POWER TECHNOLOGY
THE EV CHARGING COMPANY

DC HiPower

Installation and Operation Manual

Version 1.5

UL Model

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1. Using This Manual

This manual describes the installation and use of the DC HiPower. Prior to installation, read through this manual to become familiar with the instructions of this DC HiPower to ensure a successful installation and smooth operations.

1.1 Signal Word



DANGER
Indicates an imminently hazardous situation with a high risk level which, if the danger is not avoided, will cause death or serious injury.



WARNING
Indicates a potentially hazardous situation with a moderate risk level which, if the warning is not obeyed, can cause death or serious injury.



CAUTION
Indicates a potentially hazardous situation with a medium risk level which, if the caution is not obeyed, may cause minor or moderate injury or damage to the equipment.



NOTICE
Provides helpful information such as additional explanations, tips, and comments.

1.2 Target Group

This documentation is intended for:

Owner of the DC HiPower (see *2.2 Owner Responsibilities*)

Installation Engineer (see *2.3Installation Engineer Qualifications*)

Commissioning Engineer

1.3 Revision History

Version	Date	Descriptions
V1.0	2024.03	Initial version
V1.1	2024.08	Added the installation instruction for the charging module
V1.2	2024.10	Updated the distance between the dispenser and the power cabinet as well as the distance between the power cabinet and the upstream distribution; Added the specifications for UT320M5301, UT320N5301 and UT320A5301 Air Cooled Dispenser
V1.3	2025.02	Updated the indicator descriptions
V1.4	2025.05	Added the content related to the DT320
V1.5	2025.08	Updated the illustrations of the cabinet's foundation and cable opening laying

1.4 Terminology

Term	Definition
AC	Alternating current
CCS	Combined charging system, a standard charging method for electric vehicles
CCU	Charging control unit, a control unit used to communicate with the BMS (Battery Management System) and control the power delivery to the EV
CHAdeMO	Abbreviation of CHArge de MOve, a standard charging method for electric vehicles
DC	Direct current
dECU	Dual-input equipment control unit
EV	Electric vehicle
MCCB	Molded case circuit breaker, opens and closes a low voltage circuit and breaks the fault current automatically to protect wirings/conductors of the circuit
MxCU	Matrix control unit
OCPP	Open charge point protocol, open standard for communication with charging stations
RCBO	Residual current breaker with overload
RCD	Residual current device, a device that breaks an electrical circuit when it detects a current leakage
RFID	Radio-frequency identification, a method of charging authentication
SCB	Signal conversion board
sECU	Simplified equipment control unit
SPD	Surge protection device, a device intended to protect against transient surge conditions
TCU	Transaction control unit, intelligent hardware to handle the human-machine interface, metering, transaction, and communication with back office

2. Safety

Thesafety messages herein cover situations of which PowereTechnology is aware. PowerTechnology cannot know, evaluate or adviseyou as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.

Preview the standard operating procedures and ensure that local building and electrical codes are reviewed before installing the equipment.

Read the manual before installing or using the equipment.

Do not install or use the equipment if the enclosure is broken, cracked, open, or has any other indication of damage.

The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.

This document provides instructions for the equipment and should not be used for any other product. Before installation or use of this equipment, review this manual carefully and consult with a licensed contractor, licensed electrician or trained installation expert to ensure compliance with local building codes and safety standards.

2.1 Safety Warnings

Ensure there is no voltage on the AC input cables during the complete installation procedure.

Keep unqualified personnel at a safe distance during installation.

All electrical wires used in the installation must comply with National Electric Code (NEC) to meet the rated current and voltage demand.

Ensure the load capacity of the grid is in accordance with the equipment.

Ensure the equipment is connected to a grounded, metal, and permanent wiring system. Otherwise, an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.

Ensure the connections to the equipment comply with all applicable local rules.

Ensure the wiring inside the equipment is protected from external factors. The cabinet doors should open and close freely without obstructing the wiring.

Ensure there is no damage to the gasket that may cause water intrusion.

Protect the equipment with safety devices and measures that the local rules specify.

Installation personnel must have the correct protective equipment such as protective clothing, safety gloves, safety shoes, and safety glasses.

2.2 Owner Responsibilities

The owner runs the equipment for commercial or business use or has authorized a third party to use it. The owner should protect the user, other employees or third parties when the equipment is in use. The owner bears the responsibilities as follows:

Know and obey the local codes and ordinances.

Ensure all employees and third parties are qualified to operate the equipment.

Ensure the equipment has installed the protective devices.

Ensure all the protective devices are installed after installation or maintenance.

Ensure the space around the equipment is sufficient to carry out installation or maintenance work.

Ensure there is a plan in place in case of an emergency.

Ensure there are no safety hazards on the site.

Have a site operator available who undertakes the safe operation of the equipment and all the coordination of work if the owner takes no part in the work.

Ensure the installation engineer follows the local codes and ordinances, the installation instructions, as well as the specifications of the equipment.

2.3 Installation Engineer Qualifications

Fully understands the equipment and its safe installation procedures.

Qualified according to local regulations to carry out the installation work.

Able to follow all the local regulations and this manual to complete the installation of the equipment.

2.4 Usage Instructions

Do not operate the equipment and immediately contact the manufacturer if any of the following situation arises:

Damage on the enclosure, charging cable or connector

Lightning has struck the equipment

Fire or flames at or near the equipment

Any sign of water damage on the equipment

2.5 Signs on the DC HiPower

Symbol	Risk Description
	General risk
	Hazardous voltage that gives risk of electrocution
	Waste from electrical and electronic equipment
	Ground/Earth connection

2.6 Disposal Instructions

Potential hazardous substances of the equipment can have a negative impact on the environment and human health if the waste is not handled properly. Dispose any waste as needed to protect the environment and promote the reuse and recycling of the materials.

2.7 Cyber Security



NOTICE

This section is applicable to the Ethernet and Wi-Fi connection.

The equipment can use a network interface for connection and information and data communication. The owner bears the responsibility of a secure connection between the equipment and the owner's network or any other networks.

Appropriate measures shall be taken by the owner to shield the equipment, the network, the system, and the interface from any security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. These measures may include firewall building, authentication methods, data encryption, and anti-virus programs installation, etc.

Autel is not liable for damages and/or losses pertaining to the security breaches described above.

3. General Introduction

When you need power now, this future-ready innovative design delivers up to 640kW and is perfect for fleet applications and highways service centers. Faster charging means less time waiting and an enhancing user experience. The DC HiPower is the unrivaled electric vehicle (hereinafter called EV) charging solution for people and business where time is the most value asset.

Intended Use

This DC HiPower is intended for the DC charging of an EV. It is intended for both indoor and outdoor use.

The DC HiPower has two main components:

Power cabinet — receives power from the grid and converts AC supply power to DC charging power

Dispenser — is connected to the power cabinet and charges electric vehicles

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DANGER



The equipment must be operated as described in this manual or other related documents released by PowerTechnology. Failure to comply may result in human injury and/or damage to the property.

Use the equipment only as intended.

NOTICE



The images and illustrations depicted in this manual may differ slightly from the actual product.

This manual describes the outdoor installation scenario. For indoor installation instructions, consult with your sales representative.

3.1 Power Configuration

The DC HiPower offers 360 kW, 480 kW, and 640 kW solutions with varied power configurations. See the table below for details.

Table 3-1 Power Configuration

Power Rating	*Liquid Cooled Dispenser*	*Air Cooled Dispenser*
480 kW	2 dispensers with 4 connectors (Max. 320 kW each)	4 dispensers with 8 connectors (Max. 160 kW each)
		2 dispensers with 4 connectors (Max. 200 kW each)
640 kW	2 dispensers with 4 connectors (Max. 480 kW each)	4 dispensers with 8 connectors (Max. 240 kW each)
		2 dispensers with 4 connectors (Max. 320 kW each)

Autel uses the Smart Power Distribution technology to maximize the charging efficiency. This technology is realized through the PowerTechnology patented Energy Cube and AI-driven switching algorithm. The Energy Cube manages the power source switching in a smart fashion to ensure efficient energy distribution, and the algorithm selects the best power source combination.

3.2 Nameplate



Figure 3-1 Sample Nameplate

1. Manufacturer’s logo
2. Product model
3. Power rating
4. Operating condition
5. Production date
6. Product weight
7. Manufacturer and its address
8. Place of origin
9. Product name
10. QR code — contains product serial number and other information
11. Product serial number
12. Conformity information
13. Manufacturer’s website

3.3 Product Overview

3.3.1 Power Cabinet

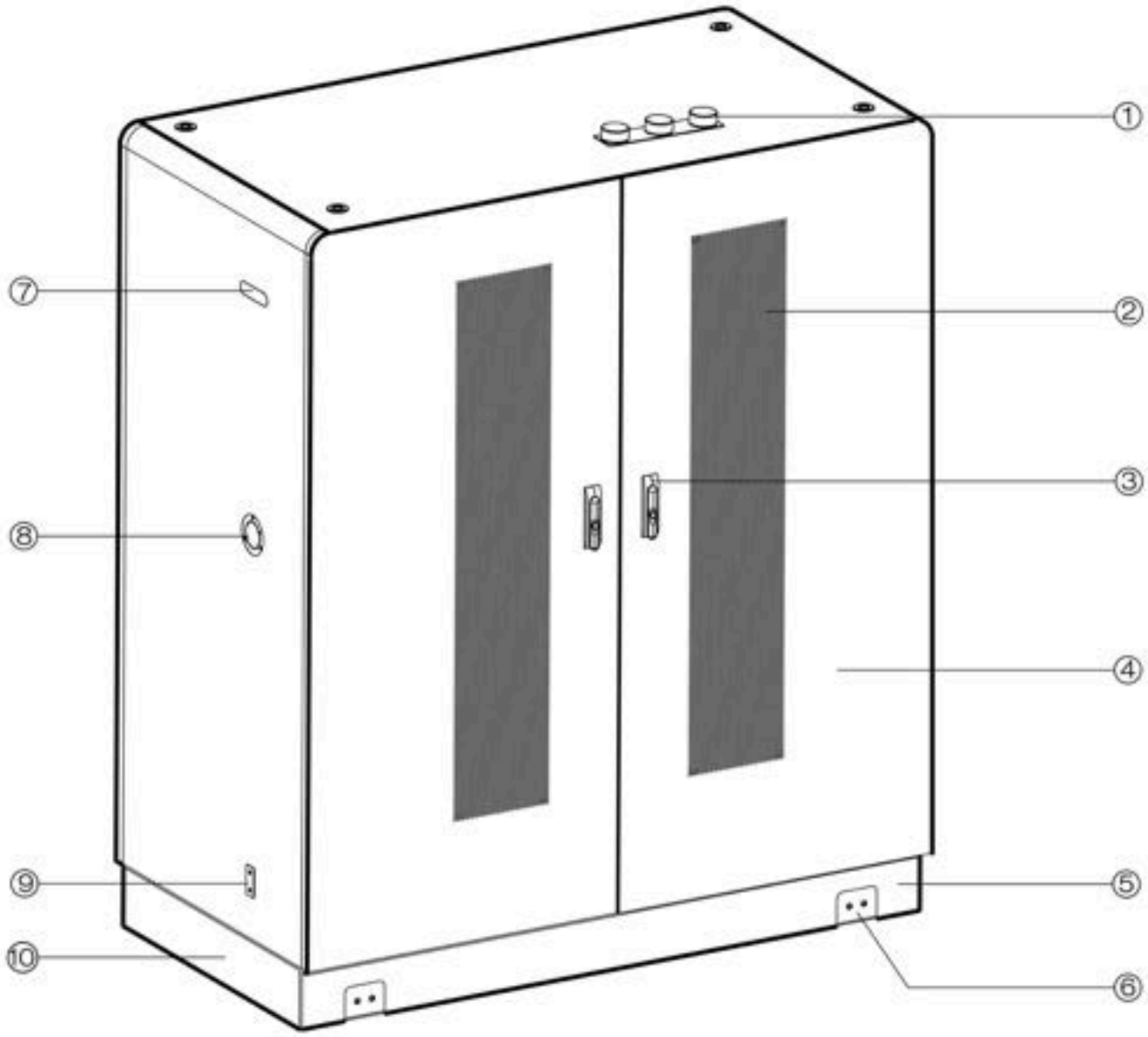


Figure 3-2 Power Cabinet Overview (Outside)

1. Antenna
2. Vent
3. Handle lock
4. Front cabinet door
5. Front base cover
6. Bracket mounting location
7. LED indicator (refer to *Table 3-2*)
8. Emergency stop button
9. Grounding bar
10. Side base cover

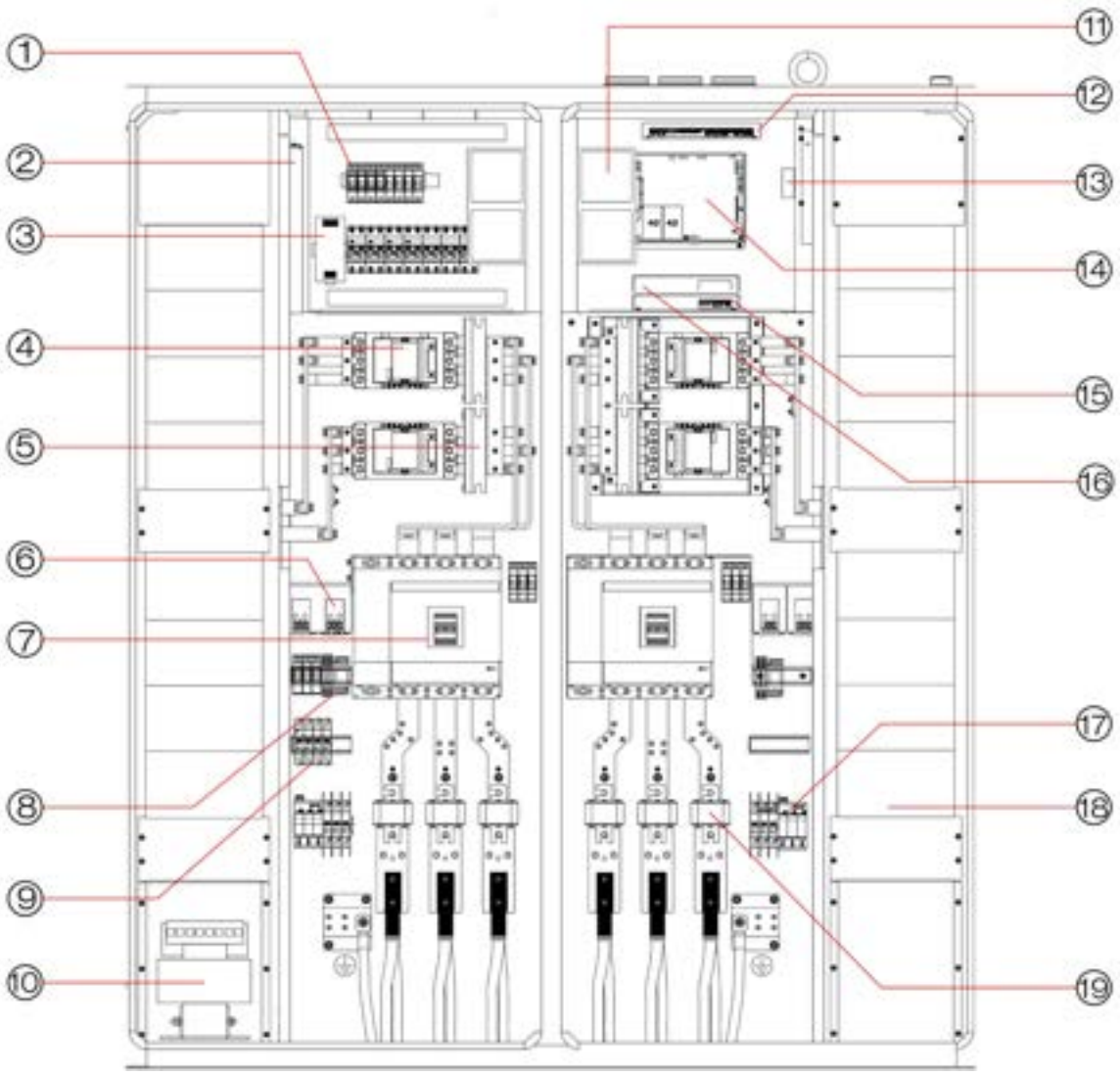


Figure 3-3 Power Cabinet Front Overview (Inside)

1. Fuse
2. Auxiliary power supply (48V)
3. Auxiliary power supply (24V)
4. AC contactor
5. CT sensor (optional)
6. Heater
7. MCCB
8. Relay
9. SPD circuit breaker
10. Transformer
11. Residual current device (RCD, optional)
12. dECU
13. Temperature and humidity sensor
14. TCU
15. MxCU
16. Router
17. SPD
18. Charging module
19. AC fuse

NOTICE
The residual current devices shown in the above illustration are optional. If needed, install a 300 mA external main circuit leakage protection.

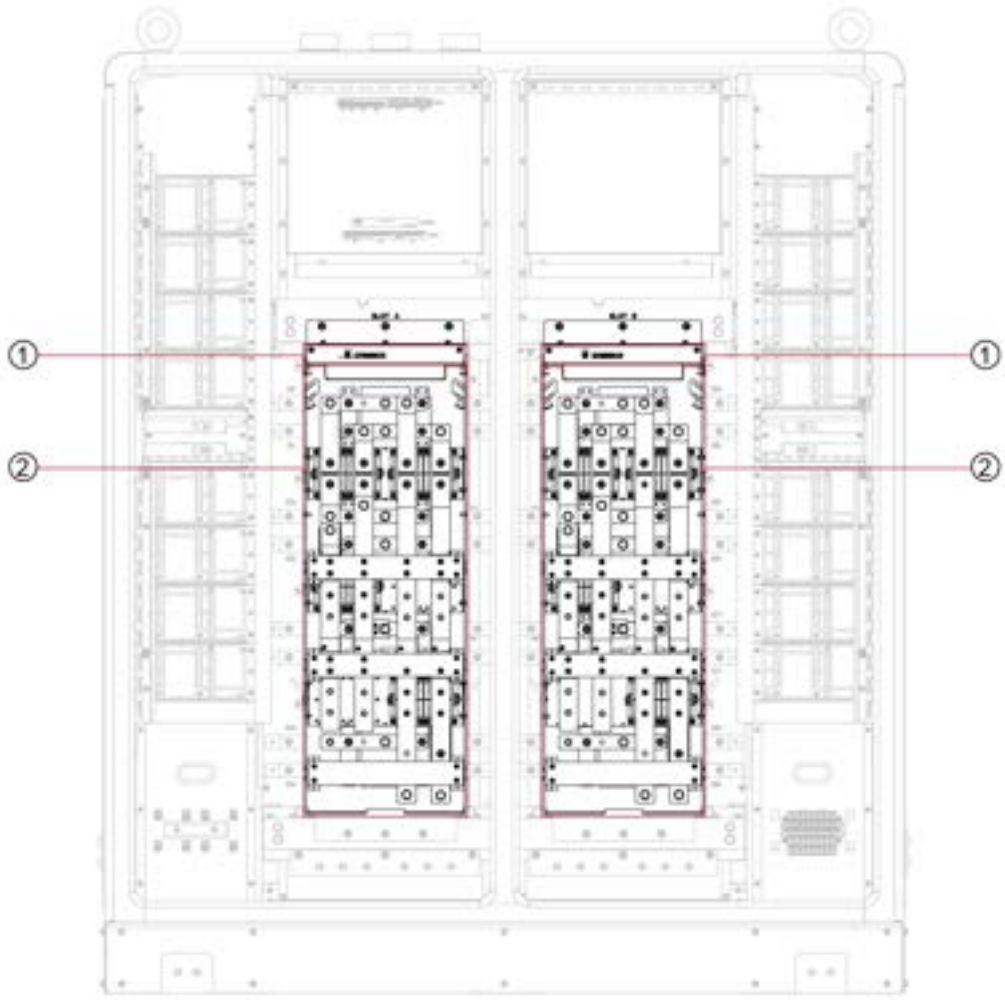
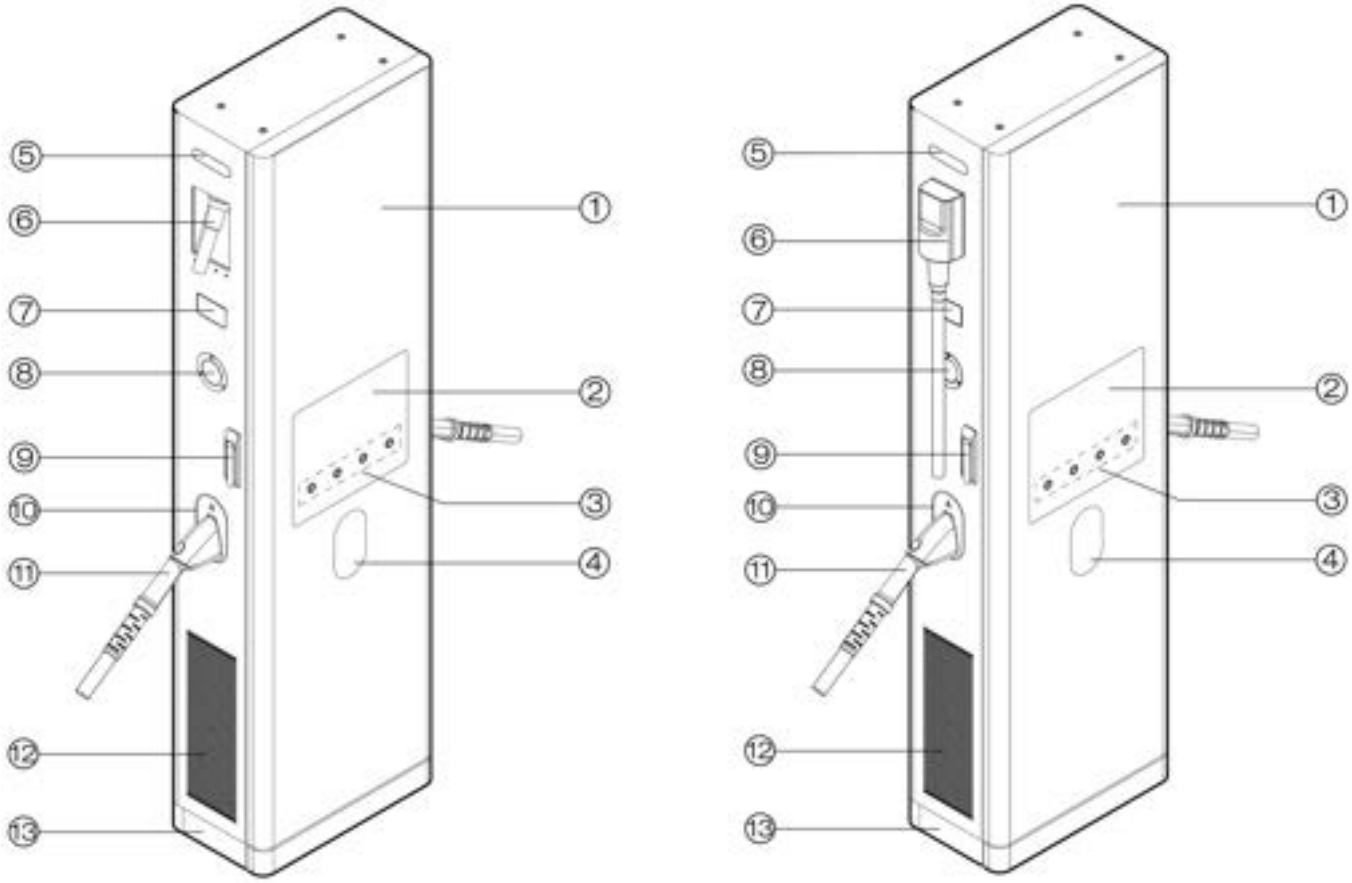


Figure 3-4 Power CabinetRear Overview (Inside)

1. Signal conversion board (SCB)
2. Matrix module

3.3.2 Dispenser



Air Cooled Dispenser Liquid Cooled Dispenser

Figure 3-5 Dispenser Overview (Outside)

1. Cabinet front door
2. 15.6” touchscreen
3. Operation button
4. POS device (optional)
5. LED indicator (refer to *Table 3-3*)
6. Cable exit
7. Meter (optional)
8. Emergency stop button
9. Handle lock
10. Holster indicator
11. Connector
12. Vent
13. Side base cover

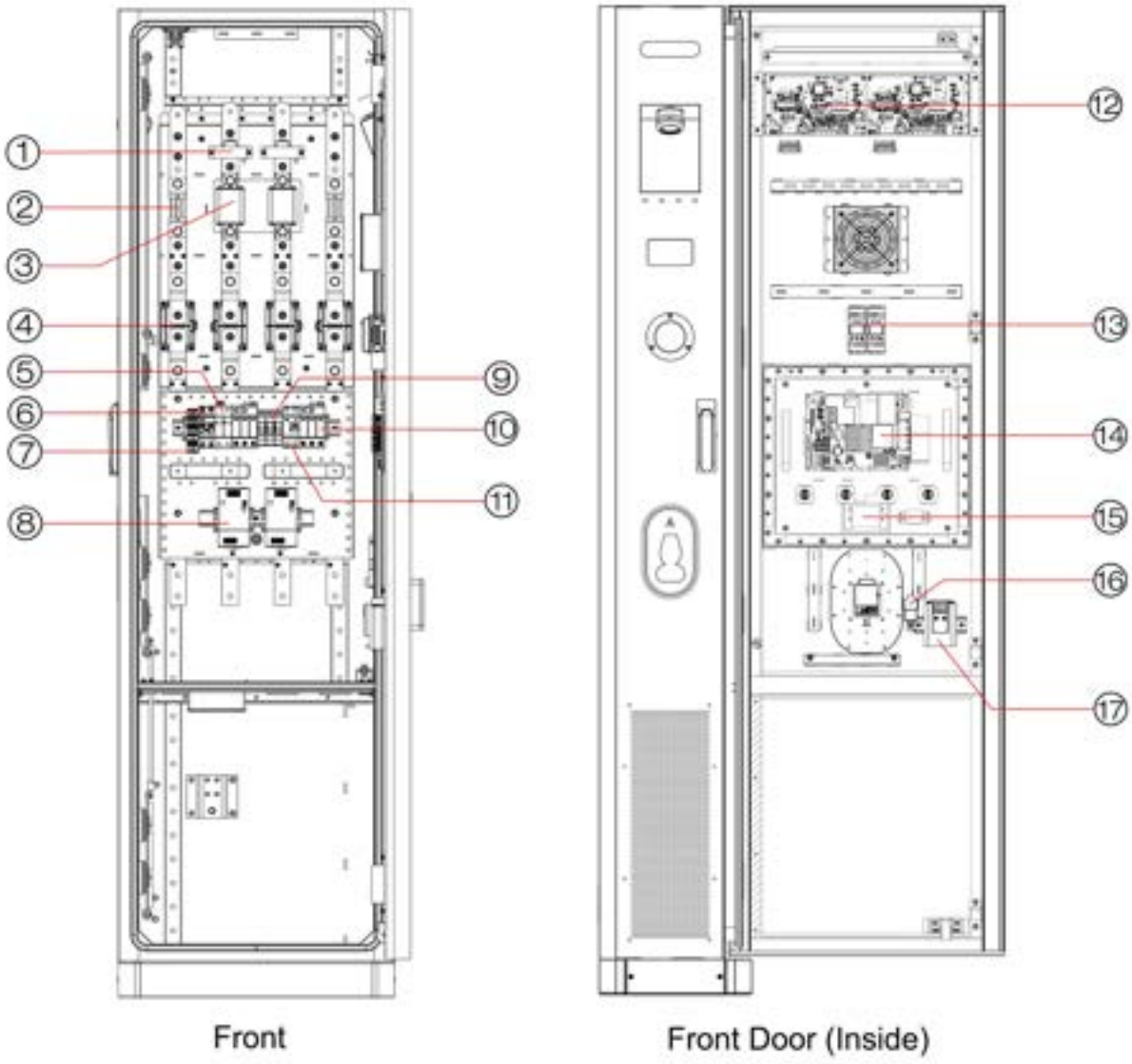


Figure 3-6 Air Cooled Dispenser Overview (Inside)

1. Hall sensor
2. Shunt
3. DC fuse
4. DC contactor
5. AC surge protection device
6. Circuit breaker
7. XT terminal
8. Auxiliary power supply
9. Fuse
10. DC surge protection device
11. Leakage protection
12. CCU
13. Meter
14. TCU
15. RFID
16. Relay
17. Heater

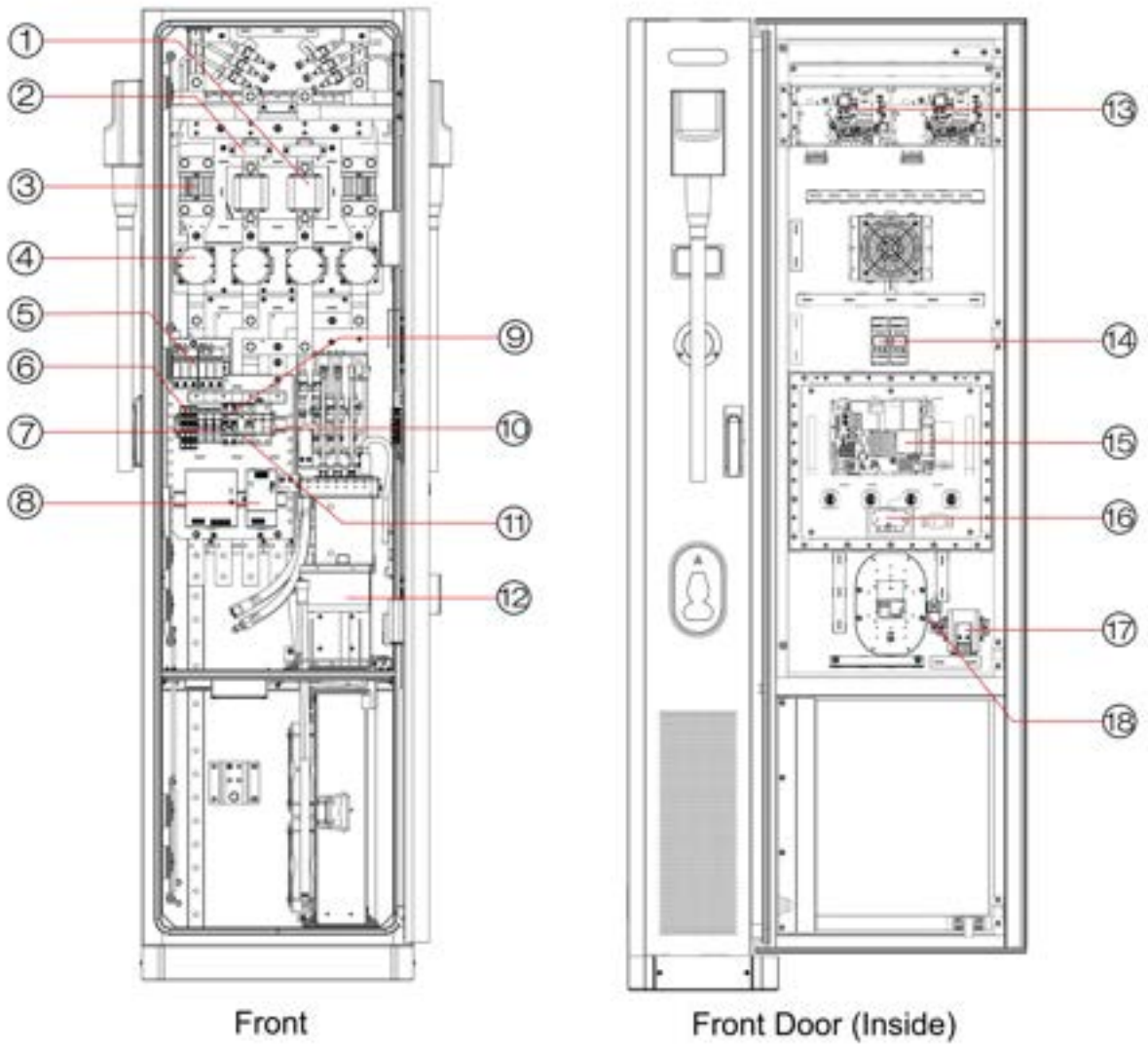


Figure 3-7 Liquid Cooled Dispenser Overview (Inside)

1. DC fuse	10. AC surge protection device
2. Hall sensor	11. Leakage protection
3. Shunt	12. Pump
4. DC contactor	13. CCU
5. DC surge protection device	14. Meter
6. XT terminal	15. TCU
7. Fuse	16. RFID
8. Auxiliary power supply	17. Heater
9. Circuit breaker	18. Relay

Table 3-2 Power Cabinet's Indicator Descriptions

Color	Description
Illuminating Green	The power cabinet is in idle mode.
Flashing Yellow	The power cabinet is upgrading.
Illuminating Red	The power cabinet is in offline mode or an error has occurred.
Illuminating Yellow	The power cabinet is unavailable.

Table 3-3 Dispenser Indicator's Descriptions

Color		Description
LED Indicator	Holster Indicator	
Illuminating Green	Illuminating Green	The dispenser is in idle mode.
Flashing Green	Flashing Green	The connector is connected to an EV.
Flashing Blue	Not illuminated	Charging status.
Illuminating Blue	Not illuminated	A charge session has ended.
Illuminating Red	Not illuminated	An error has occurred. The dispenser is in offline mode.
Flashing Yellow	Not illuminated	The dispenser is being upgraded.
Illuminating Yellow	Not illuminated	The dispenser is reserved. The dispenser is unavailable.



NOTICE

Autel can deliver the equipment with different payment terminals. The available options vary depending on the region of the installation. Consult PowerTechnology's customer service to obtain more information about the different payment options.

3.4 Product Dimensions

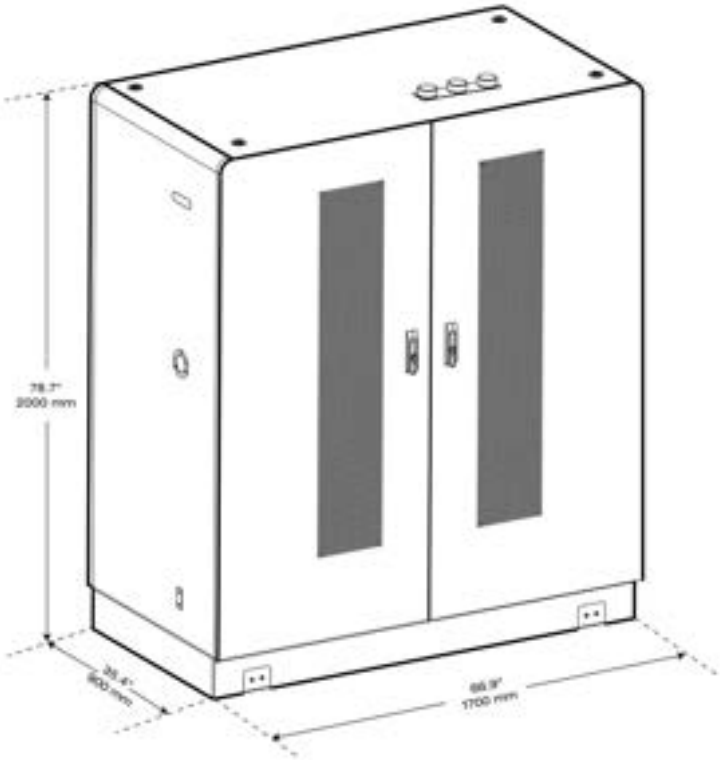


Figure 3-8 Power Cabinet Dimensions

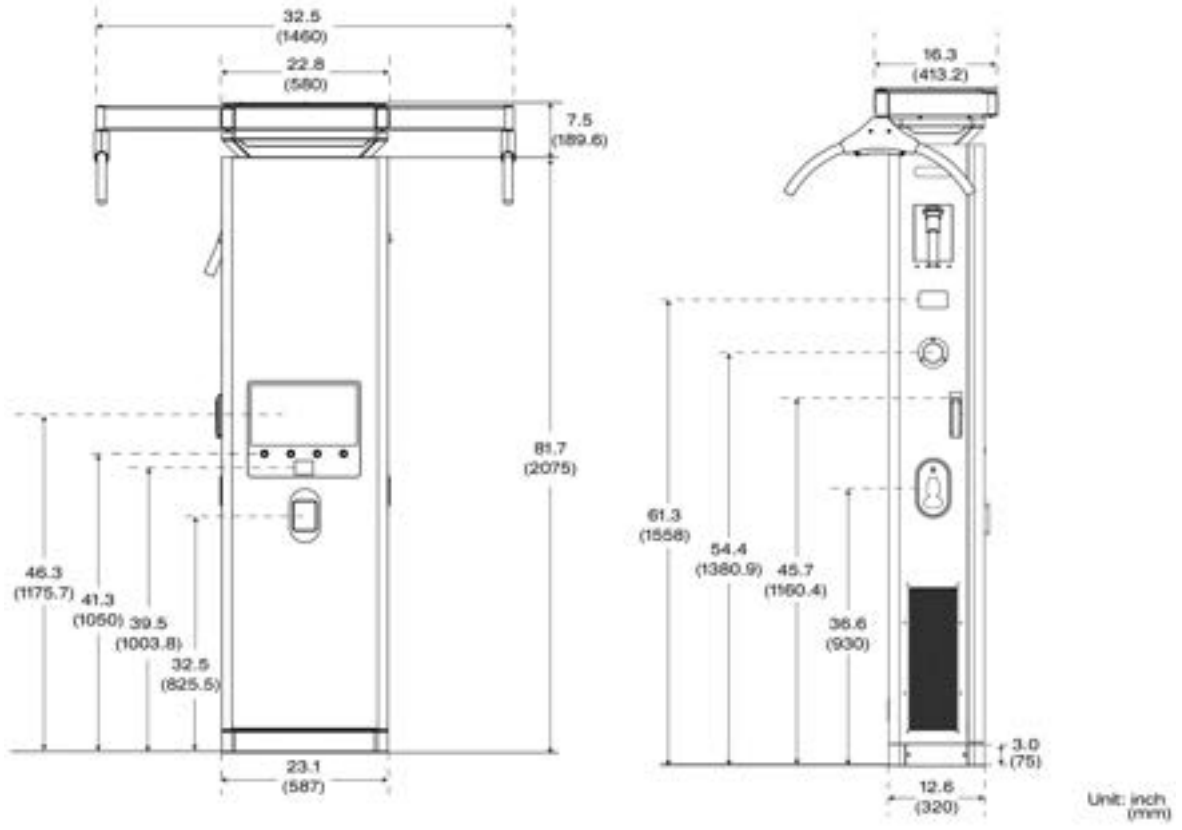


Figure 3-9 Dispenser Dimensions

3.5 Direction of Airflow

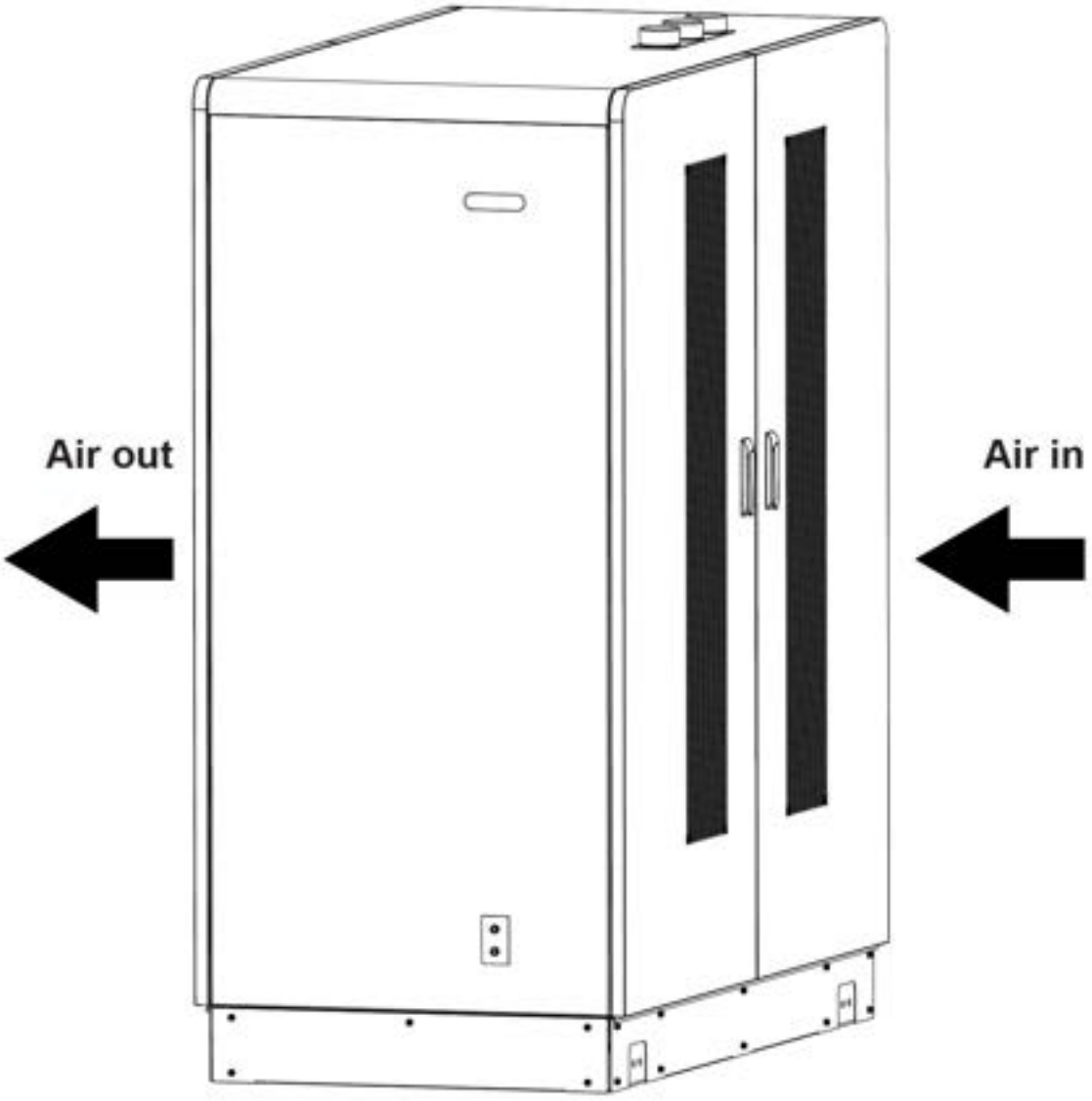


Figure 3-10 Direction of Airflow

3.6 Electrical Connection Diagram

Refer to the diagram below for the one-line diagram of the electrical connection of this equipment.

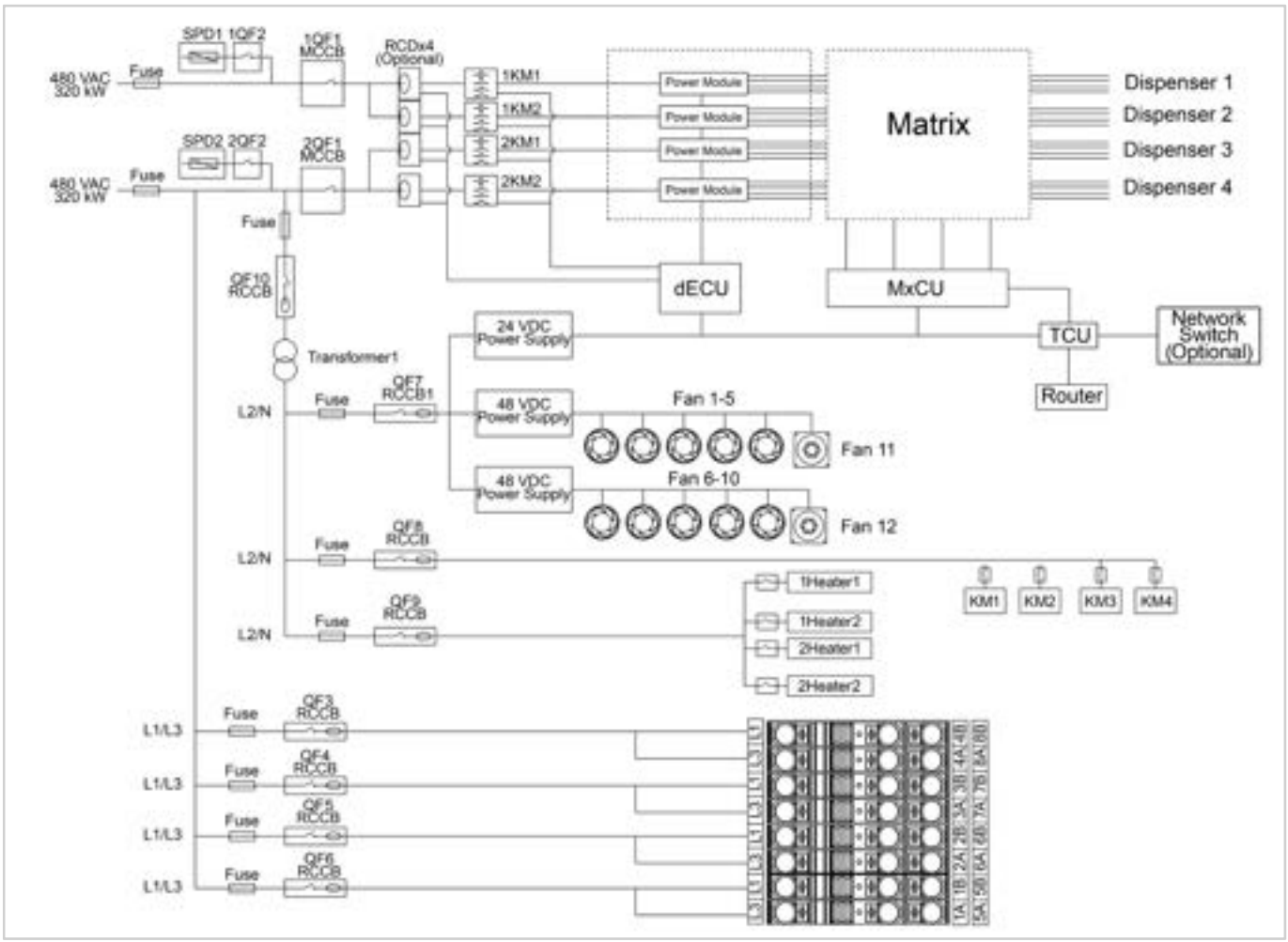


Figure 3-11 Electrical Connection of the Power Cabinet

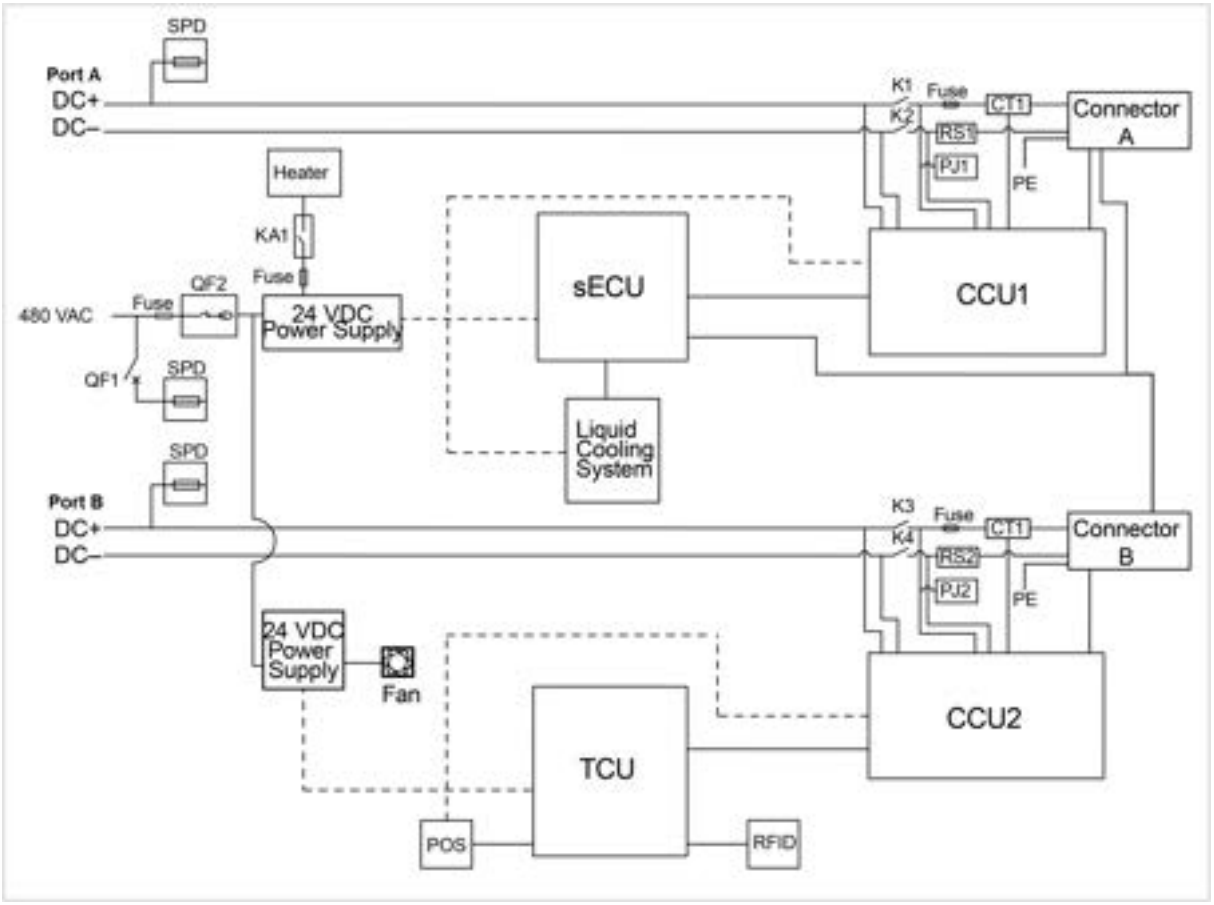


Figure 3-12 Electrical Connection of the Liquid Cooled Dispenser

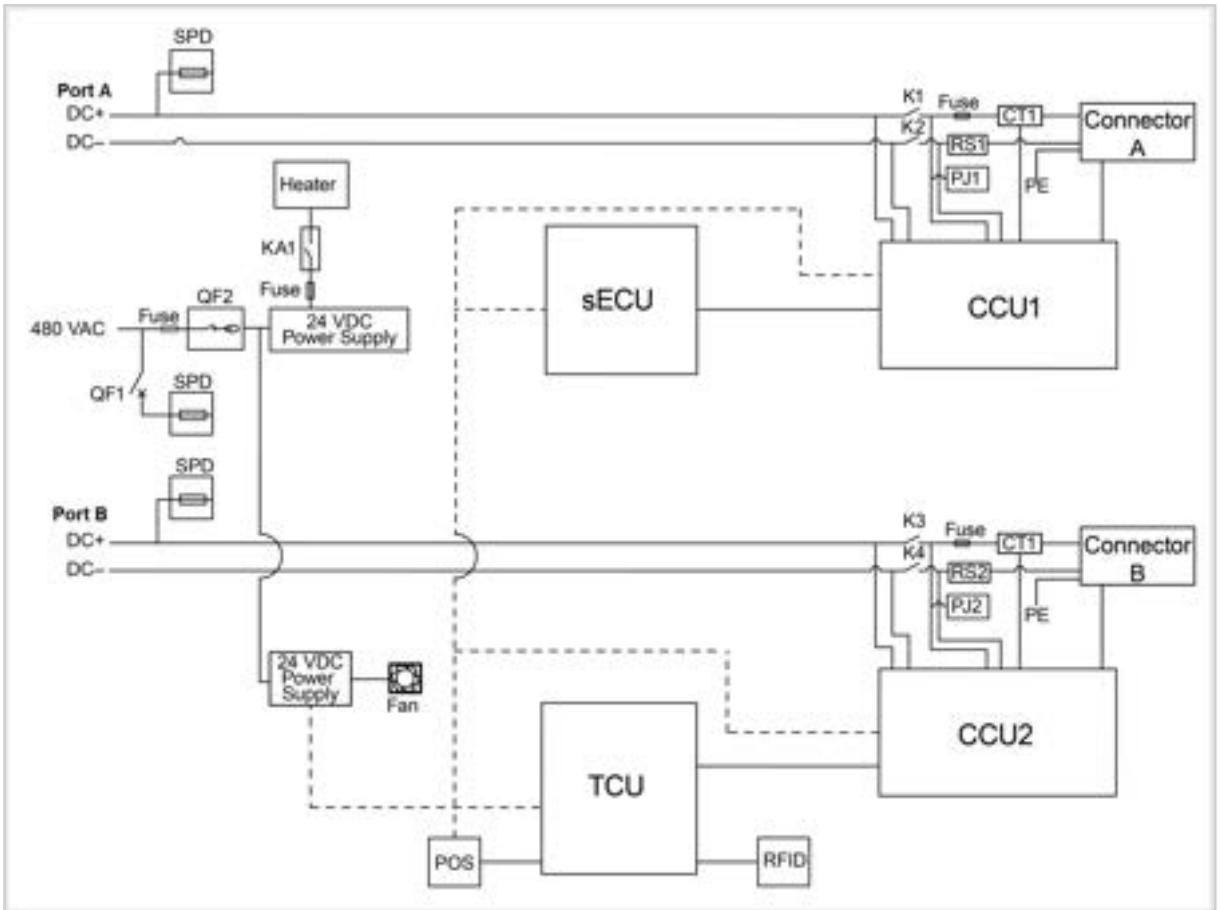


Figure 3-13 Electrical Connection of the Air Cooled Dispenser

NOTICE
With our recommended cross section, the fuse will break first when a short circuit occurs.

4. Installation Site Design

4.1 Mechanical Design

An installation site design is prerequisite for determining conduit and wiring requirements from the panel to the proposed parking spaces, as well as for measuring cellular signal strength and identifying suitable locations for any necessary cellular signal booster equipment.



CAUTION

The instructions below cannot cover every installation scenario. Local rules and ordinances on civil works, electrical installations, cable routing, and cable dimensions must be taken into consideration.



DANGER

The EV charging equipment must be kept at a safe distance from any potential explosive environment.



NOTICE

Consider the bending radius of the cables when installing the equipment near walls. The cables enter the cabinet from the bottom.

Ensure the maximum opening of the cabinet inlet can sufficiently fit all cables.

4.1.1 Location Requirements

Ensure the equipment's installation location can sufficiently reach the parked EV with the chosen charging cable length. The standard length of a charging cable is 16.4 feet (5 meters).

Ensure that the site complies with the relevant usability standards, such as ADA and DIN 18040:

- Limit the curb heights.
- Take into account the limited reach of a wheelchair user.

Determine appropriate ground anchoring locations where concrete exists or can be installed (no asphalt surfaces).

If the equipment is to be installed indoor, contact Autel to verify the location and ensure the air flow is sufficient.

Determine optimum conduit layout to minimize linear conduit costs to multiple parking spaces. If possible, avoid or minimize trenching requirements.

Evaluate existing electrical infrastructure to determine if the existing utility service and electrical panel capacity is sufficient. Identify costs for any necessary upgrades and/or a new dedicated electrical panel. A certified electrician or project engineer is highly recommended when it comes to evaluating available capacity and identifying required upgrades.

If a dedicated EV electrical panel is required, choose a panel location in close proximity to the existing electrical supply.

Measure cellular signal strength to ensure adequate cellular coverage at the installation site. Cellular repeaters may be required for underground or enclosed parking structures to ensure adequate signal strength.

Avoid locations under trees where sap, pollen or leaves may fall on the equipment increasing the station's maintenance requirements.

Perpendicular parking stalls are recommended to allow a vehicle to enter front-first or rear-first, accommodating the various charging port locations on different EV's.

Choose adjacent parking spaces in an area with adequate lighting.

Consider how easily drivers can find the stations they need to access.

Check local requirements for accessibility and pathway width, sometimes called "path of travel", to ensure station placement does not restrict sidewalk use.

It is recommended to install the dispenser in close proximity to the power cabinet. The maximum DC cable length should not exceed 328 feet (100 meters).

The distance between the power cabinet and the upstream distribution is up to the layout of the site, but it is recommended that you install the power cabinet in close proximity to the upstream distribution in order to ensure the AC input voltage.

Build the concrete foundation as described in *4.1.3 Preparing the Foundation*.

4.1.2 Space Requirements

The equipment requires the installation space as described below to ensure the normal operation and airflow around the equipment.

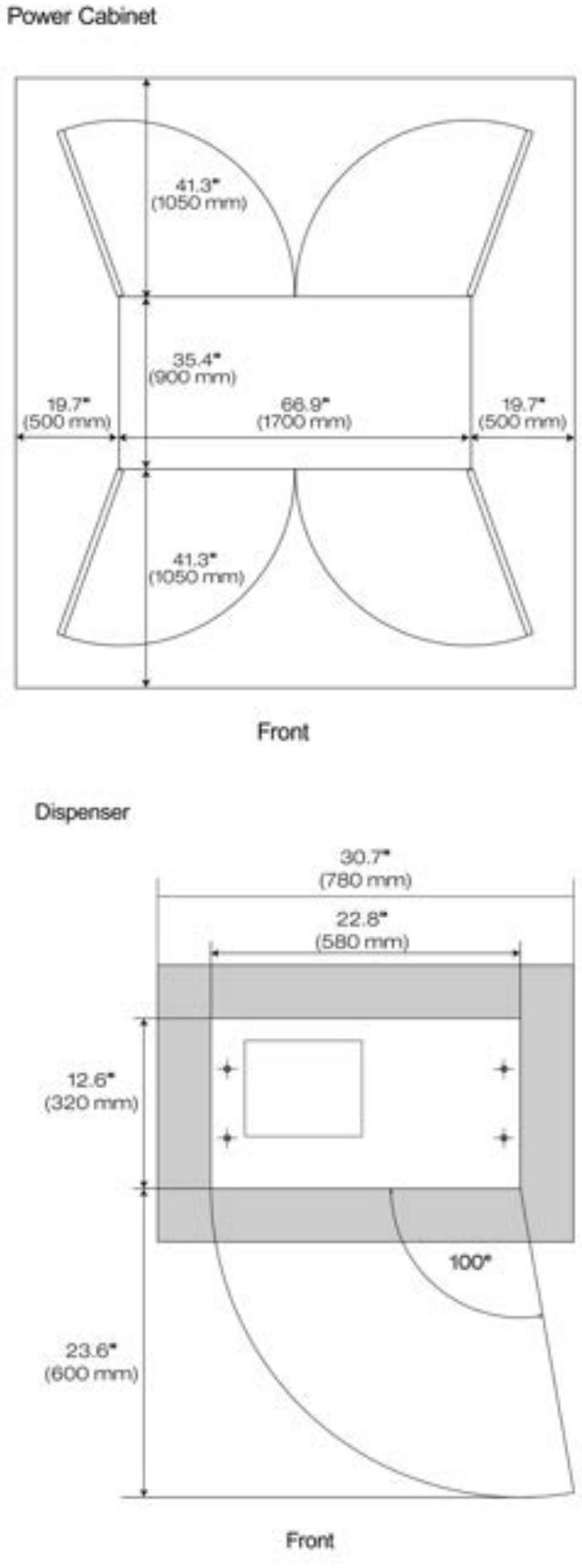


Figure 4-1 Space Requirements

4.1.3 Preparing the Foundation

Power Cabinet

Prepare the cable well and foundation as recommended below:

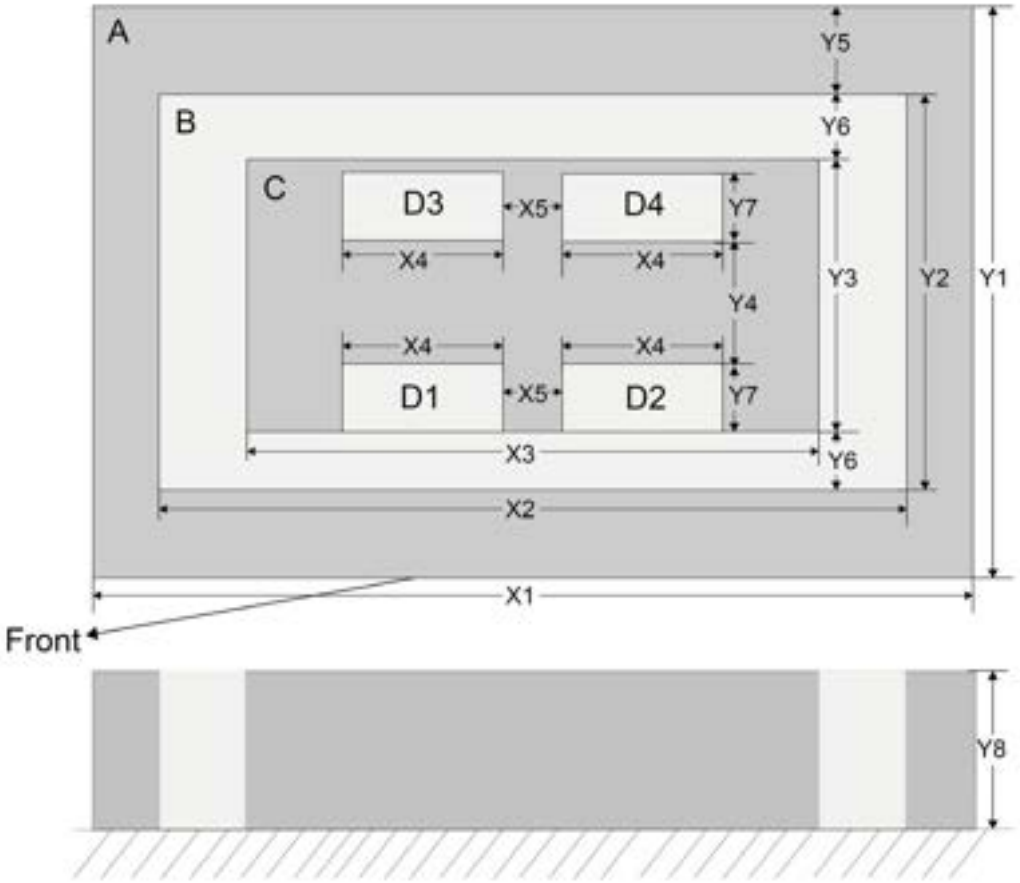


Figure 4-2 Power Cabinet Foundation

A. Foundation **B**. Power Cabinet **C**. Cable Well **D1-D4**. Cable Opening of the Power Cabinet

Table 4-1 Power Cabinet Foundation Specifications

Parameter	Specification	
	inch	mm
X1	78.7	2000
X2	66.9	1700
X3	51.2	1300
X4	14.5	368
X5	5.2	132
Y1	51.2	1300
Y2	35.4	900
Y3	24.4	620

Y4	10.9	277
Y5	7.9	200
Y6	5.5	140
Y7	6.1	155
Y8	11.8	300

Table 4-2 Cable Opening Layout Descriptions

Number	Description
D1, D2	AC input cable for power cabinet
D3, D4	DC output cable from power cabinet to dispenser AC auxiliary power cable from power cabinet to dispenser Ethernet cable

Dispenser

The recommended foundation dimensions are as the following:

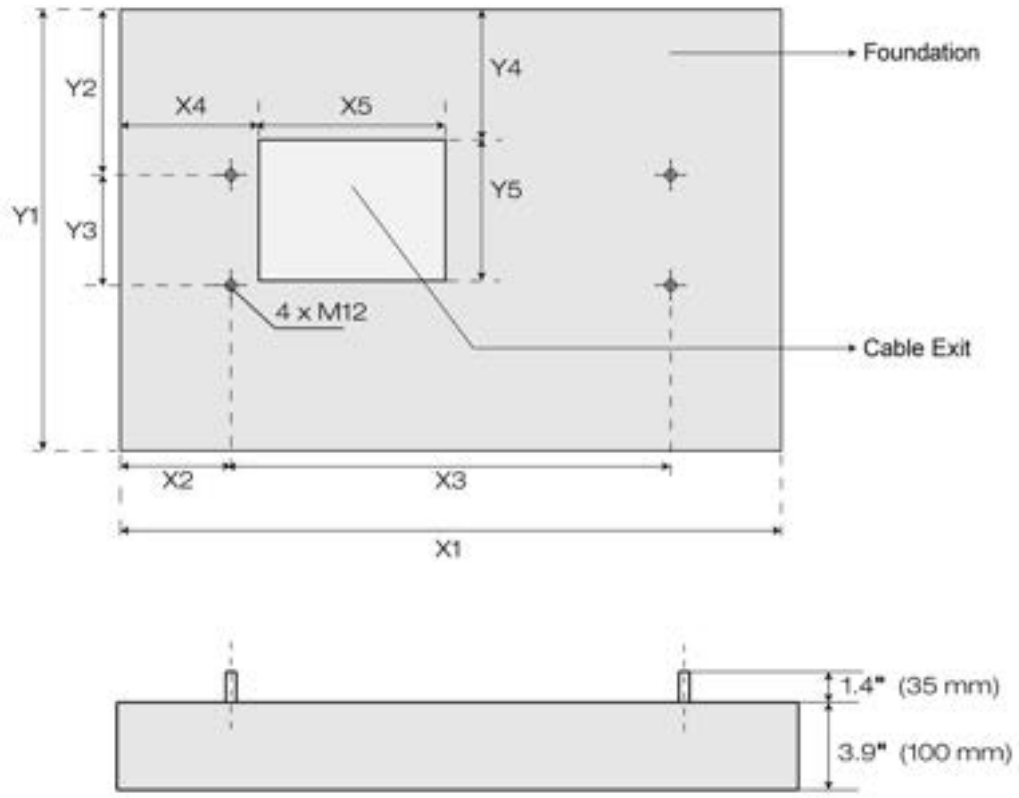


Figure 4-3 Dispenser Foundation

Table 4-3 Dispenser Foundation Specifications

Parameter	Specification	
	inch	mm
X1	30.7	780
X2	5.1	130
X3	20.5	520
X4	6.4	163.5
X5	8.7	220
Y1	20.5	520
Y2	7.7	195
Y3	5.1	130
Y4	5.6	142
Y5	7.1	180

NOTICE



Find the four M12 x 100 expansion bolts from the package and remove the nuts and gaskets from them. Set the nuts and gaskets aside. Then embed the four bolt bodies when pouring the concrete into the foundation. The bolt bodies should be 1.4” (35 mm) above the surface.

Apart from using the dimensions mentioned above, the drilling template in the package can also be used to locate the mounting holes on the dispenser foundation.

4.2 Electrical Design

CAUTION



The instructions below cannot cover every installation scenario. Local rules and requirements on electrical installations, cable routing, and cable dimensions must be taken into consideration.

The DC power cable to be used should be able to withstand at least 1000 V and required safe ampere capacity, as the maximum DC voltage is 950 VDC.

- The installation must comply with national safety standard and codes.
- The power cabinet and the distribution box should be kept a safe distance from end users.

4.2.1 Cable Specifications

Prepare the DC and AC cables as recommended below:

Table 4-4 Cable Specifications

No.	Cable Connection	Cable Type	Cross Section	Cable Lug
1	Connect power cabinet/dispenser to Earth	Galvanized flat steel for grounding	See the corresponding grounding description for reference	/
2	AC input cable for power cabinet	AC input cable (XLPE)	**AC Input 1**: L1/L2/L3: 2 x 300 kcmil PE: 1/0 AWG **AC Input 2**: L1/L2/L3: 2 x 300 kcmil PE: 1/0 AWG	**AC cable:** Copper two-hole lug, standard barrel, peep hole, wire size 300 kcmil, 1/2-inch bolt size, 1.75-inch hole spacing **PE cable:** Copper one-hole lug, standard barrel, peep hole, wire size 1/0 AWG, 0.35-inch bolt size

3	DC cable from power cabinet to dispenser	**Liquid cooled:** DC output cable (XLPE)	**Each Hi-power charger:** Hi power* DC1+: 2 x 350 Kcmil Hi power* DC1-: 2 x 350 Kcmil Hi power* DC2+: 2 x 350 Kcmil Hi power* DC2-: 2 x 350 Kcmil **: Value is 2, 4, 6, 8* **Each dispenser:** PE: 1/0 AWG	**DC cable:** Copper two-hole lug, standard barrel, peep hole, wire size 350 kcmil, 1/2-inch bolt size, 1.75-inch hole spacing **PE cable:** Copper one-hole lug, standard barrel, peep hole, wire size 1/0 AWG, 0.35-inch bolt size
		Air cooled (DT240): DC output cable (XLPE)	**Each charger:** DC fast* DC+: 2 x 250 Kcmil DC fast* DC-: 2 x 250 Kcmil **: Value is 1, 2, 3, 4, 5, 6, 7, 8* **Each dispenser:** PE: 1/0 AWG	**DC cable:** Copper two-hole lug, standard barrel, peep hole, wire size 250 kcmil, 1/2-inch bolt size, 1.75-inch hole spacing **PE cable:** Copper one-hole lug, standard barrel, peep hole, wire size 1/0 AWG, 0.35-inch bolt size
		Air cooled (DT320): DC output cable (XLPE)	**Each charger:** Hi power* DC+: 2*300 Kcmil Hi power* DC-: 2*300 Kcmil **: Value is 2, 4, 6, 8* **Each dispenser:** PE: 1/0 AWG	**DC cable:** Copper two-hole lug, standard barrel, peep hole, wire size 300 kcmil, 1/2-inch bolt size, 1.75-inch hole spacing **PE cable:** Copper one-hole lug, standard barrel, peep hole, wire size 1/0 AWG, 0.35-inch bolt size
4	AC auxiliary power cable from power cabinet to dispenser	AC auxiliary power cable (XLPE)	**Each dispenser:** A/B: 12 AWG	EVN4018 
			PE: 12 AWG	RNB4-8 

5	Ethernet cable from power cabinet to dispenser	Ethernet cable (CAT5e)	With shielded twisted pair	8P8C RJ45 with shielded 

NOTICE

The “Hi power” in the above table refers to liquid cooled dispensers and the “DC fast” refers to air cooled dispensers.

The table below describes the recommended cable length reserved from the cable exit to power cabinet or dispenser.

Table 4-5 Recommended Cable Length Reserved

No.	*Cable Connection*	*Cable Length*
1	AC input cable	AC input cable (L1/L2/L3): 25.6 in. (650 mm) PE cable: 21.7 in. (550 mm)
2	DC output cable	**To power cabinet:** DC output cable: 39.4 in. (1000 mm) PE cable: 15.7 in. (400 mm) **To dispenser:** Liquid cooled model: 39.4 in. (1000 mm) Air cooled model: 43.3 in. (1100 mm)
3	AC auxiliary power cable	**To power cabinet:** 35.4 in. (900 mm) **To dispenser:** 66.9 in. (1700 mm)
4	PE cable to dispenser	19.7 in. (500 mm)

4.3 Recommended Tools

The following tools are recommended when installing the equipment:

Hoisting equipment		Pencil	
Tape measure		Brush	
Twin-step ladder		Power drill	
Drill bit (9/16”)		Phillips screwdriver	
Flathead screwdriver		Open-end wrench	
Torque driver		Wire stripper	
Cable lug		Crimping plier	
#5 hex key		Socket wrench (1/5”, 2/5”, 1/2”, 3/16”, 5/32”, and 5/16”)	
Fireproof mortar			

NOTICE
The tools mentioned above are not part of the delivery. Ensure the professional personnel have all the listed tools for installation.

4.4 Unpacking

1. PowerTechnology recommends to move the power cabinet and dispenser to the installation site using a forklift and unpack them there.

2. Check the tilt and inversion indicators and Shockwatch.

Observe the sensors attached to the package for the degree of the tilt and complete overturn. If the sensors demonstrate over 30° of tilt or total overturn, note on bill of lading and inspect the product.

If the Shockwatch displays red, contact PowerTechnology customer service and inspect the product for any damage. **Do not** accept the delivery until the inspection is complete and no damage is found.

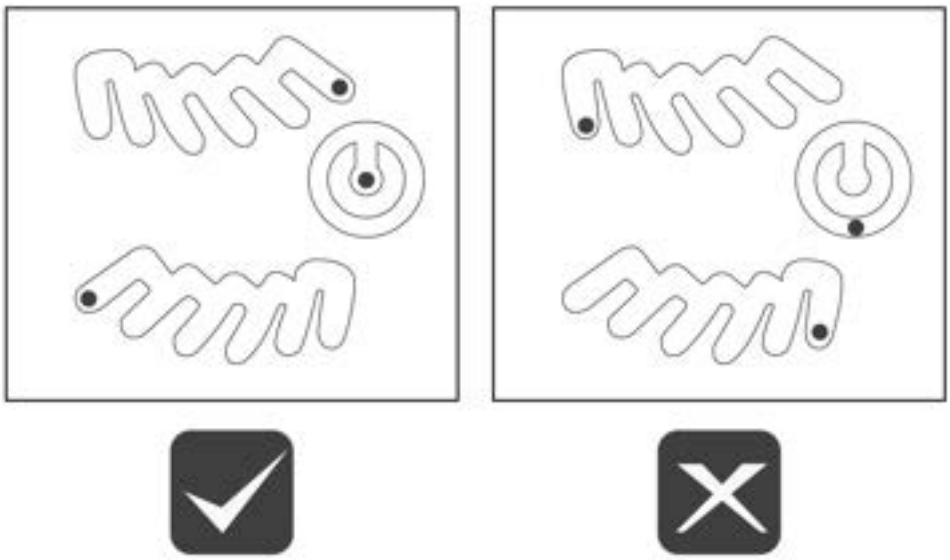


Figure 4-4 Tilt and Inversion Indicators

3. Remove the outside packaging and interior protection materials using appropriate tools.

4. Inspect the equipment and the parts for installation for damage. If you find damage or the parts are not consistent with the order, contact your local dealer.

5. Ensure that all parts are delivered according to the order.

5. Installation

General installation procedure:

1. Ensure the installationsiteisready and you have all the parts and tools described in the sections above.
2. Lay the cables as described.
3. Install the power cabinet.
4. Install the dispenser and cable management system (CMS).
5. Complete the wiring and set up the network connection.
6. Finish installation.

5.1 Before Installing

Prior to installation, check the following:

The installation site is prepared.

The appropriate service wiring, circuit protection, and metering is in place at the installation site.

A grounding conductor that complies with local codes is properly grounded to earth.

The cellular coverage at the installation site should be consistently strong when choosing to communicate over cellular network for the equipment. Use a cellular signal detection device to ensure the signal is above -90 dBm. If the signal is below -90 dBm, install repeaters to boost the strength of the cellular signals. Repeaters are often required when installing the equipment in an underground environment such as an underground garage or enclosed parking space.

There is enough space available around the installation site to accommodate using a forklift or other lifting equipment, to unpack, and to allow people to work around freely.

All the parts and tools are available.

Ensure all the details are followed in this installation procedure.



CAUTION
A supplement surge protection breaker must be installed at the service panel if the installation area experiences frequent thunderstorms.

5.2 Installing the Power Cabinet

5.2.1 Installing the Power Cabinet

STEP 1
Remove the screws using a 1/5” socket wrench to remove the front, rear, and two side base covers. Set them aside.

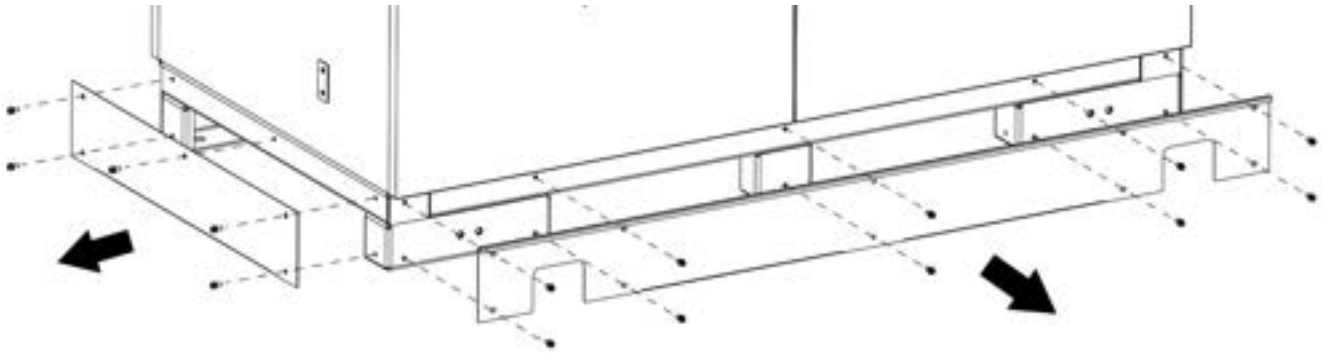


Figure 5-1 Removing the Base Covers

STEP 2
Remove the twelve M12 screws at the bottom of the cabinet using a 1/2” socket wrench to detach it from the pallet.

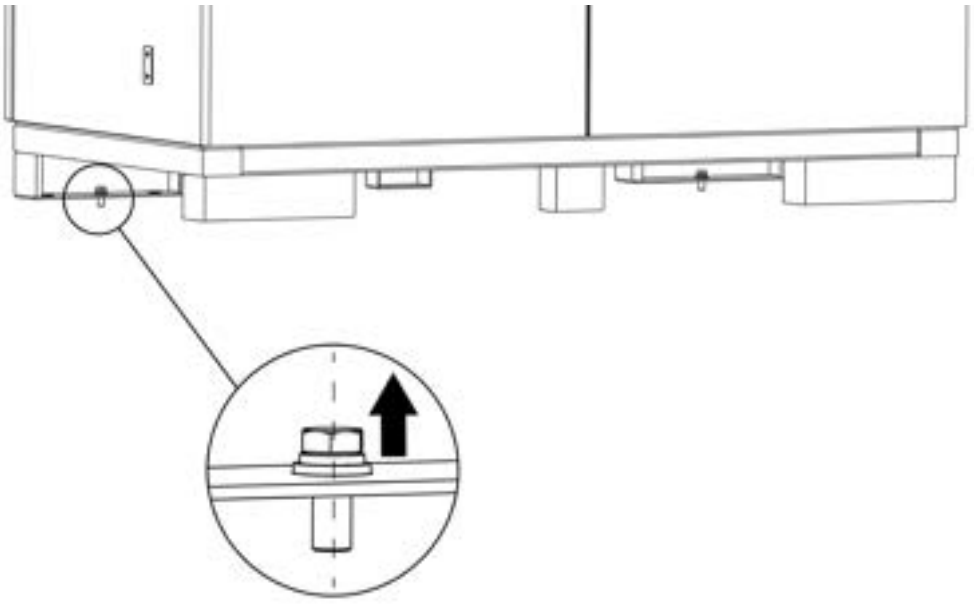


Figure 5-2 Detaching the Cabinet and Pallet

STEP 3

1. Remove the four plugs on the top of the cabinet using an open-end wrench. Set them aside.

2. Install and tighten the four M24 lifting eye bolts onto the top of the cabinet. Then hoist the cabinet onto the installation site, aligning with the conduit stub-ups.

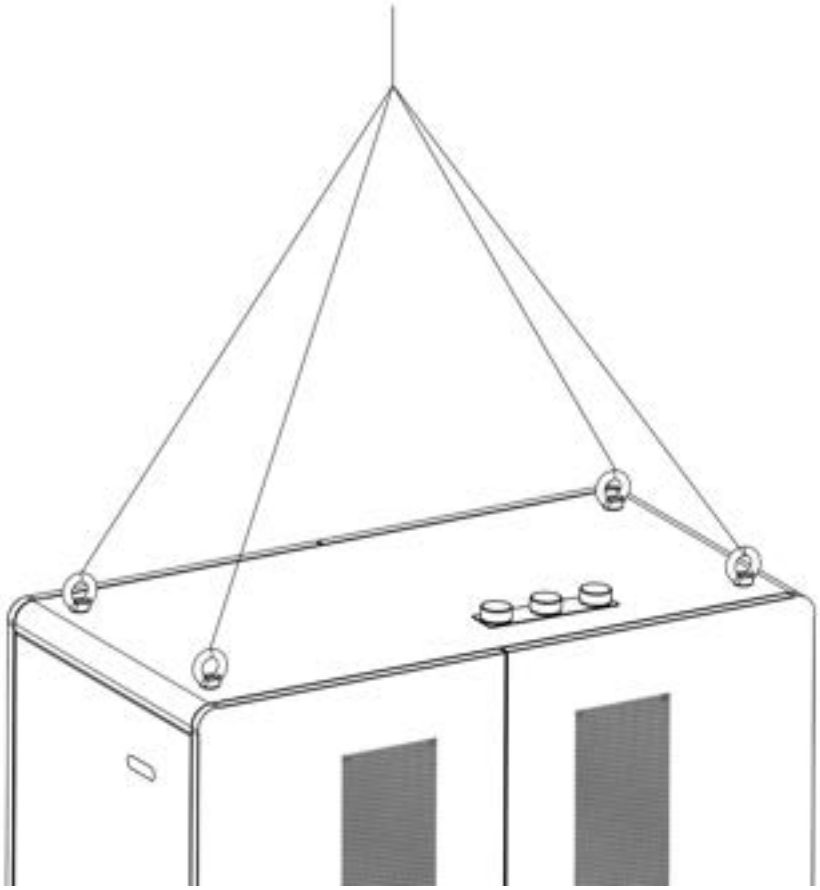


Figure 5-3 Hoisting the Cabinet

WARNING

Risk of pinching or crushing. Heavy Equipment.



Ensure that the hoisting equipment can lift the power cabinet safely.

Obey the safety instructions that apply to the hoisting equipment.

Take into account the dimensions, mass, and center of gravity of the equipment.

CAUTION



DO NOT drop the power cabinet or subject it to strong impact.

DO NOT exceed a tilting angle of 60°.

Ensure that there is no dynamic force on the hoisting points.

STEP 4

1. Place the mounting bracket against the mounting location, aligning with the mounting holes.

2. Insert two M12 x 30 screws into the holes and tighten them to 406 in-lb using a 1/2” socket wrench.

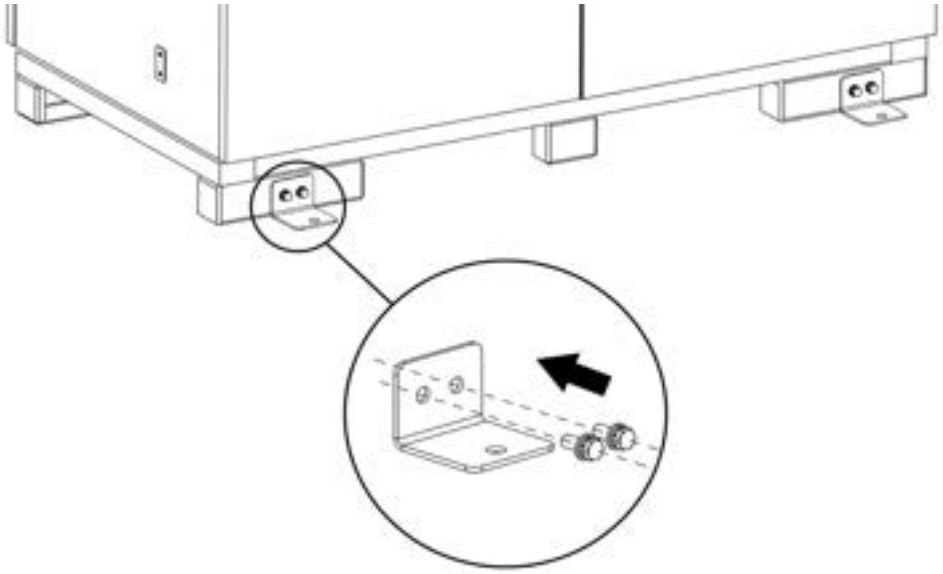


Figure 5-4 Installing the Mounting Bracket

STEP 5

Drill four holes measuring 9/16” (14 mm) in diameter and 3.9” (100 mm) in depth into the concrete. Clean any debris using a brush.

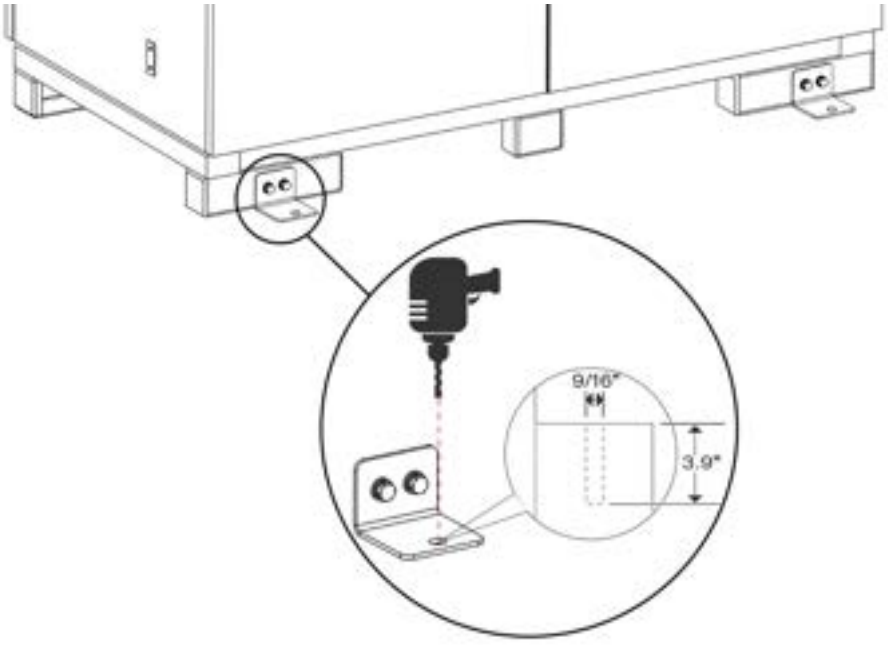


Figure 5-5 Drilling Holes

STEP 6

1. Find one M12 x 100 expansion bolt from the package and remove the nut and gaskets from it using a 1/2” socket wrench. Then tap the bolt body into the hole.

2. Reinstall and tighten the gaskets and nut.

3. Follow the steps above to install the rest of the mounting brackets.

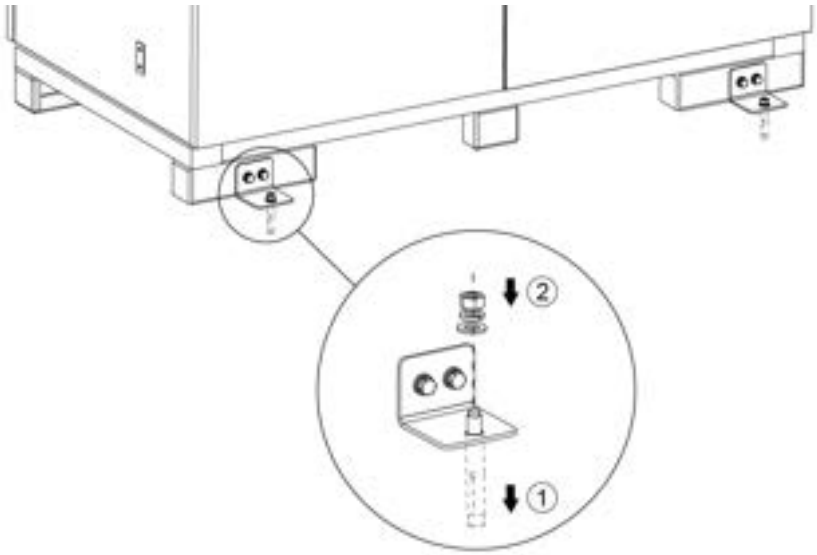


Figure 5-6 Fastening the Power Cabinet onto the Site

STEP 7 (Optional)

Prepare a ground plate to connect the cabinet to Ground and install two M8 x 16 screws into the holes using a 5/16” socket wrench. Ground the cabinet on the other side as described.

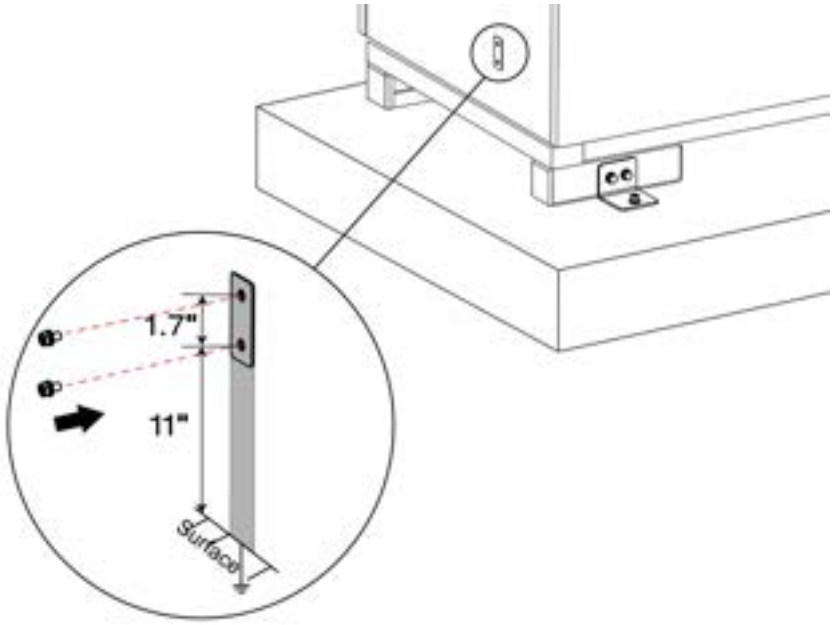


Figure 5-7 Connecting the Cabinet to Ground

5.2.2 Installing the Charging Module

STEP 1

Use the key to open the front door of the power cabinet.

STEP 2

Slowly push the charging module into the slot.

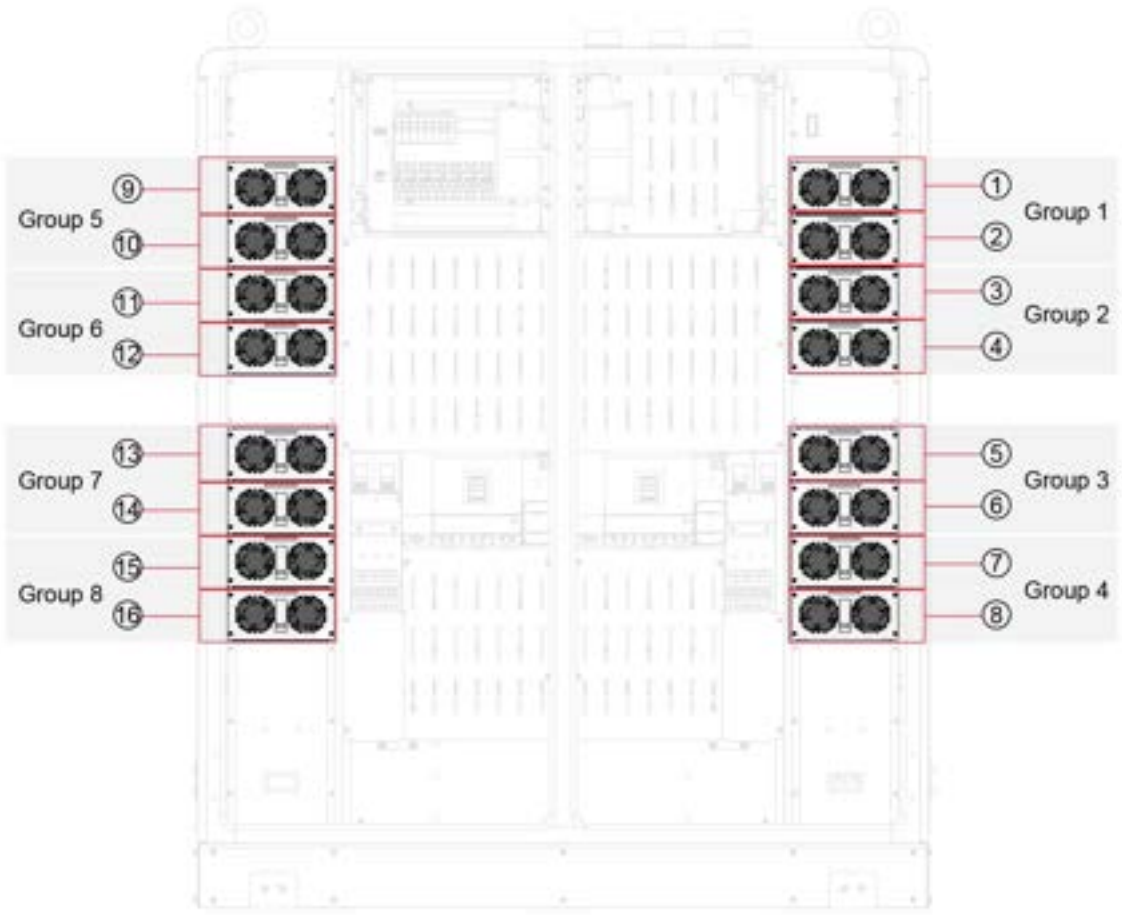


Figure5-8 Pushing the Charging Module into the Slot

Table 5-1 Charging Module Installation Specifications

Rated Power	*Number of Modules*	*Location*
320 kW	8 PCS	1, 3, 5, 7, 9, 11, 13, 15
360 kW	9 PCS	1, 3, 4, 5, 7, 9, 11, 13, 15
480 kW	12 PCS	1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15,16
640 kW	16 PCS	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

STEP 3

Install and torque the M4 x 16 screws to 10.6 in-lb to secure the module.

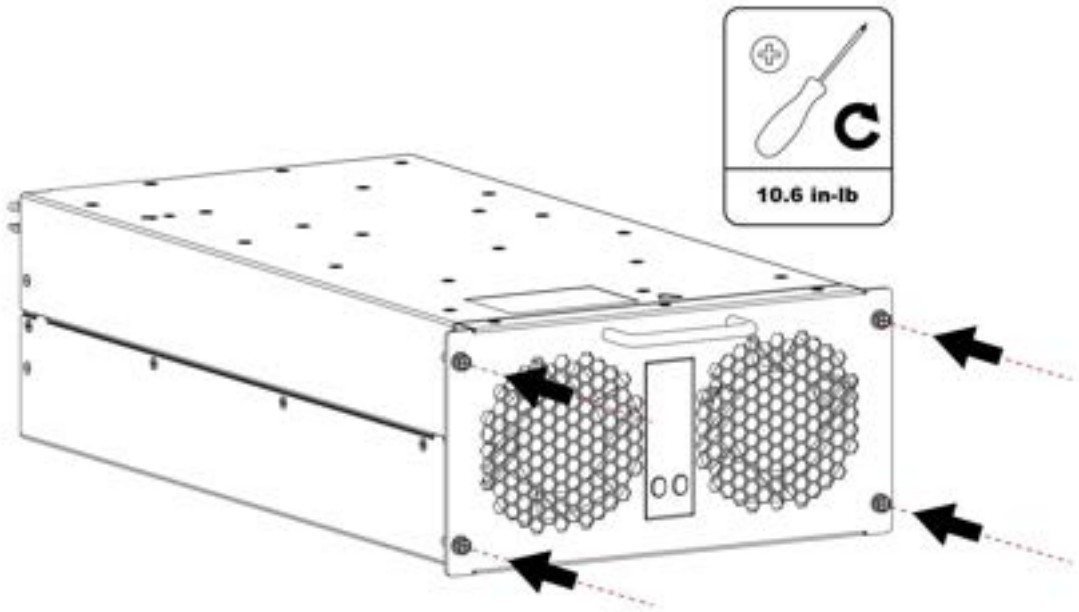


Figure 5-9 Securing the Module

STEP 4

After the installation is completed, set the hardware address. For details, refer to the charging module's manuals.

5.3 Installing the Dispenser

5.3.1 Installing the Dispenser

STEP 1
Remove the four screws using a 5/32” socket wrench to remove the base covers on both sides. Set them aside.



Figure 5-10 Removing the Side Covers

STEP 2
Remove the four M12 nuts and gaskets at the bottom using a 1/2” socket wrench to detach the dispenser from the pallet.

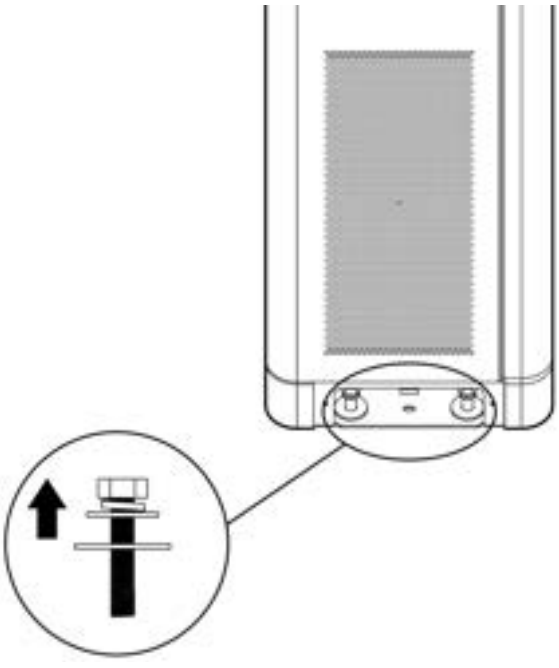


Figure 5-11 DetachingtheDispenser and Pallet

STEP 3

1. Remove the four plugs on the top of the dispenser using an open-end wrench. Set them aside.

2. Install and tighten four M12 lifting eye bolts on the top of the dispenser. Then hoist the dispenser to the installation site.

WARNING

Risk of pinching or crushing. Heavy Equipment.

Ensure that the hoisting equipment can lift the dispenser safely.

Obey the safety instructions that apply to the hoisting equipment.

Take into account the dimensions, mass, and center of gravity of the dispenser.

CAUTION

DO NOT drop the dispenser or subject it to strong impact.

DO NOT exceed a tilting angle of 60°.

Ensure that there is no dynamic force on the hoisting points.

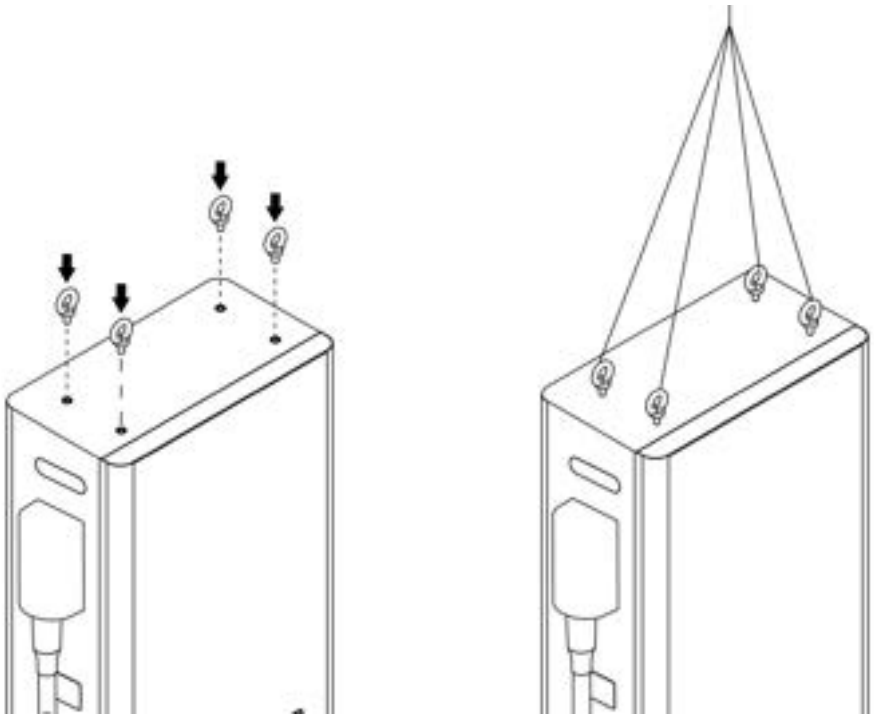


Figure 5-12 Hoisting the Dispenser

STEP 4

Lower the dispenser onto the foundation, aligning it with the four bolt bodies and the conduit opening.

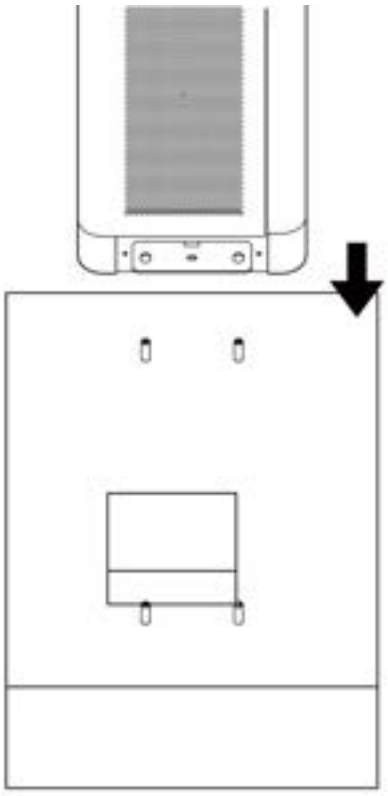


Figure 5-13 Lowering the Dispenser

STEP 5

Reinstall and tighten the four M12 nuts and gaskets removed earlier in *4.1.3* using a 1/2” socket wrench to secure the dispenser to the foundation.

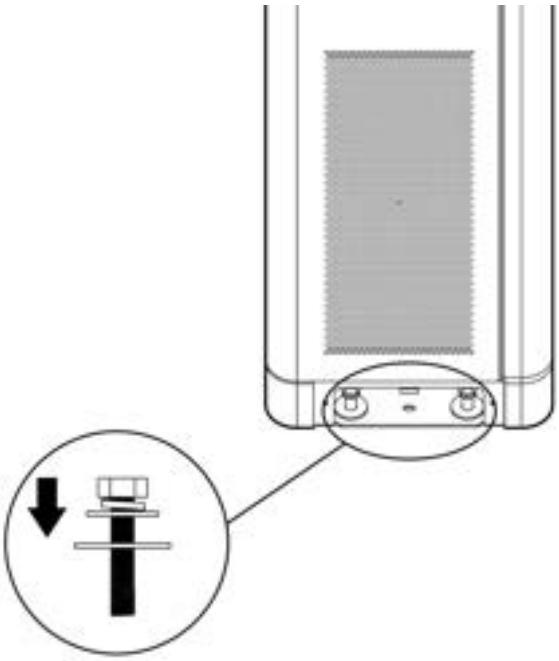


Figure 5-14 Securing the Dispenser to the Foundation

STEP 6 (Optional)
Prepare a ground plate to connect the dispenser to Ground from the rear and install two M8 x 16 screws into the holes using a 5/16” socket wrench.

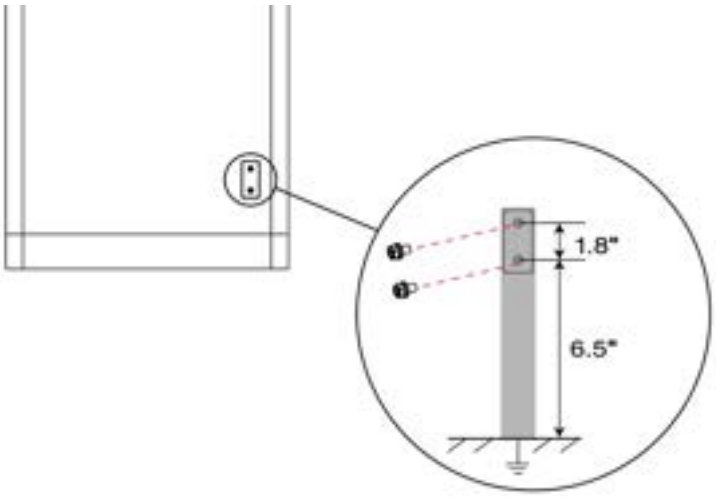


Figure 5-15 Connecting the Dispenser to Ground

5.3.2 Installing the Cable Management System (CMS)

NOTICE
This installation may require the assistance of two adults and a twin-step ladder.

STEP 1

1. Remove the four M12 lifting eye bolts.

2. Attach the CMS mounting base onto the top of the dispenser, aligning it with the four mounting holes. Insert four M12 x 30 bolts into the holes and tighten them using a 1/2” socket wrench.

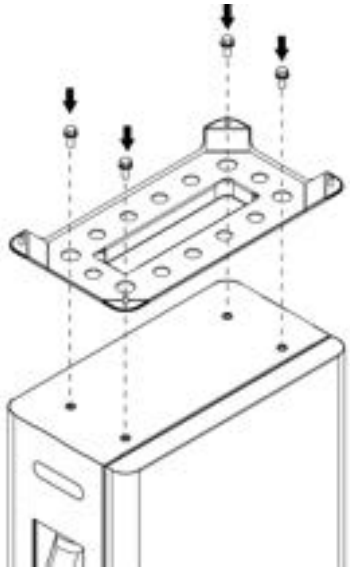


Figure 5-16 Installing the Mounting Base

STEP 2
Remove the eight M4 x 8 screws using a Phillips screwdriver to remove the top cover of the CMS. Set them aside.

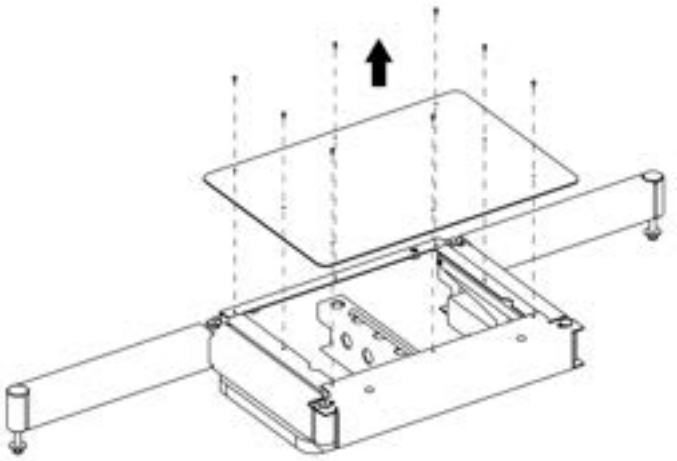


Figure 5-17 Removing the Top Cover

STEP 3
Attach the main body of the CMS onto its mounting base, aligning the CMS's four mounting holes with the threaded studs of the base.

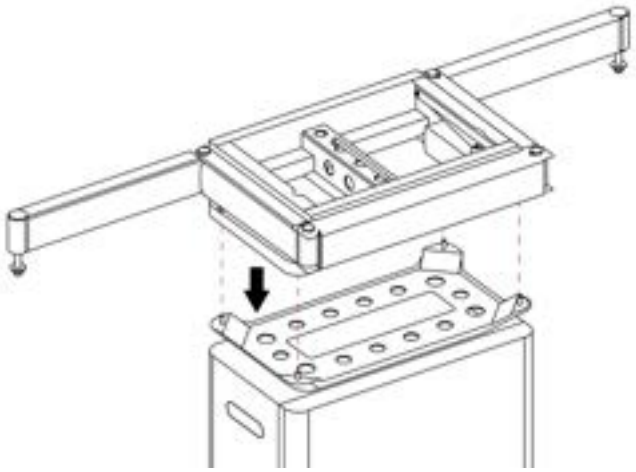


Figure 5-18 Installing the Main Body of the CMS

STEP 4

Extend the two arms until all four mounting holes are visible. Then screw four flat gaskets, spring washers, and M8 hex nuts into the four threaded studs sequentially. Tighten them using a 5/16” socket wrench.

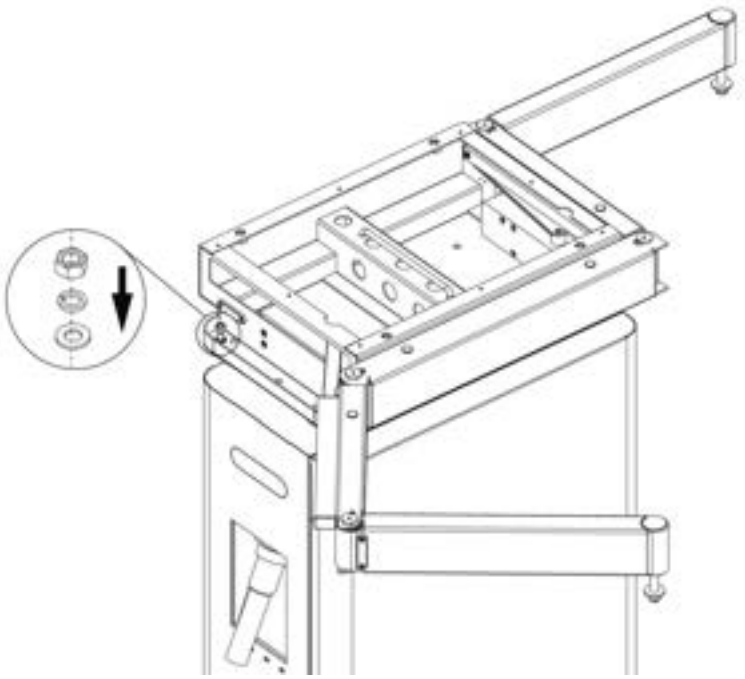


Figure 5-19 Fastening the CMS

STEP 5

Reinstall the cover onto the top of the CMS.

STEP 6

Install half piece of the cable bracket onto the M10 bolt as shown.

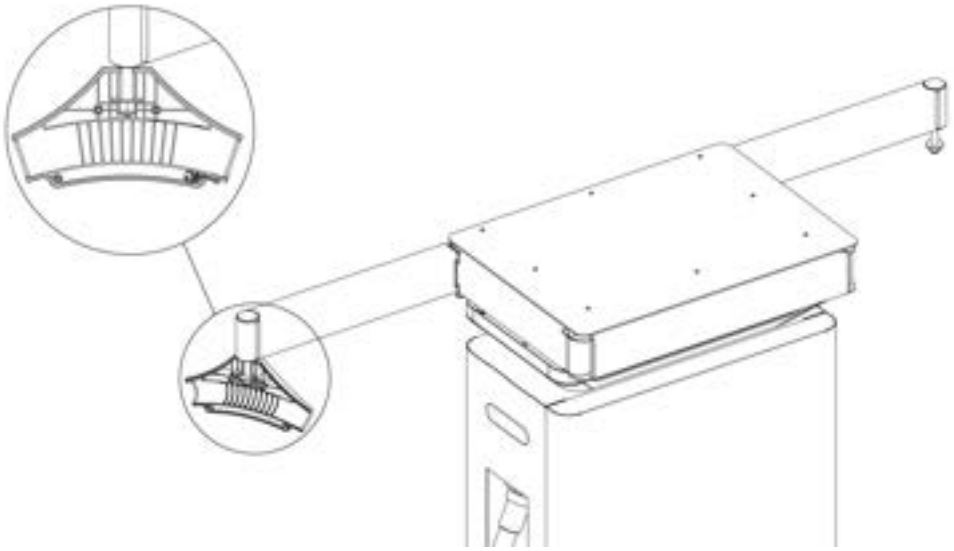


Figure 5-20 Removing the Silicone Covers

STEP 7

1. Stretch the charging cable to remove any kinks.

2. Wrap two rounds of adhesive tape from a hanging indicator (a black label) to another one, ensuring the two indicators are covered and that the charging cable is not able to move randomly. For 300 A charging cable, skip this step.

3. One person holds the cable — approximately 6.6 feet from the cable exit (see the gray route in the illustration below) — upright, rendering a natural curve on the cable. Along the curve, the other person places the charging cable into the cable bracket as shown. During the process, ensure the smooth operation of the CMS.

4. Attach the other piece of cable bracket and insert two M5 x 8 and M5 x 10 screws. Tighten the screws using a Phillips screwdriver.

5. Follow the steps above to install the other bracket.

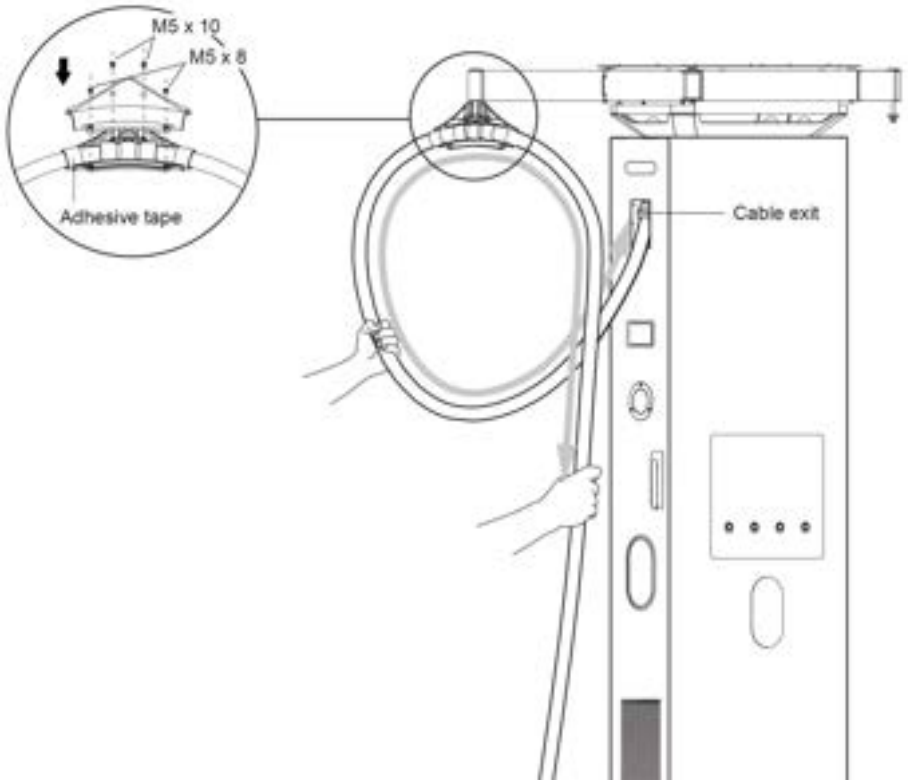


Figure 5-21 Assembling the Cable Brackets

5.4 Electrical Installation

DANGER

- Ensure the upstream breakers are turned off throughout the installation.

  Wear protective personal equipment.

NOTICE

For cable specifications, please refer to *4.2.1 Cable Specifications*.

5.4.1 Connecting the AC Input Cable

STEP 1

1. Use the cabinet door key to open the front doors.
2. Unscrew the ten M5 nuts using a 3/16” socket wrench to remove the two insulation barriers. Set them aside.

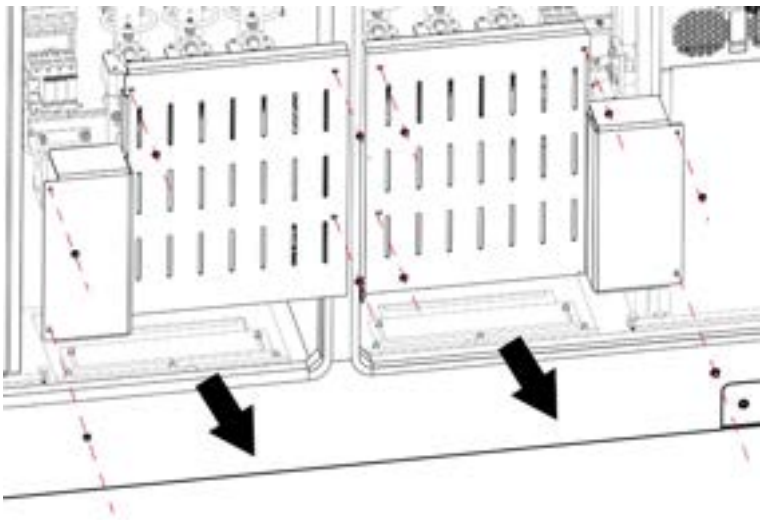


Figure 5-22 Removing the Insulation Barriers

STEP 2

Remove the four nuts and gaskets using a 3/16” socket wrench to remove the cable cover plates at the bottom. Set them aside.

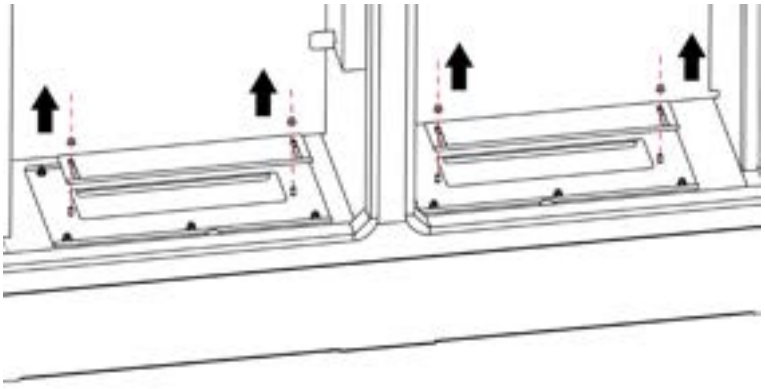


Figure 5-23 Removing the Cable Cover Plates

STEP 3

Strip the AC input cable to the correct length and crimp them to the cable lugs. Connect the AC input cable as shown below or refer to the label instructions in the power cabinet. Use a 2/5” socket wrench to tighten the gaskets and M10 nuts to 230 in-lb.

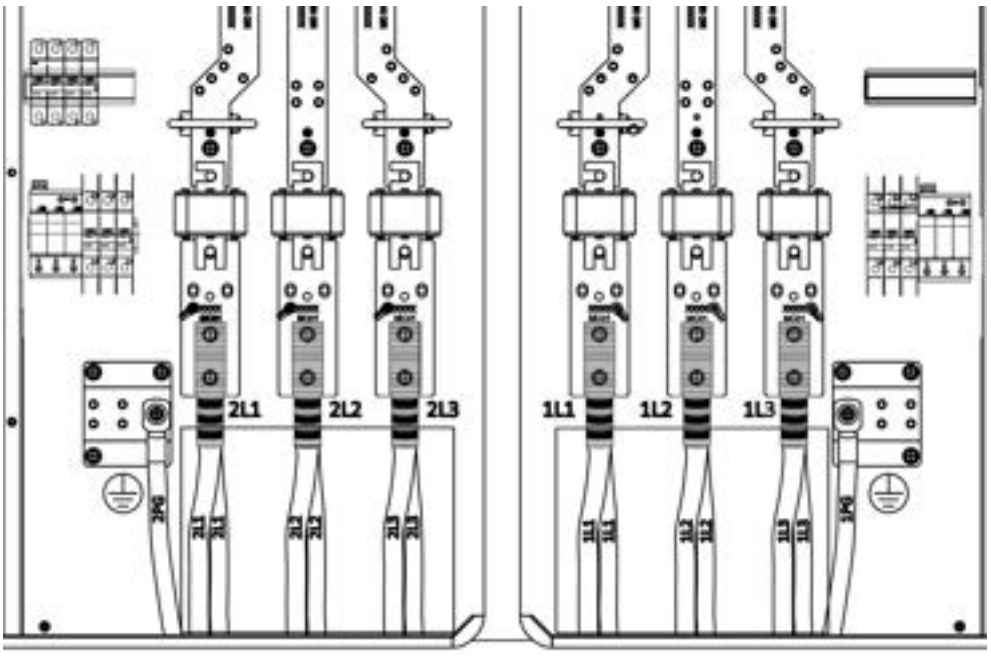


Figure 5-24 Connecting the AC Input Cable

5.4.2 Connecting the DC Output Cable

To the Power Cabinet:

STEP 1

1. Use the cabinet door key to open the rear doors. Then manually loosen the four screws to remove the metal plates. Set them aside.
2. Follow the **Step 2** above to remove the cable cover plates at the bottom. Set them aside.

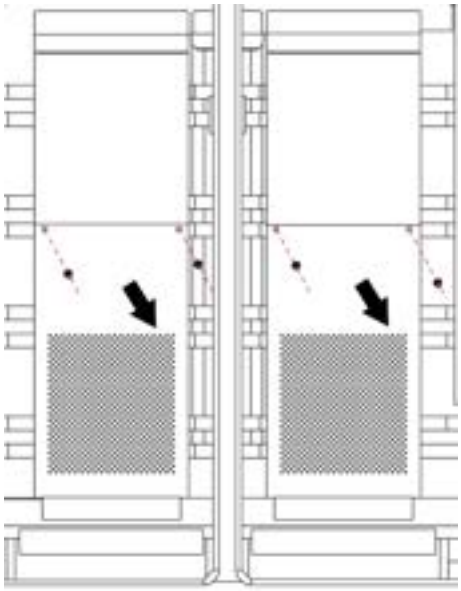


Figure 5-25 Removing the Metal Plates

STEP 2

Connect the DC output cable to the power cabinet as shown below or refer to the label instructions in the power cabinet. Use a 2/5” socket wrench to tighten the M10 x 30 bolts to 230 in-lb.

I+I Matrix Model:

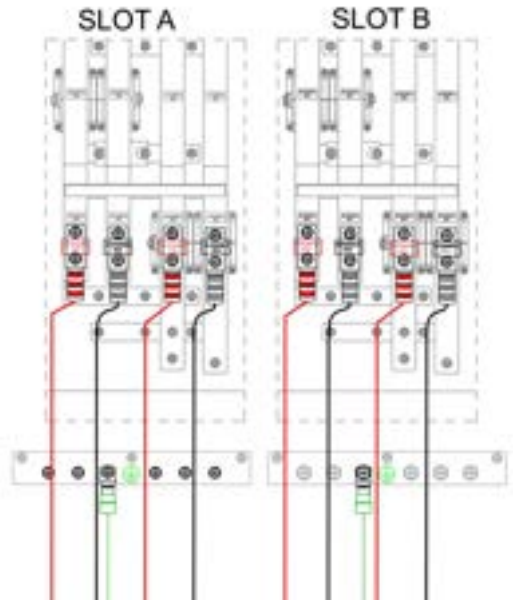


Figure 5-26 Connecting the DC Output Cable 1

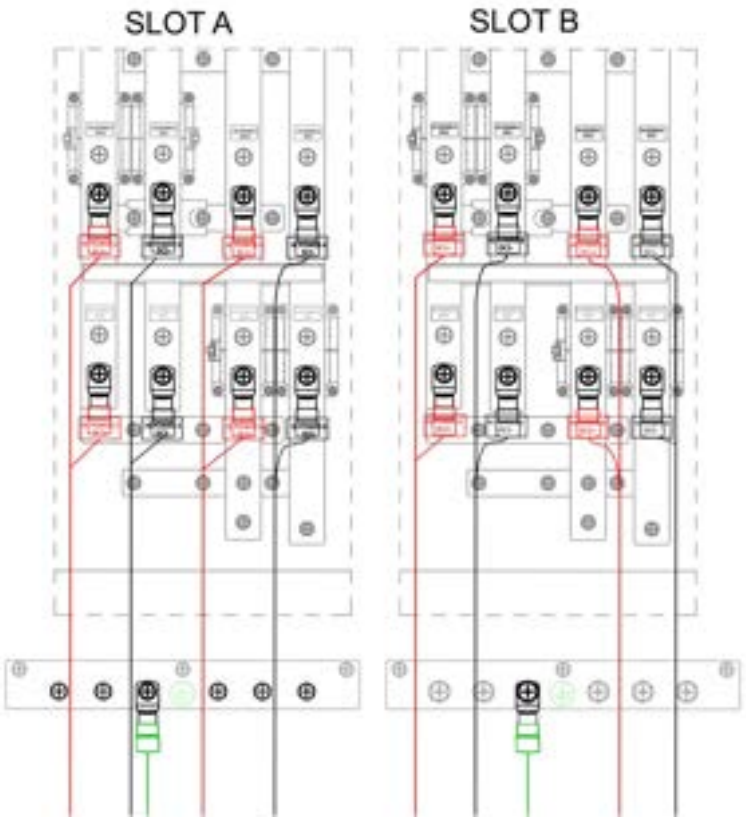


Figure 5-27 Connecting the DC Output Cable 2

To the Dispenser:

STEP 1

1. Use the key to open the dispenser's front door.

2. Unscrew the two M5 x 12 screws using a 3/16" socket wrench to remove the insulation barrier from the dispenser. Set them aside.

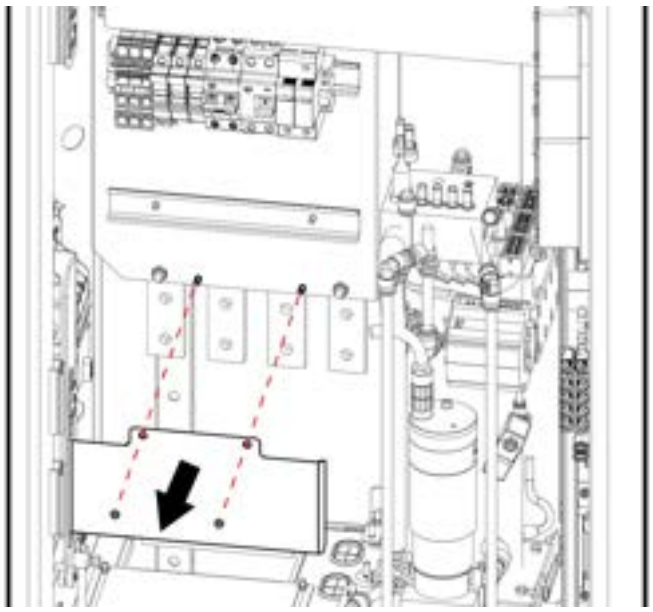


Figure 5-28 Removing Dispenser's Insulation Barrier

STEP 2

Liquid Cooled Model:

Prepare two cables for each terminal block and connect them with one M10 x 40 bolt, one spring washer, two flat gaskets, and one M10 nut as shown below. Tighten the nut using a 2/5” socket wrench.

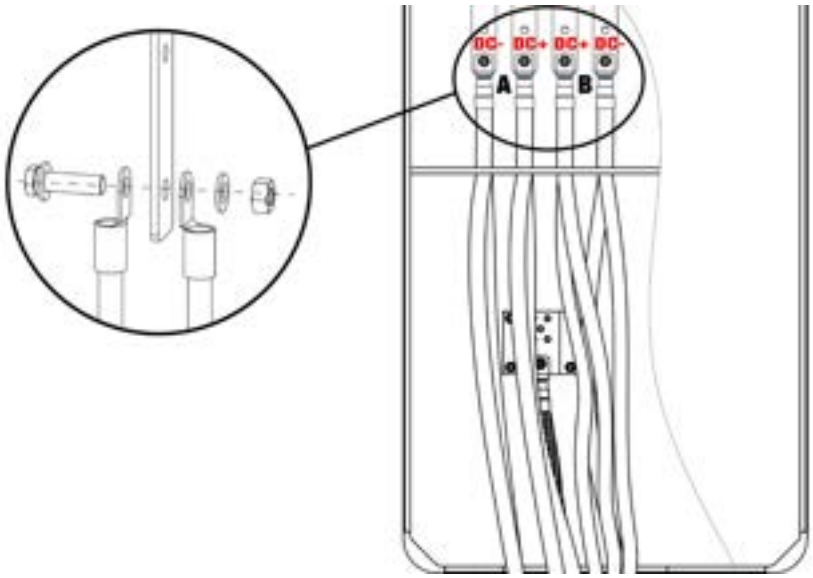


Figure 5-29 Connecting the DC Output Cable 3

Air Cooled Model:

Connect one cable to each terminal block with one M10 x 40 bolt, one spring washer, two flat gaskets, and one M10 nut as shown below. Tighten the nut using a 2/5” socket wrench.

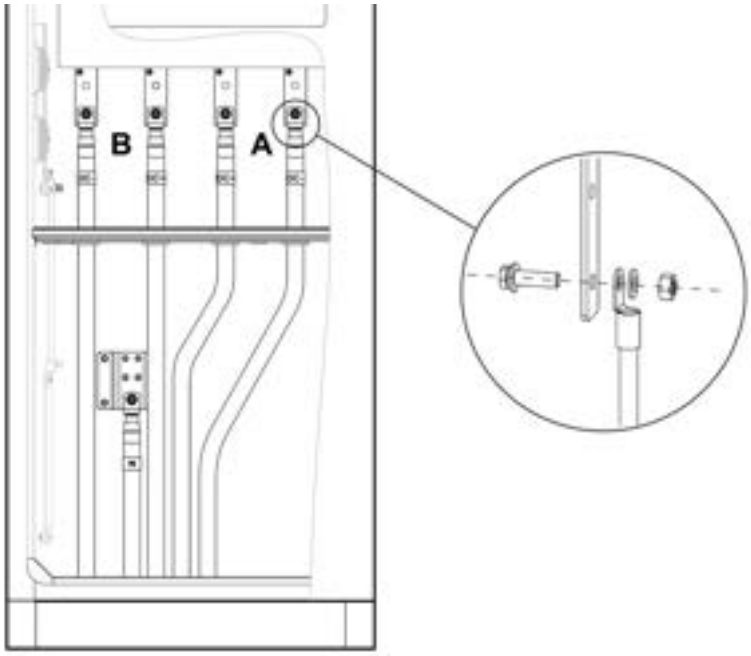


Figure 5-30 Connecting the DC Output Cable 4

5.4.3 Connecting the PE Cable

Use the M8 x 20 screws to connect the PE cables to the power cabinet and dispensers. Tighten the screws using a 5/16” socket wrench.

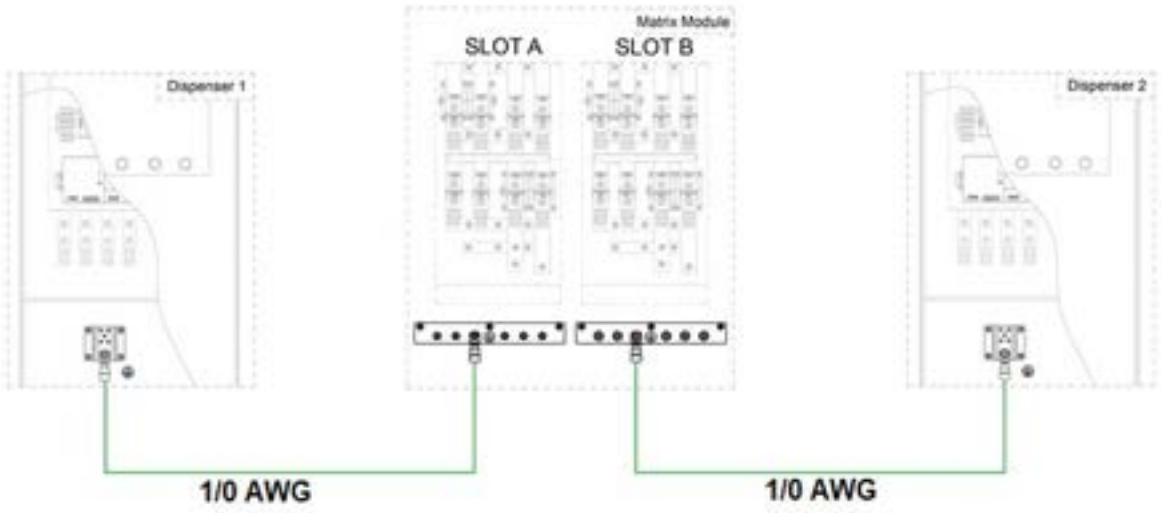


Figure 5-31 Connecting the PE Cable

NOTICE

Refer to *4.2.1 Cable Specifications* to prepare the PE cables. Ensure the local rules are followed.

5.4.4 Connecting the AC Auxiliary Power Cable

STEP 1

Locate the dispenser power on the rear side of the power cabinet.

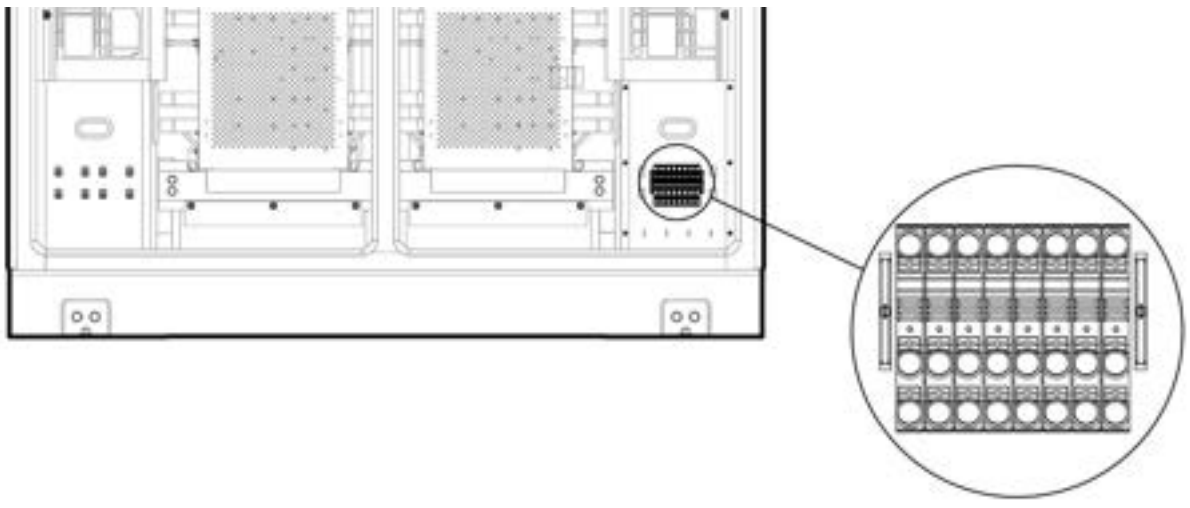


Figure 5-32 Dispenser Power

STEP 2

1. Strip the wires to the correct length and crimp them to the cable lugs using a crimping tool.
2. Push the L1 and L3 wires into the dispenser power as shown below.
3. Connect the PE cable to the PE bus bar at the bottom of the power cabinet. Fix the cable with an M6 x 20 screw and tighten the screw to 26.6 in-lb using a 1/5” socket wrench.

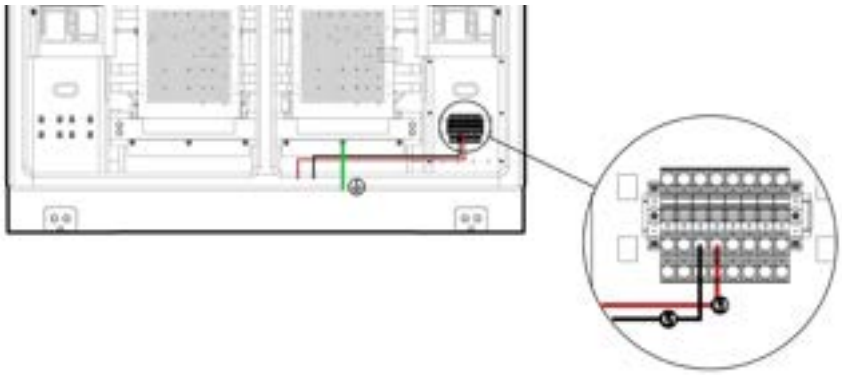


Figure 5-33 Connecting the AC Auxiliary Power 1

STEP 3

1. Locate the XT terminal block in the dispenser.
2. Strip the wires to the correct length and crimp them to the cable lugs using a crimping tool.
3. Use a flathead screwdriver to hold the release button above the connector hole and push the wires into the holes.
4. Connect the PE cable to the PE bus bar of the dispenser. Fix the cable with an M6 x 20 screw and tighten the screw to 26.6 in-lb using a 1/5” socket wrench.

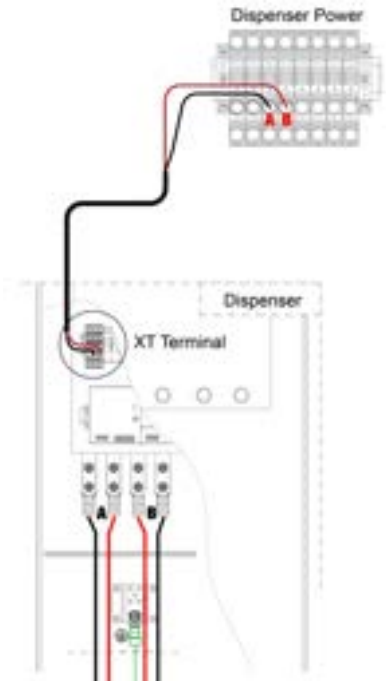


Figure 5-34 Connecting the AC Auxiliary Power 2

5.5 Ethernet Connection

NOTICE
Ensure an Ethernet cable has been connected to the **North** port to provide Internet access.

STEP 1
Connect one end of the Ethernet cable to the Ethernet port as indicated in the power cabinet. The number indicates the dispenser's number (e.g. "1" refers to "Dispenser 1").

STEP 2
Rotate the dust cover to reveal the Ethernet port in the dispenser and connect the other end of the Ethernet cable.

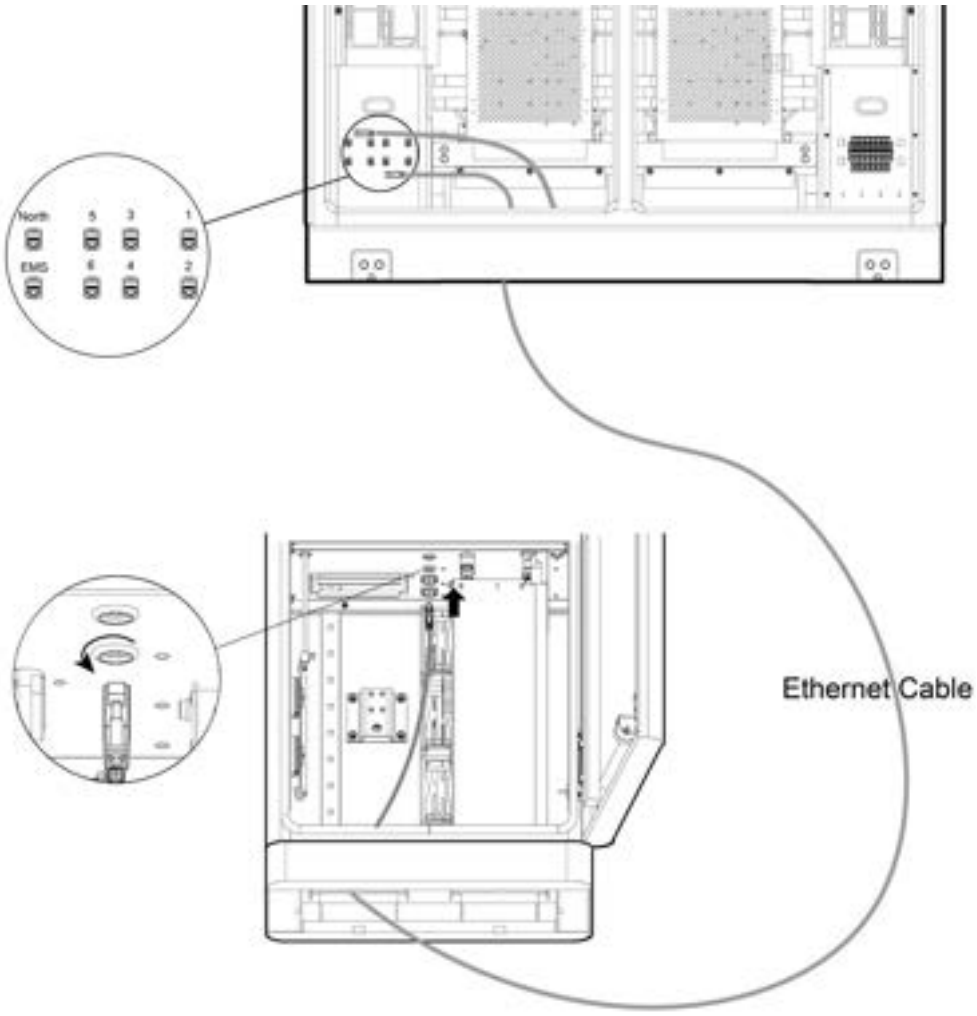


Figure 5-35 Connecting the Ethernet Cable

5.6 Finish Installation

For the Power Cabinet:

1. After all the wires are connected and the screws are tightened properly, reinstall the four cable cover plates and organize the wires. Then use fireproof mortar to seal any gaps.
2. Reinstall the two metal plates on the rear of the cabinet.
3. Reinstall the two insulation barriers in the front of the cabinet.
4. Ensure there are no metal shavings or other debris left inside the cabinet. Then close and lock the rear and front doors.
5. Reinstall the front, rear, and side base covers.
6. Remove the four eye bolts from the top of the cabinet and reinstall the four plugs.

For the Dispenser:

1. Afterall thewires are connected and the screws are tightened properly, reinstall the insulation barrier.
2. Push the bottom cable cover plate to fit the wires. Then use fireproof mortar to seal any gaps.
3. Ensure there are no metal shavings or other debris left inside of the cabinet. Then close and lock the front door.
4. Reinstall the side base covers.

6. Commissioning

TheLocal Service Portal is a service tool provided by Autel that provides information pertaining to the equipment. This service tool configures key parameters for commissioning, enables on-site diagnostics. Normally, the parameters have already been setup before shipment. Follow the steps below to adjust the parameters, if needed.



NOTICE

The commissioning work should be performed by a commissioning engineer.

6.1 Before Use

Ensure that the equipment is installed according to the instructions in this manual.

Tighten the screws and bolts of key parts and ensure the equipment is clean inside to prevent the electronic components from being damaged by dust or particles.

Use the multimeter to check the circuit connections among L1, L2, L3, and PE. If short circuit occurs, contact Autel technical support.

Turn on the upstream breaker, then use a voltage tester to measure the voltage of AC power input between the terminals on the surge protection device switch. Ensure that all the measured voltages are in accordance with local regulations.

Check the circuit breakers and ensure they are working properly.

The manufacturer or a trained technician should perform the commissioning work. Contact the manufacturer when the equipment is ready for commissioning.

The space around the equipment shall not be blocked by snow or other objects.

Ensure that the maintenance work has been carried out on the equipment.

If the equipment is de-energized for more than four hours, activate the internal heater to remove condensation from the inside.

After all the check-ups are complete, the equipment now is ready for commissioning.

6.2 Preparing for Commissioning

1. Contact PowerTechnology technical support to acquire the PIN of this DC HiPower.

2. Connect one end of an Ethernet cable to your computer and the other end to an Ethernet port in the dispenser as shown.
   Or
   Connect your computer or mobile device to Wi-Fi. Ensure the Wi-Fi signal is stable.

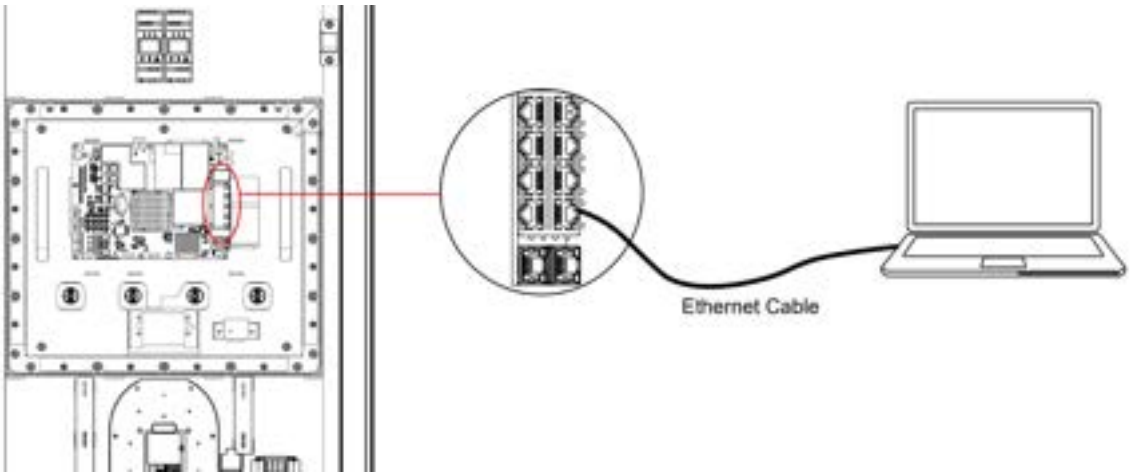


Figure 6-1 Connecting the Ethernet Cable

6.3 Initial Setups

Once the dispenser is powered on, finish the following setups on the touchscreen:

1. Select the language.



Figure 6-2 Selecting Language Screen

2. Select the time zone.

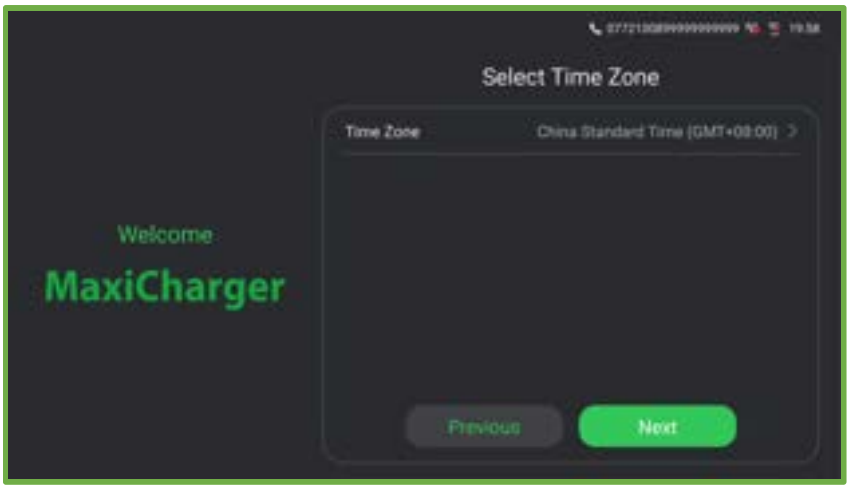


Figure 6-3 Selecting Time Zone Screen

3. Configure the connector number.



Figure 6-4 Connector Number Configuration Screen

NOTICE
Connector numbers must be consecutively numbered from 1 and must not be duplicated or larger than the number 8.

6.4 Configuring the MaxiCharger

NOTICE
The illustrations below take the computer interface as an example. The mobile interface display may be slightly different.

Enter 192.168.33.18 in chrome browser. Log in with the following information:

- Account name: admin
- Password: PIN of this equipment



Figure 6-5 Log-in Screen

6.4.1 Internet Connection

Select **Network Settings** on the main screen after successfully logging in. Configure the Internet according to the connection method: WLAN, mobile network or Ethernet.



Figure 6-6 Selecting Network Settings Screen

Via Wi-Fi

On the Network Settings Screen, select **WLAN** on the right column and toggle the button to **ON**.

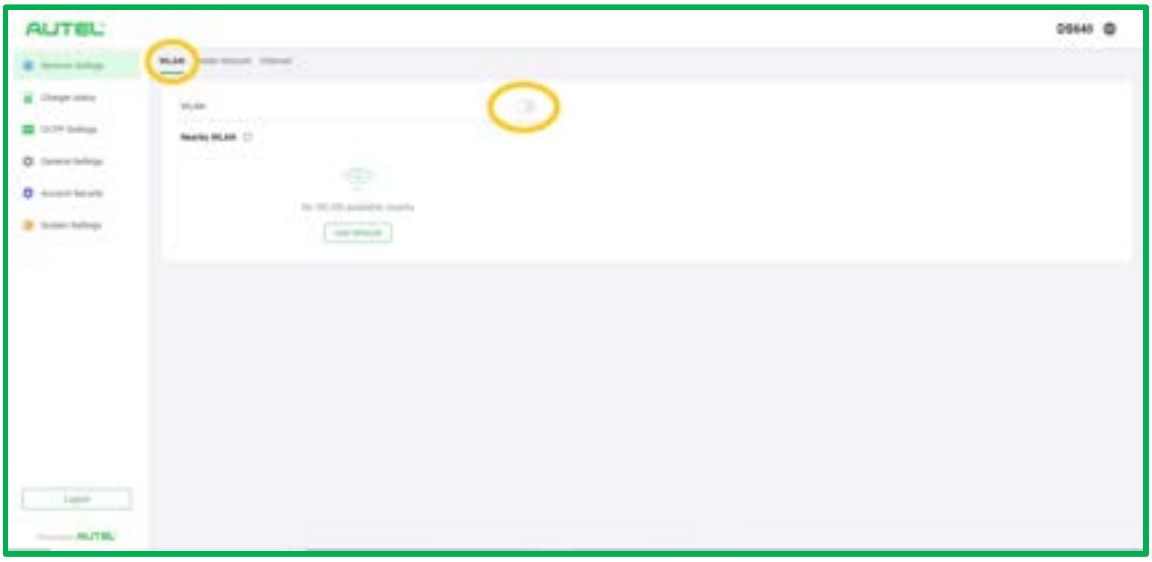


Figure 6-7 Wi-Fi Setup Screen 1

Click the ellipsis button (…) to the right of your local network. Enter the correct password and click **Connect** to connect the Wi-Fi.

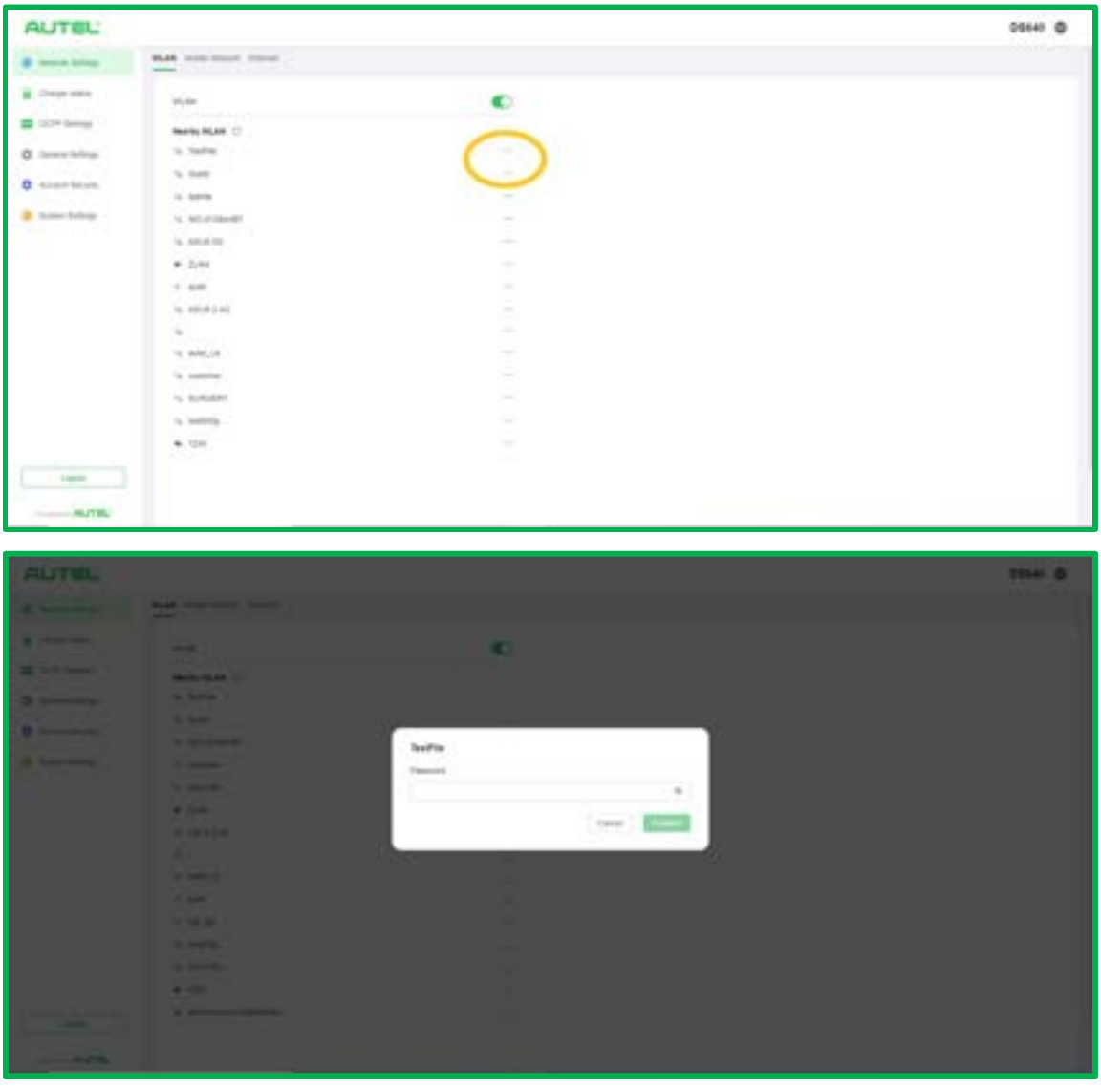


Figure 6-8 Wi-Fi Setup Screen 2

Via Mobile Network

NOTICE
This section describes the mobile network setups for the transaction control unit (TCU) in the power cabinet.

Two SIM cards are required:

- SIM1: accesses the PowerTechnology charging
- management platform SIM2: accesses the client's OCPP

Install the SIM cards as described below before proceeding to the setups.
To install a SIM card:

1. Slide the SIM card tray to the right.
2. Install the SIM card properly.
3. Push the SIM card tray back into place.

On the Network Settings Screen, select **Mobile Network** on the right column. Click the "**>**" button to your SIM card to configure the APN.

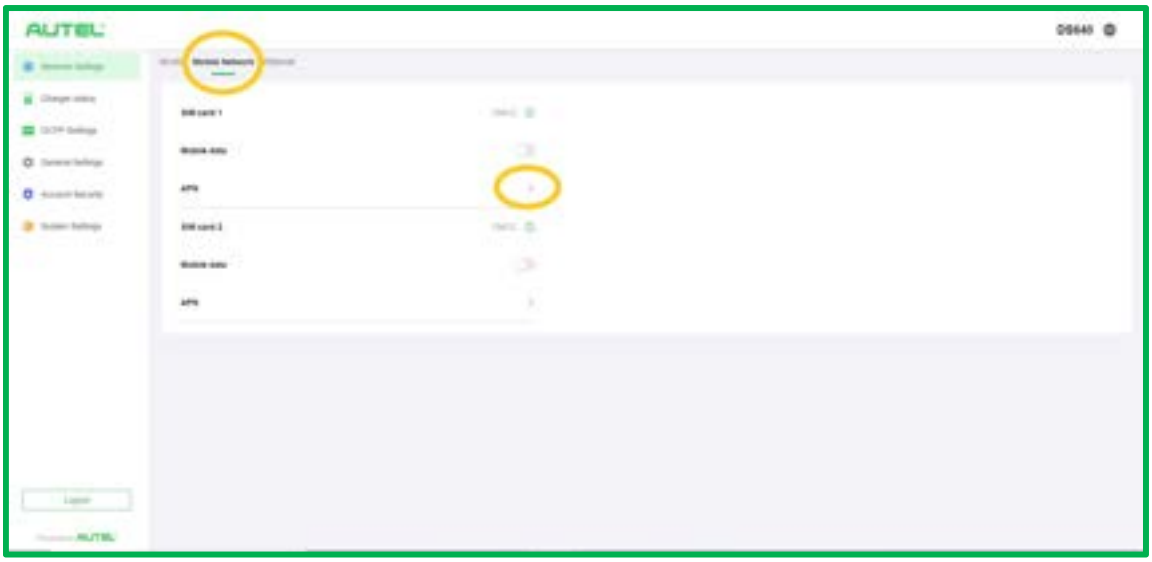


Figure 6-9 Selecting Mobile Network Screen

Click the **AddAPN** button on the upper left and configure the APN. The fields marked with asterisk are mandatory. Click **OK** to finish the setup.

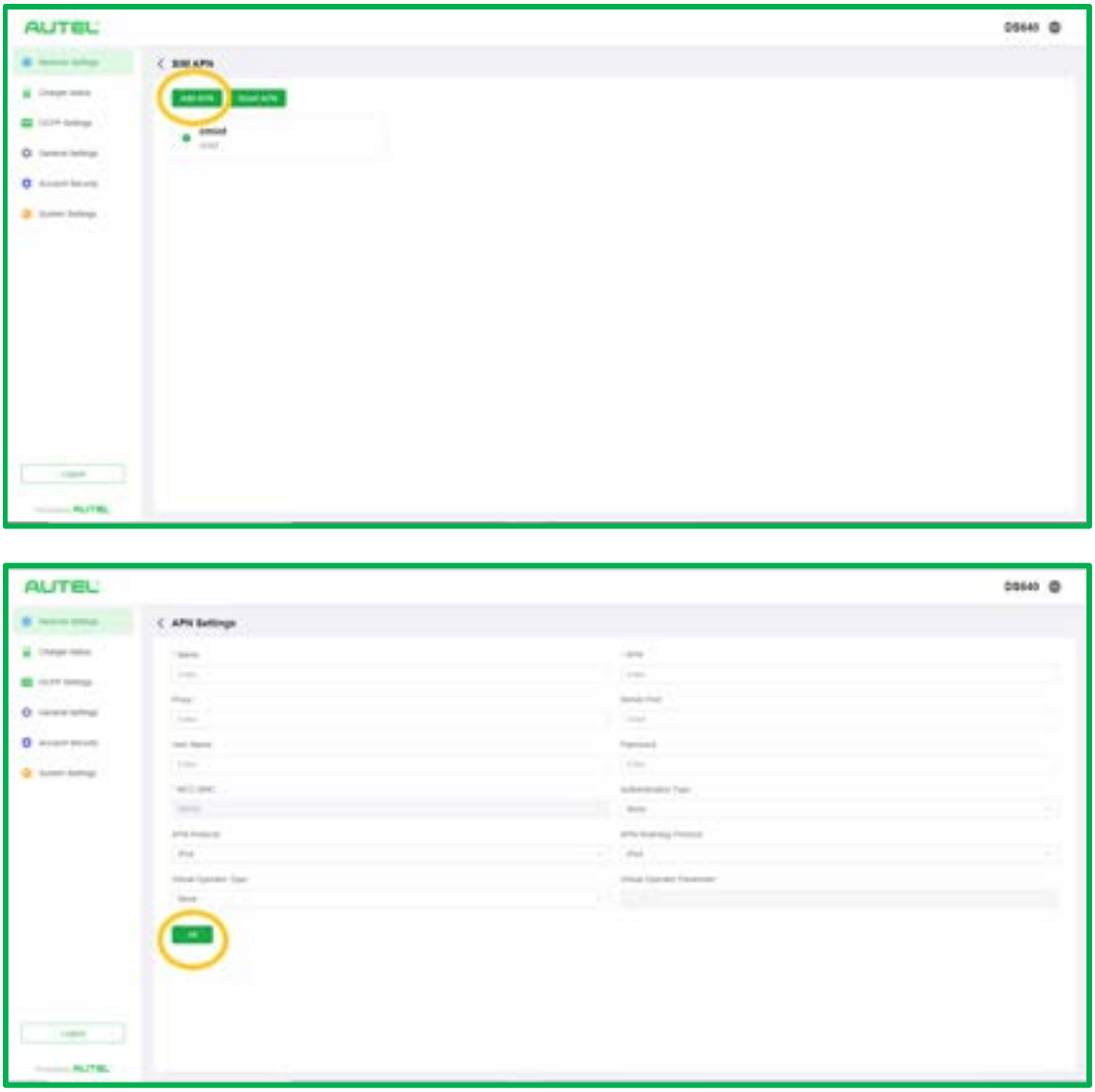


Figure 6-10 Configuring the APN Screen

Via Ethernet

On the Network Settings Screen, select **Ethernet** on the right column and click the **Setting** button to check the EMS or Northbound network information. Usually, the information requires no configuration.



Figure 6-11 Selecting Ethernet Screen

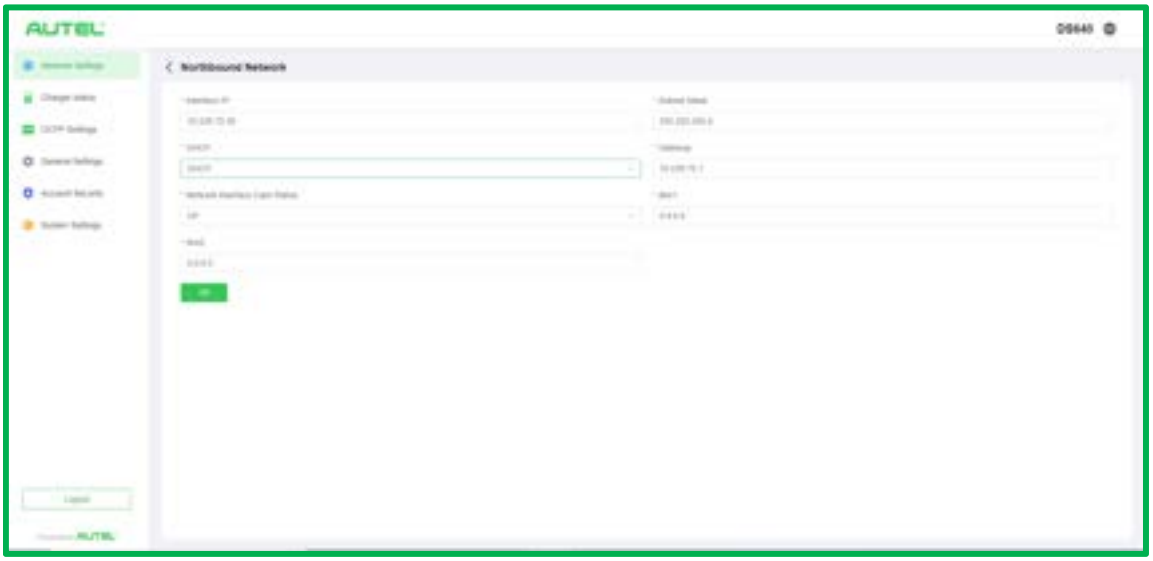


Figure 6-12 Network Information Screen

6.4.2 OCPP Settings

Select **OCPP Settings** on the menu to check the OCPP setups. Click **OCPP connection** on the right column to check the server information, or click **OCPP parameter** to view the parameters. The parameters have been set up before shipment and can be configured on site accordingly.

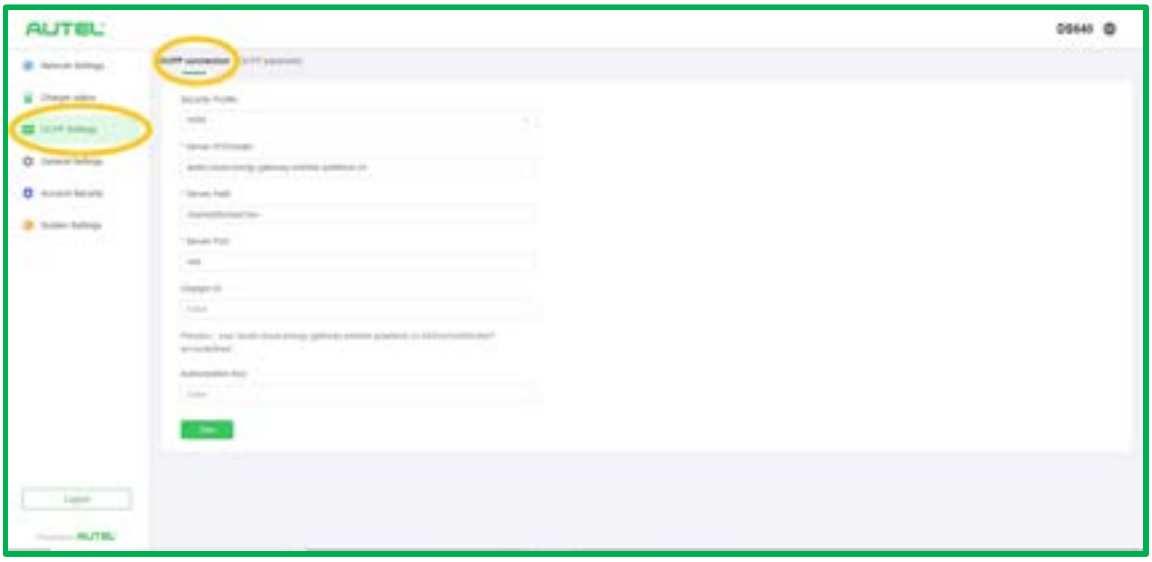


Figure 6-13 OCPP Connection Screen

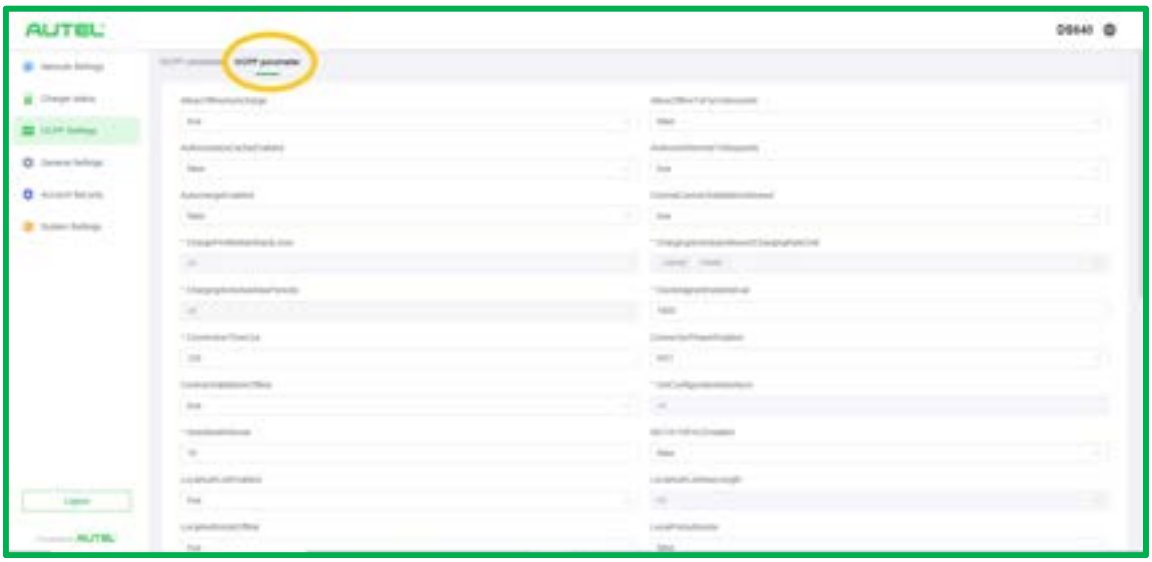


Figure 6-14 OCPP Parameter Screen

6.4.3 Matrix Matching

To match the matrix:

1. Select **System Settings** on the menu.

2. Select **System Reset** on the right column.

3. Click the **Bus Rematching** button. Then reboot the charger by clicking the **Reboot Charger** button.

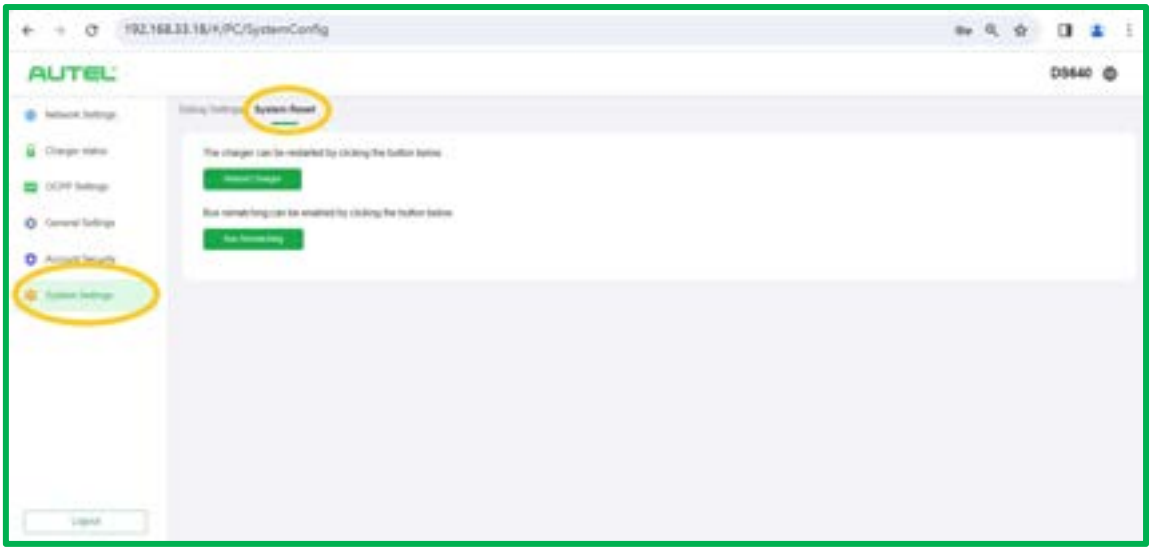


Figure 6-15 Matrix Matching Screen

6.5 Router Setup

To strengthen the Internet connection, the commissioning engineer can configure the router as described below.

Prior to configuration, ensure all items in the checklist are readily available:

Ethernet cable

Computer with the Ethernet port

Phillips screwdriver

SIM card

Pointed object

6.5.1 Configuring the Cellular Network

STEP 1

Follow the steps below to install the SIM card:

1. Remove the screw on the SIM card slot cover using a Phillips screwdriver.
2. Orient the card such that the gold contacts are facing down and the cut-off edge is to the left.
3. Reinstall the slot cover and tighten the screw.

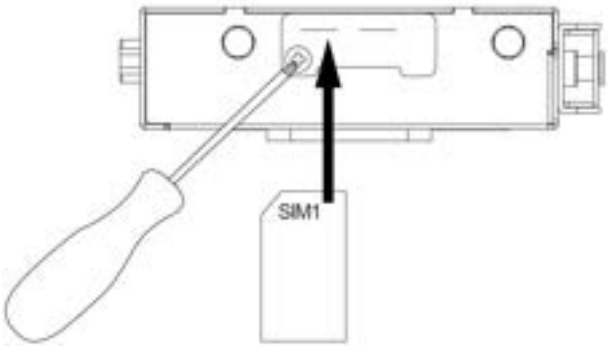


Figure 6-16 Installing the SIM Card

STEP 2

Option 1 (Recommended): Connect one end of the Ethernet cable to the computer and the other end to the North port in the power cabinet.

Option 2: Unplug the cable to the LAN1 port and connect the computer to the port via Ethernet cable.

STEP 3

Set the IP address of the computer to 192.168.127.5, the subnet mask to 255.255.255.0, and default gateway to 192.168.127.254.

STEP 4

Launch a web browser and enter the URL 192.168.127.254. Then input the following information to log in to the web console.

— Username: admin

— Password: moxa



Figure 6-17 Log-in Screen

CAUTION

If the web console cannot be accessed, press and hold the **Reset** button (**A**) using a pointed object (such as a paper clip) until the LEDs on the front panel flash red. The router will be reset to factory default settings. Try logging in again.

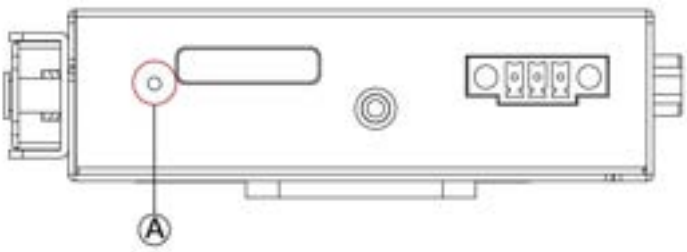


Figure 6-18 Reset Button of the Router

STEP 5

Select **General Setup > Interface On/Off** and enable the Cellular WAN. Click **Submit**.

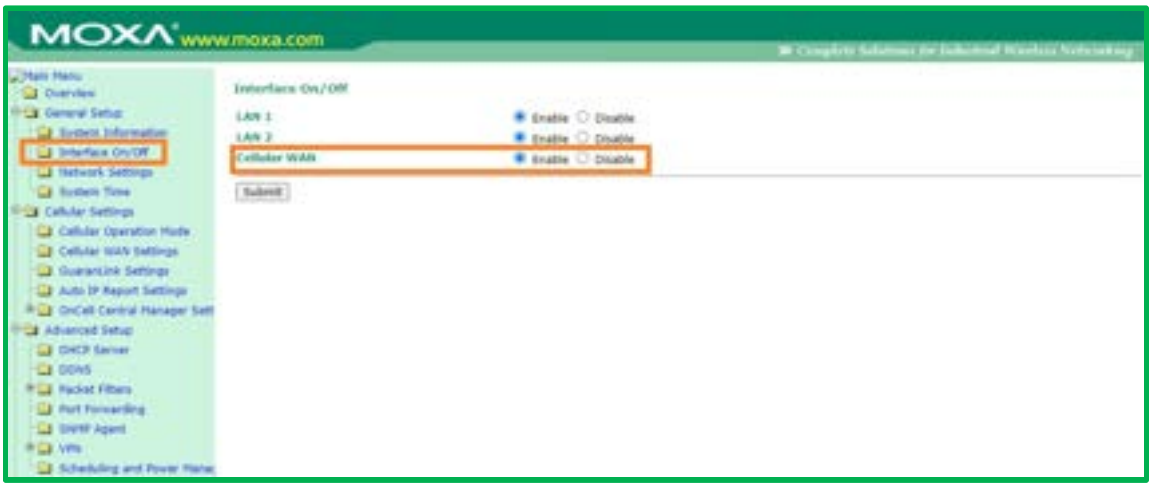


Figure 6-19 Interface On/Off Screen

STEP 6

1. Obtain the SIM card PIN and APN information from the service provider.

2. Select **Cellular Settings > Cellular WAN Settings** and enter the SIM card PIN and APN values. Click **Submit**.

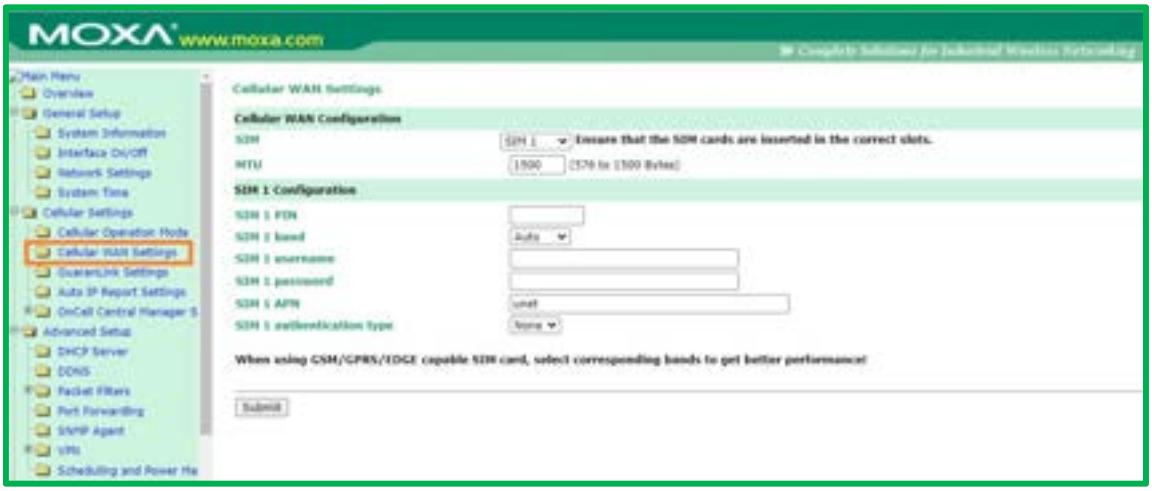


Figure 6-20 Cellular WAN Settings Screen

STEP 7

Go to **Advanced Setup > DHCP Server** and configure the following information:

— Default gateway: 192.168.127.254

— Subnet mask: 255.255.255.0

— Start IP address: 192.168.127.10

— Maximum number of users: 32

— Client lease time: 10

Click **Submit** at the bottom of this page.



Figure 6-21 DHCP Server Settings Screen

STEP 8

Select **Restart** on the left column and click **Save and Restart** to reboot the router. The network will be available after 3 to 5 minutes. If there is still no Internet connection, check whether the APN of the SIM card was correctly configured.

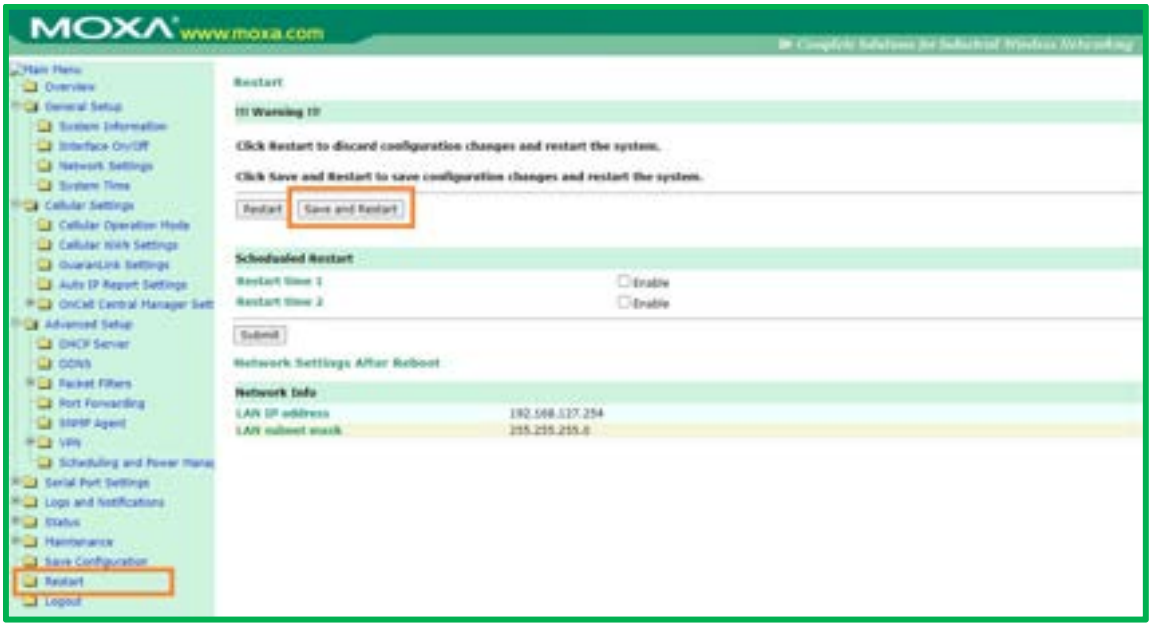


Figure 6-22 Restart Screen

The configuration for the cellular network is now complete.

Unplug the Ethernet cable from the North port and reboot the charger.

Or

Disconnect the computer and TCU and reconnect the cable unplugged earlier to the LAN1 port of the router. Reboot the charger.

6.5.2 Configuring the Ethernet

NOTICE
Usually, the router (LAN1 and LAN2 port) has been connected to the TCU via Ethernet cable before shipment. Configure the Ethernet in the web console as described below.

STEP 1
Log in to the web console. (See Step 2 to Step 4 in the previous section.)

STEP 2 (Optional)

Skip this step if the following information has been configured.

Go to **Advanced Setup > DHCP Server** and configure the following information:

— Default gateway: 192.168.127.254

— Subnet mask: 255.255.255.0

— Start IP address: 192.168.127.10

— Maximum number of users: 32

— Client lease time: 10

Click **Submit** at the bottom of this page.

STEP 3
Disconnect the computer and router. Then connect the Ethernet cable to the North port in the power cabinet.

STEP 4
Turn off the upstream circuit to the charger and turn it back on to restart the charger.

NOTICE
If the router was installed with a SIM card and you wish to disable the 4G function, remove the SIM card or go to **General Setup** > **Interface On/Off** in the web console, disable the Cellular WAN, and click **Submit**. Then Click **Restart** > **Save and Restart**.

CAUTION
To switch from cellular network to Ethernet or vice versa, follow the steps above to configure the router accordingly. Then power off the charger and restart it.

7. Operation

7.1Emergency Situations

If there is an emergency, push the **emergency stop** button. Then the charger will stop all charge sessions and the touchscreen will display the following message:



Figure 7-1 Fault Message Screen

Reset the charger after an emergency (making sure that the situation is safe again first): Turn the emergency button clockwise to release it. The charger will start, the message will disappear from the touchscreen, and the charger will resume normal operation.

7.2 Charge Sessions

General charging procedure:

1. Park an EV with the charging port within reach of the connector.
2. Plug in the vehicle.
3. Start the charge session.
4. Stop the charge session.

7.2.1 Standby Screen



Figure 7-2 Standby Screen

1. Displays the communication protocol (either ACMP or OCPP) and time.
2. Displays connectors' information. Tap to select a connector.
3. Language and Cost icon — Tap the Language icon to choose a display language; tap the Cost icon to enter the Pricing Details Screen.

NOTICE

After a connector is successfully connected to the EV, the charger will automatically recognize the connector and the corresponding connector's Authorization Screen will appear.

If no operation is performed for a period of time on the Authorization Screen, the Standby Screen will appear. Manually select a connector on the touchscreen to proceed.

7.2.2 Authorization

CAUTION

Before starting a charge session, observe the screen for any abnormality, such as an error message. Check the surroundings and the equipment for any abnormality or damage as well.

DO NOT operate the equipment if the screen displays an error message. Contact Autel technical support.

When the Authorization Screen appears, use any of the following methods to start a charge session:

Scan the QR code on the screen

RFID card

Plug & charge (supports the ISO 15118 PnC function)

Credit card (optional)

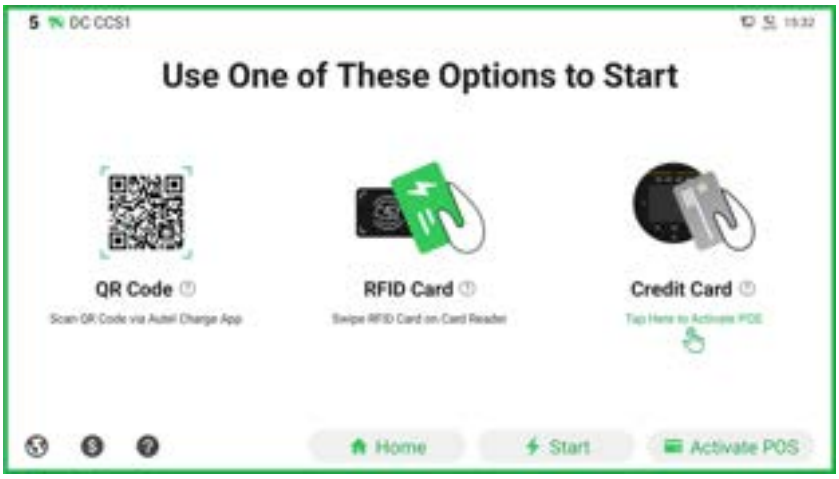


Figure 7-3 Authorization Screen

7.2.3 Start Charging

The charger enters communication with the EV following a successful authorization. The charge session will start automatically after passing safety tests.



Figure 7-4 Connecting Screen

7.2.4 Charging

Information about the charging duration, power, cost, and energy will appear on the Charging Screen.



Figure 7-5 Charging Screen

7.2.5 Stop Charging

1. Unplug the vehicle or tap the **Stop** button on the touchscreen.

2. If a session stops unexpectedly, the charger requires another authorization to restart a charge session. Use the same authentication method to begin the charge again.

QR Code/Credit Card: Tap the **Stop** button on the Charging Screen of the Autel Charge app.

RFID Card: Tap the RFID card on the card reader again to finish charging.

NOTICE

The charge session stops automatically when the battery is full.

Once the charging stops, the transaction details will appear on the screen.

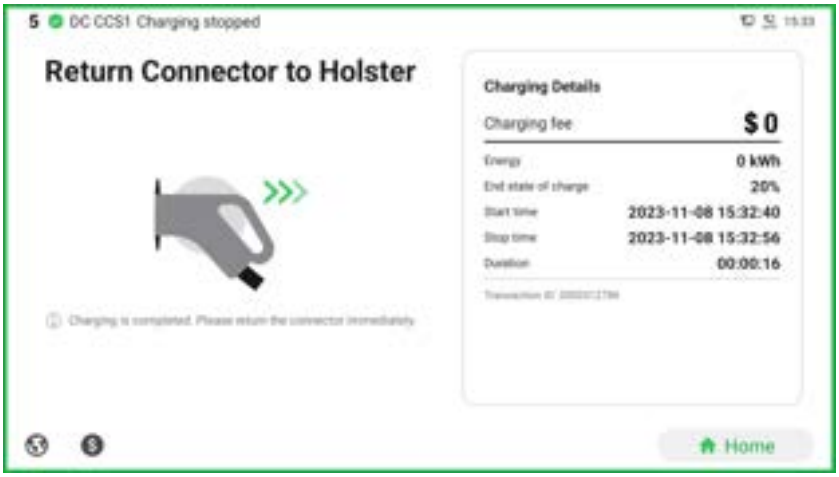


Figure 7-6 Order Details Screen

WARNING

Do not cover the vent during charging.

Do not clean or operate in your EV during charging.

7.2.6 Finish Charging

Return the connector to the holster on the charger.

8. Maintenance

8.1 Routine Maintenance

Routine maintenance can keep the equipment in a safe and stable state.

Clean the equipment every quarter, tighten the screws and bolts of key parts, and check whether the wire connection of the connector is burned out. If any abnormality is found, replace the parts in time.

Clean the air filters at least twice a year.

WARNING



Disconnect the power supply to the equipment during the entire maintenance procedure.

Ensure unauthorized personnel are kept at a safe distance during maintenance.

Wear proper personal protective equipment, such as protective clothing, safety gloves, safety shoes, and safety glasses.

If the safety devices are removed for maintenance, reinstall them after completing the work.

8.1.1 Cleaning the Cabinet

The equipment is powder-coated. The coating must be kept in good condition. When the equipment is in a corrosion sensitive environment, superficial rust may appear on welding points. Visible rust has no risk to the integrity of the cabinet.

To remove rust:

1. Stop the charge session and power off the charger.
2. Remove rough dirt by spraying with low-pressure tap water.
3. Apply a neutral or weak alkaline cleaning solution and let it soak.
4. Remove dirt by hand with a damp and non-woven nylon cleaning pad.
5. Rinse thoroughly with tap water.
6. Apply wax or a rust-preventive primer for extra protection if needed

8.1.2 Cleaning and Replacing the Air Filters

The power cabinet is equipped with air inlet filters and air outlet filters with a large mesh area to prevent the electronic components from being damaged by dust. Clean the air filters every 3 months (not exceeding 6 months). Replace the air filters once a year.

To clean the air inlet filter:

1. Ensure there is no active charge session.

2. Open the front doors of the power cabinet. When the cabinet door is open, the internal components of the equipment should not be exposed to rain, snow or harsh environments.

3. Manually loosen the four butterfly screws (**A**) to open the fixing door (**B**). Remove the air inlet filter (**C**).

4. Clean the air inlet filter of debris or dust and reinstall the cleaned filter. Or install a new air inlet filter.

Close the fixing board and tighten the butterfly screws.

5. Close the front doors of the power cabinet.

6.

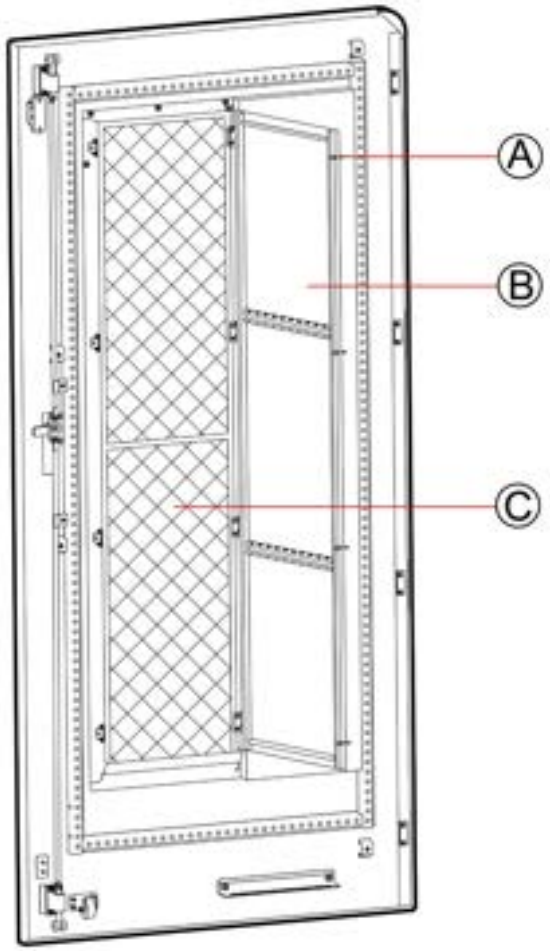


Figure 8-1 the Air Inlet Filter

To clean the air outlet filter:

1. Ensure there is no active charge session.
2. Open the rear doors of the power cabinet. When the cabinet door is open, the internal components of the equipment should not be exposed to rain, snow or harsh environments.
3. Manually loosen the four butterfly screws (**A**) to open the fixing door (**B**).
4. Manually loosen the four butterfly screws (**C**) to open the bezel (**D**). Then remove the air outlet filter (**E**).
5. Clean the air outlet filter of debris or dust and reinstall the cleaned filter. Or install a new air outlet filter.
6. Close the bezel and tighten the four butterfly screws and reinstate the fixing door by tightening the butterfly screws.
7. Close the rear doors of the power cabinet.

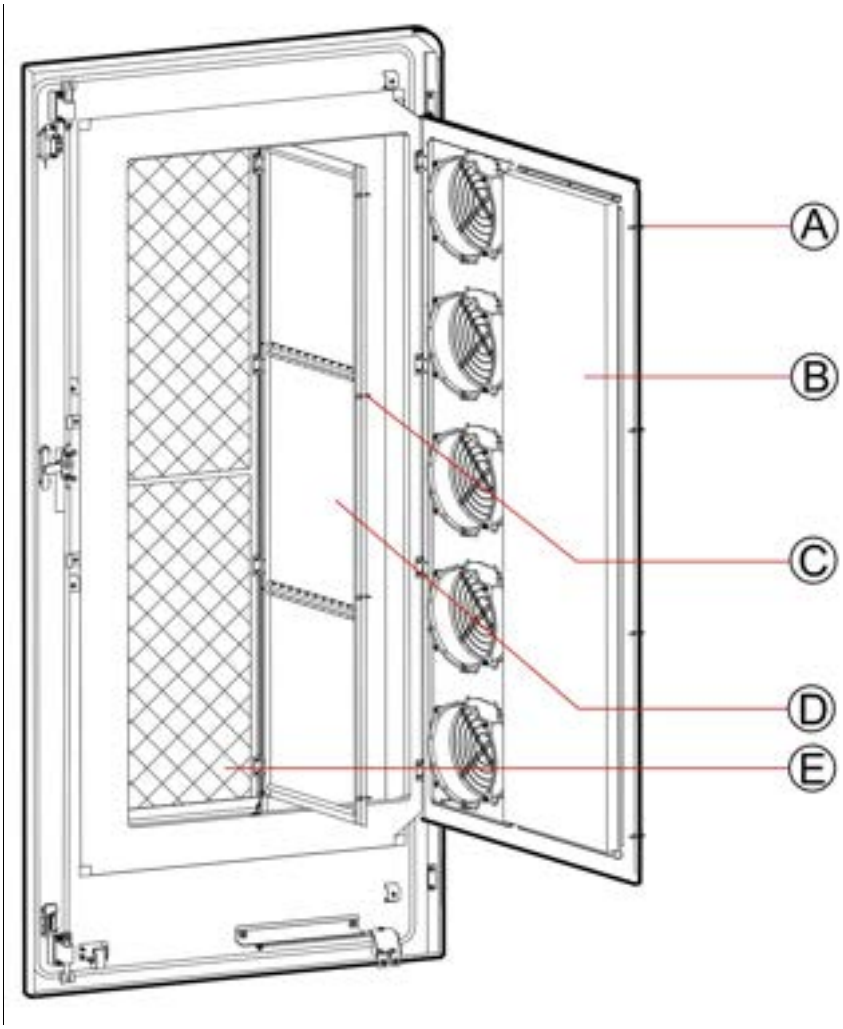


Figure 8-2 the Air Outlet Filter

8.2 Inspection and Maintenance

Routine maintenance is needed even if the equipment is operating in normal condition.

Refer to *Chapter 9 Troubleshooting* or contact PowerTechnology technical support to resolve any error.

When parts need to be replaced, cut off the power supply upstream and inside the equipment before proceeding.
Regularly conduct visual inspection of the following:

Cable and connector: Check for cracks or ruptures.

Display: Check for damage and cracks. Check whether the touchscreen works.

Coating of the cabinet: Check for damage, cracks or ruptures.

Cabinet: Check for rust or damage.

The following special inspections are needed for safe use:

Check if the equipment was struck by lightning.

Check if the equipment is damaged due to an accident or fire.

Check if the equipment installation site has been flooded.



WARNING
Stop the charge session and do not connect the power to the equipment until all the inspections are completed.

8.3 Remote Maintenance

The equipment can be connected to the PowerTechnology cloud platform to monitor parameters in real time. PowerTechnology's cloud platform provides remote upgrades, diagnosis, and services, and identifies any issue during operation.

Daily system self-check.

Contact Autel technical support to resolve any issue found.

Autel service engineers can check logs, update configurations and programs, and provide remote maintenance services such as remote management, diagnosis, configuration, and upgrade.

8.4 Removing Condensation



NOTICE
In weather where condensation happens frequently, it is recommended that you follow the steps below to remove the condensation when the equipment de-energizes for more than 4 hours.

1. Open the front doors.
2. Set the main breakers to **OFF** position:
3. Energize the equipment.
4. Close the doors. Wait two hours. The internal heater will heat the inside of the equipment, and the condensation will evaporate.
5. Open the front doors.
6. Set the main breakers to **ON** position:
7. Close the doors.

8.5 Maintenance Schedule

Item	*Frequency*	*Operations*
Connector	Every 3 months	Check for cracks or ruptures on the connector.
Input Cable	Every 3 months	Check for cracks or ruptures on the cable.
Inlet Air Filter	Annually	Replace the inlet air filter.
Outlet Air Filter	Annually	Replace the outlet air filter.
Cabinet	Every 6 months	Clean and check for damage, including the air filters.

9. Troubleshooting

Thetable below describes the most common faults when operating the equipment. Contact PowerTechnology technical support if the fault encountered is not in this table.

Table 9-1 Troubleshooting Table

Error	*Error Code*	*Possible Cause*	*Solution*
CP voltage abnormal	0x2037	It may be caused by signal interference, poor contact or software errors.	Perform remote restart or reset. If the fault persists, contact PowerTechnology technical support.
Communication error with the entire charging module group	0x3011	There is a problem with the module's address setting.	Power off the equipment and restart it.
Overvoltage	0x202D	The DC output voltage is above the upper limit of the vehicle or the rated voltage of the DC HiPower during charging.	Stop the charge session and contact PowerTechnology technical support.
Communication error with the power control module	0x200E	The CCU does not receive messages from the ECU and the communication is timed out.	Perform remote restart or reset. If the fault persists, contact PowerTechnology technical support.
BMS communication error	0x2007	It may be caused by charging incompatibility.	Perform remote restart or reset. If the fault persists, contact PowerTechnology technical support.
Cooling fan abnormality	0x304A	Fan aged or damaged.	Power off the equipment and contact PowerTechnology technical support for repair or replacement of the fan.
Charging port electronic locking fault	0x2002	It might be caused by a vehicle-related fault.	Contact the vehicle manufacturer and PowerTechnology technical support.
CCU auxiliary power supply shutdown	0x202C	Sever power fault due to aged key components or lines.	Power off the equipment. Then locate the faulty component or line and contact PowerTechnology technical support for its repair or replacement.

Error	Error Code	Possible Cause	Solution
Meter communication error	0x0001	Aged meter or line.	Stop the charge session and contact PowerTechnology technical support.
Insulation monitoring fault	0x2003	If it appears from time to time, it might be due to the vehicle or software error; if it appears frequently, there may be an aged key component.	Perform remote restart or reset. If the fault persists, contact Autel technical support.
AC contactor stuck	0x3008	AC contactor fault or line aging	Power off the equipment and contact PowerTechnology technical support.
FPGA fault	0x3010	Controller fault	Stop the charge session, power off the equipment, and contact PowerTechnology technical support.
CCU current sampling and module output current accumulation fault	0x3014	Charging module output or sampling fault	Perform remote restart or reset. If the fault persists, contact PowerTechnology technical support.
Power distribution contactor sticking (charging possible)	0x3047	Contactor or sensor fault or line aging	Power off the equipment immediately and contact PowerTechnology technical support.
Communication error on one charging module	0x3051	Abnormal charging module	Contact PowerTechnology technical support to identify the fault, and then clear the fault or replace the module.
Fan fault with one charging module	0x305A	Abnormal charging module	Contact PowerTechnology technical support to identify the fault, and then clear the fault or replace the module.
Inconsistent CCU voltage sampling and the module output voltage	0x305C	Abnormal charging module	Contact PowerTechnology technical support to identify the fault, and then clear the fault or replace the module.

Error	Error Code	Possible Cause	Solution
Insulation detection alert	0x2040	If it is a one-time problem, there is may be a falling object, and no operation is required; if it has occurred for several times, the connector cable may be damaged or there are foreign objects in the busbar.	Power off the equipment immediately and contact PowerTechnology technical support.
Charger offline	0x9001	Communication error between gateway and the Autel Charge Cloud	Check the network connection and OCPP configurations.

10. Technical Specifications

10.1Power Cabinet Specifications

Table 10-1 Power Cabinet Specifications

	480 kW	*640 kW*
AC Input		
Earthing System	3P + PE, no neutral	3P + PE, no neutral
Input Voltage	3-phase 480 VAC ± 10% (2 routes)	3-phase 480 VAC ± 10% (2 routes)
Input Frequency	60 Hz	60 Hz
Power Factor	≥ 0.99	≥ 0.99
Harmonic Distortion (THDi)	≤ 5%	≤ 5%
General Characteristics		
Max. Number of output	8	8
Minimum Adjustable Power	40 kW	80 kW
Connectivity	4G Wi-Fi Ethernet	4G Wi-Fi Ethernet
Peak Efficiency	96%	96%
Enclosure Rating	Type 3R	Type 3R
Noise Level (Within 10 feet)	Average: < 64 dB Peak: < 67 dB	Average: < 65 dB Peak: < 68 dB
Operating Altitude	6562 feet (2000 m)	6562 feet (2000 m)
Operating Temperature Range	-31 to + 131 ° F (-35 to +55 ° C)	-31 to + 131 ° F (-35 to +55 ° C)
Storage Temperature Range	-40 to + 158 ° F (-40 to +70 ° C)	-40 to + 158 ° F (-40 to +70 ° C)
Mounting	Floor standing	Floor standing
Net Weight	Approx. 3197 lbs. (1450 kg)	Approx. 3197 lbs. (1450 kg)
Dimensions (H x W x D)	78.7” x 66.9” x 35.4” (2000 x 1700 x 900 mm)	78.7” x 66.9” x 35.4” (2000 x 1700 x 900 mm)

Certification and Standards		
Safety Standards	UL2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	UL2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16
Certification	CSA, FCC part 15 Class A	CSA, FCC part 15 Class A
Design Life	10 years	10 years
Warranty	24 months, warranty extension possible	24 months, warranty extension possible

	360 kW	***320 kW***
AC Input		
Earthing System	3P + PE, no neutral	3P + PE, no neutral
Input Voltage	3-phase 480 VAC ± 10% (2 routes)	3-phase 480 VAC ± 10% (2 routes)
Input Frequency	60 Hz	60 Hz
Power Factor	≥ 0.99	≥ 0.99
Harmonic Distortion (THDi)	≤ 5%	≤ 5%
General Characteristics		
Max. Number of output	8	8
Minimum Adjustable Power	40 kW	40 kW
Connectivity	4G Wi-Fi Ethernet	4G Wi-Fi Ethernet
Peak Efficiency	96%	96%
Enclosure Rating	Type 3R	Type 3R
Noise Level (Within 10 feet)	Average: < 64 dB Peak: < 67 dB	Average: < 64 dB Peak: < 67 dB
Operating Altitude	6562 feet (2000 m)	6562 feet (2000 m)
Operating Temperature Range	-31 to + 131 ° F (-35 to +55 ° C)	-31 to + 131 ° F (-35 to +55 ° C)
Storage Temperature Range	-40 to + 158 ° F (-40 to +70 ° C)	-40 to + 158 ° F (-40 to +70 ° C)
Mounting	Floor standing	Floor standing

Net Weight	Approx. 3197 lbs. (1450 kg)	Approx. 3197 lbs. (1450 kg)
Dimensions (H x W x D)	78.7” x 66.9” x 35.4” (2000 x 1700 x 900 mm)	78.7” x 66.9” x 35.4” (2000 x 1700 x 900 mm)
Certification and Standards		
Safety Standards	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16
Certification	CSA, FCC part 15 Class A	CSA, FCC part 15 Class A
Design Life	10 years	10 years
Warranty	24 months, warranty extension possible	24 months, warranty extension possible

10.2 Dispenser Specifications

Table 10-2 Dispenser Specifications

	Liquid Cooled Air Cooled Dispenser (DT240)	***Air Cooled Dispenser (DT320)***
DC Output Connection		
Charging Mode	Mode 4: CCS1	Mode 4: CCS1, NACS
Output 1 Power	475 kW	240 kW	320 kW
Output 1 Voltage	150 to 950 V	150 to 950 V	150 to 950 V
Output 1 Current	CCS1 500 A	CCS1 300 A	CCS1 400 A, NACS 380 A
Output 2 Power	475 kW	240 kW	320 kW
Output 2 Voltage	150 to 950 V	150 to 950 V	150 to 950 V
Output 2 Current	CCS1 500 A	CCS1 300 A	CCS1 400 A, NACS 380 A
Number of Output	2 x CCS1	2 x CCS1	2 x CCS1 1 x CCS1 + 1 x NACS 2 x NACS
General Characteristics		
Enclosure Rating	Type 3R	Type 3R	Type 3R

Noise Level (Within 5 feet)	Peak noise: < 63 dB	Peak noise: < 58 dB	Peak noise: < 58 dB
Operating Altitude	6562 feet (2000 m)	6562 feet (2000 m)	6562 feet (2000 m)
Operating Temperature Range	-31 to + 122 °F (-35 to +50 °C)	-31 to + 122 °F (-35 to +50 °C)	-31 to + 104 °F (-35 to +40 °C)
Storage Temperature Range	-40 to + 158 °F (-40 to +70 °C)	-40 to + 158 °F (-40 to +70 °C)	-40 to + 158 °F (-40 to +70 °C)
Mounting	Floor standing	Floor standing	Floor standing
Dimensions	81.7” x 22.8” x 12.6” (2075 x 580 x 320 mm)	81.7” x 22.8” x 12.6” (2075 x 580 x 320 mm)	81.7” x 22.8” x 12.6” (2075 x 580 x 320 mm)
Net Weight	Approx. 419 lbs. (190 kg)	Approx. 353 lbs. (160 kg)	Approx. 353 lbs. (160 kg)
Touchscreen	15.6-inch LCD touchscreen	15.6-inch LCD touchscreen	15.6-inch LCD touchscreen
Cable Length	16.4 feet (5 m)	16.4 feet (5 m)	16.4 feet (5 m)
User Interface			
LED Status Indication LCD APP		LED LCD APP	LED LCD APP
PowerTechnology app PowerTechnology Cloud User Interface	Charge	Autel Charge app Charge Autel Charge Cloud	Autel Charge app Autel Charge Cloud
Ethernet Connectivity		Ethernet	Ethernet
OCPP 1.6J	(OCPP 2.0.1 optional)	OCPP 1.6J (OCPP 2.0.1 optional)	OCPP 1.6J (OCPP 2.0.1 optional)
Communication Protocol User Authentication	APP RFID card QR code Credit card (optional)	APP RFID card QR code Credit card (optional)	APP RFID card QR code Credit card (optional)
Software Update			
Software Update	OTA update via web portal	OTA update via web portal	OTA update via web portal

Certification and Standards			
Safety Standards	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16
Certification	CSA, FCC part 15 Class A	CSA, FCC part 15 Class A	CSA, FCC part 15 Class A
Design Life	10 years	10 years	10 years
Warranty	24 months, warranty extension possible	24 months, warranty extension possible	24 months, warranty extension possible

10.3 AC Input Specifications

Table 10-3 AC Input Specifications

Parameter	Power Rating			
	320 kW	360 kW	480 kW	640 kW
Nominal Input Current (each route)	210 A	235 A	310 A	414 A
Maximum Input Current (each route)	233 A	261 A	345 A	460 A
Maximum Power Dissipation (2 routes)	350 kVA	400 kVA	520 kVA	690 kVA
Short Circuit Current (each route)	35 kA	35 kA	35 kA	35 kA

NOTICE

Refer to the above table to determine the electrical specifications needed for installation in order to meet NEC standards.

Refer to local code for specific design verification.

Use proper cable routing methods (such as underground conduit and cable grooves, etc.) to ensure environment factors are taken into consideration.

If local laws and regulations have different requirements, the provisions of local laws and regulations shall prevail.

10.4 Derating Specifications

Table 10-4 Derating During Normal Duty Operation for Power Cabinet

Ambient Temperature		Power Output (%)	Derating (%)
°F	°C		
-31 to 113	-35 to 45	100	0
113 to 131	45 to 55	100 to 50 (linear de-rating)	0 to 50

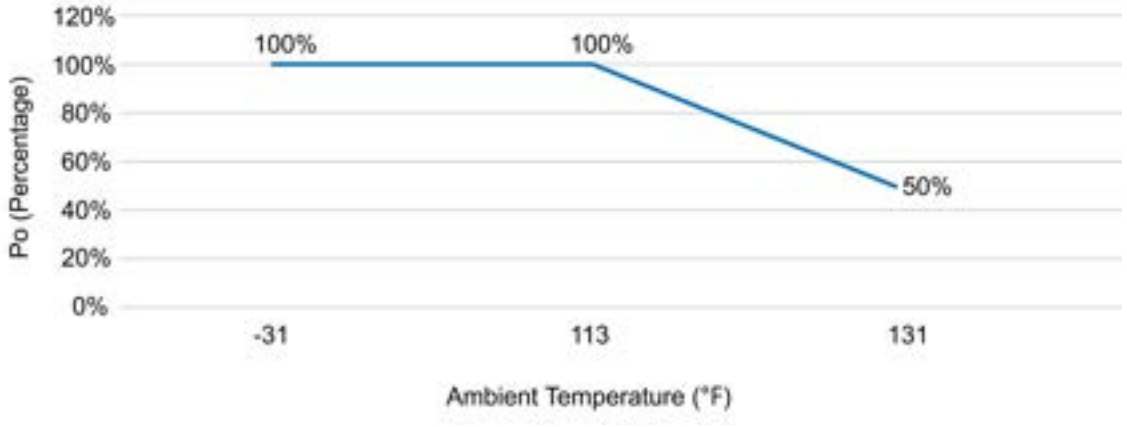


Figure 10-1 Derating Curve for Power Cabinet

Table 10-5 Derating During Normal Duty Operation for DT240

Ambient Temperature		CCS1 Output current(A)	NACS Output current(A)
° F	° C		
-31 to 86	-35 to 30	400	380
95	35	380	380
104	40	350	350

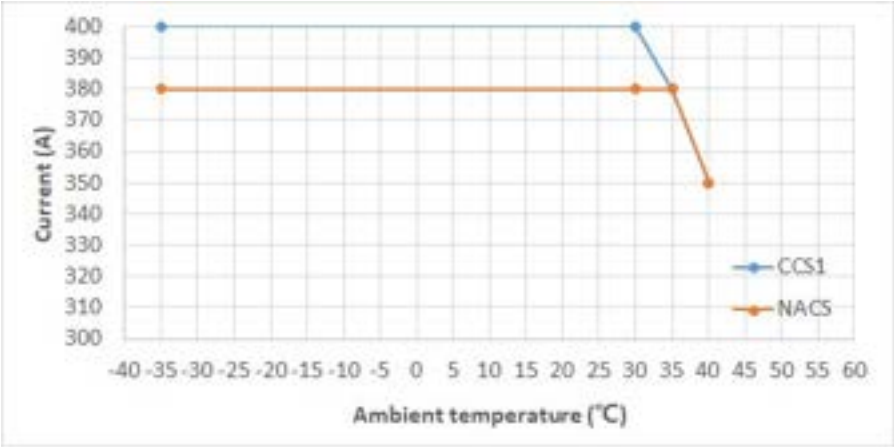


Figure 10-2 Derating Curve for DT240

Table 10-6 Derating During Normal Duty Operation for DT320

Ambient Temperature		CCS1 Output current (A)	NACS Output current (A)
°F	°C		
-31 to 86	-35 to 30	400	380
95	35	380	380
104	40	350	350

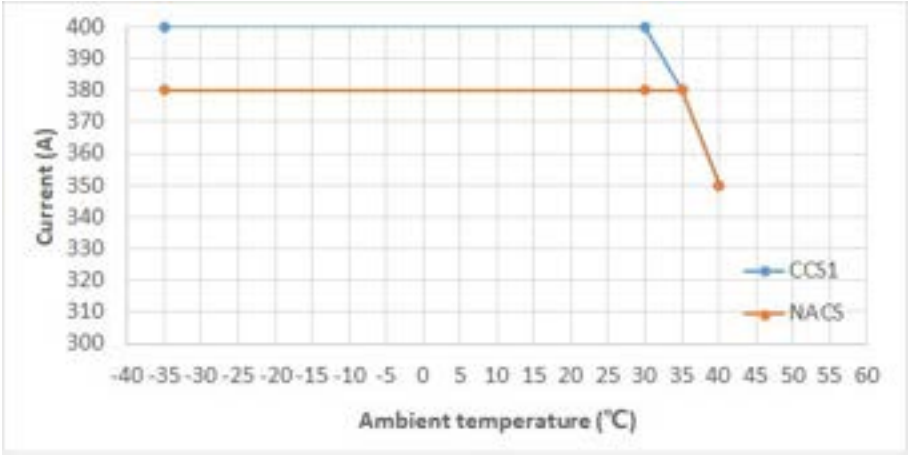


Figure 10-3 Derating Curve for DT320

10.5 Operable Height

Accessibility
The user can access the dispenser user interfaces and charging cables at a height of less than 41.8 inches (1062.5 mm) above ground, which complies with American Disability Act (ADA) requirements. When designing the foundation height, this must be considered to comply with ADA standards or other regions' disability access regulations. In case of planning dispenser access for disabled parking stalls, site design factors (such as placement of bollards, wheel stops, or other vehicle obstacles) should also be considered.

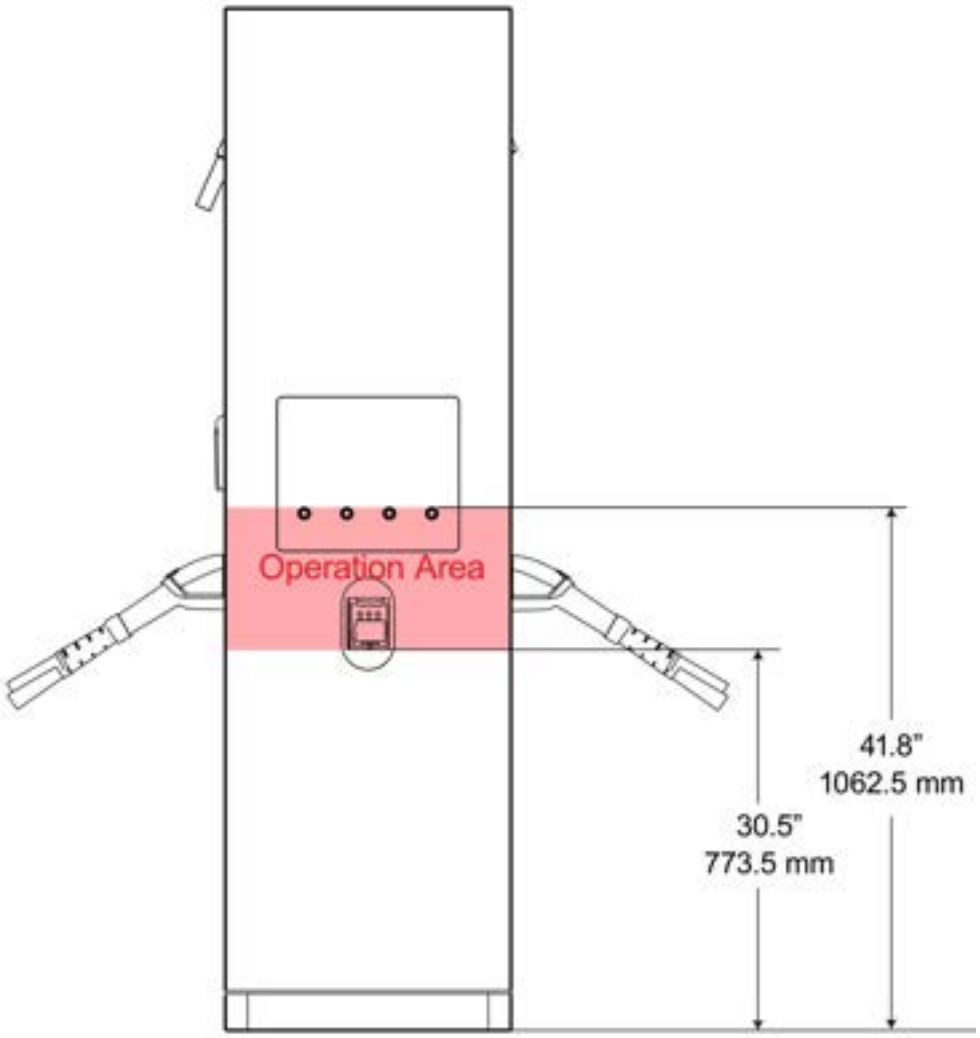


Figure 10-4 Dispenser Operable Height

11. Appendix

Thewiringdiagrams below describe the common matrix models.

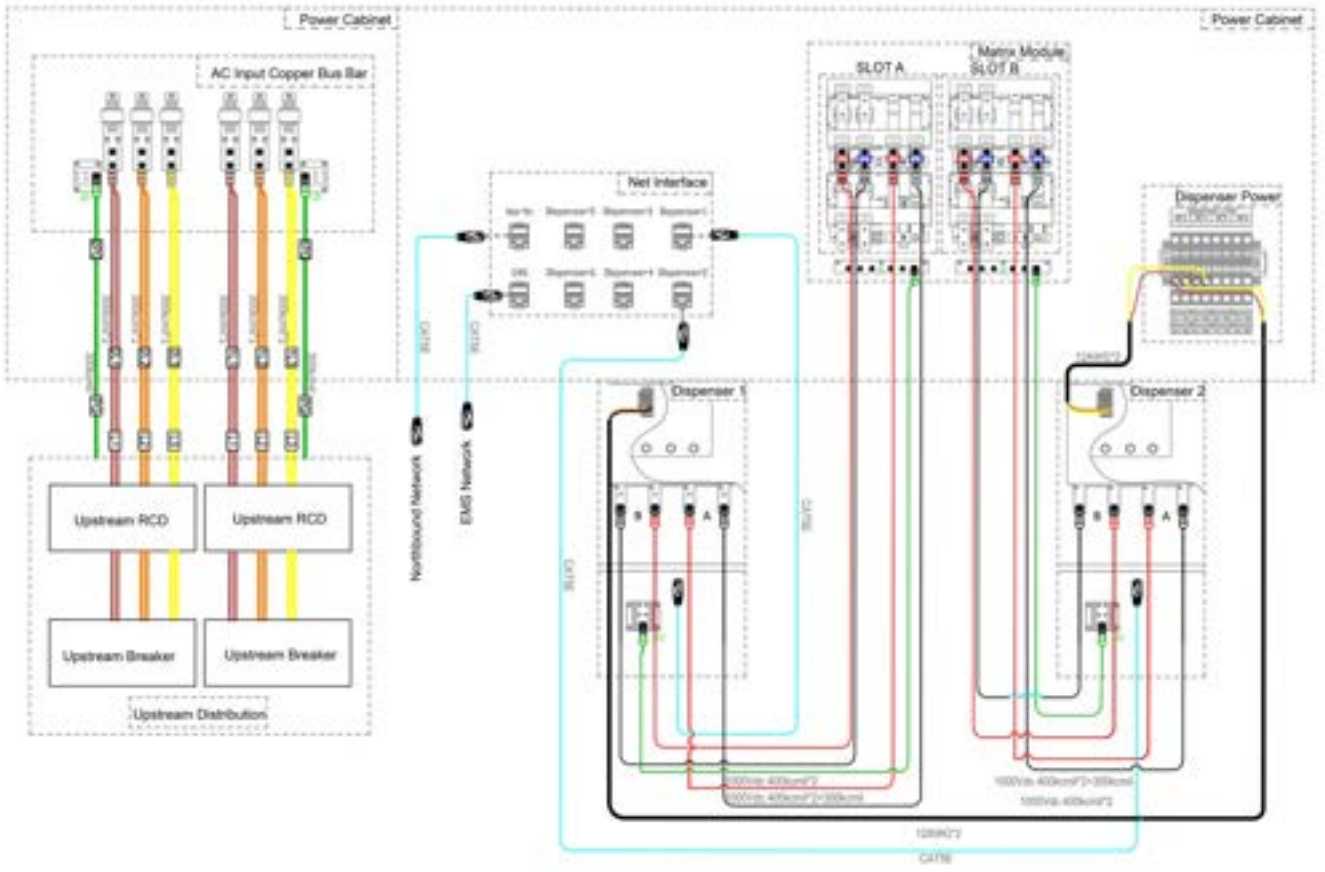


Figure 11-1 I + I Matrix Model Wiring

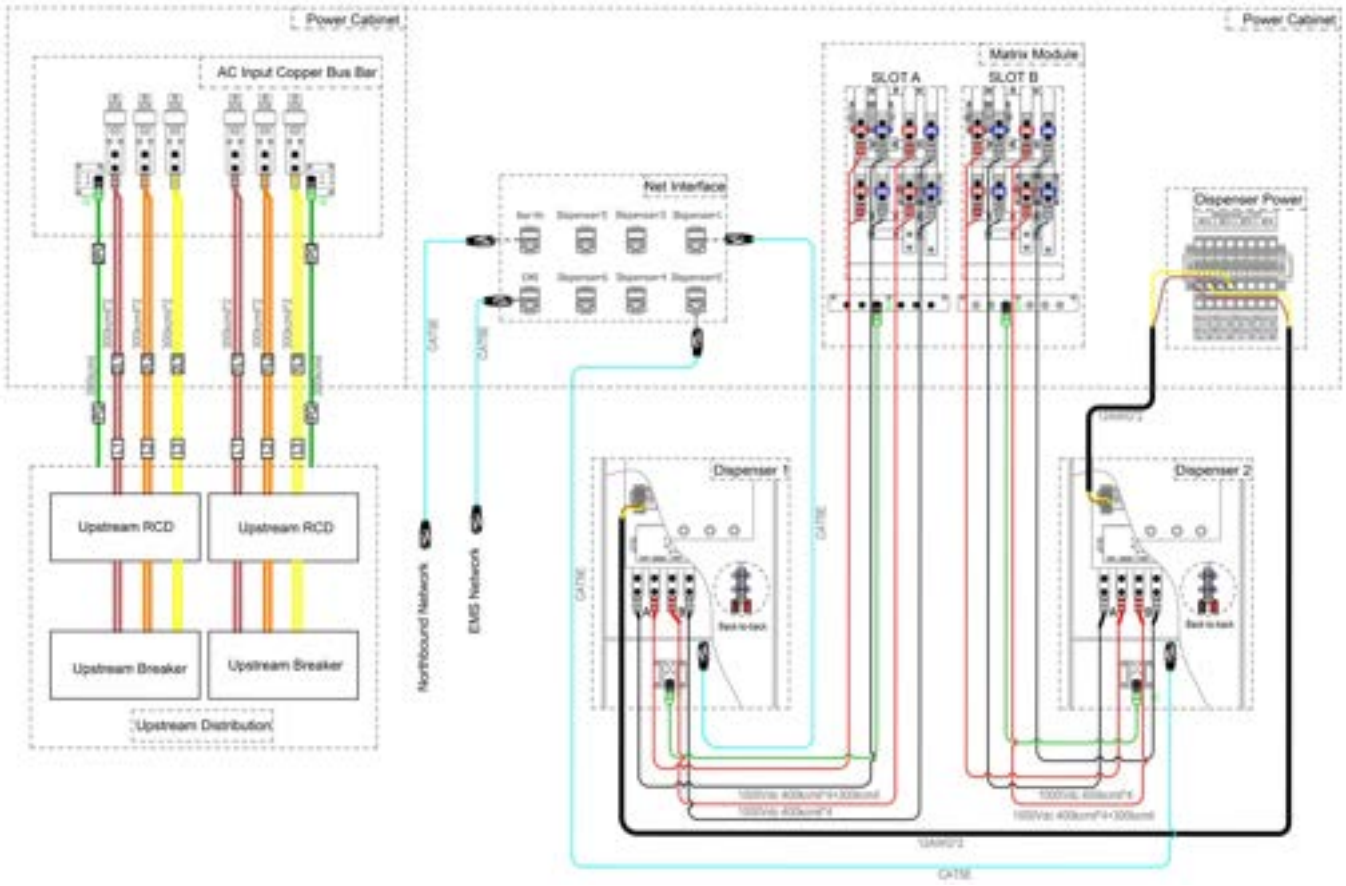


Figure 11-2 II + II Matrix Model Wiring


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