

Installation Guide

EV AC Charger

HEVAC-(7,11,22) T2C5

HEVAC-(7,11,22) T2



Copyright Notice

- Copyright© 2024 Qingdao NaHui Intelligent Technologies Co.,Ltd. All Rights Reserved.
- Description in this document may contain predictive statements regarding financial and operating results, product portfolio, new technology, configurations and features of product. Several factors could cause difference between actual results and those expressed or implied in the predictive statements. Therefore, description in this document is provided for reference purpose only and constitutes neither an offer nor an acceptance. Qingdao NaHui Intelligent Technology Co., Ltd. may change the information at any time without notice.

Contents

Overview	3
Chapter 1 General Requirements	4
Chapter 2 Personnel Requirements	5
Chapter 3 Handling and Transportation Requirements	5
Chapter 4 Storage Requirements	5
Chapter 5 Operating Requirements	6
5.1 Routine Requirements.....	6
5.2 Equipment Installation	7
5.3 Cable Connection	7
5.4 Equipment Maintenance and Replacement	8
Chapter 6 Introduction	8
Chapter 7 Pre-installation Check	10
Chapter 8 Equipment Installation	14
Chapter 9 Installation	15
Chapter 10 Cable Connection	16
10.1 Routing.....	17
10.2 AC Input Cable Connection.....	18
10.3 RS485/DO Signal Cable Connection.....	20
10.4 (Optional) Connection of PEN control lines.....	21
10.5 (Optional) Connection of Linky Smart Meter Signal.....	23
10.6 FE Signal Cable Connection.....	24

Contents

10.7 Installation of SIM Card.....	25
10.8 Installing Panel.....	26
10.9 Installing Cable Holder and Placing Charging Connector.....	27
Chapter 11 Power-on and New System Creation.....	28
Chapter 12 Downloading “Haier Smart Cube” App and Creating New System.....	29

o

Overview

Introduction




- This document describes the precautions for installing, operating, and maintaining of the EV AC Charger.

Target readers

- This document is intended for:
- Trained and qualified installation personnel
- Technical support engineer

Sign Definition

- The following signs may be used in the document to indicate security precautions or key information.
Before installation and operation, familiarize yourself with signs and their definitions.

Signs	Definition
 Danger	Danger. Failure to comply may result in death or serious personal injury.
 Warning	Danger. Failure to comply may result in serious personal injury or property damage.
 Caution	Caution. Failure to comply may result in property damage.
Tips	Important or key information, and supplementary operation tips.

Chapter 1 General Requirements

Before installing, operating, and maintaining the equipment, familiarize yourself with this document. The "Danger", "Warning", and "Caution" items described in this manual are only supplementary to all precautions.

The Company shall not be liable for equipment damage or property loss caused by the following reasons:

- The installation environment does not meet international, national, or regional standards.
- Failure to comply with local laws, regulations, and regulations when transporting, installing, operating, or maintaining the equipment.
- The installation area does not meet the requirements of the equipment.
- Cables and tools used do not meet international, national, or regional standards.
- Damage caused by storage conditions that do not meet equipment requirements.
- Failure to follow the instructions and precautions in this document.
- Failure to follow the warning labels on equipment or tools.
- Negligent, improper operation or intentional damage.
- Damage caused by the customer or the third party company changing the use of our company's equipment.
- The equipment is damaged because the customer or a third-party company fails to use the accessories supplied with the packing box or purchase and install accessories of the same specification.
- Equipment damage caused by improper operations such as disassembling, replacing, or modifying the software code without authorization.
- Equipment damage caused by force majeure (such as war, earthquake, fire, storm, lightning, flood, debris flow, etc.).
- Damage caused by the failure of the natural environment or external power parameters to meet the standard requirements of the equipment during actual operation (for example, the actual operating temperature of the equipment is too high or too low).
- The equipment was stolen.
- The equipment is damaged after the warranty period.

Chapter 2 Personnel Requirements

- The personnel responsible for installation and maintenance of the equipment must receive strict training and get relevant certificates, be familiar with local laws, regulations, and related standards, understand the structure and working principles of the system, understand various safety precautions, master the correct operation methods, and possess the operation qualifications required by the local country.

Chapter 3 Handling and Transportation Requirements

- Wear personal protective equipment, such as protective gloves and safety shoes, when moving equipment.
- Select a proper transport mode based on the weight of the equipment.
- When using a forklift, place the fork knife in the middle of the equipment, and bind the fork knife according to the actual situation. When moving, a special person should take care of it. No movement under the fork knife.
- Place the equipment according to the stacking requirements on the package. Stacking requires strapping and fastening.
- It is advisable to use protected means of transport. The equipment is prohibited from being subjected to rain, water immersion, etc.

Chapter 4 Storage Requirements

- The storage location must comply with local laws and regulations.
- Do not unpack the storage equipment.
- Do not expose the equipment to direct sunlight or to wet, dewy, dirty, rainy, flammable, explosive or corrosive environments.
- The storage location should be well protected against insects and rodents.
- When storing the equipment, place it according to the storage requirements on the package.
- During storage, periodically record the temperature and humidity of the storage environment. 1) Storage temperature: -40°C to 70°C , and 20°C to 30°C is recommended.
2) Relative humidity: 5% RH to 95% RH, and 40% RH to 50% RH is recommended.
- Please follow the "first-in, first-out" principle when shipping the equipment.

Chapter 5 Operating Requirements

5.1 Routine Requirements

Danger

High voltage, danger:

- Live operation of the equipment (including but not limited to installation, wiring, replacement, etc.) is prohibited.
- Do not extend sharp objects or fingers into the equipment.
- Do not operate the equipment in bad weather (including but not limited to thunder, rain, snow, typhoon, etc.).
- Do not clean or soak the equipment with water, alcohol, or oil to avoid power leakage.
- Do not hit, drag, or step on the equipment.
- Check the equipment for damage before operating it. Do not perform this operation if there is any abnormality (for example, deformed appearance or strange smell)
- When operating the equipment, wear protective equipment such as insulation gloves, shoes, and safety helmets. Conductive ornaments such as metal bracelets, rings and necklaces are prohibited.
- Use insulation tools when installing and connecting cables.
- Devices that need to be grounded are permanently connected to the protection ground. When connecting cables, connect the ground cable first. Before replacement of any equipment, remove the ground cable at last.
- Before touching the terminal, measure the voltage of the contact point to ensure that there is no danger of electric shock.
- Do not drop any foreign objects into the equipment when operating it.
- Please make sure that the equipment cable is properly connected before connecting the pre-MCB.
- Do not contact terminals on the equipment directly or by using other conductors after connecting the pre-MCB.
- Stop the engine of your vehicle before connecting to the equipment.

Caution

- Do not connect cables or adapters that are not required for installing this equipment.
- Do not use the equipment for any purposes other than vehicle charging.
- Do not use a private generator as the power source for the equipment.
- Do not forcedly bend parts on the equipment.
- The I²t value of the EV charging connector (Case C) for the Model 3 charger should not exceed 80,000 A2s in the case of a short circuit.
- The I²t value of the EV socket outlet (Case B) for the Model 3 charger should not exceed 75,000 A2s in the case of a short circuit.

5.2 Equipment Installation

Warning

- When handling the equipment, be prepared to support the load in order to avoid slips and injuries.

Drilling Safety

- Do not drill holes on the equipment.
- Wear safety goggles and protective gloves when drilling holes.
- Do not place the equipment near the drilling position to prevent debris from falling into the equipment.
- After drilling holes, clean them in time.

5.3 Cable Connection

Danger

- Before connecting cables, ensure that the equipment is not damaged.
 - Before connecting or removing cables, ensure that the front and rear switches of the equipment and its own switches are disconnected.
-
- Do not intertwine or cross cables. You are advised to bundle cables by category.
 - Do not use cables whose insulation layer is damaged, and do not have sharp edges or burrs in the holes where cables pass through.
 - Keep cables away from heat sources to prevent cable aging in a high temperature environment.
 - The lower the ambient temperature is, the more brittle the plastic cable skin will be. To prevent skin cracking during installation, install the cable at a temperature higher than 0°C and handle the cable with caution. If cables are stored in an environment below 0°C for a long time, move them to an environment above 0°C for at least 24 hours before using them.
 - Always use a cable with sufficient length instead of using an extension cable. If cables are stored in an environment below 0°C for a long time, move them to an environment above 0°C for at least 24 hours before using them.

5.4 Equipment Maintenance and Replacement

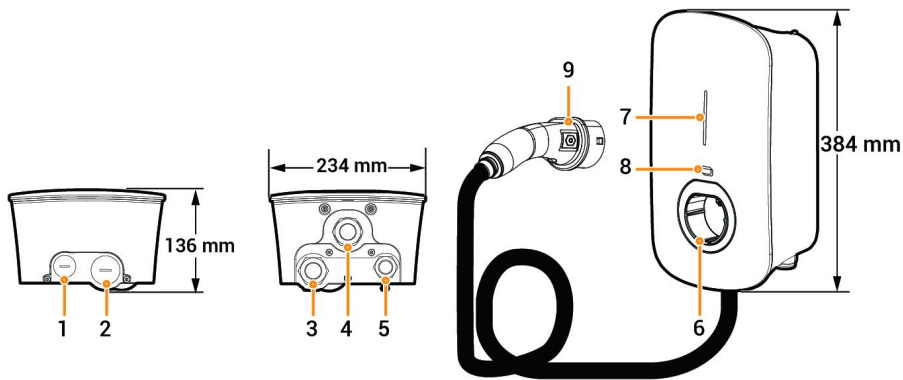
- Cut off the power supply to the equipment before maintenance or replacement. Power up and put the equipment back into operation only after trouble is eliminated or replacement is complete.

⚠ CAUTION

- Trained or experienced electrical personnel are required to operate the equipment.
- Operators should be familiar with national/regional laws, regulations and standards, the structure and working principle of relevant systems.
- Please read carefully the operating requirements and precautions in this document and Important Notice before operating. Failure to do so may result in damage to the equipment that is not covered by the warranty.

Chapter 6 Introduction

HEVAC-7/11/22 T2C5

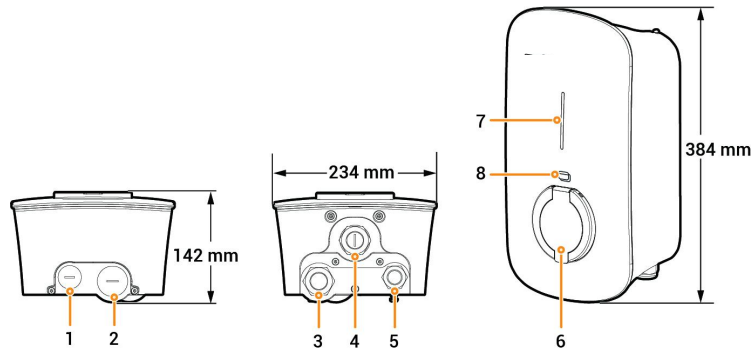


⚠ CAUTION

- You are advised to connect cables through bottom routing holes (holes 3 and 5).
- If cables are connected through top routing holes (holes 1 and 2), please install the equipment in a sheltered location to prevent water ingress after prolonged water accumulation on the top.

No.	Description
1	Top routing hole for communication cable
2	Top routing hole for AC input cable
3	Bottom routing hole for AC input cable
4	Bottom routing hole for charging cable
5	Bottom routing hole for communication cable
6	Type 2 charging connector holder
7	Indicator
8	IC card reading area
9	Charging connector

HEVAC-7/11/22 T2



CAUTION

- You are advised to connect cables through bottom routing holes (holes 3 and 5).
- If cables are connected through top routing holes (holes 1 and 2), please install the equipment in a sheltered location to prevent water ingress after prolonged water accumulation on the top.

No.	Description
1	Top routing hole for communication cable
2	Top routing hole for AC input cable
3	Bottom routing hole for AC input cable
4	(Reserved) Bottom routing hole
5	Bottom routing hole for communication cable
6	Type 2 charger socket with protective door
7	Indicator
8	IC card reading area

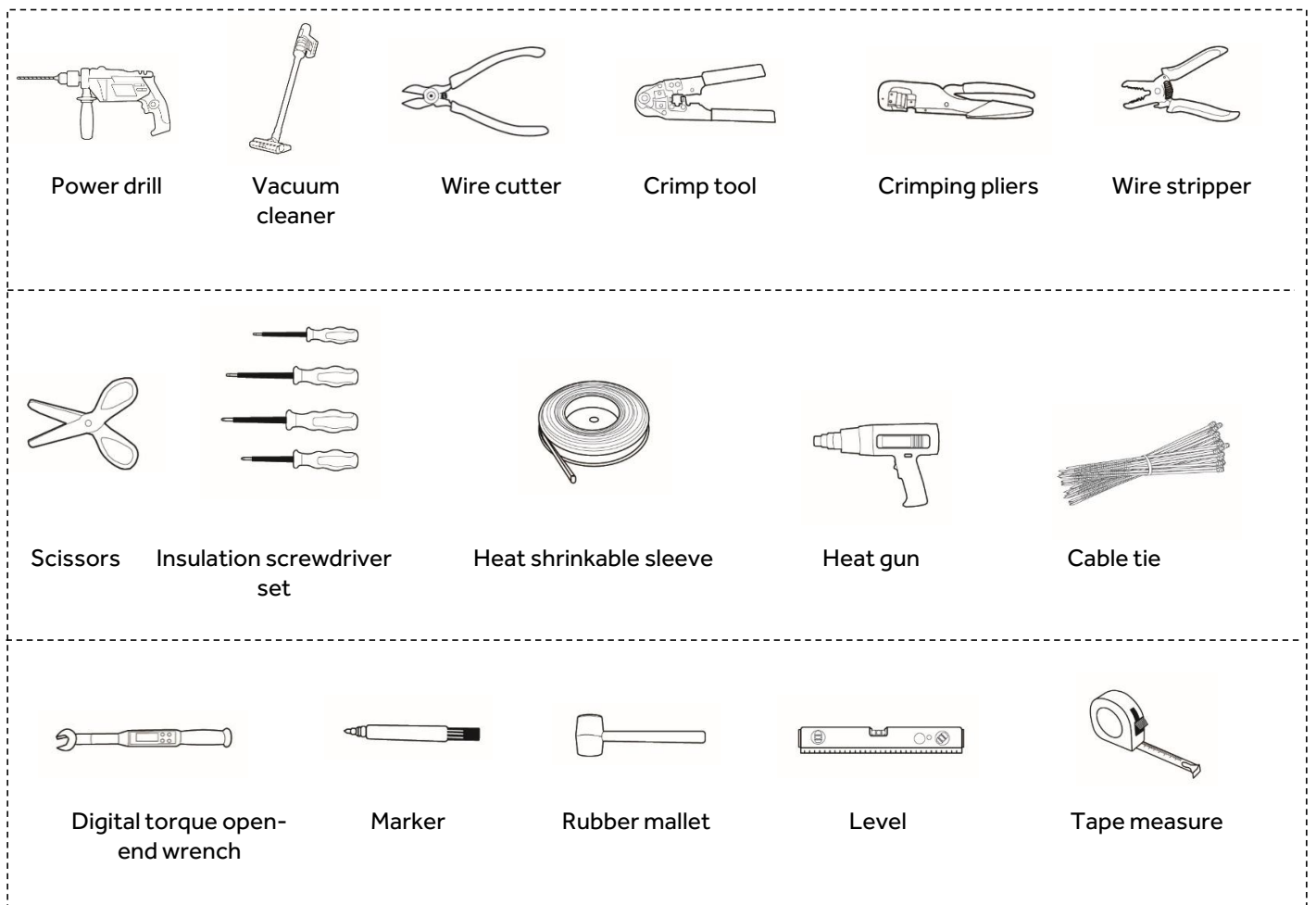
Chapter 7 Pre-installation Check

- According to the packing list, check whether the components are complete and in good appearance. If any abnormality occurs, contact your sales agent in time.
- Check personal protective equipment and installation tools to ensure that they are complete; if not, please make them up.
- Check the customer-provided cable to ensure that the quantity and specifications are correct; if not, prepare again.

Protective equipment



Installation tool



Self-supplied pre-AC switch

Users should prepare type B MCB compliant with IEC/EN 60898 with recommended specifications shown below. Users can omit this requirement if they have installed compliant AC switches.

Self-supplied pre-AC switch

Users should prepare type B MCB compliant with IEC/EN 60898 with recommended specifications shown below. Users can omit this requirement if they have installed compliant AC switches.

Model	Number of Poles, MCB	Rated Current, MCB
HEVAC-7T2C5 HEVAC-7T2	1P+N	40 A
HEVAC-11T2C5 HEVAC-11T2	3P+N	20 A
HEVAC-22T2C5 HEVAC-22T2	3P+N	40 A

Self-supplied Cables

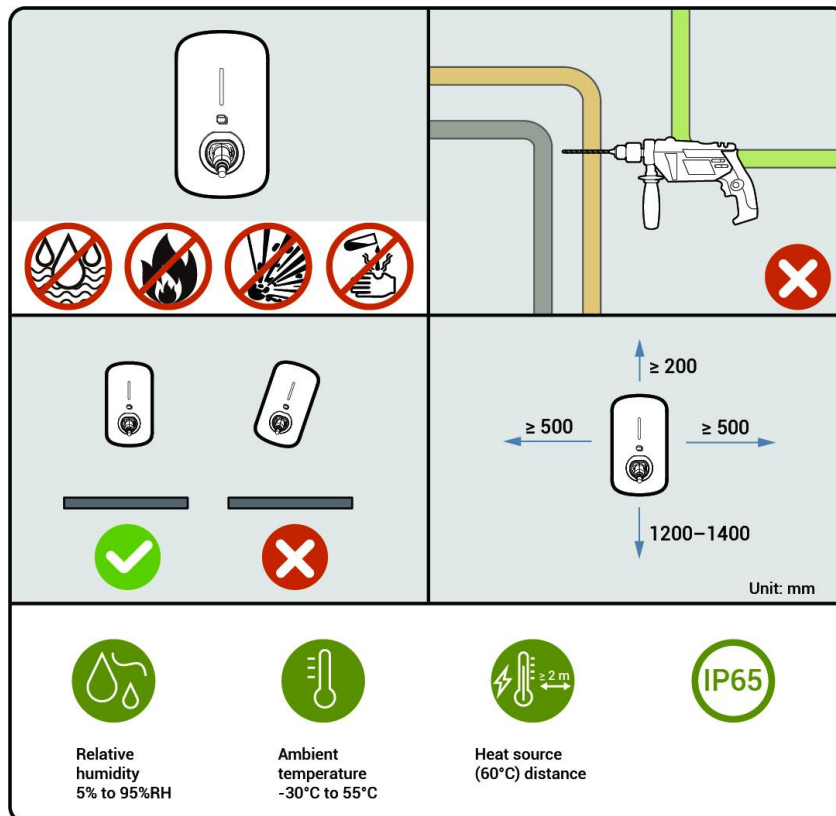
The grid power options include TT, TN-S, TN-C-S, and IT. Users can prepare cables according to their local grid power mode.

No.	Cable Name		Recommended Specification		
			HEVAC-7T2C5 HEVAC-7T2	HEVAC-11T2C5 HEVAC-11T2	HEVAC-22T2C5 HEVAC-22T2
1	AC input cable	Three-phase five-wire system (L1/L2/L3/N/PE)	/	Five-core/four-core copper core cables for outdoor use <ul style="list-style-type: none"> • Cable temperature resistance: $\geq 90^{\circ}\text{C}$ • Outer diameter: 13 mm to 20 mm • Current: 16 A • Cross-sectional area of conductor: 2.5 mm² to 4 mm² 	Five-core/four-core copper core cables for outdoor use <ul style="list-style-type: none"> • Cable temperature resistance: $\geq 90^{\circ}\text{C}$ • Outer diameter: 13 mm to 20 mm • Current: 32 A • Cross-sectional area of conductor: 6 mm²
		Three-phase four-wire system (L1/L2/L3/PE)			
		Two phases (L1/L2/PE)	Three-core copper core cables for outdoor use <ul style="list-style-type: none"> • Cable temperature resistance: $\geq 90^{\circ}\text{C}$ • Outer diameter: 13 mm to 20 mm • Current: 32 A • Cross-sectional area of conductor: 6 mm² 	/	/
		Single phase (L/N/PE)			
2	RS485 signal cable/DO signal cable/Linky smart meter signal cable		Cables or two-core shielded twisted pair for outdoor use <ul style="list-style-type: none"> • Conductor cross-sectional area: 0.2 mm² to 1.5 mm² • Outer diameter: 5 mm to 7 mm 		
3	RJ45 network cable		Shielded twisted pair for outdoor use <ul style="list-style-type: none"> • Conductor cross-sectional area: 0.129 mm² to 0.205 mm² • Outer diameter: 5 mm to 7 mm 		
4	(Optional) PEN control line (only applicable to the UK)		Two-core copper core cables for outdoor use <ul style="list-style-type: none"> • Cable temperature resistance: $\geq 90^{\circ}\text{C}$ • Voltage requirement: $\geq 300\text{ V}/500\text{ V}$ • Cross-sectional area of conductor: 0.75 mm² to 1.5 mm² • Outer diameter: 5 mm to 7 mm 		

Chapter 8 Equipment Installation Creation

Tips

The warranty applies when the equipment has been installed properly for its intended use and in accordance with the operating instructions.



Installation environment

- Do not install the equipment in smoky, flammable, explosive, or corrosive environments.
- Avoid exposing the equipment to direct sunlight, rain, standing water, snow, or dust. Install the equipment in a sheltered place. Take preventive measures in operating areas prone to natural disasters such as floods, mudslides, earthquakes, and typhoons.
- Do not install the equipment in an environment with strong electromagnetic interference.
- Ensure that the temperature and humidity of the installation environment comply with the equipment's requirements.
- The equipment should be installed in an area that is at least 500 m away from corrosion sources that may result in salt damage or acid damage (corrosion sources include but are not limited to seaside, thermal power plants, chemical plants, smelters, coal plants, rubber plants, and electroplating plants).

Installation position

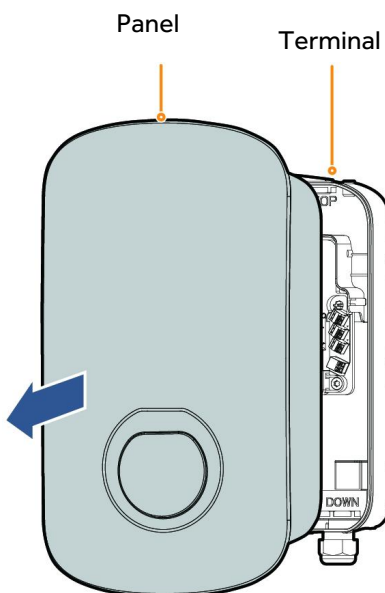
- Do not tilt or overturn the equipment to ensure that it is installed horizontally.
- Do not install the equipment in a place easily touched by children.
- Do not install the equipment in mobile scenarios such as RVS, cruise ships, and trains.
- You are advised to install the equipment in a position that is easy to operate, maintain, and view indicator status.
- When installing the equipment in the garage, do not install the equipment in the position where the vehicle passes through to avoid collision.

Mounting surface

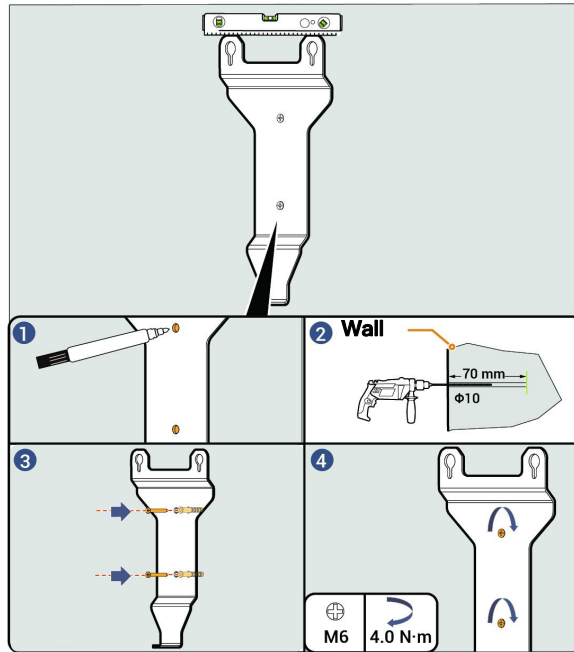
- Do not install the equipment on a flammable carrier.
- The installation carrier must meet load-bearing requirements. Solid brick-concrete structure, concrete walls are recommended.
- The surface of the installation carrier must be smooth and the installation area must meet the installation space requirements.
- No water or electricity is routed inside the carrier to prevent drilling hazards during equipment installation.

Chapter 9 Installation

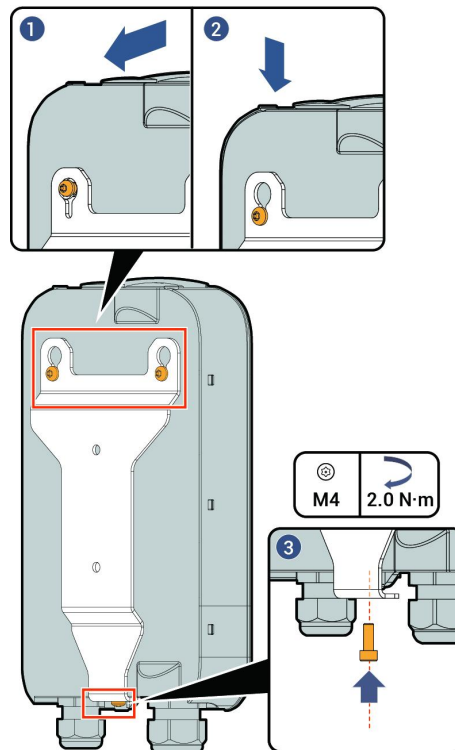
- 1 Take the equipment from its package and disassemble it.



2 Install the wall mounting fittings.



3 Install and secure the terminal block.



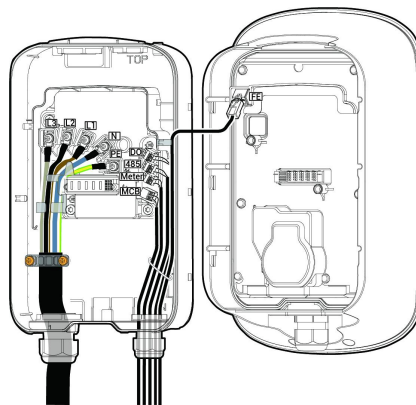
Chapter 10 Cable Connection

10.1 Routing

Tips

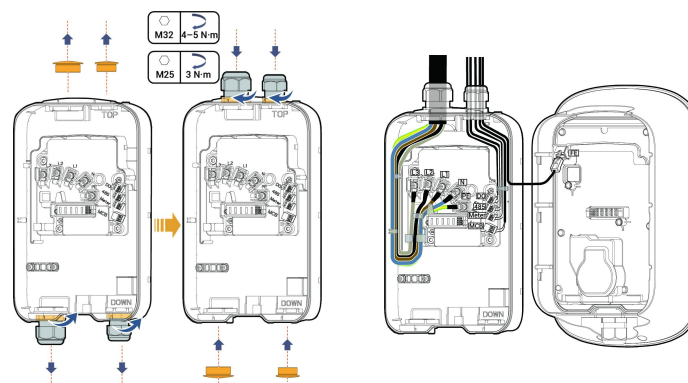
AC input cables can be divided into three-phase five-wire system (L1/L2/L3/N/PE), three-phase four-wire system (L1/L2/L3/PE), single phase (L/N/PE), and two phases (L1/L2/PE), depending on grid power mode. This section describes the routing method using the three-phase five-wire system.

Bottom Routing (recommended)



Top Routing

Install the water-proof connector at the bottom to the top before connecting cables.

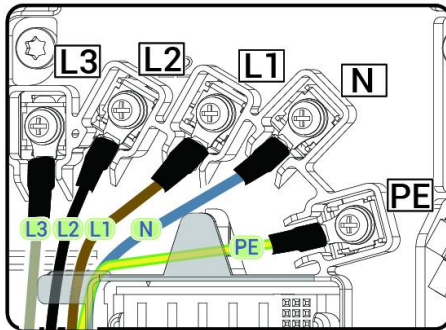


Tips

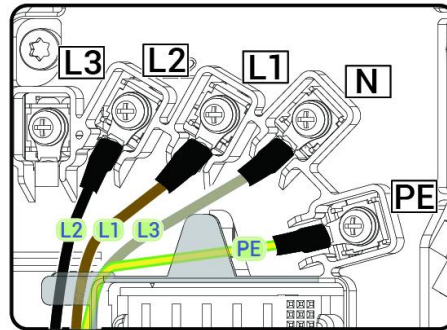
When top routing is used, the equipment top should be adequately protected to prevent water ingress caused by prolonged water accumulation.

10.2 AC Input Cable Connection

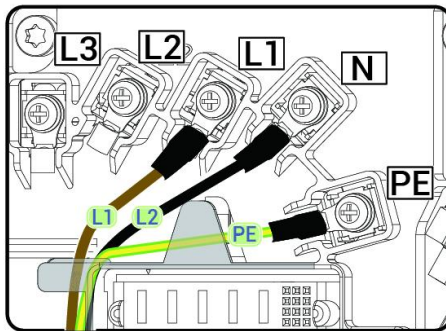
A Three-phase five-wire system
(3 × 400 V) (L1/L2/L3/N/PE)



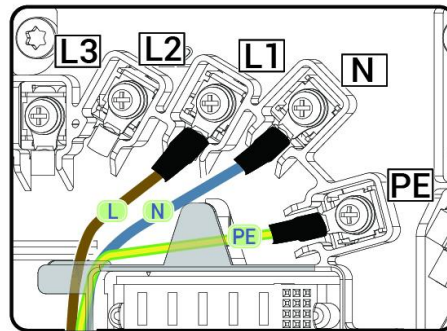
Three-phase four-wire system
(3 × 230 V) (L1/L2/L3/PE)



Two phases (1 × 230 V) (L1/L2/PE)



Single phase (1 × 230 V) (L/N/PE)



Tips

- You are recommended to place the PE core at the lowest layer during routing.
- This section will take three phases with N line as an example to introduce the connection procedure.

1

2

EVAC		L3	L2	L1	N	PE
A (mm)	Top routing	330	340	350	355	360
	Bottom routing	105	110	115	125	130

4-6 mm²

The stripping length (A) of cable insulation is determined by the EVAC port to which cables are connected.

10.3 RS485/DO Signal Cable Connection

Definitions of RS485 Ports and Connection Relationship with Power Sensor

Connect one end of the RS485 signal cable to EVAC and the other end to Power Sensor.

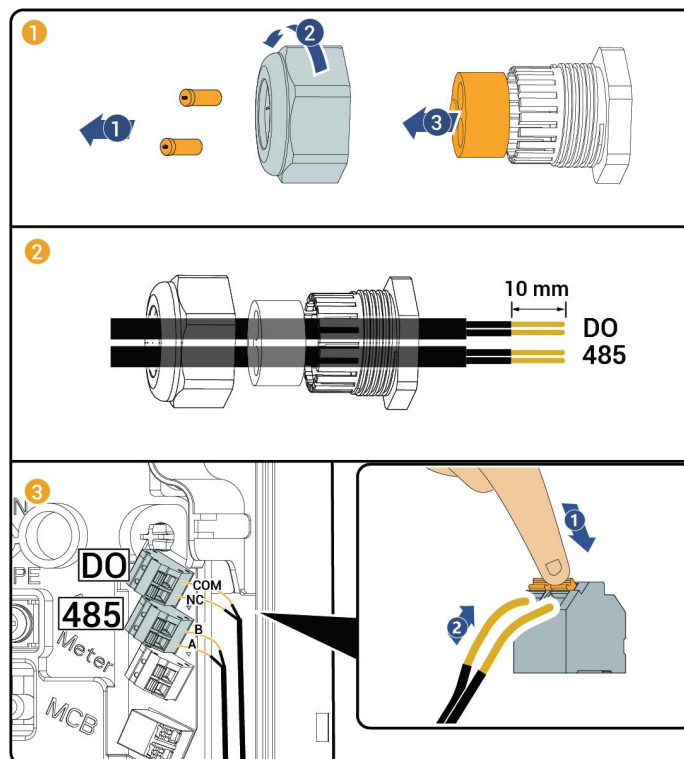
PIN	Definitions	HMT-CT120A(SDM630 MCT 40mA)
RS485_A	RS485 signal_A+	14
RS485_B	RS485 signal_B-	13

Tips

For appearance and connection details of the Power Sensor, refer to the User Manual supplied with the product.

Definitions of DO Ports

PIN	Definitions
COM	Output signal COM
NC	Output signal NC

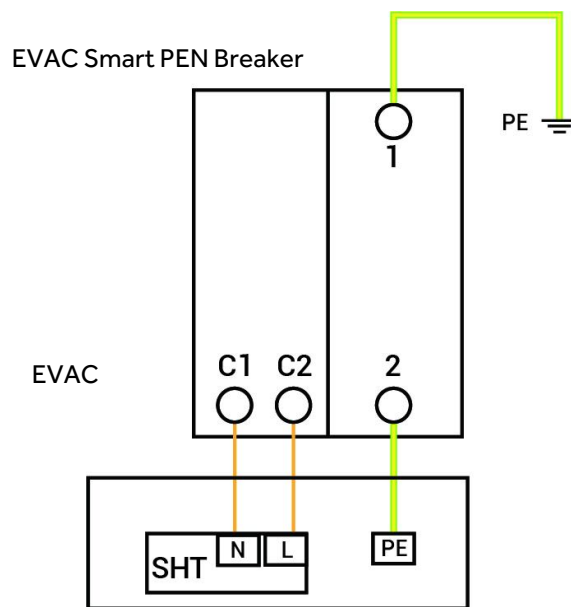


10.4 (Optional) Connection of PEN control lines

Definitions of MCB Ports and Connection Relationship with EVAC Smart PEN Breaker

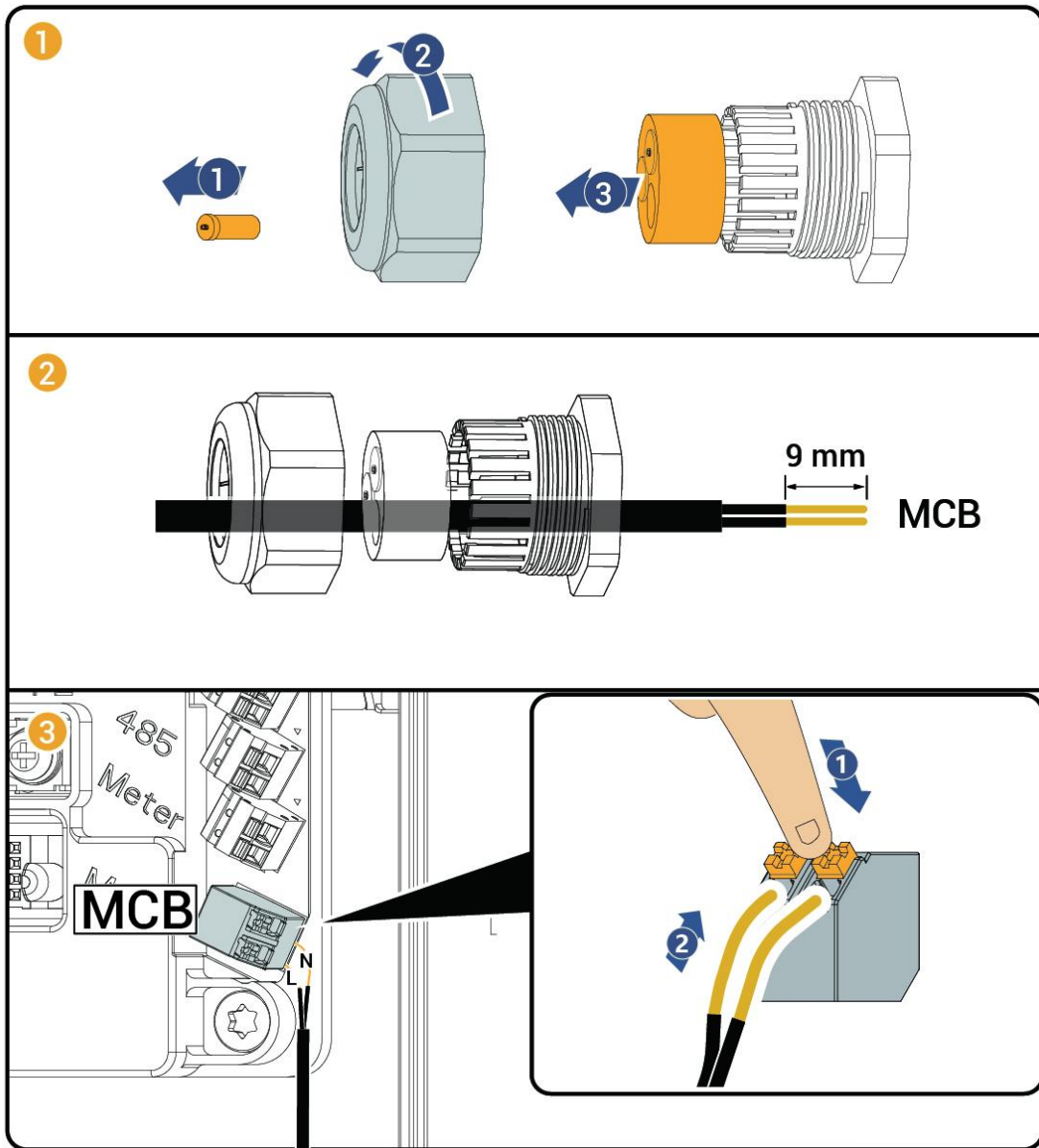
PIN	Definitions	EVAC Smart PEN Breaker[1]
N	Output N level	Terminal C1
L	Output L level	Terminal C2

Note [1]: The corresponding wiring terminal of the EVAC Smart PEN Breaker



Tips

For information on the specific installation and wiring operation of the EVAC Smart PEN Breaker, please refer to the user manual supplied with the product.



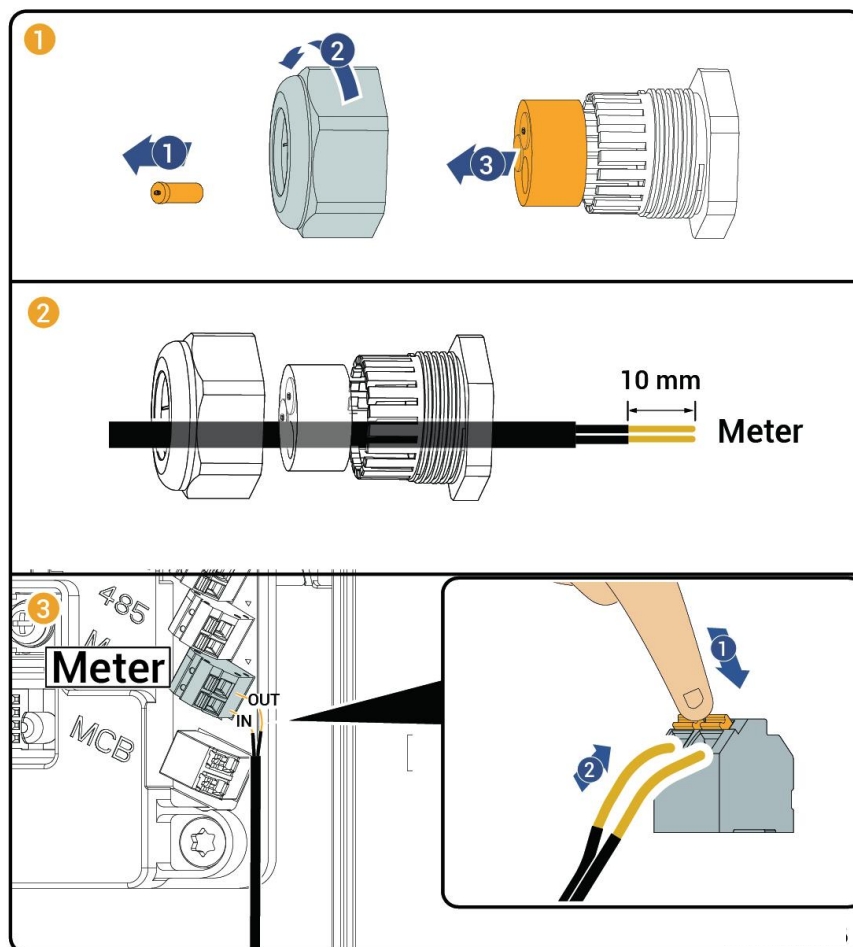
10.5 (Optional) Connection of Linky Smart Meter Signal

Definitions of Meter Ports and Connection Relationship with Linky Smart Meter

PIN	TIC port of Linky Smart Meter
Meter_IN	I1
Meter_OUT	I2

Tips

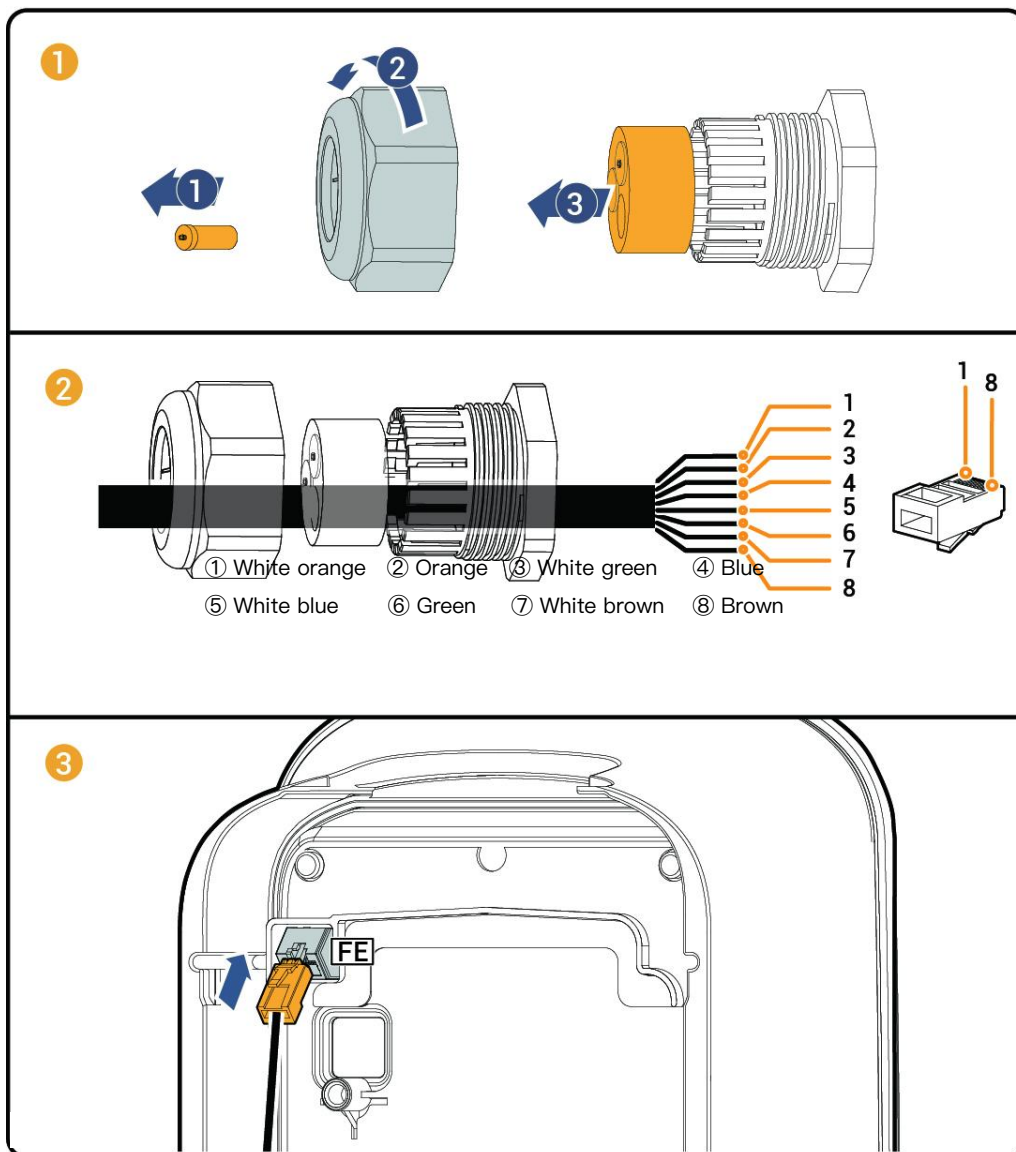
For information on the specific installation and wiring operation of the Linky smart meter, please refer to the user manual supplied with the product.



10.6 FE Signal Cable Connection

Connect one end of the FE signal cable to EVAC and the other end to a router.

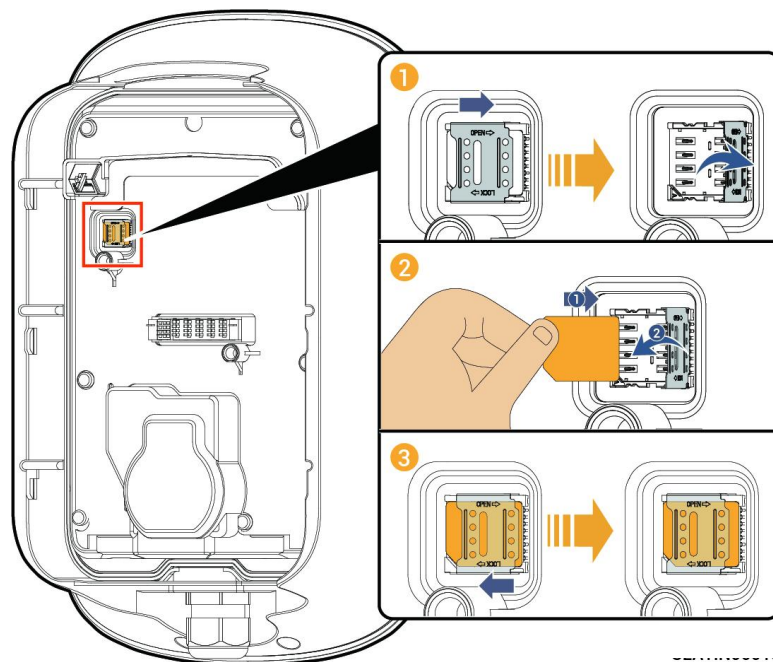
PIN	TIC port of Linky Smart Meter
Meter_IN	I1
Meter_OUT	I2



10.7 Installation of SIM Card

Tips

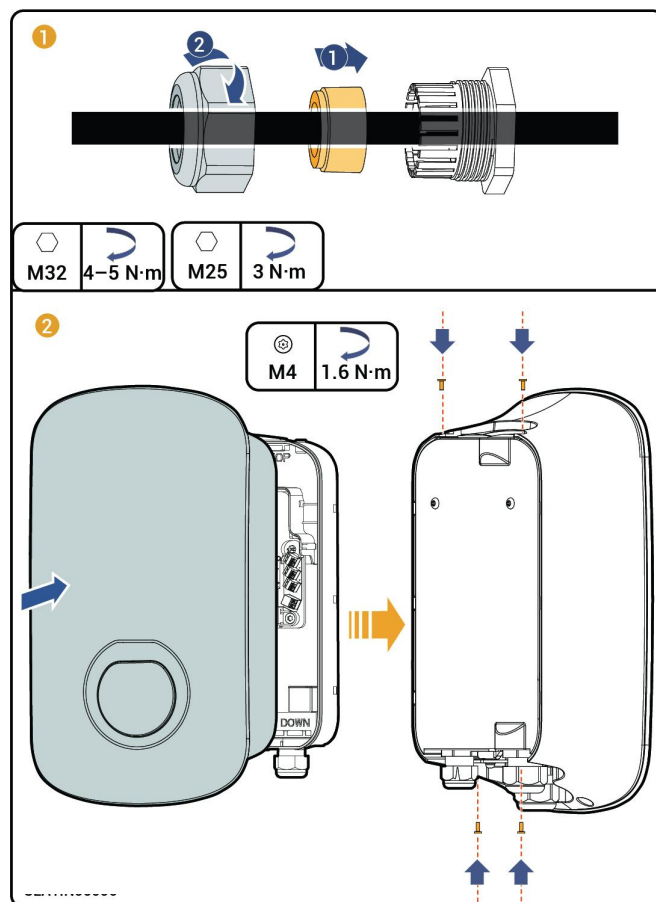
- Install the SIM card when 4G communication is enabled.
- SIM cards are supplied by users and standard SIM cards are recommended (size: 25 mm×15 mm, capacity ≥ 64 KB, traffic ≥ 128 MB/month).



10.8 Installing Panel

Check the following items against the provided table, tighten routing holes, and install the panel.

No.	Check Item
1	The equipment is securely installed.
2	AC cables and signal cables are properly connected without omission.
3	Lock screws or terminals are installed in place without any looseness.
4	Cutouts of cable ties are free of burr or sharp edges.
5	Unused ports are protected with water-proof covers or plugs.
6	No construction residue inside and outside the equipment.

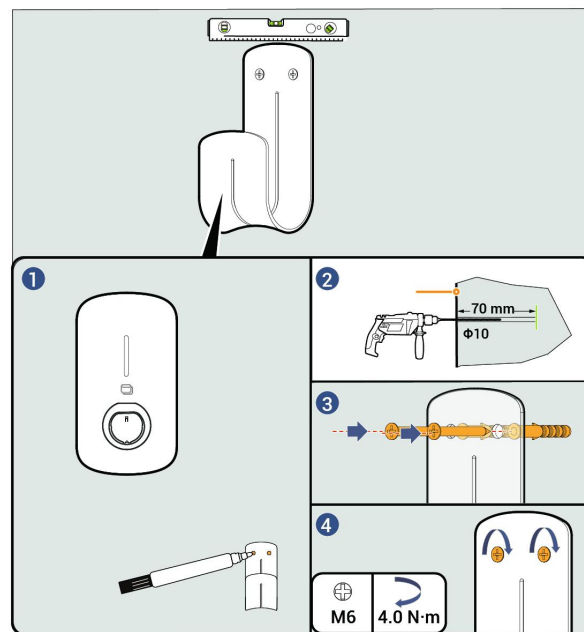


10.9 Installing Cable Holder and Placing Charging Connector

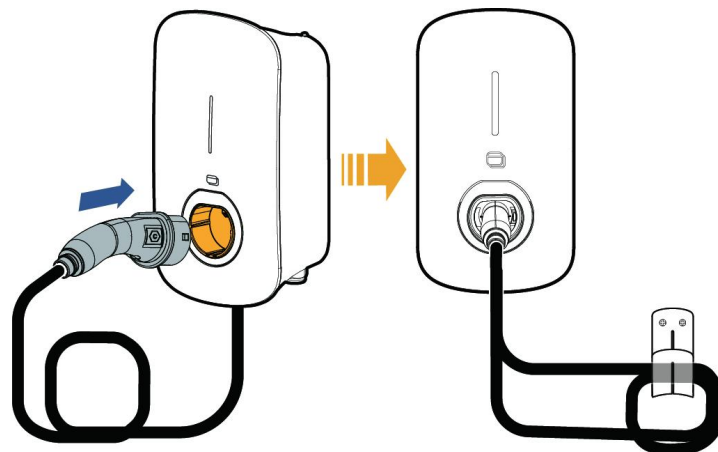
Tips

- This section applies only to HEVAC-7/11/22T2C5

1 Install the cable holder.

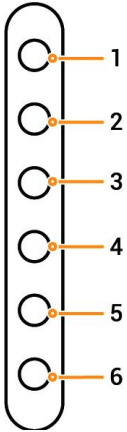
















2 Place the charging connector.



Chapter 11 Power-on and New System Creation

1. Turn on the pre-AC switch.
2. Observe the indicator status on the front panel of EVAC to understand the operating conditions.
3. When the indicator turns green and is steady on or breathing blinking, create a new system in the Haier Smart Cub app.

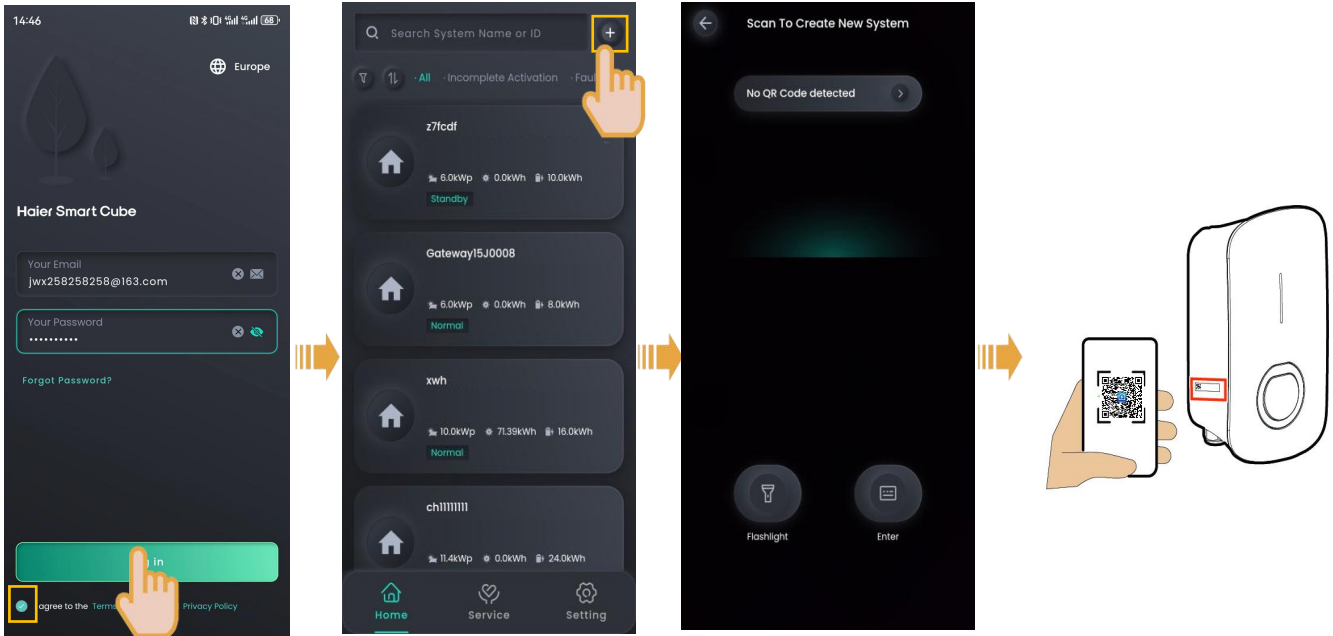


Illuminated Indicator	Color	Status	Meaning
All	Multicolored	Steady on	Starting, initializing configuration.
1		Steady on	In standby mode. Not connected to the internet, charging connector not inserted into the vehicle.
1		Breathing blink	In standby mode. Connected to the internet, charging connector not inserted into the vehicle.
All		Steady on	<ul style="list-style-type: none"> • IC card not read. The charging connector is connected to the vehicle. • Charging completed.
All		Breathing blink	You have registered the charging time, and the charging connector has already been connected to your vehicle.
All		Blink	IC card read. Get ready to charge vehicles.
All		Flowing blink	Charging.
None	-	-	Not powered on or low voltage.
1		Blink	Equipment electrical leakage.
1		Steady on	Relays within the equipment getting stuck.
2		Blink	Overvoltage or undervoltage protection.
3		Blink	Overcurrent protection.
4		Blink	Overtemperature protection.
5		Blink	Grounding fault.
6		Blink	Communication failure between the equipment and the vehicle.
All		Blink	Other malfunctions.

Chapter 12 Downloading “Haier Smart Cube” App and Creating New System

- 1 Download the “Haier Smart Cube” app to initiate the creation of a new system for your equipment.

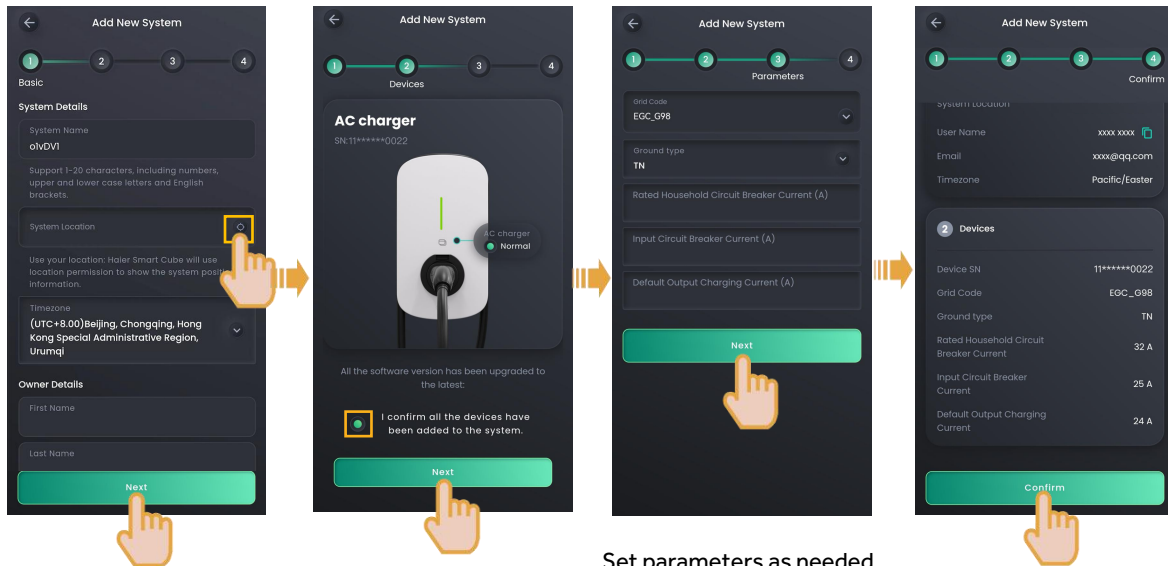




Tips

The following steps are different when the equipment has already been connected or not connected to the internet (that is, FE and 4G communication fault), as described below.

Already connected to the internet:



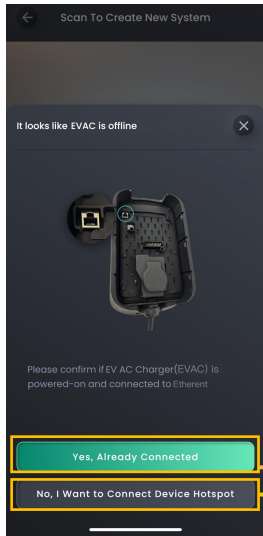
Manually locate the address, set the Timezone, and enter Owner Details.

Perform upgrades where necessary.

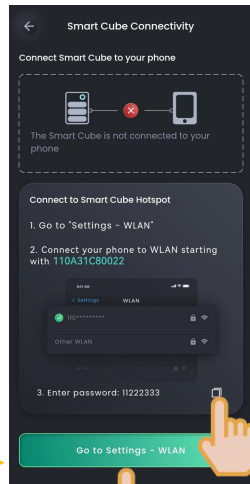
Set parameters as needed. Rated Household Circuit Breaker Current > Input Circuit Breaker Current > Default Output Charging Current

- After creating a new system, the installer should ask the owner to check the email sent from "Nahui cloud" within 24 hours to activate the account, log in to the app, and bind the IC card.

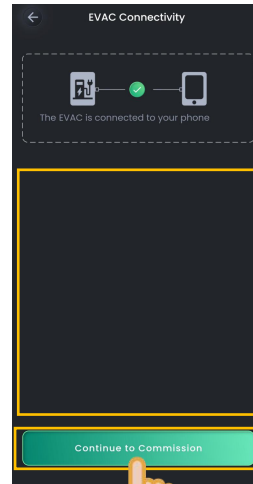
Not connected to the internet (that is, FE and 4G communication fault):



Click this button if the equipment is still not connected to the internet



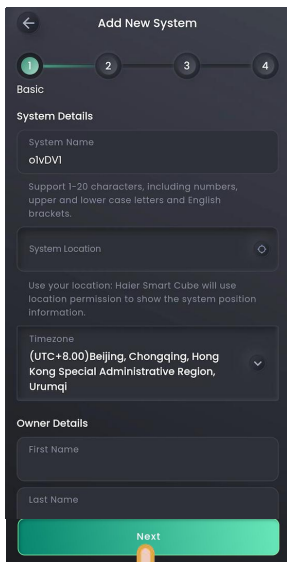
Connect to the equipment's WLAN hotspot. The hotspot is named as equipment SN and the passcode is given on the UI.



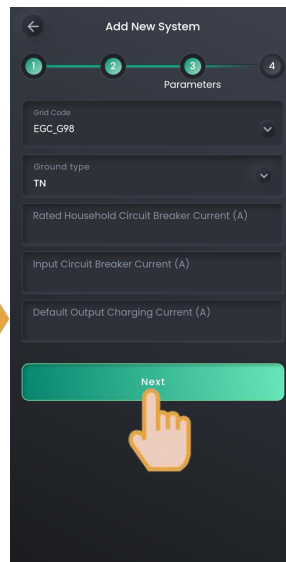
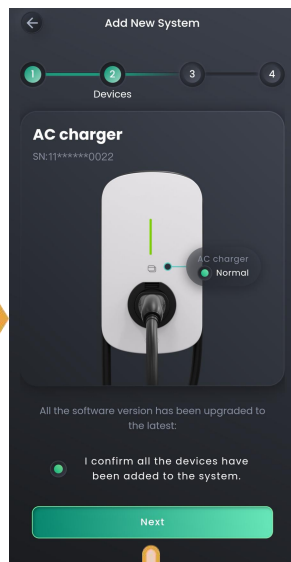
If the installer can choose to connect the equipment to the WLAN hotspot at the owner's premises, connect the available hotspot and go to the Create New System page and perform operations by referring to the description in the "already connected to the internet" section.

Click this button if no WLAN hotspot is available at the owner's premises

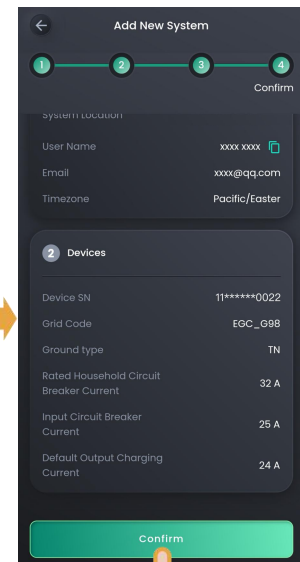
If the equipment has already been connected to the internet, click this button and go to the Create New System page and perform operations by referring to the description in the "already connected to the internet" section.

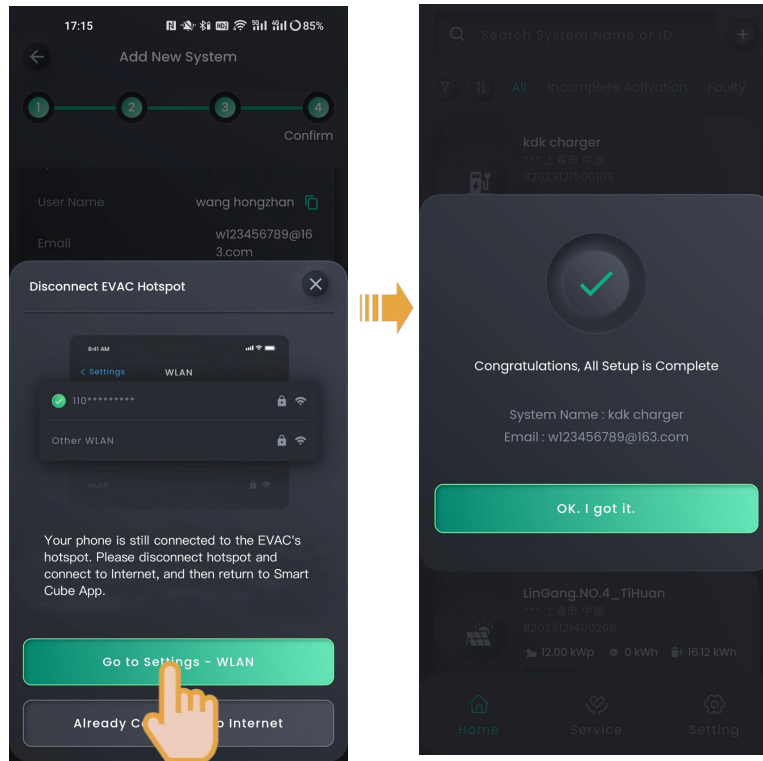


Set the Timezone, and enter Owner Details.



Set parameters as needed. Rated Household Circuit Breaker Current > Input Circuit Breaker Current > Default Output Charging Current





Disconnect from the WLAN hotspot

- 3 After creating a new system, the installer should ask the owner to check the email sent from "NAHUI cloud" within 24 hours to activate the account, log in to the app, and bind the IC card.

Haier



Official website of NAHUI



Haier Smart Cube

Qingdao Nahui Intelligent Technology Co., Ltd.

📍 Room 205-2, Building 4, No. 7 Keji 1st Road, Aoshanwei Street Office,
Jimo District, Qingdao City, Shandong Province, P.R. China

🌐 www.eur.nahui-newenergy.com

20240418_V1.0