SUNGROW
Clean power for all

User Manual

Air-cooled Dispenser

SC400E-N2

SC400E-N2-UEN-Ver13-202502

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About This Manual

Declaration

To ensure the safe use of the product, please read through the below information 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 operation carried out by non-qualified personnel or not in compliance with the safety instructions specified in this manual.
3. The content of this manual, including the pictures, marks, and symbols used herein, is all owned by SUNGROW. No part of this manual may be reproduced by any non-internal staff without the prior written authorization of SUNGROW.
4. The manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can find the latest version of the user manual on the company website, or reach your sales for it.
5. To ensure the safety of the installation personnel, the product, and the system, follow strictly the safety instructions specified in this manual 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. If maintenance on or alteration to this product is needed, please contact SUNGROW customer service in advance. The copyright of this user manual belongs to SUNGROW, and any 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
SC400E-N2	Dispenser, "the device/product"

Target Group

This manual is intended for qualified technical persons who are responsible for the installation, operation, and maintenance of the product, as well as people who use the product for charging. Installation must only be performed by qualified technical persons, and qualified technical persons must be:

- 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 equipment;
- Be able to respond quickly and effectively to dangers or emergencies that may occur during the process of 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 properly in an easy-to-reach place. The manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence. You can also download 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 are highlighted using relevant symbols. Symbols that may appear in this manual are listed below, but not all. Please read carefully for better use of this manual.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a moderately hazardous situation which, if not avoided, will result in death or serious injury.

⚠ CAUTION

Indicates a slightly hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.

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

- Safety instructions in this manual should only serve as a supplement and not all-encompassing regarding all the norms that need to be followed. 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 Safety Signs on Product

To ensure users' personal and property safety, warning signs are provided on the product, which should be observed at all times.

table 1-1 Safety Signs on the Product

Symbols	Description
	Burn hazard due to the hot surface that may exceed 60℃.
	Disconnect the device from all the external power sources before maintenance.
	Danger to life due to high voltages! Only qualified personnel can open and maintain the device.

1.2 Packaging, Transport, and Storage

Packaging

- The product is packed in a cardboard box with orientation markings that provide loading and unloading instructions.
- Use brushed film to wrap the product tightly, put foam guards around it for protection, and then put it in the cardboard box.

Transport

- All work related to transport must be carried out in compliance with the applicable local laws and regulations of the country/region.
- Do not turn the product upside down during transport.
- Measures should be taken to fasten the goods during transport, so as to avoid damages 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 transport, contact your transport service provider and SUNGROW for negotiation.

Storage

- The packaged product should be stored indoors in places with a relative humidity of 5% to 95% and ambient temperature of -40℃ to 70℃.
- 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.

Unpacking and Inspection

NOTICE

Non-qualified personnel are forbidden from disassembling the product or moving its components.

- Non-qualified personnel are forbidden from disassembling the product or moving its components.
- Check if the product you have received matches the order you placed.
- Check if the items packed in the box matches the packing list.
- Inspect the product for external damages or damages to its 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 proceed with installation and contact SUNGROW in time.

1.3 Installation Safety

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

Installation Notice

- All work related to installation must be conducted in compliance with the applicable local laws and regulations of the country/region.
- Proceed with the subsequent work only if the qualified personnel designated by SUNGROW confirm that the environment where the product is to be installed meets the requirements after an assessment.
- Perform installation only if the product 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 products and tools to be used and ensure they have all undergone regular maintenance.
- Where hole drilling is required during installation, avoid the internal water pipes and electrical wires when drilling.
- 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 heavy rain, heavy fog, or strong wind.

Handling Notice

- Installation personnel should wear protective equipment such as anti-impact shoes and safety gloves when handling the product 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 product during handling, unless it has been fastened securely.
- The sealed wood crate or tray, upon its arrival on the site, must be loaded/unloaded and handled with a crane or forklift that has sufficient load capacity and is operated by qualified personnel.

Notice for Handling with a Crane

- Use only specialized cranes that are operated by qualified personnel.
- The load capacity of the crane should meet the requirements of the product's specification.
- The slings must all have a tensile strength and length that meet the requirements.
- The lifting rings on the top of the product are firmly attached.
- No one is allowed to stay under the product when it is lifted up.
- When rotating the crane for unloading, keep it rotating at a low speed. Keep the product steady and as close to the ground as possible.
- Do not shake the slings during handling.
- Do not keep the product lifted up for a long period of time.
- Do not drag the product along any surface.

Notice for Handling with a Forklift

- Use only specialized forklifts that are operated by qualified personnel.
- The carrying capacity of the forklift should meet the requirements of the product's specification.
- Make sure there are no obstacles, slopes, or other unevenness along the moving path of the product.

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.

Wiring Notice

⚠ DANGER

- **Electrical connection must be performed by qualified personnel who wear personal protective equipment.**
- **Be sure to use specialized insulated tools when performing electrical connection.**

- 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 product.
- The specification of cables used should meet the relevant requirements. The cables should be properly insulated and firmly connected.
- Observe the warning signs on the product, and perform operations by strictly following the corresponding safety instructions.
- Before electrical connection, make sure the product is not damaged. Otherwise, it may cause danger.
- Before electrical connection, make sure the product's switches and all switches connected to it are turned "OFF"; 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.

1.5 Operation Safety

There is high voltage inside the product when it is running, and improper operation may cause personal injuries or property damages. Please perform operations by strictly following the safety instructions specified in this manual and other relevant documents when charging EVs.

Operation Notice

⚠ DANGER

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

- Operations must all 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 dispenser.

- Do not bend, squeeze, or crush the charging connector, which may result in mechanical damage.
- Only EVs can be connected to the charging dispenser. 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.
- Start charging only when the car sits perfectly still. Do not start the car in the middle of a charging process.
- If the product is not covered by a rainproof shield, please charge with caution in the event of a thunderstorm.
- Do not use the dispenser when its charging connector or cable is defective, frayed, cracked, or in case of exposed wires. Contact SUNGROW if you have found any of the above issues.
- Do not plug or unplug any connector of the dispenser during the charging process.
- During the charging process, do not let children go near or use the dispenser, so as to prevent them from getting hurt.
- During the charging process, do not touch any hot part of the product (e.g., air outlet for heat dissipation); otherwise, it may cause burns.
- After charging, insert the charging connector back into the holder on the dispenser, so as to avoid the ingress of water or sand into the connector. 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 anything abnormal during use, press the emergency stop button immediately and cut off the power supply.

1.6 Maintenance Safety

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

Maintenance Notice

⚠ DANGER

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

- All work related to maintenance must be done in compliance with the applicable local laws and regulations of the country/region.
- Perform maintenance only when you have a good understanding of this manual and appropriate tools and testing instruments.
- It is required to inspect the charging connector for damages on a regular basis and check if its enclosure is in a good state and supporting facilities are all in readiness.
- Keep the charging connector clean and dry. Wipe it off using a clean dry cloth in case of any dirt.
- Wait at least 10 minutes after the product stops running. Proceed with maintenance after confirming the voltage has lowered to a safe level.
- Even if the product has stopped running, it may still be hot and cause burns. Perform operations on the product 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, whenever possible. 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 protection rules.
- Stop maintenance in the event of extreme weather.
- Only after faults that may affect its safety performance are all removed, the product can be powered on again.
- For the product that has a long downtime, a thorough and detailed inspection must be carried out before powering it on again. Only after it is inspected and tested by qualified personnel, it can 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 needed, please contact SUNGROW for maintenance and repair services. Otherwise, damages caused therefrom will not be covered by the warranty.

1.7 Disposal Safety

Please dispose of the decommissioned product strictly in accordance with applicable local regulations and standards to avoid property damages or personal injuries.

Disposal Notice

- 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 disposal.

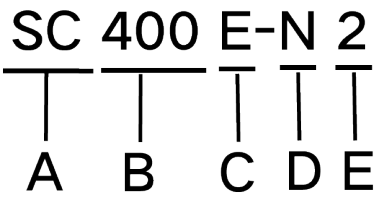
2 Product Description

2.1 Product Overview

The SC400E-N2 dispenser is mainly used in public charging pools for quick EV charging. Equipped with a screen, the dispenser not only charges EVs but also allows users to view charging data.

Product Model

This dispenser is part of the split-type charging system. Its product model is SC400E-N2, as demonstrated in the figure below.



No.	Definition
A	Product type: user charging dispenser
B	Max. output current: 400A
C	Compliance: European standard
D	Structural feature: air-cooled
E	Number of charging connectors supported: 2

2.2 Application Scenarios

The air-cooled dispenser SC400E-N2 is equipped with two charing connectors and has an maximum output current of 400A. One IDC480E power cabinet can be used with up to 4 two-connector dispensers.

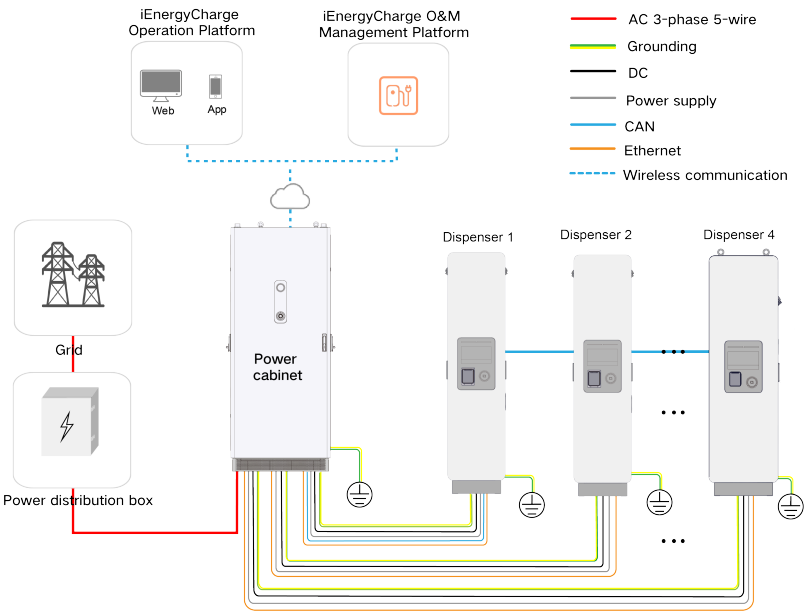
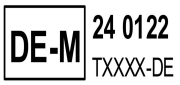


figure 2-1 System Diagram

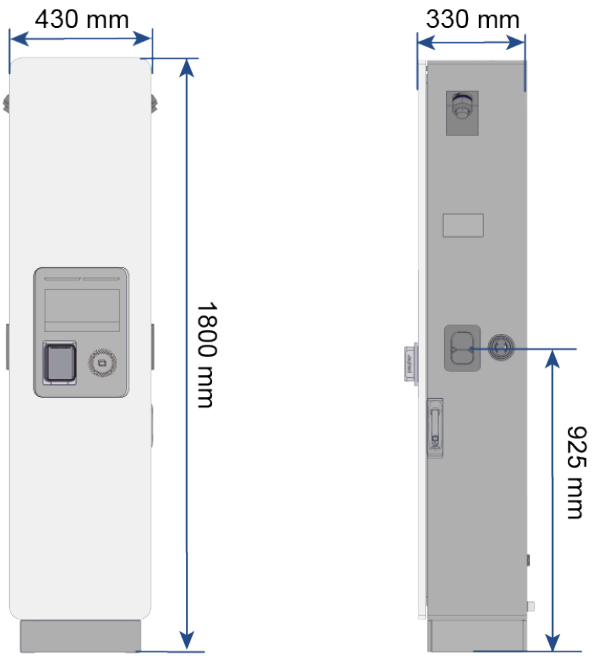
2.3 Marks on the Product

Marks	Description
	Additional grounding point.
	Disconnect the device from all external power sources before maintenance.
	Danger to life due to high voltages! Only qualified personnel can open and maintain the device.
	Do not touch live parts until 10 minutes after disconnection from the sources !
	CE mark of conformity. EU/EEA Importer.
	Do not dispose of the device together with household waste.
	Read the user manual before maintenance!

Marks	Description
	Burn hazard due to the hot surface that may exceed 60℃.
	TÜV mark of conformity.
	PTB mark of conformity.

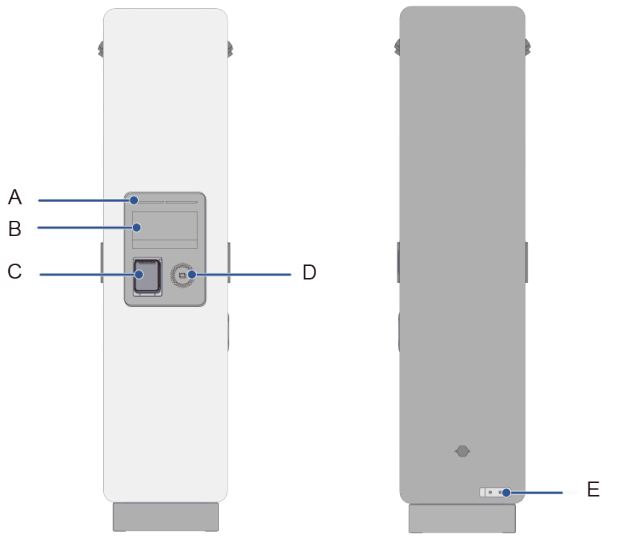
2.4 External Design

Dimensions



*Please note that due to variations in production batches, the actual product may differ slightly in appearance and size. Please refer to the product itself for the most accurate details.

External Design

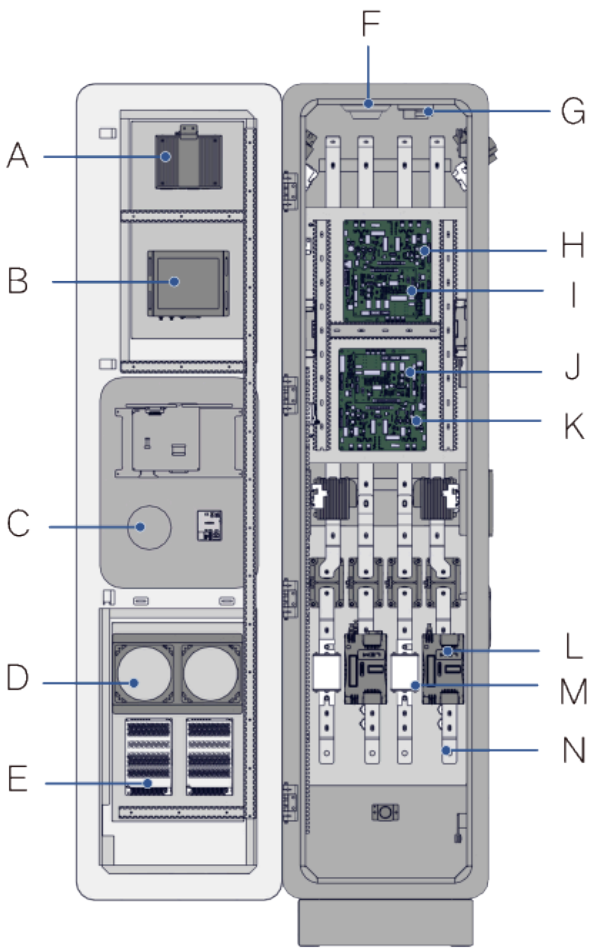


(A) Indicator (B) Display (C) Swipe machine

(D) Energy-Star Ring (card reader) (E) External protective grounding

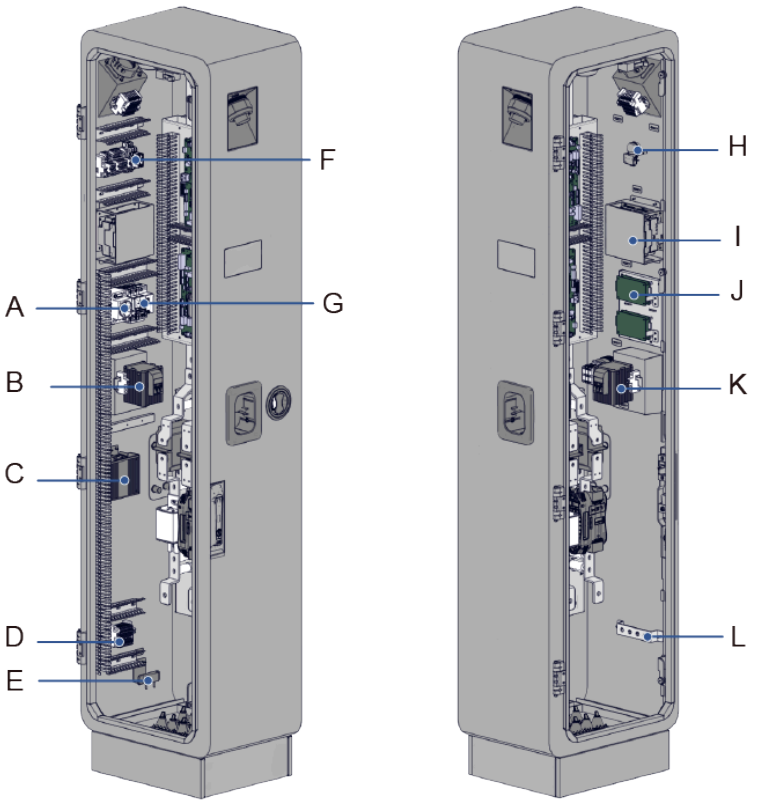
2.5 Internal Structure

Internal Structure (Front)



(A) Managed switch	(B) TCU (Toll Control Unit)	(C) Indicator board
(D) Fan	(E) SMPS (Switched-mode power supply)	(F) Smoke alarm
(G) Access control	(H) CCU1 (charging connector A Charging Control Unit)	(I) CAN communication board
(J) Peripheral control board	(K) CCU2 (charging connector B Charging Control Unit)	(L) Shunt
(M) Fuse	(N) DC input copper bar	

Internal Structure (Left and Right Doors)



(A) Service socket	(B) Heater	(C) Unmanaged switch
(D) Customer wiring terminal	(E) Water leak sensor	(F) Relay
(G) AC MCB (Miniature Circuit Breaker)	(H) Tip over switch	(I) DC energy meter
(J) Insulation tester	(K) Heater	(L) Dispenser grounding copper bar

2.6 Indicators

The dispenser is equipped with two types of indicators, the bar indicators and the Energy Star-Ring. The bar indicators indicate the status of the left and right charging connectors respectively, and the Energy Star-Ring indicates the overall status of the dispenser.

table 2-1 Indicator Description

Indicator	Indicator Status	Device Status	Remarks
Bar indicators (charging connector indicators)	Steady green	The connector is in standby state.	Normal. The left and right indicators are independent of each other.
	Breathing blue	The connector is being used for charging.	Normal. The left and right indicators are independent of each other.
	Steady blue	Charging is 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.
Energy Star-Ring (charging indicator)	Blinking blue	Waiting for the user to swipe a card.	Normal.
	Steady blue	The dispenser is normal.	Normal.
	Steady red	There is a fault in the dispenser.	Abnormal. If there is a fault with only one of the charging connectors, the indicator will still be steady blue.

2.7 Charging Cable Specifications

Cable Working Radius

The standard charging cables included in the cable management system are 5 meters or 7 meters in length. The actual working radius of the cables is 4 meters and 6 meters respectively, as shown in the figures below:

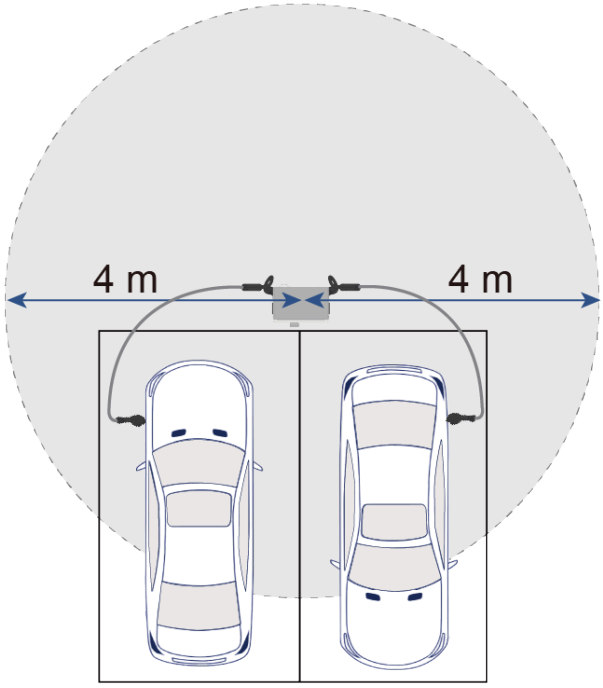


figure 2-2 Actual working radius of the 5-meter cable

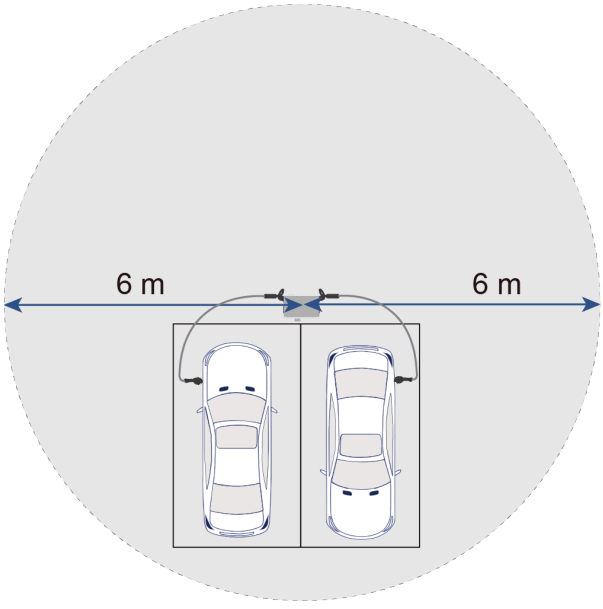
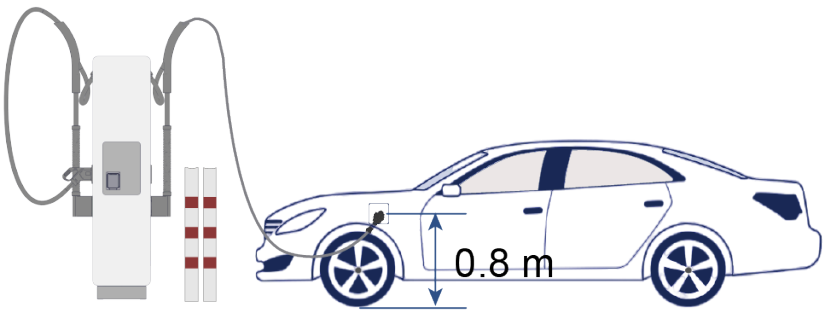


figure 2-3 Actual working radius of the 7-meter cable

Ensure that there are no sharp objects within the working radius of the cable to prevent damage to its insulation and ensure proper functioning.

The 4-meter and 6-meter working radii are based on the scenario where the EV's charging port is 0.8 meters above the ground.

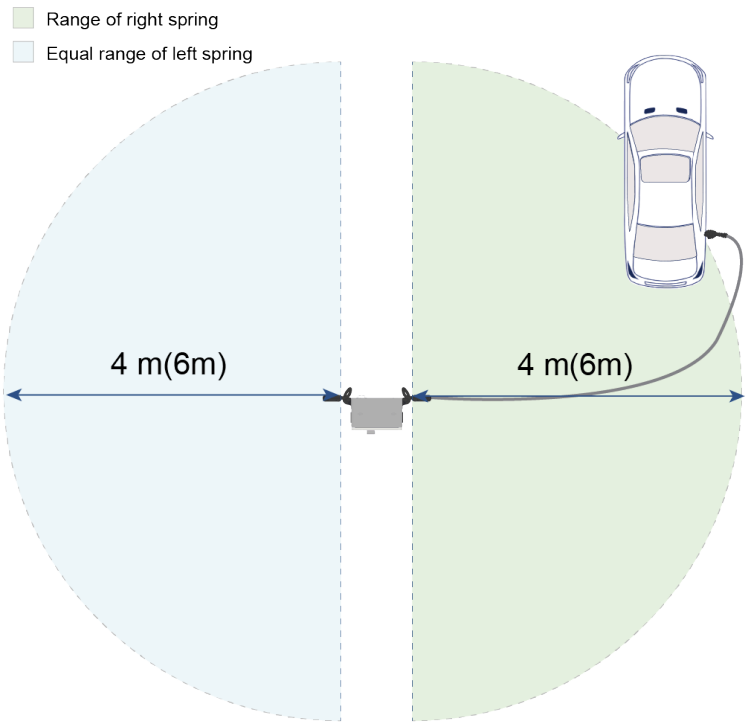


The cable management system can effectively prevent damage caused by the cable dragging on the ground.

The cable management system is designed for a standard 5-meter cable. If the cable exceeds 5 meters, part of the cable may drag on the ground.

Cable Reach

The maximum cable reach is shown below:


Range of right spring
Equal range of left spring
4 m(6m)
4 m(6m)

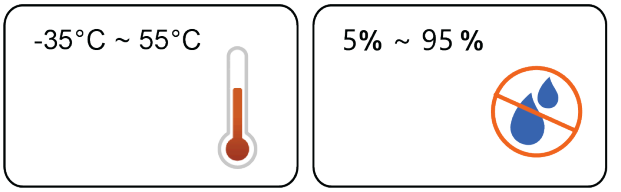
3 Installation

3.1 Installation Requirements

Installation Environment Requirements

The device 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 no install the device in a place with corrosives such as corrosive gas and organic solvent, etc.
- 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 carrying explosion hazards, without hazardous gas or conductive mediums, which may corrode the metal or damage the insulation, around it.
- Please consult SUNGROW before installing the device outdoors in areas prone to salt damage, which mainly are coastal areas within 500 meters of the coast. The sedimentation amount of salt spray is correlated to the characteristics of the seawater, sea winds, precipitation, air humidity, topography, and forest coverage in the adjacent sea areas, and there are substantial differences between different coastal areas.
- Please install the device in a place with proper temperature and humidity. The allowable temperature and humidity range are shown in the figure below:



- Do not install the device in dusty and smoky environments.
- It is suggested to install the device in a place with shelter, so as to prevent it from getting impacted by direct sunlight or severe weather (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, as the temperature rises, the device may witness power reduction.
- Install the device in a well-ventilated place to ensure good heat dissipation.

- This device is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.
- The device must be installed at least 30 meters away from any third-party wireless communication facilities and residential areas.

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.

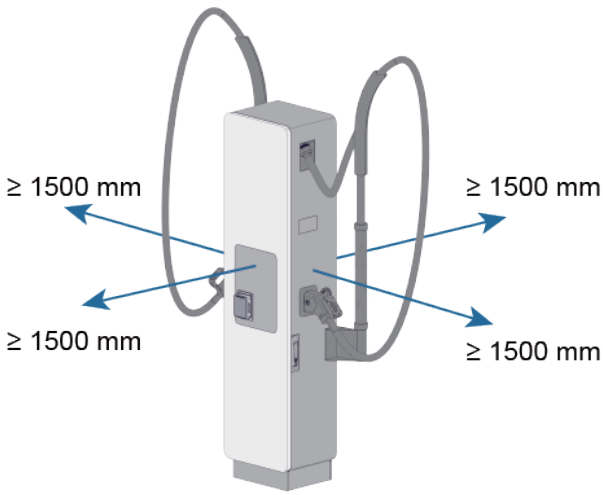
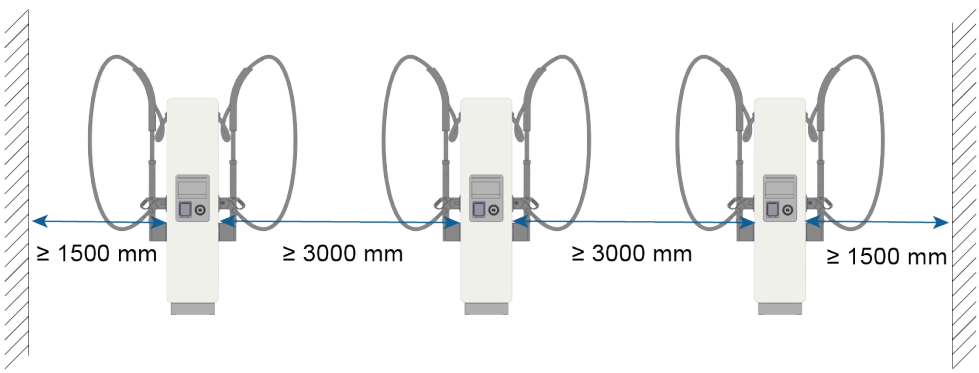


figure 3-1 Space Requirements for Installation

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

When installing multiple devices, the minimum distance between each device should meet the following requirements:



3.2 Installation Tools

Installation tools to be used include but are not limited to those listed below. If necessary, use other auxiliary tools at the site.

table 3-1

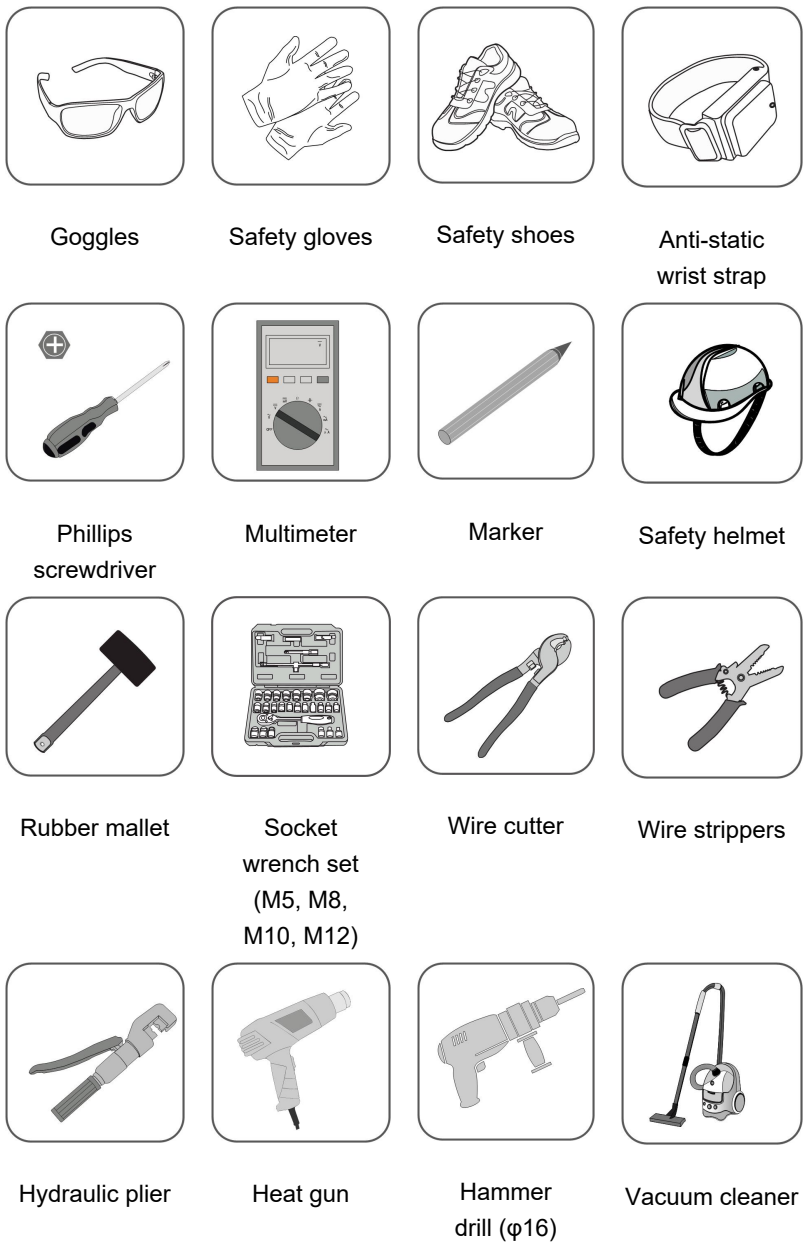
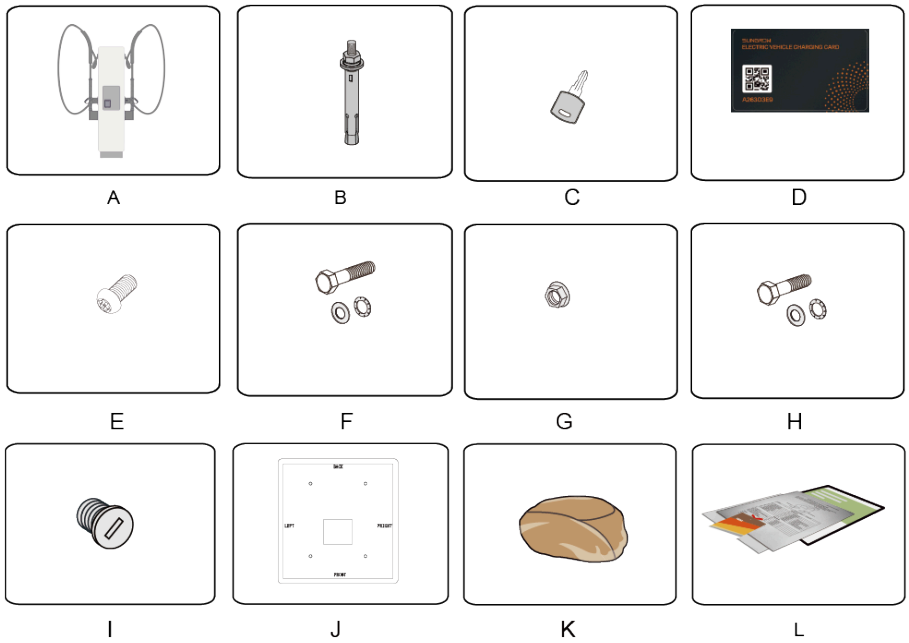


figure 3-2 Installation Tools

3.3 Packing List

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



No.	Name	Quantity	Description
A	SC400E-N2	1	Air-cooled dispenser
B	M12×100 expansion bolt	4	Used to secure the dispenser onto the foundation
C	Door key	2	Used to open the cabinet door
D	RFID card	2	Used to start a charging session
E	M5×12 screw	4	Used to secure the cover plate at the bottom of the device
F	M10×25 bolt assembly	6	Used to secure DC cables

No.	Name	Quantity	Description
G	M10 flange nut	4	Used with M10×25 bolts to secure DC cables
H	M8×16 bolt assembly	3	Used to secure the PE cable
I	Waterproof plug	3	Used to seal off the holes after the lifting rings are removed
J	Hole-drilling template	1	Used to determine the positions of holes for drilling on the foundation
K	Fireproof mud	1	Used to seal off the cable inlet/outlet holes at the bottom of the dispenser
L	Documents	-	Quick Installation Guide, certificate of conformity, warranty card, packing list, etc.

In case of any damages 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 Mounting

Improper handling may result in personal injury or device damage. For the safety of personnel and devices, it is recommended to use a forklift or crane for handling.

3.4.1 Foundation Requirements

Considering its heavy weight, please install the device on a solid brick or concrete foundation to ensure its stable operation. The requirements for foundation building are as follows:

- The soil on the installation site should have a certain degree of density. It is recommended that the relative density of soil on the installation site be ≥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.
- Cable laying should be taken into consideration when building the foundation.
- Pre-bury the cable conduit at the foundation 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 a heavy rainfall.

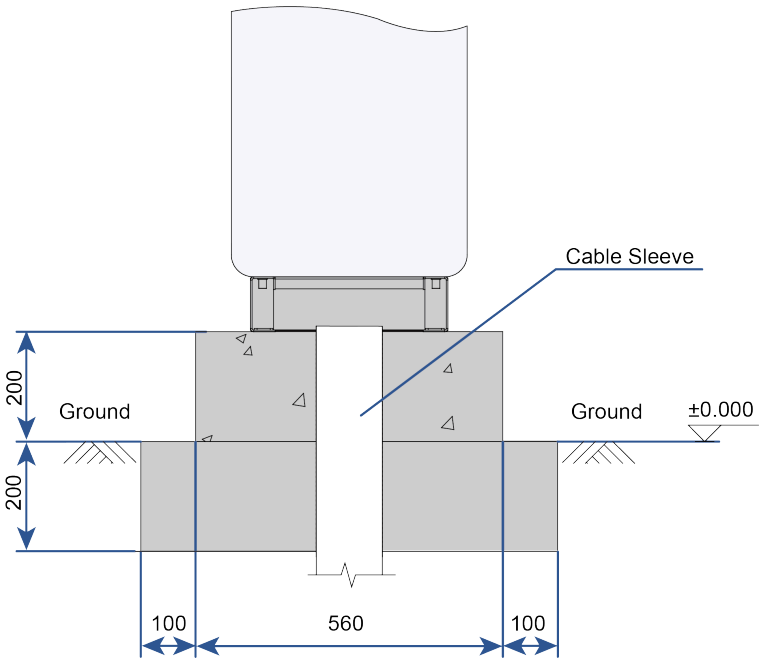


figure 3-3 Foundation Dimensions (mm)

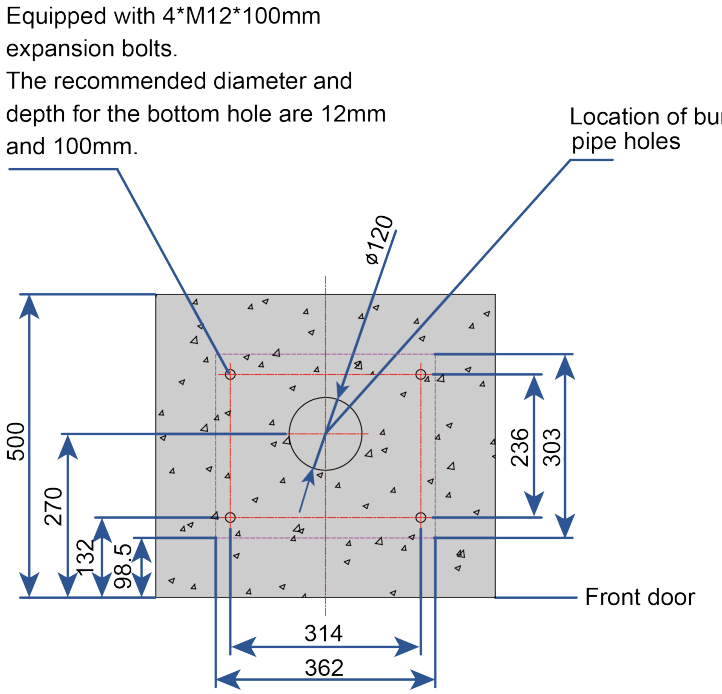


figure 3-4 Location of Expansion Bolt Holes

3.4.2 Secure Dispenser

step 1 Build a foundation according to the size requirements.

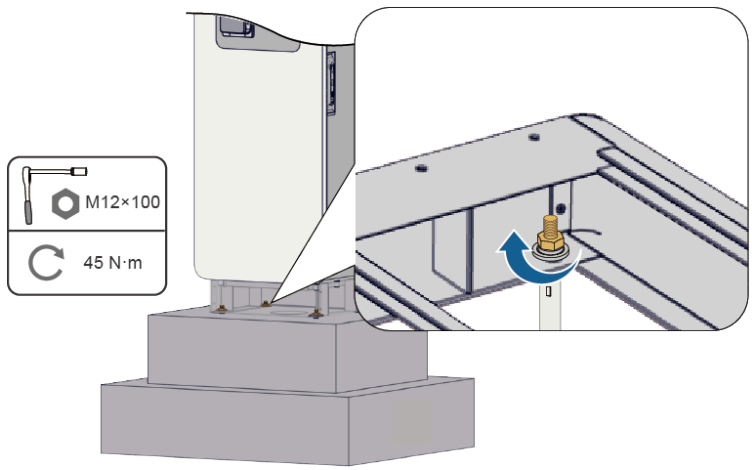
step 2 Mark the holes for drilling on the foundation by referring to the figure of “Location of Expansion Bolt Holes”.

step 3 Use a hammer drill to drill holes at the designated positions. The hole diameter is Ø16 and the depth is 100mm.

step 4 Put the sleeves and screws of the expansion bolt assemblies in the holes. Then, tap them using a rubber mallet until the expansion sleeves are fully seated in the holes.

step 5 Move the device to the foundation using a forklift by referring to 3.4.4 Handle with Forklift.

step 6 Attach the flat washer, spring washer, and nut to the expansion screw in the correct order. Then, tighten the screws using a socket wrench. An S10 (M12) socket wrench is recommended.



- - End

3.4.3 Handle with Crane

Requirements for Handling

Read through the information below if you are about to handle the device with a crane.

- Use only specialized cranes that are operated by qualified personnel.
- The load capacity of the crane should meet the requirements of the product's specification.
- The slings must all have a tensile strength and length that meet the requirements.
- The lifting rings on the top of the product are firmly attached.
- No one is allowed to stay under the product when it is lifted up.
- When rotating the crane for unloading, keep it rotating at a low speed. Keep the product steady and as close to the ground as possible.
- Do not shake the slings during handling.
- Do not keep the product lifted up for a long period of time.
- Do not drag the product along any surface.

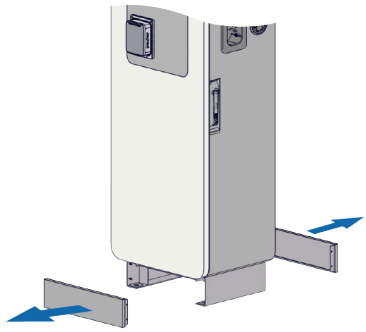
Tools

Item	Requirement	Source
Crane	Load carrying capacity ≥1000kg.	Prepared by the user

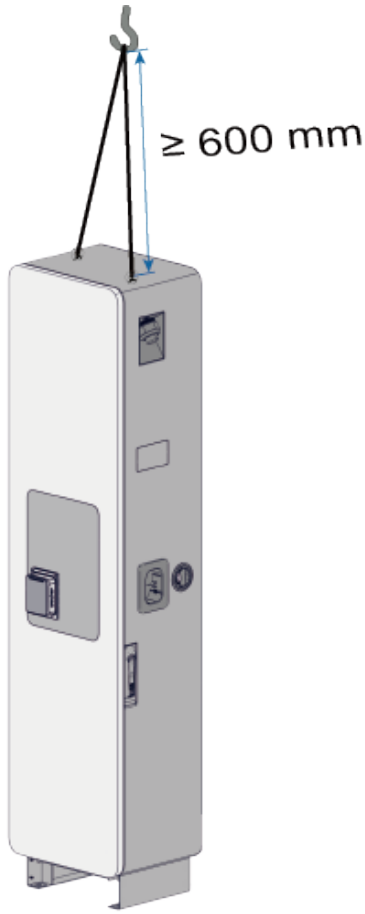
Item	Requirement	Source
Slings	1 sling, with a lifting capacity of ≥1000kg. The length between the lifting ring and crane hook should be ≥600mm.	Prepared by the user

Steps

step 1 Remove the front and rear cover plates at the bottom of the device.



step 2 Attach the steel wire rope sling to the lifting rings on the top of the device, as shown in the figure below.



step 3 Lift the device vertically at an even speed. Make sure it is always held steady and does not tilt.

step 4 Suspend hoisting when the device is lifted 100mm 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 points.

step 5 After the device is moved to a position over the top of foundation, lower it down steadily. Ensure the expansion bolt holes at the bottom of the device align with the expansion bolts on the foundation.

step 6 When the device is fully in contact with the foundation surface, remove the steel wire rope.

- - End

3.4.4 Handle with Forklift

Requirements for Handling

Read through the information below if you are about to handle the device with a forklift.

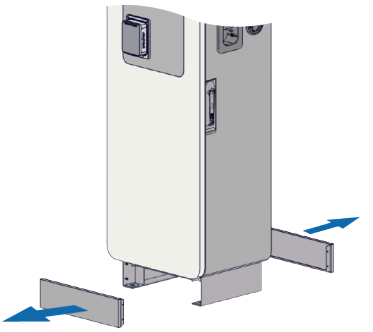
- Use only specialized forklifts that are operated by qualified personnel.
- The carrying capacity of the forklift should meet the requirements of the product's specification.
- Make sure there are no obstacles, slopes, or other unevenness along the moving path of the product.

NOTICE

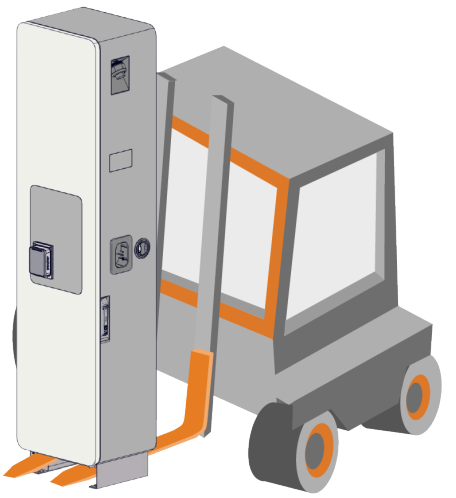
Pay attention to the device's center of gravity at all times.

A forklift with a load capacity of 1000kg is recommended.

step 1 Remove the front and rear cover plates at the bottom of the device.



step 2 Adjust the spacing between and height of the forklift's forks, and drive slowly forward until the forks are fully inserted under the bottom of the device.



step 3 Pick up the device slowly, and drive the forklift to the foundation at a constant speed.

step 4 Adjust the height of the forklift's forks. Ensure the expansion bolt holes at the bottom of the device align with the expansion bolts on the foundation.

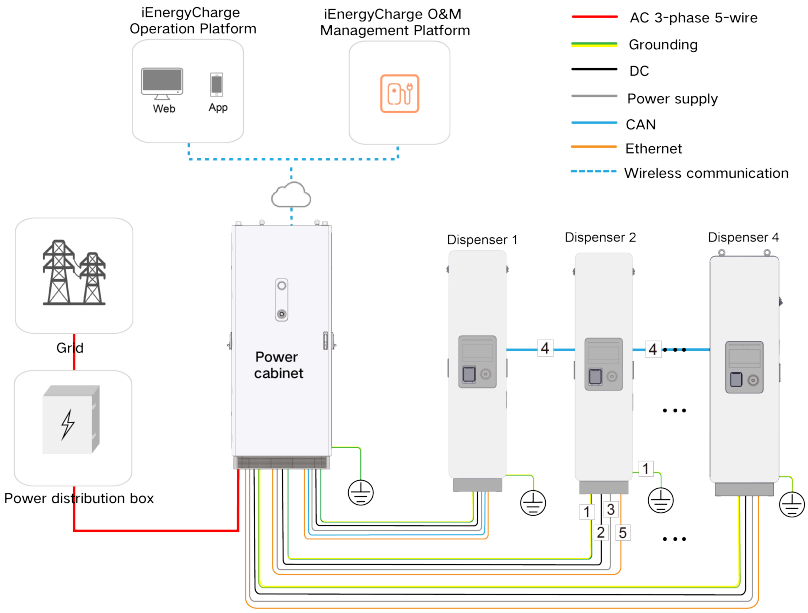
step 5 When the device is fully in contact with the foundation surface, move away the forks slowly.

- - End

3.5 Electrical Connection

3.5.1 Cable Requirements

Before proceeding with the electrical connection, prepare the cables, terminals, SIM card, and other items that are required. Cables required include the grounding cable, DC cable, power cable, and communication cable.



Cable specification

The cables should be prepared separately by users. Requirements for cable specifications are listed in the table below.

table 3-2 Cable Specifications

No.	Cable	Type	Conductor cross-sectional area (mm^2)	Crimp Terminal
1	External protective grounding cable Common ground (with power cabinet) cable	Outdoor single-core cable	Copper wire: 95mm^2 Aluminum wire: 150mm^2	Copper wire: SC95-8 Aluminum wire: SC150-8

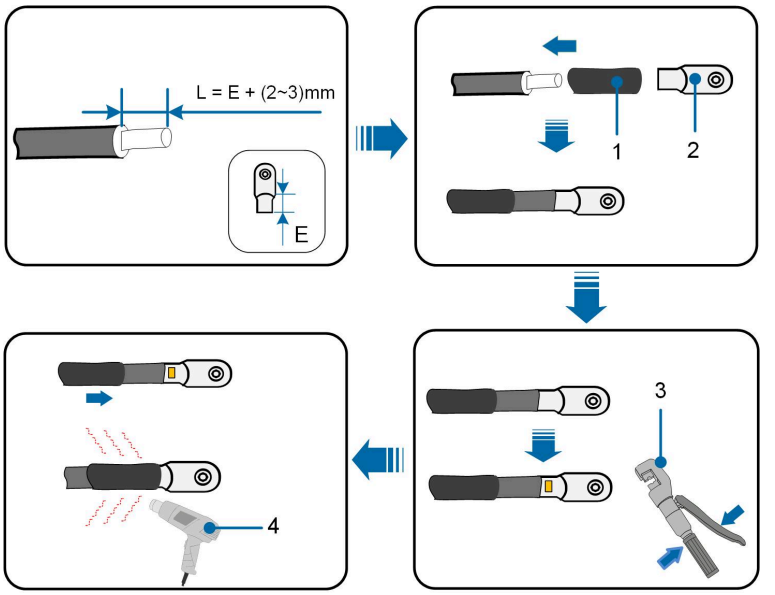
No.	Cable	Type	Conductor cross-sectional area (mm^2)	Crimp Terminal
2	DC cable between power cabinet and air-cooled dispenser	Withstand voltage: ≥1 kV	Copper wire: 150 mm^2 (400A dispenser)	Copper wire: SC150-10
			Aluminum wire: 300 mm^2 (400A dispenser)	Aluminum wire: SC300-10
3	Power cable between power cabinet and dispenser	Two-core power cable	2.5mm^2	E1510
4	Communication cable (CAN)	Shielded twisted pair	0.75mm^2	E1510
5	Network cable between power cabinet and dispenser	8-core Cat5e or Cat6 Ethernet cable	—	-

After leading the cable through the AC cable inlet, crimp the terminal onto the cable, so as to ensure reliable connection. Poor contact may lead to overheating or even safety incidents.

Copper wires are recommended. If aluminum wires are selected, use copper-aluminum bimetallic terminals, avoiding direct contact between the copper bar and the aluminum wire.

3.5.2 Crimp OT/DT/SC terminal

Crimp OT/DT/SC terminal



1. Heat shrink tubing
2. OT/DT/SC terminal
3. Hydraulic pliers
4. Heat gun

Aluminum Cable Requirements

If an Aluminum cable is selected, use a copper-aluminum bimetallic terminal, avoiding direct contact between the copper bar and the aluminum wire.

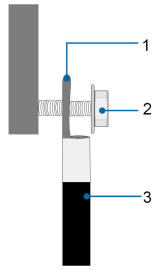


figure 3-5 Aluminum Cable Connection

1. Copper-aluminum bimetallic terminal
2. Flange nut
3. Aluminum cable

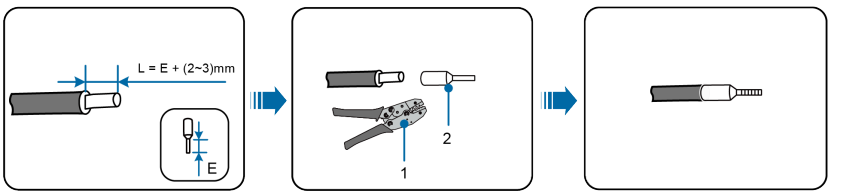
NOTICE

Ensure that the selected terminal can directly contact with the copper bar. If there are any problems, contact the terminal manufacturer.

Ensure that the copper bar is not in direct contact with the aluminum wire. Otherwise, electrochemical corrosion may occur, impairing the reliability of electrical connection.

3.5.3 Crimp Cord-end Terminal

Crimp Cord-end Terminal



(1) Crimp tool (2) Cord-end terminal

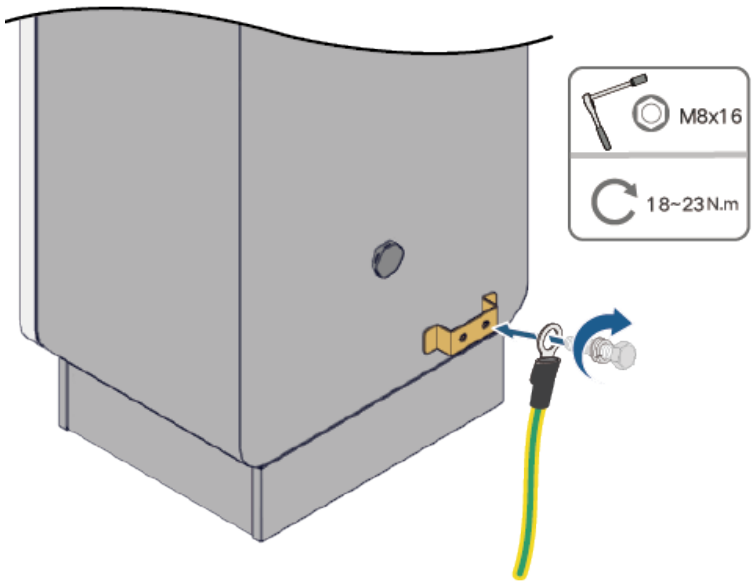
3.5.4 External Protective Grounding Cable Connection

Non-current carrying metal parts and device enclosures in the electric power system should all be grounded.

The copper bar provided on the back of the dispenser is used for grounding. Ensure the external protective grounding cable is connected to the copper bar at the device bottom on one side, and to ground on the other side. The grounding cable and terminal should be prepared separately by the user.

step 1 Crimp the terminal onto the cable by referring to 3.5.2 Crimp OT/DT/SC terminal.

step 2 Connect the grounding cable to the grounding copper bar on the back of the device.



step 3 Make sure the grounding cable is properly and firmly connected.

- - End

3.5.5 Common Ground Connection (with Power Cabinet)

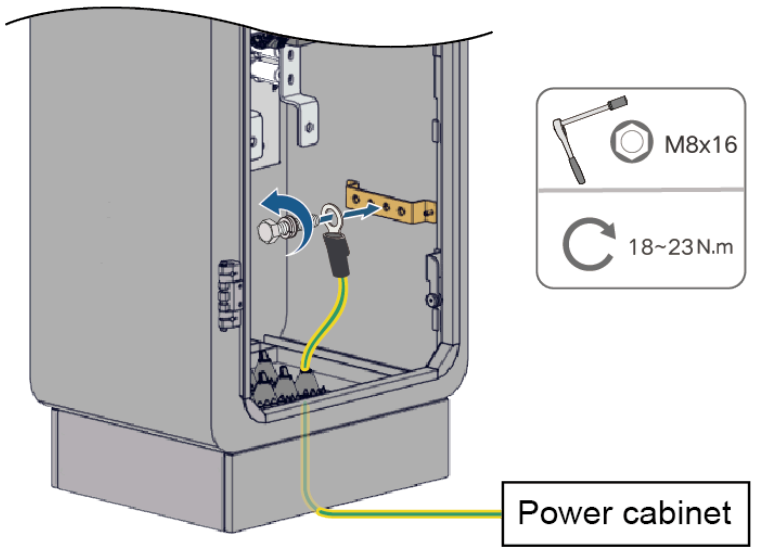
A grounding cable is required between the power cabinet and the dispenser for common ground.

step 1 Crimp the terminal onto the cable by referring to 3.5.2 Crimp OT/DT/SC terminal.

step 2 Lead the grounding cable out from the conduit and pass it through the cable inlet at the bottom of the dispenser.

step 3 Connect the grounding cable to the designated grounding bar using a wrench, as shown in the figure below.

step 4 Connect the other end of the grounding cable to the designated position on the power cabinet.



- - End

3.5.6 DC Cable Connection

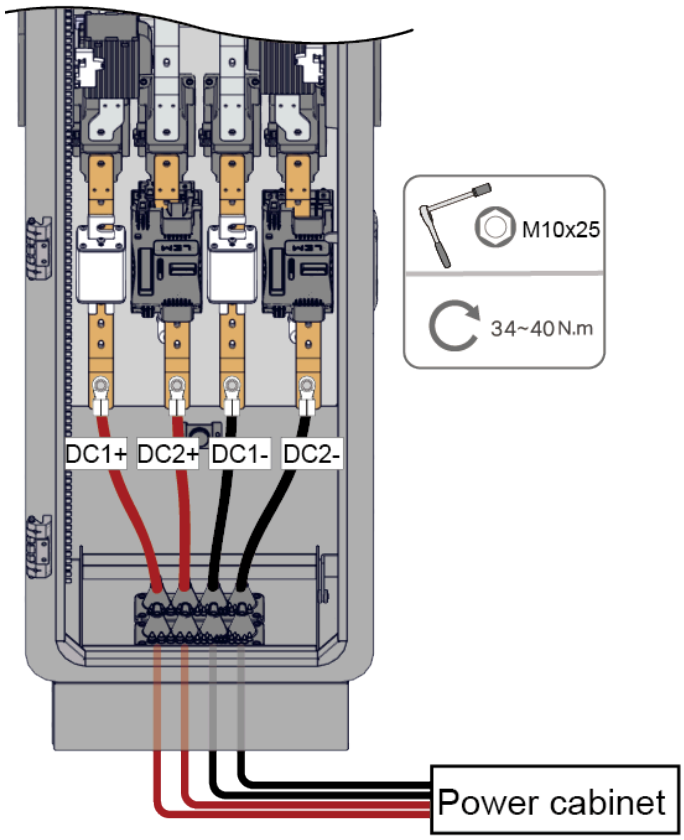
step 1 Lay the cable along the pre-buried cable conduit, with one end placed at the foundation of the power cabinet and the other end at the foundation of the dispenser.

step 2 Crimp the terminal onto the DC cable by referring to 3.5.2 Crimp OT/DT/SC terminal.

step 3 Lead the DC cable out from the conduit and pass it through the cable inlet at the bottom of the dispenser.

step 4 Use a wrench to connect the DC cable to the designated position.

step 5 Lead the other end of the DC cable through the cable inlet on the power cabinet and secure it to the designated DC terminal.



DC1 and DC2 represent two DC inputs. DC1 is for charging connector A, and DC2 for connector B.

⚠ CAUTION

Ensure the DC+ and DC– cables are all connected in the correct positions, otherwise, the device cannot operate properly.

Connect the DC cables of the dispenser to the power cabinet properly by following the rules below.

table 3-3 Rules for DC Wiring Between Air-cooled dispenser and Power Cabinet

Dispenser	Connection Points on Power Cabinet
dispenser 1	Charging connector A: M1+ / M1− Charging connector B: M2+ / M2−

Dispenser	Connection Points on Power Cabinet
dispenser 2	Charging connector A: M3+ / M3− Charging connector B: M4+ / M4−
dispenser 3	Charging connector A: M5+ / M5− Charging connector B: M6+ / M6−
dispenser 4	Charging connector A: M7+ / M7− Charging connector B: M8+ / M8−

- - End

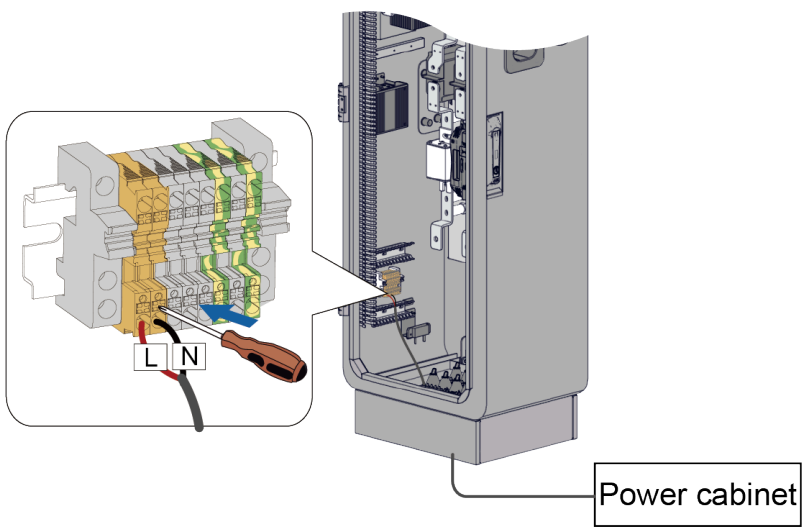
3.5.7 Power Cable Connection

The power cabinet is connected to the dispenser with power cables so that it can supply power to the dispenser.

step 1 Crimp the cord-end terminal onto the power cable by referring to 3.5.3 Crimp Cord-end Terminal.

step 2 Lead the power cable out from the conduit and pass it through the cable inlet at the bottom of the dispenser. Then, connect the cable to the designated power supply wiring terminal.

step 3 Connect the other end of the power cable to the designated power supply wiring terminal on the power cabinet.



- - End

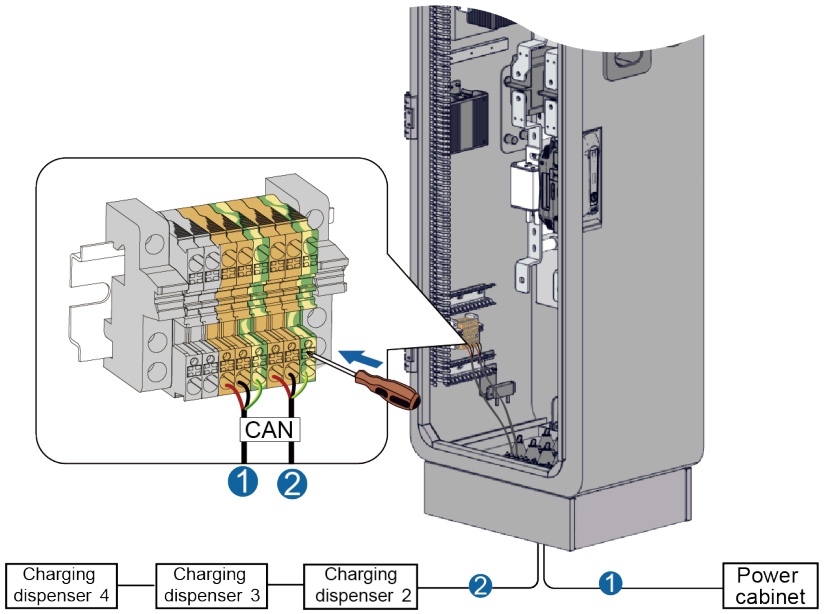
3.5.8 CAN Cable Connection

The power cabinet is connected to the dispenser with a CAN cable for communication.

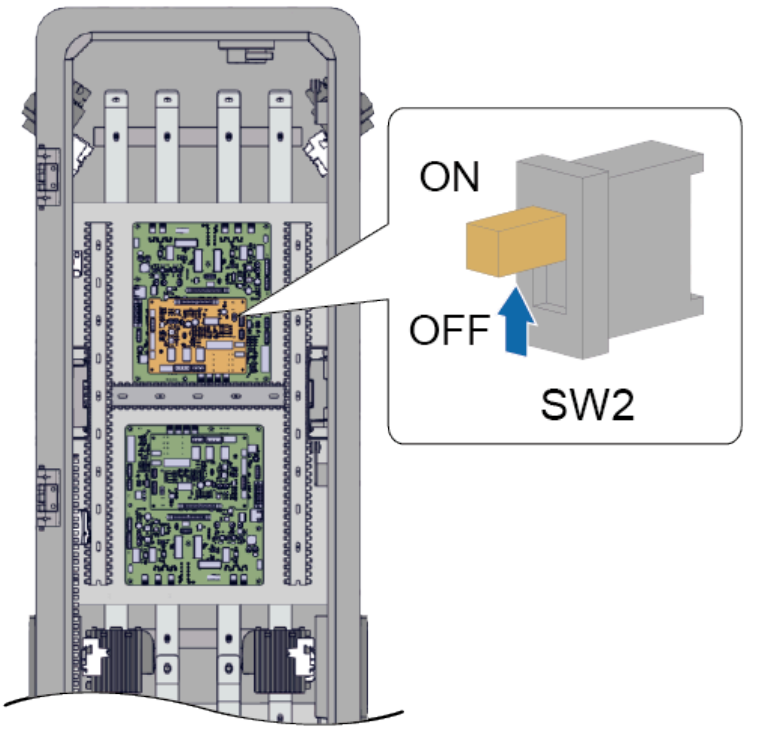
step 1 Crimp the cord-end terminals onto the wires of the communication cable, by referring to 3.5.3 Crimp Cord-end Terminal.

step 2 Lead the communication cable out from the conduit, and pass it through the cable inlet at the bottom of the dispenser. Then, connect its wires to the designated CAN wiring terminals.

step 3 Connect the other end of the CAN cable to the designated CAN wiring terminals on the power cabinet.



If the dispenser is at the end point of CAN communication, set the DIP switch on the CAN communication board to “ON”.



- - End

3.5.9 Ethernet Cable Connection

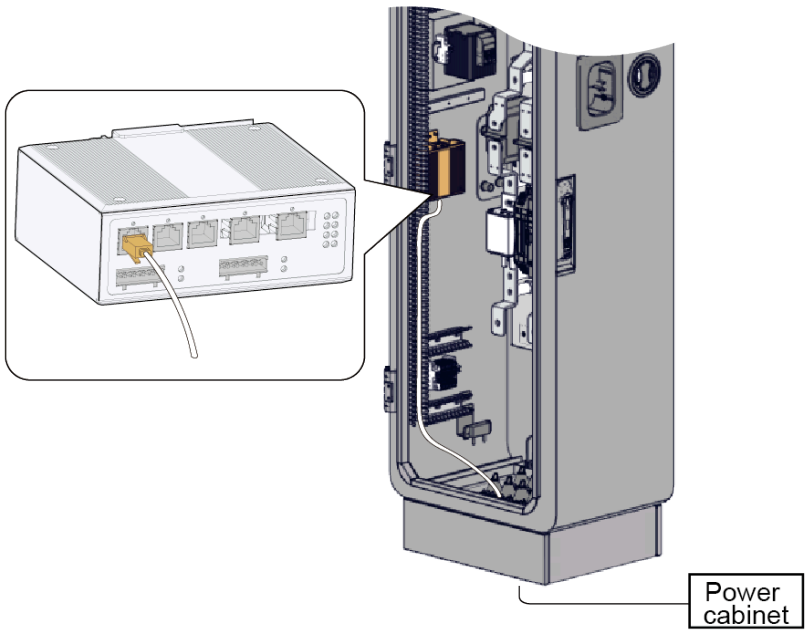
Once connected to the power cabinet via an Ethernet cable, the dispenser can access the network and upload communication data to the cloud, thereby facilitating operations and maintenance through the cloud platform.

8-core Cat5e or Cat6 Ethernet cable is recommended. The cable should be prepared by the user.

step 1 Open the cabinet door and locate the Ethernet port on the router.

step 2 Lead the Ethernet cable out from the conduit and pass it through the cable inlet at the bottom of the dispenser. Then, insert the cable into the designated Ethernet port. Upon hearing an audible “click”, pull the network cable gently backward and make sure the connection is secure.

step 3 Connect the other end of the network cable to the designated Ethernet port on the power cabinet.



- - End

4 Commissioning

4.1 Inspection Before Commissioning

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

⚠ CAUTION

Do not power the device unless the inspections are completed.

table 4-1 Inspection Items

Item	Methods/Tools	Requirements
Device inspection	Visual Inspection	• No visible scratch on or deformation on the enclosure. • No paint peeling on the exterior. • The parts and components of the device are secure and reliable, and the nameplate and marks are all legible. • The device is installed in an environment where heat can be well dissipated, without any clutter piled on its top or around it.
Charging connector inspection	Visual Inspection	• No wet spots or foreign matters on the charging connector. • The charging cable is intact.
Power supply cable inspection	Multimeter/screwdriver	• The grounding cable is securely and properly connected to allow for effective grounding. • The screws for the input cable are fastened. • Check if there is short-circuit in the AC/DC circuits using a multimeter. • Check if the supply voltage is within the input voltage range allowed for the device using a multimeter.
Electric vehicle (EV) inspection	Visual Inspection	• The EV is parked in the designated place. • The EV sits perfectly still.

4.2 Commissioning Steps

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

DANGER

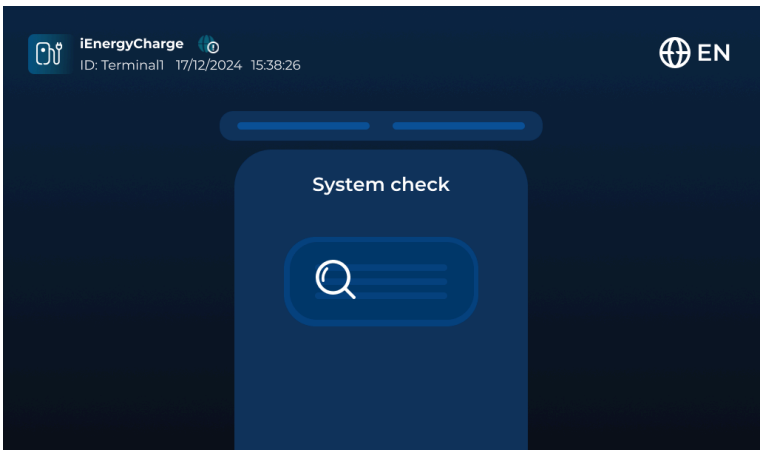
- **Do not touch any live part of the product when it is running; otherwise, it may lead to electrical shocks.**
- **Do not touch any wiring terminal on the product when it is running; otherwise, it may lead to electrical shocks.**
- **Do not remove any part or component from the product when it is running;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

step 1 Power on the power cabinet, following the commissioning instructions specified in the power cabinet user manual.

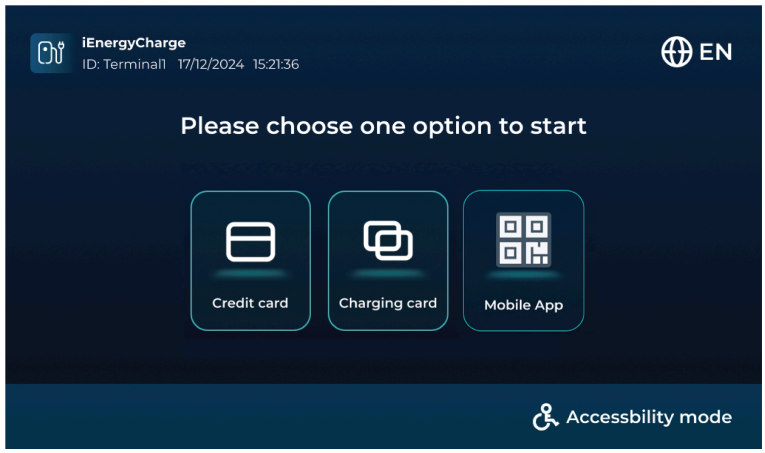
step 2 Switch on the AC MCB (miniature circuit breaker) of the dispenser.

step 3 Close the door of the dispenser and check its indicators. Steady green bar indicators (charging connector indicators) signify that the charging connectors are in standby mode. A steady blue Energy Star-Ring indicates that the dispenser is functioning normally.

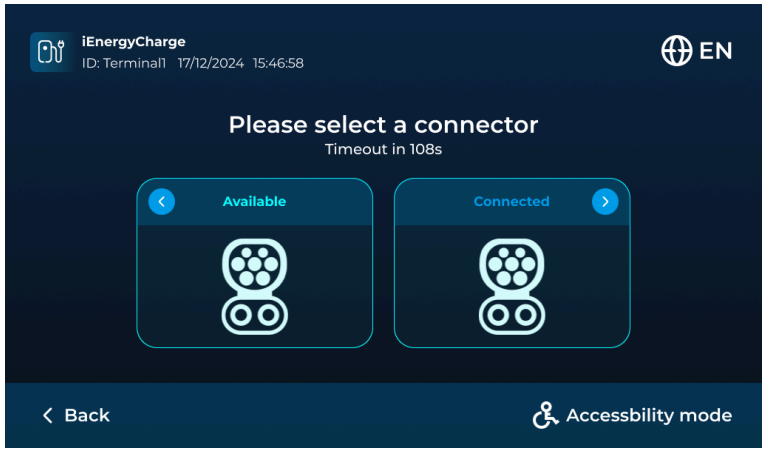
step 4 Check the screen. The system will run a self-check, which takes about 30 seconds.



step 5 After the system check is finished, the Authentication Method Selection Page will be shown. You can select a charging method as needed.



step 6 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, and you will then go to the Connector Selection Page.



step 7 Take down the charging connector you have selected, and plug it into the charging port on the EV. Make sure the connection is secure.

step 8 After the charging is completed, put the charging connector back into the dispenser. Prevent the charging connector from getting in contact with heat, dirt, or water.

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

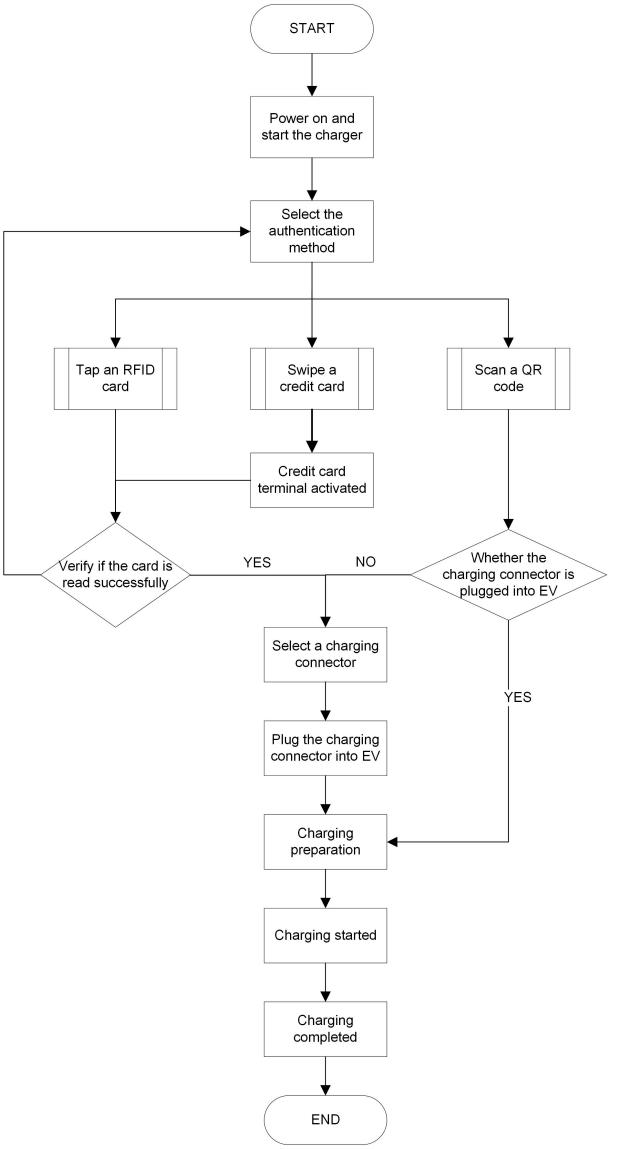
- - End

5 LCD Touch Screen

5.1 Charging Procedure

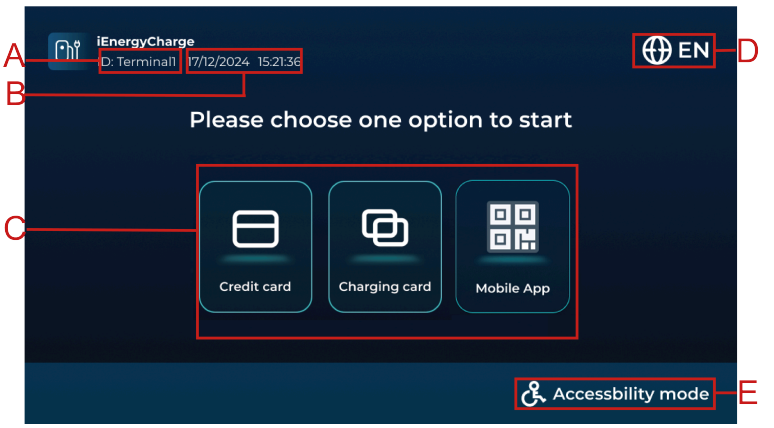
The dispenser’s touch screen serves as an interface for human-machine interaction. You can perform various operations on the device via the touch screen, e.g., starting or stopping charging, viewing the charging data, and performing fault diagnosis.

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


START
Power on and start the charger
Select the authentication method
Tap an RFID card
Swipe a credit card
Scan a QR code
Credit card terminal activated
Verify if the card is read successfully
YES
NO
Whether the charging connector is plugged into EV
Select a charging connector
YES
Plug the charging connector into EV
Charging preparation
Charging started
Charging completed
END

5.1.1 Select an Authentication Method

When the dispenser 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	Dispenser ID, an unique identifier for the dispenser.
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.

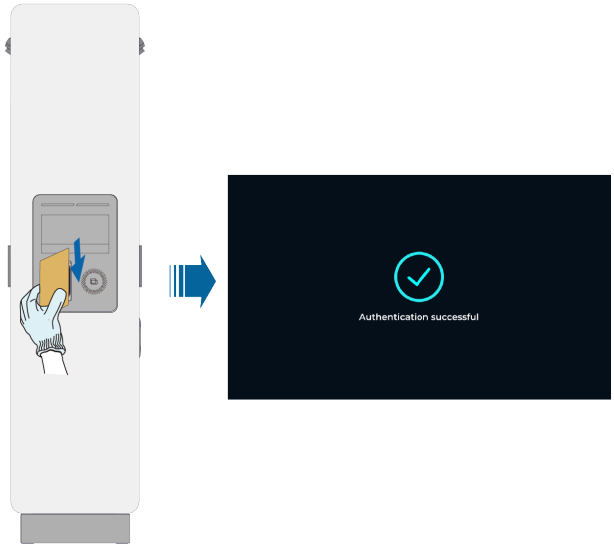
Option 1: Charging Card (RFID)

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

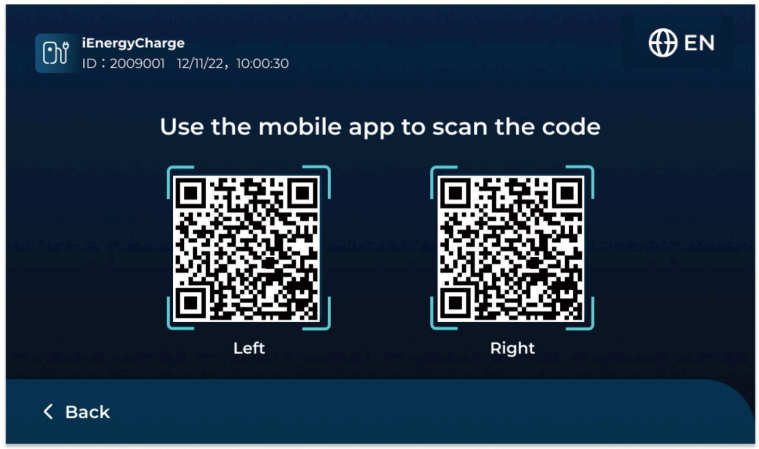
Tap **Credit Card** and place the credit card against the Energy Star-Ring (card reader).



- 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.

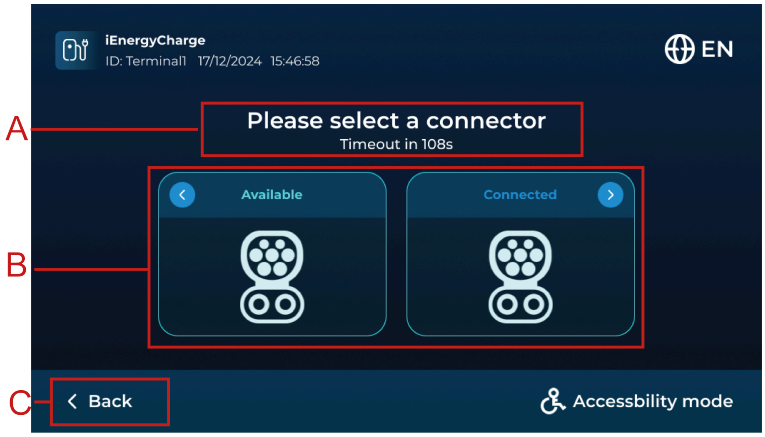
Option 3: Mobile APP (iEnergyCharge APP)

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.



5.1.2 Select a Charging Connector

The dispenser 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.

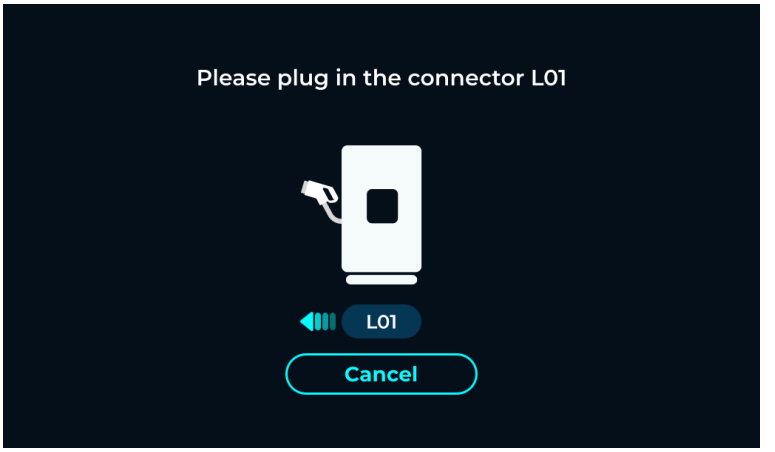
5.1.3 Plug Connector for Charging

NOTICE

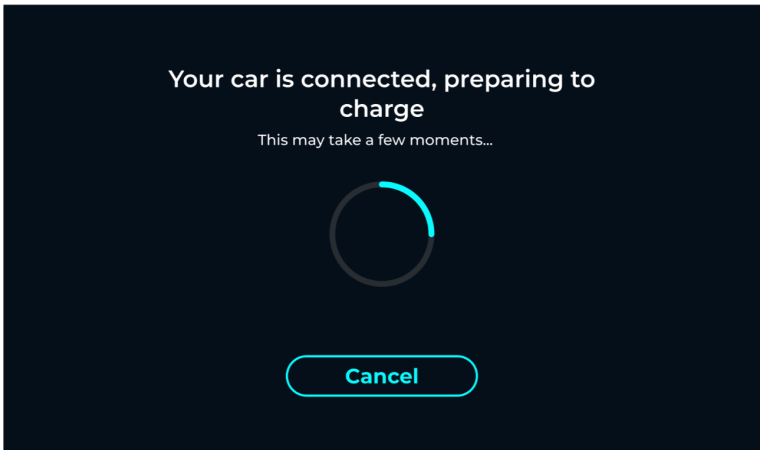
- **Plug or unplug the charging connector neatly at one go. Do not shake it.**
- **Do not bend or squeeze the charging connector, which may result in mechanical damage.**
- **Do not pull out the charging connector in the middle of a charging process.**

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.



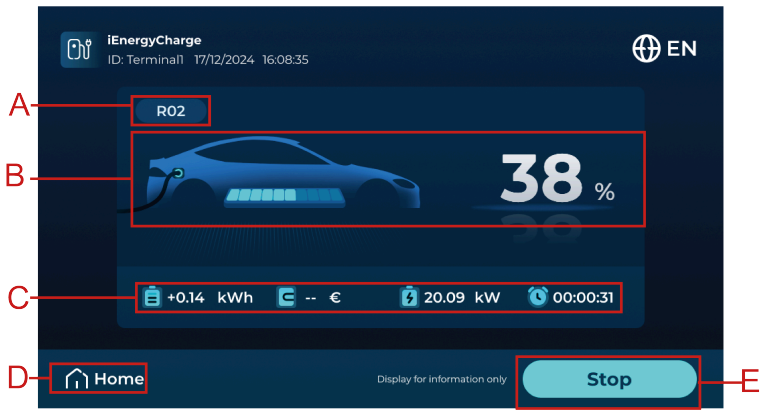
- If the connector is correctly plugged into the charging port of the EV, the Charging Preparation Page will appear. Tapping **Cancel** will abort the charging process.



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.

5.1.4 View Charging Information

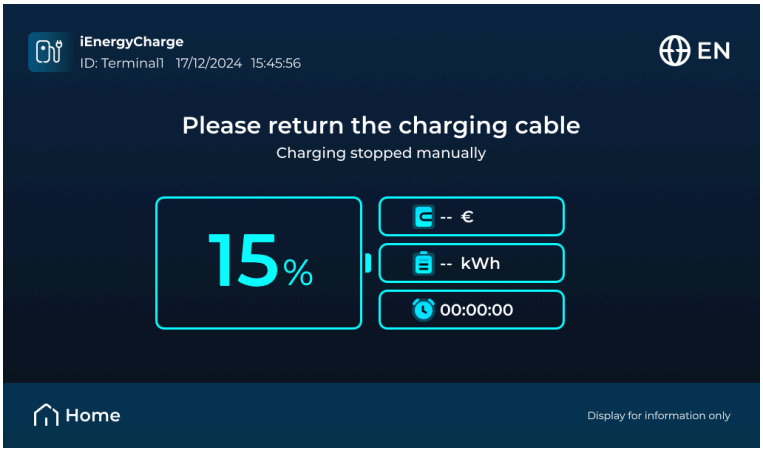
Once the charging preparation is complete, the EV starts charging, and the screen displays the charging details, as shown below:



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 for ending the charging process.

5.1.5 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 5.1.4 View Charging Information. After charging is complete, the screen will prompt you to return the charging connector and display details of the charging session, including the charging power (kW), charging cost, power delivered (kWh), and time spent in charging.

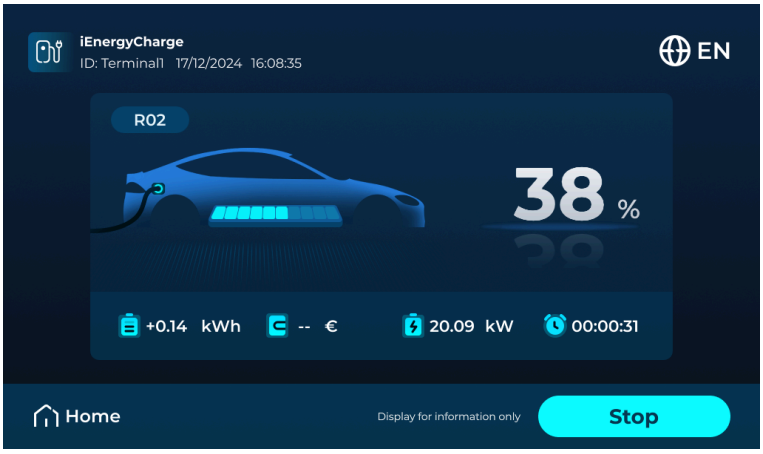


5.2 Other Functions

5.2.1 Dual Charging

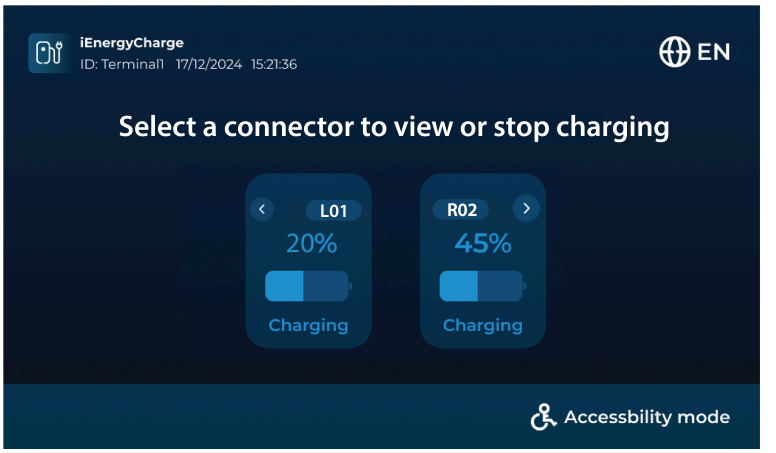
Dual Charging Setup

The dispenser 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 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.



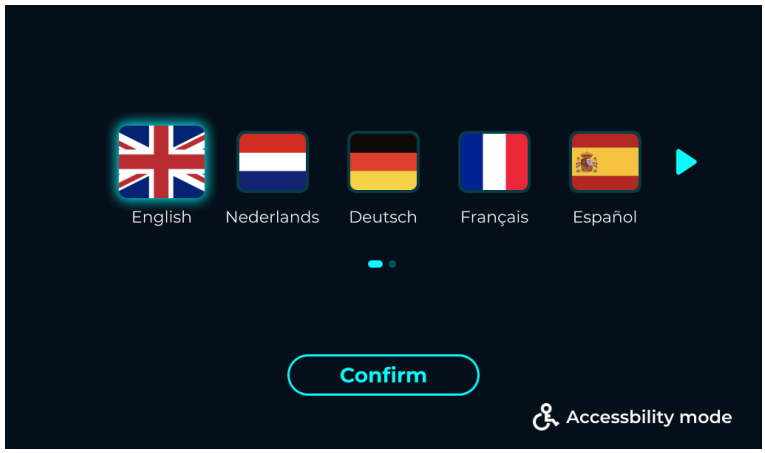
If using credit card or RFID card, tap the card at the designated spot to view the charging details of the corresponding connector.

5.2.2 Change System Language

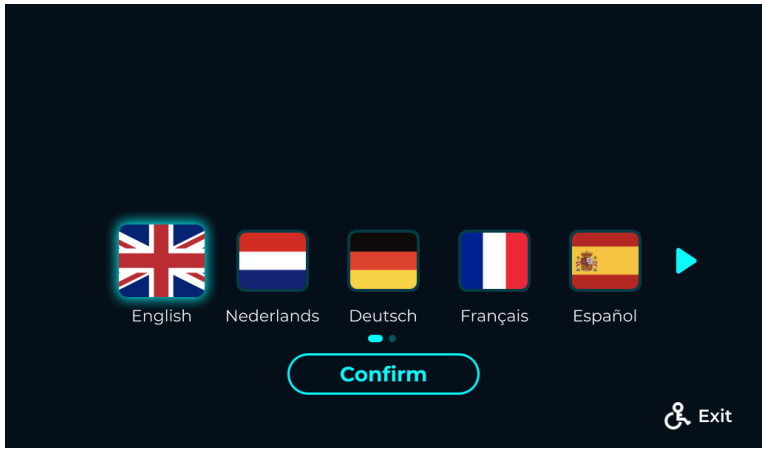
The system supports languages including English, Dutch, German, French, Spanish, Norwegian, and Italian, with English as the default system language。

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.



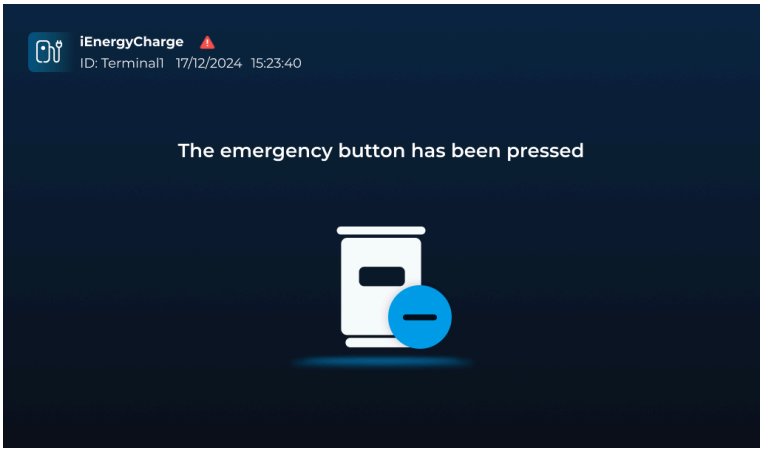
step 2 Swipe left or right to select the desired language and tap **Confirm** to complete the language switch.

- - End

5.2.3 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.



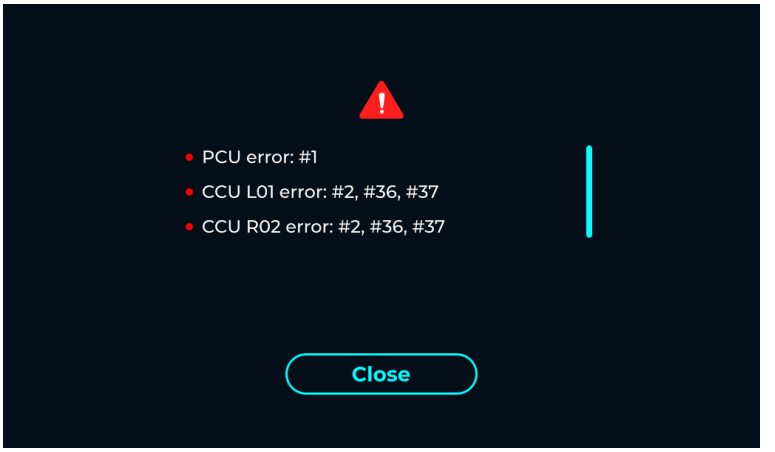
step 2 Once the emergency or issue is resolved, reset the emergency stop button by rotating it. The dispenser will resume normal operation, and the screen will show the Authentication Method Selection Page.

- - End

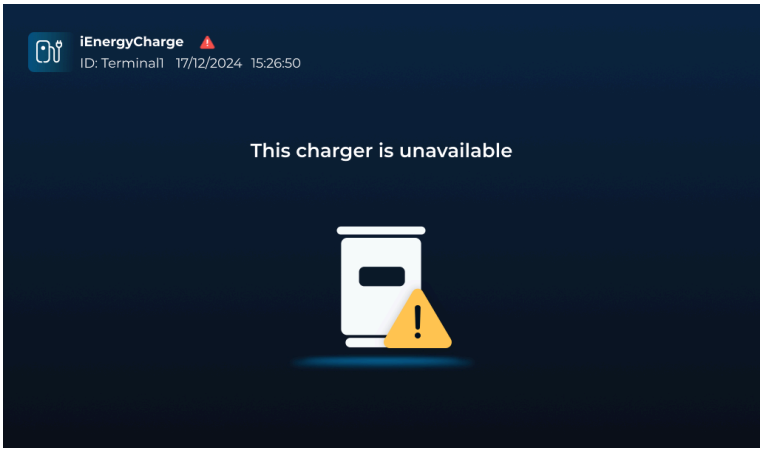
5.2.4 Device Fault Diagnosis

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

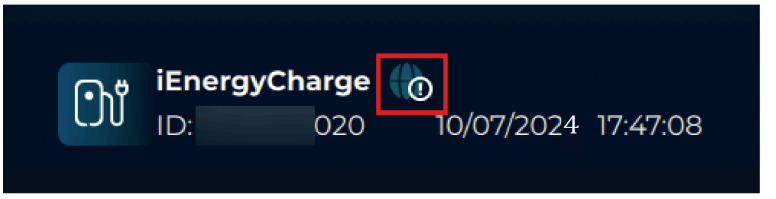
5.2.5 Network Connection Diagnosis

OCPP defines the protocol standard for network interconnection between the dispenser 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:

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

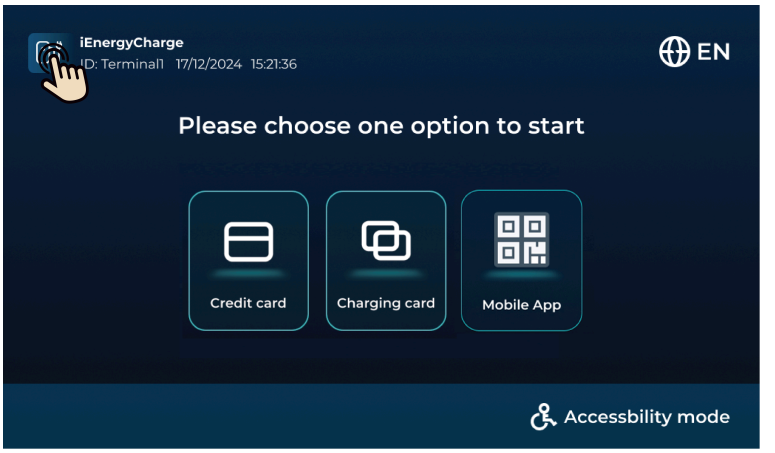
- No network connection, and the device cannot access to OCPP.



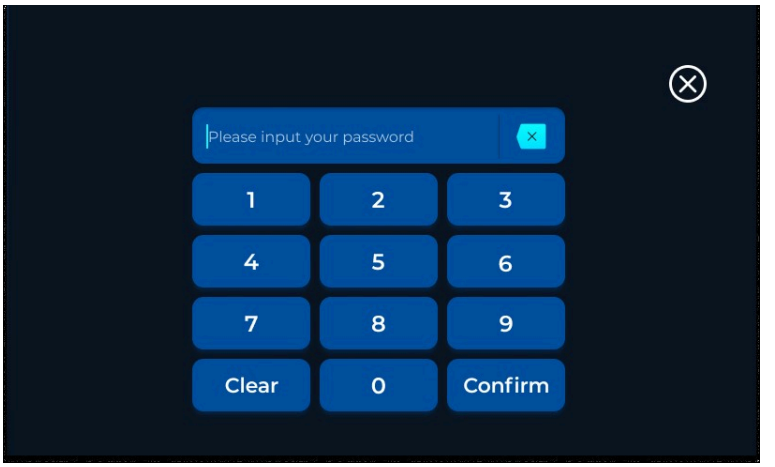
5.3 Operation and Maintenance Mode

5.3.1 Enter Factory Mode

step 1 Press and hold the icon in the top-left corner of the screen for 1.5 seconds to access the Password Input Page.



step 2 Enter the password and tap **Confirm** to enter the Factory Mode Page.



- The password 202207 is for Read-only access.
- To get configuration permission, in order to perform maintenance in factory mode, please contact SUNGROW for another password.

- - End

5.3.2 CCU_Info Page

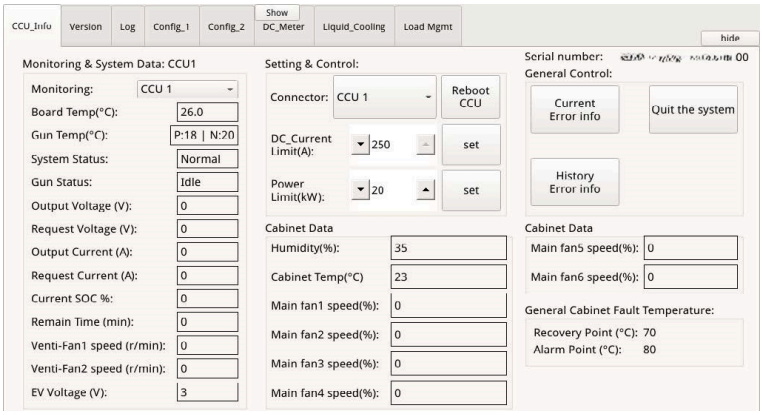


figure 5-1 CCU Info Page

Monitoring & System Data

Designated for real-time monitoring. You can select a CCU from the drop-down list of “Monitoring” to view its data accordingly.

Setting & Control

Designated for CCU settings. To set the upper limits for power and current, select the corresponding CCU for the charging connector in **Connector**. Then, use the arrow buttons to adjust the power and current limits, and click **set** to apply the changes. To perform a hard reboot of a CCU, select the corresponding CCU for the charging connector in **Connector** and click **Reboot CCU**.

General Control

Designated for error information display.

Current Error Info

1. Click **Current Error info** to view the real-time error information in a pop-up window.
2. Click **Close** to close the pop-up.

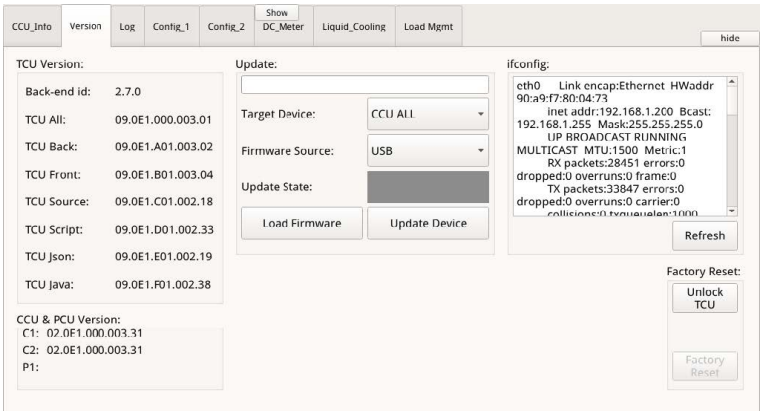
History Error Info

1. Click **History Error info** to view the history error information in a pop-up window.
2. Click **Page-**,**Page+**, or **Page ++** to navigate between different pages.
3. Click **Close** to close the pop-up information box.

General Cabinet Fault Temperature

- **Alarm Temperature**: When the cabinet temperature exceeds the alarm temperature threshold, the charging dispenser will derate or stop.
- **Recovery temperature**: When the cabinet temperature falls below the recovery temperature threshold, the dispenser's output capacity will be restored.

5.3.3 Version Page



Firmware Version

Version information of the device, including the version of TCU and CCU & PCU are shown here.

Firmware Update

With a stable network on site, you can perform remote update through SUNGROW backend.

If the Internet is not available, you can perform a local update using an USB drive.

Here are instructions for local update using an USB:

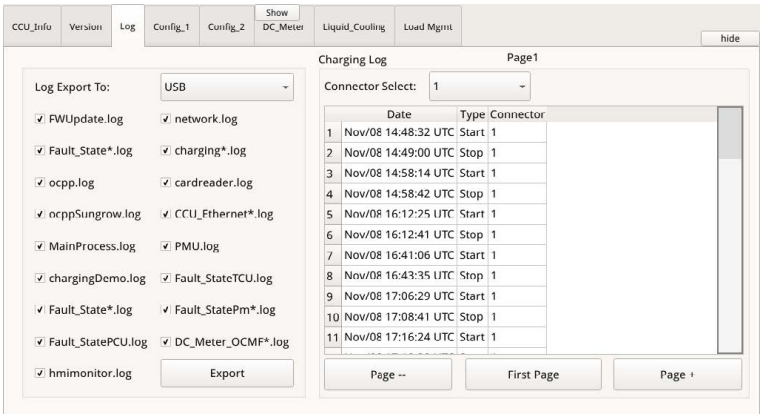
1. Prepare firmware files. Extract the firmware package provided by R&D and save it to the USB root directory.
2. Power off first. Then, open the door and locate the USB port on the TCU. For the location of TCU, see 2.5 Internal Structure.
3. Close the door and power on. Then, turn on the screen and enter factory mode. For details, see Login.
4. After entering the factory mode, choose **Version** on the upper left.
5. Select the device you want to update in **Target Device**.

6. Click **Load Firmware** and wait until the **load success** message pops up.
7. Click **Update Device** and wait for the update to complete.

ifconfig

Designated for IP address configuration for the device.

5.3.4 Log Page



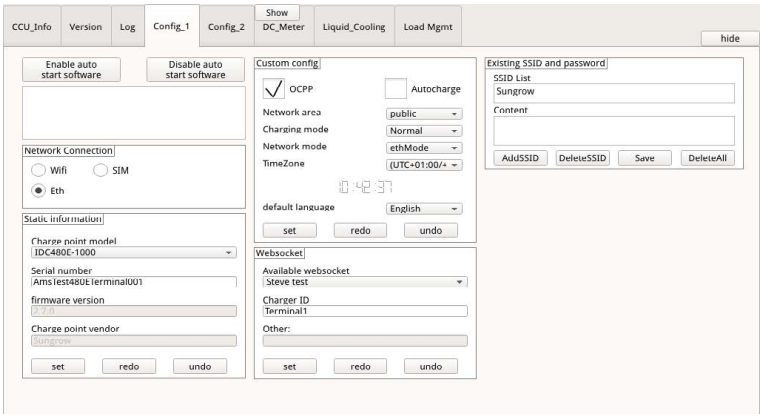
Log Export

Export the logs to an USB or a TF card. Select all logs or the logs you need, and click **Export** to get the logs.

Charging Log

Charging connector's charging logs are shown here. Select different connector to check the transactions.

5.3.5 Config_1 Page



Enable/Disable auto start software

The "Enable/Disable auto start software" buttons on the top left are used to enable or disable auto-start for the software.

Network Connection

Here you can select the type of network connection as needed.

After setting the **Network Connection**, please complete the OCPP configuration.

NOTICE

- **If the SIM card is used for network connection, after finishing the OCPP configuration, complete the router configuration in "Config_2".**
- **If Wifi or eth is used, after finishing the OCPP configuration, disable Router connection in "Config_2". Otherwise, the network connection will fail.**
- **The POS machine can only access the network by connecting to the router. Therefore, if the POS machine is to be used, please select SIM in Network Connection.**

Static information

The information of the charging point, including model, S/N, firmware version, and supplier, are shown in “Static information”.

Custom config

Custom configuration items including **Network area** (“Public” or “Private”), **Charging mode** (“Normal” or “Plug & Play”), **Network mode** (“WifiMode” or “SimMode”), **TimeZone**, and

Default Language (for specific requirements) are provided in the middle. After settings, click **set** to apply the changes.

Network Area:

- Public: The dispenser can connect to the Internet.
- Private: The dispenser can connect to the CPO platform only.

Websocket

Designated for Websocket configuration. Some default Websocket directories written by the software are provided in **Available websocket**.

If you want to use a third OCPP backend, complete the configuration as follows:

1. Click **Available websocket** and select **Others**.
2. Provide the Websocket address in the pop-up.
3. Click **Set** to save the settings.
4. Restart the charging dispenser. When turning off the AC input, make sure the screen is black. Then, turn on the device again.

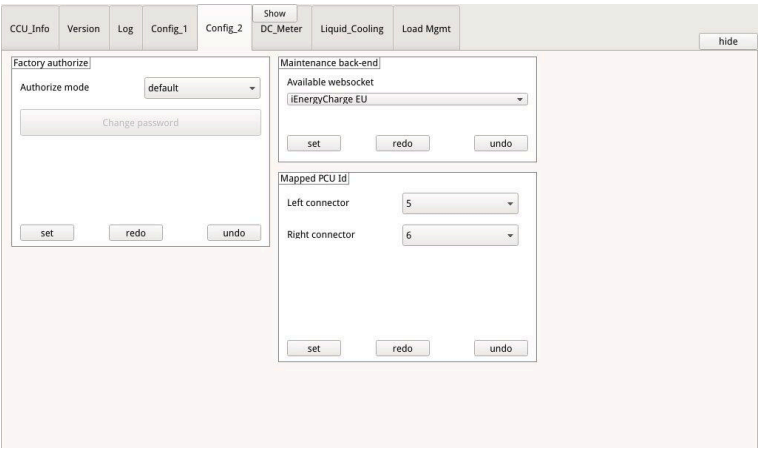
Existing SSID and password

Designated for **Wifi** configuration. Enter the Wi-Fi name and password to connect to the Wi-Fi network.

- Add Wifi
  1. Click **AddSSID** and enter the SSID and password in the pop-up window.
  2. Click **Confirm** to save the settings.
- Delete Wifi
  1. Click **SSID List** and select the target Wi-Fi.
  2. Click **DeleteSSID** to delete this Wi-Fi.
- Edit Wifi
  1. Click **SSID List** and select the target Wi-Fi.
  2. Double-click the Wi-Fi information in **Content**.
  3. Edit the Wi-Fi settings in the pop-up window.
  4. Click **Save** to save the settings.
- Edit Wifi

  Click **DeleteAll** to delete all Wi-Fi.

5.3.6 Config_2 Page



Factory authorize

You can modify the password used to enter factory mode here.

- **Default**，the Configuration authority password，The setup process is:
  1. Select **default** in Authorize;
  2. Click **set**.
- **User Password**,the password of Configuration authority could be changed.The setup process is:
  1. Select **user password** in Authorize;
  2. Click **Change password**;
  3. Enter the old password and the new password;
  4. Click **OK**;
  5. Click **set**.
- **One Time Password**,the fixed password for Configuration authority s disabled, only dynamic passwords can be used.The setup process is:
  1. Select **onetime password** in Authorize;
  2. Click **set**.

Maintenance back-end

Select the desired option from the Available Websocket drop-down list.

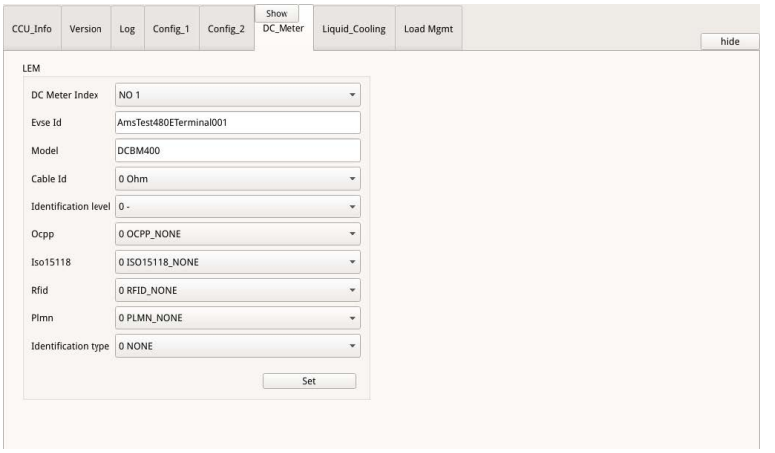
- **set**: Save the settings
- **undo**: Undo the changes
- **redo**: Restore settings

Mapped PCU Id

Modify the charging connector ID.

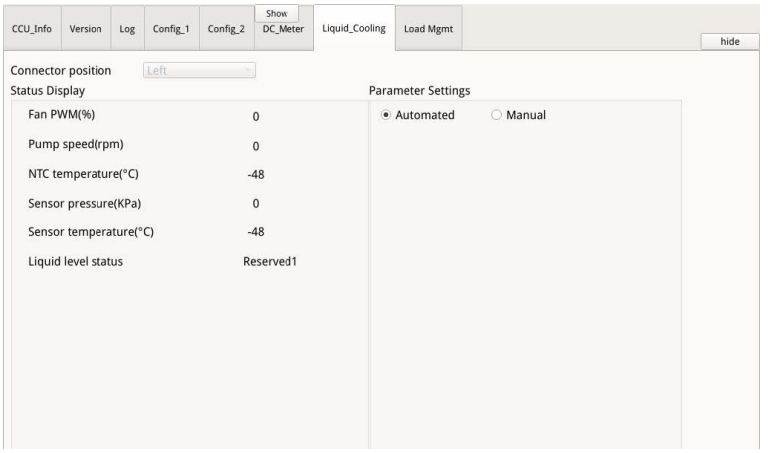
- **set**: Save the settings
- **undo**: Undo the changes
- **redo**: Restore settings

5.3.7 DC_Meter Page



The device is equipped with LEM meters. Here you can check the detailed information about the LEM meter and set the relevant parameters.

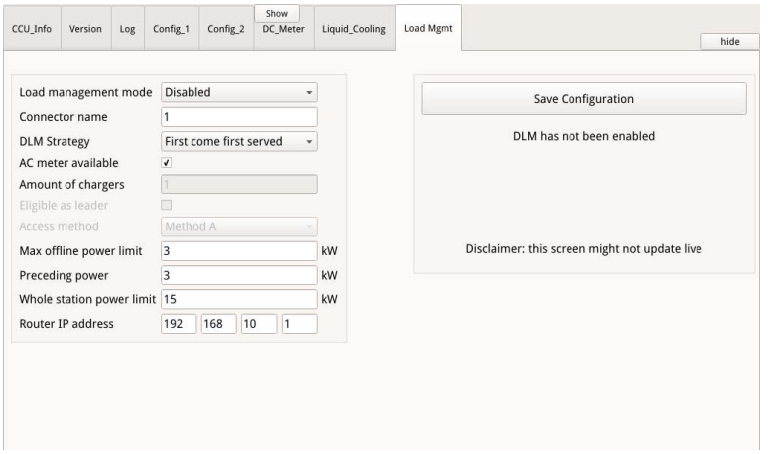
5.3.8 Liquid_Cooling Page



This page contains information about several key parameters of the cooling system，include Connector position, Status Display and Parameter Settings.

The product is an air-cooled dispenser, so the operations on this page are not applicable.

5.3.9 Load_Mgmt Page

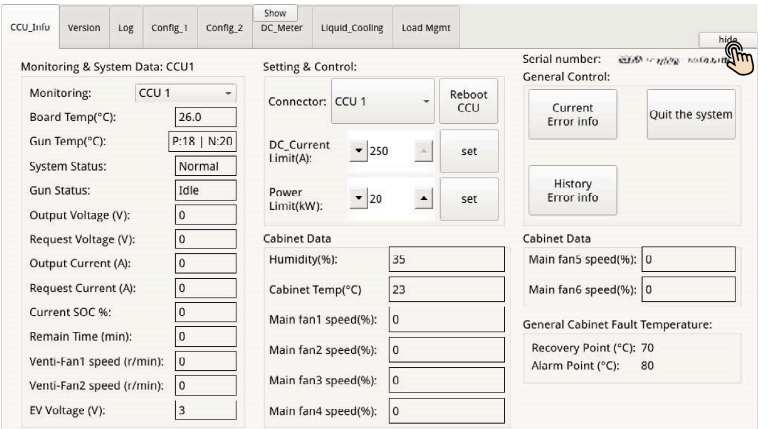


This page contains setting options of different load management modes. Different load management modes (ALM/DLM) can be selected or disabled in the Load management mode drop-down box.

After enabling/disabling different load management mode, a reboot is required

5.3.10 Exit Factory Mode

Tap **Hide** to go back to the Authentication Method Selection Page.



6 Routine Inspection

6.1 Inspection Instructions

It is suggested to perform regular inspections on the device, so as to extend its service life. The inspection interval should be determined with on-site conditions taken into consideration. In case the device works in extreme weather conditions, be sure to shorten the inspection interval and increase inspection frequency.

- Before inspection, power off the dispenser. For details, see 7.2 Power Off Dispenser. Then, you may open the cover plate for inspection.
- In case of a fault with the device, contact your local service provider or manufacturer immediately. Do not open the device 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 device on rainy, humid, or windy days. SUNGROW shall not be held liable for any possible outcome resulted from inspections in such weather conditions.
- To reduce 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.

6.2 Routine Inspection

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

Inspection Item	Inspection Method	Recommended Inspection Interval
Device exterior	• Check if there is any deformation with the enclosure of the device. • Check if there is paint peeling on the exterior of the device. • Check if the nameplate and marks on the device are all legible. • Check if there is anything abnormal with the exterior of peripheral components such as the charging connector holder and antenna.	Once every 6 months
Device structure	• Check if the parts and components of the device are secure and reliable. • Check if there is any damage to the internal power units, main control board, auxiliary low-voltage power supply, charging interface, and power supply interface. • Clean the dust-proof fabric and dirt and dust inside the device, and check if there is any wet spot.	Once every 6 months

Inspection Item	Inspection Method	Recommended Inspection Interval
Charging connector and charging cable	• Check the charging connector for any foreign matters. Ensure the pins inside the connector are clean without dirt. Clean off the foreign matters, if any, in time. • Check the charging connector and charging cable for deficiency, crack, abrasion, damage, wire exposure, etc. • If the charging connector freezes to the dispenser, it is recommended to carefully remove the ice with a cordless heat gun and a plastic scraper. During the heating process, please ensure that the temperature does not exceed 60°C and continuously move the heat gun back and forth to prevent damage to the charging connector or cable due to overheating.	Once every 6 months
Electrical connections	• 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 deficiency, crack, abrasion, damage, wire exposure, etc. • Other inspection items can be arranged based on the actual situation on the site.	Once every 6 months
LCD screen	• Check the display of the screen for broken or cracks. • Check the brightness of the screen and whether the display definition is normal. • Click the screen to operate and check whether the touch function is normal. • Check the waterproof performance around the screen and the plastic panel.	Once every 6 months

Inspection Item	Inspection Method	Recommended Inspection Interval
Fan	• Check the fan and the fan opening for any foreign matters, and remove them promptly if found • Check whether the fan is operating normally during runtime.	Once every 6 months

7 Troubleshooting and Maintenance

7.1 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 7-1 Charge-stopped Code

Fault	Text displayed	Fault cause	Solutions
Emergency stop (EV-side)	EV_E_Stop	A change from State C to State B is triggered on the EV side, resulting in an emergency stop of the EV charging process.	Pull out the charging connector and stop the charging process.
Stopped due to error (EV-side)	EV_Reported_Error	An error code has been set in the request message by the EV in a communication message.	Pull out the charging connector and stop the charging process.
SLAC failed	SLAC_Match_Failure	SLAC process handshake failed.	Pull out the charging connector and stop the charging process.
SDP failed	SDP_Handshake_Failure	SDP process handshake failed.	Pull out the charging connector and stop the charging process.
UDP connection failed	UDPv6_Server_Fault	UDP server connection establishment failed.	Pull out the charging connector and stop the charging process.
TCP connection failed	TCPIPv6_Server_Fault	TCP server connection establishment failed.	Pull out the charging connector and stop the charging process.

Fault	Text displayed	Fault cause	Solutions
Protocol handshake failed	Protocol_Handshake_Failure	Communication over handshake protocol between the EV and the dispenser failed due to protocol mismatch.	Pull out the charging connector and stop the charging process.
Service parameter interaction failed	Service_Incompatibility	During ServiceDiscovery/PaymentDetail interaction between the EV and the dispenser, the communication is interrupted, or the request does not conform to the protocol.	Pull out the charging connector and stop the charging process.
Communication parameter interaction failed	Charge_Parameter_Incompatibility	During ChargeParameter message interaction between the EV and the dispenser, the parameters do not match, the communication is interrupted, or the charging process is stopped.	Pull out the charging connector and stop the charging process.
cableCheck fault	Cable_Check_Fault	During CableCheck message interaction between the EV and the dispenser, the parameters do not match, the communication is interrupted, or the charging process is stopped.	Pull out the charging connector and stop the charging process.

Fault	Text displayed	Fault cause	Solutions
preCharge fault	Precharge_Fault	During Precharge message interaction between the EV and the dispenser, the parameters do not match, the communication is interrupted, or the charging process is stopped.	Pull out the charging connector and stop the charging process.
currentDemand fault	Current_Demand_Fault	During CurrentDemand message interaction between the EV and the dispenser, the parameters do not match, the communication is interrupted, or the charging process is stopped.	Pull out the charging connector and stop the charging process.
DC output overvoltage protection	DC_Output_Overvoltage_Protection6	The current DC output voltage stays above 1014V for over 1s	Pull out the charging connector and stop the charging process.
DC output undervoltage protection	DC_Output_Undervoltage_Protection	The current DC output voltage stays below 185V for over 10s	Pull out the charging connector and stop the charging process.
DC output overcurrent protection	DC_Output_Overcurrent_Protection	The current DC output current exceeds 325A	Pull out the charging connector and stop the charging process.

Fault	Text displayed	Fault cause	Solutions
Frame communication timed out	Frame_Communication_Timeout	During communication between the EV and the dispenser, the EV did not initiate a further request, and frame communication timed out.	Pull out the charging connector and stop the charging process.
Communication sequence abnormal	Communication_Sequence_Fault	During communication between the EV and the dispenser, the request message sequence sent by the EV does not conform to the protocol.	Pull out the charging connector and stop the charging process.
PCU module apply failed	Pcu_Modules_Applied_Failed	During the charging process, application for module resource failed.	Pull out the charging connector and stop the charging process.
DC output short-circuit fault	DC_Output_Short_Circuit_Error	The dispenser detects a short-circuit in positive/negative output cables when performing short-circuit detection in the CableCheck phase.	Pull out the charging connector and stop the charging process.

7.2 Power Off Dispenser

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

⚠ CAUTION

Even if the dispenser has stopped running, it may still be hot and cause burns. Work on it wearing safety gloves after it cools down.

Following the instructions below to power off the dispenser. Otherwise, it may lead to device damage or personal injuries.

step 1 Press the emergency stop button on the power cabinet.

step 2 Open the power cabinet door, and switch off the molded case circuit breakers and power supply circuit breakers (QF7–QF10).

step 3 Switch off the AC circuit breaker in the upstream power distribution box.

step 4 Open the door of the dispenser and switch off the AC MCB inside.

step 5 Ensure the charging connector is detached from the EV. Wait for 10 minutes before proceeding with voltage test.

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

ii. Measure the voltage at the two AC output copper bars in the power cabinet using a multimeter set to the AC mode to confirm that the input voltage is 0.

table 7-2 AC Input Voltage of the Power Cabinet

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

iii. Measure the voltage between L and N, and between L and PE of the dispenser using a multimeter set to AC mode to confirm the voltage is 0.

iv. Measure the voltage between each DC+ output copper bar and its corresponding DC- output copper bar using a multimeter set to DC mode to confirm the voltage is 0.

step 6 Once the voltage test is completed and the results meet the requirements, the dispenser is powered off.

- - End

8 Appendix

8.1 Technical Data

table 8-1 Technical Data

Model	IDC480E Air-cooled Dispenser
DC output	
Cable configuration	Dual cable / Single cable (optional)
Cable connection options	250 A + 250 A / 400 A + 400 A (including 500 A boost mode)
Max. output power	240 kW
Max. output current	500 A (boost)
Output voltage range	200 Vdc - 1000 Vdc
Connector type	CCS2
Communication to EV	DIN70121, ISO15118
Standby power consumption	≤ 35 W
General data	
Dimensions (W*H*D)	430 mm * 1800 mm * 330 mm
Weight	250 A dual cable dispenser : 125 kg 400 A dual cable dispenser : 140 kg
Cable length	5 m / 7 m (optional)
Operating temperature range	-35 °C - 55 °C
Operating humidity range	5% - 95% (non-condensing)
Operating altitude	≤ 2000 m
Operating noise level	≤ 60 dB (A) at 1m distance / 25 °C, at full output power
Mechanical impact protection	IK10 (enclosure)
Enclosure rating	IP65
Anti-corrosion degree	C5
User interface	
User authentication	RFID-card / Plug & play / Auto-charge / Plug & charge / Payment terminal
Display	10-inch color touch screen
RFID system	SO/IEC 14443A/B / ISO/IEC 15693 / NFC

Model	IDC480E Air-cooled Dispenser
Energy meter	MID-certified DC energy meter / Eichrecht-certified DC energy meter (optional)
Emergency button	Yes
LED Display	Yes
Cable management system	Yes
Firmware update	Over-the-air update
Multilanguage system	English Other languages available by firmware upgrade
Protection	
Over/Under voltage protection	Yes
Overload protection	Yes
Over temperature protection	Yes
Leakage current protection	Yes
Short circuit protection	Yes
Protection	
Certifications	CE / CB
Compliance	ETSI / EN 300 328, EN 300 330, EN 301 489-1 / 3 / 17 / 52, ETSI / EN 301 908-1 / 13, EN 50665, BS / EN IEC 61851-1, BS / EN IEC 61851-21-2, BS / IEC EN 61851-23 / 24, EN IEC 62311
Warranty	3 years (standard)

8.2 Quality Assurance

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

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.

8.3 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://en.SUNGROWpower.com/contactUS**

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