

# User Manual

## AC Charger

AC011E-01 / AC011E-01 L1



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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

The manual mainly contains product information, as well as guidelines for installation, operation, and maintenance.

## Target Group

This manual is intended for qualified technicians who are responsible for the installation, operation, and maintenance of the charger, and end users who need to check charger parameters.

A qualified technician is required to meet the following requirements:

- Knowledge of electronics, electricity, and machinery, and be familiar with electrical and mechanical schematic diagrams.
- Training in the installation and commissioning of electrical equipment.
- Be able to quickly respond to hazards or emergencies that occur during installation and commissioning.
- Be familiar with local standards and relevant safety regulations of electrical systems.
- Read this manual thoroughly and understand the safety instructions related to operations.

## 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

Please read this manual carefully before using the product and keep it properly in a place for easy access.

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Contents of this manual may be periodically updated or revised, and the actual product purchased shall prevail. Users can obtain the latest manual from [support.sungrowpower.com](http://support.sungrowpower.com) or sales channels.

## Symbols

This manual contains important safety instructions, which are highlighted with the following symbols, to ensure personal and property safety during usage, or to help optimize the product performance efficiently.

### **DANGER**

Indicates high-risk potential hazards that, if not avoided, may lead to death or serious injury.

### **WARNING**

Indicates moderate-risk potential hazards that, if not avoided, may lead to death or serious injury.

### **CAUTION**

Indicates low-risk potential hazards that, if not avoided, may lead to minor or moderate injury.

### **NOTICE**

Indicates potential risks that, if not avoided, may lead to device malfunctions or financial losses.



“NOTE” indicates additional information, emphasized contents, or tips that may be helpful, e.g., to help you solve problems or save time.



# 1 Product Overview

## 1.1 Introduction

The AC011E-01 charger (hereinafter referred as "charger" or "AC-Charger") is used for AC charging of electric vehicles (BEV/PHEV) 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 card, iSolarCloud or iEnergyCharge. 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 iSolarCloud or iEnergyCharge.

### Sustainability

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

## 1.2 Appearance and Dimensions

### Model and Nameplate



The charger comes with two versions to meet different energy-saving needs:

- AC011E-01 (hereinafter referred as "the advanced version")
- AC011E-01 L1 (hereinafter referred as "the standard version")

Model

Nameplate

AC

011

E - 0

1

L1

1

2

3

4

5

6

SUNGROW

Product11kW EV Charger

ModelAC011E-01

S/Nxxxxxx

Rated Voltage3P+N+PE 400Vac

Rated Current16A

Frequency50/60Hz


Rated Power11kW


Working Temp-30℃~+50℃

Datexxxxxx

IP DegreeIP65

CE





SUNGROW POWER SUPPLY CO.,LTD.

www.sungrowpower.com Made in China

Position	Description	Note
1	AC Charger	-
2	Nominal power (kW)	-
3	European standard	-
4	Screen configuration	<div><div>0: without screen</div></div>
5	M1 card configuration	<div><div>1: with card</div></div>
6	Version (Optional)	<div><div>Default: version for usage together with SHRT for 3-phase combo-solution</div><div>L1: version for usage as stand-alone AC Charger</div></div>

## Electrical Connection Ports

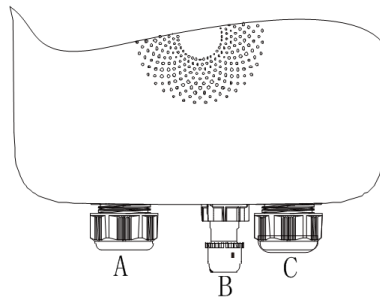


figure 1-1 Ports

table 1-1 Label Explanation

Position	Description
A	AC input (AC connection)
B	RS485 communication interface (SHRT connection)
C	Charging cable output (Charging cable connection)

## Dimensions

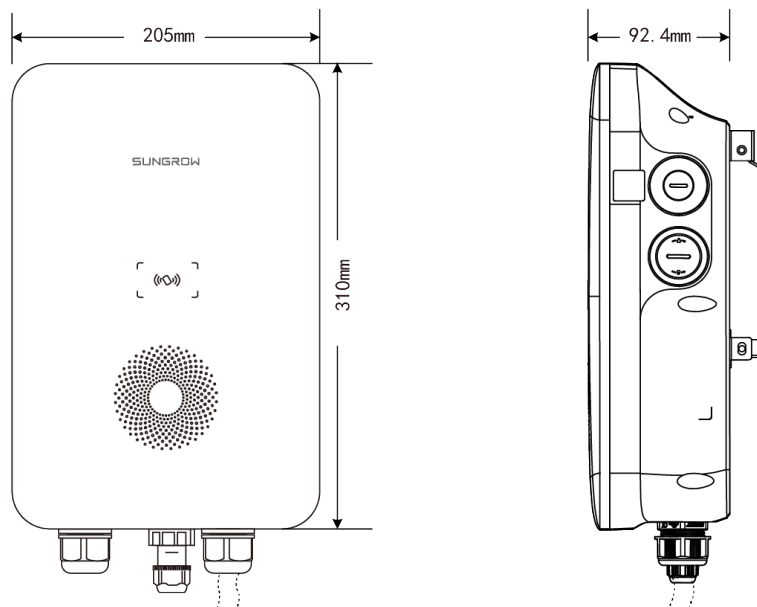


figure 1-2 Dimensions (in mm)

## 1.3 LED Signals

**table 1-2** LED Signals

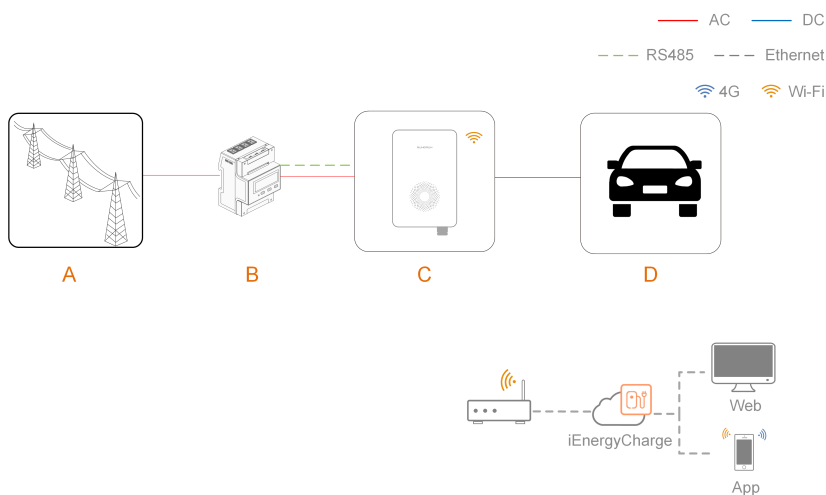
LED Signal	Description
The blue LED blinks slowly (on for 1 s and off for 4 s)	Standby mode
The blue LED blinks (on for 1 s and off for 1 s)	Vehicle charging
The blue LED is glowing	Charging ended
The blue LED blinks quickly (on for 0.5 s and off for 0.5 s)	Vehicle plugged in
The blue LED blinks quickly for five times (on for 0.2 s and off for 0.2 s)	RFID card used
The blue LED blinks slowly (on for 2 s and off for 2 s)	No RS485 communication in standby mode under EMS
The blue LED is on for 1 s and the red LED is on for 1 s	Power-on self-test
The blue indicator blinks quickly	Firmware upgrading

## 1.4 System Overview



In both charging scenarios, with standard and advanced version, smart charging visualization via App is possible. In addition to charging from the grid, the advanced versions support intelligent energy consumption usage in combination with SUNGROW's 3-phase combo solution.

### Stand-alone EV Charger



**figure 1-3** System topology diagram of EV charger

Position	Description	Note
A	Utility grid	TT, TN-C, TN-S, TN-C-S.
B	DTSU666 Smart Energy Meter (optional)	A smart energy meter that monitors power usage and helps to avoid power outages caused by peak electricity during home charging.
C	Charger	AC011E-01 L1
D	Electric vehicle	-

## Solar-Storage-Charging Solution

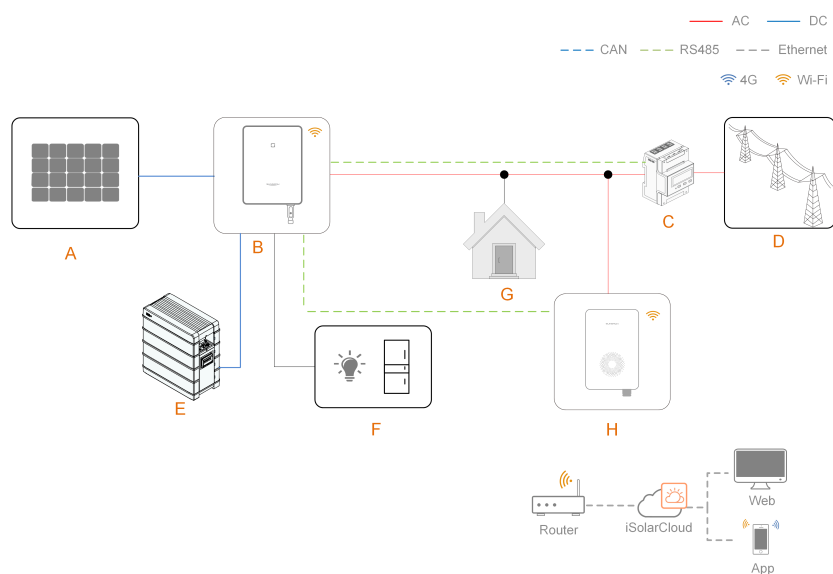


figure 1-4 System topology diagram of the solar-storage-charging solution

Position	Description	Note
A	PV strings	Compatible with monocrystalline silicon, polycrystalline silicon, and thin-film modules without grounding.
B	Inverter	SH5.0RT / SH6.0RT / SH8.0RT / SH10RT
C	Energy meter	A smart energy meter that monitors power usage and helps to avoid power outages caused by peak electricity during home charging.
D	Utility grid	TT, TN, TN-C-S, TN-S, TN-C. The type of grid grounding system depends on local regulations.
E	Battery	A Li-ion battery.
F	Backup loads	Protected house loads directly connected to the inverter.

Position	Description	Note
G	Normal loads	Non-protected house loads. They will be disconnected in case of grid failure.
H	AC-Charger	AC011E-01

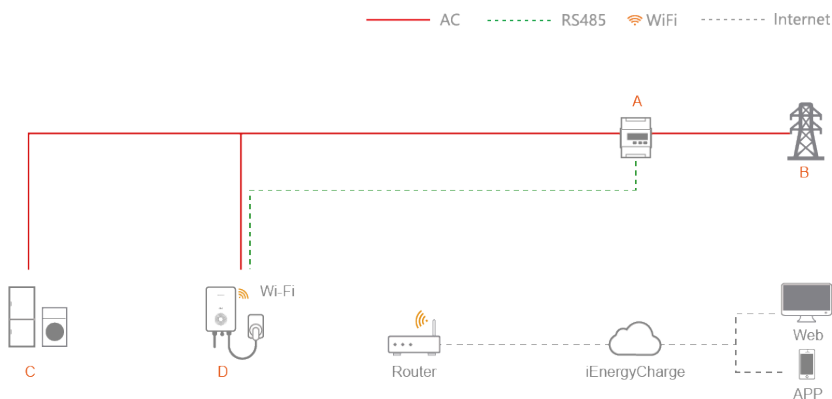


For SUNGROW's solar-storage-EV charging solution, please refer to the user manual of related inverter. See [7.2 Additional Information](#).

## 1.5 Load Management



Load management is supported by the AC-Charger.



**figure 1-5** System topology diagram of Load Balancing

Position	Description	Note
A	DTSU666 Smart Energy Meter (optional)	A smart energy meter that monitors power usage and helps to avoid power outages caused by peak electricity during home charging.
B	Utility grid	TT, TN-C, TN-S, TN-C-S.
C	House loads	Energy consumed by home appliances.
D	Charger	AC011E-01 L1

## 2 Installation

### WARNING

Respect all local standards and requirements during mechanical installation.

### CAUTION

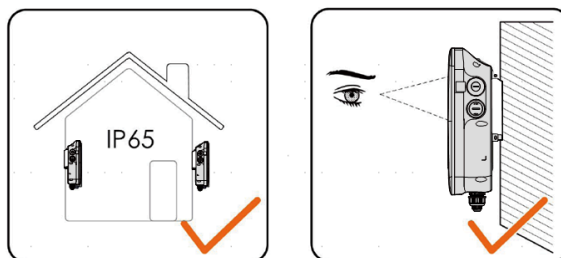
Any damage or malfunction with the charger caused by negligence or improper use will not be eligible for service and replacement under the warranty.

## 2.1 Installation Requirements

### Location Requirements

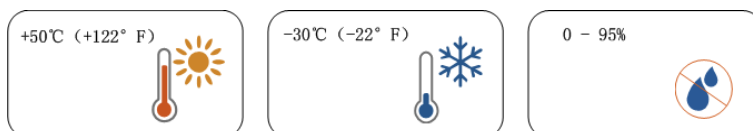
Select an optimal mounting location for safe operation, long service life and expected performance.

- 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

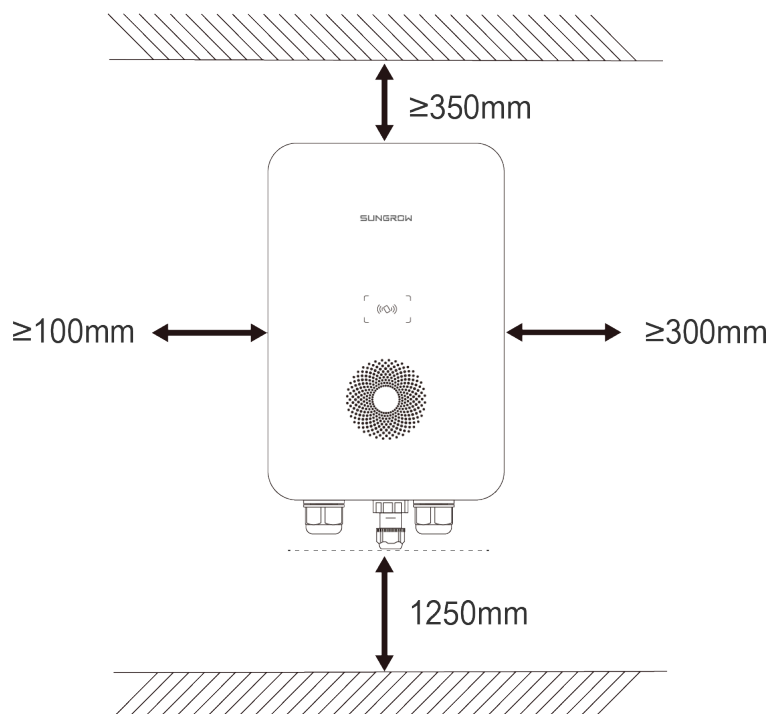
- There must be no flammable hazards or ignition risks.
- The mounting location must be inaccessible to children.
- The ambient temperature and relative humidity must meet the following requirements.



- 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.
- It is suggested to install the device in a place with shelter, so as to prevent it from getting impacted by direct sunlight or severe weather (e.g., snow, rain, and lightning). The device will derate in high temperatures for self-protection. If installed in a place directly exposed to sunlight, as the temperature rises, the device may witness power reduction.

### Clearance Requirements

Reserve enough clearance around the charger to ensure sufficient operating space.



### Carrier Requirements

#### NOTICE

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

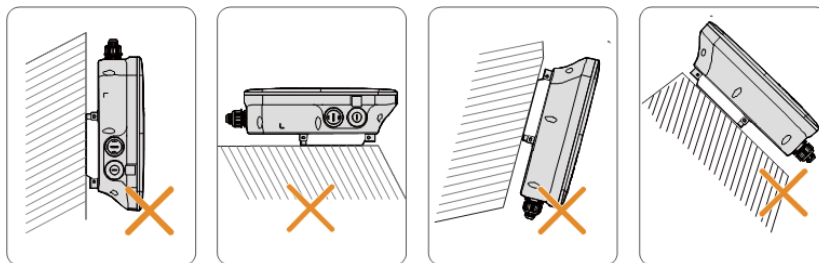


- The carrier should be solid enough to bear 4.5 times the weight of the charger.
- The carrier should be suitable for the dimensions of the charger.
- The surface of the carrier must be fire-resistant.



### Angle Requirements

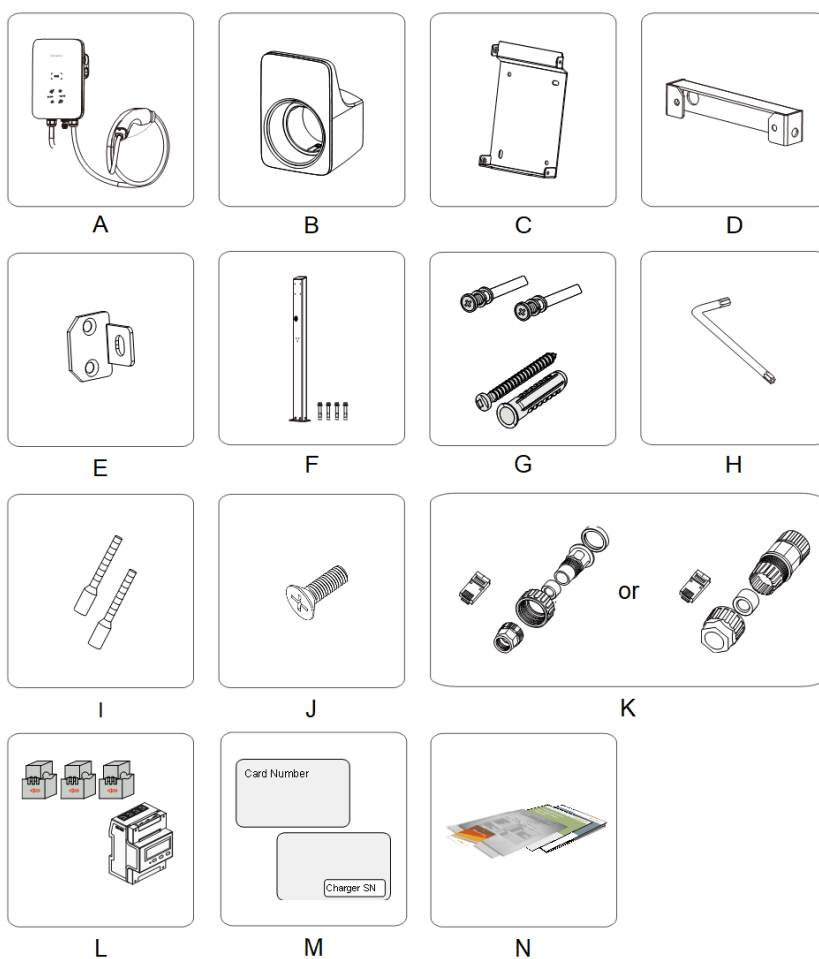
- Install the charger vertically.
- Do not install the charger horizontally, tilted or upside down.
- Do not install the charger on a tilted surface.



## 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

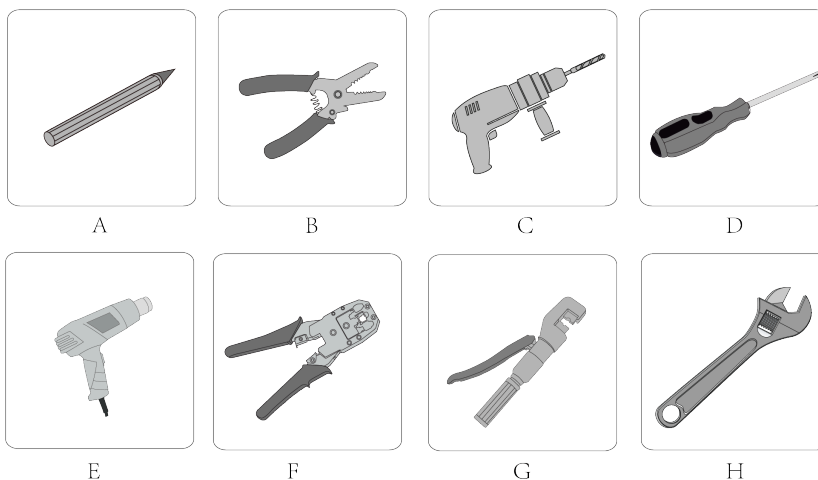
Item	Name	Quantity
A	AC-Charger	1
B	Charging cable bracket	1
C	Backplate	1
D	Upper mounting plate	1
E	Lower mounting plate	2
F	Mounting pole (optional)	1
G	Combination screw and expansion screw	4, 7 (wall-mounted); 11, 0 (pole-mounted)
H	L-shaped spanner	1
I	Wire end ferrule	1~2
J	Countersunk screw	6

Item	Name	Quantity
K	RJ45 screw connector	1
L	DTSU666 Smart Energy Meter (optional)	1
M	RFID card	2
N	Quick Installation Guide, Warranty Card, and Certificate of Conformity	1, 1, 1



The scope of delivery does not include the optional mounting pole (F) and energy meter (K). These items must be ordered separately. Contact customer service for details.

## 2.3 Installation Tools



**table 2-2** Label Descriptions

Item	Name	Specification
A	Marker	-
B	Wire stripper	-
C	Hammer drill	Ø6, Ø12
D	Screwdriver	M3, M4
E	Heat gun	-
F	RJ45 crimping tool	-
G	Hydraulic plier	2.5-6 mm <sup>2</sup>
H	Adjustable spanner	-

## 2.4 Electrical Connection

### 2.4.1 Circuit Diagram

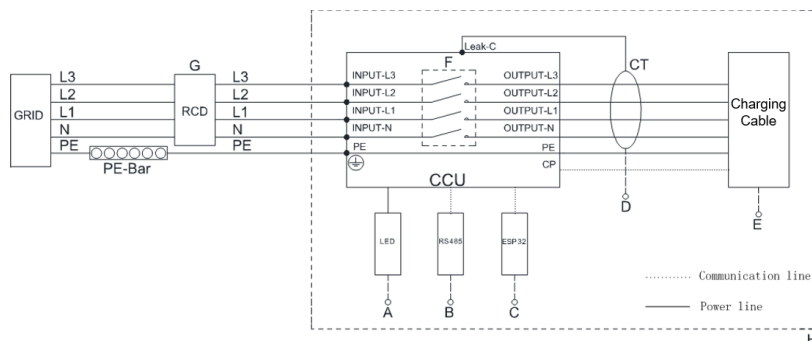


figure 2-1 Circuit diagram

table 2-3 Label Descriptions

Label	Description
A	The LED lights that indicates the status of the charger
B	RS485, reserved for external communication
C	ESP32 module for Wi-Fi communication
D	CT for leakage current detection
E	Charging cable output (connected to the vehicle)
F	CCU internal relay
G	Type A residual-current device (Parameter: 25 A/400 V with a rated residual current of 30 mA; input cable cross-section: 2.5 mm <sup>2</sup> )
H	The charger

#### NOTICE

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

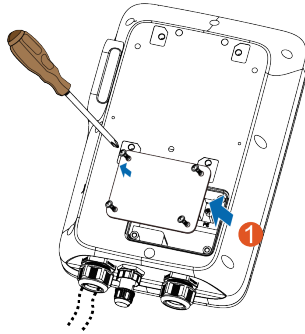
### 2.4.2 AC Cable Connection

#### AC Cable Requirement

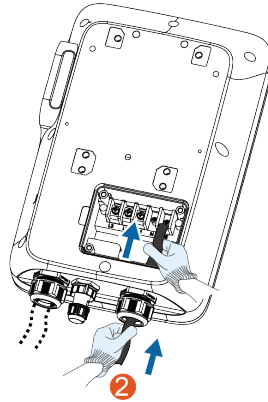
Cable cross-section: minimum 2.5mm<sup>2</sup> (5 x 2.5 mm<sup>2</sup>)

**step 1** Place the charger face-down on a clean and flat surface.

**step 2** Loosen the screws that secure the back cover plate. (M3 screws, torque:  $0.5 \pm 0.1 \text{ N}\cdot\text{m}$ )

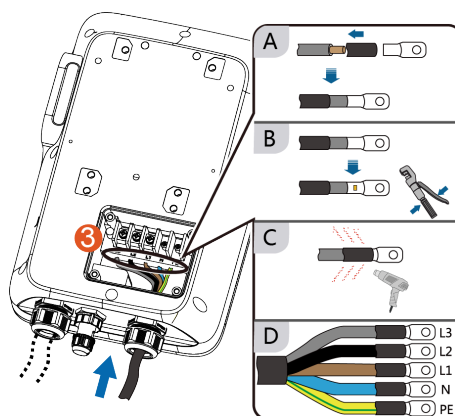


**step 3** Plug the cable into the port of the power supply which is at the leftmost.



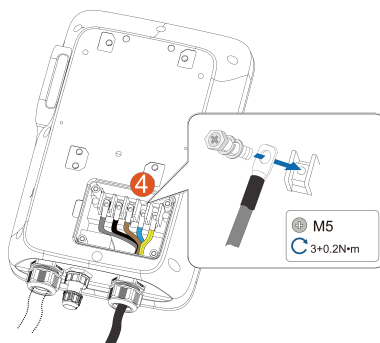
**step 4** Adjust the cable to a suitable length, and strip off the insulation of the cable to prepare for cable connection terminals.

- i. Strip off the insulation from the end of each wire.
- ii. Insert the copper core of the stripped end of the wire into the copper lug.
- iii. Tighten the copper lug using a hydraulic plier.
- iv. 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.
- v. Place the heat-shrink tubing on the copper lug until it completely covers the copper lug's wire hole.
- vi. Activate heat-shrink tubing using a heat gun.

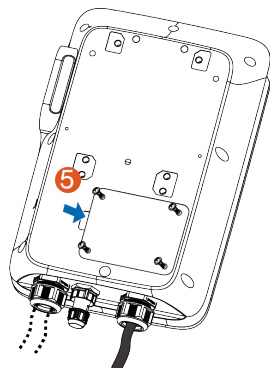


Color	Terminal
Brown	L1
Black	L2
Gray	L3
Blue	N
Yellow-green	PE

**step 5** Connect each crimped terminal (OT2.5-5) and tighten them using a screwdriver. (Torque:  $3 \pm 0.2$  N·m)



**step 6** Put the back cover plate back in place and tighten the screws to secure it.



-- End

### 2.4.3 RS485 Communication Connection



- For the Residential Hybrid + AC Charging Solution, the RS485 communication connection is needed to connect the AC Charger to SUNGROW's 3-phase inverter (SHRT).
- To connect the charger to a energy meter, see the related user manual.

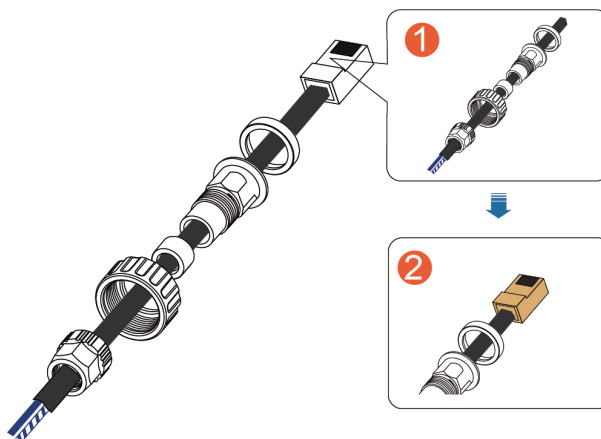
#### Material preparation

Name	Type	Note
RS485 communication cable	Ethernet cable	The RS485 communication cable is not included in the scope of delivery and should be prepared separately according to actual needs.

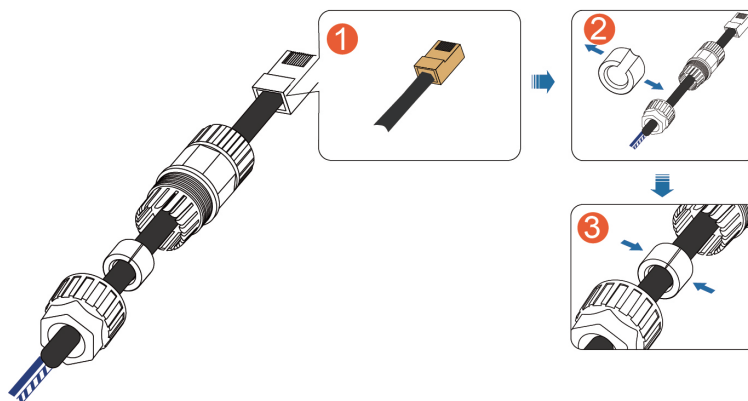
**step 1** Crimp both ends of the Ethernet cable using a crimping tool.



You will receive one of the following two RJ45 terminal components, please refer to the actual product you receive.



**figure 2-2** RJ45 screw connector(A)



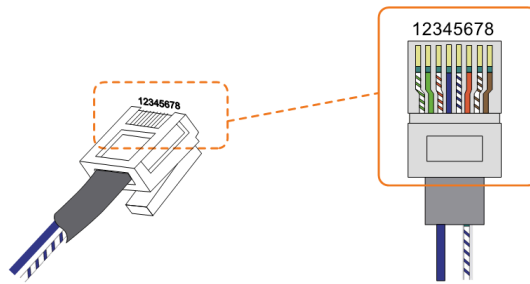
**figure 2-3** RJ45 screw connector(B)



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

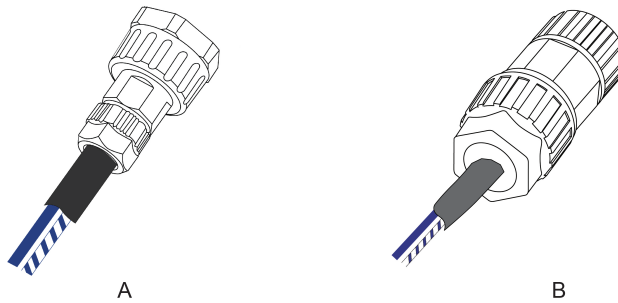
The blue wire (PIN 4) connects to 485B, and the blue-white wire (PIN 5) connects to 485A.





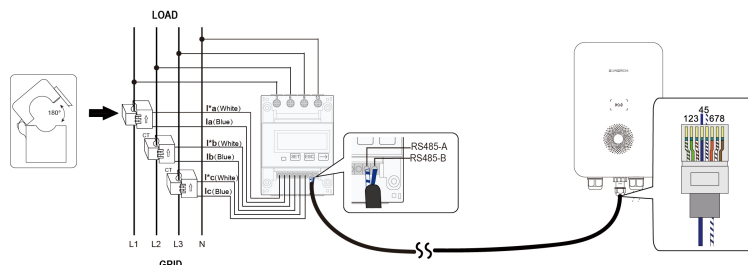
**step 2** Insert the RJ45 connector to the RJ45 jack.

**step 3** Install seals for the Ethernet cable in sequence.

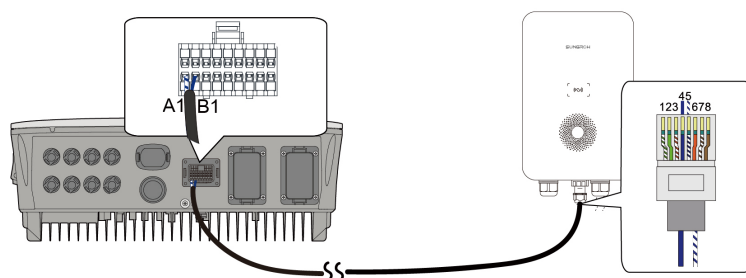


Ensure that the cable is secured.

**step 4** Connect the charger to a Smart Energy Meter or a SUNGROW Hybrid inverter.



**figure 2-4** Connect to a Smart Energy Meter



**figure 2-5** Connect to an inverter(SHRT)

- - End

## 2.5 Wall-Mounted Installation

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.

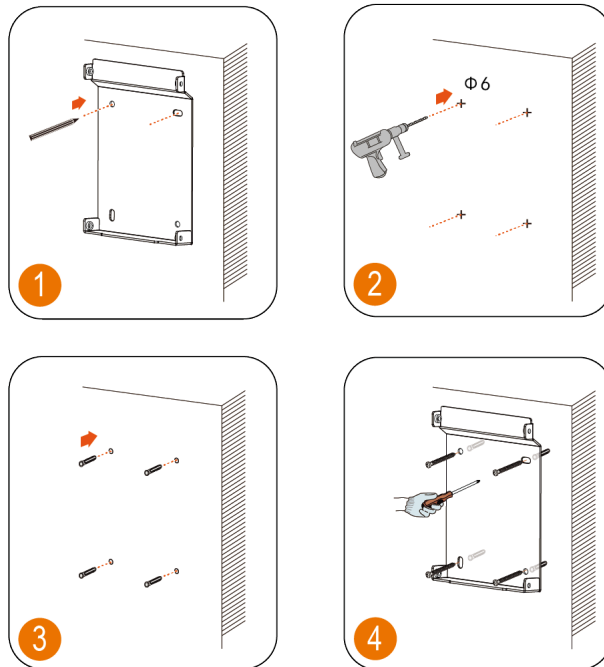
- i. Hold the backplate in the desired position on the wall and mark the positions of the drill holes.

### NOTICE

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

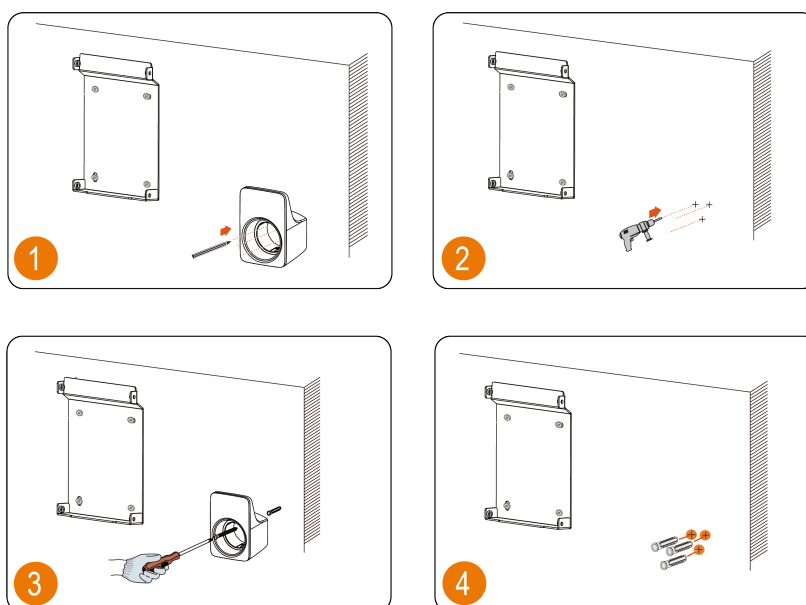
- ii. Drill holes at the marked positions using a hammer drill. (Diameter: 6 mm; depth: 45 mm)

- iii. Insert the dowel into the holes.
- iv. Place the backplate on the wall and tighten the screws using a screwdriver to secure the backplate.



**step 2** Install the charging cable bracket.

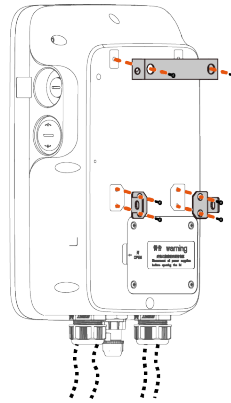
- i. Hold the charging cable bracket in the desired position on the wall and mark the positions of the drill holes.
- ii. Drill holes at the marked positions using a hammer drill.
- iii. Insert the dowel into the hole.
- iv. Place the charging cable bracket on the wall, and tighten the screws to secure the charging cable bracket using a screwdriver.



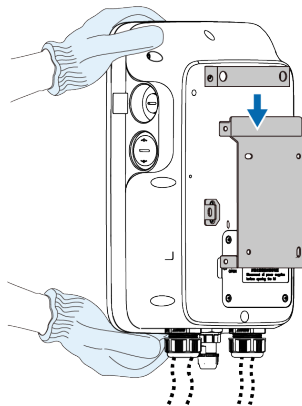
It is recommended that the charging cable bracket be positioned at the lower right side of the charger, about 20 cm away from the charger. The distance shall be adjusted according to the actual situation.

**step 3** Mount the charger.

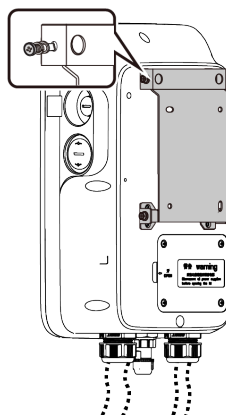
- i. Secure the upper mounting plate and the lower mounting plate on the back of the charger using a screwdriver. (Torque:  $1.2 \pm 0.1 \text{ N}\cdot\text{m}$ )



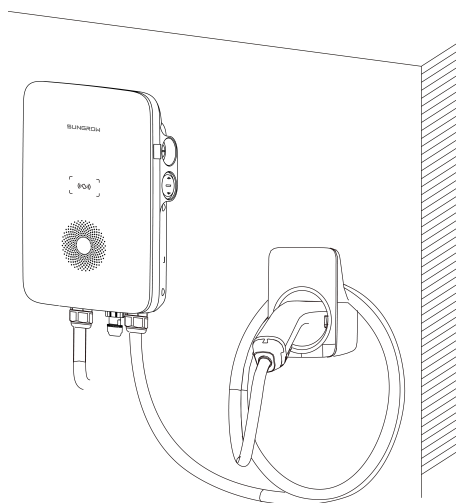
- ii. Hang the charger onto the backplate.



- iii. Secure the upper and lower mounting plates to the backplate with screws. (Torque:  $1.2 \pm 0.1 \text{ N}\cdot\text{m}$ ).



-- End



**figure 2-6** Wall-mounted charger

## 2.6 Pole-Mounted Installation



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

### 2.6.1 Foundation Installation

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.

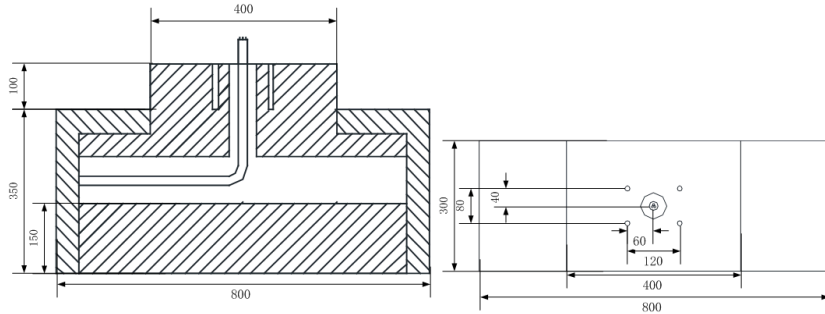
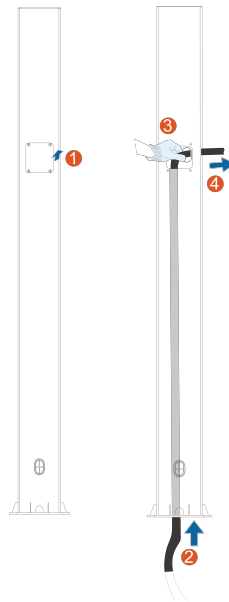


figure 2-7 Front view and top view (unit: mm)

## 2.6.2 Pole Installation

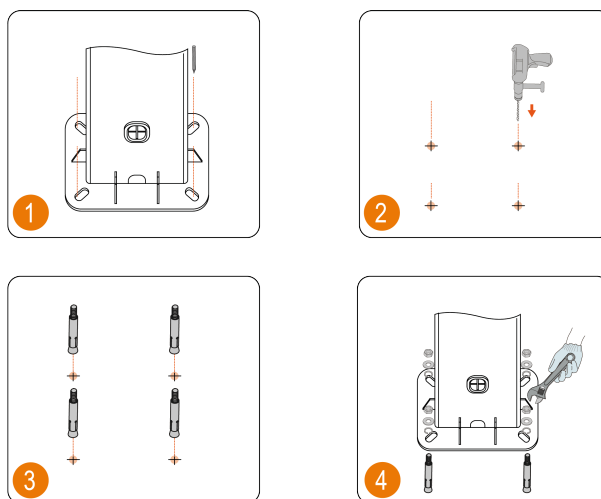
### step 1 Connect the AC cable.

- i. Remove the cover plate on the back of the pole using a cross screwdriver.
- ii. Lead the AC cable through the bottom into the pole.
- iii. Grab the AC cable when it reaches the cover plate and take out the end of the cable from the AC cable outlet.
- iv. Pull the cable out to an appropriate length and close the cover plate.



**step 2** Mount the charger.

- i. Place the pole on a solid and flat surface, and mark the positions of the drill holes.
- ii. Drill holes at the marked positions using a hammer drill. (Diameter: 12 mm; depth: 70 mm)
- iii. Insert the dowel into the holes.
- iv. Tighten the expansion screw using a screwdriver.



- v. Check whether the pole is firmly installed.

**step 3** Install the backplate and the charging cable bracket.

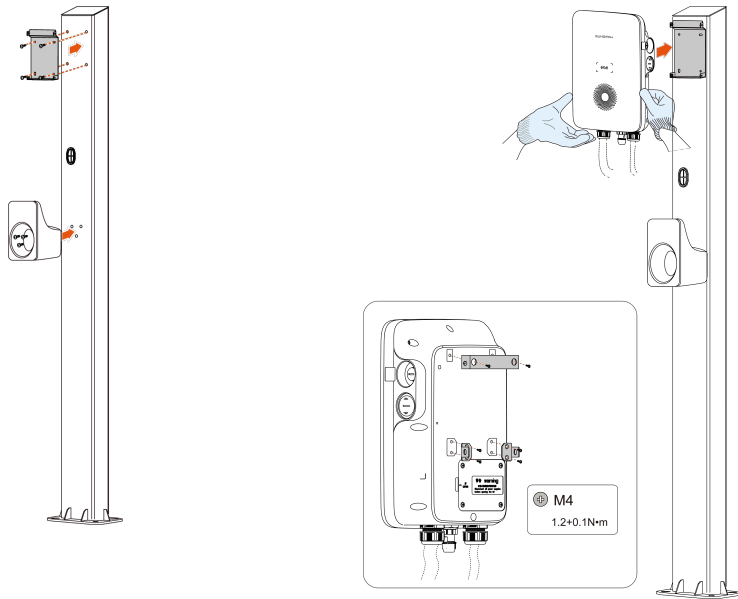
- i. Align the holes in the backplate with the holes drilled in the pole, and secure the backplate to the pole with screws.
- ii. Align the holes in the bracket with the holes drilled in the pole, and secure the bracket to the pole with screws.
- iii. Check whether the backplate and the charging cable bracket are firmly installed.

**step 4** Install the upper mounting plate and lower mounting plate.

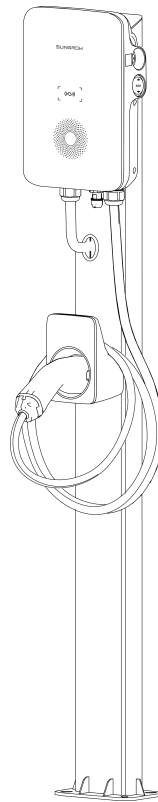
- i. Place the charger face-down on a clean and flat surface, and secure the upper and lower mounting plates to the pole using a screwdriver.
- ii. Ensure that the upper mounting plate and the lower mounting plate are firmly installed.
- iii. Hang the charger onto the backplate.



- iv. Secure the upper and lower mounting plates to the backplate.
- v. Check whether the charger is correctly installed on the pole.



- - End



**figure 2-8** Pole-mounted charger

### 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.



It is recommended to update the firmware of the charger to the latest version before charging to ensure optimal charging performance.

**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 blinks slowly which indicates the charger is in standby mode.

**-- End**

## 4 Commissioning via iSolarCloud



This section only applies to use cases with the advanced version of the charger.

For commissioning procedure, refer to the user manual of related inverter. See [7.2 Additional Information](#).

## 5 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.



- iEnergyCharge needed for commissioning only if the charger is used standalone, otherwise need to use iSolarCloud.
- Depending on the version of iEnergyCharge you are using, the user interface might be slightly different.

### 5.1 Install iEnergyCharge App

#### Requirements

- Mobile OS: Android 6.0 or later, iOS 11.0 or later;
- The phone can connect to WLAN or 2G/3G/4G/5G network;
- The phone has sufficient storage space to install the App;
- The phone has sufficient battery power.

#### Steps

**step 1** Search for **iEnergyCharge** in Google Play Store or App Store (iOS), or scan the QR code below with a mobile phone, and download the App following the onscreen instructions.



**iEnergyCharge**

**step 2** Tap the downloaded installation package and follow the onscreen instructions to complete the installation.

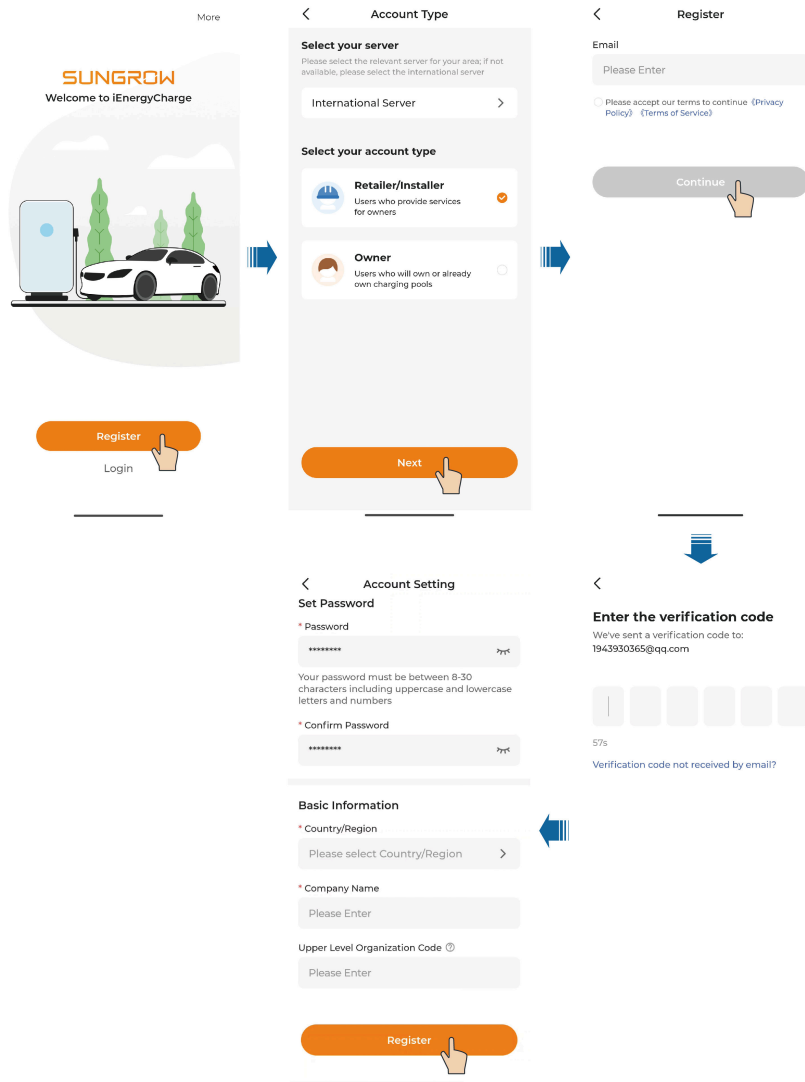
**-- End**

## 5.2 Create an Account

Two types of account are available, Owner and Retailer/Installer.



- Retailer/Installer: Users who provides services for owners. Installer users can use the iEnergyCharge App for guided commissioning and site setup, global monitoring of the operation of charging pools and equipment, and can perform operational and maintenance repairs via the App when equipment fails. Retailer/Installer accounts do not support starting or stopping charging.
- Owner: Users who will own or already own charging pools. Owner users can use the iEnergyCharge App for charging, card management, and configuring chargers.
- After logging into the App, the content displayed varies depending on the user role and device type.



**step 1** Tap **Register**.

**step 2** Select a **Server**, then choose to create an **Retailer/Installer** or **Owner** account.

**step 3** Enter an email address, agree to the privacy policy and terms of service, and tap **Continue**.

**step 4** Enter the verification code you have received through email. If you do not receive a code by e-mail, please check your spam folder or ask customer service or the installer for the e-mail address that can be added to the safe senders.



- Users in mainland China may choose **Chinese Server**. Users in Europe may choose **European Server** and those in Australia may choose **Australian Server**. Users in other countries/regions may choose **International Server**.
- You can reach your upper-level retailer/installer for the "Code of Upper Level Installer/Retailer". Entering this code indicates that your organization is subordinate to an upper-level retailer/installer. If there is no upper-level retailer/installer organization, it is not necessary to fill in.

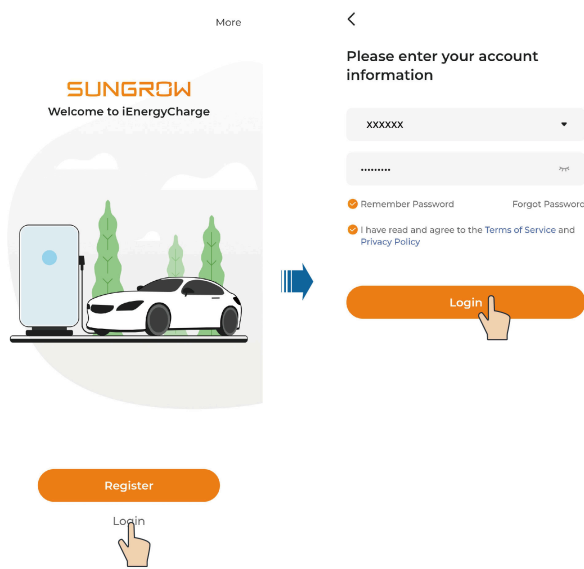
**step 5** Enter a password, which should be 8–32 characters long and contain uppercase letters, lowercase letters, and numbers. Then, select the country/region, and tap **Register**. An account is now created.

- - End

## 5.3 Log in to an Account

### Requirements

- You have installed the iEnergyCharge App;
- You have created an iEnergyCharge account, or obtained an account and password from the retailer/installer or SUNGROW.





**step 1** Open the iEnergyCharge App, and tap **Login**.

**step 2** Enter your account name and password on the login screen, and tap **Login**. You will then go to the **Home** screen of the App.

- - End

## 5.4 Device Operation and Maintenance

For more detailed information regarding the use of iEnergyCharge App, see [iEnergyCharge User Manual](#). You can also open the App and choose **Account > Support > User Manual** to view the manual.

Alternatively, you can scan the QR code below to view the manual.



## 6 Troubleshooting

**table 6-1** Fault Resolution

Problem	Possible Cause	Solution
Overvoltage		Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly:
	<ol style="list-style-type: none"><li>1. The grid voltage at the input end of the charger exceeds 276 V.</li><li>2. The grid voltage is still above 265 V after overvoltage.</li></ol>	<ol style="list-style-type: none"><li>1. Measure the actual grid voltage, and contact local power company for solutions if the grid voltage is above 265 V.</li><li>2. Contact Sungrow Customer Service if the problem persists.</li></ol>
Undervoltage		Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly:
	<ol style="list-style-type: none"><li>1. The grid voltage at the input end of the charger is below 184 V.</li><li>2. The grid voltage is still below 196 V after undervoltage.</li></ol>	<ol style="list-style-type: none"><li>1. Measure the actual grid voltage, and contact the local power company for solutions if the grid voltage is below 196 V.</li><li>2. Check if the AC cables are firmly connected.</li><li>3. Contact Sungrow Customer Service if the problem persists.</li></ol>

Problem	Possible Cause	Solution
Overfrequency		Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly:
	<ol style="list-style-type: none"> <li>1. The mains AC frequency exceeds 64 Hz.</li> <li>2. The grid frequency is still above 61 Hz after overfrequency.</li> </ol>	<ol style="list-style-type: none"> <li>1. Measure the actual grid frequency, and contact the local power company for solutions if the grid frequency is above 61 Hz.</li> <li>2. Contact Sungrow Customer Service if the problem persists.</li> </ol>
Underfrequency		Usually, the charger will be reconnected to the grid once the grid returns to normal. If the problem occurs repeatedly:
	<ol style="list-style-type: none"> <li>1. The mains AC frequency is below 47 Hz.</li> <li>2. The grid frequency is still below 49 Hz after underfrequency.</li> </ol>	<ol style="list-style-type: none"> <li>1. Measure the actual grid frequency, and contact the local power company for solutions if the grid frequency is below 49 Hz.</li> <li>2. Contact Sungrow Customer Service if the problem persists.</li> </ol>

Problem	Possible Cause	Solution
EV	Leakage current	The DC leakage current is above 6 mA
	Overcurrent	Output current exceeds the threshold (formula: the actual current corresponding to the duty cycle + 2 A)
	Stuck relay	The relay is stuck and cannot be disconnected.
Charger	Leakage current detection circuit failure	1. The CT terminal has bad connection or the CT is malfunctioning. 2. The RCD circuit is abnormal.
	Relay overtemperature	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

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.

Restart the charger and try again. Do not directly unplug the charging connector to prevent arcing that may affect the life of the relay.  
If the problem occurs repeatedly, contact Sungrow Customer Service.

Restart the charger and try again. If the problem occurs repeatedly, contact Sungrow Customer Service.

Problem	Possible Cause	Solution
Wiring	Input terminal overtemperature	<div><div><div>1. The input terminal is loosely connected which causes bad connection.</div><div>2. The cable's current-carrying capacity does not meet the requirements.</div></div><div><div>1. Ensure that the AC cable is tightly connected, that the cable used meets requirements, and L and N wires are correctly connected.</div><div>2. Contact Sungrow Customer Service if the problem persists.</div></div></div>
	Reverse polarity	L and N wires are connected reversely.
Communication error with the smart meter	When load balancing is enabled, there is no communication between the energy meter and the charger for 1 minute continuously.	<div><div>1. Check the RS485 wiring between the energy meter and the charger.</div><div>2. Disable the load balancing function.</div><div>3. Contact Sungrow Customer Service if the problem persists.</div></div>
CT error	The total current collected by the CT is less than the actual output current of the charger.	<div><div>1. Replace the CT.</div><div>2. Disable the load balancing function.</div><div>3. Contact Sungrow Customer Service if the problem persists.</div></div>

**table 6-2** LED Signals that indicates abnormal conditions

Charger Status	LED Signals
Reverse polarity	The red LED is glowing
Leakage current	The red LED blinks for 4 times (on for 0.5 s, off for 0.5 s)
CP failure	The red LED blinks for 5 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Overcurrent	The red LED blinks for 6 times (on for 0.5 s, off for 0.5 s) and then off for 3 s

Charger Status	LED Signals
Stuck replay	The red LED blinks for 7 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Abnormal leakage current loop	The red LED blinks for 8 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Input terminal overtemperature	The red LED blinks for 9 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Relay overtemperature	The red LED blinks for 10 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Undervoltage	The red LED blinks for 11 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Overvoltage	The red LED blinks for 12 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Overfrequency	The red LED blinks for 13 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Underfrequency	The red LED blinks for 14 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
CT error in the smart meter	The red LED blinks for 15 times (on for 0.5 s, off for 0.5 s) and then off for 3 s
Communication error with the smart meter	The red LED blinks for 16 times (on for 0.5 s, off for 0.5 s) and then off for 3 s



If the above faults cannot be removed, contact customer service.

## 7 Appendix

### 7.1 Technical Data

Specification	AC011E-01
<b>AC Input</b>	
Nominal grid voltage	400 Vac ( ± 20 % )
Nominal grid frequency	50 Hz / 60 Hz
<b>AC Output</b>	
Max. charging power	11 kw
Max. charging current	16 A per phase
<b>Protection &amp; Function</b>	
Integrated DC fault current detection	Yes, 6mA
Overload protecion	Yes
Over-temperature protection	Yes
Surge protection	AC Type II
Mechanical impact protection	IK08
Grounding system	TT, TN
ALM ( Adaptive load management )	Yes
Automatic phase switching	Yes
<b>User interface &amp; Communication</b>	
Display	LED indicator / App
Authentication	RFID-card / iSolarCloud App
Charging mode	Eco charging / Fast charging / Scheduled charging / Customized charging
Communication interface	WLAN, RS485 ( to Sungrow inverter )
Communication protocol	OCPP 1.6 J
<b>Gernal data</b>	
Dimensions ( W * H * D )	205 mm * 310 mm * 92 mm
Weight	3.8 kg
Installation method	Wall-mounting ( default ) Stand column ( optional )
Degree of protection	IP65

Specification	AC011E-01
Operating ambient temperature range	-30°C ~50°C
Allowable relative humidity range	5 % - 95 % ( non-condensing )
Cooling method	Natural convection
Max. operating altitude	≤ 2000 m
AC cable specification	Cross-section 2.5 mm <sup>2</sup> * 5
Charging connector	AC Type 2
Charging cable length	7 m
Standby self-consumption	< 5 W
Warranty	5 years ( standard )
Compliance	EN / IEC 61851-1, EN / IEC 61851-21-2
Specification	AC011E-01 L1
<b>AC Input</b>	
Nominal grid voltage	400 Vac ( ± 20 % )
Nominal grid frequency	50 Hz / 60 Hz
<b>AC Output</b>	
Max. charging power	11 kw
Max. charging current	16 A per phase
<b>Protection &amp; Function</b>	
Integrated DC fault current detection	Yes, 6mA
Overload protection	Yes
Over-temperature protection	Yes
Surge protection	AC Type II
Mechanical impact protection	IK08
Grounding system	TT, TN
ALM ( Adaptive load management )	Yes
Automatic phase switching	Yes
<b>User interface &amp; Communication</b>	
Display	LED indicator / App
Authentication	RFID-card / iEnergyCharge App
Communication interface	WLAN, RS485 ( to external meter )
Communication protocol	OCPP 1.6 J
<b>General data</b>	
Dimensions ( W * H * D )	205 mm * 310 mm * 92 mm



Specification	AC011E-01 L1
Weight	3.8 kg
Installation method	Wall-mounting ( default ) Stand column ( optional )
Degree of protection	IP65
Operating ambient temperature range	-30°C ~ 50°C
Allowable relative humidity range	5 % - 95 % ( non-condensing )
Cooling method	Natural convection
Max. operating altitude	≤ 2000 m
AC cable specification	Cross-section 2.5 mm <sup>2</sup> * 5
Charging connector	AC Type 2
Charging cable length	7 m
Standby self-consumption	< 5 W
Warranty	5 years ( standard )
Compliance	EN / IEC 61851-1, EN / IEC 61851-21-2

## 7.2 Additional Information

For more information, visit [support.sungrowpower.com](http://support.sungrowpower.com).

Title and Content	Refer to
"PV Storage and EV-Charging System" Information on PV storage and charging system with chargers.	<a href="#">SH5.0/6.0/8.0/10RT&amp;SH5.0/6.0/8.0/10RT-20 User Manual</a>
"EV-Charger (Optional)" Information on commissioning AC011E-01 via iSolarCloud to work with SUNGROW's three-phase Hybrid and SBR storage system.	<a href="#">SH5.0/6.0/8.0/10RT&amp;SH5.0/6.0/8.0/10RT-20 User Manual</a>

## 7.3 Quality Assurance

In the event of a defect during the warranty period, SUNGROW will provide free of charge 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 transport.
- 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 the stipulations of relevant international standards.
- The damage is caused by unexpected natural factors.

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

## 7.4 Contact Information

In case of questions about this product, please contact us.

We need the following information to provide you with 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](http://www.sungrowpower.com)