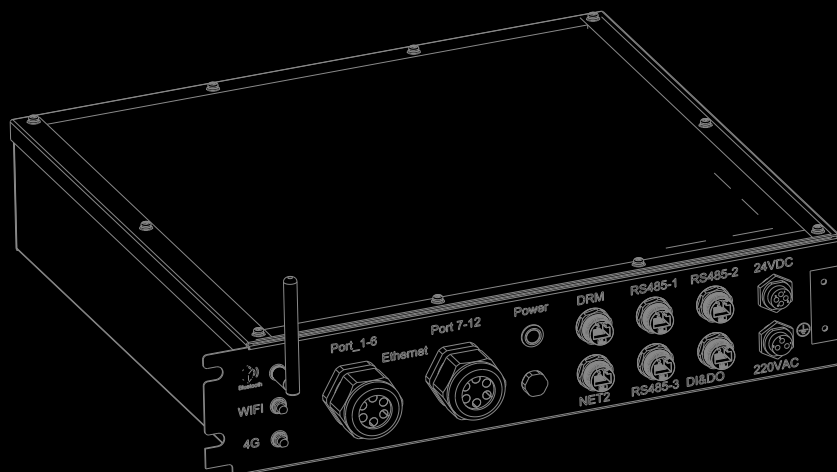




CM2 Series

**ENERGY MANAGEMENT SYSTEM (EMS)
USER MANUAL**

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1.

SAFETY PRECAUTIONS



1.1. About This Document

1.1.1. Overview

This *User Manual* provides introductions and instructions of installing, operating, and maintaining of SAJ Energy Management System (EMS) that is specifically designed for CM2 series commercial & industrial (C&I) all-in-one battery energy storage system (BESS).

Read the user manual carefully before any installation, operation and maintenance and follow the instructions during installation and operation. Always keep this manual available in case of emergency and maintenance purposes.

1.1.2. Target Audience

This document is applicable to the personnel that transport, install, and operate on the product. The personnel are required to have the following qualifications:

- A certain level of expertise in electronics, electrical wiring, and mechanical knowledge in electrical and mechanical schematics.
- Being familiar with the composition and working principles of the CM2 energy storage system and its upstream and downstream equipment.
- Professional training related to the installation and commissioning of electrical equipment.
- The ability to respond urgently to dangers or emergencies that may arise during installation or commissioning.
- Being familiar with relevant standards and regulations in the country or region where the project is located.
- Being familiar with the contents in this manual.

1.2. Safety

CAUTION:

ONLY qualified and trained electricians who have read and fully understood all safety regulations contained in this manual can install, maintain, and repair the equipment. Access to the equipment is by the use of a tool, lock and key, or other means of security.

1.2.1. Safety Levels

 DANGER
Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING
Indicates a hazardous situation which, if not avoided, can result in serious injury or moderate injury.
 CAUTION
Indicates a hazardous condition which, if not avoided, can result in minor or moderate injury.
 NOTICE
Indicates a situation that can result in potential damage, if not avoided.

1.2.2. Symbol Explanation

Symbol	Description
	Danger: Electrical shock hazard This device is directly connected to public grid and thus all work to the system shall only be carried out by qualified personnel.
	WARNING: No open flames Do not place or install near flammable or explosive materials.
	Attention: Keep the product out of reach of children.
	Attention: Check the user manual before service.
	Attention: This device shall NOT be disposed of in residential waste.

	CE Mark Equipment with the CE mark fulfills the requirements of the Low Voltage Directive and Electro Magnetic Compatibility.
	Recyclable
	Avoid liquid or moisture

1.2.3. Safety Instructions

For safety, be sure to read all the safety instructions carefully prior to any works, and please observe the appropriate rules and regulations of the country or region where you install the all-in-one energy storage system.

The product has been designed and tested strictly according to international safety regulations. As an electrical and electronic equipment, it must be installed, commissioned, operated, and maintained in strict accordance with related safety instructions. Incorrect operation or misuse of this device may cause personal injury or device damage. This will void the limit warranty and SAJ will not be responsible for the loss caused by those behaviors.

- The EMS unit must be installed and maintained by authorized technicians based on local laws and regulations.
- Before installing, maintaining or replacing the EMS unit, make sure that the CB2 cabinet is turned off properly. For detailed instructions, see the CM2 user manual.
- When the EMS unit is working, do not touch the internal component or cable to avoid electric shock.
- Before replacing an internal component within the EMS unit, make sure that the new component meets the usage requirement.
- When the EMS unit is working, do not plug in or out the cables.
- During installation, follow the safety instructions of the whole CM2 BESS.
- Make sure the DC power supply voltage and current are compatible with the rated voltage and current of the EMS unit; otherwise, the unit components might be damaged or the device cannot work properly.

2.

PRODUCT INFORMATION



2.1. Product introduction

The CM2 series energy management system (EMS) is specifically designed for the CM2 commercial & industrial (C&I) all-in-one battery energy storage system (BESS). As part of the CM2 BESS management system, the EMS can manage the storage and release of the electrical energy to fulfil the requirement of industrial and commercial application scenarios.

The EMS unit needs to be ordered and installed inside the CM2 cabinet for both single-cabinet deployment and parallel deployment of multiple CM2 cabinets. A maximum of 20 CM2 cabinets can be deployed as one BESS.

In case of parallel deployment of less than 12 CM2 cabinets, the EMS unit only needs to be installed on the primary CM2 cabinet, while the other standard CM2 cabinets are connected as a BESS through Ethernet communication. In case of parallel deployment of 12 or more CM2 cabinets, the EMS unit needs to be installed on the primary CM2 cabinet and one of the standard CM2 cabinet.

The EMS unit can also connect with PV string inverters and grid meters through RS485 communication.

The following figure shows the scenario where the EMS unit works in a single-cabinet deployment:

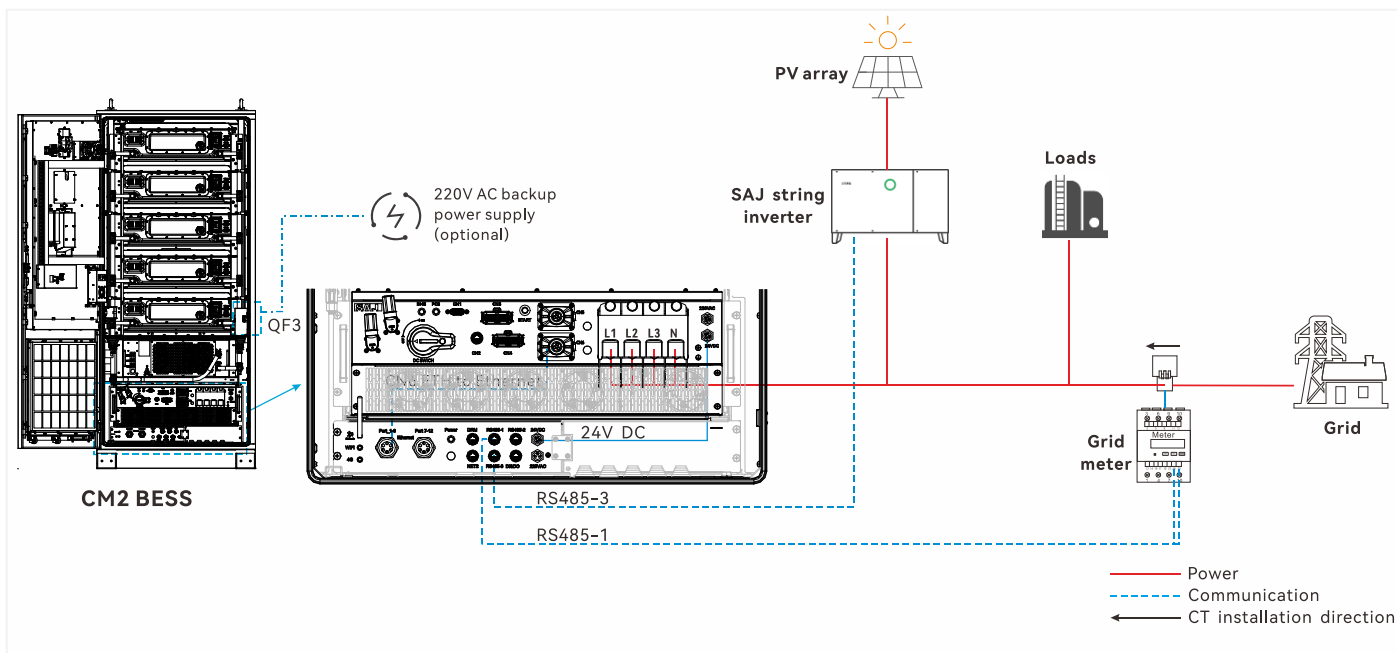


Figure 2.1. Single-cabinet connections

When more than 12 cabinets are deployed, follow the diagram below for EMS cable connections. In this case, the customer needs to order an optional EMS unit that is equipped only with a switch and install it in a standard CM2 cabinet (cabinet 11) as the following example shows.



2.2. Main features

The CM2 series EMS has the following features:

- All-in-one compact design including an EMS control module, a power module, and a switch.
- Smart and flexible communication and data collection
 - Support for RS485, Ethernet, 4G, and Bluetooth communication
 - Support for data collection, transmission and storage for grid meters, liquid control system, fire protection devices, sensors, and other devices of the CM2 cabinet
 - Support for communication and monitoring on a maximum of 20 CM2 cabinets
- Convenient operation and maintenance
 - Batch parameter settings and firmware updates for CM2 cabinets
 - 24-hour local and remote monitoring
 - Remote operation: PV-plant maintenance on the Web
- Easy operation
 - All-in-one compact design for easy installation and cable connections
- IP65 protection box enclosure for easy maintenance

2.3. Electrical interfaces

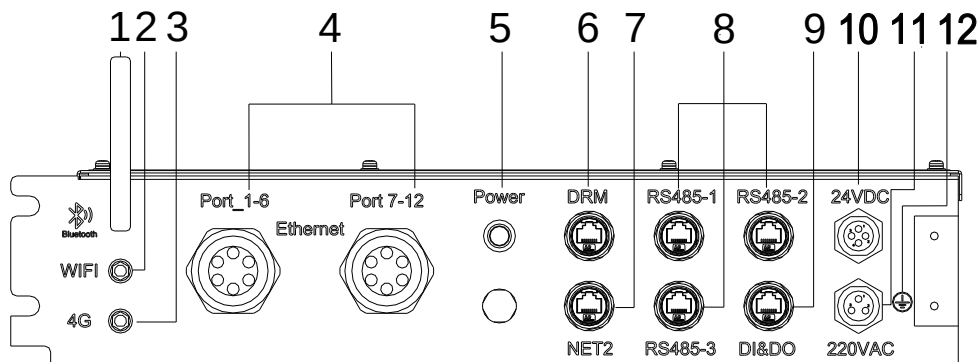


Figure 2.4. EMS unit electrical interfaces

Callout	Silkscreen	Description
1	Bluetooth	The Bluetooth adapter that is installed before delivery.
2	WiFi	The Wi-Fi (2.4G) connection port for the antenna.
3	4G	The 4G connection port for the antenna.
4	Ethernet Port_1-6; Port 7-12	The ports for Ethernet communication cable connections from each PCS in parallel deployment and for accessing the eSAJ all-in-one local web platform.
5	Power	The status indicator of the EMS unit. • Solid green: The EMS unit is online and working. • Slow flashing (1.5s): The EMS unit is initializing, getting online, or upgrading. • Fast flashing (0.5s): The EMS unit fails to start up. • Off: The power supply is not working.
6	DRM	The Demand Response Mode (DRM) port for DRED device connection.
7	NET2	The port for Ethernet connection to the elekeeper cloud platform.
8	RS485-1, RS485-2, RS485-3	The ports for RS485 communication cable connections. • RS485-1: For grid meter with export limit control function. • RS485-2: For PV meter when third-party inverter is connected. • RS485-3: For SAJ string inverter.
9	DI&DO	The dry input (DI) and dry output (DO) ports. The external devices connecting to this port can be planned according to the actual customer requirement.
10	24VDC	The 24 V DC power supply port from the PCS.
11	220VAC	The 220V AC backup power supply from the external power source. It connects to the QF3 switch on the PCS for on/off control.
12		The EMS grounding which is connected through the metal plate to the cabinet grounding. No additional grounding cable connection is required.

Table 2.1. Description of the EMS unit electrical interfaces

2.4. Internal components

The internal components of the EMS unit are connected before delivery while all the electrical interfaces are provided on the EMS panel for easy installation and connection. This section describes the internal components and their interfaces applicable for the CM2 BESS for reference and maintenance purposes.

For requirements on using the interfaces or functions on the internal components that are not described in this section, please contact CM2 product support.

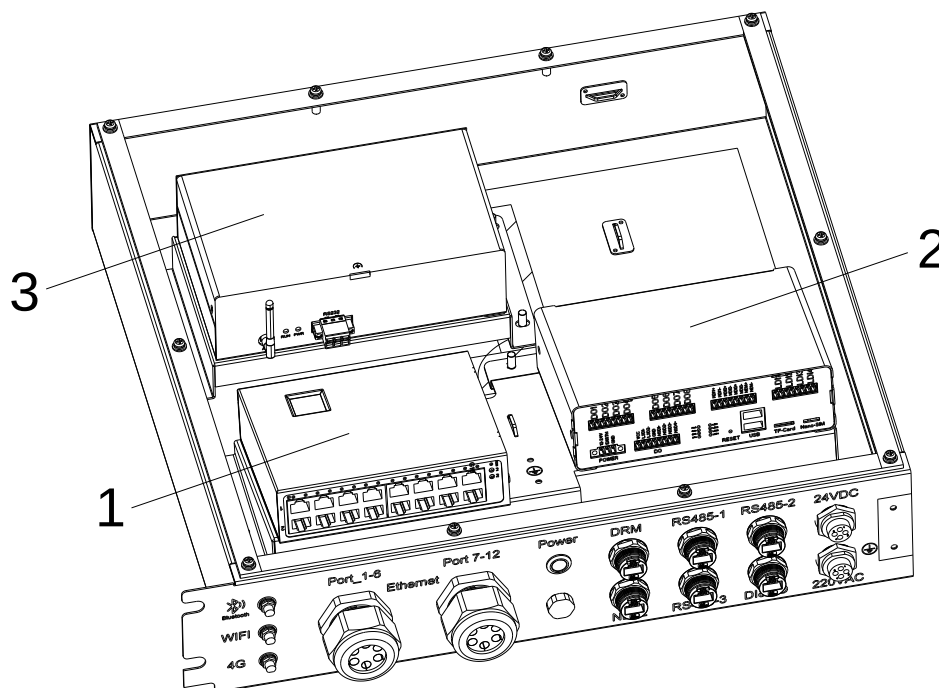


Figure 2.5. EMS internal components

Callout	Description
1	The switch that provides Ethernet communication interfaces.
2	The EMS control module. This module is only available in the standard EMS unit, not the EMS-Switch unit.
3	The EMS power module.

Table 2.2. EMS internal components

2.4.1. EMS control module

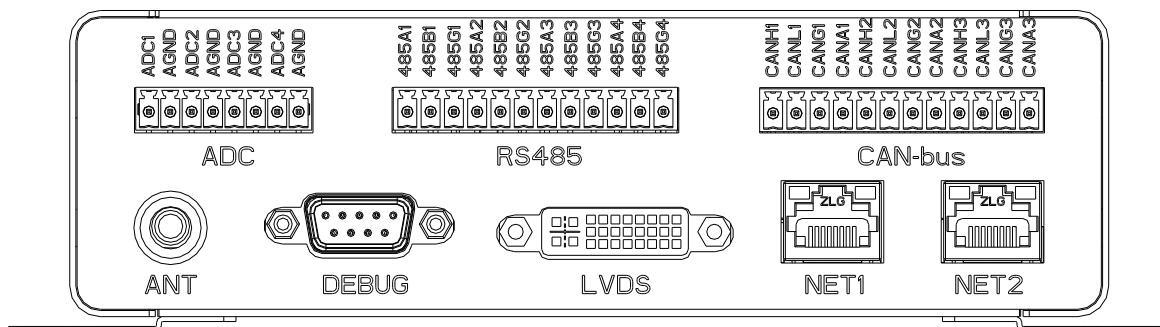


Figure 2.6. Front view ports

Silkscreen	Description	Remarks
ANT	The antenna for 4G communication.	SMA port
DEBUG	The debugging serial port for WiFi signaling connecting with the EMS power unit through RS232 communication.	DB9 port
NET1	Fast Ethernet (FE) port connecting to the RJ45 port 16 of the switch.	RJ45 port
NET2	FE port connecting to the NET2 interface on the EMS panel.	RJ45 port
RS485	Isolated RJ45 ports connecting to the RS485-1, RS485-2, and RS485-3 interfaces on the EMS panel.	3.81-12P terminal

Table 2.3. Front-view port descriptions

NET1 and NET2

The two FE ports use RJ45 physical ports and 10 Mbps/100 Mbps self-adaption. Each port has two LED indicators on the left and right sides, as listed in the following table.

LED	Location	Color	Function	Description
1	Left	Yellow	Link	Solid on: The network is connected.
2	Right	Green	Active	Blinking: The network connection is active.

Table 2.4. NET1 and NET2 LED descriptions

RS485

The following three isolated RS485 ports are connected to the RS485_1, RS485_2, and RS485_3 ports on the EMS panel:

Silkscreen	Description	Silkscreen	Description	Silkscreen	Description
485A1	First RS485 A signal	485B1	First RS485 B signal	485G1	First RS485 signal ground
485A2	Second RS485 A signal	485B2	Second RS485 B signal	485G2	Second RS485 signal ground
485A3	Third RS485 A signal	485B3	Third RS485 B signal	485G3	Third RS485 signal ground

Table 2.5. Internal RS485 ports

RS485 interface	Connected devices	Baud rate setting
RS485_1	Grid meter with export limit control.	When the factory default baud rate of the electric meter fails to meet your on-site requirements and you need to manually change the baud rate level setting of the electric meter, refer to the electric meter instruction manual to make changes. In addition, you need to adjust its baud rate level setting accordingly in the RS485 communication interface settings in App Bluetooth mode.
RS485_2	PV meter.	
RS485_3	SAJ string inverter.	

Table 2.6. RS485 ports on the EMS panel

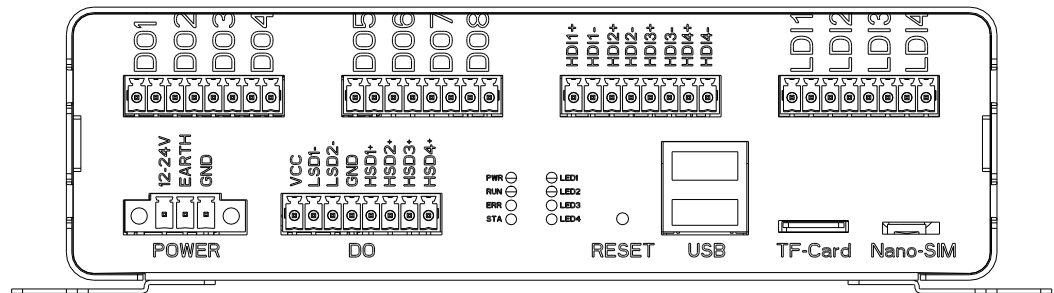


Figure 2.7. Rear-view ports of the EMS control module

Silkscreen	Description
POWER	The 24V DC and 500 mA power supply from the EMS power unit.
DO	Isolated dry output (DO) ports for controlling the power on/off of the external devices. - HSD1+ (High side driver) and GND ports connecting to the Power LED indicator on the EMS panel. - DO1-DO2: Mechanical relay (passive) output ports connecting to the DO interface on the EMS panel. The application range of the relays need to be of 1A/250V AC or 4A/25V DC.
PWR	Power status indicator. - Red: The system is powered on. - Off: The system is powered off.
RUN	System running status indicator. - Blinking in green: The system is running normally. - Off: The system does not work.
ERR	System error indicator. - Red: An error occurs. - Off: The system is running normally.
STA	Wireless module status indicator. - Green: The module is running normally. - Off: The module is running abnormally.
RESET	Reset button. You can insert a proper tool, such as a paper clip, to reset the EMS control module.
USB	Two USB 2.0 ports for connecting to a USB flash drive, a mouse, or a keyboard. One port is connected with a WiFi signal booster before delivery.
TF-Card	Standard TF card slot. A TF card can be inserted for system debugging, firmware read and write, startup and update.
Nano-SIM	Nano-SIM card slot for 4G SIM card. Note: The customer needs to prepare a nano-SIM card. If the SIM card needs to be replaced, replace the SIM card first and then restart the module to ensure that the 4G function can work normally.
DI	Isolated dry input (DI) ports. LDI1-LDI2: Low-level voltage input (VIL) (active) ports connecting to the DI interface on the EMS panel.

Table 2.7. Rear-view port descriptions

2.4.2. EMS power module

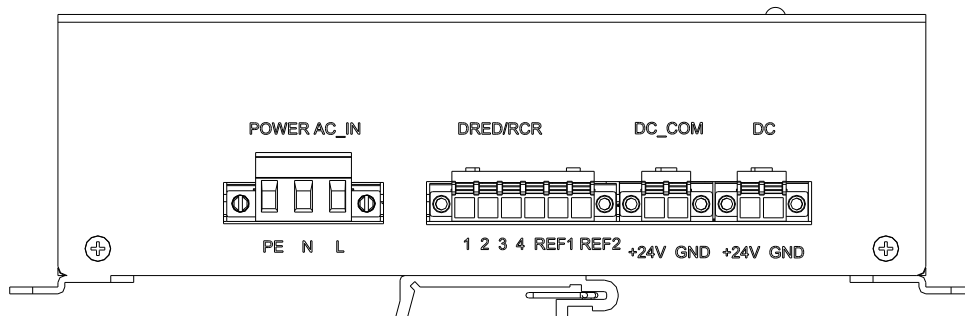


Figure 2.8. Front view ports

Silkscreen	Description
POWER AC_IN: PE	The PE wire connecting to the module box.
DRED/RCR: 1, 2, 3, 4, REF1, REF2	This port is compatible with the ripple control receiver (RCR) and demand response enabling device (DRED) functions. (DRED is used in Australia; RCR is widely used in Germany.) For the port definitions, see Table 2.9 DRED port definitions.
DC_COM (+24V, GND)	DC output terminals. The two terminals are connected to the POWER port of the EMS control module and the POWER port of the switch respectively.
DC (+24V, GND)	DC input terminals connecting to the external 24V power supply.

Table 2.8. Front port descriptions

Silkscreen	1	2	3	4	REF1	REF2
DRED	DRM1/5	DRM2/6	DRM3/7	DRM4/8	Com/DRM0	RefGen
RCR	D_IN1	D_IN2	D_IN3	D_IN4	+5V	+5V

Table 2.9. DRED port definitions

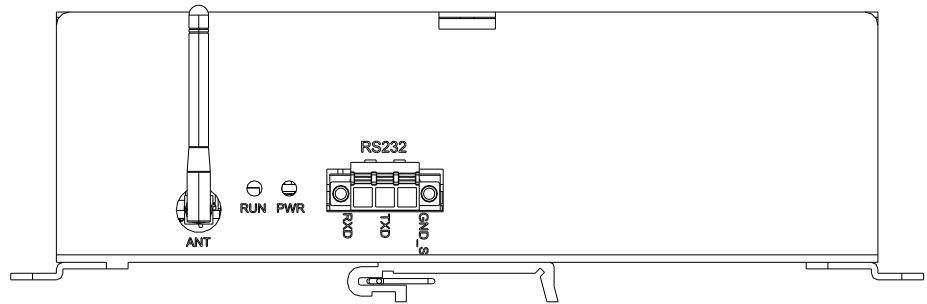


Figure 2.9. Rear view ports

Silkscreen	Description
RS232	RS232 terminals connecting to the DEBUG port of the EMS control module.
ANT	The antenna terminal for Bluetooth communication.
PWR	Power status indicator.
RUN	System running status indicator.

Table 2.10. Rear view port descriptions

2.4.3. Switch

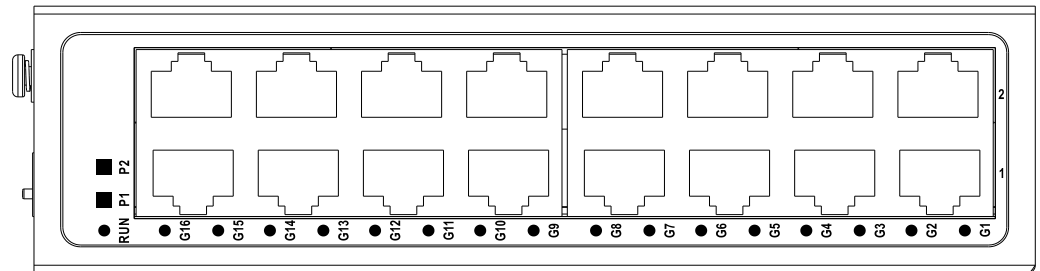


Figure 2.10. Front view ports

Silkscreen	Description
RUN	The working status indicator.
P1	The P1 power supply status indicator.
G1 to G16	The Ethernet port indicators.

Table 2.11. Front-view port descriptions

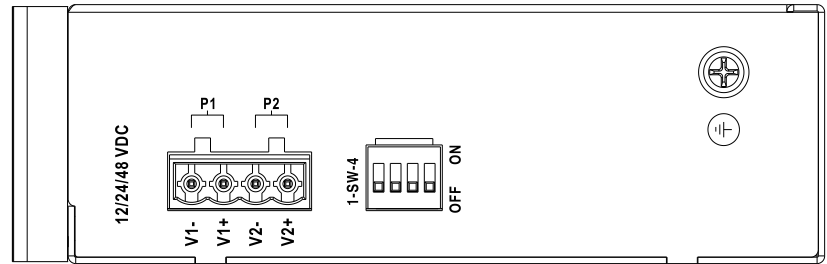


Figure 2.11. Left-side view ports

Silkscreen	Description
P1: V1-, V1+	The 24V DC power supply connecting from the EMS power module.
1-SW-4: ON, OFF	The DIP switches. Note: Do not change the default settings.
	The grounding cable connecting to the grounding plate inside the EMS unit.

Table 2.12. Left-side view port descriptions

3.

INSTALLATION PREPARATION



3.1. Check the outer packing

Although SAJ's products have thoroughly tested and checked before delivery, the products may suffer damages during transportation.

1. Check the outer packing package for any damage, such as holes and cracks.
2. Check the equipment model.

If any serious damage is found or the model is not what you requested, do not unpack the product, and contact your dealer as soon as possible.

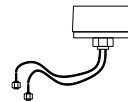
3.2. Check the package contents

1. Verify that the shipment contains everything that you expect to receive. Contact after sales if there are missing or damaged components.
2. Place the accessories separately after unpacking to avoid confusion about cable connections.

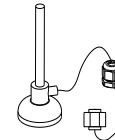
Standard EMS unit



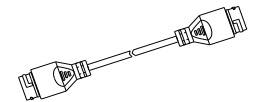
Standard EMS unit



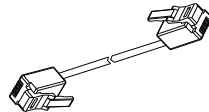
Antenna (A)



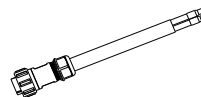
Antenna (B)



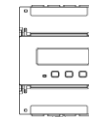
24V DC power cable



Communication cable



EMS 220V backup
power supply cable

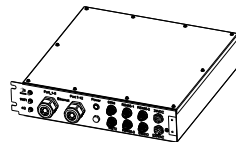


Grid meter

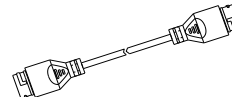


Printed documents

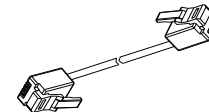
EMS-Switch unit (Optional)



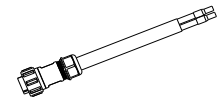
EMS-Switch unit



24V DC power cable



Communication
cable



EMS 220V backup
power supply cable



Printed documents

4.

ELECTRICAL CONNECTION



4.1. Safety Instructions

Electrical connection must only be operated by professional technicians. Before the operation, the technicians must wear necessary personal protective equipment (PPE) including insulating gloves, insulating shoes, and safety helmet.



When it is powered on, the equipment should in conformity with national rules and regulations.



Any improper operation during cable connection can cause device damage or personal injury.

4.2. Cable connections

The EMS unit needs to be ordered and installed at the bottom of the CM2 cabinet for both single-cabinet deployment and parallel deployment of multiple CM2 cabinets.

In case of parallel deployment of multiple CM2 cabinets, the standard EMS unit needs to be installed on the primary CM2 cabinet. For parallel deployment of more than 12 cabinets, another optional EMS-Switch unit needs to be ordered and installed in a standard CM2 cabinet for communication connections.

For detailed cable connections of the EMS unit, see the CM2 BESS *User Manual*.

5.

**COMMISSIONING ON
APP**



5.1. About the elekeeper App

The elekeeper App can be used for both nearby and remote monitoring.

5.2. Download the App

On your mobile phone, search for “elekeeper” in the App store and download the App.

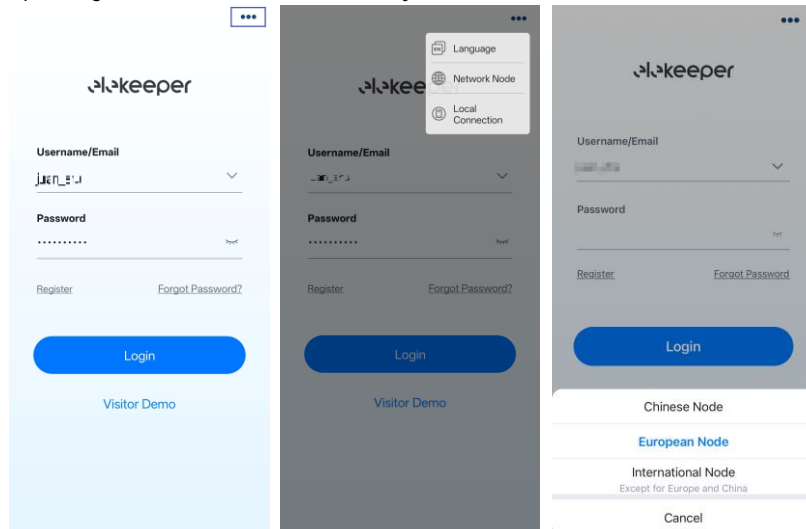
Alternatively, you can scan the below QR code to download the App.



Note: The detailed operations on the App might vary, depending on the version you are using.

5.3. Log in to the App

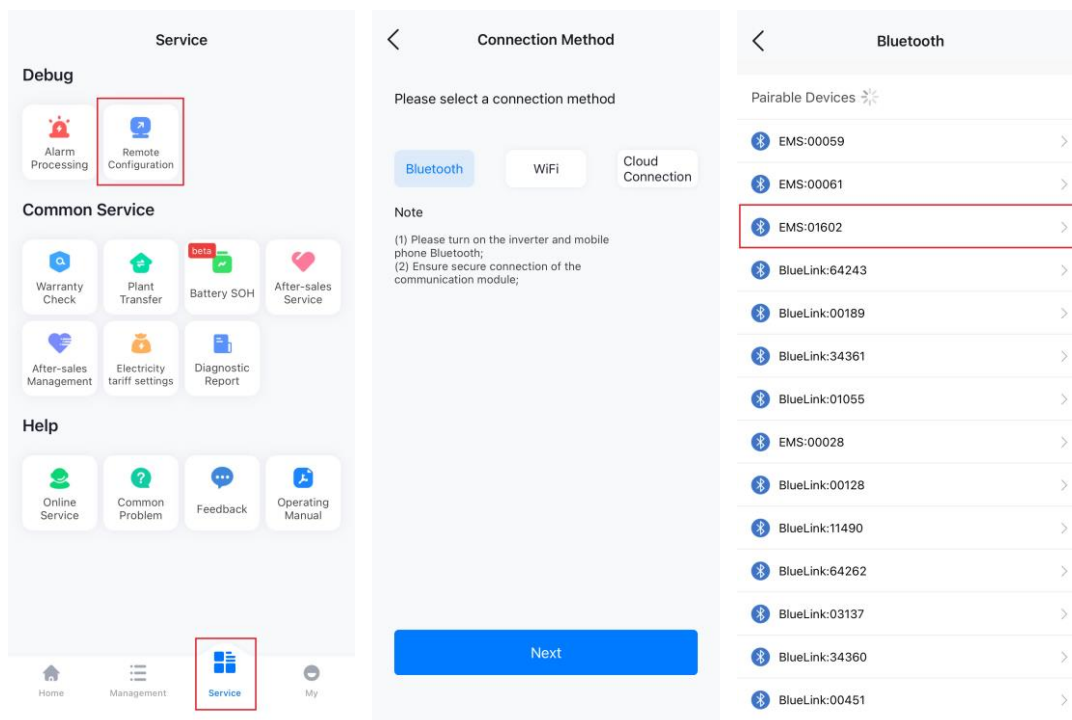
1. Open the App and tap the three-dot icon  on the top right corner.
2. Set **Language** to **English** and **Network Node** to **European Node** or **International Node** depending on the installation site of the system.



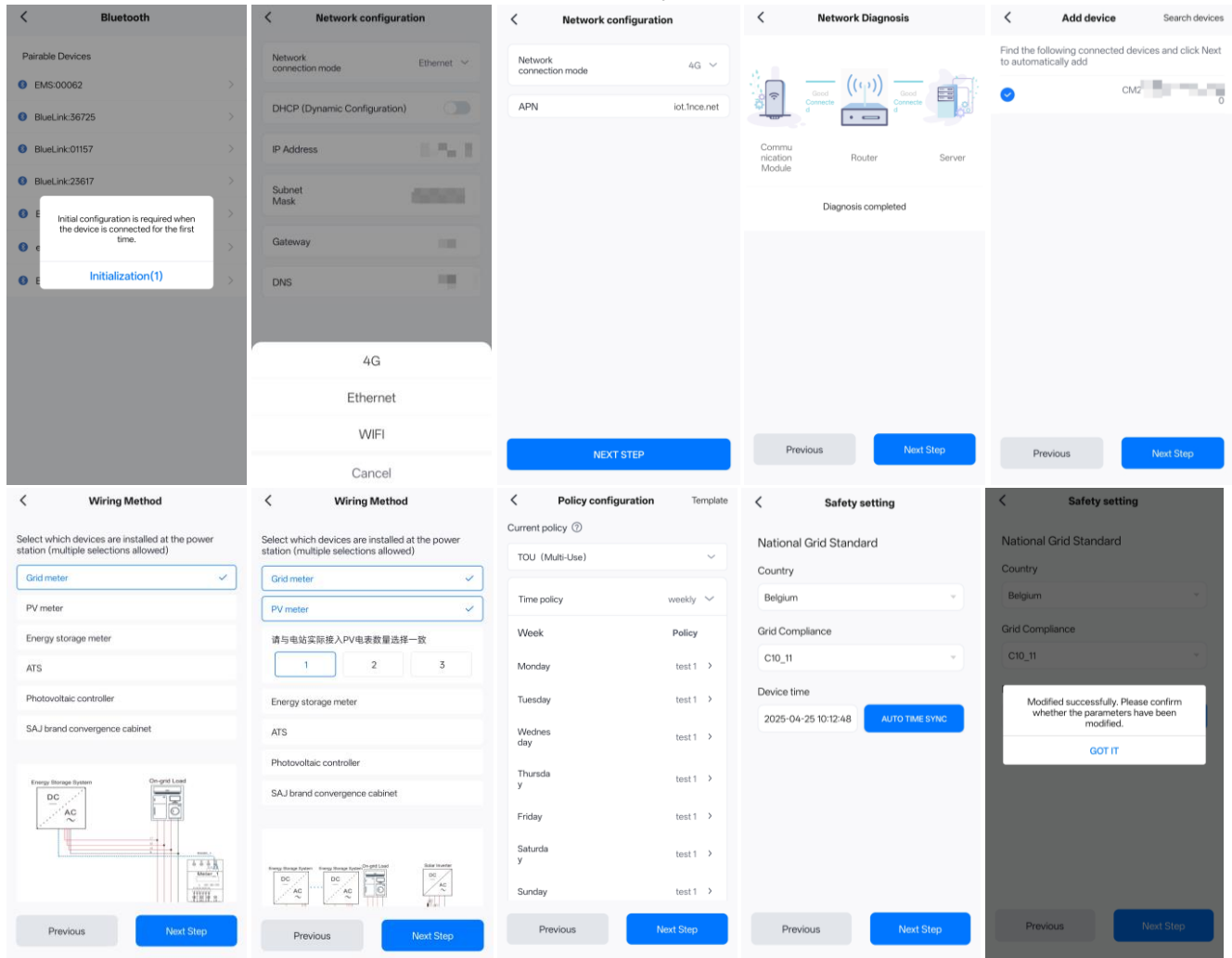
3. If you do not have an account, register first.
 - a. Tap **Register**. Choose whether you are an owner, installer, or distributor.
 - b. Follow the instructions on the screen to complete the registration.
4. Use the account and password to log in to the App.
5. On the **Service** page, select **Remote Configuration**.
6. Check that Bluetooth is enabled on your mobile phone. Tap **Bluetooth** and then **Next**.

5.4. Complete initialization settings

1. Log in to the App and tap **Service > Remote Configuration**.
2. Connect to the EMS communication module through Bluetooth connection. For example, EMS:01602.

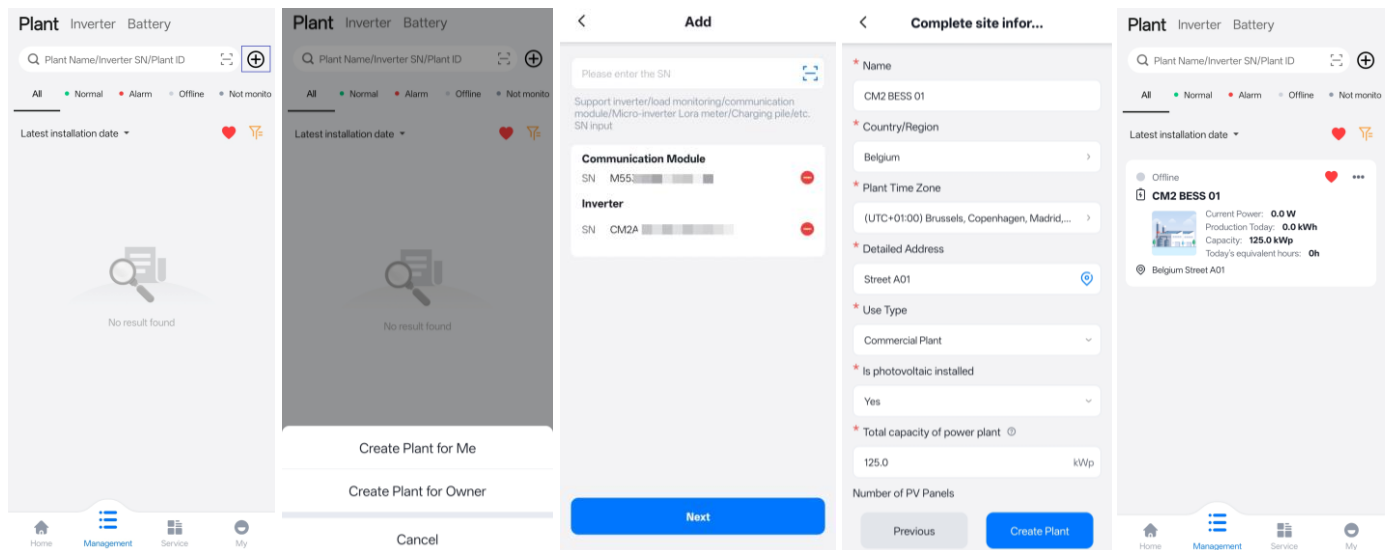


3. Follow the screen to complete the initialization settings.
 - For details about **Policy configuration**, see section 5.8 "Configure the working mode" on page 28.
 - For **Safety setting**, set the following safety parameters according to the regional regulations.
 - **Country**: Select the country where the system is installed.
 - **Grid Compliance**: Select the applicable compliance of the country.
 - **Device time**: Tap **Auto Time Sync** to synchronize the device time with the time on your mobile phone. The default time is factory-set.



5.5. Create a plant

1. Log in to the App and connect to the EMS unit through Bluetooth connection.
2. On the **Management** page, tap the icon on the upper right corner, and select **Create Plant for Owner**.
3. Register the owner's account or select an existing owner.
4. On the **Create Plant for Owner** page, enter the CM2 serial number and add the device.
5. On the **Complete site information** page, enter the plant information. Tap Create Plant to complete the creation.
6. On the **Management** page, check the new plant as needed.



5.6. Configure the 4G service

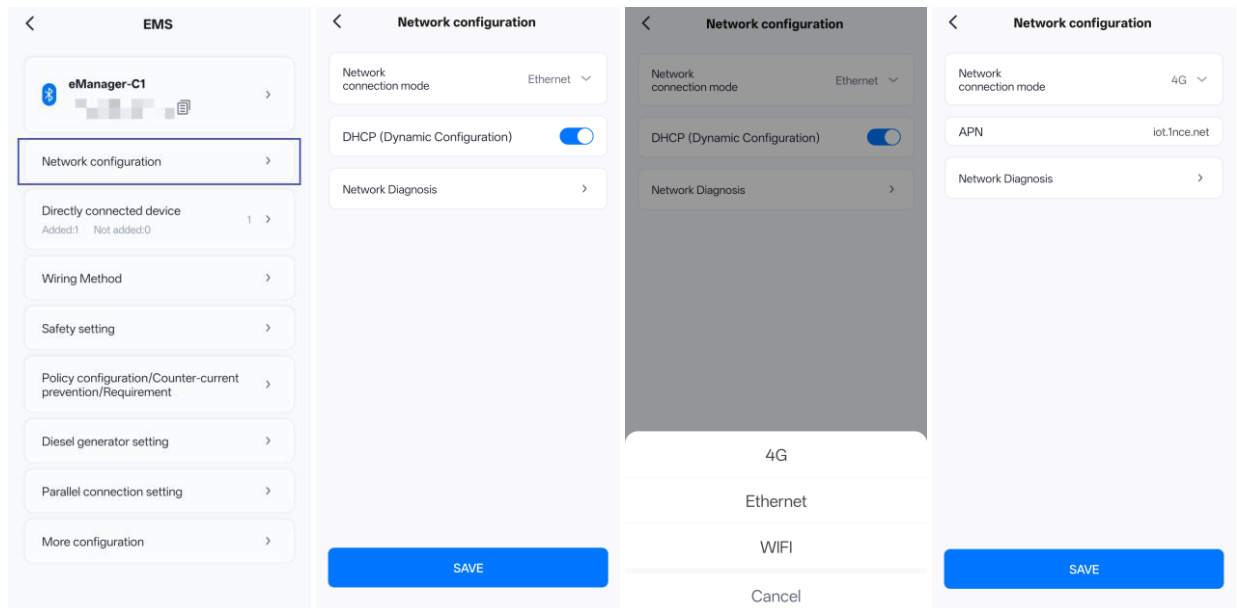
When the 4G service is required for the EMS to connect to the cloud platform, configure the 4G network service on the EMS.

Before you start

Make sure that the 4G SIM card has been installed to the EMS.

Procedure

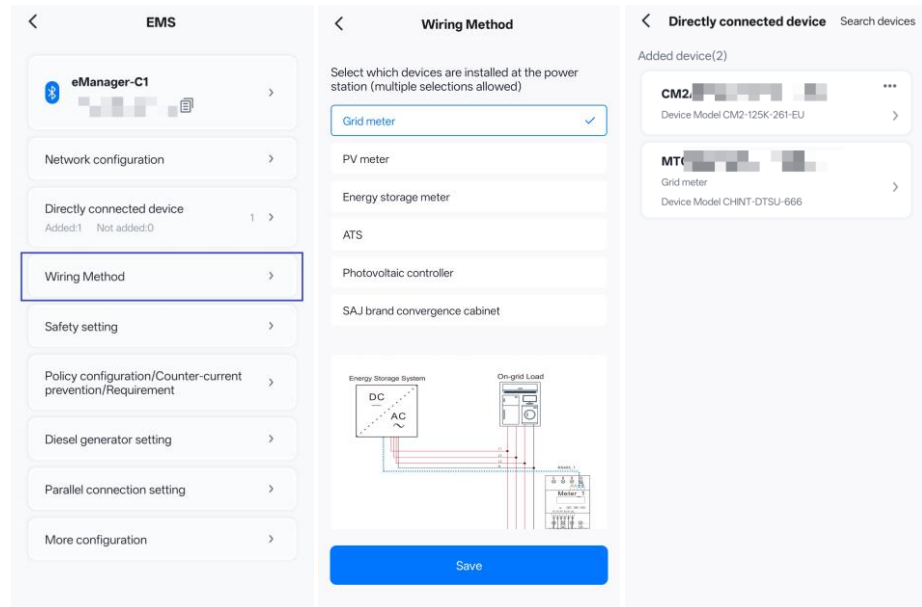
1. Log in to the App and connect to the EMS unit through Bluetooth connection.
2. On the **EMS** page, select **Network configuration**.
3. On the **Network configuration** page, select **Network connection mode**, and select **4G**.
4. Set parameter **APN** to the APN name of the 4G service provider and save the changes.



5.7. Configure meter connection

When the PV or grid meters are installed, configure the meter connection with the EMS.

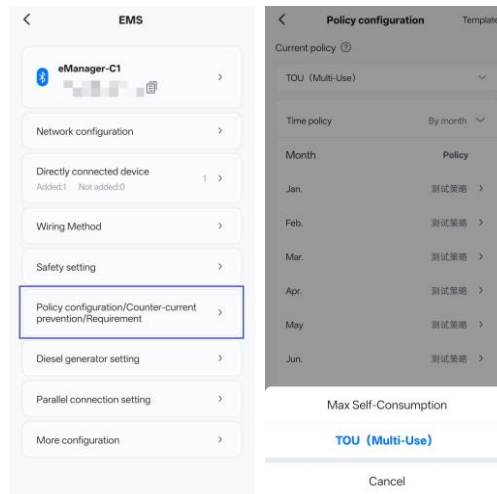
1. Log in to the App and connect to the EMS unit through Bluetooth connection.
2. On the **EMS** page, select **Wiring Method**.
3. On the **Wiring Method** page, select the corresponding meter, and save the changes.
4. On the **Directly connected device** page, check that the selected meter is added under the EMS unit successfully.



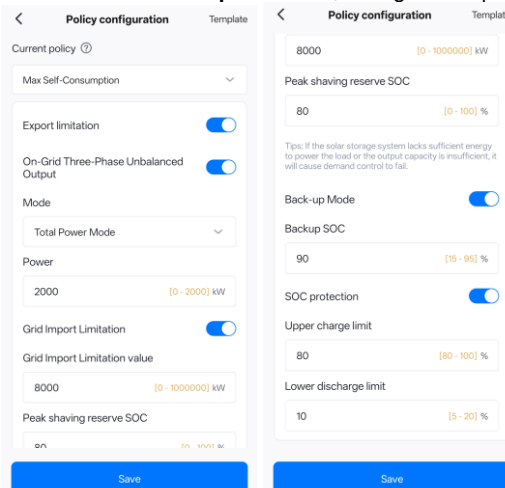
5.8. Configure the working mode

Configure the working mode of the CM2 system according to the actual requirement of the users. Customized policy template can be configured and applied on the App.

1. Log in to the App and connect to the EMS unit through Bluetooth connection.
2. On the **EMS** page, select **Policy configuration/Counter-current prevention/Requirement**.
3. Select the working mode **Max Self-Consumption** or **TOU (Multi-Use)**.



For **Max Self-Consumption** mode, configure the parameters as the following example shows:



For **TOU (Multi-Use)** mode, tap **Template** to create customized working mode for different time-slots. For example, configure the working policy for time periods 00:00-08:00, 08:00-17:00, 17:00-20:00, and 20:00-24:00; and apply the policy for all days on weekly basis:

Policy configuration Template

Current policy ⓘ

TOU (Multi-Use) ▾

Time policy weekly ▾

Week	Policy
Monday	TOU >
Tuesday	TOU >
Wednesday	TOU >
Thursday	TOU >
Friday	TOU >
Saturday	TOU >
Sunday	TOU >

Save

Create

Name TOU

Time-sharing policy ^

00:00 — 08:00

Policy Charge ▾

Power 200 kW [0-2000]

08:00 — 17:00

Policy Discharge ▾

Power 300 kW [0-2000]

17:00 — 20:00

Policy Standby ▾

Power 200 kW [0-2000]

+ Add

Set at least one time-sharing setting [00:00-24:00]. Multiple Settings will be automatically split for 24 hours. Set a maximum of 12 Settings for charging, discharging, and standby.

Export limitation ☒

On-Grid Three-Phase Unbalanced Output ☒

Save

Create

Export limitation ☒

On-Grid Three-Phase Unbalanced Output ☒

Total Power Mode ▾

Power 2000 [0-2000] kW

Grid Import Limitation ☒

Grid Import Limitation value Please enter [0-1000000] kW

Peak shaving reserve SOC Please enter [0-100] %

Back-up Mode ☐

SOC protection ☒

Save

Create

Grid Import Limitation value 8000 [0-1000000] kW

Peak shaving reserve SOC 80 [0-100] %

Back-up Mode ☒

Backup SOC 90 [15-95] %

SOC protection ☒

Upper charge limit 80 [80-100] %

Lower discharge limit 10 [5-20] %

Self-Consumption Mode ☒

This mode is used during standby hours

Save

Policy configuration Template

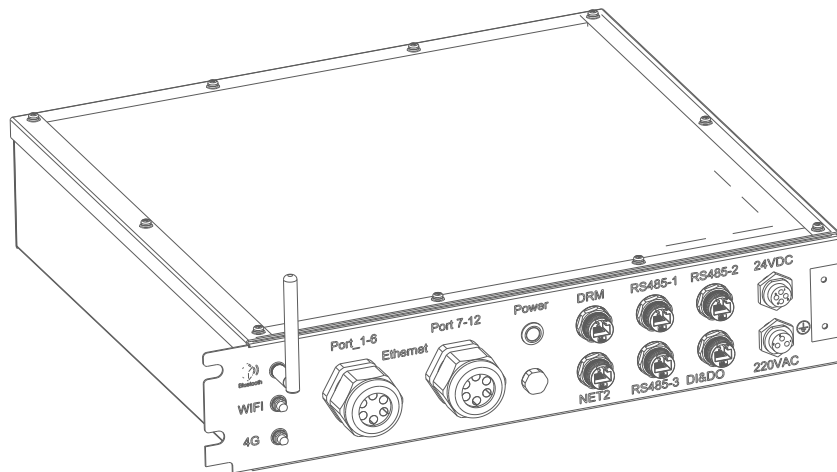
Current policy ⓘ

TOU (Multi-Use) ▾

Time policy weekly ▾

Week	Policy
Monday	TOU >
Tuesday	TOU >
Wednesday	TOU >
Thursday	TOU >
Friday	TOU >
Saturday	TOU >
Sunday	TOU >

Save



6.

**COMMISSIONING ON
WEB**



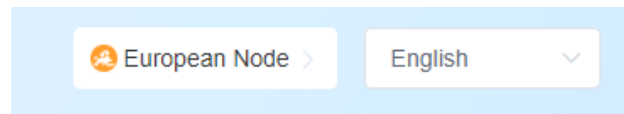
6.1. The elekeeper web platform

The elekeeper web platform is a smart energy management system that monitors the power production and consumption statistics of the CM2 BESS.

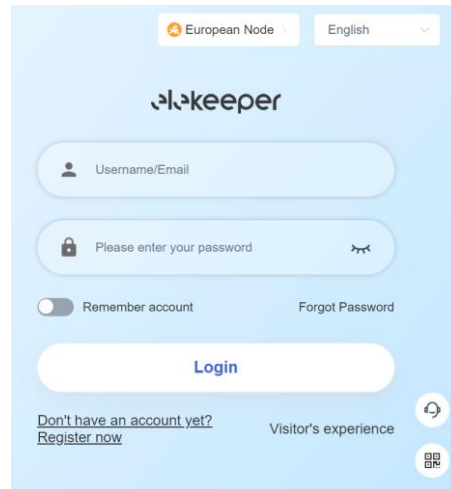
Most of the BESS configurations can be either completed on the elekeeper App or the elekeeper web platform; however, some data can only be viewed on the web platform, such as information about the smart meter and fire protection.

6.2. Log in to the web platform

1. Open <https://eop.saj-electric.com/> on the web browser.
2. On the top right corner of the home page, select the node and language as required. For example:



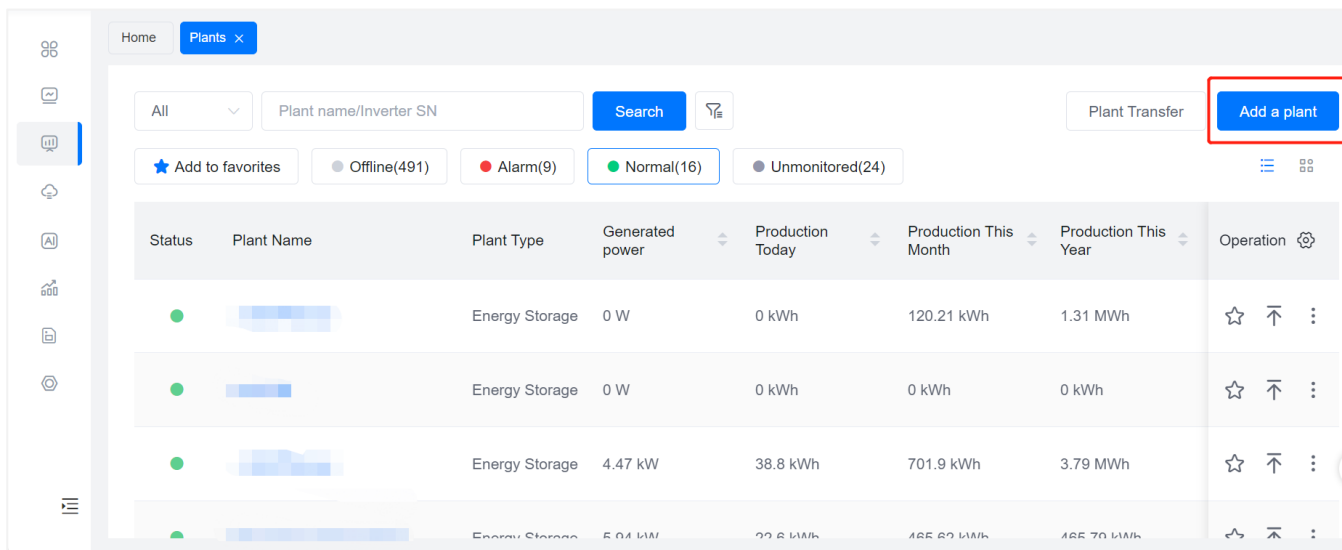
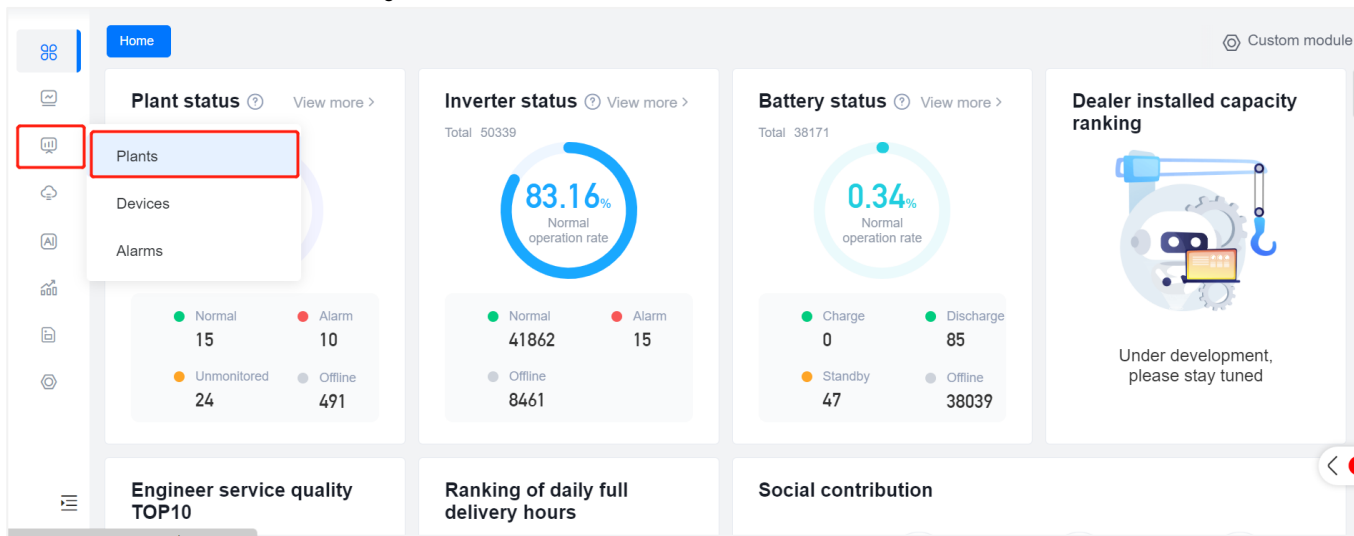
3. For the first-time login, register first.
 - a. Tap **Don't have an account yet? Register now.**
 - b. Follow the instructions to complete registration.



4. Use the account and password to log in to the platform.

6.3. Create a plant

1. On the **Home** page, select **Plants** on the left navigation pane. Then, select **Add a plant** on the upper right corner.



2. On the **Create Plant** page, follow the instructions on the screen.
 - a. On the **Add a device** page, enter the device SN and click **Add**.

Create Plant

Add a device

Plant Info

Installer Info

* Support for inverter/load monitoring/communication module/micro-inverter Lora meter and other SN inputs

CM2

Add

- b. When the EMS module is displayed, confirm the bonding with the CM2 BESS and enter the inverter name.

Create Plant

Add a device

Plant Info

Installer Info

* Support for inverter/load monitoring/communication module/micro-inverter Lora meter and other SN inputs

Please enter the inverter SN

Add

EMS Module (SN: CM2-01)

Inverter (SN: CM2-01)

*Device Capacity(kWp)

125

Inverter Alias

CM2-01

Next Step

- c. On the **Plant Info** page, enter the plant name and address. Then, configure the plant details, such as type and capacity.

Create Plant

Add a device

Plant Info

Installer Info

* Plant Name

CM2 BESS

* Country/Region

Germany

* Plant Time Zone

(UTC+01:00) Amsterdam, Berlin, B...

* Detailed Address

001, Street A

* Plant Type

Energy Storage

* Whether solar panels are installed

Installed

* Plant Capacity(kWp)

125

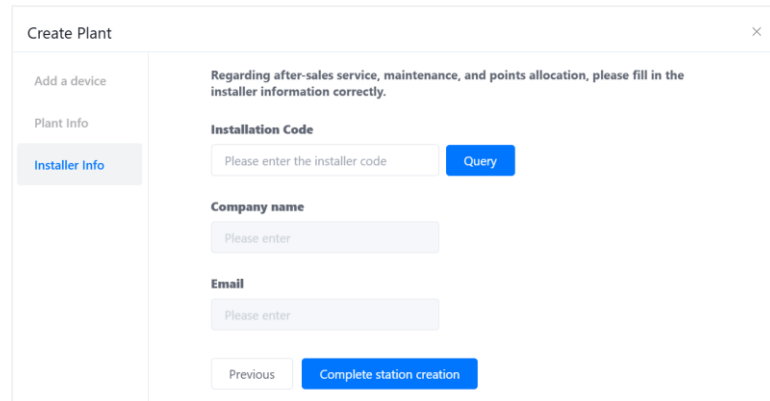
Use Type

Commercial plant

Number of Components

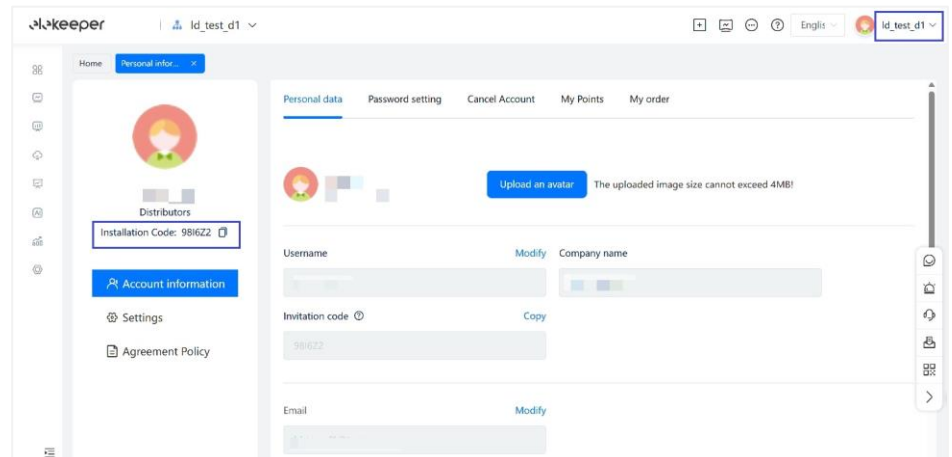
Please enter the number of modules

- d. On the **Installer Info** page, enter the installation code.



The 'Create Plant' dialog box features a sidebar on the left with options: 'Add a device', 'Plant Info', and 'Installer Info' (which is highlighted). The main area contains a heading 'Regarding after-sales service, maintenance, and points allocation, please fill in the installer information correctly.' followed by three sections: 'Installation Code' with a text input field and a 'Query' button; 'Company name' with a text input field; and 'Email' with a text input field. At the bottom are 'Previous' and 'Complete station creation' buttons.

The installation code is only available for the installer role. The code can be found under the **Personal center**. For example: 98I6Z2.



The 'Personal Center' interface shows a sidebar with 'Home' and 'Personal info.' (selected). Under 'Personal info.', there is a 'Distributors' section with 'Installation Code: 98I6Z2' (highlighted), 'Account information', 'Settings', and 'Agreement Policy'. The main content area has tabs for 'Personal data', 'Password setting', 'Cancel Account', 'My Points', and 'My order'. The 'Personal data' tab is active, displaying an 'Upload an avatar' button, 'Username' and 'Company name' fields with 'Modify' links, an 'Invitation code' field with '98I6Z2' and a 'Copy' button, and an 'Email' field with a 'Modify' link.

- e. Click on **Complete station creation** to finish the creation.

6.4. View the plant statistics

1. On the **Home** page, choose **Plants** on the left navigation pane. Search or filter out the target plant.

Home **Plants**

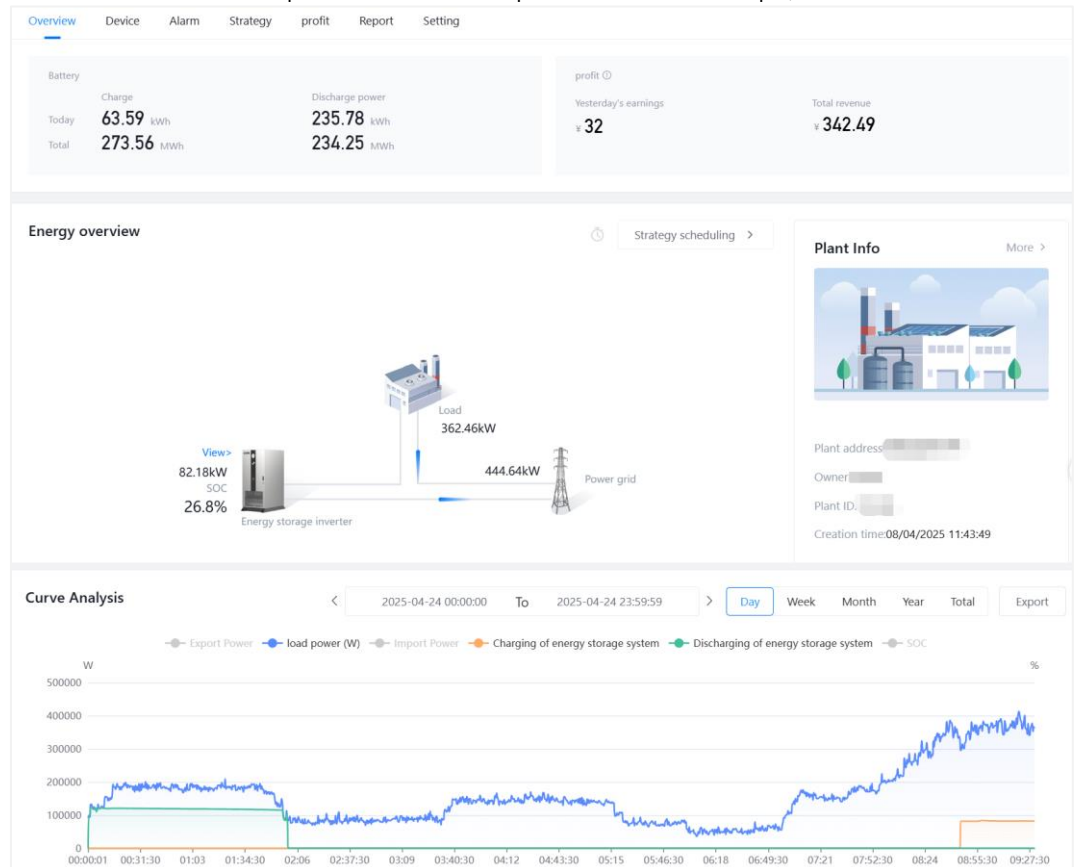
All Search

★ Add to favorites Offline(1) Alarm(0) Normal(0) Unmonitored(0)

Status	Plant Name	Plant Type	Generated power	Production Today	Lifetime Production	SOC	Operation
Offline(1)	CM2 BESS - 01	Energy Storage	0 W	0 kWh	0 kWh	50.1 %	Q E

Total 1 < 1 > Go to 1 10/page

2. Click on the listed plant name to view the plant statistics. For example, CM2 BESS-01.



- On the **Overview** page, you can view data like system power production, consumption, battery charging and discharging, and revenue statistics.
 - **Energy overview:** It provides a dynamic connection diagram between PV arrays, grid, loads, and batteries.
 - **Plant Info:** It lists plant address, owner name, capacity, and creation time.
 - **Curve analysis:** You can view the electric energy production and consumption by day, week, month, year, or in total. In addition, you can click on **Export** on the right corner of this area to view the data in Excel format.
 - **Revenue analysis:** You can set the local electricity price. The platform can provide the revenue statistics based on the actual power generation and consumption.
 - **Plant weather:** It shows the current weather in your local area.
 - **Social contribution:** It provides the CO2 emission reduction and standard coal saving statistics and converts the saving to contributions of planted trees.
- On the **Device** page, you can view statistics of the **Battery**, **Fire protection**, and **Liquid Cooling**.

Battery:

CM2

<

Fire protection:

CM2

Battery

Fire protection

Liquid Cooling

Fire protection 2025-09-16 21:59:17

Temperature Sensor 1 25°C (Normal)	Temperature Sensor 2 24°C (Normal)	CO Sensor 0°Mol/L (Normal)	Dehumidifier 55RH (On)
Combustible Gas Sensor (Normal)	Smoke Sensor (Normal)	Sound and light alarm (Normal)	Exhaust Valve (Close)
Fan (On)	Water immersion sensor (Normal)	Trip switch (Close)	

Alarm: 1

CO Level-1 Alarm	CO Level-2 Alarm	VOC Alarm
Smoke sensor alarm	System Level-1 Fire Alarm	System Level-2 Fire Alarm
Buzzer Alarm	Aerosol alarm	Exhaust valve alarm
Fan Alarm	Audio-visual Fire Alarm	Water immersion sensor alarm
Door Warn	Temperature sensor alarm	Cell Temperature Alarm

Liquid cooling:

CM2

Battery

Fire protection

Liquid Cooling

Liquid Cooling 2025-09-16 21:59:17

Idle

Water Supply



 Water supply pressure 0 bar	 Backwater pressure 0 bar
 Accumulated Operation of Compressor 0 h	 Accumulated Heating Operation 0 h
 Fan Speed 0 rps	

Alarm: 0

Fan Failure	Water Pump Failure	Probe Failure
Communication Failure	System Failure	Compressor Failure

- On the **Alarm** page, you can view the details of the open and closed alarms.

Home Plants × CM2 ×

Overview Device **Alarm** Strategy profit Report Setting

Pending ▾

Type ▾

Device SN/Related devi

Search

Reset

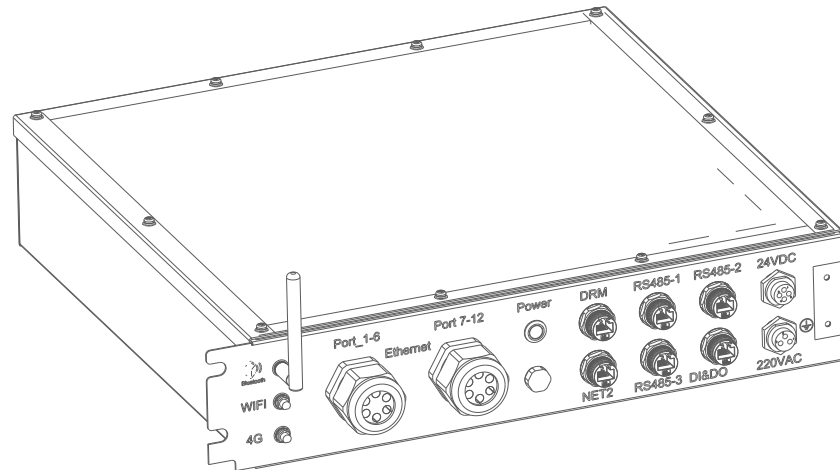
Expand ▾

Download records

Refresh

● Urgent(3) ● Important(1) ● General(1)

Status	Alarm name	Related device SN	Type	Device SN	Alarm occurrence time ▾	Alarm up	Operation ⚙
●	Communication Fault	M	Communic...	CM2	16/09/2025 15:59:08	16/09/20	⚠ ×
●	Battery connection error	CM2	Inverter	CM2	16/09/2025 15:58:47	16/09/20	⚠ ×
●	Cabinet Door Open	CM2	Fire protec...	CM	16/09/2025 15:58:43	16/09/20	⚠ ×
●	Door Warn	CM2	Inverter	CM	16/09/2025 15:58:42	16/09/20	⚠ ×
●	Communication Fault	M	Communic...	M	16/09/2025 11:34:36	16/09/20	⚠ ×



7.

**COMMUNICATION BY
LAN**



7.1. EMS web platform

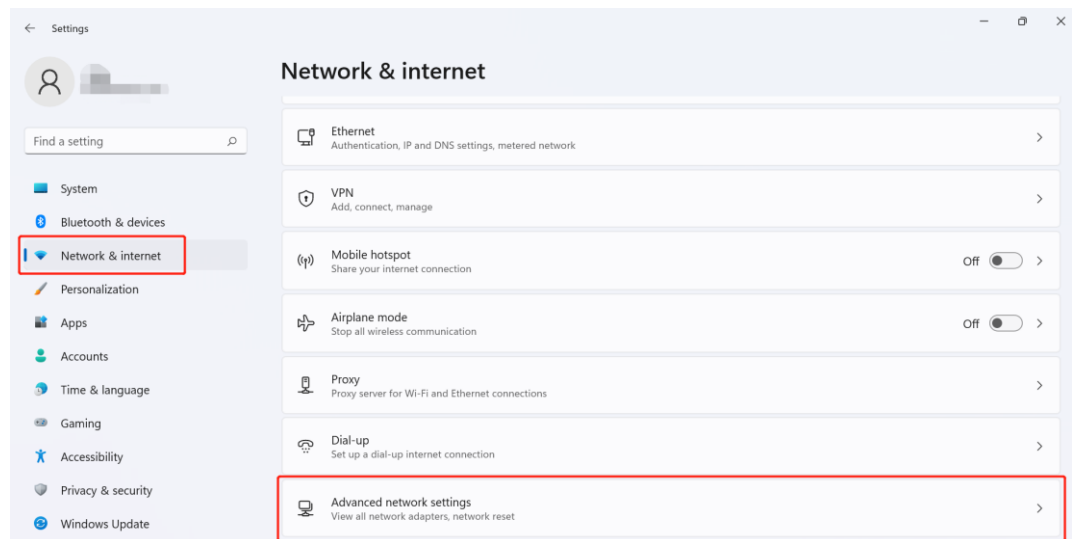
The eSAJ All-In-One Smart EMS is a local web platform that allows the users to view the device, alarm, and strategy of the product. In comparison to the elekeeper web platform, the real-time device data are updated every two seconds.

7.2. Connect the EMS to the computer

1. Prepare an RJ45 network cable.
2. Connect one end of the cable to one of the **Ethernet** ports on the EMS unit depending on which port is available.
3. Connect the other end of the cable to your computer.

7.3. Log in to the EMS web platform

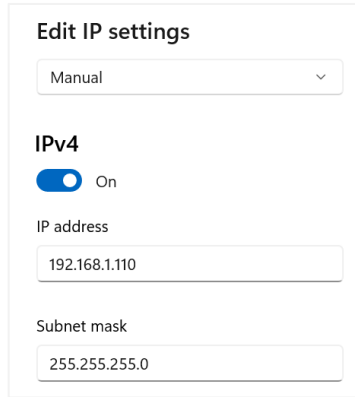
1. Open your computer, set the IP address, subnet mask, and default gateway.
 - a. In **Settings**, select **Network & internet** on the left navigation pane and then select **Advanced network settings** on the right pane.



- b. Select the **Ethernet** network. Locate **More adapter options** and click **Edit**.

c. Configure the manual IP address and subnet mask as follows:

- IP address: 192.168.1.110
- Subnet mask: 255.255.255.0



Edit IP settings

Manual

IPv4

☒ On

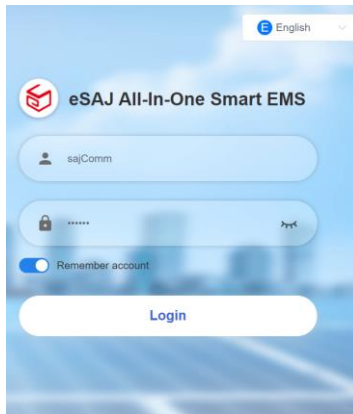
IP address

192.168.1.110

Subnet mask

255.255.255.0

2. Open the IP addresses **192.168.1.136** on the web browser.
3. Use the account **sajComm** and password **080808** to log in.



English

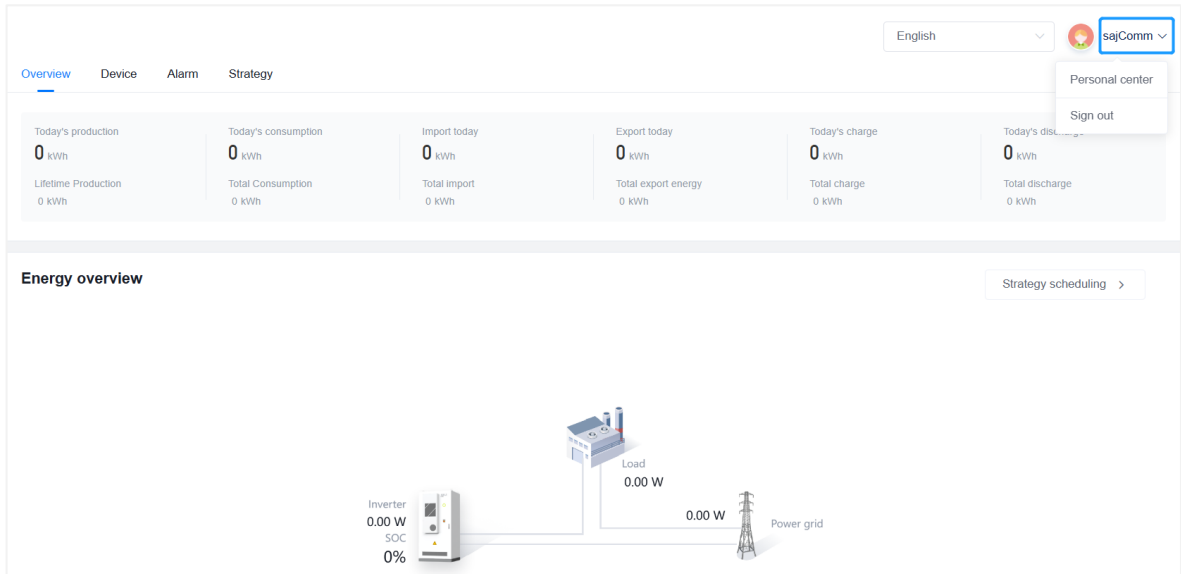
eSAJ All-In-One Smart EMS

sajComm

☒ Remember account

Login

To change the password, enter the account name **sajComm** on the upper right corner and select **Personal center**. Then, follow the instructions on the screen to change password.



7.4. View the device information

1. To view the device information, open the **Device** tab and select the required device from the list on the left-side.

Overview

Device

Alarm

Strategy

Inverter

CM2

Electric meter

EMS

Status	SN	Device model	Power	Battery power	Production Today	Production This Month	Production This Year	Lifetime Production
	CM2		0 W	0 W	0 kWh	0 kWh	0 kWh	0 kWh

2. To check the reported alarms, open the **Alarm** page to view alarms in different status.

- **Open:** Active alarm
- **Closed:** History alarms

Overview Device <u>Alarm</u> Strategy			
Open Closed			
Alarm name	Inverter SN	Alarm occurrence time ▾	Alarm update time ▾
Temperature sensor fault	CM2 [REDACTED]	2025-04-20 15:55:21	
Leakage current self-test failure	CM2 [REDACTED]	2025-04-20 15:55:21	
RMS undervoltage of the Grid	CM2 [REDACTED]	2025-04-20 15:55:21	
Battery not connected	CM2 [REDACTED]	2025-04-20 15:55:21	

3. To view the current strategy, open the **Strategy** page.

Overview

Device

Alarm

Strategy

Local strategy

Custom

Configure strategy

Strategy template

<

2025-4

>

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	1 Test Template	2 Test Template	3 Test Template	4 Test Template	5 Test Template
6 Test Template	7 Test Template	8 Test Template	9 Test Template	10 Test Template	11 Test Template	12 Test Template
13 Test Template	14 Test Template	15 Test Template	16 Test Template	17 Test Template	18 Test Template	19 Test Template
20 Test Template	21 Test Template	22 Test Template	23 Test Template	24 Test Template	25 Test Template	26 Test Template

4. To modify the current strategy, click on **Configure strategy**, and select the proper strategy.

Overview Device Alarm **Strategy**

Local strategy **Custom**

[Configure strategy](#) [Strategy template](#)

< 2025-4 >

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 Test Template	31 Test Template	1 Test Template	2 Test Template	3 Test Template	4 Test Template	5 Test Template
6 Test Template	7 Test Template	8 Test Template	9 Test Template	10 Test Template	11 Test Template	12 Test Template
13 Test Template	14 Test Template	15 Test Template	16 Test Template	17 Test Template	18 Test Template	19 Test Template
20 Test Template	21 Test Template	22 Test Template	23 Test Template	24 Test Template	25 Test Template	26 Test Template

Overview Device Alarm **Strategy**

Dispatch calendar / Configuration

Configure strategy Strategy template

- Please configure the strategy template before configuration. [Go to configuration](#)
- Current strategy: Custom

Time strategy: Custom

Weekdays, weekends

Month	Weekdays, weekends	Weekend
January	Test Template	Test Template
February	Test Template	Test Template
March	Test Template	Test Template
April	Test Template	Test Template
May	Test Template	Test Template

8.

APPENDIX



8.1. Transportation and storage

Take care of the product during transportation and storage. Keep less than 14 cartons of EMS in one stack.

8.2. Recycling and disposal

This device should not be disposed as a residential waste.

Some components inside the equipment can be recycled and reused, while others may pose a pollution risk to the environment. Please contact a locally authorized professional recycling agency for the proper handling of the product and its internal components.

8.3. Warranty

Check the product warranty conditions and terms on the SAJ website: <https://www.saj-electric.com/>

8.4. Contacting support

Online technical support: Go to <https://www.saj-electric.com/services-support-technical> to check FAQs or send your message or product enquiry.

Call for assistance: For SAJ support telephone numbers, see <https://www.saj-electric.com/locations> for your region support details.

Head Quarter: Guangzhou Sanjing Electric Co., LTD.

Address: SAJ Innovation Park, No.9, Lizhishan Road, Guangzhou Science City, Guangdong, P.R.China.

Tel: +86 20 6660 8588

E-mail: service@saj-electric.com

Website: <https://www.saj-electric.com/>

8.5. Trademark

SAJ is the trademark of Sanjing.



GUANGZHOU SANJING ELECTRIC CO.,LTD



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