

2026-10-10 V1.0

AC Charger

- GW7K-HCA-G30
- GW11K-HCA-G30
- GW22K-HCA-G30
- GW7K-HCA-UK-G30
- GW11K-HCA-UK-G30
- GW22K-HCA-UK-G30

User Manual

GOODWE

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NOTICE

This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, the content of this document does not replace the safety precautions on the product label. All descriptions in this document are provided for guidance only.

Preface

This document provides information on the inverter, including product details, installation and wiring, configuration and commissioning, troubleshooting, and maintenance. Before installing or using this product, read this manual carefully to understand the product safety information and become familiar with its functions and features. This document may be updated periodically. Visit the official website for the latest documentation and more product information.

Applicable Products

This document applies to the following EV charger models (hereinafter referred to as the HCA).

- GW7K-HCA-G30
- GW11K-HCA-G30
- GW22K-HCA-G30
- GW7K-HCA-UK-G30
- GW11K-HCA-UK-G30
- GW22K-HCA-UK-G30

Applicable Personnel

This product is intended only for qualified personnel who are familiar with local regulations and standards and electrical systems, have received professional training, and are knowledgeable about this product.

Definition of Symbols

To help you use this manual effectively, the following symbols are used to highlight important information. Please read the symbols and their descriptions carefully.

 DANGER
Indicates a highly hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING
Indicates a moderately hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION
Indicates a low-level hazardous situation which, if not avoided, could result in moderate or minor injury.
NOTICE
Emphasizes or supplements information and may also provide tips or techniques for optimizing product use to help you solve a problem or save time.

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1 Safety Precautions

The safety information contained in this document must always be observed when operating the equipment.

NOTICE

The EV charger has been designed in strict accordance with safety regulations and has passed testing. However, as electrical equipment, it must be operated in compliance with the relevant safety instructions. Improper operation may result in serious injury or property damage.

1.1 General Safety

NOTICE

- This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, the content of this document does not replace the safety precautions on the product label. All descriptions in this document are provided for guidance only.
- Read this document carefully to familiarize yourself with the product and its precautions before installing the equipment.
- All work on the equipment must be performed by qualified electrical technicians who are familiar with the applicable local standards and safety regulations.
- Use insulated tools and wear personal protective equipment when working on the EV charger to ensure personal safety. Wear ESD gloves, an ESD wrist strap, and antistatic clothing when handling electronic components to protect the EV charger from electrostatic damage.
- The equipment manufacturer is not liable for equipment damage or personal injury caused by installing, using, or configuring the EV charger contrary to the requirements in this document or the corresponding user manual. For more information about the product warranty, visit the official website:
<https://en.goodwe.com/warranty>.

1.2 EV Charger Safety

DANGER

- Do not disassemble any EV charger components. Do not extend the charging cable, as this may reduce the EV charger's Ingress Protection Rating or cause an electric shock hazard.
- The EV charger is intended only for charging electric vehicles. Do not connect any other equipment.
- Avoid excessive bending, pinching, or crushing of the charging connector and cable, as this may damage the equipment.
- Before installing or maintaining the EV charger, de-energize it and disconnect the upstream switch.
- Never touch the charging connector contacts while the EV charger is energized.

WARNING

Regularly check the EV charger enclosure and charging connector for any visible abnormalities.

DANGER

After installing the EV charger, ensure that all labels and warning signs on the enclosure are clearly visible. Do not cover, alter, or damage them.

The warning labels on the EV charger enclosure are as follows:

	High-voltage hazard. High voltage is present while the EV charger is operating. Ensure that the EV charger is de-energized before performing installation or maintenance.		Delayed discharge. After powering down the equipment, wait 5 minutes for it to discharge completely.
	Read the product manual carefully before operating the equipment.		Potential hazards may be present after the equipment starts operating. Use appropriate protective measures during operation.

	The surface of the EV charger may become hot. Do not touch it while the equipment is operating, as this may cause burns.		RCM mark.
	CE mark.		Do not dispose of the equipment as household waste. Dispose of it in accordance with local laws and regulations, or return it to the equipment manufacturer.

1.3 Personnel Requirements

NOTICE

- Personnel responsible for installing and maintaining the equipment must first undergo rigorous training, understand all relevant safety precautions, and master the correct operating procedures.
- Only qualified professionals or trained personnel may install, operate, maintain, or replace the equipment or its components.

2 Disclaimer

2.1 Declaration of Conformity

Europe

Equipment with wireless communication capabilities intended for sale in the European market complies with the requirements of the following directives:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)

United Kingdom

Equipment with wireless communication capabilities intended for sale in the UK market complies with the requirements of the following directives:

- Radio Equipment Regulations 2017
- The Restrictions of the use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (S.I. 2012/3032)

Brazil

Equipment with wireless communication capabilities intended for sale in the Brazilian market complies with the requirements of the following directives:

- Incorpora produto homologado pela Anatel sob número HHHHH-AA-FFFFF.
- Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL www.gov.br/anatel/pt-br.

2.2 Minimum Security Update Period Description

The minimum security update support period for this product (model list below) is five years from its market launch date, covering October 2026 to October 2031. Security updates will be provided free of charge throughout the support period. If

the support period changes, it may only be extended. Any changes will be announced in advance on our official website and communicated to users.

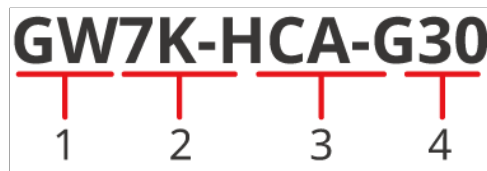
Model	Communication Module Version	Description
GW7K-HCA-G30	18.0.13	EV Charger
GW11K-HCA-G30		
GW22K-HCA-G30		
GW7K-HCA--UK-G30		
GW11K-HCA-UK-G30		
GW22K-HCA-UK-G30		

3 Product Overview

3.1 Introduction

The HCA G3 Series AC EV chargers are available in two versions: tethered and socketed. They cover multiple Power Specification ratings of 7 kW, 11 kW, and 22 kW, and are primarily designed for residential and commercial applications (such as homes and office parks), providing safe and efficient AC charging for electric vehicles. This product can communicate directly with an inverter to charge using PV energy. Dynamic Load Management can be enabled by pairing the inverter with a smart meter or by using a GoodWe smart meter directly. It can also communicate directly with a MID meter to provide reimbursable billing. It supports RFID and app activation, and automatic charging initiation upon plug-in can be configured via the app. It also features charging Protection and network monitoring.

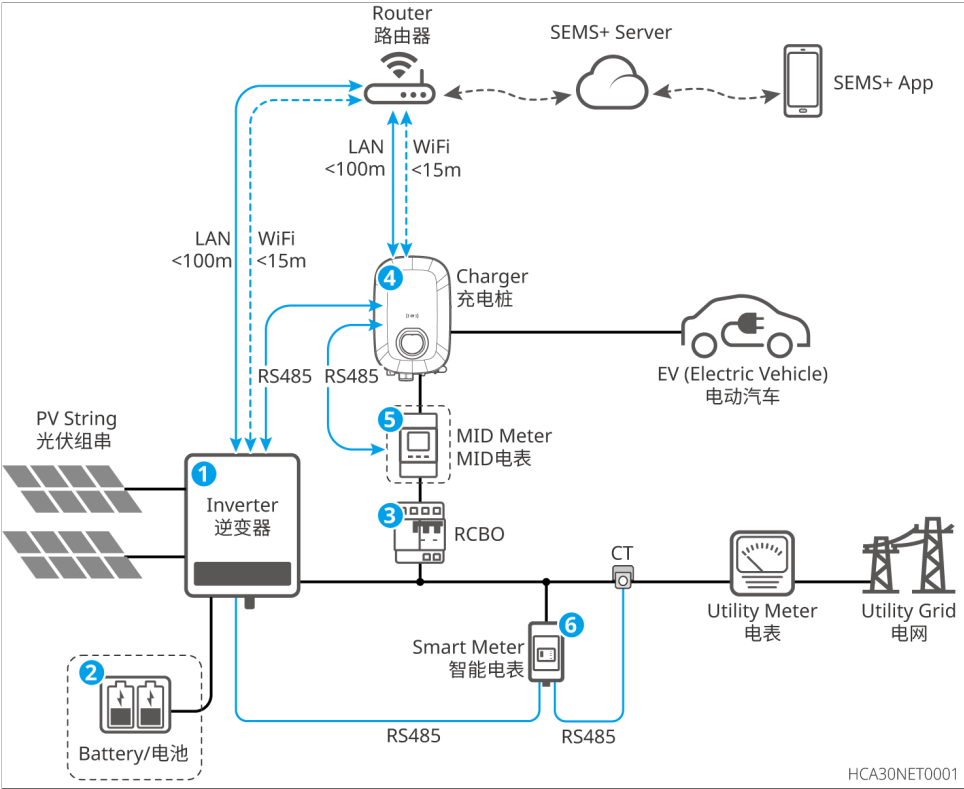
Model Designation



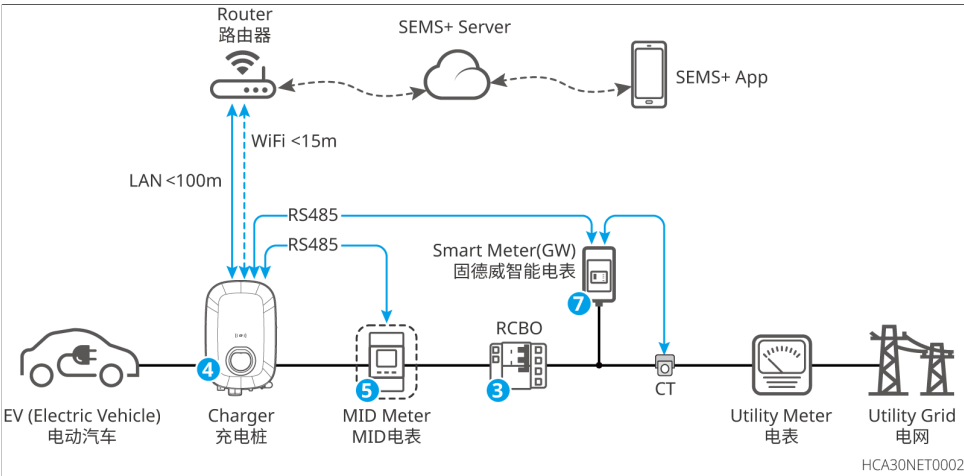
No.	Meaning	Description
1	Brand Code	GW: GoodWe
2	Rated Power	<ul style="list-style-type: none">• 7K: 7 kW output power• 11K: 11 kW output power• 22K: 22 kW output power
3	Series Name	HCA: HCA Series
4	Version Code	G30: Third Generation

3.2 Application Scenarios

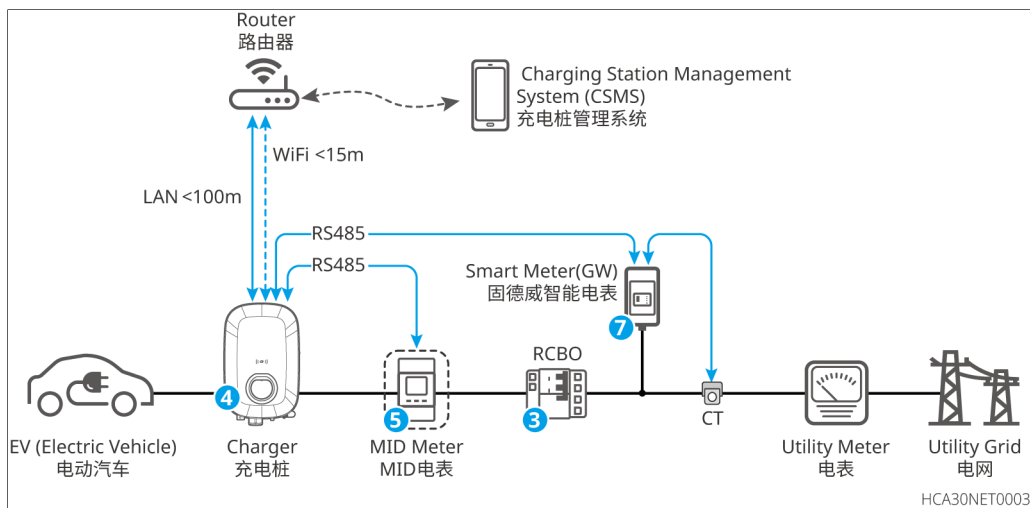
PV, Storage, and EV Charging System



Grid Connection Only



Commercial Applications

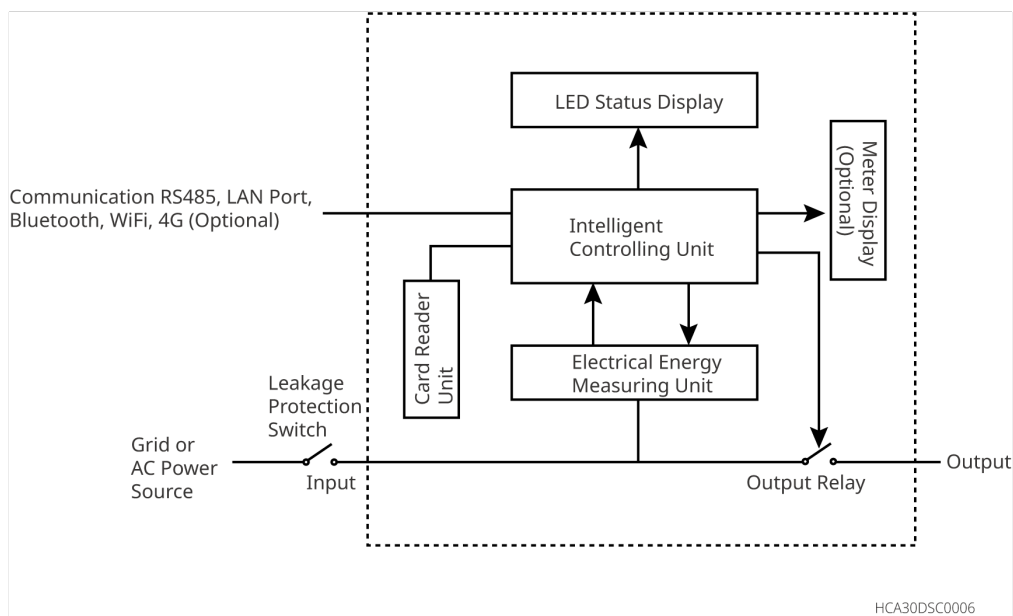


No.	Components	Description
1	Inverter	GoodWe inverter.
2	Battery	Battery compatible with GoodWe inverters; for use with energy storage inverters only.
3	RCBO	Provides residual (leakage) current Protection and Overcurrent Protection. Contact GoodWe to purchase.
4	EV Charger	GoodWe HCA Series EV Charger.
5	MID Meter	<p>Records the EV charger's electricity consumption data, which can be used for reimbursement of charging expenses.</p> <div> NOTE <p>The MID meter cannot be used as a household electricity meter.</p> </div>
6	Smart Meter	Supplied with the inverter or available for purchase from the inverter manufacturer.

No.	Components	Description
7	Meter	GoodWe smart meter for dynamic load balancing. Supported models include GM3000, GM330, GMK110, GMK330, and GM1000.

Circuit Block Diagram

The circuit block diagram of the EV charger is shown below.



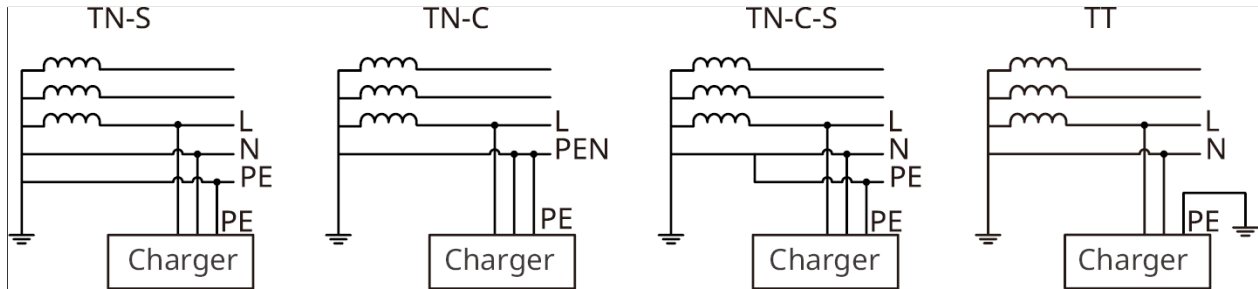
- Two RS485 communication interfaces for communication with devices such as PV energy storage inverters and smart meters. Communication ports for parallel operation of multiple EV chargers.
- The LAN communication interface or Wi-Fi can communicate with a router.
- 4G is an optional function. To use 4G, users can insert a SIM card as needed. The 4G function is unavailable when no SIM card is inserted.
- The input to a single-phase AC EV charger is a three-wire single-phase power cable; the input to a three-phase AC EV charger is a five-wire three-phase power cable.
- The output connects to an AC charging connector (integrated cable-and-connector version) or a charging socket (separate cable-and-connector version).

Grid Configuration

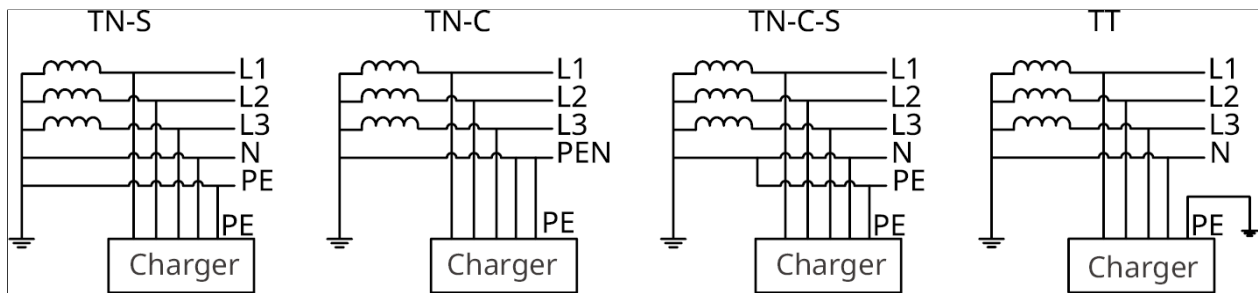
NOTE

The EV charger does not support connection to an IT grid.

• Single-Phase Configuration



• Three-Phase Configuration



3.3 Charging Modes

NOTICE

In PV charging and PV + battery charging modes, EV Charger Power is limited by the inverter's maximum output power.

Fast Charging

The EV charger charges the electric vehicle using power from the grid, PV, or battery. The EV charger's output power defaults to its Rated Power, and users can customize the output power to meet actual needs (not exceeding the Rated Power).

PV Charging

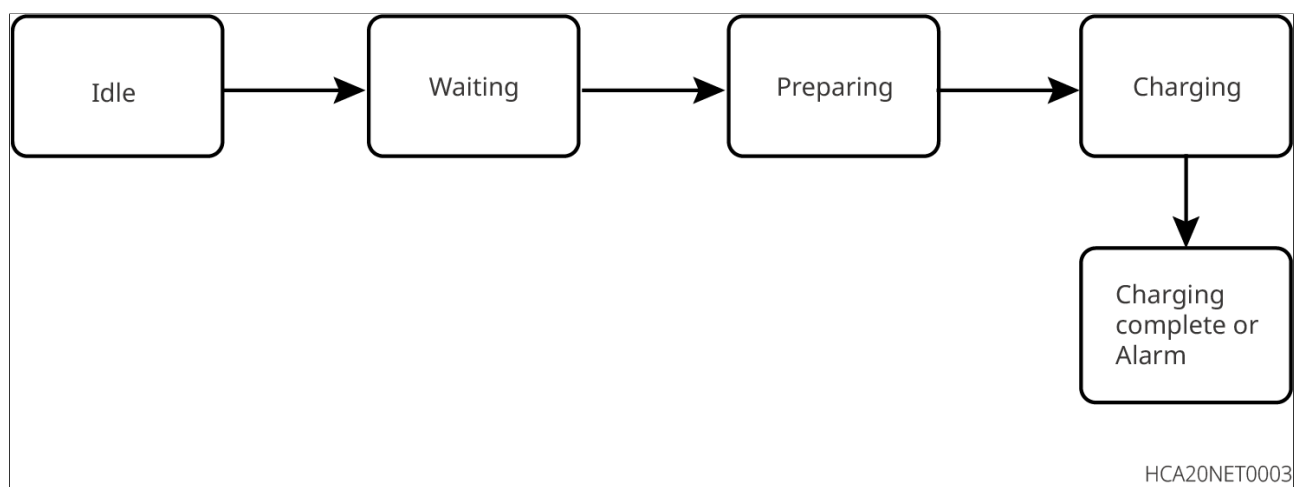
Only PV power is used to charge the electric vehicle. Power is prioritized for

household loads, and any surplus power is used to charge the vehicle.

PV + Battery Charging

Power converted from PV and battery power are used to charge the electric vehicle. Power is prioritized for household loads, and any surplus power is used to charge the vehicle.

3.4 EV Charger Operating Status



3.5 Features

NOTE

- The actual charging speed depends on the grid-connected power available at the site where the EV charger is installed or on the power rating of the vehicle's onboard charger.
- The EV charger has minimum charging current and power requirements. The minimum startup Charging Current is 6 A per phase. Therefore, the minimum charging power is 1.4 kW for single-phase charging and 4.2 kW for three-phase charging.
- A three-phase charger supports single-phase, two-phase, and three-phase charging, but the actual charging power depends on the vehicle's onboard charging system. When charging a vehicle that supports only single-phase charging, the Max. Charging Power of a three-phase charger is one-third of its Rated Power. When charging a vehicle that supports only two-phase charging, its Max. Charging Power is two-thirds of its Rated Power.

Dynamic Load Management

This function monitors household loads and power at the grid connection point in real time, and dynamically adjusts the EV charger's output to prevent the main incoming circuit breaker from tripping due to Overload. It maximizes the use of available charging capacity while ensuring household electrical safety.

- Grid Import Status (drawing power from the grid)

When Dynamic Load Management is enabled, the system dynamically adjusts charging power based on real-time household load power, subject to the Max. Current setting of the main incoming circuit breaker and the grid import power limit. As household load power increases, the EV charger automatically reduces its charging power. If charging power falls below the minimum charging power, the EV charger automatically pauses charging. When household load power decreases and the remaining available power meets the charging demand, the EV charger automatically resumes charging. Built-in delays in the start/stop control prevent frequent cycling of the EV charger.

- Grid Export Status (surplus power fed into the grid)

The EV charger's charging power is not subject to the grid import power limit

and can charge at Maximum Power.

Ensure Minimum Charging Power

In PV charging and PV + battery charging modes, once the EV charger has started, if PV or battery power is insufficient, enabling Ensure Minimum Charging Power allows the grid or battery to provide support to maintain the required power output. Users can enable this feature via SEMS+.

Feature Status	Description
Enabled	With support from the grid or battery, the EV charger continues charging to ensure the minimum power required for charging (1.4 kW for the 7 kW module and 4.2 kW for the 11/22 kW module).
Disabled	If the remaining power is below the minimum charging power, the EV charger stops charging.

Enwg 14a Support

NOTE

This feature is available in Germany only.

All controllable load devices must support emergency Derating control initiated by the grid operator. The grid operator may temporarily limit this device's maximum power drawn from the grid to 4.2 kW by issuing a dispatch command.

Single-/Three-Phase Switching

NOTE

- Only three-phase EV chargers support single-/three-phase switching.
- This feature is available only in PV or PV + battery charging mode.

- Switching from Three-Phase to Single-Phase

When the input power falls below 4.2 kW, the EV charger automatically switches to single-phase charging mode to avoid drawing power from the grid or stopping charging.

- Switching from Single-Phase to Three-Phase

When the power at the point of grid connection (the sum of power exported to the grid and the EV charger's charging power) is detected to exceed 5.4 kW, the EV charger immediately switches to three-phase charging mode. When the inverter's Power Limit function is enabled and power export at the point of grid connection is detected, the EV charger attempts to switch to three-phase charging mode every 5 minutes. If the PV power available to the EV charger is greater than 5.4 kW, it remains in three-phase charging mode; if it is less than 5.4 kW, it switches to single-phase charging mode.

Safe and Reliable

- The EV charger offers excellent dust and water resistance, allowing it to be operated and maintained outdoors.
- The EV charger features overvoltage and undervoltage Protection, Overload Protection, short-circuit Protection, residual-current Protection, grounding Protection, Overtemperature Protection, and surge Protection to ensure safe and reliable operation.

NOTE

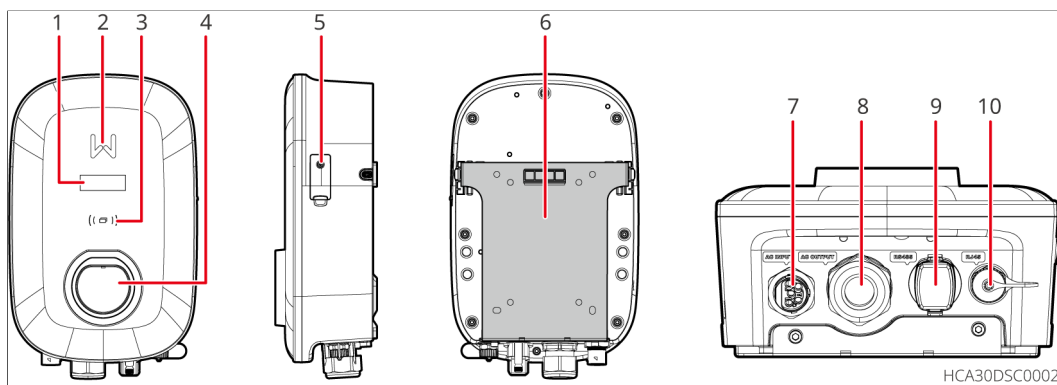
- 2.4G WiFi, Operating frequency :2412-2472MHz, max e.i.r.p :20dBm
- BLE 1M&2M, Operating frequency :2402-2480MHz, max e.i.r.p:2.99dBm
- RFID 13.56MHz, max e.r.p: -47.50dBm

3.6 Appearance Description

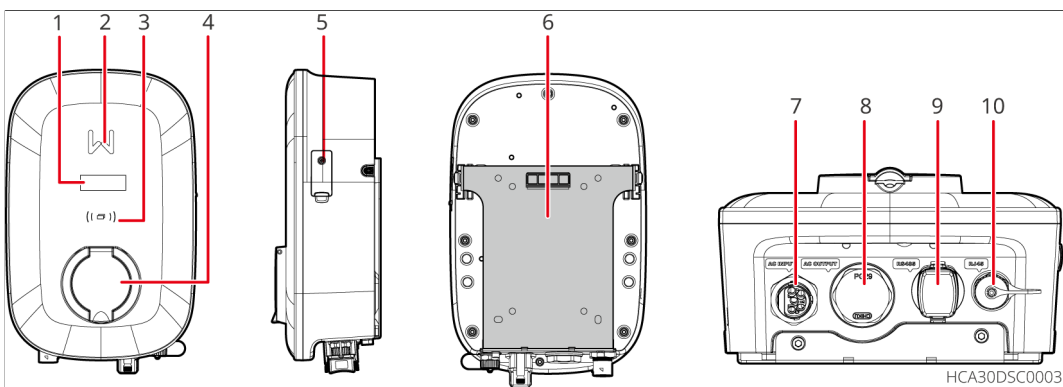
3.6.1 Product Overview

EV Charger

- Type 1: Integrated Charging Cable and Connector



- Type 2: Detachable Charging Cable and Connector

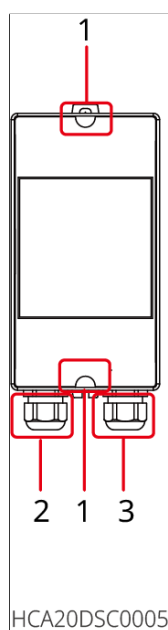


No.	Components	Description
1	Display (Optional)	Displays information such as charging energy and software version.
2	Indicator Light	Indicates the operating status of the charging station.
3	RFID Card Reader Area	Swipe card to start charging.
4	Charging connector holster	For storing the charging connector.
5	SIM card slot	-
6	Mounting bracket	Secure the charging station to the support structure.

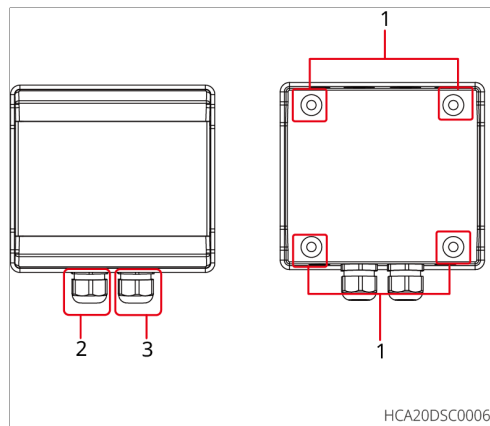
No.	Components	Description
7	AC cable entry	Connect the single-phase or three-phase AC input cable.
8	Charging cable	-
9	RS485 communication port	Connect the RS485 cable for communication with the inverter or meter.
10	LAN communication port	Connect the cable for communication with the router.

(Optional) RCBO Distribution Box

- GW7K-HCA-G30、GW7K-HCA-UK-G30



- GW11K-HCA-G30、GW11K-HCA-UK-G30、GW22K-HCA-G30、GW22K-HCA-UK-G30



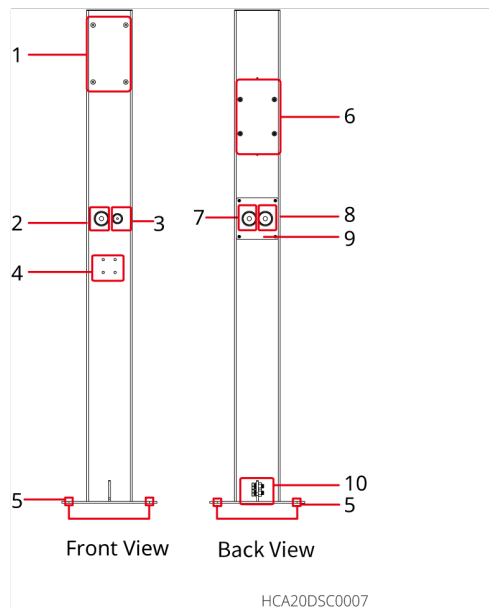
1 Mounting holes

2 AC cable inlet

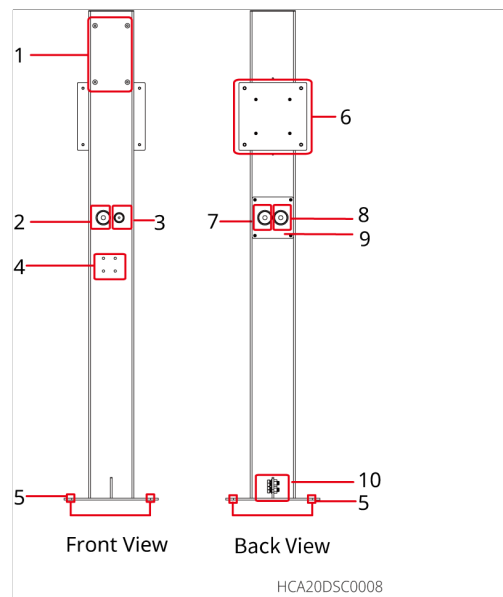
3 AC cable outlet

(Optional) Pedestal

- GW7K-HCA-G30、GW7K-HCA-UK-G30



- GW11K-HCA-G30、GW11K-HCA-UK-G30、GW22K-HCA-G30、GW22K-HCA-UK-G30



- | | | | |
|---------------------------------------|--|--|--|
| 1. Charging station mounting position | 2. AC cable connection port for the charging station | 3. Communication cable connection port | 4. Charging connector holster mounting holes |
| 5. Base mounting holes | 6. RCBO mounting position | 7. RCBO AC cable inlet | 8. RCBO AC cable outlet |
| 9. Access panel cover | 10. Protection earth terminal | | |

3.6.2 Dimensions

EV Charger

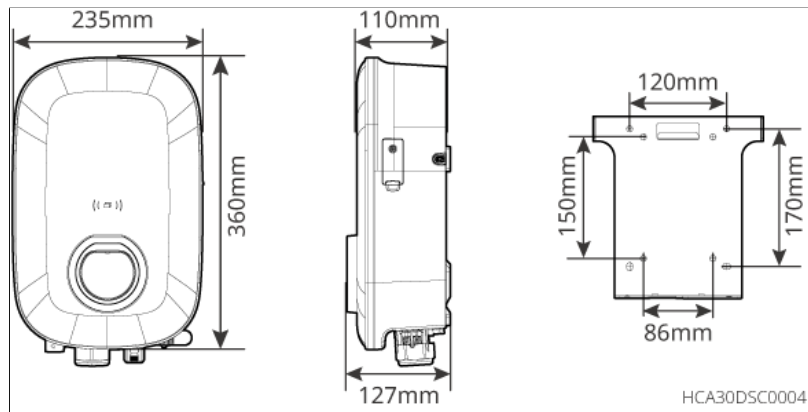


Figure1 Integrated cable version

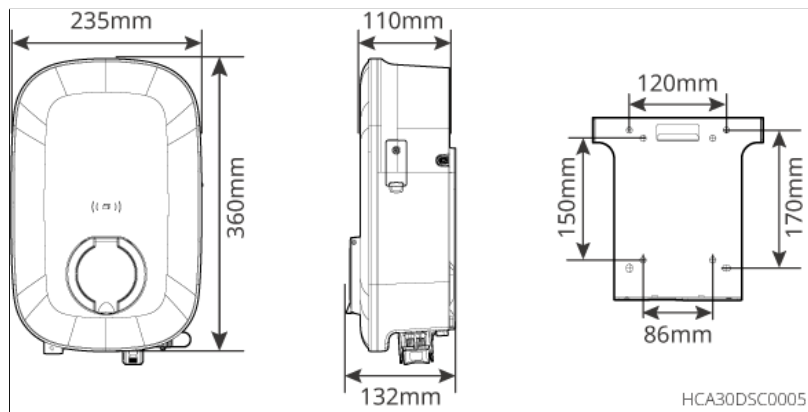
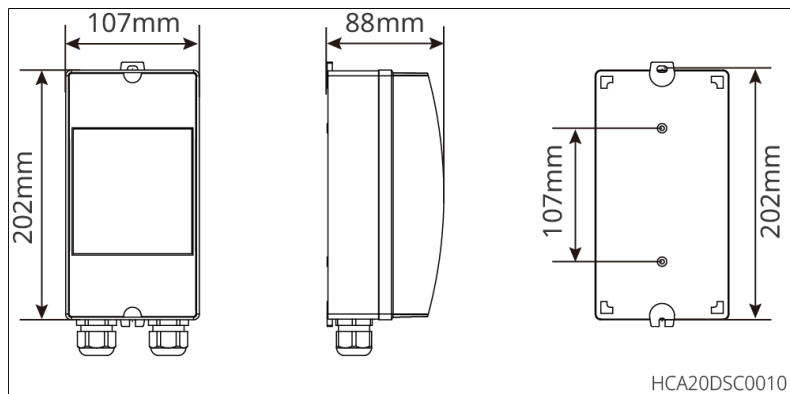


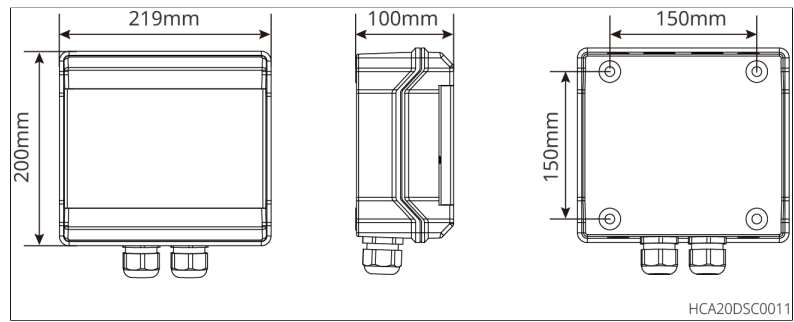
Figure2 Detachable charging connector version

(Optional) RCBO Distribution Box

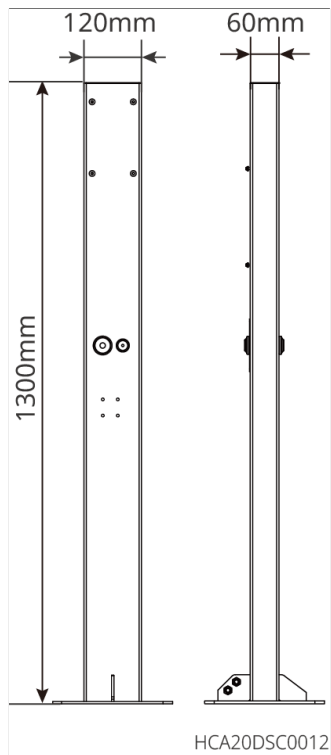
- GW7K-HCA-G30、GW7K-HCA-UK-G30



- GW11K-HCA-G30、GW11K-HCA-UK-G30、GW22K-HCA-G30、GW22K-HCA-UK-G30



(Optional) Pedestal



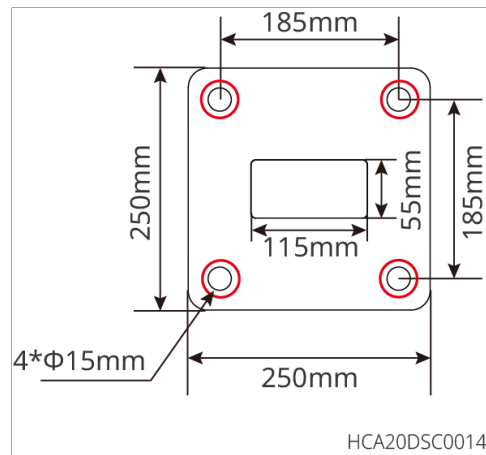


Figure3 Pedestal base

(Optional) MID Meter

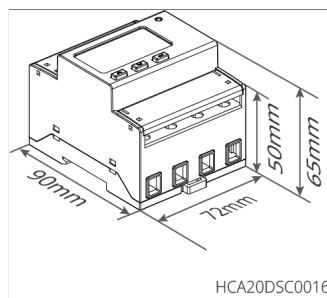


Figure4 Three-phase energy meter

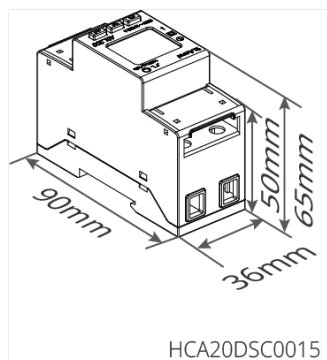


Figure5 Single-phase energy meter

3.6.3 Indicator Light Description

Indicator Light	Color	Description
	Solid green	The EV charger is in standby mode.
	Green flashing rapidly, 3 times per second	The EV charger system is being upgraded.
	Green flashing slowly, once per second	Charging handshake phase (the interval from the charging start trigger until the EV charger officially enters charging mode).
	Solid blue	Charging an electric vehicle.
	Solid red	The EV charger has a fault.
	Blue flashes twice	EV charger pairing successful.
	Indicator status for card-reading errors	
	Red on for 2 s	Card tapped when the charging connector is not plugged in.
	Flashes red twice	The EV charger is incompatible.

4 Equipment Inspection and Storage

4.1 Pre-Acceptance Inspection

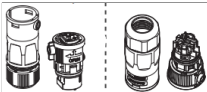
Before accepting the product, carefully check the following:

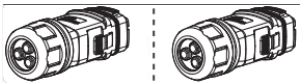
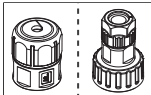
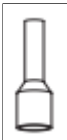
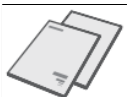
1. Check the outer packaging for damage, such as deformation, holes, cracks, or any other signs that may indicate damage to the equipment inside. If damage is found, do not open the packaging; contact your distributor.
2. Check that the EV charger model is correct. If it does not match, do not open the packaging; contact your distributor.
3. Check that the type and quantity of the delivered items are correct and that they are not visibly damaged. If any damage is found, contact your distributor.

4.2 Scope of Delivery

WARNING

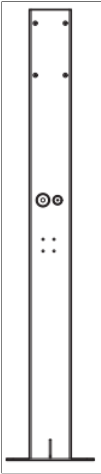
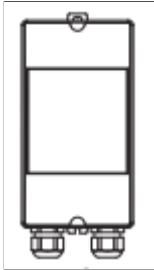
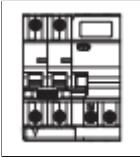
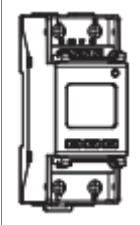
When making electrical connections, use the terminals supplied with the unit. Damage to the equipment caused by using incompatible connectors is not covered by the warranty.

Components	Description	Components	Description
	EV charger ×1		AC Connector (cable end) ×1
	×1		Blanking plate fixing screws ×4

Components	Description	Components	Description
	RS485 communication connector (cable end) ×1		LAN communication connector (cable end) ×1
	Phillips screwdriver ×1		Flat-head screwdriver ×1
	AC wire ferrules ×5		RS485 wire ferrules ×6
	RJ45 connector ×1		Wall-mounting screw decorative caps ×2
	RFID card ×2		Documentation ×1

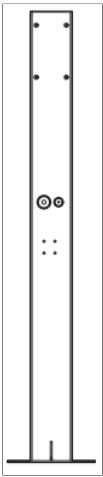
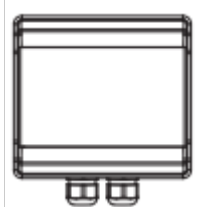
Optional for GW7K-HCA-G30 and GW7K-HCA-UK-G30

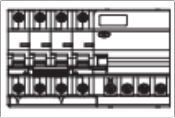
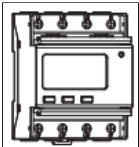
Components	Description	Components	Description
	M5 × 12 screws ×8		M4 × 10 screws ×2

Components	Description	Components	Description
	M4 × 10 countersunk screws ×4		M12 × 100 expansion anchors ×4
	Pedestal ×1		RCBO enclosure ×1
	RCBO×1		Expansion screws ×4
	MID energy meter ×1		AC wire ferrules ×4

Components	Description	Components	Description
	RS485 wire ferrules ×2	-	-

Optional for GW11K-HCA-G30, GW11K-HCA-UK-G30, GW22K-HCA-G30, and GW22K-HCA-UK-G30

Components	Description	Components	Description
	M5 × 12 screws ×12		M4 × 10 screws ×2
	M4 × 10 countersunk screws ×4		M12 × 100 expansion anchors ×4
	Pedestal ×1		RCBO enclosure ×1

Components	Description	Components	Description
	RCBO×1		Expansion screws ×4
	MID energy meter ×1		AC wire ferrules ×8
	RS485 wire ferrules ×2	-	-

4.3 Equipment Storage

If the EV charger will not be put into service immediately, store it in accordance with the following requirements:

1. Ensure that the outer packaging is intact and the desiccant inside the box has not been lost.
2. Ensure that the storage area is clean, the temperature and humidity are within the appropriate ranges, and there is no condensation.
3. Stack the charging stations according to the stacking height and orientation indicated on the packaging labels.
4. Ensure that the stacked charging stations are stable and pose no risk of tipping over.
5. After long-term storage, the charging station must be inspected and approved by qualified personnel before being put back into service.

5 Installation

5.1 Installation Requirements



Installation Environment Requirements

- Do not install the equipment in environments that are flammable, explosive, corrosive, or otherwise hazardous.
- Install the equipment out of reach of children. The surface may become hot during operation, posing a burn hazard.
- When selecting the installation location, avoid water pipes, cables, and other utilities inside the wall to prevent hazards when drilling.
- Install the charging station in a sheltered location whenever possible.
- Allow sufficient space for ventilation and heat dissipation, as well as for operation.
- The equipment's Ingress Protection Rating is suitable for indoor and outdoor installation. Ensure that the temperature and humidity at the installation site are within the permissible ranges.
- Install the equipment at a height that allows convenient operation and maintenance. Ensure that the indicator lights and all labels are easy to see and that the terminals are readily accessible.
- Install the charging station at an altitude below the Max. Operating Altitude of

2000 m.

- Keep the equipment away from strong magnetic fields to prevent electromagnetic interference.

Mounting Surface Requirements

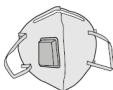
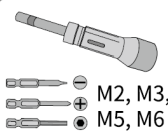
- The mounting surface must be made of non-combustible material and provide fire protection.
- Ensure that the mounting surface is sturdy and reliable and can support the Weight of the charging station.

Installation Angle Requirements

- Recommended Installation Angle for the charging station: vertical.
- Do not install the charging station upside down, horizontally, or at an angle that exceeds the permitted forward or backward tilt.

Installation Tool Requirements

Use the following tools for installation. Other auxiliary tools may be used on site as needed.

 Goggles	 Safety shoes	 Safety gloves	 Dust mask	 Rubber hammer
 Diagonal pliers	 Wire stripper	 Hammer drill	 Marker	 Level
 Multimeter	 Cable tie	 Torque wrench	 Vacuum cleaner	

5.2 Installing the EV Charger

5.2.1 Moving the EV Charger

CAUTION

Before installation, move the charging station to the installation site. To prevent personal injury or equipment damage during transport, observe the following precautions:

- Assign an appropriate number of people based on the equipment Weight to avoid exceeding the safe manual lifting capacity and causing injury.
- Wear safety gloves to prevent injury.
- Keep the equipment balanced while handling it to prevent it from falling.

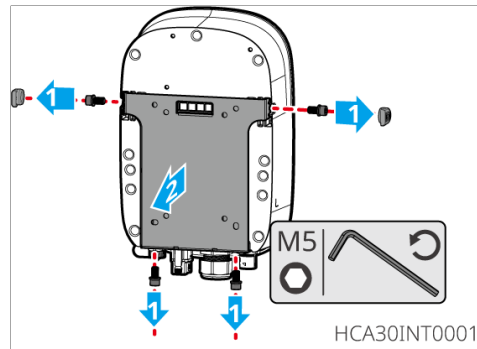
NOTICE

- When drilling, make sure the drilling locations are clear of water pipes, cables, and other objects inside the wall to avoid hazards.
- When drilling, wear safety goggles and a dust mask to prevent dust from entering your respiratory tract or eyes.
- Securely install the EV charger to prevent it from falling and injuring personnel.

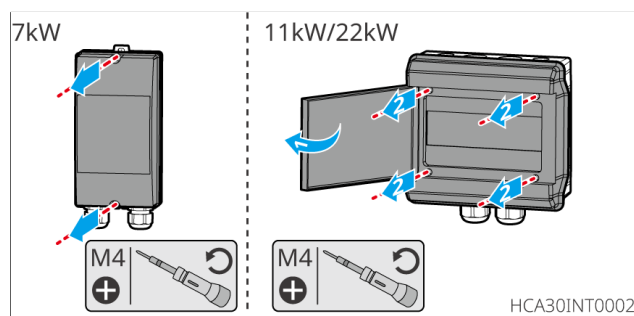
5.2.2 Wall-Mounting the EV Charger

Installing the EV Charger

1. Remove the mounting plate from the EV charger.



2. Remove the front cover of the RCBO distribution box.

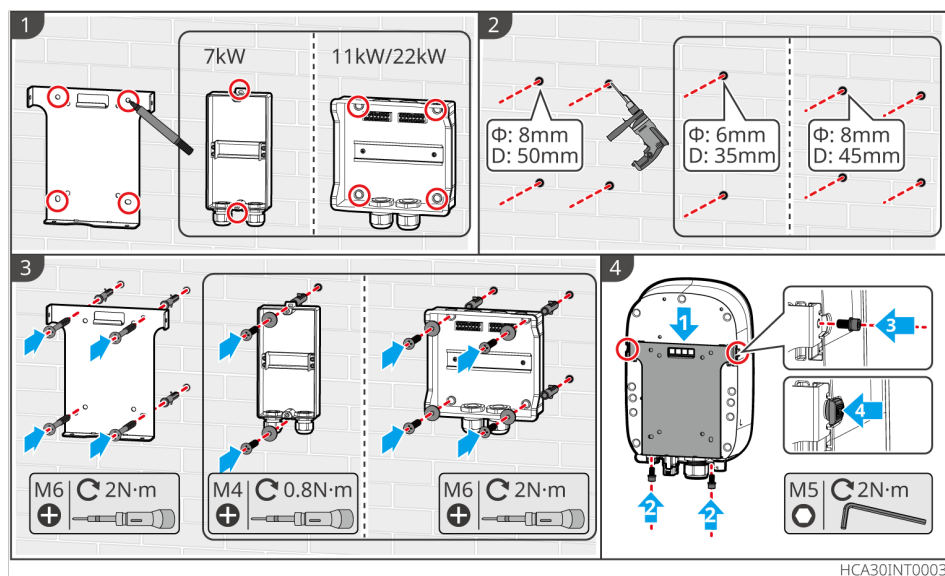


3. Position the mounting plate and RCBO box on the wall, then mark the drilling locations with a marker.

4. Drill the holes using a rotary hammer drill.

5. Use expansion screws to secure the RCBO box and mounting plate to the wall.

6. Hang the EV charger on the mounting plate, then secure the plate to the charger.

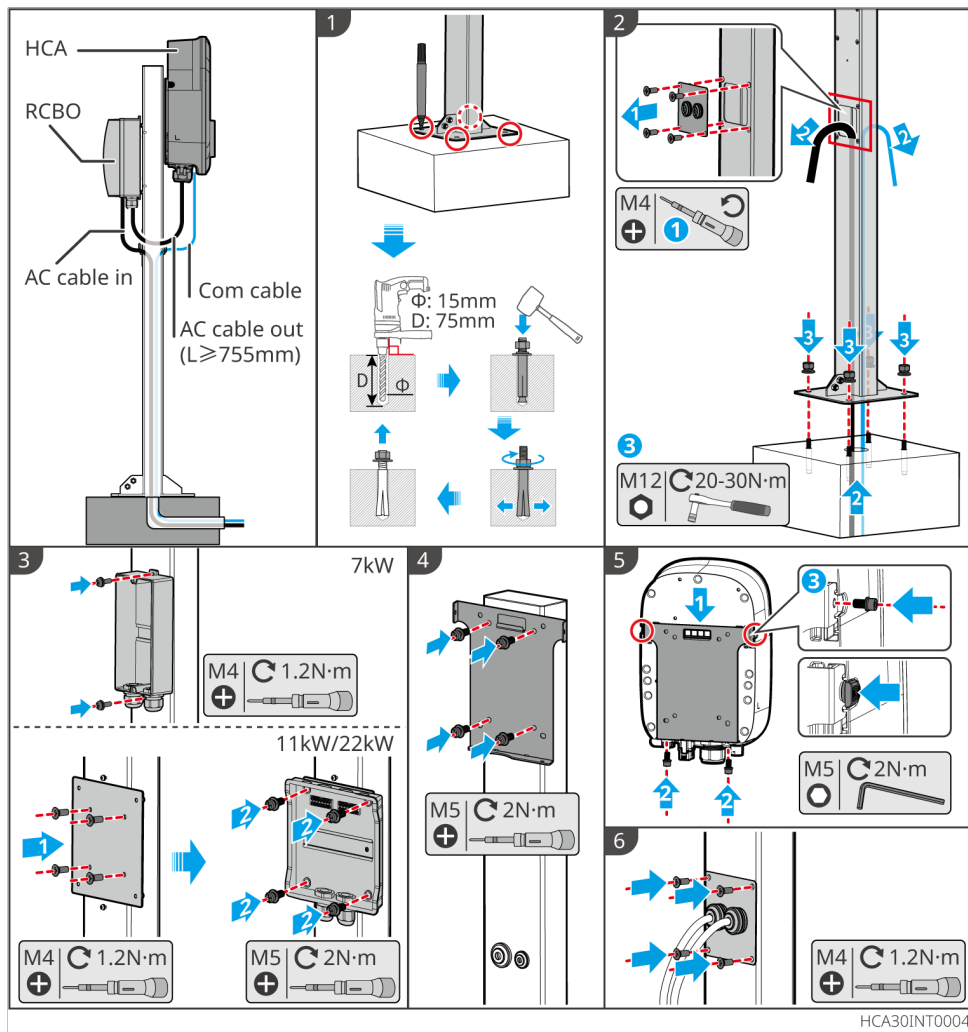


5.2.3 Pedestal-Mounting the EV Charger

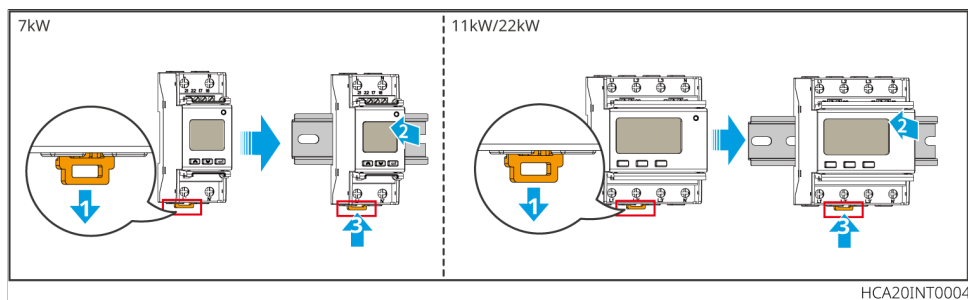
NOTICE

Conduit for the cables must be embedded in the concrete foundation. The conduit should have a diameter of approximately 60 mm.

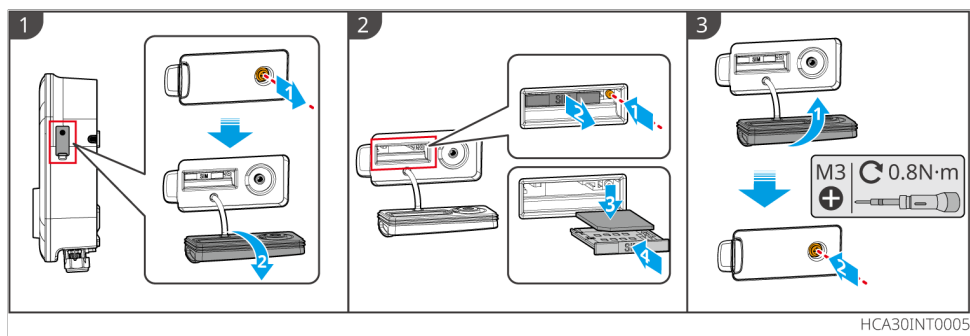
1. Position the pedestal upright on the concrete floor and mark the drilling locations with a marker. After marking, use a rotary hammer drill with a 15 mm bit to drill holes approximately 75 mm deep.
2. Secure the pedestal.
 - a. Remove the cable cover plate from the pedestal.
 - b. Feed the pre-embedded cables into the pedestal and route them through the cable outlet.
 - c. Secure the pedestal to the concrete floor using expansion bolts, and plug any unused mounting holes with screws.
3. Install the RCBO box on the pedestal.
 - For a 7 kW EV charger, secure it with screws.
 - For 11 kW and 22 kW EV chargers, first secure the adapter plate, then secure the RCBO box to the adapter plate.
4. Remove the mounting plate from the EV charger and install it on the pedestal.
5. Hang the EV charger on the mounting plate.
6. Reinstall the cable cover plate on the pedestal and tighten the screws.



5.2.4 Installing the MID Meter (Optional)



5.3 Installing the SIM Card



6 Electrical Connections

6.1 Safety Precautions

DANGER

- All procedures and the specifications of cables and components used during electrical connection must comply with local laws and regulations.
- Before making electrical connections, switch off the upstream circuit breaker. Never work on energized equipment, as this may result in electric shock or other hazards.
- Bundle cables of the same type together and route them separately from cables of other types. Do not intertwine or cross cables.
- Excessive tension on a cable may result in a poor connection. Leave some slack in the cable before connecting it to the EV charger terminals.
- When crimping a cable lug, ensure that the cable conductor is in full contact with the lug. Do not crimp the cable insulation together with the lug, as this may prevent the equipment from operating or cause heat buildup due to an unreliable connection, potentially damaging the EV charger's terminal block.
- The AC cable must be connected to the RCBO before being connected to the EV charger. The RCBO provides overcurrent Protection for the EV charger circuit.

WARNING

- When wiring, ensure that the AC input wires are correctly matched to the "L1," "L2," "L3," "N," and "PE" terminals. Incorrect wiring may damage the EV charger.
- Ensure that the conductors are fully inserted into the AC terminal openings with no exposed wire.
- Ensure that the cables are securely connected. Otherwise, the terminals may overheat while the equipment is operating, damaging the EV charger.

NOTICE

- When making electrical connections, wear the required personal protective equipment (PPE), such as safety shoes, protective gloves, and insulating gloves.
- Only qualified personnel are permitted to perform electrical connection work.
- The cable colors shown in the diagrams in this manual are for reference only. The actual cable specifications must comply with local regulations.

6.2 Prepare the Cables

Cable Specifications

Model	Cable	Cable Specifications
GW7K-HCA-G30、 GW7K-HCA-UK-G30	AC Cable (Outdoor Cable, 3-Core, Stranded)	<ul style="list-style-type: none">• Copper conductor, 105°C, 1000 V• Cable outer diameter: 13–14 mm• Cable conductor cross-sectional area: 6 mm²
GW11K-HCA-G30、 GW11K-HCA-UK-G30	AC Cable (Outdoor Cable, 5-Core, Stranded)	<ul style="list-style-type: none">• Copper conductor, 105°C, 1000 V• Cable outer diameter: 12.6–17.3 mm• Cable conductor cross-sectional area: 4–6 mm²

Model	Cable	Cable Specifications
GW22K-HCA-G30、 GW22K-HCA-UK-G30		<ul style="list-style-type: none"> • Copper conductor, 105°C, 1000 V • Cable outer diameter: 16.3–17.3 mm • Cable conductor cross-sectional area: 6 mm²[1]
[1]: The recommended distance between the distribution box and the charging station should not exceed 15 m.		

RCBO Specifications

NOTICE

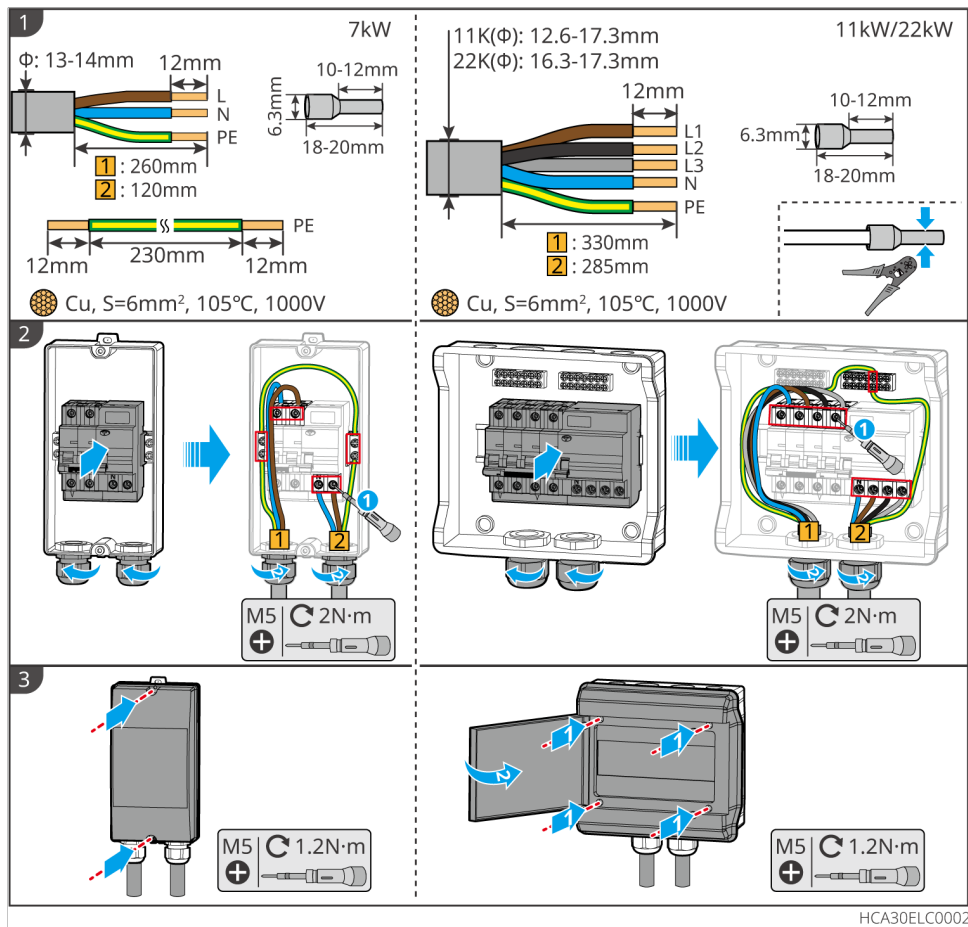
RCBO specifications may vary depending on international laws, regulations, and standards.

6.3 Connect the RCBO

NOTICE

- The following instructions for connecting the RCBO cables apply only to RCBO models purchased from the EV charger manufacturer. For instructions on connecting other types of RCBO, refer to the relevant documentation.
- Connect AC cable No. 1 to the utility grid or the inverter AC output, and cable No. 2 to the EV charger AC input.

1. Prepare and crimp the AC cables.
2. Feed the prepared AC cables through the RCBO distribution box and secure them to the RCBO terminals in the correct wiring sequence.
3. Install the cover of the RCBO distribution box to prevent water and other foreign matter from entering.



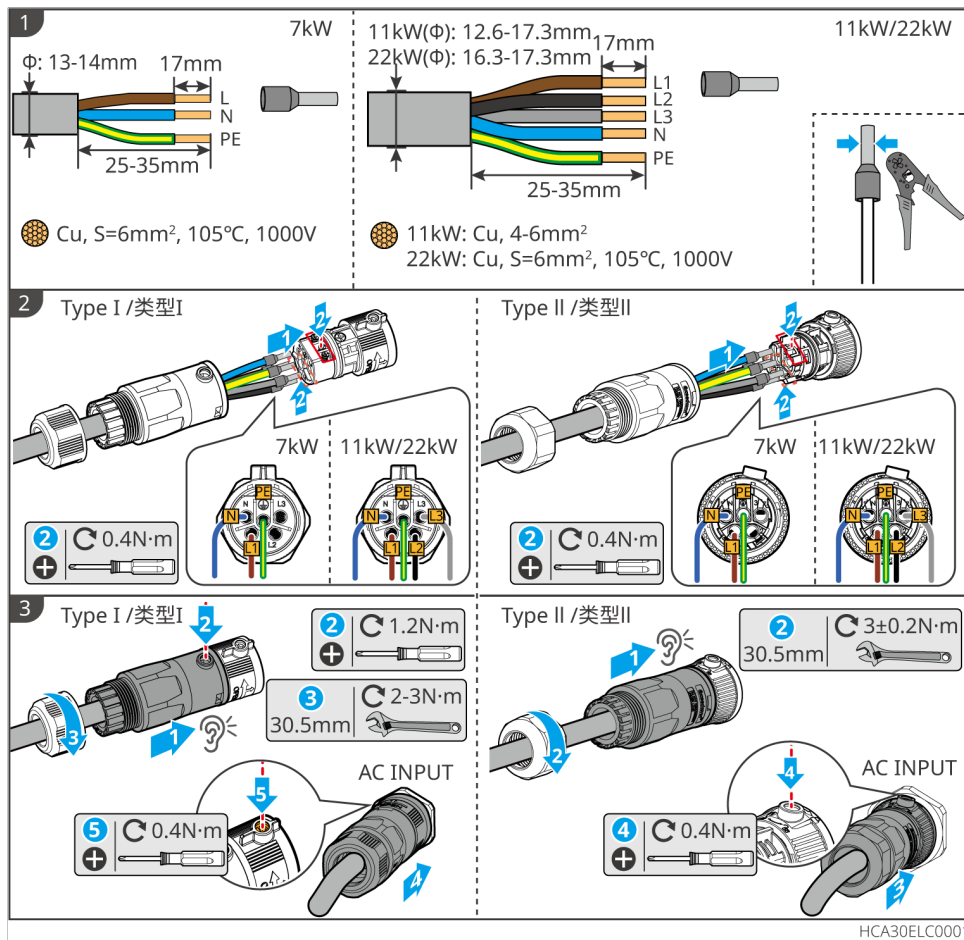
6.4 Connect the AC Cable to the EV Charger

NOTICE

For the GW7K-HCA-G30 and GW7K-HCA-UK-G30, connect a single-phase AC input cable. For the GW11K-HCA-G30, GW11K-HCA-UK-G30, GW22K-HCA-G30, and GW22K-HCA-UK-G30, connect a three-phase AC input cable.

The three-phase AC input cable consists of L1, L2, L3, N, and PE conductors; the single-phase AC input cable consists of L, N, and PE conductors.

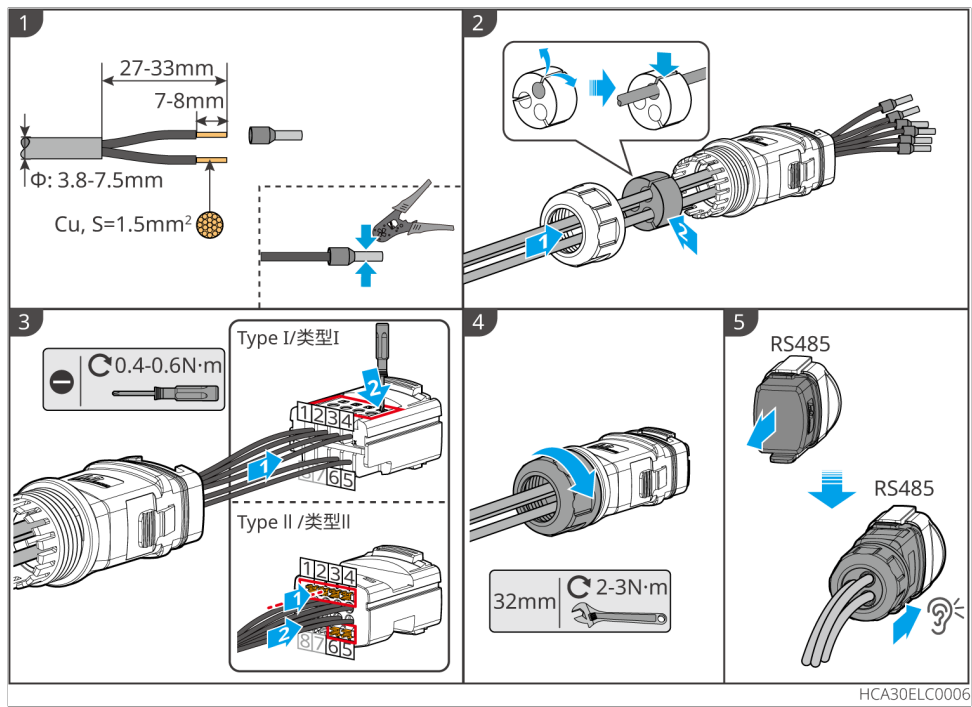
1. Prepare the AC cable.
2. Secure the AC input cable to the AC terminal and tighten the terminal.
3. Secure the AC input terminal to the EV charger.



6.5 Connecting the EV Charger Communication Cable

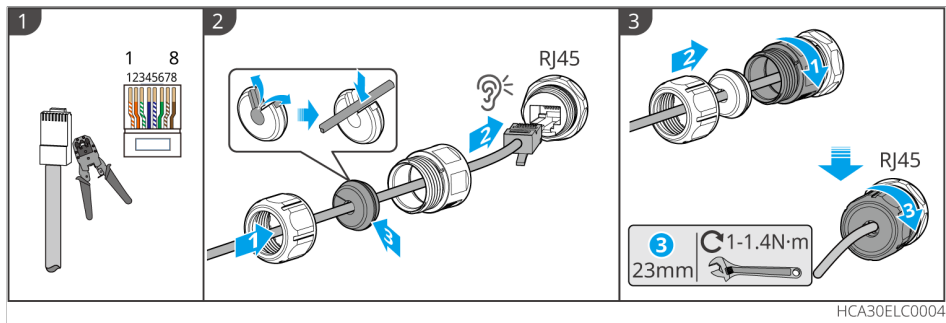
NOTICE

- When connecting the communication cable, ensure that the terminal pinout matches the equipment exactly. Route the cable away from sources of interference, such as power cables, to avoid affecting signal reception.
- Connect the EV charger's RS485_A2/B2 terminals to the inverter communication port. Refer to the corresponding inverter manual for the specific RS485 port.
- Use either the inverter or the GoodWe meter. If an inverter is already installed, there is no need to connect a GoodWe meter.

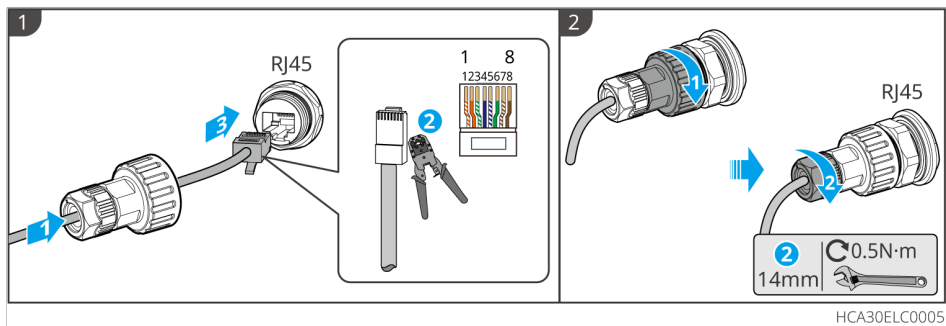


6.5.2 Connect the Ethernet Cable

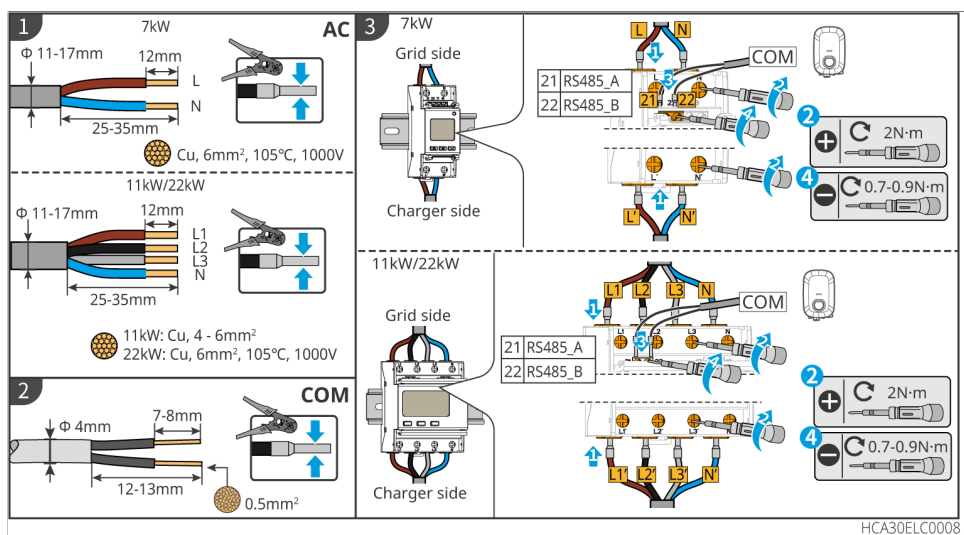
• Type 1



• Type 2



6.6 Connect the MID Meter (Optional)



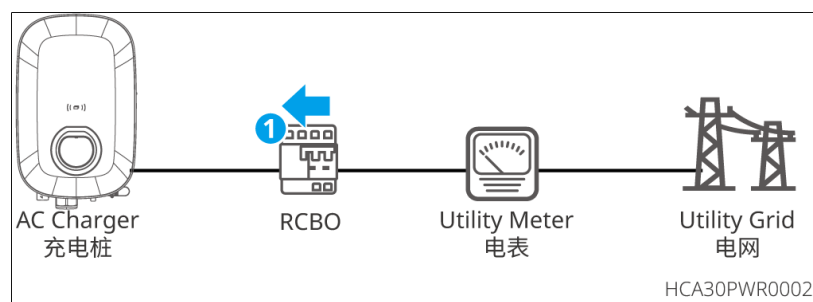
7 Commissioning the Equipment

7.1 Pre-Energization Inspection

No.	Inspection Item
1	The EV charger is securely installed in a location that allows easy operation and maintenance, with sufficient space for ventilation and heat dissipation. The installation environment is clean and tidy.
2	The AC input cables and communication cables are connected correctly and securely.
3	Cables are secured and routed as required, are properly arranged, and are undamaged.
4	Unused ports are sealed.
5	The grid voltage, frequency, and other parameters meet the operating requirements of the EV charger.

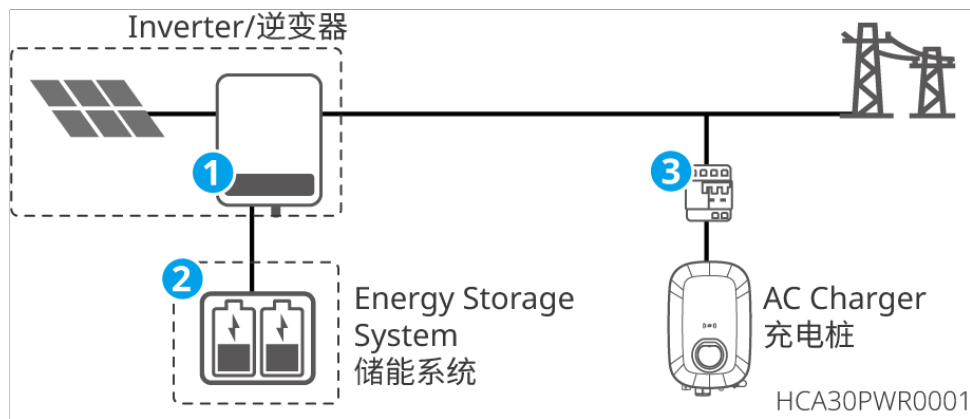
7.2 Energize the Equipment

Grid-Connected Scenario



Close the RCBO between the EV charger and the grid.

PV-Storage-Charging Scenario



1. Close the inverter-side AC Switch and DC Switch.
2. (Optional) Close the Battery Side switch.
3. Close the RCBO.

7.3 Charging an Electric Vehicle

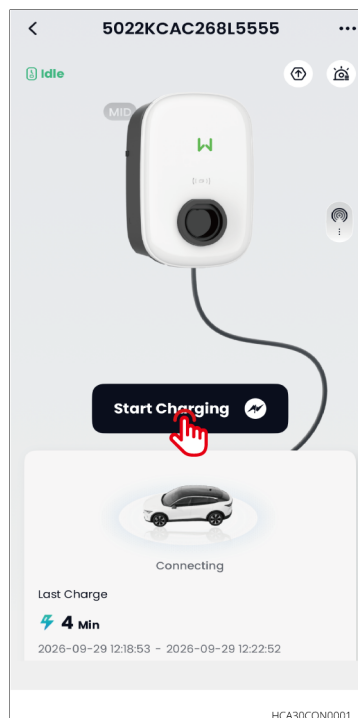
DANGER

- Do not move the electric vehicle while it is being charged by the EV charger.
- If an abnormal condition occurs during charging, use the EPO button to cut off the power supply.
- Avoid charging electric vehicles during thunderstorms. If charging is necessary, ensure that the EV charger connector and the vehicle's charging inlet are dry.
- Keep children away from the EV charger and do not allow them to use it.
- Do not charge an electric vehicle if the EV charger has a fault or if the cables are damaged or otherwise abnormal.

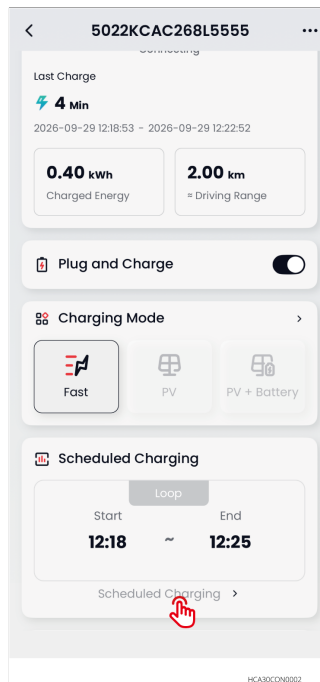
NOTICE

- Before charging, insert the charging connector into the electric vehicle's charging inlet.
- After charging, for an EV charger with an integrated cable and connector, unplug the connector, wrap the cable around the cable holder on the charger, and insert the connector into the charger socket.
- If the electric vehicle does not support Automatic Charging, after the EV charger resumes from the interrupted charging state, unplug and reconnect the charging connector to restart charging:
 - In Plug and Charge mode, charging starts automatically;
 - In non-Plug and Charge mode, charging can be started by swiping a card or through the app.

7.3.1 Start Charging in the SEMS+ App

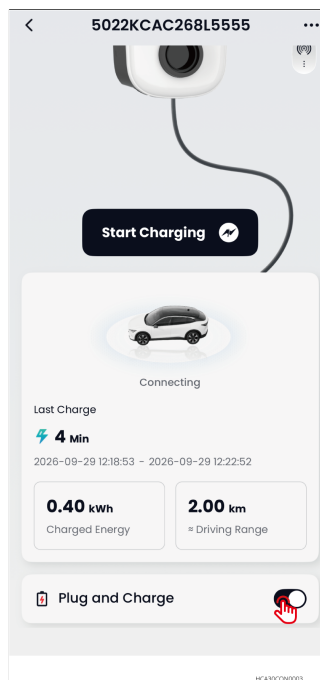


7.3.2 Schedule Charging in the SEMS+ App



7.3.3 Charge in Plug-and-Play Mode

After selecting Plug and Play in the app, if no scheduled charging has been set, you can start charging the electric vehicle simply by inserting the charging connector, without scanning an RFID card.



7.3.4 Charge Using an RFID Card

NOTICE

An RFID card must be bound in advance. For binding instructions, refer to [8.6.Settings\(Page 59\)](#).

If Plug and Charge has not been enabled, the EV charger will start charging the electric vehicle after the card is swiped.

8 Setting up and Viewing EV Charger Information in the SEMS+ App (End User)

SEMS+ is a cloud platform for centralized remote dispatch and monitoring of EV chargers and inverters.

8.1 Download and Install the App

Phone Requirements

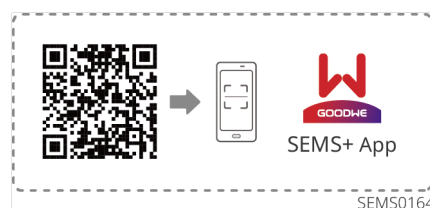
- Mobile operating system requirements: Android 7.0 or later, iOS 15.1 or later.
- The mobile phone must support a web browser and be connected to the Internet.
- The mobile phone must support WLAN/Bluetooth.

Download

- Option 1: Search for SEMS+ on Google Play (Android) or the App Store (iOS), then download and install it.



- Option 2: Scan the QR code below to download and install the app.



8.2 Create an Account (End User)

Read the Data Protection Statement carefully, then enter your registration details based on your actual circumstances to complete registration.

The registration process consists of four steps:

- Step 1:** On the login screen, tap the **Register** button.
- Step 2:** On the **Account Type** screen, select **International Server** (2) and **Owner** (3).
- Step 3:** On the **Account Details** screen, fill in the required information and tap **Confirm** (4).
- Step 4:** On the **Account Details** screen, fill in the required information and tap **Confirm** (4).

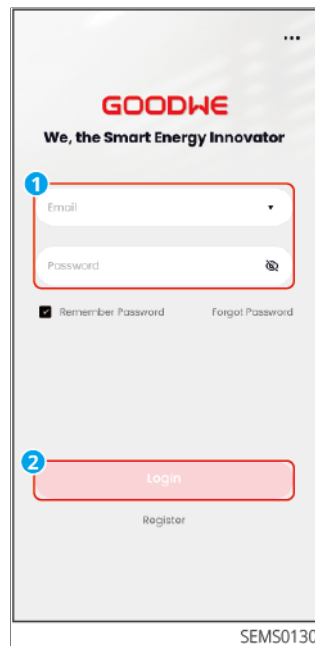
SEMS0129

8.3 Log in to the App

NOTICE

You have obtained your account credentials.

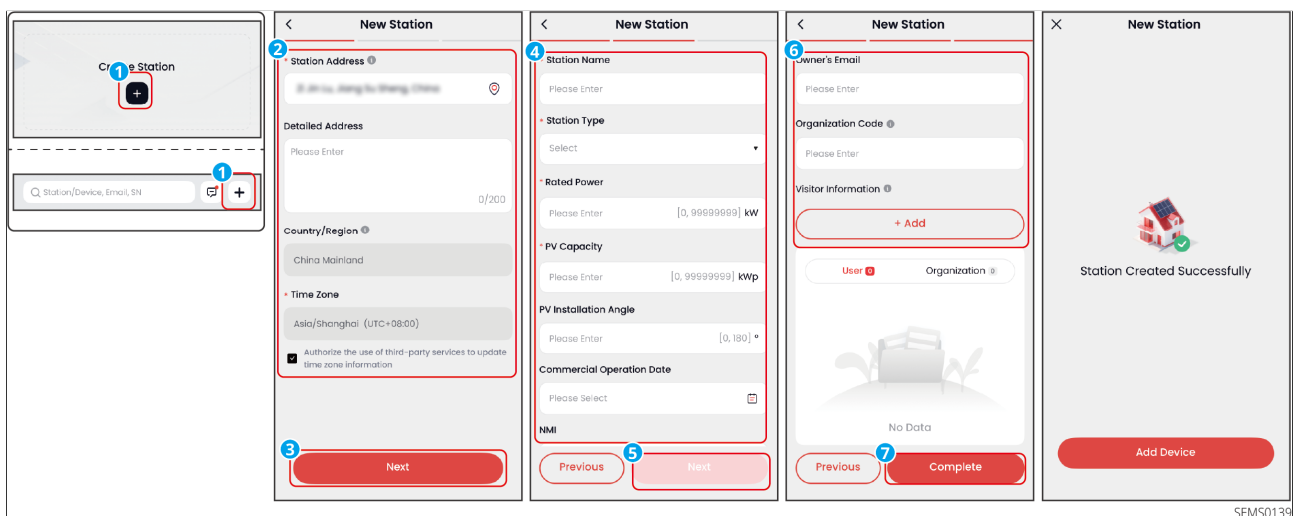
Enter your account credentials to log in to SEMS+ App.



8.4 Create a Power Station

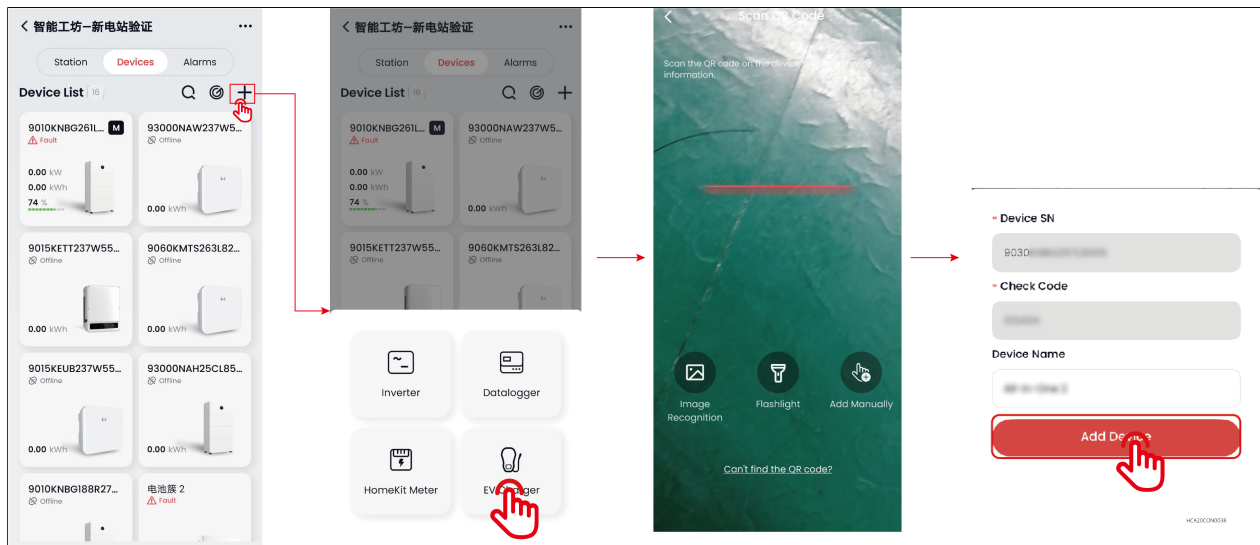
Enter Power Station Information

1. After logging in to the App, tap "Create Power Station" if there are no power stations under your account. If there are existing power stations, tap "+" on the power station list screen to open the new power station information entry screen.
2. Follow the on-screen prompts and enter the power station information based on your actual circumstances. (* indicates a required field)



Add a Device

1. On the device list screen, tap .
2. Select the device type, then scan the device SN or enter it manually.
3. After scanning, verify that the device serial number and verification code are correct. Tap "Add Device" to complete the process.



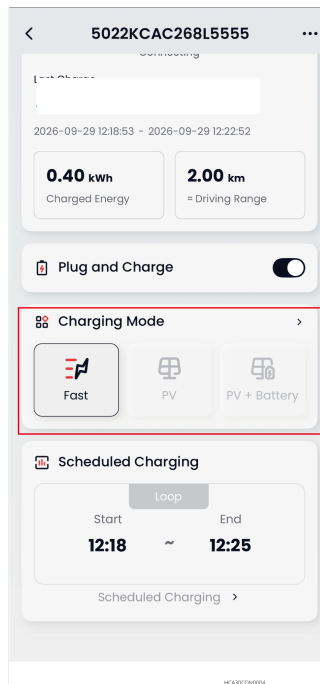
8.5 Charging Modes

NOTICE

If the electric vehicle does not support Automatic Charging, after the EV charger resumes from a charging interruption, unplug and reconnect the charging connector, then manually start charging in the App.

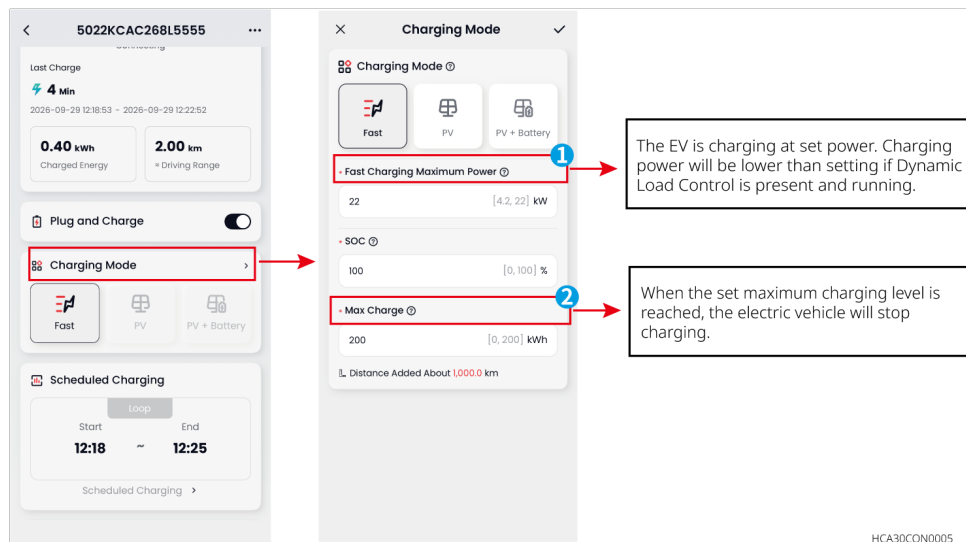
Charging Mode Overview

The EV charger has three advanced charging modes: Fast Charging, PV Charging, and PV + Battery Charging.



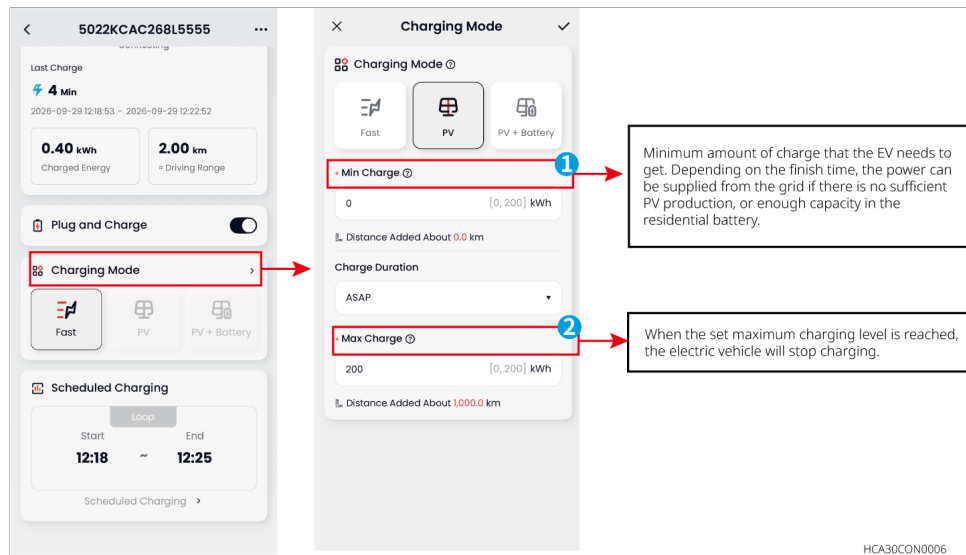
Fast Charging

The EV charger can use power from the grid, PV, or the battery to charge the electric vehicle. The EV charger's output power is set to the rated power by default. Users can customize the output power according to their needs, up to the rated power.



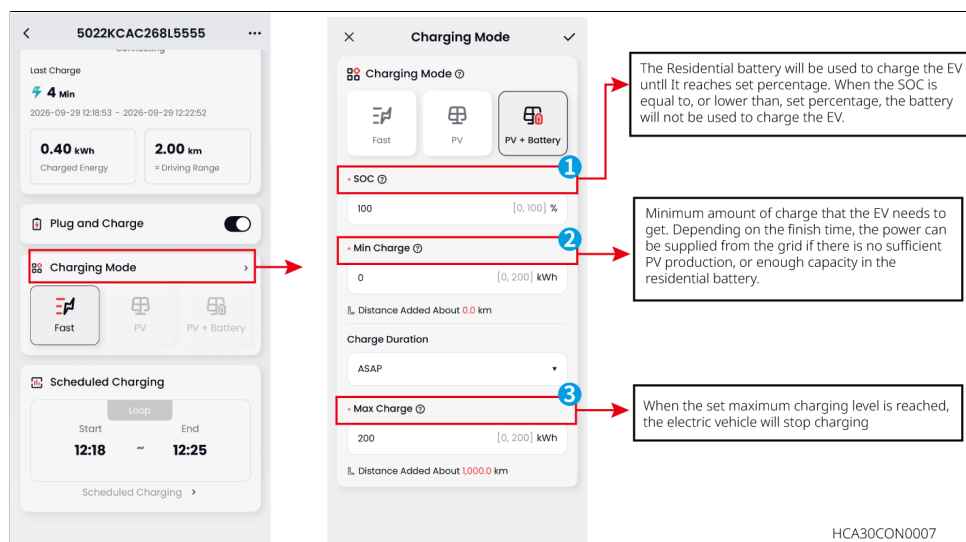
PV Charging

Uses PV power only to charge the electric vehicle. PV power is prioritized for loads, and any surplus power is used to charge the electric vehicle.

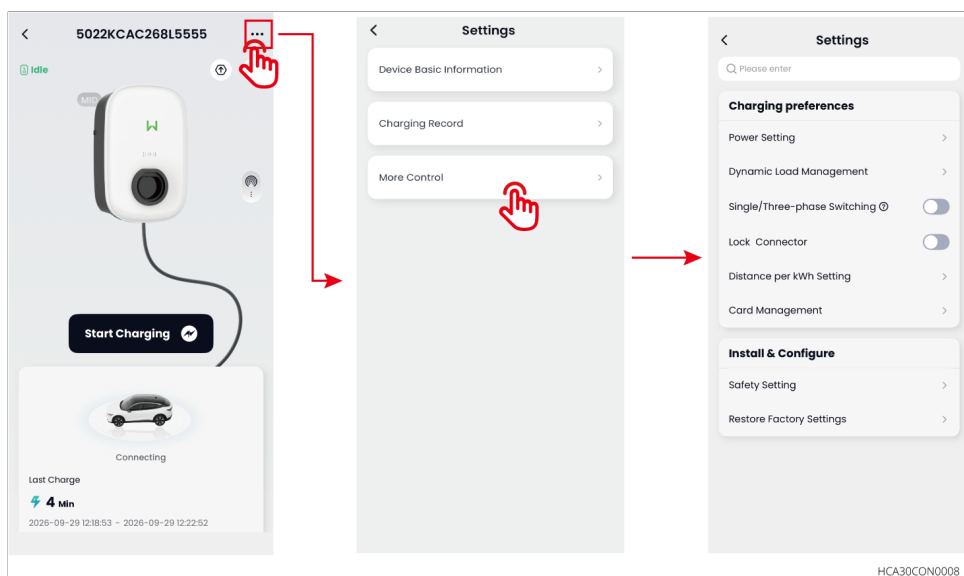


PV + Battery Charging

Uses PV and battery power to charge the electric vehicle. PV or battery power is prioritized for loads, and any surplus power is used to charge the electric vehicle.



8.6 Settings



Power Setting

1 Adjustable power limit to meet actual operational requirements.

2 Charging prioritizes solar, and can be assisted by the grid/battery when PV power is insufficient; if it is turned off, it will stop when PV power is exhausted.

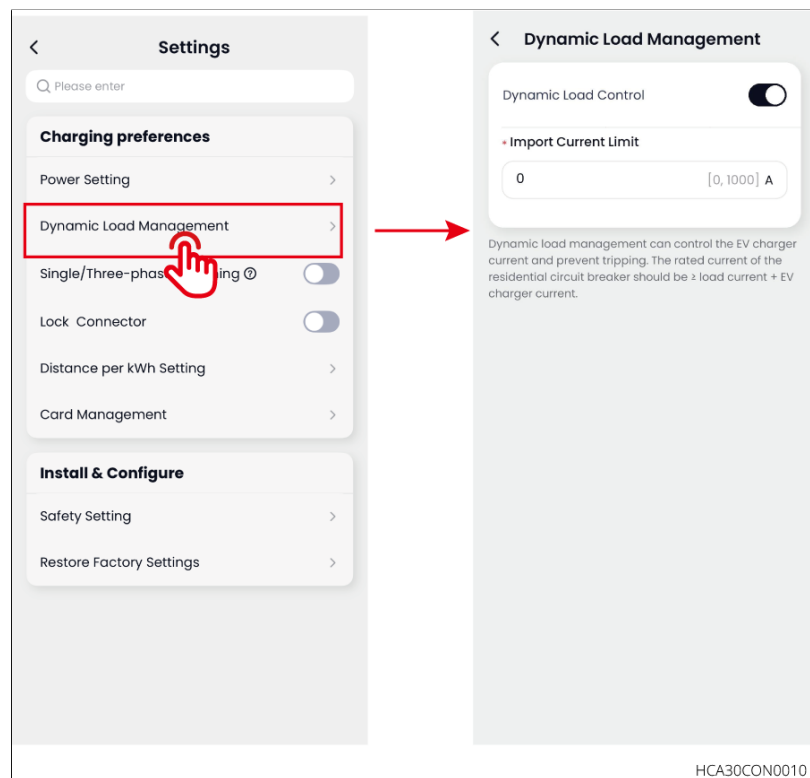
3 The peak power limit for the electricity purchased from the grid ensures that the electricity consumed by the EV will not exceed the grid's peak power limit.

4 EnWG 14A: According to the German EnWG (Energy Industry Act) 14A, all SteuVE (controllable loads) require emergency switching from the grid. Grid operators can temporarily reduce the maximum consumption of controllable loads to 4.2 kW. If only DII-EnWG14A is needed, no wiring is required for other DI ports.

Dynamic Load Management

NOTICE

This function requires a compatible inverter or GoodWe smart meter to be connected to the network. The setting will not take effect if neither is connected.

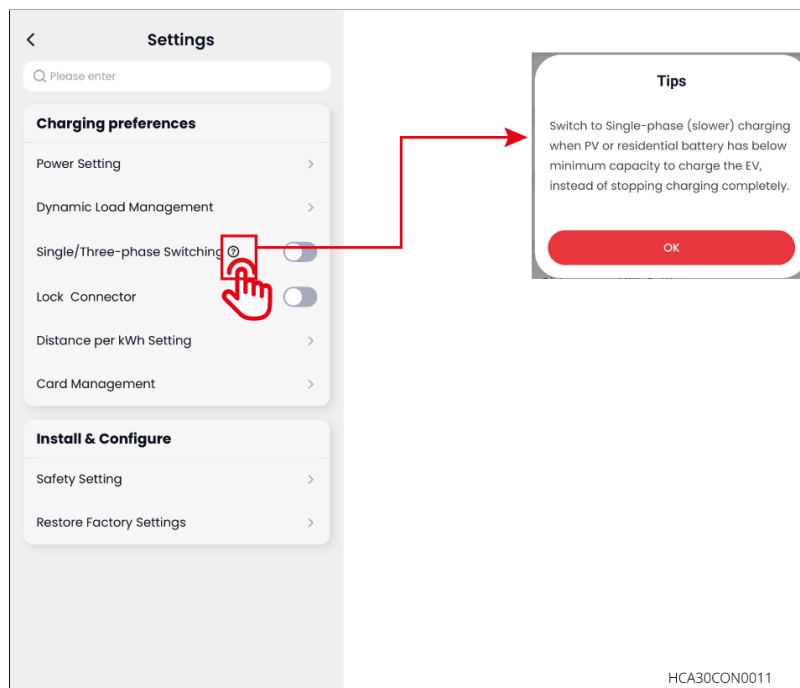


Single-Phase/Three-Phase Switching

NOTICE

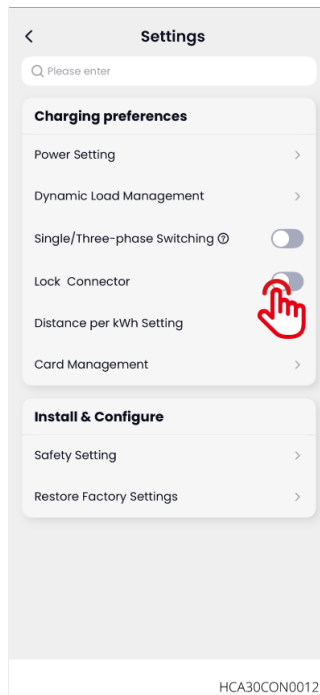
Only three-phase charging stations support single-phase/three-phase switching.

- On: Enables single-/three-phase switching.
- Off: The electric vehicle charger remains in three-phase charging mode.



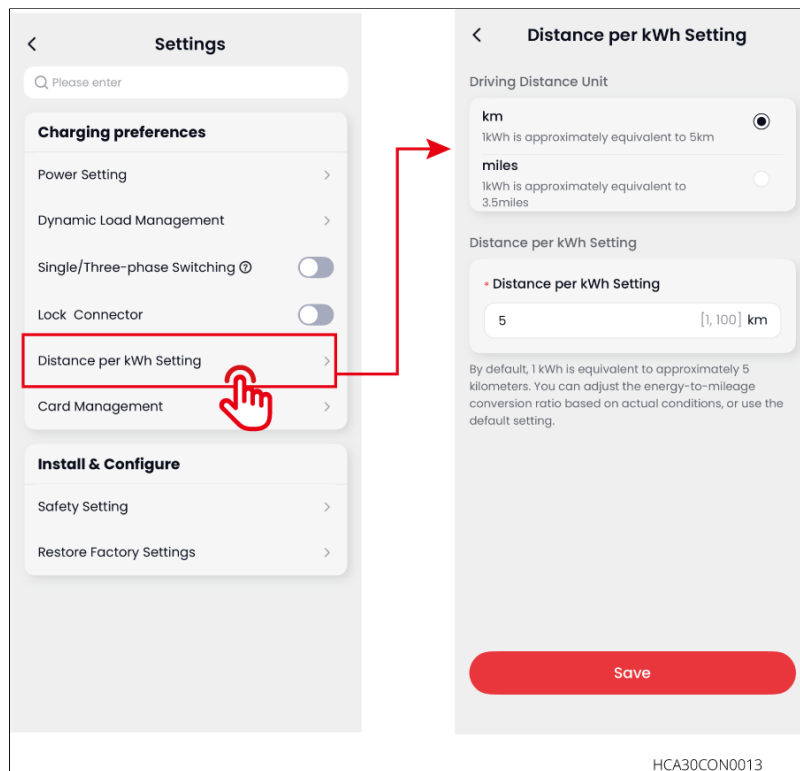
Connector Lock

When this function is enabled, the electronic lock on the corresponding connector is activated, preventing the cable connector inserted into the charging station holster from being removed. This secures the cable to the charging station and prevents it from coming loose or being stolen. This function applies to charging stations with a separate cable and connector.



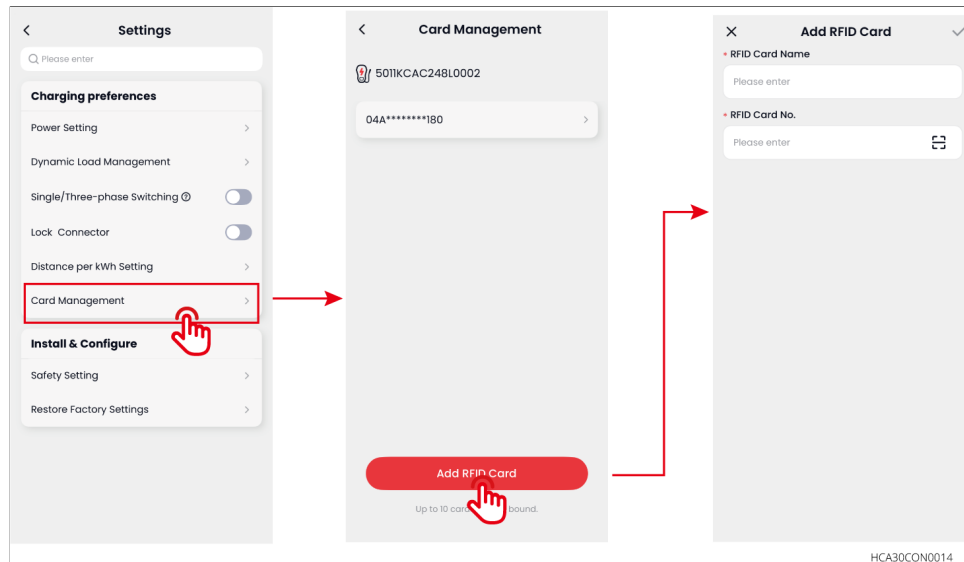
Energy-to-Driving-Distance Conversion

Set the energy-to-distance conversion ratio according to actual conditions.



RFID Card Management

Follow the steps below to add an RFID card.



9 System Maintenance

9.1 De-Energize the EV Charger

DANGER

Power off the charging station before performing maintenance. Working on energized equipment may damage the charging station or cause an electric shock hazard.

Disconnect the RCBO switch between the charging station and the grid or inverter.

9.2 Remove the EV Charger

WARNING

- Make sure the charging station is powered off.
- Wear personal protective equipment when working on the charging station.

1. Disconnect all electrical connections to the charging station, including the AC cable and communication cable.
2. Remove the charging station from the mounting plate.
3. Remove the mounting plate.
4. Store the charging station properly. If it will be used again, ensure that the storage conditions meet the requirements.

9.3 Dispose of the EV Charger

When the charging pile can no longer be used and must be scrapped, dispose of it in accordance with the electrical waste disposal requirements stipulated by the laws and regulations of the country/region where it is located.
Do not dispose of the charging pile as household waste.

9.4 Regular Maintenance

Maintenance Item	Maintenance Method	Maintenance Interval
Electrical Connections	Check for loose electrical connections and inspect cables for visible damage or exposed copper conductors.	Once every six months to once a year
Sealing	Check that the equipment cable-entry opening is adequately sealed. If there are excessively large gaps or the opening is unsealed, reseal it.	Once every six months to once a year
RCBO Residual Current Protection Switch	Press the residual current protection  switch <small>test monthly</small> to ensure that the RCBO trips correctly.	Once a month

9.5 Troubleshooting

When a fault occurs in the EV charger, the indicator light turns red. Log in to the SEMS+ App to view detailed fault information.

Troubleshoot the issue using the methods below. If these methods do not resolve the issue, contact the after-sales service center.

When contacting the after-sales service center, collect the following information to help resolve the issue quickly.

1. EV charger information, such as the serial number, software version, device installation date, time of fault occurrence, and fault frequency.
2. Device installation environment, such as weather conditions. Photos, videos, or other files showing the installation environment are recommended to assist with issue analysis.
3. Grid conditions.

No.	Fault Information	Fault Cause	Corrective Action
1	Charging Gun Connection Failure	The charging gun disconnects during charging	Reconnect the charging gun
2	Grounding Abnormal	AC input ground wire Not Connected	Check and reconnect the ground wire
3	Environment Overtemperature	The temperature inside the EV charger exceeds 98°C	The fault clears after the temperature drops, and the charger enters standby mode
4	Overvoltage	AC input voltage overvoltage	The fault clears when the voltage returns to normal, and the charger enters standby mode
5	Low Voltage	AC input voltage undervoltage	
6	Overcurrent	Output short circuit or overcurrent	The fault clears when the output returns to normal, and the charger enters standby mode
7	Charging paused for too long	<ul style="list-style-type: none"> The vehicle battery is fully charged The ambient temperature is too low for the battery to charge Abnormal charging gun connection 	<ol style="list-style-type: none"> 1. Use the software to check whether the battery has finished charging 2. When the ambient temperature is too low, start the vehicle and allow it to warm up for five minutes before charging. 3. Unplug the connector, wait approximately 15 seconds, then reconnect it.

No.	Fault Information	Fault Cause	Corrective Action
8	Handshake timeout	CP signal communication failed	<ol style="list-style-type: none"> 1. Check whether the vehicle battery is fully charged. 2. Unplug the connector, wait approximately 15 seconds, then reconnect it. If the fault persists, restart the vehicle. If the fault cannot be cleared, contact your dealer or after-sales service center.
9	AC Output Relay Sticking Failure	Internal component fault	Restart the EV charger. If the fault persists, contact your dealer or after-sales service center.
10	Meter Comm Failure		
11	GFCI Failure		
12	Meter Reading Abnormal		
13	EE Read/Write Abnormal		
14	Off-chip Flash Read/Write Abnormal		
15	Leakage detector component fault		

No.	Fault Information	Fault Cause	Corrective Action
16	Failed to start charging remotely via the app	Wi-Fi signal abnormal	Check the Wi-Fi signal. If the signal is normal, contact your dealer or after-sales service center.
17	Communication between the EV charger and inverter failed	Inverter communication baud rate is incompatible	Set the inverter baud rate to 9600.

10 Technical Data

Technical Data	GW7K-HCA-G30	GW11K-HCA-G30	GW22K-HCA-G30
Input / Output			
Rated Power (kW)	7	11	22
Nominal Voltage (V)	230, L/N/PE	400, 3L/N/PE	400, 3L/N/PE
Voltage Range (V)	/	/	/
Nominal Frequency (Hz)	50/60	50/60	50/60
Rated Current (A)	32	16	32
Max.Output current(A)	/	/	/
Protection			
Residual Current Protection	AC 30mA+ DC 6mA	AC 30mA+ DC 6mA	AC 30mA+ DC 6mA
Overcurrent Protection	Integrated	Integrated	Integrated
Overvoltage Protection	Integrated	Integrated	Integrated
Over Temperature Protection	Integrated	Integrated	Integrated
Insulation Resistance Monitoring	Integrated	Integrated	Integrated
Ground Fault Protection	Integrated	Integrated	Integrated

Technical Data	GW7K-HCA-G30	GW11K-HCA-G30	GW22K-HCA-G30
AC Surge Protection	Type III	Type III	Type III
Open PEN Detection (BS 7671)	/	/	/
Protection Class	Class I	Class I	Class I
Emergency Power Off	/	/	/
Function/Communication			
User Interface	WLAN+APP,LED	WLAN+APP,LED	WLAN+APP,LED
Start Method	AUTO Start/APP/RFID (IS O/IEC 14443A)	AUTO Start/APP/RFID (IS O/IEC 14443A)	AUTO Start/APP/RFID (IS O/IEC 14443A)
Communication	Bluetooth, WiFi, RS485 (*2) , LAN	Bluetooth, WiFi, RS485 (*2) , LAN	Bluetooth, WiFi, RS485 (*2) , LAN
Communication with Vehicle	PLC (ISO 15118)	PLC (ISO 15118)	PLC (ISO 15118)
Communication with Back-end	OCPP 1.6J OCPP 2.0.1	OCPP 1.6J OCPP 2.0.1	OCPP 1.6J OCPP 2.0.1
Communication Protocol	Modbus TCP	Modbus TCP	Modbus TCP
Working Mode	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹

Technical Data	GW7K-HCA-G30	GW11K-HCA-G30	GW22K-HCA-G30
Dynamic Load Management* ²	Integrated	Integrated	Integrated
Phase Switching	Integrated	Integrated	Integrated
Energy Metering	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (°C)	-30~+50* ³	-30~+50* ³	-30~+50* ³
Operating Environment	Indoors or Outdoors	Indoors or Outdoors	Indoors or Outdoors
Relative Humidity	5% ~ 95%	5% ~ 95%	5% ~ 95%
Max. Operating Altitude (m)	2000	2000	2000
Cooling Method	Natural Convection	Natural Convection	Natural Convection
Weight (kg)	6.2/5.2 (Socket)	6.3/5.3 (Socket)	6.9/5.9 (Socket)
Dimension (W×H×D mm)	235*360*110	235*360*110	235*360*110
Noise Emission (dB)	< 20	< 20	< 20
Standby Power (W)	< 6.5	< 6.5	< 6.5
Ingress Protection Rating	IP65* ⁴	IP65* ⁴	IP65* ⁴
Impact resistance	IK08	IK08	IK08
Anti-corrosion Class	C5	C5	C5

Technical Data	GW7K-HCA-G30	GW11K-HCA-G30	GW22K-HCA-G30
Connector	Type 2, Plug with 7.5m Cable / Socket with shutter	Type 2, Plug with 7.5m Cable / Socket with shutter	Type 2, Plug with 7.5m Cable / Socket with shutter
Accessories	RFID Card×2	RFID Card×2	RFID Card×2
MTBF (h)	100000	100,000	100,000
Mounting Method	Wall / Floor (Optional Stand)	Wall / Floor (Optional Stand)	Wall / Floor (Optional Stand)

Technical Data	GW7K-HCA-UK-G30	GW11K-HCA-UK-G30	GW22K-HCA-UK-G30
Input / Output			
Rated Power (kW)	7	11	22
Nominal Voltage (V)	230, L/N/PE	400, 3L/N/PE	400, 3L/N/PE
Voltage Range (V)	/	/	/
Nominal Frequency (Hz)	50/60	50/60	50/60
Rated Current (A)	32	16	32
Max.Output current(A)	/	/	/
Protection			
Residual Current Protection	AC 30mA+ DC 6mA	AC 30mA+ DC 6mA	AC 30mA+ DC 6mA
Overcurrent Protection	Integrated	Integrated	Integrated

Technical Data	GW7K-HCA-UK-G30	GW11K-HCA-UK-G30	GW22K-HCA-UK-G30
Overvoltage Protection	Integrated	Integrated	Integrated
Over Temperature Protection	Integrated	Integrated	Integrated
Insulation Resistance Monitoring	Integrated	Integrated	Integrated
Ground Fault Protection	Integrated	Integrated	Integrated
AC Surge Protection	Type III	Type III	Type III
Open PEN Detection (BS 7671)	Integrated	Integrated	Integrated
Protection Class	Class I	Class I	Class I
Emergency Power Off	/	/	/
Function/Communication			
User Interface	WLAN+APP,LED	WLAN+APP,LED	WLAN+APP,LED
Start Method	AUTO Start/APP/RFID (ISO/IEC 14443A)	AUTO Start/APP/RFID (ISO/IEC 14443A)	AUTO Start/APP/RFID (ISO/IEC 14443A)
Communication	Bluetooth, WiFi, 4G, RS485 (*2) , LAN	Bluetooth, WiFi, 4G, RS485 (*2) , LAN	Bluetooth, WiFi, 4G, RS485 (*2) , LAN
Communication with Vehicle	PLC (ISO 15118)	PLC (ISO 15118)	PLC (ISO 15118)

Technical Data	GW7K-HCA-UK-G30	GW11K-HCA-UK-G30	GW22K-HCA-UK-G30
Communication with Back-end	OCPP 1.6J OCPP 2.0.1	OCPP 1.6J OCPP 2.0.1	OCPP 1.6J OCPP 2.0.1
Communication Protocol	Modbus TCP	Modbus TCP	Modbus TCP
Working Mode	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹	Fast Charging PV Priority PV+BAT Scheduled Charging AI Smart Charging* ¹
Dynamic Load Management* ²	Integrated	Integrated	Integrated
Phase Switching	Integrated	Integrated	Integrated
Energy Metering	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (°C)	-30~+50* ³	-30~+50* ³	-30~+50* ³
Operating Environment	Indoors or Outdoors	Indoors or Outdoors	Indoors or Outdoors
Relative Humidity	5% ~ 95%	5% ~ 95%	5% ~ 95%
Max. Operating Altitude (m)	2000	2000	2000
Cooling Method	Natural Convection	Natural Convection	Natural Convection
Weight (kg)	6.2/5.2 (Socket)	6.3/5.3 (Socket)	6.9/5.9 (Socket)

Technical Data	GW7K-HCA-UK-G30	GW11K-HCA-UK-G30	GW22K-HCA-UK-G30
Dimension (W×H×D mm)	235*360*110	235*360*110	235*360*110
Noise Emission (dB)	< 20	< 20	< 20
Standby Power (W)	< 6.5	< 6.5	< 6.5
Ingress Protection Rating	IP65*4	IP65*4	IP65*4
Impact resistance	IK08	IK08	IK08
Anti-corrosion Class	C5	C5	C5
Connector	Type 2, Plug with 7.5m Cable / Socket with shutter	Type 2, Plug with 7.5m Cable / Socket with shutter	Type 2, Plug with 7.5m Cable / Socket with shutter
Accessories	RFID Card×2	RFID Card×2	RFID Card×2
MTBF (h)	100000	100,000	100,000
Mounting Method	Wall / Floor (Optional Stand)	Wall / Floor (Optional Stand)	Wall / Floor (Optional Stand)

*1: For AI function needs to be used with Home Energy Management System.

*2: For DLB function needs to be used with inverter or meter.

*3: Operating Temperature Range (°C): Charger is -30~+55°C, and Charging Plug is 50°C.

*4: For Socket version is IP54.

11 Contact Details

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