



# **EV Charger User Manual**

HC-EV-AC-07K/11K/22K

Smart Energy,  
Sustainable Solutions.




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## 1. Safety Instructions

Read and observe the following safety precautions before you install, service, or use your Hanchu ESS AC EV Charger. The installer must ensure that the EV Charger is installed in accordance with the relevant country-specific standards, and local regulations.

### 1.1 Symbols used in this manual

Symbol	Explanation
	<b>DANGER:</b> Indicates an imminently hazardous situation with a high risk of level which, if the danger is not avoided, will cause death or serious injury.
	<b>WARNING:</b> Indicates a potentially hazardous situation with moderate risk level which, if the warning is not obeyed, can cause death or serious injury.
	<b>CAUTION:</b> Indicates a potentially hazardous situation with a medium risk level which, if the caution is not obeyed, may cause minor or moderate injury or damage to the equipment.

### 1.2 Save these instructions

This manual contains important instructions for Hanchu ESS AC EV Charger that need to be followed during installation, operation and maintenance of the unit.

### 1.3 Danger:

- Before installing and maintaining the charger, please turn off the input power of the charger until the charger is installed or maintained.
- Once a danger or accident occurs, the front-stage switch of the charger must be disconnected immediately.
- Do not operate the charger if it has been physically damaged, or if the charger cable has cracks, excessive wear, or other visible damage. If you suspect that the charger is damaged, please contact Hanchu ESS or your distributor.
- Do not wash the charger with strong water, and do not operate the charger when your hands are wet. Do not insert the connector of the charger into any liquid. Do not put fingers or other objects into the charging port or plug port.

- Before charging, please carefully read the charger user manual of Hanchu ESS and electric vehicle user manual.

#### 1.4 **Danger:**

Some electric vehicles require an external ventilation system to prevent the accumulation of hazardous or explosive gases when charging indoors. Refer to your vehicle User Manual to check if your vehicle releases hazardous or explosive gases when charging.

#### 1.5 **Caution:**

- Use this EV Charger to charge compatible electric vehicles only. Refer to your vehicle user manual to check if your vehicle is compatible.
- Make sure that the charging cable cannot be damaged (kinked, jammed, or driven over) and that the plug(s) do not come into contact with heat sources, dirt, or water.
- Only use the EV Charger under the specified operating conditions.
- Do not use explosives or flammable substances near the EV Charger.
- If you are unsure about how to use a EV Charger, ask for help.
- Do not allow children to operate a EV Charger. Adult supervision is required when children are near a EV Charger that is in use.
- Adapters, conversion adapters, or cord extensions must never be used on this EV Charger.

#### 1.6 EV Charger safety precautions

##### **CAUTION:**

Do not open the EV Charger doors when:

- It is raining, snowing.
- The EV Charger is exposed to direct sunlight.
- Weather conditions are wet (fog, ...).

**Failure to follow these instructions can result in danger to the user and may void the warranty and liability.**

##### **CAUTION:**

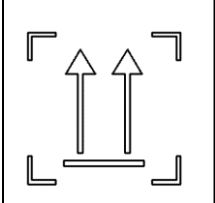
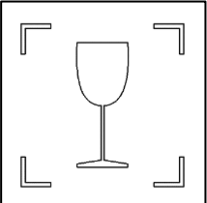
- Electrostatic discharge.
- This device contains components that can be damaged or destroyed by electrostatic discharge.
- When handling this device, observe the necessary safety measures regarding electrostatic discharge (ESD) according to EN61340-5-1 and 61340-5-2.


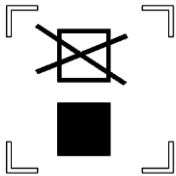
**⚠ CAUTION:**

- This EV Charger must be stored and transported according to the specifications described in this manual.
- Even if the EV Charger can be used by a non-qualified person, the EV Charger may only be installed, commissioned, serviced, relocated, repaired and decommissioned by qualified persons. Failure to follow these instructions can result in danger to the user and may void the warranty and liability.
- The product will not produce harmful gases in the process of use, the user to decide whether the installation environment has ventilation conditions.
- Modification of the product is prohibited. It can result in danger to the user and may void the warranty and liability.
- This EV Charger contains no user-serviceable parts. The user must not attempt to service, repair, or relocate the EV Charger. Contact Hanchu ESS or your distributor for more information.
- Please be sure to disconnect the front-stage power switch of the charger when maintaining the charger.
- Do not use peripherals, consumables or accessories that do not conform or are unsuitable for the EV Charger.
- Do not use anti-graffiti treatment that may damage the EV Charger.
- This EV Charger must be protected against animals, object intrusion or water ingress even if they do not alter EV Charger operation.

**Failure to follow these instructions will result in damage to the EV Charger.**

**1.7 Safety Labels on the packaging**

Label	Location	Description
	<p>On the packaging</p>	<p>Caution The direction indicated by the arrow is upward.</p>
	<p>On the packaging</p>	<p>Caution The package contains fragile items, please handle with care.</p>

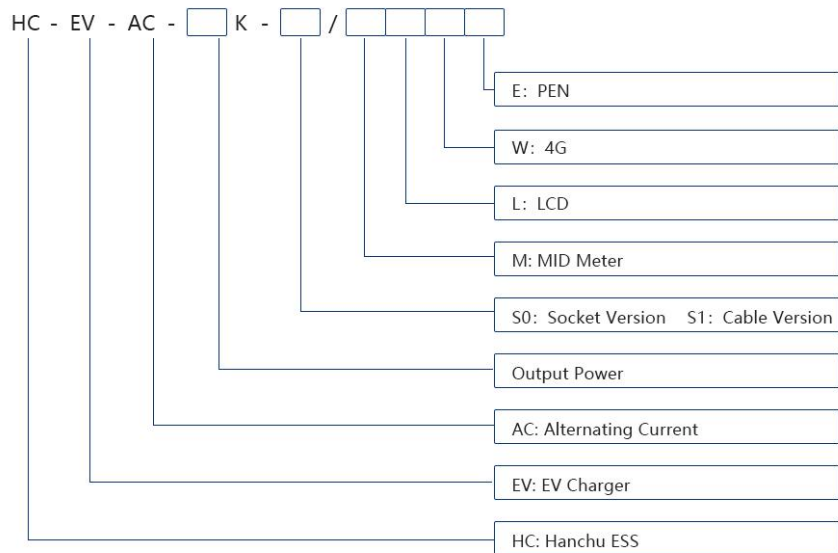
Label	Location	Description
	On the packaging	Caution Packaging and internal items shall be protected from rain and moisture.
	On the packaging	Caution Packaging is prohibited from stacking.

## 2. Product Specification

### 2.1 Product introduction and naming rules

Hanchu ESS 7/11/22kW AC EV Charger can easily and quickly replenish electric energy for vehicles, and the humanized design brings a pleasant charging experience.

The naming rules for Hanchu ESS AC EV Charger are as follows:



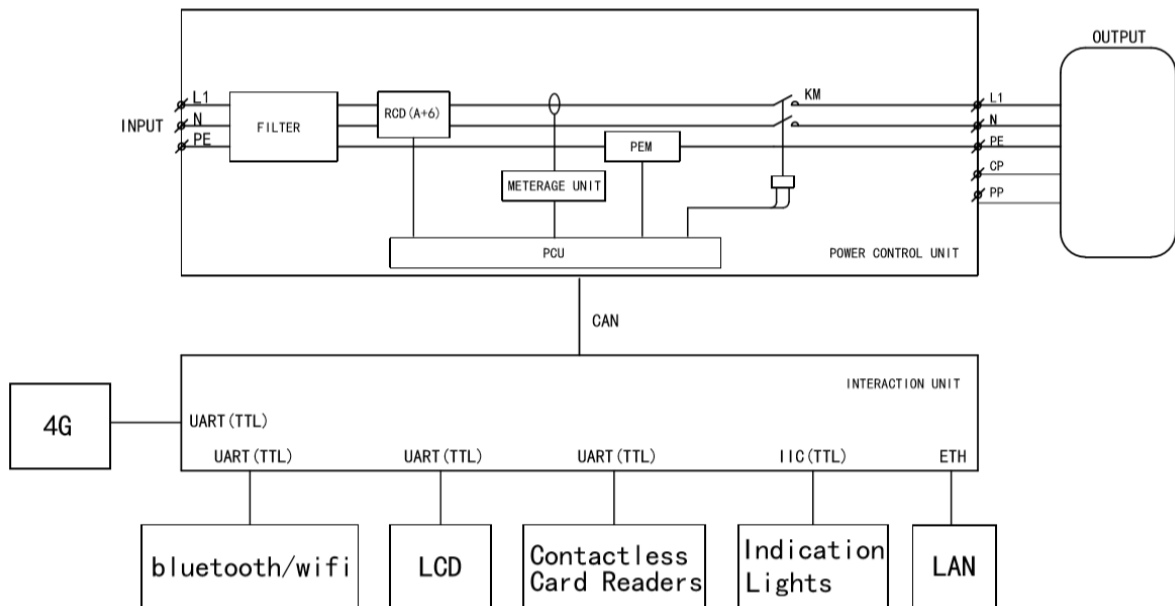
## 2.2 Product and specifications

Item	Parameter	HC-EV- AC-22K- S1	HC-EV- AC-22K- S0	HC-EV- AC-11K- S1	HC-EV- AC-11K- S0	HC-EV- AC-07K- S1	HC-EV- AC-07K- S0
Product Model							
Input	Rated input voltage	400/415V				230/240V	
	Input Voltage Range	400/415 ± 10%V				230/240V ± 10%V	
	Frequency	50/60Hz					
Output	Rated output voltage	400/415V				230/240V	
	Rated output current	AC32A		AC16A		AC32A	
	Rated output power	22kW		11kW		7kW	
User Interface & Control	User authentication	APP, QR Code (optional), RFID					
	HMI	4.3 inch (optional)					
	External communication	RS485					
	Communication protocol	OCPP 1.6J					
Features	IP level	IP 65	IP 54	IP 65	IP 54	IP 65	IP 54
	IK level	IK08					
	Protection level	Class I					
	Operating temperature	-30°C~50°C					
	Storage temperature	-30°C~85°C					
	Relative Humidity	5%RH~95%RH					
	Altitude	≤2000m (2000-4000m power will drop)					
	Installation method	Wall mounted, pole mounted (optional)					
	Installation environment	Indoor/Outdoor					
	Usage scenarios	Public/Private					
	Options	MID meter, 4G, LAN, LCD screen, socket with shutter, O-PEN, Dynamic Load Balance					
	Physical dimension (W*D*H)	240mm×145mm×460mm					

Item	Parameter	HC-EV-AC-22K-S1	HC-EV-AC-22K-S0	HC-EV-AC-11K-S1	HC-EV-AC-11K-S0	HC-EV-AC-07K-S1	HC-EV-AC-07K-S0
Product Model		AC-22K-S1	AC-22K-S0	AC-11K-S1	AC-11K-S0	AC-07K-S1	AC-07K-S0
	Pole dimension (W*D*H)	80mm×40mm×1450mm					
	Weight	8.5kg (Cable Version); 6.5kg (Socket Version)					
Protection	Lightning protection	Support					
	Leakage Protection	Support					
	Over/Under voltage protection	Support					
	over-temp protection	Support					
	Overcurrent protection	Support					
	Overcurrent protection (Action current)	Support (35A7s, 40A0s)		Support (18A7s, 20A0s)		Support (35A7s, 40A0s)	

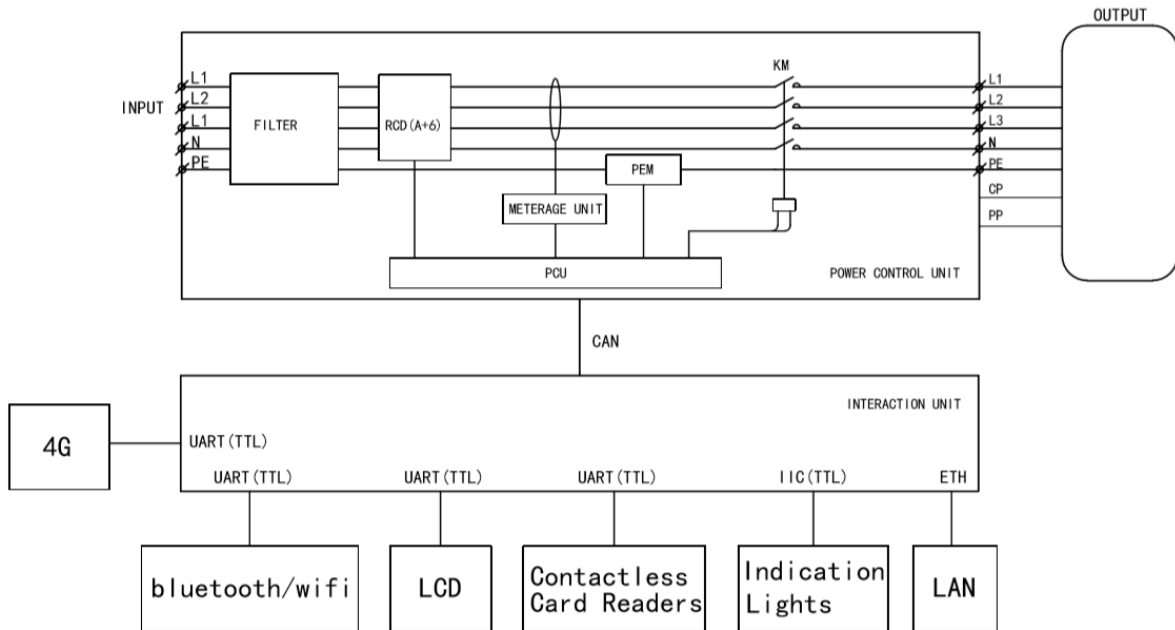
## 2.3 Schematic Topology

### 2.3.1 7kW AC Charger





### 2.3.2 11/22kW AC Charger



## 3. On-site Installation

### 3.1 Required tools

Item No.	Name	Qty
1	Electric screw driver	1
2	Impact drill	1

### 3.2 Switch and cable recommendation

When installing 11/22kW charger, we recommend the use of 5\*6 mm<sup>2</sup> copper cables, and 5\*10 mm<sup>2</sup> should be used if it exceeds 80 meters, we recommend that the front stage of the 11kW Charger use an air switch that complies with IEC/EN68898-1, 4PC25 specifications, and the front stage of 22kW AC Charger use an air switch that complies with IEC/EN 68898-1, 4P C40 specifications.

When installing a 7kW charger, we recommend the use of 3\*6 mm<sup>2</sup> copper cables, and 3\*10 mm<sup>2</sup> cable should be used if it exceeds 80 meters, We recommend that the front stage of the 7kW Charger use an air switch that complies with IEC/EN 68898-1, 2P C25 specifications.

At the same time, TYPE B socket AC Charger require users to prepare their own connectors. We commend the connectors used comply with IEC 62196-1 2022 and IEC 62196-2 2022. 7kW and 22kW AC Charger need to use connectors with an operating current of greater than or equal to 32A. 11kW AC Charger need to use connectors with an operating current of greater than or equal to 16A.

### 3.3 Installation steps

Please observe the following principles when installing:

1. Installation should only be performed by skilled technicians.
2. Please cut off the power before installation to ensure that the incoming line of the charger is not charged.
3. Do not install in rainy and wet weather.

#### 3.3.1 Preparation before installation, remove the casing and reveal the wiring location

1. Press the buckle to pop out the upper cover.
2. According to the arrow direction in Figure 2, break open the upper cover upwards.
3. Remove the screws, remove the middle cover, and let out the wiring base.

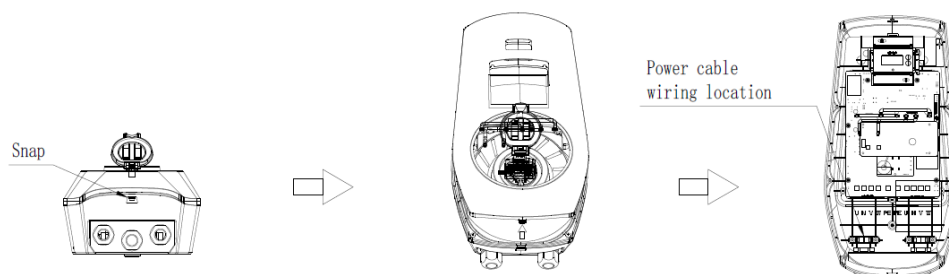


Figure 2- Wiring diagram

##### 3.3.1.1 Wall-mounted installation steps (Standard)

1. Take out the positioning cardboard in the carton.
2. Drill holes in the wall according to the hole positions on the cardboard, insert M4 expansion screws, and install the bracket (The recommended torque is 12kgf.cm).
3. Secure the charger to the bracket and lock the anti-theft screws.
4. Connect the power cables (see Chapter 3.3.2 Power Cable Installation)
5. Tighten the cable lock and check whether the phase sequence of the incoming cable is correct, whether the grounding is reliable, and whether there is a short circuit.
6. Clean up cables, straps, screws and other sundries inside and around the charger, and it is forbidden to leave installation tools at the installation site or inside the charger.
7. Lock the inner cover (fix 9 screws) and fasten the upper cover.
8. We recommend that the height of connector from the ground is 1000mm-1500mm.

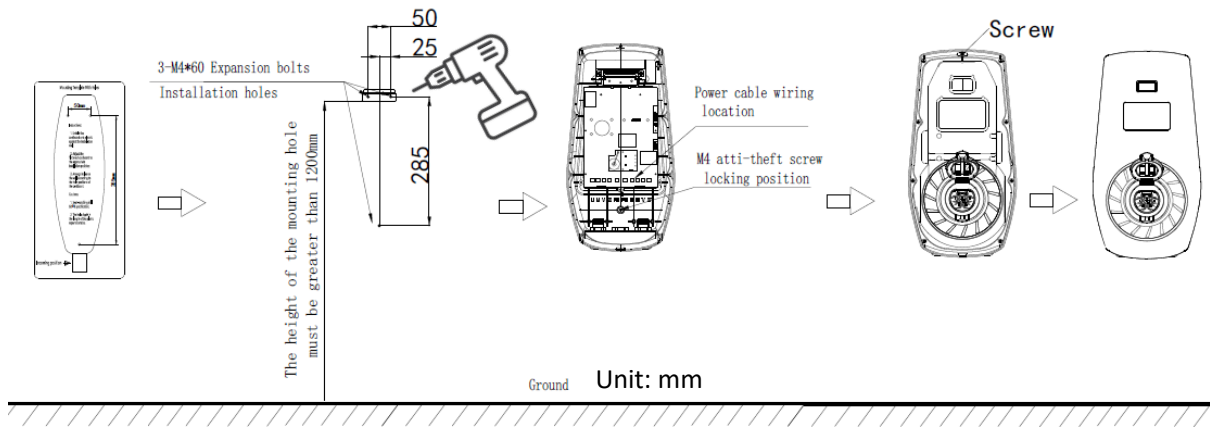


Figure 3- Wall-mounting Installation diagram

Explanation:

1. The location of this EV Charger is determined based on the site.
2. The charger bracket is a standard configuration.
3. Use impact drills and  $\phi 10$  drills to make holes at the marked position with a depth of  $\geq 80$ mm.
4. Concrete walls should be used as much as possible for construction, and expansion bolts should not be used to fix porous brick walls.
5. All dimensions in the figure are in millimeters.
6. Any matters not covered in the diagram shall be executed in accordance with the current national regulations.
7. The distance between the front door of the equipment and obstacles shall not be less than 0.8m, and the distance between the left and right sides and the wall shall not be less than 0.6m.

### 3.3.1.2 Pillar mounted installation steps (Optional)

1. Install the cement base;

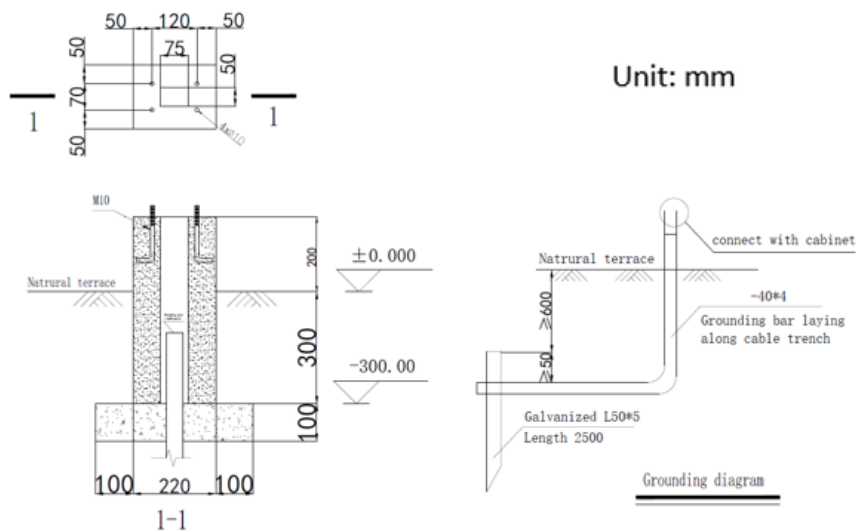


Figure 4- Installation diagram

2. The pillar is fixed to the base, and the "base cover" is installed downward from the top of the pillar until it is flush with the ground.
3. Install the bracket and lock the screw M4\*12 to the pillar(The recommended torque is 12kgf.cm).
4. Align the hook on the back of the charger with the column bracket and install from top to bottom, then connect the power cable (see Chapter 3.3.2 Power Cable Installation).
5. After the installation is completed, tighten the cable lock and check whether the phase sequence of the incoming cable is correct, whether the grounding is reliable, and whether there is a short circuit.
6. Clean up cables, straps, screws and other sundries inside and around the charger, and it is forbidden to leave installation tools at the installation site or inside the charger.
7. Lock the inner cover and fasten the upper cover.
8. After installation, the height of the connector from the ground is 1150mm.

Tips: pillar is optional.

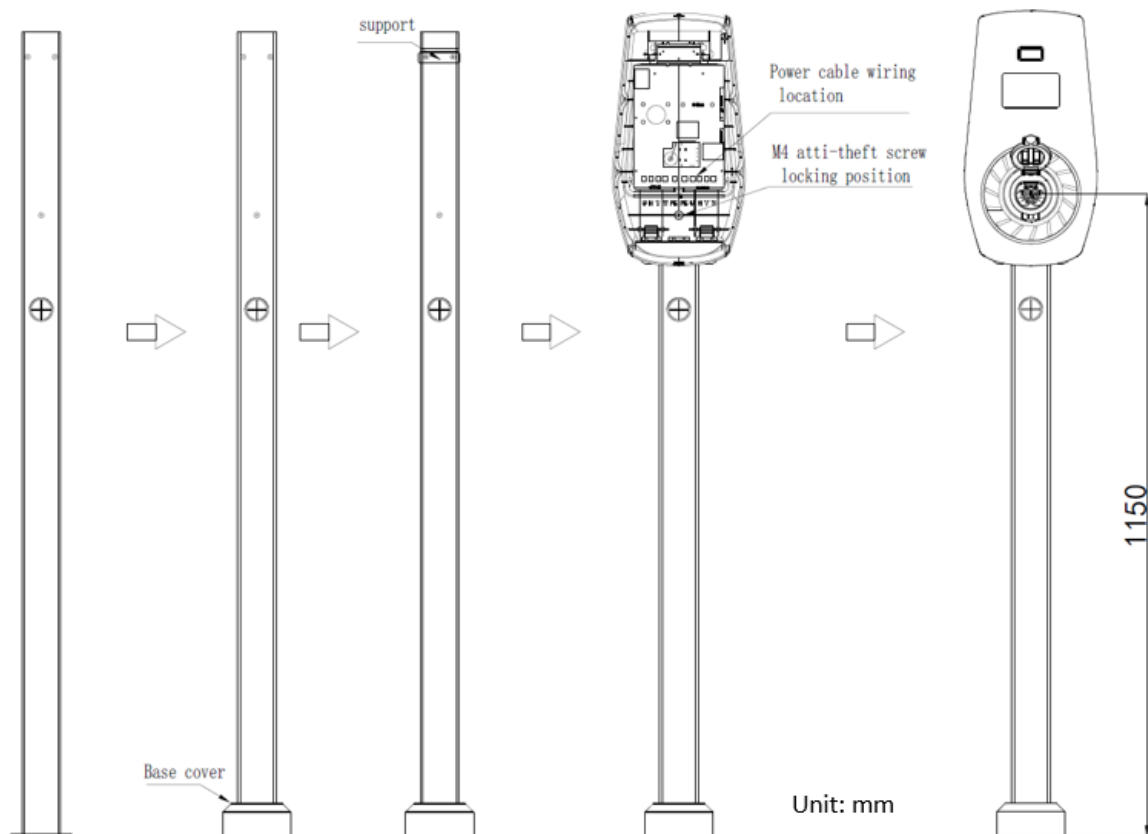


Figure 5- Installation diagram

### 3.3.2 AC Power Cable Installation

#### 3.3.2.1 11/22kW Charger power cable installation

Pass the three-phase cable through the inlet hole at the bottom of the charger, use an electric screwdriver to connect the three brown, black and gray cables to the U, V, and W terminals of the charger power board in turn, the blue neutral cable to the N terminal, and the yellow-green ground cable Connect to the PE terminal on the left, as shown in the figure below; (The recommended torque is 12kgf.cm)

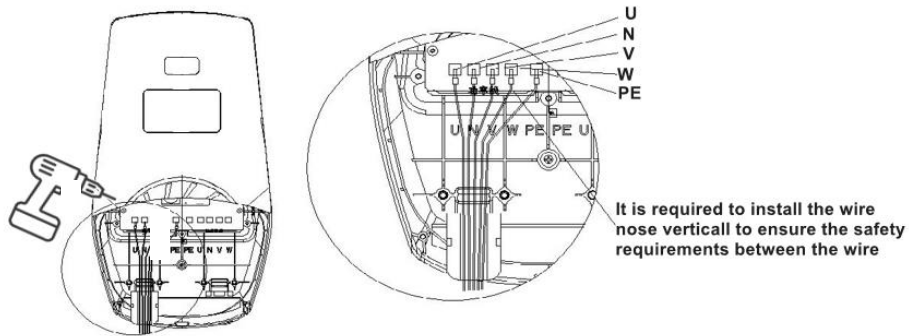


Figure 6- 11/22kW Wiring diagram

#### 3.3.2.2 7kW charger power cable installation

1. Pass the cable through the cable entry hole at the bottom of the charger. Use an electric screwdriver to connect the brown cable to the U terminal of the power board of the charger. Connect the blue neutral cable to the N terminal, connect the yellow-green ground cable to the PE terminal on the left, as shown in the Figure 7 below. (The recommended torque is 12kgf.cm)

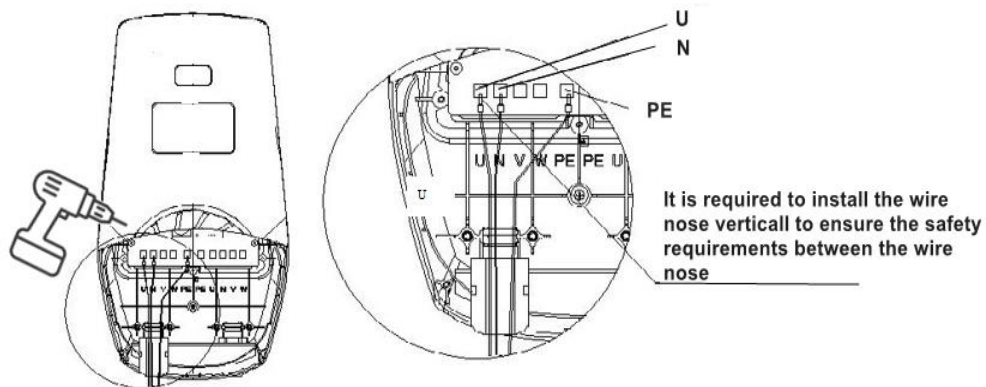


Figure 7- 7kW Wiring diagram

2. After the installation is completed, tighten the cable lock and check whether the phase sequence of the incoming cable is correct, whether the grounding is reliable, and whether there is a short circuit.
3. Clean up cables, straps, screws and other sundries inside and around the charger, and it is forbidden to leave installation tools at the installation site or inside the charger.

### 3.4 DLB Meter and Transformer Installation

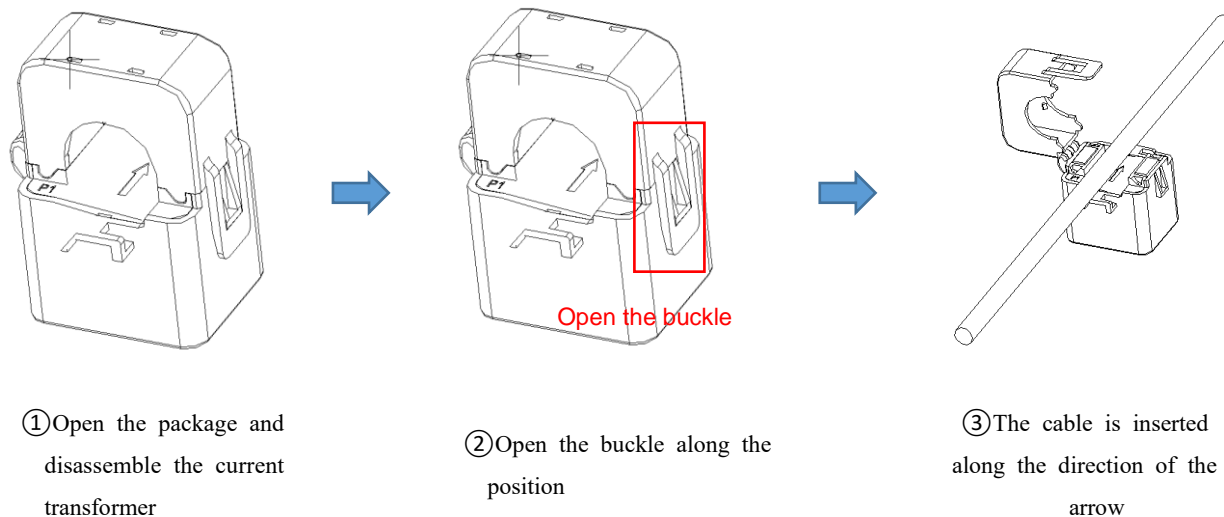
#### 1) Pre-installation preparation

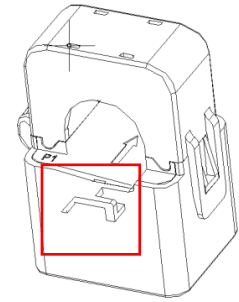
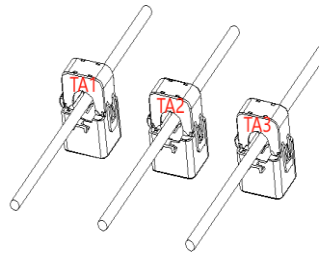
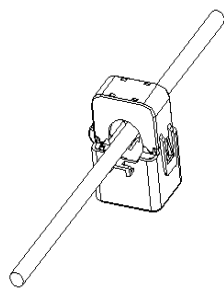
- a. Ensure that materials and installation tools are complete, also current transformers, energy meters, cables, terminal blocks, screwdrivers, and insulated gloves.
- b. Verify that the selected energy meter and current transformer models meet the specification, ensuring that the voltage level, rated current, and other parameters comply with the usage conditions.

#### 2) Select installation location

- a. The current transformer and energy meter should be installed near the current or voltage measurement point to ensure the accuracy of the measurement results. Additionally, select a location with good ventilation, dryness, and minimal exposure to mechanical impacts and electromagnetic interference.
- b. Current transformers generate heat during operation. Poor ventilation can cause the equipment to be overheated, affecting its lifespan. Humid environment can reduce insulation performance and potentially cause leakage accidents.
- c. Stay Away from Interference Sources. Avoid high-power motors, transformers, and other possible electromagnetic interference to ensure measurement accuracy.

#### 3) Installation steps





Secure with cable ties

④ Buckle up

⑤ Insert the three-phase cable into the current transformer in sequence

⑥ Secure with cable ties along front and back

⑦ Complete the wiring of the meter and power cord as shown in Figure A. The dimensions of the energy meter wiring holes are shown in Figure B below.

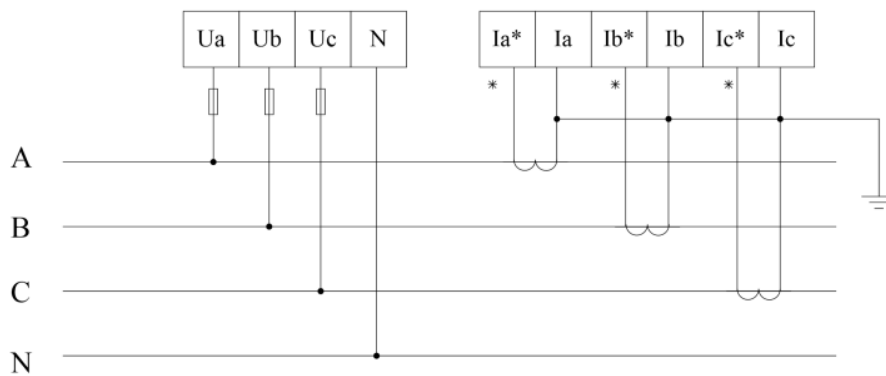


Figure A- Schematic diagram of voltage and current wiring  
(three-phase and four-wire connections via transformer)

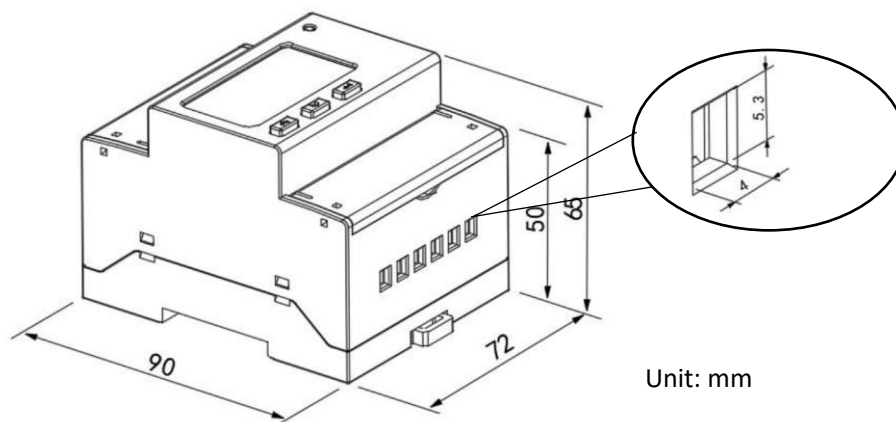


Figure B- Dimensional drawing

⑧ Connect the 485 port of the DLB meter to the J11-485 port of the EV Charger (J11 terminal is at the top right corner of the EV Charger board, refer to the wiring diagram on the next page).

(If the charger has been equipped with an internal MID meter and its 485 communication cable is connected to the corresponding J11 terminal, the DLB meter can be connected in parallel with the MID meter to the J11 terminal position.)

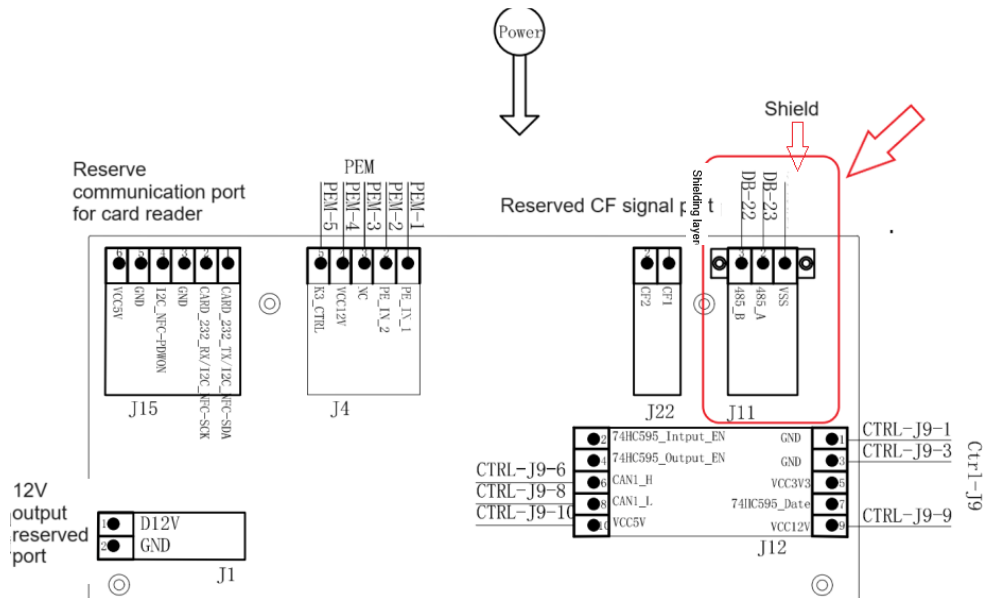
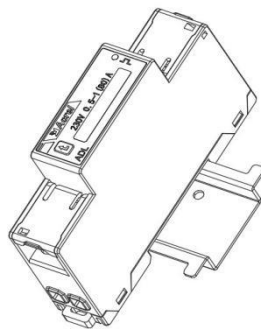
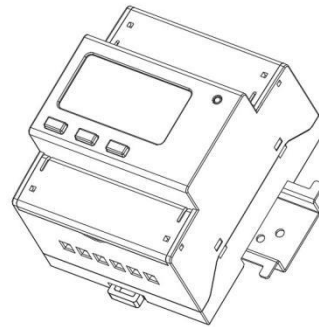


Figure 1- Wiring diagram

⑨ Snap the meter into the rail as shown. The rail-mounted meter is designed to slide into place, ensuring that the meter is firmly fixed to the rail.



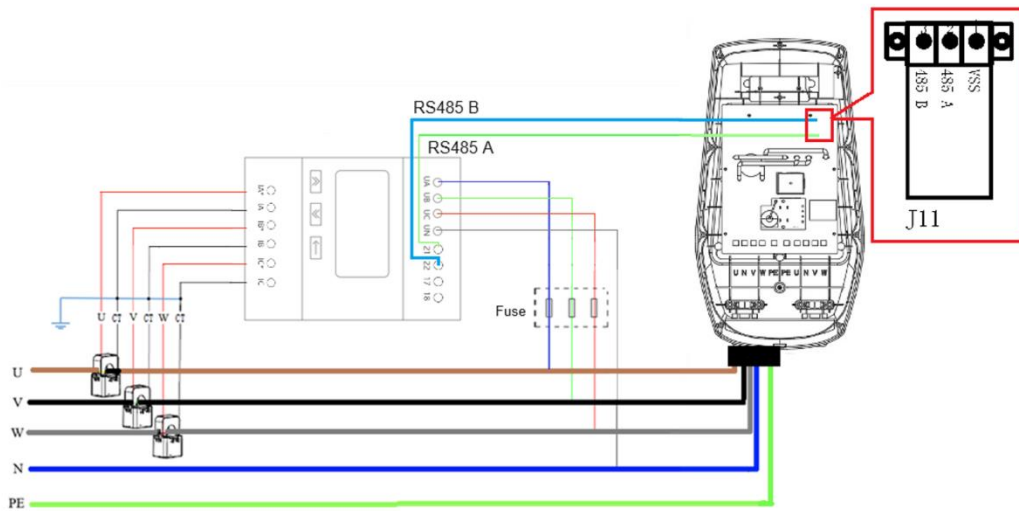
Single-phase Meter



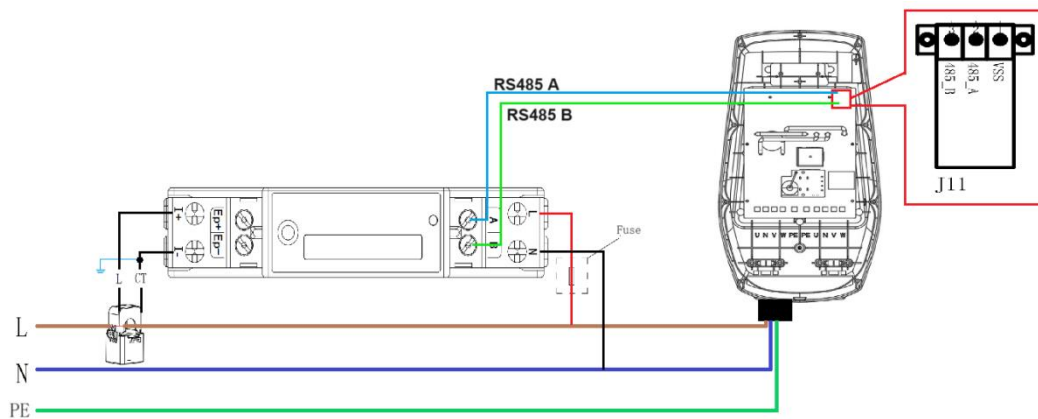
Three-phase Meter

The wiring diagram of the optional energy meter and current transformer is as follows:





Three-phase Meter Wiring Diagram



Single-phase Meter Wiring Diagram

## 5) Precautions

- a. It should be installed and powered on by a professional.
- b. Throughout the installation process, be sure to comply with local electrical codes and standards.
- c. Use the correct wire size and select the appropriate wire cross-section according to the current size.
- d. Keep all joints clean, tight, and free from oxidation and corrosion.
- e. The current transformer and power system must be effectively grounded, and secondary sides of the current transformer must not be open, otherwise it will lead to high voltage and pose a safety hazard.
- f. Double-check that all wiring is correct and that there are no exposed wires or loose connection
- g. Before reconnecting the power supply, check the safety of all the wiring. Then, gradually restore the power supply and use a test pen to check for exposed current.
- h. Make sure the energy meter is functioning properly, displays readings, and records the data.

### 3.5 Power-on check

After the charger is installed, turn on the charger's power supply switch. After the charger is started and checked that there are no faults, charging can begin. You can choose to charge by swiping the card or using the APP to change the charging mode.

### 3.6 Tap card to charge

Start charging:

- (1) Connect the charger to the car.
- (2) Use the provided RFID card to tap it in the RFID card reader area or use the app to start charging.

Stop charging:

Touch the RFID reader again with the RFID card or stop charging with the app.

## 4. APP Operation

### 4.1 APP Download

You can scan the QR code or visit the website to download the HanchuEss App:  
<https://www.hanchuess.com>.

You can also download the HanchuEss App from the App store or Google play.

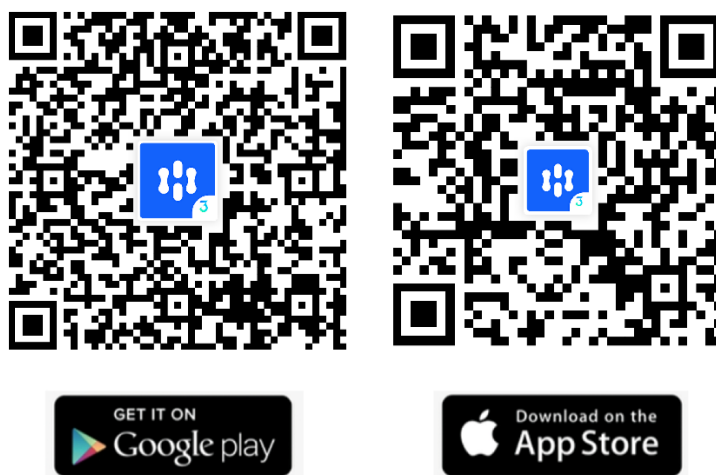


Figure 8- APP downloading QR-code

### 4.2 Device binding

#### 4.2.1 Registering and login

- If you have already registered, you can log in directly. Then you can turn to "**4.2.2 Add devices**". If you

don't have an account yet, tap "**Sign up**" to register as shown in Figure 9.

- In order to provide you with the basic function-ality of our products/services, you are required to authorize your consent to the "**Privacy Policy**" and "**Terms & Conditions**". We promise to keep users' information strictly confidential and will not disclose users' private information to outside parties unless authorized by the user or required by law.

- Fill in the account information

After filling in the information for registration, tap "**Get Verification Code**" as shown in Figure 10.

We will send the verification code to your email. Fill in the code, and click on "**Confirm**" to log in, as shown in Figure 11.

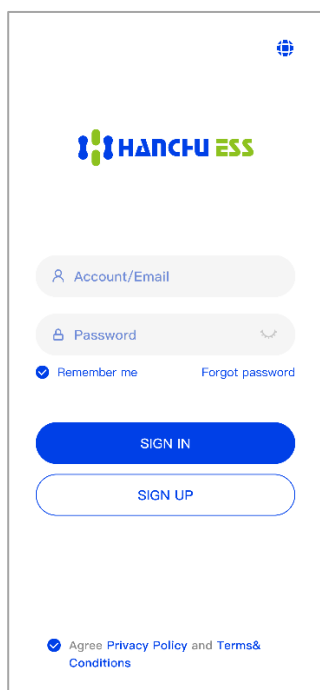


Figure 9

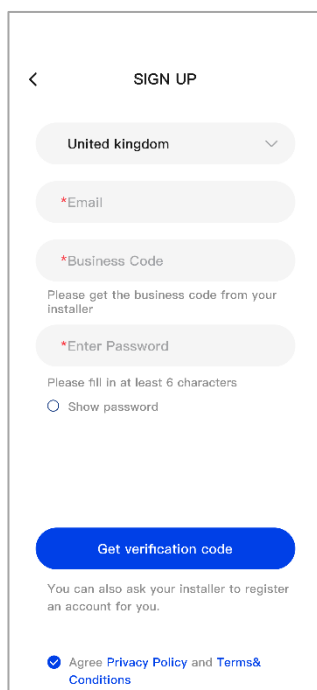


Figure 10

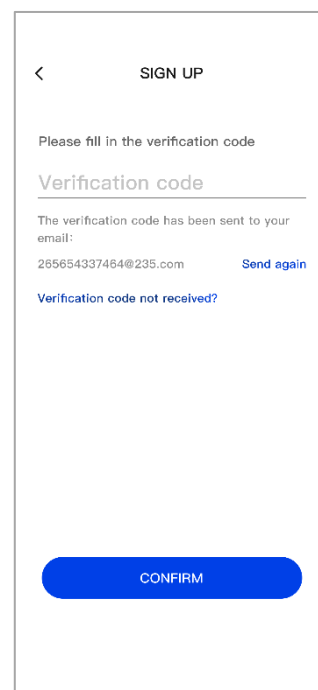


Figure 11

#### 4.2.2 Add devices

You can jump to the relevant section referring to what you want to do:

- Now you have a station, but need to setting the network for devices or add new devices to your station?  
- Please tap the "**Add Device**" button, as shown in Figure 12. Then you can directly turn to "**4.2.2.2 Network configuration**".

- Now you don't have a station yet?

- Tap "**Add station**" on the page, as shown in Figure 13.

##### 4.2.2.1 Fill in the new station information

You will need to fill in some information for the station, as shown in Figure 14.

- Address (optional): Your detailed address, we will only use it for after-sales service.

- Electricity price setting (optional): After filled, you will be able to view the income and expenditure of your devices.

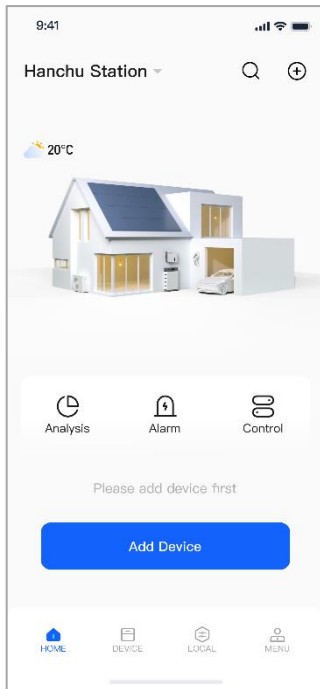


Figure 12

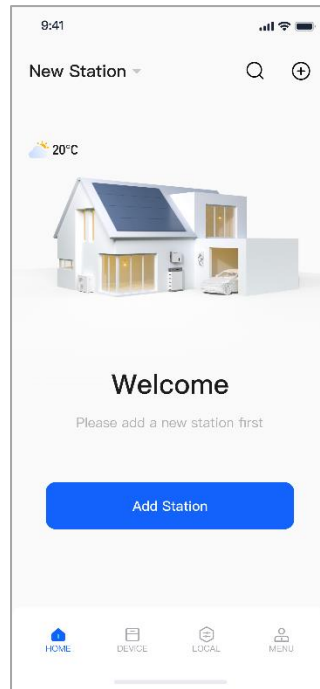


Figure 13

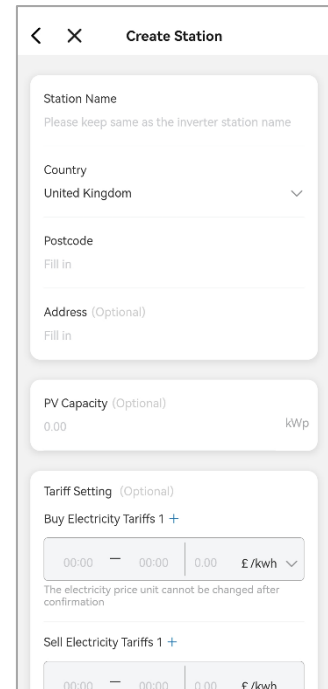


Figure 14

#### 4.2.2.2 Network configuration

Select the home Wi-Fi network you want to connect to (not 5GWiFi) and enter your Wi-Fi password, as shown in Figure 15.

#### 4.2.2.3 Bluetooth search

Turn on your phone's Bluetooth, then select the devices you want to bind.

Tap "**Add**" to add the devices to your station, as shown in Figure 16. The SN on this page is the same as the SN on the EV charger.

**! Tips: Please be sure to turn on the Bluetooth of the mobile phone, otherwise the adding function will not be available.**

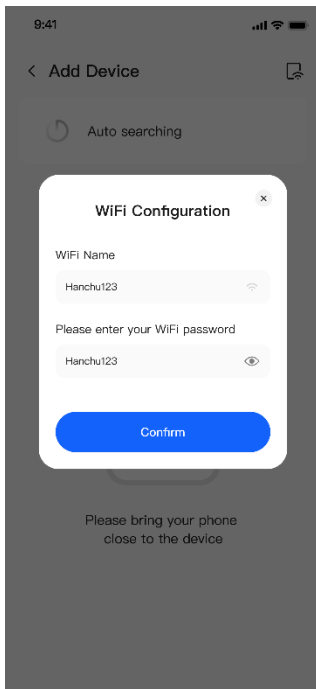


Figure 15

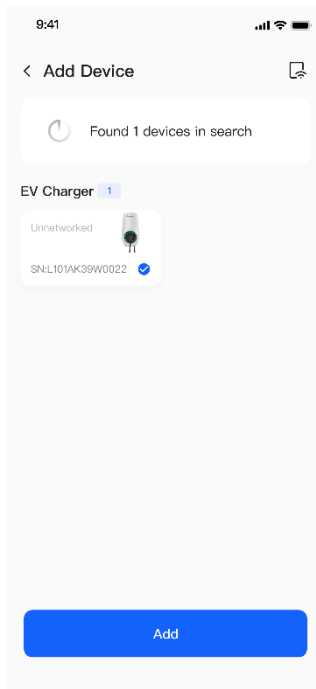


Figure 16

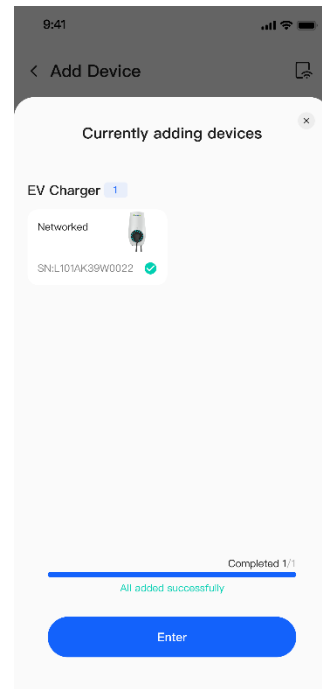


Figure 17

#### 4.2.2.4 Binding completed

After the devices are connected to the network and bound successfully, you will see the page shown in Figure 17. Please tap "Enter".

#### 4.2.2.5 View the EV Charger Data

You will see Figure 18 - Device List, select the EV Charger you want to view, click to view data and settings.

The EV Charger data page is shown in Figure 18, you will be able to see the online status of the device, voltage, power and other data.

#### 4.2.2.6 Remote Setting:

##### • Work Mode

As shown in Figure 19, you can choose the “work mode” as “**Plug & Charge, Swipe Charge or Based on time**”.

If you choose “**Based on time**”, you can book a time period for charging. By selecting "**Once**", charging will only take place during the set period today; by selecting "Daily", charging will take place every day during the scheduled period.

##### • Start charging

You can also start the EV Charger directly by clicking the "**Start Charging**" button, as shown in Figure 19.

##### • Stop charging

You can click the "**Stop Charging**" button in Figure 20.

(Note: Please make sure that the EV Charger and the car are properly connected and the device is networked for this function to work properly! )

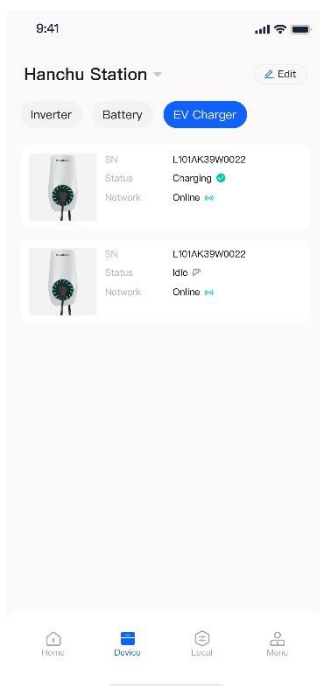


Figure 18

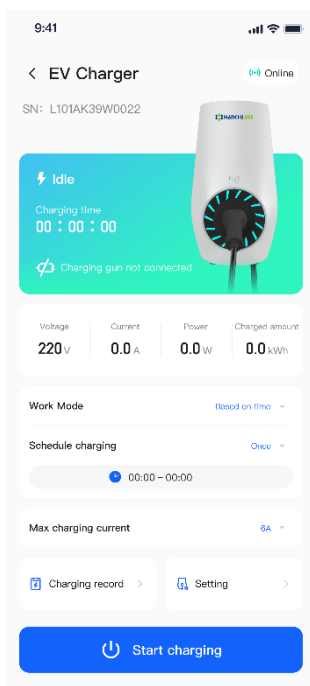


Figure 19

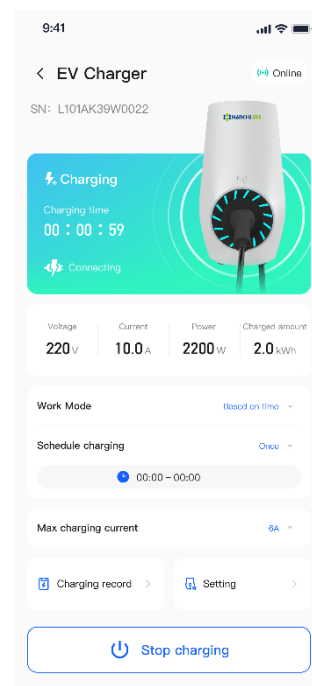


Figure 20

#### • Limit current

You can set the maximum charging current of the EV Charger through the "**Max charging current**". (Minimum charging current of the EV Charger is 6A).

#### • More Settings

You can do more remotely by clicking on "**Settings**".

#### • Dynamic Load Balancing

If you want the EV Charger to be dynamically load-balanced, you need to switch on the "**Dynamic load balancing**" switch and then set the "Grid Power Limit".

"**Grid Power Limit**" is the maximum power that the grid can provide, including the EV Charger and other loads. Once set, the charging power of the EV Charger will be automatically adjusted according to the power of other loads to ensure that the total power using the grid does not exceed the set value. (Before using this function, make sure that the meter CT is properly connected).

#### • OCPP

Setting the OCPP address to enable remote control of the EV Charger.

#### • OTA

Upgrade the device version to use the latest features of the EV Charger.

#### 4.2.2.7 Local Setting:

You can also click Tab "**Local**", select the EV Charger you want to operate in "**EV Charger**", and control the EV Charger locally via Bluetooth. (Make sure that Bluetooth is switched on before using this function)

You can also view your device data by logging into <https://iess.hanchuess.com>, the website login password is the same as the APP account password.

### 4.3 Account and service information

Tap "**PERSONAL**" to view account information and app settings.

•Have any device malfunction or have technical problems?

Tap "**After Sales**", and you will see business related information.

•Have any questions or suggestions about the APP?

You can leave us a message in the "**Suggestions feedback**" or contact us at [service@hanchuess.com](mailto:service@hanchuess.com). We will deal with it for you as soon as we know.

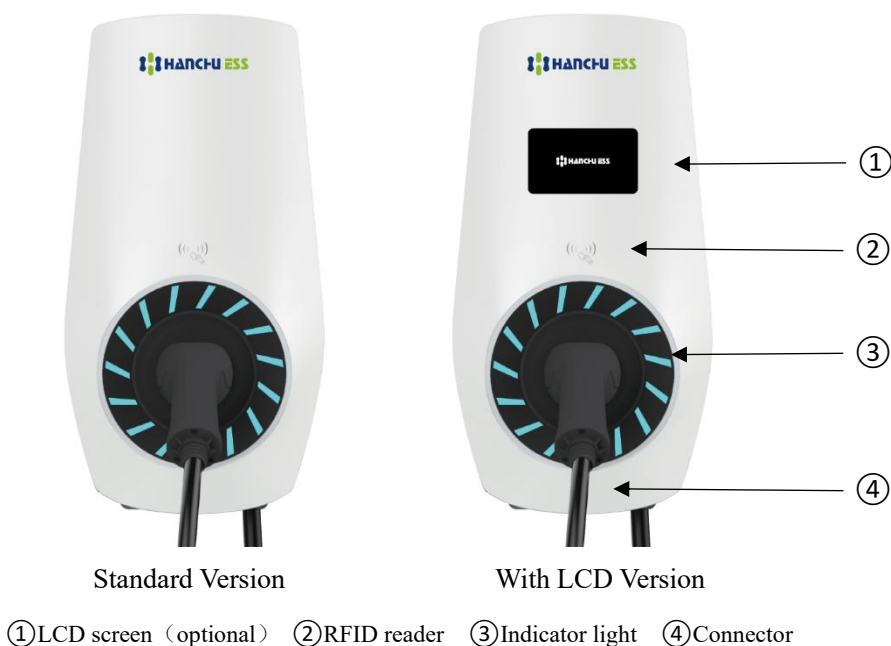
•How do I view the device manual in the app?

Click "Data Center" on the "**SERVICE**" page to view the corresponding device information.

## 5. HMI Introduction

If you have the optional LCD, you can see more charging information on the screen of the EV Charger.

### 5.1 Introduction to interface



The status of the indicator light is:

(1) The indicator light flashes green when in standby.

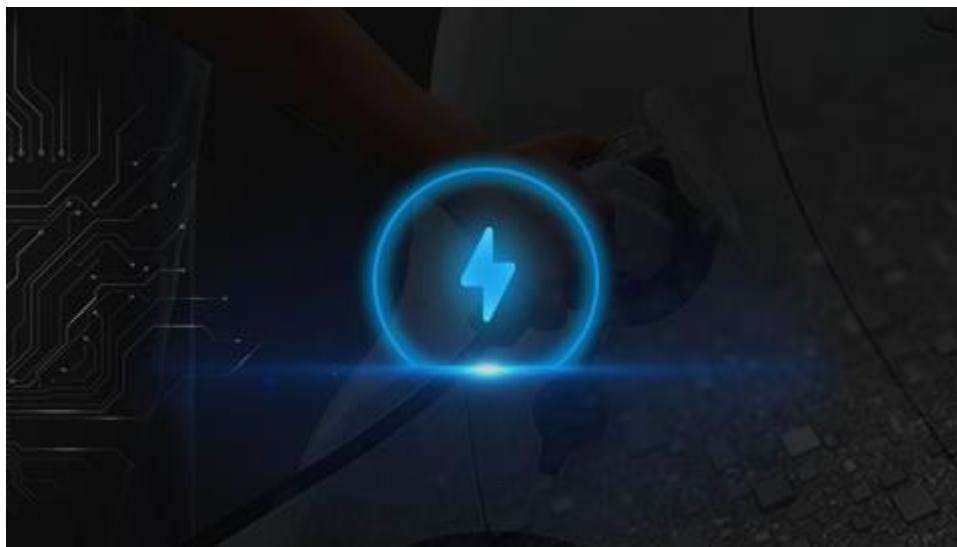
(2) The indicator light is steady green when ready.

- (3) The indicator light is a blue running light when charging.
- (4) When charging is completed, the indicator light is solid blue.
- (5) The indicator light flashes blue when it has been reserved.
- (6) When the platform is connected and the authorization fails, the indicator light flashes yellow slowly.
- (7) When the platform is not connected and the authorization fails, the indicator light flashes yellow quickly.
- (8) The unavailable/upgrade indicator light is solid yellow.
- (9) The indicator light is a green running light when disconnected from the operation and maintenance platform (when the charging mode is set to offline, the indicator light has no light effect change when disconnected from the operation and maintenance platform, that is, it will not turn into a green running light) .
- (10) The indicator light is always red when there is a fault.

## **5.2 LCD Screen interface introduction (Optional)**

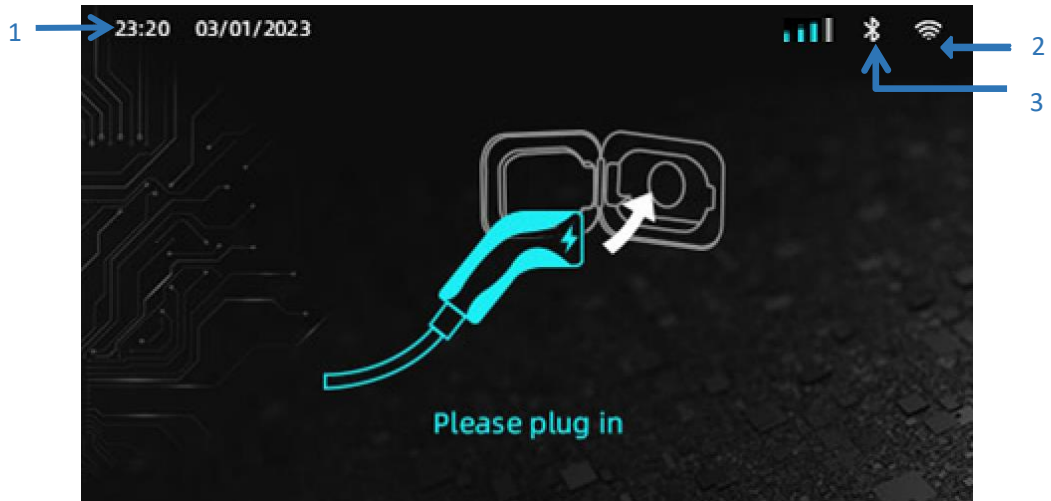
### **5.2.1 Startup interface**

Once the charger is started and switched on, the start-up screen will appear.



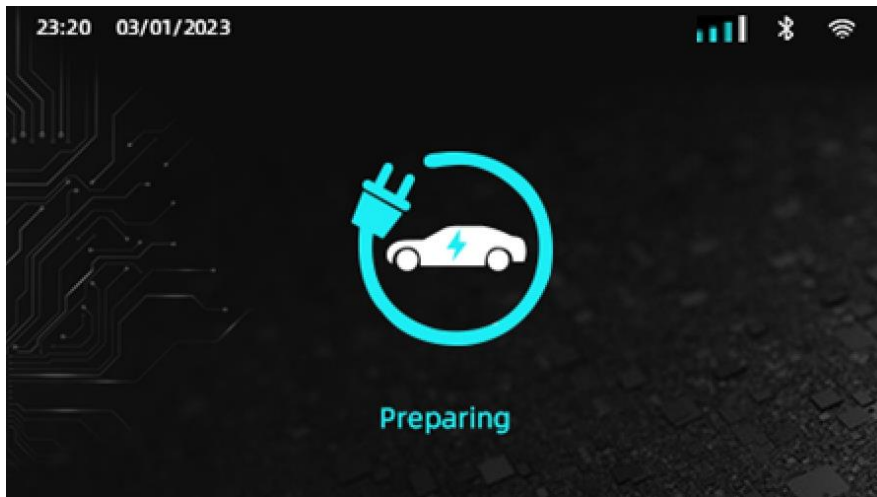


### 5.2.2 Standby interface

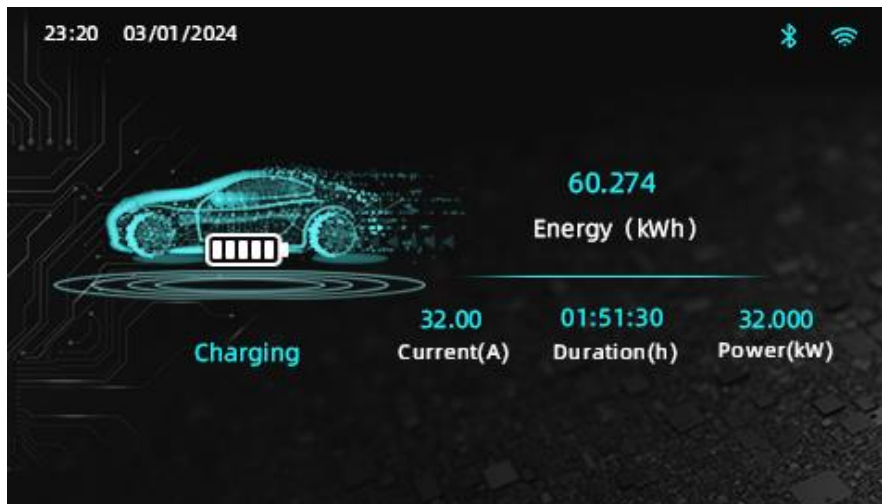


1: Time, 2: WiFi connection, 3: Bluetooth connection

### 5.2.3 Preparing interface



### 5.2.4 Charging interface



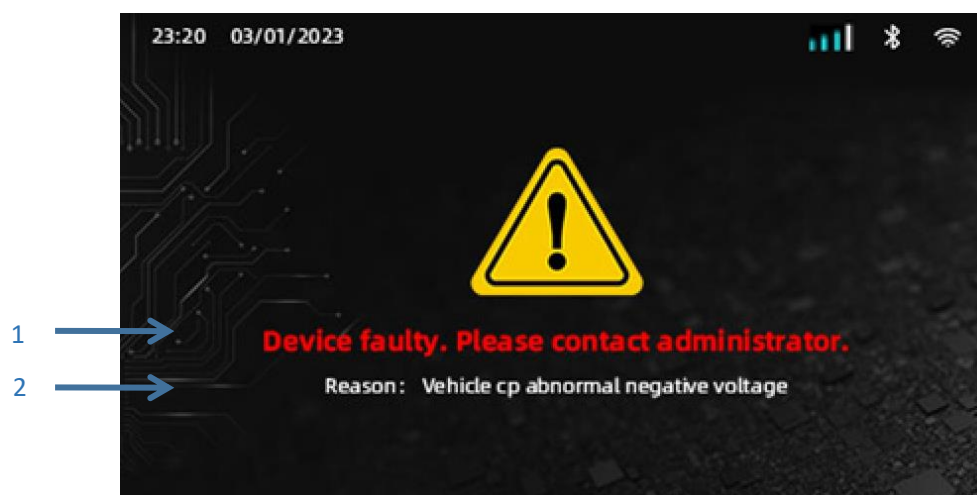
### 5.2.5 Finish interface



### 5.2.6 Reserved interface

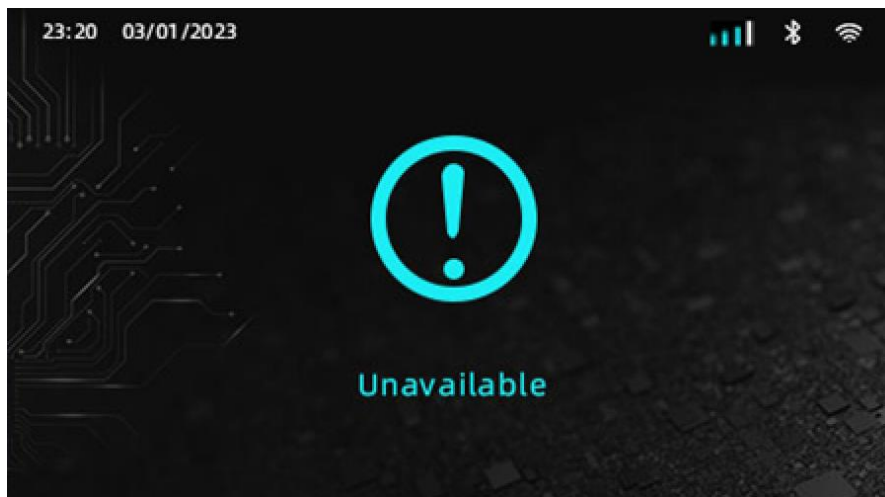


### 5.2.7 Fault interface



1: Fault name, 2: Fault reason

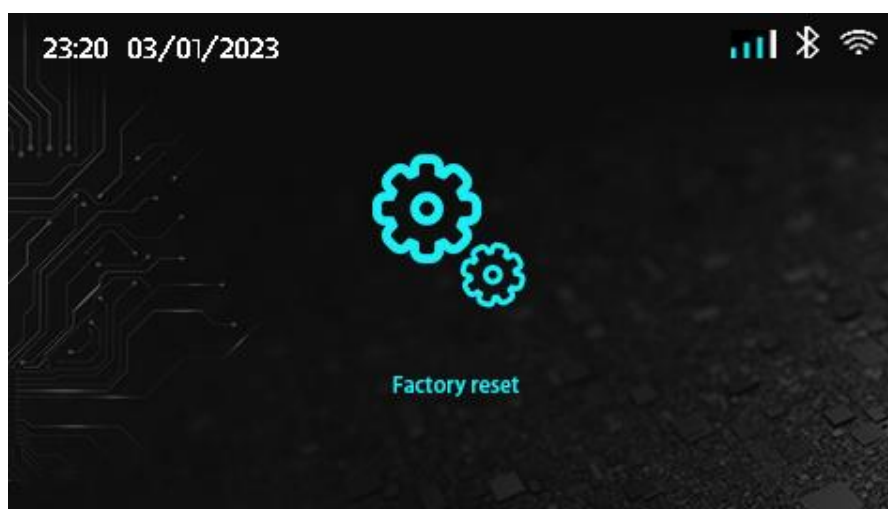
### 5.2.8 Unavailable interface



### 5.2.9 Bind card through EV Charger



### 5.2.10 Restore factory settings



## 5.2.11 Firmware update



## 6. Troubleshooting and Maintenance

### 6.1 Troubleshooting

Item No.	Cause of fault	Troubleshooting suggestions
1	Mains overvoltage	Wait for AC power to be restored
2	Mains undervoltage	Wait for AC power to be restored
3	Grid frequency over	Wait for AC power to be restored
4	Grid frequency under	Wait for AC power to be restored
5	Phase loss	Have electrical connections checked by a professionally qualified person
6	LN reverse	Have electrical connections checked by a professionally qualified person
7	Ground failure	Have electrical connections checked by a professionally qualified person
8	Power down	Wait for AC power to be restored
9	Overtemperature	After the temperature of the charger drops, the charger will automatically recover.
10	Leakage current	Have electrical connections checked by a professionally qualified person
11	CP voltage abnormal	Have electrical connections checked by a professionally qualified person
12	Internal error	Contact charger supplier

<b>Item No.</b>	<b>Cause of fault</b>	<b>Troubleshooting suggestions</b>
13	load currency over	Contact charger supplier
14	Vehicle S2 fault	Contact charger supplier
15	Vehicle cp abnormal negative voltage	Contact charger supplier
16	PP signal disconnect	Check whether the connector connection is reliable
17	PP signal abnormal	Check whether the connector connection is reliable
18	Electronic lock failure	Check whether there are foreign objects in the socket,and check whether the connector connection is reliable
19	PME failure	Have electrical connections checked by a professionally qualified person
20	PME disconnect relay failure	Contact charger supplier
21	Communication error with control board	Have electrical connections checked by a professionally qualified person
22	Electric meter abnormal	Contact charger supplier
23	Sensor fault	Contact charger supplier

## 6.2 Maintenance instructions

We recommend maintenance once every six months. If the use environment is harsh, please shorten the maintenance cycle as appropriate. Maintenance of this equipment requires relevant trained, qualified and authorized electrical personnel to be responsible for maintenance. Maintenance by non-professionals is prohibited.