

User Manual

Split-Type DC Power Cabinet

CDC1000E



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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.
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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.
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Valid for

Product Model	Product Aliases
CDC1000E	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.

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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.

Forklift Operation Precautions

- Use only specialized forklifts that are operated by qualified personnel.
- The forklift must have a load capacity sufficient to carry the device.
- Make sure there are no obstacles, slopes, or other uneven terrain along the moving path of the device.

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.
 - 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

The power cabinet is primarily deployed in public charging pools for fast charging of electric vehicles.

The CDC1000E consists of two 500 kW power cabinets. Each power cabinet's power conversion section is composed of 13 × 40 kW charging power units, combined and power-limited to deliver 500 kW. The control section within each rectifier cabinet includes one TCU, one PCU, and one RCU, supporting up to six charging connectors per cabinet. Power distribution employs a matrix architecture, enabling a maximum output of 500 kW per charging connector with a minimum power allocation granularity of 40 kW. The entire unit meets IP55 ingress protection rating.

Grid Configuration

The charger supports TN-S, TN-C-S, TT, and TN-C grid configurations.

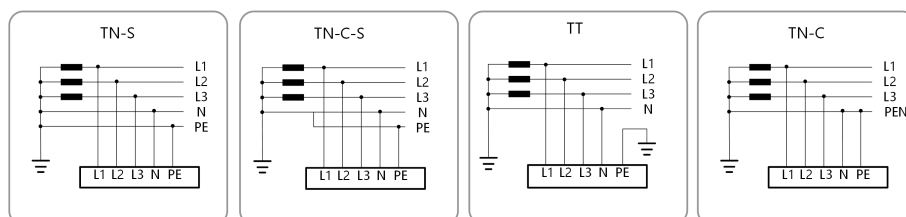


Figure 2-1 Grid Configuration

Product Model

The power cabinet's model designation is illustrated in the figure below.

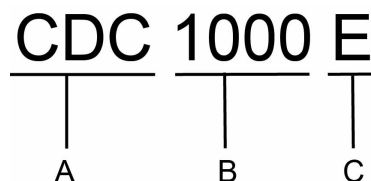


Table 2-1

No.	Definition
A	Product type: DC charger
B	Rated output power: 1000 kW

No.	Definition
C	Compliance: European standard

2.2 Application Scenarios

The product has a rated power of 1000 kW and uses 40 kW power units. It supports power allocation in 40 kW increments and enables energy conversion and power distribution.

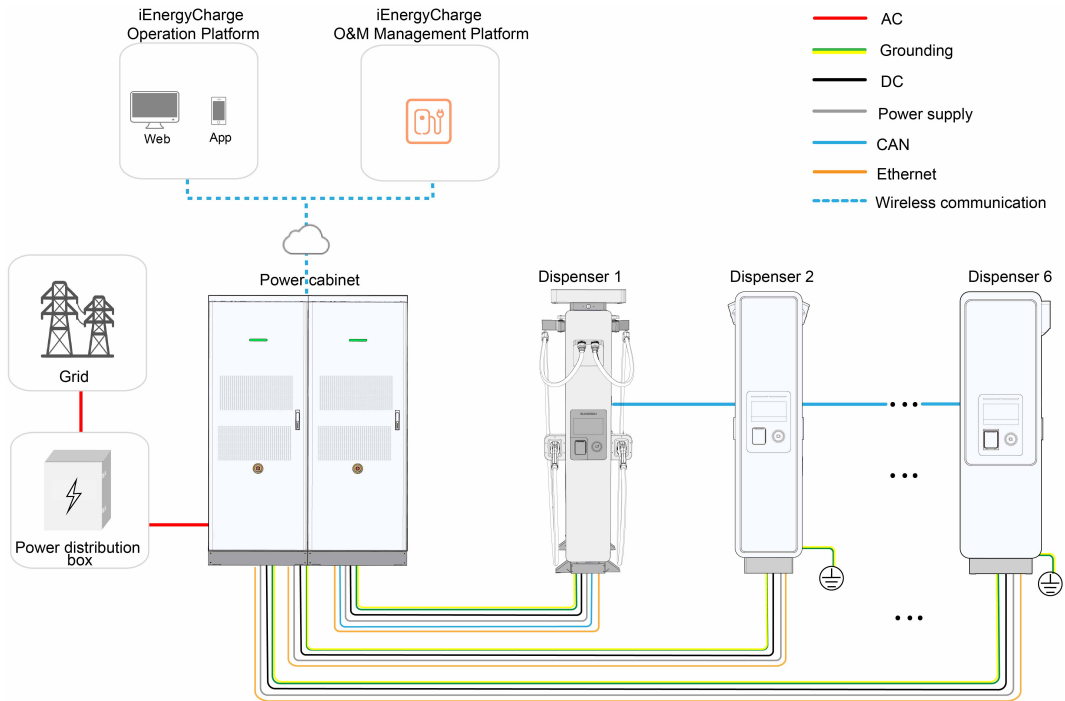


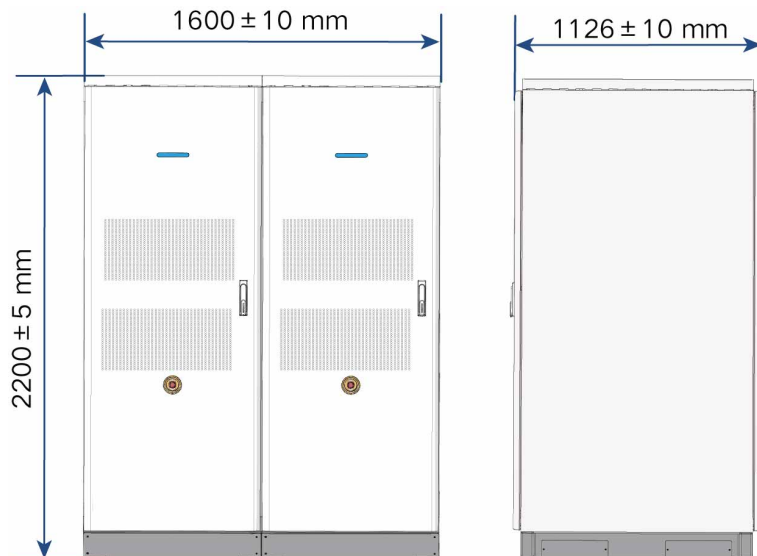
Figure 2-2 Networking System Diagram

Table 2-2 Power Cabinet Configuration

Power Cabinet	Number of Power Modules	Maximum Supported Connections
CDC1000E	26	12 CCS2 charging connectors
		1 MCS charging connector + 10 CCS2 charging connectors

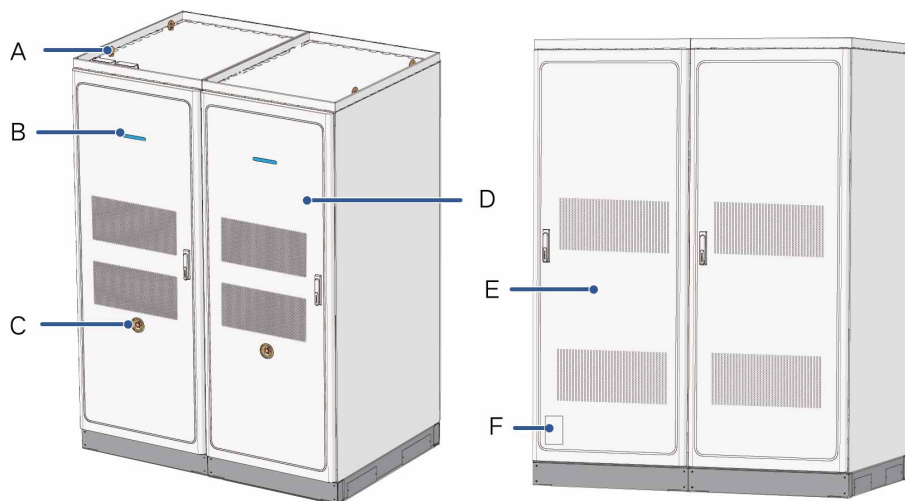
2.3 Appearance

Dimensions



The figure is for reference only, and may differ from the actual product.

Appearance



(A) Lifting ring

(B) Indicator light

(C) Emergency stop button

(D) Front door

(E) Rear door

(F) Nameplate

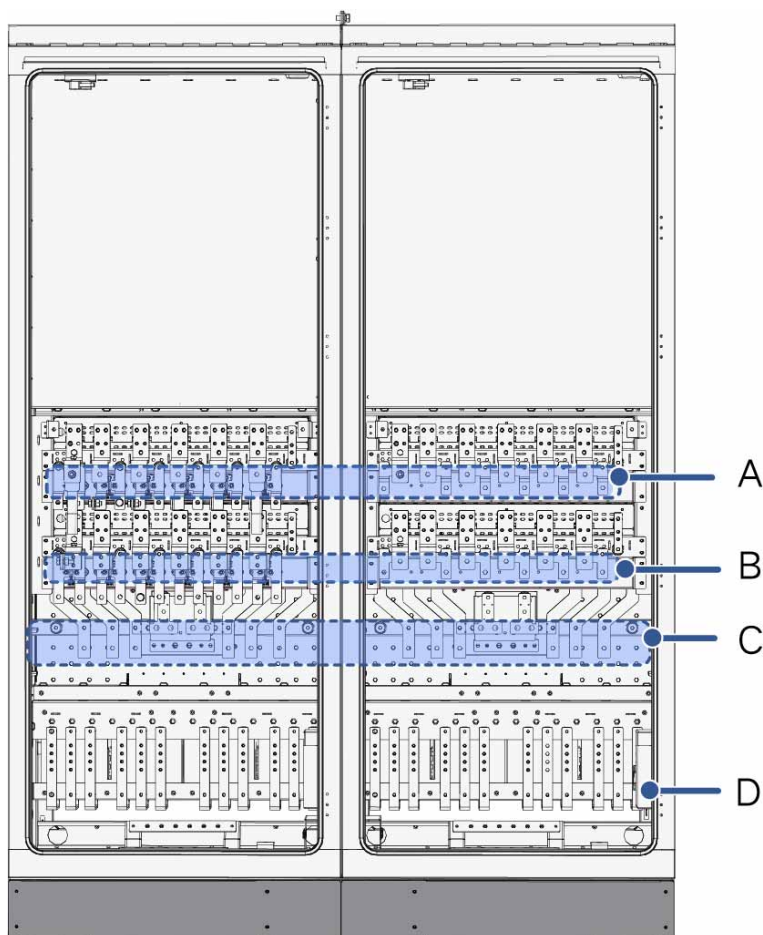
The figure is for reference only, and may differ from the actual product.



- The emergency stop button should only be used in actual emergencies. After use, always inspect the protective cover, and replace it immediately if it is damaged.
- The CDC1000E consists of two 500 kW power cabinets. When facing the front of the equipment, the master cabinet is on the left, and the slave cabinet is on the right.
- Because the master and slave cabinets are closely fitted, the master cabinet door must be fully opened (up to 135°) before opening the slave cabinet door. The slave cabinet door can then be opened to 90° or 135°, depending on operational needs.

2.4 Internal Structure

Rear door internal structure



(A) DC+ busbar

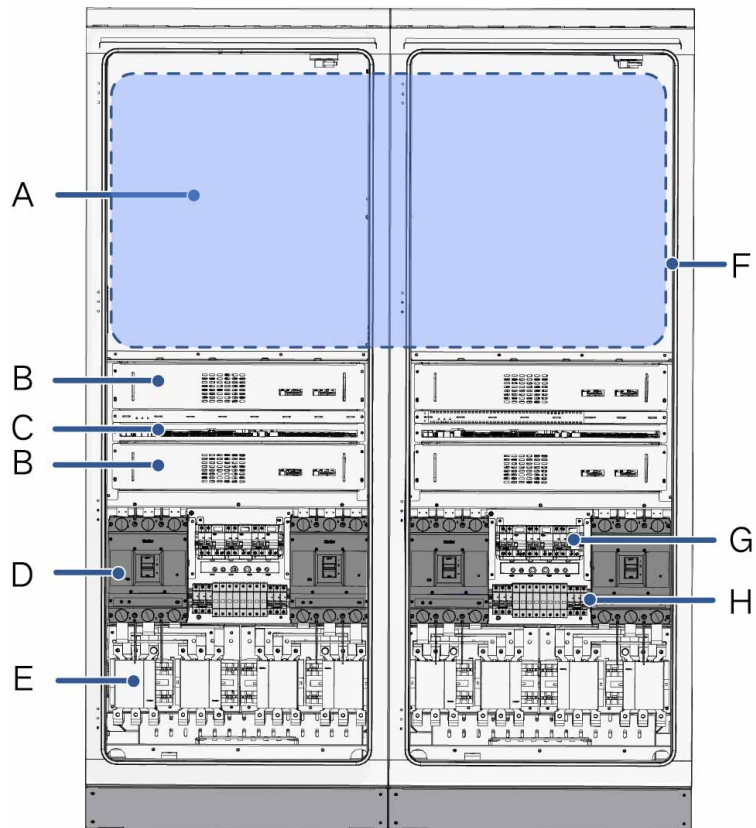
(B) DC- busbar

(C) AC wiring area

(D) Network switch

The figure is for reference only, and may differ from the actual product.

Front door internal structure



(A) Power module

(B) PUD

(C) PCU + RCU

(D) Molded case circuit breaker

(E) AC contactor

(F) Fan circuit breaker

(G) Power supply circuit breaker

(H) Lightning protection circuit breaker

The figure is for reference only, and may differ from the actual product.

2.5 Marks on the Product

To ensure personnel and equipment safety, always check the marks on the product and comply with the instructions stated on them during installation, operation, and maintenance.

Marks on the Product	Description
	External protective grounding terminal.
	Disconnect the equipment from all external power sources before maintenance!
	Danger to life due to high voltages! Only qualified personnel can open and maintain the equipment.
	CE mark of conformity. EU/EEA Importer.
	Do not dispose of the device together with household waste.
	Read the user manual before maintenance!
	Burn danger due to the hot surface that may exceed 60°C.
	TÜV mark of conformity.
	Regulatory compliance mark.
	PTB mark of conformity.

2.6 Indicator Lights

Indicator lights on the front door provide a human-machine interface, showing the current operating status of the equipment.

Table 2-3 Indicator Lights Description

Light Status	Charger Status
Steady green	Standby
Steady blue	Operating

Light Status	Charger Status
Steady red	Fault
Red light flashing	Power-on self-test

3 Mechanical Mounting

3.1 Installation Requirements

3.1.1 Installation Environment Requirements

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

- The installation area must be free from flammables and explosives.
- Do not install the equipment in areas with corrosives such as corrosive gases and organic solvents.
- The installation and operating location should be free from strong vibrations, impacts, and electromagnetic interference. The external magnetic field strength must not exceed 0.5 mT.
- The installation area must not contain explosion hazards, hazardous gases or conductive media that could damage metal or insulation.
- Do not install the equipment in dusty and smoky environments.
- Install the equipment in a sheltered location to avoid exposure to direct sunlight or severe weather (e.g., snow, rain, and lightning). If installed in direct sunlight, the equipment may experience a power reduction due to high-temperature self-protection.
- Ensure adequate ventilation and heat dissipation. Install the equipment in a well-ventilated environment.
- Install the equipment at least 30 m away from third-party wireless communication facilities.
- Install the product at least 50 m away from residential areas. If geographical constraints prevent this, implement noise reduction measures. For specific plans, please consult the station designers.
- Install the equipment in a location with suitable temperature and humidity. Operating ambient temperature: -35°C to +55°C. Relative humidity: 5%–95%.
- Ensure a stable 4G communication signal or a wired network interface with internet access.
- Provide convenient transportation access and reliable fire safety measures.
- Ensure the site area meets current needs and allows for future expansion throughout the equipment's full lifecycle.
- The soil on the installation site must have adequate compaction. Recommended: soil relative density $\geq 98\%$. If soil is loose, take measures to ensure foundation stability.
- Install the ultra-fast dispenser adjacent to the power cabinet. Cable run between power cabinet and dispenser: ≤ 50 m. Distance between power cabinet and upstream pad-mounted transformer: ≤ 100 m.

3.1.2 Installation Space Requirements

For one unit

To ensure proper heat dissipation and facilitate maintenance, the minimum clearance between the equipment and surrounding obstacles must meet the specified requirements.

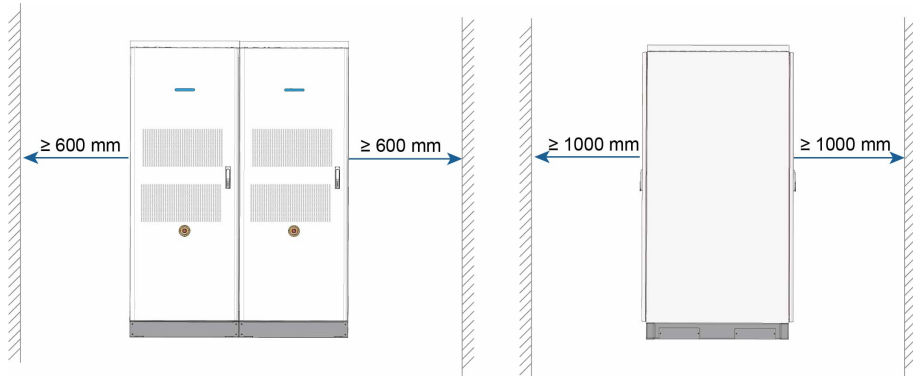


Figure 3-1 Recommended Space Requirements

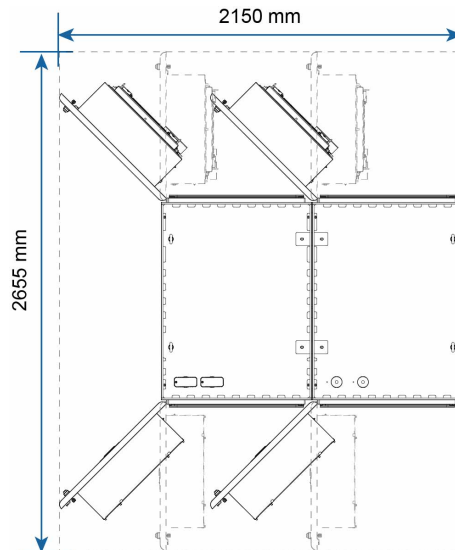


Figure 3-2 Mandatory Space Requirements

NOTICE

No obstacles are allowed within the door opening range of the power cabinet.

To protect the equipment from direct sunlight, rain, and snow, and to extend its service life, it is recommended to install a rain shelter above the power cabinet.

For multiple units

When installing multiple units, it is recommended to arrange them side by side. If front-to-back installation is necessary, a back-to-back configuration is recommended. The minimum installation clearance between units must meet the following requirements:

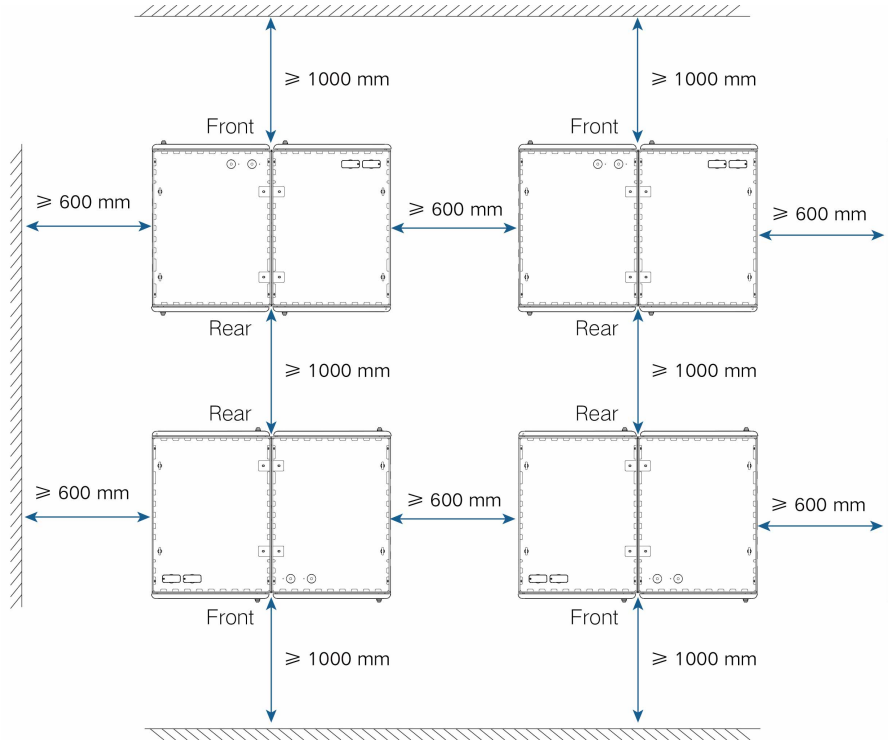


Figure 3-3 Installation Space Requirements

3.1.3 Foundation Requirements

NOTICE

- The foundation must be planned according to the installation space requirements and base dimensions to meet both installation and operation & maintenance needs.
- Within the installation area, no obstacles should exceed the foundation level in height, as this could impede maintenance.

Due to the equipment's significant weight, install it on a solid brick or concrete foundation to ensure stable operation. The foundation construction requirements 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 at least 98%. If the soil is loose, take necessary measures to ensure foundation stability.
- The bottom of the foundation pit must be compacted and leveled to provide adequate and effective support for the equipment.

- The foundation should be elevated above the surrounding ground level to prevent rainwater erosion of the equipment base and interior.
- The foundation's cross-sectional area and height must meet the specified requirements.
- Cable routing must be considered during foundation construction.
- Pre-bury cable conduits at the foundation bottom according to the equipment's location of the cable entry opening.
- A drainage system must be installed to prevent the equipment bottom or interior from being submerged in water during the rainy season or heavy rainfall.
- Temporarily seal both ends of all embedded conduits to prevent ingress of contaminants. Otherwise, cable routing during later installation will be difficult.
- After all cables are connected, seal all cable entry and exit points as well as joints with firestop putty or other suitable material to prevent rodent entry.

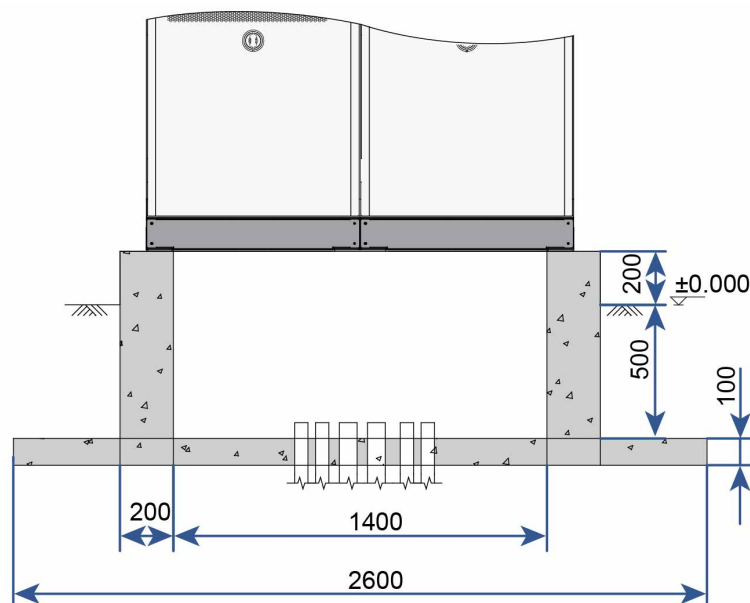


Figure 3-4 Foundation Dimensions (mm)

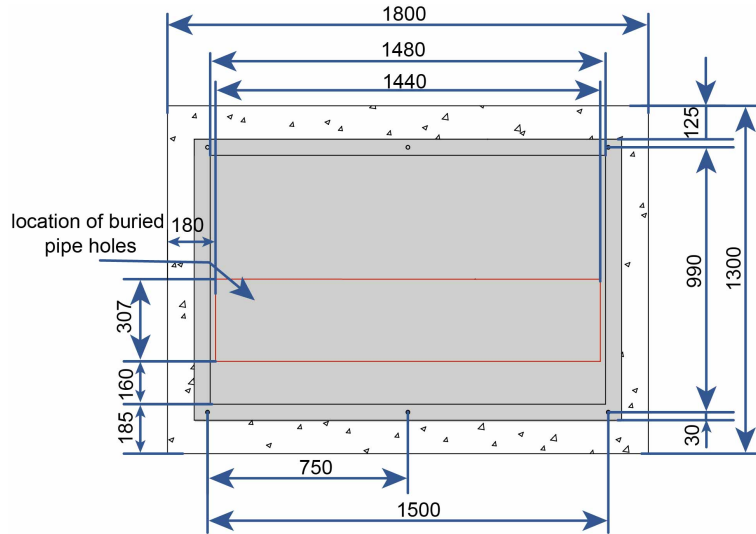


Figure 3-5 Foundation Top View (mm)

3.2 Preparation before Installation

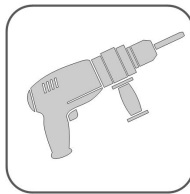
3.2.1 Prepare Tools

The tools listed in this manual are for reference only. Prepare a complete set of compliant tools based on site conditions prior to installation, including but not limited to the items listed below: If necessary, other auxiliary tools can be used on-site.

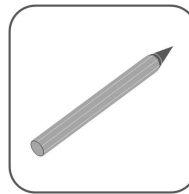
Installation tools



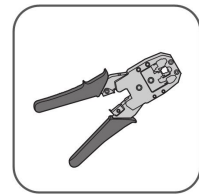
Phillips
screwdriver



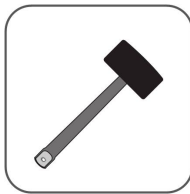
Hammer drill
($\phi 15$)



Marker pen



RJ45 crimping
tool



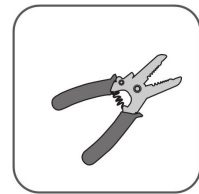
Rubber mallet



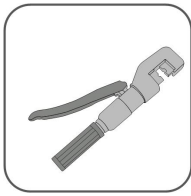
Socket set
(M8, M10, M12)



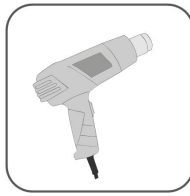
Wire cutter



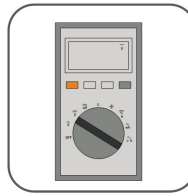
Wire stripper



Hydraulic
crimping tool



Heat gun



Multimeter



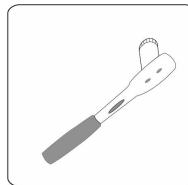
Vacuum cleaner



Assembly/
disassembly
wrench

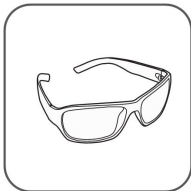


Adjustable wrench

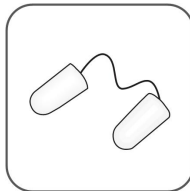


Socket wrench

Protective tools



Goggles



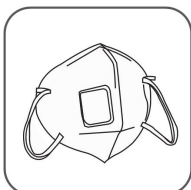
Earplugs



Safety shoes



Safety helmet



Dust mask

Electrical safety tools



Anti-static wrist
strap

Safety gloves

3.2.2 Lay Cables

Step 1 Route the cables along the pre-buried conduits, with one end at the cable entry/exit of the power cabinet foundation and the other end at the cable entry/exit of the dispenser foundation.



For the position and dimensions of the foundation cable entry/exit hole, refer to [3.1.3 Foundation Requirements](#)

Step 2 Reserve sufficient cable length according to the height of the terminal blocks.

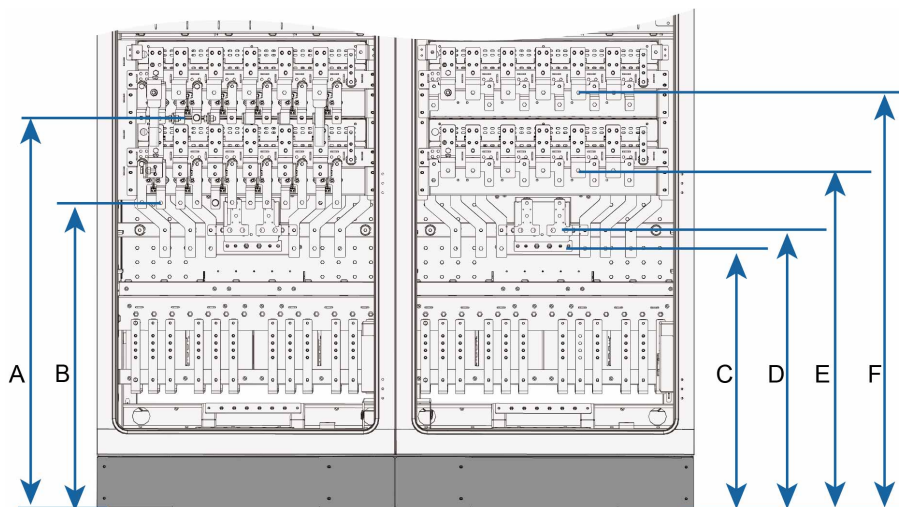


Figure 3-6 Wiring Height

Table 3-1 Height of Wiring Locations in the Cabinet

No.	Wiring Location	Height in the Cabinet (mm)
A	Parallel cabinet DC busbar +	1050
B	Parallel cabinet DC busbar -	817
C	AC grounding copper bar, AC phase busbar	690
D	AC neutral busbar	740
E	DC output busbar -	906

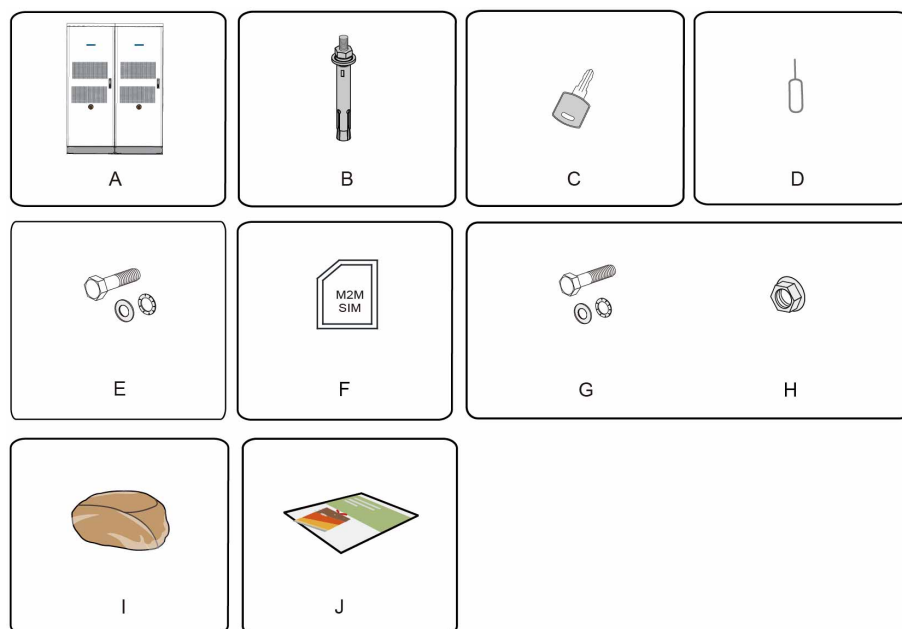
No.	Wiring Location	Height in the Cabinet (mm)
F	DC output busbar +	1119

--End

3.3 Check Packing List

The equipment has undergone complete testing and rigorous inspection before shipping. However, damage may still occur during transportation. Please conduct a thorough inspection before installation.

- Check the shipping carton for any damage.
- Unpack and inspect all internal components to ensure they are intact and undamaged.
- If tools are used during unpacking, exercise caution to avoid damaging the product.



No.	Name	Quantity	Description
A	Split-type power cabinet	1	-
B	M12 × 100 expansion bolts	6	Used to fix the power cabinet to the foundation
C	Key	4	Used to open the cabinet door
D	SIM card pin	2	Used to install the SIM card

No.	Name	Quantity	Description
E	M8 × 20 bolt assembly	12	Used to fix the equipotential grounding cable between the power cabinet and the dispenser
F	4G IoT SIM card (optional)	1	Used to connect the power cabinet to the network
G	M10 × 35 bolt assembly	36	Use to fix the AC and DC cables
H	M10 flange nut	36	Used with M10 × 35 bolts to secure the two AC phase cables
I	Firestop putty	1	Used to seal the cable entry and exit openings at the bottom of the power cabinet
J	Documentation	-	Includes Quick Installation Guide, Certificate of Conformity, Warranty Card, and Packing List

If any damage or missing items are found, do not proceed with installation. Contact the shipping carrier or directly reach out to SUNGROW, and provide photos of the damage to facilitate prompt support.

3.4 Install Cabinet

3.4.1 Drill Foundation Holes

When installing the cabinet, holes must be drilled in the foundation, and the cabinet should be securely fixed using expansion bolts.

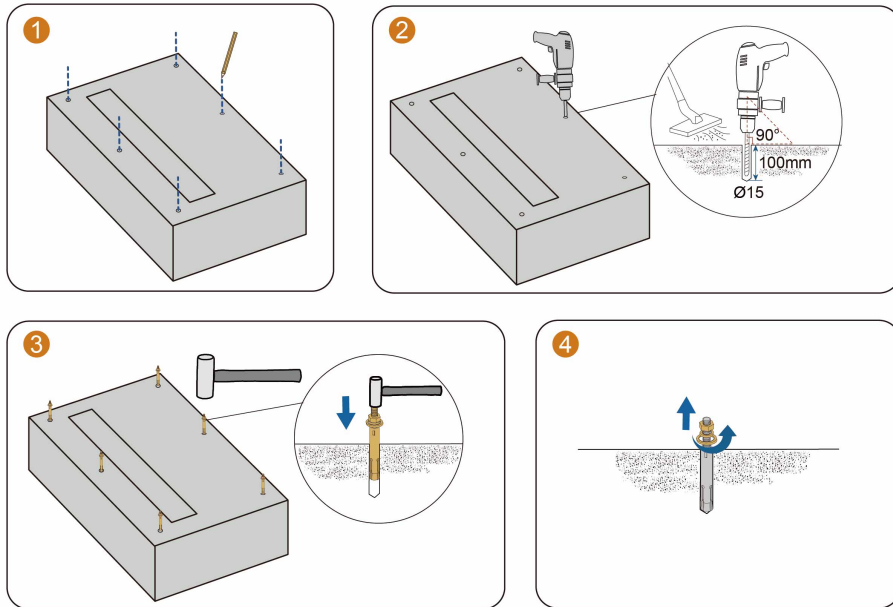
Prerequisite

Prerequisites:

- The foundation has been constructed strictly according to the foundation drawing.
- The cables have been laid.

- Step 1** Prepare the foundation according to the foundation requirements. For details, see [3.1.3 Foundation Requirements](#).
- Step 2** Use a marker to mark the expansion bolt drilling positions on the foundation. For details, see [Figure 3-5 Foundation Top View \(mm\)](#).
- Step 3** Use a hammer drill to drill holes at the marked positions. The hole diameter should be Ø15 mm and the depth should be 100 mm.
- Step 4** Pre-tighten the expansion bolt, insert it vertically into the drilled hole, and tap it with a rubber hammer until the expansion sleeve is fully inserted into the hole.

Step 5 Unscrew the bolt, remove the flat washer and spring washer, and store them properly for later use.



--End

3.4.2 Transport Cabinet



Improper handling may cause personal injury or equipment damage. To ensure the safety of personnel and equipment, use a forklift or crane for transport.

3.4.2.1 Handle with Crane

Requirements for Handling

Read through the information below if you are about to handle the charger using a crane.

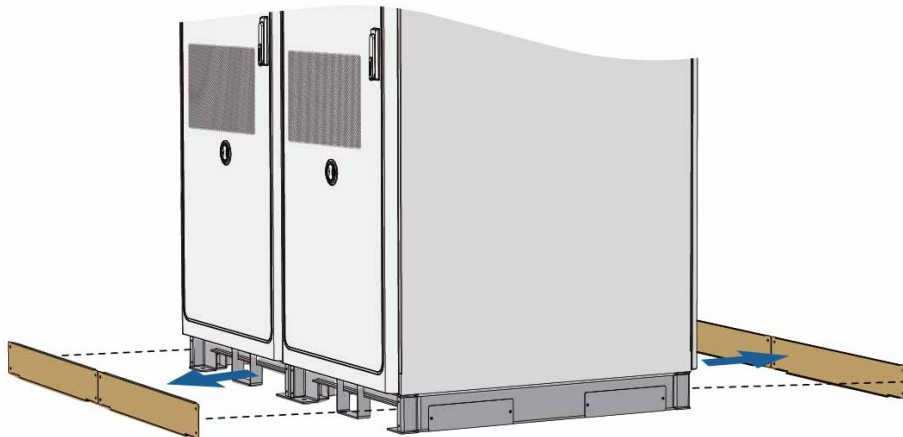
- Use only specialized cranes that are operated by qualified personnel.
- The crane must have a load capacity sufficient to lift the device.
- The sling must have a tensile strength and length that meet the requirements.
- The lifting eyes at the top must be firmly attached.
- No one is allowed to pass 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.

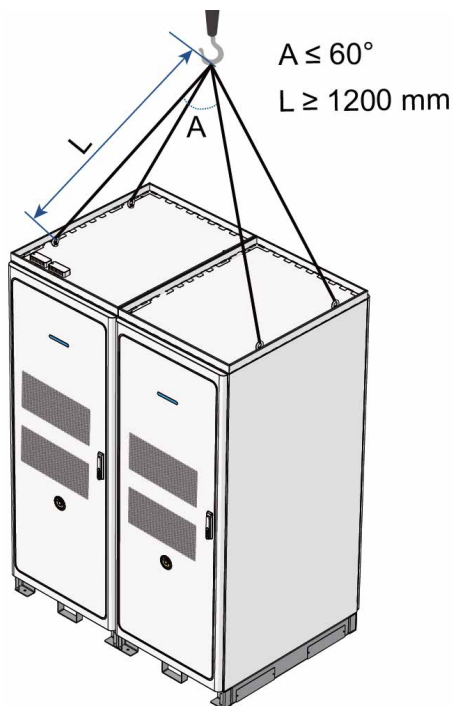
Tools

Item	Requirement	Source
Crane	Load capacity ≥ 2000 kg.	Prepared by users
Slings	At least 4 slings; each must support ≥ 2000 kg. Length from lifting ring to crane hook ≥ 1200 mm.	Prepared by users

Step 1 Remove the front and rear cover plates at the bottom of the cabinet.



Step 2 Attach steel wire ropes to the lifting rings on the top of the cabinet, as shown in the figure below.



Step 3 Lift the equipment vertically at a steady speed, ensuring it remains stable and does not tilt.

Step 4 Pause when the equipment is lifted 100 mm above the ground. Check that the slings are securely fastened and the load is evenly distributed.

Step 5 Move the equipment above the foundation and lower it slowly. Align the expansion bolt holes at the base of the cabinet with those on the foundation.

Step 6 Once the power cabinet is fully seated on the foundation, remove the steel wire ropes.

--End

3.4.2.2 Handle with Forklift

Requirements for Handling

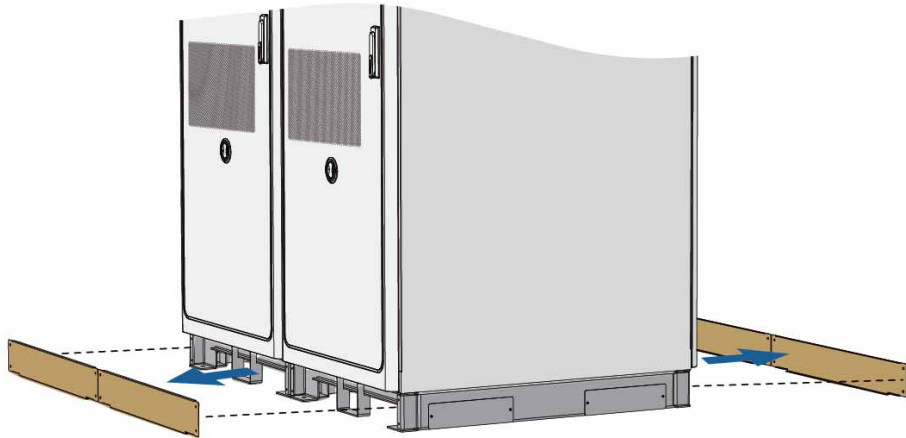
Read through the information below if you are about to handle the charger using a forklift.

- Use only specialized forklifts that are operated by qualified personnel.
- The forklift must have a load capacity sufficient to carry the device.
- Make sure there are no obstacles, slopes, or other uneven terrain along the moving path of the device.

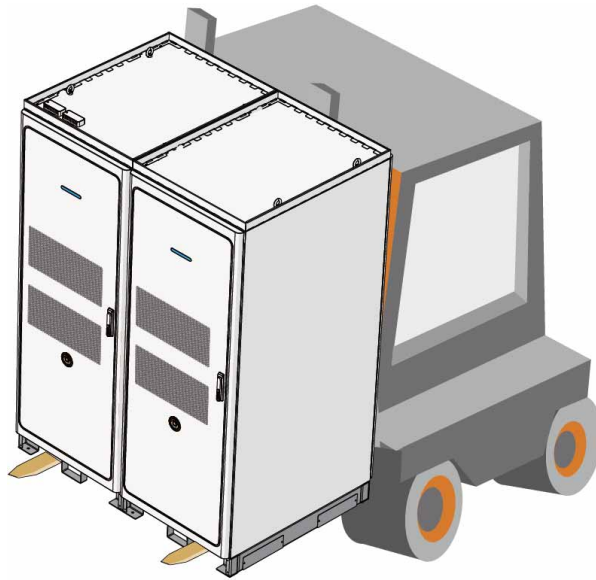
NOTICE

**Always pay attention to the equipment's center of gravity.
A forklift with a load capacity of at least 3000 kg is recommended.**

Step 1 Remove the front and rear cover plates at the bottom of the cabinet.



Step 2 Adjust the forklift's fork spacing and height, then slowly drive forward until the forks are fully inserted under the charger.



Step 3 Slowly lift the cabinet and move at a constant speed to the foundation area.

Step 4 Adjust the forklift height to align the cabinet's anchor bolt holes with the foundation bolts.

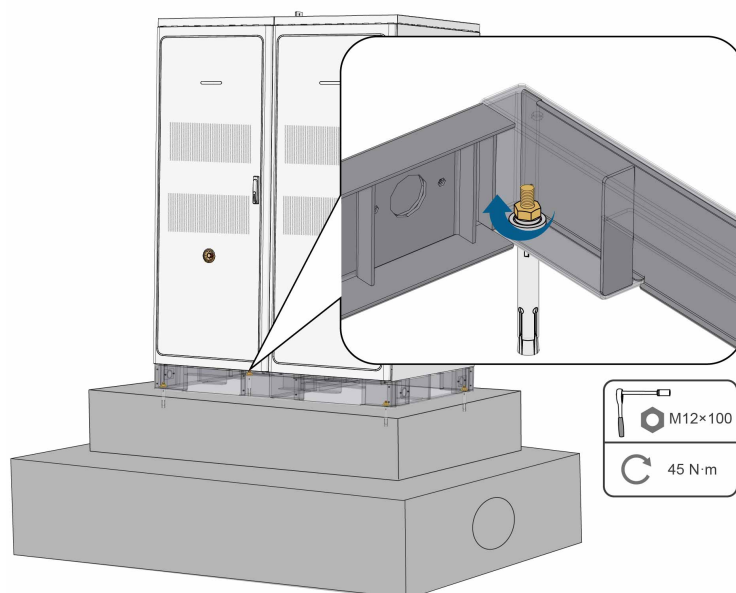
Step 5 Once the charger base is fully seated on the foundation, slowly withdraw the forks.

--End

3.4.3 Secure Cabinet

Step 1 Use a forklift or crane to place the equipment onto the foundation, as shown in [3.4.2 Transport Cabinet](#).

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. An S10 (M12) socket wrench is recommended.



--End

4 Electrical Connection

4.1 Preparation Before Connection

To ensure safe and standardized cable connections for the charger, and to avoid personnel hazards and compliance risks, complete the following preparatory steps before proceeding with formal cable connections. Only proceed to the subsequent connection procedures after confirming that all preparatory items are correct.

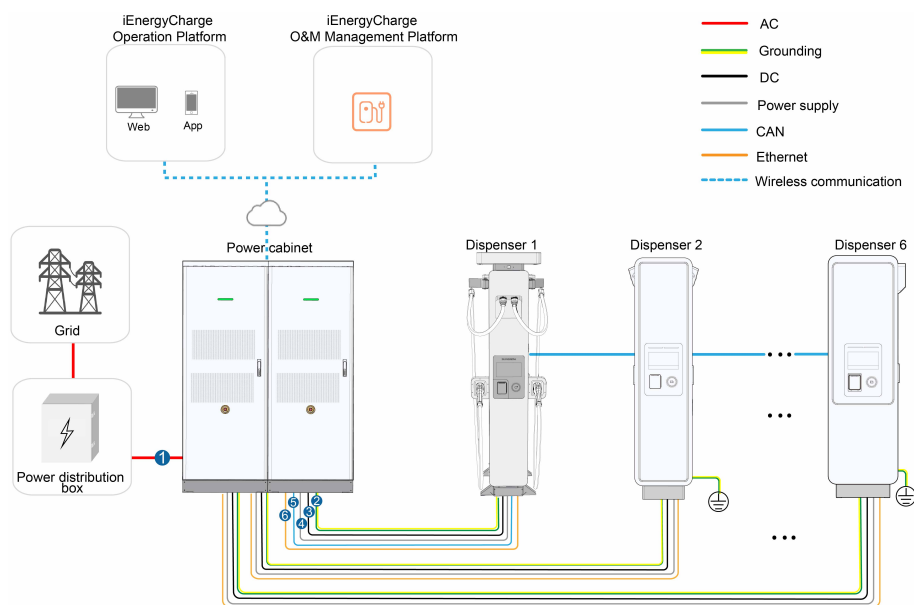
DANGER

Before making any electrical connections, ensure that the equipment and all connected switches are set to "OFF" and cannot be accidentally re-energized. Failure to do so may result in electric shock.

- Use upstream circuit breakers that are either 3P molded case circuit breakers without residual current protection or 3P+N molded case circuit breakers with residual current protection.
- Refer to the cable requirements in this manual. Verify that the cable specifications meet the wiring requirements, and ensure that the cables have been properly laid in pre-embedded conduits or cable trays.
- Open the cabinet door and use a screwdriver to remove the protective plate in front of the operation panel. Ensure that the wiring terminals are unobstructed to facilitate the connection work. Store the removed protective plate and screws properly for later use.
- Clear the work area to ensure sufficient operating space, keep it free of obstacles, and remove all flammable or explosive materials.
- Refer to the tool requirements in this manual and prepare the appropriate connection tools.

4.2 Cable Requirements

Before making any electrical connections, prepare the cables and the terminals. The cables include external protective grounding cables, AC cables, DC cables, power cables, and communication cables.



Cable specifications

The cables required during installation need to be prepared by the user. For cable specifications, refer to the table below.

Table 4-1 Cable Specifications

No.	Cable Name	Type	Cross-sectional Area	Crimp Terminal
1	AC cable	Outdoor single-core/multi-core copper cable Voltage rating: 1 kV	$4 \times 185 \text{ mm}^2 + 95 \text{ mm}^2$	L1/L2/L3/N conductor: SC185-10 PE conductor: SC95-10
		Outdoor single-core/multi-core aluminum cable Voltage rating: 1 kV	$4 \times 300 \text{ mm}^2 + 150 \text{ mm}^2$	L1/L2/L3/N conductor: SC300-10 PE conductor: SC150-10
2	Grounding cable between power cabinet and dispenser	Outdoor single-core copper cable	Fast dispenser: 95 mm^2	SC95-8
			Ultra-fast dispenser: 180 mm^2	SC180-8

No.	Cable Name	Type	Cross-sectional Area	Crimp Terminal
3	DC cable between power cabinet and dispenser	Outdoor single-core aluminum cables	Fast dispenser: 150 mm ²	SC150-8
			Ultra-fast dispenser: 240 mm ²	SC240-8
		Outdoor single-core copper cable Voltage rating: ≥ 1 kV	Fast dispenser (per charging connector): DC+: 1×120 mm ² DC-: 1×120 mm ²	SC120-10
			Ultra-fast dispenser (per charging connector): DC+: 2×120 mm ² DC-: 2×120 mm ²	SC120-10
		Outdoor single-core aluminum cables Voltage rating: ≥ 1 kV	Fast dispenser (per charging connector): DC+: 1×240 mm ² DC-: 1×240 mm ²	SC240-10
			Ultra-fast dispenser (per charging connector): DC+: 2×240 mm ² DC-: 2×240 mm ²	SC240-10
4	Power cable between power cabinet and dispenser	Two-core power cable	2×1.5 mm ²	Ferrule terminal: E1510
5	CAN cable between power cabinet and dispenser	Shielded twisted pair	2×0.75 mm ²	Ferrule terminal: E1510
6	Network cable	Shielded Cat5e cable	-	-

- The cable specifications listed in this manual are for reference only. Users must select appropriate cables based on actual conditions and ensure compliance with local regulations and safety standards.
- To prevent equipment failure caused by wiring errors, it is recommended to clearly label both ends of each cable (e.g., with adhesive labels) before installation, and to carefully verify all connections before and after wiring.

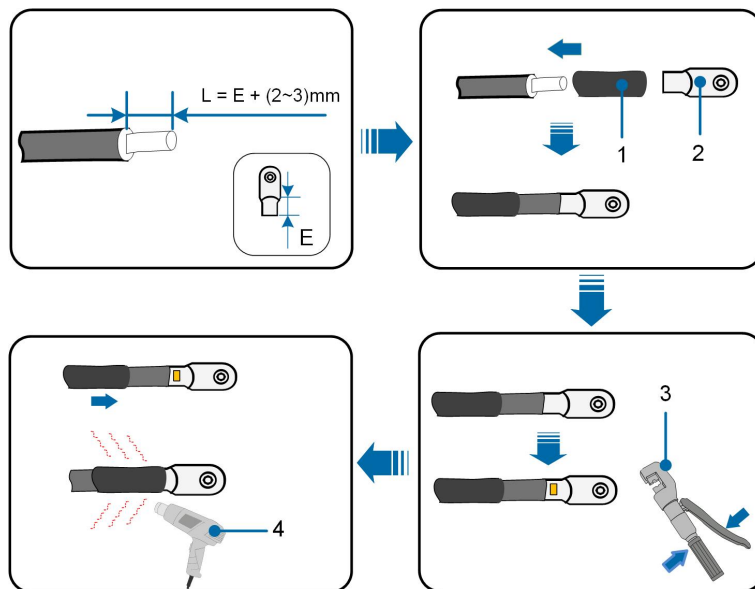
Before connecting the cables to the copper busbars, the cables must be crimped with appropriate terminals. Ensure that the cables and terminals are securely connected to prevent looseness or poor contact, which may lead to overheating or even safety hazards.

Direct contact between copper busbars and aluminum conductors may cause galvanic corrosion, compromising the reliability of electrical connections. If aluminum conductors are used, copper-aluminum transition terminals must be applied.

4.3 Wiring Terminals Preparation

4.3.1 SC Terminal Crimping

Crimp Terminal



(1) Heat shrink tubing

(2) 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.

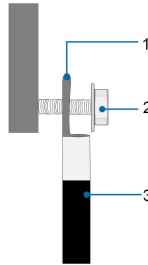


Figure 4-1 Aluminum Wire Terminal Connection Sequence

(1) Copper-aluminum
bimetallic terminals

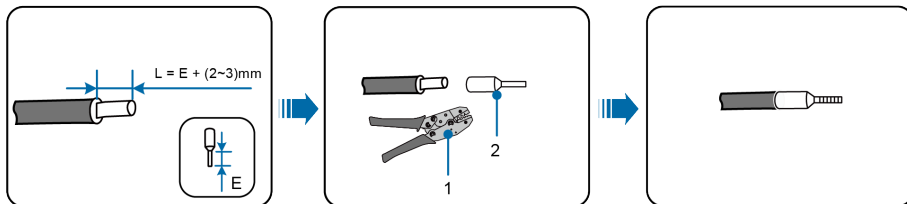
(2) Nut

(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 Crimp Cord-end Terminal



(1) Crimp tool

(2) Cord-end terminal

4.4 AC Cable Connection

The AC cables are used to connect the power cabinet to the grid and provide AC power supply to the power cabinet.

DANGER

- Do not connect the AC cables when the equipment carries voltage; otherwise, they may result in personal injury.
- Do not power the equipment before the AC cable connection and cable laying are completed.

NOTICE

- Ensure that wiring is connected in the correct sequence as specified. Otherwise, equipment damage may occur, and any resulting loss will not be covered under warranty.
- The power cabinet has two AC input terminals; ensure both are connected to the system.



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

- Step 1** Ensure the circuit breaker between the power cabinet and the grid is open and cannot be accidentally closed.
- Step 2** Crimp the terminal onto the AC cables by referring to [4.3.1 SC Terminal Crimping](#).
- Step 3** Route the prepared AC cables through the foundation conduit to the power cabinet's bottom cable entry opening.
- Step 4** Use a socket wrench to secure the two AC cables to their respective terminals as shown in the figure.

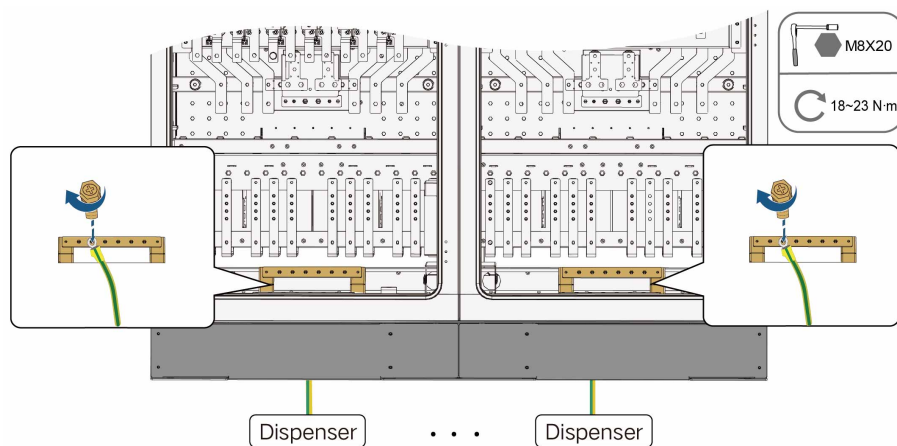


--End

4.5 Connect Equipotential Grounding Cable

Connect a grounding cable between each dispenser and the power cabinet to establish a common ground connection.

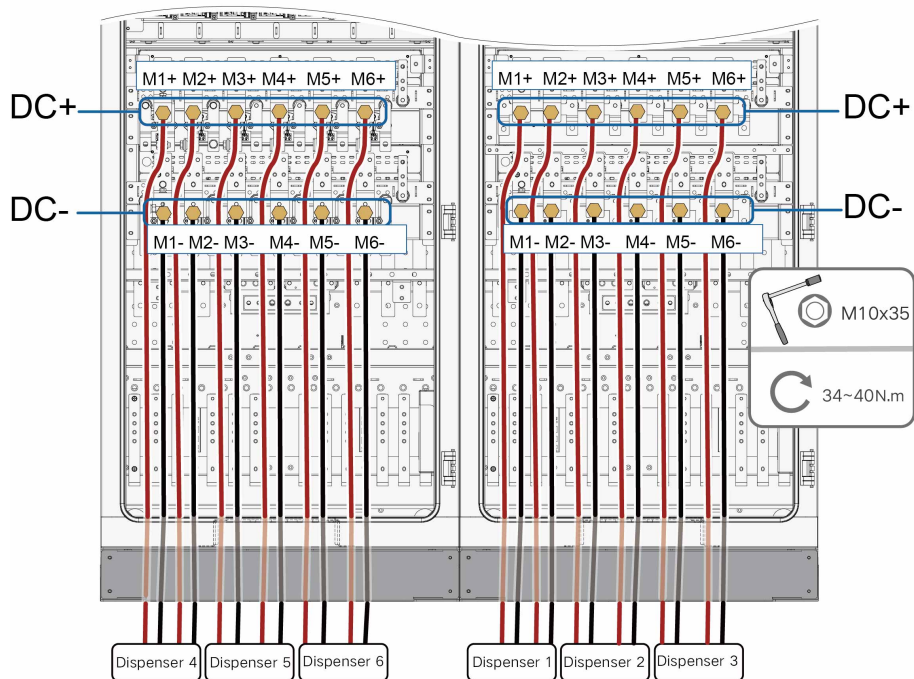
- Step 1** Fabricate the grounding cable and crimp terminals (see [4.3.1 SC Terminal Crimping](#) for details).
- Step 2** Route the prepared grounding cable through the foundation conduit to the power cabinet's bottom cable entry opening.
- Step 3** Using a socket wrench, connect the grounding cable to the grounding terminal block as shown in the diagram.
- Step 4** Connect the other end of the grounding cable to the dispenser.



--End

4.6 Connect DC Cables

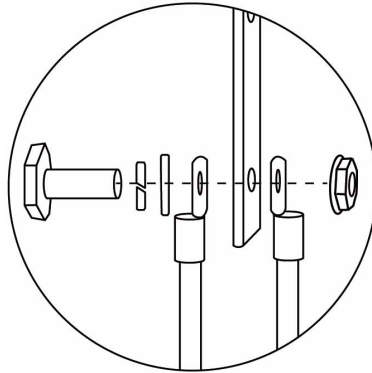
- Step 1** Ensure that the circuit breaker between the power cabinet and the power grid is disconnected and secured against accidental reclosure.
- Step 2** Prepare the DC cables and crimp the terminals. For details, see [4.3.1 SC Terminal Crimping](#).
- Step 3** Route the DC cables from the foundation conduit to the power cabinet's bottom cable entry hole.
- Step 4** Use a socket wrench to connect the positive DC cable to the corresponding terminal in the positive DC connection area, and the negative DC cable to the corresponding terminal in the negative DC connection area.
- Step 5** Route the other end of the DC cables into the dispenser's cable entry hole and secure them to the corresponding DC terminals.



This diagram shows the connection of a dual-conductor dispenser as an example. During installation, connect the cables correctly according to the actual equipment configuration on-site.

NOTICE

- Ensure that the positive and negative DC cables are correctly matched; otherwise, the equipment may not operate properly.
- If a dual-cable parallel wiring method is used, refer to the diagram below.

**Figure 4-2** Dual-cable Parallel Wiring Diagram

- **Typical system configuration 1: CDC1000E power cabinet + 1 MCS dispenser + 2 ultra-fast dispensers with two charging connectors**

Dispenser Type	Power Cabinet Terminal Location
MCS dispenser	DC1+/DC1- (CCS2): M5+, M5- (slave cabinet) DC2+/DC2- (MCS): M2+, M2- (master cabinet)
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M5+, M5- (master cabinet) DC2+/DC2-: M6+, M6- (master cabinet)
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M3+, M3- (slave cabinet) DC2+/DC2-: M4+, M4- (slave cabinet)

- **Typical system configuration 2: CDC1000E power cabinet + 3 ultra-fast dispensers with two charging connectors**

Dispenser Type	Power Cabinet Terminal Location
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M1+, M1- (master cabinet) DC2+/DC2-: M2+, M2- (master cabinet)
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M3+, M3- (master cabinet) DC2+/DC2-: M4+, M4- (master cabinet)
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M1+, M1- (slave cabinet) DC2+/DC2-: M2+, M2- (slave cabinet)

- **Typical system configuration 3: CDC1000E power cabinet + 2 ultra-fast dispensers with two charging connectors + 2 fast dispensers with two charging connectors**

Dispenser Type	Power Cabinet Terminal Location
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M3+, M3- (master cabinet) DC2+/DC2-: M4+, M4- (master cabinet)
Fast dispenser with two charging connectors	DC1+/DC1-: M5+, M5- (master cabinet) DC2+/DC2-: M6+, M6- (master cabinet)
Fast dispenser with two charging connectors	DC1+/DC1-: M1+, M1- (slave cabinet) DC2+/DC2-: M2+, M2- (slave cabinet)
Ultra-fast dispenser with two charging connectors	DC1+/DC1-: M3+, M3- (slave cabinet) DC2+/DC2-: M4+, M4- (slave cabinet)

--End

4.7 Power Cable Connection

The power cabinet connects to the dispenser via a power cable to supply power.

- Step 1** Fabricate the cable and crimp cold-press terminals (see [4.3.2 Crimp Cord-end Terminal](#) for details).
- Step 2** Route the prepared power cable through the foundation conduit to the power cabinet's bottom cable entry opening, then connect to the power supply wiring terminal.
- Step 3** Connect the other end of the power cable to the power supply wiring terminal on the dispenser.

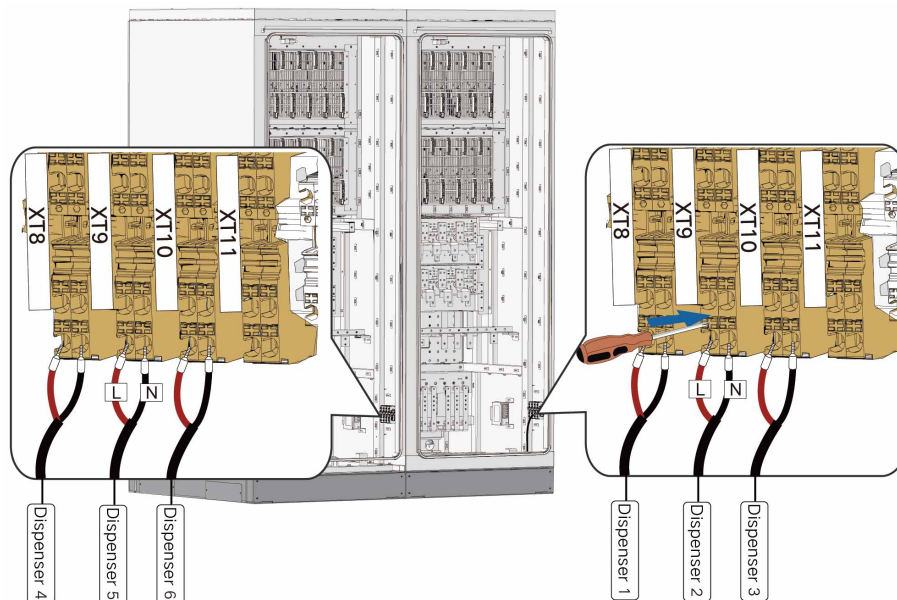


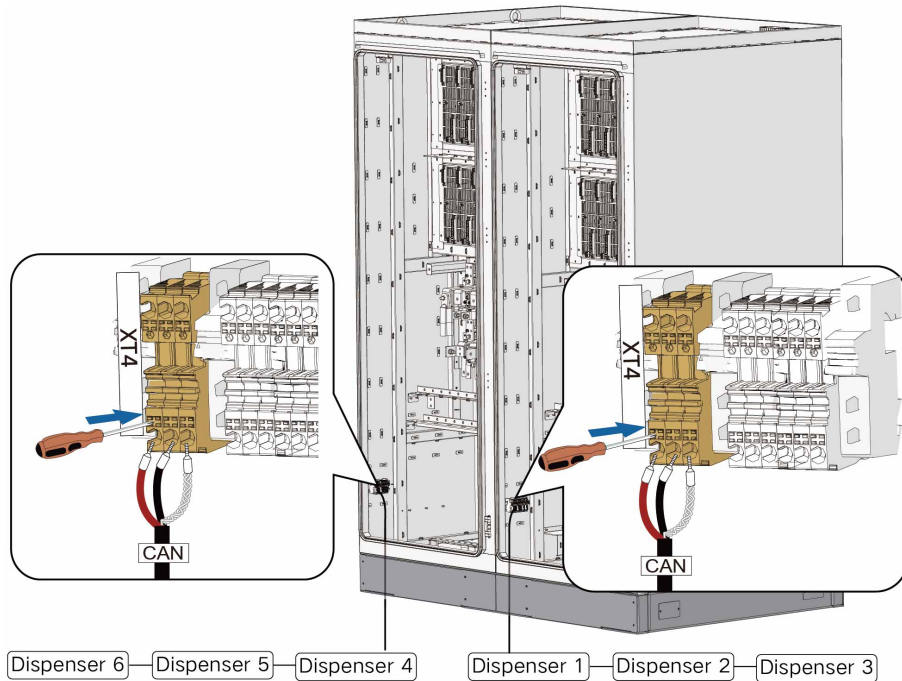
Figure 4-3 Power Cable Wiring Diagram

--End

4.8 CAN Communication Connection

The power cabinet is connected to the dispenser via a CAN cable to enable communication between the power cabinet and the dispenser.

- Step 1** Fabricate the cable and crimp cold-press terminals (see [4.3.2 Crimp Cord-end Terminal](#) for details).
- Step 2** Route the crimped communication cable through the foundation conduit to the DC cable entry opening at the bottom of the power cabinet, then connect to the CAN interface.
- Step 3** Connect the other end of the CAN cable to the CAN interface on the dispenser.

**NOTICE**

Always connect the CAN shield wire. Otherwise, communication errors may occur.



Connect the CAN cables in a daisy-chain configuration.

--End

4.9 Establish Network Communication

The equipment can connect to the network via Ethernet or 4G to transmit communication data to the cloud platform, enabling operation and maintenance through the cloud.

4.9.1 Communication Interfaces

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.

Table 4-2 Hardware Interfaces

Interfaces	Visible	Default Status	Use Case
Ethernet interface (Router)	Y	Enable	Network Communication
Ethernet interface (TCU)	Y	Enable	
4G Communication Slot (Router)	Y	Disable	4G Communication
4G Communication Slot (TCU)	Y	Enable	
Wifi interface (Router)	N	Disable	Communication via WiFi
Wifi interface (TCU)	N	Disable	

Table 4-3 Supported Communication Protocols

Protocols	Description
HTTP+TLS	OCPP server connection, connect with terminal
LTE	4G SIM card communication

The charger operates a web service via port 8089 (enabled in the factory default state), 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	SIM card

Communication Method	Technical Data	Connection Method
	Transmitting Power: • 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 port

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.

4.9.2 SIM Card Installation

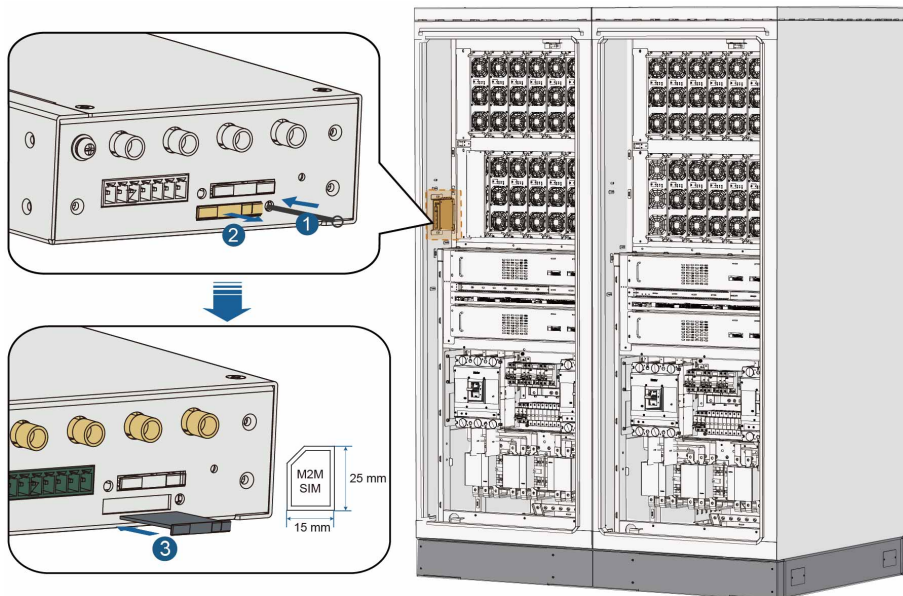
If 4G connectivity is selected, install the SIM card as follows.

Material preparation

Use an industrial-grade SIM card (2FF, 25 mm × 15 mm).

Step 1 Open the cabinet door and locate the SIM card slot on the router.

Step 2 Insert the SIM card into the slot.





- Install a SIM card for each device. SIM cards can be purchased independently or ordered from Sungrow.
- The network connection will be disconnected when the monthly data allowance is exhausted. Purchase additional data promptly to restore service.
- Select an appropriate data plan based on the number of devices in the charging system. It is recommended to allocate 500 MB per device per month. For example, for a system with one power cabinet and three dispensers, a 2 GB/month data plan is recommended.
- Before using the SIM card for network access, contact Sungrow or the SIM card provider to add the required IP addresses to the carrier whitelist.
- When the SIM card validity period expires, the network connection will be disconnected. To continue using the service, renew the plan and purchase additional data.

--End

4.9.3 Ethernet Connection

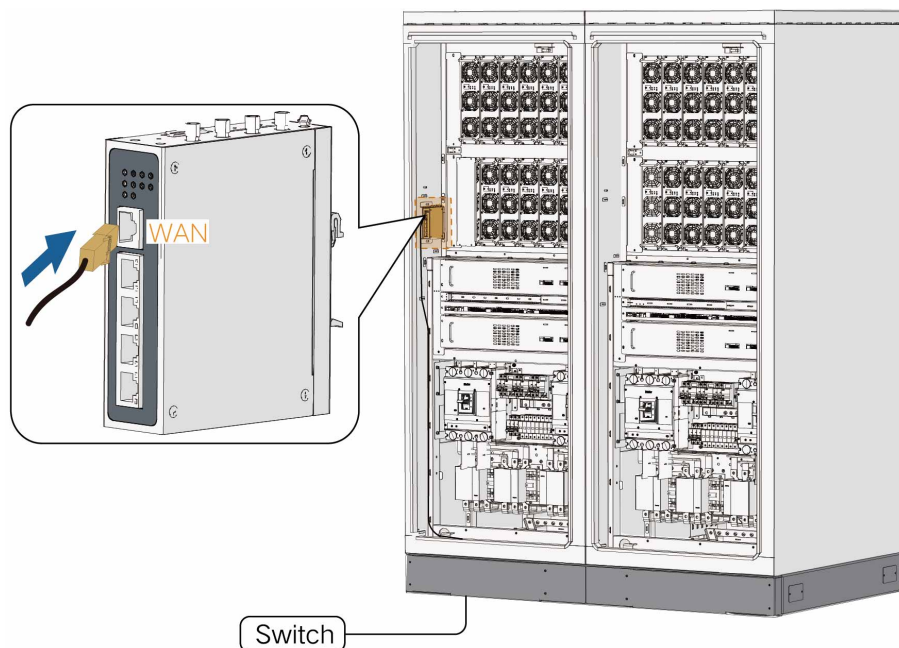
If the user chooses to access the internet via Ethernet, perform the Ethernet connection procedure.

Material preparation

It is recommended to use shielded Cat5e or higher Ethernet cables.

Step 1 Route the Ethernet cable from the foundation's cable passage hole to the cabinet's cable entry hole.

Step 2 Following the diagram, insert the RJ45 plug of the Ethernet cable into the network port on the router.



Step 3 When you hear a click, gently pull the network cable plug to verify that it is securely seated. This confirms that the installation is complete.

--End

4.9.4 Dispenser Network Connection

The dispenser connects to the power cabinet via Ethernet, transmitting communication data to the cloud platform for operation and maintenance.

Prerequisite

F/UTP Cat5e cables are recommended. The cables must be provided by the user.

Step 1 Open the cabinet door and locate the Ethernet port on the switch.

Step 2 Route the Ethernet cable from the foundation conduit to the dispenser's bottom cable entry hole, and insert it into the corresponding network port. When you hear a click, gently pull the network cable plug to verify that it is securely seated. This confirms that the installation is complete.

Step 3 Connect the other end of the network cable to the dispenser's network interface.

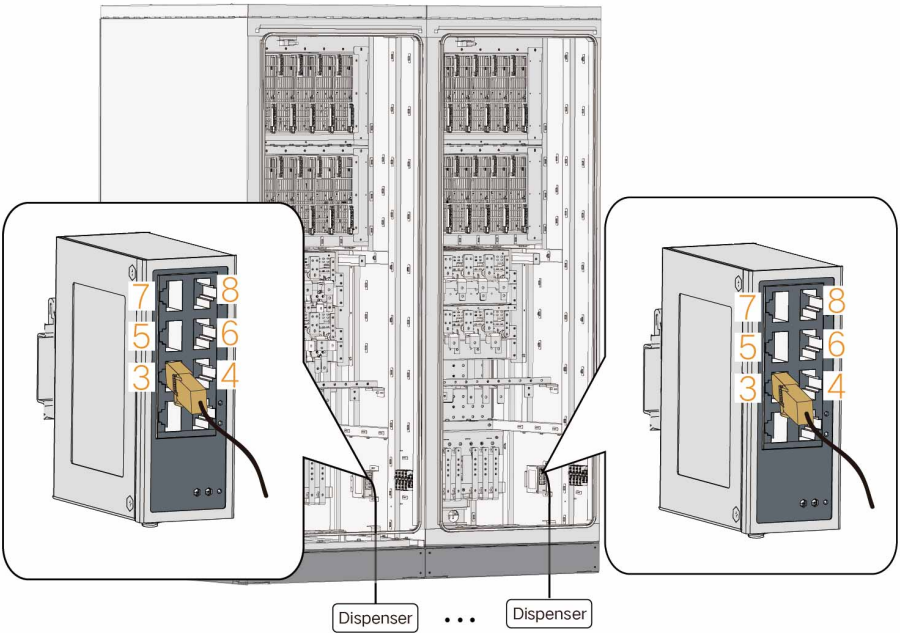


Table 4-5 Connections Between Switch Network Ports and Dispensers

Power Cabinet	Switch Network Ports	Dispenser
Master cabinet	Network port 3	Dispenser 1
	Network port 4	Dispenser 2
	Network port 5	Dispenser 3
Slave cabinet	Network port 3	Dispenser 4
	Network port 4	Dispenser 5
	Network port 5	Dispenser 6

--End

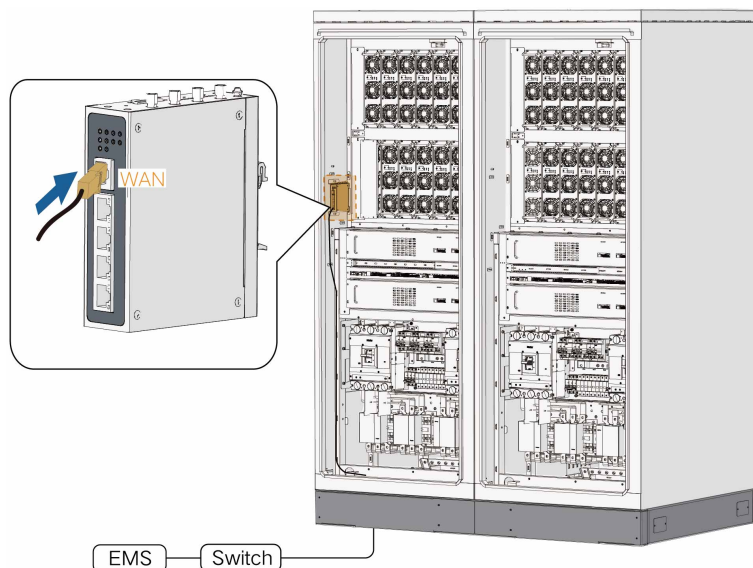
4.10 Connect EMS Controller

If the power cabinet uses Ethernet and the EMS is on the same network, connect the EMS directly to the switch in the power cabinet's network. If the power cabinet uses 4G, connect the EMS network to the WAN port.

Material preparation

It is recommended to use shielded Cat5e or higher Ethernet cables.

- Step 1** Route the Ethernet cable from the foundation's cable passage hole to the cabinet's cable entry hole.
- Step 2** Connect the router at the front door of the power cabinet to the external switch using an Ethernet cable.
- Step 3** Connect the external switch to the EMS controller using an Ethernet cable.



--End

5 Power Unit Operation

The power unit is a modular power conversion unit inside the DC charger. Multiple units can be used in parallel to expand the system's power capacity.



To prevent damage during transport, the power units are shipped separately and are not pre-installed in the cabinet. Complete the installation and configure the DIP switches for the power units on-site.

5.1 Power Module Layout

For the location and numbering of each power module in the CDC1000E, refer to the figure below or the labels printed on the cabinet.

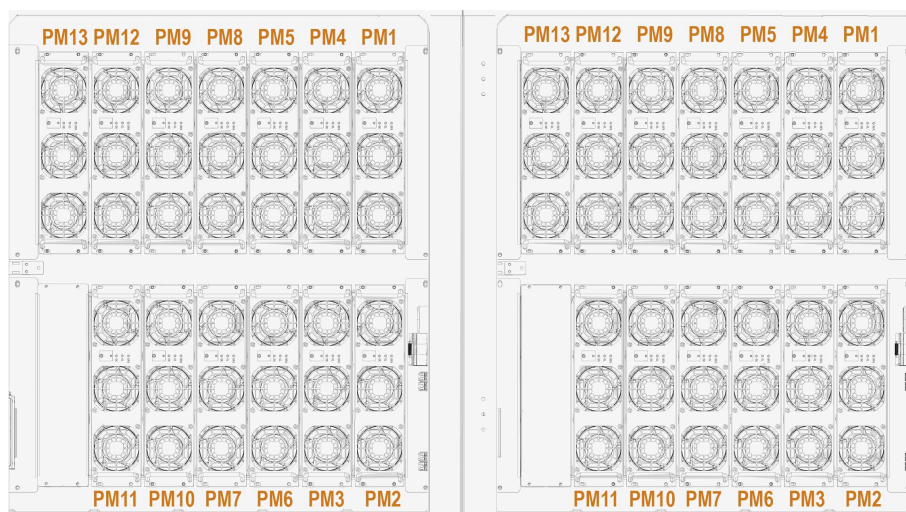


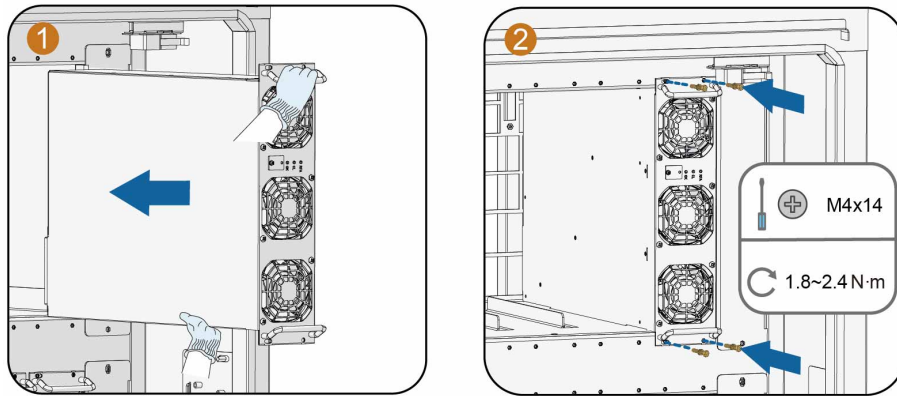
Figure 5-1 CDC1000E Power Unit Layout Diagram

5.2 Power Module Installation

Step 1 Open the front door of the charger.

Step 2 Hold the charging module with both hands and slide it into its slot in the cabinet. Slowly push the module fully into the slot and ensure it is properly seated.

Step 3 Tighten the screws on both sides of the charging module to secure it in the cabinet.



--End

5.3 Power Module DIP Switch Settings

After installation, set the DIP switches for each power module according to the addressing rules.

Step 1 Use a screwdriver to loosen the screws securing the transparent cover of the DIP switches.

Step 2 Refer to the labels on the cabinet. Use a screwdriver or tweezers to set the address DIP switches.

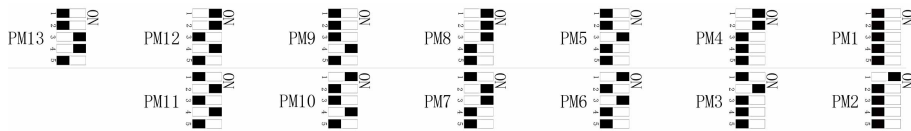


Figure 5-2 Power Module DIP Switch Diagram



Follow the labels printed on the cabinet when setting the DIP switches; otherwise, the power distribution may malfunction.

--End

6 Power-On and Commissioning

6.1 Inspection Before Power-on

To ensure safe operation, perform the following inspections before powering on the charger.

⚠ CAUTION

Do not energize the charger until all inspections are completed.

Table 6-1 Inspection Items

Item	Methods/Tools	Requirements
Appearance	Visual inspection	• No visible scratches or deformation on the enclosure. • No paint peeling on the equipment surface. • All cabinet parts and components are securely fastened, with clear nameplates and markings.
Environment	Visual inspection	• Equipment placement and surrounding space comply with design drawings. • Proper ventilation environment with no obstructions above or around the cabinet.
Charging connector	Visual inspection	• No water stains or foreign objects in the charging connector. • Charging cable is undamaged.
Electrical connection	Visual inspection/ Screwdriver	• All cable connections are securely fastened. • DC cable connections match the wiring diagram with no reverse connection or short circuit. • AC cable connections match the wiring diagram with correct phase sequence and no reverse connection or short circuit. • Grounding cables are securely connected with no short circuit. • Heat shrink tubing is applied at terminal-to-cable connections with no exposed conductors.

Item	Methods/Tools	Requirements
		Copper-to-aluminum terminals are used when connecting aluminum cables.
Maintainability	Visual inspection	- Cables are secured at the nearest tie points with cable ties—proper tension and consistent orientation. - Different cable types are separately bundled and labeled. - Cable routing allows easy access for maintenance.

6.2 Commissioning Steps

Ensure the equipment is correctly installed and all pre-commissioning checks are completed. Perform initial power-up commissioning before first use.

⚠ 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 After completing equipment wiring, install the protective cover before power-up to prevent accidental contact with live components during subsequent operations.

Step 2 Close the upstream AC circuit breaker.

NOTICE

Use upstream circuit breakers that are either 3P molded case breakers without residual current protection or 3P+N molded case breakers with residual current protection.

Step 3 Before closing the internal circuit breaker of the power cabinet, measure the voltage on both sets of busbars in the following sequence to verify that the input voltage is normal.

Table 6-2

Test Point 1	Test Point 2	Normal Voltage Range
L1	L2	323 V–440 V
L1	L3	

Test Point 1	Test Point 2	Normal Voltage Range
L2	L3	187 V–254 V
L1	N	
L2	N	
L3	N	

Step 4 Switch on the molded case circuit breaker, surge protection breaker, power supply circuit breaker, and fan circuit breaker.

Step 5 Close all doors and check the indicator on the front door. A steady green light indicates the power cabinet is in standby mode.

Step 6 After completing the above steps, perform charging commissioning by referring to the dispenser's commissioning instructions.



- When only the power cabinet is powered, the indicator flashes red (normal state). Once the dispenser is powered and communication is established, the indicator remains steady blue, indicating normal operation.
- In an emergency, press the emergency stop button on the cabinet to halt charging immediately.

--End

6.3 Post-Commissioning Operation

Step 1 See [7.2 Power off Equipment](#) for powering down both the power cabinet and the dispenser.

Step 2 Position the inlet cover plate to minimize gaps around cable entry/exit openings, providing better support for firestop putty and preventing displacement.

Step 3 Use firestop putty from shipped accessories to seal all cable gap openings.

NOTICE

- **Always use firestop putty or other fire- and water-resistant materials to seal equipment cable entry/exit gaps, preventing foreign object or moisture ingress that could compromise long-term operation.**
- **If firestop putty hardens, heat and soften with a heat gun before use.**

Step 4 Reinstall the removed protective plate on the cabinet.

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



- Never forcibly close cabinet doors with stop or sliding rods installed.
- Before closing the doors, clean all installation tools, metal parts, and debris from inside the cabinet.

Step 6 Install cabinet bottom plates and clean the work area.

--End

7 Device Maintenance

7.1 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 [7.2 Power off Equipment](#).
- 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.

7.2 Power off Equipment

Prerequisite

Power off the equipment before routine inspections or maintenance.

CAUTION

Even after shutdown, components may remain hot and cause burns. Wear safety gloves when operating the equipment after it cools down

Follow these steps to power off the equipment. Failure to do so may cause personal injuries or device damage.

- Step 1** Ensure the charging connector is detached from the EV.
- Step 2** Disconnect the AC circuit breaker in the upstream distribution panel of the power cabinet.
- Step 3** Open the power cabinet's cabinet door and switch off the molded-case circuit breaker, surge protection breaker, power supply breaker, and fan breaker.

Step 4 Open the dispenser cabinet door and switch off the internal miniature circuit breaker.

Step 5 Wait 10 minutes before performing voltage test.

- a. Confirm that the indicator and the display are both off.
- b. Use a multimeter set to AC mode to measure the voltage at the two AC input copper bars in the power cabinet, ensuring input voltage is 0.

Table 7-1 AC Input Voltage of the Power Cabinet

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

- c. 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 V.
- d. Measure the voltage between each DC+ output copper bar and its corresponding DC- output copper bar in the power cabinet using a multimeter set to DC mode to confirm the voltage is 0 V.

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

NOTICE

During operation of the charging system, maintenance on any dispenser within the system is prohibited if the power cabinet or any other dispenser is active. If maintenance is required, shut down the equipment following the steps above.

--End

7.3 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 components, such as the charging connector holder and antenna.	Once every 6 months
Device Structure	- Check if the parts and components of the charger 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 up the dust-proof fabric (if any) and dirt and dust inside the charger, and check if there is any wet spot.	Once every 6 months
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
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

7.4 Dust Filter Cleaning

Regular cleaning of the dust filters helps prevent poor heat dissipation and hardware damage caused by dust accumulation, thereby extending the equipment service life and maintaining stable performance.

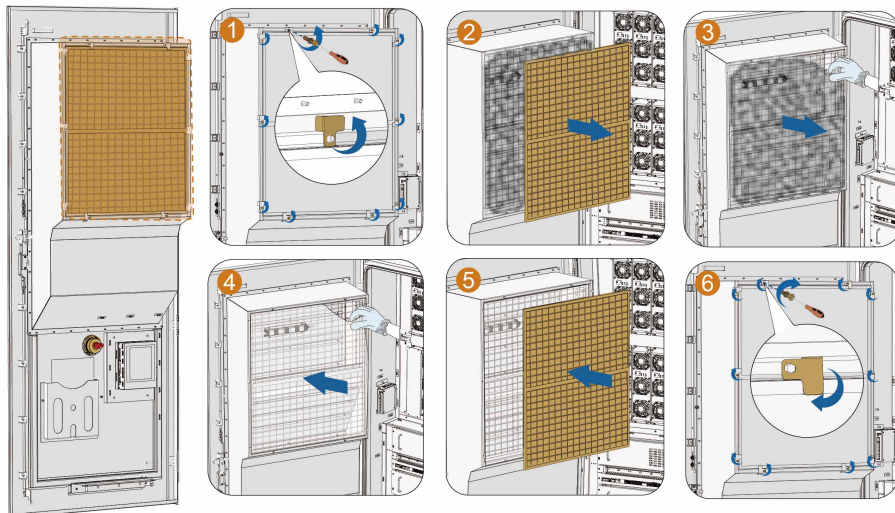
NOTICE

For the recommended inspection and cleaning intervals, refer to [7.3 Routine Inspection](#).

If the equipment operates in heavy dust or other highly polluted environments, shorten the maintenance interval as appropriate to ensure performance and reliability.

Step 1 Clean the dust filter located on the front door.

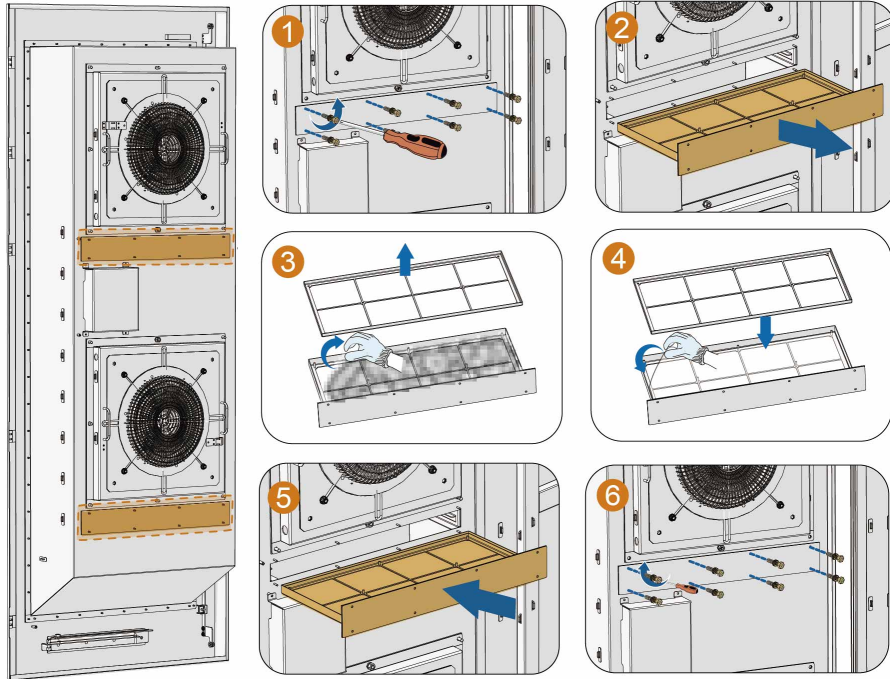
- a. Open the front door of the equipment and locate the dust filter above the door.
- b. Use a screwdriver to slightly loosen the captive screws on the frame to allow the latches to rotate.
- c. Rotate the latches and remove the metal mesh and dust filter in sequence.
- d. Rinse the metal mesh and dust filter gently with clean water, and then allow them to dry completely.
- e. Place the cleaned or new dust filter flat into the frame, ensuring the edges are aligned without folds.
- f. Reinstall the metal mesh, reset the latches, and tighten the captive screws to ensure a secure installation.



Step 2 Clean the dust filter located on the rear door.

- a. Open the rear door and locate the two dust filters.
- b. Remove the fixing screws with a screwdriver and store them properly.
- c. Pull the metal frame outward horizontally.

- d. Remove the metal mesh and dust filter in sequence. Rinse the metal mesh and dust filter gently with clean water, and then allow them to dry completely.
- e. Place the cleaned or new dust filter flat into the metal frame, ensuring the edges are aligned without folds. Place the metal mesh directly on top of the dust filter.
- f. Push the assembled metal frame back into its original position.
- g. Reinstall and tighten the screws to ensure a secure and stable installation.



--End

8 Appendix

8.1 Technical Data

Table 8-1 Technical Data

Technical Parameters	Power Cabinet
AC input	
Grid voltage	3/N/PE, 400 V AC ($\pm 10\%$)
Nominal grid frequency	50 Hz/60 Hz
Power factor	0.9 C–0.9 L
Standby power	≤ 70 W
Earthing system	TN-C, TN-S, TN-C-S, TT
Total harmonic distortion (THDi)	< 5% at full output power
Overvoltage category	III
DC output	
Max. output power	1000 kW (500 kW $\times$ 2)
Output voltage range	150 V DC–1000 V DC
Number of output	Max. 12
Maximum DC current per output	800 A
Max. efficiency	97%
General data	
Dimensions (W $\times$ H $\times$ D)	800 mm $\times$ 2200 mm $\times$ 1126 mm (500 kW)
Operating temperature	-35°C–55°C
Operating humidity range	5%–95% (non-condensing)

Technical Parameters		Power Cabinet
Operating altitude		≤ 2000 m
Mechanical impact protection		IK10 (enclosure)
Enclosure rating		IP55
Communication		
Communication interface		WLAN/4G/Ethernet/RS485
Communication protocol (charger-to-CSMS)	OCPP 1.6 J Ready for OCPP 2.0.1	
User interface		
Emergency stop		Yes
Display		LED indicator

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.

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.

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://www.sungrowpower.com/en/about-us/contact-us>

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