SUNGROW
Clean power for all

User Manual

AC Charger

AC22E-01

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Disposal

After the service life of the charger ends, please dispose of it in accordance with the applicable electrical waste disposal act at the installation location. It can also be returned to Sungrow Power Supply Co., Ltd., but the relevant expenses shall be borne by your party.

About This Manual

Declaration

To ensure the safe use of the product, please read through the below information carefully:

1 The warranty period agreed for this product is subject to the contract.

2 This manual is intended for personnel who are responsible for product installation and other work on the product. Users must have certain electrical and mechanical expertise, and be familiar with the electrical and mechanical schematics and the characteristics of electronic components. SUNGROW shall not be held liable for any personal injury or financial loss arising from the installation operation carried out by non-qualified personnel or not in compliance with the safety instructions specified in this manual.

3 The content of this manual, including the pictures, marks, and symbols used herein, is all owned by SUNGROW. No part of this manual may be reproduced by any non-internal staff without the prior written authorization of SUNGROW.

4 The manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can find the latest version of the user manual on the company website, or reach your sales for it.

5 To ensure the safety of the installation personnel, the product, and the system, follow strictly the safety instructions specified in this manual when installing the product. SUNGROW shall not be held liable for any personal injury or financial loss arising from failure to follow the instructions specified in this manual.

6 If maintenance on or alteration to this product is needed, please contact SUNGROW customer service in advance. The copyright of this user manual belongs to SUNGROW, and any rights not expressly granted are reserved. The content of the manual is subject to change without notice and the actual up-to-date product shall prevail.

How to Use This Manual

This manual mainly provides relevant information about the charger and gives instructions on the safe operation, installation, electrical connection, and routine inspection of the product.

Valid for

Product Model	Product Aliases
AC22E-01	Charger, device, product

Target Group

This manual is intended for qualified technical persons who are responsible for the installation, operation, and maintenance of the charger, as well as people who use the charger for

charging. The charger must only be installed by qualified technical persons. Qualified technical persons must:

- Have certain electrical wiring, electronic, and mechanical expertise, and be familiar with electrical and mechanical schematics;
- Have received professional training in the installation and commissioning of electrical equipment;
- Be able to respond quickly and effectively to dangers or emergencies that may occur during the process of installation and commissioning;
- Be familiar with applicable local standards and specifications of the country/region where the project is located;
- Read through this manual carefully and have a good understanding of the relevant safety instructions.

EMC

In some cases, even if the equipment is in accordance with the standard emission limits, it can have an impact in certain application areas (some sensitive equipment is placed in the same location; the equipment is installed close to a radio or TV receiver), and the operator is obliged to take appropriate action to correct this situation.

How to Use This Manual

Read through this manual carefully before using the product, and keep it properly in an easy-to-reach place. The manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can also download the latest version of the user manual at **support.sungrowpower.com**.

Symbols in the Manual

To ensure the safe and efficient use of the product, the manual provides relevant safety information, which are highlighted using relevant symbols. Symbols that may appear in this manual are listed below, but not all. Please read carefully for better use of this manual.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

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

⚠ CAUTION

Indicates a slightly hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.

Indicates supplementary information, emphasis on specific points, or tips related to the use of the product that might help to solve your problems or save your time.

Contents

1 Product Description

1.1 Introduction

The AC22E-G2 charger (hereinafter "charger") is used for AC charging of electric vehicles (EVs) and can be either wall-mounted or pole-mounted, with the following advantages:

Ease of Use

EV drivers can start and stop charging via RFID charge card or App. When the vehicle is fully charged, the charging will stop. The charger also supports plug&play, which means the charging starts automatically as soon as the charging connector is plugged into the vehicle.

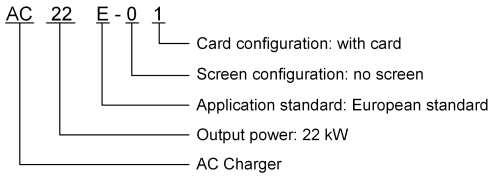
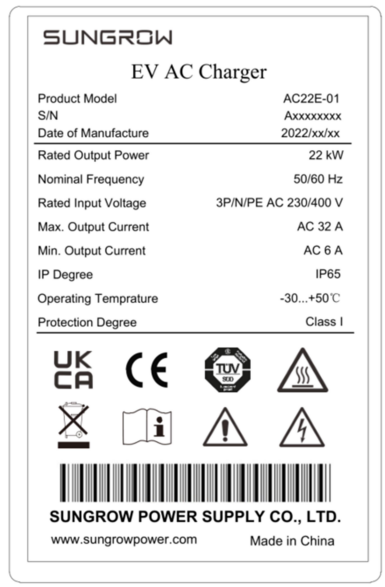
Smart and Easy Management

In addition to the LED lights on the charger that indicate charging status, EV drivers can visualize and control the charging session remotely via iEnergyCharge.

Sustainability

With an IP65 rating, the charger is water and dust proof, allowing for outdoor use and maintenance.

1.2 Model and Nameplate

Model	Nameplate
	

1.3 Appearance and Dimensions

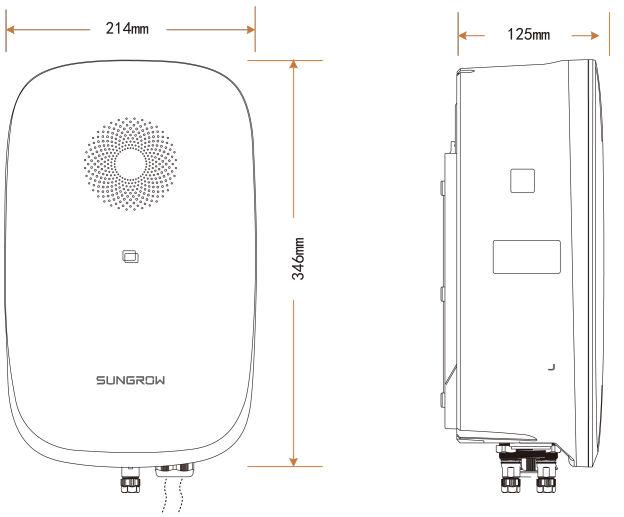


figure 1-1 Appearance and dimensions

1.4 LED Signals

table 1-1 LED Signals

LED Signal	Description
Blue indicator is steady on	Charger standby or charging is complete without drawing the charging plug
Blue indicator flashes, on for 0.5s and off for 0.5s	The charger connector is connected to the vehicle
Blue indicator breathes	Vehicle charging
Blue indicator flashes, ion for 0.2s and off for 0.2s, 5 times	RFID charge card used
Red indicator is steady on	Fault occurs (check the fault type through App)

1.5 Electrical Connection Ports

Electrical connection ports are located at the bottom of the charger.

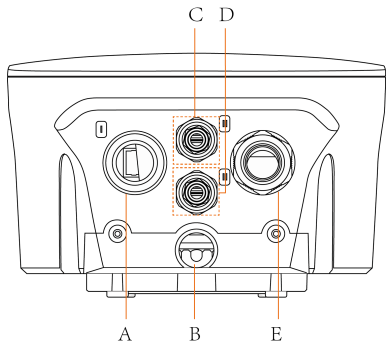


figure 1-2 Port Diagram

table 1-2 Label Explanation

Label	Explanation
A	Network communication
B	AC input from the utility grid
C	RS485 Port 1 for connection to the Hybrid Inverter
D	RS485 Port 2 for connection to the Smart Energy Meter
E	Charging cable output (preinstalled)

NOTICE

Extension cable sets are not allowed to be used.

1.6 System Topology

Stand-alone EV Charger

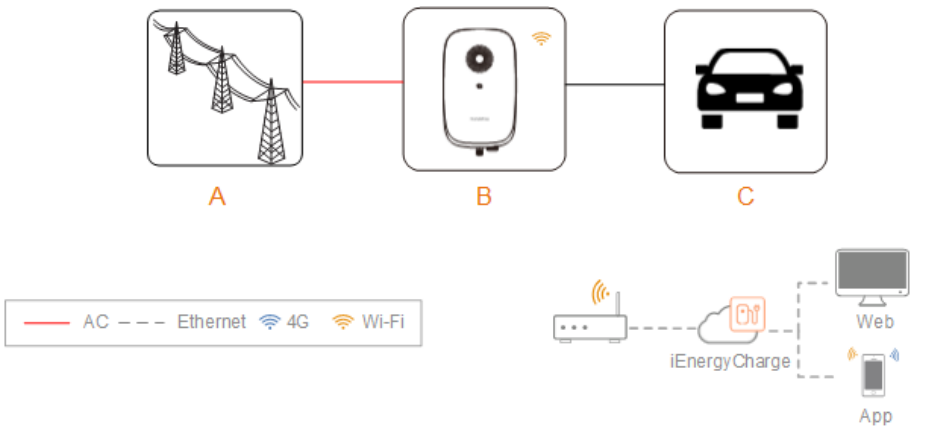


figure 1-3 System topology diagram of EV charger

Position	Description	Note
A	Utility grid	TN-C, TN-S, TN-C-S.
B	Charger	AC22E-01
C	Electric vehicle	-

Solar-Storage-Charging Solution

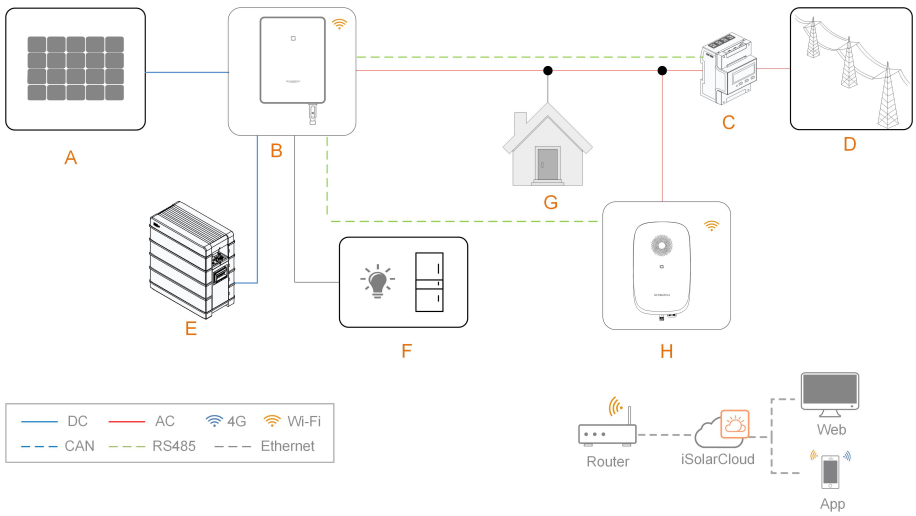


figure 1-4 System topology diagram of the solar-storage-charging solution

Position	Description	Note
A	PV strings	Compatible with monocrystalline silicon, polycrystalline silicon, and thin-film modules without grounding.
B	Inverter	SUNGROW's 3-phase inverter (SHRT).
C	Energy Meter	Meter cupboard with power distribution system.
D	Utility grid	TN, TN-C-S, TN-S, TN-C. The type of grid grouding system depends on local regulations.
E	Battery	A Li-ion battery.
F	Backup loads	Protected house loads directly connected to the inverter.
G	Normal loads	Non-protected house loads. They will be disconnected in case of grid failure.
H	Charger	AC22E-01

For SUNGROW's solar-storage-EV charging solution, please refer to user manuals of related inverters.

2 Installation

WARNING

- **Respect all local standards and requirements during mechanical installation.**
- **Do not operate the device in temperaturea outside its operating range of -30°C to 50°C(-22°F to 122°F).**

CAUTION

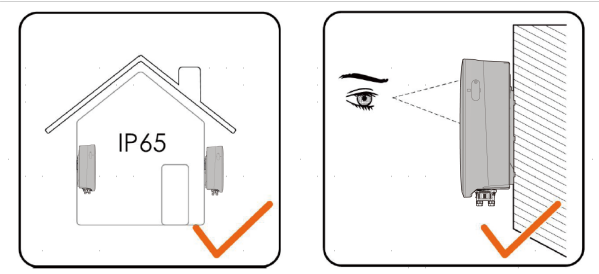
Any damage or malfunction with the charger caused by negligence or improper use will not be eligible for service and replacement under the warranty.

2.1 Installation Requirements

Location Requirements

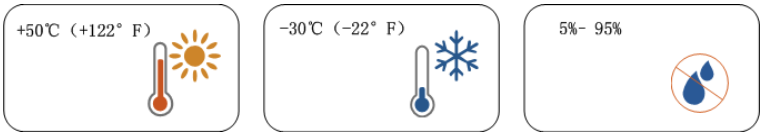
Select an optimal mounting location for safe operation, long service life and expected performance.

- The charger with protection rating IP65 can be installed both indoors and outdoors.
- The charger should be installed at a place where the LED signals can be easily seen, and is convenient for electrical connection, operation, and maintenance.



Environment Requirements

- There must be no flammable hazards or ignition risks.
- The mounting location must be inaccessible to children.
- The ambient temperature and relative humidity must meet the following requirements.



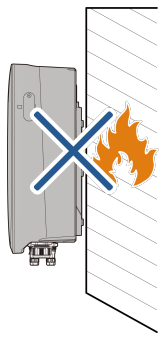
If the environment temperature exceeds 40°C, the charger will be derated.

- Avoid exposure to direct sunlight, rainwater and snow.
- The charger should be well-ventilated for good air circulation.
- The mounting location must be away from living area. The charger will emit noises during operation that might be perceived as disturbing.

Carrier Requirements

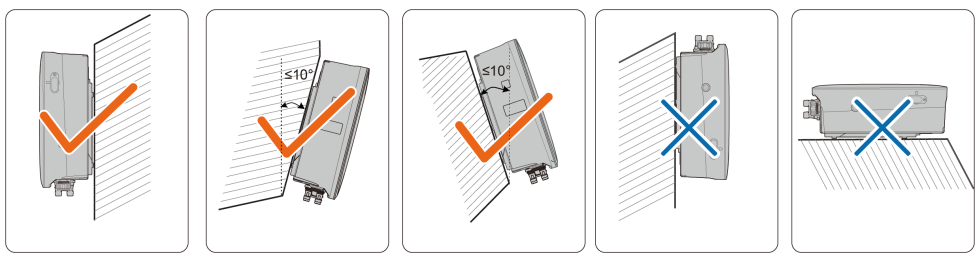
The mounting structure where the charger is installed must comply with local/national standards and guidelines.

Ensure that the installation surface is solid enough to bear 4.5 times the weight of the charger and is suitable for the dimensions of the inverter.



Angle Requirements

It is recommended to install the charger vertically, or at a forward or backward inclination of 10° to the vertical. Do not install the charger horizontally or at large forward or backward inclination angles to the vertical, nor keep it upside down.



2.2 Unpacking and Inspection

After receiving the product, check whether the appearance and structural parts of the device are damaged, and check whether the packing list is consistent with the actual ordered product. If there are problems, do not install the device and contact your distributor first. If the problem persists, contact SUNGROW in time.

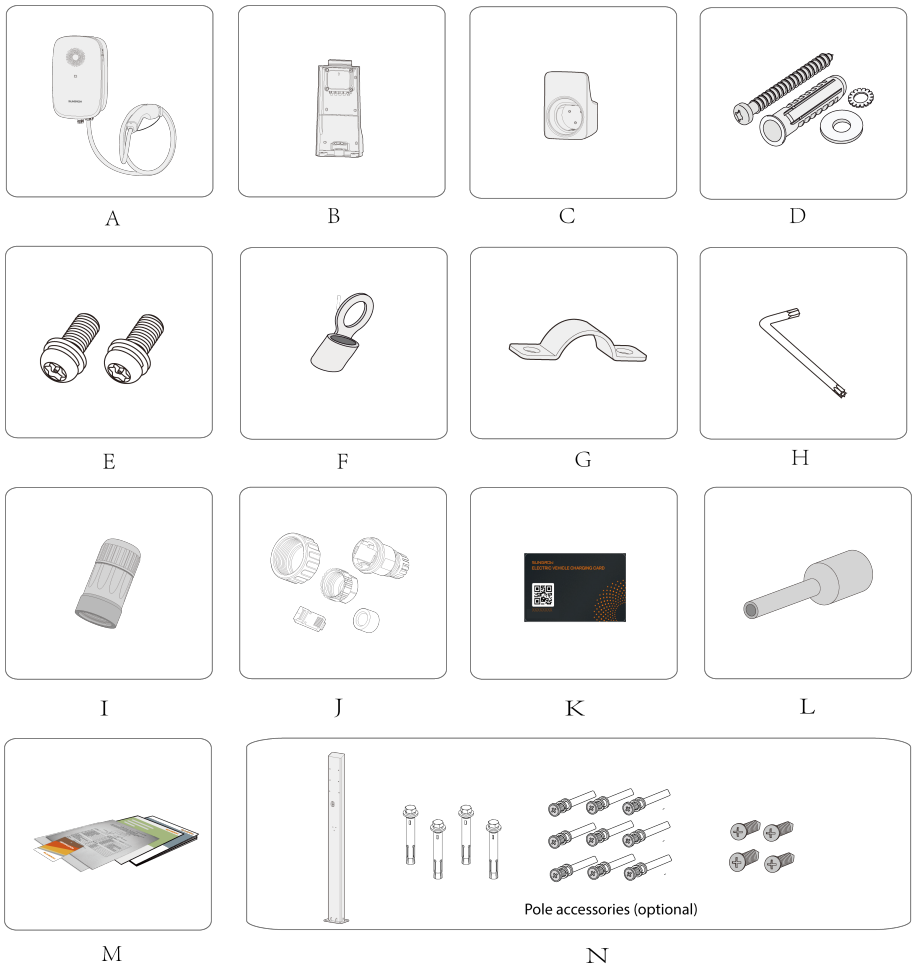


table 2-1 Label Descriptions

Item	Name	Quantity
A	AC-Charger	1
B	Backplate	1
C	Bracket	1
D	Expansion screw	9
E	Hexlobular socket pan head tamper proof screws	2
F	OT terminals	5
G	Cable fastener	1
H	L-shaped wrench (T20)	1
I	LAN connector set	1
J	RJ45 protection sleeve	2

Item	Name	Quantity
K	RFID card	2
L	Euro terminals	2
M	Documents	1
N	Pole accessories (optional)	1 (purchase separately)

If your RFID M1 Card is lost, please contact SUNGROW customer service to post-register it.

2.3 Installation Tools

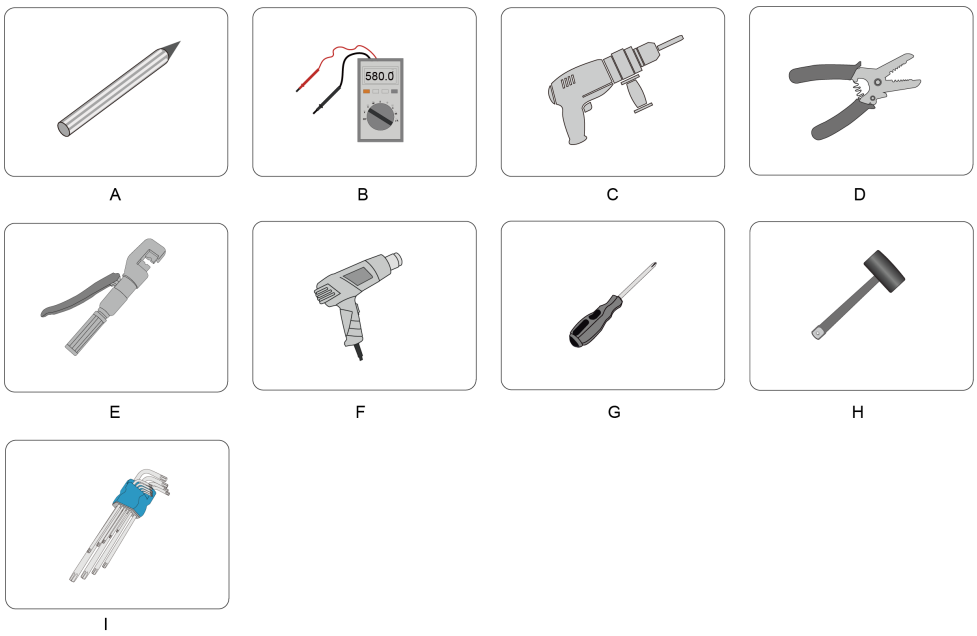


table 2-2 Label Descriptions

Item	Name	Specification
A	Marker	-
B	Multimeter:	≥600 Vdc
C	Cable drill tool	Ø6, Ø12
D	Wire stripper	
E	Hydraulic clamp	2.5-6mm^2
F	Hot air blower	-
G	Cross screwdriver	M4

Item	Name	Specification
H	Rubber hammer	-
I	Pan head tamper proof wrench	-

2.4 Electrical Connection

2.4.1 Circuit Diagram

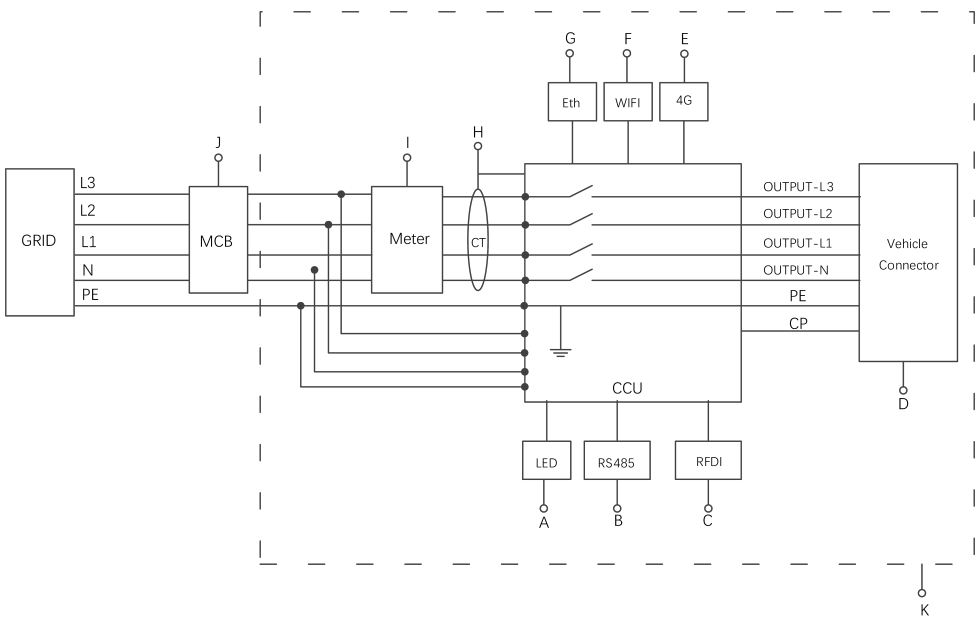


figure 2-1 Circuit diagram

table 2-3 Label Descriptions

Label	Description	Remarks
A	LED lights	The LED lights that indicates the status of the charger
B	RS485	Reserved for external communication
C	RFID	Start by swiping card
D	Vehicle connector	Connect the target vehicle
E	4G	External communication
F	WIFI	External communication
G	Eth	Connect the router
H	CT	-
I	Electricity meter	-

Label	Description	Remarks
J	MCB	Type A residual-current device . AC22E-01：40 A/4P AC400 V with a rated residual current of 30 mA
K	The charger	-

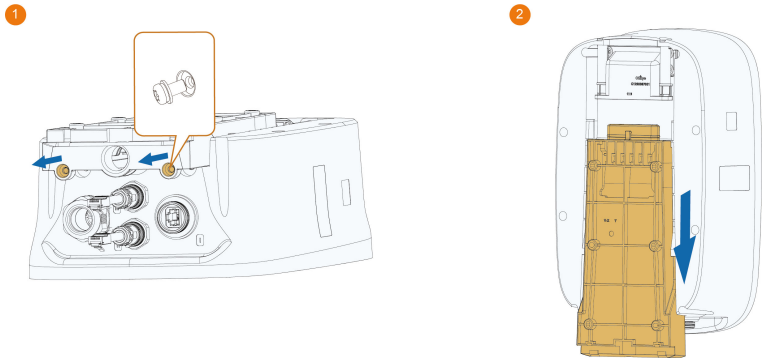
NOTICE

The charger already integrates a DC residual-current device (RCD) with a rated residual current of 6 mA. However, the charger also requires a type A RCD of 30 mA to operate. Each charger in the system must be individually connected to the utility grid through an RCD and a miniature circuit breaker.

2.4.2 AC Cable Connection

- AC22E-01E：Copper cable cross-section: 5 × 6 mm^2

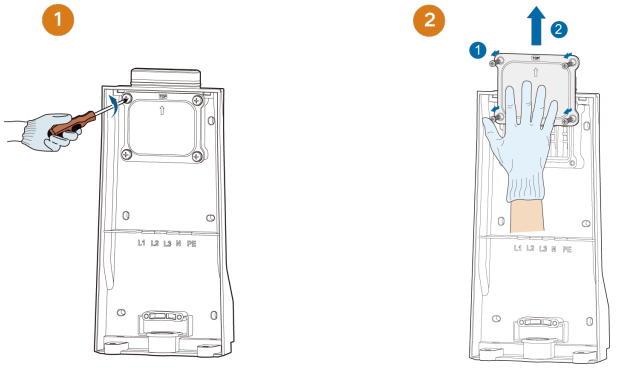
Step 1 Loosen the M4 hexlobular socket pan head tamper proof screws that secure the backplate and dismantle the backplate. (M4 screws, torque: 1.2 N·m)



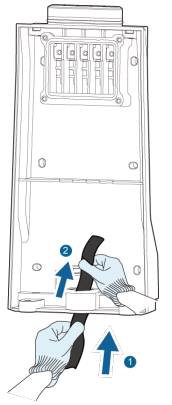
If the backplate cannot be dismantled,check if the screws on the top of the charger are tightened.

Step 2 Use the cross screwdriver to loosen the screws of backplate. (M4 screws, torque: 1.2 N·m)

Step 3 Push up the back cover plate with hand.



Step 4 Plug the cable into the port of the power supply which is in the middle.



Step 5 Adjust the cable to a suitable length, and strip off the insulation of the cable to prepare for cable connection terminals.

1 Strip off the insulation from the end of each wire.

2 Insert the copper core of the stripped end of the wire into the copper lug.

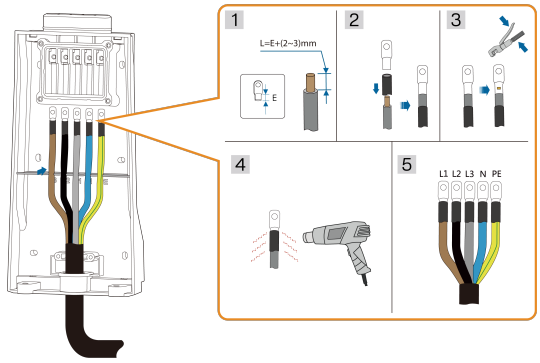
3 Tighten the copper lug using a hydraulic plier.

4 Select a heat-shrink tubing that matches the diameter of the wire.

The length of the tubing should be about 2 cm longer than the length of the copper lug's wire tube.

5 Place the heat-shrink tubing on the copper lug until it completely covers the copper lug's wire hole.

6 Activate heat-shrink tubing using a hot air blower.



Color	Terminal
Brown	L1
Black	L2
Gray	L3
Blue	N
Yellow-green	PE

DANGER

If L1,L2,L3,N,PE are connected incorrectly, it will not only damage the machine, but also create a potential shock hazard .

DANGER

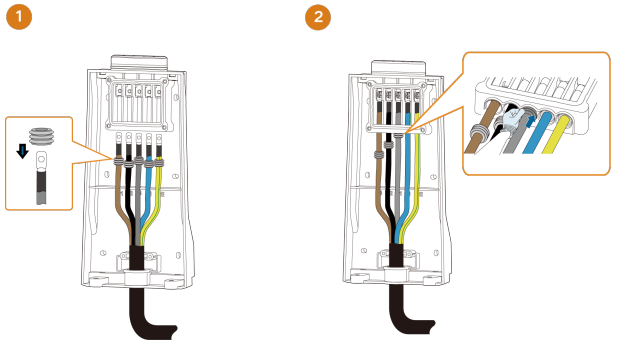
In the TT, TN-C and TN-S system, make sure that the ground cable is connected reliably. Otherwise, it may cause electric shock.

Step 6 Install the sealing ring.

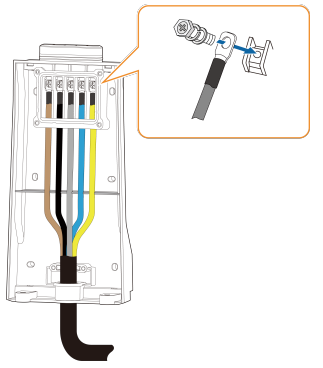
1 Insert the sealing ring into the each wire.

2 Plug the wire into the hole, and insert the sealing ring into the hole.

The ring face of the OT terminal faces upward.



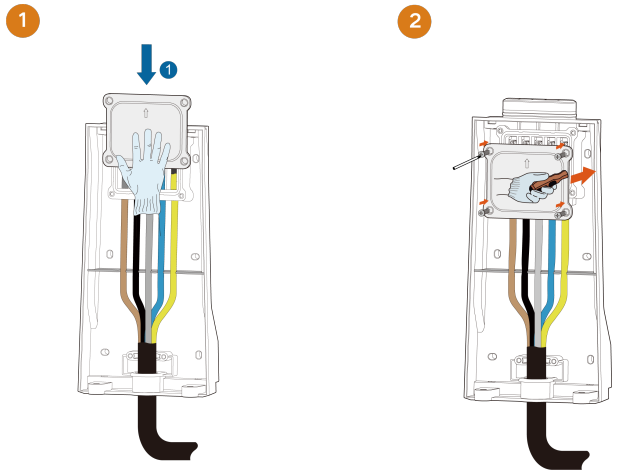
Step 7 Connect each crimped terminal (OT5.5-4) and tighten them using a M4 screwdriver. (Torque: 1.2 N·m)



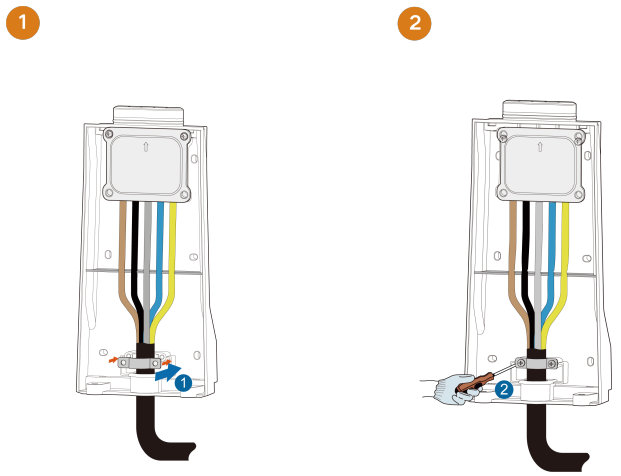
WARNING

Please make sure that the OT terminal is firmly crimped, otherwise the temperature may rise and cause fire inside the device. If the OT terminal is not crimped or not firmly crimped, SUNGROW shall not be held liable for any property damage arising therefrom.

Step 8 Put the back cover plate back in place and tighten the screws to secure it.(M4 screws, torque: 1.2 N·m)



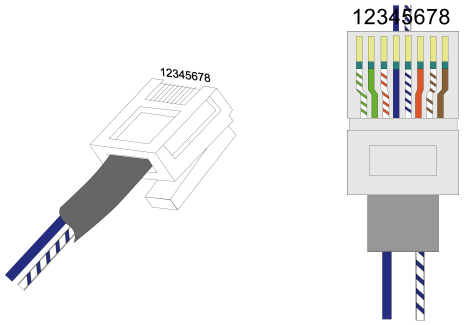
Step 9 Put the cable fastener in place and tighten the screws to secure it.(M4 screws, torque: 1.2 N·m)



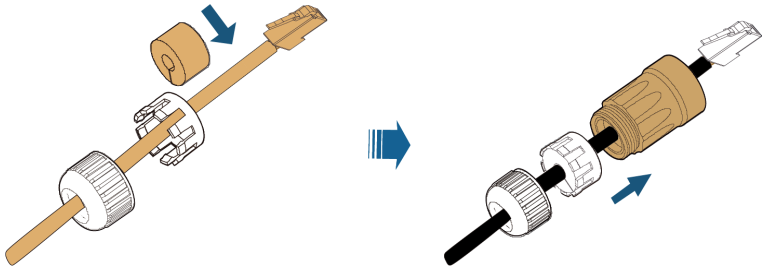
- - End

2.4.3 Ethernet Communication Connection

Step 1 (Optional) Strip the insulation layer of the communication cable with an Ethernet wire stripper, and lead the corresponding signal cables out. Insert the stripped communication cable into the RJ45 plug in the correct order, and crimp it with a crimper.

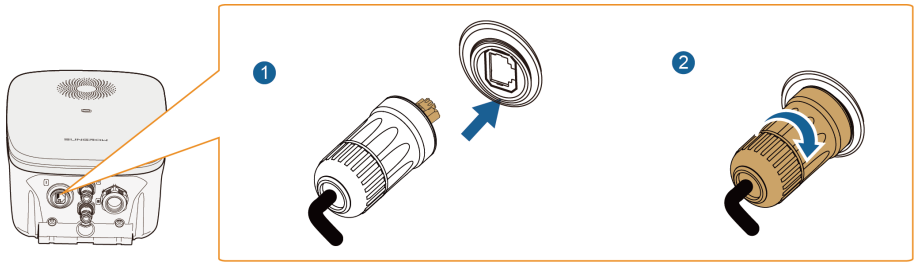


Step 2 Thread the network cable through the swivel nut and gasket. Afterwards, route the cable into the opening of the sealing. Finally, insert the cable through the housing.



Step 3 Unscrew the waterproof lid from the Network communication terminal.

Step 4 Insert the LAN connector into Network communication terminal on the bottom of the Charger. Pull cables outwards to confirm whether they are fastened firmly, then tighten the swivel nut with appropriate torque.



- - End

2.4.4 RS485 Communication Connection

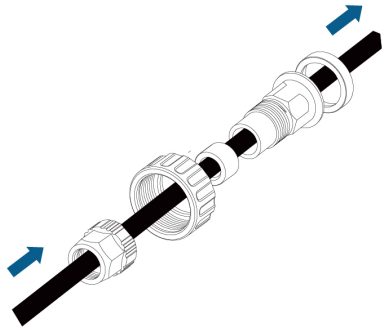
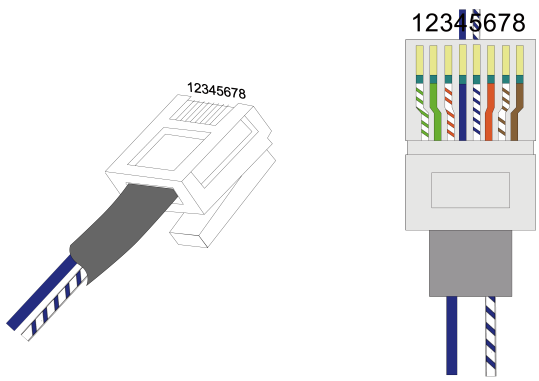


figure 2-2 RJ45 components

Step 1 Crimp the Ethernet cable using a crimping tool.

Ensure that the blue wire and the blue-white wire is correctly crimped.

The blue wire (PIN 4) connects to 485B, and the blue-white wire (PIN 5) connects to 485A.



Step 2 Insert the RJ45 connector to the RJ45 jack.

Step 3 Install seals for the Ethernet cable in sequence.

Ensure that the cable is secured.

Step 4 Connect the charger to an inverter or a third-party monitoring system.

⚠ WARNING

When installing the meter, ensure that the current transformer or voltage cables is correctly installed. Otherwise, the charger may charge at the maximum power, possibly causing the general circuit breaker to trip.

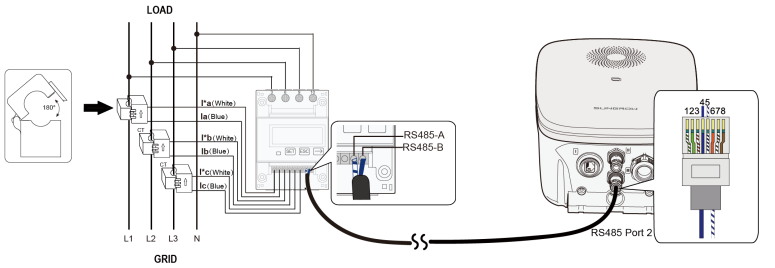


figure 2-3 Connect to a Smart Energy Meter

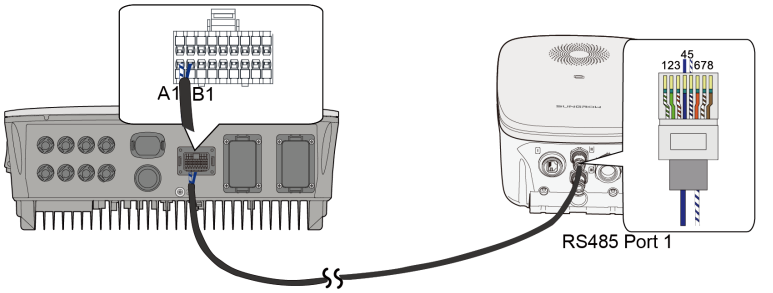


figure 2-4 Connect to an inverter(SHRT)

- - End

2.5 Wall-Mounting

Install the charger on the wall using the provided wall-mounting bracket and expansion screw sets.

The load-bearing capacity of the installation carrier must be at least 4.5 times the weight of the charger.

Step 1 Install the backplate and the charging cable bracket .

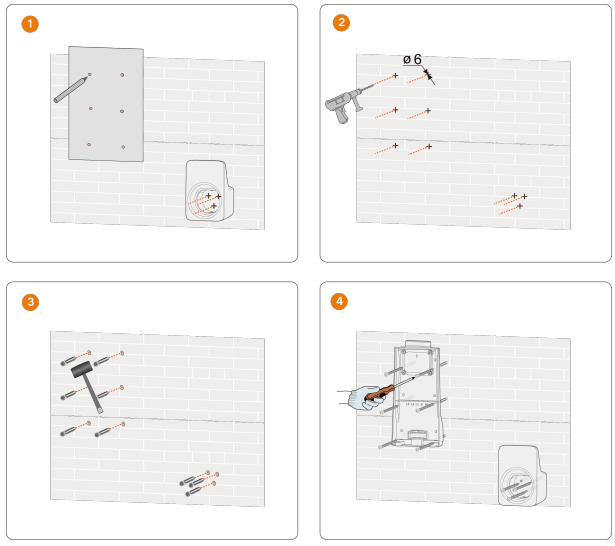
1 Hold the cardboard and backplate in the desired position on the wall and mark the positions of the drill holes.

NOTICE
Before drilling the hole for the backplate, locate and avoid water pipes and electrical wires in the wall.

2 Drill holes at the marked positions using a hammer drill. (Diameter: 6 mm; depth: 45 mm)

3 Insert the dowel into the holes.

4 Place the backplate on the wall and tighten the screws using a screwdriver to secure the backplate(M4 screws, torque: 1.2 N·m).

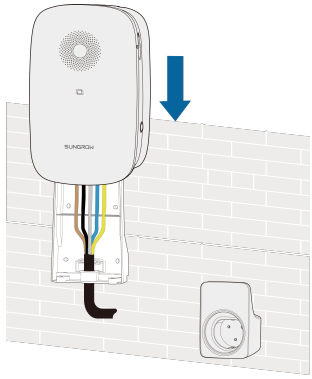


It is recommended that the charging cable bracket be positioned at the lower right side of the charger, about 20 cm away from the charger. The distance shall be adjusted according to the actual situation.

Step 2 Connect the AC cable. Please refer to "2.4.2 AC Cable Connection".

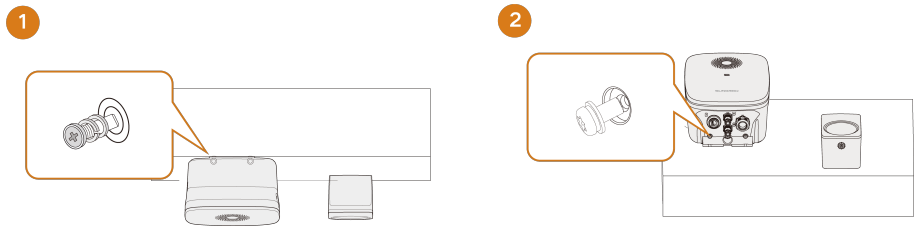
Step 3 Mount the charger.

1 Hang the charger onto the backplate, and hear "Click", the charger is install in place.



2 Secure the upper charger with M4 screw for plates. (Torque: 1.2 N·m).

3 Secure the lower charger with M4 hexlobular socket pan head tamper proof screws. (Torque: 1.2 N·m).



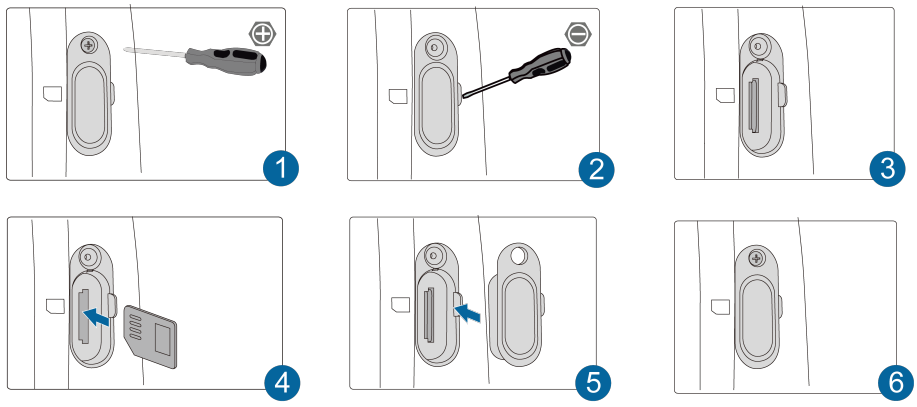
Step 4 SIM card installation.

1 Remove the screws of the cover plate of card slot by using cross screwdriver in the top right corner of the charger.

2 Pry the cover plate of card slot by using slotted screwdriver.

3 Insert the sim card into the card slot in the direction of the Micro SIM card icon.

4 Re-lock the cover plate of card slot .



- - End

2.6 Pole-Mounting(Optional)

It is recommended to install the pole on a solid support surface (such as concrete or tarmac). If conditions do not permit, please install the foundation first, and then install the mounting pole.

2.6.1 Foundation Building

The base should be 100 mm above the ground, and the exterior dimensions of the front, back, left, and right side columns should be greater than 100 mm. Ensure that there are openings for cables.

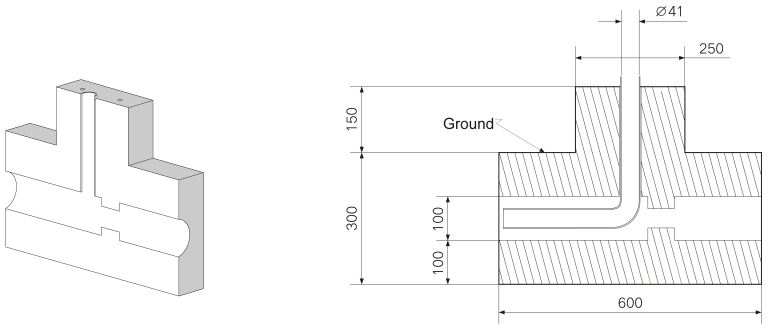


figure 2-5 Front view (unit: mm)

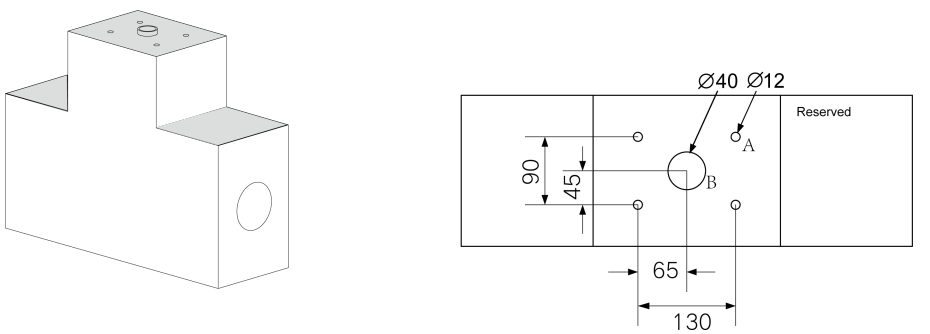


figure 2-6 Top view (unit: mm)

NOTICE

A: Expansion screw：**4×M8×80 mm ; hole diameter: 12mm; depth: 100mm**

B: Cable hole diameter : 40mm

2.6.2 Pole Installation

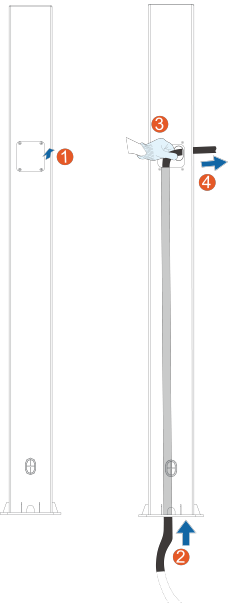
Step 1 Connect the AC cable.

1 Remove the cover plate on the back of the pole using a cross screwdriver.

2 Lead the AC cable through the bottom into the pole.

3 Grab the AC cable when it reaches the cover plate and take out the end of the cable from the AC cable outlet.

4 Pull the cable out to an appropriate length and close the cover plate.



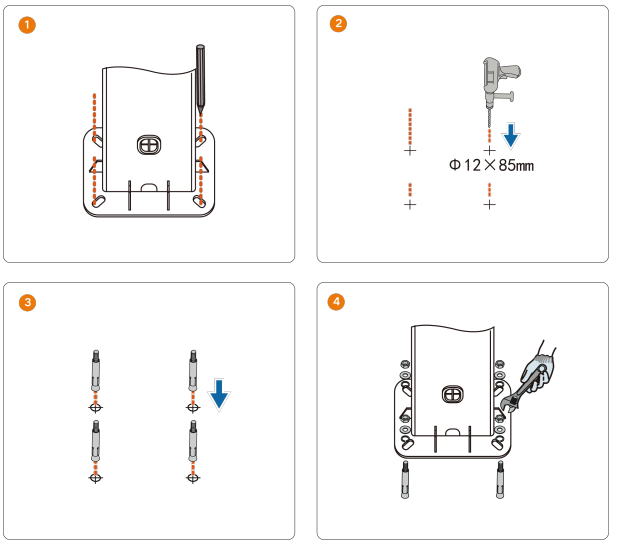
Step 2 Mount the charger.

1 Place the pole on a solid and flat surface, and mark the positions of the drill holes.

2 Drill holes at the marked positions using a hammer drill. (Diameter: 12 mm; depth: 85 mm)

3 Insert the dowel into the holes.

4 Tighten the expansion screw using a screwdriver.



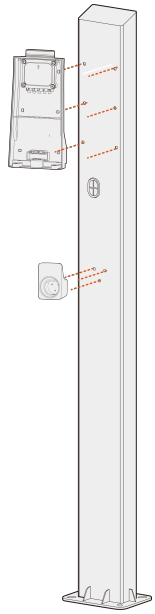
5 Check whether the pole is firmly installed.

Step 3 Install the backplate and the charging cable bracket.

1 Align the holes in the backplate with the holes drilled in the pole, and secure the backplate to the pole with screws.

2 Align the holes in the bracket with the holes drilled in the pole, and secure the bracket to the pole with screws.

3 Check whether the backplate and the charging cable bracket are firmly installed.



Step 4 Connect the AC cable.

Please refer to"2.4.2 AC Cable Connection"

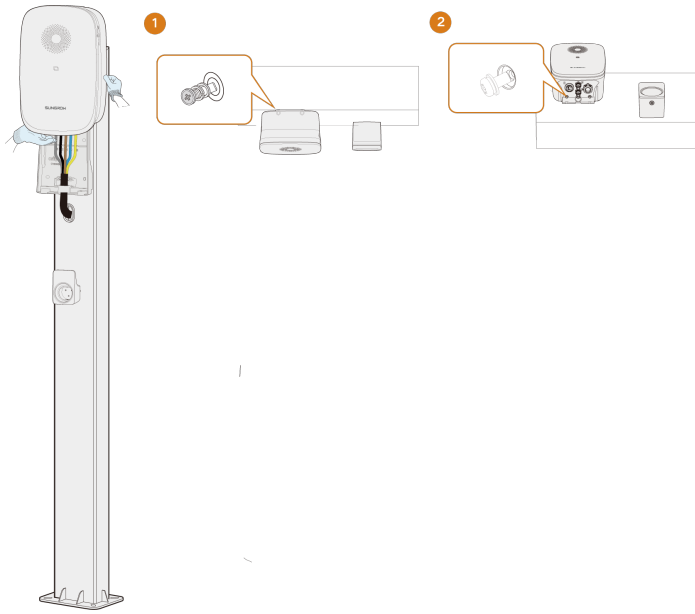
Step 5 Install the charger.

1 Hang the charger onto the backplate, and hear "Click", the charger is install in place.

2 Secure the upper charger with M4 screw for plates. (Torque: 1.2 N·m).

3 Secure the lower charger with M4 hexlobular socket pan head tamper proof screws. (Torque: 1.2 N·m).

4 Check whether the charger is correctly installed on the pole.



Step 6 SIM card installation. For details, you can see "2.5 Wall-Mounting" step4

- - End

3 Inspection before Commissioning

table 3-1 Requirements before commissioning

Item	Description
Location	The charger is correctly mounted at a place that is convenient for operation and maintenance.
Charger	The charger is firmly and securely installed.
Cable	Cables are correctly and firmly connected, and are adequately protected from damage.
Current leakage protection	The AC input's current leakage protection switch is reasonable.
Clearance	The charger has sufficient cooling space and there is no other stuff or components are left on the top of the charger.

Step 1 Ensure that all requirements are met before commissioning.

Step 2 Turn on the current leakage protection switch of the AC input.

Step 3 Power on the charger.

The blue LED is solid on which indicates the charger is in standby mode.

- - End

4 iEnergyCharge App

iEnergyCharge App is a tool that allows users to operate and manage their EV chargers. Users can complete account settings and charger configuration, manage charge cards, operate the charger, and reach customer service on the App.

Depending on the version of iEnergyCharge you are using, the user interface might be slightly different.

4.1 Download and Installation

Operating System:

- Android 6.0 or later
- iOS 11 or later

Option 1

Download the App from the below application stores and install it on your device:

- Google Play
- App Store

Option 2

Scan the QR code below, and download and install the App by following the onscreen instructions.

4.2 Sign-up and Log in

Step 1 Open the iEnergyCharge App, and tap **Sign up**.

Step 2 Enter an email address, and tap **Next**.

Step 3 Find the verification code sent by the system in your email inbox. Then, go back to the App, enter the verification code, and tap **Next**.

Step 4 Enter a password, and the sign-up process is now completed. You will then go to the App's **Home** screen.

- - End

4.3 Add a Charger

To add a charger to your account on the iEnergyCharge App for operation and management, you need to set up a reliable network connection between the devices first.

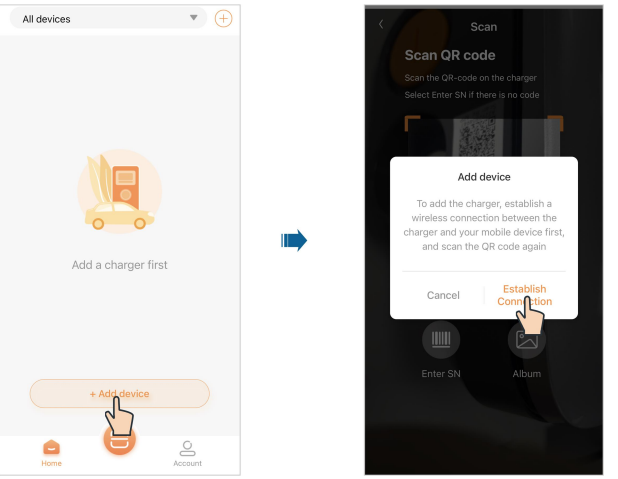
Requirements:

- The charger is powered on;
- Stable WLAN networks are available.

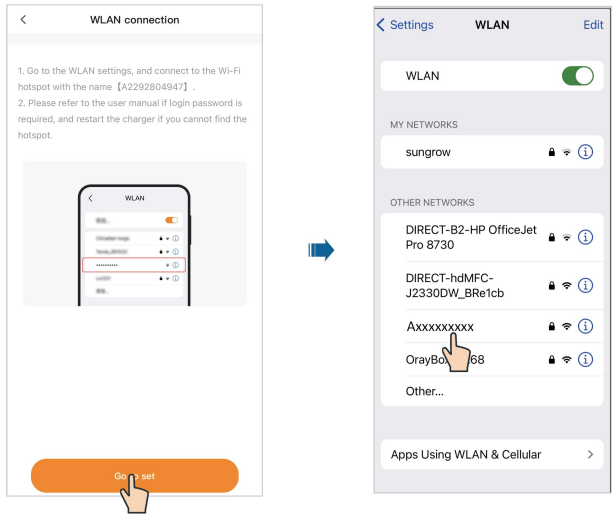
- The charger's WLAN can only be on for 15 minutes. If the network is off, you can restart the charger and connect again. For detailed restarting the charger, see "4.4 Restart the Charger"
- To avoid potential interference, it is recommended to enable airplane mode on your mobile device when connecting to the charger's WLAN.

Step 1 Tap **Add device** on the **Home** screen.

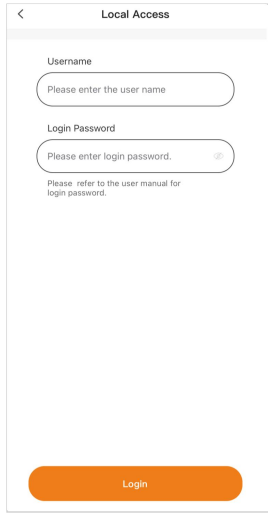
Step 2 Scan the QR code on the side of the charger, and then, in the "Add device" dialog, tap **Establish Connection**.



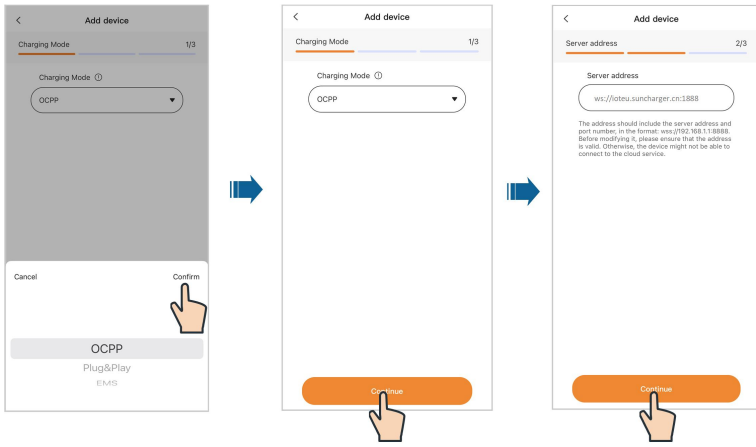
Step 3 Go to WLAN settings on your mobile device, and connect to the charger's WLAN. The charger's WLAN is named in the format of "**SG-Charger S/N**" and **no password** is required.



Step 4 Once connected successfully, go back to the App ,enter the username and login password, which should be "**admin**" and"**pw8888**". Then, tap **Log in**.



Step 5 Select a charging mode based on your needs, and tap **Continue**. Then, set the server address, and tap **Continue**.



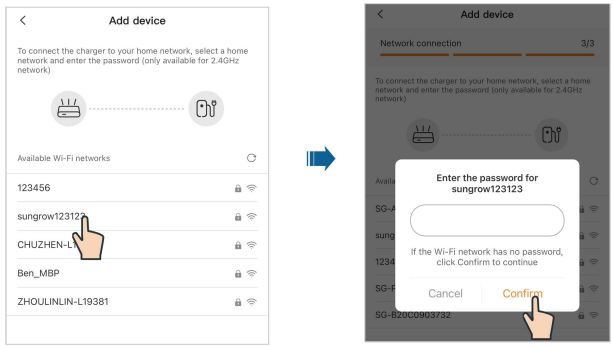
- OCPP: Charge using the stand-alone EV charger.
- Plug&Play: Plug and charge.
- EMS: Available when used with the SUNGROW solar-energy storage-EV charging system.

If the charging mode is set to “EMS”, you need to enter a password generated by the operation and management platform. Please contact the customer service and get the password through the management platform.

Default server address: **ws://ioteu.suncharger.cn:1888**.

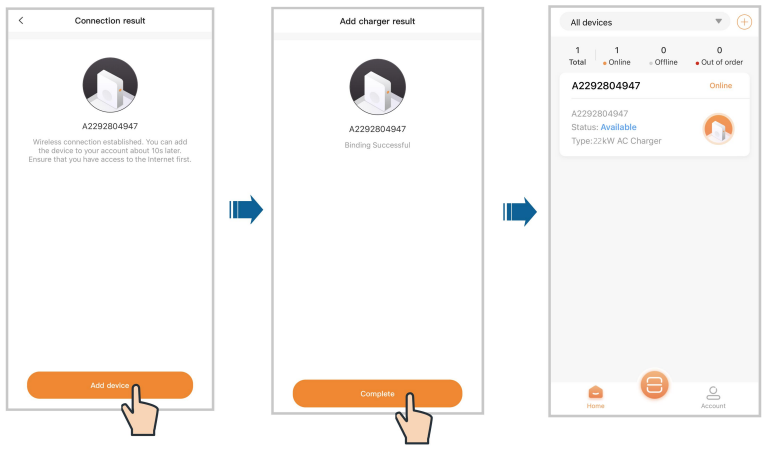
If you want to add a non-SUNGROW charger, enter the server address provided by the operator.

Step 6 Connect the charger to a stable WLAN network, where you are required to enter the correct password.



Step 7 After network connection is established successfully, tap **Add device**. The device is now added to your account successfully. Then, tap **Complete**, and you will be directed to the App's Home screen. You can check the status of the charger you have added on this screen.

Disconnect from the charger first, and connect to the router's WLAN network.



After the settings have been completed, to change the above parameter settings, you need to log in to an Administrator account. Please contact your distributor or SUNGROW for the Administrator account and password. For detailed setting instructions, see "4.6.6 Device Connection".

- - End

4.4 Restart the Charger

There are two methods to restart the charger.

Method 1

Disconnect the power sources, wait about 1 minute , then reconnect the power sources.

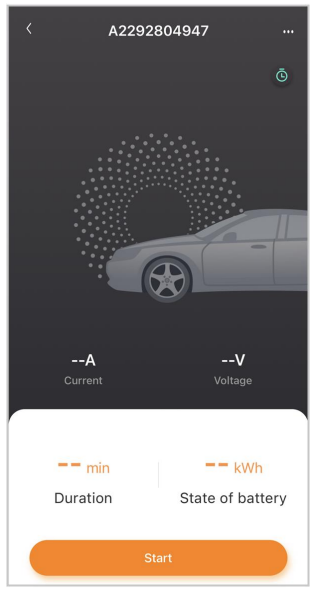
Method 2

Press and hold the Reset button, wait until the light flashes and the buzzer sounds, then let go.

4.5 Charging View

After a charger has been added, you can start a charging session or modify charging settings remotely on the charging screen of the App.

On the **Home** screen, choose an available charger that has been added before and tap it. You will then go to the charging screen.



4.5.1 Start/Stop Charging

Start Charging

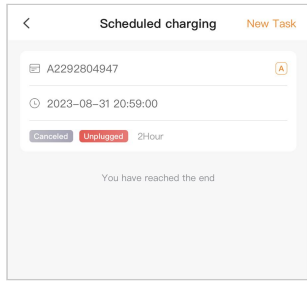
Tap **Start** on the charging screen to start a charging session. During the charging process, you can view the real-time charging current and voltage, charging time, and battery status.

Stop Charging

If needed, you can tap **Stop** on the charging screen to stop charging immediately.

4.5.2 Scheduled Charging

Step 1 Tap  in the upper right corner of the charging screen to go to “Scheduled charging”.

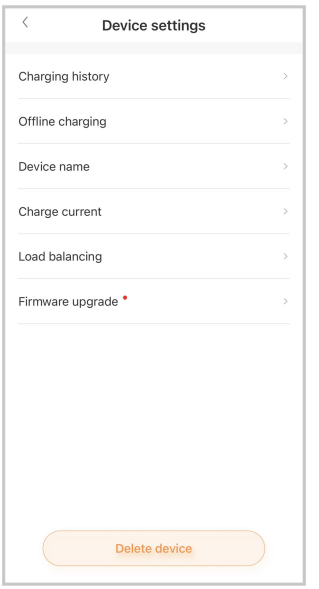


Step 2 Tap **New task** in the upper right corner of this screen. Here you can create a new scheduled charging task.

- - End

4.5.3 Device Settings

Tap  in the upper right corner of the charging screen to go to “Device settings”.



Delete device

Tap **Delete device** at the bottom of the screen to delete the current charger.

Charging history

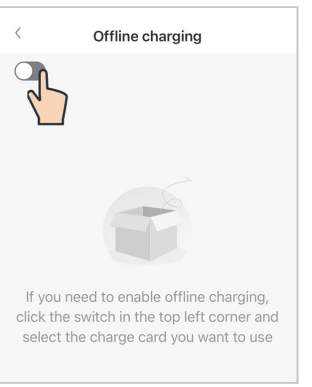
Tap **Charging history** to view the records of charging history.

Offline charging

Requirements:

- Your phone and the charger have connection to the Internet.
- The charger is available.
- At least one RFID charge card is available.

Tap **Offline charging**. To enable offline charging, tap the toggle button in the upper left corner, and select the charge card you want to use.



If you have not added an RFID charge card, or you need to add a new card, tap "Add card" at the top right and follow the onscreen instructions to complete the process.

If you switch off offline charging, the respective RFID charge cards must be associated with the charger once again for recognition.

Device name

Tap **Device name**. Enter a name, and tap **Save** to set the device name.

Charge current

Tap **Charge current**. Set the charging current, and tap **Save** to effect the setting.

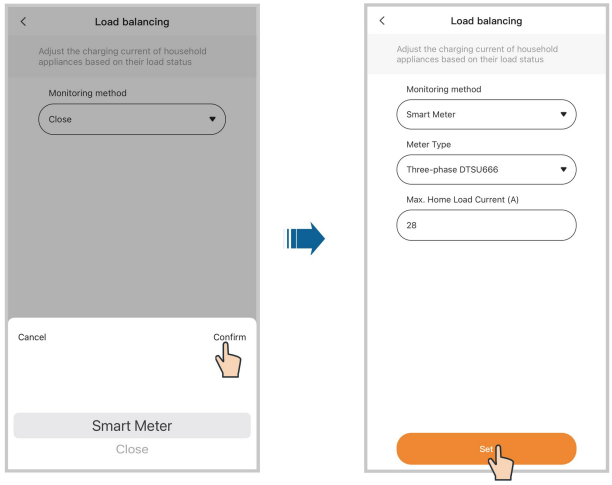
The regulated charging current applies only to the current charging session.

Load balancing

Requirements:

- The charger is online.
- The charger is not in use.
- The charger has connected to a power-controlling device.

Tap **Load balancing**. Set the “Monitoring method” to **Smart Meter**, and set the “Meter Type” and “Max. Home Load Current” based on the actual situation. Then, tap **Set** to effect the settings.



Load balancing is available only for SUNGROW energy meters. Contact the customer service for more details.

Firmware upgrade

Requirements:

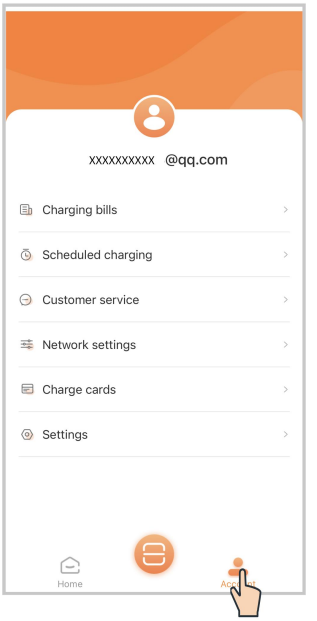
- Your phone and the charger have connection to the Internet.
- The charger is available.
- There is a new version of the firmware.

Tap **Firmware upgrade**. Tap **Update** to start remote firmware upgrade.

To ensure proper functionality of the charger, it is recommended to keep the firmware up to date.

4.6 Account

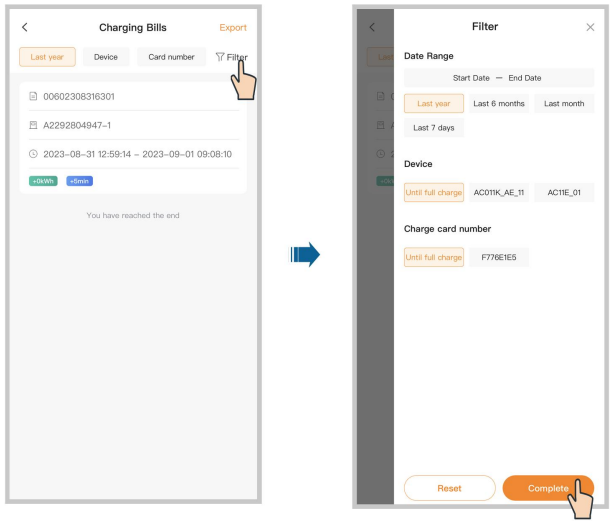
Tap **Account** in the bottom navigation bar. You will then see the screen shown below.



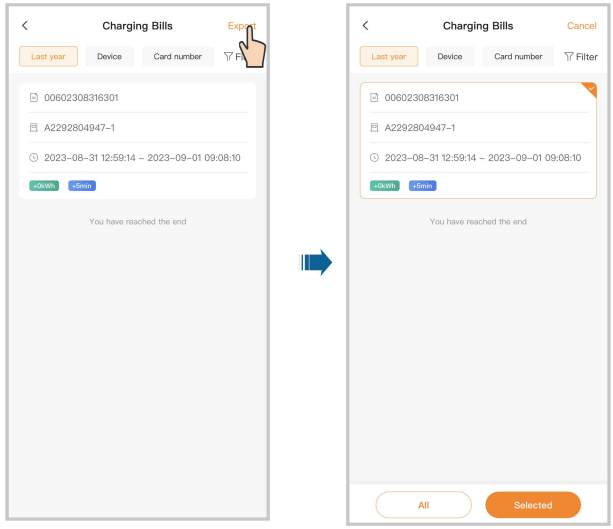
4.6.1 Charging Bills

Step 1 Tap **Charging bills**.

Step 2 Tap **Filter** at the top of the screen, and you can view charging bills by date, device, and charge card number.



Step 3 Tap **Export** in the upper right corner of the screen to export the charging bills you need.

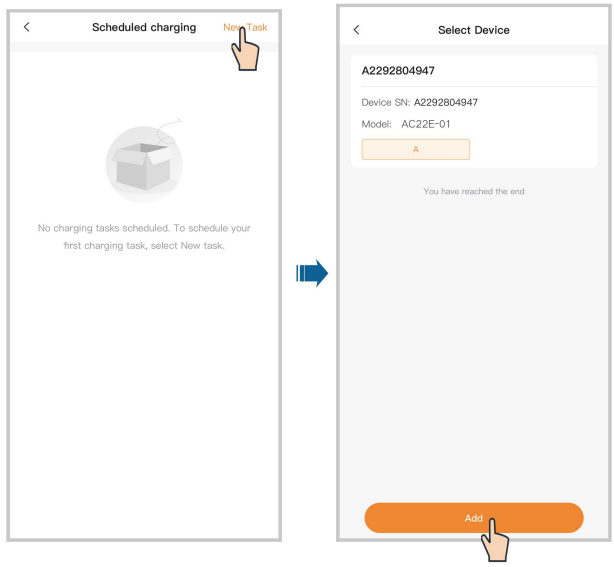


- - End

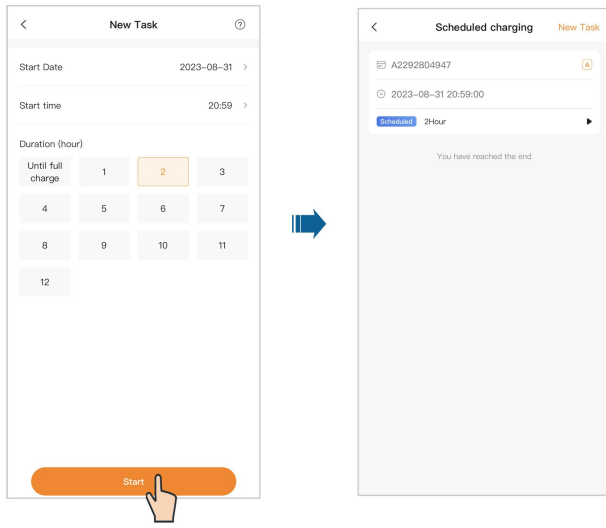
4.6.2 Scheduled Charging

Step 1 Tap **Scheduled charging**.

Step 2 Tap **New task** in the upper right corner to create a scheduled charging task. Select the device and tap **Add**.



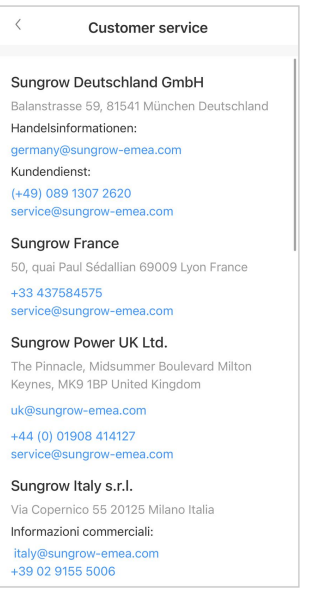
Step 3 Set the start date, start time, and duration, and tap **Start**. A scheduled charging task is now created.



- - End

4.6.3 Customer Service

Tap **Customer service**. You can find the contact information for SUNGROW in some regions on this screen.



4.6.4 Network Settings

If the WLAN network has changed, please re-configure the network connection for the charger by following the below steps.

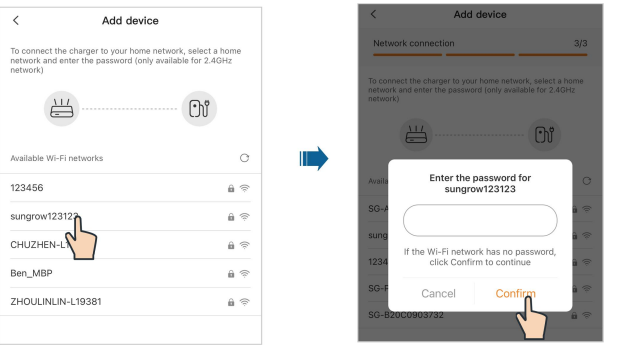
To avoid potential interference, it is recommended to enable airplane mode on your mobile device when connecting to the charger's WLAN.

Step 1 Tap **Network settings**, scan the QR code on the side of the charger, and connect the device.

Step 2 Go to WLAN settings on your mobile device, and connect to the charger's WLAN. The charger's WLAN is named in the format of "**SG-Charger S/N**" and **no password** is required.

Step 3 Once connected successfully, go back to the App and enter the login password, which should be "**admin**" or "**pw8888**". Then, tap **Login**.

Step 4 Choose another stable wireless network. Enter the password and connect the charger to the network.



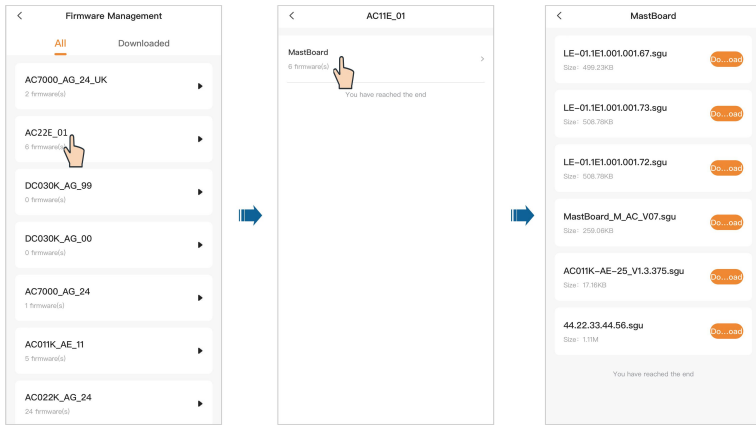
- - End

4.6.5 Firmware Management

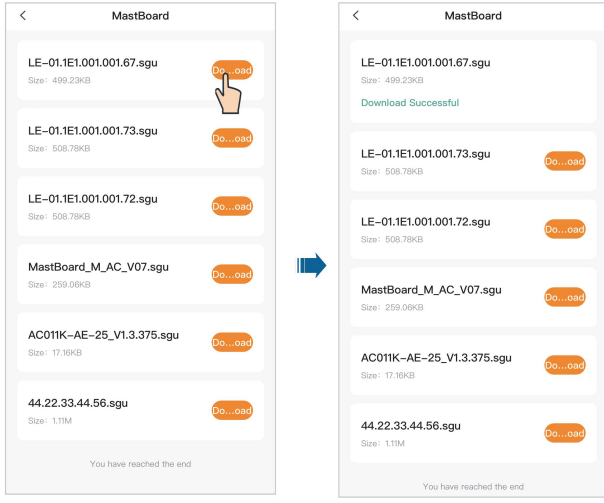
> “Firmware Management” is accessible to the Administrator account, please contact your distributor or SUNGROW for the Administrator account and password.

Step 1 Tap **Firmware Management**.

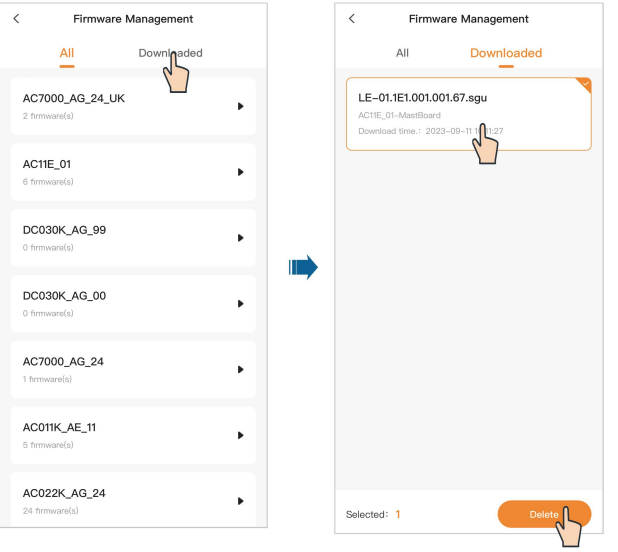
Step 2 Select the device and the module to be upgraded.



Step 3 Choose the target firmware package and tap **Download** to download it.



Step 4 Go back to “Firmware Management”. Tap **Download**, and you can see the firmware package you have downloaded. You can also select the downloaded firmware package and delete it.



- - End

4.6.6 Device Connection

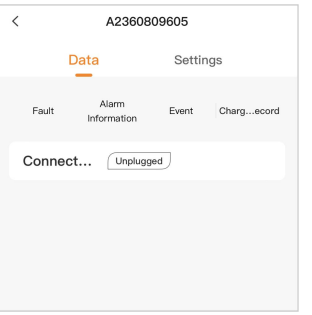
The “Device Connection” function is used to enable the near-end O&M of the charger.

> “Device Connection” is accessible to the Administrator account, please contact your distributor or SUNGROW for the Administrator account and password.

Step 1 Tap **Device Connection**, scan the QR code on the side of the charger and connect the device.

Step 2 Go to WLAN settings on your mobile device, and connect to the charger's WLAN. The charger's WLAN is named in the format of "**SG-Charger S/N**" and **no password** is required.

Step 3 Go back to the App, and you will automatically go to the interface for near-end O&M.



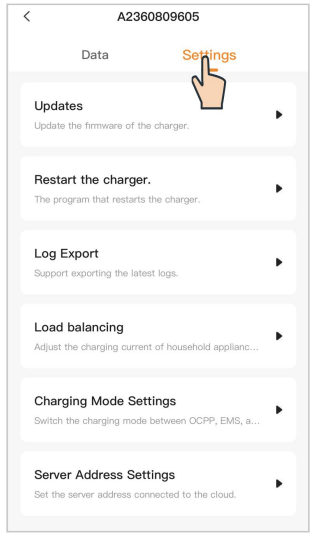
1 Tap **Fault** to view the current charger's fault records.

2 Tap **Alarm information** to view the current charger's alarm records.

3 Tap **Event** to view the current charger's event records.

4 Tap **Charging Records** to view the current charger's charging history.

Step 4 Choose **Settings**. Here you can complete relevant settings for the charger.



1 Tap **Updates**. Here you can select the firmware package that has been downloaded, and tap **Start to Upload** to start firmware upgrade. For details on firmware package download, see "4.6.5 Firmware Management".

2 Tap **Restart the charger** to restart the current charger.

3 Tap **Log Export**. Here you can select the logs you want and export them, share the log, or upload the exported log to the platform as needed.

4 Tap **Load balancing**. You can adjust the charging current according to the load status of your home appliances.

5 Tap **Charging Mode Settings**. You can change the charging mode for the current charger on this screen as needed.

> If the charging mode is set to “EMS”, you need to enter a password generated by the operation and management platform. Please contact the customer service and get the password through the management platform.

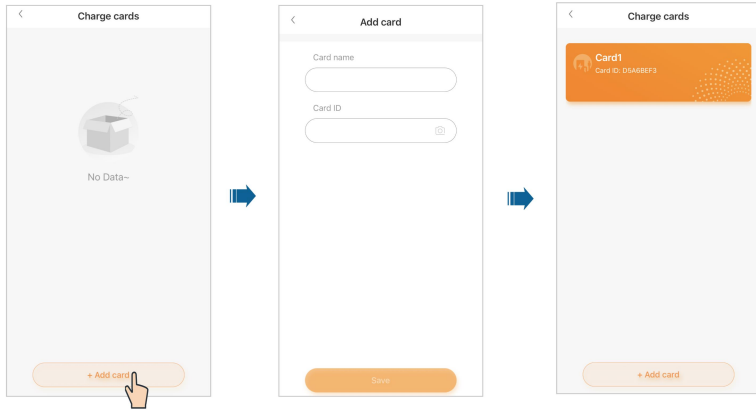
6 Tap **Server Address Settings**. You can change the server address for this charger on this screen as needed.

- - End

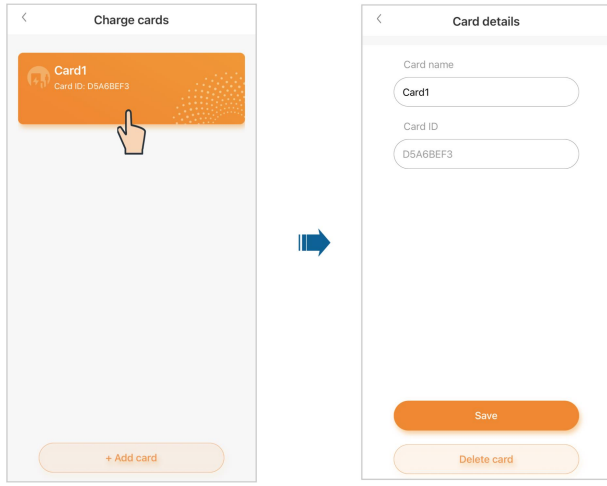
4.6.7 Charge Cards

Step 1 Tap **Charge cards**.

Step 2 Tap **Add card** at the bottom of the screen. Then, enter the card name and ID, and tap **Save**. The card is now added successfully.



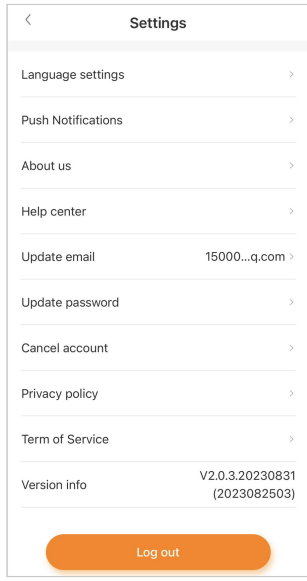
Step 3 Tap the card that has been added, and go to “Card details”. Here you can edit the card name or delete the card.



- - End

4.6.8 Settings

Tap **Settings**. Here you can complete settings related to the language of the App, push notifications, email, and password. You can tap **Log out** to log out of the current account.


Settings
Language settings
Push Notifications
About us
Help center
Update email
15000...q.com
Update password
Cancel account
Privacy policy
Term of Service
Version info
V2.0.3.20230831
(2023082503)
Log out

5 Commissioning via iSolarCloud

- If the charger works under EMS mode, proceed with commissioning on the iSolarCloud App.
- If the charger works under EMS mode, make sure it is connected to the inverter via the RS485 cable. For details on the RS485 cable connection, see "2.4.4 RS485 Communication Connection".

Download the iSolarCloud App

Option 1

Search for “iSolarCloud” in an application store, and download and install the App on your device.

- Google Play (Android)
- App Store (iOS)

Option 2

Scan the following QR code to download and install the App according to the prompt information.

Commissioning on the iSolarCloud App

For detailed instructions for commissioning, please refer to the user manual of the inverter: **3–Phase Hybrid Inverter User Manual**

6 Troubleshooting

table 6-1 Fault Resolution

Problem	Possible Cause	Solution
Overvoltage	1 The grid voltage at the input end of the charger exceeds 276 V. 2 The grid voltage is still above 264 V after overvoltage.	Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly: 1 Measure the actual grid voltage, and contact local power company for solutions if the grid voltage is above 264 V. 2 Contact Sungrow Customer Service if the problem persists.
Undervoltage	1 The grid voltage at the input end of the charger is below 184 V. 2 The grid voltage is still below 195 V after undervoltage.	Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly: 1 Measure the actual grid voltage, and contact the local power company for solutions if the grid voltage is below 195 V. 2 Check if the AC cables are firmly connected. 3 Contact Sungrow Customer Service if the problem persists.

Problem		Possible Cause	Solution
Overfrequency		1 The mains AC frequency exceeds 63 Hz. 2 The grid frequency is still above 61 Hz after overfrequency.	Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly: 1 Measure the actual grid frequency, and contact the local power company for solutions if the grid frequency is above 61 Hz. 2 Contact Sungrow Customer Service if the problem persists.
Underfrequency		1 The mains AC frequency is below 47 Hz. 2 The grid frequency is still below 49 Hz after underfrequency.	Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly: 1 Measure the actual grid frequency, and contact the local power company for solutions if the grid frequency is below 49 Hz. 2 Contact Sungrow Customer Service if the problem persists.
EV	Leakage current	The DC leakage current is above 6 mA	1 Stop charging and pull out the charging connector. When the charger returns to normal, try charge again. If the problem occurs repeatedly, contact the EV manufacturer's customer service. 2 Stop charging and pull out the charging connector. Contact Sungrow Customer Service if the problem persists.
	Overcurrent	Outout current is above 35 A	
Charger	Stuck relay	The relay is stuck and cannot be disconnected.	Restart the charger and try again after 1 minute. If the problem occurs repeatedly, contact Sungrow Customer Service.

Problem		Possible Cause	Solution
	Leakage current detection circuit failure	1 The CT terminal has bad connection or the CT is malfunctioning. 2 The RCD circuit is abnormal.	
	Relay overtem-perature	The temperature of the main relay is too high. It might be a hardware problem.	
	CP failure	Abnormal CP loop circuit on the main board	
Wiring	Input ter-minal overtem-perature	1 The input terminal is loosely connected which causes bad connection. 2 The cable's current-carry-ing capacity does not meet the requirements.	1 Ensure that the AC cable is tightly connected, that the ca-ble used meets requirements, and L and N wires are cor-rectly connected. 2 Contact Sungrow Customer Service if the problem persists.
	Reverse polarity	L and N wires are connected reversely.	

If the above faults cannot be removed, please contact Sungrow.

7 Appendix

7.1 Technical Data

table 7-1 Technical Data

Specification	AC22E-01
AC Input	
Grid voltage	3 / N / PE, 230 V / 400 V
Nominal grid frequency	50 Hz / 60 Hz
Earthing system	TT / TN
Max. input current	32 A
Standby self-consumption	< 6.5 W
AC Output	
Max. charging power	22 kW / 11 kW (configurable)
Max. charging voltage	230 V / 400 V
Max. charging current	32 A / 16 A (configurable)
Protection & Function	
Integrated DC faut current detection	Yes, 6 mA
Overload protecion	Yes
Over-temperature protection	Yes
Flame retardant protection	Yes
Surge protection	Yes
Ground fault monitoring	Yes
ALM (Adaptative load management)	Yes
Automatic phase switching	Yes
User interface	
Display	LED indicator and App
Authentication	Plug & Play / RFID-card / iSolarCloud App / iEnergy Charge App
Firmware update	OTA
RFID system	Mifare ISO 14443 A
Energy metering	MID-certified meter (optional)

Specification	AC22E-01
Metering accuracy	Class B
Charging mode	OCPP / Plug & play / EMS by iEnergy-Charge Eco charging / Fast Charging / Scheduled charging / Customized charging by iSolarCloud
Communication interface	RS485 (to inverter / meter) WLAN / Ethernet / 4G (to cloud)
Communication protocol (charger-to-CSMS)	OCPP 1.6 J
Mechanical data	
Dimensions (W * H * D)	214 mm * 346 mm * 125 mm
Weight	< 6.65 kg
Installation method	Wall-mounting (default) Stand column (optional)
AC cable specification	Coss-section 6 mm² * 5
Charging cable length	7 m
Charging connector	Type 2
Environmental data	
Enclosure rating	IP65
Mechanical impact protection	IK10
Operating ambient temperature range	-30 ℃ - 50 ℃
Allowable relative humidity range	5 % - 95 % (non-condensing)
Max. operating altitude	3000 m
Cooling method	Natural convection
General data	
Compliance	EN 300 328, EN 300 330, EN 301 489-1 / 3 / 17 / 52, EN 301 908-1 / 13, EN 50663, EN 50665, EN IEC 61851-1, EN IEC 61851-21-2, EN IEC 62311, EN 62479
Warranty	3 years (standard)

7.2 Quality Assurance

When product faults occur during the warranty period, SUNGROW will provide free service or replace the product with a new one.

Evidence

During the warranty period, the customer shall provide the product purchase invoice and date. In addition, the trademark on the product shall be undamaged and legible. Otherwise, SUNGROW has the right to refuse to honor the quality guarantee.

Conditions

- After replacement, unqualified products shall be processed by SUNGROW.
- The customer shall give SUNGROW a reasonable period to repair the faulty device.

Exclusion of Liability

In the following circumstances, SUNGROW has the right to refuse to honor the quality guarantee:

- The free warranty period for the whole machine/components has expired.
- The device is damaged during transportation by the user.
- The device is incorrectly installed, refitted, or used.
- The device operates in harsh conditions beyond those described in this manual.
- The fault or damage is caused by installation, repairs, modification, or disassembly performed by a service provider or personnel not from SUNGROW.
- The fault or damage is caused by the use of non-standard or non-SUNGROW components or software.
- The installation and use range are beyond stipulations of relevant international standards.
- The damage is caused by unexpected natural factors.

For faulty products in any of above cases, if the customer requests maintenance, paid maintenance service may be provided based on the judgment of SUNGROW.

7.3 Contact Information

In case of questions about this product, please contact us.
We need the following information to provide you the best assistance:

- Model of the device
- Serial number of the device
- Fault code/name
- Brief description of the problem

For detailed contact information, please visit: **https://en.sungrowpower.com/contactUS**

SUNGROW

Sungrow Power Supply Co., Ltd.

www.sungrowpower.com