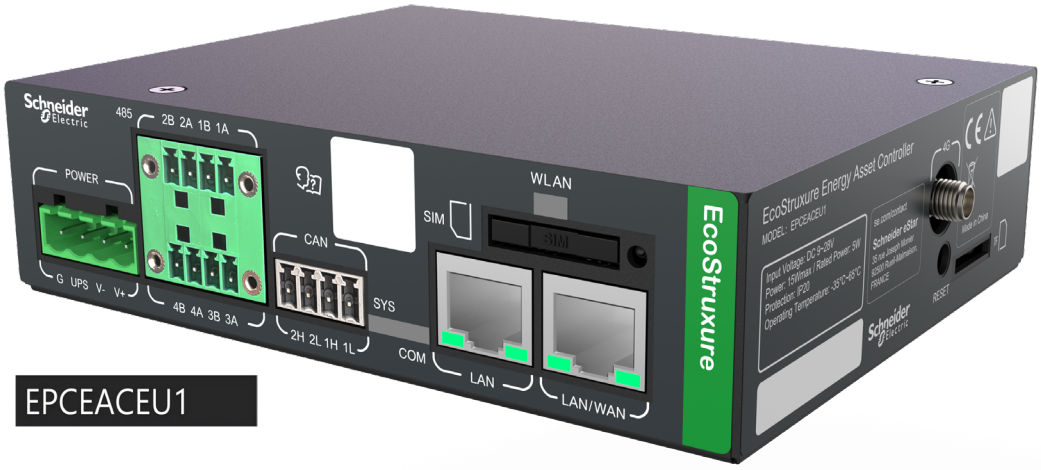
EcoStruxure Energy Asset Controller

en Commissioning Guide



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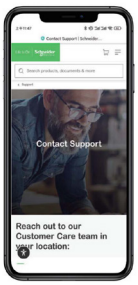

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Legal Information

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Contact Information

For country-specific details, please contact your local Schneider Electric Sales Representative or visit the Schneider Electric Ethernet networksite at: https://www.se.com/

Information About Your System

As soon as you open your product, inspect the contents and record the following

information and be sure to keep your proof of purchase. If any damage is found, contact customer support.

Serial Number: _____ Purchased From: _____

Product Number: _____ Purchase Date: _____

Document Number: TME92883022EN Date: February 2026

Revision: V1.6

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Validity Note

This document is valid only for the Schneider EcoStruxure Energy Asset Controller (EcoStruxure Energy Asset Controller).
If this manual is in any language other than English, although steps have been taken to maintain the accuracy of the translation, the accuracy cannot be guaranteed. Approved content is contained with the English language version which is posted at https://www.se.com/.
The characteristics of the products described in this document are intended to match the characteristics that are available on https://www.se.com/. As a part of our corporate strategy for constant improvement, we may revise the content over time to enhance clarity and accuracy. If you see a difference between the characteristics in this document and the characteristics on https://www.se.com/, consider https://www.se.com/ to contain the latest information.

Safety Information

Important Information
Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. **Failure to follow these instructions can result in injury or equipment damage.**

NOTICE
NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word. **Failure to follow these instructions can result in equipment damage.**

About Scope

This document provides a comprehensive guide for the EcoStruxure Energy Asset Controller software version V3.6.x, covering legal information, system setup, page structure, communication and control topologies, demand and schedule configurations, real - time data monitoring, and various system settings.The associated manuals for system commissioning are as follows.

No.	Manual Name	Product Name	Commercial Reference (CR)
1	Schneider Boost Pro Installation and User Guide	Schneider Boost Pro	BAT215KPCS100K3EU1 BAT215KPCS100K3EU2
2	Schneider Boost Pro Maintenance Guide	Schneider Boost Pro	BAT215KPCS100K3EU1 BAT215KPCS100K3EU2
3	EcoStruxure Energy Asset Controller User Guide	EcoStruxure Energy Asset Controller EcoStruxure Energy Asset Controller Accessory Kit	EPCEACEU1 EPCEACACCEU1
4	EcoStruxure Energy Asset Controller Commissioning Guide	EcoStruxure Energy Asset Controller	EPCEACEU1
5	Battery Energy Storage System Integration Guide	Schneider Boost Pro EcoStruxure Energy Asset Controller	BAT215KPCS100K3EU1/ BAT215KPCS100K3EU2 EPCEACEU1

Terms and Abbreviations

Abbreviation	Full Name	Description
EVSE	Electric Vehicle Supply Equipment	Equipment for charging electric vehicles.
PVI	Photovoltaic Inverter	A Photovoltaic Inverter is a crucial device in a solar power generation system. Its main function is to convert the direct current (DC) generated by solar panels into alternating current (AC) that can be fed into the power grid or used by loads.
BESS	Battery Energy Storage System	A component in the Storage-EVSE-Solar system and used to store electrical energy. Its functions include integrating distributed power sources (such as photovoltaic and wind turbines) and loads, supporting the independent operation or grid - connected mode of the Storage-EVSE-Solar system, and achieving energy self - sufficiency and local intelligent regulation,In this manual, BESS specifically refers to Boost pro.
OCPP	Open ChargePoint Protocol	Standard protocol for communication between EVSEs and a central system.
DHCP	Dynamic Host Configuration Protoco	Protocol for automatically assigning IP addresses to devices
LAN	Local Area Network	Method for connecting multiple devices in a logical network used for sharing data and resources
WAN	Wide Area Network	Method of connecting multiple LANs together for the purposes of sharing data and resources
SLMS	Static Load Management System	Static Load Management System
DLMS	Dynamic Load Management System	Dynamic Load Management System

1 Prerequisites

Before using EcoStruxure Energy Asset Controller Ethernet network for configuration, please make the following preparations.

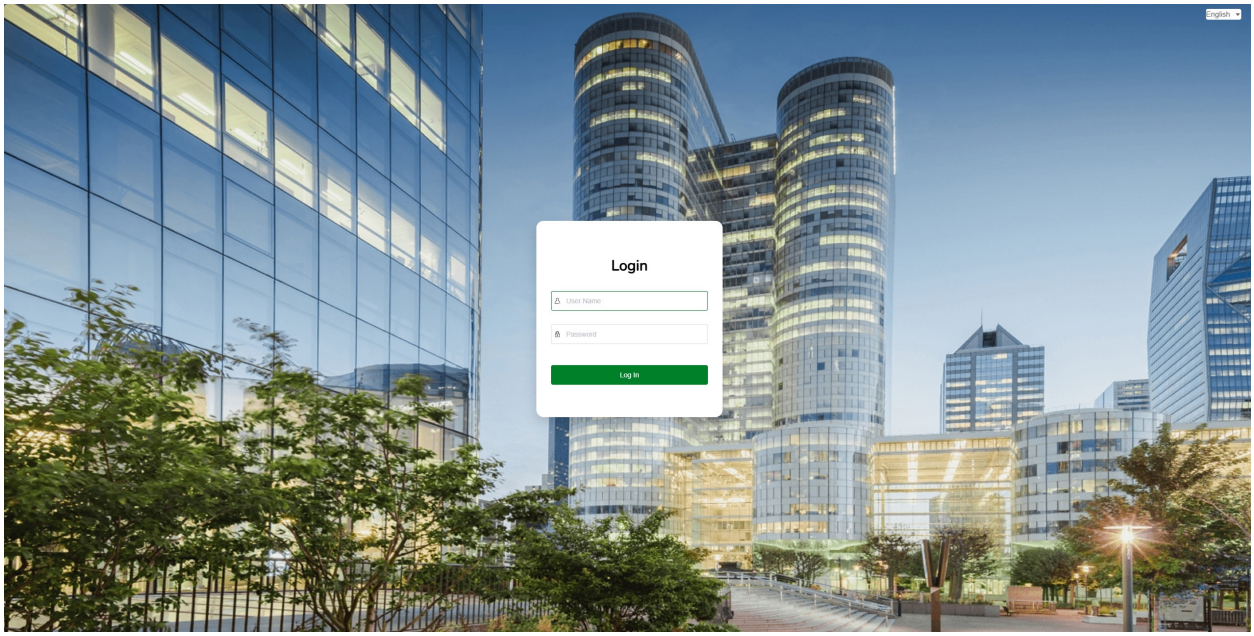
- Connect to the LAN port or LAN/WAN port of EcoStruxure Energy Asset Controller using an Ethernet cable.
- Computer network parameter configuration
  - If you connect to the LAN port of EcoStruxure Energy Asset Controller, configure the computer network port as follows:
    A. IPV4:192.168.1.100
    B. Gateway: 192.168.1.1
    C. Subnet Mask: 255.255.255.0
  - If you connect to the LAN/WAN port of EcoStruxure Energy Asset Controller, configure the computer network port as follows:
    A. IPV4:192.168.2.100
    B. Gateway: 192.168.2.1
    C. Subnet Mask: 255.255.255.0
- If you use the LAN/WAN interface, open your computer browser and enter [192.168.2.136] in the address bar.
- If you use the LAN interface, open your computer browser and enter [192.168.1.136] in the address bar.
- Enter the username and password. The initial username is Admin, and the initial password is 1234.

NOTICE

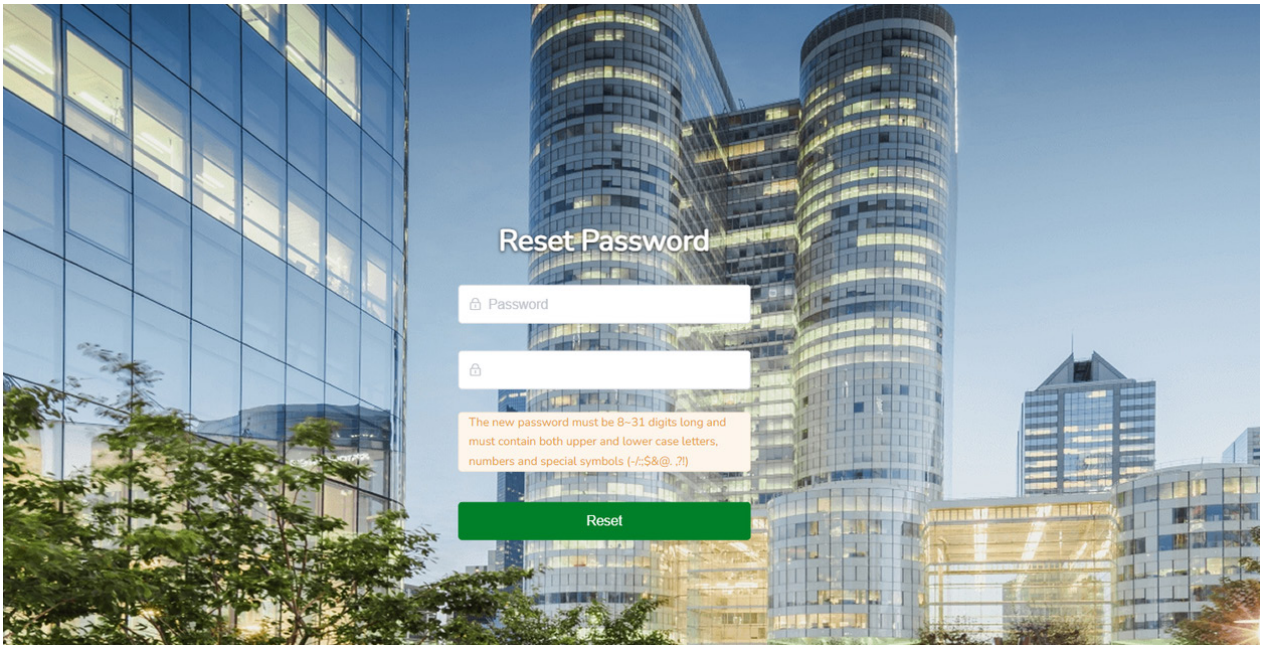
RISK OF ACCOUNT LOCKOUT OR LOGIN FAILURE

- Ensure correct password entry,including case-sensitive,no types or extra spaces.
- Pause and verify credentials if unsure; avoid rapid consecutive attempts.
- Store passwords securely to prevent accidental errors.
- Only 3 attempts are allowed. Exceeding 3 attempts will lock the Ethernet networkpage for 3600 seconds.
- The reset password must be 8 to 31 characters long and must include uppercase letters, lowercase letters, numbers, and special characters (-/:;$&@.,?).

Failure to follow these instructions can result in system malfunction.



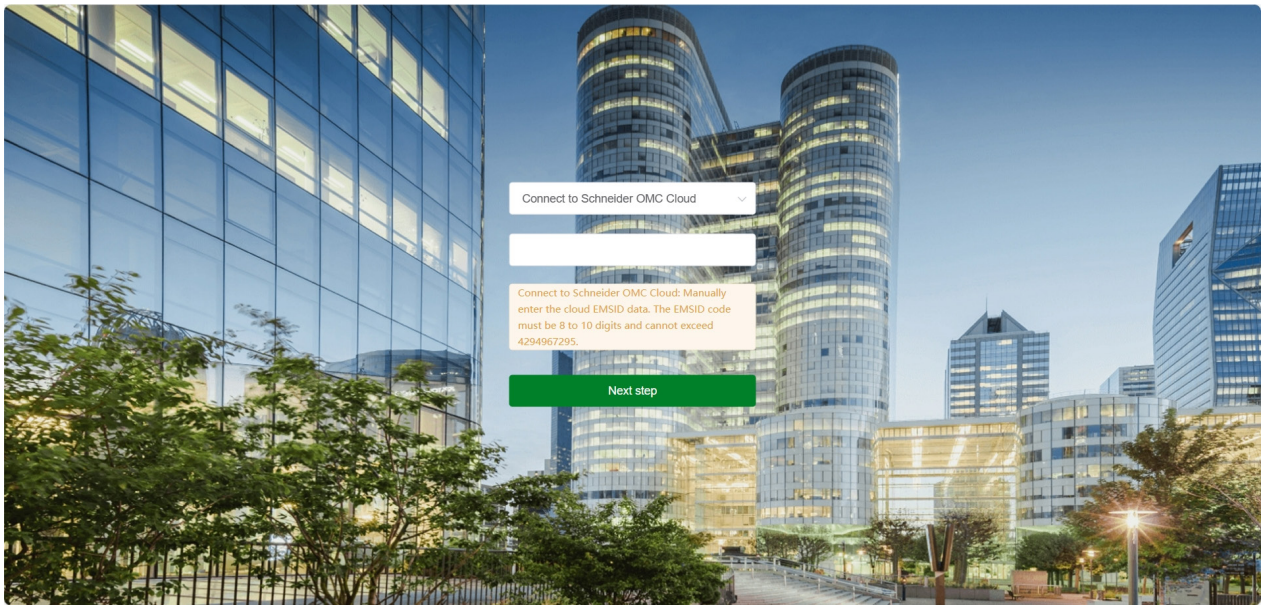
- Change Password
  After the first login, you will immediately enter the password modification interface. Please modify your password.



- Working Mode Selection:(There are two modes to choose from)

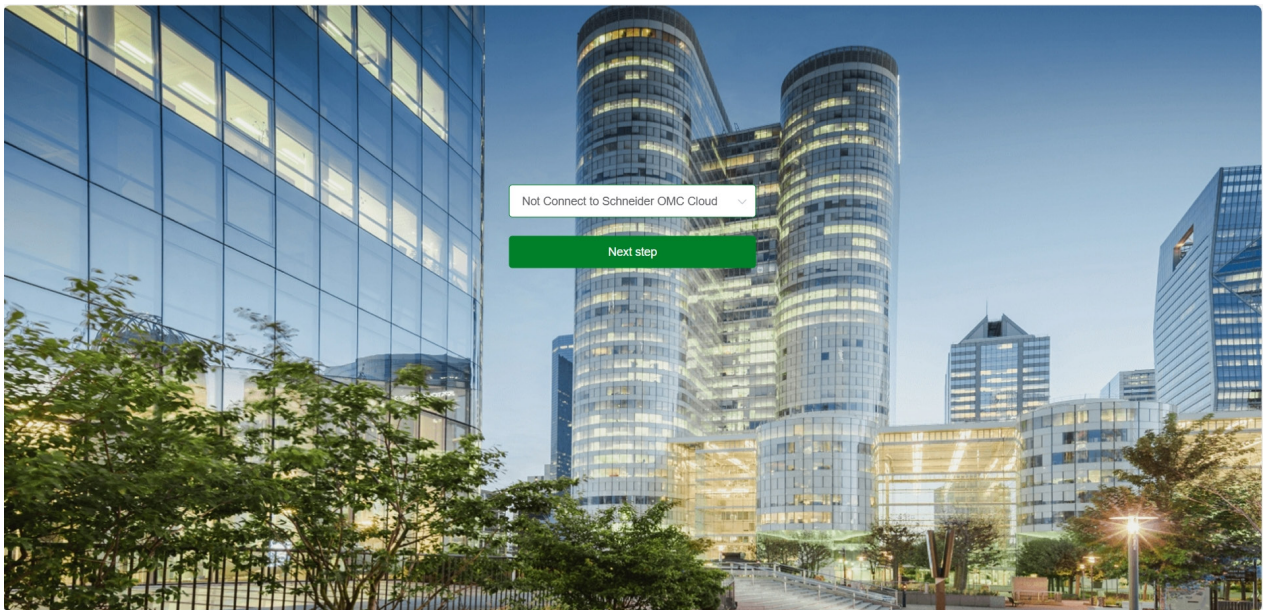
  a. Connect to Schneider OMC Cloud.

  you need to enter the EMSID, which can be obtained from the cloud and is an 8- to 10-digit number. Then click Next.



  b. Not Connect to Schneider OMC Cloud.

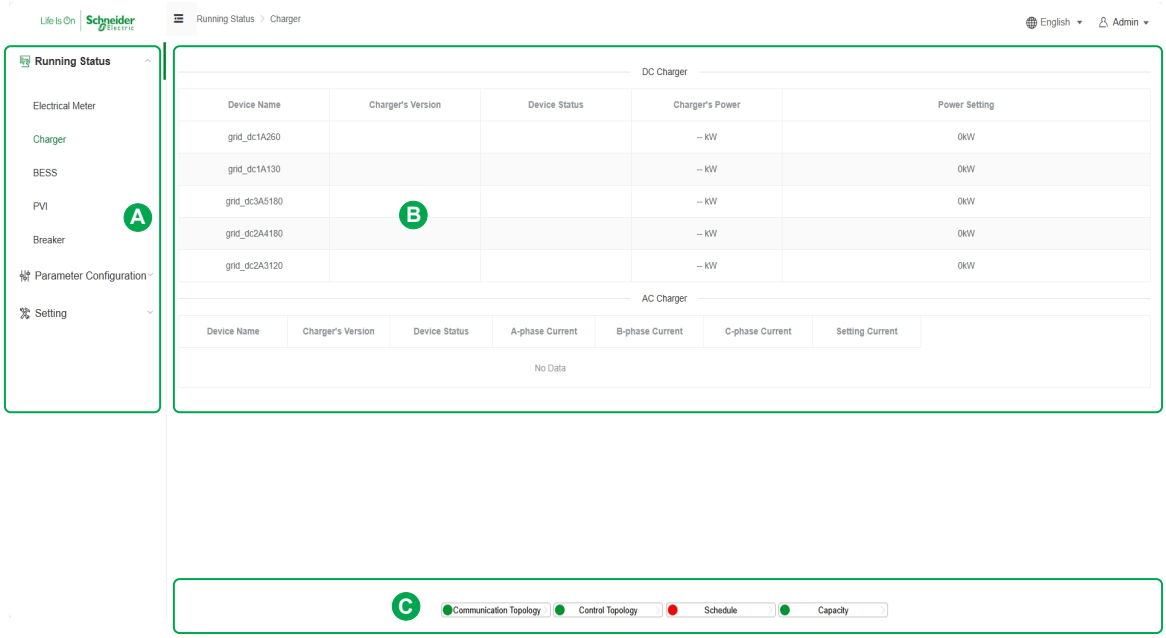
  you can directly click Next.



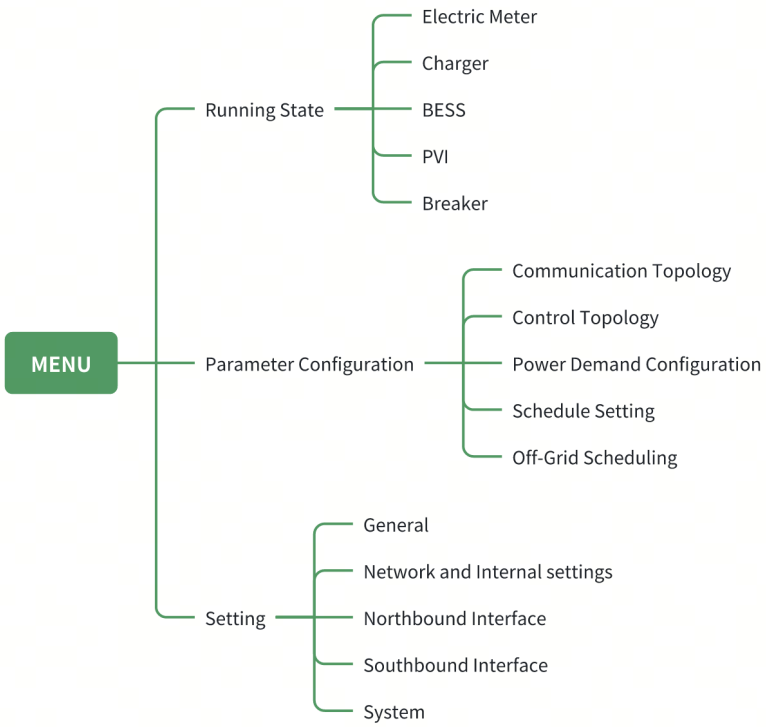
- At this time, EcoStruxure Energy Asset Controller will restart. Wait approximately two minutes. The blinking of the EcoStruxure Energy Asset Controller indicator light indicates that the restart is complete. After the restart, it will jump to the login page. Enter your account and password to log in.

2 Page Structure

The Local Ethernet networkpages of EcoStruxure Energy Asset Controller are mainly divided into three parts, as shown in the figure below:



A. The menu structure is as follow:



B. The content section will display different content based on the menu selected by the customer.
C. Status Bar, which displays the current status of EcoStruxure Energy Asset Controller in real time. Clicking on the Status Bar enables the access to the corresponding page.

3 Communication Topology

3.1 Overview

Communication topology is the cornerstone of the entire system and has the following two key functions:

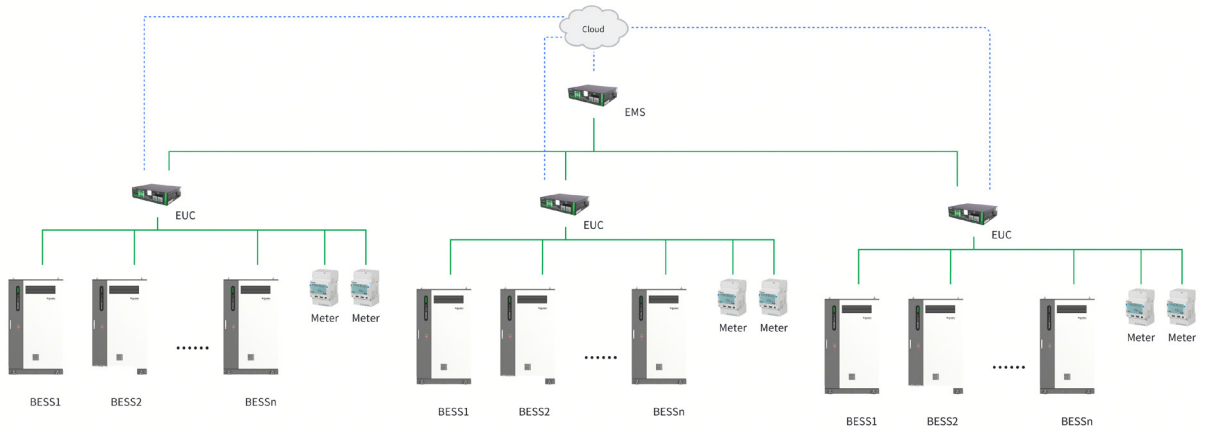
- Identify the devices present within the system and define their names, electrical parameters, etc.
- Define the communication methods of these devices, covering physical interfaces, communication protocols, protocol addresses, etc.

3.2 Working Mode

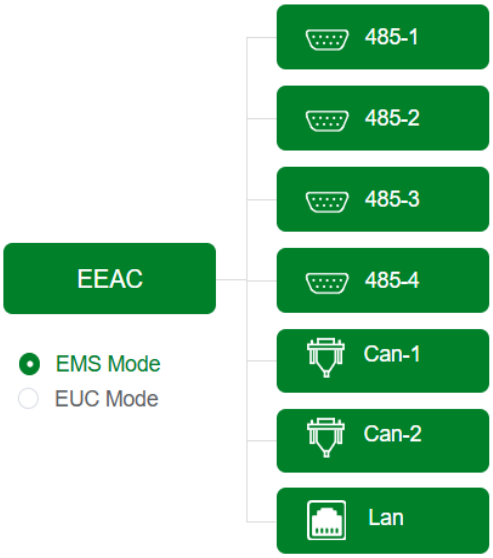
EcoStruxure Energy Asset Controller has two operating modes:

a. EMS (Energy Management System) mode is a commonly used operating mode, where EcoStruxure Energy Asset Controller will serve as the core control device of the Storage-EVSE-Solar system, controlling the operating power of all devices to ensure the safe, efficient, and economical operation of the Storage-EVSE-Solar system.

b. EUC (Energy Unit Controller) Mode, where EUC is a sub-device of the superior EMS. As a unit controller, EUC can only be connected to BESS and electricity meters. The block diagram is as follows:

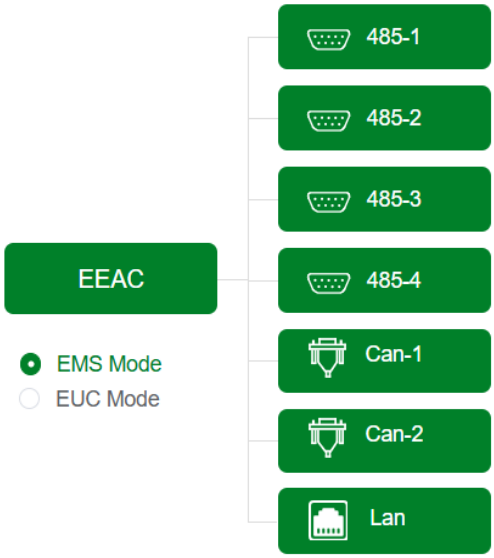


- The EUC mainly undertakes the following four functions:
  - Receives commands from the superior EMS device, decomposes them, and sends them to each BESS unit.
  - Read a portion of the BESS data (such as active power, etc.), fit the data, and then send it to the superior EMS. At this time, the EUC will virtualize all the BESS it controls into a single independent BESS.
  - Read other data from BESS (such as cell voltage and current, etc.), and send the data to the Cloud Computing Platform.
  - Read electricity meter data and send it to the superior EMS.
- The working mode setting method is shown in the figure below:



3.3 Add Device

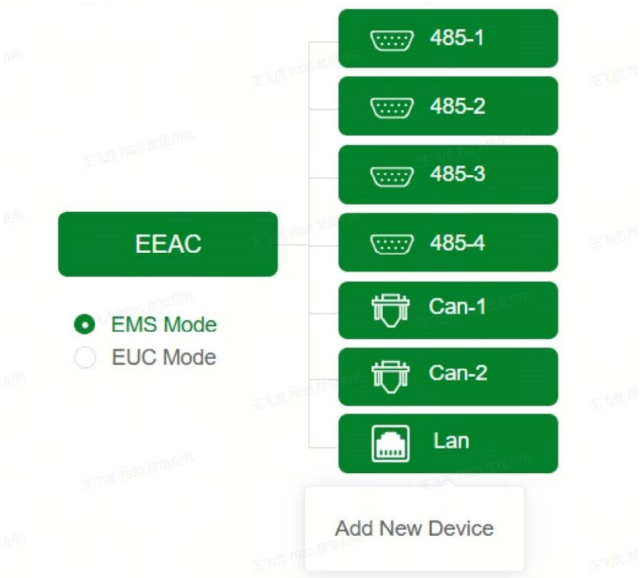
- Select "Parameter Configuration" → "Communication Topology" to enter the communication topology settings page. EcoStruxure Energy Asset Controller provides three types of interfaces for southbound devices, including:
  - Four RS485 ports
  - Two CAN ports
  - One network port (LAN)
- Another network port (LAN/WAN) cannot be connected to southbound devices and is only used for connecting to the public network or the host computer.



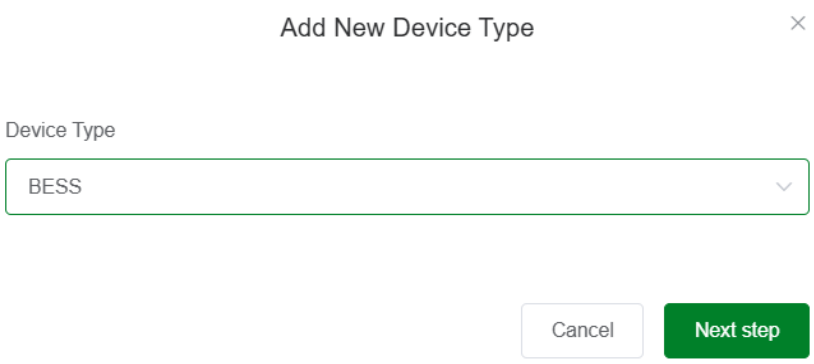
- Devices with different communication interfaces are connected to the corresponding interfaces of EcoStruxure Energy Asset Controller. For example, a charger with an Ethernet interface is connected to the LAN port; an electricity meter with an RS485 interface is connected to the RS485 port.
- If you need to add a device, you can click the left mouse button on the corresponding label. Then click "Add Device", select the device type, enter the parameters, and finally click "OK".

3.3.1 Add Boost Pro

A. Under the LAN port, click Add Device.

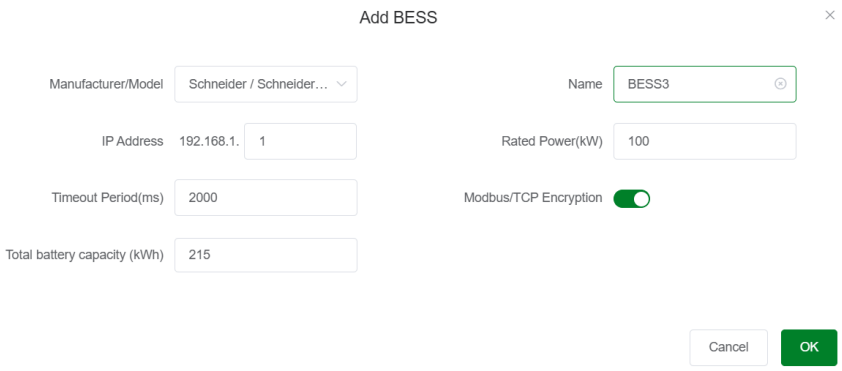


B. Select the device type.



3.3 Add Device

C. Enter the parameters, and click Next after completion.

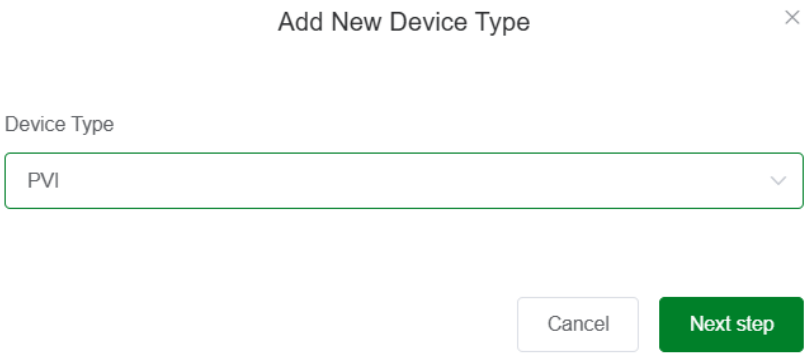


The descriptions of each parameter of the BESS device are as shown in the following table.

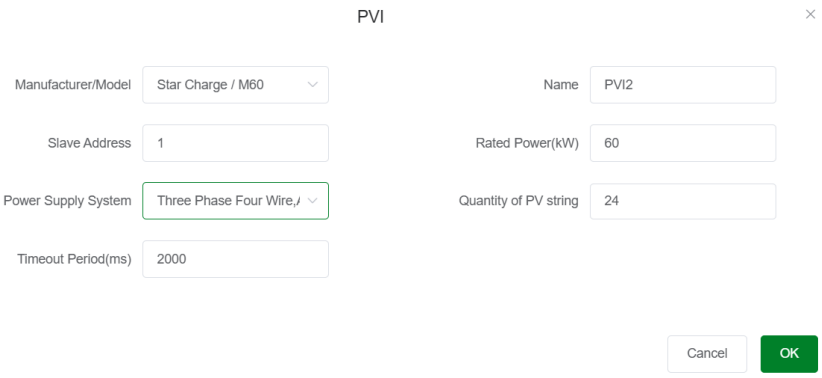
Parameter Name	Description
Manufacturer/Model	Manufacturer and model of this device.
Name	User-defined, the name of each device within the same station needs to be unique.
IP Address	If the device is connected to the LAN port: • The communication address of the device is usually set to the last digit of the dotted IP address. For example, if the device's IP address is [192.168.1.nnn], then when adding the device, its communication address is filled in as nnn. The value range of nnn is between 1 and 255, excluding 136 and 255. • For obtaining the device's IP Address, please refer to the pile's operation and maintenance manual. • [192.168.1.136] is the default IP Address for the EcoStruxure Energy Asset Controller LAN port. Users can configure it according to the actual on-site situation. For the configuration method, please refer to the description in Chapter 10 Network Configuration.
Rated power(kW)	Rated power of BESS equipment
Exceeded Time (ms)	Default is 2000 milliseconds. If no response is received within 2000 milliseconds after EcoStruxure Energy Asset Controller accesses the device, a communication timeout is determined. If 4 consecutive communication timeouts occur, this device is determined to be abnormal (the device status can be seen in Running State).
Modbus TCP Encryption	Set whether to use encrypted communication between this device and EcoStruxure Energy Asset Controller.
Total battery capacity (kWh)	Fill in according to the actual situation. For example, for a 215 kWh BESS cabinet, 215 should be filled in.

3.3.2 Add PV-inverter

A. Click on the RS485 interface, select "Add New Device", choose the device type as "PVI", and click "Next" after completion.



B. Enter the parameters and click “OK” when finished.



3.3 Add Device

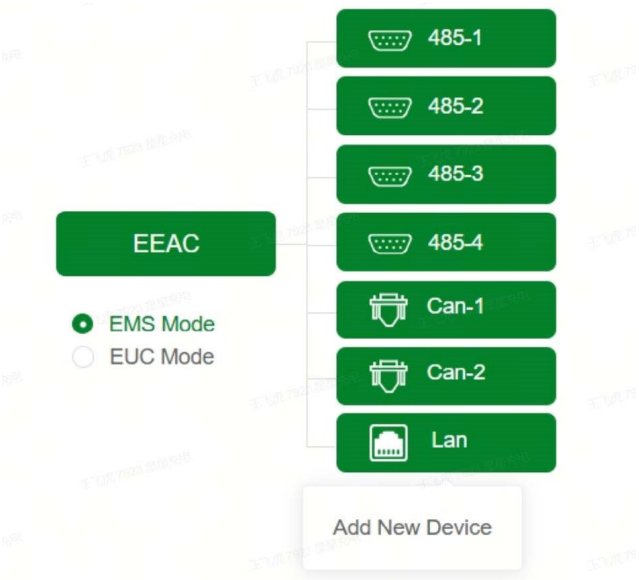
The parameters of photovoltaic equipment are described in the following table.

Parameter Name	Description
Manufacturer/Model	Manufacturer and model of this device.
Name	User-defined, the name of each device within the same station needs to be unique.
Slave Address	If the device is connected to a RS485 port, its slave address ranges from 1 to 254. Devices connected to the same 485 port need to have different slave addresses.
Rated power(kW)	Rated power of this device.
Power Supply System	The voltage type is configured according to the actual on-site situation. The available options are as follows: • Single-phase A • Single-phase B • Single-phase C • Three-phase four-wire, ABC • DC
Quantity of PV string	Customer to input the number in series of PV panel string in use.
Exceeded Time(ms)	Default is 2000 milliseconds. If no response is received within 2000 milliseconds after EcoStruxure Energy Asset Controller accesses the device, a communication timeout is determined. If 4 consecutive communication timeouts occur, this device is determined to be abnormal (the device status can be seen in Running State).

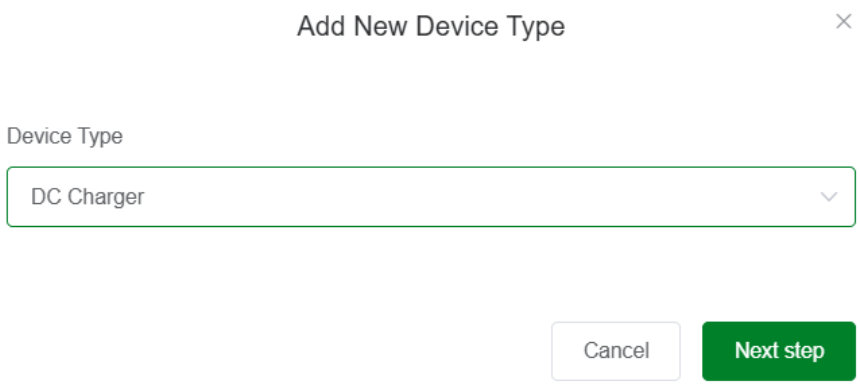
3.3.3 Add DC Charger

- Different models of DC chargers have different communication interfaces such as RS485, CAN, and network ports. Here, we take the network port DC charger as an example.

A. Click the LAN port label and select "Add New Device".

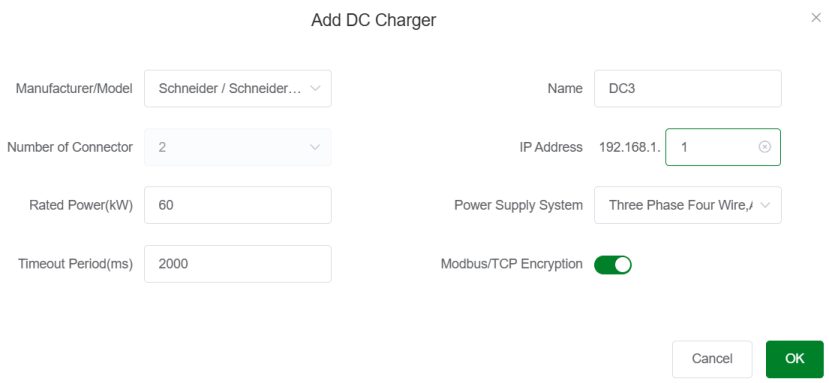


B. Select device type: DC charger, Then click "Next Step".



3.3 Add Device

C. Enter the parameters, and click "OK" after completion.



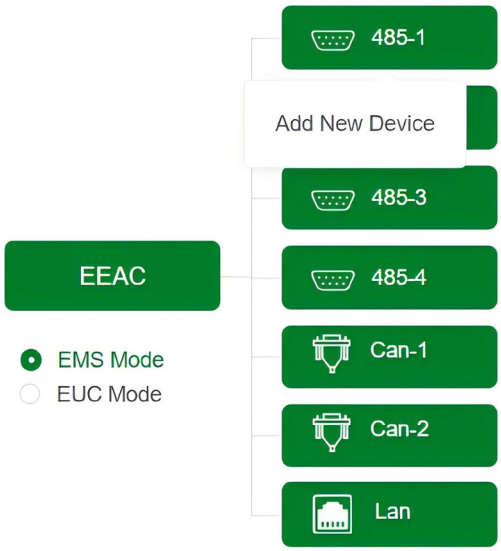
■ The descriptions of each parameter of the DC charger are as shown in the following table.

Parameter Name	Description
Manufacturer/ Model	Manufacturer and model of this device.
Name	User-defined, the name of each device within the same station needs to be unique.
Number of Connector	Number of Connector carried by the charger.
IP Address	• If the device is connected to the LAN port: a. The communication address of the device is usually set to the last digit of the dotted IP address. For example, if the device's IP address is [192.168.1.nnn], then when adding the device, its communication address is filled in as nnn. The value range of nnn is between 1 and 255, excluding 136 and 255. b. For obtaining the device's IP Address, please refer to the pile's operation and maintenance manual. c. [192.168.1.136] is the default IP Address for the EcoStruxure Energy Asset Controller LAN port. Users can configure it according to the actual on-site situation. For the configuration method, please refer to the description in Chapter 10 Network Configuration.
Rated power(kW)	Rated Power of charger.
Modbus TCP Encryption	Set whtether to use encrypted communication between this device and EcoStruxure Energy Asset Controller.
Power Supply System	• The voltage type is configured according to the actual on-site situation. The available options are as follows: a. Single-phase A b. Single-phase B c. Single-phase C d. Three-phase four-wire, ABC e. DC
Timeout Period(ms)	Default is 2000 milliseconds. If no response is received within 2000 milliseconds after EcoStruxure Energy Asset Controller accesses the device, a communication timeout is determined. If 4 consecutive communication timeouts occur, this device is determined to be abnormal (the device status can be seen in Running State).

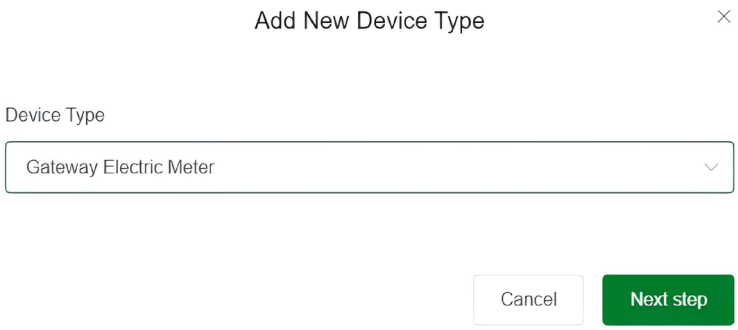
3.3 Add Device

3.3.4 Add Electric Meter

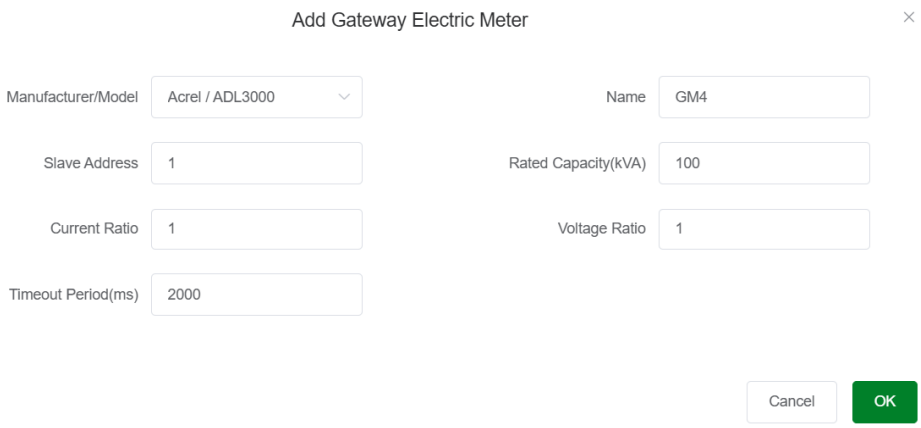
A. Click on the RS485 interface, select "Add New Device".



B. Select the Gateway Electric meter or Load meter based on the actual situation. The Gateway Electric meter monitors the electricity consumption of the entire station, and its data is a key parameter for EcoStruxure Energy Asset Controller to perform power control. The Load meter is used to record the electricity consumption of the load, and its data does not participate in power control.



C. Imported parameter. The configuration parameters of the gateway table and the load table are the same. Here, the gateway table is taken as an example.



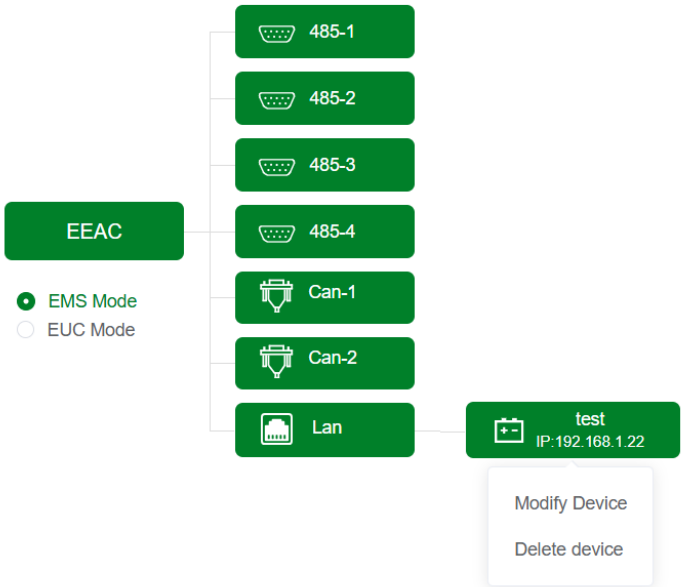
3.3 Add Device

The descriptions of each parameter of Electric Meter are as shown in the following table.

Parameter Name	Gateway Electricity Meter	Load Electricity Meter
Manufacturer/Model	Manufacturer and model of this device.	
Name	User-defined, the name of each device within the same station needs to be unique.	
Slave Address	If the device is connected to a RS485 port, its slave address ranges from 1 to 254. Devices connected to the same 485 port need to have different slave addresses.	
Rated Capacity (kVA)	Rated capacity given by the superior transformer or superior power supply unit	The maximum power value of all loads under this electricity meter.
Current Ratio	The current transformation ratio of the electricity meter is configured according to the actual current transformer CT used on site. If the CT transformation ratio is 600/5, then the current transformation ratio is filled in as 120.	
Voltage Ratio	Voltage transformation ratio of the electricity meter. • Configure according to the actual voltage transformer PT configuration on site. If the PT transformation ratio is 10kV/100V, then the voltage transformation ratio is filled in as 100. • If PT is not used, fill in 1 here, or refer to the meter specification.	
Timeout Period(ms)	Default is 2000 milliseconds. If no response is received within 2000 milliseconds after EcoStruxure Energy Asset Controller accesses the device, a communication timeout is determined. If 4 consecutive communication timeouts occur, this device is determined to be abnormal (the device status can be seen in Running State).	

3.4 Modify Device

A. Left click on the corresponding device and select Modify Device.



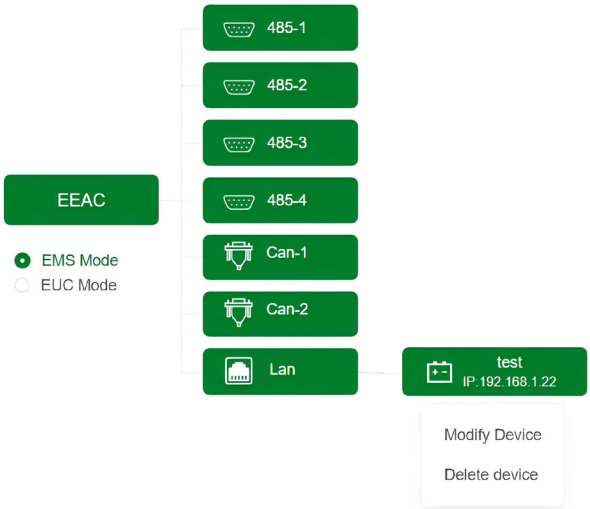
B. Modify the corresponding parameters, and click OK after completion.
C. Click Save, this change will take effect after restarting.

3.5 Delete Device

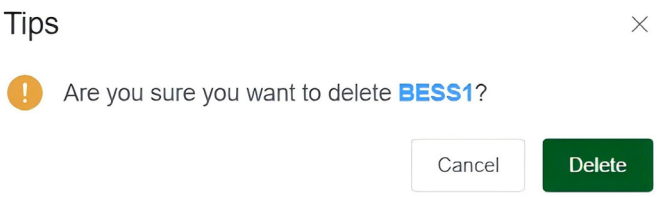
NOTICE

RISK OF CONFIGURATION LOSS
After each modification to the topology diagram, you must click the "Save" button for the configuration to take effect.
Failure to follow these instructions can result in system malfunction.

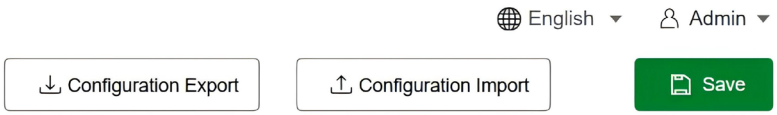
A. Left click on the corresponding device and select Delete device.



B. Click OK.



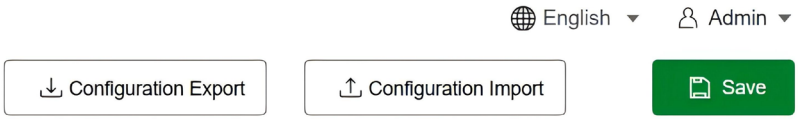
C. Click Save, it will take effect after restarting.



3.6 Configuration File Operations

- After the communication topology configuration is completed, a configuration file will be generated, which covers all communication topology information. The configuration file supports import and export operations.

A. Export
Click "Export Configuration" , and the configuration file will be automatically downloaded.



B. Import
Click "Configuration Import" with the mouse, select the configuration file, and the file will be automatically imported. After importing the file, please click "Save" and restart to enable the new configuration file.

3.7 Automatic Identification of Chargers

- After the physical connection between the charger and EcoStruxure Energy Asset Controller is completed, click "Automatic Networking" to add devices that have not been added to the EcoStruxure Energy Asset Controller communication topology diagram to it, eliminating the need for manual addition of sub-devices.

Automatic network configuration requires the support of sub-devices, and the Modbus mode at the pile end needs to be set to "EcoStruxure Energy Asset Controller mode". If you need to use this function, please set the self-organizing network port to 502. For detailed configuration methods, please refer to the communication configuration.

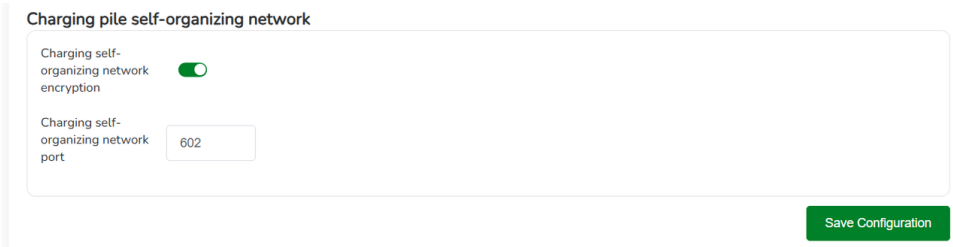
NOTICE

FAILURE IN SELF-ORGANIZATION NETWORK FUNCTIONALITY

- Complete the self-organizing network setup in the charger's configuration interface.
- Initiate a full system reboot immediately after saving the network parameters,follow the manual's reboot steps.
- Avoid operating the charger until the reboot process is fully completed.

Failure to follow these instructions can result in loss of the chargers' communication.

- The automatic identification function of the charger can only be used after it is correctly configured. Select the "Settings" → "Southbound Interface" → "charger" page to perform the configuration.



- parameters are described in the following table:

Parameter Name	Description
Charging self-organizing network encryption	Whether to use encrypted communication during the automatic identification process of the charger.
Charger Self-Organizing Network Port	The charger automatically identifies the Port Number used, with a default of 602.

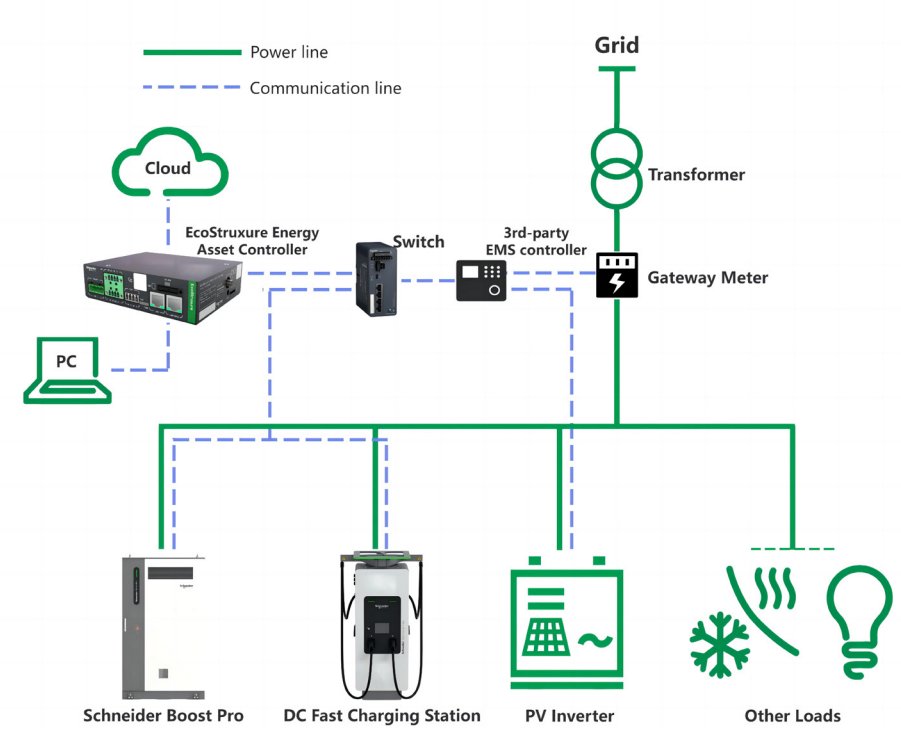
4 Control Topology

4.1 Bus Architecture

- EcoStruxure Energy Asset Controller supports single-layer bus and double-layer bus structures.

4.1.1 Single-layer Bus

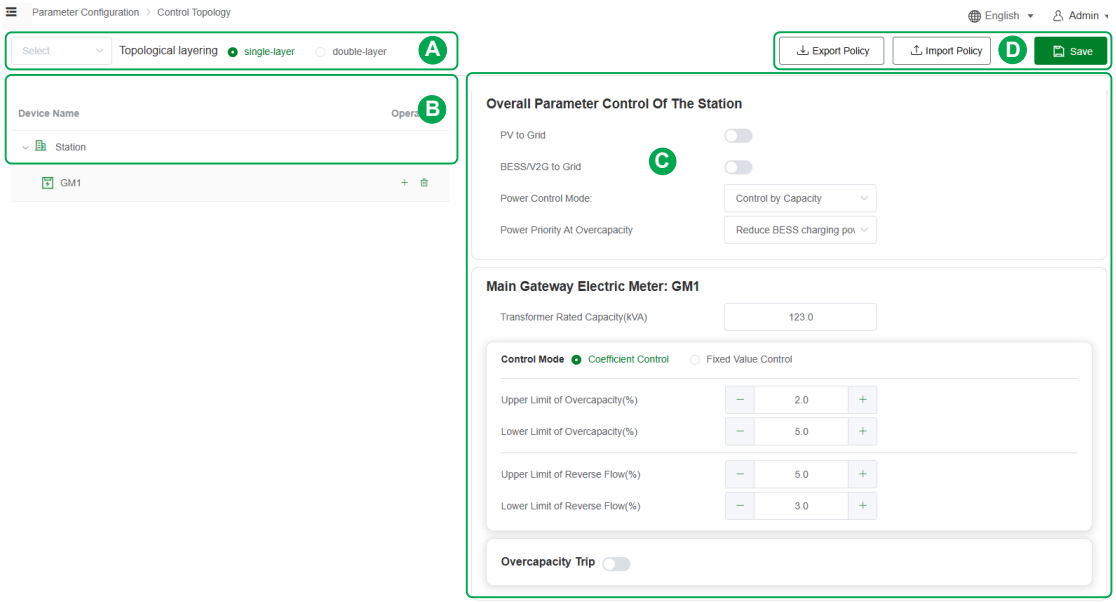
In a single-layer bus structure, there is only one type of bus voltage (e.g., 0.4 kV), and there is also only one gateway meter in the system. In the electrical topology, all devices such as BESS, Photovoltaic inverters, and chargers are located below the gateway meter. The system architecture diagram is as follows.



4.2 Page Structure

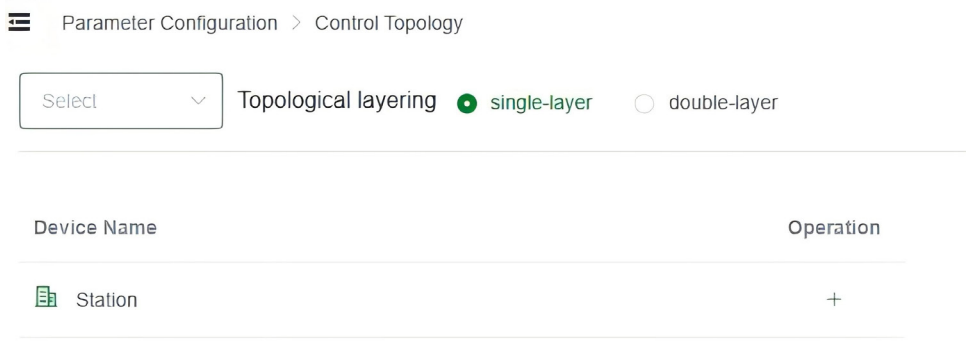
- Select "Parameter Configuration" → "Control Topology" to enter the control topology settings page.
- The control topology page is divided into four parts: (As shown in the figure below)

A. Station-level topology setting area. Here, two parameters, grid disconnection and busbar architecture, are set.
B. Electrical topology setting area. This tree structure is designed to align with the on-site electrical topology.
C. Parameter Settings Area. Specific parameter configurations are performed here.
D. File operation area. Perform operations such as saving, importing, and exporting files generated by configuration.

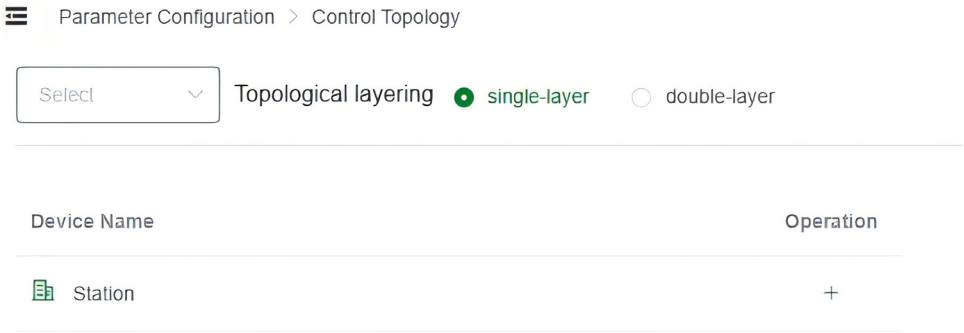


4.3 Configuring topology

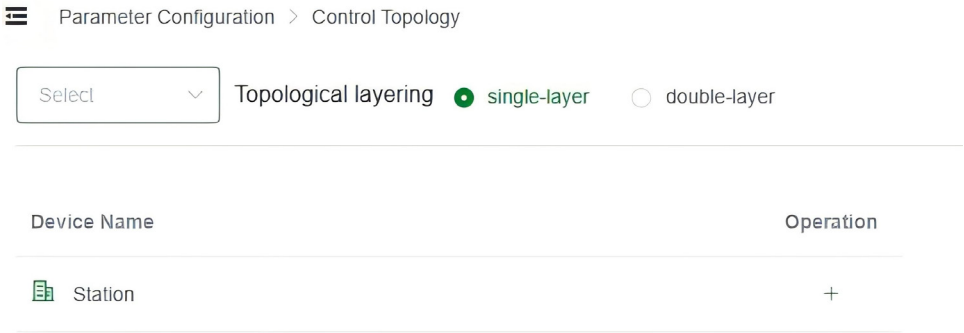
- Devices in the system have been defined in the "Communication Topology". Now, based on their positions in the electrical topology, add them to the topology bar. Here, a single-layer topology is taken as an example.
- Select and Off-grid Mode, which has three modes:
  - Pure Grid-connected Mode.
  - Grid-connected and off-grid mode.



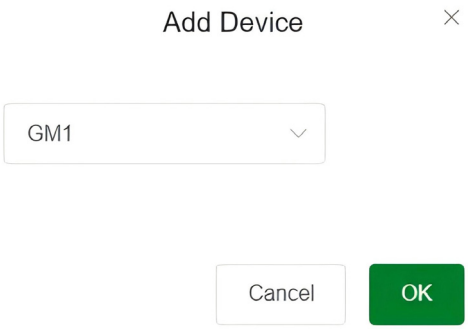
- Select the pure grid-connected mode here.
  a. Select the bus hierarchical structure. There are two types of bus hierarchical structures, namely single-layer structure and double-layer structure. Here, the single-layer structure is selected.



b. To add the main gateway table, click "+".

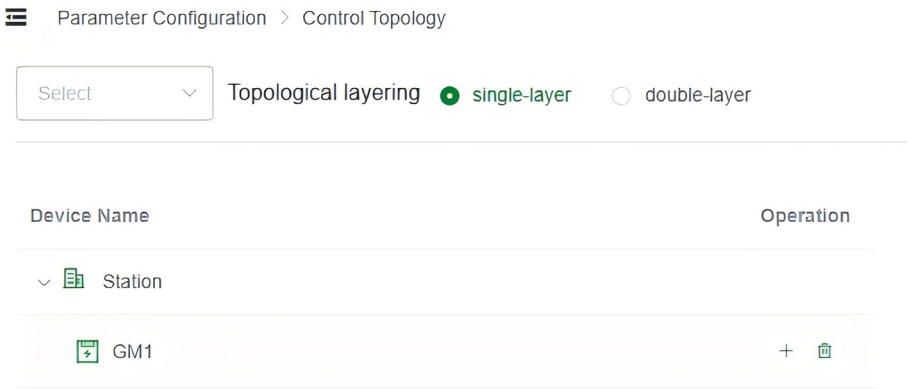


c. Select the gateway table or virtual meter defined in the "Communication Topology". The meter "GM1" in the legend is a device already configured in the communication topology, and users can select the meter named by themselves in the communication topology.

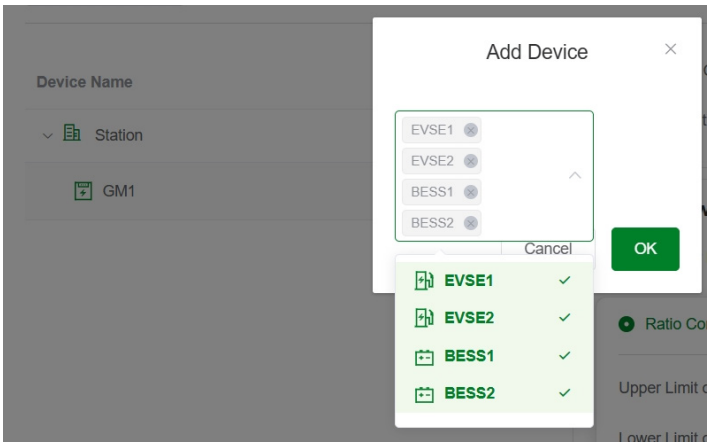


4.3 Configuring topology

d. Add a device. Click the "+" button on the right side of the main gateway table.



e. Select the device to be added, as shown in the figure below.



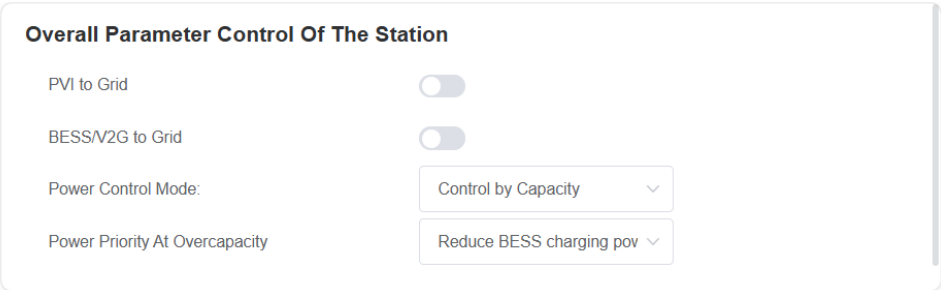
- If it is a double-layer bus structure, the steps are as follows:
  a. Select the pure grid-connected mode.
  b. Select the double-layer button.
  c. Add the main gateway table.
  d. Add a secondary gateway table below the primary gateway table.
  e. Add devices under the secondary gateway meter.

4.4 Configuring parameters

■ After the topology configuration is completed, enter the parameter setting area to set parameters.

4.4.1 Station-level parameter

■ The station-level parameter controls the station-level operation, and its setting page is shown in the figure below.



■ The station-level parameter descriptions are as shown in the following table:

Parameter Name	Description
PVI to Grid	Whether to allow photovoltaic equipment to feed power into the grid.
BESS/V2G to Grid	Whether BESS devices or V2G are allowed to feed power into the grid.
Power Control Mode	There are three types of Power Control Mode, namely: •Capacity Control •Static Demand Control, where the specific demand value is set on the demand setting page. •Dynamic Demand Control, the specific demand value is set on the demand setting page.
Power Priority At Overcapacity	When overcapacity occurs, the user can choose to reduce the BESS charging power or the power of other loads first according to the actual situation.

4.4 Configuring parameters

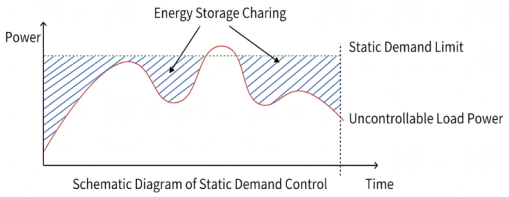
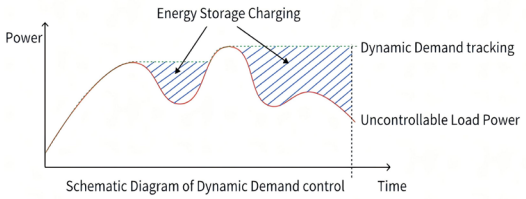
NOTICE

RISK OF REVERSE POWER FLOW

- Some grid power must be reserved as a margin. This margin value is the power control value of the reverse power fow parameter, which is set in the gateway meter when setting parameters.
- Ensure Transformer Rated Capacity is entered correctly.

Failure to follow these instructions can result in system malfunctions and even legal consequences.

- The descriptions of each parameter in the capacity/demand control mode are as follows:

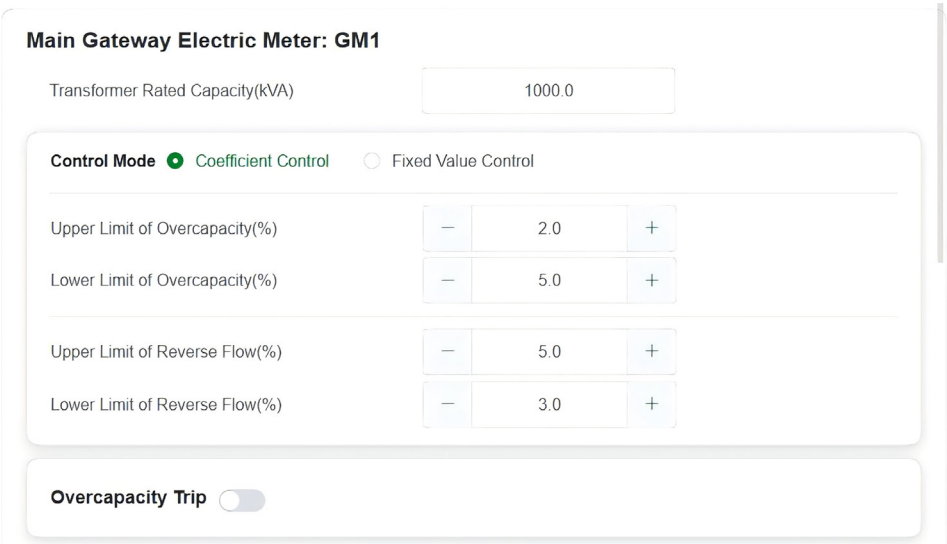
Parameter Name	Description
Capacity Control	The power of controllable devices is controlled by the rated capacity given by the superior transformer or superior power supply unit.
Static Demand Control	Control the power of controllable devices within the set time period according to the monthly initial demand set by the user. For specific demand settings, please refer to <Communication topology>. 
Dynamic Demand Control	First, control the monthly initial demand according to the user's setting. If the monthly initial demand is exceeded due to the excessive load power not controlled by EcoStruxure Energy Asset Controller, record it and raise the subsequent demand control line to make full use of the available power. For specific demand settings, please refer to <Communication topology>. 
Power Priority At Overcapacity	When overcapacity occurs, the user can choose to reduce the BESS charging power or the power of other loads first according to the actual situation.

4.4.2 Equipment Parameters

- After the device is added to the control topology, the parameter settings for the corresponding type of device will be displayed.

4.4.2.1 Main gateway meter parameters

- The parameters of the main gateway meter are related to the overcapacity and reverse flow of the entire station, and its settings are shown in the figure below.



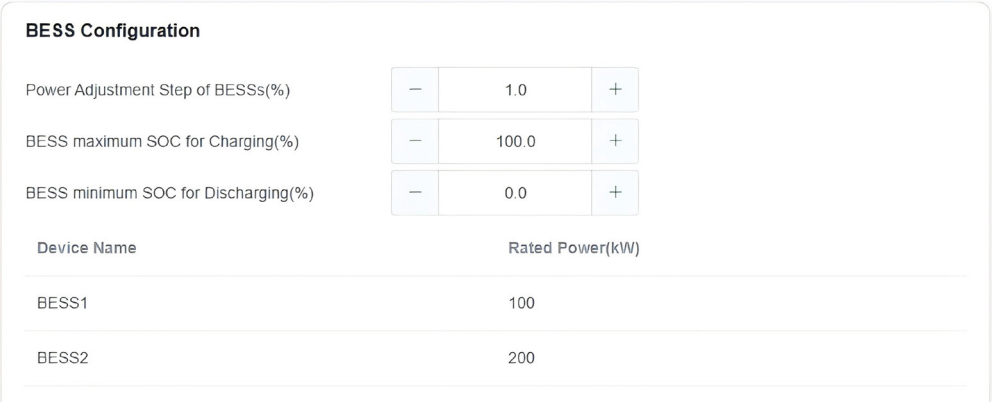
4.4 Configuring parameters

- The parameter type (Limit Type) is divided into two types: "coefficient control" and "fixed value control". The unit of "coefficient control" is one percent, representing the percentage of the rated power of the electricity meter; the unit of "fixed value control" is kW.
- Taking the coefficient control mode as an example, the parameter description of the gateway meter is as shown in the following table:

Parameter Name	Parameter Description
Upper limit of overcapacity (%)	The difference between the upper limit value of supercapacitor control and the maximum allowable power value is generally set to 2%.
Lower limit of overcapacity (%)	The difference between the lower limit value of over-capacity control and the maximum allowable power value is generally set to 5%. This value must be greater than the upper limit of the over-capacity control coefficient.
Upper limit of reverse flow (%)	The upper limit value of reverse flow control is generally set to 5%.
Lower limit of reverse flow (%)	The lower limit value for reverse flow control is generally set to 3%. This value must be less than the upper limit value for reverse flow control.
Voercapacity Trip	When the main gateway meter exceeds its rated capacity, it is up to the user to determine whether to perform a tripping operation on a specific breaker based on the actual situation.

4.4.2.2 BESS Parameters

- When adding BESS to the control topology, the following BESS parameter settings will appear, as shown in the figure below.

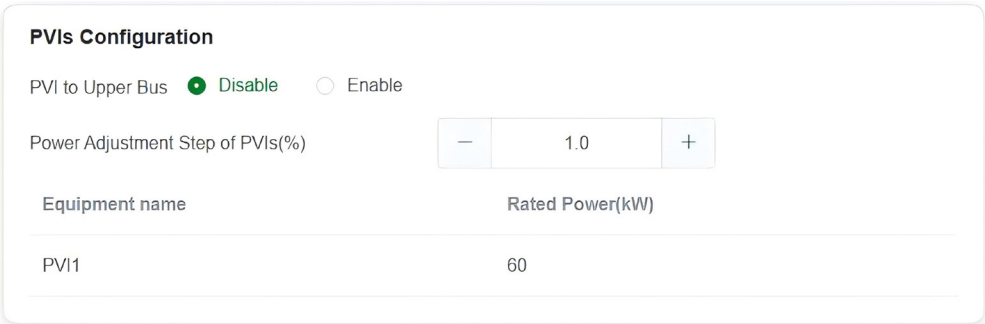


- The parameter description of the BESS device is as shown in the following table:

Parameter Name	Parameter Description
BESS to Upper Bus	Is feeding power to the upper layer allowed. **This option only exists in the double-layer bus topology.**
Power Adjustment Step of BESSs(%)	The step size for each power adjustment, with a default value of 1%. In some scenarios prone to overcapacity/backflow, this value can be set a bit smaller.
BESS maximum SOC for charging(%)	When the SOC of the BESS device is ≥ xxx%, charging will stop. The default value is 100%.
BESS minimum SOC for discharging(%)	When the SOC of the BESS device ≤ xxx%, discharge will stop. The default value is 0%.

4.4.2.3 PVI Parameters

- When adding photovoltaic equipment to the control topology, the following photovoltaic equipment parameter settings will appear, as shown in the figure below.



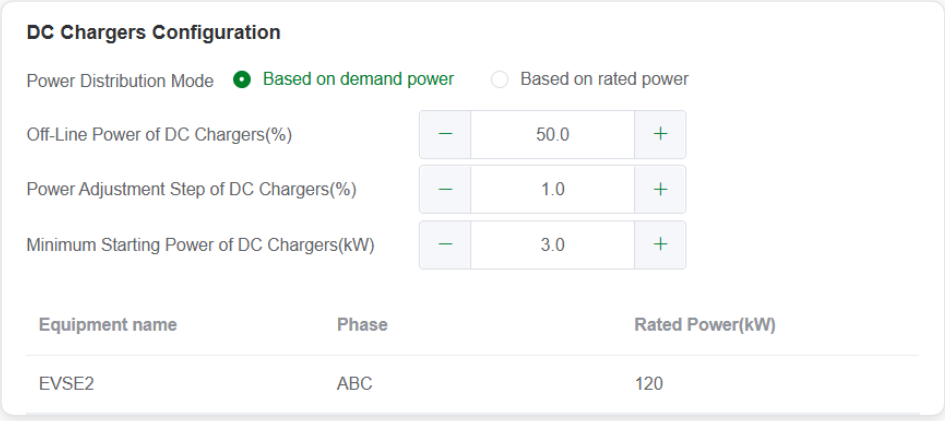
- The parameters of photovoltaic equipment are described in the following table:

Parameter Name	Parameter Description
PVI to Upper Bus	Can choose not to allow power feeding to the upper layer and allow power feeding to the upper layer. **This option only exists in the double-layer bus topology.**
Inverter adjustment step (1%)	The step size for each power adjustment, with a default value of 1%. In some scenarios where over-capacity / backflow is likely to occur, this value can be set a little smaller.

4.4 Configuring parameters

4.4.2.4 DC charger Parameters

■ When adding a DC charger to the control topology, the following DC pile device parameter settings will appear, as shown in the figure below.

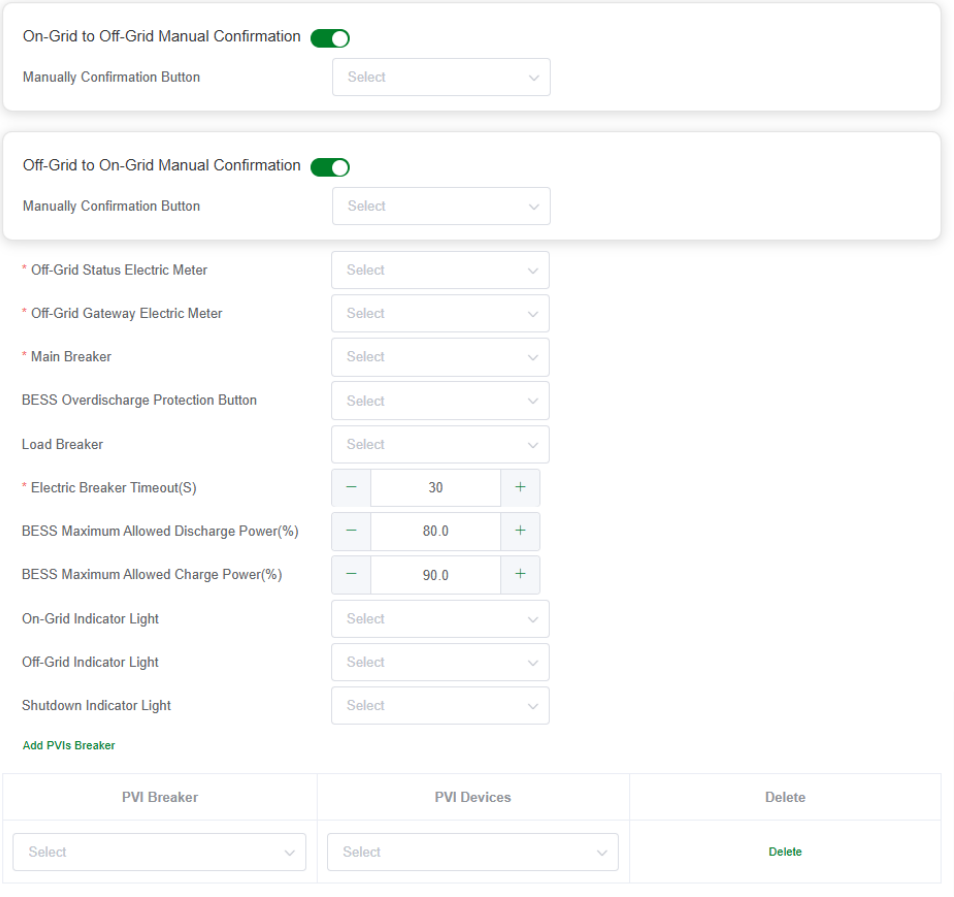


- Based on demand power : Allocate according to the required power of the chargers. If the total capacity is insufficient, allocate proportionally based on the ratio of the required power of all piles. This mode is recommended.
- Based on rated power : Allocate according to the rated power of the chargers. If the total capacity is insufficient, allocate proportionally based on the ratio of the rated power of all piles.
- The remaining parameters of the DC charger are described in the following table:

Parameter Name	Parameter Description
Off-Line power of Chargers(%)	The ratio of the maximum allowable power to the rated power of the DC charger when it loses communication with the EcoStruxure Energy Asset Controller. Correctly setting this value can ensure that even in the event of a serious failure such as accidental damage to the EcoStruxure Energy Asset Controller, overcapacity will not occur. The setting method is as follows: SetValues≤(TotalPowerChagers / TransfomerCapacity)×100%
Power Adjustment Step of DC Chargers (%)	The step size for each power adjustment, with a default value of 1%. In some scenarios where over-capacity / backflow is likely to occur, this value can be set a little smalle
Minimum Starting Power of DC Chargers(kW)	The minimum power for DC charger operation, the recommended value is 3kW

4.4.3 Off-grid parameters

■ When the system is in on-grid and off-grid mode, off-grid parameter settings need to be made.



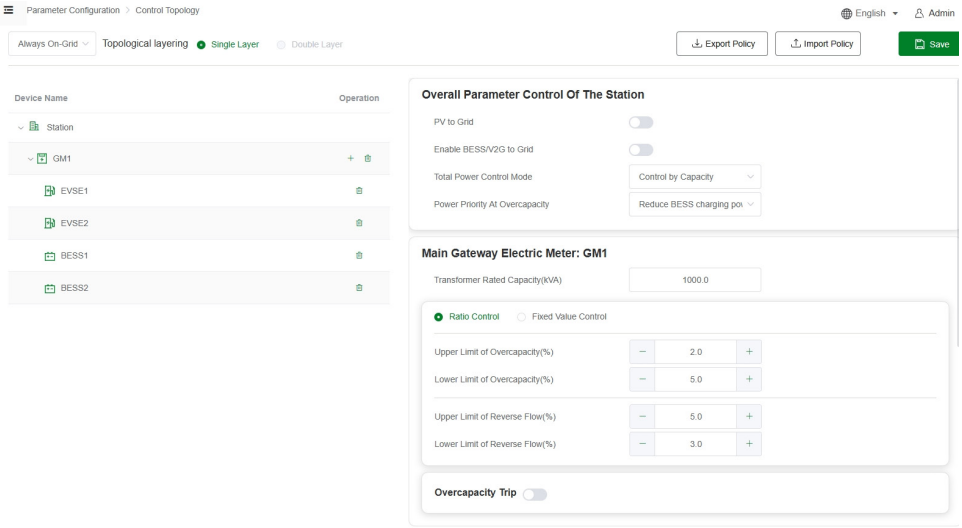
4.4 Configuring parameters

■ Off-grid parameters are as shown in the following table.

Parameter Name	Parameter Description
On-Grid to Off-Grid Manual Confirmation	During the process of grid-connected to off-grid operation, is manual confirmation required? If it is required, off-grid operation can only be entered after manual button press; if not, it will automatically enter off-grid operation. **If manual confirmation is required, select the corresponding confirmation button.**
Off-Grid to On-Grid Manual Confirmation	During the transition from off-grid to grid-connected operation, is manual confirmation required? If so, grid-connected operation can only be entered after manual button press; if not, it will automatically enter grid-connected operation. **If manual confirmation is required, select the corresponding confirmation button.**
Off-Grid Status Electric Meter	Select a meter (usually the main gateway meter) that has been configured in the communication topology, through which EcoStruxure Energy Asset Controller senses the grid state.
Off-Grid Gateway Electric Meter	Select a configured gateway meter or load meter , usually a BESS metering meter. In the communication topology, through which EcoStruxure Energy Asset Controller measures the charging and discharging power of BESS during off-grid operation.
Main Breaker	Select a breaker that has been configured in the communication topology (usually the main breaker connected to the power grid). After a power outage occurs in the power grid, this breaker will automatically trip. When power is restored to the power grid, EcoStruxure Energy Asset Controller controls this breaker to close.
BESS Overdischarge Protection Button	When the BESS SOC is too low, EcoStruxure Energy Asset Controller will shut down the BESS based on the state of this button to protect the safe operation of the BESS. If the over-discharge protection SOC is set to 20% and 8% respectively in the off-grid scheduling, it will operate according to the following logic: • When the over-discharge protection button is in the released state and SOC is less than or equal to 20%, turn off this BESS. • When the over-discharge protection button is pressed and the SOC is less than or equal to 8%, turn off this BESS.
Load Breaker	Breakers of the load device group (multiple selection allowed). When the BESS SOC is lower than the set value, EcoStruxure Energy Asset Controller controls these breakers to open. **The specific settings for BESS SOC can be found in the off-grid schedule.**
Electric Breaker Timeout(S)	The maximum allowable timeout for breaker control, with a default of 30 seconds. After EcoStruxure Energy Asset Controller breakers the circuit breaker, if no response from the breaker is detected within the timeout period, it is considered a breaker malfunction.
BESS Maximum Allowed Discharge Power(%)	Under off-grid conditions, the maximum allowable discharge power of BESS is recommended to be set at 80%.
BESS Maximum Allowed Charge Power(%)	Under off-grid conditions, the maximum allowable charging power for BESS is recommended to be set at 80%.
On-Grid Indicator LED	Select the indicator configured in the communication topology. a. When the Storage-EVSE-Solar system is in grid-connected state, EcoStruxure Energy Asset Controller controls this light to stay on constantly. b. When in the state of waiting for manual confirmation during grid-connected to off-grid transition, EcoStruxure Energy Asset Controller controls this light to flash. c. For other states, this light remains off.
Off-Grid Indicator LED	Select the indicator configured in the communication topology. a. When the Storage-EVSE-Solar system is in the off-grid state, EcoStruxure Energy Asset Controller controls this light to stay on constantly. b. When in the state of waiting for manual confirmation during the transition from off-grid to on-grid, EcoStruxure Energy Asset Controller controls this light to flash. c. For other states, this light remains off.
Shutdown Indicator LED	Select the indicator light configured in the communication topology, which EcoStruxure Energy Asset Controller will illuminate when the BESS is in the shutdown state. **This light is only effective when powered by a UPS.**
PVI Breaker	Controls the breaker of the photovoltaic equipment. The breaker is connected to the photovoltaic equipment below. When the communication between EcoStruxure Energy Asset Controller and the photovoltaic equipment malfunctions, EcoStruxure Energy Asset Controller controls this breaker to open.
PVI Devices	Select the photovoltaic device in the control topology. This photovoltaic device value refers to the device connected under the "PVI Breaker ", aiming to let EcoStruxure Energy Asset Controller know which photovoltaic devices are controlled by the "PVI Breaker ".

4.5 Parameter Distribution

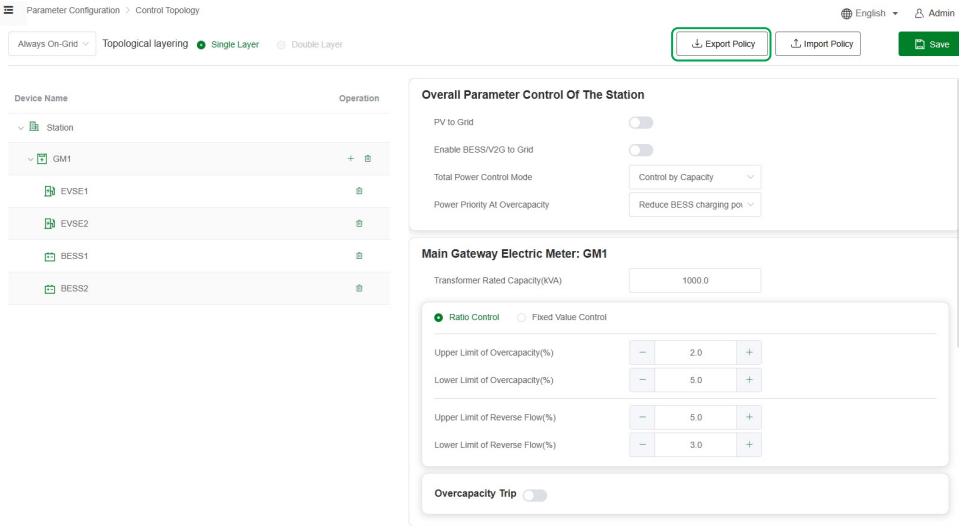
■ On the control topology page, click "Save" to save and issue parameters.



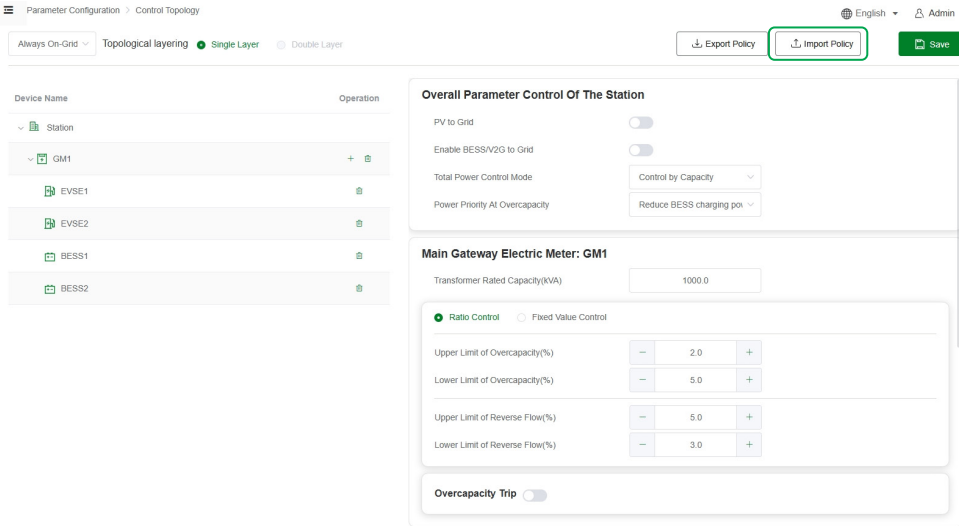
4.6 Exporting and Importing configuration file

■ After the control topology configuration is completed, a configuration file will be generated, which covers all control topology information. This configuration file supports import and export operations.

- Export:After the query, click the "Export Policy" file with the mouse, and the file will be automatically downloaded.



- Import
  a. Operations for controlling topology can only import control topology configuration files exported from the local machine.
  b. Click the "Import Policy" button on the communication topology page.



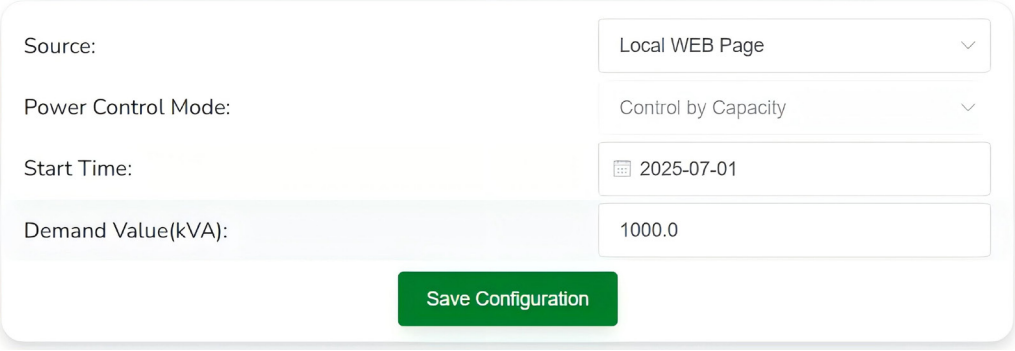
  c. Select the policy.json file in the local folder.
  d. After successful import, new control topologies can be produced.

5 Demand Configuration

The demand control can only be edited when the "Power Control Mode" in the "Control Topology" page is set to "Static Demand Control" or "Dynamic Demand Control".

5.1 Static demand control

■ Edit the start time and demand value on the "Demand Configuration" page, and click "Save Configuration" after completion.

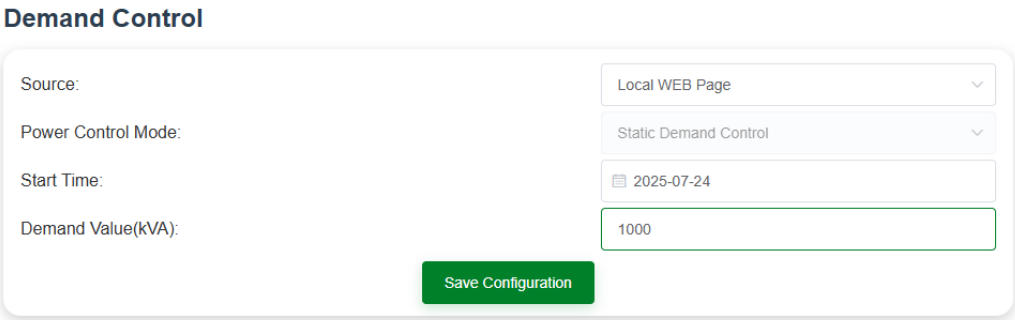


■ Parameters are described in the following table:

Parameter Name	Description
Source	Source of demand setting value, optional: OMC Cloud, Northbound MQTT, Northbound Modbus, Local Ethernet network.
Power Control Mode	Power mode options: Capacity control, Static demand control, Dynamic demand control Modifications to this parameter can only be made through controlling the topology. For details, see <Control Topology>
Start Time	The time when this demand value starts to be implemented.
Demand Value	The specific demand value needs to be less than the capacity value.

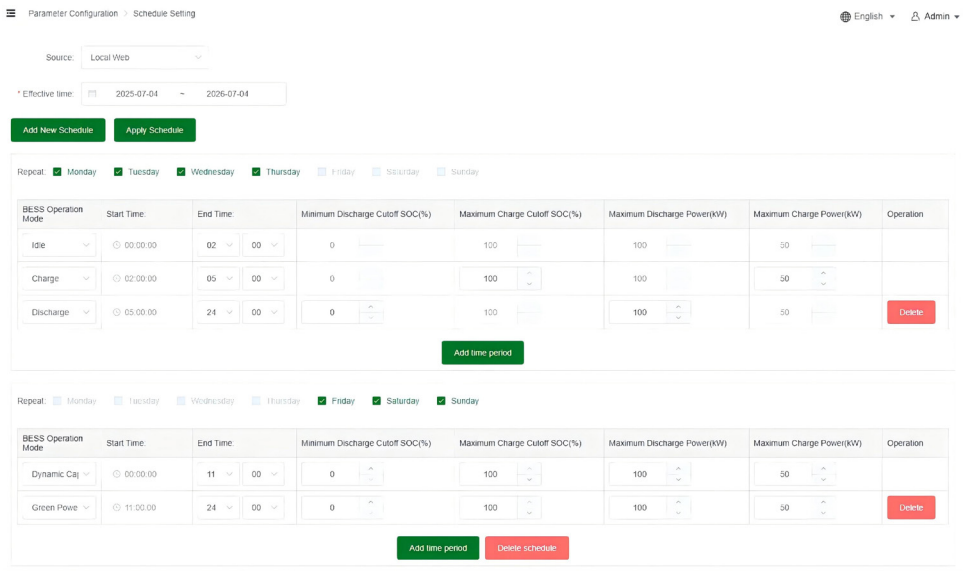
5.2 Dynamic demand control

■ Edit the start time and demand value on the "Demand Configuration" page, and click "Save Settings" after completion.



6 Schedule Settings

- Scheduling is used to determine the operating mode of BESS during each time period.
- Select "Parameter Configuration" → "Scheduling Settings" to enter the Scheduling Settings page.



- Parameter descriptions are as follows:

Parameter Name	Parameter Description
Source	Options include: OMC Cloud, Northbound MQTT, and Local Ethernet network. **When the source is OMC Cloud or Northbound MQTT, the scheduling is issued by the Cloud Computing Platform and cannot be modified locally. Only when the source is local Ethernet network is it allowed to modify the scheduling.**
Effective time	The time period during which this schedule is in effect.
Add New Schedule	If you need to set multiple periods, you can click "Add Schedule" after setting the first period to add more.
Apply Schedule	Set the BESS operation mode (including idle, charging, discharging, dynamic capacity expansion, and green power consumption), set subsequent values according to the selected mode, and then click "Issue Schedule" to save and issue.
Repeat	Select the dates within a week that need to be repeated. If not all dates are selected, you can add a new schedule to complete them.
Add time period	Add scheduled time period.

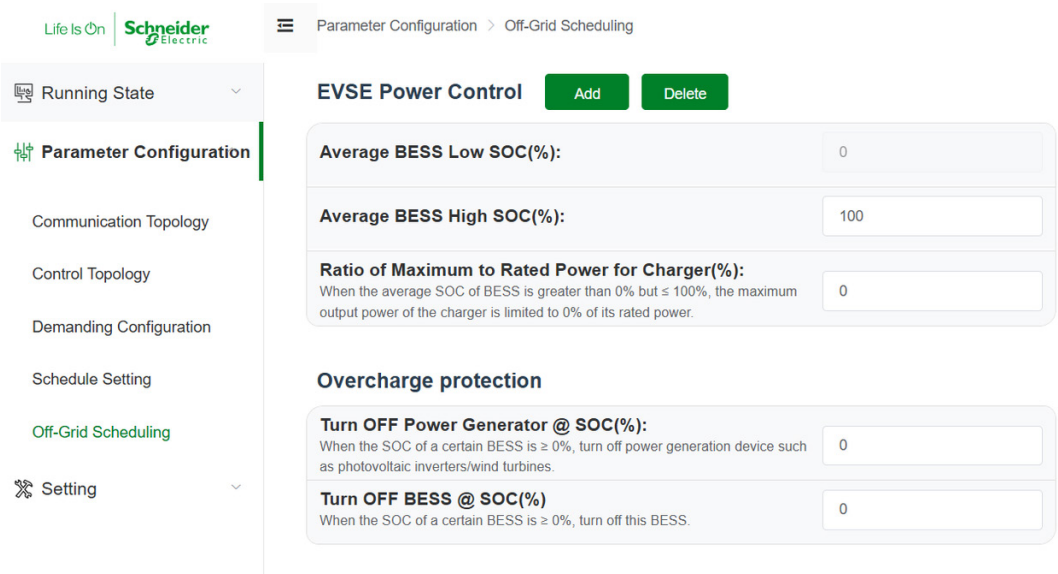
- The description of the BESS operation mode is as follows:

Serial Number	Mode	Charging Conditions	Discharge Conditions	Stop Condition	Maximum Charge and Discharge Power
1	Idle	/	/	/	/
2	Charge	Not overloaded	/	SOC≥SOCmax	Charge Power
3	Discharge	/	No backflow	SOC≤SOCmin	Discharge Power
4	Dynamic Capacity Increase(see note 1)	Excess green electricity	Green electricity is insufficient	Charging: SOC ≥ SOCmax Discharge: SOC ≤ SOCmin	Charging: Charge Power Discharge: DischargePower
5	Green Electricity Consumption(see Note 2)	Transformer capacity has a surplus	Transfor mer capacity is insufficient	Charging: Charging: SOC ≥ SOCmax Discharge: SOC ≤ SOCmin	Charging: ChargePower Discharge: DischargePower

- Dynamic capacity increase, also known as virtual capacity increase, aims to address the issue of insufficient transformer capacity. The specific operation process is as follows:
  a. When the transformer capacity is greater than the load power, the BESS system charges.
  b. When the transformer capacity is less than the load power, the BESS system discharges.
- The purpose of green electricity consumption is to maximize the utilization of solar energy and reduce curtailment of solar power. The specific operation process is as follows:
  a. When the photovoltaic power generation is greater than the load power, the excess power is used for BESS charging.
  b. When the power generation of photovoltaic is less than load power, the insufficient power is supplemented by BESS discharge.

7 Off-grid Scheduling

- Off-grid scheduling dynamically adjusts the operating status of controllable devices based on the state of charge (SOC) of BESS during off-grid operation to meet the electricity demand of customers during off-grid operation.
- Select "Parameter Configuration" → "Off-grid Scheduling".



a. charger power control: The charger operates at a set power percentage within different BESS SOC ranges (if there are multiple BESS units, it is calculated based on the average SOC). For example, when the SOC is between 80% and 100%, the charger can charge at full power; when the SOC is between 50% and 80%, the charger charges at 70% power.
b. Start/stop control of the diesel generator: For example, start the diesel generator when the SOC is 15%, and turn it off when the SOC is 50%. Turn off the diesel generator when the BESS SOC is 50%.
c. Switching of load breakers: Set switching schemes for load breakers with different priorities. For example:
   - The breakers of the normal load trips when the SOC is 80%.
   - The breakers of the primary load trips when the SOC is 50%.
d. Overcharge protection: Prevents the BESS system from overcharging. For example, when the SOC exceeds 95%, the photovoltaic system is controlled to stop generating electricity. When the SOC is less than 90%, the photovoltaic system is started to continue generating electricity.
e. Over-discharge protection: According to the state of the over-discharge protection button (controlled topology, set in the off-grid settings page), set the BESS system to shut down when the SOC is less than or equal to a certain value, to protect the BESS from over-discharging.

8 Real-time data

The real-time data on the page is updated once every 3 seconds.

8.1 Real-time data of Electric Meter

■ Select "Running state" → "Electric Meter", and the page will be as shown below.

Device Name	Electrical Meter Type	Electric Meter State	Current(A/B/C)	Active Power
GM1	Gateway Electric Meter	Off-line	0/0/0 A	↓0kW
GM2	Gateway Electric Meter	Off-line	0/0/0 A	↓0kW
GM3	Gateway Electric Meter	Off-line	0/0/0 A	↓0kW

■ The description of the real-time data of the electricity meter is as follows.

Parameter Name	Description
Device Name	The name of the meter device configured in the communication topology.
Electric Meter Type	The type of electricity meter configured in the communication topology.
Device Status	Meter Status.
Current	Phase A, B, C currents
Active Power	Real-time active power, ↑: represents power fed into the grid, ↓: represents power drawn from the grid

8.2 Real-time data of Charger

■ Select "Running state" → "charger", and the page will be as shown below.

DC Charger

Device Name	Current Version	Device Status	Power of Charger	Setting Power
Titan		On-line	20kW	20kW
Athena		On-line	20kW	20kW
Jupiter		On-line	20kW	20kW
Nova		On-line	20kW	20kW

AC Charger

Device Name	Current Version	Device Status	A-phase current	B-phase current	C-phase current	Setting current
No Data						

a. The description of real-time data for DC chargers is as follows.

Parameter Name	Description
Device Name	DC charger name configured in the communication topology
Current Version	DC charger firmware version number (only supports Schneider devices)
Device Status	Current Status of the Device
Power of Charger	DC charger Current Power
Setting Power	Control power sent by EcoStruxure Energy Asset Controller to DC chargers

b. The description of the real-time data of the AC charger is as follows.

Parameter Name	Description
Device Name	Name of AC charger configured in communication topology
Current Version	Firmware version number of the AC charger
Device Status	Connection Status of AC charger and EcoStruxure Energy Asset Controller
A-phase current	Actual current of Phase A of AC charger
B-phase current	Actual current of Phase B of AC charger
C-phase current	Actual current of Phase C of the AC charger
Setting current	Control current sent by EcoStruxure Energy Asset Controller to the AC charger

8.3 Real-time data of BESS

■ Select "Running state" → "BESS", and the page will be as shown below.

Device Name	Device Status	SOC	Power	Power Setting	Min/Max Temperature	Calibration Status	Operation
BESS1		-- %	--kW	--kW	--/--°C		Calibration
BESS2		-- %	--kW	--kW	--/--°C		Calibration

■ The description of real-time BESS data is as follows.

Parameter Name	Description
Device Name	BESS name configured in the communication topology
Device Status	Current State of BESS
SOC	Actual SOC value of BESS
Power	Actual power of BESS
Power Setting	Control mode (idle/charge/discharge, etc.) and power sent by EcoStruxure Energy Asset Controller to BESS
MIn/Max Temperature	Minimum/Maximum Temperature of Battery Cluster
Calibration status	There are 7 calibration statuses of SOC, namely blank, Calibrating, Success, Schneider Boost Pro Offlin, Fault failed, Long term unfinished, and Calibration exit (incomplete).
Operation	SOC calibration, see the function introduction of the one-click SOC calibration for BESS for details

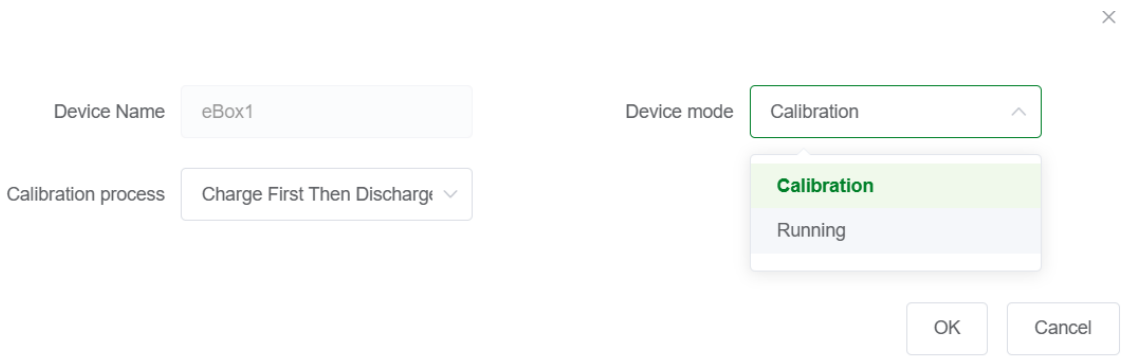
8.3.1 One-key calibration SOC function

■ During long-term operation, BESS systems are prone to large SOC deviations. If they cannot be discharged to 0% or charged to 100% for an extended period, the SOC error will be even greater. Some BESS devices can automatically calibrate SOC when charged to 100% or discharged to 0%. EcoStruxure Energy Asset Controller supports SOC calibration for such BESS devices.

a. Select "BESS" under "Running state", and the page is as shown below.

Device Name	Device Status	SOC	Power	Power Setting	Min/Max Temperature	Calibration Status	Operation
BESS1		-- %	--kW	--kW	--/--°C		Calibration
BESS2		-- %	--kW	--kW	--/--°C		Calibration

b. Select "Calibration", as shown in the figure below.



■ There are two operating modes:
- Calibration Mode: Allows setting the parameters of BESS and is used when calibrating SOC.
- Running Mode : The parameters of BESS cannot be set, and it generally operates in this mode.

■ There are two types of SOC calibration mode processes:
- Charge First Then Discharge: When the current SOC is higher than 50% or the BESS system is in a charging state overall, this mode is recommended. The BESS system first charges 100% and then discharges to 0%.
- Discharge First Then Charge: When the current SOC is below 50%, or the BESS system is in an overall discharging state, this mode is recommended. The BESS system first discharges to 0%; then charges to 100%.

■ After setting the parameters, click "OK" for the settings to take effect.

8.4 Real-time Data of PVI

■ Select "Running state" → "PVI", and the page will be as shown below.

Device Name	Device Status	Discharging Power	Power Setting
PVI1	Off-line	0kW	0kW

■ The description of real-time photovoltaic data is as follows.

Parameter Name	Description
Device Name	Name of the PV inverter configured in the communication topology
Device Status	Connection status of PV inverter and EcoStruxure Energy Asset Controller
Discharge Power	Photovoltaic Inverter Power Generation
Setting Power	Power sent by EcoStruxure Energy Asset Controller to the PV inverter

8.5 Real-time data of Breaker

■ Select "Running Status" → "Breaker", and the page is as shown below.

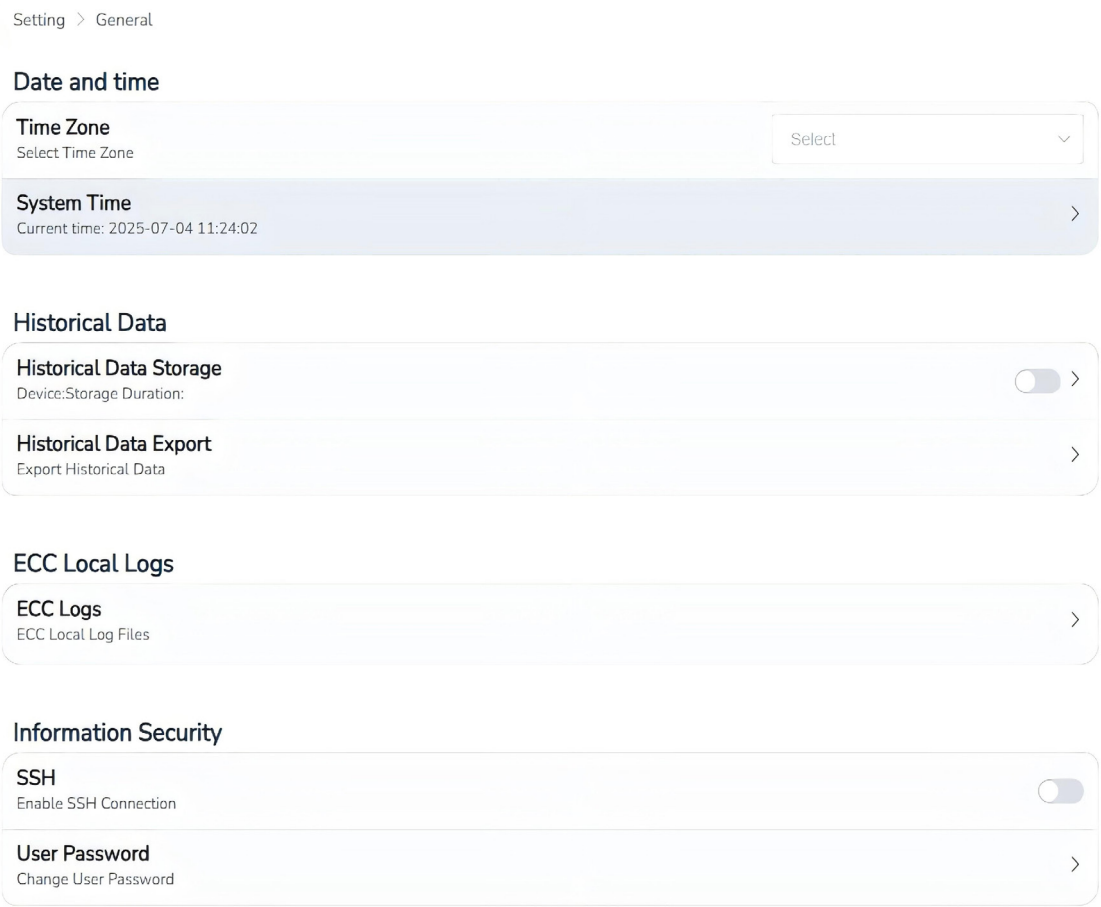
Device Name	Breaker Communication Status	Breaker Status
SW1	Off-line	

■ The description of real-time photovoltaic data is as follows.

Parameter Name	Description
Device Name	Breaker Name Configured in the Communication Topology
Breaker Communication Status	Breaker Communication Status
Breaker Status	The current breaker is in the closed or open state

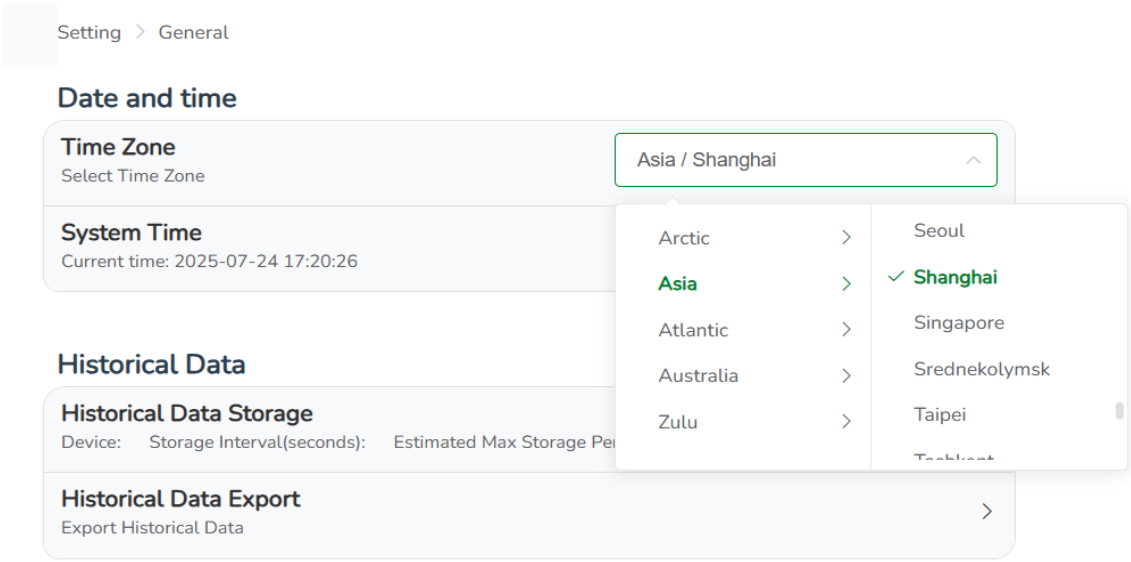
9 General

■ Select "Settings" → "General" to enter the general settings. There are four setting items: Date and Time, Historical Data, EcoStruxure Energy Asset Controller Local Log, and Information Security, as shown in the following figure:



9.1 Date and Time

a. Select the time zone, and choose the time zone according to the actual situation.



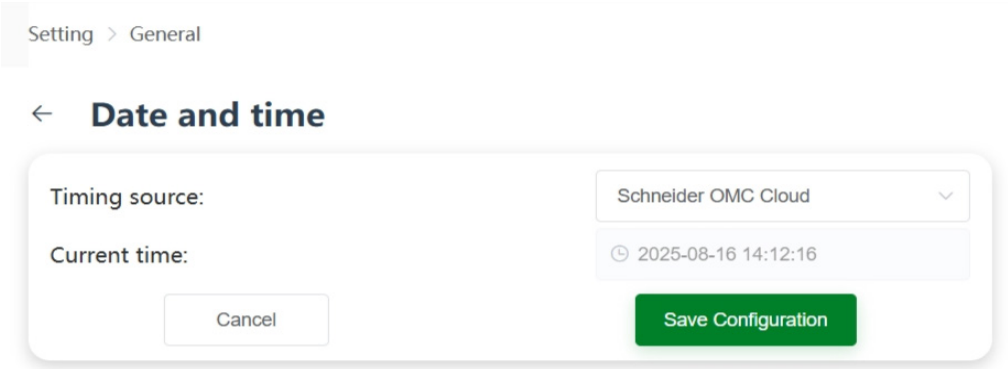
9 General

9.1 Date and Time

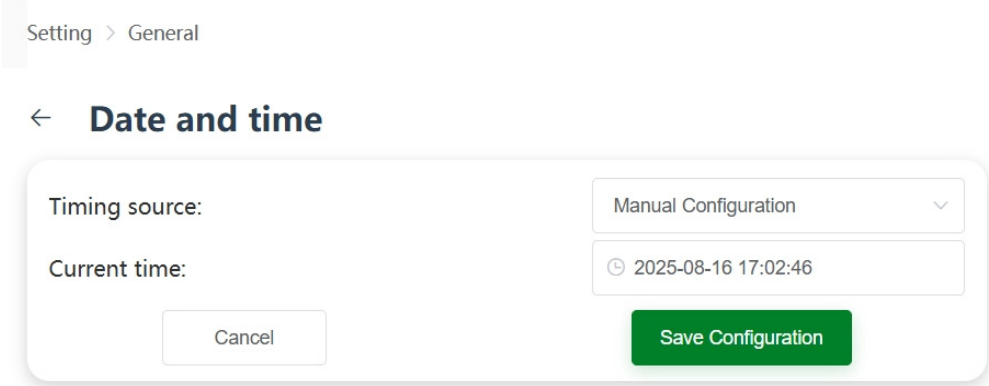
b. Set Time

There are three time sources, namely OMC, manual setting, and network time synchronization.

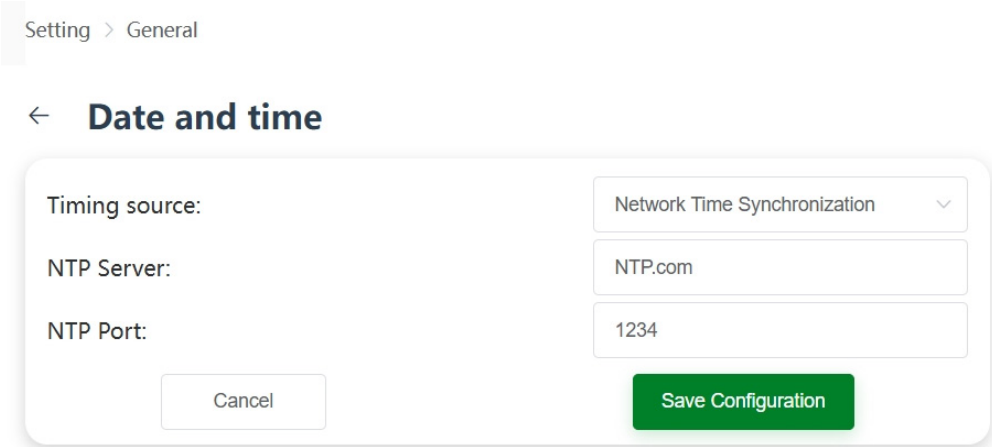
- When the source is selected as OMC, the date and time do not need to be manually set.



- When the source is set to manual setting, the customer needs to set the time themselves.

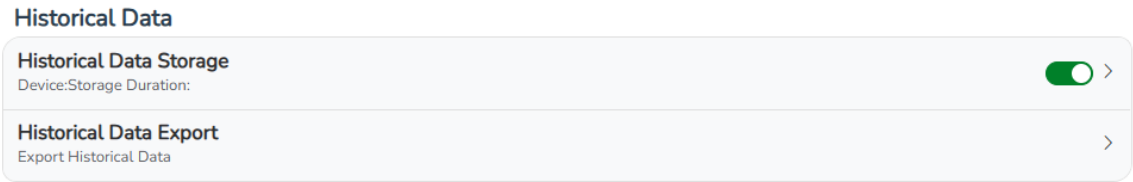


- When the source is set to Network Pair, the customer needs to set the server address and port number when configuring the network pair.



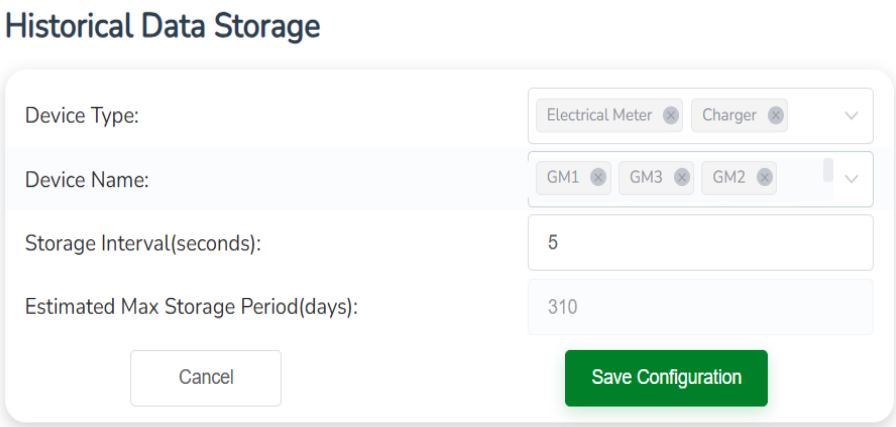
9.2 Historical Data

■ Historical data is used to store the operating data of each device during the system operation. Currently, it supports two types of devices: electricity meters and chargers.



9.2 Historical Data

■ Open the historical data save settings, as shown in the figure below:



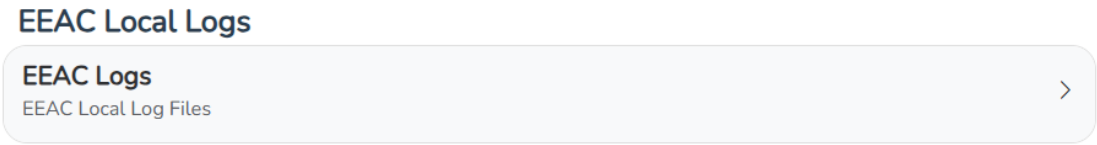
■ Parameter descriptions are as follows:

Parameter Name	Description
Device Type	Currently supports two device types: electricity meters and chargers.
Device Name	Select the specific device name for which data needs to be recorded.
Storage Interval(second):	Device data storage interval. The shorter the interval, the more space it occupies.
Estimated Max Storage Period(days):	This parameter is automatically calculated by EcoStruxure Energy Asset Controller, and it indicates the maximum storage duration based on the currently selected device type, quantity, and interval. If the storage space is full, circular overwrite will occur.

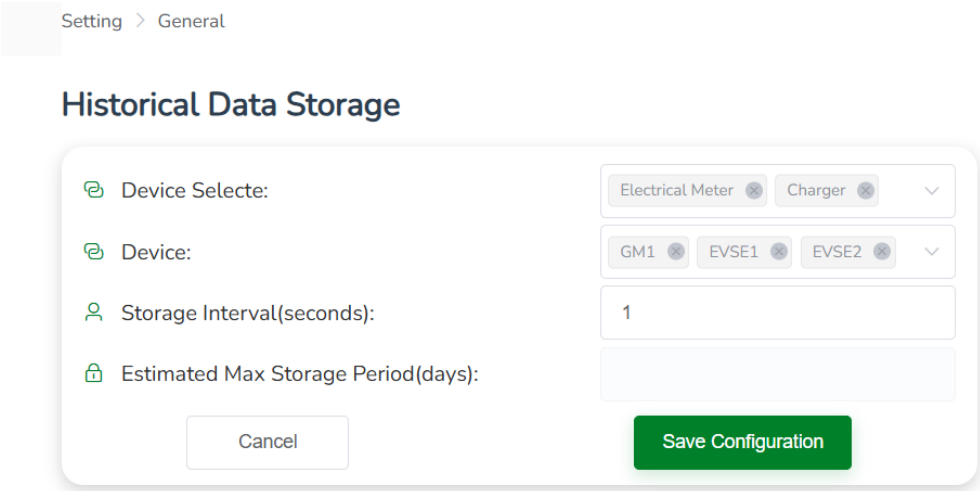
9.3 EcoStruxure Energy Asset Controller Local Logs

■ This is used to export EcoStruxure Energy Asset Controller logs.

a. Click EcoStruxure Energy Asset Controller logs.



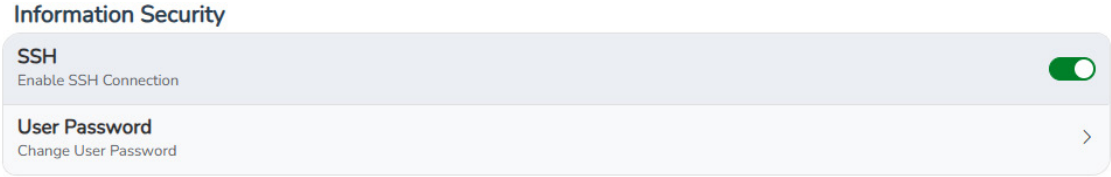
b. Select which devices need to export logs.



c. Click Export, and data will be automatically downloaded.

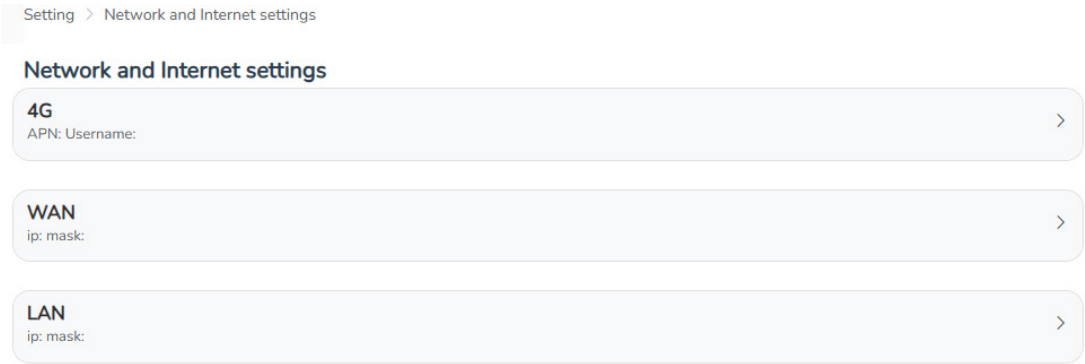
9.4 Information Security

■ Information security has two components, namely SSH permission and user password.



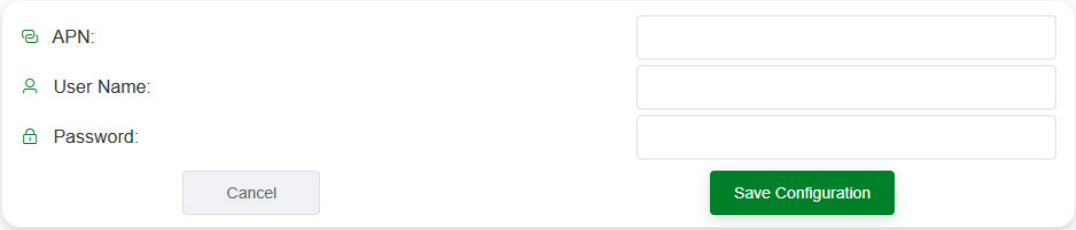
10 Network and Internet Settings

■ Select "Settings" → "Network and Internet Settings". There are a total of three items that can be configured, namely 4G, WAN, and LAN.



10.1 Setting 4G

■ Select "Settings" → "Network and Internet Settings" → "4G".

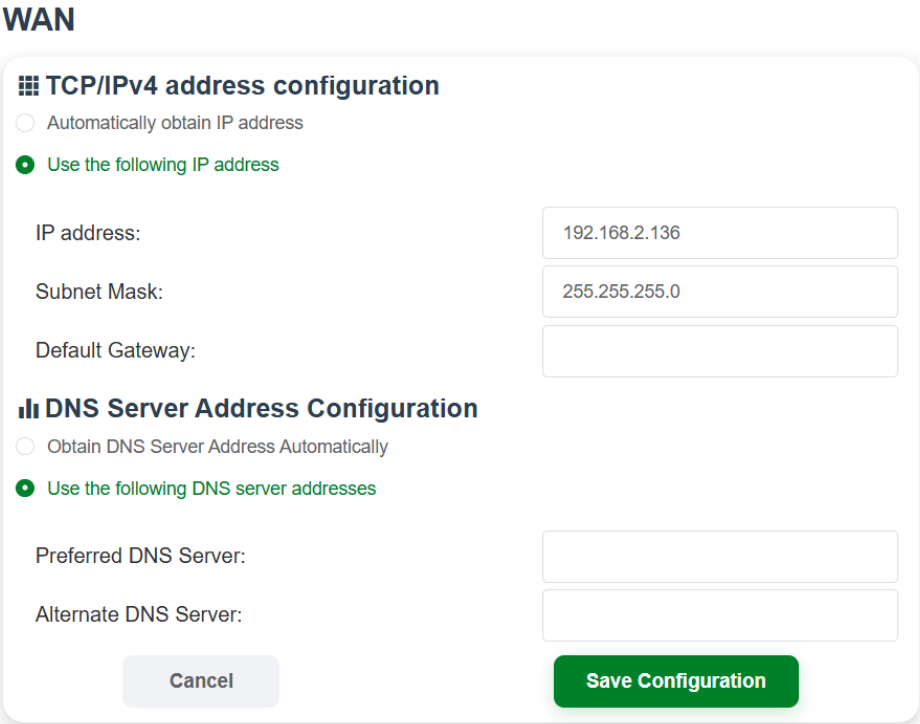


■ Parameter descriptions are as follows:

Parameter Name	Description
APN	Access Point Name (APN), a key parameter in 4G mobile networks, is used for configuring data connections between end point devices and carrier networks, determining how devices access the Internet or private networks.
User Name	Enter your username.
Passwrod	Enter your password.

10.2 Setting WAN

■ Select "Settings" → "Network and Internet Settings" → "WAN". Customers configure the WAN port of EcoStruxure Energy Asset Controller through this page. The IP Address of the WAN port can be obtained automatically or configured manually.



10.2 Setting WAN

a. Automatically Obtain IP Address: EcoStruxure Energy Asset Controller will use the DHCP (Dynamic Host Configuration Protocol) to automatically obtain an IP Address.
b. Manually Enter IP Address: Manually enter the IP Address, Subnet Mask, and Default Gateway.
c. Automatically Obtain DNS Server: EcoStruxure Energy Asset Controller uses the DHCP protocol to automatically obtain the DNS server.
d. Use the following DNS servers: Manually enter the IP addresses of the preferred DNS server and the alternate DNS server.

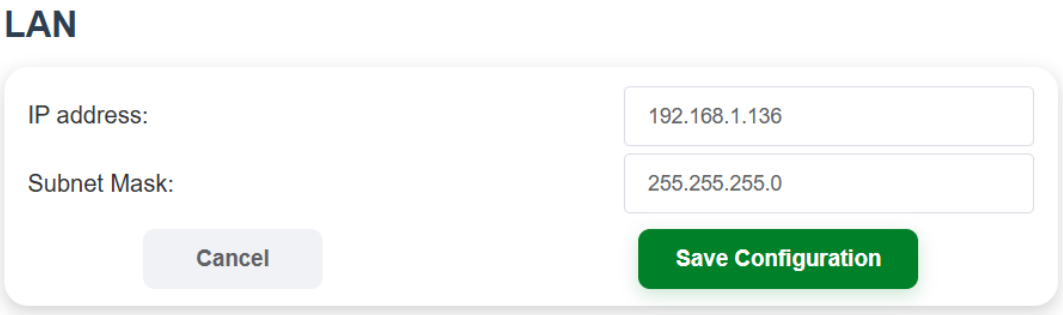
10.3 Setting LAN

NOTICE

LAN ADDRESS CONFLICT RISK
- When configuring the LAN address, avoid using the [192.168.2.xxx] segment which is reserved for WAN by default.
- Select an alternative non-conflicting segment.
- Store passwords securely to prevent accidental errors.
- Verify LAN and WAN segments are distinct via the EcoStruxure Energy Asset Controller's network management interface after configuration.

Failure to follow these instructions can result in the network port failing to connect.

■ Select "Settings" → "Network and Internet Settings" → "LAN". Customers configure the LAN port of EcoStruxure Energy Asset Controller through this page.



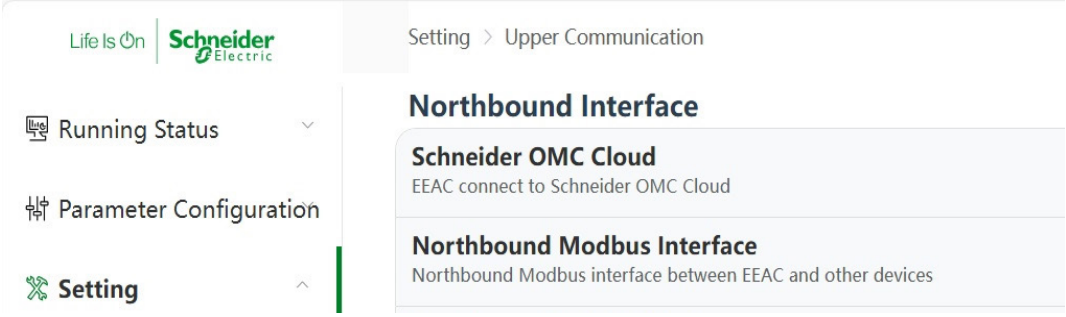
■ Parameter descriptions are as follows:

Name	Description
IP Address	Default is 192.186.1.136
Subnet Mask	Default is 255.255.255.0

■ Click Save after the configuration is completed. The configuration will take effect after restarting the device.

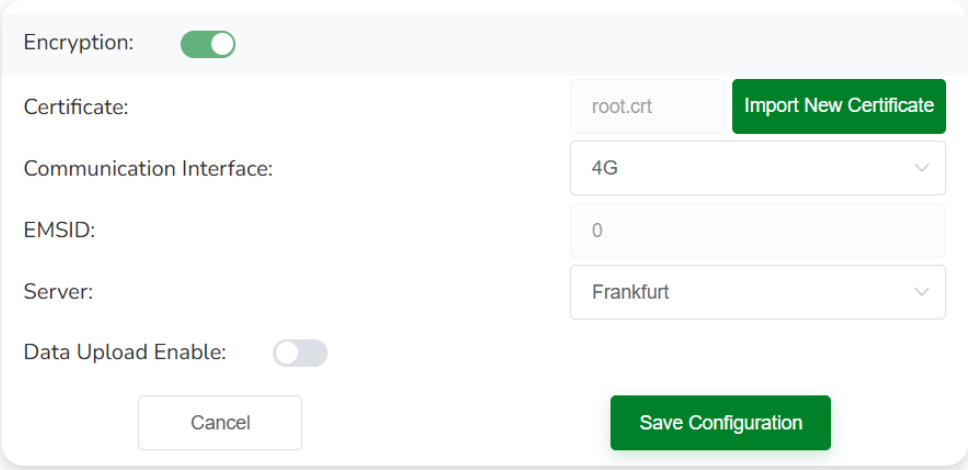
11 Northbound Interface

■ Select "Settings" → "Northbound Interface". The Northbound Interface includes three interfaces: OMC Cloud, Northbound Modbus, and Northbound MQTT.



11.1 OMC Energy Cloud

■ The configuration is shown in the figure below.



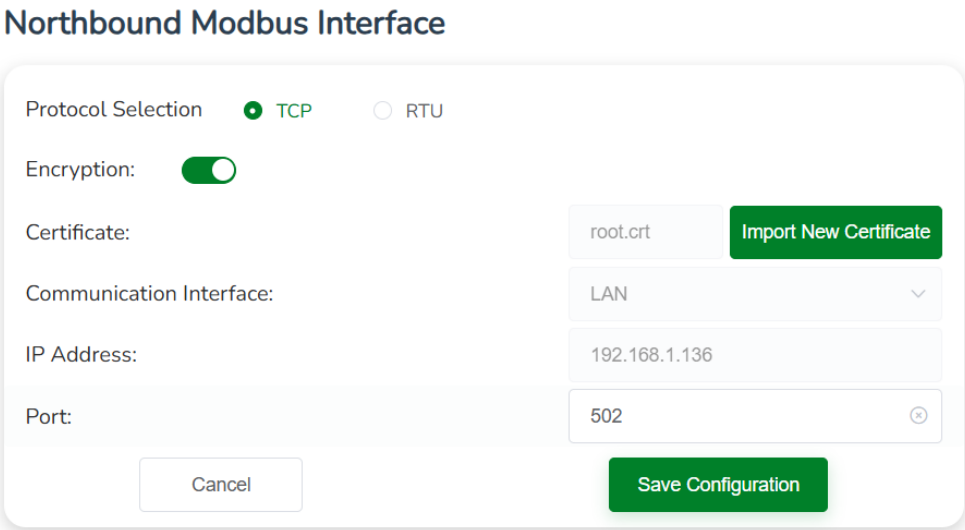
■ Parameter description are as follows:

Name	Description
Encryption	Encrypted or Not
Certificate	Import the certificate provided by OMC Cloud. This option is only valid in the case of encryption.
Communication Interface	Select 4G or WAN.
EMSID	Enter the EMSID provided by OMC Cloud.
Server	The server address where the OMC Cloud is located. **When selecting "Other", manually enter the server address and port.**
Data Upload Enable	Whether data upload to the Cloud Computing Platform is allowed. Generally, data upload is disabled during the debugging phase.

■ Configuration is completed. After completion, click Save.

11.2 Northbound Modbus Settings

■ When using the network port, select TCP, and the configuration is as shown in the figure below:

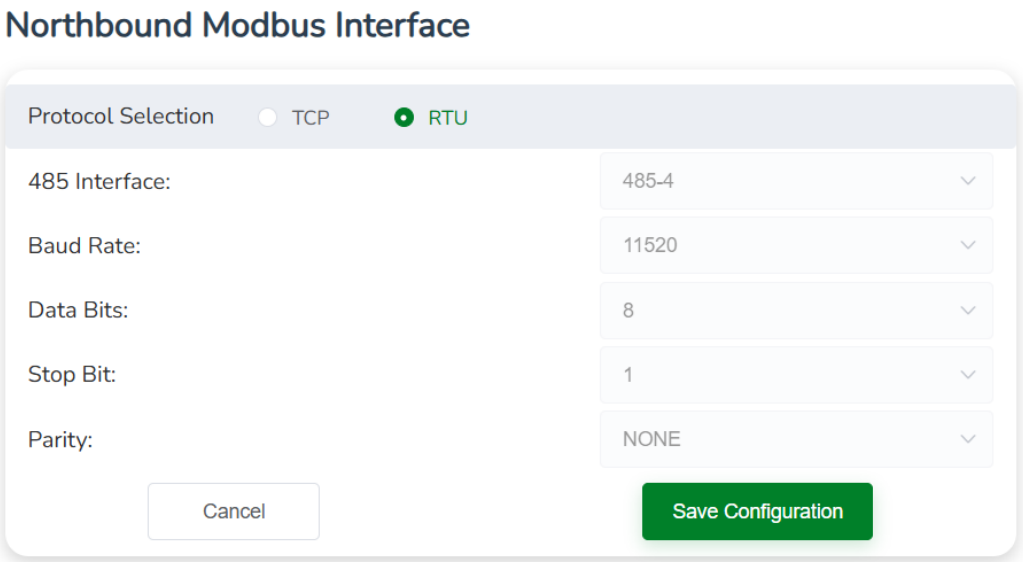


11.2 Northbound Modbus Settings

■ Parameter description are as follows:

Name	Description
Protocol Selection	Choose between TCP protocol and RTU protocol. **Select TCP for the network port and RTU for the RS485 interface.**
Encryption	Encrypted or Not. **Effective when TCP is selected.**
Certificate	Import the certificate provided by the northbound device. This option is only valid in the case of encryption.
Communication Interface	Can only be LAN.
IP Address	This address is determined by the LAN address of the previous section.
Port	Preset 502

■ When using RS485, select RTU, and the configuration is as shown in the following figure:



■ Parameter descriptions are as follows, and all parameters cannot be modified.

Name	Description
Protocol Selection	Choose between TCP protocol and RTU protocol. **Select TCP for the network port and RTU for the RS485 interface.**
485 Interface	Fourth Port
Baud Rate	Baud rate 9600
Data Bits	Data Bits: 8
Stop Bit	Stop Bit: 1
Verification Method Parity	No verification

■ Configuration is completed. After completion, click Save.

12 Southbound Interface

■ Select "Settings" → "Southbound Interface". The Southbound Interface only supports operations on our company's BESS products and charger products.

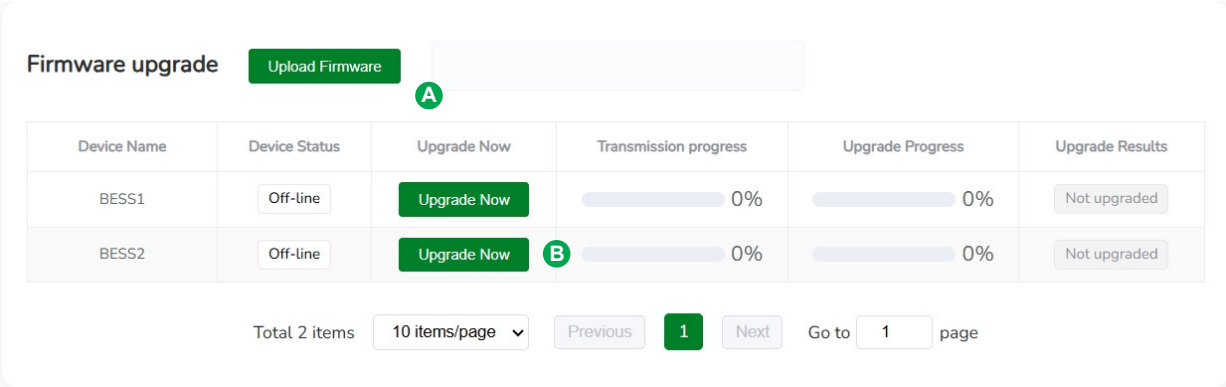
12.1 BESS Products

■ The BESS interface includes three major functions: BESS firmware upgrade, BESS log export, and grid code setting.

■ When encrypted communication is conducted between EcoStruxure Energy Asset Controller and BESS, a certificate needs to be imported, as shown in the following figure:

12.1.1 BESS Firmware Upgrade

■ The firmware upgrade diagram is as follows:



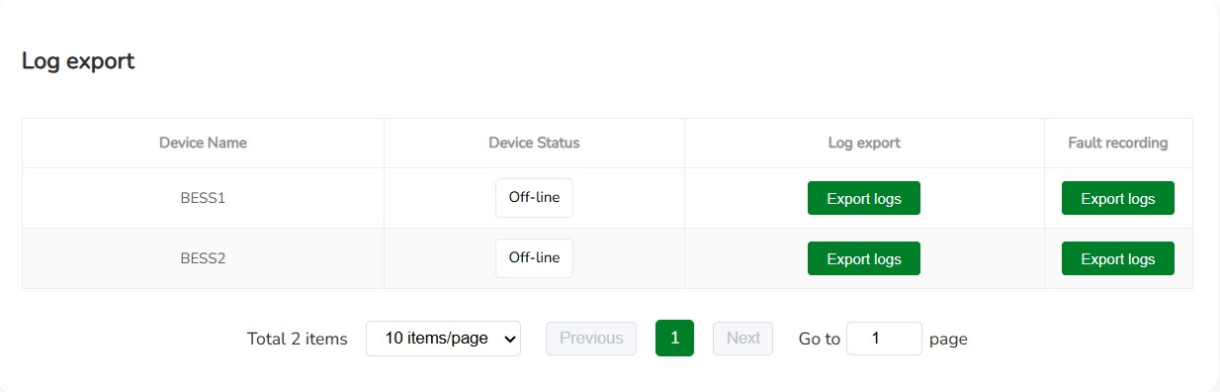
■ The firmware upgrade diagram is as follows:

A. Click "Upload Firmware", select the BESS firmware file, and upload it.

B. Click "Upgrade Now" to perform BESS firmware upgrade.

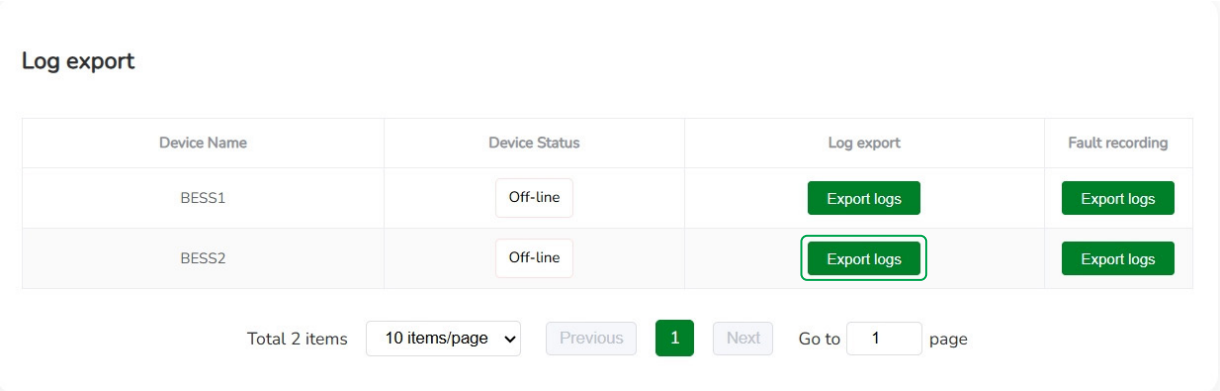
12.1.2 BESS Log/Recording Export

■ The following is the export diagram of the BESS log:



■ If you need to export logs, the step is as follows:

a. Click to export the log.



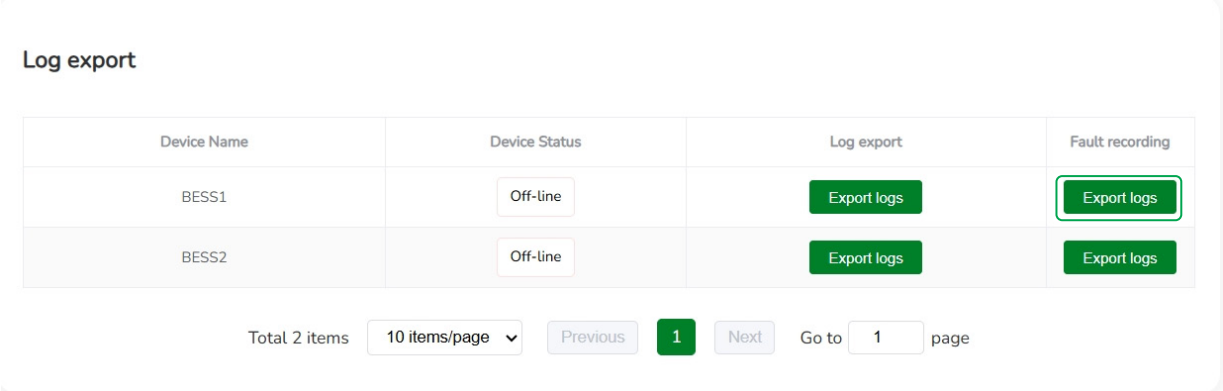
b. Select Cabinet Control Log or PCS Log.

c. Select the log date.

d. Export the file.

■ If you need to export fault recording, the step is as follows:

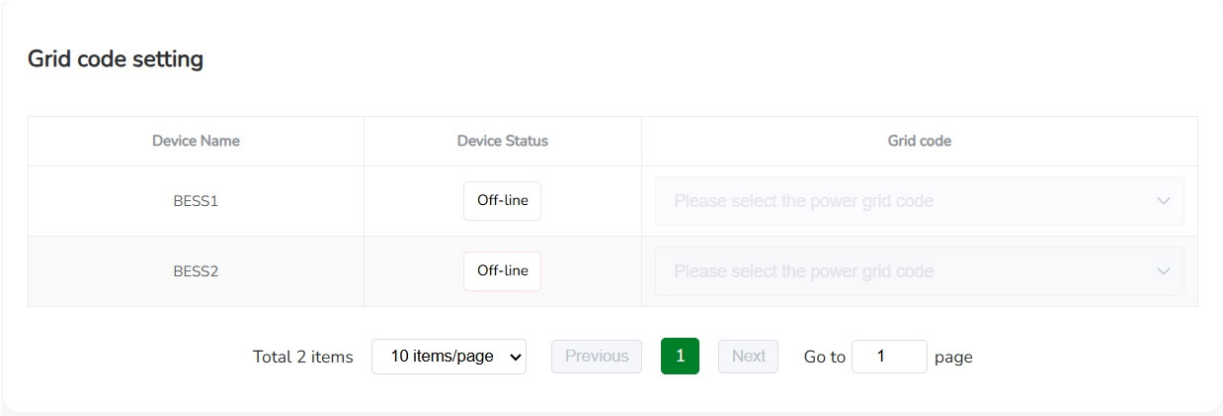
a. Click to Export.



b. Export File.

12.1.3 BESS Grid Code Settings

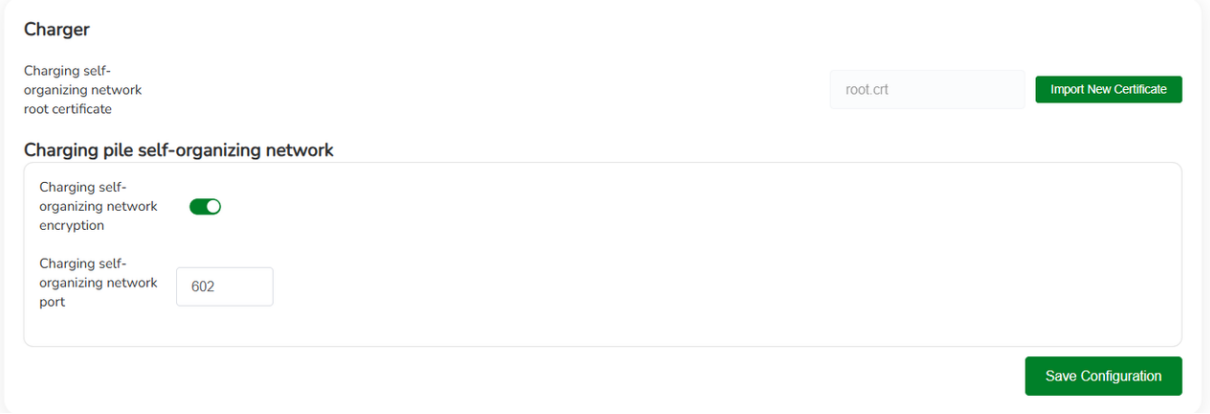
■ Click the grid code in the row where the BESS to be issued with the grid code is located.



■ After selecting a suitable power grid and clicking, it will be automatically issued.

12.2 Charger products

■ The southbound interface of charger products is mainly used for the self-organizing network of chargers.



■ Parameter descriptions are as follows:

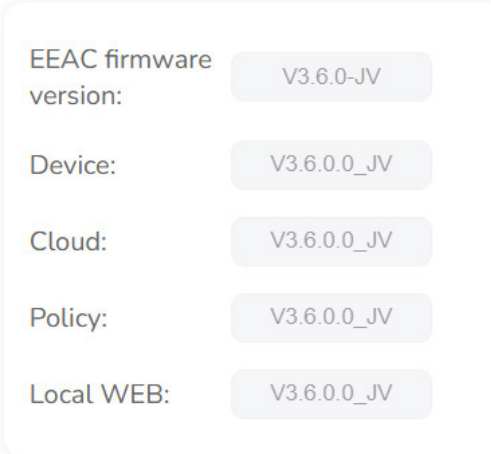
Name	Description
Encryption	During the communication with the charger, if encrypted communication is selected, the certificate needs to be imported here.
Protocol Selection	Select whether to use encrypted communication when performing ad-hoc network communication.
Encryption	Default 602

13 System

■ Select "Tools" → "System".

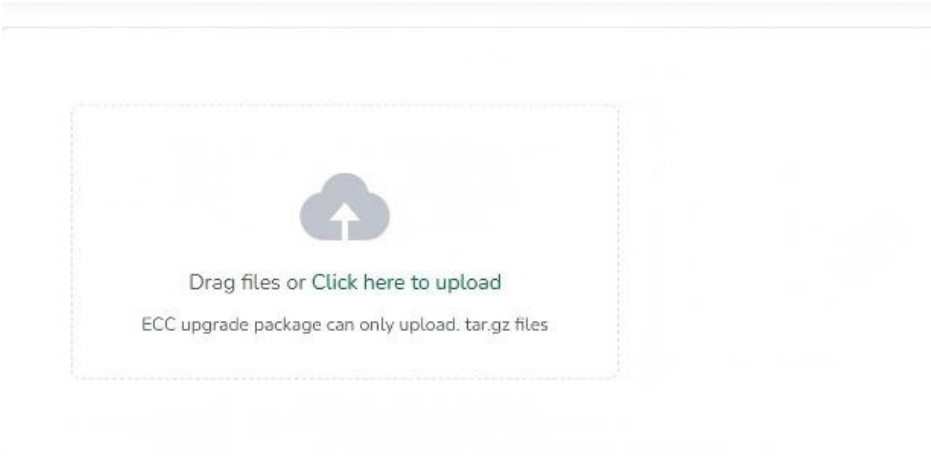
13.1 EcoStruxure Energy Asset Controller firmware

■ Firmware Version Information.

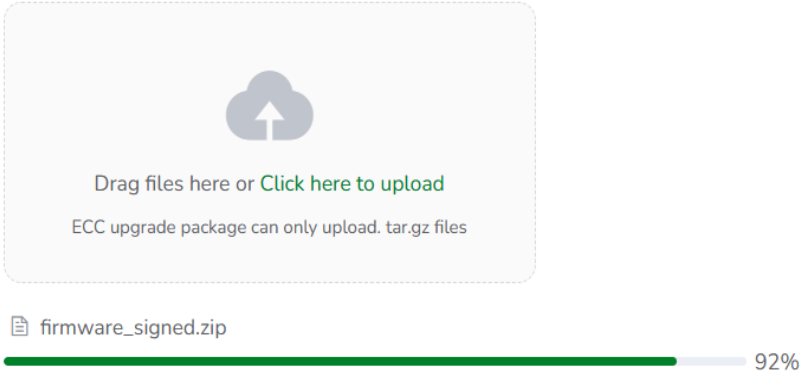


■ Firmware Upgrade.

a. Drag the firmware file into the firmware upload box, or click on the upload box and select the corresponding file.

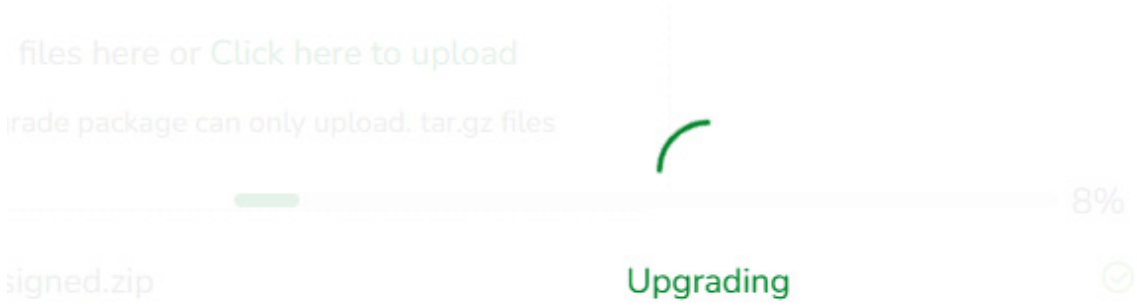


b. After the firmware upload operation is successful, the system starts to transfer the upgrade file.

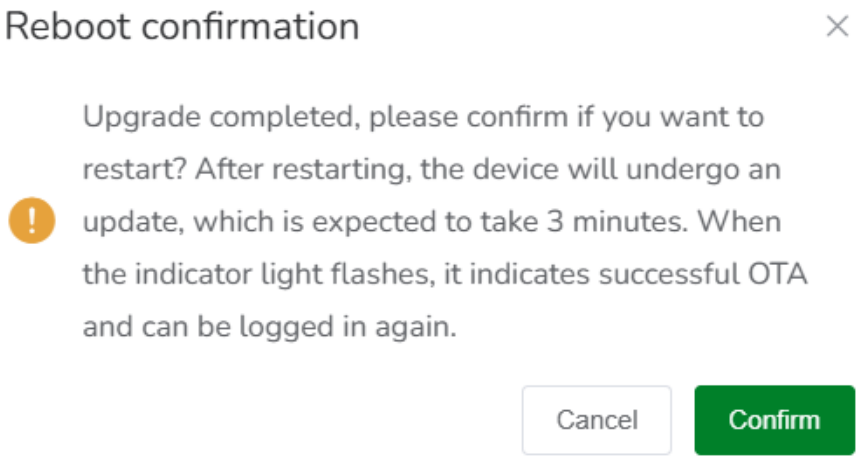


13.1 EcoStruxure Energy Asset Controller firmware

c. After the transfer is completed, the official upgrade will begin.

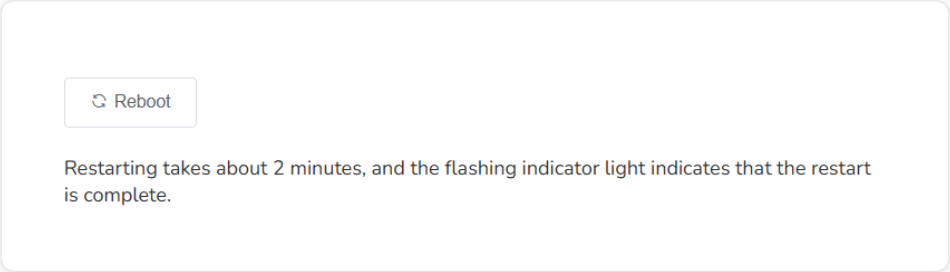


d. After the upgrade is completed, a dialog box asking whether to restart will automatically pop up, as shown in the following figure:

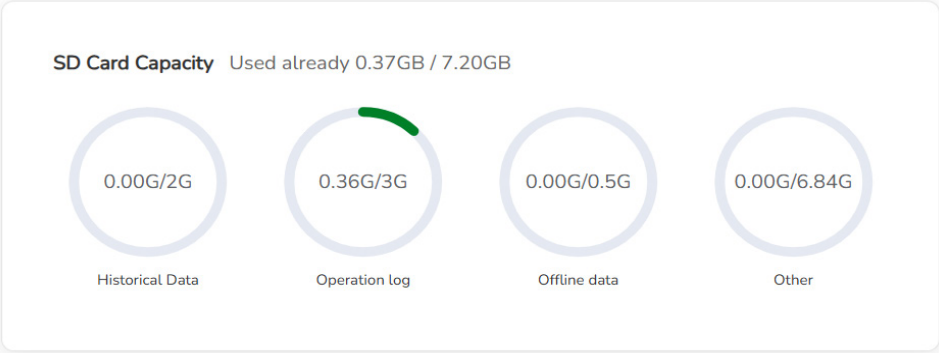


e. Wait approximately 3 minutes. After the EcoStruxure Energy Asset Controller indicator starts flashing, it indicates that the restart is complete, and you can log in to EcoStruxure Energy Asset Controller again.

- Force start. After clicking the force restart button, EcoStruxure Energy Asset Controller will restart.



13.2 SD card capacity



13.2 SD card capacity

■ Parameter descriptions are as follows:

Project	Maximum Occupancy	Remarks
Historical Data	2G	Stored electricity meter or charger data.
Operation Log	3G	Log files during the operation of EcoStruxure Energy Asset Controller.
Offline data	0.5G	When EcoStruxure Energy Asset Controller is briefly offline, the data originally intended to be uploaded to the cloud will be stored in this buffer and immediately sent to the cloud once it comes back online.
Other	All remaining capacity	

Appendix I

■ The definitions of the EcoStruxure Energy Asset Controller series of terminals are shown in the figure below.

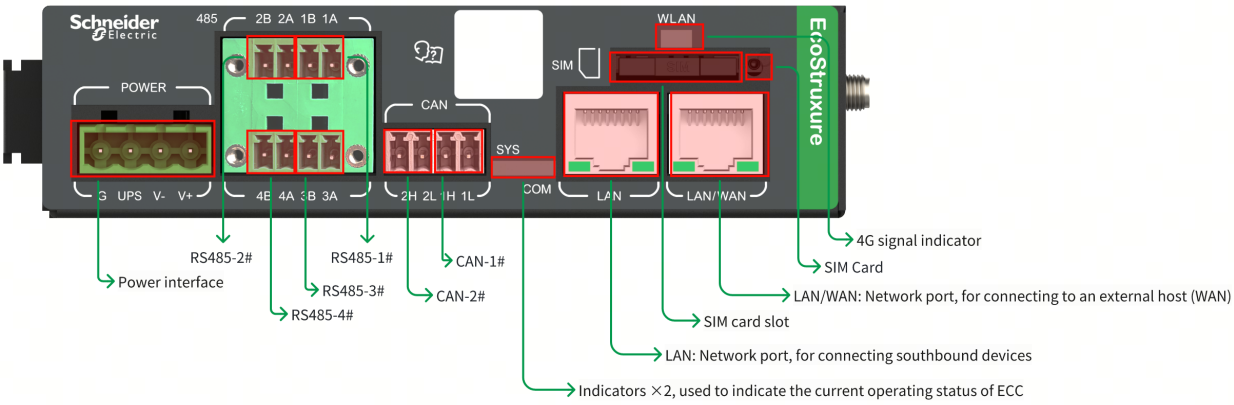


Figure A-1 Terminal Definitions of EcoStruxure Energy Asset Controller

Appendix II

■ The status indication of the indicator light is shown in Table B-1.

No.	Lighting type		Error	Meaning	Remark
	SYS	COM			
1	Red	Red	Level 1 (High)	4G communication malfunction or TF card authentication issue	Operational breakdown of EcoStruxure Energy Asset Controller
2	Red	Green	Level 2 (Medium)	485/CAN/LAN malfunction	Functional impairment of charging station power management
3	Green	Red	Level 3 (Low)	RTC anomaly or other glitch	No effects on operation
4	Green	Green	No error	Function is normal	N/A