SUNGROW
Clean power for all

User Manual

DC Charger

IDC80E

All Rights Reserved

About This Manual

Notes

To ensure the safe use of the product, please read through the notes below carefully:

1. The warranty period agreed for this product is subject to the contract.
2. This manual is intended for personnel who are responsible for product installation and other work on the product. Users must have certain electrical and mechanical expertise and be familiar with the electrical and mechanical schematics and the characteristics of electronic components. SUNGROW shall not be held liable for any personal injury or financial loss arising from the installation carried out by non-qualified personnel or not in compliance with the safety instructions specified in this manual.
3. The contents, images, logos, symbols, etc., used herein are the property of Sungrow Power Supply Co., Ltd. ("SUNGROW"). Any reproduction or disclosure, even partially, of the contents of this manual by personnel other than SUNGROW staff is strictly prohibited without the prior written authorization of SUNGROW.
4. The contents of this manual are subject to continuous updates and corrections; however, there may still be slight inconsistencies or errors compared with the actual product. Users should always refer to the purchased product as the final reference and may obtain the latest version of the manual via the company's website or sales channels.
5. To ensure the safety of the installation personnel, the product, and the system, follow the safety instructions specified in this manual strictly when installing the product. SUNGROW shall not be held liable for any personal injury or financial loss arising from failure to follow the instructions specified in this manual.
6. For maintenance or modification of this product, please contact SUNGROW customer service in advance. The copyright of this user manual is owned by SUNGROW. All rights not expressly granted are reserved. The content of the manual is subject to change without notice, and the actual up-to-date product shall prevail.

Valid for

Product Model	Product Aliases
IDC80E	Charger, device, product

Target Group

This manual is intended for qualified technical persons who are responsible for the installation, operation, and maintenance of the charger. All installation operations must be performed by qualified technical persons. Operators must:

- Have certain electrical wiring, electronic, and mechanical expertise, and be familiar with electrical and mechanical schematics.

- Have received professional training in the installation and commissioning of electrical devices;
- Be able to respond quickly to dangers or emergencies that may occur during the installation and commissioning;
- Be familiar with applicable local standards and specifications of the country/region where the project is located;
- Read through this manual carefully and have a good understanding of the relevant safety instructions.

How to Use This Manual

Read through this manual carefully before using the product, and keep it in an accessible location. The contents of this manual are subject to continuous updates and corrections; however, there may still be slight inconsistencies or errors compared with the actual product. In such cases, the actual product you have purchased should take precedence. You can find the latest version of the user manual at **support.sungrowpower.com**.

Symbols in the Manual

To ensure the safe and efficient use of the product, the manual provides relevant safety information, which is highlighted using relevant symbols. The following lists symbols that may be used in this manual (the list may not be exhaustive). Please read them carefully for better use of this manual.

⚠ DANGER

Indicates a high potential hazard that, if not avoided, may lead to death or serious injury.

⚠ WARNING

Indicates a moderate potential hazard that, if not avoided, may lead to death or serious injury.

⚠ CAUTION

Indicates a low potential hazard that, if not avoided, may lead to minor or moderate injury.

NOTICE

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

Indicates supplementary information, emphasis on specific points, or tips related to the use of the product that might solve problems or save time.

Contents

1 Safety Instructions

Follow strictly the relevant safety instructions during the process of product installation, commissioning, operation, and maintenance. Improper use or misoperation may result in:

- Injury to or death of the operator or other people.
- Damage to the product, or to the property that belongs to the operator or a third party.

Strictly follow the safety instructions stated in the manual to avoid the hazards mentioned above.

NOTICE

- **Do not perform any operation on the product (including but not limited to, handling, installing, powering on, and maintaining the product, performing electrical connection, and working at heights) in harsh weather conditions, such as thunder and lightning, rain, snow, or winds above Beaufort scale 6. SUNGROW shall not be held liable for any damage to the product due to force majeure, such as earthquakes, floods, volcanic eruptions, mudslides, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, or other extreme weather conditions.**
- **In case of fire, evacuate the building or product area and call the fire department. Do not go back to the fire area.**
- **Tighten the screws at the specified torques using proper tools when fastening the product and terminals. Otherwise, the product may be damaged. The damage caused therefrom will not be covered by the warranty.**
- **Understand how to use the tools properly first before starting using them, to avoid causing personal injury or product damage.**

- Safety instructions in this manual serve only as a supplement and do not cover all required safety practices. All work should be carried out considering the actual situation on the site.
- SUNGROW shall not be held liable for any damage caused by violation of general safe operation requirements, safety standards, and the safety instructions specified in this manual.
- Product installation, operation, and maintenance should be conducted in compliance with applicable local laws, regulations, and specifications. Safety instructions in this manual should only be a supplement to the local laws, regulations, and specifications.

1.1 Packaging and Transportation Safety

Packaging

- The product is packaged in cartons or wooden crates, with handling directions marked on the box.
- The device is protected with stretch film or a volatile corrosion inhibitor (VCI) bag, supported with foam on all sides, and then placed inside the packaging box.

Transportation

- All work related to transportation must be carried out in compliance with the applicable local laws and regulations of the country/region.
- Do not turn the device upside down during transportation.
- Measures should be taken to fasten the goods during transportation, so as to avoid damage to product packaging due to strong shaking or bumping.
- Carry out an inspection upon receiving the delivery. In case of any damage to the goods during transportation, contact your carrier and SUNGROW.

1.2 Unpacking and Storage Safety

Unpacking and Inspection

NOTICE

Unqualified personnel are forbidden from disassembling the device or moving its components.

- Check if the product you have received matches the order you placed.
- Check if the items packed in the box match the packing list.
- Inspect the product for damage to its appearance or structural parts.
- Check if the safety signs, warning labels, and the nameplate on the product are all legible.
- In case of any problem with the above-mentioned inspection items, do not install the device and contact SUNGROW in time.

Storage Safety

- Store the packaged device indoors, within a relative humidity of 5%–95% and ambient temperature of -40°C to +70°C.
- The place where the product is stored should be kept dry, clean, and well-ventilated, protected from hazardous gases.
- Do not store the product in a place where corrosives are kept.

1.3 Installation Safety

Improper installation may result in personal injuries, while poor operating environments may affect the device's charging efficiency. Therefore, installation personnel must read through the instructions specified in this section carefully before installing the product.

Installation Precautions

- All work related to installation must be conducted in compliance with the applicable local laws and regulations.
- You may proceed with the subsequent work only if qualified personnel designated by SUNGROW confirm that the environment where the device is to be installed meets the requirements after an assessment.
- You can only install a product that is intact without any signs of damage.
- Installation must be performed by qualified personnel who wear proper personal protective equipment.
- Ensure all electrical connections of the product have been disconnected before installation.
- Before installation, inspect the equipment and tools to be used and ensure they have all undergone regular maintenance.
- Install the product in a well-ventilated place.
- Do not install the product in an environment with flammables, explosives, or smoke.
- Stop the installation in the event of severe weather, such as heavy rain, heavy fog, or strong wind.
- Follow the installation steps in the manual in the correct order. Failure to follow installation instructions or unauthorized modification of the device may result in personal injury or device damage.
- Drilling holes in the product is strictly prohibited. Drilling will compromise the device's sealing and electromagnetic shielding performance and may damage internal components. Metal shavings from drilling may short circuit boards.
- Live working is strictly prohibited during the installation process to prevent personal injury.

Handling Precautions

- Installation personnel must wear protective equipment such as anti-impact shoes and safety gloves when handling the device to ensure their own safety.
- When handling the product, get prepared for carrying its weight and keep the balance to prevent it from tilting or falling.
- Do not let go of the device during handling, unless it has been firmly fixed in place.
- Upon arrival at the site, packaged wooden crates or pallets must be loaded, unloaded, and stacked using a crane or forklift with sufficient rated capacity. All handling must be performed by qualified personnel.

Crane Operation Precautions

- Use only specialized cranes that are operated by qualified personnel.

- The crane must have a load capacity sufficient to lift the device.
- The sling must have a tensile strength and length that meet the requirements.
- The lifting eyes at the top must be firmly attached.
- No one is allowed to pass or stay under the product when it is lifted up.
- When rotating the crane for unloading, make it rotate at a low speed. Keep the load steady and as close to the ground as possible.
- Do not swing the sling during handling.
- Do not keep the product lifted up for a long period of time.
- Do not drag the product along any surface.
- Keep the product balanced throughout the hoisting process and avoid collisions with walls or other objects.
- Stop hoisting immediately in severe weather conditions, such as heavy rain, fog, or strong winds.
- Always follow the crane's safety operating procedures throughout the hoisting operation.
- The entire on-site hoisting process must be supervised by qualified personnel.
- Erect warning signs or set up safety warning tape in the operational area.
- Lock all cabinet doors before lifting.

1.4 Electrical Safety

Improper wiring may result in personal injuries. Hence, installation personnel must read through the wiring instructions carefully before proceeding with this work.

Cable Requirements

- The selection and routing of cables must comply with local laws, regulations, and codes.
- Cables of the same type should be bundled together using cable ties, ensuring a neat appearance and undamaged insulation; different types of cables should be routed separately and must not be entangled or crossed.
- It is recommended to use cable sleeves to protect cables at branch points.
- Under adverse environmental conditions (e.g., high ambient temperature), select cables according to applicable standards or local regulations to ensure sufficient current-carrying capacity.

Wiring Precautions

⚠ DANGER

- **Electrical connections must be performed by qualified personnel who wear personal protective equipment.**
- **Be sure to use specialized insulated tools when performing electrical connections.**
- **Never perform electrical connections while the system is energized, as this can result in personal injury.**

NOTICE

Direct contact between aluminum conductors and copper busbars is strictly prohibited to prevent galvanic corrosion and ensure reliable connections.

- All work related to wiring must be conducted in compliance with the applicable local laws and regulations of the country/region.
- Wiring must be done in compliance with the applicable local grid regulations and relevant safety instructions specified for the device.
- The specification of cables used should meet requirements accordingly. The cables should be properly insulated and firmly connected.
- Observe the warning labels on the product, and perform operations by strictly following the corresponding safety instructions.
- Before electrical connections, make sure that the product is not damaged. Otherwise, it may cause danger!
- Before electrical connection, make sure the product and all switches connected to it are turned "OFF" and cannot be accidentally re-energized; otherwise, it may lead to electric shocks.
- Before electrical connection, be sure to test with a measuring instrument and confirm the cables are voltage-free.
- Improper wiring may cause damage to the product and such damages will not be covered by warranty.
- After wiring, seal all gaps at the cable entry and exit points with fireproof and waterproof materials, such as fireproof mud, to prevent foreign objects or moisture ingress, which can compromise the product’s long-term stable operation.

Electrostatic Discharge Precautions

- Do not touch the circuit board unless it is necessary.
- Observe the provisions for protection against electrostatic discharge and wear anti-static wrist straps.

Grounding Requirements

Always complete grounding connections before performing any wiring.

- The grounding cable must be reliably grounded; otherwise, it may cause a fatal electric shock to the operator.
- The grounding cable must be reliably grounded; otherwise, the device may be damaged if struck by lightning.
- The grounding cable must be reliably grounded; otherwise, the device may not operate normally.

1.5 Operational Safety

There is high voltage inside the device when it is running, and improper operation may cause personal injuries or property damage. Therefore, please perform operations by strictly following

the safety instructions specified in this manual and other relevant documents when using the charger to charge an EV.

⚠ DANGER

- **Do not touch any live part of the device when it is running; otherwise, it may lead to electrical shocks.**
- **Do not touch any wiring terminal of the device when it is running; otherwise, it may lead to electrical shocks.**
- **Do not remove any part or component from the device when it is running; otherwise, it may lead to electrical shocks.**

NOTICE

Strictly follow the charging instructions on the device; otherwise, there is a risk of electric shock and fire.

- All operations on the device must be performed in compliance with the applicable local laws and regulations of the country/region.
- Do not use an extension cable when connecting the EV to the charger.
- Do not bend, crush, or run over the charging connector, which may result in mechanical damage.
- Only EVs can be connected to the charger. Do not connect any other devices for charging (e.g., electric tools).
- Make sure the charging connector does not come into contact with heat, dirt, or water.
- Please handle the charging connector gently. Plug or unplug the connector neatly at one go, and do not shake it. Damage resulting from improper use, accidents, or misuse (including but not limited to dropping, or impact) is not covered under warranty.
- Start charging only when the vehicle is stationary. Do not start the vehicle in the middle of a charging process.
- If the device is not covered by a rainproof shield, please charge with caution in the event of a thunderstorm.
- Monitor the charging process throughout. In severe weather conditions such as heavy rain, thick fog, or strong wind, terminate the charging process immediately.
- Do not use the charger if the connector or cable shows defects such as cracks, wear, breaks, or exposed conductors. Contact service personnel immediately.
- Do not remove the connector from the vehicle during charging to ensure the safety of both people and the vehicle.
- Do not let children go near or use the charger during charging to prevent them from getting hurt.
- Do not touch any hot part of the charger (e.g., air outlet for heat dissipation) during charging; otherwise, it may cause burns.

- After charging, insert the charging connector back in the holder on the charger, so as to avoid the ingress of water or sand. Also, put away the cable in time and keep it in a place out of the vehicle's reach so that it will not get run over.
- In case of abnormal conditions, press the emergency stop button immediately. Do not attempt other operations. Contact qualified service personnel.
- During daily operation, the doors of the product must all be closed and locked. Besides, the keys should be pulled out and handed over to the designated personnel for safekeeping. This prevents accidents caused by unauthorized entries and protects the internal devices against rainwater or damage from animals.

1.6 Maintenance Safety

There is high voltage inside the device when it is running, and improper operation may cause personal injuries, property damage, or even death. Therefore, always power off the device before maintenance and perform operations by strictly following the safety instructions specified in this manual and other relevant documents.

⚠ DANGER

- **Only when no current or voltage is present can qualified personnel who wear protective equipment perform device maintenance.**
- **Do not touch the contacts inside any charging connector when the charger is powered on.**

- All work related to maintenance must be done in compliance with the applicable local laws and regulations.
- Perform device maintenance only when you have a good understanding of this manual and appropriate tools and testing instruments.
- The charging connectors must be inspected for damage on a regular basis to check if their enclosure is in a good state and if supporting facilities are all in readiness.
- Keep the charging connectors clean and dry. Clean them off in case of any dirt.
- Wait at least 10 minutes after the product stops running and check if the voltage lowers to a safe level.
- Even if the product has stopped running, it may still be hot and cause burns. Perform operations on the device wearing protective gloves after it cools down.
- Before maintenance, be sure to check the warning labels inside the product and follow the corresponding instructions.
- Before maintenance, make sure the product, the external devices connected to it, and the electrical connections are in a safe state.
- During the maintenance process, prevent irrelevant personnel from entering the site. Set up temporary warning signs or fence off an area to keep irrelevant personnel away and avoid accidents.
- Maintenance should be performed by following the electrostatic discharge protection regulations.

- Stop maintenance in the event of extreme weather.
- Only after all faults that may affect the device's safety performance are resolved can the device be powered on again.
- For a product that has been shut down for more than 3 months, a thorough and detailed inspection must be carried out before powering it on again. Only after it is inspected and tested by qualified personnel can it be powered and put into operation again.
- To minimize the risk of electric shocks, do not perform maintenance operations that are not specified in this manual. If necessary, contact SUNGROW for maintenance. Losses arising from failure to observe this instruction will not be covered by warranty.
- Do not use water, alcohol, oil, or other solvents to clean internal or external electrical components.
- Do not open the door and maintain the system on rainy, humid, or windy days. SUNGROW shall not be held liable for any possible outcome arising from failure to observe this instruction.
- For devices with multiple inputs, disconnect all inputs to ensure a complete power-off before maintenance.
- During power-off maintenance, establish clear warning signs at the disconnection points to ensure they cannot be accidentally re-energized.
- If the paint on the device's enclosure peels off or the enclosure gets rusty, repair it in time. Otherwise, the device performance may be affected.
- Before closing the doors, ensure all tools, metal parts, and debris are removed from the interior.

1.7 Disposal Safety

Dispose of the product strictly in accordance with applicable local regulations and standards to avoid property damage or personal injury.

Disposal Precautions

- All work related to product disposal must be done in compliance with the applicable local laws and regulations of the country/region.
- Ensure the safety signs, warning labels, and the nameplate on the product are all legible before disposing of it.

2 Product Description

2.1 Product Overview

IDC80E is an integrated DC charger with a maximum power of 80 kW manufactured by SUNGROW. It is mainly used in public charging stations for quick EV charging.

In addition to standard charging capabilities, the charger features a screen that allows users to view charging data, set parameters, perform fault diagnosis, and much more.

Earthing Systems

The charger can be used in grids adopting TN-S, TN-C-S, TT, and TN-C earthing systems.

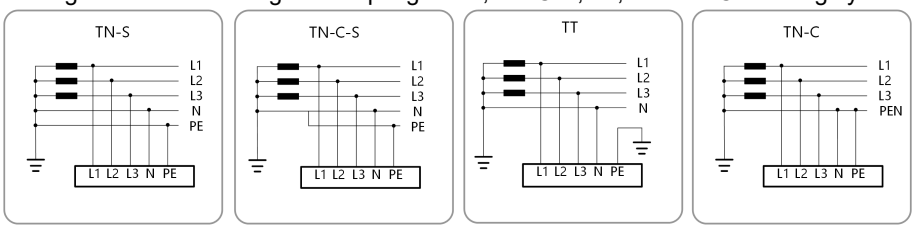
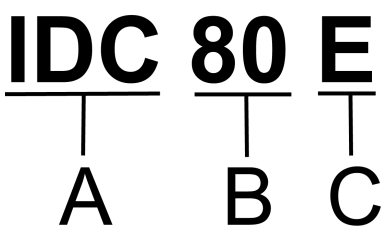


Figure 2-1 Earthing Systems

Product Model



No.	Meaning
A	Product type: DC charger
B	Max. output power: 80 kW
C	Compliance: EU standard

2.2 Application Scenarios

This product is an integrated DC charger that supports single-connector and simultaneous dual-connector charging. IDC80EIt employs two charging power units, enabling a maximum output power of 80 kW per connector.

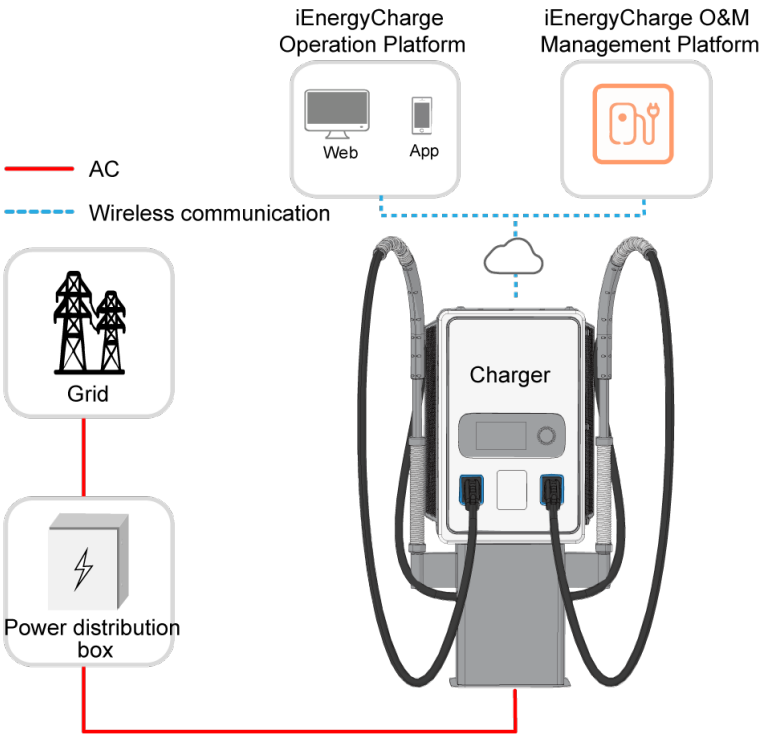


Figure 2-2 System Diagram

2.3 Product Label Description

To ensure personal and device safety, always check the labels on the product and comply with their requirements during installation, operation, and maintenance.

Symbols	Description
	Protective earthing (PE) terminal.
	All external power connections must be disconnected before performing maintenance!
	Lethal high voltages! Installation and operation must only be performed by qualified technical persons.
CE	CE mark of conformity. EU/EEA Importer.
DE-M XX XXXX XXXXX-XX	PTB mark of conformity

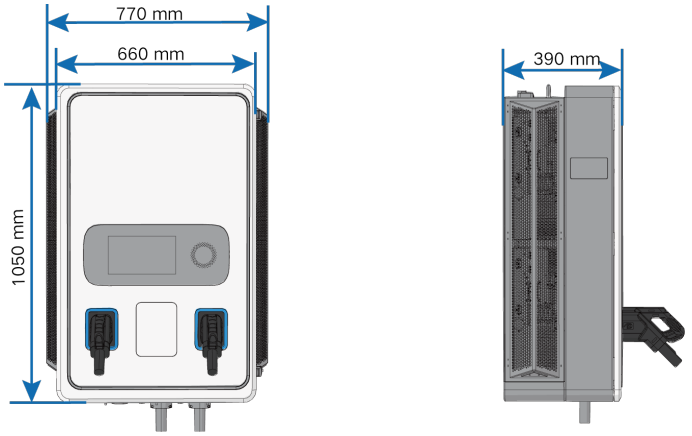
Symbols	Description
	TÜV mark of conformity.
	Do not dispose of this product as household waste.
	Read the manual before performing any operation on the device.
	Do not touch live parts until 10 minutes after disconnection from the sources.
	Regulatory compliance mark.
	Burn danger due to the hot surface that may exceed 60℃.

2.4 Product Appearance

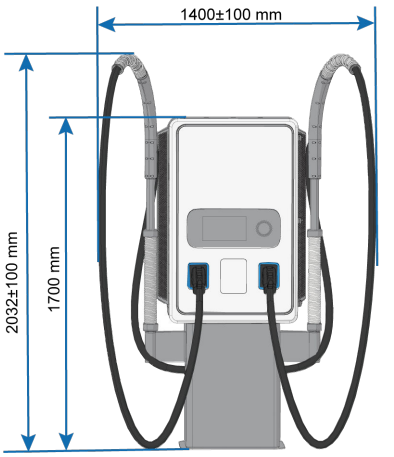
The figure is for reference only, and the actual product shall prevail.

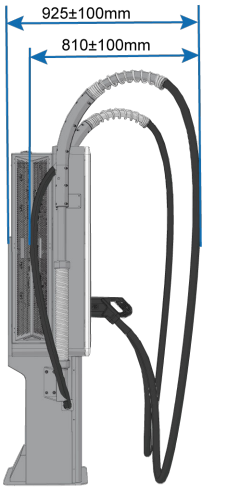
Dimensions

- Without post and spring connector

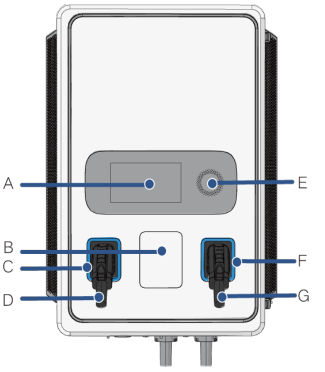


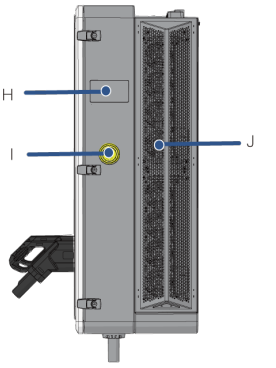
- With post and spring connector

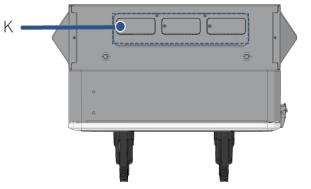


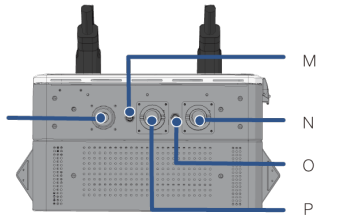


Appearance









(A) Screen

(B) Installation area for payment terminal

(C) Status indicator for charging connector A

(D) Charging connector A

(E) Energy Star-Ring (card reader)

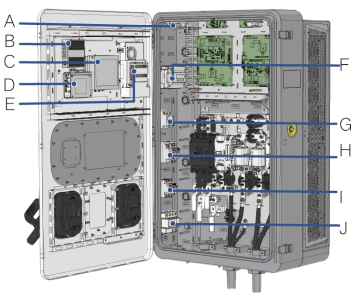
(F) Status indicator for charging connector B

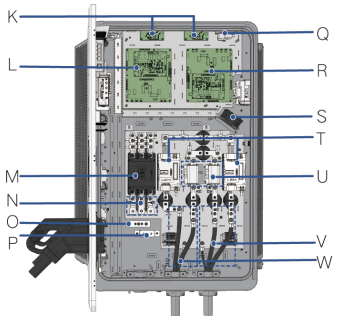
(G) Charging connector B	(H) Meter
(I) Emergency stop button	(J) Power unit
(K) Antenna	(L) AC cable inlet
(M) Ethernet/EMS port	(N) DC cable outlet for charging connector B
(O) DLM port	(P) DC cable outlet for charging connector A

- The emergency stop button can only be used for emergencies. Check the protective cover after use and replace it immediately if damaged.
- Please contact SUNGROW to purchase and install the optional payment terminal.

2.5 Internal Structure

The figure is for reference only, and the actual product shall prevail.





(A) Smoke sensor	(B) Network switch
(C) Toll control unit for connector A (TCU1)	(D) Router
(E) Auxiliary power supply	(F) Meter
(G) Maintenance socket	(H) Residual current breakers with overcurrent protection (RCBO)
(I) Miniature circuit breaker (MCB)	(J) Surge protection device (SPD)
(K) Insulation monitoring device (IMD)	(L) Charging control unit for connector A (CCUA)
(M) Molded case circuit breaker (MCCB)	(N) AC wire copper busbar

(O) N wire copper busbar

(P) PE wire copper busbar

(Q) Access control

(R) Charging control unit for connector B (CCUB)

(S) Fan

(T) MID-certified shunt

(U) Fuse

(V) DC output cable for connector B

(W) DC output cable for connector A

2.6 Indicator Lights

The device features two independent indicator light systems, which respectively indicate the operating status of the entire charger and the charging connectors.

- Charger status indicator (Energy Star-Ring): Integrated into the HMI panel, serving as the main indicator to reflect the overall system status of the charger.
- Charging connector status indicator: Located at the charging connector holder. The left and right connector indicators are controlled separately to indicate the working status of the corresponding charging connector.

Table 2-1 Description

Type	Effect	Charger Status	Remark
Energy Star-Ring	Steady blue	Charger normal	Normal
	Blinking blue	Waiting for the user to tap a card and start charging	Normal
	Steady red	Charger fault	Abnormal. If there is a fault with only one of the charging connectors, the indicator will still be steady blue.
Charging connector status indicators	Steady green	Connector is in standby	Normal. The left and right indicators are independent of each other.
	Breathing blue	Charging	Normal. The left and right indicators are independent of each other.

Type	Effect	Charger Status	Remark
	Steady blue	Charging complete	Normal. The left and right indicators are independent of each other.
	Steady red	Fault	Abnormal. The left and right indicators are independent of each other.
	Blinking green	Charging scheduled	Normal. The left and right indicators are independent of each other.

3 Mechanical Mounting

3.1 Installation Requirements

3.1.1 Installation Environment Requirements

The charger should be installed in an environment that meets the following requirements:

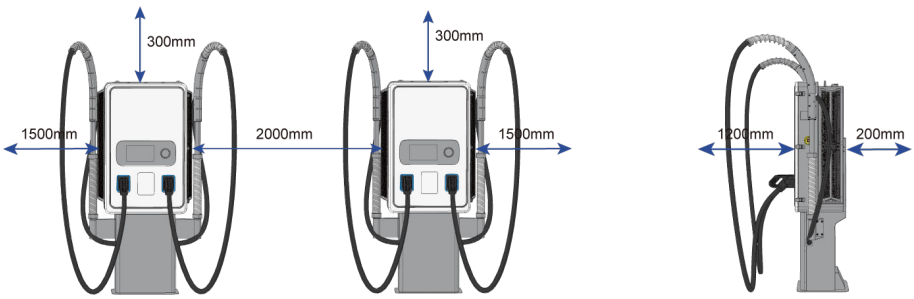
- The place where the device is installed must be free from flammables and explosives.
- Do not install the device in a place with corrosives such as corrosive gases and organic solvents.
- The place where the device is installed and operates should be free from strong vibration, strong impact, and strong electromagnetic field interference. The external magnetic field strength should not exceed 0.5 mT.
- The place where the device is installed must be free from mediums that carry explosion hazards, without hazardous gases or conductive mediums that may corrode the metal or damage the insulation around it.
- Do not install the device in dusty and smoky environments.
- It is recommended to install the device in a place with shelter to protect it from direct sunlight or severe weather conditions (e.g., snow, rain, and lightning). The device will derate in high temperatures for self-protection. If installed in a place directly exposed to sunlight, power output may decrease as the temperature rises.
- Install the device in a well-ventilated place to ensure good heat dissipation.
- The device must be installed in a place over 30 m away from third-party wireless communication facilities.
- The product should be installed at least 50 meters away from residential areas. If the requirement cannot be met due to geographical restrictions, use noise mitigation measures. For details, consult with the plant designer.
- Please install the device in a place with proper temperature and humidity. The operating ambient temperature range is -30 ℃ to +55 ℃, and the environmental humidity range is 5% to 95%.
- A stable 4G communication environment is required, or a wired network interface capable of accessing the Internet must be available.
- Convenient transportation conditions are required, and reliable fire safety measures must be ensured.
- The soil on the installation site must have a certain degree of compactness. It is recommended that the relative density of soil on the installation site be at least 98%. In case the soil on the site is loose, take relevant measures to make sure the foundation is stable.

- The device should be kept away from plant branches to avoid interference with heat dissipation and O&M due to growing branches or falling leaves. If installed in an area with lush vegetation, remove weeds regularly, or harden the ground underneath the device, such as paving with cement or gravel.

3.1.2 Installation Space Requirements

To ensure good heat dissipation and easy maintenance, the minimum space between the device and the objects around it should not be smaller than that specified by the requirements.

To protect the device from direct sunlight, rain, and snow, and extend its service life, it is recommended to set a rainproof shield for the device.



If the above installation methods cannot meet site requirements, please contact SUNGROW for support.

3.2 Preparation before Installation

3.2.1 Installation Tools Preparation

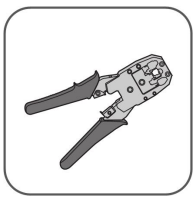
Installation tools include, but are not limited to, those listed below. If necessary, use other auxiliary tools on site.

Installation Tools

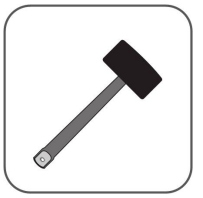
Phillips screwdriver

Hammer drill (φ16)

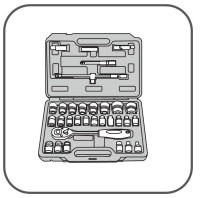
Marker



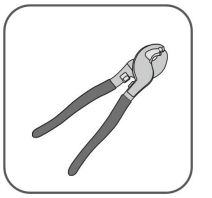
RJ45 crimping tool



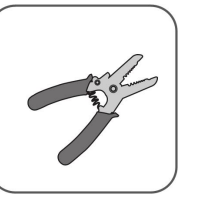
Rubber mallet



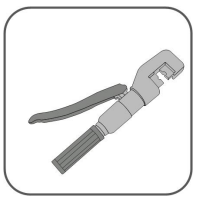
Socket wrench set (M4, M8, M10, M12)



Wire cutter

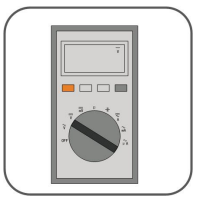


Wire stripper



Hydraulic plier

Heat gun

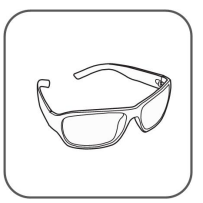


Multimeter

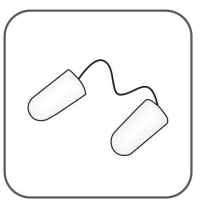
Vacuum cleaner

Hex wrench set

Protective Equipment



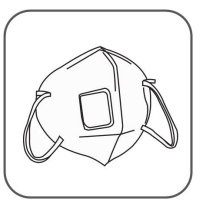
Goggles



Earplugs

Safety shoes

Safety helmet



Dust mask

Electrical Safety Tools

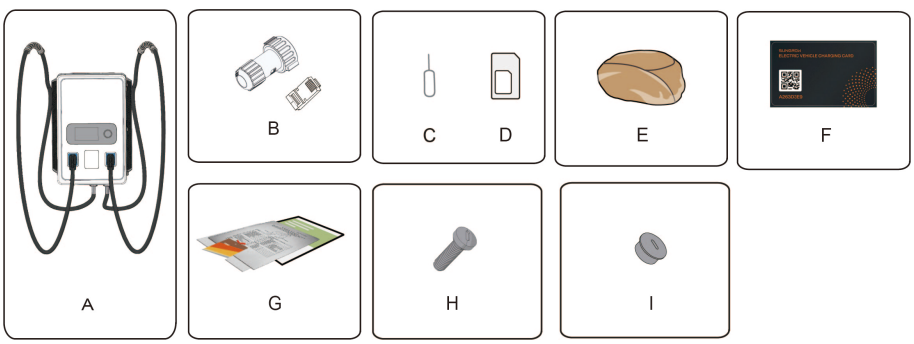
Anti-static wrist strap

Safety gloves

3.3 Packing List

The product has undergone thorough tests and strict inspections before delivery. However, as it may still get damaged during transport, please carry out an inspection carefully before installation.

- Inspect the packaging for any damage.
- Unpack and inspect the items inside for any damage.
- Be careful not to damage the device while using tools for unpacking.



No.	Name	Quantity	Description
A	Charger	1	-
B	Modular RJ45 plug	2	Used for Ethernet cable connection.
C	SIM card ejector pin	1	Used to eject the SIM card.
D	SIM card adapter	2	Used to convert a smaller SIM card into a standard size to fit the device's card slot.

No.	Name	Quantity	Description
E	Firestop putty	1	Used to seal off the cable inlet/outlet holes at the bottom of the charger.
F	RFID card	2	Used to start a charging session.
G	Documents	-	Quick Installation Guide, certificate of conformity, warranty card, packing list, etc.
H	Sealing plug	2	Used to seal off the lifting fixture holes at the top of the charger.
I	Sealing plug	4	Used to seal off the holes on the back of the POST.

In case of any damage or missing items, do not install the device. Contact your transport service provider or SUNGROW, and provide relevant photos to ensure effective assistance.

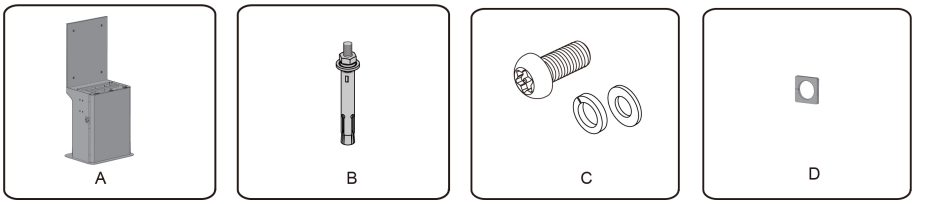
3.4 Install Cabinet

3.4.1 Post Components Inspection

- If post mount is selected, contact SUNGROW to purchase the post separately.

The product has undergone thorough tests and strict inspections before delivery. However, as it may still get damaged during transport, please carry out an inspection carefully before installation.

- Inspect the packaging for any damage.
- Unpack and inspect the items inside for any damage.
- Be careful not to damage the device while using tools for unpacking.



No.	Name	Quantity	Description
A	Post	1	Used to install the cabinet.

No.	Name	Quantity	Description
B	M12×100 expansion bolt	4	Used to secure the post
C	M8x16 bolt assembly	6	Used to secure the charger to the post
D	Grommet	2	Used to protect the spring cable

In case of any damage or missing items, do not install the device. Contact your transport service provider or SUNGROW, and provide relevant photos to ensure effective assistance.

3.4.2 Foundation Construction

3.4.2.1 Foundation Requirements

- Plan the foundation with reference to installation space requirements and foundation dimensions, ensuring compliance with installation and O&M needs.
- Within the installation area, the height of obstacles must not exceed the foundation level surface, as this may affect later O&M.

Considering its heavyweight, please install the device on a concrete foundation to ensure its stable operation. The requirements for foundation construction are as follows:

- The soil on the installation site must have a certain degree of compactness. It is recommended that the relative density of soil on the installation site be at least 98%. In case the soil on the site is loose, take relevant measures to make sure the foundation is stable.
- The bottom of the foundation pit must be compacted, filled, and made even so that it can provide sufficient and effective support for the device.
- The foundation should be higher than the horizontal ground to protect the device base and interior against rain erosion.
- The cross-sectional area and height of the foundation should meet the requirements.
- Take cable routing into consideration when building the foundation.
- Bury the cable conduit at the bottom according to the location of the cable inlet provided on the device.
- A drainage system is required, so as to prevent the bottom or internal components of the device from being soaked during the rainy season or heavy rainfall.
- Both ends of each buried conduit must be temporarily sealed off to prevent the ingress of foreign objects. Otherwise, it may lead to difficulties in cable routing.
- After all the cables are connected, seal off the cable inlet and outlet and the connectors with firestop putty or other suitable materials, to prevent rodents from entering the equipment.

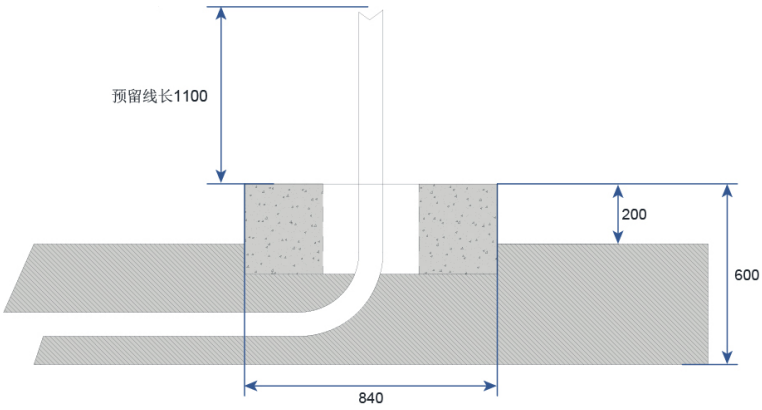


Figure 3-1 Section View of the Foundation

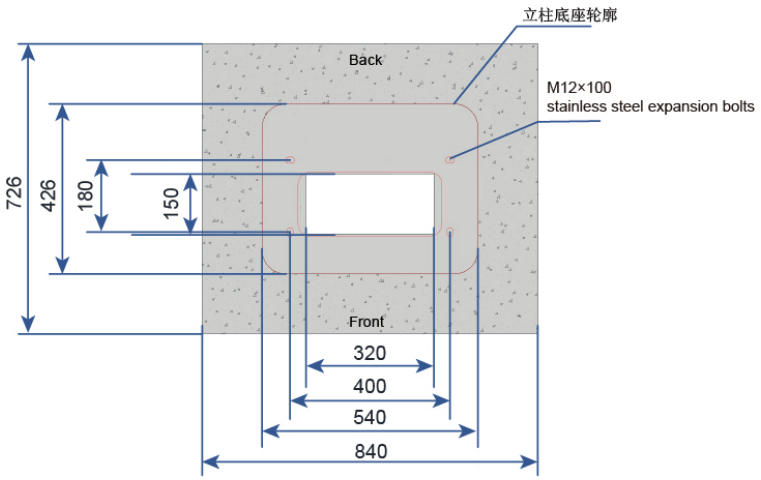


Figure 3-2 Top View of the Foundation (mm)

3.4.2.2 Foundation Drilling

Step 1 Build a foundation according to 3.4.2.1 Foundation Requirements.

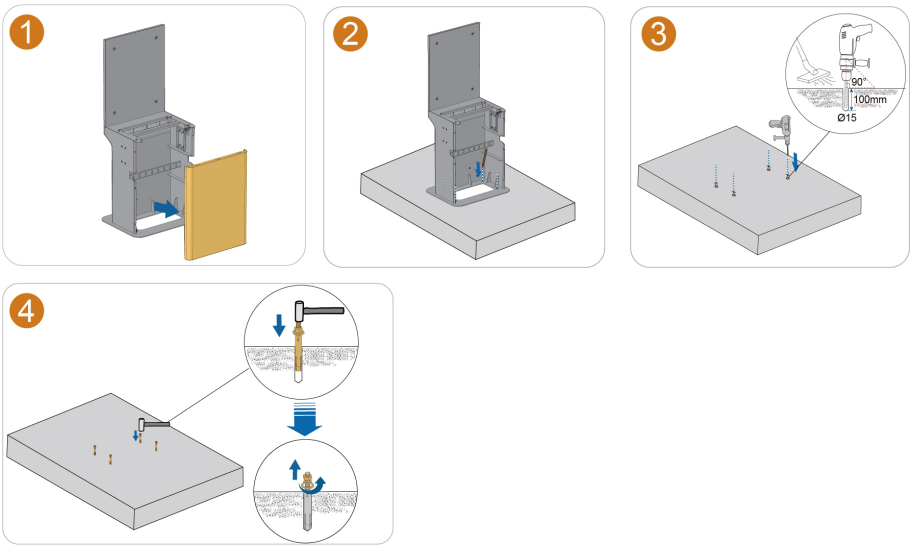
Step 2 Remove the front panel from the post.

Step 3 Place the post on the foundation and mark the drilling positions.

Step 4 Remove the post and drill holes at the designated positions using a hammer drill. The hole diameter is Ø15 and the depth is 100 mm.

Step 5 Pre-tighten the expansion bolts, and vertically insert and strike them into the drilled holes using a rubber mallet.

Step 6 Unscrew the bolts, remove the flat washers and spring washers, and store them properly for future use.

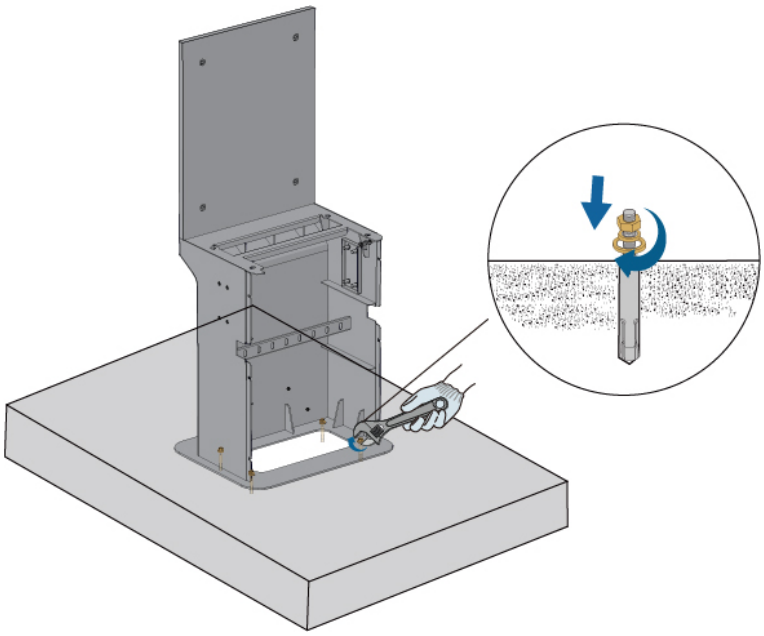


--End

3.4.3 Post Installation

Step 1 Place the post by aligning it with the drilled holes.

Step 2 Attach the flat washer, spring washer, and nut to the expansion screw in the correct order. Then, tighten the screw using a socket wrench.



Install the front panel to the post only after all cables are connected and successful commissioning.

--End

3.4.4 Charger Installation

Handling Requirements

Read through the following precautions before handling the device with a crane:

Required Tools

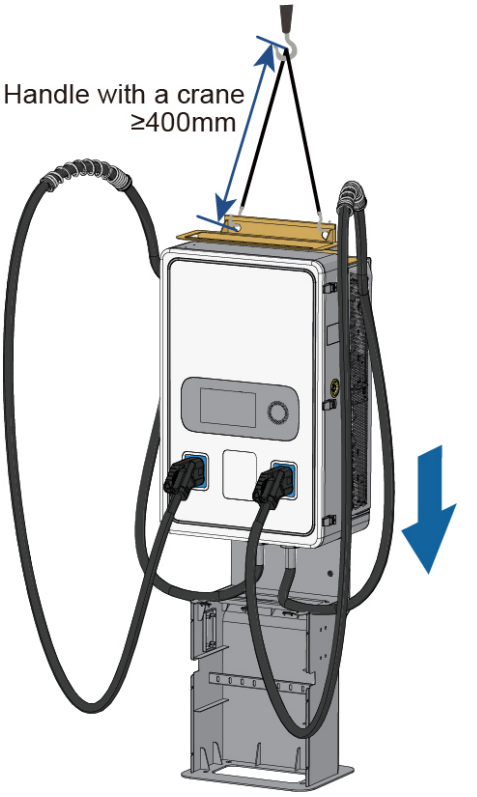
Tools	Requirements	Source
Crane	Load carrying capacity ≥ 500 kg.	Prepared by the user
Sling	One sling with hooks on both ends, with a carrying capacity no lower than 500 kg. The length between the lifting eye and crane hook must be no shorter than 400 mm.	Prepared by the user

Step 1 Install the sling to the hoisting fixtures on the top of the cabinet.

Step 2 Lift the device vertically and smoothly. Make sure it is always held steady and does not tilt.

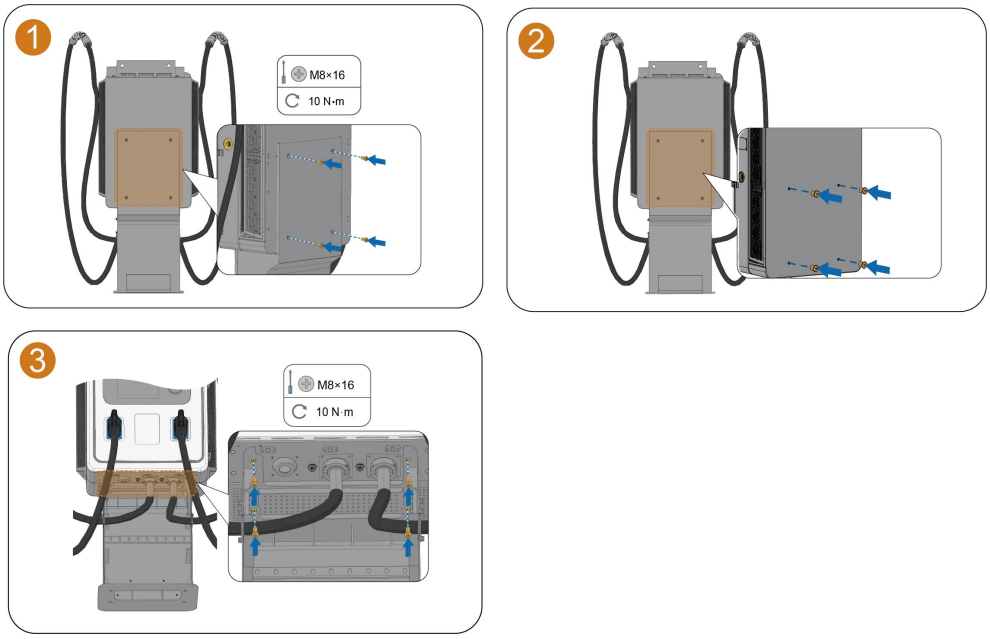
Step 3 Suspend hoisting when the device is lifted 100 mm off the floor. Then, check that the connections between the sling and the device are secure and that the stress is evenly applied to the lifting point.

Step 4 After the device is moved over the top of the post, lower it down steadily.

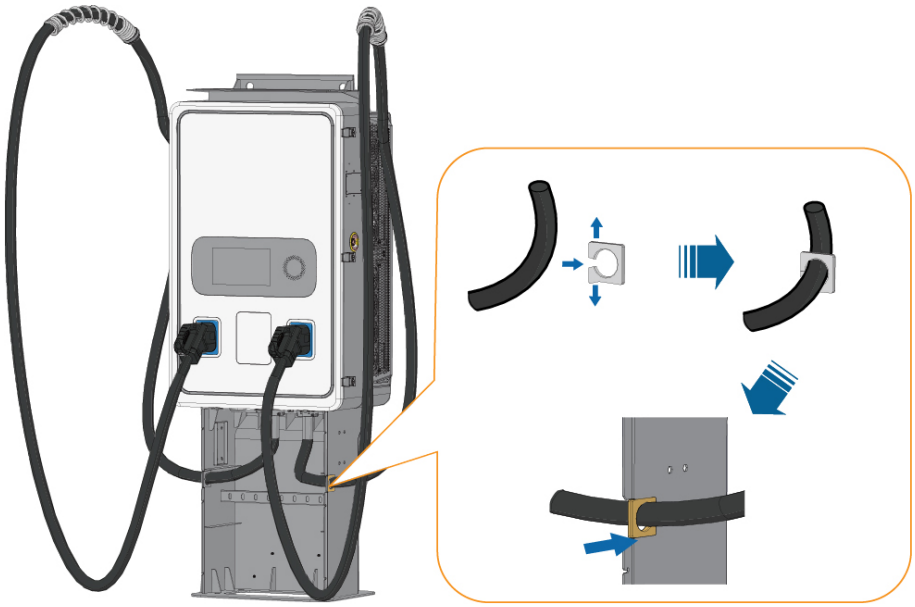


Step 5 Remove the sling after confirming that the fastening holes on the device are completely aligned and fit with those on the post.

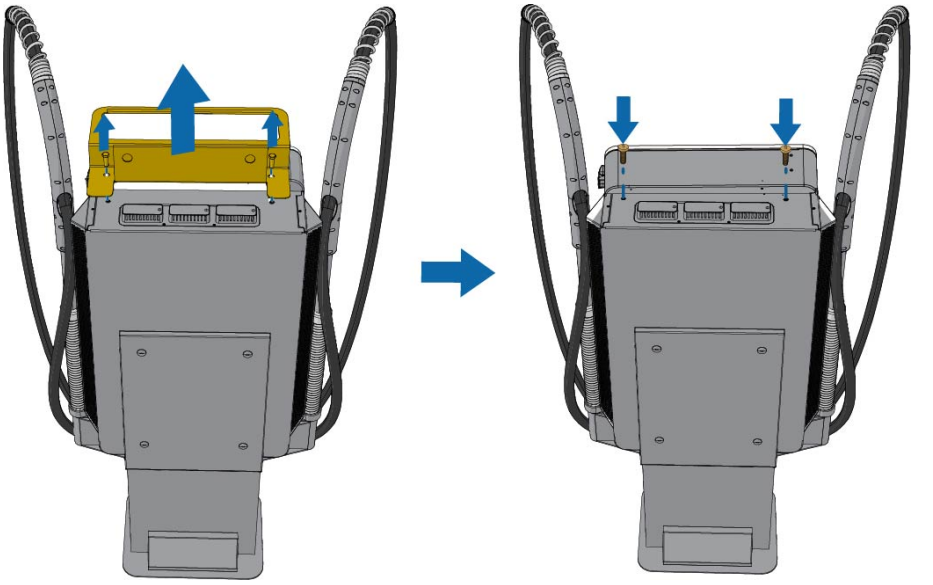
Step 6 Secure the charger onto the foundation.



Step 7 Remove the grommet from the post, place it over the cable, and reinstall the entire assembly in its original position.



Step 8 Remove the hoisting fixtures.



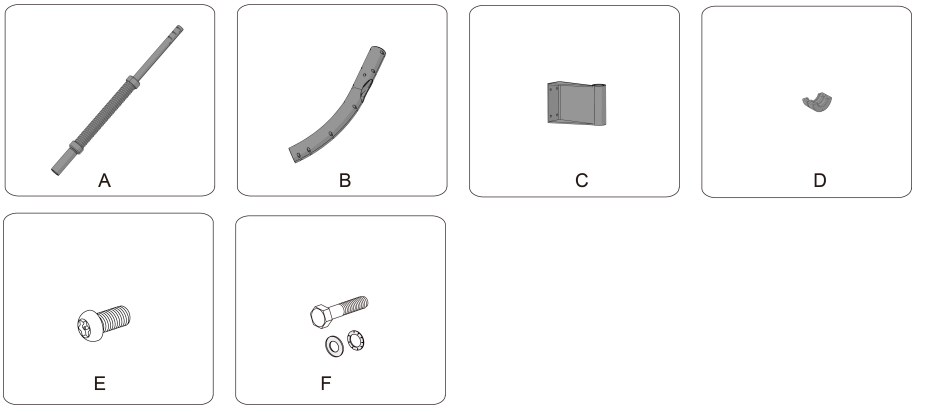
--End

3.5 Charging Cable Management Device Installation

3.5.1 Charging Cable Management System Components Inspection

- If the cable management system is required, contact SUNGROW to purchase the cable management system components separately.

- Inspect the packaging for any damage.
- Unpack and inspect the items inside for any damage.
- Be careful not to damage the device while using tools for unpacking.



No.	Name	Quantity	Description
A	Spring module	2	-
B	Cable manager	2	-
C	Base	2	-
D	Grommet	8	-
E	M4×12 screw	26	Used to secure the cable manager
F	M16X50 screw assembly	2	Used to connect the base with the spring assembly

In case of any damage or missing items, do not install the device. Contact your transport service provider or SUNGROW, and provide relevant photos to ensure effective assistance.

3.5.2 Charging Cable Management System Assembly

Step 1 Assemble the grommet and the cable manager.

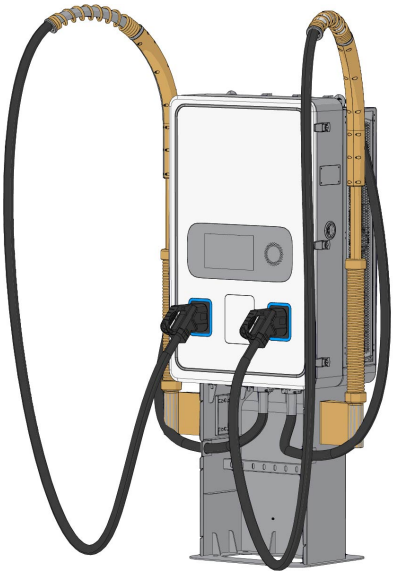
During the installation, select the corresponding position on the cable manager to secure it according to the different curvatures of the grommet.

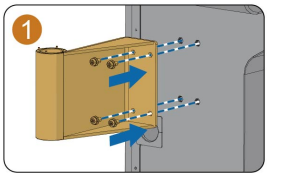
Step 2 Assemble the cable manager, spring assembly, and spring charging cable. Ensure that the connection between the cable manager and the spring assembly is tightened and that the charging cable passes correctly through the outlet of the cable manager.

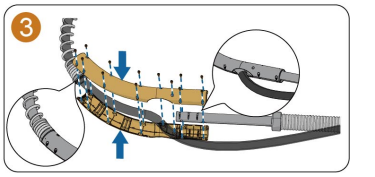
During assembly, the reserved length of the charging cable between the cable outlet of the charger and the cable outlet of the cable manager must be no shorter than 2000 mm.

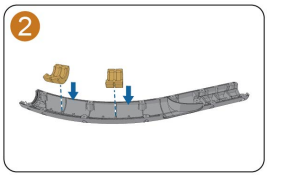
Step 3 Install the base on the post.

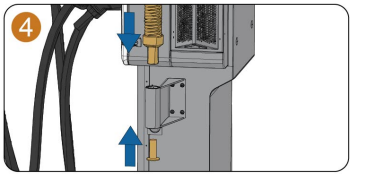
Step 4 Connect the assembly in step 2 to the base.











--End

4 Electrical Connection

4.1 Cable Requirements

Before proceeding with the electrical connection, prepare the cables, terminals, and other items that are required.

Cable Specifications

The cables are to be prepared by the user. Requirements for cable specifications are listed in the table below.

Table 4-1 Cable Specifications

Cable	Product Power Range	Category	Wire Cross-Sectional Area (mm^2)	Terminal Required
AC cables	49.9kW	Outdoor-type single-core copper cable Withstand voltage ≥1 kV	L1, L2, L3, and N cables: 25 PE cable: 16	L1, L2, L3, and N cables: SC25-8 PE cable: SC16-8
		Outdoor-type single-core/ multi-core aluminum cable Withstand voltage ≥ 1kV	L1, L2, L3, and N cables: 35 PE cable: 25	L1, L2, and L3 cables: SC35-8 PE cable: SC25-8
	60kW	Outdoor-type single-core copper cable Withstand voltage ≥1 kV	L1, L2, L3, and N cables: 25 PE cable: 16	L1, L2, L3, and N cables: SC25-8 PE cable: SC16-8
		Outdoor-type single-core/ multi-core aluminum cable	L1, L2, L3, and N cables: 50 PE cable: 25	L1, L2, L3, and N cables: SC50-8 PE cable: SC25-8

Cable	Product Power Range	Category	Wire Cross-Sectional Area (mm^2)	Terminal Required
		Withstand voltage ≥ 1kV		
	80kW	Outdoor-type single-core copper cable Withstand voltage ≥1 kV	L1, L2, L3, and N cables: 50 PE cable: 25	L1, L2, L3, and N cables: SC50-8 PE cable: SC25-8
		Outdoor-type single-core/ multi-core aluminum cable Withstand voltage ≥ 1kV	L1, L2, L3, and N cables: 70 PE cable: 35	L1, L2, L3, and N cables: SC70-8 PE cable: SC35-8
EMS/ Ethernet/DLM	49.9kW/ 60kW/ 80kW	Cat 5 network cable	□	RJ45 connector

Before connecting the cable to the copper busbar, crimp the cable using a terminal. Ensure that the cable and terminal are tightly connected to prevent looseness or poor contact, which can cause overheating or even safety hazards. Refer to 4.3.1 OT/DT/SC Terminal Crimping for terminal crimping procedures.

Direct contact between the copper busbar and the aluminum cable will cause electrochemical corrosion and impair the reliability of the electrical connection. If aluminum cables are selected, always use copper-aluminum bimetallic terminals.

4.2 Measurement Requirements

4.2.1 Auflagen für den Betreiber der Ladeeinrichtung

Auflagen für den Betreiber der Ladeeinrichtung, die dieser als notwendige Voraussetzung für einen bestimmungsgemäßen Betrieb der Ladeeinrichtung erfüllen muss.

Der Betreiber der Ladeeinrichtung ist im Sinne § 31 des Mess- und Eichgesetzes der Verwender des Messgerätes.

- Die Ladeeinrichtung gilt nur dann als eichrechtlich bestimmungsgemäß und eichrechtkonform verwendet, wenn sie nicht anderen Umgebungsbedingungen ausgesetzt ist als denen, für die ihre Baumusterprüfbescheinigung erteilt wurde. Diese sind in den technischen Begleitunterlagen der Ladeeinrichtung beschrieben.
- Der Verwender dieses Produktes muss bei Anmeldung der Ladepunkte bei der Bundesnetzagentur in deren Anmeldeformular den an der Ladeeinrichtung zu den Ladepunkten angegebenen PK mit anmelden! Ohne diese Anmeldung ist ein eichrechtkonformer Betrieb der Ladeeinrichtung nicht möglich. Weblink:https://www.bundesnetzagentur.de/DE/Fachthemen/ElektrizitaetundGas/E-Mobilitaet/Ladesaeulenkarte/Karte/start.html
- Der Verwender dieses Produktes hat sicherzustellen, dass die Eichgültigkeitsdauern für die Komponenten in der Ladeeinrichtung und für die Ladeeinrichtung selbst nicht überschritten werden.
- Der Verwender muss die aus der Ladeeinrichtung ausgelesenen, signierten Datenpakete - entsprechend der Paginierung lückenlos dauerhaft (auch) auf diesem Zweck gewidmeter Hardware in seiner Verantwortung speichern („dedizierter Speicher“), - für berechtigte Dritte verfügbar halten (Betriebspflicht des Speichers.). Dauerhaft bedeutet, dass die Daten nicht nur bis zum Abschluss des Geschäftsvorganges gespeichert werden müssen, sondern mindestens bis zum Ablauf möglicher gesetzlicher Rechtsmittelfristen für den Geschäftsvorgang. Für nicht vorhandene Daten dürfen für Abrechnungszwecke keine Ersatzwerte gebildet werden.
- Der Verwender dieses Produktes hat Messwertverwendern, die Messwerte aus diesem Produkt von ihm erhalten und im geschäftlichen Verkehr verwenden, eine elektronische Form einer von der Konformitätsbewertungsstelle genehmigten Betriebsanleitung zur Verfügung zu stellen. Dabei hat der Verwender dieses Produktes insbesondere auf die Nr. II „Auflagen für den Verwender der Messwerte aus der Ladeeinrichtung“ hinzuweisen.
- Soweit es von berechtigten Behörden als erforderlich angesehen wird, muss vom Messgeräteverwender der vollständige Inhalt des dedizierten lokalen oder des Speichers beim CPO mit allen Datenpaketen des Abrechnungszeitraumes zur Verfügung gestellt werden.

4.2.2 Auflagen für den Verwender der Messwerte aus der Ladeeinrichtung (EMSP)

Der Verwender der Messwerte hat den § 33 des MessEG zu beachten:

§ 33 Anforderungen an das Verwenden von Messwerten

- Werte für Messgrößen dürfen im geschäftlichen oder amtlichen Verkehr oder bei Messungen im öffentlichen Interesse nur dann angegeben oder verwendet werden, wenn zu ihrer Bestimmung ein Messgerät bestimmungsgemäß verwendet wurde und die Werte auf das jeweilige Messergebnis zurückzuführen sind, soweit in der Rechtsverordnung nach § 41 Absatz 1 Nummer 2 nichts anderes bestimmt ist. Andere bundesrechtliche Regelungen, die vergleichbaren Schutzzwecken dienen, sind weiterhin anzuwenden.

- Wer Messwerte verwendet, hat sich im Rahmen seiner Möglichkeiten zu vergewissern, dass das Messgerät die gesetzlichen Anforderungen erfüllt und hat sich von der Person, die das Messgerät verwendet, bestätigen zu lassen, dass sie ihre Verpflichtungen erfüllt.
- Wer Messwerte verwendet, hat
  1. dafür zu sorgen, dass Rechnungen, soweit sie auf Messwerten beruhen, von demjenigen, für die Rechnungen bestimmt sind, in einfacher Weise zur Überprüfung angegebener Messwerte nachvollzogen werden können und
  2. für die in Nummer 1 genannten Zwecke erforderlichenfalls geeignete Hilfsmittel bereitzustellen. Für den Verwender der Messwerte entstehen aus dieser Regelung konkret folgende Pflichten einer eichrechtkonformen Messwertverwendung:
     - **a.** Der Vertrag zwischen EMSP und Kunden muss unmissverständlich regeln, dass ausschließlich die Lieferung elektrischer Energie und nicht die Ladeservice-Dauer Gegenstand des Vertrages ist.
     - **b.** Die Zeitstempel an den Messwerten stammen von einer Uhr in der Ladeeinrichtung, die nicht nach dem Mess- und Eichrecht zertifiziert ist. Sie dürfen deshalb nicht für eine Tarifierung der Messwerte verwendet werden.
     - **c.** EMSP muss sicherstellen, dass der Vertrieb der Elektromobilitätsdienstleistung mittels Ladeeinrichtungen erfolgt, die eine Beobachtung des laufenden Ladevorgangs ermöglichen, sofern es keine entsprechende lokale Anzeige an der Ladeeinrichtung gibt. Zumindest zu Beginn und Ende einer Ladesession müssen die Messwerte dem Kunden eichrechtlich vertrauenswürdig zur Verfügung stehen.
     - **d.** Der EMSP muss dem Kunden die abrechnungsrelevanten Datenpakte zum Zeitpunkt der Rechnungsstellung einschließlich Signatur als Datenfile in einer Weise zur Verfügung stellen, dass sie mittels der Transparenz- und Displaysoftware auf Unverfälschtheit geprüft werden können. Die Zurverfügungstellung kann über eichrechtlich nicht geprüfte Kanäle erfolgen.
     - **e.** Der EMSP muss dem Kunden die zur Ladeeinrichtung gehörige Transparenz- und Displaysoftware zur Prüfung der Datenpakete auf Unverfälschtheit verfügbar machen.
     - **f.** Der EMSP muss beweissicher prüfbar zeigen können, welches Identifizierungsmittel genutzt wurde, um den zu einem bestimmten Messwert gehörenden Ladevorgang zu initiieren. Das heißt, er muss für jeden Geschäftsvorgang und in Rechnung gestellten Messwert beweisen können, dass er diesen die Personenidentifizierungsdaten zutreffend zugeordnet hat. Der EMSP hat seine Kunden über diese Pflicht in angemessener Form zu informieren.
     - **g.** Der EMSP darf nur Werte für Abrechnungszwecke verwenden, die in einem ggf. vorhandenen dedizierten Speicher in der Ladeeinrichtung und oder dem Speicher beim Betreiber der Ladeeinrichtung vorhanden sind. Ersatzwerte dürfen für Abrechnungszwecke nicht gebildet werden.

h. Der EMSP muss durch entsprechende Vereinbarungen mit dem Betreiber der Ladeeinrichtung sicherstellen, dass bei diesem die für Abrechnungszwecke genutzten Datenpakete ausreichend lange gespeichert werden, um die zugehörigen Geschäftsvorgänge vollständig abschließen zu können.

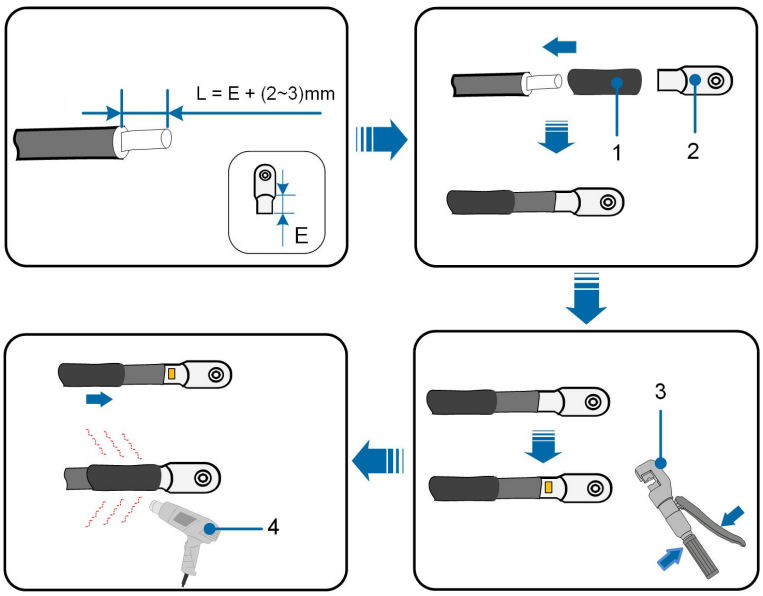
i. Der EMSP hat bei begründeter Bedarfsmeldung zum Zwecke der Durchführung von Eichungen, Befundprüfungen und Verwendungsüberwachungsmaßnahmen durch Bereitstellung geeigneter Identifizierungsmittel die Authentifizierung an den von ihm genutzten Exemplaren des zu dieser Betriebsanleitung gehörenden Produktes zu ermöglichen.

j. Alle vorgenannten Pflichten gelten für den EMSP als Messwerteverwender im Sinne von § 33 MessEG auch dann, wenn er die Messwerte aus den Ladeeinrichtungen über einen Roaming-Dienstleister bezieht.

4.3 Wiring Terminals Preparation

4.3.1 OT/DT/SC Terminal Crimping

Crimp Terminal



(1) Heat shrink tubing

(2) OT/DT/SC terminal

(3) Hydraulic pliers

(4) Heat gun

Before crimping, slide the heat shrink tubing over the crimping area to ensure complete coverage. After crimping, heat the tubing evenly with the heat gun until it fits snugly around the terminal. Ensure that the connection is safe and reliable without loosening, oxidation, or short circuits.

Aluminum Wire Requirements

If aluminum wires are used, use copper-aluminum bimetallic terminals to avoid direct contact between the copper busbar and the aluminum wire.

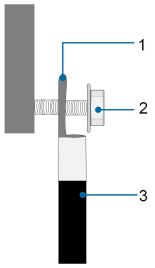


Figure 4-1 Aluminum Wire Terminal Connection Sequence

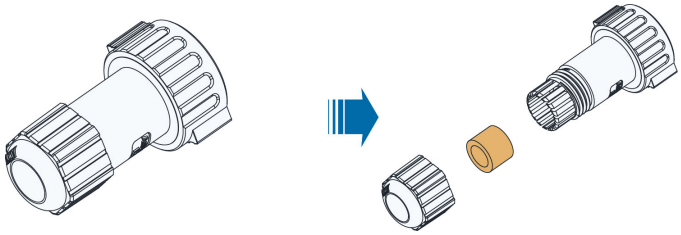
(1) Copper-aluminum bimetallic terminals	(2) Nut	(3) Aluminum wire

NOTICE

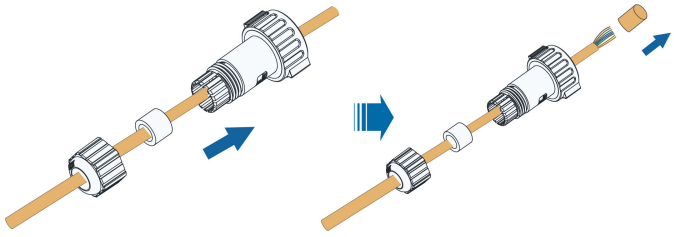
- **Ensure that the selected terminal can directly contact the copper busbar. Contact the terminal manufacturer if you have any concerns.**
- **Ensure that the copper busbar is not in direct contact with the aluminum wire. Otherwise, electrochemical corrosion may occur, impairing the reliability of the electrical connections.**

4.3.2 Assembly of Modular RJ45 Connectors

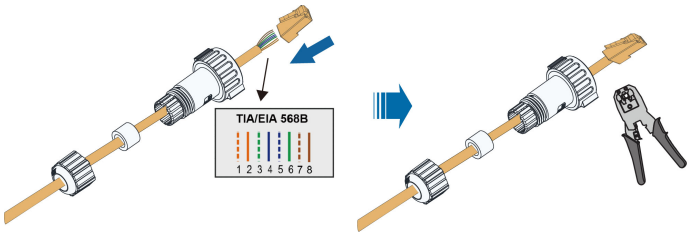
Step 1 Unscrew the sealing nut from the communication connector, and remove the sealing rubber washer inside.



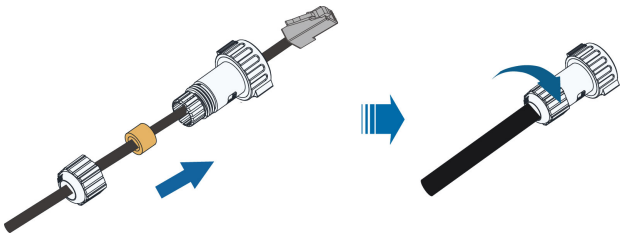
Step 2 Push the cable through the parts in order, and strip it by 10-15mm.



Step 3 Crimp the RJ45 plug on the cable.



Step 4 Fit back the rubber washer, and tighten the nut.



--End

4.4 AC Cable Connection

The AC cable is used to connect the charger to the grid, so that the grid can supply power to the charger.

⚠ DANGER

- **Do not connect the AC cable when the device is powered on; otherwise, it may result in personal injury.**
- **Do not power the device before the AC cable connection and routing are completed.**

NOTICE

Connect the cables in the proper order to the correct positions. Failure to do so may damage the device, and such damage will not be covered by the warranty.

The wire colors in the figures in this manual are for reference only. Please select wires according to local cable codes.

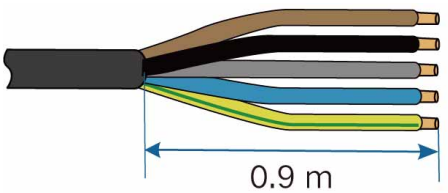
Step 1 Ensure the circuit breaker between the charger and the grid is in the open state and will not be closed by accident.

Step 2 Open the cabinet and secure it with the limit rod.

Step 3 Make sure the charger's molded case circuit breaker (MCCB) is set to OFF.

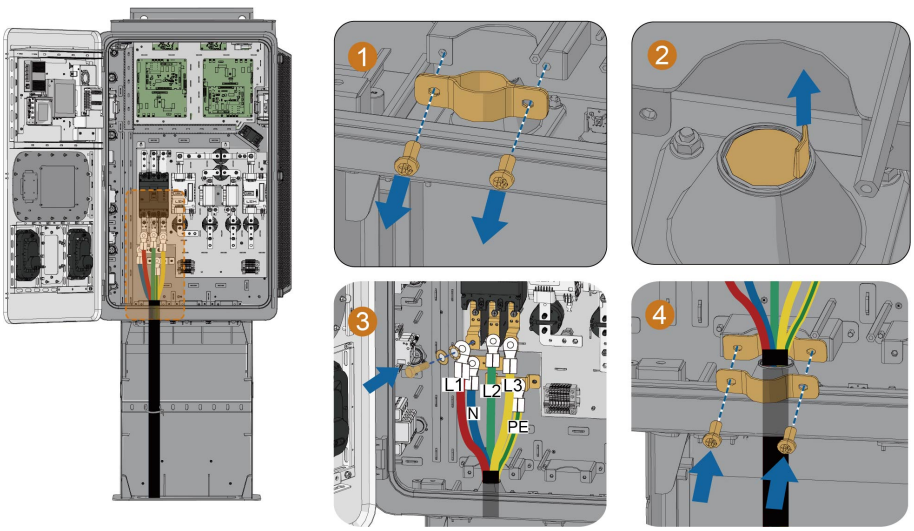
Step 4 Crimp terminals onto the AC cable wires by referring to 4.3.1 OT/DT/SC Terminal Crimping.

For ease of on-site wiring, strip 0.9 m of the outer insulation layer if a five-core cable is used.



Step 5 Remove the cable retainer and tear off the sealing strip of the cable inlet. Lead the crimped AC cable into the inlet at the bottom of the charger.

Step 6 Use a socket wrench to fix the AC cables onto the designated terminals by referring to the figure below, and secure the cable retainer.



--End

4.5 Network Connectivity

The device can access the network via either an Ethernet cable or 4G and uploads communication data to the cloud, facilitating operations and maintenance.

4.5.1 Communication Interfaces

The charger supports 4G, Ethernet and Wi-Fi network. Communication data is transmitted to the cloud platform to facilitate operation and maintenance by qualified personnel. A SIM card is required to enable 4G wireless communication, while connecting the charger to a router with a network cable is required to enable Ethernet communication.

The charging management platform is a cloud platform incorporating functions of monitoring, operation, and management. Users can manage and maintain their devices on this platform, with functions such as charging authorization, order management, and remote

fault troubleshooting. The device communicates with the charging management platform over the OCPP protocol.

OCPP (Open Charge Point Protocol) defines the protocol standard for network interconnection between the charger and the charging management platform. Charging transaction data can be synchronised to the OCPP backend system. For specific configuration and information viewing methods, please refer to the operating manual provided by the system's operator.

Table 4-2 Hardware Interfaces

Interfaces	Visible	Use Case
Ethernet interface	Y	Network Communication
4G Communication Slot	Y	4G Communication
Wi-Fi interface	N	Communication via Wi-Fi

Table 4-3 Supported Communication Protocols

Protocols	Description
HTTP+TLS	OCPP server connection; WiFi module and App connection
LTE	4G SIM card communication
Modbus	Communication based on MbedTLS

The charger operates a web service via port 8089, providing a browser-based interactive management interface. Users can access this interface to perform system management tasks, including login, network configuration, device status monitoring, OCPP protocol settings, certificate management, charging parameter configuration, system reboot, SSH service management, and data traffic monitoring.

4G and Ethernet communication is recommended. The parameters required for each type of network connection are detailed in the table below.

Table 4-4 Supported Network Connection Methods

Communication Method	Technical Data	Connection Method
4G	Frequency Band: • LET-FDD: Band 1/3/7/8/20/28A • LTE- TDD: Band 38/40/41 • WCDMA: Band 1/8 • GSM: Band 3/8 Transmitting Power:	SIM card

Communication Method	Technical Data	Connection Method
	• LET-FDD (Band 1/3/7/8/20/28A): 23dBm-2dB/23dBm+2dB • LTE-TDD (Band 38/39/40): 23dBm-2dB/ 23dBm+2dB • GSM (Band 3): 26dBm • GSM (Band 8):	
Ethernet	Rate (Mbit/s): 10/100 self-adaptive	Ethernet interface

During high network traffic conditions, the device will enter a protection mode and activate rate limiting measures. There are three types of protection mechanisms:

- IP-Based request rate limiting
  Each accessing IP address is assigned a separate token bucket. Up to 10 tokens are replenished per minute, with a maximum capacity of 60 tokens. Each API request consumes one token. Once the tokens are depleted, any further requests from that IP will be directly rejected.
- Global request rate limiting
  The system maintains a global token bucket to limit the total number of requests from all IP addresses. The global limit is set at 200 requests per minute. Any requests exceeding this limit will be uniformly rejected to prevent system overload.
- IP blacklisting mechanism
  If an IP address repeatedly triggers request denials within a short period (i.e., continues sending requests after exhausting its tokens), the system will blacklist the IP. While blacklisted, the IP address will be denied access to all API endpoints for 5 minutes. After the ban period ends, the system will automatically remove the IP from the blacklist, allowing access to resume.

Network Traffic Monitoring Panel Overview

- Start/Stop toggle: Activates or halts network monitoring.
- Monitoring indicator (green): Indicates that network monitoring is active.
- Update interval: Sets the refresh interval for the displayed data.
- Black terminal window: Displays real-time connection and traffic statistics for the current network interface (e.g., wlo1).
- Host name (port/service if enabled): Displays the hostname or IP address of the connected devices.
- => / <= Symbols: Indicate the direction of data transmission (send/receive).
- Last 2 s / 10 s / 40 s: Shows the amount of data transmitted in the past 2, 10, and 40 seconds, respectively.
- Cumulative: Displays the total traffic since monitoring activation.

Hereby, Sungrow Power Supply Co..Ltd. declares that this radio equipment is in compliance with Directive 2014/53/EU.

4.5.2 SIM Card Installation

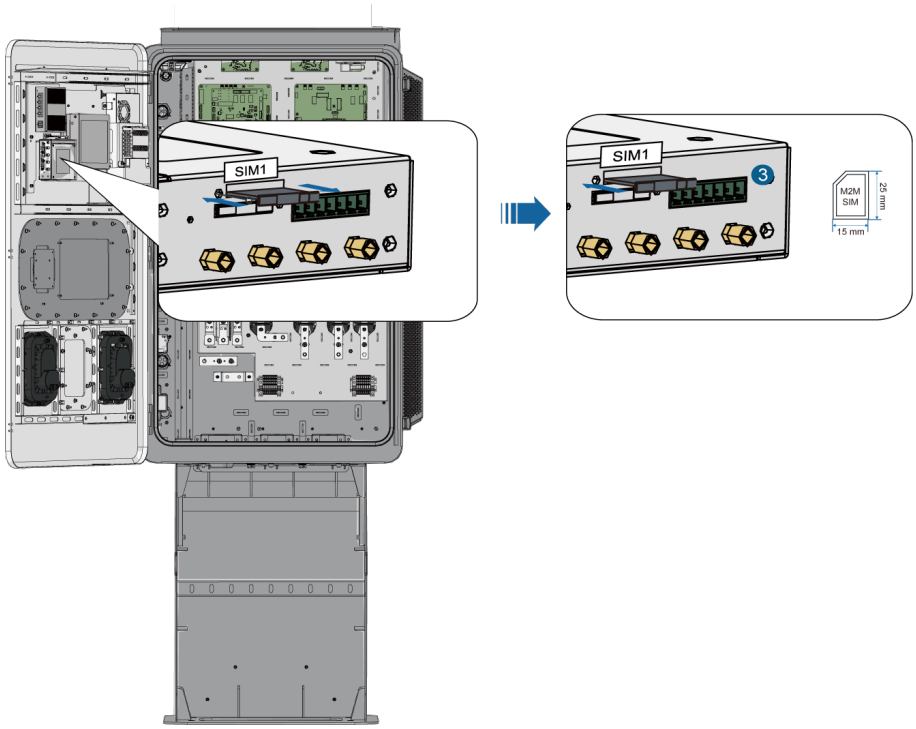
If the user chooses to access the Internet via 4G, a SIM card must be installed.

Required Materials

Industrial-grade IoT SIM card, size: 2FF 25 mm * 15 mm.

Step 1 Open the cabinet and locate the SIM card slot.

Step 2 Insert a SIM card into the slot.



--End

- Please install a SIM card for each charger. You may order SIM cards from SUNGROW or purchase them on your own.
- It is recommended to use a SIM card with a data plan of 1 GB per month. The network connection will be disconnected when the monthly data is used up. Please purchase data in time to restore the network.
- Before using the SIM card for networking, contact SUNGROW or the SIM card manufacturer to add the IP address to be accessed to the carrier's whitelist.
- The network connection will be disconnected after the SIM card expires. To continue using it, please renew the data plan.

4.5.3 Ethernet Wiring

If the user chooses to access the Internet via Ethernet, the Ethernet connection is required.

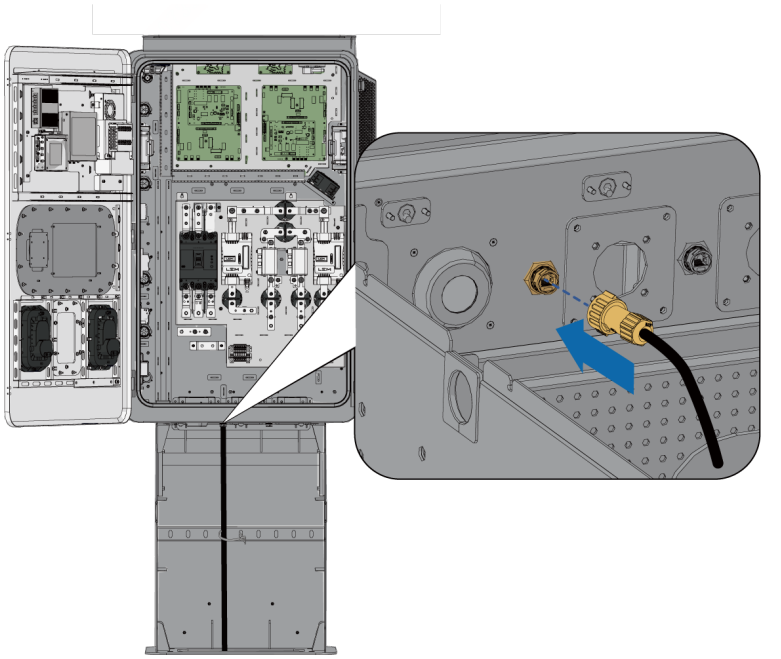
Required Materials

It is suggested to use Cat 5 Ethernet cables.

Step 1 Lead the Ethernet cable into the bottom of the charger.

Step 2 Assemble the RJ45 plug according to 4.3.2 Assembly of Modular RJ45 Connectors.

Step 3 Remove the waterproof plug from the Ethernet port on the bottom of the charger. Insert the communication connector into the Ethernet port and make sure it "clicks" in place.



--End

4.6 EMS Controller Connection (Optional)

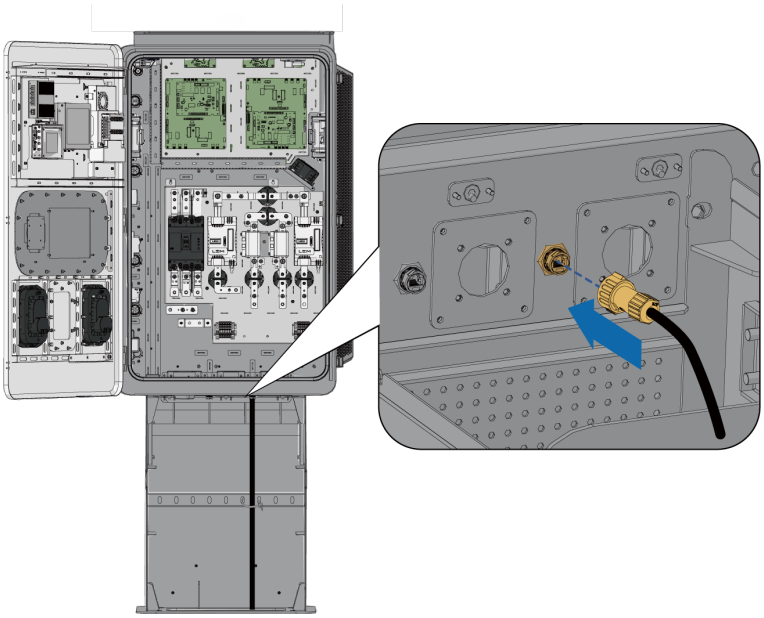
The EMS controller interface and wiring procedure are identical to Ethernet connections. Please refer to 4.5.3 Ethernet Wiring.

4.7 Connecting DLM Distributor (Optional)

Step 1 Lead the DLM cable to the bottom of the charger.

Step 2 Assemble the RJ45 plug according to 4.3.2 Assembly of Modular RJ45 Connectors.

Step 3 Remove the waterproof plug from the DLM port on the bottom of the charger. Insert the communication connector into the DLM port and make sure it "clicks" in place.



--End

5 Power-On and Commissioning

5.1 Inspection Before Powering on

To ensure the safe use of the charger, please perform the following inspections on the charger before powering it on.

⚠ CAUTION

Do not power the charger unless the inspections are completed.

Table 5-1 Inspection Items

Inspection Details	Methods/Tools	Requirements
Appearance	Visual Inspection	• No visible scratch on or deformation of the device's enclosure. • No paint peeling on the exterior of the charger. • The parts and components of the cabinet are secure and reliable, and the nameplate and marks are all legible.
Environment	Visual Inspection	• Check if the installation location and surrounding space meet the requirements of the design drawings. • The device is installed in an environment where heat can be well dissipated, without any clutter piled on its top or around it.
Charging connectors	Visual Inspection	• No wet spots or foreign matter on the charging connectors. • The charging cables are intact.
Electrical Connection	Visual inspection/ screwdriver	• All cable connections must be tight and secure. • Check the AC cables to ensure that the connections match the wiring diagram, the phase sequence is correct, and there are no reverse connections or short circuits. • Check the grounding cable to ensure that the connection is tight and secure, and there is no short circuit.

Inspection Details	Methods/Tools	Requirements
		• Heat shrink tubing must be used at the connection between the terminal and the cable, and no wire cores must be exposed. • Copper-aluminum bimetallic terminals are required when aluminum cables are used. • Check the DIP switch of the power unit to ensure it is consistent with the DIP switch rules.
Maintainability	Visual Inspection	• Cables must be secured to nearby binding points using cable ties, with appropriate tightness and consistent orientation. • Different categories of cables should be bundled separately and distinguished by labels. • The cable routing should be convenient for future maintenance.

5.2 Commissioning Steps

Ensure the device has been properly installed and that all pre-power-on inspection items meet requirements. Power on and commission the device first before putting it into operation.

⚠ DANGER

- **Do not touch any live part of the device when it is running; otherwise, it may lead to electrical shocks.**
- **Do not touch any wiring terminal of the device when it is running; otherwise, it may lead to electrical shocks.**
- **Do not remove any part or component from the device when it is running; otherwise, it may lead to electrical shocks.**

Step 1 Switch on the upstream AC circuit breaker.

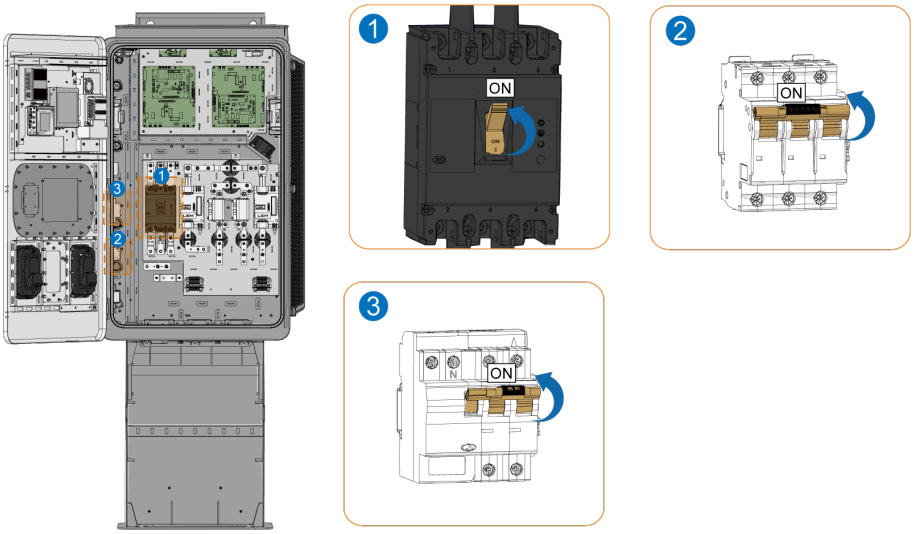
NOTICE

For the upstream circuit breaker, use either a 3P molded case circuit breaker (MCCB) without overcurrent protection or a 3P+N molded case circuit breaker (MCCB) with overcurrent protection.

Step 2 Before switching on the circuit breaker inside the power cabinet, measure the voltage of the copper busbars of the two inputs by following the instructions below, and ensure the input voltage is in the normal range.

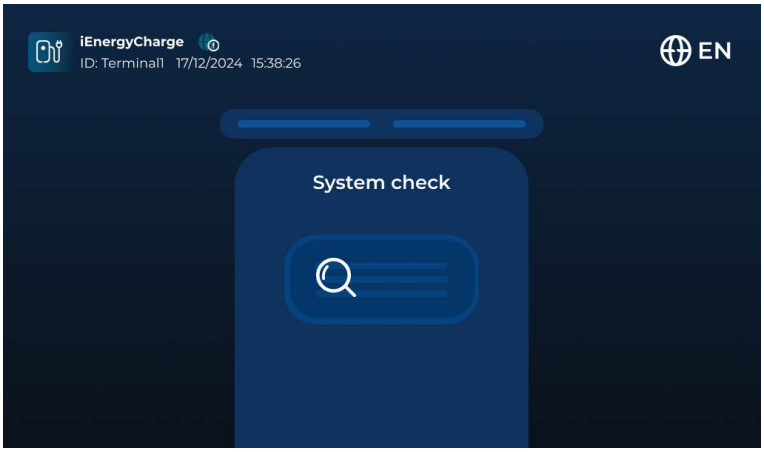
Test Point 1	Test Point 2	Normal Voltage Range
L1	L2	323 V ~ 440 V
L1	L3	
L2	L3	
L1	N	187 V ~ 254 V
L2	N	
L3	N	

Step 3 As per the instructions in the figure, switch on the molded case circuit breaker (MCCB), miniature circuit breaker (MCB), and residual current breaker with overcurrent protection (RCBO) inside the charger in the proper order to get it started.

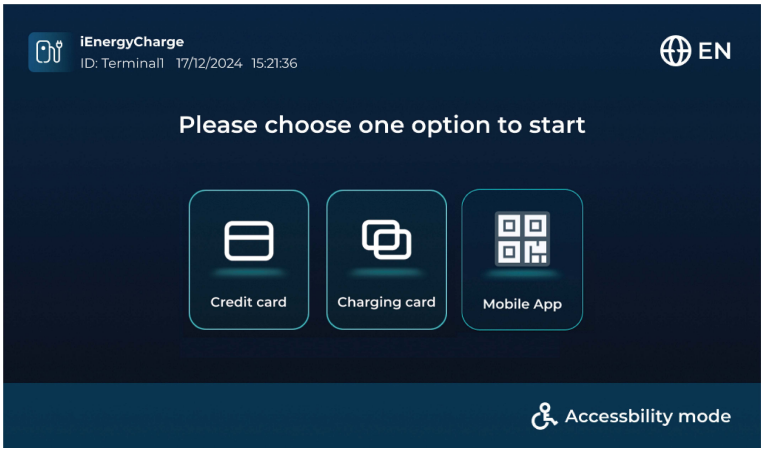


Step 4 Close the charger cabinet and observe the indicator lights. The charger is powered on successfully if the Energy Star-Ring is steady blue and the charging connector status indicator is steady green.

Step 5 Check the screen. The system will run a self-check, which takes about 30 seconds.



Step 6 After the self-check completes, the interface for charging method selection will be shown. You can select a charging method as needed.



Step 7 Taking the RFID card as an example, if you choose "RFID", the Energy Star-Ring on the device will blink blue, waiting for you to tap a card over the card reader. Upon detecting the card, the system will verify its validity. If it is valid, an authentication success message will show up.

Step 8 Take down the charging connector and plug it into the charging port on the EV. Make sure the connection is secure.

Step 9 After the charging is completed, put the charging connector back into the device. Prevent the charging connector from getting in contact with heat, dirt, or water.

In case of an emergency, users can press the emergency stop button on the side of the device to stop charging immediately.

--End

5.3 Post-Commissioning Operations

Step 1 Refer to 8.2 Charger Decommissioning to power off the charger.

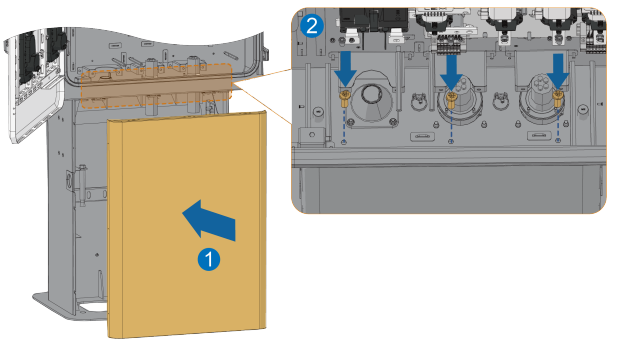
Step 2 Use firestop putty (from the shipping accessories) to seal the gaps around the cable inlet/outlet holes.

NOTICE

- **Fireproof and waterproof materials (e.g., firestop putty) must be used to seal all gaps around the cable inlet/outlet holes to prevent foreign objects or moisture ingress, which could compromise the charger's long-term stable operation.**
- **If the putty has hardened, gently heat it with a heat gun to soften it before use.**

Step 3 Reinstall the protective cover onto the cabinet.

Step 4 Install the front panel onto the post.



Step 5 Remove the limit rod, close the cabinet, and store the keys properly.

- Do not close the door forcibly while the limit rod or slide rod is not removed.
- Before closing the doors, ensure all tools, metal parts, and debris are removed from the interior.

Step 6 Clear the site.

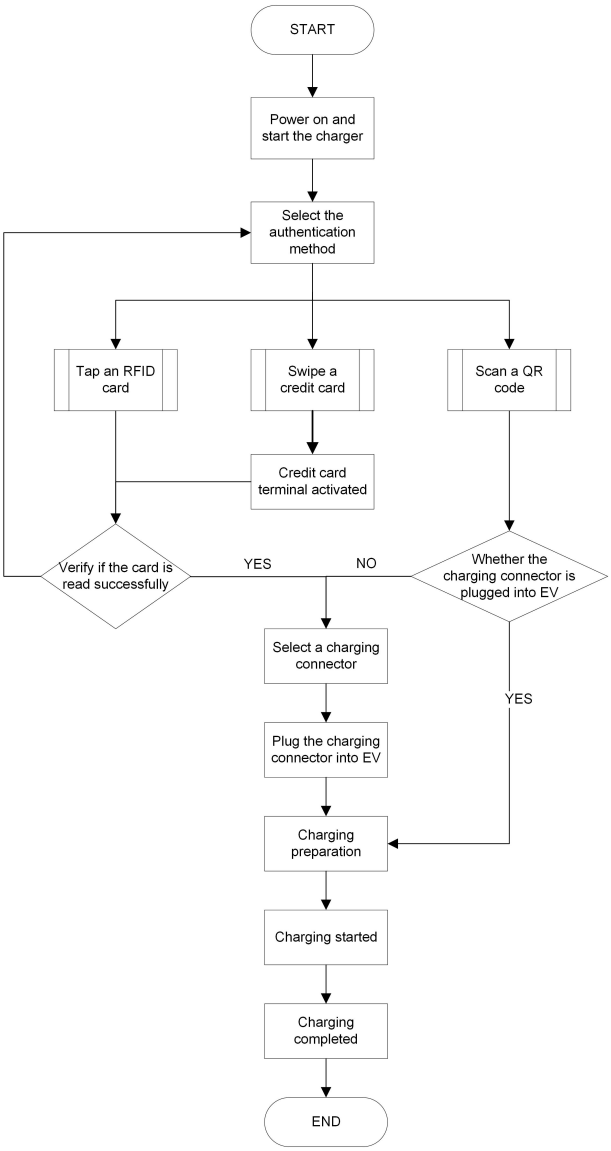
--End

6 LCD Touch Screen

6.1 Charging Procedure

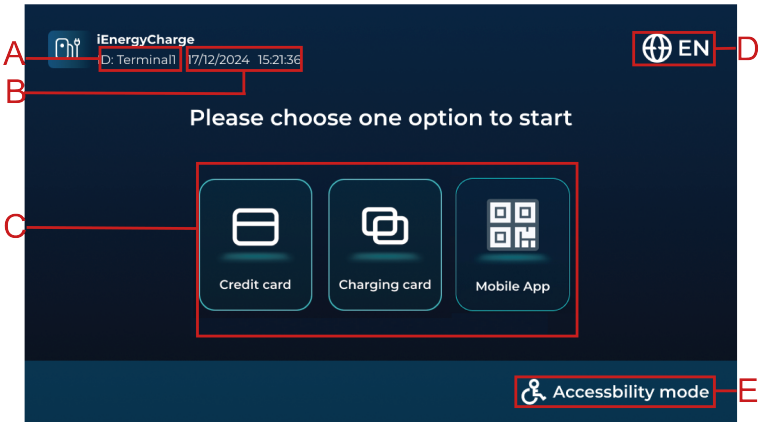
The product’s touch screen serves as an interface for human-machine interaction. You can perform various operations on the device via the touch screen, e.g., starting or stopping charging, viewing the charging data, and performing fault diagnosis.

The flow chart of a charging session is shown as follows:



6.1.1 Select an Authentication Method

When the product is powered on, the system will run a self-check. After the system check is finished, the Authentication Method Selection Page will appear as shown below:



No.	Description
A	Product ID, a unique identifier for the product.
B	Current date and time.
C	Three authentication methods available: • Charging Card (RFID) • Credit Card • Mobile APP (iEnergryCharging Code) Choose one authentication method for each charging session.
D	Language switch button, used to switch between multiple languages, with English as the default.
E	Accessibility mode button, used to move down language options for easier access.

Choose your preferred authentication method.

Option 1: Charging Card (RFID)

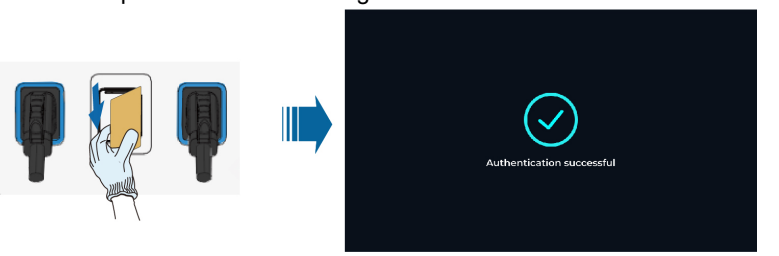
Tap **Charging Card** and place the RFID card against the Energy Star-Ring (card reader). The system will verify its validity.

- If it is valid, the system will proceed to the Connector Selection Page. If the charging connector is already plugged in, the system will take you to the Charging Details Page directly.

- If verification fails, the card may not be activated or could be demagnetized. Tap **Back** and choose another authentication method.

Option 2: Credit Card

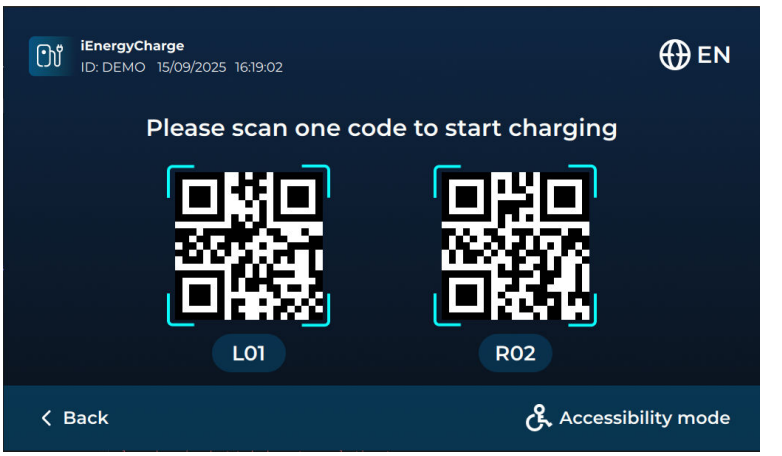
Tap **Credit Card** and place the credit card against the Credit Card Terminal.



- If it is valid, the system will proceed to the Connector Selection Page. If the charging connector is already plugged in, the system will take you to the Charging Details Page directly.
- If verification fails, the card may not be activated or could be demagnetized. Tap **Back** and choose another authentication method.

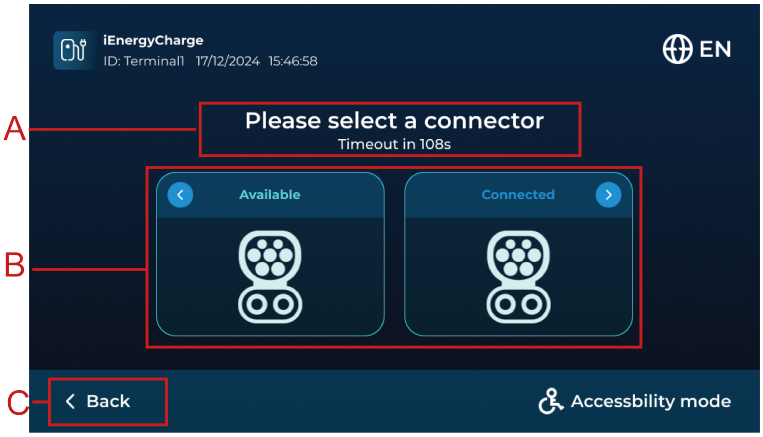
Option 3: Mobile APP (iEnergyCharge APP)

Tap **Mobile App** to begin. Open the iEnergyCharge mobile app and scan the QR code of the desired charging connector to go to the Connector Selection Page. If the charging connector is already plugged in, the system will take you to the Charging Details page directly.



6.1.2 Select a Charging Connector

The product allows two connectors to operate independently, without interference.



No.	Description
A	Indicate that a charging connector should be selected before the countdown ends. If the timer runs out, the system will cancel the charging process and return to the Authentication Method Selection Page.
B	Display the charging connector ID and its status. The connector status can be one of the following: • Available: The connector is currently available, not connected to any EV. • Connected: The connector is available and has been connected to an EV. • Occupied: The connector is now occupied. In this case, the current charging power and the time spent in charging will be shown on the screen. • Unavailable: The connector is currently not available.
C	Cancel Selection: Return to the Authentication Method Selection Page.

Select a connector that is “Available” before the countdown ends, and the screen will display the plug-in prompt.

If only one connector is available and the other is either occupied or unavailable, the system will assign the available connector to you and display the plug-in prompt.

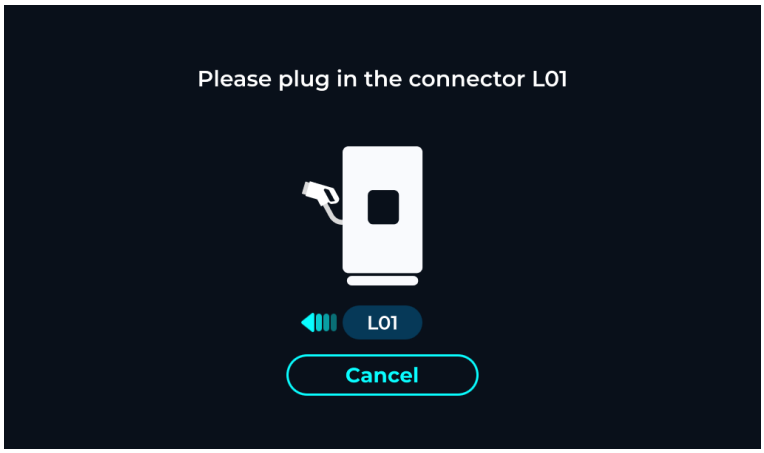
6.1.3 Plug Connector for Charging

NOTICE

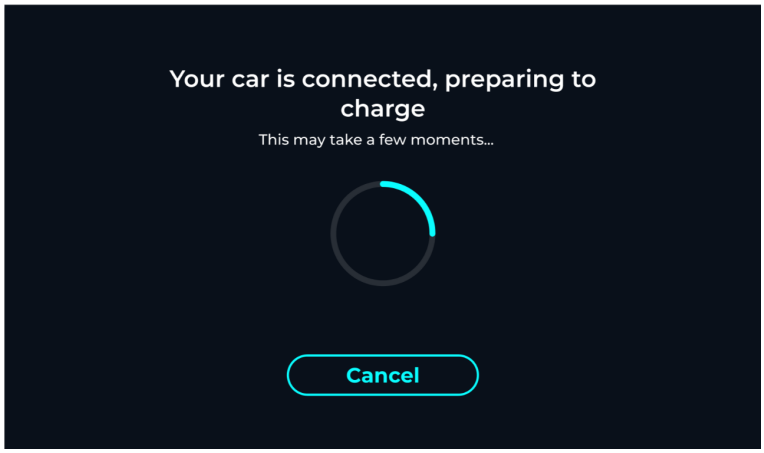
- **Plug or unplug the charging connector neatly at one go. Do not shake it.**
- **Do not bend or squeeze the charging connector, which may result in mechanical damage.**
- **Do not pull out the charging connector in the middle of a charging process.**

After selecting the connector, the screen will display the plug-in prompt.

- Tapping **Cancel** will exit the plug-in process and return to the Connector Selection Page.



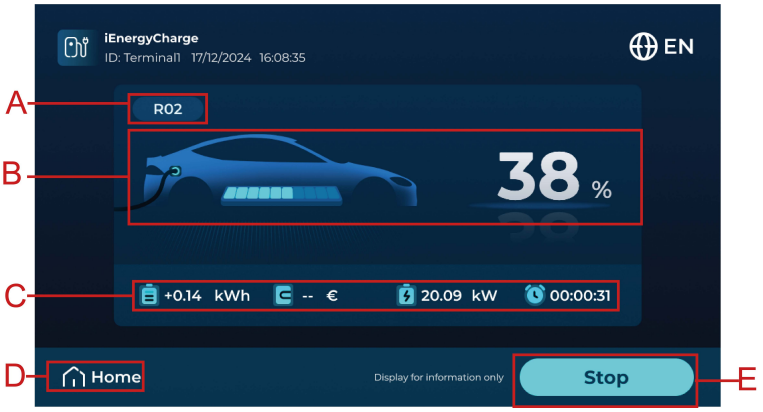
- If the connector is correctly plugged into the charging port of the EV, the Charging Preparation Page will appear. Tapping **Cancel** will abort the charging process.



If the connector is plugged in but the process takes too long and times out, the screen will return to the Connector Selection Page with a timeout message. Unplug the connector, reselect one, and plug it in again to restart the process.

6.1.4 View Charging Information

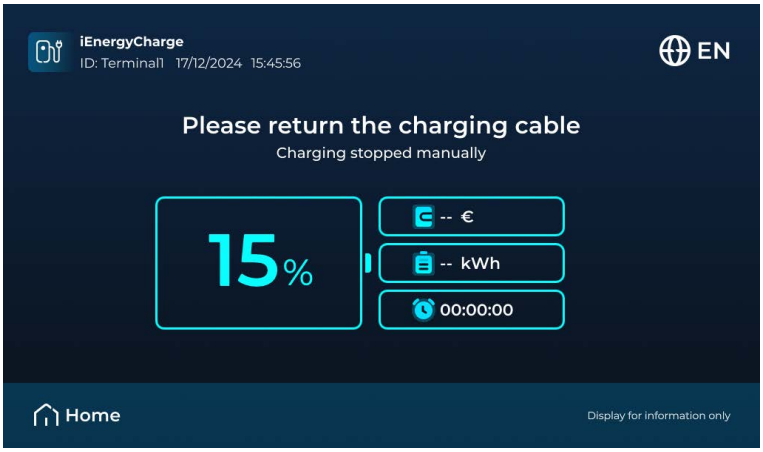
Once the charging preparation is complete, the EV starts charging, and the screen displays the charging details, as shown below:



No.	Description
A	Charging connector ID.
B	Progress of charging (%).
C	Charging details, including the charging power (kW), charging cost, power delivered (kWh), and time spent in charging (HH:MM:SS).
D	**Home** button. Tap this button to go to the home page without stopping the charging process.
E	**Stop** button. Tap this button, confirm your action by swiping a card, and go to the interface to end the charging process.

6.1.5 Stop Charging

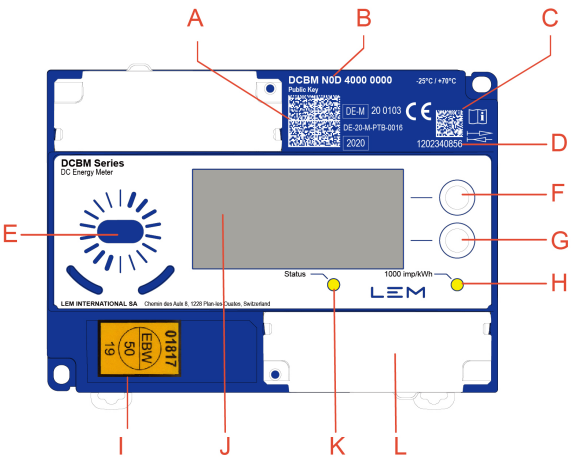
Once the EV is fully charged, the system will automatically stop charging. To stop charging manually, tap **Stop** on the Charging Details Page. See #unique_62. After charging is complete, the screen will prompt you to return the charging connector and display details of the charging session, including Progress of charging (%), charging cost, power delivered (kWh), and time spent in charging.



6.1.6 View Energy Meter Information

This manual uses the DCBM 400/600 series - DC energy meter as an example for illustration. For other types of energy meters, please refer to their respective guide manuals for specific information.

Meter unit description

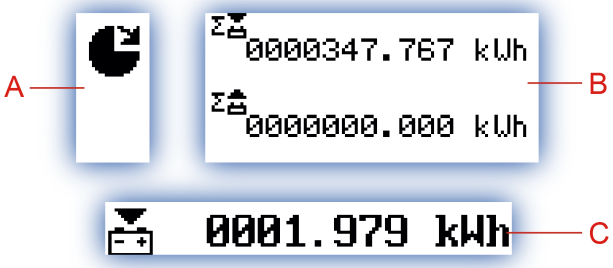


No.	Definition	No.	Definition
A	OCMF public key data matrix	B	DCBM type Ddesignation
C	DCBM serial number data matrix	D	DCBM serial number
E	IR optical interface	F	Top button
G	Bottom button	H	Test LED
I	Verification marking	J	Display

No.	Definition	No.	Definition
K	Status LED	L	Connection cover

After installation, verify that the energy meter display is functioning correctly.

Layout of display



No.	Definition
A	Current state symbol
B	Rolling data
C	Transaction energy counter

Current state symbols

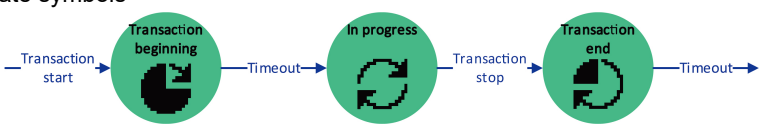


Figure 6-1 State machine for transaction screens

Rolling data in different states

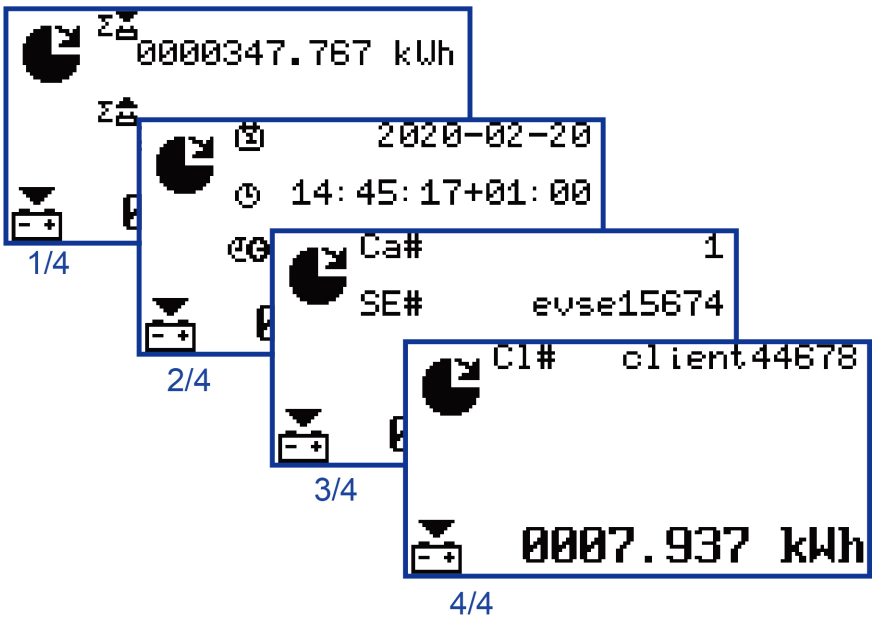


Figure 6-2 Sequence of screens for beginning of transactions

Screen index	Data on rolling pane
1/4	Total energy registers on the beginning of the transaction
2/4	Local date and time on the beginning of the transaction Tariff input
3/4	Cable identifier input EVSE identifier input
4/4	Client identifier input

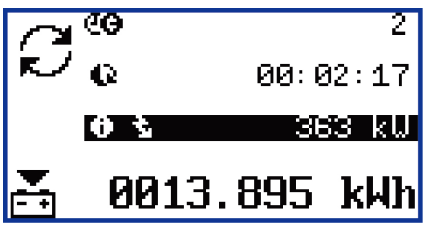


Figure 6-3 Screen during the transaction

Data on rolling pane
Tariff identifier Elapsed time of the transaction

Data on rolling pane
Live charge power (not to be used for billing purposes)

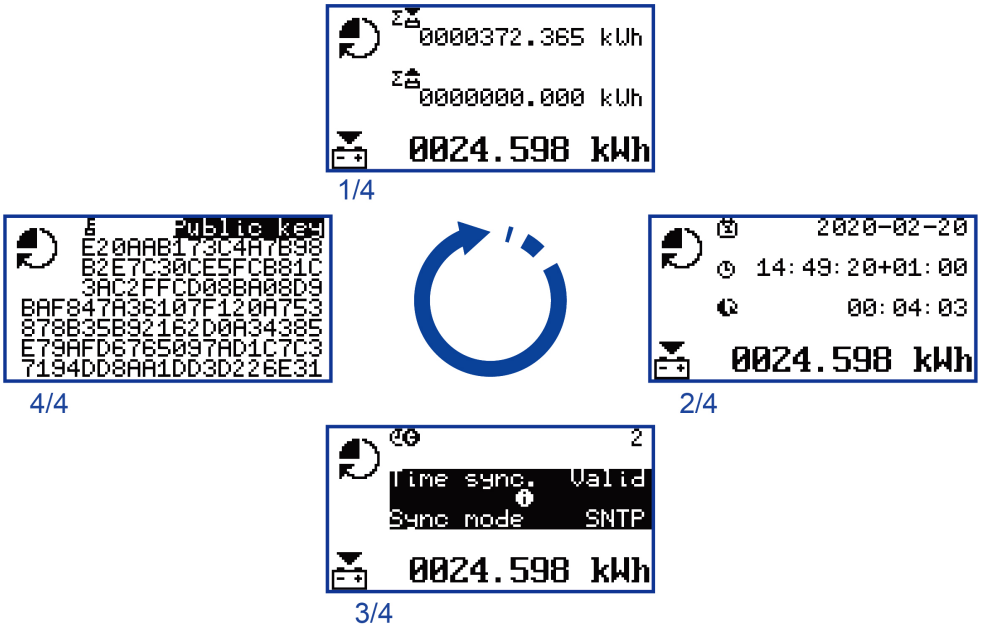


Figure 6-4 Sequences of screens for end of transactions

Screen index	Data on rolling pane1/4
1/4	Total energy registers on the end of the transaction
2/4	Local date and time of the end of the transaction Total definitive duration of the transaction
3/4	Status of the time synchronization for this transaction, featuring validity and mode of synchronization (not to be used for billing purposes)
4/4	Public key of the device, for LEM format authenticity check (i.e. without OCMF RFC5480 header)

Transaction energy register

Symbol	Description
	Import energy i.e. from the energy grid to the vehicle

Symbol	Description
	Export energy i.e. from the vehicle back to the energy grid

6.1.7 Obtaining and Using a Public Key

Step 1 Contact your CPO (Charging Point Operator) to obtain the signed session data (OCMF file/record) via app, portal, phone or email.

Step 2 Scan the code on the meter to retrieve the public key. (Alternatively, for charging points in Germany, open the Federal Network Agency charging-station map and click the site icon to copy the Public Key: https://www.bundesnetzagentur.de/DE/Fachthemen/ElektrizitaetundGas/E-Mobilitaet/Ladesaeulenkarte/start.html)

Step 3 Download S.A.F.E. Transparency Software v1.4.1 from the S.A.F.E. website: https://safe-ev.org/en/transparency-software/e-mobilists/

Step 4 Open the Transparency Software and verify the OCMF data from the CPO using the meter's public key. The software will validate the signature and display the metered values.

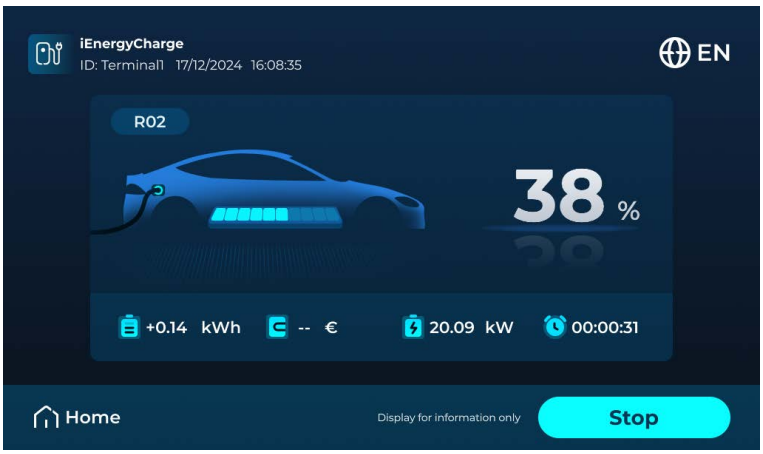
--End

6.2 Other Functions

6.2.1 Dual Charging

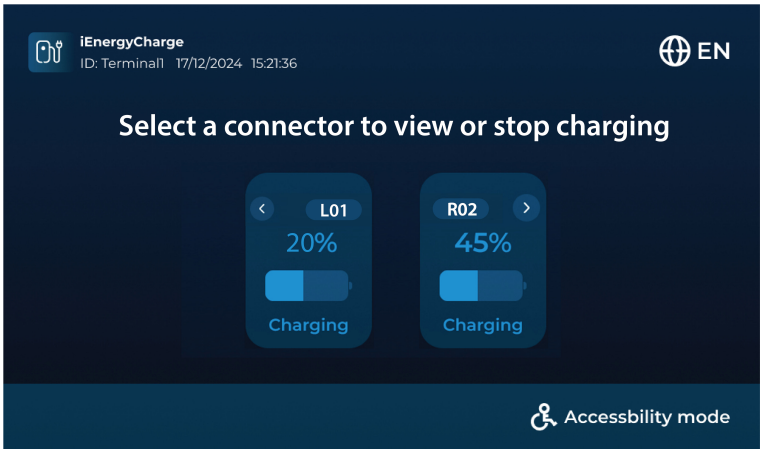
Dual Charging Setup

The product supports dual charging, allowing two charging connectors to operate simultaneously. When both connectors are available, after initiating charging with one connector, return to the Authentication Method Selection Page by tapping **Home** on the Charging Details Page. The other connector can then be set up for charging following the same steps. For further details, refer to 6.1 Charging Procedure.



Switching Between Charging Details

After charging has started with both connectors, you can switch between their charging details from either connector's Charging Details Page. Tap **Home** to access the Connector Selection Page, then tap the other connector to view its details.



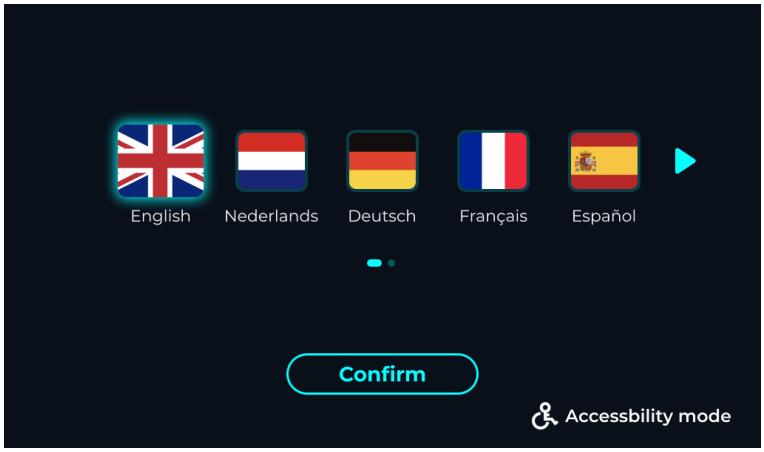
If using credit card or RFID card, tap the card at the designated spot to view the charging details of the corresponding connector.

6.2.2 Change System Language

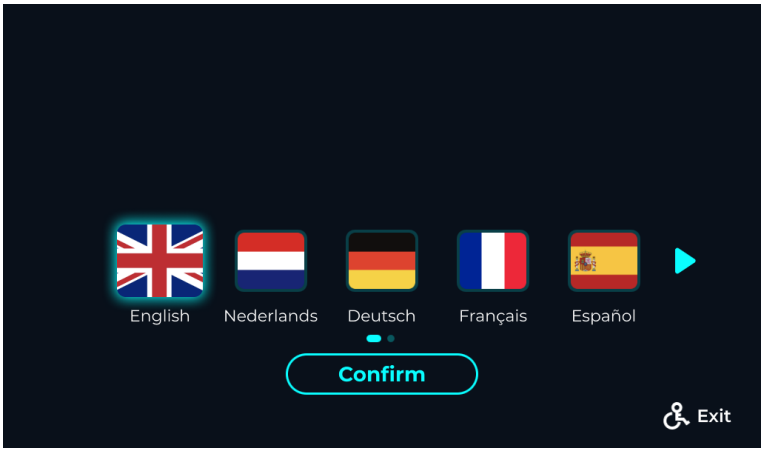
The system supports languages including English, Dutch, German, French, Spanish, Norwegian, and Italian, with English as the default system language。

Step 1 Tap the icon in the top-right corner of the screen to enter the Language Selection Page.

- In the default interface, the Language Selection Page appears as follows:



- In Accessibility mode, the Language Selection Page appears as follows. Tap **Exit** to exit Accessibility Mode and return to the default interface.



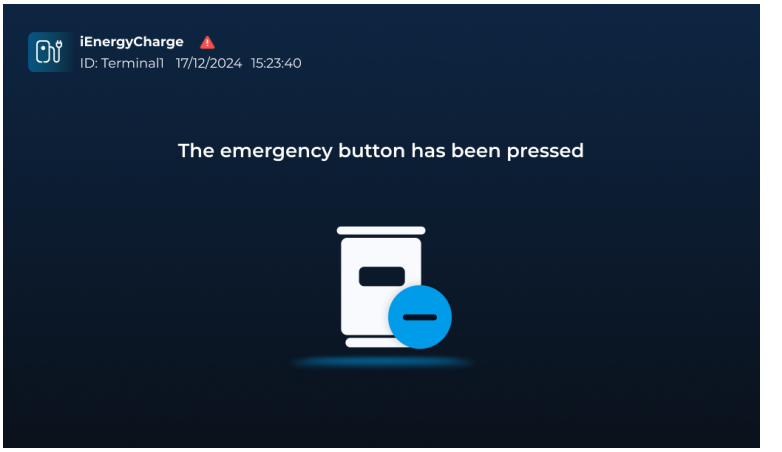
Step 2 Swipe left or right to select the desired language and tap **Confirm** to complete the language switch.

--End

6.2.3 Emergency Stop

In case of an emergency or device malfunction during charging, follow these steps to stop the charging process immediately:

Step 1 Press the red emergency stop button on the right side of the device. The screen will display a message indicating that the system is in emergency stop mode, and charging will cease. After that return the connector.



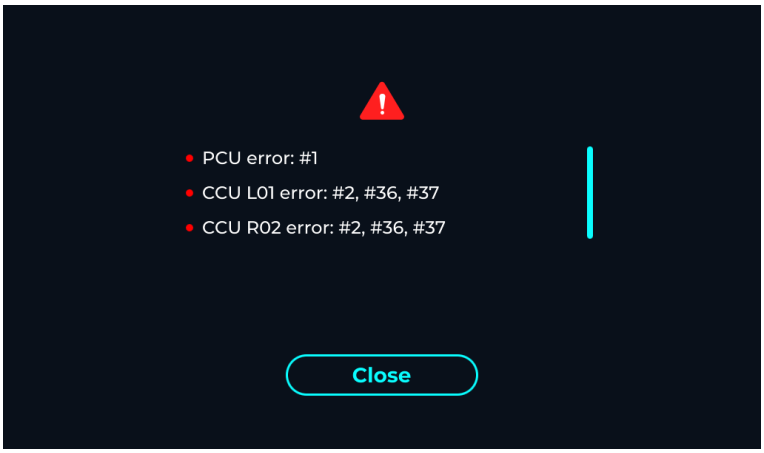
Step 2 Once the emergency or issue is resolved, reset the emergency stop button by rotating it. The product will resume normal operation, and the screen will show the Authentication Method Selection Page.

--End

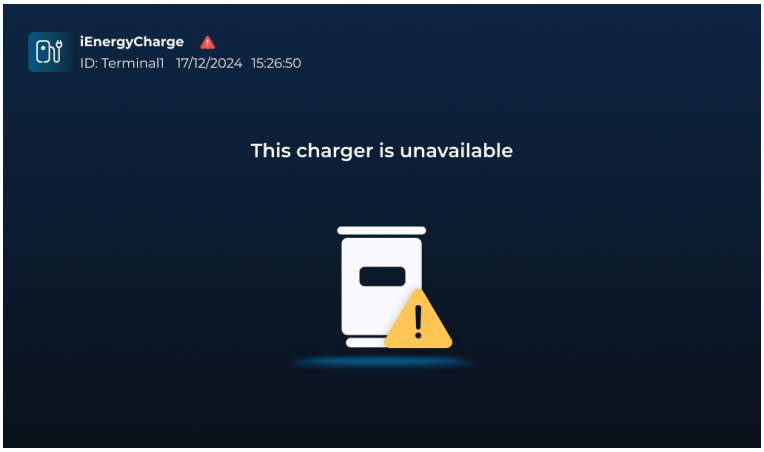
6.2.4 Device Fault Diagnosis

When a fault occurs, the device will be unable to perform charging operations.

Step 1 The system will detect the fault, display the Error Page, and navigate to the Error List Page.



Step 2 Tap **Close** to return to the Error Page. To revisit the Error List Page, tap the icon in the top-left corner.



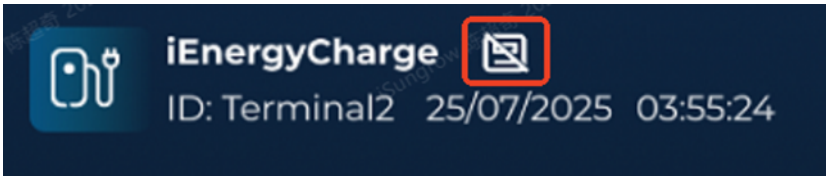
--End

6.2.5 Network Connection Diagnosis

OCPP defines the protocol standard for network interconnection between the device and the charging management platform. The device accesses to OCPP via network connection. In case of a network error, the device cannot access to OCPP.

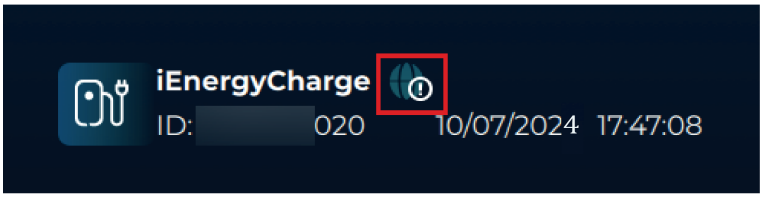
Network error may arise no matter which state the device is in. A network error icon will show on the screen in case of anything abnormal with the network, and disappears after the network has restored to normal status. The abnormal status includes:

- The terminal is not connected to the OCPP of the power cabinet.



- Network connection is normal, but the device cannot access to OCPP.

- No network connection, and the device cannot access to OCPP.



7 iEnergyCharge App

iEnergyCharge App is a tool that allows users to operate and manage their EV chargers. Users can complete account settings and charger configuration, manage charge cards, operate the charger, and reach customer service on the App.

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

7.1 Install iEnergyCharge App

Requirements

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

Steps

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

iEnergyCharge

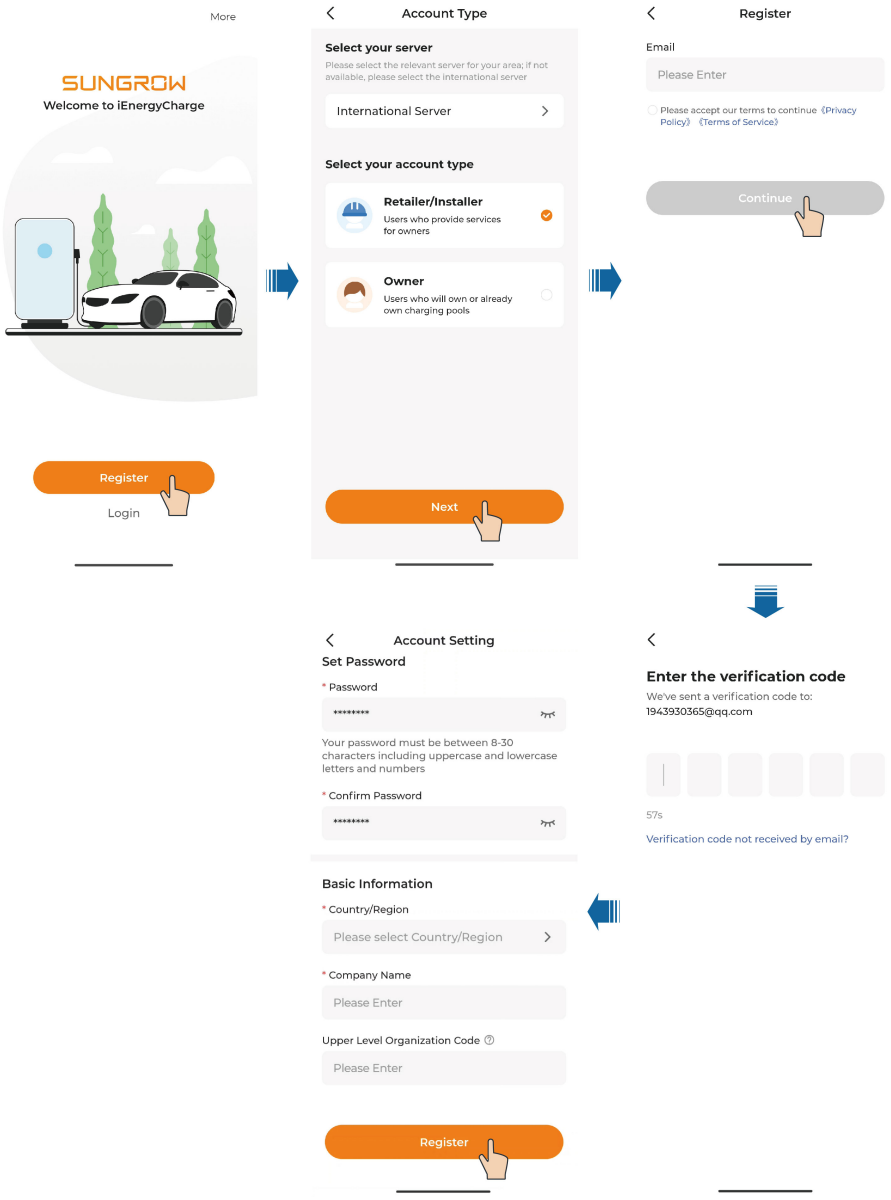
Step 2 Tap the downloaded installation package and follow the onscreen instructions to complete the installation.

--End

7.2 Create an Account

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

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



Step 1 Tap **Register**.

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

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

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

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

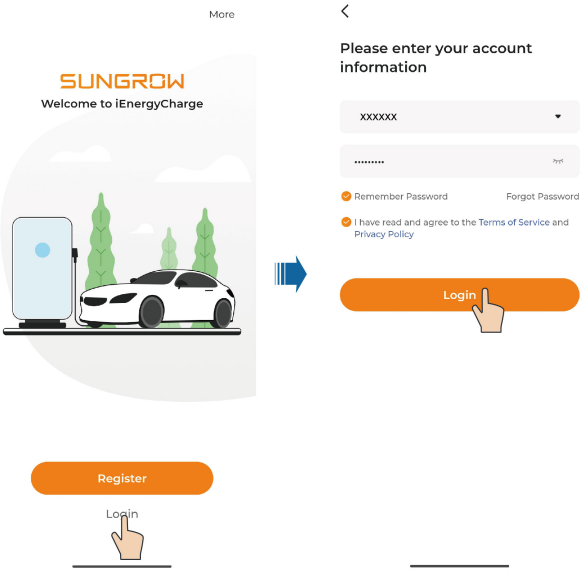
Step 5 Enter a password, which should be 8–32 characters long and contain uppercase letters, lowercase letters, and numbers. Then, select the country/region, and tap **Register**. An account is now created.

--End

7.3 Log in to an Account

Requirements

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



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

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

--End

7.4 Device Operation and Maintenance

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

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

8 Device Maintenance

8.1 Inspection Instructions

For extended service life, please perform regular inspections on the device. The inspection interval should be determined with on-site conditions taken into consideration. In case the product works in extreme weather conditions, be sure to shorten the inspection interval and increase inspection frequency.

- Before opening the cabinet and performing an inspection, decommission the charger according to 8.2 Charger Decommissioning.
- In case of a fault with the charger, please contact your local service provider or manufacturer immediately. Do not open the charger without permission.
- If some devices need to be replaced during the inspection, please contact SUNGROW.
- Losses caused by failing to perform inspections in compliance with the instructions specified in this manual will not be covered by the warranty.
- Do not perform inspections on the product on rainy, humid, or windy days. SUNGROW shall not be held liable for any possible outcome resulting from inspections in such weather conditions.
- To minimize the risk of electric shocks, do not perform inspections that are not specified in this manual. If needed, please contact SUNGROW for inspection and repair services. Otherwise, damages caused therefrom will not be covered by the warranty.

8.2 Charger Decommissioning

Prerequisite

Power off the charger first before performing routine inspections or maintenance.

⚠ CAUTION

Even if the charger has stopped running, it may still be hot and cause burns. Perform operations on the device wearing safety gloves after it cools down.

Please follow the instructions below to power off the charger. Otherwise, it may lead to device damage or personal injuries.

Step 1 Ensure the charging connector is detached from the EV.

Step 2 Switch off the AC circuit breaker in the upstream power distribution box.

Step 3 Open the charger cabinet and disconnect the molded case circuit breaker (MCCB).

Step 4 Disconnect the miniature circuit breaker (MCB) and residual current breaker with overcurrent protection (RCBO).

Step 5 Perform a voltage test after waiting at least 10 minutes to deplete the residual voltage.

a. Ensure that the indicator lights and the screen are both turned off.

b. Measure the voltage at the AC input copper busbar using a multimeter set to the AC mode to confirm that the input voltage is 0.

Table 8-1 Charger AC Input Voltage

Test Point 1	Test Point 2	Voltage
L1	L2	0V
L1	L3	0V
L2	L3	0V
L1	N	0V
L2		0V
L3		0V
L1	PE	0V
L2		0V
L3		0V

Step 6 Once the voltage test is completed and the results meet the requirements, the charger is powered off.

--End

8.3 Routine Inspection

It is recommended to perform routine inspections on the product once every 6 months. However, the actual inspection interval is subject to the charger's operating environment.

Inspection Details	Inspection Method	Recommended Inspection Interval
Device Appearance	• Check if there is any deformation with the charger's enclosure. • No paint peeling on the exterior of the charger. • Check if the nameplate and marks on the charger are all legible. • Check if there is anything abnormal with the exterior of peripheral	Once every 6 months

Inspection Details	Inspection Method	Recommended Inspection Interval
	components, such as the charging connector holder and antenna. • Check whether the lead seal of the electricity meter is intact to prevent intentional replacement of the meter or tampering with the data by humans.	
Device Structure	• Check if the parts and components of the charger are secure and reliable. • Check if there is any damage to the charging interface and power supply interface. • Clean up the dust-proof fabric and dirt and dust inside the charger, and check if there is any wet spot. • Check if the internal controller of the charging station is functioning correctly and free from damage. When the internal ambient temperature of the charging station falls below 0 ºC, the station will activate its heating system to maintain the required internal temperature.	Once every 6 months
Charging connectors and charging cables	• Check the charging connector for any foreign matter. Ensure the contacts inside the connector are clean without dirt. Clean off the foreign matter, if any, in time. • Check the charging connectors and charging cables for deficiencies, cracks, abrasion, damage, wire exposure, etc. • If a charging connector is frozen onto the charging connector holder, carefully remove the ice using a cordless heat gun and a plastic scraper. During the heating process, ensure that the temperature does not exceed 60°C, and move the heat gun back and forth continuously to prevent damage to the charging connector or cable due to overheating.	Once every 6 months

Inspection Details	Inspection Method	Recommended Inspection Interval
Electrical Connection	• Check if the electrical line is burnt or has aged, and if the fixing screws are loose. • Check whether the grounding cable is properly connected to allow for reliable grounding. • Check the cables for deficiencies, cracks, abrasion, damage, wire exposure, etc. • Other inspection items can be arranged based on the actual situation on the site.	Once every 6 months
Screen	• Check the screen for any damage or cracks. • Check whether the screen brightness and display clarity are normal. • Tap the screen to operate and check if the touch function is working properly. • Check the waterproof performance around the screen and the plastic panel.	Once every 6 months
Fan	• Check for and clean foreign objects inside the fan and the fan opening. • Check whether the fan is functioning properly.	Once every 6 months

8.4 Troubleshooting

In case of a fault with the device, please contact your local service provider or manufacturer immediately. Do not open the device without permission.

Table 8-2 Charging stop code

Fault	Text displayed	Fault cause	Solutions
EV emerge	EV_E_Stop	An error has occurred, and the charging	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again.

Fault	Text displayed	Fault cause	Solutions
ncy stop		session is terminated by the vehicle forcefully	2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
PWM failure	PWM_Failure	The PWM is invalid on the CP-PE interface	Please contact SUNGROW customer service.
EV reports a fault and stops	EV_Reported_Error	An error has occurred in the vehicle side, and the charging session has terminated	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
SLAC match failure	SLAC_Match_Failure	The charging session handshake - SLAC process failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
SDP handshake failure	SDP_Handshake_Failure	The charging session handshake - SDP process failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
UDP server fault	UDPv6_Server_Fault	The charging session handshake - UDP server during SDP process is invalid	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.

Fault	Text displayed	Fault cause	Solutions
TCP server fault	TCPIPv6_Server_Fault	The charging session handshake - TCP server during charging process is invalid	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
Protocol handshake failure	Protocol_Handshake_Failure	The charging session handshake - protocol handshake (DIN/ISO15118) failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
Service parameter incompatibility	Service_Incompatibility	The charging session - service parameter exchange failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, contact SUNGROW customer service.
Communication parameter incompatibility	Charge_Parameter_Incompatibility	The charging session - service parameter exchange failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
Cable check fault	Cable_Check_Fault	The charging session - cableCheck process failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.

Fault	Text displayed	Fault cause	Solutions
Precharge fault	Precharge_ Fault	The charging session - precharge process failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
Current demand fault	Current_ Demand _Fault	The charging session - current demand process failed	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
CP voltage abnormal	CP_Voltage_ Abnormal	The CP-PE terminal voltage is abnormal	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
DC output overvoltage protection	DC_Output_ Overvoltage_ Protection	The DC output voltage exceeds 1020V, and the charger over-voltage protection is triggered	1. Check the output voltage on the vehicle or the charger during the charging session. If the voltage is greater than 1020V, the charging will not be successful. In this case, please contact SUNGROW customer service and do not proceed with the next steps. 2. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 3. If the problem is not resolved, restart the charger and repeat Step 1. 4. If the problem persists, please contact SUNGROW customer service.
DC output undervoltage	DC_Output_	The DC output voltage is lower than 195V, and the charger	1. Check the output voltage on the vehicle or the charger during the charging session. If the voltage is lower than 195V, the charging will not be

Fault	Text displayed	Fault cause	Solutions
protection	Undervoltage_Protection	under-voltage protection is triggered	successful. In this case, please contact SUNGROW customer service and do not proceed with the next steps. 2. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 3. If the problem is not resolved, restart the charger and repeat Step 1. 4. If the problem persists, please contact SUNGROW customer service.
DC output overcurrent protection	DC_Output_Overcurrent_Protection	The DC output current exceeds 82A, and the charger over-current protection is triggered	1. Check the output current on the vehicle or the charger during the charging session. If the current is larger than 82A, the charging will not be successful. In this case, please contact SUNGROW customer service and do not proceed with the next steps. 2. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 3. If the problem is not resolved, restart the charger and repeat Step 1. 4. If the problem persists, please contact SUNGROW customer service.
Frame communication timeout	Frame_Communication_Timeout	The communication between the charger and the vehicle is not stable, or the charger/vehicle failed to send message	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1. 3. If the problem persists, please contact SUNGROW customer service.
Communication sequence fault	Communication_Sequence_Fault	The communication frame sent by the vehicle does not follow the sequence	1. Pull out the charging connector, plug it back into the vehicle, and try to start the charging session again. 2. If the problem is not resolved, restart the charger and repeat Step 1.

Fault	Text displayed	Fault cause	Solutions
		defined in the DIN SPEC 70121/ISO 15118 norm	3. If the problem persists, please contact SUNGROW customer service.

9 Appendix

9.1 Technical parameters

Product Model	IDC80E
Charging connector	
Connector type	CCS2 + CCS2
Number of EV served	2
Cable Length	5 m (standard) with Cable Management System (CMS) 7 m (optional)
Cable management system	Yes
EVSE-vehicle protocol	DIN SPEC 70121, ISO 15118
DC output	
DC output power	80 kW Max. *1 or 40 kW * 2 60 kW Max. *1 or 30 kW * 2 49.9 kW Max. *1 or 24.95 kW * 2
DC output voltage	150 Vdc - 1000 Vdc
DC output current	80 kW□CCS2 250 A 60 kW□CCS2 200 A 49.9 kW : CCS2 150 A
AC input	
Grid voltage	3P / N / PE□323-440 Vdc
Nominal grid frequency	50 Hz / 60 Hz
Earthing system	TN-C / TN-S / TN-C-S / TT
Rated input current	80 kW: 125 A 60 kW: 94 A 49.9 kW: 78 A
Power factor	≥ 0.99
Total harmonic distortion (THDi)	< 5 % at full output power

Product Model	IDC80E
Overvoltage category	III
Standby self-consumption	≤ 50 W
Efficiency	
Max. efficiency	97%
Protection	
Overload protection	Yes
Over / under voltage protection	Yes
Over-current protection	Yes
Short-circuit protection	Yes
Leakage current protection	Yes
Over-temperature protection	Yes
Surge protection	Yes
Emergency stop	Yes
User interface	
Display	10.1-inch color touch screen
Language	English □Support customizing other languages□
Authentication	Standard: RFID / QR code / Auto charge Optional: Credit Card / Plug & Charge
Firmware update	OTA by iEnergyCharge
RFID system	ISO / IEC 14443 A / B & ISO / IEC 15693
Energy metering	Support CE / MID / PTB meter
Communication interface	Ethernet / 4G / WIFI
Communication protocol (charger-to-CSMS)	OCPP 1.6 J & OCPP 2.0.1 (coming soon)
Mechanical data	
Dimensions (W * H * D)	660 mm * 1050 mm * 390 mm

Product Model	IDC80E
Weight	≤ 160 kg (without wall-mount, pedestal
Installation method	Pedestal / Wall-mount / Trolley
AC cable specification	Max. 95 mm²
Environmental data	
Enclosure rating	IP65
Anti-corrosion degree	C5
Mechanical impact protection	IK10 (HMI is IK08)
Operating ambient temperature range	-30 °C to 60 °C (Derating over 50 ℃)
Allowable relative humidity range	5 % - 95 % (non-condensing)
Max. operating altitude	≤ 2000 m
Cooling method	Smart forced air cooling
Noise (typical	≤ 60 dB (A) at 1 m distance / 25 °C , at full output power
Certification and standards	
Certifications	CE, CB, RCM, Eichrecht, ADQCC, MoIAT, PEA, SASO, UKCA
Compliance	ETSI / EN 300 328, EN 300 330, EN 301 489-1 / 3 / 17 / 52, ETSI / EN 301 908-1 / 13, EN 50665,ETSI / EN 61000-6-2/-4, BS / EN IEC 61851-1, BS / EN IEC 61851-21-2, BS / IEC EN 61851-23 / 24, EN IEC 62311
Warranty	3 years (standard)

* Payment terminal is an optional feature. Please consult Sungrow for more information

9.2 Quality Assurance

When product faults occur during the warranty period, SUNGROW will provide free service or replace the product with a new one.

The software security update period for this product aligns with the warranty period. During the warranty, security patches or updates will be provided if any vulnerabilities or compatibility issues are identified.

Evidence

During the warranty period, the customer shall provide the product purchase invoice and date. In addition, the trademark on the product shall be undamaged and legible. Otherwise, SUNGROW has the right to refuse to honor the quality guarantee.

Conditions

- After replacement, unqualified products shall be processed by SUNGROW.
- The customer shall give SUNGROW a reasonable period to repair the faulty device.

Exclusion of Liability

In the following circumstances, SUNGROW has the right to refuse to honor the quality guarantee:

- The free warranty period for the whole machine/components has expired.
- The device is damaged during transport.
- The device is incorrectly installed, refitted, or used.
- The device operates in harsh conditions beyond those described in this manual.
- The fault or damage is caused by installation, repairs, modification, or disassembly performed by a service provider or personnel not from SUNGROW.
- The fault or damage is caused by the use of non-standard or non-SUNGROW components or software.
- The installation and use range are beyond stipulations of relevant international standards.
- The damage is caused by unexpected natural factors.

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

Product data such as product dimensions are subject to change without prior notice. The latest documentation from SUNGROW should take precedence in case of any deviation.

9.3 Contact Information

In case of questions about this product, please contact us. We need the following information to provide you the best assistance:

- Model of the device
- Serial number of the device
- Fault code/name

- Brief description of the problem

For detailed contact information, please visit: **https://www.sungrowpower.com/en/about-us/contact-us**

SUNGROW

Sungrow Power Supply Co., Ltd.

www.sungrowpower.com