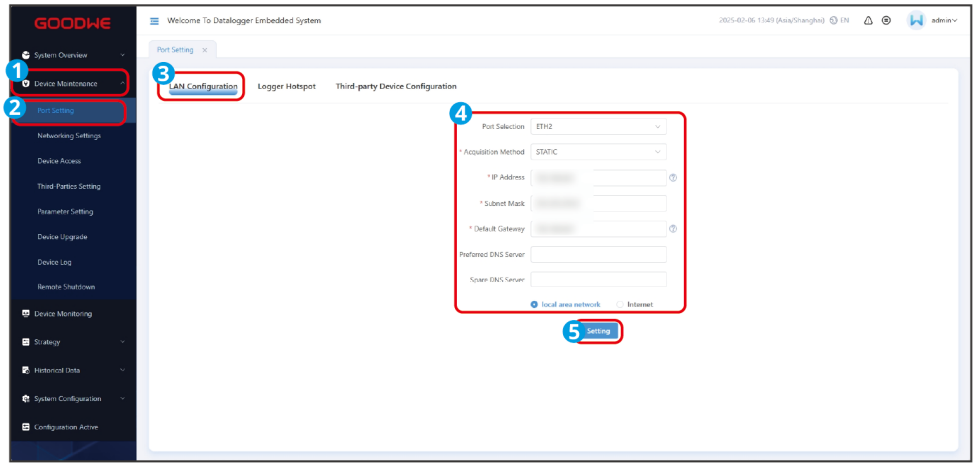
7.4 Set Port Parameters

7.4.1 Configure LAN Communication Parameters

NOTICE

- Before configuring LAN parameters, ensure the network cable is correctly connected to the control box.
- After the system network configuration is completed, the ETH1 and ETH2 ports will automatically complete LAN configuration; no additional configuration is required. In this state, the ETH1 port defaults to DHCP, and the ETH2 port defaults to STATIC.
- The switch is by default connected to the data collector's ETH2 port. Setting the ETH2 port parameters will configure the switch's network port networking parameters.

Step 1: Navigate to the parameter configuration interface via "Device Maintenance" > "Port Settings" > "LAN Configuration".
Step 2: Configure the ETH port parameters according to actual requirements.



SEC30CCON0038

No.	Parameter Name	Description
1	Port Selection	Sets the actual network port used to connect the data collector. Supported options: ETH1, ETH2.
2	Acquisition Method	• When STATIC is selected, the relevant network parameters are fixed and must be manually configured according to the actual situation. • When DHCP is selected, the IP address can be obtained automatically to complete registration.
3	IP Address	Sets the IP address of the control box. According to the power station plan, it can be set to an IP address within the same subnet as the router. If the IP address is modified, you need to log in again using the new IP address.
4	Subnet Mask	Sets the subnet mask of the control box. Configure it according to the actual mask of the router to which the device is connected.
5	Default Gateway	Sets the default gateway of the control box. Configure it according to the actual gateway of the router to which the device is connected.

No.	Parameter Name	Description
6	Primary DNS Server	Configure this in public network scenarios (e.g., connecting to GoodWe Cloud, where the Server address uses a domain name). Set it to the LAN router's IP address.
7	Secondary DNS Server	This parameter setting can generally be ignored under normal circumstances. When the primary DNS server cannot resolve the domain name, the secondary DNS server is used.
8	LAN / Internet	• Select Internet if you need to connect to the Server to transmit data to GoodWe Cloud. • Select LAN if you need to configure forwarding parameters to connect to third-party monitoring platforms, etc.

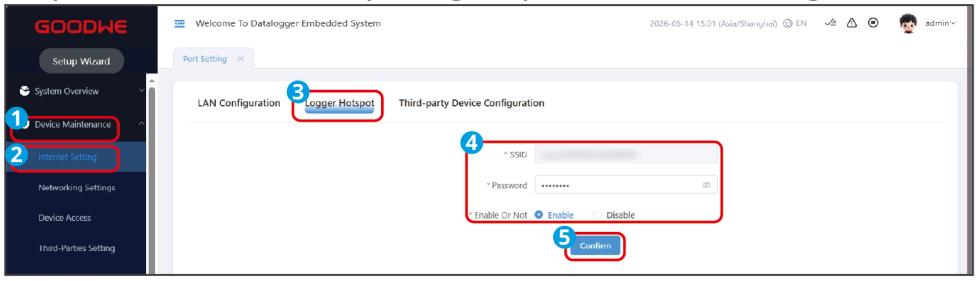
7.4.2 Setting WiFi Password

NOTICE

- The built-in data collector in the control box provides a WiFi hotspot signal for local configuration. After connecting the computer to the WiFi hotspot, you can access web debugging through a web page.
- The WiFi password can be modified. After modification, please use the new password to log in to the web again.

Step 1: Access the parameter settings interface via "Device Maintenance" > "Port Settings" > "WiFi Configuration" .

Step 2: Set the WiFi hotspot signal password according to actual requirements.



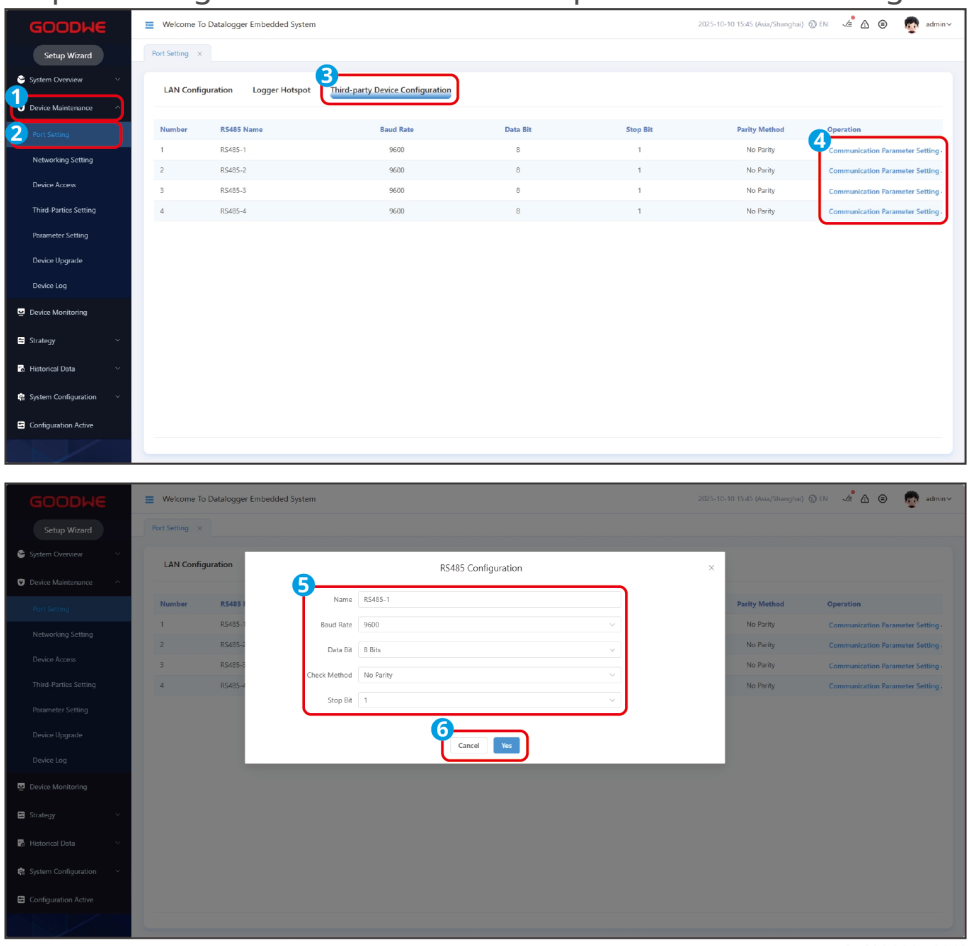
SEC30CCON0039

7.4.3 Configure RS485 Communication Parameters

NOTICE
When connecting a third-party device to the control box, it is necessary to set the RS485 parameters.

Step 1: Access the parameter configuration interface via "Device Maintenance" > "Port Settings" > "RS485 Configuration" .

Step 2: Configure the communication parameters according to actual requirements.



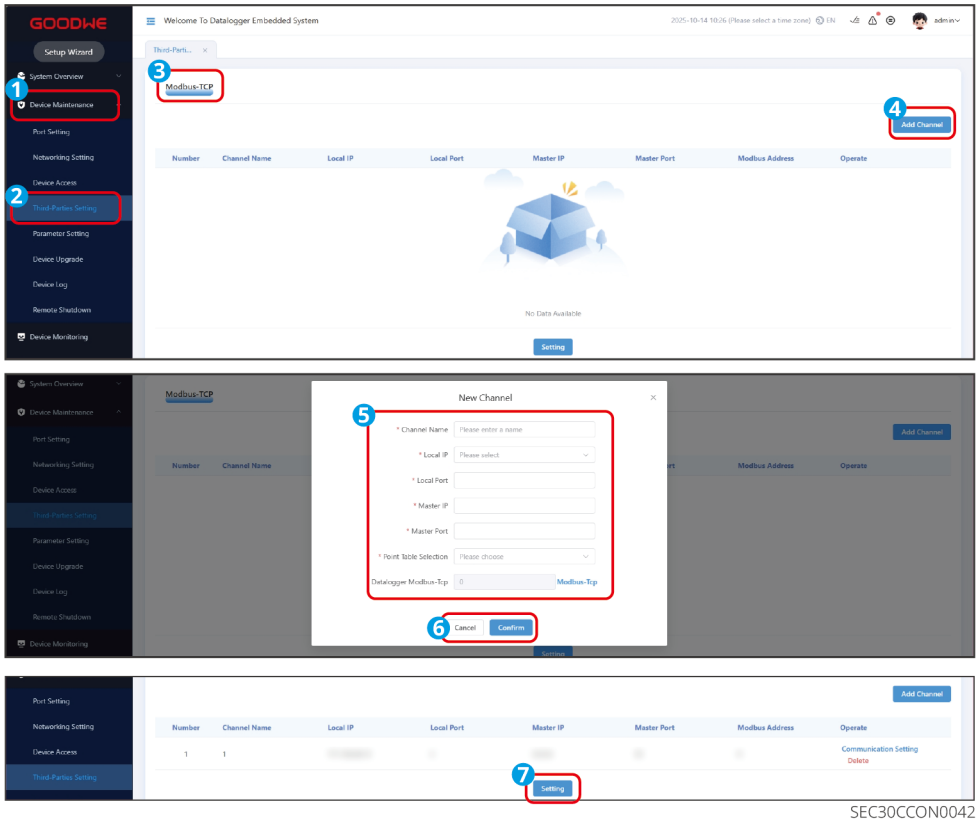
SEC30CCON0040

No.	Parameter Name	Description
1	Name	Select based on the actual RS485 port that the device is connected to.

No.	Parameter Name	Description
2	Baud Rate	Set according to the baud rate of the connected device. Currently supported: 300, 1200, 2400, 4800, 9600, 19200, 115200.
3	Data Bits	Currently supported: 7 bits, 8 bits.
4	Parity	Set according to the parity method of the connected device. Currently supported: No parity, Odd parity, Even parity, 0 parity, and 1 parity.
5	Stop Bits	Set according to the stop bits of the connected device. Currently supported: 1, 1.5, and 2.

7.5 Set Modbus-TCP Parameters

Configure forwarding parameters to transmit data collected by the control box to a third-party monitoring platform via the Modbus-TCP protocol.
Step 1: Enter the parameter setting interface via 'Device Maintenance' > 'Forwarding Settings' > 'Modbus-TCP'.
Step 2: Add Modbus-TCP channels according to actual requirements and set communication parameters.



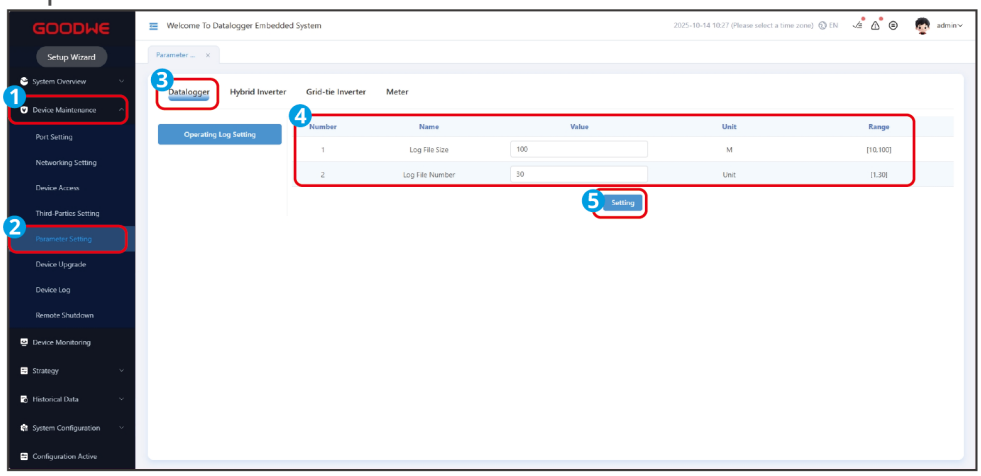
SEC30CCON0042

No.	Parameter Name	Description
1	Channel Name	Supports custom device naming. Define the device name according to the actual situation.
2	Local IP	Set to the IP address of the control box.
3	Local Port	Set to the port number of the control box. The default value is 502.
4	Master Station IP	Set to the IP address of the Modbus-TCP management system.
5	Master Station Port	Set to the port number of the Modbus-TCP management system.
6	Point Table Selection	Import the point table according to the actual situation.
7	Data Acquisition TCP Address	Set the Modbus-TCP management system address. To modify the address, please click "Modbus-Tcp".

7.6 Set Device Parameters

7.6.1 Configure Data Collector Parameters

Step 1: Navigate to the parameter configuration interface via "Device Maintenance" > "Parameter Settings" > "Data Collector".
Step 2: Set the "Log File Size" and "Log File Count" according to your actual requirements.



SEC30CCON0043

No.	Parameter Name	Description
1	Log File Size	Set the size and quantity of log files to be stored based on actual needs.
2	Log File Quantity	

7.6.2 Set Energy Storage Inverter Parameters

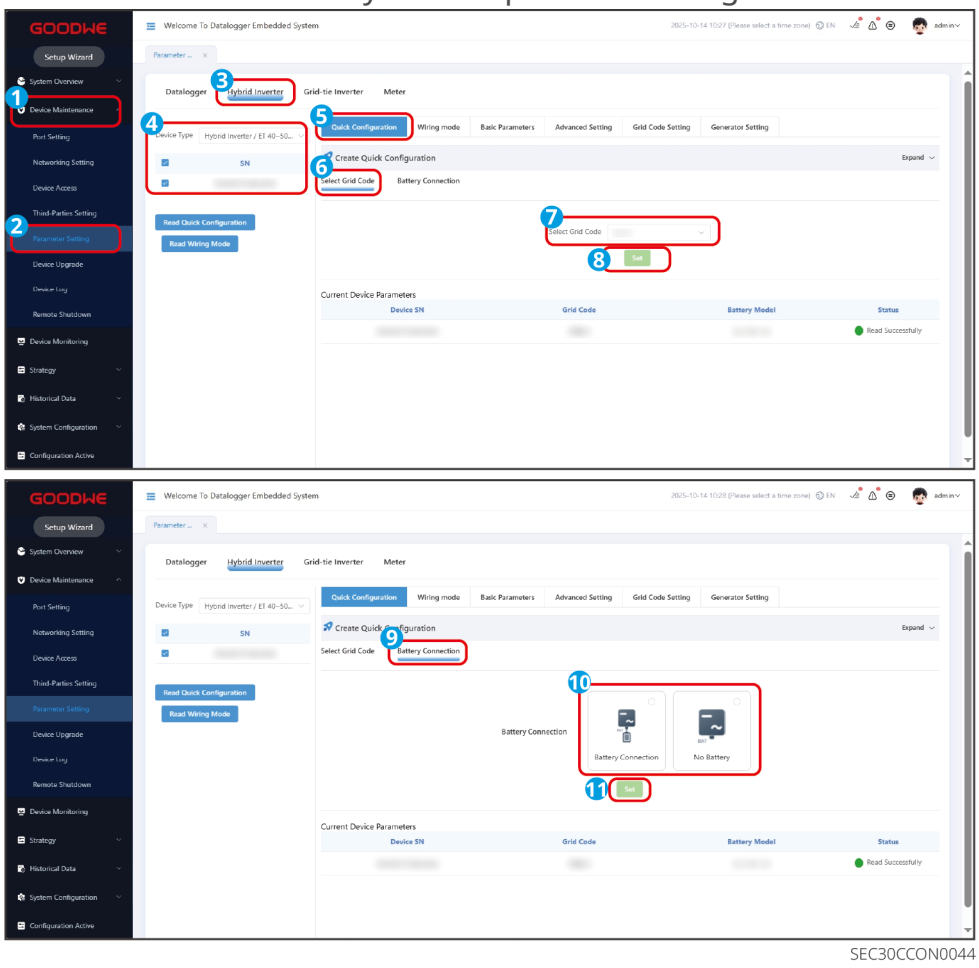
NOTICE
Compatible with ET40-50kW series inverters.

7.6.2.1 Quick Configuration of Hybrid Inverter

Step 1: Enter the parameter setting interface through "Device Maintenance" > "Parameter Settings" > "Hybrid Inverter ".
Step 2: Select the device type and check the inverter SN that needs to be viewed or

set.

Step 3: Under the Quick Configuration tab, click "Create Quick Configuration", select safety regulations and set the battery model according to actual requirements, then click "Parameter Delivery" to complete the configuration.



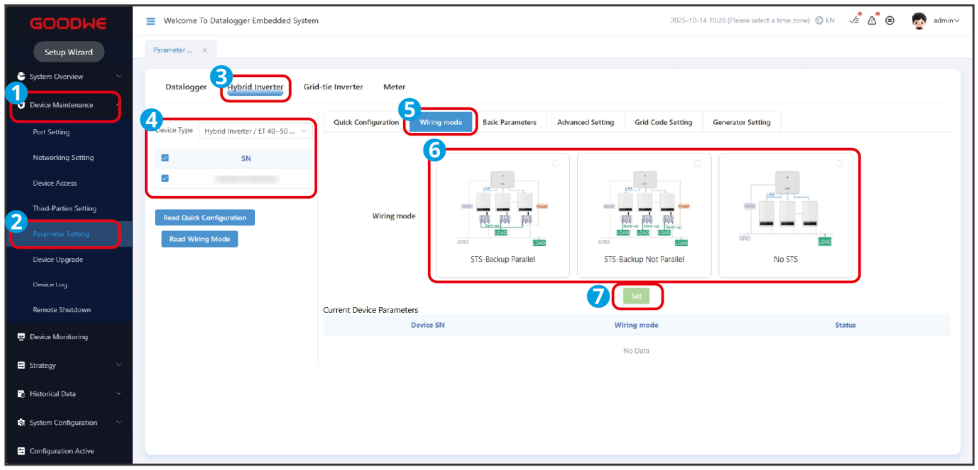
SEC30CCON0044

No.	Parameter Name	Description
1	Safety Regulation Selection	Select the corresponding safety regulation code based on the country or region where the device is located.
2	Battery Connection	Select the actual mode of battery connection to the inverter. If there is no battery connected in the system, there is no need to configure the battery model and working mode; the device will run in self-consumption mode by default.

7.6.2.2 Set hybrid inverter wiring mode

Step 1: Via “Device Maintenance” > “Parameter Settings” > “hybrid inverter” to enter the parameter settings interface.
Step 2: Select the device type, and check the inverter SN that needs to be viewed or set.
Step 3: Click “Wiring Mode”, select the mode according to actual needs, and click “Parameter Dispatch” to complete the configuration.

NOTICE
Applies only to the ET40-50kW series inverters. This parameter must be set when multiple inverters are connected in parallel.



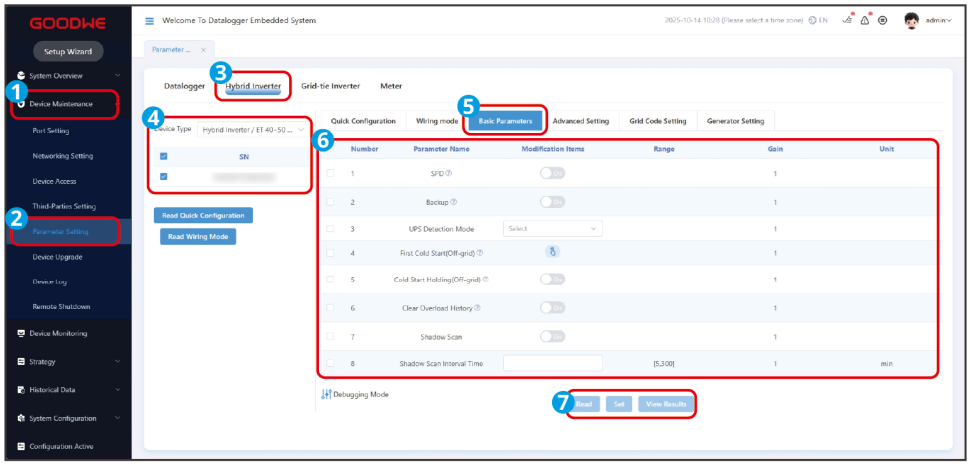
SEC30CCON0045

No.	Parameter Name	Description
1	Data Acquisition Parallel Connection Backup Parallel	Select Data Acquisition Parallel Connection Backup Parallel when the energy storage inverters form a system with both grid-connected and off-grid parallel connection.
2	Data Acquisition Parallel Connection Backup Non-Parallel	Select Data Acquisition Parallel Connection Backup Non-Parallel when the energy storage inverters form a system with grid-connected parallel connection but off-grid non-parallel connection.

No.	Parameter Name	Description
3	Data Acquisition Parallel Connection Without STS	Select Data Acquisition Parallel Connection Without STS when the energy storage inverter is not connected to an STS.

7.6.2.3 Set Hybrid Inverter Basic Parameters

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Parameter Settings" > "Hybrid Inverter".
Step 2: Select the device type and check the inverter SN you need to view or set.
Step 3: Check the parameters you need to view or set, then click Query to view their current values. To modify, enter the "Modification Item" and click "Modify", then click "View Result" to check if the modification was successful.



SEC30CCON0046

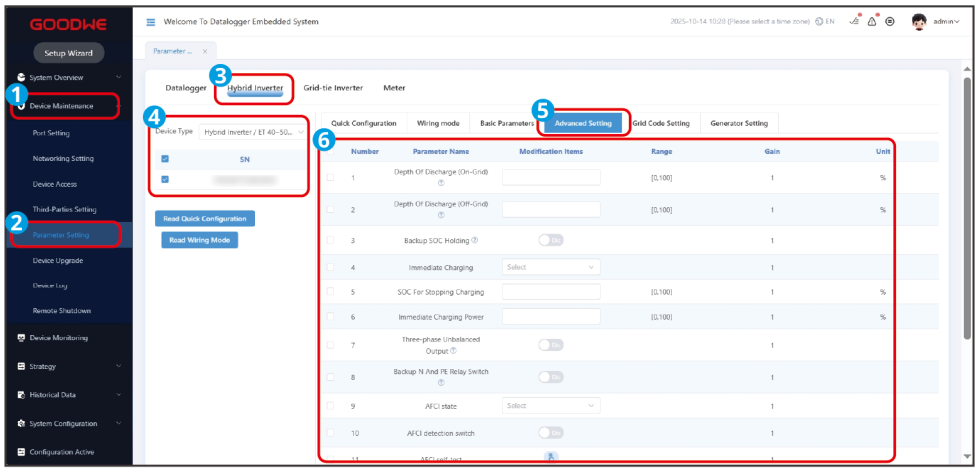
No.	Parameter Name	Description
1	SPD Alarm	After enabling the SPD secondary lightning protection alarm function, an alarm will prompt for an abnormality when the lightning protection module malfunctions.
2	Backup Power	After setting the backup power function, when the grid power fails, the load connected to the inverter's BACKUP port can be powered by the battery, ensuring uninterrupted power supply to the load.

No.	Parameter Name	Description
3	UPS Detection Mode	• UPS Mode - Full Wave Detection: Detects whether the grid voltage is too high or too low. • UPS Mode - Half Wave Detection: Detects whether the grid voltage is too low. • EPS Mode - Supports Low Voltage Ride-Through: Disables the grid voltage detection function.
4	Off-Grid First Cold Start	Effective only once. After enabling this function, the battery or PV can be used to output backup power in off-grid mode.
5	Off-grid Cold Start Holding	Effective multiple times. After enabling this function, the battery or PV can be used to output backup power in off-grid mode.
6	Clear Overload Fault	When the load power connected to the inverter's BACK-UP port exceeds the rated load power, the inverter will restart and detect the load power again. If not handled promptly, the inverter will restart multiple times for load detection, with the interval between each restart continuously increasing. After the load power at the BACK-UP port is reduced to within the rated power range, you can click this switch to clear the inverter restart interval, and the inverter will restart immediately.
7	shadow scan	When the PV panels are severely shaded, enabling the shadow scan function can optimize the inverter's power generation efficiency. After enabling, you can set the shadow scan interval time according to actual needs.

7.6.2.4 Set hybrid inverter advanced parameters

Step 1: Via 'Device Maintenance' > 'Parameter Settings' > 'Hybrid Inverter' enter the parameter settings interface.
Step 2: Select the device type, and check the inverter SN that needs to be viewed or set.

Step 3: Check the parameters that need to be viewed or set, click 'Query' to query the current value of the selected parameters. If modification is needed, enter the 'Modification Item' then click 'Modify', and click 'View Result' to check if the modification was successful.



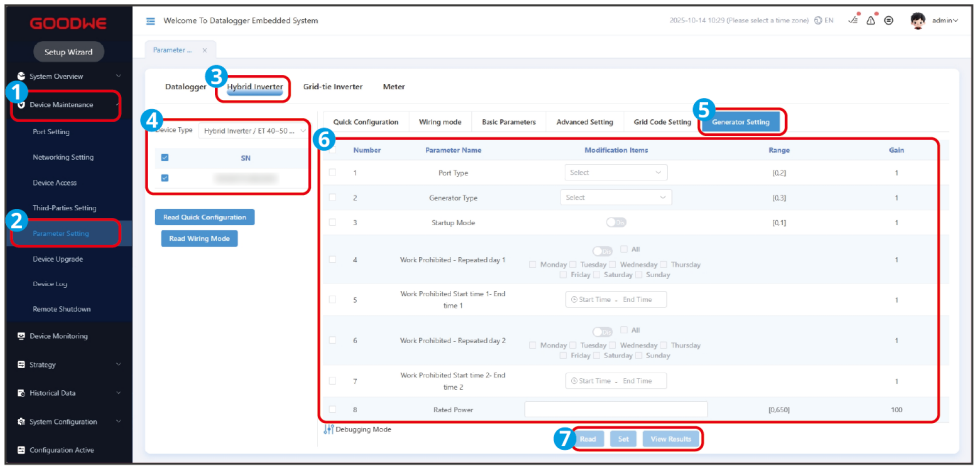
SEC30CCON0047

No.	Parameter Name	Description
1	Three-phase Unbalanced Output	This function needs to be enabled when the grid uses separate phase billing.
2	Backup Port N and PE Relay Switch	According to the grid standards of certain countries or regions, it is required to ensure the internal relay of the back-up port remains closed during off-grid operation, thereby connecting the N and PE lines.
3	Grid-connected Discharge Depth	

7.6.2.5 Set Generator Parameters

Step 1: Through 'Device Maintenance' > 'Parameter Settings' > 'hybrid inverter' to enter the parameter setting interface.
Step 2: Select the device type, and check the inverter SN that needs to be viewed or set.
Step 3: Check the parameters that need to be viewed or set, click Query to query the

current value of the selected parameters. If modification is needed, enter the 'modification item' and click 'Modify', then click 'View Result' to see if the modification was successful.



SEC30CCON0048

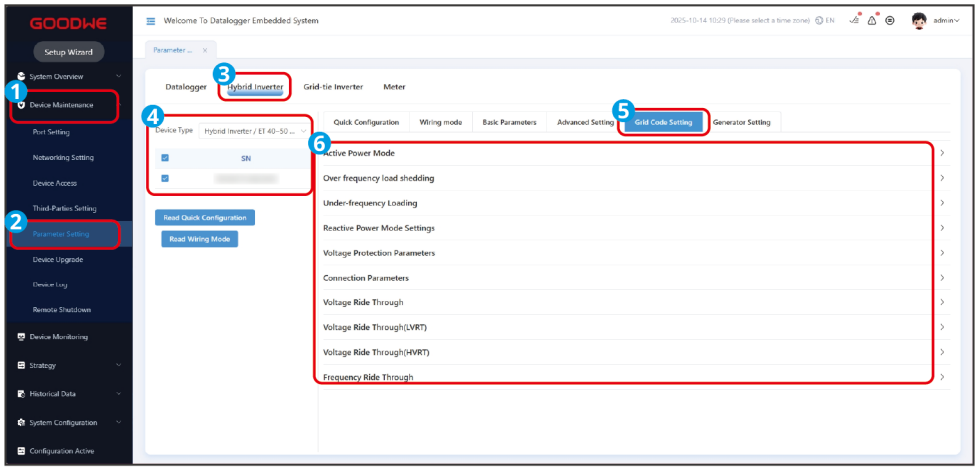
No.	Parameter Name	Description
1	Port Type	• Diesel Generator Connection: The inverter is connected to a diesel generator to control its start and stop. • Load Connection: The inverter is connected to a regular load to control its start and stop.
2	Diesel Generator Start-Up Method	• Automatic Generator Control (Supports Dry Node Connection): Automatically controls generator start/stop based on settings. • Manual Generator Control (Does Not Support Dry Node Connection): Requires manual control of generator start/stop; the inverter cannot control it. • Generator Not Installed: Select this when no generator is connected to the system.
3	Diesel Generator Dry Node Switch	When the switch status is ON, the generator operates; the generator can automatically stop after running for the set duration.

No.	Parameter Name	Description
4	Prohibit Weekday Repetition	Set the dates when generator operation is prohibited.
5	Prohibit Operation Start Time - Prohibit Operation End Time	Set the time period when generator operation is prohibited.
6	Rated Power	Set the rated power for generator operation.
7	Run Time	The continuous operation duration after the generator starts. The generator stops when this time is reached. If the generator's run time includes a prohibited operation period, the generator stops during that period; after the prohibited time ends, the generator restarts operation and the timer resets.
8	Voltage Upper Limit	Set the voltage range for generator operation.
9	Voltage Lower Limit	
10	Frequency Upper Limit	Set the frequency range for generator operation.
11	Frequency Lower Limit	
12	Warm-Up Time	Set the no-load warm-up time for the generator.
13	Max. Charging Power	The charging power when the generator charges the battery.

7.6.2.6 Setting Custom Safety Parameters for Energy Storage Inverters

NOTICE

- The safety parameters must be set according to the requirements of the grid company. Any changes require approval from the grid company.
- For more explanations on safety parameters, please refer to the 10.1.Customize Safety Parameters(Page 137) chapter.

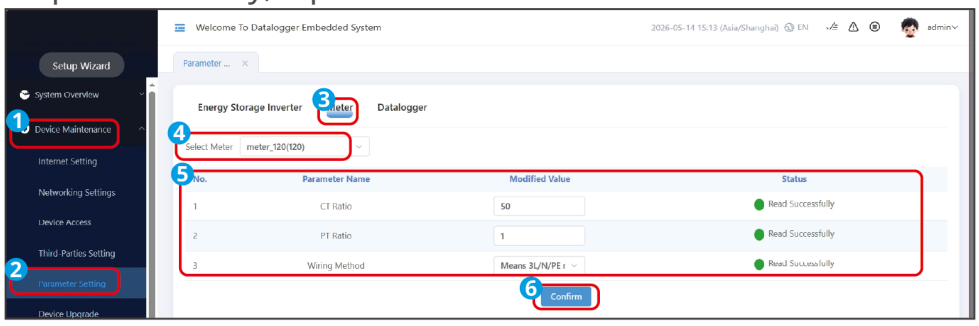


SEC30CCON0049

7.6.3 Set Electricity Meter Parameters

Step 1: Navigate to the parameter settings interface via "Device Maintenance" > "Parameter Settings" > "Electricity Meter" .

Step 2: To modify, input the "Modified Value" and click "Set".



SEC30CCON0050

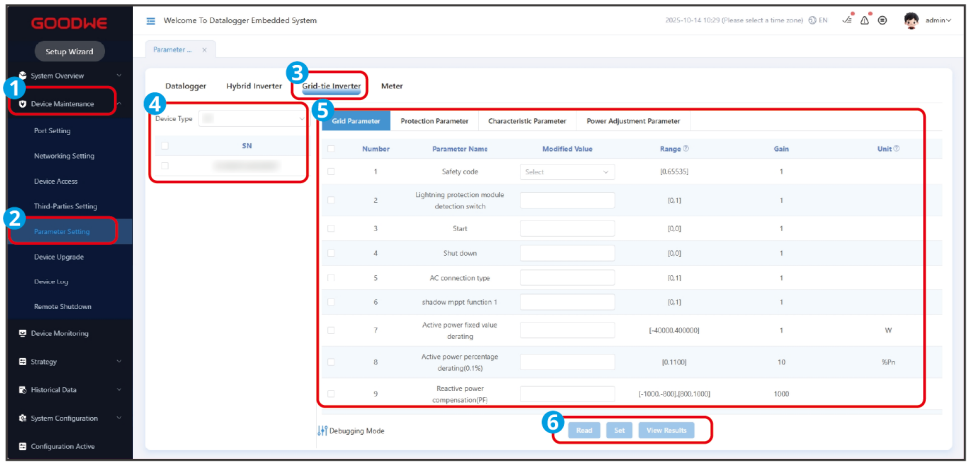
No.	Parameter Name	Description
1	CT ratio	Set the ratio of primary side current to secondary side current for the CT.
2	PT ratio	Set the ratio of primary voltage to secondary voltage for the PT.
3	Wiring mode	Set the meter's connection method according to the actual situation.

7.6.4 Set Grid-tied PV Inverter Parameters

NOTICE

- Different inverter models require different parameters to be set. Please refer to the actual interface.
- When you need to enable or disable a function, please enter 0 or 1. 0 represents disabling a function, and 1 represents enabling a function.

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Parameter Settings" > "Grid-tied PV Inverter".
Step 2: Select the device type and check the inverter SN you need to view or set.
Step 3: Check the parameters you need to view or set, then click "Query" to view their current values. To modify, enter the "Modified Value", click "Modify", and then click "View Result" to check if the modification was successful.



SEC30CCON0051

Grid Parameters

No.	Parameter Name	Description
1	safety code	Set according to the grid standard of the country/region where the inverter is located and the application scenario of the inverter.
2	Lightning Protection Module Detection Switch	Enable or disable the lightning protection module detection function.
3	Startup	Issue a startup command.
4	Shutdown	Issue a shutdown command.
5	AC	
5	AC Wiring Method	• Set whether the inverter output includes a neutral (N) line based on the inverter's application scenario. • 0 represents three-phase four-wire system (3W/PE), 1 represents three-phase five-wire system (3W/N/PE).
6	Shadow MPPT Function Switch	When the inverter is used in scenarios where PV strings have significant shading, enabling this function will cause the inverter to perform a global MPPT scan periodically to find the maximum power point.
7	Active Power Fixed Value Derating	Adjust the inverter's active power output according to a fixed value.
8	Active Power Percentage Derating	Adjust the inverter's active power output as a percentage of the rated power.

No.	Parameter Name	Description
9	Reactive Power Compensation (PF)	Set the power factor of the inverter.
10	Reactive Power Compensation (Q/S)	Set the reactive power output of the inverter.
11	Reactive Power Compensation Fixed Value	Adjust the inverter's reactive power output according to a fixed value.
12	Nighttime Reactive Power Enable	Enable or disable the nighttime reactive power function. In certain specific application scenarios, grid companies may require the inverter to perform reactive power compensation at night to ensure the local grid's power factor meets requirements.
13	Nighttime Reactive Parameter Activation	When this setting is enabled, the inverter outputs reactive power according to the value set for Nighttime Reactive Power Dispatch Compensation Fixed Value; otherwise, the inverter executes according to remote dispatch commands.
14	Nighttime Reactive Power Dispatch Percentage	During nighttime reactive power compensation, dispatch reactive power in percentage form.
15	Nighttime Reactive Power Dispatch	During nighttime reactive power compensation, dispatch reactive power in fixed value form.

Characteristic Parameters

No.	Parameter Name	Description
1	Europe One-Key Shutdown Enable	Enable or disable the Europe one-key shutdown function.
2	PID Prevention Function Enable	Enable or disable the PID prevention function.
3	PID Repair Function Switch	Enable or disable the PID repair function.
4	Anti-backflow Switch	Enable or disable the anti-backflow function.
5	Single Unit Anti-backflow Uplink Power Percentage	Set the backflow uplink power as a percentage.
6	Three-Phase Anti-backflow Mode Selection	Set the anti-backflow mode. 0 indicates total three-phase power cannot backflow; 1 indicates any single phase cannot backflow.
7	External Meter CT Ratio	Set the meter CT ratio.
8	ISO Threshold	To protect device safety, the inverter checks the insulation impedance from the input side to ground during startup self-test. If the detected value is lower than the "ISO Threshold", the inverter will not connect to the grid.
9	N-PE Voltage Overvoltage Fault Detection Switch	Enable or disable N-PE voltage overvoltage fault detection.
10	N-PE Error Threshold	N-PE voltage overvoltage fault threshold.

No.	Parameter Name	Description
11	Active Power Dispatch Response Mode	• Set the active power dispatch response mode. Supported: Slope mode or first-order low-pass filter mode. • 0: Not enabled; 1 represents slope mode; 2 represents first-order low-pass time constant; 3 represents first-order low-pass response time.
12	Active Power Change Gradient	Set the inverter's active power change rate.
13	Active Power Dispatch Low-Pass Filter Time Parameter	Set the active power dispatch low-pass filter time parameter.
14	Reactive Power Dispatch Response Mode	• Set the reactive power dispatch response mode. Supported: Slope mode or first-order low-pass filter mode. • 0: Not enabled; 1 represents slope mode; 2 represents first-order low-pass time constant; 3 represents first-order low-pass response time.
15	Reactive Power Change Gradient	Set the inverter's reactive power change rate.
16	Reactive Power Dispatch Low-Pass Filter Time Parameter	Set the reactive power dispatch low-pass filter time parameter.

Protection Parameters

No.	Parameter Name	Description
1	Over-voltage Trigger n-stage Value	Sets the n-level over-voltage protection point for the grid. n=1,2.
2	Over-voltage Trigger n-stage Trip Time	Sets the n-level over-voltage protection time for the grid. n=1,2.
3	Under-voltage Trigger n-stage Value	Sets the n-level under-voltage protection point for the grid. n=1,2.
4	Under-voltage Trigger n-stage Trip Time	Sets the n-level under-voltage protection time for the grid. n=1,2.
5	Phase Voltage n-level Over-voltage Protection Value	Sets the n-level over-voltage protection point for the grid. n=3,4.
6	Phase Voltage n-level Over-voltage Protection Time	Sets the n-level over-voltage protection time for the grid. n=3,4.
7	10min Over-voltage Trigger Value	Sets the 10-minute over-voltage protection point.
8	10min Over-voltage Trip Time	Sets the 10-minute over-voltage protection time.
9	Over-frequency Trigger n-stage Value	Sets the n-level over-frequency protection point for the grid. n=1,2.
10	Over-frequency Trigger n-stage Trip Time	Sets the n-level over-frequency protection time for the grid. n=1,2.
11	Under-frequency Trigger n-stage Value	Sets the n-level under-frequency protection point for the grid. n=1,2.
12	Under-frequency Trigger n-stage Trip Time	Sets the n-level under-frequency protection time for the grid. n=1,2.
13	n-level Over-frequency Protection Value	Sets the n-level over-frequency protection point for the grid. n=3,4.
14	n-level Over-frequency Protection Time	Sets the n-level over-frequency protection time for the grid. n=3,4.

No.	Parameter Name	Description
15	n-level Under-frequency Protection Value	Sets the n-level under-frequency protection point for the grid. n=3,4.
16	n-level Under-frequency Protection Time	Sets the n-level under-frequency protection time for the grid. n=3,4.
17	Start-up Grid Connection Voltage Upper Limit	Standards in some countries/regions require that when the device starts up and connects to the grid for the first time, grid connection is not allowed if the grid voltage is higher than the set value of this upper limit.
18	Start-up Grid Connection Voltage Lower Limit	Standards in some countries/regions require that when the device starts up and connects to the grid for the first time, grid connection is not allowed if the grid voltage is lower than the set value of this lower limit.
19	Start-up Grid Connection Frequency Upper Limit	Standards in some countries/regions require that when the device starts up and connects to the grid for the first time, grid connection is not allowed if the grid frequency is higher than the set value of this upper limit.
Start-up Grid Connection Frequency Lower Limit	Standards in some countries/regions require that when the device starts up and connects to the grid for the first time, grid connection is not allowed if the grid frequency is lower than the set value of this lower limit.	
21	Start-up Grid Connection Waiting Time	Sets the waiting time for device startup during the first power-on grid connection.

No.	Parameter Name	Description
22	Start-up Grid Connection Power Ramp Rate	Sets the power ramp rate for the gradual increase in power output during the first startup and grid connection.
23	Reconnection Grid Voltage Upper Limit	Standards in some countries/regions require that after an inverter fault protection shutdown, the inverter is not allowed to reconnect to the grid if the grid voltage is higher than the set value of this upper limit.
24	Reconnection Grid Voltage Lower Limit	Standards in some countries/regions require that after an inverter fault protection shutdown, the inverter is not allowed to reconnect to the grid if the grid voltage is lower than the set value of this lower limit.
25	Reconnection Grid Frequency Upper Limit	Standards in some countries/regions require that after an inverter fault protection shutdown, the inverter is not allowed to reconnect to the grid if the grid voltage is higher than the set value of this frequency upper limit.
26	Reconnection Grid Frequency Lower Limit	Standards in some countries/regions require that after an inverter fault protection shutdown, the inverter is not allowed to reconnect to the grid if the grid frequency is lower than the set value of this lower limit.
27	Reconnection Grid Waiting Time	The time interval for the inverter to reconnect to the grid after the grid voltage and frequency return to normal.

No.	Parameter Name	Description
28	Reconnection Grid Power Ramp Rate	According to standards in some countries or regions, this sets the percentage increase in power output per minute when the inverter reconnects to the grid (non-first connection). For example: Setting it to 10 means the reconnection ramp slope is: 10% of P/Srated per second.
29	LVRT Enable	Low Voltage Ride Through (LVRT). When a short-term low voltage occurs due to grid abnormality, the inverter must not disconnect from the grid immediately and needs to support it for a period of time. Enabling this function activates the inverter's LVRT function.
30	LVRT Depth n	Sets the voltage percentage for characteristic point n of the LVRT curve. n=1,2,3,4,5,6,7.
31	LVRT Hold Time n	Sets the duration for characteristic point n of the LVRT curve. n=1,2,3,4,5,6,7.
32	LVRT Entry Judgment Threshold	Sets the threshold for triggering Low Voltage Ride Through. The threshold setting must comply with local grid standard requirements.
33	LVRT Exit Judgment Threshold	Sets the threshold for exiting Low Voltage Ride Through. The threshold setting must comply with local grid standard requirements.

No.	Parameter Name	Description
34	LVRT Positive Sequence Reactive Power K Value	During the LVRT process, the inverter needs to inject positive sequence reactive power to support the grid. This parameter sets the magnitude of the positive sequence reactive power injected by the inverter.
35	LVRT Zero Current Mode Enable	Some national/regional standards have requirements for output current during the LVRT process. This parameter needs to be enabled. Once set, the output current during LVRT will be less than 10% of the rated current.
36	LVRT Zero Current Mode Entry Voltage Threshold	After enabling LVRT Zero Current Mode, during the LVRT process, if the grid voltage is below this entry voltage threshold, the zero current mode is executed.
37	HVRT Enable	High Voltage Ride Through (HVRT). When a short-term high voltage occurs due to grid abnormality, the device must not disconnect from the grid immediately and needs to support it for a period of time. Enabling this function activates the inverter's HVRT function.
38	HVRT Depth n	Sets the voltage percentage for characteristic point n of the HVRT curve. n=1,2,3,4,5,6,7.
39	HVRT Hold Time n	Sets the duration for characteristic point n of the HVRT curve. n=1,2,3,4,5,6,7.

No.	Parameter Name	Description
40	HVRT Entry Judgment Threshold	Sets the threshold for triggering High Voltage Ride Through. The threshold setting must comply with local grid standard requirements.
41	HVRT Exit Judgment Threshold	Sets the threshold for exiting High Voltage Ride Through. The threshold setting must comply with local grid standard requirements.
42	HVRT Positive Sequence Reactive Power K Value	During the HVRT process, the device needs to inject positive sequence reactive power to support the grid. This parameter sets the magnitude of the positive sequence reactive power injected by the device.
43	HVRT Zero Current Mode Enable	Some national/regional standards have requirements for output current during the HVRT process. This parameter needs to be enabled. Once set, the output current during HVRT will be less than 10% of the rated current.
44	HVRT Zero Current Mode Entry Voltage Threshold	After enabling HVRT Zero Current Mode, during the HVRT process, if the grid voltage is above this entry voltage threshold, the zero current mode is executed.
45	Current Distribution Mode	• Sets the distribution mode for reactive current and active current. • 0 represents reactive priority; 1 represents active priority; 2 represents constant current mode.

No.	Parameter Name	Description
Ride-Through End Active Recovery Mode	• During fault ride-through recovery, the active current recovery mode. Supports slope recovery, first-order low-pass filter recovery, no requirement, and other modes. • 0 represents off; 1 represents slope response; 2 represents time constant; 3 represents response time.	
47	Ride-Through End Active Recovery Rate	During fault ride-through recovery, the speed at which the active current recovers to the pre-fault ride-through active current level.
48	Ride-Through End Active Recovery First-Order Low-Pass Filter	After fault ride-through ends, the active current recovers with a first-order low-pass filter characteristic response.
49	Ride-Through End Reactive Recovery Mode	• After fault ride-through ends, the recovery method for reactive current. Supports slope recovery, first-order low-pass filter recovery, no requirement, and other modes. • 0 represents off; 1 represents slope response; 2 represents time constant; 3 represents response time.
50	Ride-Through End Reactive Recovery Rate	After fault ride-through ends, the reactive current recovers according to the slope value.

No.	Parameter Name	Description
51	Ride-Through End Reactive Recovery First-Order Low-Pass Filter	After fault ride-through ends, the reactive current recovers with a first-order low-pass filter characteristic response.
52	Frequency Ride-Through Enable Bit	When Frequency Ride-Through is enabled, the inverter can continue to generate power for the required duration during grid frequency abnormalities.
53	n-stage Under-frequency Ride-Through Frequency Point_UFn	Triggers the under-frequency ride-through frequency point.
54	n-stage Under-frequency Ride-Through Time_UTn	
55	n-stage Over-frequency Ride-Through Frequency Point_OFn	Triggers the over-frequency ride-through frequency point.
56	n-stage Over-frequency Ride-Through Time_OTn	Over-frequency ride-through hold time.

Power Regulation Parameters

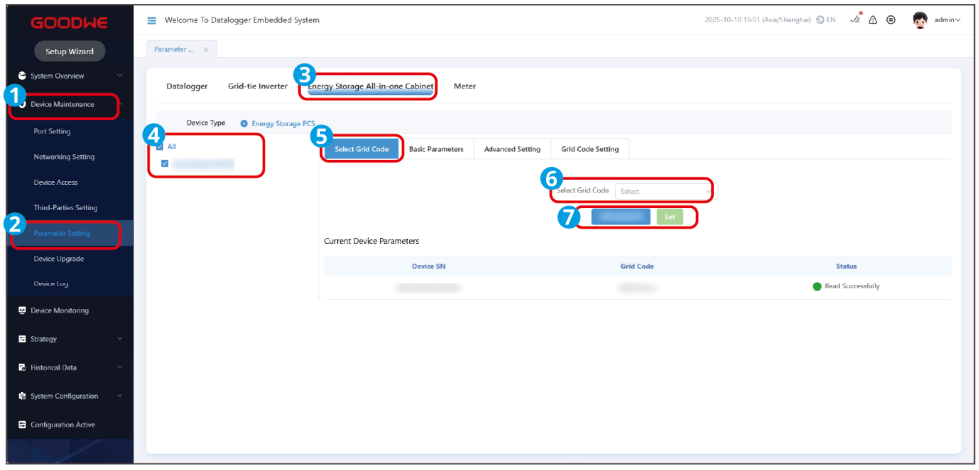
No.	Parameter Name	Description
1	Over-frequency Start Point (slope mode)	Standards in certain countries/regions require that when the grid frequency exceeds the over-frequency point, the inverter's active power output must be derated.
2	Over-frequency Power Derating Slope (slope mode)	In slope mode, the slope at which the inverter's active power output derates when the grid frequency exceeds the over-frequency point.
3	P-F Curve (Over-frequency)	Enable or disable over-frequency derating.

No.	Parameter Name	Description
4	Under-frequency Start Point (slope mode)	Standards in certain countries/regions require that when the grid frequency falls below the under-frequency point, the inverter's active power output must be increased.
5	Power Recovery Slope	Set the power recovery slope for exiting over-frequency derating.
6	Frequency Hysteresis Point	The frequency corresponding point for the under-frequency hysteresis function.
7	Tentional Delay Ta	The silent waiting time for the under-frequency hysteresis function.
8	Over-frequency End Point	Set the exit frequency for over-frequency derating.

7.6.5 Set Energy Storage Integrated Cabinet Parameters

7.6.5.1 Set Energy Storage Integrated Cabinet Safety Regulation Country

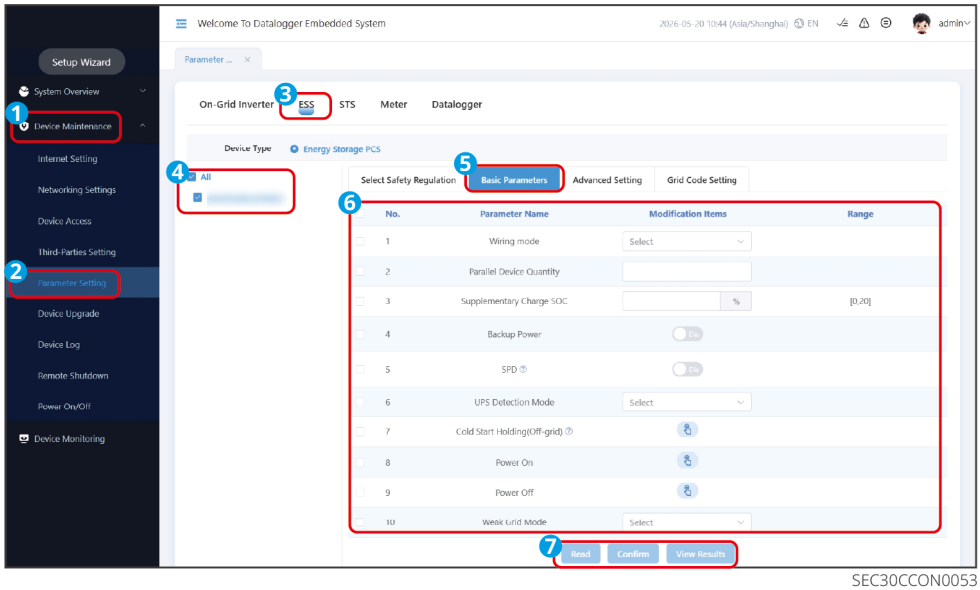
Step 1: Navigate to the parameter settings interface via "Device Maintenance" > "Parameter Settings" > "Energy Storage Integrated Cabinet".
Step 2: Select the device type and check the device SN you need to view or set.
Step 3: Click "Select Safety Regulation", choose the safety regulation country according to actual requirements, and click "Parameter Deployment" to complete the configuration.



SEC30CCON0052

7.6.5.2 Set Energy Storage Integrated Cabinet General Data

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Parameter Settings" > "Energy Storage Integrated Cabinet".
Step 2: Check the device SN you need to view or set.
Step 3: Click "General Data", check the parameters you need to view or set, then click "Query" to view their current values. To modify, enter the "Modification Item" after inputting, click "Set", and then click "View Result" to check if the modification was successful.



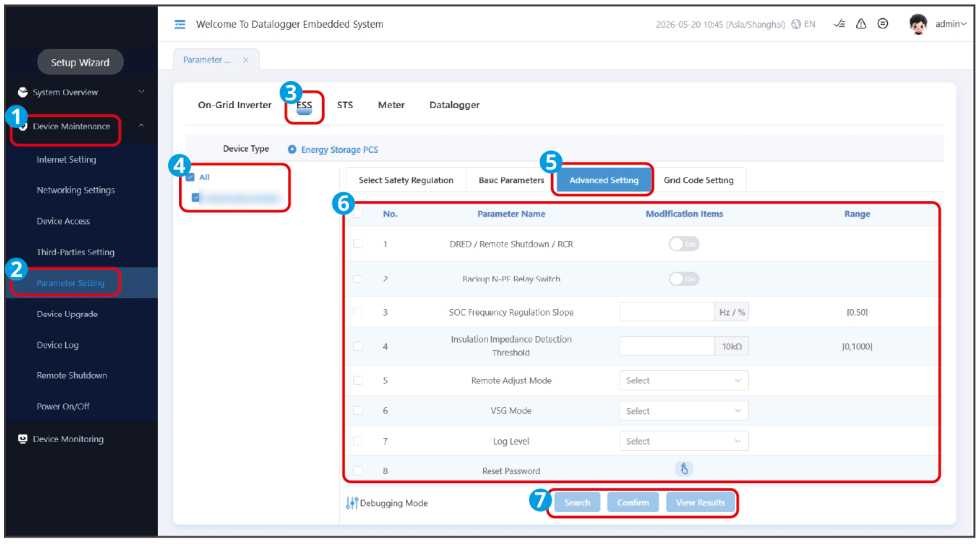
SEC30CCON0053

No.	Parameter Name	Description
1	Connection Mode	Set the current system as standalone or parallel based on the actual configuration. For parallel systems, select the parallel networking method.
2	Parallel Quantity	Set the number of All-in-One Energy Storage Cabinets in the parallel system.
3	Recharge SOC	• When the battery SOC in the system falls below the Recharge SOC, the system will charge at the default power of 10kW. • Ensure the Recharge SOC is lower than the SOC lower limit.
4	Backup Power	After enabling the backup power function, when the grid fails, the loads connected to the Inverter's BACKUP port can be powered by the battery, ensuring uninterrupted power supply to the loads.
5	SPD Alarm	After enabling the secondary SPD alarm function, an alarm will indicate an abnormality when the surge protective device module malfunctions.
6	UPS Detection Mode	• UPS Mode - Full-wave detection: Detects if the grid voltage is too high or too low. • UPS Mode - Half-wave detection: Detects if the grid voltage is too low. • EPS Mode - Supports low voltage ride-through: Disables the grid voltage detection function.
7	Off-grid Cold Start Holding	Multiple activations. After enabling this function, the battery or PV can be used to output backup power in off-grid mode.
8	Power On	Controls the power-on or power-off command for the energy storage system.
9	Power Off	

No.	Parameter Name	Description
10	Weak Grid Mode	For areas with weak grids, the weak grid mode function can be enabled to ensure normal equipment operation. • Off: Do not enable weak grid support function. • High Impedance Mode: Addresses high impedance issues caused by weak grid mode, supporting normal equipment operation.

7.6.5.3 Set Advanced Parameters for the Energy Storage Integrated Cabinet

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Parameter Settings" > "Energy Storage Integrated Cabinet".
Step 2: Check the device SN you need to view or set.
Step 3: Click "Advanced Parameters", check the parameters you need to view or set, then click "Query" to view their current values. To modify, enter the new value in the "Modification Item" field, click "Set", and then click "View Result" to check if the modification was successful.



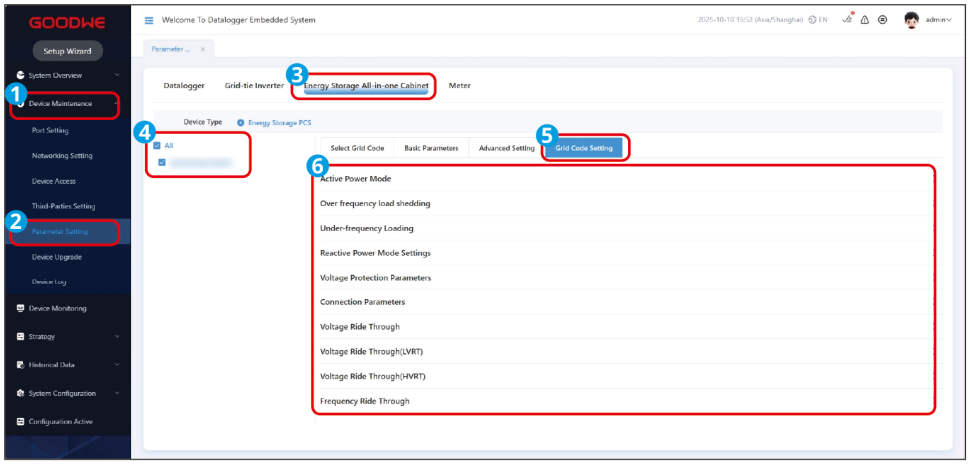
SEC30CCON0054

No.	Parameter Name	Description
1	DRED/Remote Shutdown/RCR	According to the grid standards of certain countries or regions, it is necessary to connect third-party DRED/Remote Shutdown/RCR devices to achieve signal control.
2	Backup Power N and PE Relay Switch	According to the grid standards of certain countries or regions, it is required to ensure the internal relay of the back-up port remains closed during off-grid operation, thereby connecting the N and PE lines.
3	SOC Frequency Regulation Slope	When the system is off-grid, if the off-grid SOC is too high or too low, it is necessary to adjust the off-grid AC frequency to achieve over-frequency load reduction or under-frequency load increase for the inverter. The SOC frequency regulation slope is the AC frequency adjustment value.
4	Insulation Impedance Detection Threshold	Set the threshold for insulation detection. Default value: 50K.
5	Remote Adjustment Mode	When enabled, SEC3000C will automatically send commands to the integrated energy storage cabinet, by
6	VSG Mode	Disabled by default. When enabled, it switches from the default PQ mode to VSG mode.
7	Log Level	For internal debugging use only.
8	Reset Password	Reset the connection password for the smart communication stick Ezlink3000.

7.6.5.4 Setting Custom Safety Parameters for Integrated Energy Storage Cabinets

NOTICE

- Safety parameters must be set according to the requirements of the grid company. If changes are needed, approval from the grid company is required.
- To learn more about the explanation of safety parameters, please refer to the 10.1.Custom Safety Parameters(Page 137) chapter.

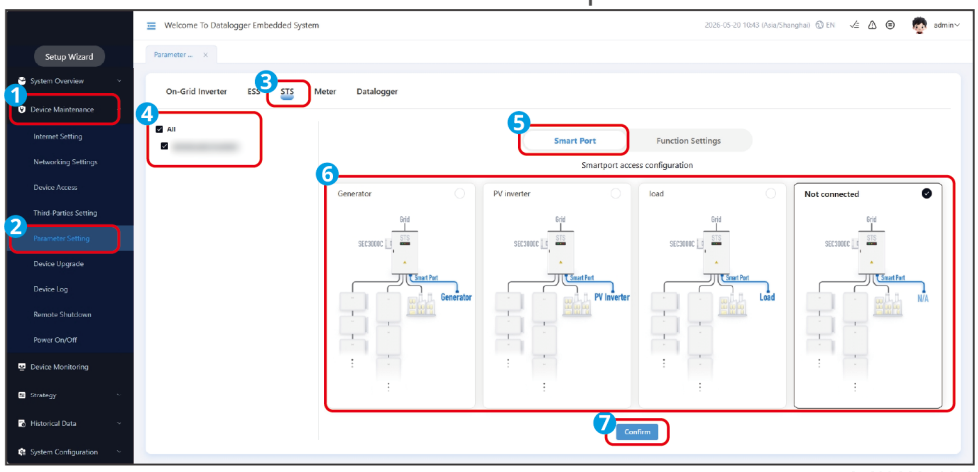


SEC30CCON0055

7.6.6 Set STS Parameters

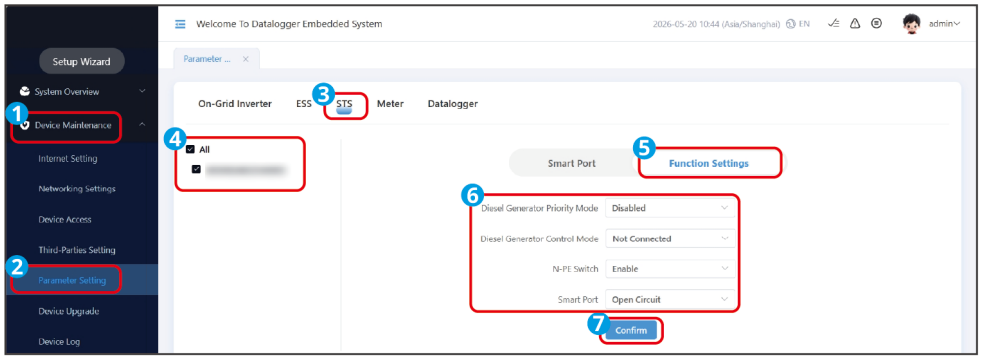
Set STS Port Configuration

Select the device connected to the STS port based on actual conditions.



SEC30CCON0070

Set STS Function Parameters

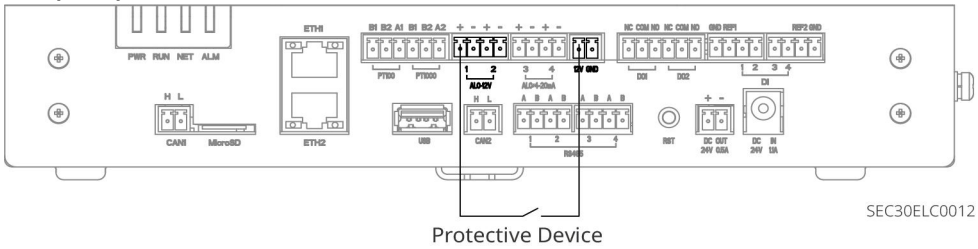


SEC30CCON0071

No.	Parameter Name	Description
1	Switch Cabinet Generator Priority Mode	When a generator is connected to the STS smart-port and the Switch Cabinet Generator Priority Mode is enabled, the generator will automatically start charging when the battery SOC falls below the generator start SOC, and will continue until the upper SOC limit is reached.
2	Generator Control Mode	Set the control method between the generator and the STS according to the actual configuration. Supports DO control or RS485 control.
3	N-PE Switch	Disabled by default. Please configure according to local regulations. When enabled, the N-PE switch will automatically close when the system switches to off-grid mode.
4	Smart Port	To power off or power on the device connected to the smart port, please select Trip or Close.

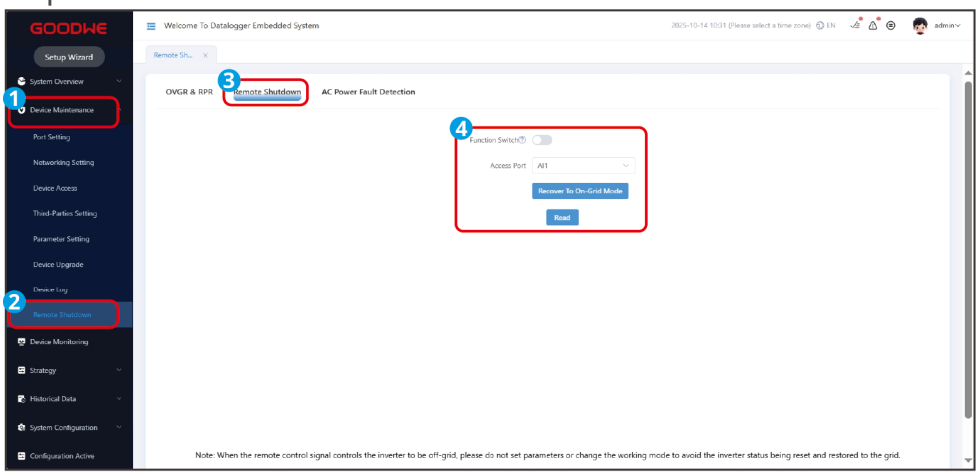
7.7 Set One-Touch Shutdown Parameters

To implement the one-touch shutdown function as required by certain countries or regions, connect the protection device to the AI1+ or AI2+ port and the 12V power output port of the control box.



SEC30ELC0012

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Remote Shutdown" > "One-Touch Shutdown".
Step 2: Set the one-touch shutdown access port and port status according to actual requirements.



SEC30CCON0056

No.	Parameter Name	Description
1	Function Switch	Enable or disable the one-touch shutdown function.
2	Access Port	Set according to the actual port connected to the control box. Supported: AI1 or AI2.
3	Restore Grid Connection	If the inverter needs to be turned on and restored to grid-connected status after shutdown, please click the Restore Grid Connection button.

7.8 Set Control Policy

7.8.1 Setting Operating Mode Parameters

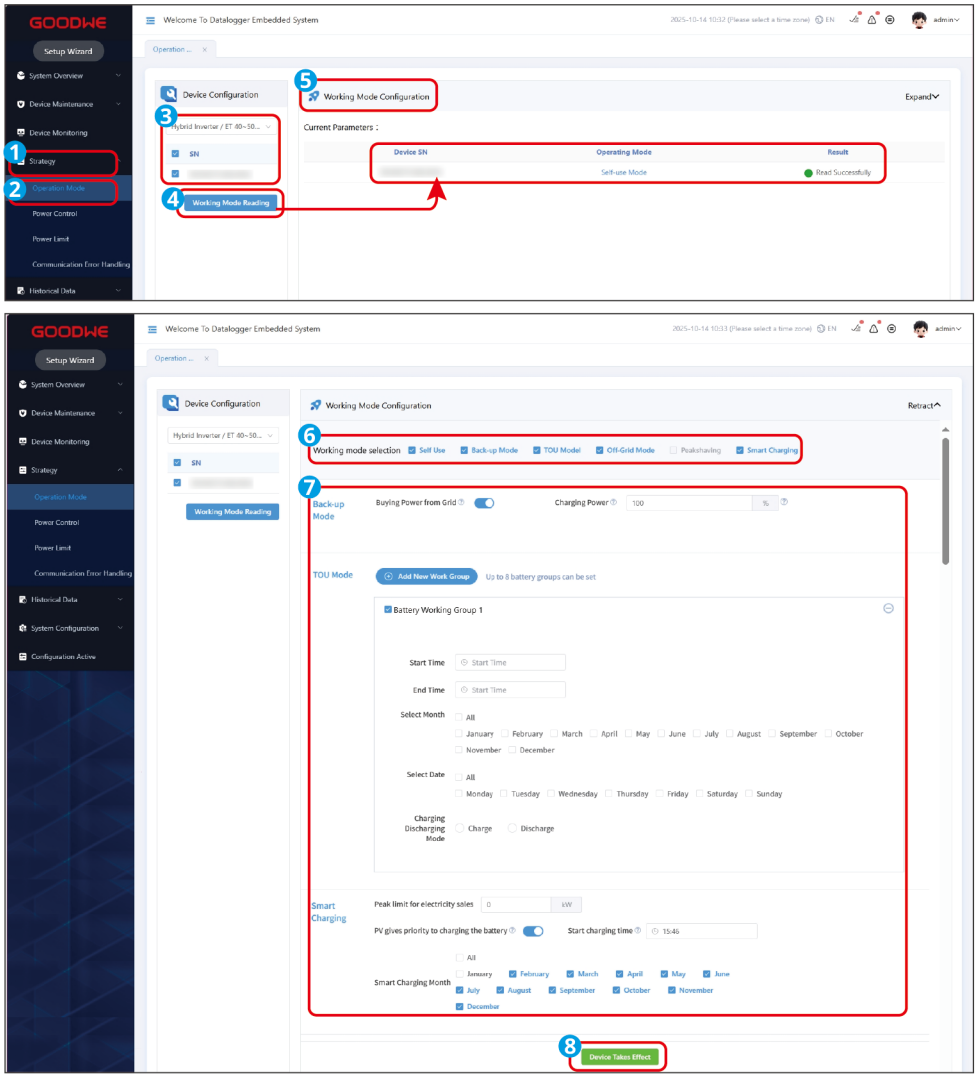
NOTICE
Currently, only setting the working mode for energy storage inverters or integrated energy storage cabinets is supported.

7.8.1.1 Set Energy Storage Inverter Working Mode

NOTICE

- Applicable to the ET40-50kW energy storage inverter.
- The default working mode is self-consumption mode.

Step 1: Enter the parameter setting interface via 'Control Strategy' > 'Operating Mode'.
Step 2: Check the inverter SN that needs to be viewed or set, click 'Working Mode Read', to obtain the current working mode of the energy storage inverter.
Step 3: Click 'Working Mode Configure', and set the working mode of the energy storage inverter according to actual requirements.
Step 4: After setting is completed, click 'Apply to Device' to complete the configuration.



SEC30CCON0057

Parameter Name	Description
Self-consumption Mode: When the working mode is set to Self-consumption, the Backup Mode, TOU Mode, and Delayed Charging can be enabled simultaneously based on the Self-consumption Mode. The inverter will automatically select the corresponding mode to operate. Operation priority: Backup Mode > TOU Mode > Delayed Charging > Self-consumption.	
Backup Mode: Recommended for areas with unstable grid. When the grid fails, the inverter switches to off-grid operation mode, and the battery discharges to power the loads, ensuring the BACKUP loads remain powered. When the grid is restored, the inverter operation mode switches back to grid-tied.	

Parameter Name	Description
Grid Purchase	Enable this function to allow the system to purchase electricity from the grid.
Charging Power	The percentage of power relative to the inverter's rated power when purchasing electricity.
Delayed Charging: Applicable to areas with grid-connected power output limits. By setting a peak power limit and a charging time period, excess PV generation beyond the grid limit can be used to charge the battery, reducing PV waste.	
Peak Power Sales Limit	Set the peak power limit according to the grid standard requirements of certain countries or regions. The peak power limit value must be lower than the local regulated output power limit.
PV Priority for Battery Charging	Within the charging time range, PV generation is used to charge the battery.
Delayed Charging Months	Set the months for delayed charging according to actual needs. Multiple months can be selected.
TOU Mode: Subject to compliance with local laws and regulations, set different time periods for buying and selling electricity based on peak and off-peak grid electricity price differences. According to actual needs, the battery can be set to charging mode during off-peak price periods to purchase electricity from the grid for charging; during peak price periods, the battery can be set to discharging mode to power the loads via the battery.	
Start Time	Within the Start Time and End Time, the battery charges or discharges according to the set charging/discharging mode and rated power.
End Time	
Select Month	Set the months for the TOU Mode according to actual needs. Multiple months can be selected.
Select Day	Set the dates for the TOU Mode according to actual needs. Multiple dates can be selected.

<table>
<tr><th>Parameter Name</th><th>Description</th></tr>
<tr><td>Charging/Discharging Mode</td><td>• Set to Charging or Discharging according to actual requirements.
• When set to Charging mode, set the charging power as a percentage of the inverter's rated power and the charging cutoff SOC.
• When set to Discharging mode, set the discharging power as a percentage of the inverter's rated power.</td></tr>
<tr><td colspan="2">Peak Shaving: Mainly applicable to scenarios with limited peak power purchase. When the total load power consumption exceeds the electricity quota within a short period, battery discharge can be used to reduce the portion of consumption exceeding the quota.</td></tr>
<tr><td>Purchase Charging Start Time</td><td rowspan="2">Within the Start Time and End Time, the battery can be charged from the grid when the load consumption does not exceed the purchase quota. Outside this time range, only PV generation power can be used to charge the battery.</td></tr>
<tr><td>Purchase Charging End Time</td></tr>
<tr><td>Peak Purchase Power Limit</td><td>Set the maximum power limit allowed for purchasing electricity from the grid. When the load power usage exceeds the sum of the power generated by the PV system and this limit, the battery discharges to supplement the excess power.</td></tr>
<tr><td>Reserved SOC for Peak Shaving</td><td>In Peak Shaving mode, the battery SOC is below the Peak Shaving SOC upper limit. When the battery SOC is above the Peak Shaving SOC upper limit, the Peak Shaving function becomes invalid.</td></tr>
<tr><td colspan="2">Off-grid Mode: This mode is suitable for scenarios with no grid, where the system operates purely off-grid. Stores the power generated by the PV in the battery to power the loads when PV generation is insufficient or during nighttime when there is no PV generation.</td></tr>
</table>

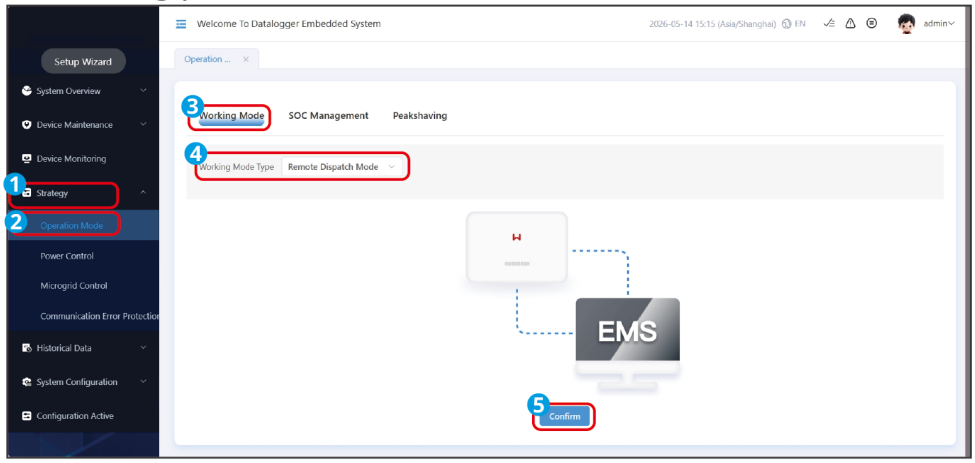
7.8.1.2 Set Control Box Operating Mode

NOTICE
Set the working mode of SEC3000C. After setting, the integrated energy storage cabinet/ET100kW series inverter will be scheduled according to SEC3000C, and there is no need to set the working mode separately.

Step 1: Navigate to the parameter setting interface via "Device Maintenance" > "Control Strategy" > "Operating Mode".
Step 2: Set the operating mode to Remote Dispatch Mode or Local Control Mode according to actual requirements. When set to "Local Control Mode", the control strategy for energy storage system operation is not managed by third-party dispatch; when set to Remote Dispatch Mode, system operation is controlled by a third-party platform.
Step 3: Set the specific operating mode according to actual requirements.

Remote Dispatch Mode

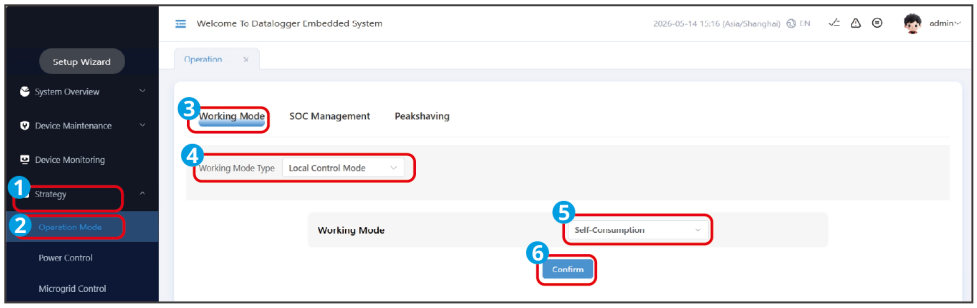
Control the system by sending dispatch commands through a third-party remote monitoring platform or controller.



SEC30CCON0058

Self-consumption Mode

Suitable for areas with high electricity prices and low or no feed-in tariff subsidies. PV generation primarily supplies power to the load, with excess electricity used to charge the energy storage system. If the battery is fully charged or charging at full power, the remaining power is exported to the grid. When PV generation cannot meet the load demand, the energy storage system discharges to supply the load.

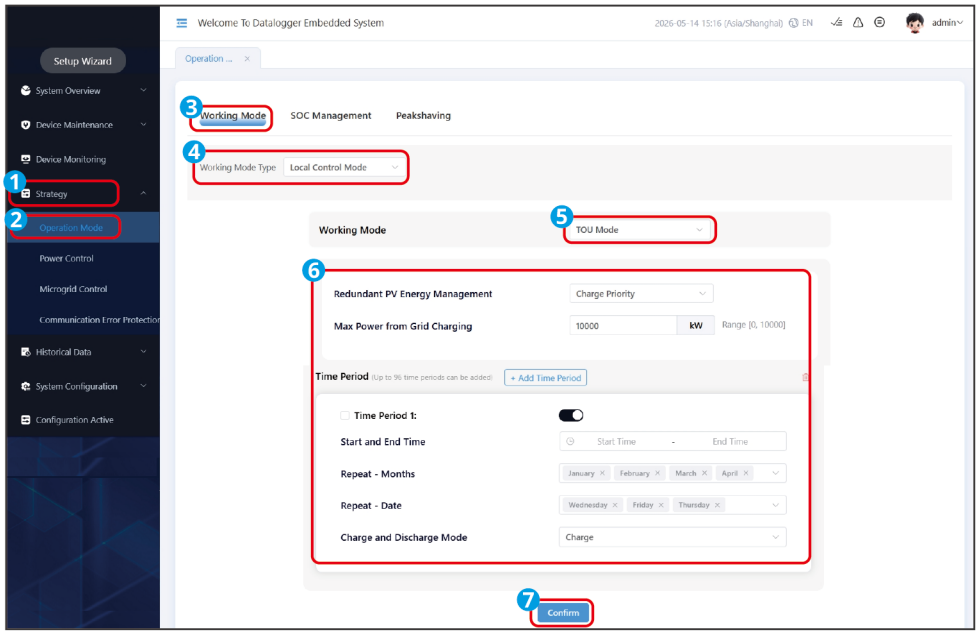


SEC30CCON0073

TOU Mode

Under compliance with local laws and regulations, buy and sell electricity during different time periods based on the difference between grid peak and valley electricity prices. For example, during valley price periods, set the energy storage system to charging mode to purchase electricity from the grid for charging; during peak price periods, set the energy storage system to discharging mode to supply the load via the battery.

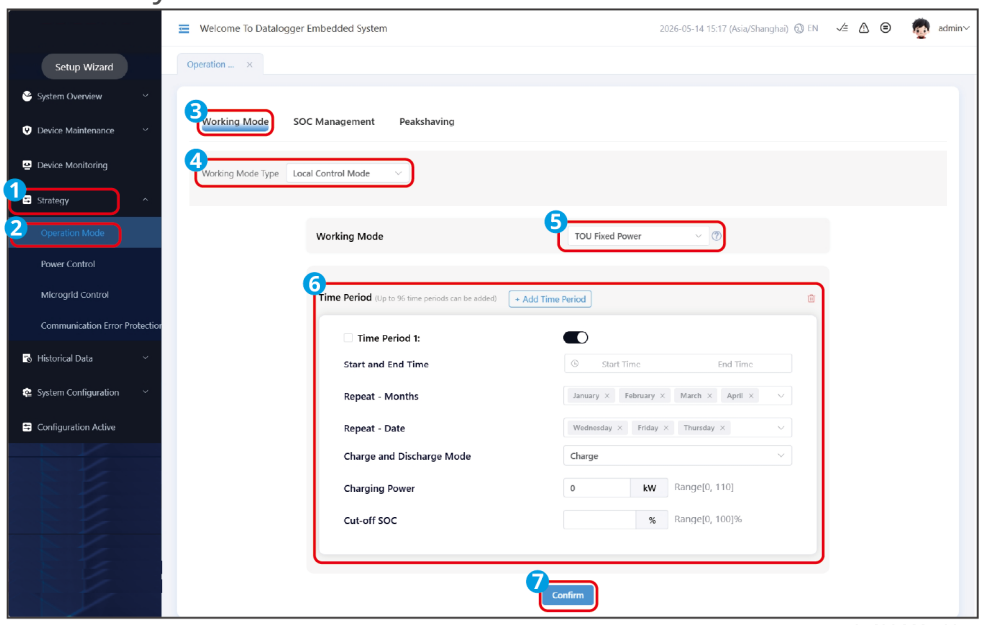
- Excess PV Energy Management: When PV generation is sufficient, supports feeding excess PV energy into the grid or charging the battery. When set to Grid Feed-in Priority, under compliance with local laws and regulations, excess electricity can be fed into the grid when PV generation is sufficient. When set to Charging Priority, after PV generation is consumed by the load, excess electricity will be used to charge the energy storage system. Once the charging power reaches maximum or the storage is full, remaining energy will be fed into the grid.
- Grid Charging Max Power: The maximum charging power when using the grid to charge the energy storage equipment.



SEC30CCON0074

TOU Fixed Power Mode

Suitable for pure energy storage systems. Set charging and discharging times based on the difference between grid peak and valley electricity prices. Within the set fixed time periods, the energy storage system charges or discharges according to actual requirements. For time periods where charging/discharging is not set, if there is excess PV generation during that period, the excess energy can be used to charge the battery.



SEC30CCON0075

7.8.1.3 Set Control Box SOC Management Function

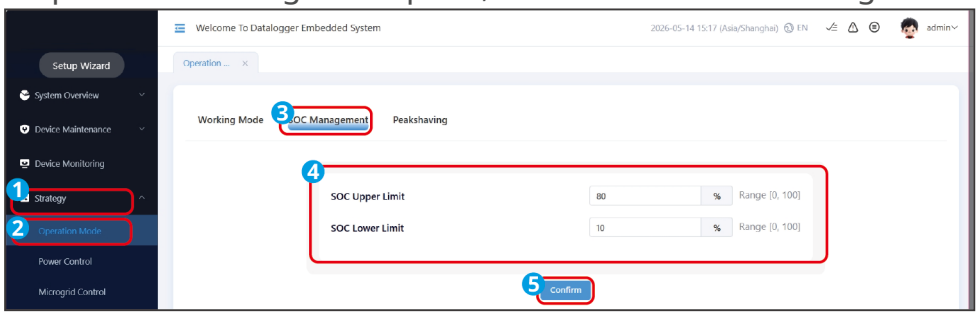
NOTICE

- The SOC management function is enabled by default.
- Applicable to integrated energy storage cabinets and ET100kW series inverters.
- In microgrid scenarios, set the SOC range of the integrated energy storage cabinet to 10%-90%.

Step 1: Navigate to the parameter setting interface via "Control Strategy" > "Operating Mode" >"SOC Management".
Step 2: Set the SOC upper and lower limits according to actual requirements.

- SOC Upper Limit: Stops charging the battery when the battery SOC reaches the set value. Default: 95%.
- SOC Lower Limit: Stops battery discharge when the battery SOC reaches the set value. Default: 5%.

Step 3: After setting is complete, click "Set" to finish configuration.



SEC30CCON0059

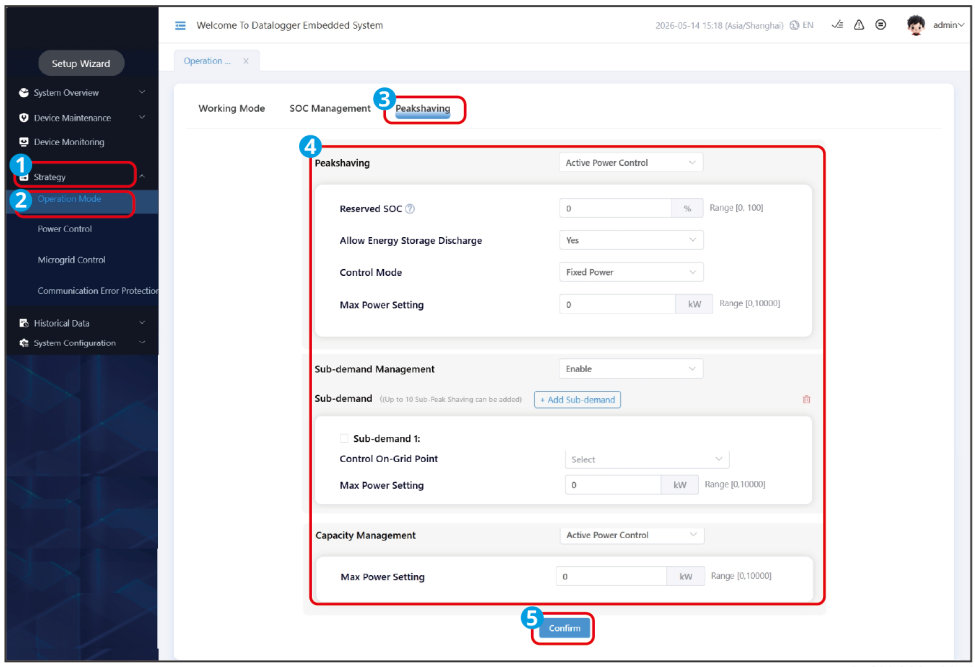
7.8.1.4 Set Control Box Peakshaving Function

NOTICE

Applicable to integrated energy storage cabinets and ET100kW series inverters.

Step 1: Enter the parameter setting interface via "Control Strategy" > "Operating Mode" > "Peakshaving" .
Step 2: Set the Peakshaving, sub-peakshaving, and capacity management modes according to actual requirements.

- Peakshaving: Mainly used in scenarios with limited peak power purchase. In grid-connected scenarios, it restricts user power purchase, uses battery discharge to supply power, ensuring that the purchased power does not exceed the grid peak limit.
- Sub-peakshaving: When multiple transformers are used in the system, to ensure that each transformer's power purchase does not exceed its capacity, set the maximum power value.
- Capacity management: Set the maximum power value of the transformer to ensure it does not exceed the transformer's charge and discharge capacity.

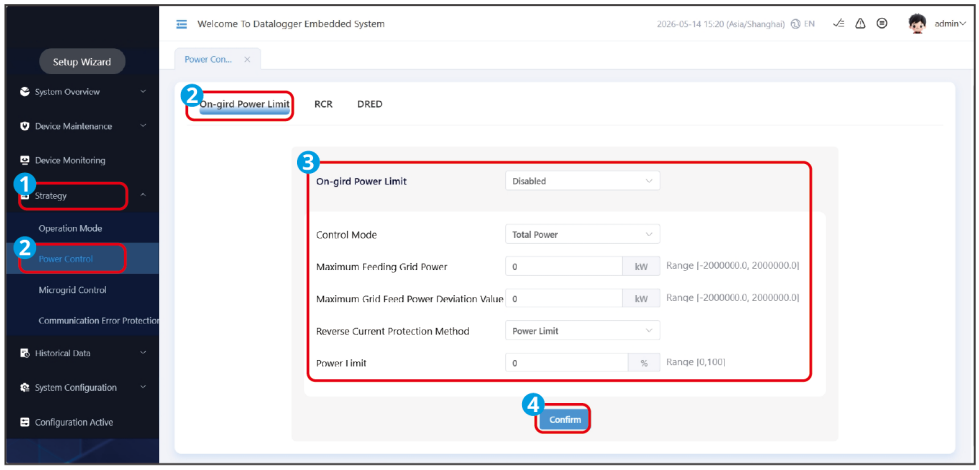


SEC30CCON0076

7.8.2 Set Power Adjustment Parameters

7.8.2.1 Set Power Limit Parameters

When all loads in a photovoltaic system cannot consume the electricity generated by the system, the surplus power is fed into the grid. By setting the Export power limit parameters, you can control the amount of power generation fed into the grid.
Step 1: Navigate to the parameter setting interface via "Control Strategy" > "Power Regulation" > "Export power limit".
Step 2: Set the Export power limit parameters according to actual requirements.



SEC30CCON0062

No.	Parameter Name	Description
1	Control Mode	Select the method for controlling the device's output power based on the actual situation. • Total Power: Controls the total power at the point of common coupling not to exceed the output power limit. • Single-phase Power: Controls the power of each phase at the point of common coupling not to exceed the output power limit.
2	Maximum Grid Feed-in Power	Set the maximum power the device can actually feed into the grid according to the requirements of certain countries or regions.
3	Maximum Grid Feed-in Power Offset	• Set the adjustable range for the maximum power the device can actually feed into the grid. • Maximum power delivered to the grid = Maximum Grid Feed-in Power + Maximum Grid Feed-in Power Offset.

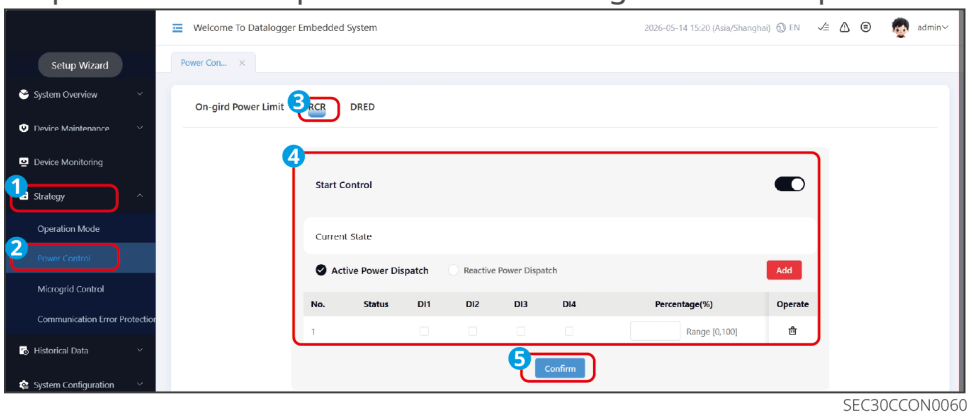
No.	Parameter Name	Description
4	Reverse Power Flow Protection Handling Method	When reverse power flow occurs in the system for longer than the maximum protection time(default5s), the following protection measures can be taken: • Power Limitation: The device continues to operate at a percentage of its rated power. • Device Disconnection.

7.8.2.2 Setting RCR Parameters

- According to standard requirements in regions such as Germany, the control box must provide an RCR (Ripple Control Receiver) signal control port to meet grid dispatch needs.
- To implement the RCR function, connect the RCR device to the DI1/DI2/DI3/DI4/REF1 port of the control box's built-in data logger for active power derating, or connect it to the DI1/DI2/DI3/DI4/REF2 port for reactive power dispatch.

Step 1: Navigate to the parameter setting interface via "Control Strategy">"Power Regulation">"RCR ".

Step 2: Set the RCR parameters according to actual requirements.



SEC30CCON0060

No.	Parameter Name	Description
1	Startup Control	Enable or disable the RCR function.

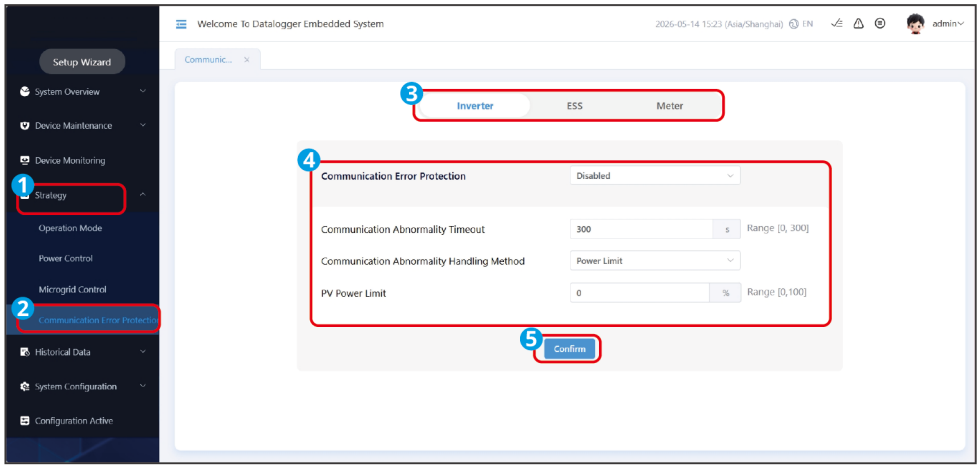
No.	Parameter Name	Description
2	Current Status	• Displays the current operation status of the RCR function. For example: RCR1(100) indicates the operation status is RCR1, and the grid feed power is 100% of the rated power. • nRCR indicates that the operation status is not active.
3	Active Dispatch	• Select one or more DI ports based on grid company requirements and RCR fixture type, and set the corresponding percentage. The percentage refers to the system output power as a percentage of the rated power. • Supports configuration of 16 levels of percentage values. Please set according to the actual requirements of the grid company. • Do not duplicate the state combinations of DI1-DI4, otherwise the function cannot be executed properly. • If the actual wiring of the DI ports does not match the web configuration, the operation status will not take effect.

No.	Parameter Name	Description
4	Reactive Dispatch	• Select one or more DI ports based on grid company requirements and RCR fixture type, and set the corresponding PF value. • Supports configuration of 16 levels of power factor. Please set according to the actual requirements of the grid company. • PF value range requirements: [-100, -80] or [80,100]. [-100, -80] corresponds to lagging power factor [-0.99, -0.8], and [80,100] corresponds to leading power factor [0.8,1]. • Do not duplicate the state combinations of DI1-DI4, otherwise the function cannot be executed properly. • If the actual wiring of the DI ports does not match the web configuration, the operation status will not take effect.

7.8.2.3 Set DRED Parameters

7.8.3 Set Communication Exception Configuration

When the communication between the SEC3000C and the grid-connected inverter, energy storage system, or meter is abnormal, and the abnormal duration reaches the "Communication Exception Timeout", the inverter, energy storage system, and meter will execute the corresponding exception handling strategy as configured, such as limiting power or disconnecting from the grid.
Step 1: Navigate to the parameter setting interface via "Control Strategy" > "Communication Exception Configuration".
Step 2: Configure the handling method for communication exceptions according to actual requirements.



SEC30CCON0063

7.8.4 Set Micro-grid Control Parameters

NOTICE

- The ESA261 Energy Storage Integrated Cabinet, when combined with STS, a grid-tied inverter, and SEC3000C, supports grid-off-grid switching and enables microgrid functionality.
- Before using the microgrid mode, please ensure all devices in the system are correctly wired and operating normally.

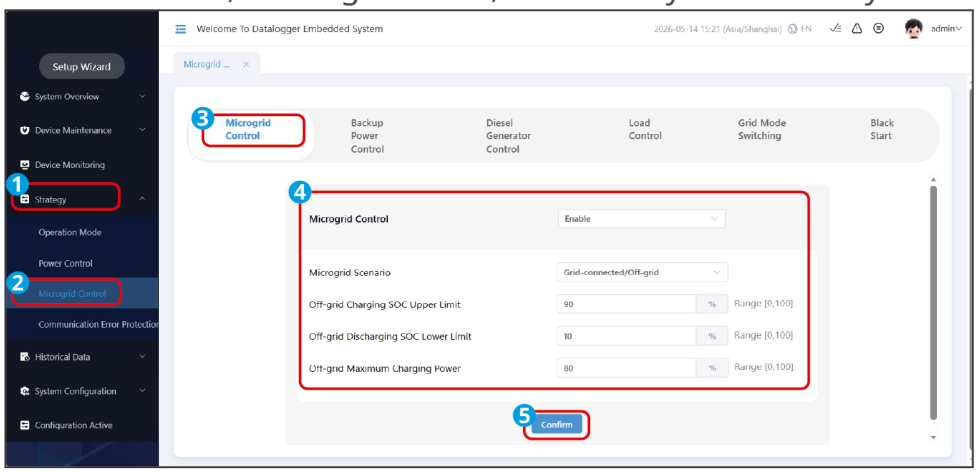
Step 1: Before setting the micro-grid mode control parameters, please refer to the 7.6.5.Set Integrated Energy Storage Cabinet Parameters(Page 99) and 7.6.6.Set STS Parameters(Page 104) chapters to set the following parameters:

- Set the "Wiring Mode" of the integrated cabinet to "STS-Backup Parallel"
- Set the "Parallel Quantity" of the integrated cabinet to the actual number of parallel units
- Enable the "Backup Power" function of the integrated cabinet
- Enable the "VSG Mode" of the integrated cabinet
- Set the STS parameters according to the actual connection.

Step 2: Navigate to the micro-grid control parameter setting interface via "Control Strategy" > "Micro-grid Control", and set parameters according to actual requirements.

Set Micro-grid Scenario

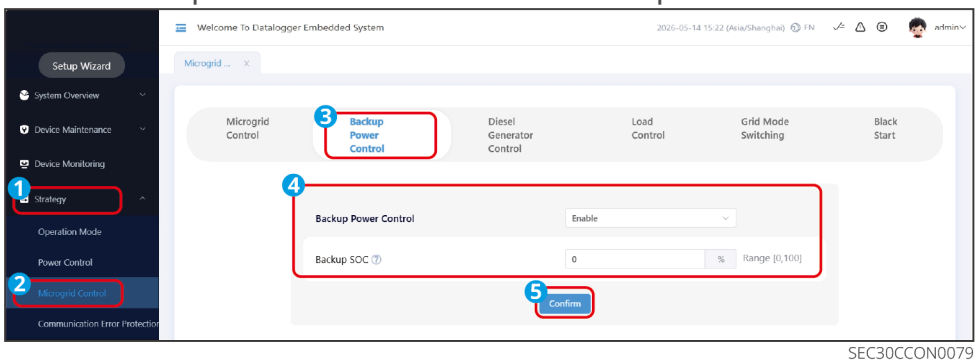
Select the micro-grid scenario based on the actual system situation. Supported: On/Off-grid scenario, Off-grid scenario.
On/Off-grid scenario: The system automatically switches between on-grid and off-grid scenarios.
Off-grid scenario: The system is not connected to the grid and operates using power sources like PV, diesel generator, and battery within the system.



SEC30CCON0078

Set Backup Power Parameters

To ensure the battery has sufficient power to discharge for the load when the system switches to off-grid operation, a "Backup SOC" needs to be reserved during on-grid operation.
If the battery SOC is lower than the "Backup SOC", it will be charged by PV or the grid to the backup SOC value. The default backup SOC value is 30%.



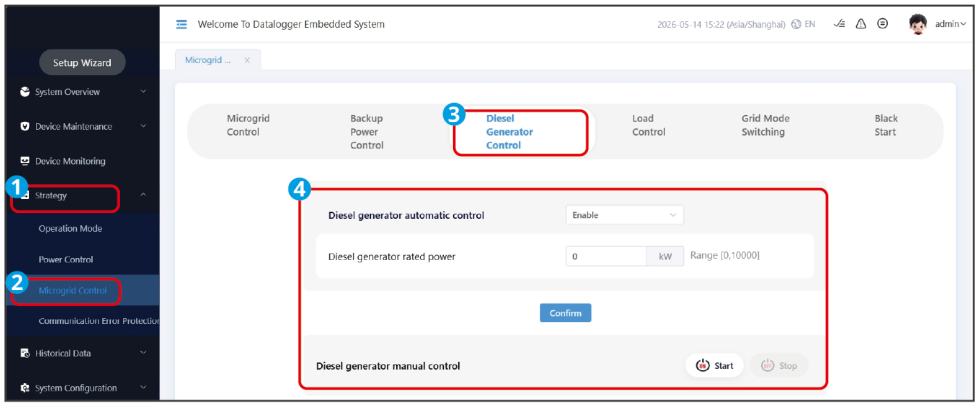
SEC30CCON0079

Set Diesel Generator Control Parameters

If a diesel generator is connected to the system, set it for automatic or manual start/stop according to actual needs.

- Enable automatic diesel generator control. When the system's PV and storage energy is insufficient, the diesel generator will automatically start to supply power.
- If automatic control is not enabled, manually control the diesel generator startup

and shutdown.

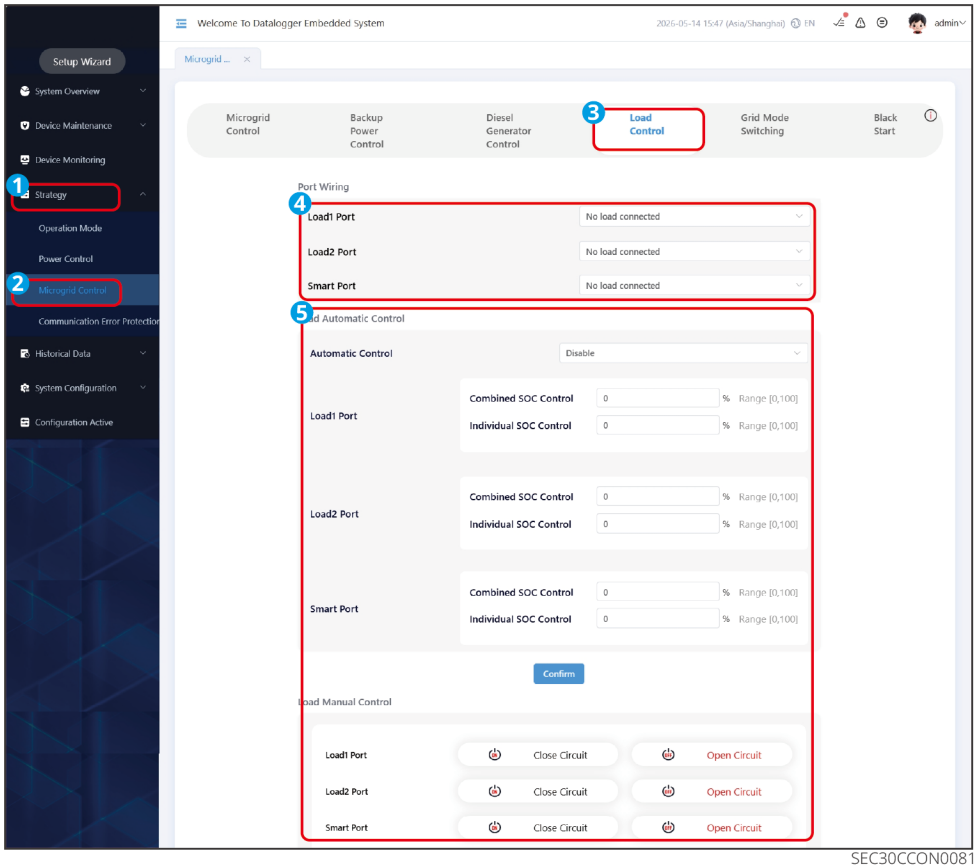


SEC30CCON0080

Set Load Control Parameters

If different loads are connected to the system, select the load type connected to each port according to the actual situation, and set the load for automatic or manual start/stop.

- If load automatic control is selected, when the system battery SOC ≥ the close control SOC, the port switch closes and starts the corresponding port equipment; when SOC < the open control SOC, the port switch opens and shuts down the corresponding port equipment.
- If load manual control is selected, manually turn on or off the equipment connected to the corresponding port.

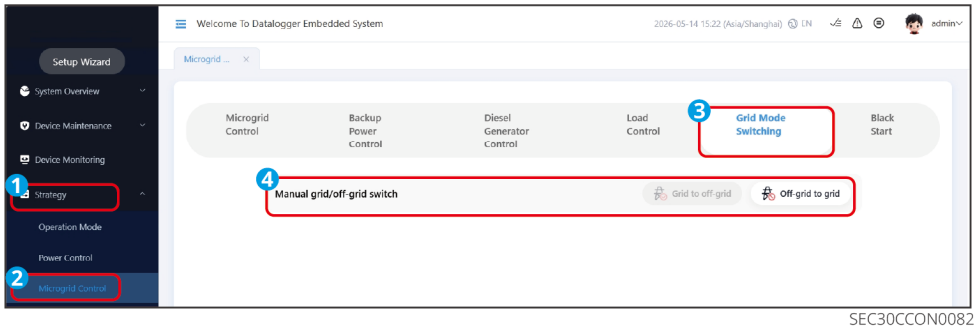


SEC30CCON0081

Set On/Off-grid Switching Parameters

In a micro-grid system, the on/off-grid status can switch automatically. To control manually, set the "Manual On/Off-grid Switching" parameter.

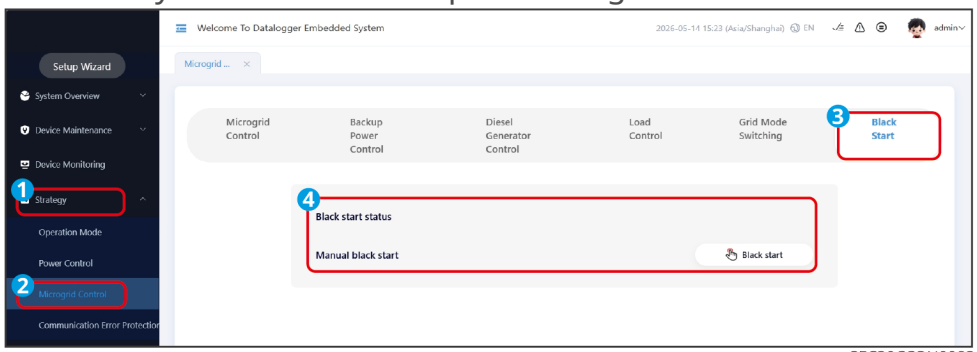
- Switch On-Grid to Off-Grid: Manually switch the system from on-grid operation to off-grid operation and maintain the off-grid state.
- Switch Off-Grid to On-Grid: Manually switch the system to on-grid operation. If the grid status is normal, maintain on-grid operation; if the grid status is abnormal, automatically connect to the grid after the grid recovers.



SEC30CCON0082

Control Black Start

If the system is in an off-grid shutdown state, use the manual black start function to start the system and have it operate off-grid.



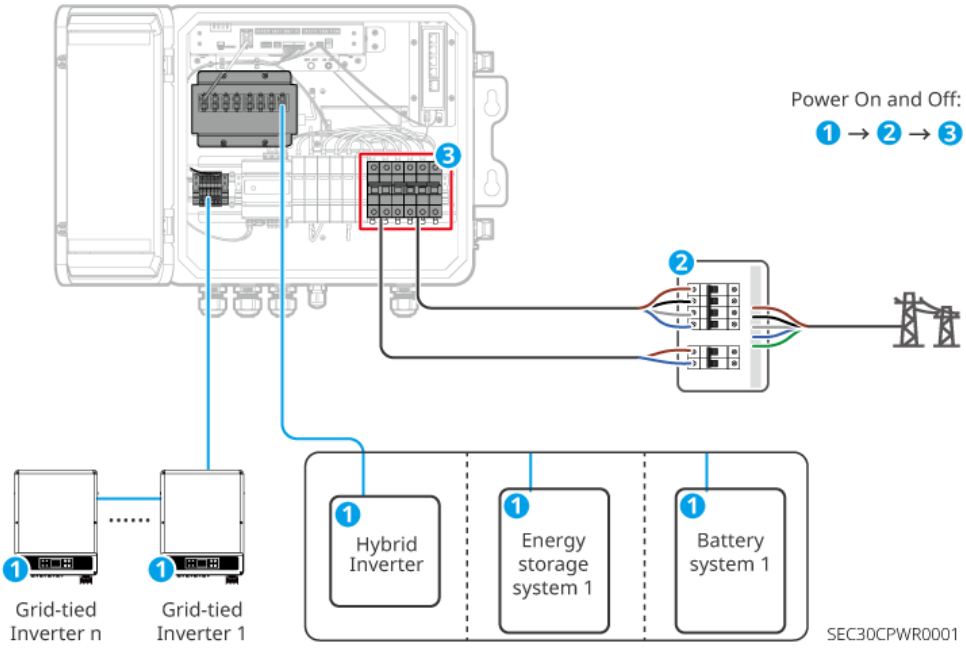
SEC30CCON0083

8 Maintenance

8.1 Power OFF the System

DANGER

- When performing operation and maintenance on the equipment in the system, please power off the system. Operating the equipment while it is powered on may cause equipment damage or risk of electric shock.
- After the equipment 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 requirement on the label.



8.2 Removing the Equipment

DANGER

- Ensure the device is powered off.
- When operating the device, please wear personal protective equipment.

Step 1: Disconnect all electrical connections to the equipment, including power cables and communication cables.
Step 2: Remove the equipment.
Step 3: Store the equipment properly. If it will be put into service again later, ensure the storage conditions meet the requirements.

8.3 Disposing of the Equipment

When the equipment can no longer be used and needs to be disposed of, please dispose of the equipment according to the electrical waste disposal requirements of the country/region where the equipment is located. Do not treat the equipment as general household waste.

8.4 Routine Maintenance

WARNING

- If any issues that may affect the battery or energy storage inverter system are found, please contact after-sales personnel. Disassembly by unauthorized personnel is prohibited.
- If exposed copper wires inside the conductive cables are found, do not touch them due to high voltage danger. Please contact after-sales personnel. Disassembly by unauthorized personnel is prohibited.
- In the event of other emergencies, please contact after-sales personnel immediately. Operate under their guidance or wait for them to perform on-site operations.

Maintenance Content	Maintenance Method	Maintenance Cycle	Maintenance Purpose
System Cleaning	1. Check if there is any foreign matter or dust in the air inlet/outlet. 2. Check if the installation space meets the requirements, and check if there is any debris accumulation around the equipment.	1 time/six months	Prevent cooling failures.
System Installation	1. Check if the equipment installation is secure and if the fastening screws are loose. 2. Check if the equipment appearance is damaged or deformed.	1 time/six months~1 time/year	Confirm the stability of the equipment installation.
Electrical Connection	Check if the electrical connections are loose, if the cable appearance is damaged, or if there is exposed copper.	1 time/six months~1 time/year	Confirm the reliability of electrical connections.

Maintenance Content	Maintenance Method	Maintenance Cycle	Maintenance Purpose
Sealing	Check if the sealing of the equipment's cable entry holes meets the requirements. If there are gaps that are too large or unsealed, reseal them.	1 time/year	Confirm that the machine is sealed and the waterproof performance is intact.

8.5 Maintenance (WEB)

8.5.1 Upgrade Devices

Supports upgrading the firmware versions of data collectors, Inverter, energy storage integrated cabinets, STS, and other devices via web.

NOTICE
During the upgrade process, please ensure that the device remains powered on. Power failure may cause the upgrade to fail.

Upgrade via USB drive (only applicable for data collector upgrade)

NOTICE
Before upgrading, please ensure that only the required upgrade package is stored in the USB drive. If there are multiple upgrade packages, the system will read the first one by default, which may cause the upgrade to fail.

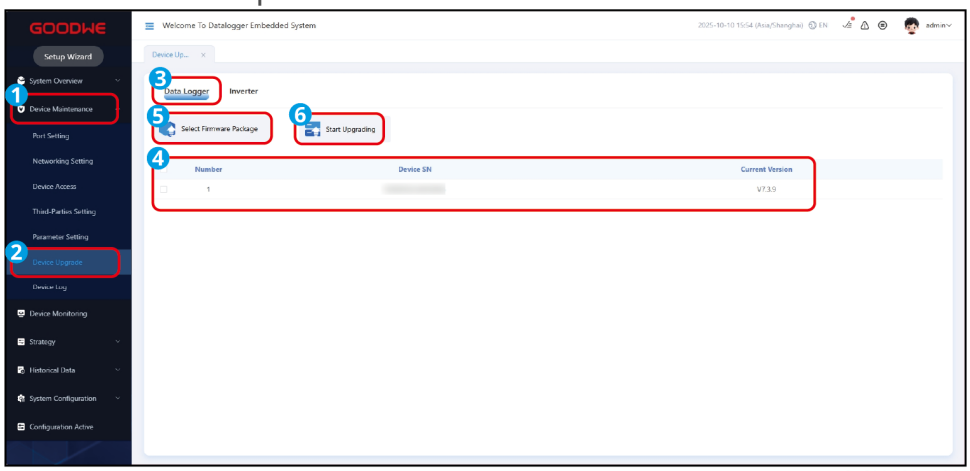
Step 1: Contact after-sales to obtain the device upgrade package, and prepare a FAT32 format U drive,U drive capacity does not exceed 32G.
Step 2: In the root directory of the U drive, create a new folder named collector, and store the device upgrade package in the collector folder.
Step 3: Insert the U drive into the data collector's USB interface. After the data collector detects the device upgrade package and starts the upgrade, the fault indicator light will flash rapidly. If the fault indicator light does not flash rapidly, the upgrade has not started; please check the upgrade package and the U drive status.
Step 4: After the upgrade is completed, the data collector will automatically restart.

Please remove the U drive; otherwise, it may cause repeated upgrades.

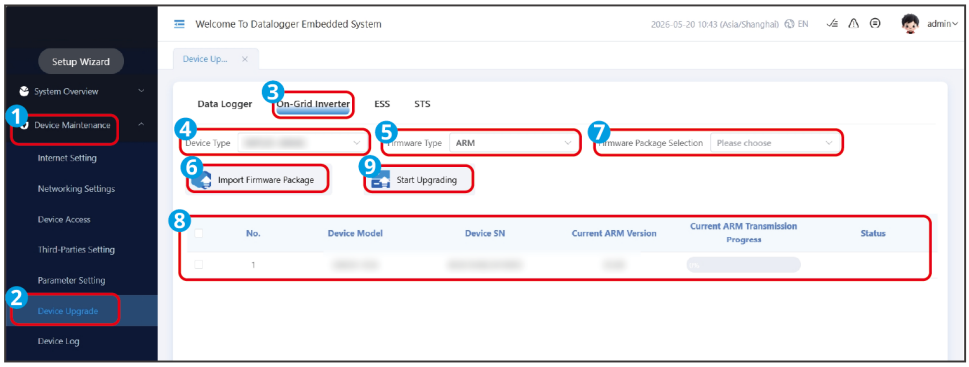
Viawebupgrade

Step 1: Contact after-sales to obtain the device upgrade package.

Step 2: Store the device upgrade package locally on the computer, and upgrade the device according to the following operation prompts. The upgrade steps for Inverter, energy storage integrated cabinets, and STS are the same; here, only the Inverter is used as an example for illustration.

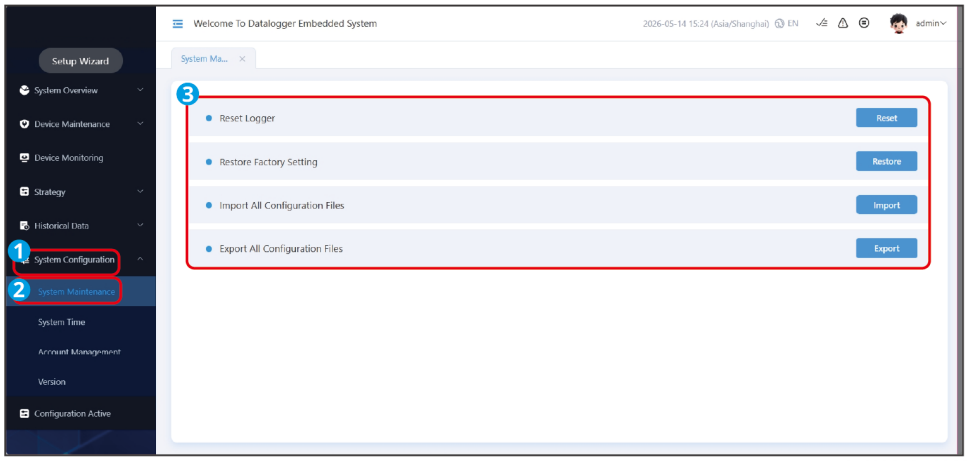


SEC30CCON0064



SEC30CCON0065

8.5.2 Maintenance System



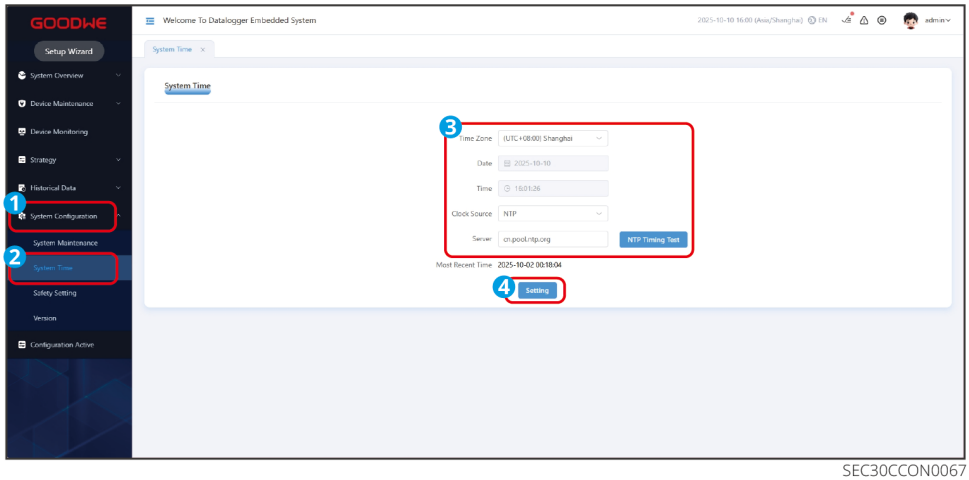
SEC30CCON0066

No.	Parameter Name	Description
1	Restart Data Acquisition	Performs a system reset. The built-in data acquisition unit in the control box will automatically shut down and restart.
2	Restore Factory Settings	• Restore Factory Settings: Clears device access information, forwarding configuration, login password, and other information. • Restore Communication Configuration (Optional): Restores network adapter configuration. • Restore Data Acquisition Data (Optional): Clears logs, historical alarms, historical data, and other information.
3	Import Full Configuration File	Before replacing the control box or the built-in data acquisition unit, please export the configuration file of the data acquisition unit to your local device.
4	Export Full Configuration File	After replacing the control box or the built-in data acquisition unit, import the configuration file previously exported to your local device into the new control box or built-in data acquisition unit. After a successful import, the data acquisition unit will restart and the configuration file will take effect. Verify that the device parameters are correctly configured.

8.5.3 Set System Time

NOTICE

Modifying the date and time may affect the completeness of system power generation and performance data records. Please do not arbitrarily change the time zone or system time.



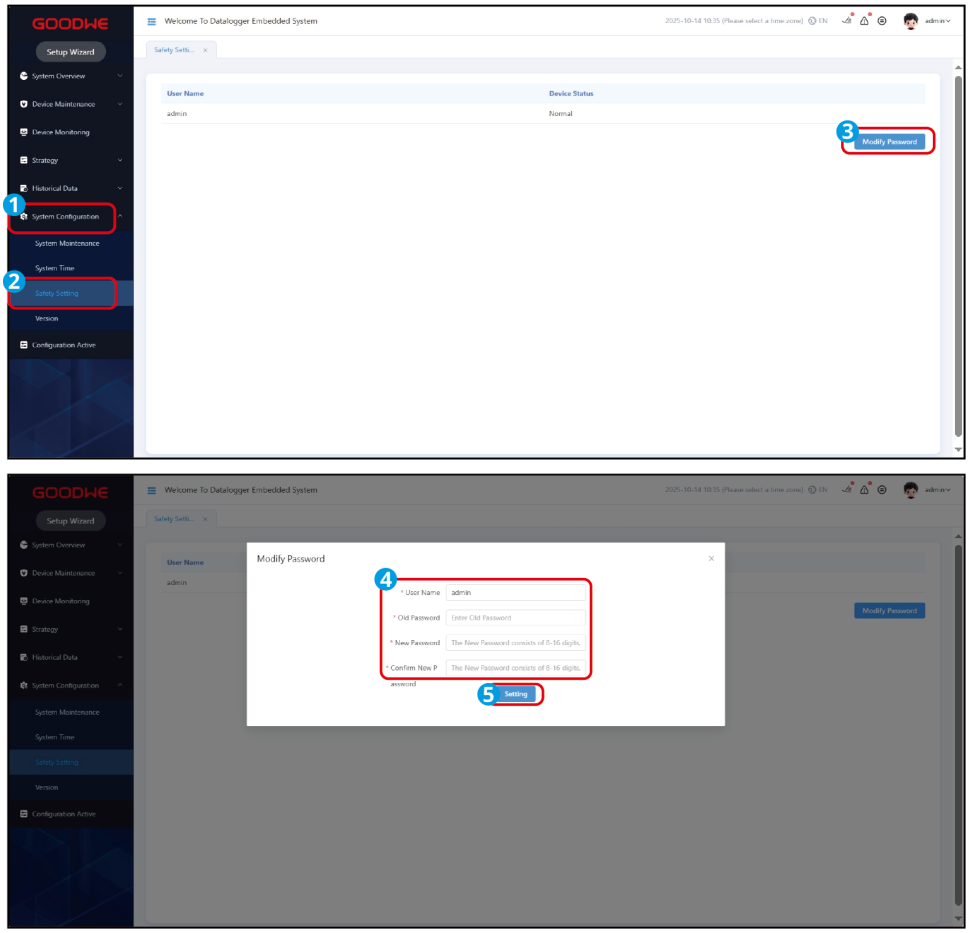
SEC30CCON0067

No.	Parameter Name	Description
1	Timezone	Only when the clock source is set to manual time synchronization, it can be manually modified.
2	Date	
3	Time	
4	Clock Source	• Set the clock source. Supports: NTP, Modbus-TCP, manual time synchronization, GoodWe cloud platform time synchronization. • When SEC3000C+GW125/261-ESA-LCN-G10 is used in China, please set it to NTP clock source.

8.5.4 Change Login Password

Procedure:

1. Go to the password change interface via "Data Acquisition Configuration" >" Security Settings".
2. Click "Password Change", enter the old and new passwords as required, and click "Save".



SEC30CCON0068

8.6 Fault Troubleshooting

Please perform troubleshooting 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. Product information, such as: serial number, software version, device installation time, fault occurrence time, fault occurrence frequency, etc.
2. Device installation environment, such as: weather conditions, whether components are obstructed, have shadows, etc. For the installation environment, it is recommended to provide photos, videos, and other files to assist in problem analysis.
3. Grid conditions.

No.	fault	Resolution
1	Data acquisition indicator light does not light up after power on	1. Confirm whether the built-in single-phase circuit breaker in SEC3000C has voltage, Voltage Range: 100Vac-240Vac. 2. Whether the single-phase circuit breaker is turned on.
2	Meter indicator light does not light up after power on	1. Three-phase four-wire system scenario: Confirm whether the built-in three-phase circuit breaker in SEC3000C has voltage, line Voltage Range: 156Vac-480Vac. 2. Three-phase three-wire system scenario: Check the built-in three-phase circuit breaker in SEC3000C, confirm whether the L2 and N lines are short-circuited, line Voltage Range: 156Vac-480Vac. 3. Whether the three-phase circuit breaker is turned on.
3	WEB page cannot be opened	1. Confirm whether accessing the web page one minute after the device is powered on. 2. Confirm whether the device and PC are correctly connected using an Ethernet cable. 3. Confirm whether the PC's IP address segment setting is modified to 172.18.0.XXX or set to automatic acquisition. 4. Clear the browser page cache.
4	WEB page shows device offline	1. Confirm whether the energy storage machine is connected to the SEC3000C internal switch port via the WiFi/LAN Kit-20 smart communication stick. 2. Confirm whether the inverter is correctly connected to the SEC3000C's RS485 communication terminal.

No.	fault	Resolution
5	Meter displays abnormal data	1. Confirm whether the meter CT ratio setting in the web is consistent with the actual CT ratio used; 2. Confirm whether the CT wiring is correct; 3. Three-phase four-wire system scenario: Confirm whether the connection sequence of the built-in three-phase circuit breaker in SEC3000C (N/L1/L2/L3) is correct; 4. Three-phase three-wire system scenario: Check the built-in three-phase circuit breaker in SEC3000C, confirm whether the L2 and N lines are short-circuited, and confirm whether the sequence (/L1/L2/L3) is correct.

9 technical parameter

technical parameter	SEC3000C
Communication	
Maximum number of inverters supported	RS485: 60, LAN*[1]: 10
RS-485 Interface	4
Ethernet Port	2*RJ45, 10/100Mbps
4G	Optional
Digital/Analog Input Output	DI×4, DO×2, AI×4
Configuration	
Data Acquisition	EzLogger3000C*1
Switch	15 ports
Smart Meter	GM330*1
Meter Voltage Measurement Range (Vac)	3L/N/PE: 172~817 (line voltage) 3L/PE: 100~472 (line voltage)
Meter Frequency Measurement Range (Hz)	50/60
Meter Current Measurement Range (A)	nA:5A(200≤n≤5000)
Auxiliary Power Supply	100~240V, 50/60Hz
Power Consumption (W)	≤25
Mechanical Parameters	
Dimensions (Width × Height × Thickness mm)	450*400*242
Weight (kg)	≤16.9
Mounting Method	Wall mounting, bracket mounting, pole mounting
Environmental Parameters	
Operating Temperature Range (℃)	-30~+60
Storage Temperature Range (℃)	-40~+70
Relative Humidity	0~100%
Max. Operating Altitude (m)	3000
IP Rating	IP66
Anti-corrosion Class	C5L

technical parameter	SEC3000C
Standards Met	
Certification	CE-RED(EN18031), RCM

*1. Other certification materials can be provided according to customer requirements.

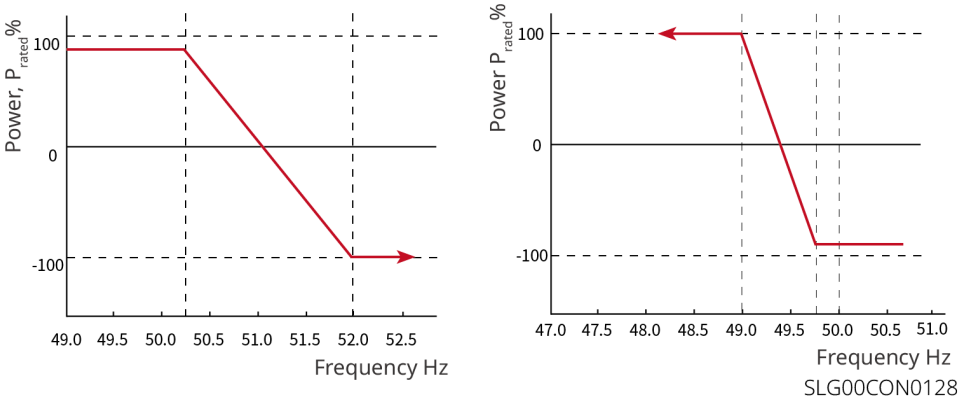
10 Appendix

10.1 Custom Safety Parameters

NOTICE
Safety parameters must be set according to the grid company's requirements. If changes are needed, the consent of the grid company must be obtained.

Active Power Mode

P(F) Curve



P(U) Curve

Parameter Name	Description
Active Power Output Setting	Sets the limit value for inverter output power.
Power Ramp Rate	Sets the slope for increasing or decreasing active output power.
Over-Frequency Derating	
P(F) Curve	Enable this function when setting the P(F) curve is required according to grid standards in certain countries or regions.

Parameter Name	Description
Over-Frequency Derating Mode	Set the over-frequency derating mode according to actual requirements. • Slope mode: Adjusts power based on the over-frequency point and derating slope. • Stop mode: Adjusts power based on the over-frequency start point and over-frequency end point.
Over-Frequency Start Point	When grid frequency is too high, the inverter reduces active power output. When grid frequency exceeds this value, the inverter output power starts to decrease.
Sell/Buy Power Transition Frequency	When the set frequency value is reached, the system transitions from selling power to buying power.
Over-Frequency End Point	When grid frequency is too high, the inverter reduces active power output. When grid frequency exceeds this value, the inverter output power does not continue to decrease.
Over-Frequency Power Slope Reference Power	Adjusts the inverter active power output based on reference power such as rated power, current power, apparent power, or maximum active power.
Over-Frequency Power Slope	When grid frequency is above the over-frequency point, the inverter output power decreases according to the slope.
Tentional Delay Ta	When grid frequency is above the over-frequency point, the delay response time for inverter output power changes.
Hysteresis Function Enable	Enable the hysteresis function.
Frequency Hysteresis Point	During over-frequency derating, if the frequency decreases, the power is output at the lowest point of derating power until the frequency is below the hysteresis point, then power recovers.

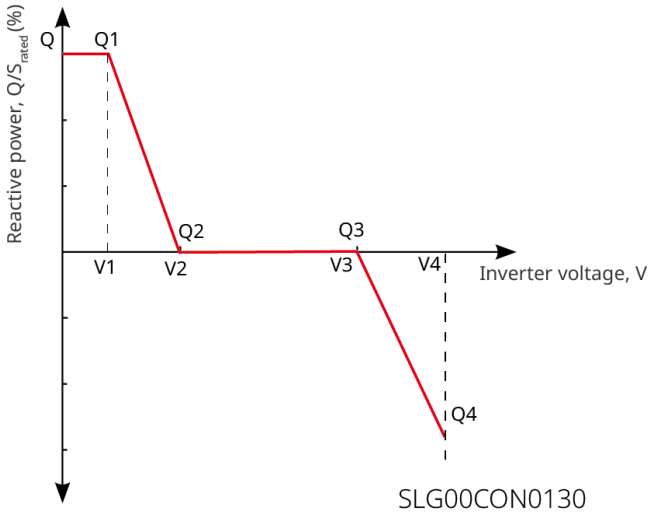
Parameter Name	Description
Hysteresis Wait Time	For over-frequency derating with frequency decrease, when the frequency is below the hysteresis point, the wait time for power recovery, meaning a certain time must elapse before power recovers.
Hysteresis Power Recovery Slope Reference Power	For over-frequency derating with frequency decrease, when the frequency is below the hysteresis point, the reference for power recovery, i.e., power recovery is performed according to the recovery slope * reference power rate of change. Supports: Pn rated power, Ps apparent power, Pm current power, Pmax maximum power, power difference (△P).
Hysteresis Power Recovery Slope	For over-frequency derating with frequency decrease, when the frequency is below the hysteresis point, the power change slope during power recovery.
Under-Frequency Loading	
P(F) Curve	Enable this function when setting the P(F) curve is required according to grid standards in certain countries or regions.
Under-Frequency Loading Mode	Set the under-frequency loading mode according to actual requirements. • Slope mode: Adjusts power based on the under-frequency point and loading slope. • Stop mode: Adjusts power based on the under-frequency start point and under-frequency end point.
Under-Frequency Start Point	When grid frequency is too low, the inverter increases active power output. When grid frequency is below this value, the inverter output power starts to increase.
Sell/Buy Power Transition Frequency	When the set frequency value is reached, the system transitions from selling power to buying power.

Parameter Name	Description
Under-Frequency End Point	When grid frequency is too low, the inverter increases active power output. When grid frequency is below this value, the inverter output power does not continue to increase.
Over-Frequency Power Slope Reference Power	Adjusts the inverter active power output based on reference power such as rated power, current power, apparent power, or maximum active power.
Under-Frequency Power Slope	When grid frequency is too low, the inverter increases active power output. The slope when inverter output power rises.
Tentional Delay Ta	When grid frequency is below the under-frequency point, the delay response time for inverter output power changes.
Hysteresis Function Enable	Enable the hysteresis function.
Frequency Hysteresis Point	During under-frequency loading, if the frequency increases, the power is output at the lowest point of loading power until the frequency is above the hysteresis point, then power recovers.
Hysteresis Wait Time	For under-frequency loading with frequency increase, when the frequency is above the hysteresis point, the wait time for power recovery, meaning a certain time must elapse before power recovers.
Hysteresis Power Recovery Slope Reference Power	For under-frequency loading with frequency increase, when the frequency is above the hysteresis point, the reference for power recovery, i.e., power recovery is performed according to the recovery slope * reference power rate of change. Supports: Pn rated power, Ps apparent power, Pm current power, Pmax maximum power, power difference (△P).
Hysteresis Power Recovery Slope	For under-frequency loading with frequency increase, when the frequency is above the hysteresis point, the power change slope during power recovery.
P(U) Curve Enable	Enable this function when setting the P(U) curve is required according to grid standards in certain countries or regions.

Parameter Name	Description
Vn Voltage	The ratio of the actual voltage at Vn point to the rated voltage, n=1, 2, 3, 4. For example: when set to 90, it means: V/Vrated%=90%.
Vn Active Power	The ratio of the active power output by the inverter at Vn point to the apparent power, n=1, 2, 3, 4. For example: when set to 48.5, it means: P/Prated%=48.5%.
Output Response Mode	Sets the active output response mode. Supports: • First-order low-pass filter: within the response time constant, output adjustment is achieved according to the first-order low-pass curve. • Slope scheduling: output adjustment is achieved according to the set power change slope.
Power Ramp Rate	When the output response mode is set to slope scheduling, active power scheduling is achieved according to the power ramp rate.
PT-1 Behavior Tau	When the output response mode is set to first-order low-pass filter, the time constant for active power changes according to the first-order low-pass filter curve.
Overload Function Switch	When enabled, the maximum active power output is 1.1 times the rated power; otherwise, the maximum active power output is the same as the rated power value.

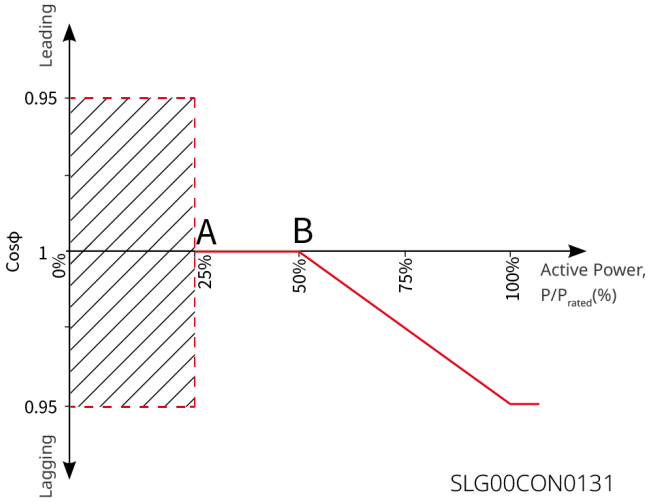
Reactive Power Mode

Q(U) Curve



SLG00CON0130

Cosφ Curve



SLG00CON0131

Parameter Name	Description
Fixed PF	
Fixed PF	Enable this function when a fixed Power Factor value is required according to grid standards in certain countries or regions. After successful parameter setting, the power factor remains constant during inverter operation.
Under-excited	Set the power factor as a positive or negative number according to the grid standards of the country or region and actual usage requirements.
Over-excited	
Power Factor	Set the power factor as needed, ranging from -1 to -0.8 and +0.8 to +1.

Parameter Name	Description
Fixed Q	
Fixed Q	Enable this function when fixed reactive power is required according to grid standards in certain countries or regions.
Over-excited/Under-excited	Set the reactive power as inductive reactive power or capacitive reactive power according to the grid standards of the country or region and actual usage requirements.
Reactive Power	Set the ratio of reactive power to apparent power.
Q(U) Curve	
Q(U) Curve	Enable this function when setting the Q(U) curve is required according to grid standards in certain countries or regions.
Mode Selection	Set the Q(U) curve mode, supporting Basic Mode and Slope Mode.
Vn Voltage	The ratio of the actual Vn point voltage to the rated voltage, where n=1, 2, 3, 4.
	For example: Setting it to 90 means: V/Vrated%=90%.
Vn Reactive Power	The ratio of the reactive power output by the inverter at the Vn point to the apparent power, where n=1, 2, 3, 4. For example: Setting it to 48.5 means: Q/Srated%=48.5%.
Voltage Deadband Width	Set the voltage deadband when the Q(U) curve mode is set to Slope Mode. Within the deadband, there is no requirement for reactive power output.
Over-excited Slope	When the Q(U) curve mode is set to Slope Mode, set the power change slope as a positive or negative number.
Under-excited Slope	
Vn Reactive Power	The ratio of the reactive power output by the inverter at the Vn point to the apparent power, where n=1, 2, 3, 4. For example: Setting it to 48.5 means: Q/Srated%=48.5%.

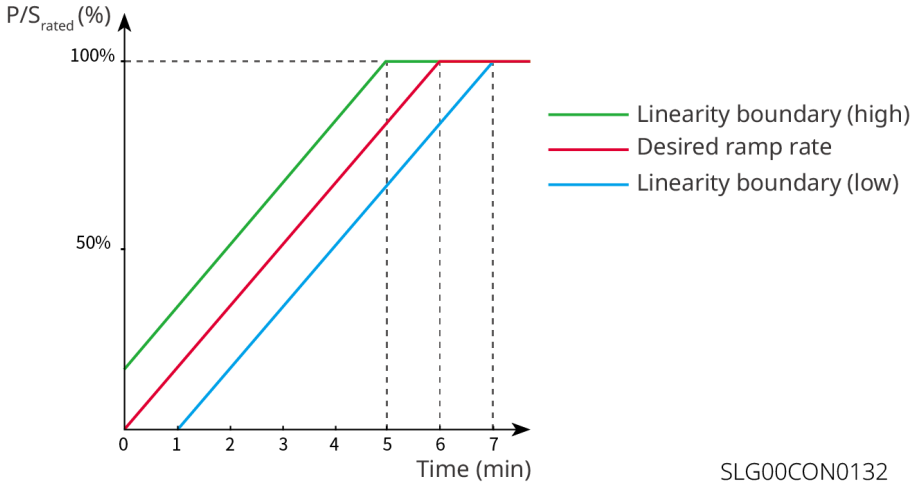
Parameter Name	Description
Q(U) Curve Response Time Constant	The power must reach 95% according to a first-order low-pass curve within 3 response time constants.
Extended Function Enable	Enable the extended function and set the corresponding parameters.
Enter Curve Power	When the ratio of the inverter's output reactive power to the rated power is between the Enter Curve Power and Exit Curve Power, the Q(U) curve requirements are met.
Exit Curve Power	
cosφ(P) Curve	
cosφ(P) Curve	Select this function when setting the Cosφ curve is required according to grid standards in certain countries or regions.
Mode Selection	Set the cosφ(P) curve mode, supporting Basic Mode and Slope Mode.
N Point Power	N point inverter output active power / rated power percentage. N=A, B, C, D, E.
N Point cosφ Value	N point power factor. N=A, B, C, D, E.
Over-excited Slope	When the cosφ(P) curve mode is set to Slope Mode, set the power change slope as a positive or negative number.
Under-excited Slope	
n Point Power	N point inverter output active power / rated power percentage. N=A, B, C.
n Point cosφ Value	N point power factor. N=A, B, C.
cosφ(P) Curve Response Time Constant	The power must reach 95% according to a first-order low-pass curve within 3 response time constants.
Extended Function Enable	Enable the extended function and set the corresponding parameters.

Parameter Name	Description
Enter Curve Voltage	When the grid voltage is between the Enter Curve Voltage and Exit Curve Voltage, the voltage meets the Cosφ curve requirements.
Exit Curve Voltage	
Q(P) Curve	
Q(P) Curve Enable	Enable this function when setting the Q(P) curve is required according to grid standards in certain countries or regions.
Mode Selection	Set the Q(P) curve mode, supporting Basic Mode and Slope Mode.
Pn Point Power	The ratio of reactive power at the Pn point to the rated power, where n=1, 2, 3, 4, 5, 6. For example: Setting it to 90 means: Q/Prated%=90%.
Pn Point Reactive Power	The ratio of active power at the Pn point to the rated power, where n=1, 2, 3, 4, 5, 6. For example: Setting it to 90 means: P/Prated%=90%.
Over-excited Slope	When the Q(P) curve mode is set to Slope Mode, set the power change slope as a positive or negative number.
Under-excited Slope	
Pn Point Power	The ratio of reactive power at the Pn point to the rated power, where n=1, 2, 3. For example: Setting it to 90 means: Q/Prated%=90%.
Pn Point Reactive Power	The ratio of active power at the Pn point to the rated power, where n=1, 2, 3. For example: Setting it to 90 means: P/Prated%=90%.
Response Time Constant	The power must reach 95% according to a first-order low-pass curve within 3 response time constants.

Grid Protection Parameters

Parameter Name	Description
Over-voltage Trigger Stage n Value	Set the grid over-voltage trigger Stage n protection point, n=1, 2, 3, 4.
Over-voltage Trigger Stage n Trip Time	Set the grid over-voltage trigger Stage n trip time, n=1, 2, 3, 4.
Under-voltage Trigger Stage n Value	Set the grid under-voltage trigger Stage n protection point, n=1, 2, 3, 4.
Under-voltage Trigger Stage n Trip Time	Set the grid under-voltage trigger Stage n trip time, n=1, 2, 3, 4.
10min Over-voltage Trigger Value	Set the 10min over-voltage trigger value.
10min Over-voltage Trip Time	Set the 10min over-voltage trigger trip time.
Over-frequency Trigger Stage n Value	Set the grid over-frequency trigger Stage n protection point, n=1, 2, 3, 4.
Over-frequency Trigger Stage n Trip Time	Set the grid over-frequency trigger Stage n trip time, n=1, 2, 3, 4.
Under-frequency Trigger Stage n Value	Set the grid under-frequency trigger Stage n protection point, n=1, 2, 3, 4.
Under-frequency Trigger Stage n Trip Time	Set the grid under-frequency trigger Stage n trip time, n=1, 2, 3, 4.

Grid Connection Parameters



Parameter Name	Description
Startup On-Grid	
Connection Voltage Upper Limit	When the inverter connects to the grid for the first time, if the grid voltage is higher than this value, the inverter will be unable to connect to the grid.
Connection Voltage Lower Limit	When the inverter connects to the grid for the first time, if the grid voltage is lower than this value, the inverter will be unable to connect to the grid.
Connection Frequency Upper Limit	When the inverter connects to the grid for the first time, if the grid frequency is higher than this value, the inverter will be unable to connect to the grid.
Connection Frequency Lower Limit	When the inverter connects to the grid for the first time, if the grid frequency is lower than this value, the inverter will be unable to connect to the grid.
On-Grid Waiting Time	When the inverter connects to the grid for the first time, the waiting time before connecting to the grid after the grid voltage and frequency meet the on-grid requirements.
Soft Ramp Up Slope Enable	Enables the startup slope function.
Soft Ramp Up Slope	According to the standard requirements of certain countries or regions, the percentage increase in power output per minute when the inverter starts up for the first time.

Parameter Name	Description
Fault Reconnection	
Connection Voltage Upper Limit	When the inverter reconnects to the grid after a fault, if the grid voltage is higher than this value, the inverter will be unable to connect to the grid.
Connection Voltage Lower Limit	When the inverter reconnects to the grid after a fault, if the grid voltage is lower than this value, the inverter will be unable to connect to the grid.
Connection Frequency Upper Limit	When the inverter reconnects to the grid after a fault, if the grid frequency is higher than this value, the inverter will be unable to connect to the grid.
Connection Frequency Lower Limit	When the inverter reconnects to the grid after a fault, if the grid frequency is lower than this value, the inverter will be unable to connect to the grid.
On-Grid Waiting Time	When the inverter reconnects to the grid after a fault, the waiting time before connecting to the grid after the grid voltage and frequency meet the on-grid requirements.
Reconnection Loading Slope Enable	Enables the startup slope function.
Reconnection Loading Slope	According to the standard requirements of certain countries or regions, the percentage increase in power output per minute when the inverter connects to the grid (not for the first time). For example: Setting it to 10 indicates a reconnection loading slope of 10% P/Srated/min.

Voltage Fault Ride-Through Parameters

Parameter Name	Description
Low Voltage Ride-Through (LVRT)	

Parameter Name	Description
UVn Point Voltage	During LVRT, the ratio of the ride-through voltage at the LVRT characteristic point to the rated voltage. n=1, 2, 3, 4, 5, 6, 7.
UVn Point Time	During LVRT, the ride-through time at the LVRT characteristic point. n=1, 2, 3, 4, 5, 6, 7.
LVRT Entry Threshold	When the grid voltage is between the LVRT entry threshold and the LVRT exit threshold, the inverter does not immediately disconnect from the grid.
LVRT Exit Threshold	
Slope K1	The K value coefficient for reactive power support during LVRT.
Zero Current Mode Enable	When enabled, the system outputs zero current during LVRT.
Entry Threshold	The threshold for entering zero current mode.
High Voltage Ride-Through (HVRT)	
OVn Point Voltage	During HVRT, the ratio of the ride-through voltage at the HVRT characteristic point to the rated voltage. n=1, 2, 3, 4, 5, 6, 7.
OVn Point Time	During HVRT, the ride-through time at the HVRT characteristic point. n=1, 2, 3, 4, 5, 6, 7.
HVRT Entry Threshold	When the grid voltage is between the HVRT entry threshold and the HVRT exit threshold, the inverter does not immediately disconnect from the grid.
HVRT Exit Threshold	
Slope K2	The K value coefficient for reactive power support during HVRT.
Zero Current Mode Enable	During HVRT, the system outputs zero current.
Entry Threshold	The threshold for entering zero current mode.

Frequency Fault Ride-Through Parameters

Parameter Name	Description
Frequency Ride-Through Enable	Enable the frequency ride-through function.
UFn Point Frequency	Set the frequency for under-frequency point n. n=1, 2, 3.
UFn Point Time	Set the under-frequency time for under-frequency point n. n=1, 2, 3.
OFn Point Frequency	Set the frequency for over-frequency point n. n=1, 2, 3.
OFn Point Time	Set the over-frequency time for over-frequency point n. n=1, 2, 3.

10.2 Explanation of Terms

Definition of Overvoltage Categories

Overvoltage Category I: Equipment connected to circuits where measures are taken to limit transient overvoltages to a relatively low level.

Overvoltage Category II: Energy-consuming equipment supplied from a fixed electrical installation. This category includes appliances, portable tools, and other household and similar loads. If special requirements for the reliability and suitability of such equipment exist, Overvoltage Category III is applied.

Overvoltage Category III: Equipment within fixed electrical installations where the reliability and suitability of the equipment must meet special requirements. This includes switchgear in fixed installations and industrial equipment permanently connected to fixed electrical installations.

Overvoltage Category IV: Equipment used at the origin of the electrical installation, including meters and primary overcurrent protection devices.

Definition of Wet Location Categories

Environmental Parameters	Levels		
	3K3	4K2	4K4H

Environmental Parameters	Levels		
Temperature Range	0~+40℃	-33~+40℃	-33~+40℃
Humidity Range	5% to 85%	15% to 100%	4% to 100%

Definition of Environmental Categories
Outdoor Inverter: Ambient air temperature range from -25°C to +60°C, suitable for Pollution Degree 3 environments.
Indoor Type II Inverter: Ambient air temperature range from -25°C to +40°C, suitable for Pollution Degree 3 environments.
Indoor Type I Inverter: Ambient air temperature range from 0°C to +40°C, suitable for Pollution Degree 2 environments.

Definition of Pollution Degree Categories
Pollution Degree 1: No pollution or only dry, non-conductive pollution.
Pollution Degree 2: Normally only non-conductive pollution occurs, but temporary conductivity caused by condensation must be considered.
Pollution Degree 3: Conductive pollution occurs, or non-conductive pollution becomes conductive due to condensation.
Pollution Degree 4: Persistent conductive pollution occurs, for example, due to conductive dust or rain/snow.

11 Contact Information

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