

DC 60/80 Public Charger

“

60/80kW Fast Charging

Designed for city quick charging stations, chain stores parking lots, public or commercial buildings for 0.5-1.5H refill.



Language

English

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1 Document Information

1.1 About this manual

This manual describes the installation, operations and safety maintenance of the DC 60/80 charger. Before installation, please read this manual to ensure a successful installation, operation and safety maintenance.

1.2 Target group

This document is intended for professional or other qualified personnel only. Qualified personnel must possess the following skills:

- Knowledge of how the product operates and how to use it.
- Knowledge of commercial electrical installation and ability to test and certify installation.
- Understand how to address hazards and risks related to the installation and use of electrical equipment.
- Understand equipment installation and commissioning.
- Understand all relevant standards and directives.
- Understand and follow the instructions in this manual, as well as all safety information.

1.3 Compliance

Before installation of the the DC 60/80 charging station, please read this manual thoroughly. Installation must be carried out by a licensed contractor, electrician, or qualified installation professional. They will ensure that all local and national codes, safety standards, and legal requirements are met. This manual outlines the most common installation and mounting scenarios, but always follow applicable regulations and consult an expert if unsure.

1.4 Disclaimer of Warranties

This document is copyrighted and can only be used with permission from us. This manual is based on the most up-to-date information available when it was printed. It is subject to any changes that it may be made without prior notice. Although the accuracy of the information in this manual has been verified, there is no assurance that it is complete and accurate. This includes, but is not limited to, product specifications, functionalities, and illustrations.

We are not responsible for any losses or damages that may arise from using this document, including but not limited to lost profit or data.

If you use or modify the DC 60/80 charging station in a way that is not intended to be, your limited warranty will be void.

1.5 Illustrations

This document cannot display all the configurations of the DC 60/80 charging station. Therefore, the illustrations in this document only show the typical settings. They are only used for instruction and descriptions of installation.

1.6 Language

The original description of this document is written in English. All other language versions are translated versions of this document.

1.7 Terminology

Abbreviations	Definition
AC	Alternating Current
CCU	Charging Control Unit
DC	Direct Current
EV	Electric Vehicle
OCPP	Open Charge Point Protocol
PE	Protective Earth
RCBO	Residual Current Breaker with Overcurrent Device
RFID	Radio-frequency Identification
SOC	State of Charge
SPD	Surge Protection Device
TCU	Transmission Control Unit
ITB	Interface Transfer Board
PS	Power Supply

1.8 Revision Record

Version	Date	Descriptions
V1.0	2024.10.28	Initial version
V1.1	2025.06.16	Update some description
V1.2	2025.11.13	Update technical specifications
V1.3	2025.12.04	Update the entire manual
V1.4	2025.12.10	Update English Description

2 Safety Instructions

2.1 Safety Requirement

- Symbols description

Symbol	Risk Description
	General risk
	Hazardous voltage with risk of electrocution
	Waste from electrical and electronic equipment
	High temperature warning- indicates the risk of burns caused by high temperature areas or areas with high component temperatures
	Indicates the protection level of the equipment
	Grounding protection connection point
	DC Voltage
	AC Voltage

• Personal Protective Equipment

When handling and maintaining the DC 60/80 charger, it is crucial to wear the appropriate safety protective equipment to personal safety and compliance with safety standards. Below is a list of recommended protective gear along with its characteristics:



Insulating Gloves

- Rated for 1000V AC/1500V DC (Class 0)
- Made from durable, non-conductive material
- Ensure a snug fit for dexterity and safety



Insulating Safety Boots

- Rated for 1000V (Class 0)
- Made with dielectric materials to prevent electrical conduction
- Slip-resistant soles for better traction



Helmet with Face Shield

- EN 397 and EN 50365 certified
- Provides full face protection against electrical arcs and flying debris
- Adjustable fit for comfort and security



Antistatic Mat

- Rated for 1000V (Class 0)
- Reduces the risk of electrostatic discharge
- Durable and non-conductive material

• Recommended Tools

To ensure the correct and efficient installation of the DC 60/80 charger, it is essential to have the appropriate tools. Below is a list of recommended minimum tools needed to carry out the installation. Using the proper tools not only facilitates the installation process but also ensures the safety and integrity of the installed equipment.



Smartphone



Screwdriver Set



Wrench Set



Multimeter



SDS drill



Cable cutters



Cable crimping tool



Insulated knife

2.2 Operators and Installers Responsibility

These DC 60/80 installation instructions and guides are intended for operators who are responsible for installing, operating, servicing, and maintaining the product. Installers should thoroughly understand electrical high-power systems and electric vehicle charging infrastructure. Before performing any task, operators and responsible technical personnel should read these instructions carefully. The installer is the qualified person who installs the charger on-site.

The installer should:

- Hold relevant qualifications to complete the installation according to local regulations and standards.
- Hold relevant qualifications to work with commercial electrical installations and be able to certify installation according to local regulations.
- Follow local health and safety rules and wear the right personal protective equipment (PPE) to minimize exposure to hazards.
- Complete product training.
- Follow installation manual.
- Install an upstream protection device according to local regulations and Earthing System.
- Complete the site survey before installation to calculate the supply cable size, according to cable type, installation reference method, upstream over-current protection device size, DC charger output power and circuit length.
- Be trained to understand and effectively respond to emergency scenarios, including electric shocks, fires, and workplace accidents.

2.3 Training and Competency

- We provide mandatory specialized training for installation, commissioning, maintenance, and servicing of the DC 60/80 chargers exclusively at our European Headquarters located in the Netherlands. This training is specifically provided to authorized distributors.
- Distributors are responsible for ensuring that comprehensive training is delivered to all installers, maintenance personnel, and service engineers. Records of completed training, certification status, and periodic refresher courses must be maintained by distributors to ensure compliance and competence.

2.4 Safety Instructions

Prior to DC 60/80 installation, isolate the main supply. Before any installation, dismantling, repair or exchange of components, the supply protection device and internal group switches of the DC 60/80 cabinet must be switched off. A Safe Isolation Procedure must be carried out to ensure that electrical power is disconnected from the system. Only certified installers are authorized to install, disassemble, repair, or replace parts on a DC 60/80. After installation, service, or repair, the charger cabinet must be securely closed and locked.

Before installation:

- Install physical barriers or bollards to isolate the EV charging area from open public spaces.
- Clearly mark the EV charging area with visible signage indicating high voltage and restricted access.
- Clearly visible signage indicating emergency contact information, the location of first aid kits, fire extinguishers, and emergency exits must be installed as per local regulations
- Wear appropriate protective gear, such as safety gloves and goggles, during installation.
- Before conducting installation, maintenance, or servicing, the DC 60/80 unit must be securely isolated from the power supply according to clearly defined Lockout/Tagout procedures.
- The EV charging point operates at high voltage. Take necessary precautions to avoid electric shock.
- Familiarize yourself with emergency procedures and shut-off mechanisms in case of accidents or malfunctions.
- Prior to installation, a thorough Risk Assessment must be completed and documented, identifying all potential hazards and outlining measures to minimise risks effectively.



According to local electrical regulations, the DC 60/80 must be connected to a Protective Earth/ Ground. Before connecting the input power supply, ensure that the grounding is reliable.

2.5 Cyber Security

It is the responsibility of the owner to ensure that the product is securely connected to and communicates with a network interface. The owner must take the necessary steps to protect the DC charger, network, system, and interface from any security breaches, unauthorized access, interference, intrusion, leakage, or theft of data information. We shall not be liable for any damages or losses incurred as a result of security breaches.

2.6 Disposal Instructions

To prevent adverse environmental and human health impacts caused by potentially hazardous substances, the product and its components must be disposed of in accordance with applicable local, national, and European regulations.

This product is manufactured using RoHS-compliant components, ensuring it does not contain hazardous substances above the limits defined in Directive In accordance with Directive 2012/19/EU of the European Parliament and of the Council (WEEE), waste electrical and electronic equipment must not be disposed of together with household waste. This type of waste should be handed over to designated collection points, operated by retailers, wholesalers, or local authorities responsible for waste management.

2.7 Safe Operation Guidelines

All incidents, nearmisses, and unsafe conditions must be reported according to local procedures. If any malfunction or potentially hazardous condition occurs, the EVbee DC60/80 charging station must be immediately taken out of service. Continued operation of a damaged or unsafe device may result in serious equipment failure, electric shock, or fire.

Examples of potentially dangerous conditions include, but are not limited to:

- Cracked or damaged enclosure.
- Signs of overheating, discoloration, or burning smell.
- Visible smoke or sparks.
- Damaged power supply cable or charging cable.
- Damaged or deformed charging connector.
- Damaged display.
- Open access to internal components.
- Water ingress or visible moisture inside the unit.
- Lightning strike, electrical surge, or grid failure.
- Physical impact, accident, or mechanical damage.

In the event of an accident, fault, safety risk, or unusual situation, the appropriate personnel must be informed immediately in accordance with on-site procedures.

Charging station operators should have an internal response procedure and a reporting system in place to enable quick risk assessment and appropriate technical or service action.

2.8 Fire Protection And Emergency Procedures

To minimize the risk of fire during the operation of the EVbee DC60/80 charging station, the following safety precautions must be followed:

- Install the charging station in a ventilated area, away from flammable materials, and in compliance with applicable regulations and standards.
- Connect the charging station to an electrical installation equipped with overcurrent protection, residual current device (RCD), and surge protection.
- Do not use the station if there are signs of damage, overheating, burning smell, unusual noises, or visible deformation of the enclosure.
- In such cases, immediately disconnect the power supply and report the issue to the vendor or service provider.

In case of fire or emergency:

- A powder fire extinguisher (type ABC or C), suitable for electrical fires, must be available near the charging station.
- Do not attempt to extinguish the fire with water or foam. Only use non-conductive extinguishers (type ABC or C).
- If safe to do so, disconnect the charging station from the power supply using the main switch.
- Use the fire extinguisher only if it does not pose a risk to your personal safety.
- If possible and safe, disconnect the vehicle from the charging station. Do not touch the device with bare hands or attempt to extinguish the fire yourself if it appears unsafe.
- Immediately notify emergency services and inform the vendor or facility administrator.
- Follow the facility's evacuation procedures without delay.

3 General Description

Declaration of Conformity

Product name: EVbee DC Public charger

Brand name: EVbee

Model No.: EVB-CE-DCT080-112,EVB-CE-DCT080-111,EVB-CE-DCT060-112,EVB-CE-DCT060-111
EVB-CE-DCT040-111, EVB-CE-DCT030-111

Provider: EVbee Holding B.V

Provider address: Tennesseedreef 3, 3565 CK Utrecht, Netherlands

This declaration of conformity is issued under the sole responsibility of EVbee.

And the product above is in compliance with the essential requirements of following regulations:

Low Voltage Directive(2014/35/EU):

Safety	EN IEC 61851-1:2019
	EN 61851-23:2014
	EN 61851-24:2014

Radio Equipment Directive and Electromagnetic Compatibility Directive(2014/53/EU)

RF EMC	EN 300328 V2.2.2:2019	EN 301489-17 V3.3.1:2024	EN 62479:2010
	EN 300330 V2.1.1:2017	EN 301489-52 V1.3.1:2024	EN IEC 61851-21-2:2021
	EN 301489-1 V2.2.3:2019	EN 301908-1 V15.2.1:2023	EN IEC 61000-6-2:2019
	EN 301489-3 V2.3.2:2023	EN 301908-13 V13.2.1:2022	EN IEC 61000-6-4:2019
Health	EN IEC 62311:2020		

It is possible to use CE marking to demonstrate the compliance with above legislation.



This declaration of conformity is issued under the sole responsibility of the manufacturer.

Signed for and on behalf of:

Print name:	Hui Fang
Title:	Product Manager
Date:	2025-Sep-28
Place:	Suzhou
Signature:	

Declaration of Conformity

Product name: EVbee DC Public charger

Brand name: EVbee

Model No.: EVB-CE-DCT080-112, EVB-CE-DCT080-111, EVB-CE-DCT060-112, EVB-CE-DCT060-111
EVB-CE-DCT040-111, EVB-CE-DCT030-111

Provider: EVbee Holding B.V

Provider address: Tennesseedreef 3, 3565 CK Utrecht, Netherlands

This declaration of conformity is issued under the sole responsibility of EVbee.

And the product above is in compliance with the essential requirements of following regulations:

Low Voltage Directive(2014/35/EU):

Safety	BS EN IEC 61851-1:2019
	BS EN 61851-23:2014
	BS EN 61851-24:2014

Radio Equipment Directive and Electromagnetic Compatibility Directive(2014/53/EU)

RF EMC	EN 300328 V2.2.2:2019	EN 301489-17 V3.3.1:2024	EN 62479:2010
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	EN 301489-1 V2.2.3:2019	EN 301908-1 V15.2.1:2023	BS EN IEC 61000-6-2:2019
	EN 301489-3 V2.3.2:2023	EN 301908-13 V13.2.1:2022	BS EN IEC 61000-6-4:2019
Health	EN IEC 62311:2020		

It is possible to use UKCA marking to demonstrate the compliance with above legislation.



This declaration of conformity is issued under the sole responsibility of the manufacturer.

Signed for and on behalf of:

Print name:	Hui Fang
Title:	Product Manager
Date:	2025-Sep-28
Place:	Suzhou
Signature:	

The DC Public Charger (models DC 60/80), manufactured by our company, complies with the essential requirements set forth in the following European directives: the Low Voltage Directive (2014/35/EU), the Radio Equipment Directive (2014/53/EU), the Electromagnetic Compatibility Directive (EMC), and the RoHS Directive (2011/65/EU with amendment 2015/863). It also meets general health and safety requirements applicable to electrical equipment.

The product has been tested and verified to conform with the following harmonized standards:

Safety

- EN IEC61851-1:2019
- EN IEC61851-21-2:2021
- EN61851-23:2014
- EN61851-24:2014

Radio Equipment / RF

- EN 300 328 V2.2.2:2019
- EN 300 330 V2.1.1:2017
- EN 301 489-1 V2.3.3:2023
- EN 301 489-3 V2.1.1:2019
- EN 301 489-17 V3.3.1:2024
- EN 301 908-1 V15.2.1:2022
- EN 301 908-13 V13.2.1:2022

Electromagnetic Compatibility (EMC)

- EN IEC 61000-6-2:2019
- EN IEC 61000-6-4:2019

Health and EMF

- EN 62311:2020
- EN 62479:2010

The DC 60/80 charging station has successfully passed all required product certification tests, conducted by an independent and accredited certification authority. It holds valid certificates confirming full compliance with all listed directives and standards.

3.1 Technical Specifications

Table 3-1 Technical Specifications

Product	DC 80	DC 60	DC 40	DC 30
Part Number	EVB-CE-DC080-112	EVB-CE-DCT060-112	EVB-CE-DCT040-111	EVB-CE-DCT030-111
Rated Input Current	123A	93A	62A	47A
Recommended minimum upstream protection Device Rating	160A	125A	80A	63A
Input Voltage	400Vac +/-10%, 50~60Hz			
Rated Input Power	85kVA	64kVA	43kVA	32kVA
Input AC Power Connection	3P+N+PE (TN-C-S, TN-S, TT)			
Short Circuit Current Rating	42kA			
DC Output	1000V Boost 250A Rated 150A DC 80kW	1000V Boost 200A Rated 150A DC 60kW	1000V 133A DC 40kW	1000V 100A DC 30kW
DC Output Connector	CCS2 rate current 150A (5m standard length, 7m optional)			
Power Factor at Full Load	≥0.98			
Peak Efficiency	≥96% (SiC ≥97%)			
Total Harmonic Distortion	≤5%			
Maximum Noise Level	<65 dB on Full Load (Front 5m / 25 °C)			
External Housing material	Stainless Steel			

Product	DC 80	DC 60	DC 40	DC 30
Cabinet Dimensions W x H x D (mm)	550x1150x255			
Charger Weight (when CMS included)	127kg	127kg	100kg	100kg
IP Rating	IP54			
IK Rating	IK10(Enclosure)/IK08(Glass)			
Operating Temperature	-30 °C to +50 °C			
Storage Temperature	-40 °C to +80 °C			
Maximum Altitude	<2000m			
EMC	Class A			
Compliance and Safety Standards	CE UKCA IEC 61851-1 IEC 61851-23 IEC 61000			
Identification	RFID, NFC (ISO 14443 A+B part 4 ISO/IEC 15629)			
Network Connection	FDD-LTE (Band1/3/7/8/20/28A) TDD-LTE (Band38/40/41) WCDMA(Band1/8) GSM(Band3/8) 10M/100M Ethernet			
CMS	Optional, EVB-CMS-003 for left, EVB-CMS-004 for right			
Pedestal	Optional, EVB-PDL-001			

3.2 Product Overview

The DC 60/80 is a compact DC charging station rated up to 80 kW, fitted with two CCS2 connectors with 5 m cables. It is designed for installation on a wall or on a pedestal base. The system supports simultaneous charging of two vehicles with a 50%/50% power split between the connectors. Its small footprint and high output make it ideal for corporate fleets, public and private car parks, as well as hotels, shopping centers, and supermarkets. The station is suitable for charging passenger EVs, heavy-duty trucks, and construction equipment

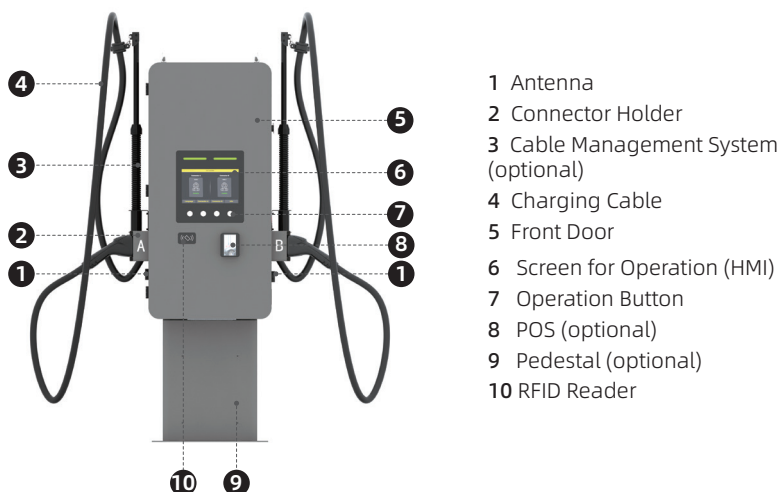


Figure 3-1 DC 60/80 Appearance display

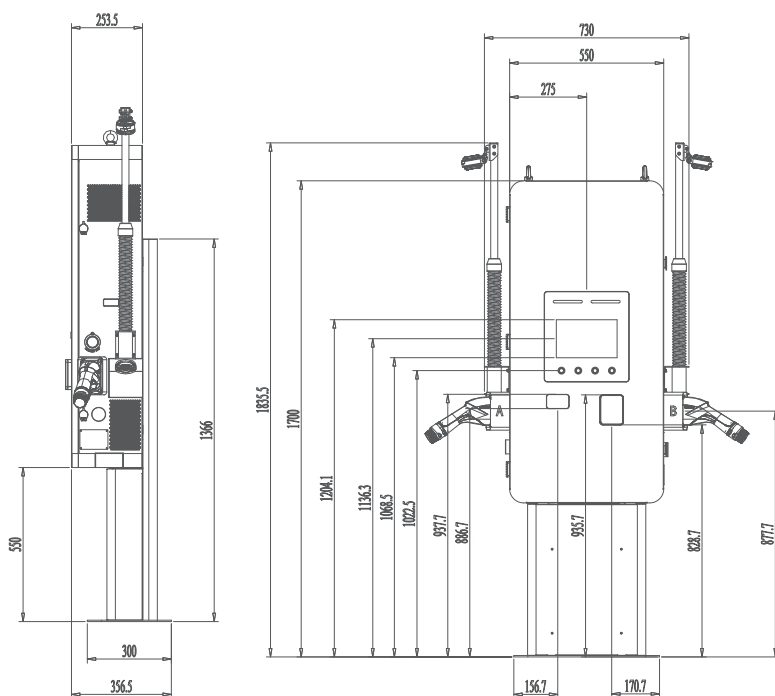


Figure 3-2 DC 60/80 Product size

3.3 Working Principle Diagram

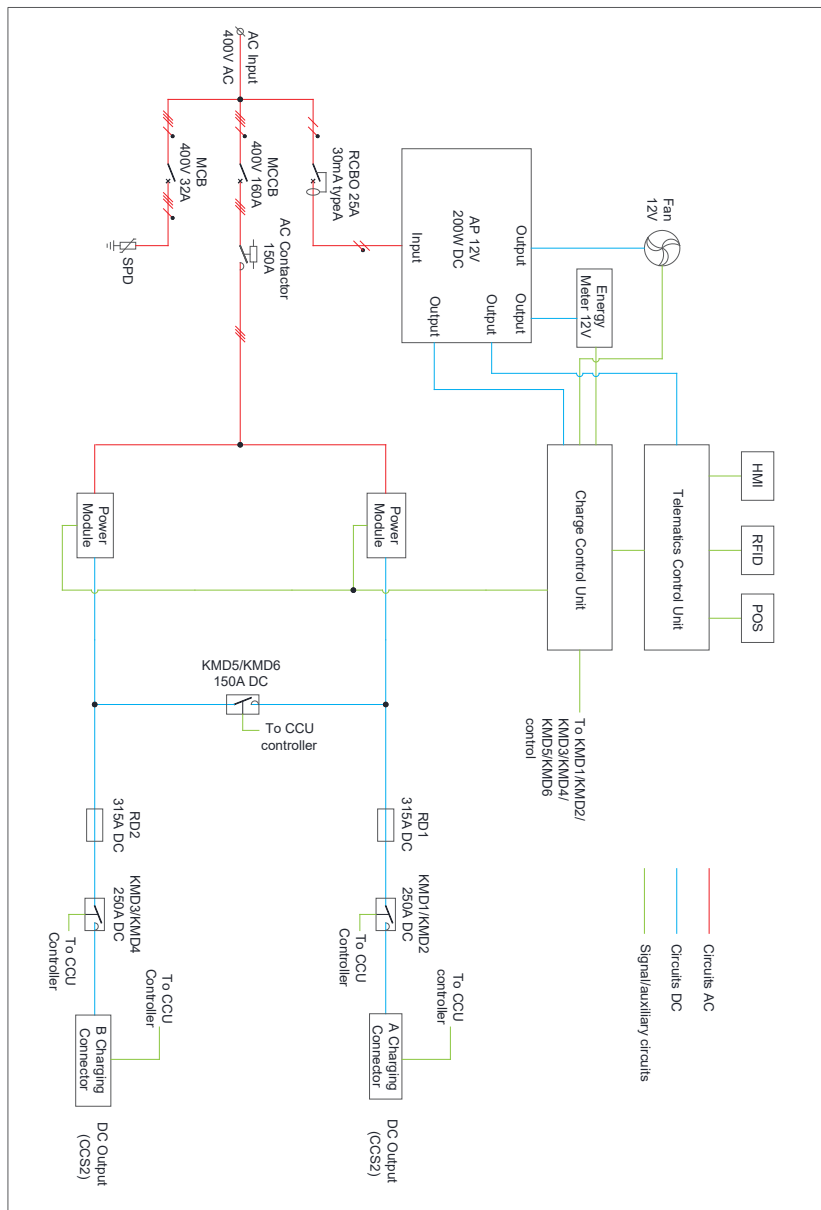


Figure 3-3 Working System Schematic Diagram

4 Package Specification and Transportation

4.1 Package Specification

The DC 60/80 is delivered in a cardboard box placed on a wooden pallet. To protect and prevent chargers from damage during transport, laminated polyethylene foam is used, which should be disposed of in accordance with local regulations and guidelines.

The pedestal is an accessory and is packaged separately in its own box and on a separate pallet.

If the charger is ordered with a Cable Management System (CMS), the CMS is packaged together in the same box as the charger.

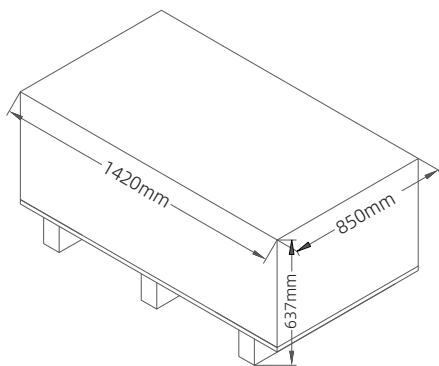


Figure 4-1 Package Dimensions



Handling Instructions

- Do not drop the cabinet or expose it to strong impacts.
- Ensure the forklift truck is suitable for lifting the cabinet safely, and always follow the forklift manufacturer's safety instructions during handling and transport.

4.2 Unpacking and inspection

The equipment must always be unpacked at the site before installation. Carefully remove all external packaging and internal protective materials using suitable tools. If the charger was pre-commissioned before delivery, it must be repacked in the same way as the original packaging to ensure safe transportation.

After opening, inspect all components to make sure the package includes all required parts and accessories. Check that the charging station is not damaged, free of dents or scratches, and that the paint and surface finish are intact.

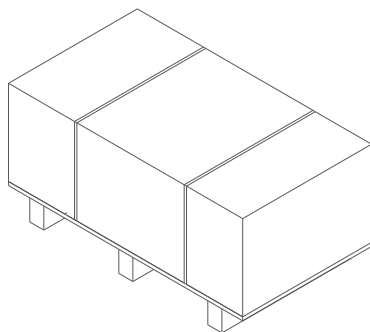


Figure 4-2 Cabinet Packaging

The pallet can be moved using a forklift truck or an electric pallet truck. Ensure the lifting equipment is suitable for the unit's weight and dimensions and follow all safety instructions provided by the equipment manufacturer.

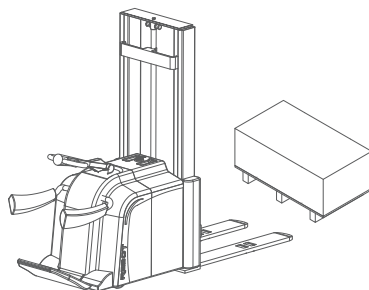


Figure 4-3 Transport by Electric Pallet Truck



Important

Do not stack any pallets or other items on top of the package.

4.3 Package Contents

Table 4-1 List of Included Parts

				
DC 60/80 1pc	Flange nut M4-304 2pcs	Plastic plug 2pcs	Expansion Bolt M12*100 4pcs	Cross and hexagonal combination screws M5*12 3pcs
				
Cabinet Door Key 2pcs	Wall-mounted back panel 10397C 1pc	Certificate of Conformity 1pc	Delivery Inspection Report 1pc	User Manual 1pc

Table 4-2 CMS Packing List

				
CMS 1pc	Clamp DH-31 1pc	Hexagon socket nut M6 2pcs	Rotating ring M5 OX 1pc	Cross and hexagonal combination screws M5*12 5pcs
				
Spring-type CMS 1pc	Adapter bracket T=3.0 1pc	Hexagon socket cylindrical head screw M6*40 2pcs		

4.4 Lifting the Unit

To lift the unit safely:

- Install M12 eyebolts into the lifting holes located on the top of the unit.
- Attach the lifting equipment – ensure that the ropes or chains are securely connected to the eyebolts.
- Lift and move the unit carefully to the installation location.



Important

Use only certified lifting equipment with adequate load capacity. Avoid sudden movements or impacts during lifting.

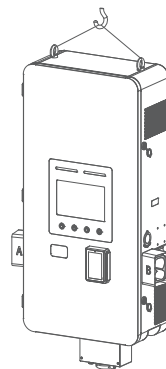


Figure 4-4 Hoisting the Cabinet

5 Installation Instructions

5.1 Site Preparation

Before installation, ensure the site meets all applicable local laws, codes, and utility requirements. Before installing the DC 60/80, confirm the following:

- Clearances & airflow: There is sufficient space around the unit for free airflow and the required service clearances.
- Location & environment: The mounting surface is level and rated for the load; ambient conditions (temperature, humidity, altitude, ingress) are within the product specification.
- Cable routing: Ducts/trays can route and protect supply and control cables to the unit.
- Design compliance: The installation design complies with local electrical, fire-safety, accessibility, and building regulations.
- Upstream protection: The supply circuit has correctly rated over-current protection with adequate breaking capacity.
- RCD/RCBO (if required): If local rules or the installation method require it, fit an upstream RCD/RCBO of a suitable type and rating
- Conductor sizing: Cable CSA is verified for current capacity, voltage drop, short-circuit withstand, and installation method.
- Earth loop impedance: External earth loop impedance (Z_e) meets local regulations. For TT systems, Z_s at the charger connection point should be $< 10 \Omega$.
- Protective Earth (PE): The DC 60/80 must be permanently connected to Protective Earth. Verify PE continuity and bonding before energising.
- Surge protection: Where required by code or site risk, provide suitable surge protection on the supply.
- Connectivity:
 - a. If the charger will use an internal 4G/LTE SIM, confirm adequate and stable signal at the install location.
 - b. If cellular service is weak or unstable, provide a wired Ethernet line instead.
- Accessibility & protection: Ensure safe vehicle access, charger protection (e.g., bollards/kerbs), bay marking/signage, and safe working space for service.
- Permits & inspection: All required permits, notifications, and inspections are arranged before commissioning.



Supply Requirements

The charger is compatible with TN and TT electrical systems. When designing the installation site, it must be ensured that sufficient available power is present to support the maximum input current over an extended period. Before installation, refer to the charger documentation to confirm compatibility with the site's capacity and grid operator requirements.



Upstream Protection Device Rating Requirements

DC 60/80 is equipped with an MCCB with an adjustable current rating and integrated 30mA RCD protection. The recommended MCCB settings for each model are as follows:

- EVB-CE-DCC030-11 (30 kW): 63A
- EVB-CE-DCT40-111 (40 kW): 80A
- EVB-CE-DCT60-112 (60 kW): 125A
- EVB-CE-DCT80-112 (80 kW): 160A

When selecting an upstream protection device, ensure coordination with the charger's built-in overcurrent protection to maintain selectivity and avoid unnecessary disconnections. The upstream circuit breaker shall have a rated short-circuit breaking capacity of ≥ 42 kA (I_{cu}/I_{cn}), consistent with the charger's internal withstand rating. For MCCBs, set thermal and magnetic trips to maintain selectivity with the built-in MCCB.

If local regulations or installation conditions require an additional upstream RCD, note that the charger already includes a 30 mA Type A RCD. In such cases, the upstream RCD shall have:

- a time delay (S-type), or
- a higher fault current threshold, to ensure RCD selectivity and prevent unwanted tripping.



Supply cables requirements

We recommend using copper supply cables with a thermal rating of at least 80°C, such as XLPE-insulated cables. PVC-insulated cables are NOT recommended. The appropriate cross-sectional area (CSA) of the conductor must be determined based on the upstream protection device rating, circuit length, cable type, and installation method in accordance with IEC 60364-5-52.

Recommended torque settings for input cable terminals

The following torque settings are recommended for M8 bolts in the input cable terminals:

Table 5-1 Present recommended minimum conductor sizes

Power Rating	Minimum CSA (Multicore Cable)	Bolt Size	Recommended Torque (Nm)
30kW	16 mm ²	M8	12Nm±10%
40kW	25 mm ²	M8	12Nm±10%
60kW	35 mm ²	M8	12Nm±10%
80kW	50 mm ²	M8	12Nm±10%

Note:

These are the minimum recommended sizes, and the final cable selection must always be calculated based on project-specific parameters.

5.2 Installation

This product (DC 60/80) can be installed on pedestal or wall using the dedicated mounting bracket. The mounting method must be selected at the time of order. When wall mounting is specified, the wall bracket ships in the same package as the charging station. Wall installation is recommended only for the 60 kW configuration (2 × 30 kW power modules). For the 80 kW configuration (2 × 40 kW power modules), use the pedestal, supplied in a separate package. If the 80 kW unit is wall-mounted, this is not recommended and is done at the customer's own responsibility.

Before DC 60/80 installation, isolate the main supply. Before any installation, dismantling, repair, or exchange of components, the supply protection device and internal group switches of the DC 60/80 cabinet must be switched off. A safe isolation procedure must be carried out to ensure that electrical power is disconnected from the system. Only certified EV installers are authorized to install, disassemble, repair, or replace parts on a DC 60/80. After installation, service, or repair, the charger cabinet must be securely closed and locked.



According to local electrical regulations, the DC 60/80 must be connected to a Protective Earth/ Ground. Before connecting the input power supply, ensure that the grounding is reliable.



5.2.1 Mounting on the wall

Once the charger has been prepared, mount the bracket to the wall. Measure the distance 450mm from the ground to the bottom of the bracket, and level it using a spirit level.

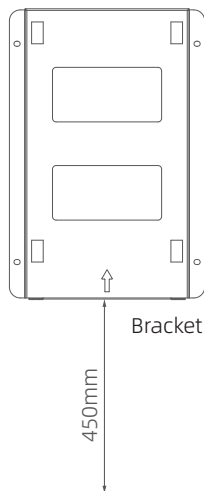


Figure 5-1 Mounting Height

Using a $\varnothing 16$ mm SDS drill bit, drill four holes to a minimum depth of 70 mm, keeping the drill perpendicular to the wall.

Thoroughly clean each hole (vacuum/blow out) to remove all dust. Insert the four supplied expansion anchors/wall plugs fully into the holes and gently tap them until seated flush. Remove the threaded bolts, spring washers. Attach charger bracket to the wall and fix with the included installations bolts and tighten them using a 19 mm socket wrench with the torque 45–55 Nm.

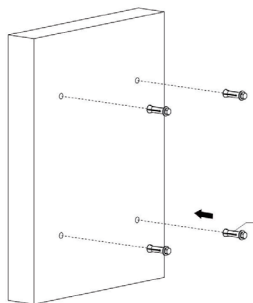


Figure 5-2 Drilling and anchor installation

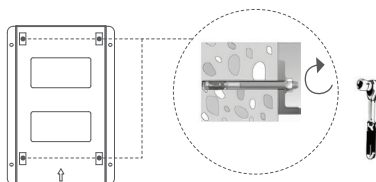


Figure 5-3 Wall bracket mounting

Lift the charging station onto the wall bracket using suitable lifting equipment. While lowering, insert the cabinet tabs (C) into the holes on the bracket rail (A). Align the bracket mounting holes (B) with the mounting holes in the station. Once seated, install the fixing bolts to secure the DC 60/80 to the bracket. Remove the lifting eyebolts and fit the caps in their place.

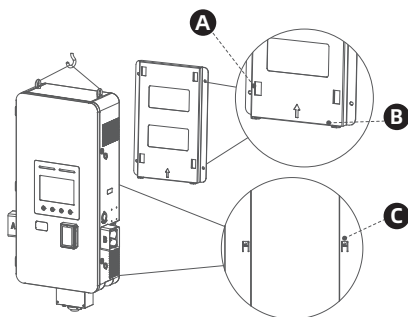


Figure 5-4 Mounting on wall bracket

5.2.2 Installation on Pedestal

Install the DC 60/80 on flat, solid, level ground. Use either a poured concrete foundation or a prefabricated base sourced from a third party. EVbee does not supply foundations. The installer selects and specifies the base to meet installation requirements. If the charger is installed on an existing/ready surface, verify that the ground is stable, level, and capable of supporting the load.

Foundation preparation-concrete base

- Set out and excavate the base 520mm × 300mm to a depth of ≥ 500mm, then set the formwork at ground level to match the base outline shown in Table 5-3 Pedestal base dimension. Make the bottom flat and firm.
- Route the cable duct to the center of the base area with a gentle radius to ease cable pulling to the station.
- Pour the concrete, finish the top level, and allow it to cure fully.
- After it is set, mark and drill four holes (70mm deep) as shown in Figure 5-5 Pedestal base dimension (use that drilling pattern).
- Install the supplied expansion anchors M12 × 100 (included with the pedestal/base) and seat them flush.
- Pull in the power and communication cables, leaving ≥ 600mm slack above the base for termination; seal the duct.

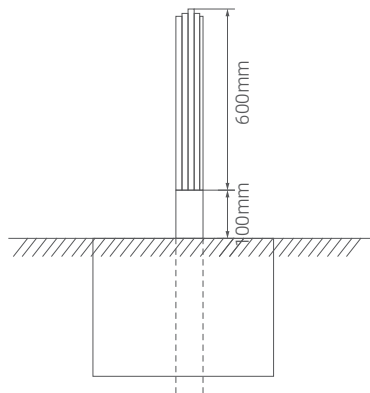


Figure 5-5 Concentrate Foundation Overview

Table 5-2 Foundation dimensions requirements

Parameter	Size	
	mm	in
X	520mm	20.47in
X1	200mm	7.87in
X2	160mm	6.30in
X3	370mm	14.57in
X4	195mm	7.68in
X5	130mm	5.12in
Y	300mm	11.81in
Y1	105mm	4.13in
Y2	120mm	4.72in
Y3	105mm	4.13in
Y4	90mm	3.54in

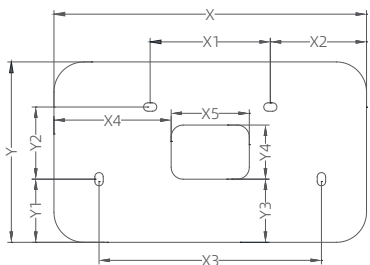


Figure 5-6 Pedestal base dimension

Pedestal installation

Unbox the charger and remove all packaging materials. On the pre-prepared foundation, loosen and remove the nuts and washers from the expansion bolts. Unscrew the four screws from the front pedestal panel and carefully remove it. Lift the pedestal and position it onto the foundation, ensuring that the installation cable is properly routed through the cable entry and that the fitting holes align with the expansion bolts. Secure the pedestal firmly to the foundation using the bolts and nuts.

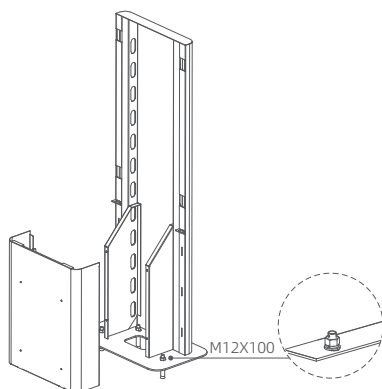


Figure 5-7 Pedestal installation

Cabinet installation

Using hoisting equipment, lift the charger onto the pedestal. Install the M12 eyebolts into the lifting holes on top of the cabinet and securely attach the lifting ropes or chains. Align the charger with the pedestal and slowly lower it, ensuring it fits into the installation fittings and aligns with the bottom mounting holes. Once in place, remove the lifting ropes, detach the eyebolts, and reinstall the top screws.

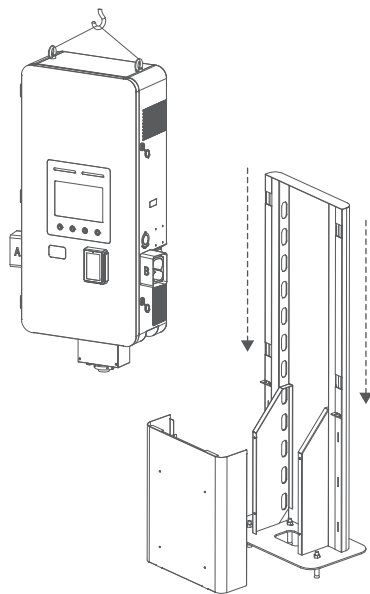


Figure 5-8 Cabinet installation

Cabinet installation

Secure the charger at the base using the provided installation bolts, then perform a final check to ensure proper alignment and stability. Open the charger front doors, then guide the AC input wires through the housing gland Figure 5-8 Cable gland for input supply, and secure them. If connecting the charger to the network via Ethernet, use the external RJ45 socket next to the AC input gland. Close the pedestal front panel and secure it with four screws.

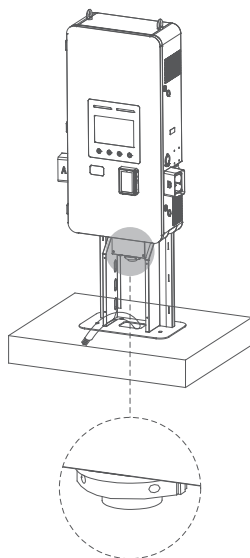


Figure 5-9 Cable gland for input supply

Fasten the bottom panel with two screws; then install the front panel after cabling.

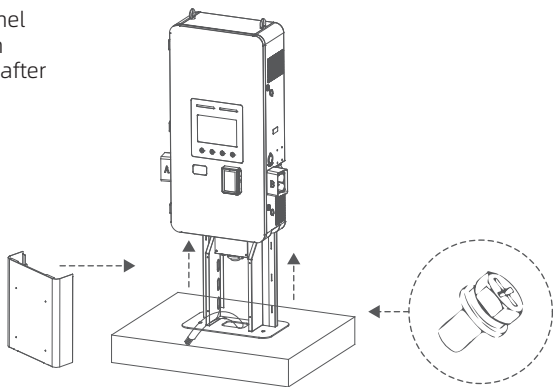


Figure 5-10 Pedestal installation

CMS installation

- A. Fix the CMS adapter bracket in the reserved screw holes on the side of the cabinet
- B. Open the top clamp of the CMS, fix the cable in the clamp, and install the screws

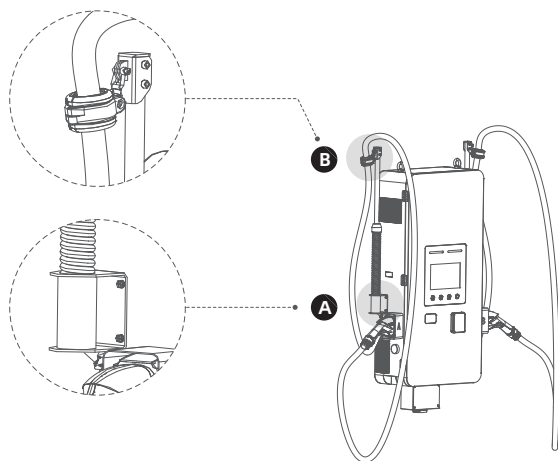


Figure 5-11 CMS installation

5.3 Electrical Connection

Table 5-4 Risk description

Symbol	Risk Description
	Electrical Connection can only be performed by a qualified electrician. Before any electrical connection, make sure that the supply circuit is isolated from the main supply.
	The cross-section of the supply cable must be calculated and designed according to the protection device rating, installation method and length of the circuit.
	Ensure that the main circuit switch and auxiliary circuit switch of the charger are disconnected. Perform Safe Isolation Procedure to ensure that the supply circuit is isolated and it's safe to connect input wires

Note: The operations shown in the figure are all based on the Yada meter configuration diagram as an example

Wiring - charger side (preparation)

Start wiring from the charger side. If the supply side is already connected, apply lockout-tagout at the upstream isolator (physically lock the switch OFF and attach a warning tag), then perform a safe isolation procedure to verify the circuit is de-energized. Open the front service door with the supplied keys. Remove the front switchgear cover panel (see Figure 5-12 Wire terminal cover), remove the four nuts, and then take off the cover. This exposes the wiring terminals for connection.

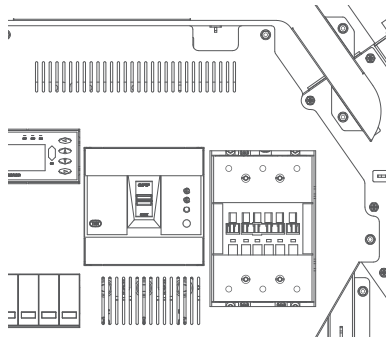


Figure 5-12 Wire terminal cover

Note

Installation Requirements:

- Each conductor must be connected using copper eye terminals with an 8mm hole size.
- The charger is equipped with M8 × 20 stainless steel cross-hex combination screws in the terminal blocks.
- Use an M8 socket wrench to tighten the screws.

Wiring AC supply

Connect the PE wire first:

- Cut the PE wire to the appropriate length and strip the insulation.
- Crimp a ring terminal onto the PE conductor.
- Loosen the PE terminal bolt
- Connect the PE conductor on the PE terminal and tighten to the torque in Table 5-1 Input terminal recommended torque setting.

Connect the neutral wire:

- Cut the N conductor to the appropriate length and strip the insulation.
- Crimp a ring terminal onto the N conductor.
- Loosen the N terminal bolt.
- Connect the neutral conductor to the N terminal and tighten to the torque in Table 5-1 Input terminal recommended torque setting.

Connect the line conductors to the input terminals:

- Cut the L1, L2, and L3 conductors to the appropriate length and strip the insulation.
- Crimp ring terminals onto L1, L2, and L3.
- Loosen the line terminal bolts.
- Connect L1, L2, and L3 on the AC input terminal block and tighten to the torque in Table 5-1, Input terminal recommended torque setting.
- Reinstall the protection panel for the income terminal.
- Close the doors, ensure no tools are left inside, and lock the doors.

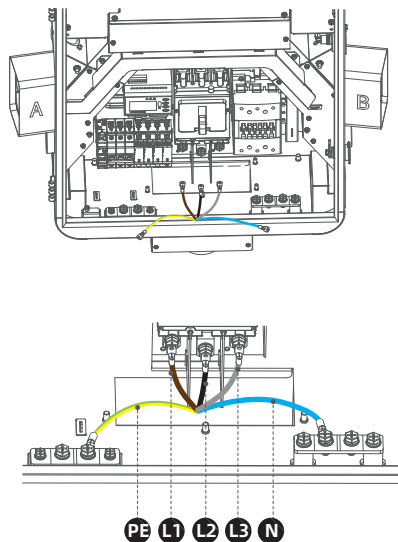


Figure 5-13 Connecting the AC Input Wires

5.4 Network Cable and SIM Card installation

The DC 60/80 is fitted with an industrial dual-SIM LTE router (two physical SIM slots). The external RJ45 port is wired to the router WAN, so Ethernet and cellular (SIM) connections both go through the router. Wi-Fi is a direct charger interface. A SIM is pre-installed for maintenance platform connection and is separate from the OCPP Central System connectivity. For OCPP/customer connectivity, use your own SIM. If cellular coverage is weak or unstable, use wired Ethernet. The router provides four LAN ports; a free LAN port may supply network to accessories (e.g., a POS terminal).

5.4.1 Connection of Ethernet Cable

Begin by planning the route for the Ethernet to The DC 60/80, consider factors such as distance, obstacles, and the most direct path for the cable. Dig a trench in the ground to the location of the charging station. Ensure that the trench is deep enough to accommodate the Ethernet cable and protect it from potential damage. Lay a conduit or protective pipe in the trench to cover the Ethernet cable. This will provide additional protection and make future maintenance or replacement easier.

To install the Ethernet cable

Ensure that the EV DC charger is powered off before proceeding with the installation. Identify the Ethernet port. It is located on the external bottom side of cable entry. Connect one end of the Ethernet cable to the RJ45 port on the DC 60/80. Make sure it is securely inserted, and the connector clicks into place. Connect the other end of the Ethernet cable to the network source. Again, ensure a secure connection by inserting the connector fully and ensuring it clicks into place.

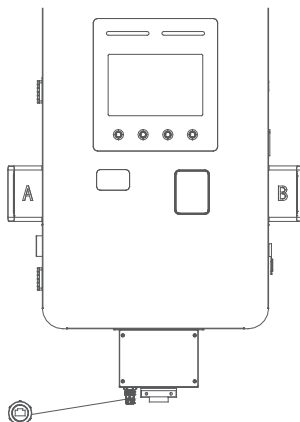


Figure 5-14 Ethernet Port

5.4.2 SIM Card Installation

When planning the 4G connection for the DC 60/80 at the site, there are a few key considerations to keep in mind. It is important to choose a reliable and robust network provider that offers good coverage in the area where the DC 60/80 will be installed. This ensures a stable and consistent network connection for the charger. Considering factors such as the expected usage and the amount of data that will be transmitted ensures there will be sufficient data allowance for smooth operation. Carefully consider these factors when planning the SIM card connection for the DC 60/80 at a public site, ensuring you can provide a reliable and efficient charging service for electric vehicle users.

To install a SIM card

- A.** Ensure that the charger is powered off before proceeding with the installation.
- B.** Open the front door with the supplied keys. The 4G LTE router is mounted inside the door, upper-right area.
- C.** Remove the small red SIM-slot cover with a PH1 screwdriver (do not lose the screw).
- D.** Take the SIM card out of its packaging and handle it carefully to avoid any damage and insert into slot number 2 (top slot). Orientation matters: the notched corner faces outward. Push gently until fully seated.
- E.** Refit the SIM-slot cover, and close the door, ensuring no tools are left inside and the door is locked.

Note

- Slot 1 contains the Maintenance SIM – do not remove.
- If an APN must be configured, follow the router instructions in the Section 6 Commissioning.

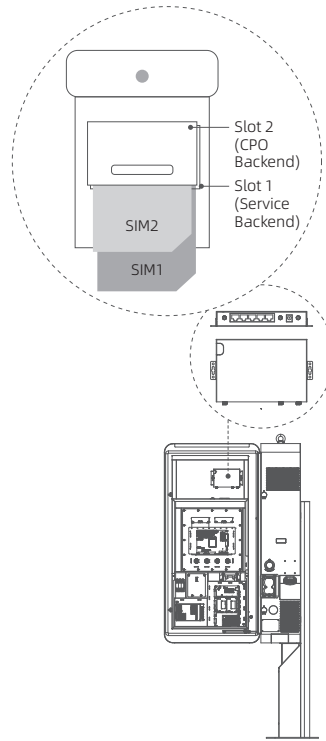


Figure 5-15 Installing SIM Card

5.5 DC 60/80 power modules

The power modules in the DC 60/80 charging station are pre-installed and pre-configured at the factory, so no initial configuration is required during installation.

If any changes are needed-for example, upgrading a unit from 60 kW maximum power output to 80 kW, or replacing a module -refer to the location numbers shown in Table 5-4, Power modules configuration.

Each power module slot in the charging station is marked with a location number.

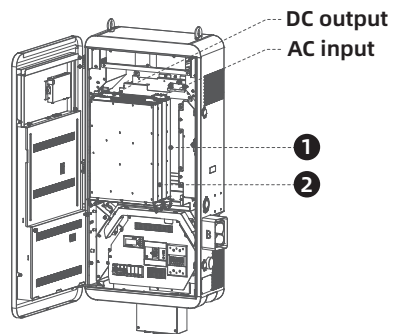


Figure 5-16 DC 60/80 Charging Modules Locations

The DC 60/80 charging station can be set in different configurations depending on power demand. The maximum output power of the DC 60/80 is a hardware limit determined by the number and type of installed power modules (see Table 5-4 Power modules configuration). Two module types are supported (30 kW and 40 kW), and a charging station must use one type only (modules cannot be mixed).

For more granular limits or dynamic behavior, additional software configuration can be applied on top of the hardware configuration.

Table 5-5 Power modules configuration

Type	Rated Power	Number of Modules	Location
DC 30	30 kW	1 PCS	2
DC 60	60 kW	2 PCS	1, 2
DC 40	40 kW	1 PCS	2
DC 80	80 kW	2 PCS	1, 2



Figure 5-17 DC 30/40kW
Charging Module

5.6 DC 60/80 accessories - payment terminal.

The DC 60/80 charging station is supplied without a payment terminal as standard. The front doors include a prepared POS location that is covered by a blank plate on delivery. This opening follows the EVA- compliant cut-out, allowing customers to install their preferred POS. Behind the cut-out, the charging station provides the necessary interfaces for a quick installation: a 4G antenna lead (SMA), a network/Ethernet port (RJ45) linked to the internal 4G router, and a 12 VDC supply with adapter offering two connector options (DC barrel and 2-pin terminal). Customers may use any cloud-integrated POS solution; no machine-to-machine integration with the DC 60/80 is applied.

To install a POS terminal:

1. Power off the DC 60/80 charging station.
2. Open the front doors. Remove the inner door cover.
3. Unscrew the four nuts securing the blank plate and remove the plate.
4. Fit the terminal according to the POS manufacturer's instructions. If required, use the mounting plate, gasket, or adapter supplied with the POS. Assemble all covers/seals and secure using the provided fittings. Ensure the gasket is continuous and no cables are pinched.
5. Connect services inside the charging station:
 - 12 VDC power: Use the supplied adapter if your POS requires it (e.g., Payter Apollo). For POS that accept direct 12 VDC (e.g., Payter P66/Nayax), remove the adapter and connect to the 12 VDC supply directly.
 - Network: Depending on the POS, plug in the Ethernet (RJ45) cable or the 4G antenna lead (SMA).
6. Reinstall the inner door cover, close the doors, and restore power to the charging station.

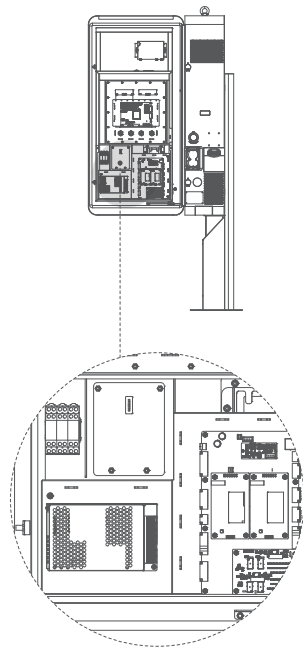


Figure 5-18 POS mounting location (interior view)

Note:

- Only cloud-integrated POS solutions are supported; no machine-to-machine integration with the DC 60/80 is applied.
- Enable POS payment authorization on the HMI screen: After installation, send an OCPP ChangeConfiguration command from the backend with key: POS_en and value: true.

6 Commissioning

Commissioning is necessary before operating the charger. The purpose is to check the safety and performance of the charging system for operational purposes. A qualified service engineer is required to complete commissioning. During the process, the system safety, performance, and the function of charging will be tested.

6.1 Visual inspection

Before the initial startup of the DC 60/80 charging station, a visual inspection of the installation is mandatory. Do not energize the charging station until this inspection is completed.

For the inspection, the charging station must be isolated from the supply:

- Turn OFF the supply upstream of the charging station.
- Secure the supply with locking devices and warning signs to prevent re-energization.

Proceed with the visual inspection as described below.

A. Equipment installation inspection

- Upstream protection devices are correctly selected to meet local regulations and DC 60/80 installation requirements (ratings, type, breaking capacity).
- The installation complies with local health and safety, and fire regulations (clearances, signage, emergency access, extinguishers, etc.).
- The supply cable meets installation requirements: correct conductor CSA and insulation type; circuit length considered; installation method and ambient conditions considered; coordinated with upstream protection devices (the current-carrying capacity of the supply cable is higher than the rating of the upstream protective device).
- All electrical terminations—on the supply side and inside the charging station—are secure and tightened to the specified torque.
- The charging station is mounted on a stable, level surface and fixed using the prescribed anchors. If the wallbox version, verify that it is securely fixed.
- Cable duct/conduit entries are sealed; glands are tightened; routing provides strain relief and protection against abrasion.

Table 6-1 Equipment installation checklist

No.	Item	Method
1	Upstream protection devices are correctly selected.	Visual inspection
2	The installation complies with local Health and Safety and Fire regulations.	Visual inspection
3	The supply cable meets installation requirements.	Visual inspection
4	Upstream protection devices are correctly selected.	Visual inspection
5	All electrical terminations are secure and tightened to the specified torque.	Visual/mechanical inspection
6	Charging station is in level and charger is securely fixed to the foundation or on wall.	Visual/mechanical inspection
7	Cable/conduit entries sealed; glands tight; routing with strain relief.	Visual inspection

B. Environmental inspection

- The cabinet interior is clean. No offcuts, cable insulation pieces, tape scraps, loose screws, or packaging left inside the charging station.
- The installation area is clean and tidy. Remove all packaging, cable offcuts, and debris. Access routes and ventilation are clear.
- Waste handling is completed. Sort and dispose of all installation waste in line with local, national, and European regulations. Electrical/electronic waste (WEEE) must not be mixed with household waste; use designated collection points.

Table 6-2 Environmental inspection checklist

Type	Rated Power	Location
1	The cabinet interior is clean.	Visual inspection
2	The installation area is clean and tidy.	Visual inspection
3	Waste disposal is completed.	Visual inspection

C. Hardware inspection**• HMI and buttons**

Remove the protective film from the HMI. Verify the screen is free of scratches/cracks. Check that all operation buttons can be pressed and return to position.

• Cable Management System (CMS)

Confirm the CMS is installed correctly; fixing screws are tight. Pull the charging cable—the spring/retractor operates smoothly and rewinds properly.

• Mounting

The cabinet is securely fixed to a pedestal or a wall bracket; no movement. Check that the charger has sufficient space for ventilation and the doors can be open without restriction.

• Supply cable entry

Inspect the cable gland: not loose, the supply cable cannot be pulled out of the cabinet.

• Internal components

Open the doors and verify all internal panels, covers, and fasteners are present and secure—no loose parts.

• AC contactor (KMJ) terminations

Inspect AC input and output terminals—confirm no looseness (these terminals may loosen during transport due to vibration/impact). Open the cover panel and verify/tighten terminations to 1.9–2.8 Nm.

• Air filter

Open the filter panel and verify the air filter is present and seated correctly.

• Charging cables and connectors

Cables show no cuts, kinks, or damage. Connectors have no damage and no cracks. Cable glands for the charging cables are tightened; the cable cannot be pulled out of the cabinet. Connectors insert and release from holsters smoothly without excessive force.

Table 6-3 Hardware inspection checklist

No.	Item	Method
1	Check the HMI screen and operation buttons.	Visual/mechanical inspection
2	Check and test Cable Management System.	Visual/mechanical inspection
3	Check if cabinet is securely fixed pedestal or wall bracket.	Visual/mechanical inspection
4	Inspect the cable gland: not loose, the supply cable cannot be pulled out of the cabinet.	Visual/mechanical inspection
5	Check all internal panels and covers are secured.	Visual/functional inspection
6	Open the doors and verify all internal panels and covers are secured.	Visual inspection
7	Inspect wiring terminals on KMJ AC Contactor. Tighten terminations to 1.9–2.8Nm.	Visual/mechanical inspection
8	Open the filter panel and verify the air filter is present.	Visual/mechanical inspection

6.2 Energizing the DC 60/80

To power on the DC 60/80 charging station:

- Turn ON the upstream supply feeding the charging station.
- Open the front doors to access protection devices.
- Switch devices ON in this order:
 - a. 3-pole MCB (QS1)
 - b. Main MCCB (QF0)
 - c. 2-pole 30 mA RCBO (QF2)
- Wait for the HMI to boot and show connector status.
- Close the front doors, ensure no tools remain inside, and lock the doors.

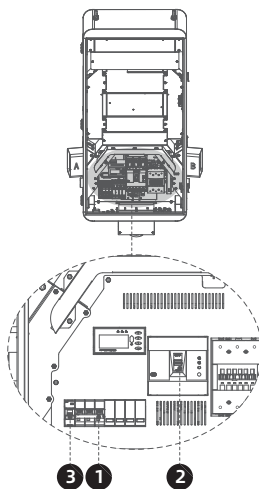


Figure 6-1 Energizing sequence

6.3 Electrical testing

Before the first operation, the DC 60/80 charging station must undergo electrical testing to confirm that the supply, protection, earthing/bonding, and basic functionality meet installation requirements and are safe. These checks verify correct wiring, adequate protection device performance, and installation safety.

Do not energize or operate the charging station until all electrical tests are completed and the results are acceptable. Testing should cover the supply side (continuity, insulation, polarity/phase sequence), protection performance (loop impedance and RCBO operation), and post-start basic electrical measurements. Results should be recorded in the installation report.



Warning

Electrical tests and measurements must be performed by a qualified person holding the qualifications required by local regulations for electrical measurements and work subject to technical supervision.

6.3.1 Protective conductor continuity test

Before testing, isolate the charging station at the main supply switch to ensure safe conditions. After isolation, verify the absence of voltage on the load side of the isolation point. Perform the continuity test by connecting one lead of the test instrument to the PE bar in the supply/distribution panel and the other lead to the PE point inside the charging station (use an extension lead).

- Pass criterion: the resistance of the protective conductor path is $\leq 1.0 \Omega$. If the measured resistance exceeds the limit, inspect and correct the PE terminations or inspect the supply cable.

6.3.2 Insulation resistance test of AC supply conductors

Before testing, ensure the charging station is isolated and the supply cable is disconnected from the DC 60/80 terminals. Where practical, also disconnect the cable at the distribution board so the cable is completely isolated. Verify absence of voltage on all conductors.

Using an insulation tester set to 500V DC, measure the insulation resistance of the supply cable. Perform measurements between all line conductors (L1-L2, L2-L3, L1-L3), between each line conductor and neutral (L1-N, L2-N, L3-N), and between each line conductor and PE, as well as N-PE. The test is satisfactory when every measured value is $\geq 1.0\text{M}\Omega$. If any value is below the limit, inspect the cable and terminations for damage or moisture, rectify the fault, and repeat the test. Record all the results in the installation report.



Warning

Do not perform insulation-performance tests on the charging station itself. Such tests can damage internal electronic components.

Perform insulation testing only on the supply cable/circuit before it is connected to the DC 60/80. The product is factory-tested for insulation performance.

6.3.3 Voltage test

Input voltage & phase-rotation test

- Ensure all internal switches remain OFF: QF0 (Main MCCB),
- QS1 (3-pole MCB/SPD), QF2 (2-pole 30 mA RCBO).
- Reconnect the supply cable (after previous tests) in accordance with the installation requirements. Turn ON the upstream supply feeding the DC 60/80.

A. Measure voltage at the AC terminal of the charging station:

- Voltages: L1-N, L2-N, L3-N ($\approx 230\text{ V} \pm 10\%$ each, per local supply), L1-PE, L2-PE, L3-PE ($\approx 230\text{ V} \pm 10\%$), and N-PE ($\approx 0\text{ V}$).
- Phase voltage & rotation: L1-L2, L2-L3, L3-L1 ($\approx 400\text{ V} \pm 10\%$), and confirm rotation L1 $\rightarrow$ L2 $\rightarrow$ L3 with a phase-rotation tester.

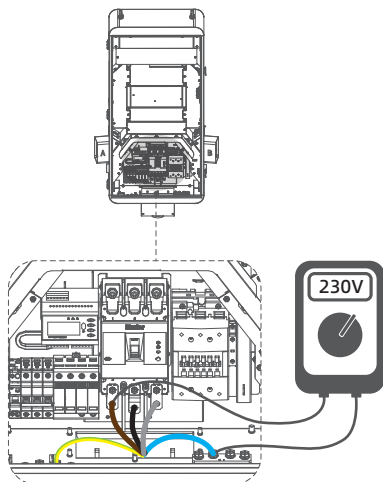


Figure 6-2 L1-N voltage test on income terminal

B. Energize DC 60/80 (see Section 6.2)

C. Measure Voltage on the load side of switches :QF0 (Main MCCB), QS1 (3-pole MCB/SPD), QF2 (2-pole 30 mA RCBO)

- Voltages: L1-N, L2-N, L3-N ($\approx 230 \text{ V} \pm 10\%$ each, per local supply), L1-PE, L2-PE, L3-PE ($\approx 230 \text{ V} \pm 10\%$), and N-PE ($\approx 0 \text{ V}$).
- Phase voltage: L1-L2, L2-L3, L3-L1 ($\approx 400 \text{ V} \pm 10\%$)

6.3.4 Verification of automatic disconnection of supply (ADS)

For TN systems, distribution circuits and final circuits with $I_n > 32 \text{ A}$ may use a maximum disconnection time of 5 s.

To verify ADS effectiveness in TN systems:

- Measure Z_s (earth-fault loop impedance).
- Confirm protective-device characteristics and/or the effectiveness of the protective arrangement.

The following must be satisfied: $Z_s \times I_a \leq U_o$

where:

- Z_s - earth-fault loop impedance of the circuit,
- I_a - current that ensures automatic disconnection within the required time for the installed protective device,
- U_o - nominal voltage to earth.

Preparation

- Ensure all internal switches remain OFF: QF0 (Main MCCB), QS1 (3-pole MCB/SPD), QF2 (2-pole 30 mA RCBO).
- Turn ON the upstream supply feeding the DC 60/80.

Test

- Verify voltages (incoming side) At the AC input terminals, confirm supply is present: L1-N, L2-N, L3-N ($\approx 230 \text{ V} \pm 10\%$); L1-PE, L2-PE, L3-PE ($\approx 230 \text{ V} \pm 10\%$); N-PE ($\approx 0 \text{ V}$).
- With internal switches still OFF, check the load side of QS1, QF0, and QF2—no voltage should be present.
- Using a calibrated loop-impedance tester (no-trip mode), measure Z_s between L and PE for each phase at the AC input terminals: $Z_s(L1-PE)$, $Z_s(L2-PE)$, $Z_s(L3-PE)$.
- Acceptance (TN): Verify that each measured value satisfies $Z_s \times I_a \leq U_o$. I_a is the current that ensures the installed protective device disconnects within the required time (e.g., for MCBs: Type B = $5 \times I_n$, Type C = $10 \times I_n$, Type D = $20 \times I_n$; for MCCBs, use the breaker manufacturer's instantaneous pickup or the time-current curve at $\leq 5 \text{ s}$). Record the protective-device data used for the check.

ADS in TT systems is verified by the RCD function: $R_A \leq \frac{U_L}{I_{\Delta a}}$

where

- R_A —earth electrode resistance of the installation
- U_L —permissible touch voltage (50 V)
- $I_{\Delta a}$ —operating residual current of the RCD (for fixed-setting devices $I_{\Delta n}$)

Table 6-4 Typical limit values for RA (with UL=50V):

RCD rating IΔn	Max RA
30 mA	≤ 1667 Ω
100 mA	≤ 500 Ω
300 mA	≤ 166 Ω
500 mA	≤ 100 Ω

Test (TT):

- Measure RA with an earth tester (3- or 4-pole method).
- Record RCD details for the circuit supply protection device.
- Enter all results in the test report.

Required result

Maintain installation earth resistance $RA \leq 10 \Omega$. This device requires this limit for stable CP/PLC communication, even where local regulations allow higher values. Verify with a 3- or 4-pole earth resistance test; if the result exceeds 10 Ω, improve the earthing and retest.

Notes

- Use a calibrated instrument and prove it on a proving unit before and after testing.
- Record all readings and the protective-device details in the test report.

6.3.5 RCD performance test (QF0 and QF2)

Open the jaws of the clamp-on ammeter and hold all the phase lines (L1, L2, L3) and the neutral line (N) of QF2 in place, ensuring that all conductors are within the jaws (only measure the residual current to avoid errors caused by missing conductors).

Reconnect the upstream power supply and only turn on the corresponding front-end switch of QF2 (such as QS1) to ensure that QF2 is in the closed state. At this time, the clamp-on ammeter should display "0mA" (no residual current).

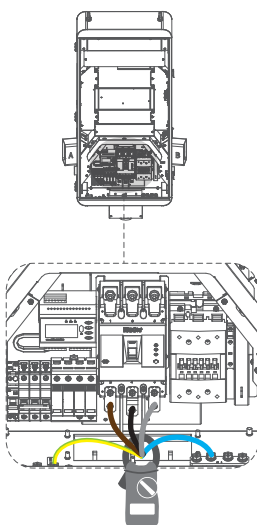


Figure 6-3 QF2 RCD test

6.3.6 DC charging-connector insulation monitoring (IMD)

The insulation monitoring device (IMD) is integrated in the charge controller (CCU) and is essential to the safe operation of high-voltage DC charging. It continuously measures the insulation resistance between the DC lines (V+, V-) and protective earth (PE) using an unbalanced-bridge method. The CCU provides two independent IMD channels—one for each connector—via two high-voltage sampling boards (the upper board for Connector A and the lower board for Connector B).

At power-up the IMD performs an automatic self-test. During every charging session it monitors the resistance in real time. If the measured insulation resistance falls below 500 Ω/V , an alarm is raised. If it falls below 100 Ω/V , the charging session is immediately stopped.

6.3.7 Charging test

After all commissioning tests have passed and the charging station has been configured (see Section 7 – Configuration), perform a functional test with an EV.

To complete the test, follow the steps below:

- System start–Power on the DC 60/80 and confirm the system boots normally.
- HMI & buttons – Verify that the HMI responds and all operation buttons function properly. Use the buttons to enter and exit each available menu.
- Backend connectivity–Confirm the station connects to the Central System (OCPP) and that both connectors are “Available.”
- Door sensor – Open the front doors: the HMI should indicate a fault. Close and lock the doors; the fault should clear.
- Emergency stop–Press the E-STOP: the station will change status to Unavailable and display Faulty status. Reset the E-STOP by pulling and turning clockwise; the fault should auto-reset, and both connectors return to Available status.
- Charge sessions–Start and complete a charging session on Connector A and on Connector B. Verify:
 - a. The session starts correctly (authorize session by any method, RFID card, QR code, or POS if installed)
 - b. Configured power limits are applied.
 - c. Metering and session status update normally.
 - d. The session finishes correctly.

If all steps succeed, the functional test is complete. Record outcomes in the test report.

6.3.8 Commissioning report

After the installation and commissioning of a DC 60/80 charging station is completed, a report must be prepared and kept on file. This report records the tests performed and their results. Even when a separate electrical installation certificate is required by local regulations, we recommend completing a dedicated commissioning report for future periodic maintenance and service.

In case of a product issue, After-Sales Support may request the commissioning report as proof that the station was installed and commissioned correctly.

Below is an example scope that represents the minimum content required by the manufacturer. Items not listed here (e.g., some electrical test results) may belong in the electrical installation certificate submitted to local authorities according to their guidelines.

Table 6-5 Commissioning test report

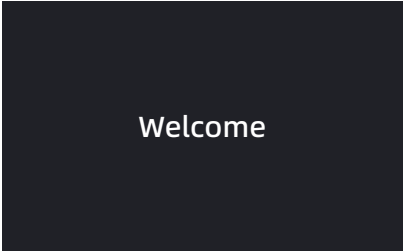
No.	Checklist item	Result	
1	Upstream protection devices are correctly selected.	☐ Pass	☐ Fail
2	The supply cable meets installation requirements.	☐ Pass	☐ Fail
3	Upstream protection devices are correctly selected.	☐ Pass	☐ Fail
4	All electrical terminations are secure and tightened to the specified torque.	☐ Pass	☐ Fail
5	Charging station is in level and charger is securely fixed to the foundation or on wall.	☐ Pass	☐ Fail
6	The cabinet interior is clean. The installation area is clean and tidy.	☐ Pass	☐ Fail
7	All internal panels and covers are reinstalled. Front doors are locked.	☐ Pass	☐ Fail
8	Charging cables and connectors free from damages. Cable management system and connector holster works correctly.	☐ Pass	☐ Fail
9	Voltage test on charger input AC terminals completed and results in range as follow: L1-N, L2-N, L3-N ($\approx 230\text{ V} \pm 10\%$), L1-PE, L2-PE, L3-PE ($\approx 230\text{ V} \pm 10\%$), and N-PE ($\approx 0\text{ V}$).	☐ Pass	☐ Fail
10	Earth loop impedance completed. For TNS earthing measured value satisfies $Z_s \times I_a \leq U_0$, in TT systems installation earth resistance is $R_A \leq 10\ \Omega$	☐ Pass	☐ Fail
11	RCD performance test (QF0 and QF2) completed. Results : • $0.5 \times I_{\Delta n}$: the RCD not trip. • $2 \times I_{\Delta n}$: trip time $\leq 150\text{ ms}$. • $1 \times I_{\Delta n}$: trip time $\leq 300\text{ ms}$. • $5 \times I_{\Delta n}$: trip time $\leq 40\text{ ms}$.	☐ Pass	☐ Fail
12	HMI screen, operations push buttons, door sensors and Emergency Stop work correctly.	☐ Pass	☐ Fail
13	Charging test completed on connector A and connector B. Session start and stop correctly.	☐ Pass	☐ Fail

7 Configuration

7.1 Initial Startup

Start the system by following section 6.2, Energizing the DC 60/80. After power-up, the HMI boots and shows the manufacturer logo; allow the charging station to complete initialization. On first startup the HMI typically shows (a) both connectors with status

Unavailable and (b) a network icon in the top corner—red means not connected; black/white (depending on HMI configuration design) means the station is online and only OCPP Central System pairing remains. If the station appears online, verify the router status, as connectivity may be provided by a temporary service SIM. The charging station is now ready for configuration.



Welcome

7.2 Configuration of network router

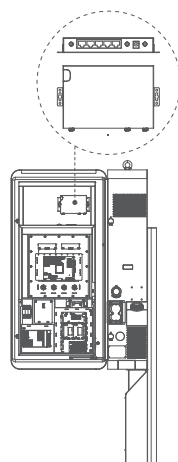
After installing a SIM card, the router will connect automatically if the SIM does not require an APN. If an APN is required, configure it using a laptop connected by Ethernet. Even when no APN is needed, log in to the router and verify signal quality—CSQ > 15 is recommended

Accessing the router

- Power on the charging station and open the front doors.
- Plug an Ethernet cable from your laptop to the router's LAN port.
- In a web browser, go to <http://192.168.11.1>
- Log in with: Username: admin Password: admin.

Setting the SIM APN

- Navigate to Basic Network → Cellular → SIM 2.
- Enter the required APN for your SIM card.
- Click Save.
- Reboot the router: System → Reboot Router.



Delian

Status > You haven't changed the default password for this router. To change

Basic Network >

- WLAN
- Cellular**
- Cellular 2
- LAN
- IPv6
- VLAN
- Schedule
- DDNS
- Routing

WLAN >

Advanced Network >

Firewall >

VPN Tunnel >

Administration >

Cellular Settings

Enable Modem ☒

Basic Settings SIM 1

Mode Auto

Network Operator Others

PIN Code

APN 3GNET

User CARD

Password ****

Dial Number *99#

Auth Type Auto

Local IP Address

Save Cancel

After the router reboots, open Status → Overview. Check both the Operational SIM and Service SIM sections:

- Modem status: Ready
- SIM status: Ready
- CSQ: confirm signal quality (target > 15)
- IP address: present (not 0.0.0.0)
- Connection status: Connected

If all items are correct, the SIM configuration is complete. If not connected yet, wait a few minutes—the SIM may still be searching/attaching to the network. If it still does not connect, check the following common causes:

- The APN value is incorrect.
- SIM not activated or out of data/credit.
- Weak signal.

For security reasons, it is recommended to change the default administrator password before completing the configuration process.

To change the password:

- Navigate to Administration → Admin Access in the router menu.
- Scroll down to the Password section.
- In the Password (admin) field, enter a new, strong password.
- Re-enter the same password in the confirmation field to avoid typos.
- Click Save/Apply to confirm the change.

This step should be done as the final task before disconnecting from the router. A secure password helps protect the charging station from unauthorized access and ensures long-term network stability. Once the password is changed, unplug the Ethernet cable, reboot the charging station, and close and lock the doors to complete the process.

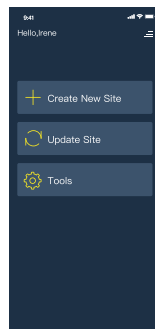
7.3 Configuration the charger

To configure the DC 60/80 charging station, use the EVbee Service App, available for both iOS and Android devices. The app enables wireless communication with the charger over Bluetooth or a mobile network, allowing quick and reliable access to configuration tools.

After the charger has been fully configured and commissioned, the charger warranty is automatically activated through the app.

The EVbee Service App offers the following key features:

- Wireless Configuration - Connect to the DC 60/80 via Bluetooth or mobile data for fast local setup.
- User-Friendly Interface - User Interface designed for efficient on-site use.
- Installation Overview - Monitor installation history and access charger maintenance tools when needed.



7.3.1 Service APP - user registration

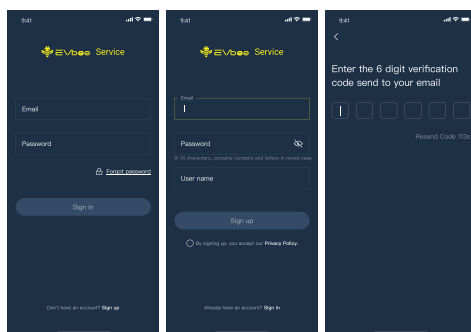
To register a user account, follow the steps below:

1. Download the EVbee Service from the App Store for iOS devices and from the Play Store for Android. Tap 'Sign up' on the main page to start user registration.

2. Enter your login details: email address, password, and username.

3. Read and accept the Privacy Policy, then sign up.

4. Enter your verification code you received on your email you register account.



5. Select your account type

To configure EVbee DC charging stations, you must register as a Qualified Installer. This account type is intended for professionals with relevant training and qualifications. Access to Qualified Installer accounts requires a unique Access Code, which must be obtained from your local EVbee distributor. Access codes are provided only after successful completion of the official training.

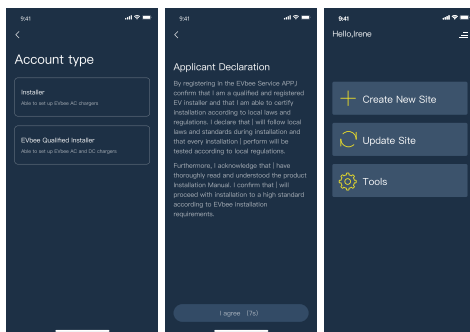
6. Read and accept the declaration.

Confirm your understanding of the responsibilities and conditions for EV charger installation and service.

7. Log in with your email and password.

Once registered, sign in to the EVbee Service App and begin configuring your first EVbee DC charging station. EVbee Service App user interface:

- **Menu**—By entering Menu, you can get to your Account configuration, change your Username, change your Password, change your account type, log out, or cancel your Account.
- **Create New Site**—You can create a new Installation Site. Select the Commercial site to configure the DC 60/80.
- **Update Site** - Add or remove EV Charge Point in existing installation site.
- **Tools** - Proceed charging test on configured charger, update firmware, view and change charging station configuration



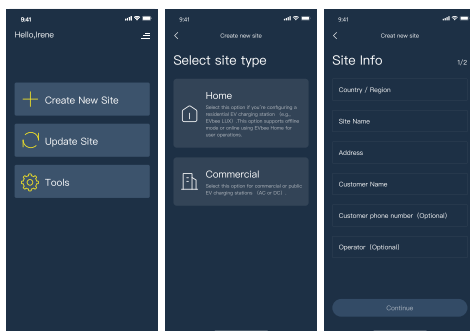
7.3.2 EVbee Service APP - DC 60/80 configuration

DC 60/80 charging stations include an activated service SIM card, which connects the charger automatically to the EVbee Service Platform. This feature enables remote configuration via the network. Once the charger is powered on, the app will verify that it is reachable online and allow you to proceed with online configuration. If the charger is not online, the app will display a notification and prompt you to switch to Bluetooth (BT) mode instead. Alternatively, you may start directly in Bluetooth mode.

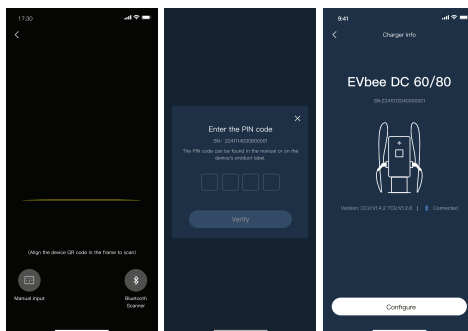
To complete the configuration process, open the EVbee Service App and follow the steps below:

1. Create New Site
2. Select Site Type—Commercial
3. Complete Site Info. Fill in the required details:

- Country
- Site Name Address
- Customer Name
- (Optional) Customer Phone Number
- (Optional) Operator
- Then tap Continue to proceed.



4. To connect to the charger, scan the QR code on the product, enter the serial number (SN) from the product label (located inside the front door of the charger), or search for the charger via Bluetooth, and then enter the PIN code.



5. On the “Configuration Method” page, select either “Configuration via Network” or “Configuration via Bluetooth (offline configuration)”. The DC 60/80 charging station is equipped with a manufacturer-installed service SIM card.

Select “Configuration via Network”, the app will attempt to connect to the charger online and verify that it is available for remote configuration.

- If the charger is online, configuration will proceed.
- If the charger is offline, the app will prompt you to switch to Bluetooth (BT) configuration mode.

If the charger is offline, this could be caused by weak signal strength or the SIM card not yet being registered on the network. In this case, report the issue to your distributor. Connection to the service backend is critical for remote support and monitoring.

6. Once the charger is detected and online, the app will display the current Charger Status and Firmware Versions for all components:

- CCU Version
- TCU Version

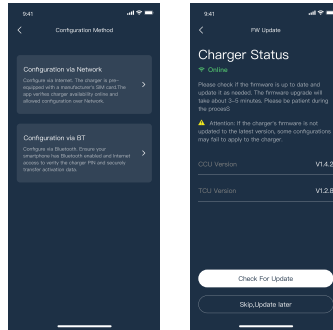
If any firmware component needs to be updated, a message such as "Needs to be updated" will appear next to that module.

Always begin updates with the CCU (Central Control Unit) if it requires upgrading. During the update process:

- Do not power off the charger.
- Do not close the app.
- Wait until the firmware installation completes and the charger automatically reboots and reconnects.
- Progress and reboot notifications will be clearly displayed.

If all components are up to date, or after the update completes, you can proceed to the next configuration step.

You may skip the firmware update only if it fails for any reason. In such cases, report the issue to your distributor, as firmware updates can also be upgraded remotely later. Keeping your charger firmware up to date is critical for reliable operation and compatibility.



7. Basic Settings

In this section, configure the general operating parameters of the charger:

- **Circuit Fuse:**

means circuit protection device rating in Amp

- **Circuit Name:**

means the serial number or circuit code of the circuit connected to this device.

- **Max output Power:**

Define the maximum output power. This can be limited via firmware to a lower value than the physical hardware supports, depending on the installation requirements.

- **Authorization Methods:**

Enable or disable authorization options (e.g., POS icon) from the charging screen.

- **Time Zone:**

Set the local time zone.

- **Language:**

Select the default display language for the HMI (user interface).

- **Free Charging:** Once enabled, charging can start without authorization when the charger is offline. When it is online, charging will start with authorization using the default ID tag.

- **Door Sensor:** Enable or Disable the Door Sensor.

8. Operator settings

Configure how the charger communicates with the backend system and define identification parameters.

- **OCPP Central System OCPP Backend:**

Select a predefined backend from the list, or choose Custom to enter your own backend URL.

- **Charger ID:**

This is the unique identifier used by the OCPP backend to recognize the charger. By default, the charger uses its serial number (SN) with the prefix DC60_ as the Charger ID. You may change it if required.

- **Charger Identification:** vendor_customer and model_customer. These fields define the values sent in the charger's BootNotification message. You may change these values if a different vendor or model name should be reported to the backend.

- **TLS Encryption:** Authorization—Choose between:

True—if the OCPP backend requires authorization.

False—if authorization is not required by the backend.

- **Communication Mode:** Select the method the charger will use to connect to the internet:

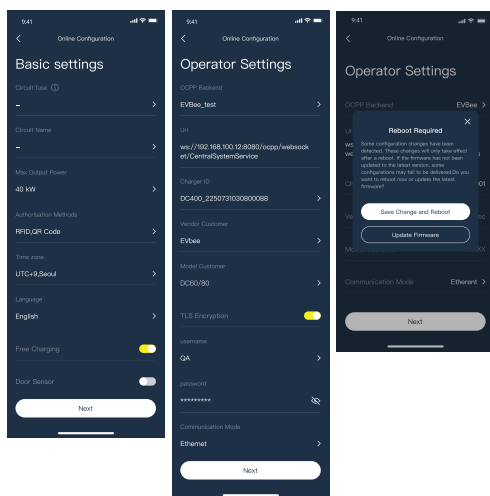
A. Ethernet: Connect a LAN cable to the charger's Ethernet port. It is required as well when using the 4G SIM (the SIM is installed in the internal router—the router provides Ethernet access to the charger).

B. Wi-Fi: Tap Wi-Fi SSID to search for available wireless networks (2.4 GHz only). Select your network and enter the password.

C. 4G: Only applies if an internal 4G module is used (not required in the DC60/80).

Note: On newer units equipped with an internal router, only Ethernet may be available as the communication method. This is by design to ensure a more stable network connection.

- **Save & Reboot.** After entering all parameters, tap Reboot Now to apply the settings.



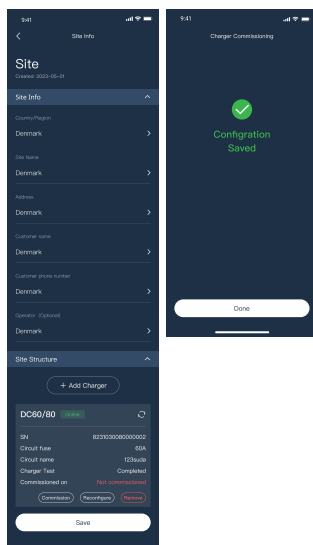
9. After you tap “Save Charger and Reboot”, the app opens the Site Info page, which shows both the site information and all chargers bound to the site.

On this page you can:

- Edit the site information.
- Add new charger
- View and edit charger details, including:
- Charger Model

- Charger Network Connectivity
- SN
- Circuit Fuse
- Circuit Name
- Charger Test status
- Commissioning status
- Commission button (you can choose whether to commission the charger; the charger must be online to start commissioning)
- Reconfiguration button
- Remove button

Tap “Save” to complete binding the charger(s) to this site.



10. Commissioning Process:

In the commissioning form, select all test checkpoints to confirm that each requirement has been fulfilled and approved.

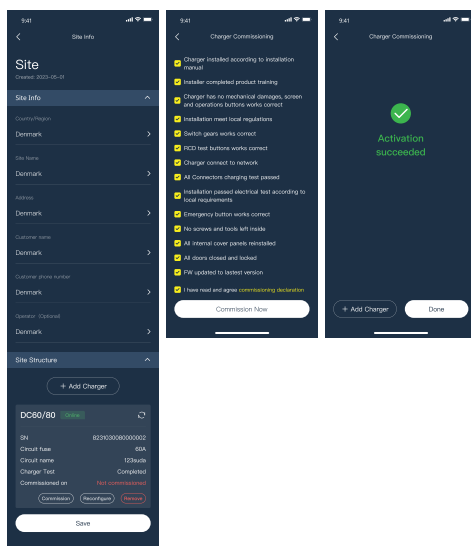
Use real and accurate data—the system verifies submitted values and requires that at least one successful charging session be completed on each connector before commissioning is accepted.

Once the charger is added to a site, review and confirm that all charger and site data is correct, then save to complete. A “Activation succeeded” confirmation will be displayed.

Tap Done to finish the configuration step.

Important Reminder:

If commissioning is not completed before the 15th charging session, the warranty may become void.



11. Reconfiguration

On the “Site Info” page, you can select a charger to reconfigure its settings.

Note: After you finish adjusting the settings and tap “Save” , a reboot dialog will appear. In this dialog, you can tap "Save change and reboot" to reconfigure the charger, or you can tap the “Update Firmware ” to start the firmware update.

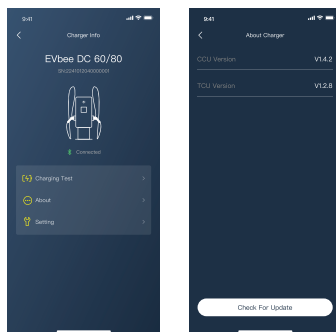
7.3.3 EVbee Service APP - configuration via BT

When the charger cannot connect via the Service SIM to complete the online configuration, or if you manually selected the BT (Bluetooth) method, the configuration process remains the same as described previously, with only one key difference. The firmware check and update must be performed after the site configuration is completed.

- To perform a firmware update in BT mode, follow these steps:
- Open the EVbee Service App and go to the Tools section in the main menu.
- Scan the configured charger and enter the access PIN (printed on the internal door label) to complete the connection.
- Select "About" to view the current firmware versions for the charger modules (CCU, TCU).
- Tap "Check for Update."
- If new firmware versions are available, the app will notify you and allow the update to proceed.

NOTICE:

- Firmware files are downloaded directly from the EVbee cloud, so the DC 60/80 charger must be online and connected to the OCPP backend to complete the update.
- If the charger is offline and no internet connection is available, firmware updates cannot be completed at that time.



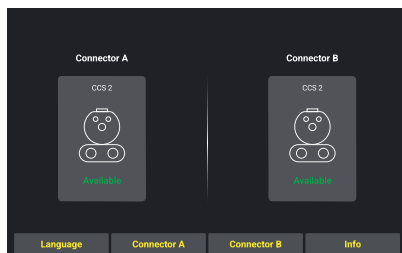
7.3.4 Finalizing configuration and charging test

Once the configuration is completed, the charger will automatically reboot. After the system restarts:

The network status indicator will change from red to black, indicating that the charger is connected to the local router.

The OCPP status icon (top right corner) will change from the color red to black, confirming the charger is successfully connected to the Central System.

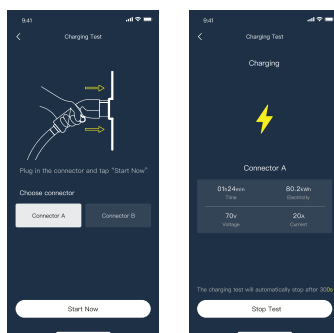
The connector status will update to "Available," confirming that the charger is online and ready for operation.



Performing a charging test is an important step to ensure that the charger is configured correctly. The charging test can be performed directly via the EVbee Service App as part of the commissioning process.

To carry out the test:

- Tap 'Charging Test' from the Tools menu in the app.
- Plug the EV into the charger.



- Once the charger establishes a connection with the EV, enter the valid ID tag and tap 'Start Now' to begin the charging test.
- The test session will run automatically for 2 minutes. You may also end the test earlier via the app interface.

To authorize the charging session during the test, a valid ID tag must be used. This ID tag must be recognized by the OCPP Central System in order to successfully start the session.

During the charging test, the charging performance can be monitored in real time, and the session can be manually stopped at any point using the app.

8 User Instructions

8.1 Charging

To start charging, plug the CCS2 connector into the vehicle. Once connected, the charger will automatically move to the authorization screen. The following authorization options will be available:

- RFID card—Tap your RFID card on the reader.
- QR code—Scan the code shown on the screen using the operator's mobile app (if supported).
- Payment terminal—If installed, follow terminal instructions to complete the payment (e.g., tap card or enter PIN).

After successful authorization, the charger will run safety checks and start the charging session.

When charging starts, the screen displays real-time session information, including:

- State of Charge (SOC)—current battery charge level of the vehicle (in %)
- Output Power - real-time power delivery in kilowatts (kW)
- Charging Duration—how long the session has been running (minutes)
- Energy Delivered - amount of energy transferred to the vehicle (in kWh)
- Cost - calculated charging cost (if applicable)

You can monitor progress at any time.

Once charging is finished or stopped, the screen will show a summary of the session.

After the session is complete, unplug the vehicle connector and return it to the holster securely.

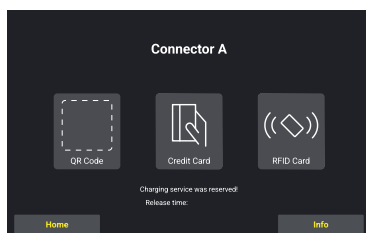


Figure 8-1 Authorization Methods

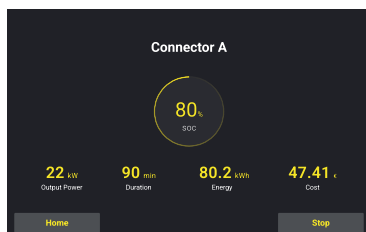


Figure 8-2 Screen Standby Mode

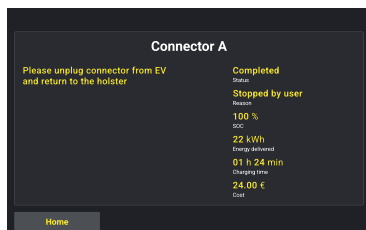


Figure 8-3 Transaction Details

8.2 Reading the Electricity Meter Value

Yada meters are available in two configurations: Yada CE and Yada MID. Users can switch the data they want to observe by pressing the up and down buttons. It includes four types of data: current, voltage, power and total electricity consumption.

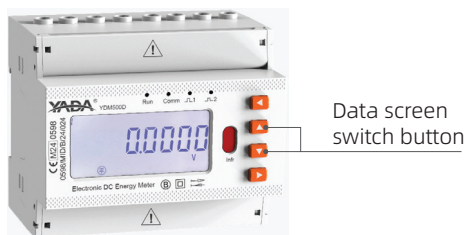


Figure 8-4 Meter Display Diagram

8.3 Lamp Language

Table 8-1 Charger Indicator Light Status

Colour	Status	Description
Green On	Standby	The charger is in standby mode.
Blue Blinking	Preparing	The vehicle has been connected.
Green Running	Charging	The charger is charging.
Yellow Blinking	Charge Completed	The vehicle charging has been completed.
Blue On	Reservation	Charging reservation in progress.
Red On	Fault	The charger malfunction.

8.4 Error Codes and Faults Diagnostic

If any error or fault occurs during operation, the DC 60/80 charger will display an error code on the HMI screen. At the same time, a StatusNotification with the relevant error code will be sent to the connected OCPP Central System.

The table below provides an overview of error codes and basic diagnostic guidance to help identify and resolve common issues.

If the cause of the error cannot be diagnosed or resolved using the information provided, please contact your distributor or authorized service partner for further assistance.

Table 8-2 Error Codes

Code	Description	Solution
0002	Emergency stop button is pressed	- Check if the system is safe, then release the emergency button - Check the 24V power supply - Check the button spring

Code	Description	Solution
0004	Abnormal output voltage detected during charger's initialization	• Make sure the output voltage is 0 V before starting. • Restart the charger after a full power-off and wait a few minutes. • If still the same, check the voltage sensor or control board.
0005	Abnormal values of voltages before and after the output relays.	• Check the Power relay • Check 12V Voltage
0008	Overcurrent - higher output current than the EV required	• Check the power module address and group are correct. • Check CCU software version.
0010	Charger internal overheating.	• Check if fans are working correctly. • Check if the air vent is blocked. • Check if the air filter is clean. • Check the temperature sensor.
0013	Communication loss between CCU & TCU.	• Check if the CCU/TCU software fails (LED on the debug board will stop flashing). • Check communication wiring between CCU & TCU.
0014	Abnormal internal Voltage detected during session start (i.e. $V_{pre} > 30V$ during 30s at start on)	• Check if any residual voltage exists between DC+ and DC- on the EV side before connection. • Verify the charger output has no remaining voltage before contactors close.
0019	Charger detected that the internal temperature is below $-35^{\circ}C$.	• Verify if the ambient temperature is actually below $-35^{\circ}C$. • Check the temperature sensor and if the connection is correct or loose wiring. • If readings are incorrect, replace the temperature sensor.
0020	DC output undervoltage detected at the start of the charging process or during charging.	• Check whether the EV side contactors have switched ON and the DC circuit is closed. • Verify the EV battery voltage is not below the charger's minimum operating level. • Inspect the charger's DC bus and voltage- sensing circuit for correct readings. • Test with a simulator to provide correct feedback voltage. • If the issue persists, reboot the charger and re-try charging with another EV to confirm whether the problem is on the charger or vehicle side.

Code	Description	Solution
0021	CCU lost communication with SECC (PLC or CME module).	• If using a CME module, check that the mode switch/button is set to the "ON" or "RUN" position. • Check that the CME/PLC module is properly seated on the CCU board and that all connector pins are clean and correctly aligned. • Update the CME module firmware to the latest version if communication is still lost. • Change CME/PLC for new.
0022	The EV's requested charging current is fluctuating abnormally or not stable.	• Check the EV system – unstable current request usually indicates an EV-side control or battery issue. • Reduce the charger output power and retry charging to confirm if the problem persists.
0023	The EV requested a charging current that is outside the charger's allowable range (too low or too high).	• Check the EV's requested current in the communication log and ensure it is within the charger's rated output range. • If the request is abnormal, check the EV control system or retry charging with another vehicle.
0024	Charger detected an insulation fault – resistance between DC+ / DC- and PE is below 100 Ω /V. Charging is not allowed	• Check the charger output voltage is 0 V during the insulation test phase. • Verify CCU/PCU software is running correctly and updated to the latest version. • Inspect the insulation test circuit or monitoring board for faults. • Check EV for insulation leakage to ground. • Inspect DC+ / DC- wiring for damage or poor insulation. • Confirm power module address settings are correct.
0025	Charger detected an invalid or incorrect pilot signal status from the vehicle.	• Check the CP voltage to ensure it matches the correct level for DC charging. • Inspect the CP circuit and connector for loose pins, corrosion, or wiring faults. • In the OCPP logs, check the StatusNotification messages – confirm the reported CP voltage is correct for the charger states Available and Preparing once the vehicle is connected.
0026	Internal discharge time is too long – the DC bus voltage (V_{prerelay}) stays above the minimum level ($V_{\text{minCharger}}$) for more than 120 s after shutdown.	• Check the power module for faults – if a module shows error E14, the charger will report this fault. • Replace the faulty power module and reboot the charger.

Code	Description	Solution
0027	CCU detected an abnormal connector temperature sensor value – reading is out of range (< -40 °C or > 150 °C) or the sensor may be disconnected or damaged.	• Check the connector and wiring of the cable temperature sensor for loose contact or broken wires. • Reboot the charger and check if the error clears. • Replace the temperature sensor or connector if the fault remains.
0040	Charger detected unstable or fluctuating current from the EV side during charging.	• Check the EV system – unstable current is usually caused by EV battery or BMS control issues. • Verify that the EV current request (from communication logs) is stable and within the normal range.
0041	Charger detected abnormal or invalid data from the power meter.	• Check the power meter wiring and communication connections. • Verify that the power meter is powered on and sending correct data. • Replace or reconfigure the power meter if data remains invalid.
0042	Charger detected abnormal data from the internal temperature sensor – the sensor may be faulty or disconnected.	• Check the temperature sensor and its wiring connection. • Replace the temperature sensor if readings are out of range or not detected.
0050	Error reported by the vehicle: large difference detected between the requested charging current and the current supplied by the charger.	• Check the charging logs and verify whether the EV's requested current matches the actual output current of the charging station. • Inspect the DC output wiring, contactors, and current-measurement circuit for loose connections, damage, or incorrect readings. • Test charging with another EV to determine whether the issue originates from the vehicle or the charging station.
0051	Error reported by the vehicle: charging voltage is out of tolerance range.	• Check the EV system – verify the battery voltage and BMS operation.
0052	Error reported by the vehicle: EV battery voltage is below the allowable range.	• Check the EV battery system for an undervoltage condition

Code	Description	Solution
0053	Error reported by the vehicle: voltage mismatch detected between pre-relay and post-relay points.	• Check the output relay and ensure it closes properly during charging. • Measure the power module output voltage and verify it matches the expected level. • Replace the output relay if faulty. • Replace the power module if the output voltage is unstable or missing. • Check the EV
0055	No communication message received from the EV side – the EV may have stopped the charging session or the cable may be disconnected.	• Check the PLC communication module and verify that it is operating normally. • Inspect the charging cable and connector for damage or disconnection.
0056	Charging parameters are incompatible.	• Check the EV's requested voltage and current in the communication log.
0064	SLAC communication failed.	• If using a simulator, check the parameter settings. • Check the PLC communication module. • Inspect the Control Pilot (CP) wiring and connections for damage or poor contact.
0066	Error reported by vehicle: EV is not in Park position, charging cannot start.	• Check the EV and ensure the vehicle is set to Park (P) before starting charging. • Retry charging once the EV reports "Park" status.
0067	SLAC communication failed – the charger could not establish a valid PLC link with the vehicle.	• Disconnect and reconnect the charging connector, then try again. • Check PLC communication wiring and grounding between the CCU and the connector. • Verify CCU software version and update if required. • Replace the PLC module if the fault persists.

Code	Description	Solution
0068	Lost communication with the EV.	• Check the CAN communication wiring and connectors for loose or damaged pins. • Check the coupler and socket outlet for proper contact and secure connection. • Verify that the CCU software is running correctly and updated to the latest version.
0069	Error reported by vehicle: EV contactor status fault	• Check the EV contactor operation and feedback signals. • Inspect the EV battery system or BMS for faults preventing contactor closure. • Retry charging once the EV contactors operate normally.
0070	Protocol sequence error – communication messages from the EV were received in the wrong order or at the wrong time.	• Check the EV communication logs for abnormal message order or timeout. • If using a simulator, verify the test sequence and timing settings. • Retry charging with the EV – if the issue repeats, report to the EV manufacturer.
0071	Charging session ended: the remaining charging time has expired.	• This is a normal timeout event – no action required. • Restart charging if the EV still requires energy. • Check charger configuration for session time limit.
0072	Plug overheating: connector temperature sensor detected temperature above 105 °C	• Stop charging immediately. • Inspect the connector and cable for signs of damage, loose pins, or contamination. • Check the temperature sensor inside the connector for correct operation. • Replace connector if overheating persists.
0073	Protocol error	• Check EV communication logs for the exact parameter that caused the fault.
0075	Connector error	• Inspect connector and check wiring continuity between the connector sensor and CCU board.

Code	Description	Solution
0080	Communication failure between CCU and CME module.	• Check CME module LEDstatus . • Inspect connection between CCU and CME board – ensure all pins are properly seated and connectors are clean. • Check CCU and TCU software version and update if required. • Replace CME module if communication cannot be restored.
0144	Output relay (contactor) adhesion detected.	• Test the output contactor manually: disconnect it and connect to a 12 V supply to verify it opens and closes. • Check contactor feedback signal on the control board . • Inspect contactor plug and pins for loose or poor connections. • If the contactor or feedback signal is faulty, replace the contactor.
0145	Output relay (contactor) error detected. The charger detected an abnormal condition in the contactor circuit – feedback signal not matching command or contactor not operating correctly.	• Test the output contactor manually: disconnect it and connect to a 12 V supply to verify it opens and closes. • Check contactor feedback signal on the control board. • Inspect connector pins and wiring to the contactor for poor or loose contact. • If the contactor or feedback signal remains faulty, replace the contactor.
0147	Main power contactor fault detected. The charger detected that the main relay (used to switch between connectors) did not operate correctly	• Test the output contactor manually: disconnect it and connect to a 12 V supply to verify it opens and closes. • Check contactor feedback signal on the control board. • Inspect connector pins and wiring to the contactor for poor or loose contact. • If the contactor or feedback signal remains faulty, replace the contactor.
0148	Output main relay (contactor) adhesion detected.	• Test the output contactor manually: disconnect it and connect to a 12 V supply to verify it opens and closes. • Check contactor feedback signal on the control board . • Inspect contactor plug and pins for loose or poor connections. • If the contactor or feedback signal is faulty, replace the contactor.

Code	Description	Solution
0149	AC contactor feedback error.	• Check the AC contactor feedback signal on the control board – verify that it correctly changes when the contactor ON/OFF. • Inspect the feedback wiring and connector pins for loose contact or damage.
0150	MCCB error.	• Check if the MCCB is tripped – reset it and check the output Voltage. • If the fault remains, replace the MCCB.
0160	Output short-circuit detected.	• Power off the charger. • Check resistance between DC+ and DC-. • Inspect output cables and connectors for signs of damage. • If wiring is normal, test each power module individually to find the faulty one. • Replace the defective power module.
0161	Power module under-temperature detected.	• Check ambient temperature – confirm environment is within normal limits. • If the ambient temperature is OK, replace the power module.
0162	Power module internal communication abnormal	• Check AC input power supply to the power module. • Inspect communication wiring and connectors between control board and power module. • Replace the power module if communication does not recover.
0163	Power module AC input abnormal.	• Check AC input power supply – confirm correct phase, voltage level. • Inspect AC input wiring and connectors to the power module for loose or burnt terminals. • If input supply and wiring are normal, replace the power module.
0164	Power module is in sleep mode.	• Verify communication with power module. • Check AC input supply. • If all signals are normal and the module still does not wake, replace the power module.

Code	Description	Solution
0165	Power module output voltage error.	• Check DC output voltage from the module. • Inspect output wiring and connectors between module and DC bus. • Replace the power module.
0166	Power module PFC over temperature detected.	• Check power module cooling fans. • Check ambient temperature and ensure module has adequate ventilation. • Replace the power module.
0167	Power module DC side over-temperature.	• Check fan operation and cooling airflow. • Inspect air filters and vents for dust blockage. • Replace power module.
0168	Power module DC side shutdown.	• Check DC bus voltage and load condition. • Inspect power module connector. • Replace the power module.
0169	Power module internal error.	• Restart charger and check if fault clears. • Check communication and control signal to module. • If fault repeats after reset, replace the power module.
0170	Power module self-protection activated.	• Check AC input and DC output conditions for overvoltage, short circuit, or overload. • Restart charger and observe if fault clears. • Inspect power module cooling and ensure temperature is within range. • If the fault persists, replace the power module.
0171	Power module fan error.	• Check if internal fan of the module spins during operation. • Replace the power module.
0172	Power module over temperature.	• Check module and charger operation. • Ensure ventilation openings are clean and unblocked. • If overheating persists, replace the power module.

Code	Description	Solution
0173	Output overvoltage warning.	• Check EV requested voltage is within charger limits. • Check CCU Firmware. • If condition persists, replace power module.
0174	Output overvoltage shutdown. DC output exceeded critical limit, triggering protection.	• Check power module output voltage. • If fault repeats, replace power module.
0175	Communication failure between Power Module and PCU.	• Check CAN wiring, sequence, and termination. • Check CCU/PCU software version compatibility. • Replace CCU board.
0177	Power module address repeat or out of range.	• Check power module address & group. • Replace power module.
0178	Abnormal output current.	• Check module output current. • Check module wiring. • Replace module if readings remain unstable.
0179	Output voltage imbalance. Uneven DC output between modules or unstable voltage detected.	• Measure output voltage across modules. • Replace faulty module.
0180	Loss of phase / no AC input on power module. AC supply not detected at module input.	• Check AC input supply voltage and phase sequence. • Check AC contactor operation. • Inspect input wiring and terminals.
0181	Power module AC input power supply imbalance.	• Check AC input voltage balance between phases. • Inspect AC contactor and input terminals for loose wiring.
0182	Power module input undervoltage.	• Check if MCB is tripped. • Verify AC contactor closes during operation. • Check contactor control circuit (relays).
0183	Power module input overvoltage.	• Measure AC input voltage. Ensure it's within operating range.

Code	Description	Solution
0184	Power Factor Correction (PFC) shutdown. Power module fault.	• Check power module. • Replace power module if fault persists.
0185	PFC transformer error.	• Check power module. • Replace power module if fault persists.
0186	DC/DC converter error on power module.	• Check power module. • Replace power module if fault persists.
0192	Power meter communication fault.	• Check RS485 wiring sequence (A/B polarity). • Verify RS485 connections. • Check powermeter power supply. • Verify meter baud rate (9600). • Ensure correct software version.
0194	Tilt sensor fault. Charger tilt exceeds 30° or sensor feedback invalid.	• Check tilt sensor mounting direction. • Replace tilt sensor if faulty. • Ensure charger frame is vertical.
0196	Door switch open or trigger error. Detected that the charger cabinet door is open or switch not detected.	• Check door switch wiring and connection. • Verify if door switch activates correctly when opened/closed. • Replace door switch if faulty.
0199	Surge protection (SPD) feedback error	• Check SPD feedback terminals (NO & C) –should not be shorted. • Verify SPD indicator (replace SPD if blown).
0200	RFID reader communication failure.	• Check RFID communication wiring and terminals. • Reboot charger and retest. • Replace RFID reader if communication still fails.

9 Maintenance

Instruction

9.1 Maintenance schedule

Regular preventive maintenance is important for ensuring the safe, reliable, and efficient operation of the DC 60/80 charging station. To maintain performance and comply with safety standards, a structured maintenance routine must be performed every 6 months. Depending on environmental conditions at the installation site—such as exposure to dirt, moisture, or extreme temperatures—more frequent inspections and maintenance may be necessary. Beyond routine inspections and basic safety checks, specific consumable components must be periodically replaced:

- Air Filters: Replace every 6 months.
- CCS2 Charging Cables with Connectors: Replace every 10,000 charging cycles.

It is the customer's responsibility to conduct regular preventive maintenance and maintain accurate records documenting all maintenance activities. These records may be required to validate warranty claims or service requests.

A detailed preventive maintenance routine, including specific inspection checkpoints and recommended actions, is provided in the table below.

Table 9-1 Maintenance Schedule

Type	Description	Interval
Visual Inspection	• Check the housing (inside/outside) for cracks, dirt, or rust. • Inspect the screen for damage or cracks. • Inspect CCS charging cables, connectors and holders for physical damage or cracks. • Open enclosure doors to inspect internal AC input connections and switchgear connections for signs of overheating. • Inspect connector overheating signs. • Inspect POS terminal (if present)	Every 6 Months
Electrical Checks	• Verify correct voltage at AC input terminals. • Test main MCCB and protective switchgears by pressing their test buttons and mechanically switching them off and on. • Test RCD devices using test button and optional dedicated RCD testing device.	Every 6 Months
Functional Checks	• Ensure cable holders secure the connectors effectively. • Confirm correct operation of the Charge Management System (CMS). • Verify operation buttons and touch-screen responsiveness. • Check door locks for proper functionality. • Test door sensors for correct detection and alerts. • Test emergency stop buttons to ensure correct operation and alert.	Every 6 Months

Type	Description	Interval
Charge Tests and FW Updates check	- Perform charging sessions on both Connector A and Busing a compatible Electric Vehicle (EV). - Validate authorization methods, including RFID card, POS terminal, and Mobile APP (with QR code if available), ensuring correct identification and transaction processing. - Check FW upgrades.	Every 6 Months
Replacement Tasks	Replace air filters.	Every 6 Months
Replacement Tasks	Replace CCS2 charging cables and connectors.	Every 10,000 Cycles

9.2 Maintenance- visual inspection.

1. Housing Inspection:

- Exterior: Examine the outer casing for cracks, holes, corrosion, rust, weather damage, and integrity of protective coatings.
- Interior: After opening the enclosure, inspect surfaces, internal corners, and seams for cracks, rust, dirt buildup, corrosion, moisture intrusion, or structural weaknesses. Open the pedestal and check for corrosion or moisture.

2. Screen Inspection:

- Inspect screens for cracks, scratches, discoloration, or impact damage.

3. CCS Charging Cables and Connector Holders:

- Inspect charging cables for cuts or exposed wiring.
- Examine connectors for cracks, burn marks, melting, burnt smells, oxidation, or damaged pins.
- Ensure connector holders securely hold connectors without damage or excessive wear.
- Verify cable glands at cabinet entry points securely hold cables and prevent movement.

4. Internal electrical components and switchgear:

- Inspect AC terminals, wiring, and connectors for signs of overheating, including discoloration, melted insulation, or burn marks.
- Ensure terminal connections are tight and inspect switchgear components (MCCBs, RCBOs, and MCBs) for overheating or damage.
- Check mechanical switchgear components to ensure switches operate correctly, smoothly, and do not get stuck.
- Tighten input cable connections with a torque wrench if needed, following manufacturer's specifications.
- Visually inspect the control boards for any signs of overheating, burn marks, or damage, then close the cover.
- Check auxiliary power devices (12V and 24V) and inspect input and output connections for any overheating or loose connections.

5. POS Terminal (if equipped):

- Inspect the POS terminal screen for any mechanical damages

9.3 Maintenance- electrical test.

For detailed procedures of the tests listed in Table 9-1 Maintenance schedule, please follow the steps described in Section 6.3 – Electrical Testing.

The tests shown in the table represent the minimum required sequence for verifying basic electrical safety and functionality of the charger.

If local regulations or standards require a comprehensive annual electrical inspection, these must also be followed. Such inspections may include, but are not limited to:

- Protective conductor continuity test
- Insulation resistance test of the supply cable
- Verification of automatic disconnection of supply
- RCD (Residual Current Device) performance test

Always comply with local electrical codes and regulations, and adjust the testing intervals accordingly to meet national or regional maintenance requirements.

9.4 Maintenance- functional test.

1. Cable Holders and Connector Security Check

- Inspect cable holders to ensure they firmly secure the connectors without excessive movement.
- Verify that connectors fit properly into their holders and do not loosen under slight force.

2. Charge Management System (CMS) Functional Check

- Pull the charging cable with moderate tension to confirm the Charge Management System (CMS) holds it securely.
- Check if the CMS spring mechanism provides adequate resistance and force.
- Ensure fitting screws on the CMS are tight and holding all components securely.

3. Operation Buttons and Screen Responsiveness

- Test all physical buttons to confirm they respond correctly.
- Verify the screen registers input properly and all sections are responsive.
- Navigate through all available pages and menus to confirm full accessibility.
- Check screen brightness.
- Inspect for any screen lag, glitches, or unresponsive areas.

4. Door Lock Functionality

- Check if the door locks engage and disengage smoothly.
- Try opening the door after locking it to verify it remains secure.

5. Door Sensor Testing

- Close and reopen the charger enclosure doors while monitoring the system response.
- Verify that door open/close alerts are correctly displayed on the screen.
- Check if any alarm or notification is triggered when the door is left open.
- Inspect the sensor for dirt, misalignment, or damage that may affect operation.

6. Emergency Stop Button Testing

- Press the Emergency Stop button to confirm it immediately disabled the charger.
- Verify that the system displays an alert.
- Reset the E-Stop and ensure the charger resumes normal operation.

9.5 Maintenance- Firmware Upgrade and charging test.

1. Firmware (FW) Upgrade Procedure

To ensure the charger operates with the latest software, perform a firmware upgrade before testing the charging process.

Using the EVbee Service App (Bluetooth Connection):

- Open the EVbee Service app on your mobile device.
- Connect to the charger using Bluetooth (BT).
- Navigate to Menu > Tool and select FW Upgrade Check.
- If a new firmware version is available, proceed with the update following the on-screen instructions.
- Wait for the update to complete and ensure the charger restarts successfully.

Using EVbee Garden Service Cloud (Remote Update):

- Log in to the EVbee Garden Service Cloud from a computer.
- Select the charger from the list of connected devices.
- Check for available firmware updates and initiate the update process if applicable.
- Monitor the update process and confirm a successful installation.

2. Charging Test Procedure

After updating the firmware, perform a charging session test to verify charger functionality.

Step 1: Prepare the Charger and EV

- Ensure the charger is online and ready for operation.
- Use the Electric Vehicle (EV) for the test.

Step 2: Test Charging on Both Connectors

- Perform charging sessions on Connector A and Connector B separately.
- Ensure both connectors establish a stable connection with the vehicle.

Step 3: Validate Authorization Methods

- Authenticate the charging session using different available methods:
 - RFID card – Scan the card and verify successful authentication.
 - POS terminal – Test card payment functionality (if applicable).
 - Mobile app (QR code) (if applicable). – Start a charging session via the app and confirm the process.

Step 4: Monitor Charging Session and Screen Data

Observe the charger's display for real-time charging data, ensuring accuracy in:

- Charging Power (kW) – Check that the displayed power matches the EV's charging capability.
- Charging Duration – Verify the charging time updates correctly.
- State of Charge (SOC%) – Ensure the SOC value on the screen matches the EV dashboard.

9.6 Maintenance- air filter replacement.

The air filter should be replaced every six months as part of the preventive maintenance routine to ensure proper airflow and prevent overheating of internal components.

Safety Precautions

Always isolate the charger from the power supply before performing any maintenance work.

Replacement Steps

1. Open the cabinet

- Unlock and open the charger cabinet to access internal components.

2. Locate the air filter frame

- The filter is installed inside the cabinet, positioned in the slot between the power modules and the main switch.
- Find the air filter frame, which covers and secures the filter.

3. Loosen the securing screw and remove the frame

- The air filter frame is secured with a single screw that can be loosened by hand or using a PH screwdriver.
- Loosen the screw until the frame is free, then carefully remove it.

4. Remove the old filter

- Gently pull out the used air filter and inspect it for excessive dirt, clogging, or damage.
- Clean any accumulated dust from the filter slot if necessary.

5. Install the new filter

- Insert the new filter into the frame, ensuring it sits correctly and aligns with the airflow direction.

6. Reattach the filter frame

- Position the frame back over the new filter to secure it in place.
- Tighten the screw by hand or using a PH screwdriver to ensure the filter frame is properly secured.

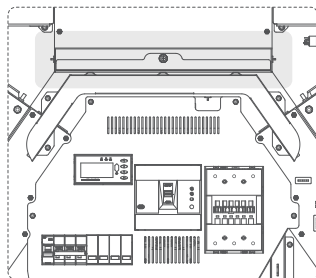


Figure 9-1 Air filter location

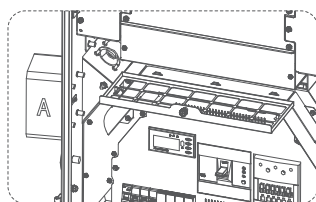


Figure 9-2 Air filter removal

10 Warranty and Service

10.1 Product Warranty

The DC 60/80 charger is covered by a 2-year manufacturer's warranty for hardware parts. All warranty terms, conditions, and claim procedures are defined in the EVbee DC Chargers Standard After-Sales Policy. Please refer to that document for detailed information regarding coverage, exclusions, and service support.

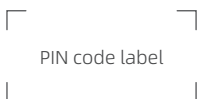
10.2 Replacement of faulty components

If, after diagnostic analysis, any hardware component is identified as faulty or damaged and qualifies for replacement, the specific operations and replacement procedures are detailed in the Product SOP (Standard Operating Procedure) documentation.

These SOP documents are available upon request and must be provided to ensure the correct and safe replacement of the affected component. Each document includes a step-by-step replacement guide to support a smooth and compliant service process.

Important: All replacement procedures must be carried out by a qualified service engineer. The engineer must strictly follow all safety protocols outlined in this Commissioning and Maintenance Manual as well as in the relevant SOP documentation.

The available SOP manuals cover the replacement and configuration of the For any replacement task, please get in touch with EVbee Support to request the corresponding SOP document before beginning the procedure.



PIN code label

