MaxiCharger DH480

Installation and Operation Manual

Version 2.0

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For Services and Support:

Web: www.autelenergy.eu

Tel: 00-800-0825-1039 (United Kingdom, Netherlands, Germany, France, Italy, Switzerland)

00-800-0825-1052 (Denmark, Iceland)

20798959 (Sweden)

Working Time: Monday-Friday, CET 9:00 AM-6:00 PM, local working days

Email: evsupport.eu@autel.com

Address: Laan van Waalhaven 217, 2497GL ’s-Gravenhage, the Netherlands

For technical assistance in all other markets, please contact your local distributor.

Importer:

Autel Netherlands B.V.

Tel: +31 0707850054

Email: evsupport.eu@autel.com

Address: Laan van Waalhaven 217, 2497GL ’s-Gravenhage, the Netherlands

Web: www.autelenergy.eu

Autel Europe UK Ltd

Tel: +44 7399631447

Email: support.uk@autel.com

Address: 385 Centennial Park, Centennial Avenue, Elstree, Borehamwood, England, WD6 3TJ

Web: www.autelenergy.eu

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1. Using This Manual

This manual describes the installation and use of the MaxiCharger DH480 (air-cooled model & liquid-cooled model). Prior to installation, read through this manual to become familiar with the instructions of this charging station 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 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.

ESD PROTECTION AREA

Indicates certain electronic components that are sensitive to electrostatic discharge and must be protected to prevent damage.

NOTICE

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

1.2 Target Group

This documentation is intended for:

- Owner of the Charging Station (see *2.2 Owner Responsibilities*)
- Installation Engineer (see *2.3 Installation Engineer Qualifications*)
- Commissioning Personnel

1.3 Revision History

Version	Date	Descriptions
V1.0	2025.02.14	Initial version
V1.1	2025.05.30	Updated the title of the manual and service information
V2.0	2025.08.09	Integrated the air-cooled and liquid-cooled model

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
DC	Direct current
ECU	Equipment control unit, a control unit used to detect equipment status and control the operation of equipment.
EV	Electric vehicle
MCB	Miniature circuit breaker
MCCB	Molded case circuit breaker

Term	Definition
OCPP	Open charge point protocol, open standard for communication with charge stations
RBU	Routing business unit, used for communication control and provides communication function including 4G/5G, Wi-Fi, and Ethernet.
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
SPD	Surge protective device
TCU	Transaction control unit; intelligent hardware to handle the human-machine interface, metering, transaction, and communication with back office

1.5 Access to Public Documents

The equipment's manuals can be obtained by scanning the QR code on the Help screen of the charging station.

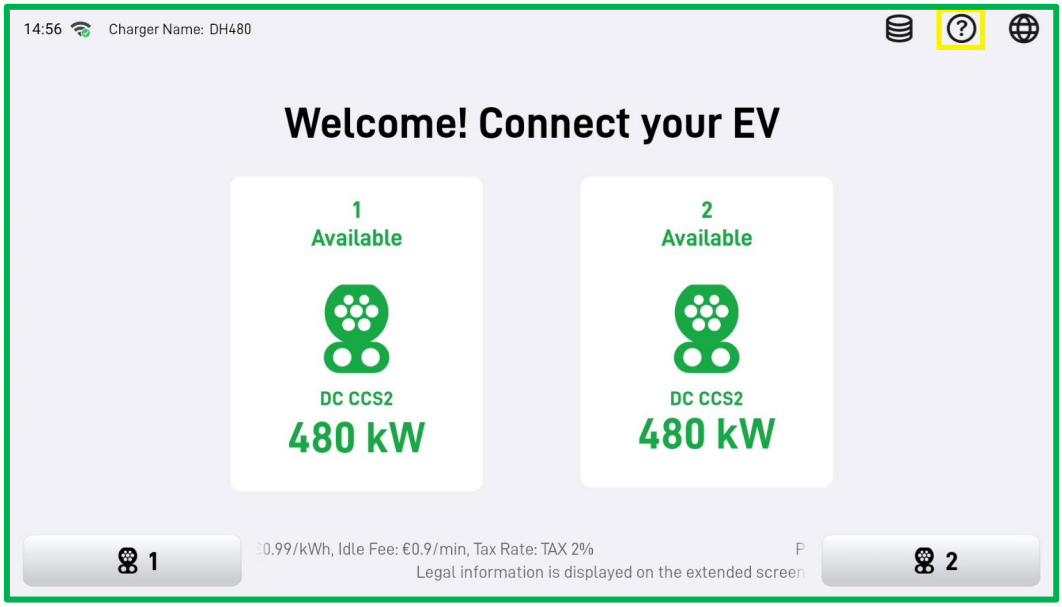


Figure 1-1 Standby Screen

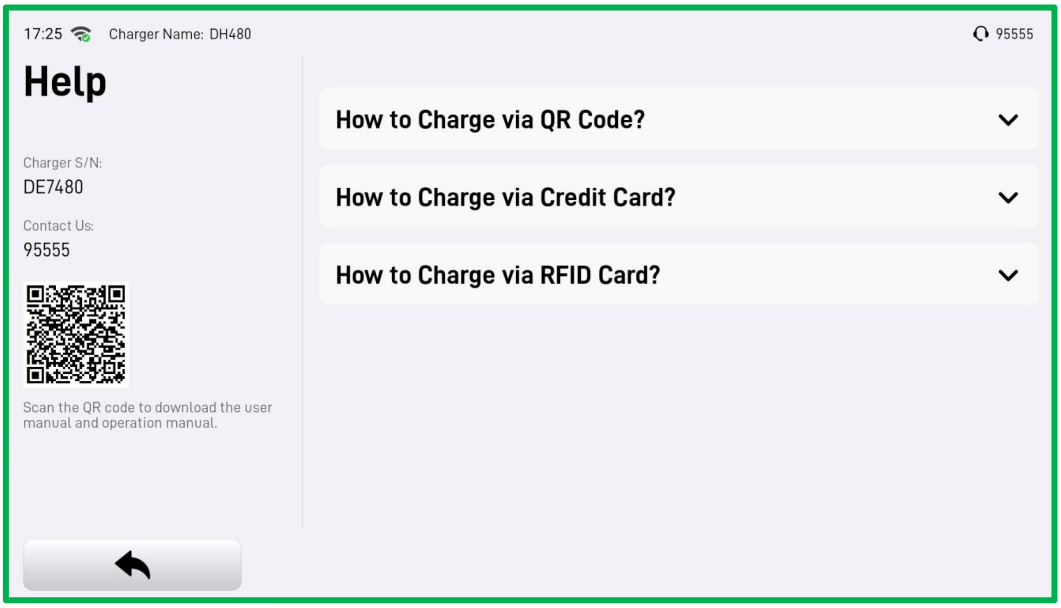


Figure 1-2 Help Screen

2. Safety

The safety messages herein cover situations of which Autel is aware. Autel cannot know, evaluate or advise you 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 charging station.
- Read the manual before installing or using the charging station.
- Do not install or use the charging station 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 charging station 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 local rules to meet the rated current and voltage demand.
- Ensure the load capacity of the grid is in accordance with the charging station.
- Ensure the charging station is connected to a grounded, metal, 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 charging station comply with all applicable local rules.
- Ensure the wiring inside the charging station 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 charging station 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 charging station 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 charging station 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 charging station.
- Ensure the charging station has installed the protective devices.
- Ensure all the protective devices are installed after installation or maintenance.
- Ensure the space around the charging station 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 charging station 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 charging station.

2.3 Installation Engineer Qualifications

- Complete certification training before performing the installation task.
- 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 charging station.

2.4 Usage Instructions

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

- Damage on the enclosure, charging cable or charging handle
- Lightning has struck the charging station
- Fire or flames at or near the charging station
- Any sign of water damage on the charging station

2.5 Usage Environment

The recommended usage environment during the warranty period is as follows:

- Avoid use in marine environments or on land near strong pollution sources, and in environments with only simple shelter. Otherwise, it may easily lead to product corrosion, water ingress and other problems, causing equipment failure. The resulting functional abnormalities or component damage are not covered by the warranty. Pollution sources refer to areas within the following radius:
  - 0.5 kilometers from salt water (e.g. ocean).
  - 3 kilometers away from heavy pollution sources such as metallurgy, coal mines, and thermal power plants.
  - 2 kilometers away from medium pollution sources such as chemical industry, rubber, electroplating and so on.
  - 1 kilometer away from light pollution sources such as food, leather, and heating boilers.
- For applications in offshore environments, the equipment shell may be subject to spot corrosion or the life of the entire machine may be shortened, so you need to choose carefully. Please consult the relevant service department for details. The offshore range value is an area within the following radius: 0.5 kilometers to 3.7 kilometers from salt water (such as the ocean).

2.6 Signs on the Charging Station

Symbol	Risk Description
	Hazardous voltage that gives risk of electrocution
	Ground/Earth connection

2.7 Disposal Instructions

Potential hazardous substances of the charging station 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.

- Obey the local rules when discarding parts, packaging materials or the charging station.
- Discard electrical and electronic equipment separately in compliance with the WEEE-2012/19/EU Directive on waste of electrical and electronic equipment.
- Do not mix or dispose the charging station with the household waste.

2.8 Cyber Security

NOTICE

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

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

Appropriate measures shall be taken by the owner to shield the charging station, 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

The MaxiCharger DH480 is available in two models: an air-cooled model and a liquid-cooled model. This charging station is designed to charge an electric vehicle (hereinafter called EV), and provides you with safe, reliable, fast, and smart charging solutions.

Intended Use

This charging station is intended for the DC charging of EVs. It is intended for both indoor and outdoor use.

- Fleet
- Highway
- Commercial Parking
- Others

DANGER

- The equipment must be operated as described in this manual or other related documents released by Autel. Failure to comply may result in human injury and/or damage to the property.
- Use the equipment only as intended.
- For the connection between the equipment and electric vehicle, no additional cables are required. A charging cord shall not be altered to extend or divide the cable length.
- Adaptors or conversion adapters are not allowed to be used.
- Cord extension sets are not allowed to be used.
- The use of Y-cables or similar devices is not permitted.
- National application guidelines and specifications for charging stations must be taken into account.

ESD PROTECTION AREA

The equipment contains components and assemblies that are susceptible to electrostatic discharge (ESD). Appropriate ESD measures should be taken to protect the electronics during any work on the equipment:

- Wear a grounding bracelet and ground it at one of the potential equalisation points on the charging station, e.g. on the doors.
- If the gloves are used, they must be ESD compliant.

NOTICE

- When operating charging stations without a cable management system (CMS) and the charging cables are longer than 7.5 meters, use cable management devices such as cable reels and cable bridges to prevent cable tangling, wear, or tripping.
- The images and illustrations depicted in this manual are for reference only. Please refer to the actual product.

3.1 Nameplate

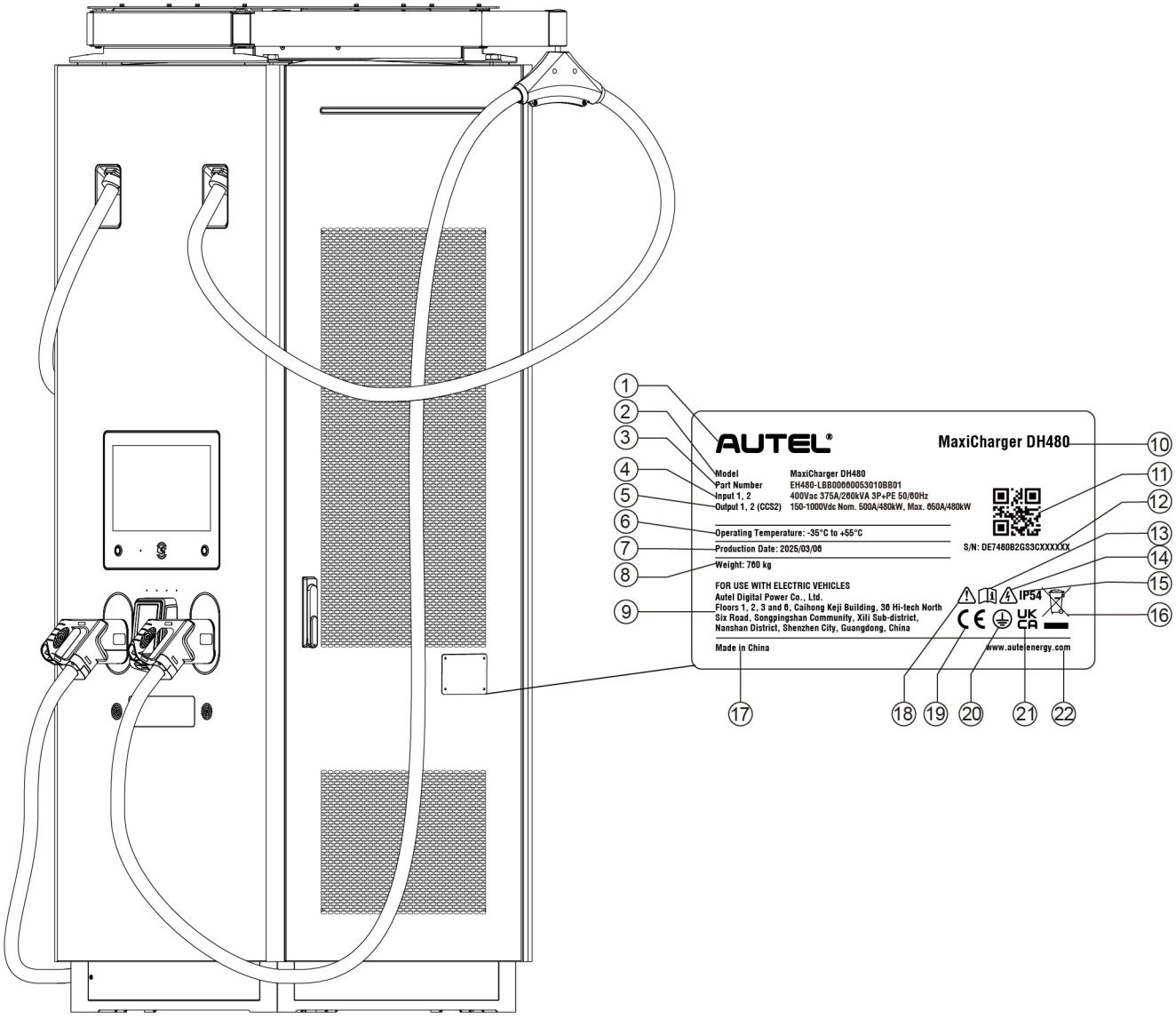


Figure 3-1 Nameplate

1. Manufacturer's Logo	12. Serial Number (plain text)
2. Type Code	13. Instruction Manual
3. Part Number	14. Dangerous Voltage with Risk of Electric Shock
4. Input Information	15. IP Protection Class
5. Output Information	16. Waste from Electrical and Electronic Equipment
6. Operating Temperature	17. Country of Manufacture
7. Production Date	18. General Risk
8. Product Weight	19. CE Marking
9. Manufacturer's Address	20. Protection Class 1
10. Product Name	21. UK Conformity Tested
11. Serial Number (QR code)	22. Manufacturer's Website

3.2 Product Overview (Outside)

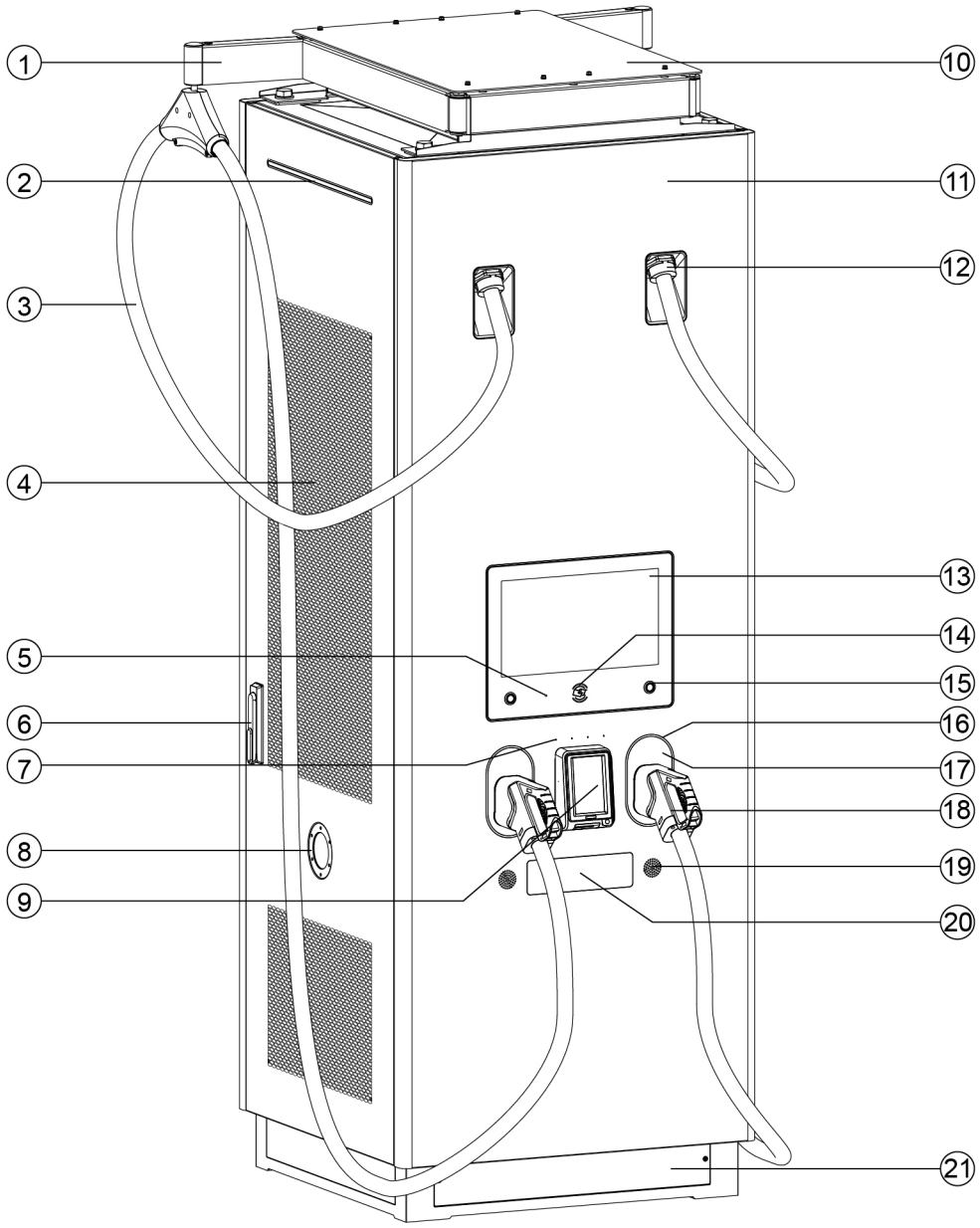


Figure 3-2 Product Overview (Outside)

1. Cable Management System (CMS)	12. Waterproof Cable Fixing Connector
2. Charging Status Indicator (Refer to *Table 3-1*)	13. Touchscreen
3. Charging Cable	14. RFID Reader
4. Vent	15. Function Button
5. Ambient Light Sensor	16. Socket Indicator (Refer to *Table 3-1*)
6. Handle Lock	17. Socket
7. Microphone	18. Charging Handle
8. Emergency Stop Button	19. Loudspeaker
9. POS Device (Optional)	20. Window for Energy Meter
10. Antenna	21. Base
11. Front Door	

NOTICE

- Autel can deliver the charging station with different payment terminals. The available options vary depending on the region of the installation. Consult Autel's customer service to obtain more information about the different payment options.
- The product offers a choice between a 15.6-inch and a 27-inch touchscreen. Please refer to the actual product.

Table 3-1 Charging Status Indicator Descriptions

Charging Status	Color		Description
	Top Indicator	Socket Indicator	
Standby Mode	Solid Green	Solid Green	A charging handle is available.
EV Connected	Solid Blue	Solid Blue	An EV is connected to the charging station.
Charging	Breathing Blue	Breathing Blue	Indicates the charging progress.
Charging Completed	Solid Blue	Solid Blue	An EV is fully charged or has stopped charging. The charging handle is still connected to the EV.
Reservation	Solid Cyan	Solid Cyan	The charging station is reserved.
Updating	Solid Yellow	Solid Yellow	The charging station is being updated.
Error	Solid Red	Solid Red	An error has occurred.

Table 3-2 Description of the Four Doors of the Charging Station

No.	Description
A	Front Door (with touchscreen)
B	Left Door (with the emergency stop button)
C	Rear Door
D	Right Door

WARNING

Ensure all the doors are locked before operating the charging station.

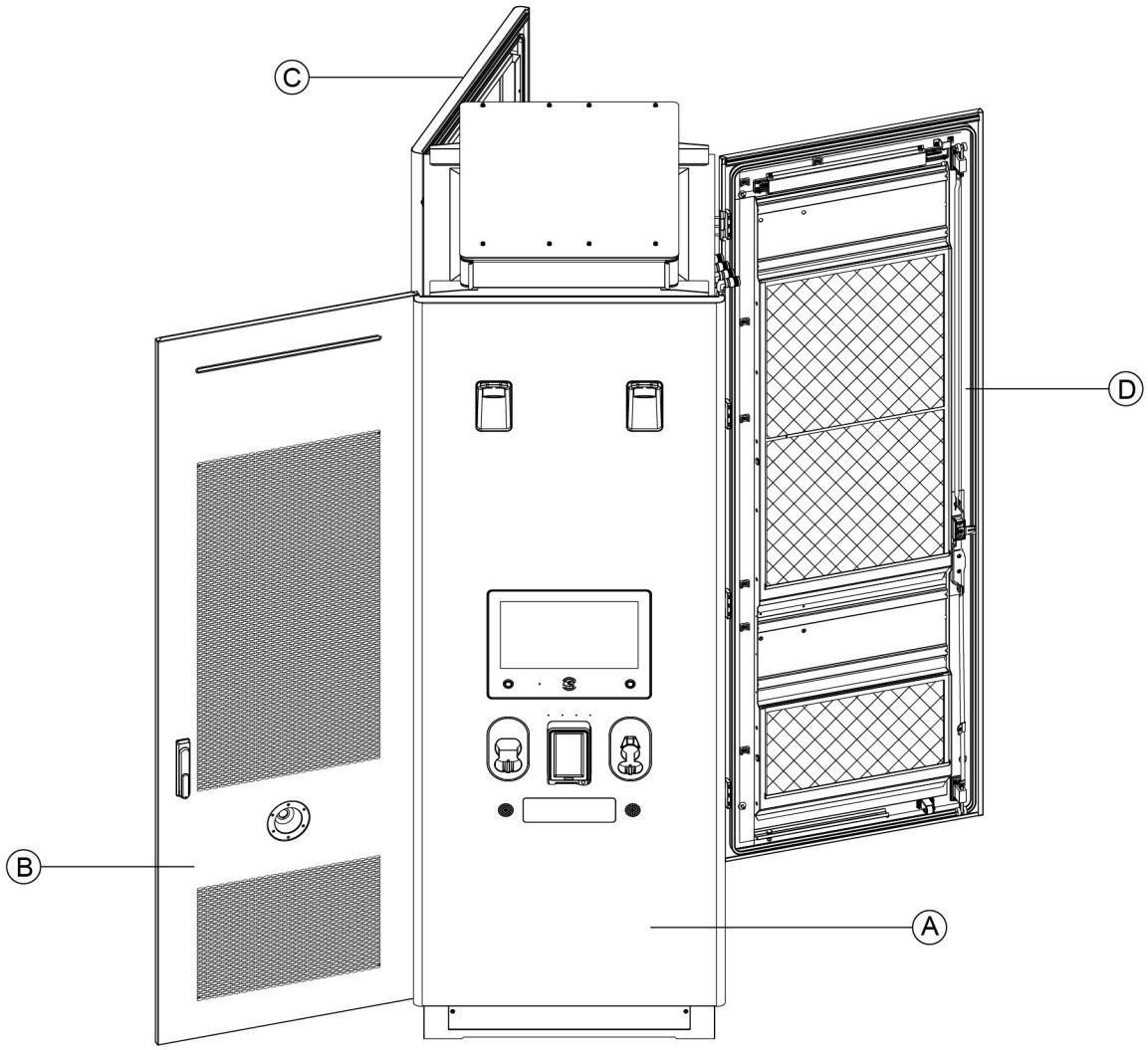


Figure 3-3 Four Doors of the Charging Station

3.3 Product Overview (Inside)

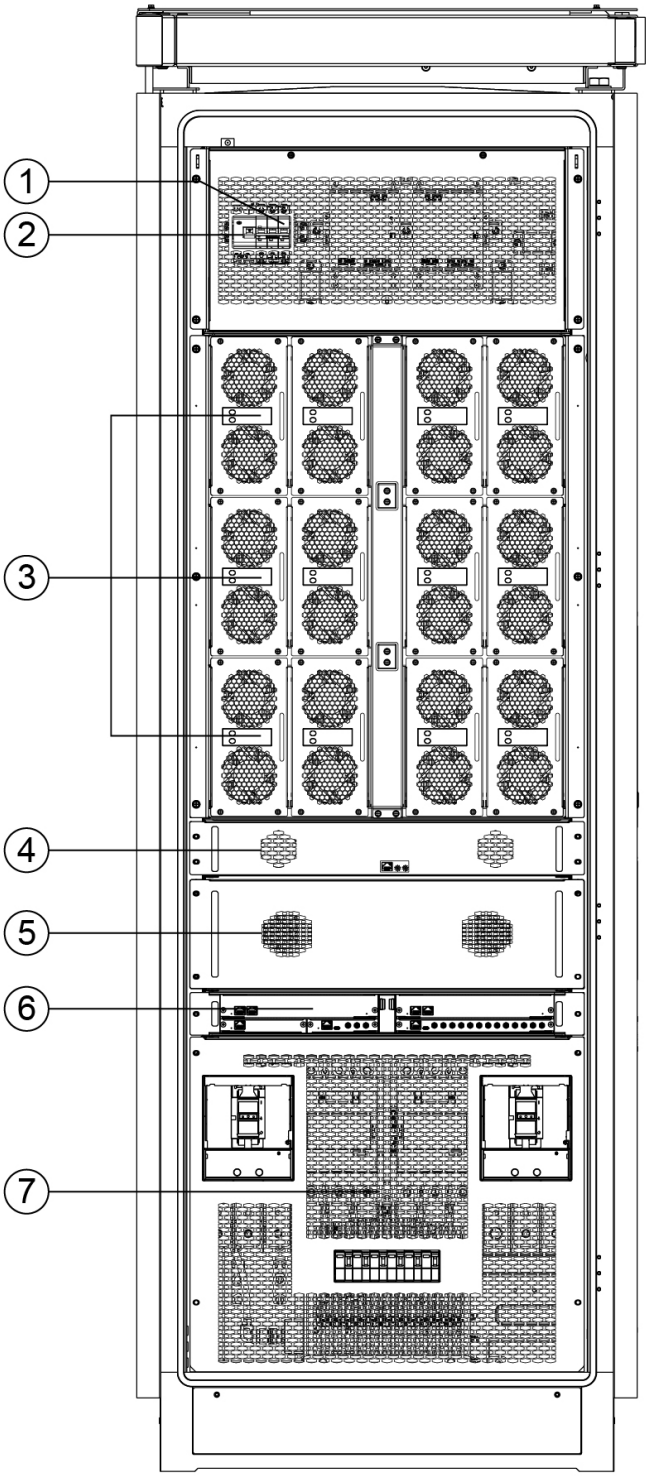
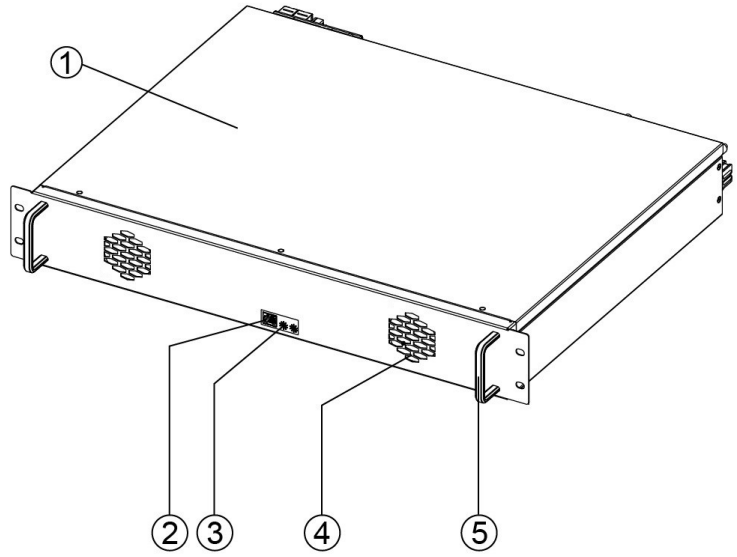


Figure 3-4 Product Overview (Inside)

1. MCB	5. DC Output Module
2. RCD	6. Control Module
3. Charging Module	7. AC Input Unit
4. Matrix Module	

3.3.1 Matrix Module



Dimensions (W x D x H):

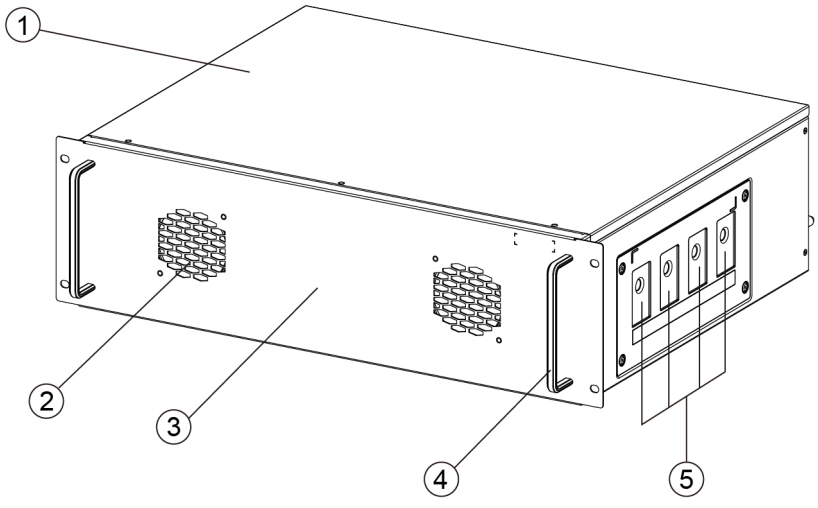
Approx. 616 x 520.9 x 85 mm

Weight: Approx. 22.8 kg

Figure 3-5 Matrix Module

1. Cover	4. Cooling Fan
2. Debugging Port	5. Handle
3. DIP Switch	

3.3.2 DC Output Module



Dimensions (W x D x H):

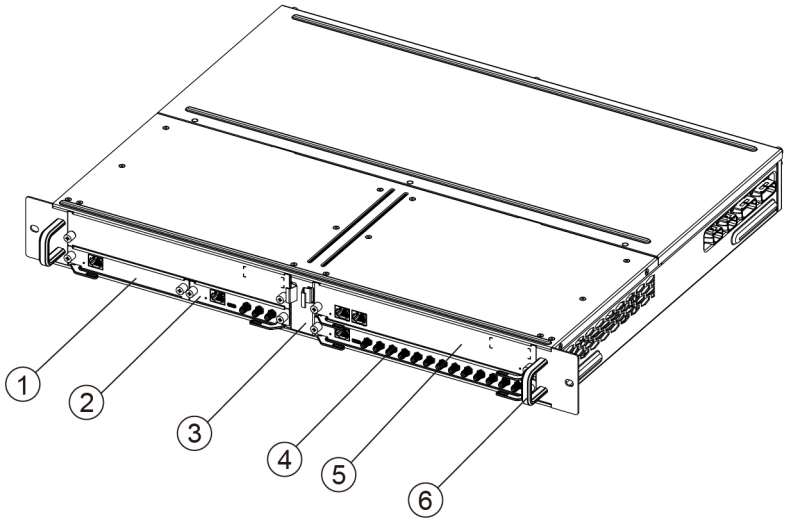
Approx. 615.6 x 521.5 x 172 mm

Weight: Approx. 28.7 kg

Figure 3-6 DC Output Module

1. Cover	4. Handle
2. Cooling Fan	5. DC Output Connector
3. Front Panel	

3.3.3 Control Module



Dimensions (W x D x H):

Approx. 616 x 492 x 70.6 mm

Weight: Approx. 11.3 kg

Figure 3-7 Control Module

1. ECU	4. RBU
2. TCU	5. CCU
3. Cooling Fan	6. Handle

3.3.4 AC Input Unit (Inside)

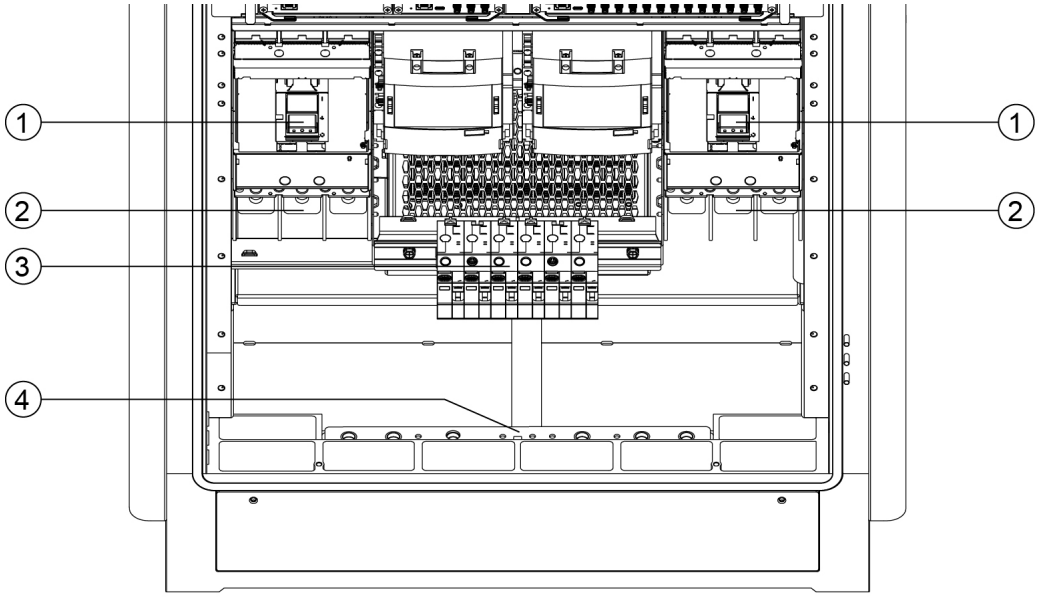


Figure 3-8 AC Input Unit (Inside)

1. MCCB	3. SPD
2. AC Input Connector	4. PE Bus Bar

3.4 Product Dimensions

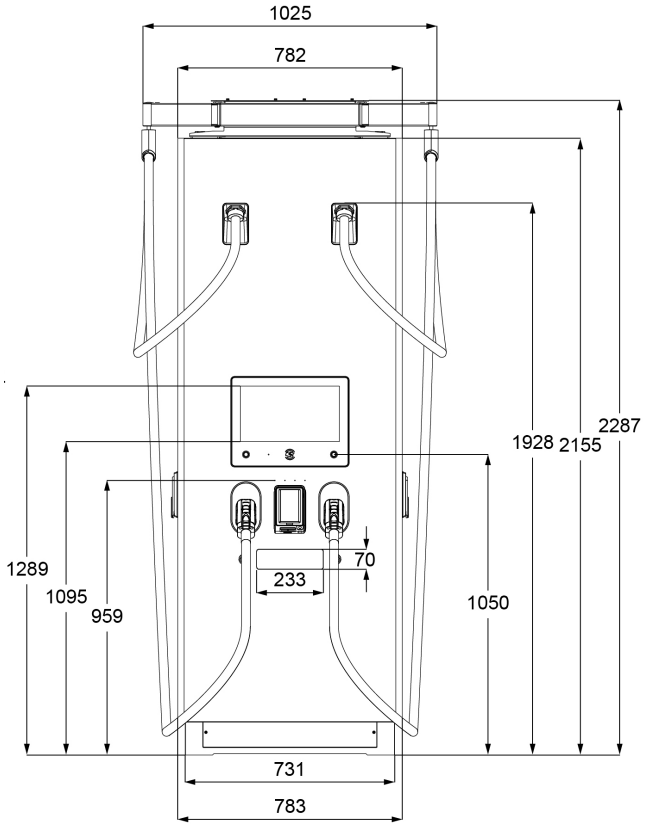
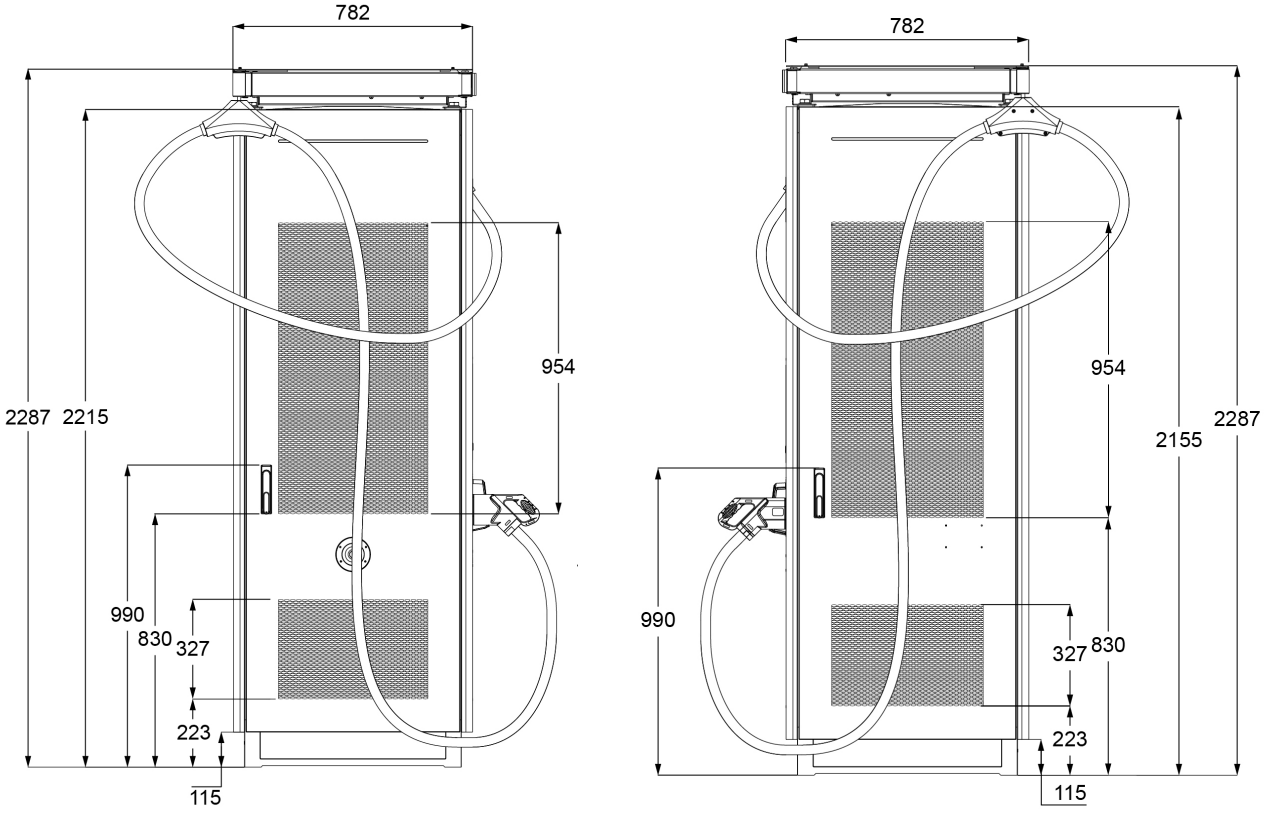


Figure 3-9 DH480 Dimensions (Front View)



Left Side View *Right Side View*

Unit: mm

Figure 3-10 DH480 Dimensions (Side View)

3.5 Direction of Airflow

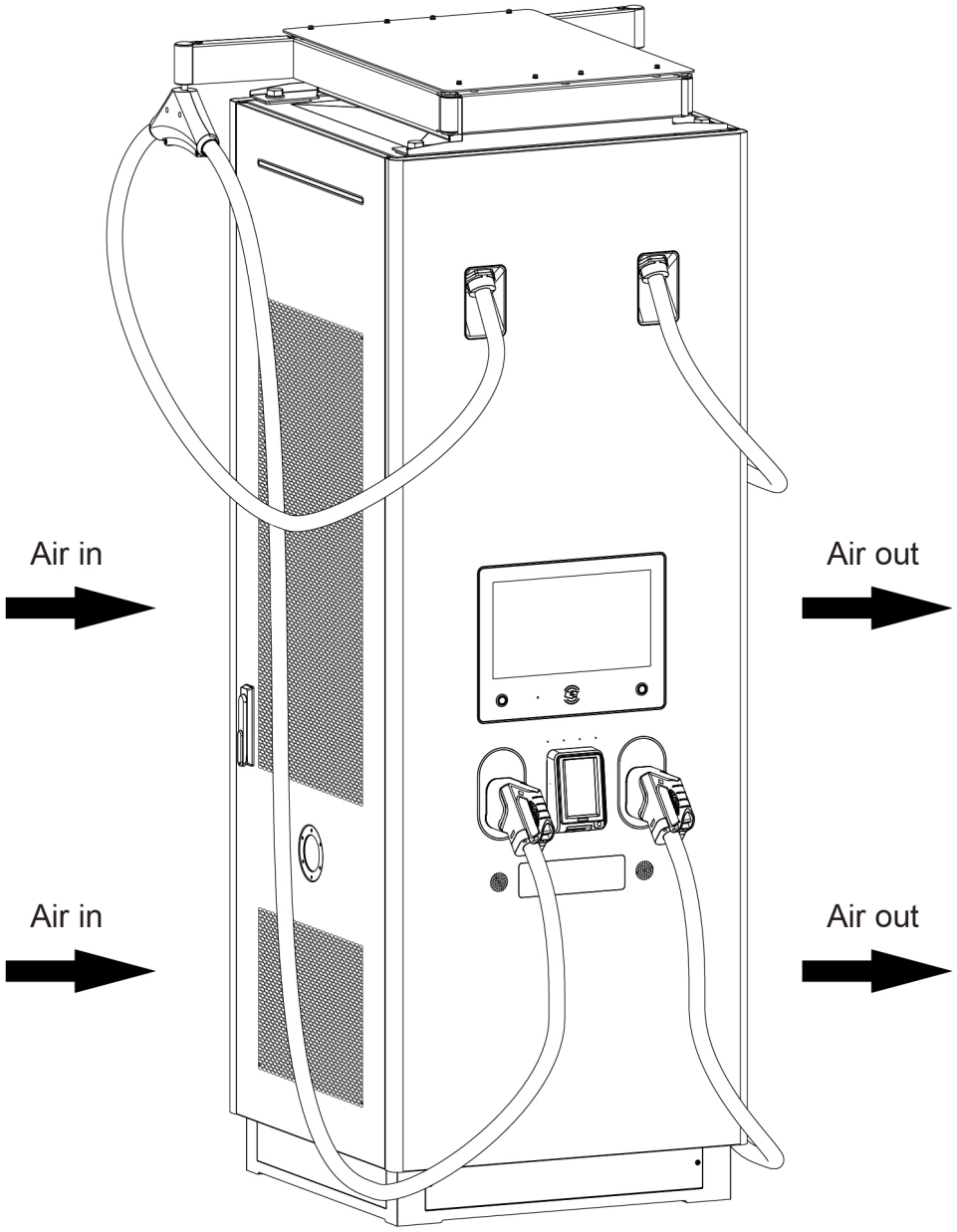


Figure 3-11 Direction of Airflow

3.6 Electrical Diagram

➢ **For the Air-cooled Model:**

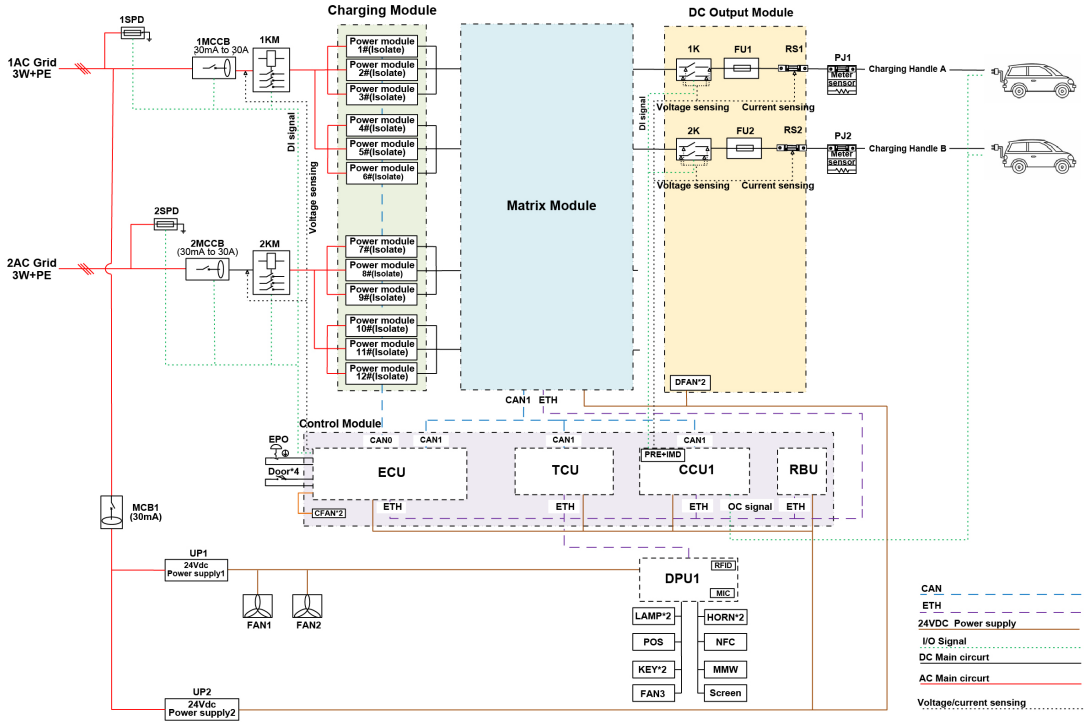


Figure 3-12 Electrical Diagram (Air-cooled Model)

➢ **For the Liquid-cooled Model:**

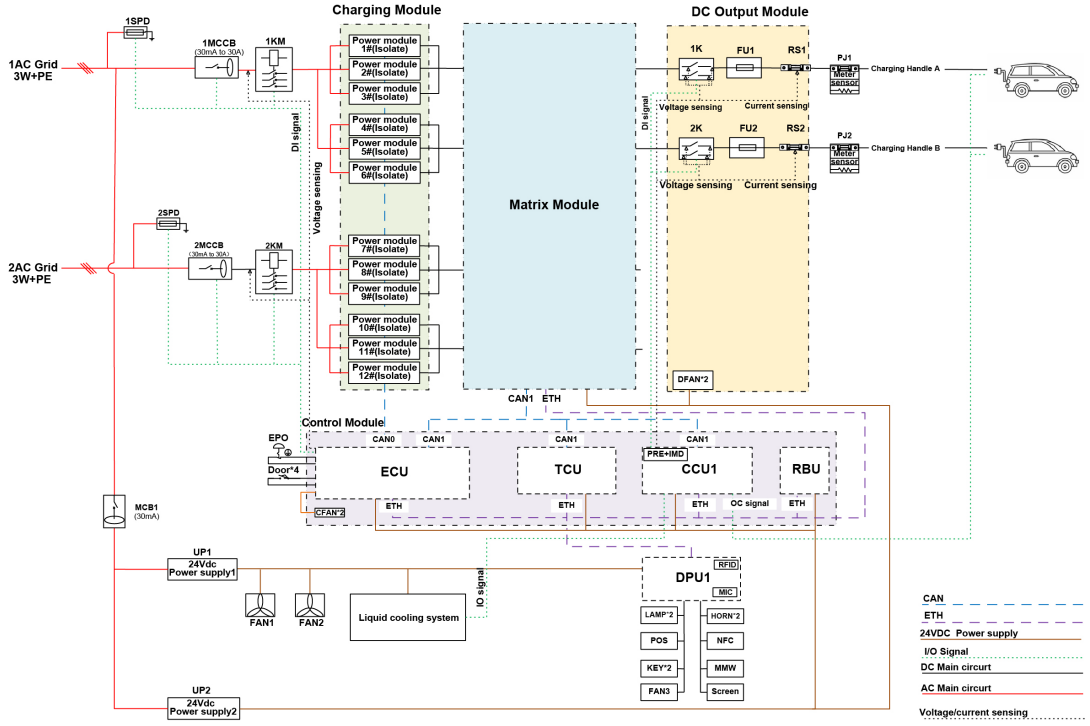


Figure 3-13 Electrical Diagram (Liquid-cooled Model)

3.7 Manufacturer's Seal

The manufacturer's seal must be checked prior to each use of the charging station.

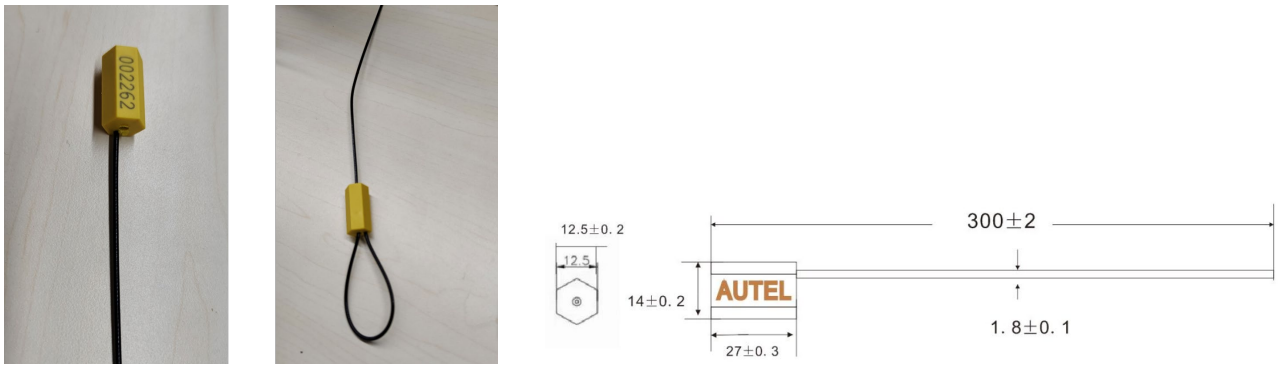


Figure 3-14 Sample of Manufacturer's Seal

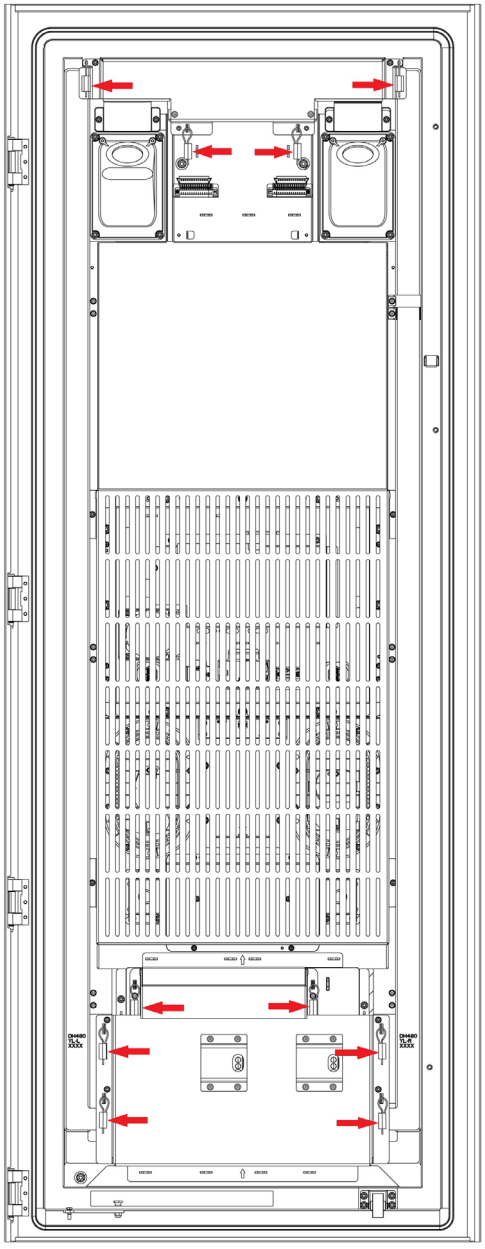


Figure 3-15 Positions of Manufacturer's Seal (Front Door)

3.8 Meter Specifications

Item	Specification
Manufacturer	DZG Metering GmbH
Model	GSH01 (with the external display ED-DC-01)
Type	Single-phase DC meter

3.9 Cloud Service Portal

Autel provides a set of cloud-based tools to commission, monitor, and troubleshoot the charging station. For more information, contact your Autel e-Mobility representative.

3.10 Interface

The operator cannot change any parameters, including legal and non-legal parameters. If the operator wishes to change a non-legal parameter, such as displaying advertisements on the home screen, the operator must contact Autel to discuss the feasibility of the proposed changes. If the proposed changes are deemed reasonable and feasible by the operator, Autel will implement the changes via wireless communication between the backend and the charge controller. However, neither Autel nor the operator can change legally relevant parameters.

3.11 Additional Options

3.11.1 Cooling Unit

For the liquid-cooled model, a cooling unit (**A**), located behind the right door, is required for cooling the charging cable.

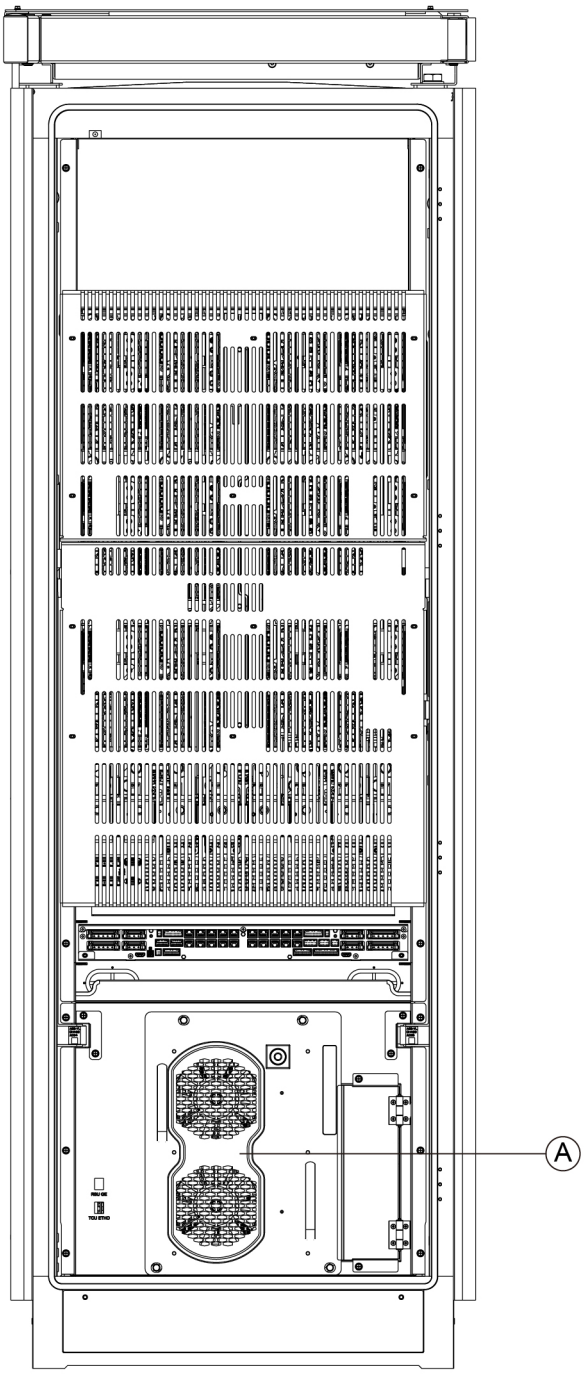


Figure 3-16 Position of the Cooling Unit

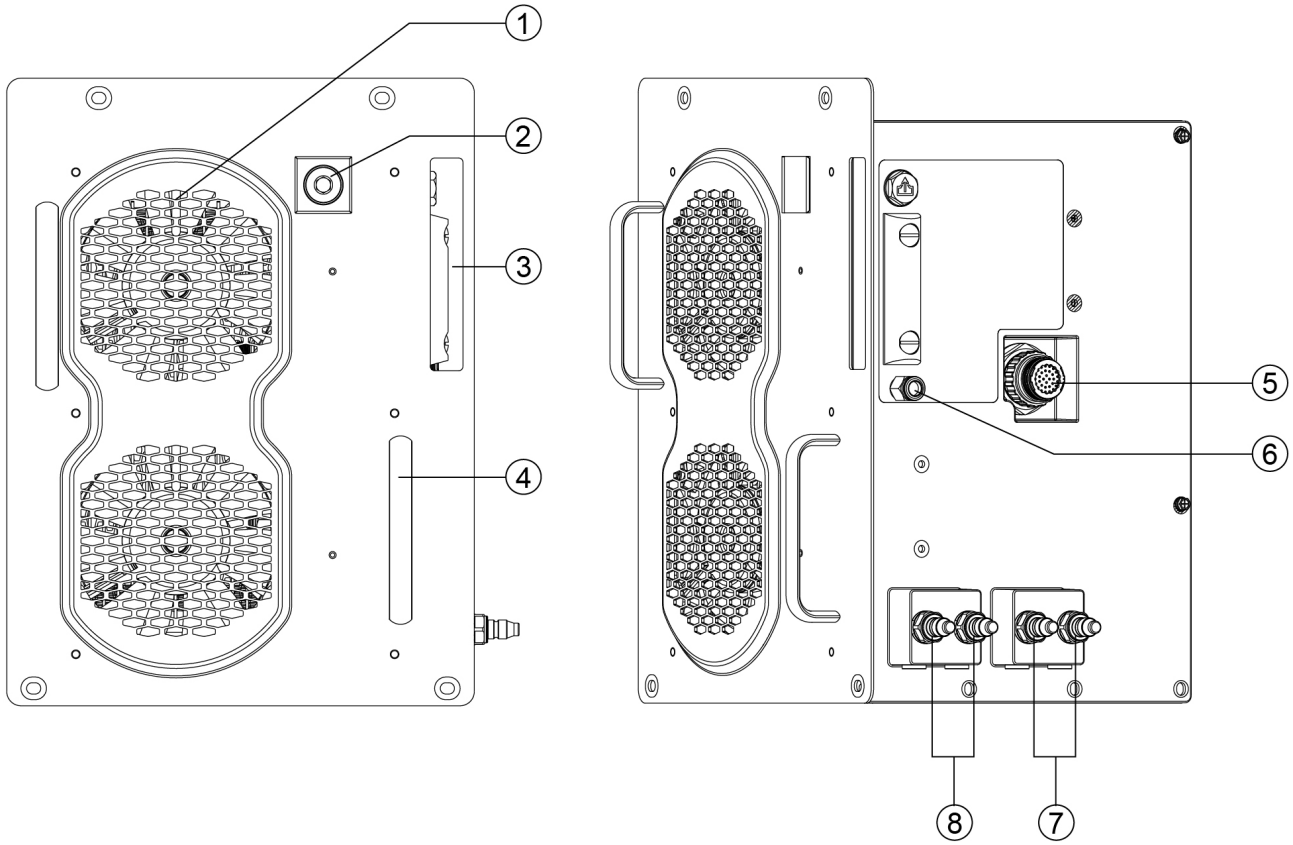


Figure 3-17 Cooling Unit

1. Fan	5. Electrical Interface
2. Filler Neck	6. Drain Plug
3. Level Indicator	7. Connection of Coolant Return
4. Handle	8. Connection of Coolant Feed

To upgrade from an air-cooled model to a liquid-cooled model, the installation of a cooling unit is required. Please refer to *MaxiCharger DH480 Spare Parts Replacement Manual* for more details.

3.11.2 RCD

Autel can deliver the charging station with the RCDs as shown below.

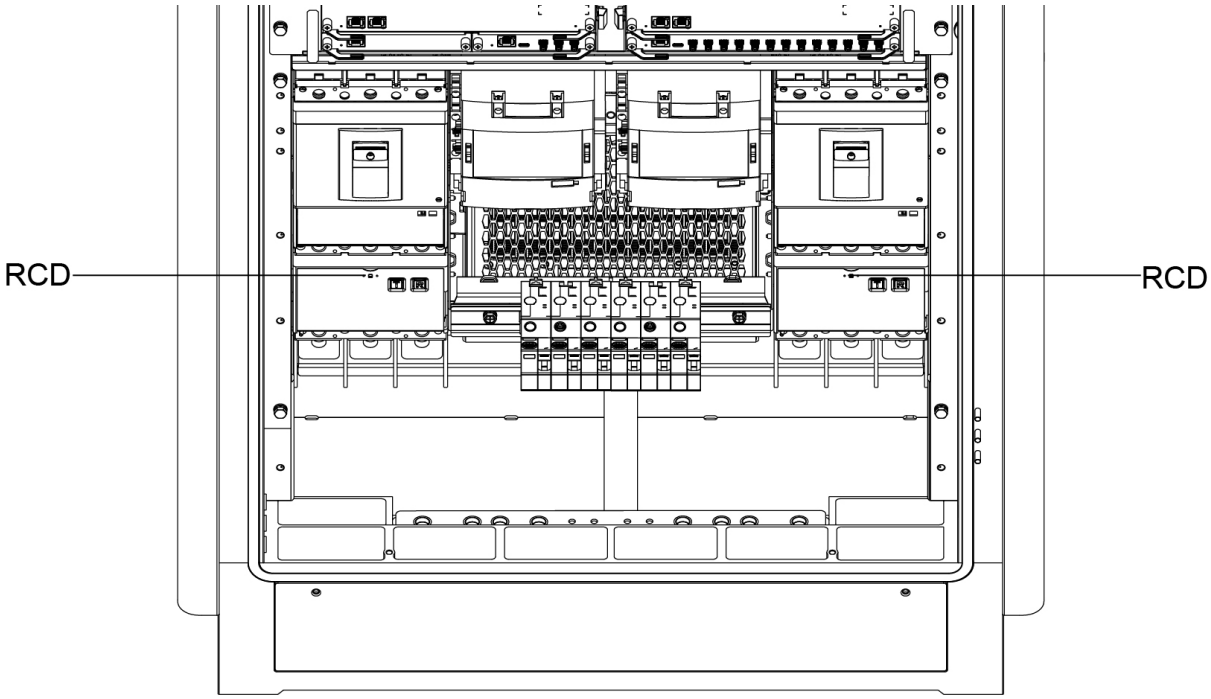


Figure 3-18 Position of the Additional RCDs in the Charging Station

3.11.3 POS Device

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

4. Preparation

4.1 One-stop Commissioning

➢ Pre-configuration

The commissioning of the charging station will be completed by the owner or the site operator, the installer, and the commissioning personnel. The steps are as follows.

– The owner or the site operator adds the charging station, creates the site, configures the charging station and designates the installation ticket on the Autel Operation and Maintenance Platform (O&M).

– The installer installs the charging station and conducts an inspection after installation.

– The commissioning personnel synchronizes the configuration to the charging station using the Autel Config app.

NOTICE

➢ The role of the installer and commissioning personnel on the Autel Operation and Maintenance Platform (O&M) is **Installer**.

➢ The installation and commissioning of the charging station can be carried out by different people or by the same person.

---

1. Log in to the Autel Operation and Maintenance Platform by inputting the account and the password. The URL of the platform is https://omcb-eu.autel.com/.

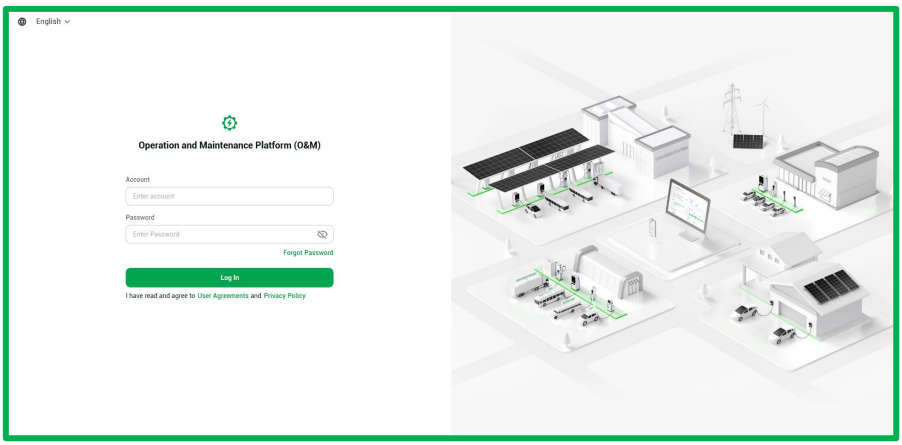


Figure 4-1 Log-in Screen

NOTICE

Autel will assign a merchant account to the customer whose purchase order can be checked in SAP. An email will be sent to the super administrator account created when activating the merchant account, with a link to set the password. If you have any questions, contact Autel technical support or your local distributor.

2. Click on the "**people icon**" on the upper left of the screen to enter the User Manger screen.

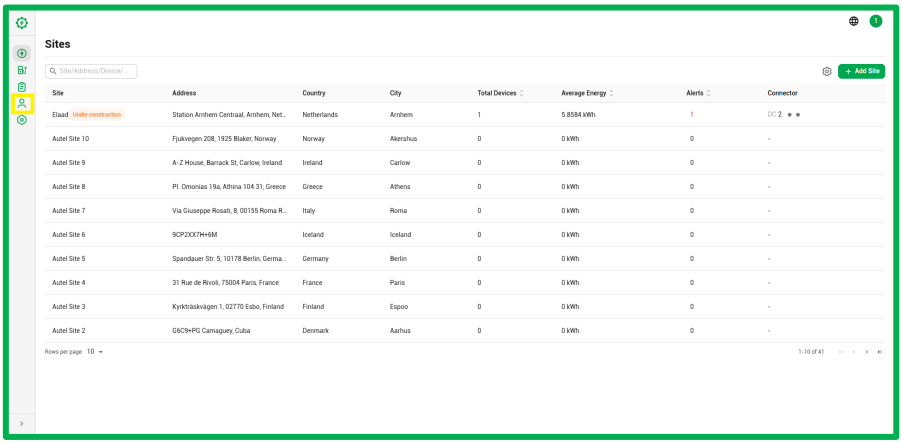


Figure 4-2 Sites Screen

3. On the User Manager screen, click on "**+ Invite User**".

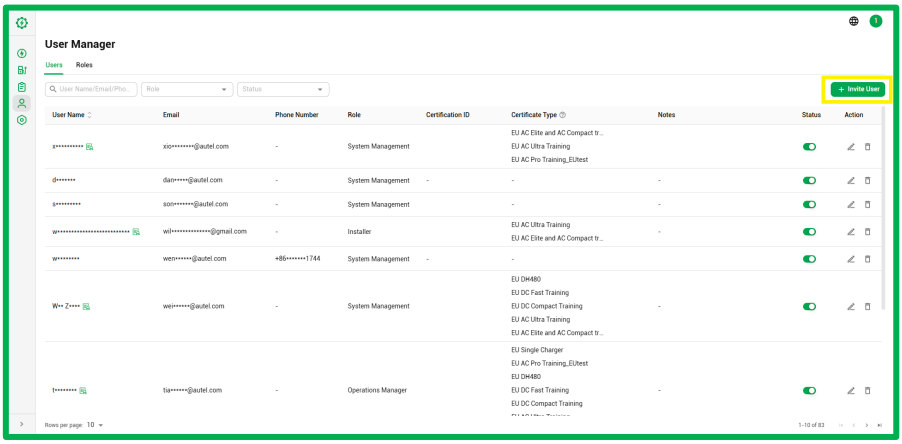


Figure 4-3 User Manager Screen

4. Input the email of the user and select the role. Then click on **Add And Invite** to proceed.

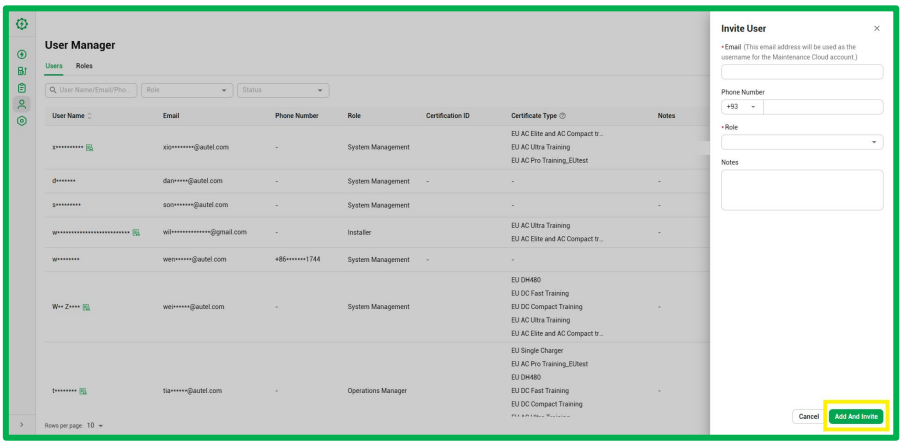


Figure 4-4 Inviting User Screen

NOTICE

- After being invited, the installer will receive an email which offers an access to set the account and the password for logging into the Autel Config app. **The account must be activated for the follow-up operations.**
- If the owner does not need to assign any roles for the site, skip **Steps 2** to **4** to proceed.

---

5. Click on the "**charging station icon**" on the upper left of the screen to enter the Devices screen.

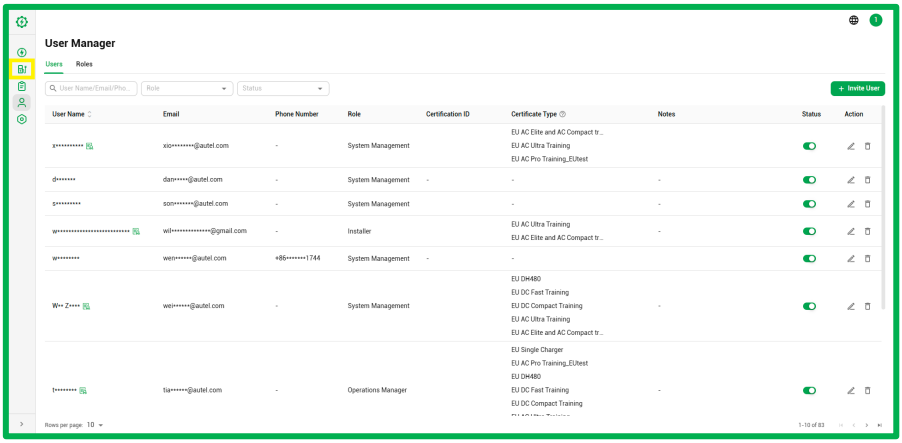


Figure 4-5 User Manager Screen

6. On the Devices screen, click on "**+ Add Device**" on the upper right of the screen.

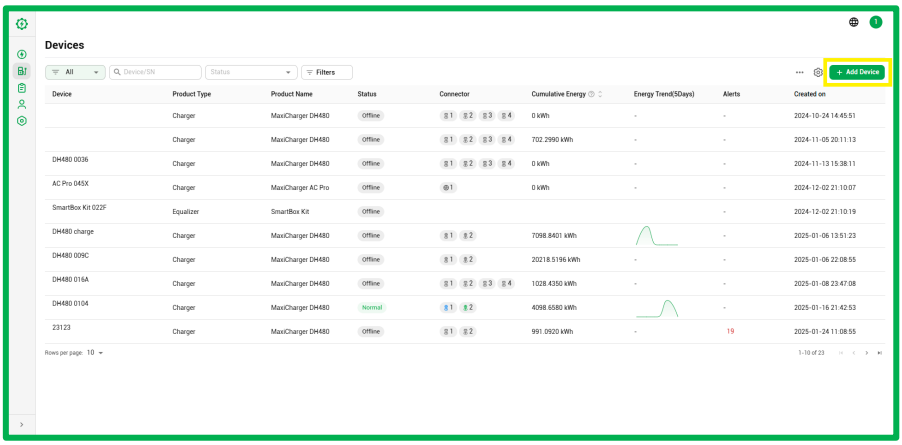


Figure 4-6 Devices Screen

7. Input the SN (serial number) and PIN of the charging station and then click on **OK** to add the charging station to the Autel Operation and Maintenance Platform.

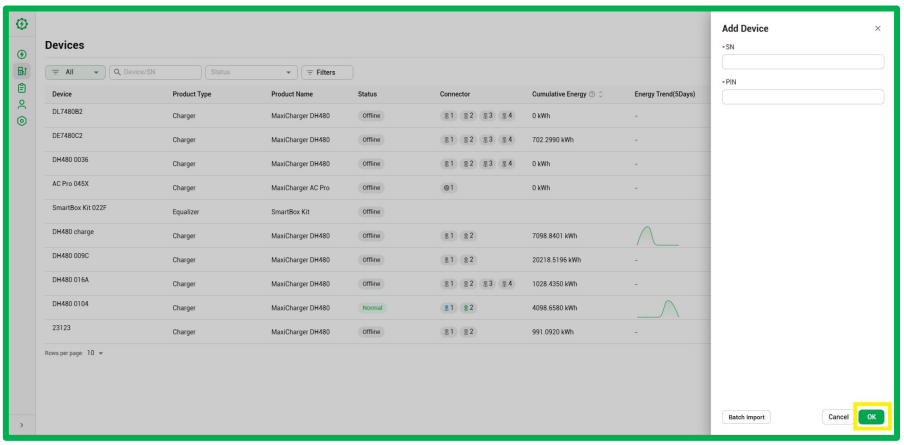


Figure 4-7 Adding Device Screen

NOTICE

Contact Autel technical support to obtain the PIN of the charging station.

8. Click on the "**lightning icon**" on the upper left of the screen to go back to the Sites screen.

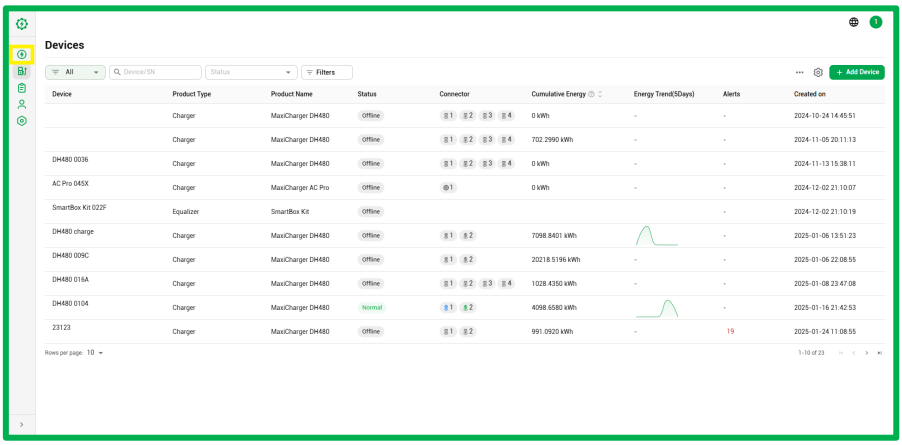


Figure 4-8 Sites Screen

9. Click on "**+ Add Site**" on the upper right of the screen. The fields marked with asterisk are mandatory. Then click on **OK** to proceed.

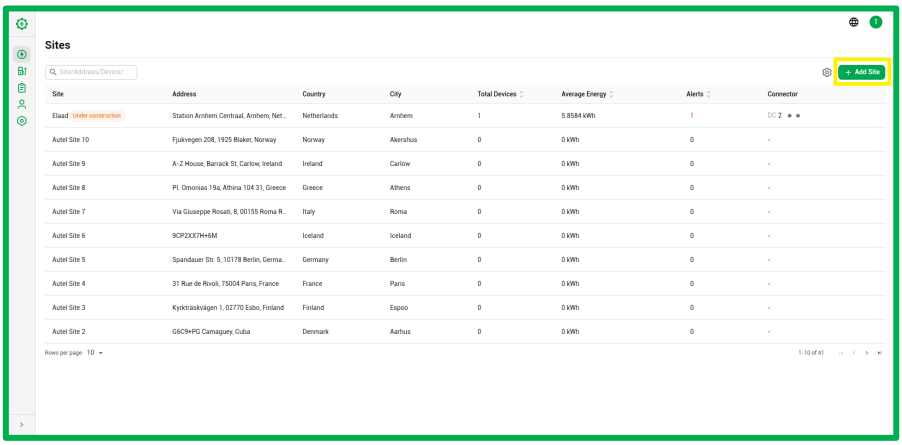


Figure 4-9 Adding Site Screens

NOTICE

The email you enter will receive notifications concerning the status of the installation ticket (confirmed or cancelled) and the installation work (started or completed).

10. Click on **Enter Site Creation Guide** to proceed.

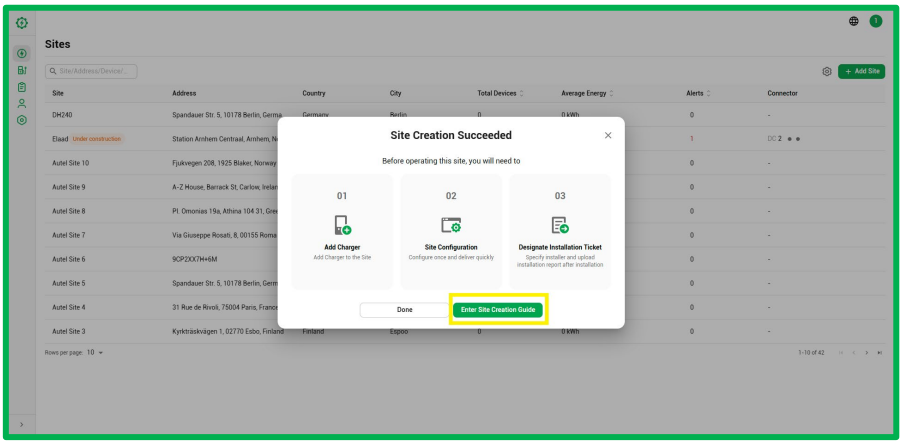


Figure 4-10 Site Creation Succeeded Screen

11. On the Site Creation Guide screen, click the **box** to the left of the SN to select the charging station as required. Then click on **Next** to proceed.

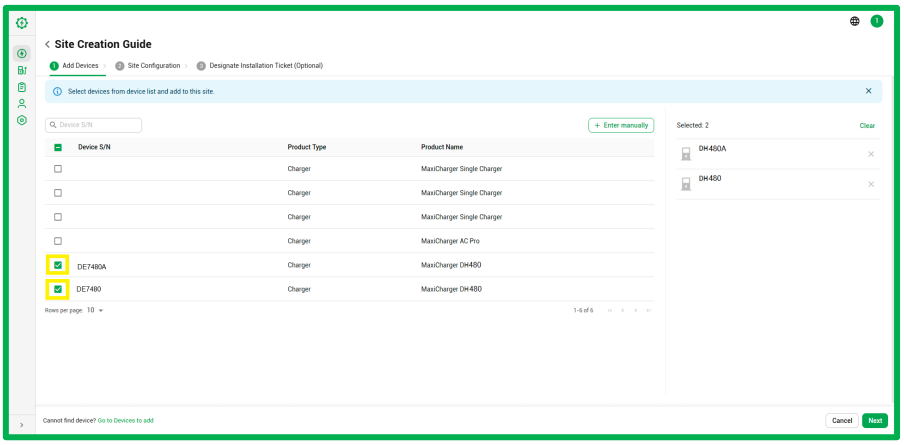


Figure 4-11 Site Creation Guide Screen

12. A prompt will appear. Determine whether to use the existing site configuration.

a) Click on **No** to start setting up a new site configuration.

b) Click on **Use And Assign Ticket** to use the existing site configuration. Then skip **Steps 13** to **17** to proceed.

c) Click on **Yes** to use the existing site configuration. Then skip **Steps 13** to **17** to continue.

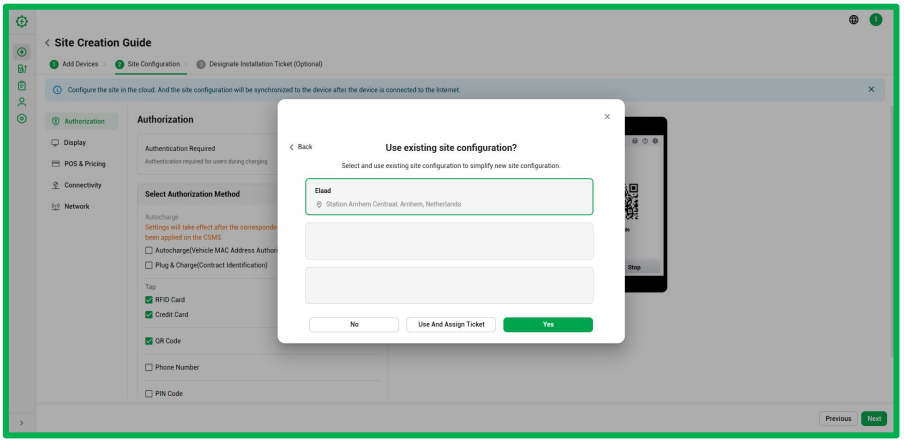


Figure 4-12 Selecting Site Configuration Screen

13. **Authorization Configuration**. Determine whether to enable the authentication function.

a) If the authorization function is not required, insert the charging handle into the charging port on the EV to start a charge session directly.

b) If the authorization function is required, toggle to enable the Authorization function.

1) Choose any of the following methods to start a charge session by tapping the **box** to the left of it.

- Autocharge
- Plug & Charge
- RFID Card
- Credit Card (optional)
- QR Code on the screen

2) Drag and drop the icon of the authorization methods and position them on the screen as required.

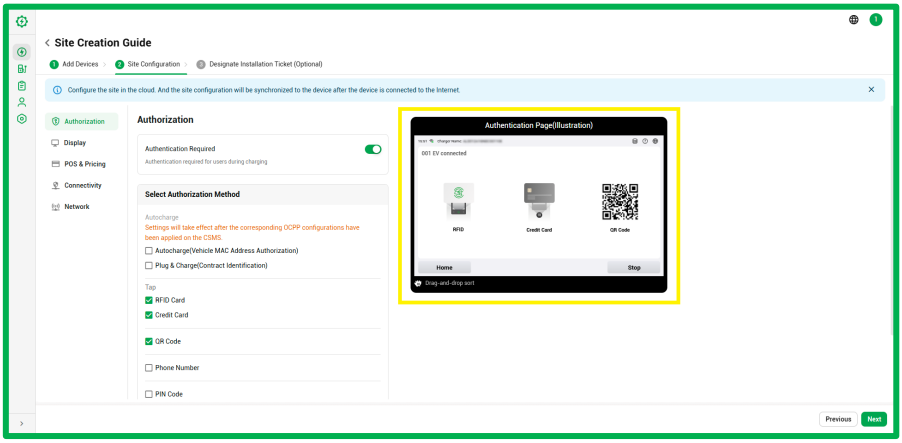


Figure 4-13 Selecting Authorization Methods

3) Add the URL of the items contained in the QR Code for accessing related details of the charging handle.

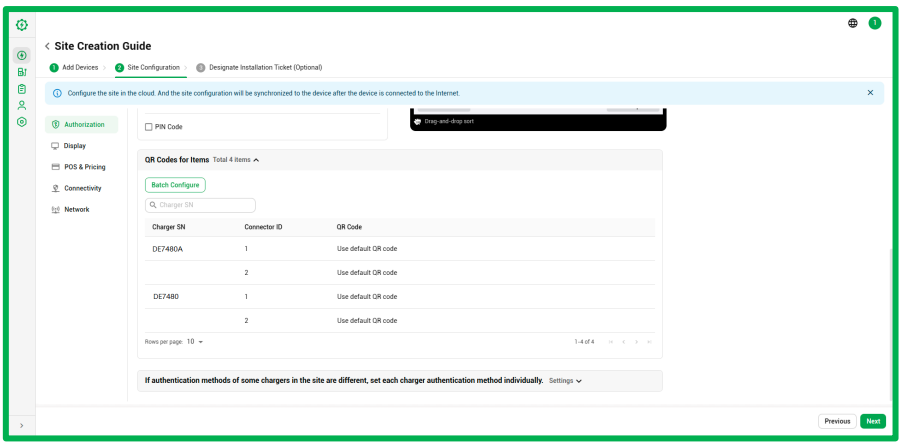


Figure 4-14 Adding the URL Screen

4) If there are more than one charging station at the site and you want to set different authentication methods for each charging station individually, choose the authentication methods as required.

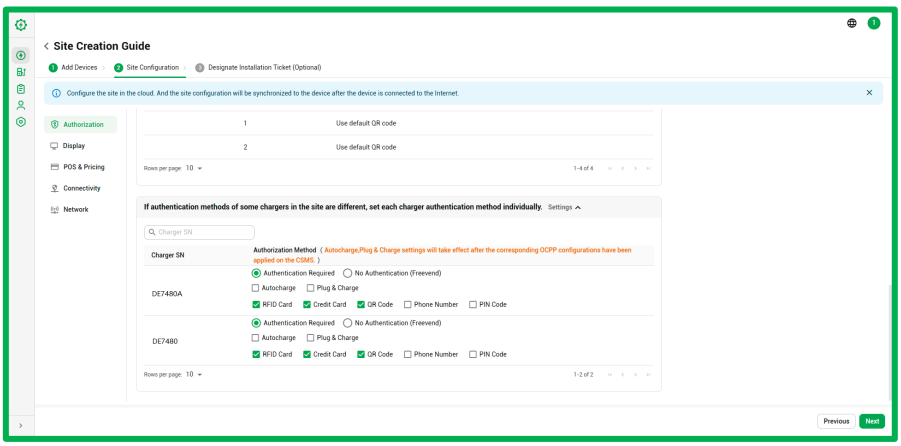


Figure 4-15 Setting the Authentication Method for Each Charging Station

NOTICE

When there is only one charging station at the site, the screen of configuring different authentication methods for different charging stations won't be displayed.

5) Click on **Next** to proceed.

14. Display Configuration.

1) Input the customer service hotline and choose where to position it on the standby (Home) screen.

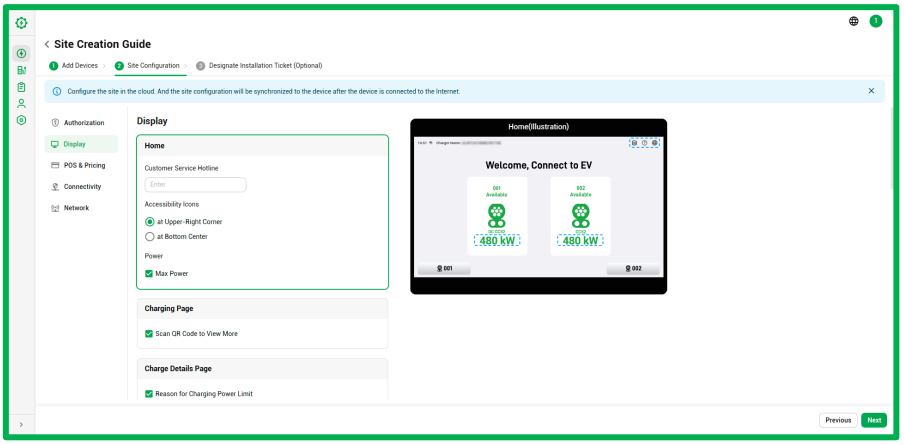


Figure 4-16 Setting the Standby (Home) Screen

2) Choose whether to place the QR Code on the Charging screen for accessing the charging details.

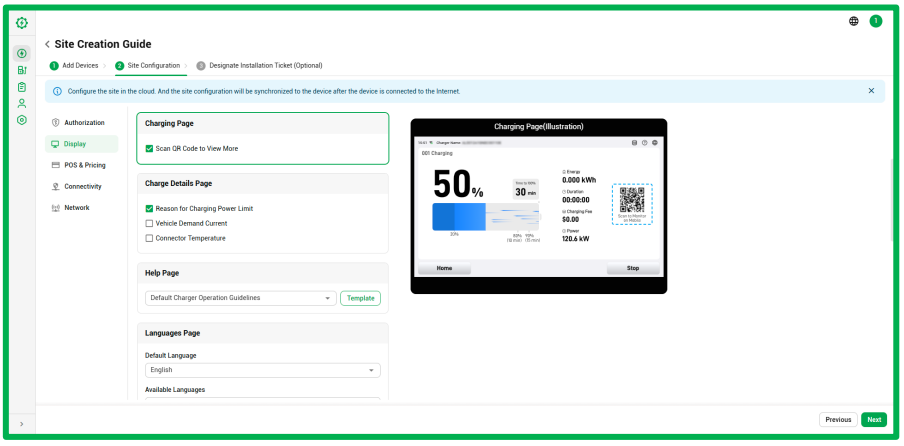


Figure 4-17 Setting the Charging Screen

3) Choose the items you want to display on the Charging Details screen.

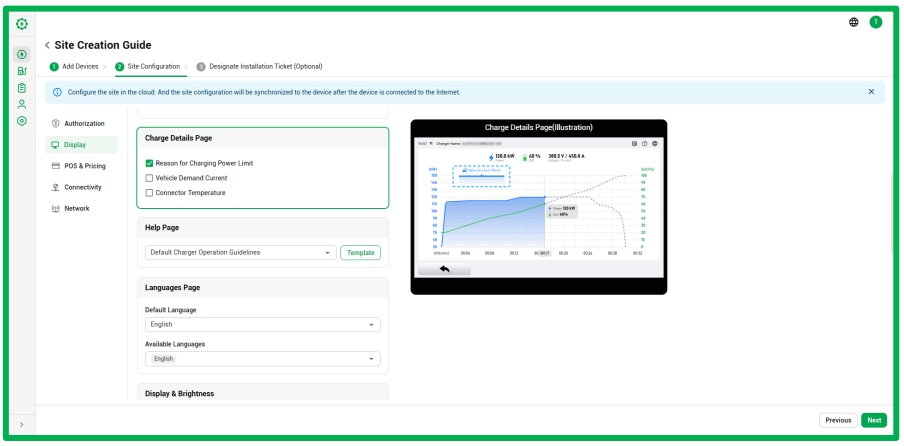


Figure 4-18 Setting the Charging Details Screen

4) Choose the template for the **Help** screen. You can also customize the template as required.

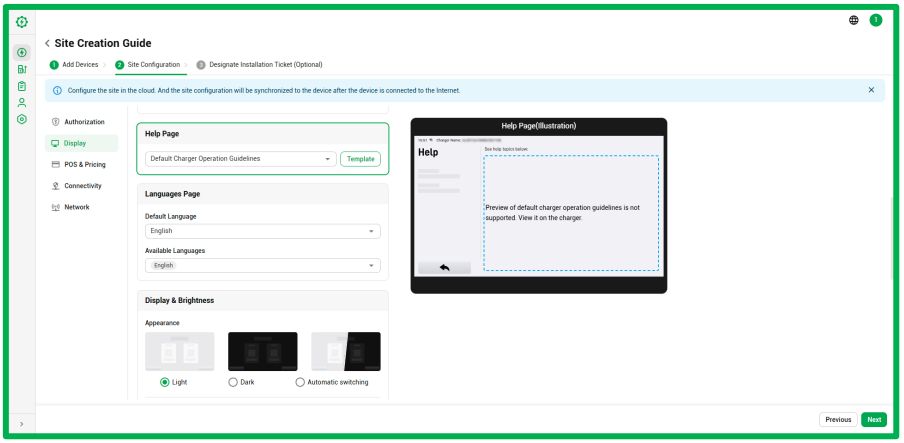


Figure 4-19 Selecting the Template for the Help Screen

5) Select the default language and add available languages for the charging station.

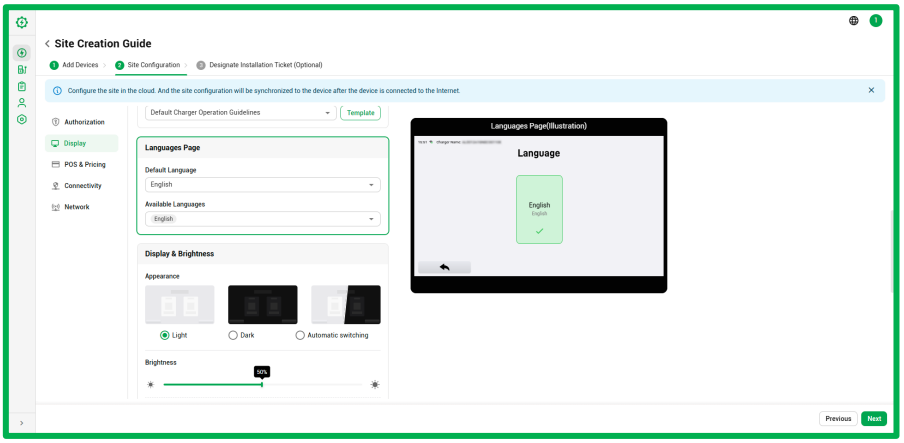


Figure 4-20 Setting the Default Language

6) Select the appearance for the display, set the brightness, and choose whether the charging station should automatically detect the ambient brightness.

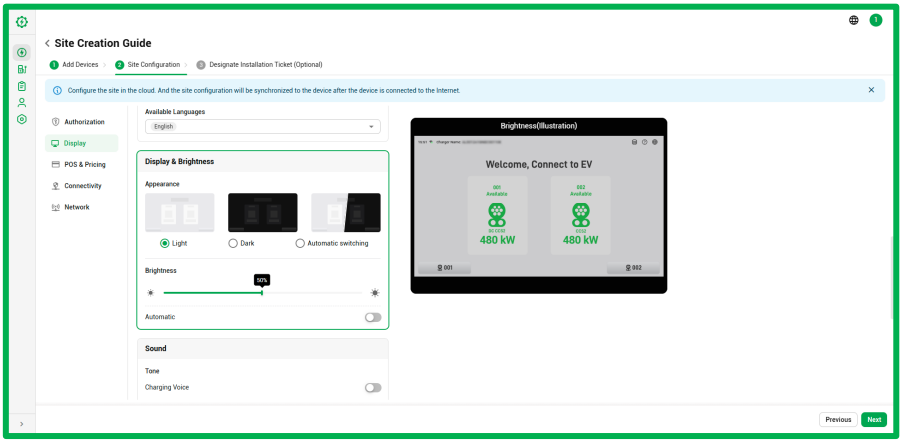


Figure 4-21 Display & Brightness Screen

NOTICE

The brightness can also be adjusted on the charging station.

7) Choose whether to turn on the charging voice and set the system volume.

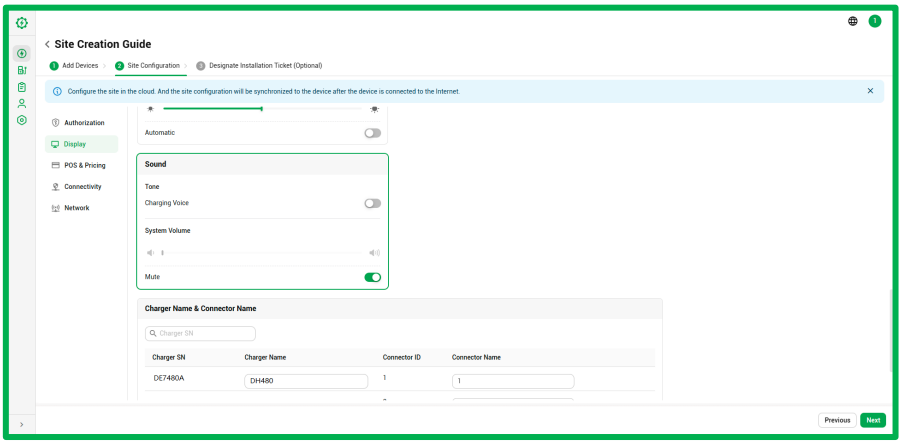


Figure 4-22 Setting the Sound

NOTICE

The volume can also be adjusted on the charging station.

8) Name the charging station and the charging handle.

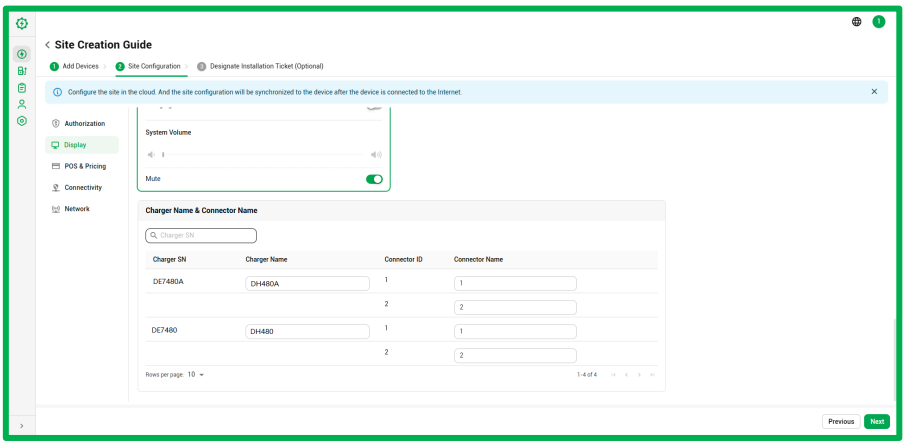


Figure 4-23 Naming the Charging Station and the Connector

9) Click on **Next** to proceed.

15. (Optional) **POS & Pricing Configuration**. For the Function Mode, you can choose either Local POS or Cloud POS. If you go with Local POS, configuring the pricing rules is needed.

1) Select **Local POS**.

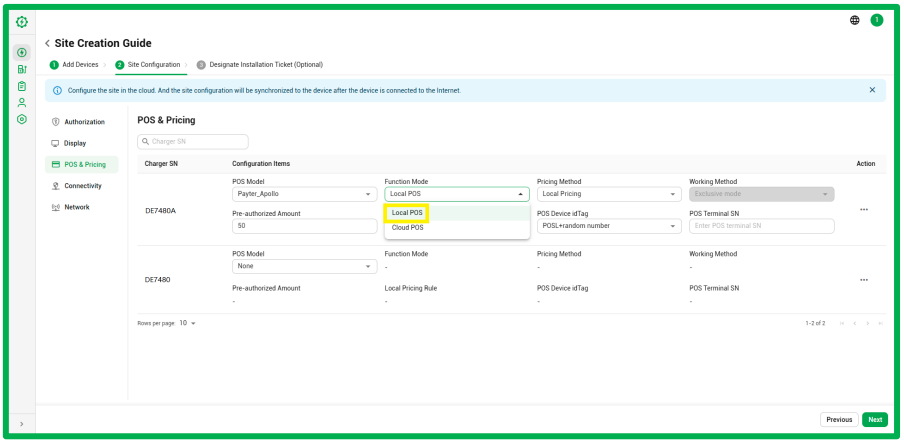


Figure 4-24 POS & Pricing Screen

2) Click **View** to proceed.

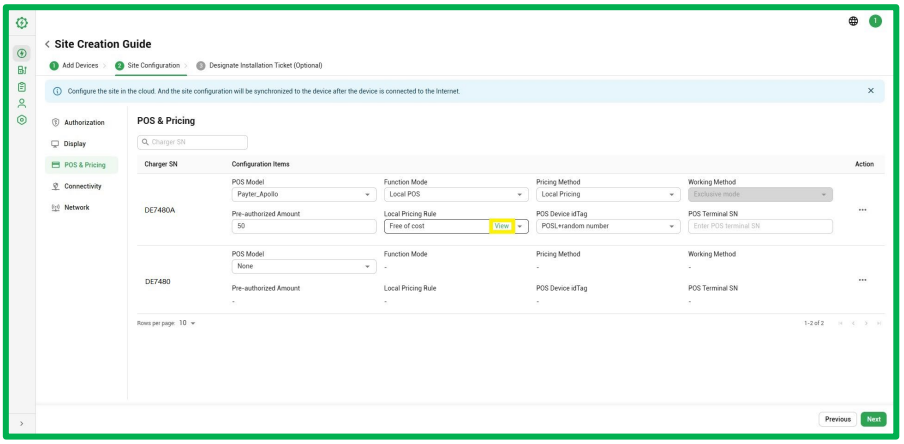


Figure 4-25 POS & Pricing Screen

3) Click "**+Add**" on the upper right of the screen.

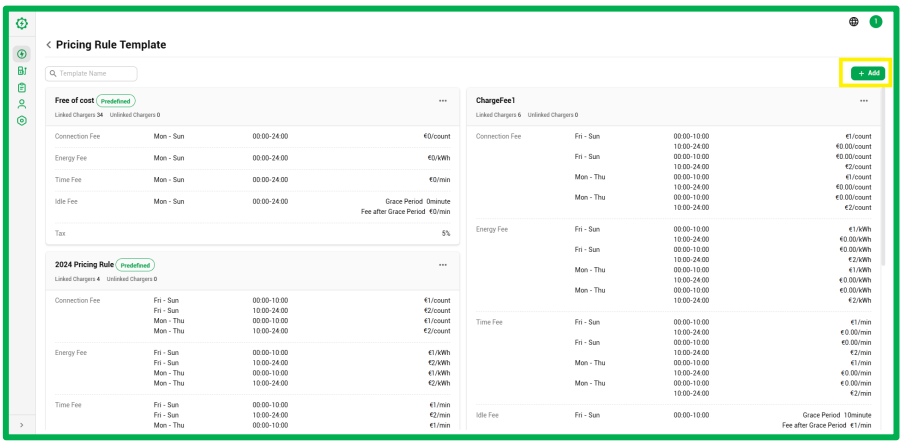


Figure 4-26 Pricing Rule Template Screen

4) Configure the pricing rules according to the on-screen prompts. The fields marked with asterisk are mandatory. Then click **Save** to save the configuration.

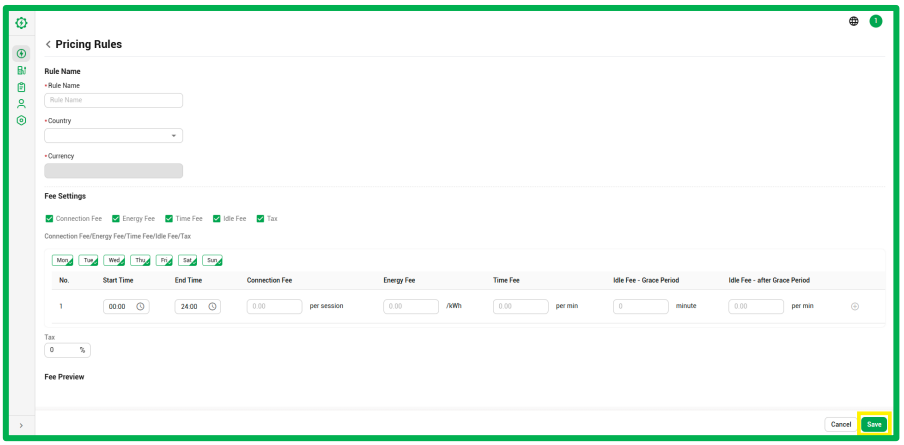


Figure 4-27 Pricing Rules Configuration Screen

16. **Connectivity Configuration**. Choose the OCPP Server for the charging station and decide whether to set a unique ChargeBox ID and authorization key for each charging station. Then click on **Next** to proceed.

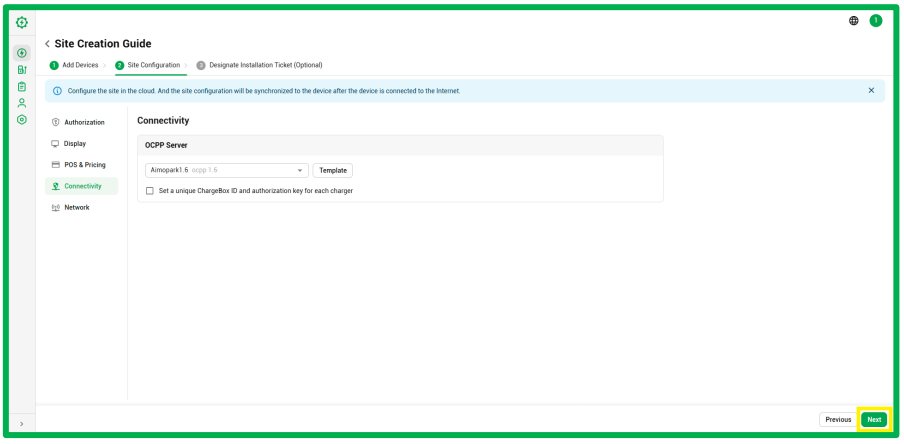


Figure 4-28 Connectivity Configuration Screen

If the OCPP Server you need is not in the list, set the OCPP template for the charging station:

1) Click on **Template** on the screen.

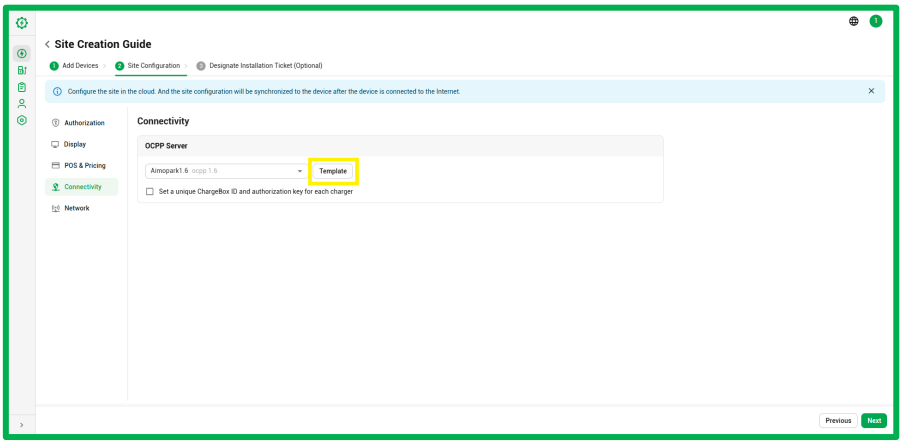


Figure 4-29 Connectivity Configuration Screen

2) Click on "**+ Add**" on the upper right of the screen.

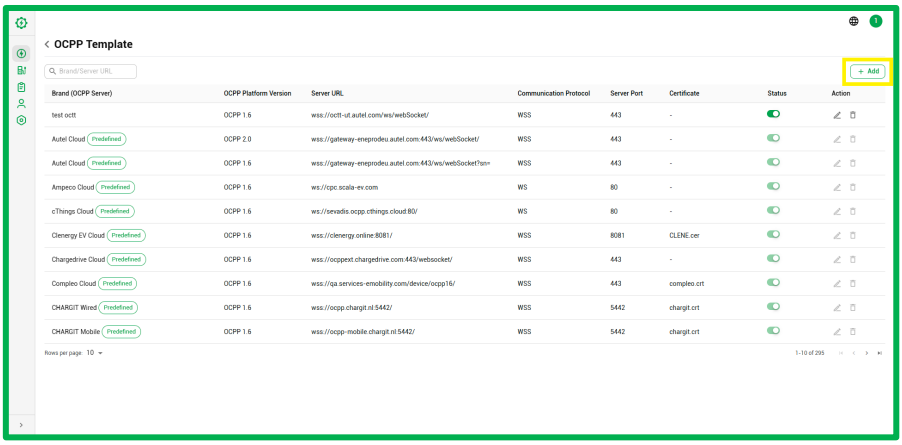


Figure 4-30 OCPP Template Screen

3) Configure the OCPP Server according to the on-screen prompts. Then click on **OK** to complete the configuration.

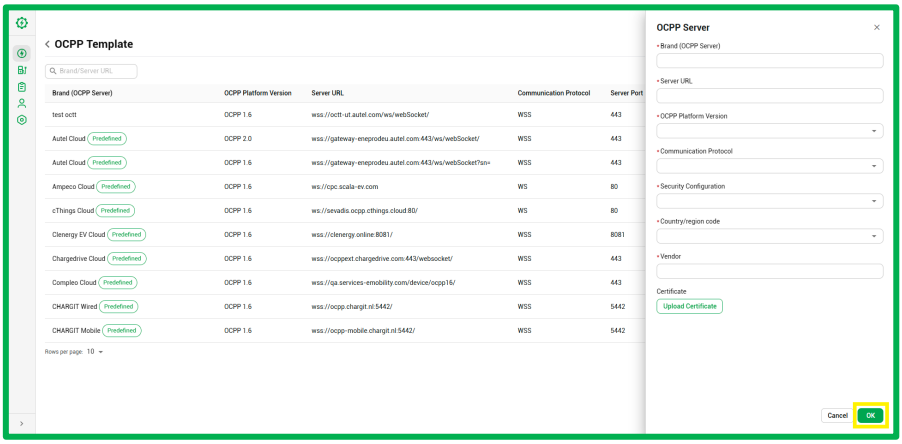


Figure 4-31 OCPP Server Configuration Screen

4) Click on "<" to go back to the connectivity configuration screen and then click on **Next** to proceed.

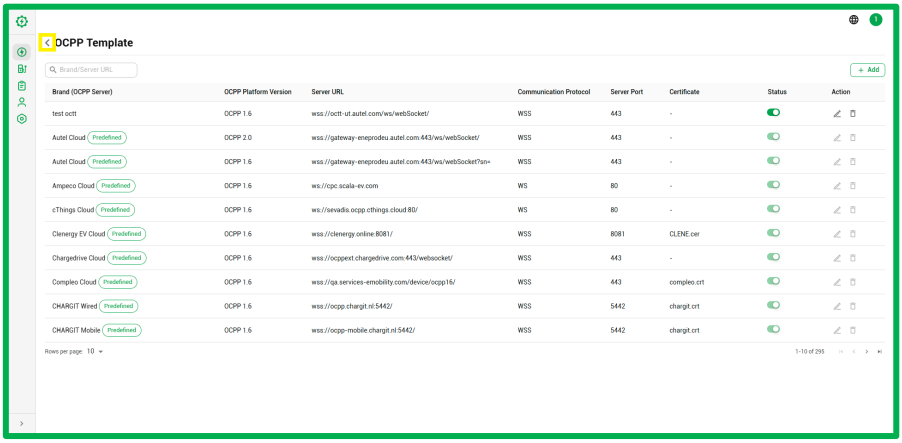


Figure 4-32 OCPP Template Screen

17. **Network Configuration**. The charging station can be connected to the Internet via Ethernet, cellular network, or Wi-Fi. Choose the desired method for Internet connection.

a) **Via cellular network:** If the APN of the SIM card used needs to be configured, contact the service provider of the SIM card to obtain the related information of the APN.

I. For Single APN, click on "**+ Add APN**" and configure the APN according to the on-screen prompts. The fields marked with asterisk are mandatory. Click on **Submit** after finishing the configuration.

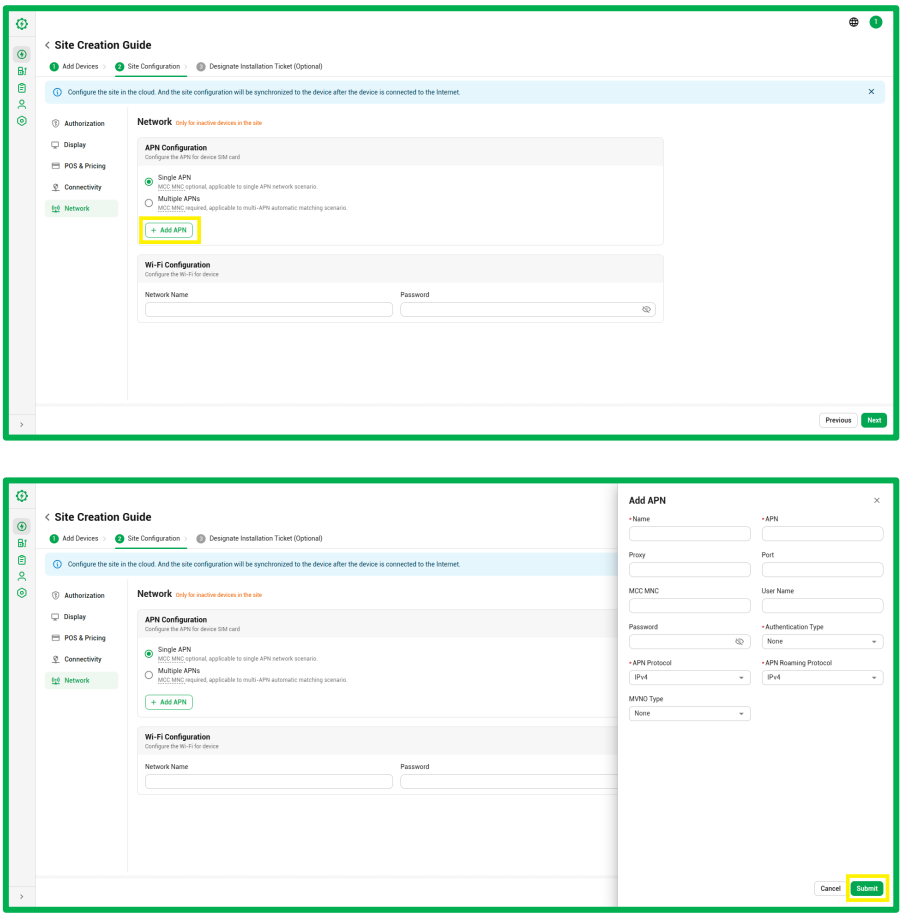


Figure 4-33 Configuring Single APN Screen

II. For Multiple APNs, click on "**+ Add APN**" and configure the APN according to the on-screen prompts. The fields marked with asterisk are mandatory, **especially the MCC MNC of the SIM card used for connecting the charging station to the Internet**. Click on **Submit** after finishing the configuration.

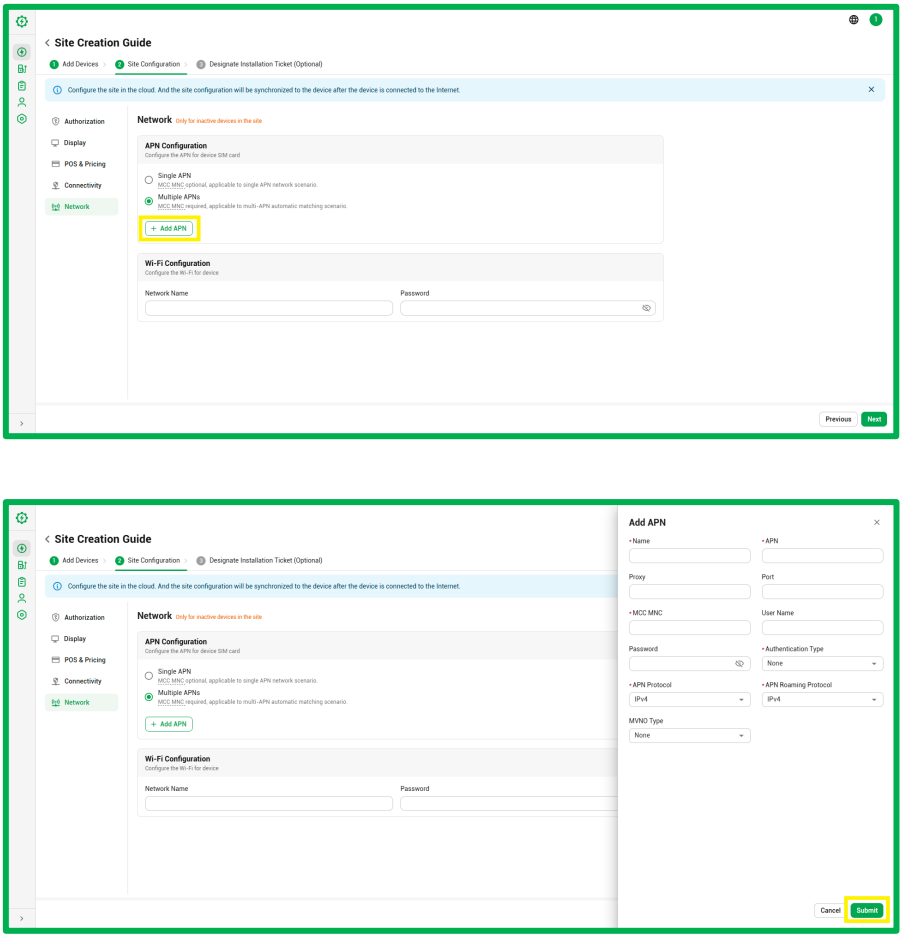


Figure 4-34 Configuring Multiple APNs Screen

b) **Via Wi-Fi:** Configure the Wi-Fi for the charging station by inputting the network name and its password. Then click on **Next** to proceed.

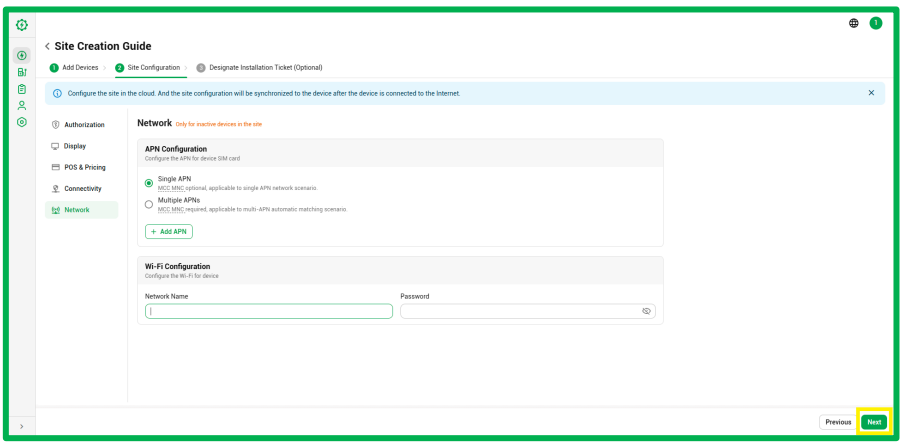


Figure 4-35 Configuring the Wi-Fi Screen

NOTICE

When connecting the charging station to the Internet via cellular network or Ethernet that does not require APN configuration, there is no need to scan the QR code with the Autel Config app to synchronize the configuration to the charging station. After the installation is completed, and the charging station is powered on and connected to the Internet, the configuration will be synchronized automatically and the charging station will be activated automatically.

18. Select installation time and installation technician for **Installation Process**, and on-site time and installation technician for **Configuration Activation** as well. The technicians who can be selected are users invited before. Then click on **Save and Create Ticket** to designate the installation ticket.

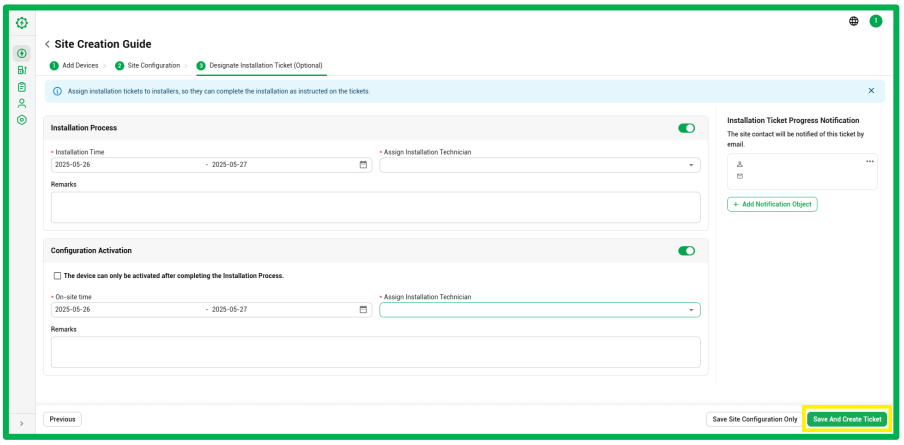


Figure 4-36 Designating Installation Ticket Screen

The installation technician must complete the certification training (MaxiCharger DH480 online/offline training) to be designated as the task performer. The installation ticket can also be designated to service provider and Autel's staff.

NOTICE

- The tasks of Installation Process and Configuration Activation are included in the same installation ticket.
- After the installation is completed, refer to section *6.4* to synchronize the configuration to the charging station.
- If the owner's site includes both the MaxiCharger DH480 and MaxiCharger AC Ultra, the "Types of Earthing System" function will be displayed on the Autel Operation and Maintenance Platform.

4.2 Installation Site 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

Always check local codes or consult an engineer to ensure the site is prepared in accordance with all applicable regulations. Local authorities might not permit a unit to operate if it is not installed to code.

DANGER

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

General installation site design procedure:

1. Select a suitable site. Refer to *4.2.1 Location Requirements* and *4.2.2 Space Requirements.*

2. Prepare the foundation for the cabinet. Refer to *4.2.3 Foundation Requirements.*

3. Complete the electrical design. Prepare the cables, including the AC input cable, PE cable, Earth cable, and Ethernet cable (if no cellular network is available). Ensure that the cable slack is sufficient to guide the cables into the cabinet. Refer to *4.2.4 Electrical Design*.

NOTICE

- Consider the bending space 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.
- The Ethernet cable should not exceed 100 meters.
- The lightning protection design of the installation site must comply with local rules.

4.2.1 Location Requirements

- Ensure the charging station's installation location can sufficiently reach the parked EV with the chosen charging cable length.
- 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 technical support to verify the location and ensure the air flow is sufficient.
- Consider locations where it will be easy to add future stations.
- 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 charging station 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.

NOTICE

While Autel tests the charging station with a majority of upcoming vehicles, we cannot guarantee the port locations of future vehicles and cannot warrant the configurations proposed will work for all vehicles.

- 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.

4.2.2 Space Requirements

The space requirements are as below:

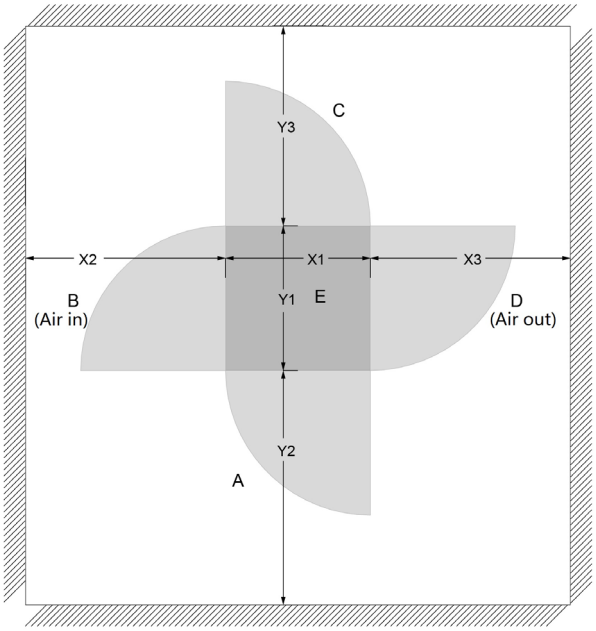


Figure 4-37 Space Requirements

A. Front side of the charging station

B. Left side of the charging station

C. Rear side of the charging station

D. Right side of the charging station

E. Cabinet

Table 4-1 Space Specifications

Parameter	Specification
X1	782 mm
X2	≥ 2000 mm (recommended)
X3	≥ 2000 mm (recommended)
Y1	782 mm
Y2	1300 mm
Y3	500 mm

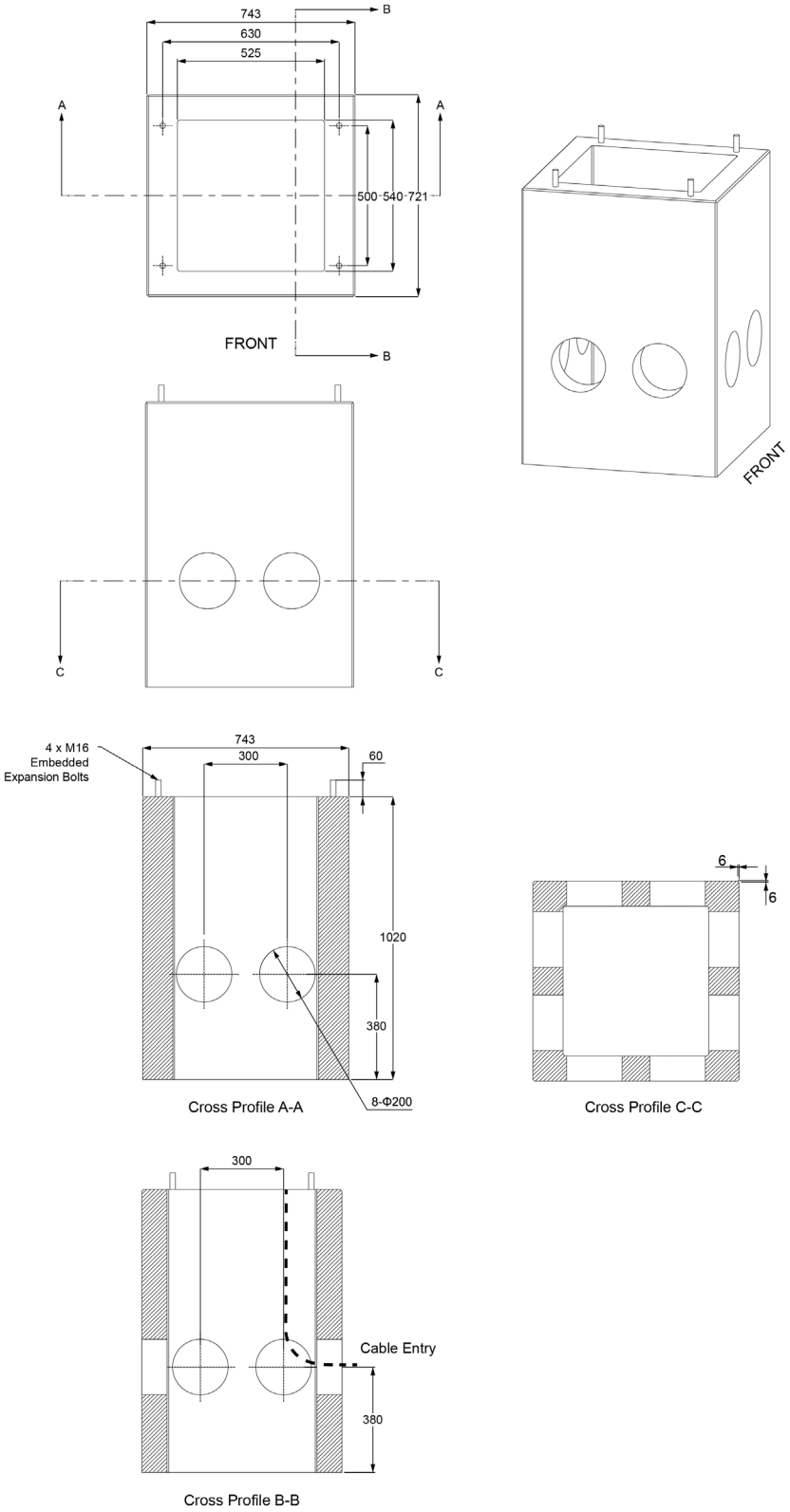
NOTICE

If the installation site does not meet the requirements above, contact Autel technical support.

4.2.3 Foundation Requirements

1. Prepare the cable well according to the foundation dimensions below. The recommended foundation dimensions are: 743 x 721 x 1020 mm (L x W x H).

2. Prepare the foundation as recommended below.



Unit: mm

Figure 4-38 Foundation Dimensions

NOTICE

- Find the four M16 x 200 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 60 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 charging station's foundation.
- When placing the foundation into the cable well, the surface of the foundation should be level with the ground. But in low-lying areas, or if the installation area experiences frequent water accumulation, the surface of the foundation should be more than 200 mm above the ground.

4.2.4 Electrical Design

NOTICE

The information provided herein is based on optimal conditions. Autel is not responsible for the final design, which remains the responsibility of the site designer or installer.

The charging station requires underground wiring. The conduit and wire size are based on the length of runs from the electrical panel to the installation site. The wiring must be run through the conduit or ducting, or armored cable must be used to comply with local electrical codes. Consult the national and local codes or a service engineer for the quality, grade, and size of the conduit or cable.

When the Type 1 or Type 1 + Type 2 surge protection device is not installed at the service panel and the charging station, the entire power supply line and the charging station should not be directly exposed to the lightning protection zone (LPZ0A).

4.2.4.1 Use of RCD

Ensure the RCD is installed between the upstream supply and the charging station, and the grounding system must comply with IEC 60364-4-41 and IEC 60479-1.

- If the RCD is installed by Autel, the main circuit and control circuit of the charging station will be equipped with RCD, details as follows:
  - For the main circuit:
    1. Trip threshold: 300 mA (can be adjusted according to the actual situation)

2. Trip delay: 150 ms

- For the control circuit, the trip threshold is 30 mA.

➢ If the RCD is installed by the customer, the following settings are recommended:

1. Type: A, F or B (the latter two are preferred)
2. Trip threshold: 300 mA
3. Trip delay: 150 ms

4.2.4.2 Grounding Requirements

Ensure that a grounding conductor that complies with IEC60364-5-54 is properly grounded to earth at the service equipment.

4.2.4.3 Wiring Requirements

Prepare the AC input cables as recommended below.

Table 4-2 AC Input Cable Specifications

Parameter	Specification
Wire Shielding (optional)	If the local regulations require shielded wires, connect the wire shielding to the PE bus at both ends of the wire.
Material	XLPE (90 °C) recommended
Recommended Cable Class	Class 2R or 5F or 6F
Recommended Cable Gauge	120 mm^2 x 3 x 2 + 120 mm^2 x 1 (PE), single core, 2 routes
Recommended Cable Lug	One-hole lugs (M12) for AC Input Cable One-hole lugs (M12) for PE Cable Lugs' Type: LCMB120-12-X (PANDUIT Brand)
Diameter of the Phase Conductors	Refer to the local regulations.
Diameter of the PE Conductor	Refer to the local regulations.
Surface and Diameter	Based on the current rating of the charging station and local regulations.
Conductor	Copper

For other requirements of the wire gauges, refer to IEC 61851-23.

The table below describes the recommended cable length reserved above the surface of the foundation to the cabinet.

Table 4-3 Recommended Cable Length Reserved

No.	Cable Connection	Cable Length
1	AC Input Cable	520 mm
2	PE Cable	320 mm
3	Earth Cable	320 mm
4	Ethernet Cable	720 mm

Except for the information above, refer to *Chapter 9 Technical Specifications* to ensure the service wiring at the installation location supports the charging station's power requirements.

4.3 Unpacking

1. Autel recommends to move the cabinet to the installation site using a forklift truck and unpack it there. Ensure that the forks (**A**) of the forklift truck are properly aligned to pass through the openings at the bottom of the pallet.

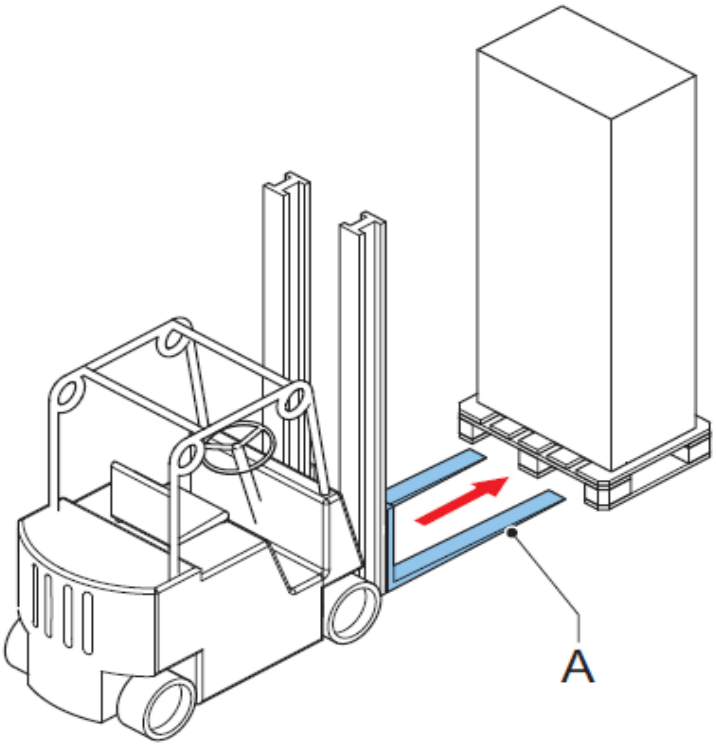


Figure 4-39 Transporting the Cabinet by Forklift Truck

WARNING

Risk of pinching or crushing. Heavy Equipment.

- Ensure that the hoisting equipment or forklift truck can lift the cabinet safely.
- Obey the safety instructions that apply to the hoisting equipment or forklift truck.
- Take into account the dimensions, mass, and center of gravity of the charging station.

CAUTION

- **DO NOT** drop the cabinet or subject it to strong impact.
- Ensure that there is no dynamic force on the hoisting points.

2. Check the tilt and inversion indicators and Shockwatch.

- Observe the tilt and inversion indicator attached to the box for any tilt degree. If the indicator demonstrates severe tilt (over 30°), **do not** refuse shipment and note on bill of lading degree of tilt.
- If the shock watch appears red, contact Autel customer service and the delivery personnel, and then inspect the product for any damage.

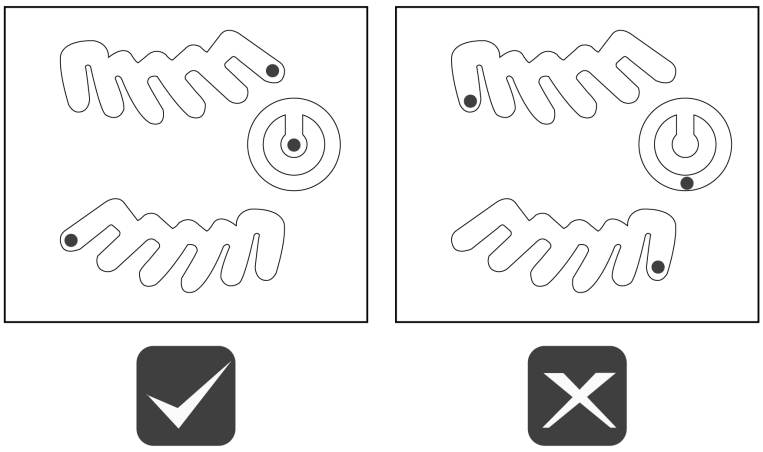


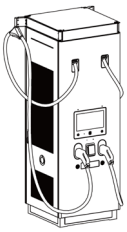
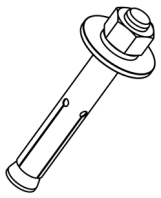
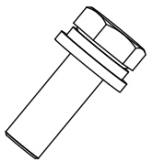
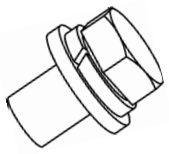
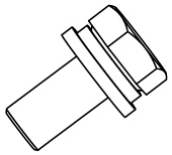
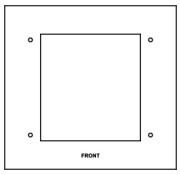
Figure 4-40 Tilt and Inversion Indicators

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

4. Inspect the charging station 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.

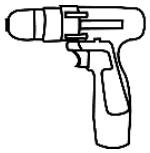
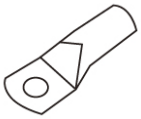
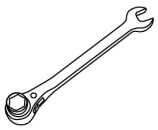
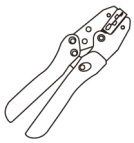
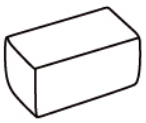
4.4 Packing List

Charging Station* 1 PC		Expansion Bolt (M16 x 200) 4 PCS	
Combination Screw (M12 x 40) 6 PCS		Combination Screw (M12 x 25) 2 PCS	
Flange Nut (M12) 6 PCS		Combination Screw (M6 x 16) 2 PCS	
Cabinet Door Key 4 PCS		Eye Bolt (M20) 4 PCS	
Drilling Template 1 PC		Jumper 1 PC	
TR25 Torx Screwdriver 1 PC		Packing List 1 PC	

**The product offers a choice between a 15.6-inch and a 27-inch touchscreen. Please refer to the actual product.*

4.5 Recommended Tools

The following tools are recommended when installing the charging station.

Forklift Truck		Hoisting Equipment	
Multimeter		Power Drill	
Marker		Drill Bit (20 mm)	
Brush		Phillips Screwdriver	
Wire Stripper		Flathead Screwdriver	
Cable Lug		Socket Wrench (10 mm/18 mm/24 mm/30 mm)	
Crimping Plier		Fireproof Mortar	
Tape Measure		Twin-step Ladder	

NOTICE

- The tools mentioned above are not part of the delivery. Ensure the professional personnel have all the listed tools for installation.
- This tool list does not necessarily include all the tools you may need.

5. Installation

5.1 Before Installing

Prior to installation, check the following:

- The installation site is prepared.
- The appropriate service wiring, circuit protection, and metering are 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 charging station. Repeaters are often required when installing the charging station 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 truck or other lifting equipment, to unpack, and to allow people to work around freely.
- All the parts and tools are available.

CAUTION

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

NOTICE

The installation of the charging station must be performed only by professionally qualified personnel, as per local regulations and safety standards. These personnel must have successfully completed the mandatory training courses provided by Autel.

General Installation Procedure:

1. Install the cabinet. Refer to *5.2 Installing the Cabinet*.
2. Complete the electrical wiring. Refer to *5.3 Electrical Wiring*.
3. Connect the charging station to the Internet. Refer to *5.4 Connecting to the Internet*.
4. Install the charging module (optional). Refer to *5.5 Installing the Charging Module*.
5. Finish the installation. Refer to *5.6 Finishing Installation*.

5.2 Installing the Cabinet

There are two ways to move the cabinet to the foundation:

- Forklift
- Hoist

WARNING

Ensure all the doors are locked before moving the charging station.

5.2.1 To Use the Forklift Truck

NOTICE

When moving the equipment to the site using the forklift truck, **ensure the forks of the forklift truck are properly aligned to pass through the openings of the front and rear bases.**

STEP 1

Use the cabinet door key to unlock the left and right doors. Pull the charging cable to the right (left for opening the right door) to stretch out the CMS and avoid obstruction, and then open the door.

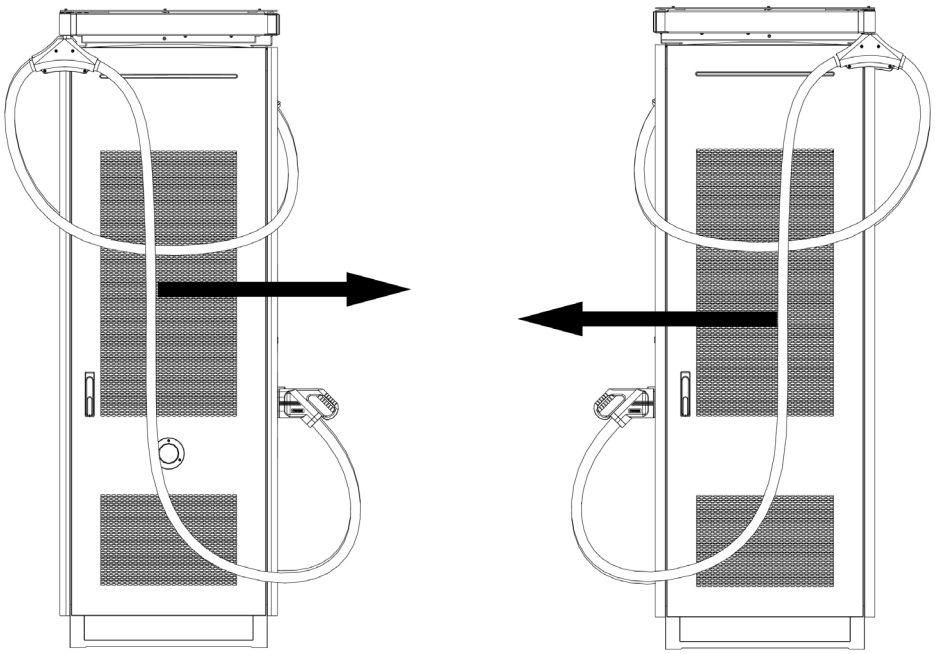


Figure 5-1 Pulling the Charging Cable

STEP 2

1. Remove the eight screws (**A**) using a TR25 Torx screwdriver to remove the front, rear, left, and right base covers. **Set them aside**.

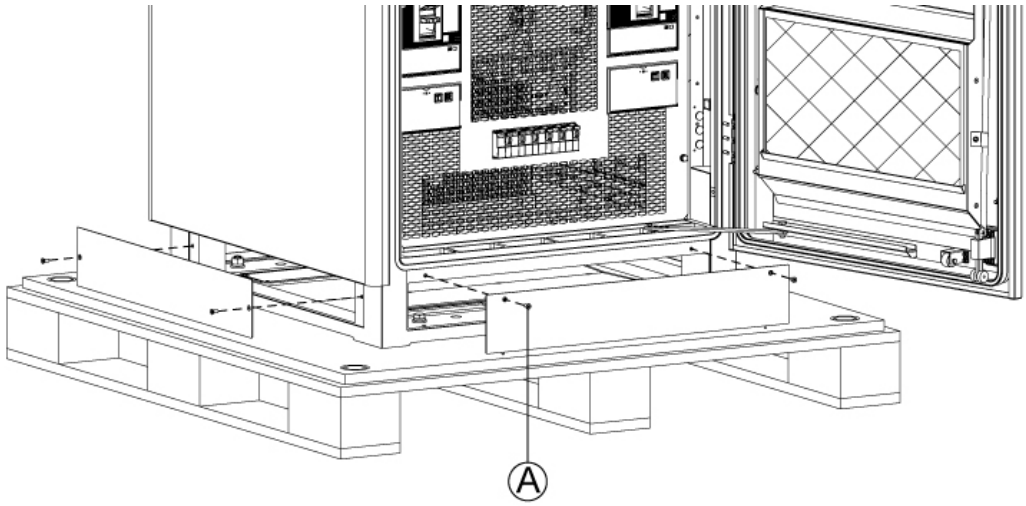


Figure 5-2 Removing the Base Covers

2. Remove the cabinet from the pallet by removing the bolt (**A**), spring washer (**B**), steel gasket (**C**), and nylon gasket (**D**) using an 18 mm socket wrench.

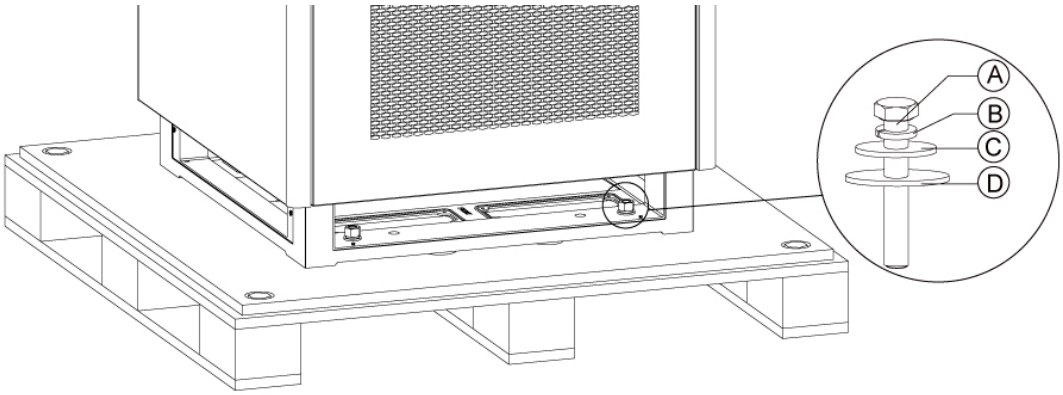


Figure 5-3 Removing from the Pallet

STEP 3

1. Lift the limit linkage with foot to close the left and right doors.

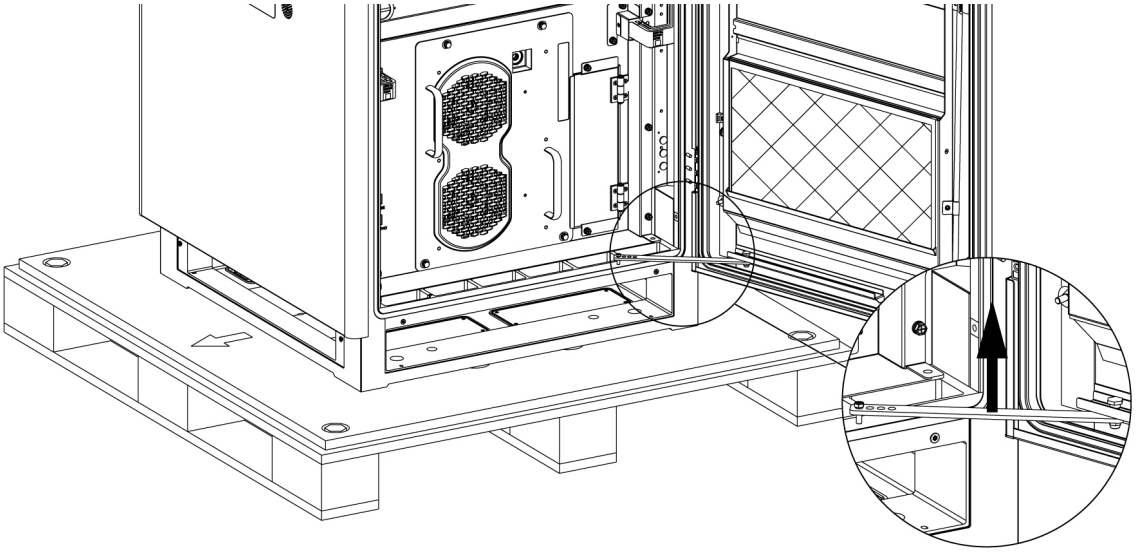


Figure 5-4 Lifting the Limit Linkage

2. Use the forklift truck to move the cabinet to the foundation. **Ensure the forks of the forklift truck are properly aligned to pass through the openings of the front and rear bases**.

STEP 4

1. Carefully lower the cabinet approximately 500 mm above the foundation, aligning with the four expansion bolts (**A**). Then route the cables through the cable inlet hole.

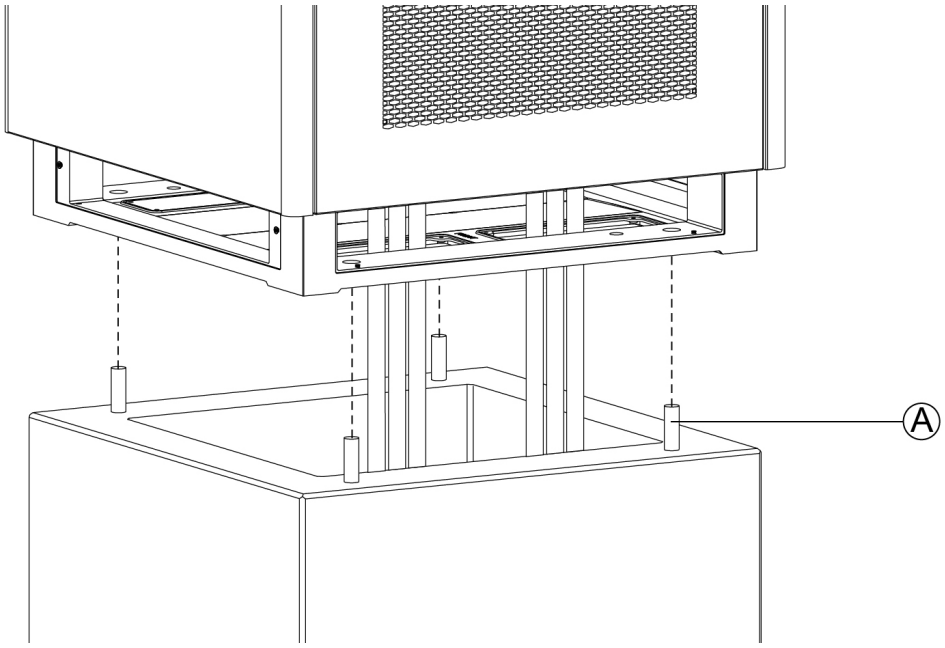


Figure 5-5 Lowering the Cabinet

2. Reinstall the gaskets and nuts which were removed earlier and tighten them using a 24 mm socket wrench to secure the cabinet onto the foundation.

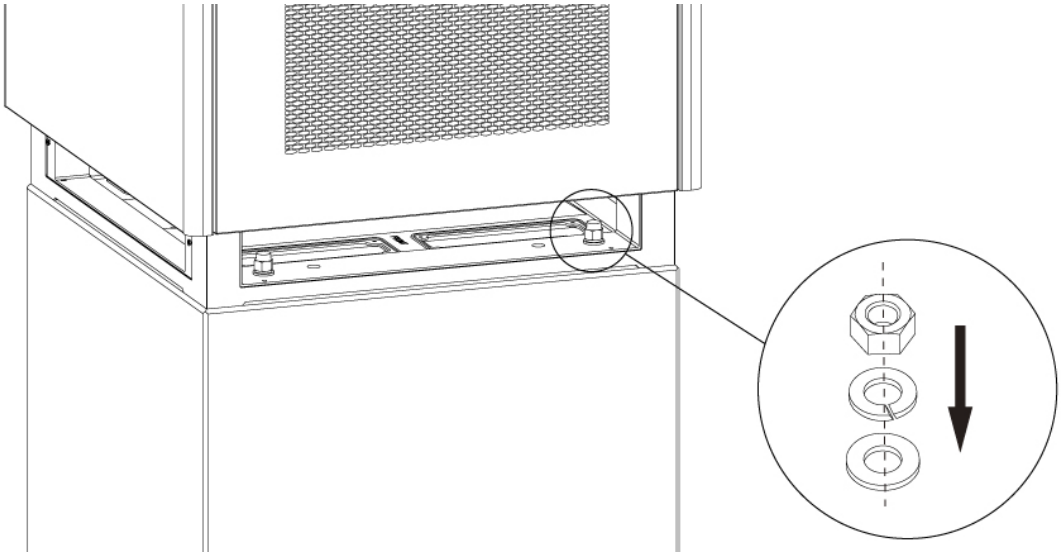


Figure 5-6 Securing the Cabinet onto Foundation

3. Open the left and right doors. Reinstall the front, rear, left, and right base covers.

5.2.2 To Use the Hoisting Equipment

STEP 1

Use the cabinet door key to unlock the left and right doors. Pull the charging cable to the right (left for opening the right door) to stretch out the CMS and avoid obstruction, and then open the door.

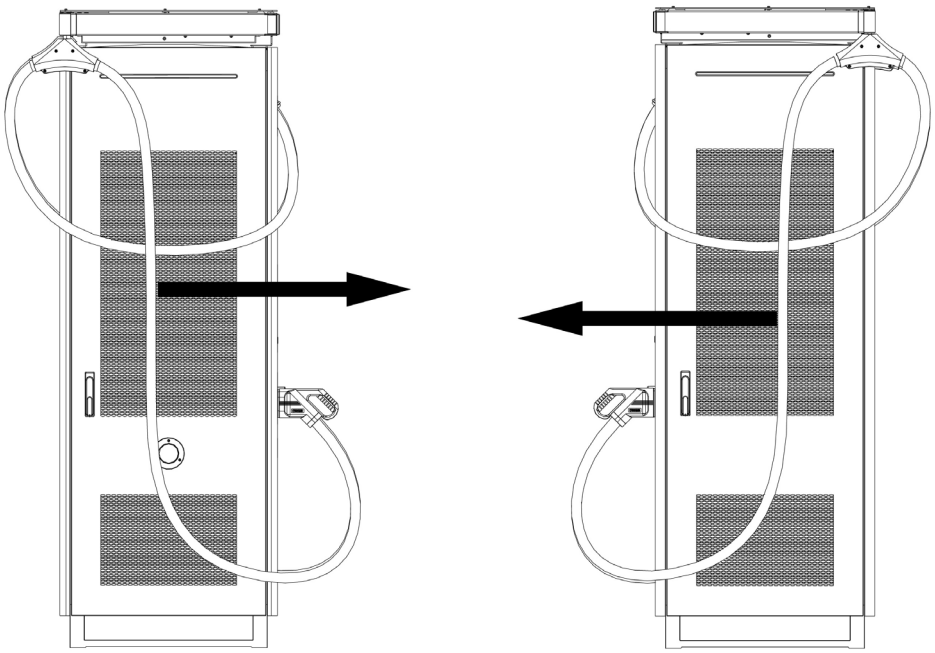


Figure 5-7 Pulling the Charging Cable

STEP 2

1. Remove the four screws (**A**) using a TR25 Torx screwdriver to remove the left and right base covers. **Set them aside**.

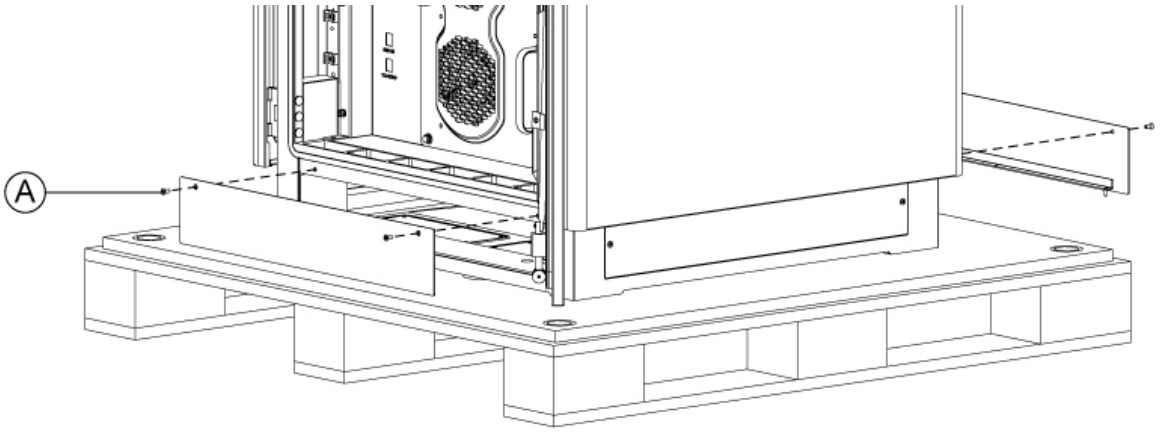


Figure 5-8 Removing the Base Covers

2. Remove the cabinet from the pallet by removing the bolt (**A**), spring washer (**B**), steel gasket (**C**), and nylon gasket (**D**) using an 18 mm socket wrench.

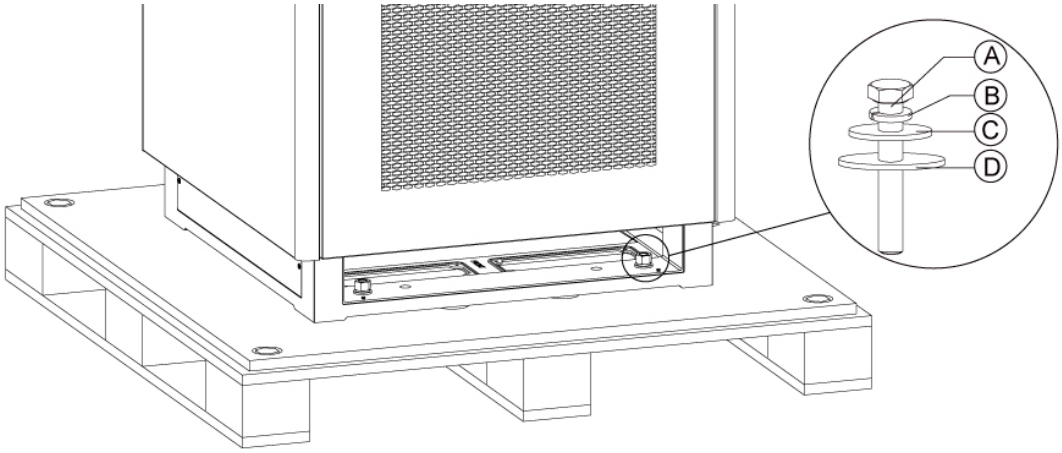


Figure 5-9 Removing from the Pallet

3. Lift the limit linkage with foot to close the left and right doors.

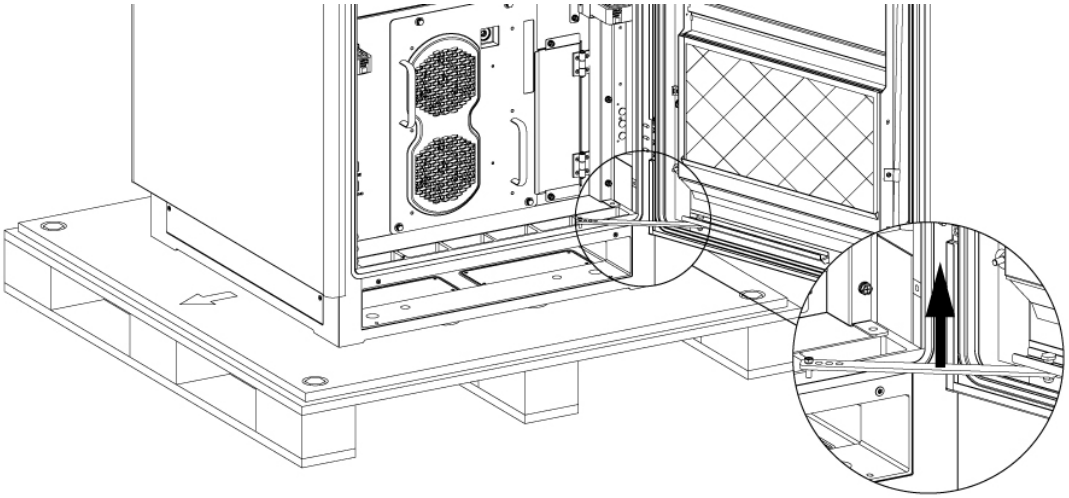


Figure 5-10 Lifting the Limit Linkage

STEP 3

1. On the top of the cabinet, use a 30 mm socket wrench to remove one screw at a time. Immediately screw in an M20 eye bolt into the corresponding lifting hole after removing each screw. **Set the screws removed aside**.

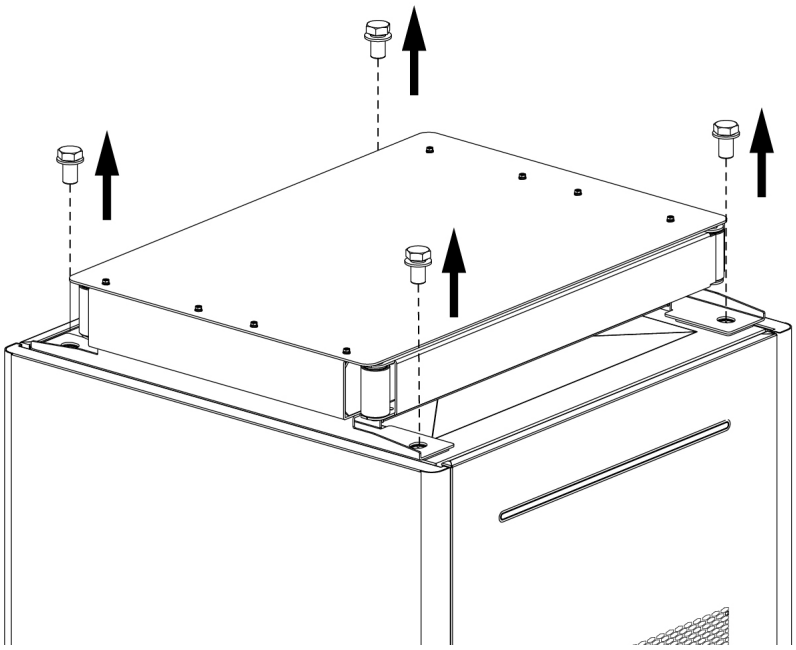


Figure 5-11 Removing the Screws

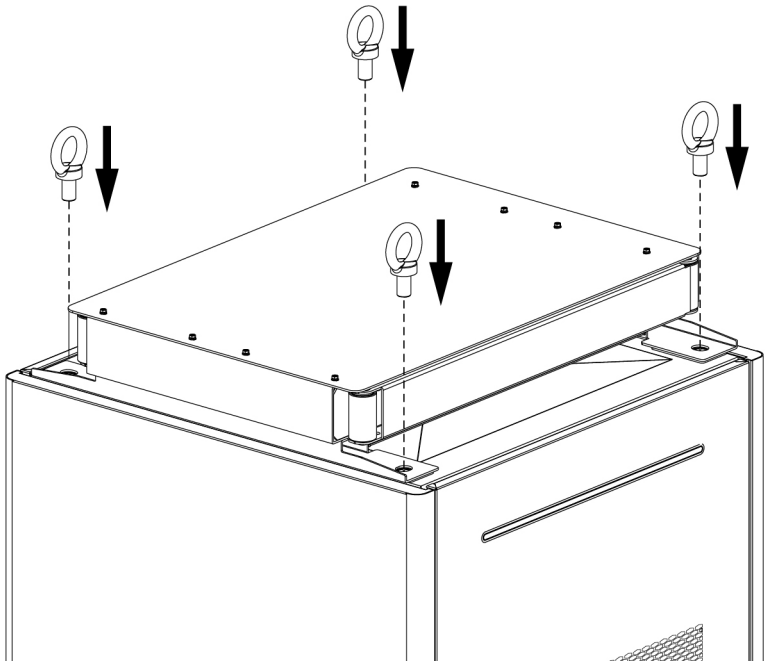


Figure 5-12 Installing the Eyebolts

CAUTION

DO NOT remove all the screws at once, otherwise the CMS may fall off.

2. After all the four eye bolts are installed, connect the cables of the hoisting equipment to the eye bolts. Then move the cabinet to the foundation.

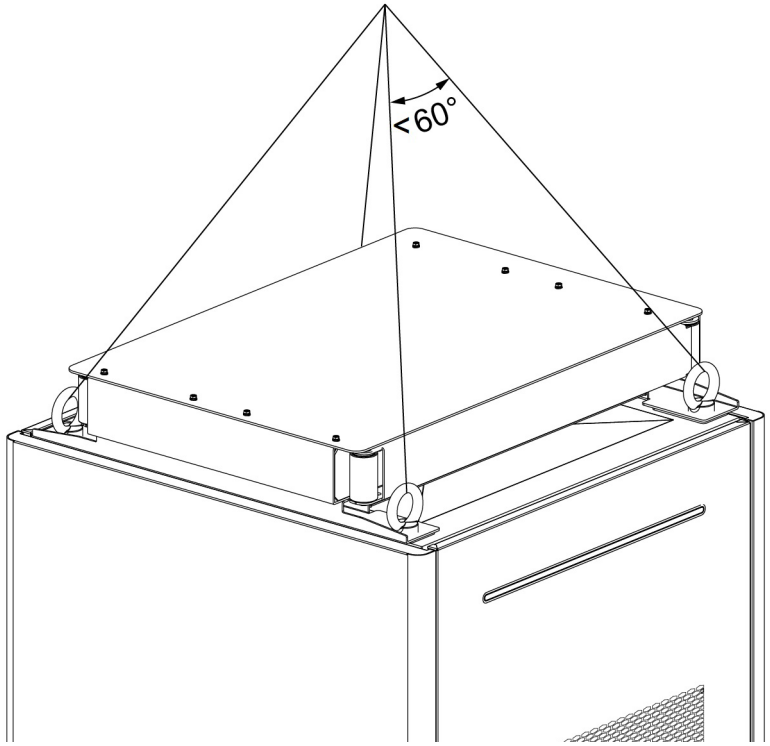


Figure 5-13 Hoisting the Cabinet

WARNING

Risk of pinching or crushing. Heavy Equipment.

- Ensure that the hoisting equipment can lift the 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 cabinet or subject it to strong impact.
- Ensure that there is no dynamic force on the hoisting points.

STEP 4

1. Carefully lower the cabinet approximately 500 mm above the foundation, aligning with the four expansion bolts (**A**). Then route the cables through the cable inlet hole.

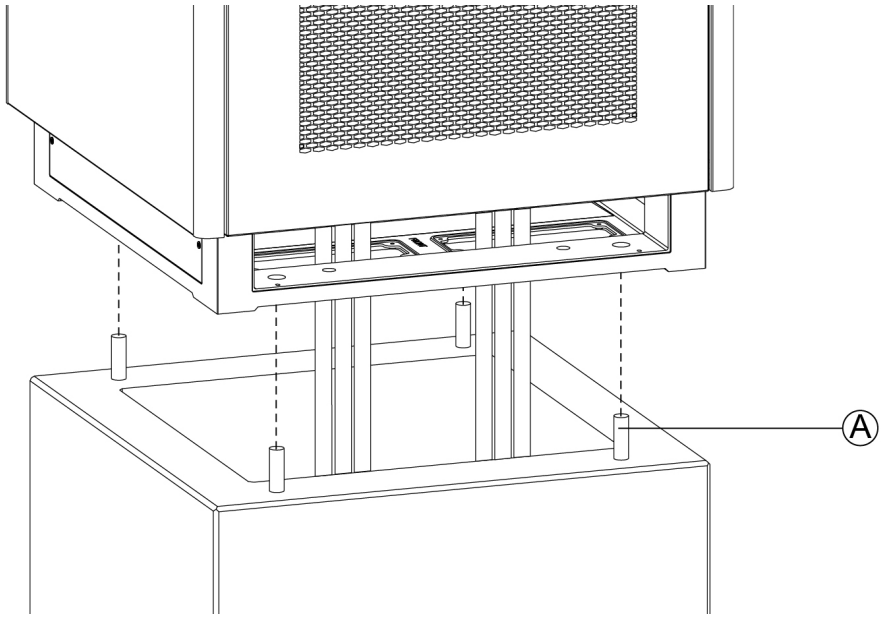


Figure 5-14 Lowering the Cabinet

2. Reinstall the gaskets and nuts which were removed earlier and tighten them using a 24 mm socket wrench to secure the cabinet onto the foundation.

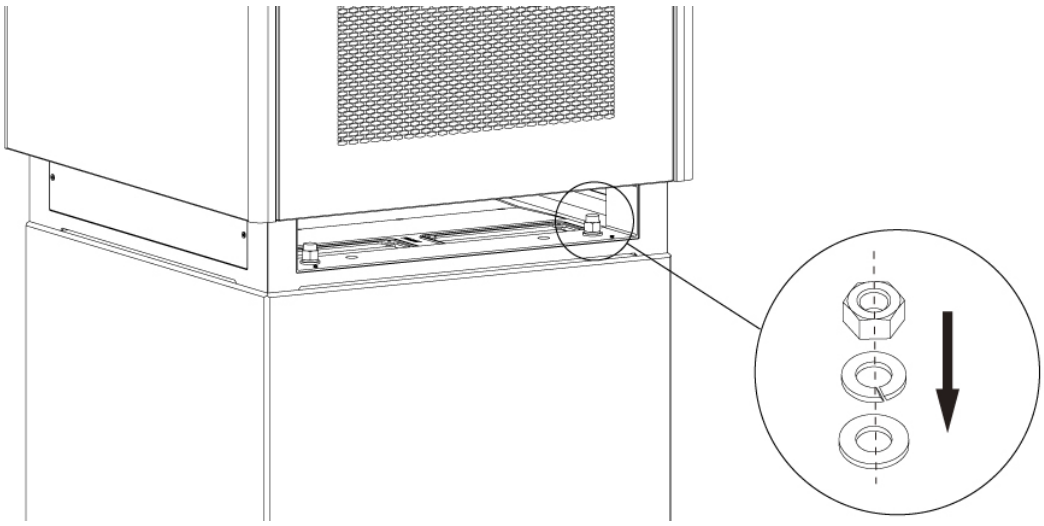


Figure 5-15 Securing the Cabinet onto Foundation

3. Open the left and right doors. Reinstall the left and right base covers.

4. Replace each eye bolt with a screw one by one until all the four screws are secured. Do not remove all eye bolts at once.

CAUTION

DO NOT remove all eye bolts at once, otherwise the CMS may fall off.

5.3 Electrical Wiring

DANGER

Hazardous voltage

Ensure that only qualified personnel have access to the door key.

NOTICE

- 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.
- XLPE insulated power cable is recommended.

5.3.1 Connecting the AC Input Power Cable

1. Remove the four M6 screws (**A**) using a 10 mm socket wrench to remove the cover plate. **Set them aside.**

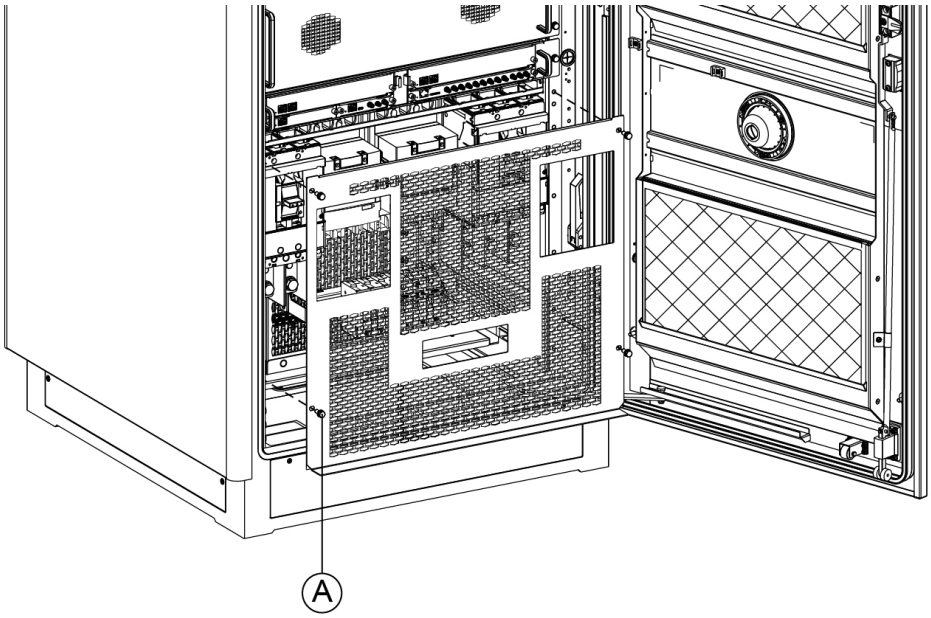


Figure 5-16 Removing the Cover Plate

2. Cut the L1, L2, and L3 wires to the correct length to reach the connectors on the AC terminals, if needed.

3. Use the wire stripper to remove appropriate length of the insulation from the end of the wires. Ensure the stripped length is compatible with the cable lugs.

4. Use a crimping plier to attach the cable lugs to the end of the wires.

5. Use the M12 x 40 combination screw (**A**) and M12 flange nut (**B**) to attach the wires to the connectors accordingly and tighten them to 55 ± 5 N·m using two 18 mm socket wrenches.

6. Follow the steps above to connect the L1, L2, and L3 wires at the other route.

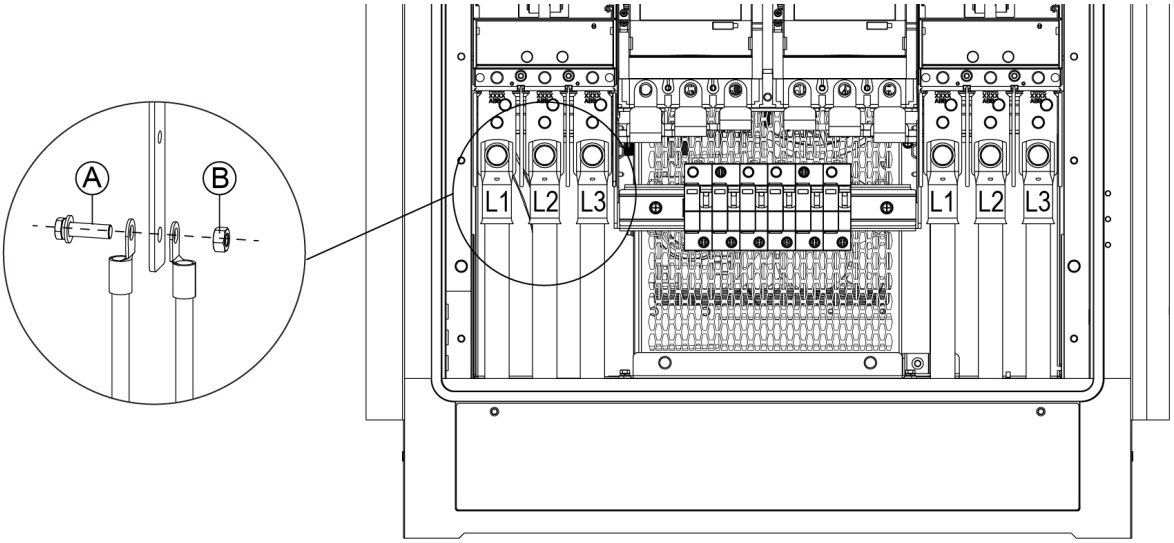


Figure 5-17 Connecting the AC Input Power Cables

NOTICE

Two 18 mm socket wrenches are required to complete the connection: one for fixing the combination screw and the other for tightening the flange nut.

5.3.2 Connecting the PE Cable

1. Cut the PE cable of the power cables to the correct length to reach the PE bus bar, if needed.

2. Use the wire stripper to remove appropriate length of the insulation from the end of the PE cable. Ensure the stripped length is compatible with the cable lug.

3. Use a crimping plier to attach the cable lug to the end of the wire.

4. Use an M12 x 25 combination screw to attach the PE cable to the PE bus bar and tighten it to 55 ± 5 N·m using an 18 mm socket wrench.

5. Follow the steps above to connect the other PE cable.

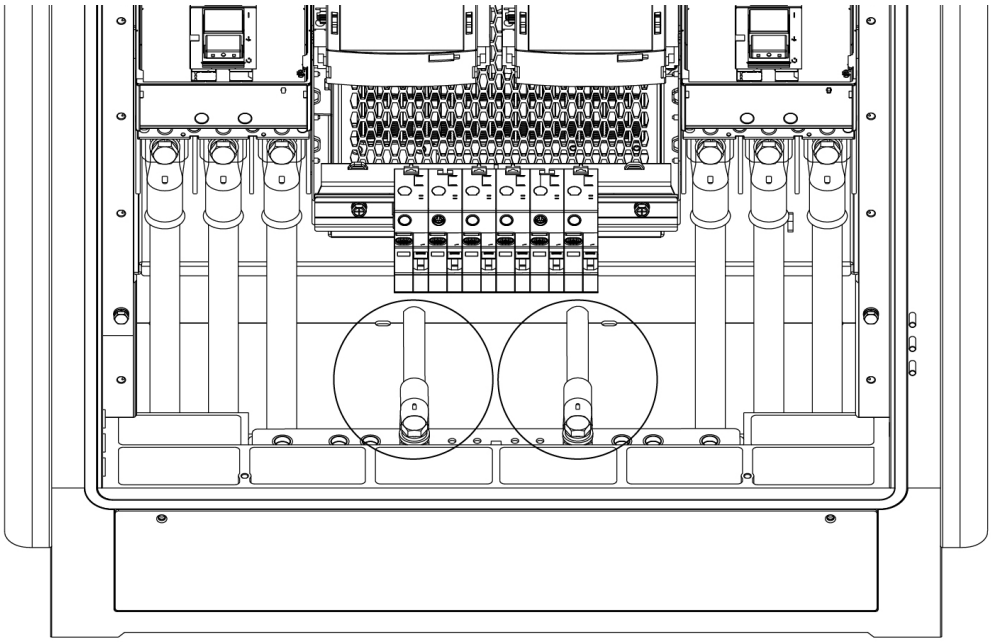


Figure 5-18 Connecting the PE Cable

5.3.3 Grounding the Cabinet

1. Connect the earth conductor to the PE bus bar using the M6 x 16 screw and tighten it to 6.5 ± 0.5 N·m using a 10 mm socket wrench.

2. Connect the earth conductor to the earth electrode.

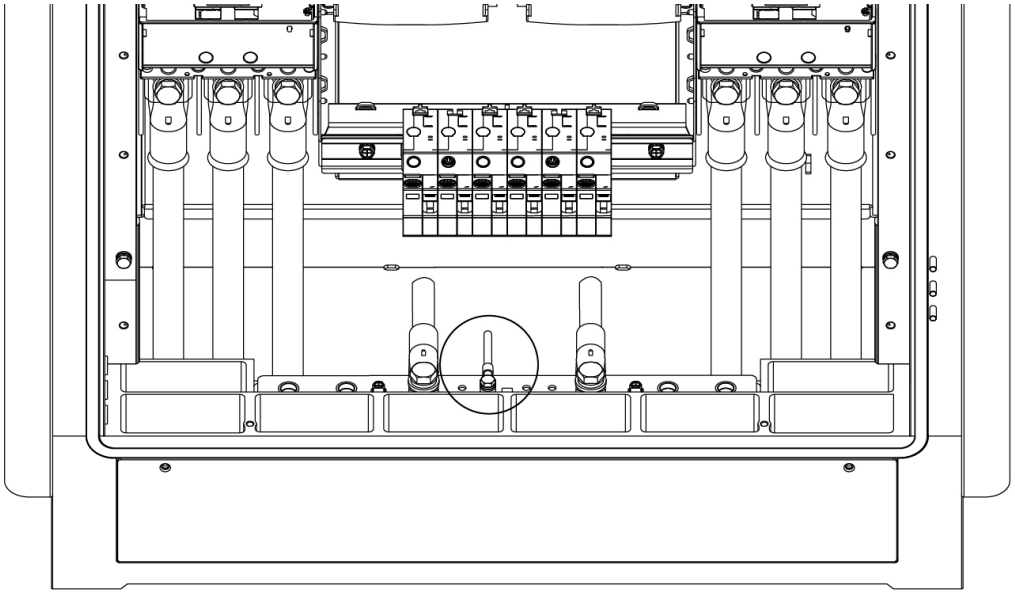


Figure 5-19 Connecting the Enclosure to the Earth

5.4 Connecting to the Internet

The charging station can be connected to the Internet via the Ethernet cable, cellular network or Wi-Fi.

5.4.1 Connecting the Ethernet Cable

1. Open the front door, which can be opened by releasing the four locks behind the left door (from bottom to top), as shown in the following image.

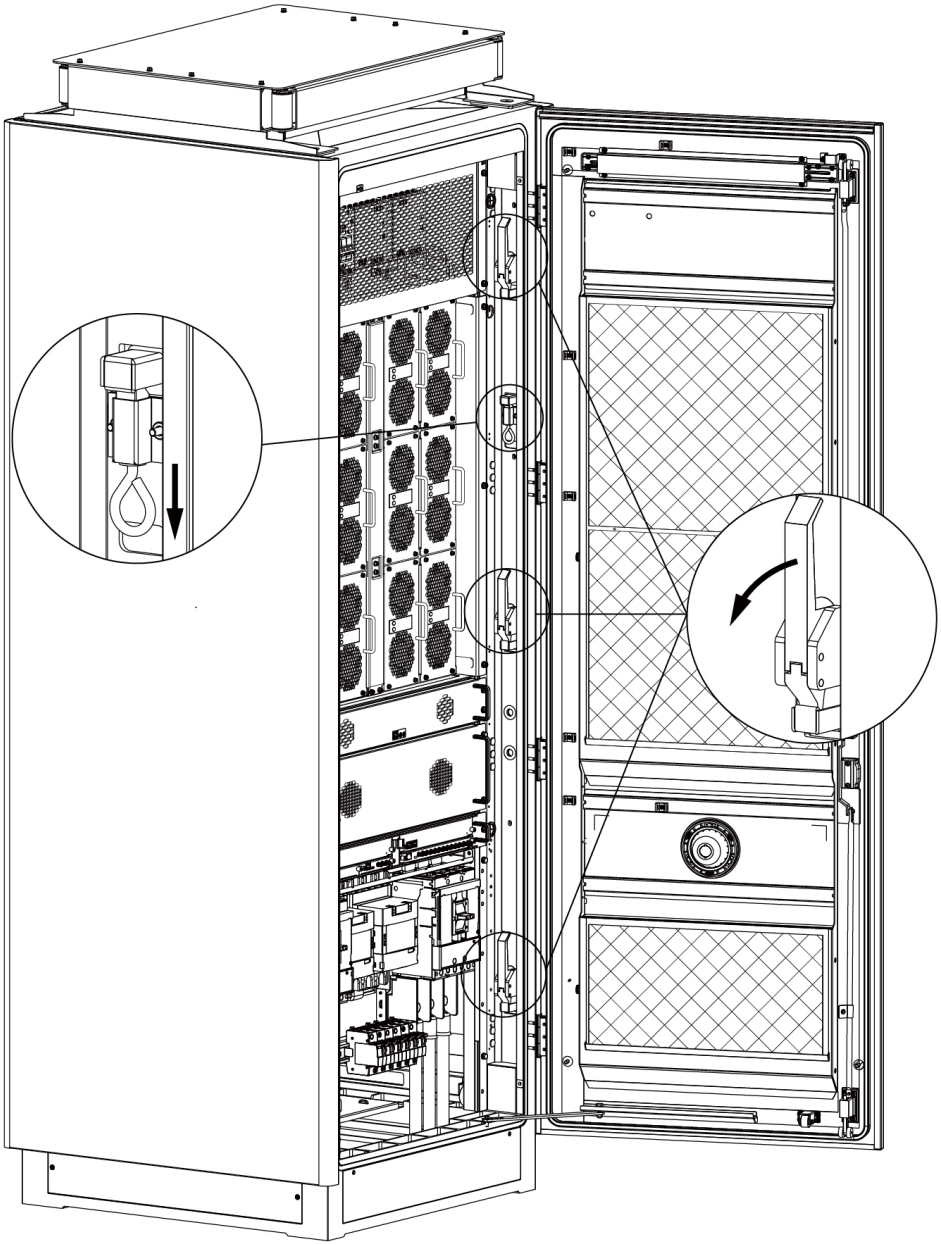


Figure 5-20 Opening the Front Door

2. Plug the Ethernet cable into the **RBU GE** port as shown.

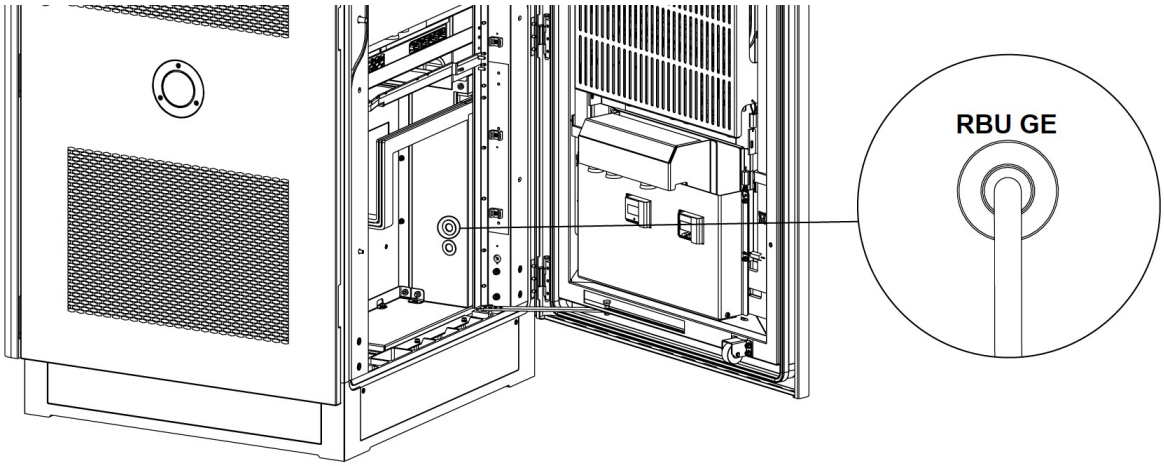


Figure 5-21 Connecting the Ethernet Cable

3. Close and lock the front door. Ensure the door is properly locked.

5.4.2 Installing the SIM Card

DANGER

Stop the charge session and power off the charging station before installing the SIM card.

NOTICE

For the charging station, SIM card 1 is designated for maintenance, whereas SIM card 2 is intended for operational functions. If only one SIM card is being installed, it should be placed in the SIM 1 slot.

To install SIM card 1:

1. Locate the **RBU** at the control module.
2. Loosen the two screws (**A**) using a Phillips screwdriver and then pull out the RBU.

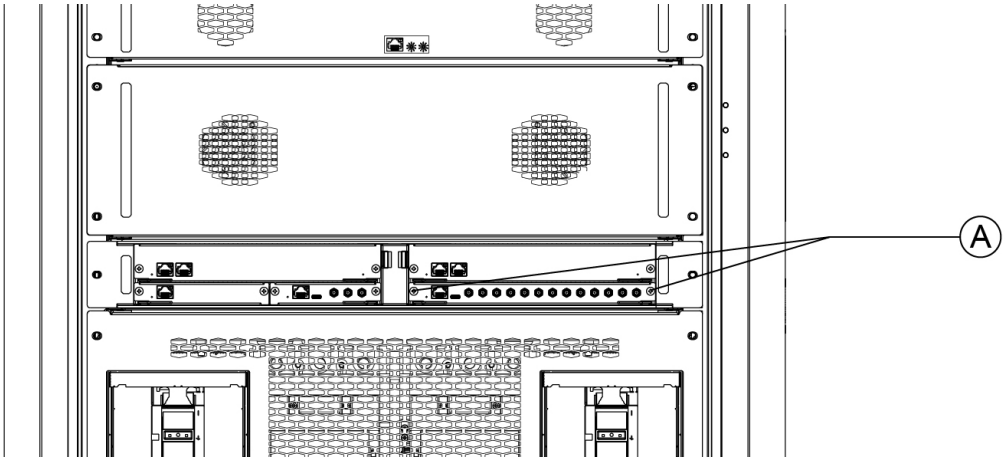


Figure 5-22 Loosening the Screws

3. Slide to open the left SIM card slot cover.

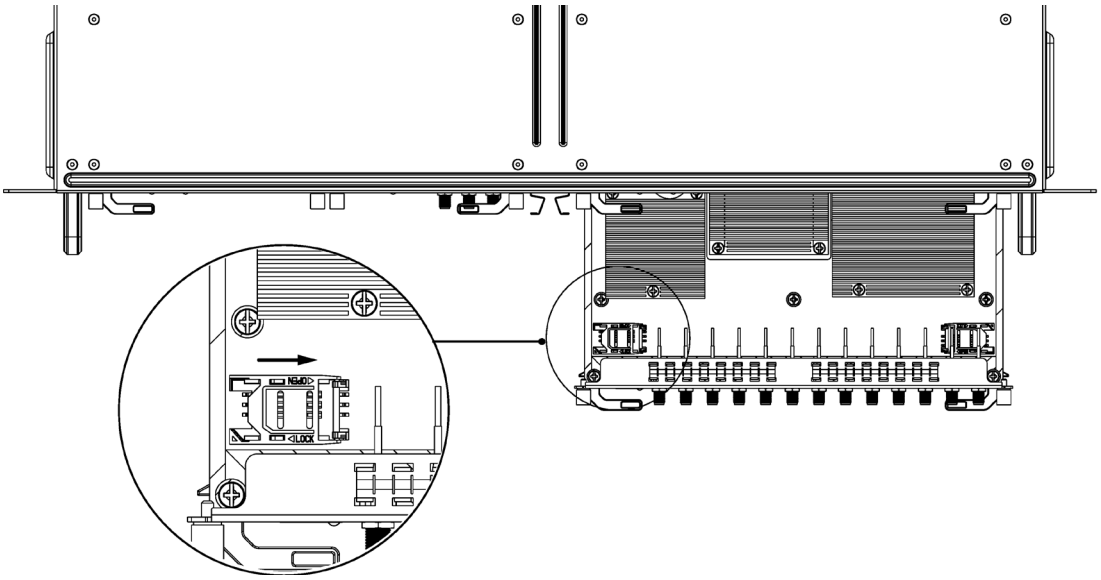


Figure 5-23 Opening the SIM Card Slot Cover

4. Place the SIM card into the slot. Ensure the card is placed correctly.

5. Close the SIM card slot cover. Push the RBU back in place and tighten the two screws using a Phillips screwdriver.

To install SIM card 2, refer to the steps above to install the card into the right card slot of the RBU.

5.5 Installing the Charging Module (Optional)

Follow the steps below to install the charging modules, if needed.

1. Slowly push the module into the slot. Ensure the module is properly installed. **The handle installed on the module should be on the right side and face outward**.

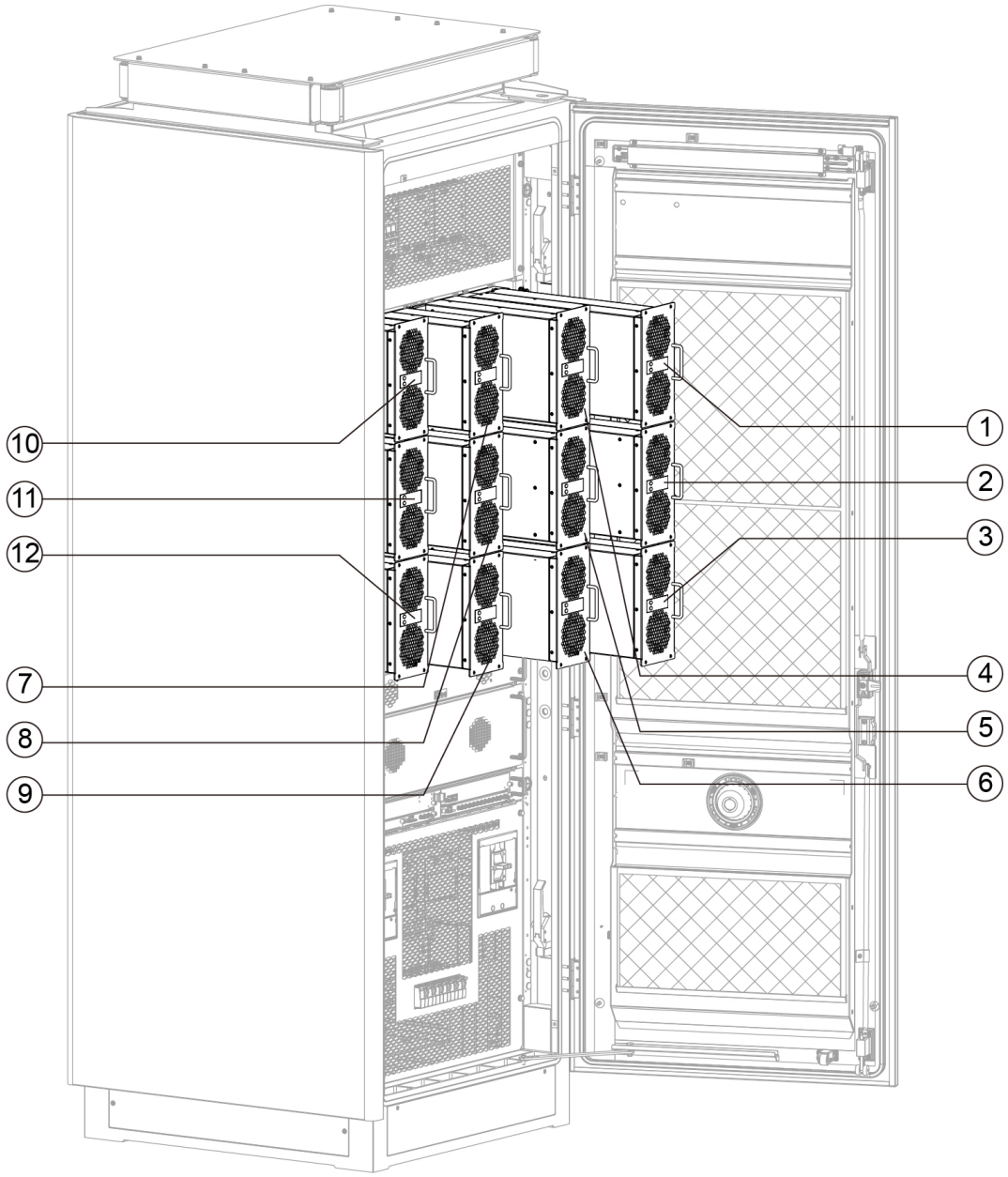


Figure 5-24 Charging Module Location

NOTICE

The above illustration is for reference only. Install the charging modules based on the location number.

Table 5-1 Charging Module Installation Specifications

Rated Power	Number of Modules	Location
120 kW	3 PCS	3, 6, 12
160 kW	4 PCS	3, 6, 9, 12
200 kW	5 PCS	2, 3, 6, 9, 12
240 kW	6 PCS	2, 3, 5, 6, 9, 12
280 kW	7 PCS	2, 3, 5, 6, 9, 11, 12
320 kW	8 PCS	2, 3, 5, 6, 8, 9, 11, 12
360 kW	9 PCS	1, 2, 3, 5, 6, 8, 9, 11, 12
400 kW	10 PCS	1, 2, 3, 4, 5, 6, 8, 9, 11, 12
440 kW	11 PCS	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12
480 kW	12 PCS	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

2. Install and torque the M4 x 10 screws to 1 ± 0.1 N·m using a Phillips screwdriver to secure the module.

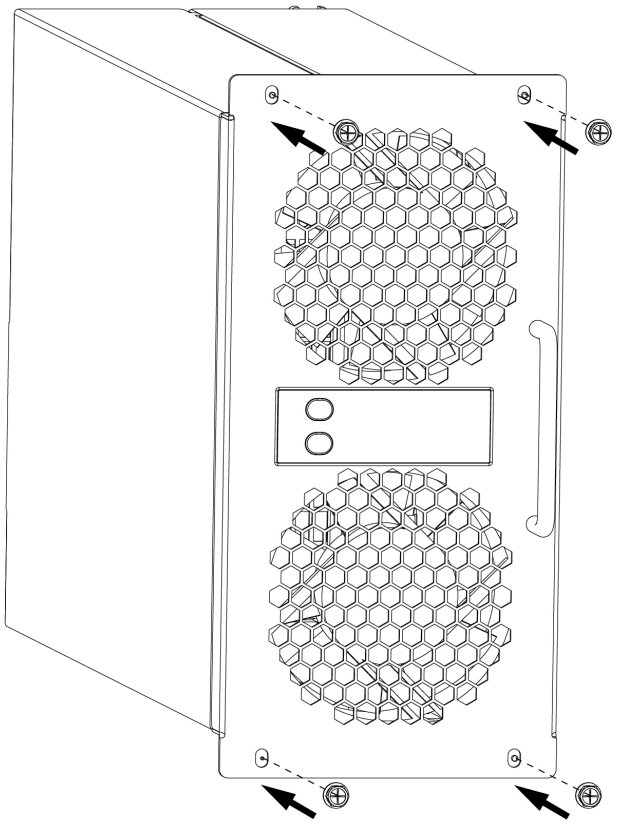


Figure 5-25 Tightening the Screws

3. After the installation is completed, set the hardware address. For details, refer to *MaxiCharger DH480 Spare Parts Replacement Manual*.

Seal the slots where the charging modules are not installed with filler modules:

1. Slowly push the filler module into the slot.

2. Install and torque the M4 x 10 screws to 1 ± 0.1 N·m using a Phillips screwdriver to secure the module.

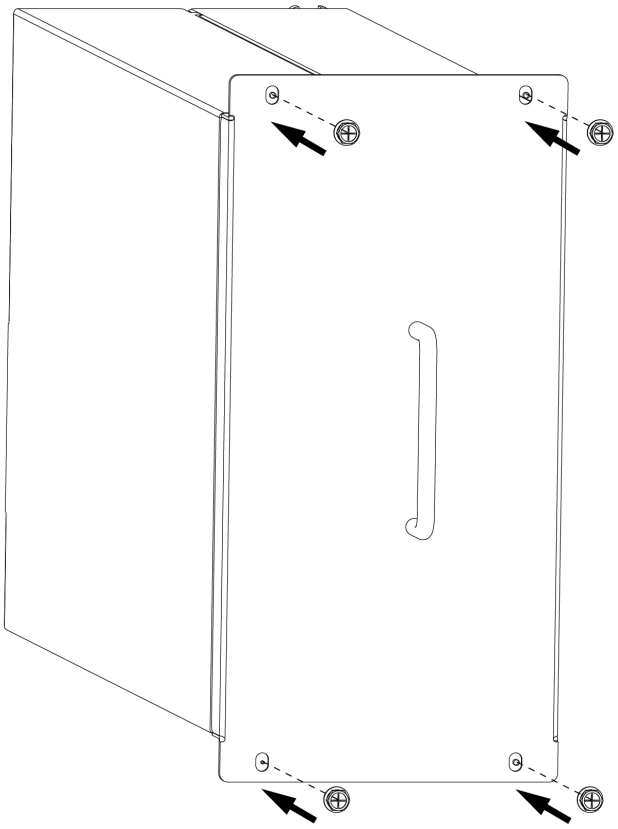


Figure 5-26 Installing the Filler Module

5.6 Finishing Installation

1. Apply fireproof mortar to seal any gaps or clearances.

2. Reinstall the cover plate.

3. Close the left and right doors and lock them using the cabinet door key. Ensure no debris is left inside.

6. Operation

6.1 Before Use

- Ensure that the charging station is installed according to the instructions in this manual.
- Ensure the MCCB and MCB stay in the **OFF** position.
- Make an emergency plan that instructs people what to do in case of an emergency.
- Provide the instructions for emergency stop and charge session to the user.
- The manufacturer or a trained technician should perform the commissioning work.
- The space around the charging station shall not be blocked by snow or other objects.
- Ensure that the maintenance work has been carried out on the charging station.

6.2 Powering Up the Charging Station

1. Ensure that the upstream breaker stays in the **OFF** position and locked before powering up the charging station.

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

3. Use the multimeter to check the resistance between the PE bus bar at the upstream distribution cabinet and the PE bus bar inside the charging station, and ensure it complies with IEC60364-4-41. Make sure the correct connection between the PE bus bar at the upstream distribution cabinet and the PE bus bar inside the charging station.

4. Use the multimeter to check the following voltages, which need to meet the rated voltage demand of the charging station:

    1) Check the input voltage of the upstream breaker.

    2) Turn on the upstream breaker, and then check the output voltage of the breaker.

    3) Check the voltage of the MCCB in the charging station.

    4) Check the voltage of the MCB and RCD in the charging station.

5. Turn on the MCCB and MCB.

6. Close the doors of the cabinet.

6.3 Preparing for Commissioning

DANGER

Hazardous voltage

Only a service engineer from the manufacturer is qualified to commission the charging station.

1. Ensure that the site complies with these requirements:
   - The charging station is installed as instructed in this manual.
   - The grid can support the AC input power.
   - Internet access, cellular network or Ethernet connection is available.
   - EVs compatible with every charging handle of the charging station must be available for commissioning work.
   - A site operator or owner is present to receive instructions from the service engineer of the manufacturer.
2. Ensure that the information below is available:
   - Site name
   - Address of the charging station
   - Longitude and latitude of the charging station. If there are more than one charging station on one location, the coordinates should be slightly different (at least 0.0001 degree) so that not all the equipment is at the same location on the map.
   - Photo of the surroundings of the charging station
   - Specification of the external fuse at the electrical panel
   - Date of installation completion
   - Contact information of the contact person on site
   - Special remarks

6.4 Synchronizing Configuration

6.4.1 Installation Task

1. Scan the QR code below to download and install the Autel Config app to your mobile device from the Google Play or App Store.

2. Log in to the Autel Config app by inputting the account and password.

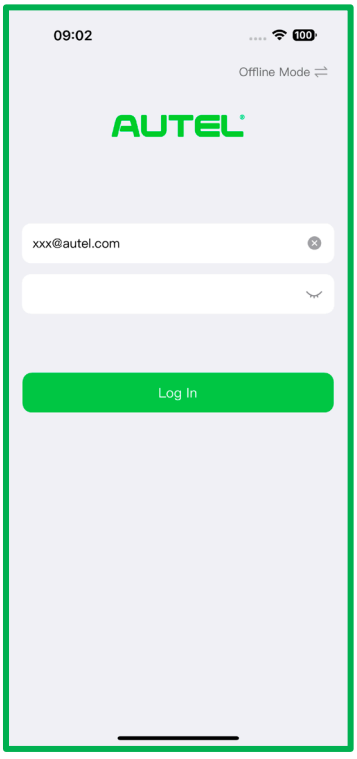


Figure 6-1 Log-in Screen

When launching the app, the region will be automatically determined. Manual region switching is also available. Choose based on your region.

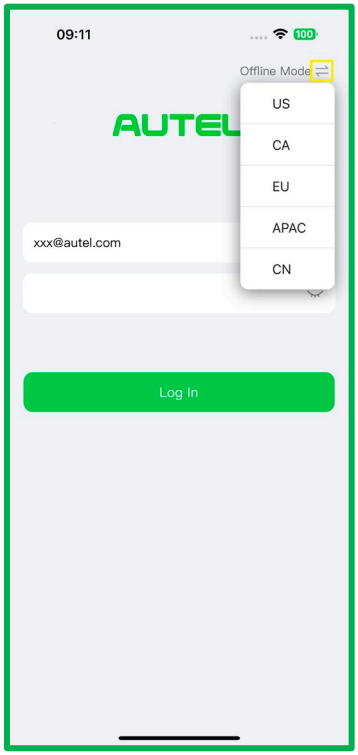


Figure 6-2 Switching Region Screen

NOTICE

- Make sure all devices and the Autel Config app are running the latest software versions.
- When the owner or site operator invites a user as the installer, the user will receive an email with a link where an account for the Autel Config app can be created and the password for the account can be set. Use the account and password created and set via the link here.
- If the installer and the commissioning personnel are two different people, the commissioning personnel can access the account and password for logging in to the Autel Config app in the same way as the installer.
- The figures depicted below may differ slightly from the actual product.

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3. On the Tickets screen, select **Installation Ticket (Task: Installation)**.

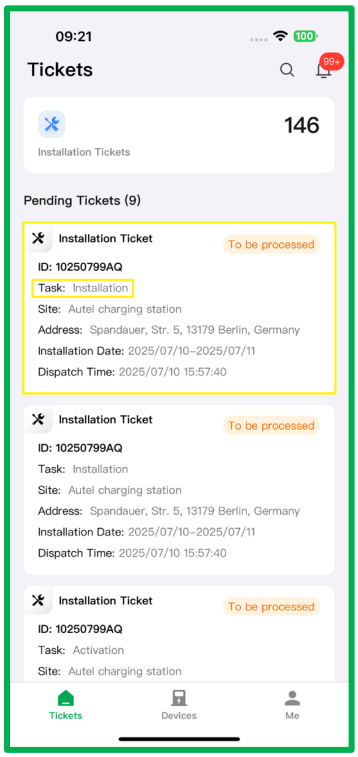

Figure 6-3 Tickets Screen

4. On the Ticket Details screen, click on **Start Processing** to proceed.

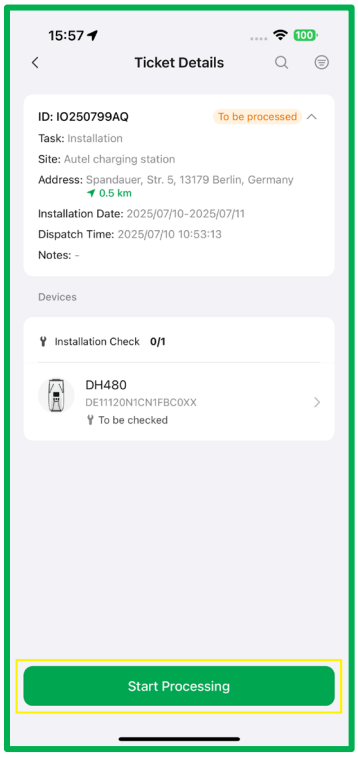

Figure 6-4 Ticket Details Screen

5. (Optional) Click on **Scan** and scan the QR code on the charging station to enter the Installation Check screen.

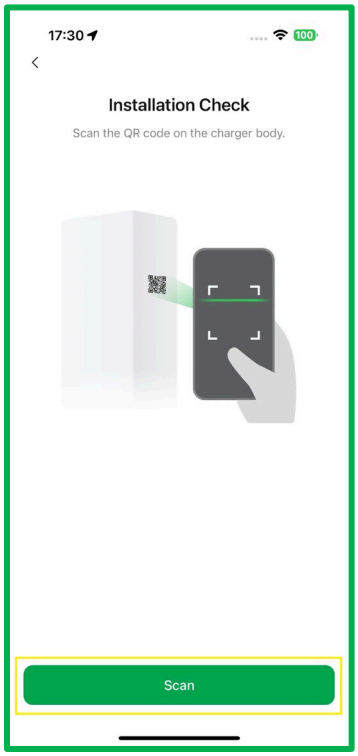

Figure 6-5 Scanning the QR Code Screen

NOTICE

This step is not required if there is only one charging station at the site.

6. Click on **Start Check** to proceed.

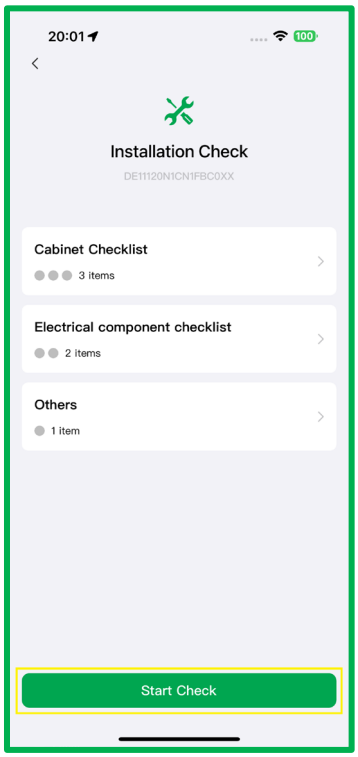

Figure 6-6 Installation Check Screen

7. Check each item one by one. Follow the prompts on the screen to proceed.

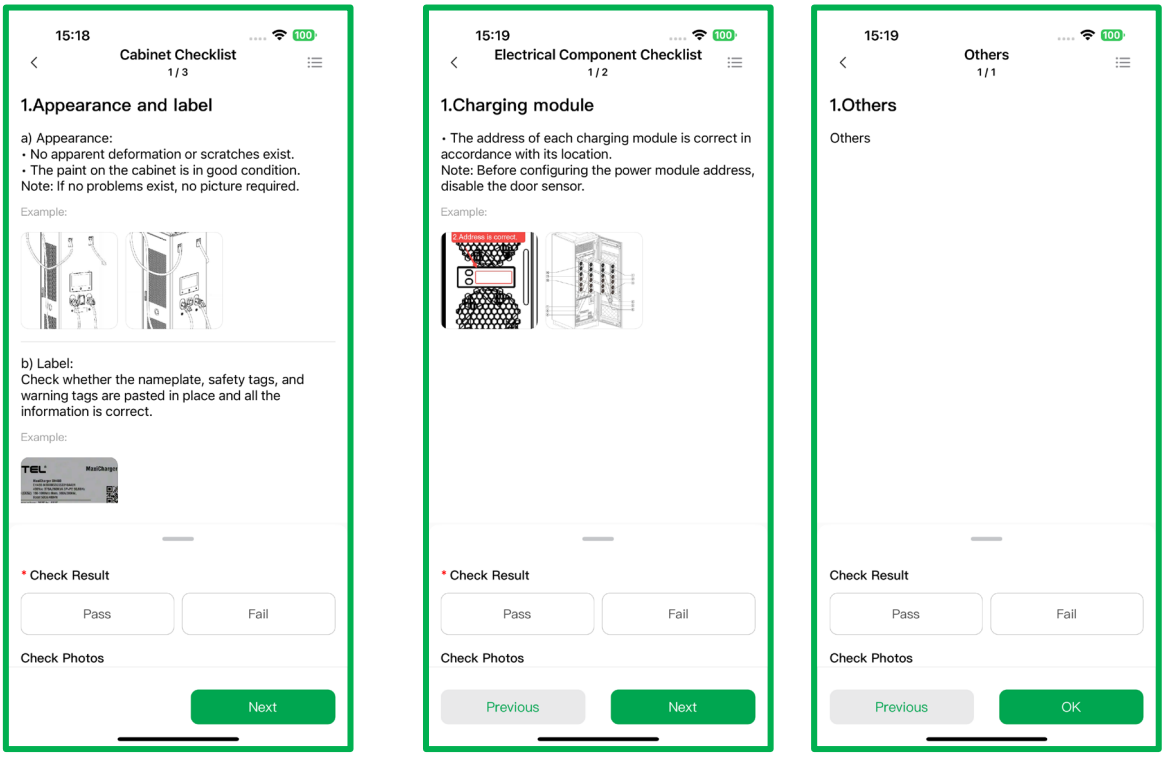

Figure 6-7 Checklist Screens

NOTICE

- The items marked with asterisk are mandatory.
- The installation ticket with items that did not pass check will be marked as "**Fail**", and detailed results can be checked on the Autel Operation and Maintenance Platform and related ticket on the Autel Config APP.

8. Click on **OK** to confirm completion.

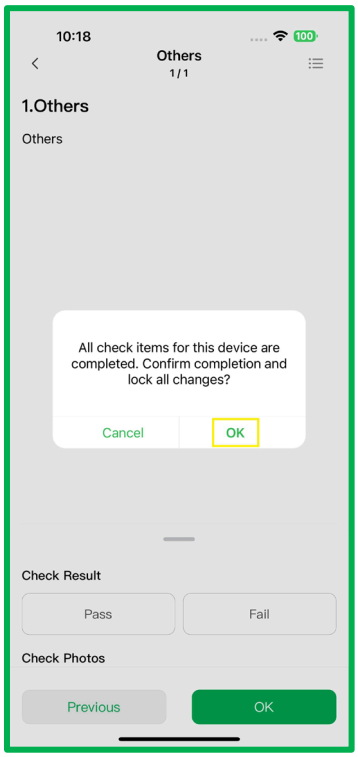

Figure 6-8 Confirming Completion Screen

9. Click on "**<**" on the upper left of the screen to go back to the Ticket Details screen. Then click on **Complete Ticket** to end the task of Installation.

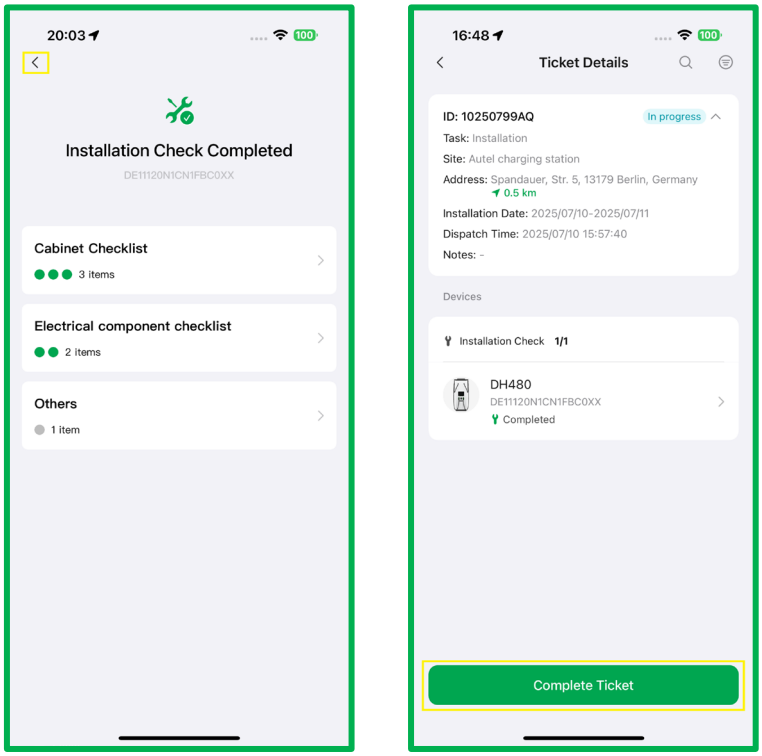

Figure 6-9 Installation Check Completed and Ticket Details Screens

6.4.2 Activation Task

1. Download and install the Autel Config app and log in to the app as instructed in **Step 1** and **2** in section *6.4.1*.

NOTICE

If the **Installation** and **Activation** tasks are done by the same technician, skip **step 1** to proceed.

2. On the Tickets screen, click on **Installation Ticket (Task: Activation)** to check the ticket details.

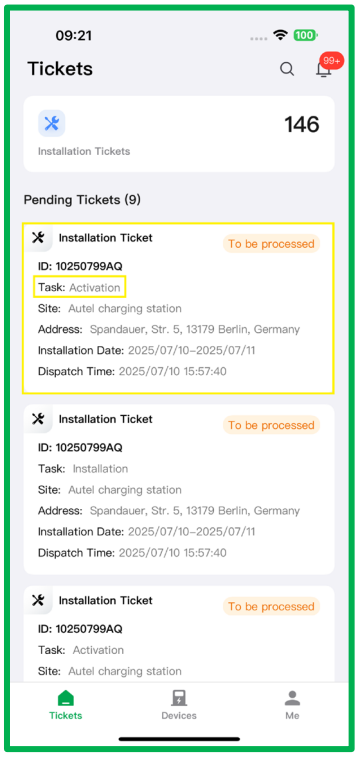

Figure 6-10 Tickets Screen

3. On the Ticket Details screen, click on **Start Processing** to proceed.

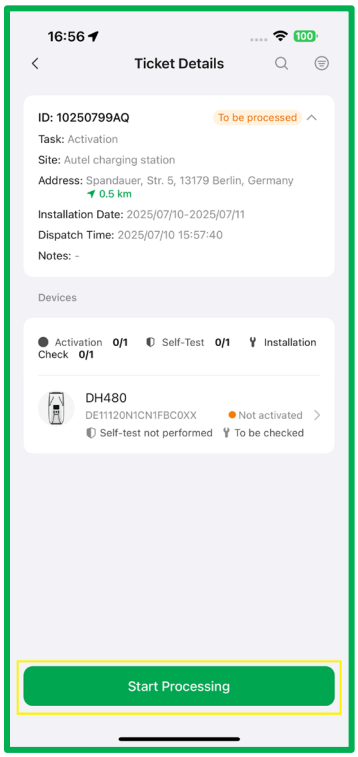

Figure 6-11 Ticket Details Screen

4. Click on **Scan** to scan the QR code on the charging station's screen to synchronize the configuration and activate the equipment.

Figure 6-12 Scanning the QR Code Screen

5. Configure the network for the charging station. You can choose to connect the equipment to the Internet via Wi-Fi or cellular network.

a) **Via Wi-Fi:** Select **Wi-Fi Configuration** and configure the Wi-Fi by entering the Wi-Fi name and password. Then click on **Next** to proceed.

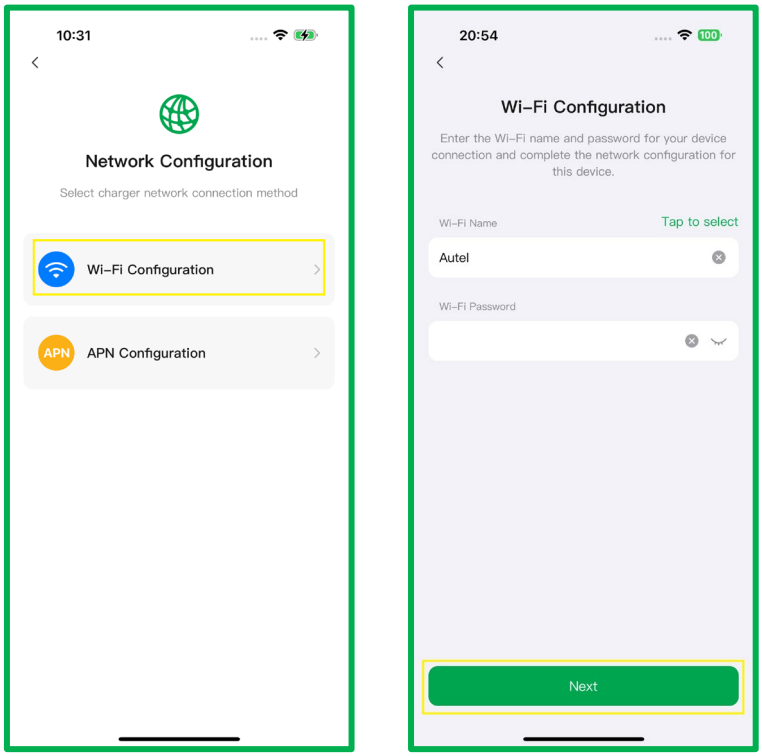

Figure 6-13 Network Configuration and Wi-Fi Configuration Screens

b) **Via cellular network:** Select **APN Configuration** and enable the cellular data switch of the SIM card. Then click on **Next** to proceed.

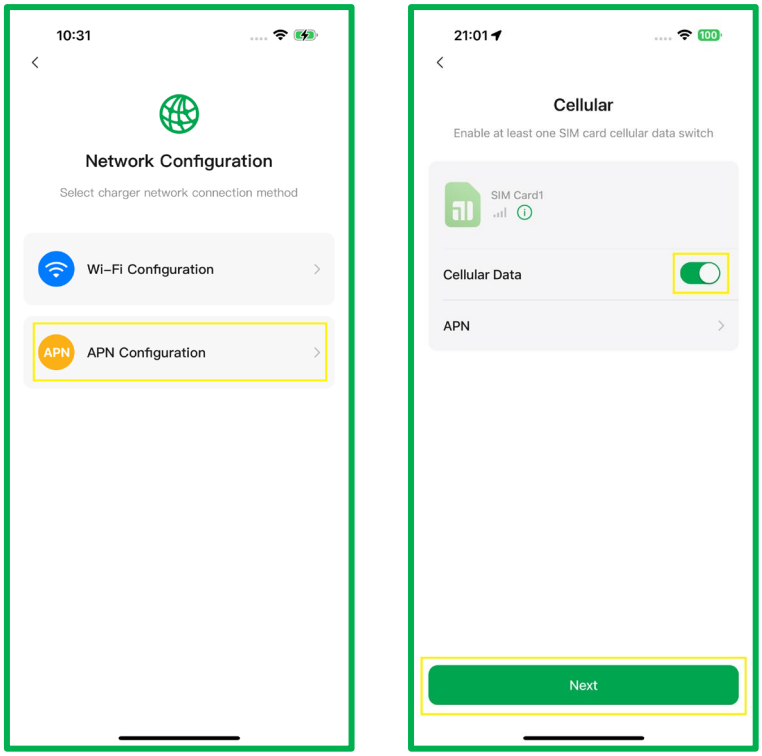

Figure 6-14 Network Configuration and APN Configuration Screens

NOTICE

- If the Wi-Fi or APN has been configured during the site creation and configuration, its name and password will be entered by default. A new Wi-Fi or a new APN can be set manually.
- The number of SIM card varies depending on how many cards are used in the equipment.

6. Hold your mobile device near the charging station to connect to its hotspot.

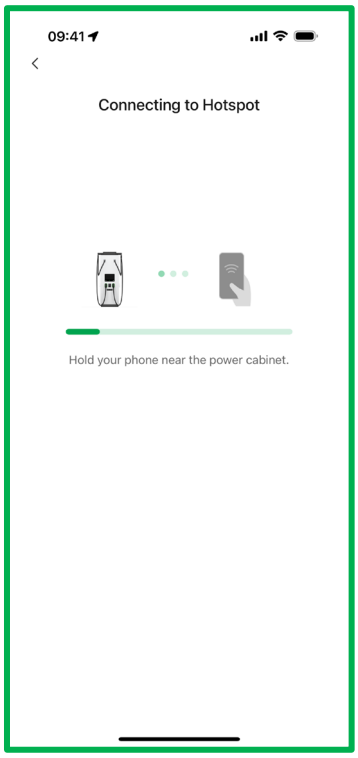

Figure 6-15 Connecting to Hotspot Screen

7. After your mobile device is connected to the hotspot of the charging station, the configuration will be synchronized to it.

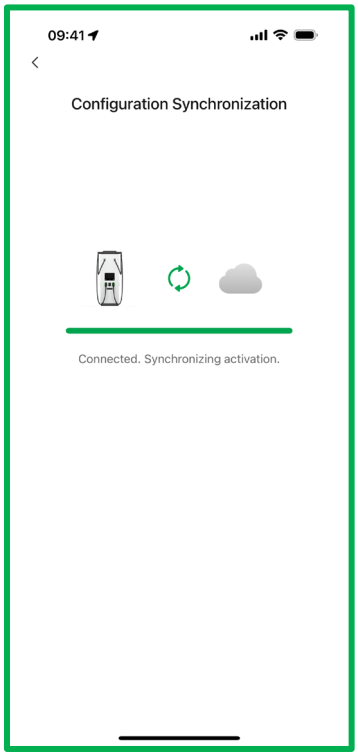

Figure 6-16 Configuration Synchronization Screen

8. After the configuration is synchronized, the charging station will get activated. Click on **Check** to conduct post-activation check**.**

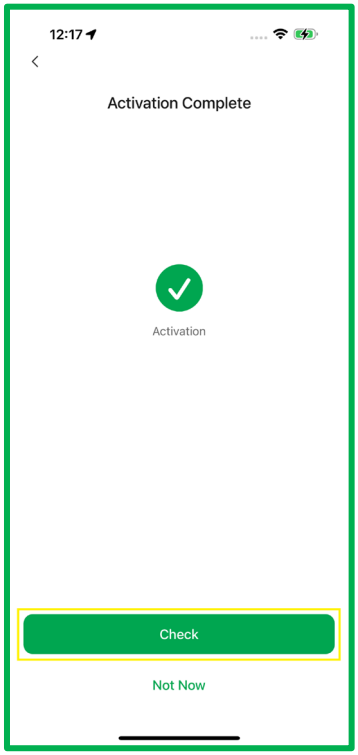

Figure 6-17 Activation Complete Screen

NOTICE

- After the charging station is activated, the self-test will get started automatically.
- If you select **Not Now** here, choose the device as required and follow the prompts on the screen to proceed.

9. On the Post-activation Check screen, click on **Start Check** to proceed.

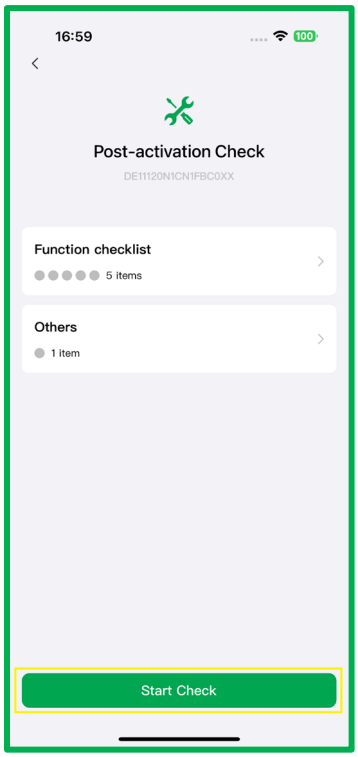

Figure 6-18 Post-activation Check Screen

10. Check each item one by one. Follow the prompts on the screen to proceed.

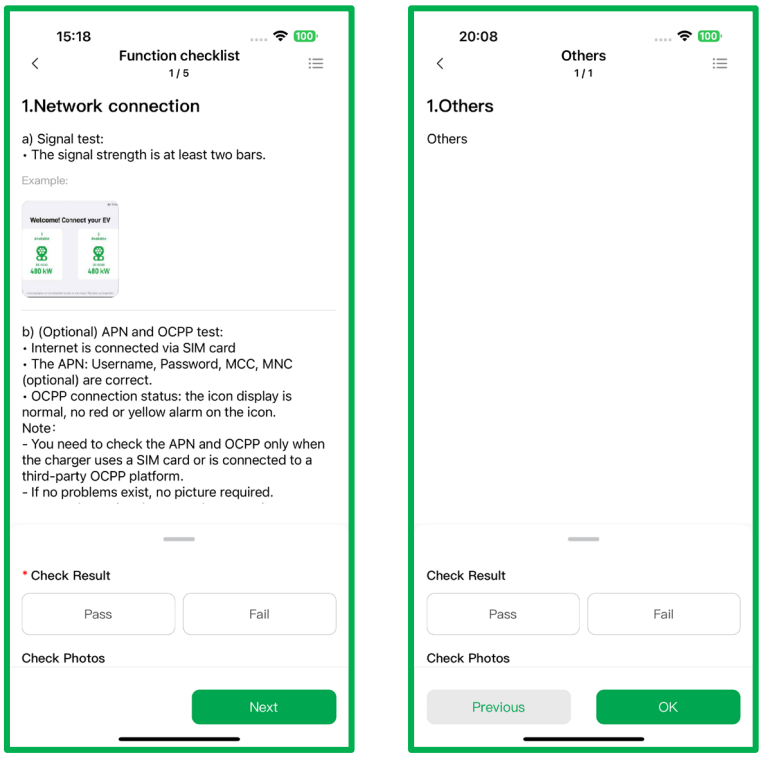

Figure 6-19 Checklist Screens

NOTICE

- The items marked with asterisk are mandatory.
- The installation ticket with items that did not pass check will be marked as "**Fail**", and detailed results can be checked on the Autel Operation and Maintenance Platform and related ticket on the Autel Config APP.

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11. Click on **Complete** and then **OK** to confirm completion.

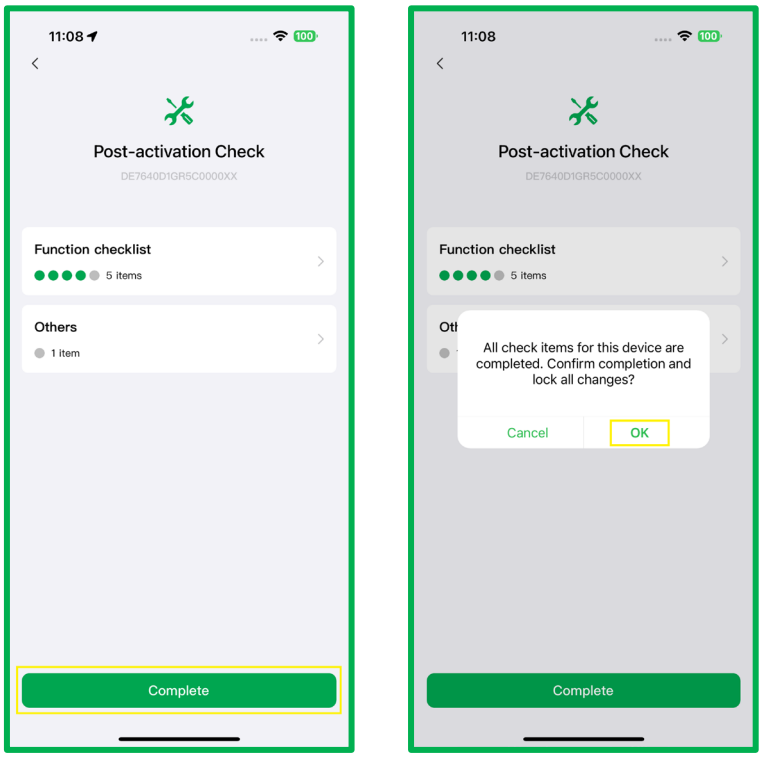


Figure 6-20 Post-activation Check Screens

12. Click on "**<**" on the upper left of the screen to go back to the Ticket Details screen. Then click on **Complete Ticket** to finish the Activation task.

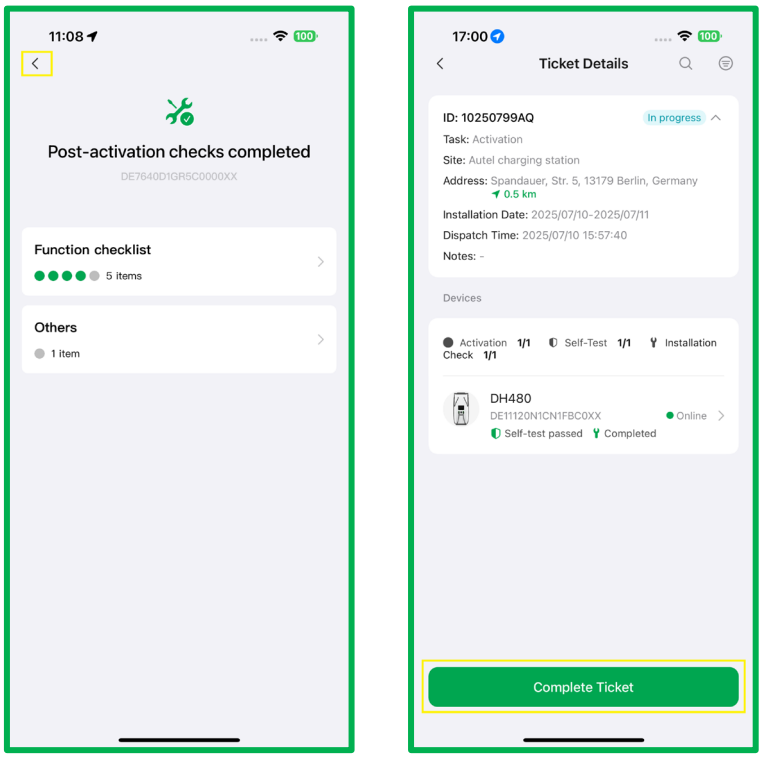


Figure 6-21 Post-activation Completed and Ticket Details Screens

NOTICE

For the proper operation of the liquid-cooled charging station, ensure the liquid coolant is filled into the cooling unit. Please refer to the *MaxiCharger DH480 Spare Parts Replacement Manual* for detailed instructions.

6.5 Emergency Situations

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

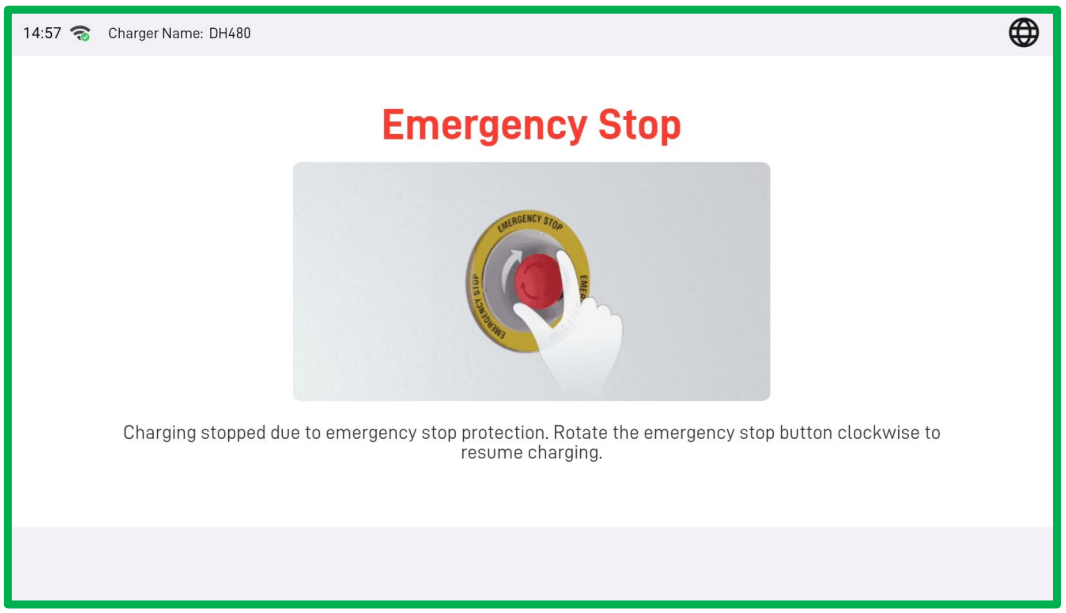


Figure 6-22 Fault Message Screen (not legal relevant)

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

6.6 Charge Sessions

WARNING

- **Do Not** cover the vent during charging.
- **Do Not** clean or operate in your EV during charging.

NOTICE

The display may vary depending on the charging station's configuration.

General charging procedure:

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

6.6.1 Standby Screen

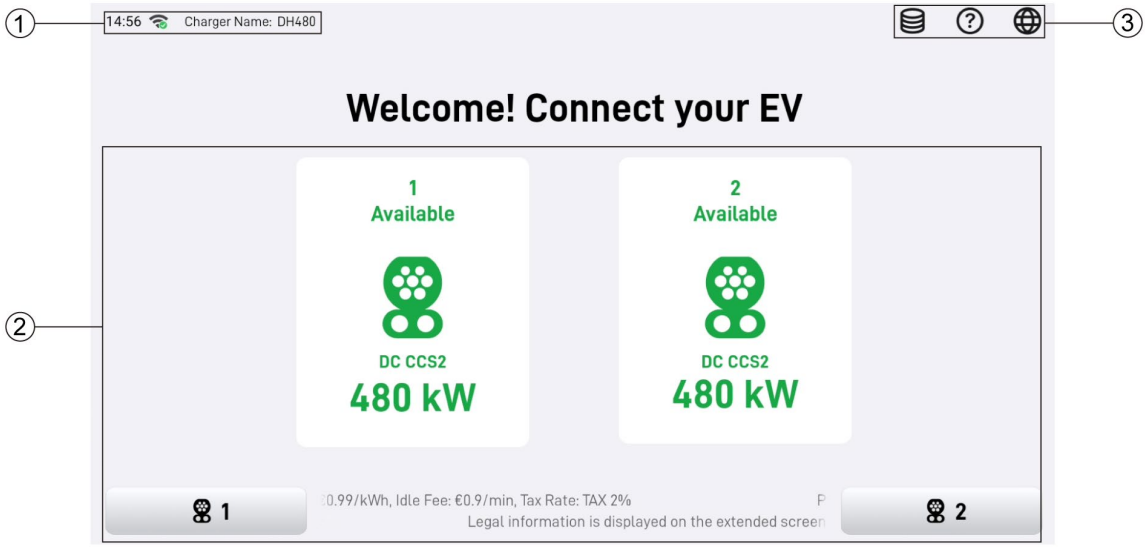


Figure 6-23 Standby Screen (not legal relevant)

1. Time, Internet icon, and charging station name
2. Standby screen
3. Pricing details, user guide, and language options

After a charging handle is successfully connected to the EV, the charging station can automatically recognize the charging handle and the corresponding charging handle'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 the charging handle on the touchscreen to exit the standby screen.

NOTICE

The displayed power may vary depending on the charging station's configuration.

6.6.2 Authorization

CAUTION

- Before starting a charge session, observe the screen for any abnormality, such as an error message. Check the surroundings and the charging station for any abnormality or damage as well.
- **DO NOT** operate the charging station if the screen displays an error message. Contact Autel technical support.

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

- Autocharge/Plug & Charge (supports the ISO 15118 PnC function)
- RFID card
- Scan the QR code on the screen
- Credit card (optional)

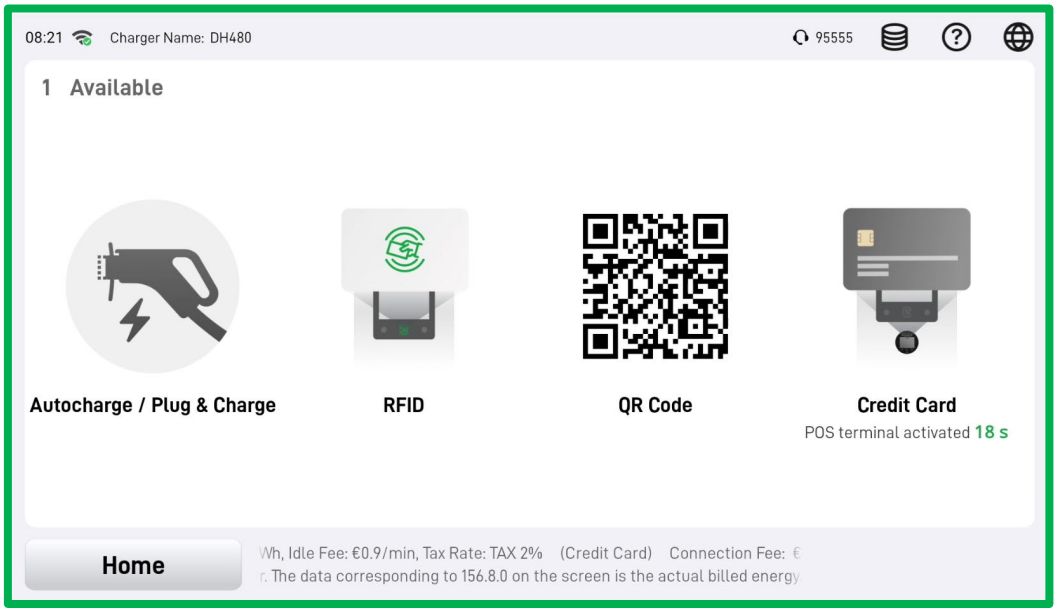


Figure 6-24 Authorization Screen (not legal relevant)

NOTICE

Swipe only one credit or RFID card at a time. Stacking cards may cause charging failures.

6.6.3 Start Charging

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

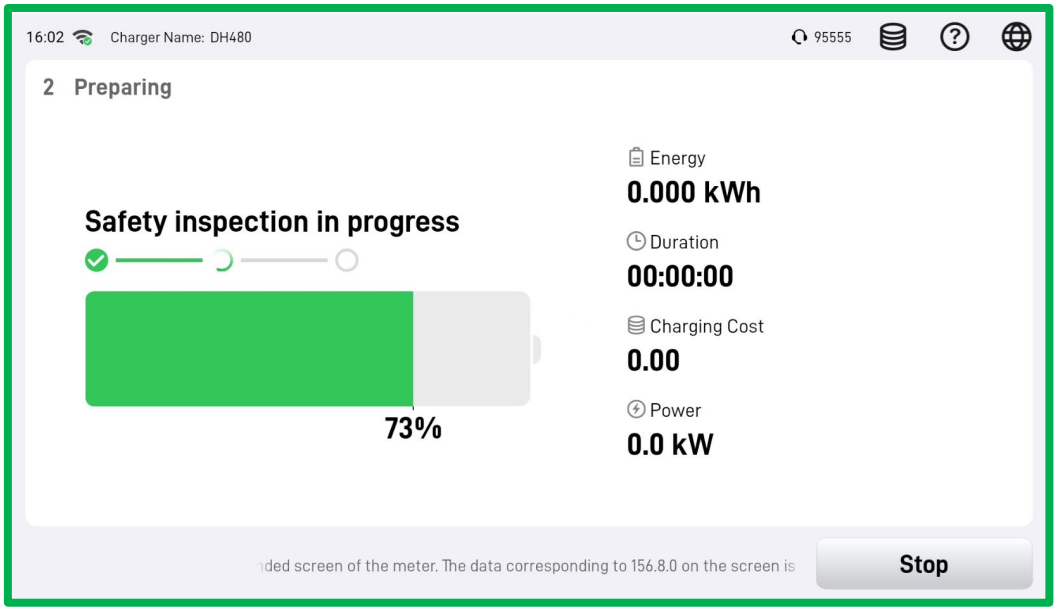


Figure6-25 Connecting Screen (not legal relevant)

6.6.4 Charging

Information about the charging process, remaining time, energy, charging duration, charging cost, and power will appear on the Charging screen.

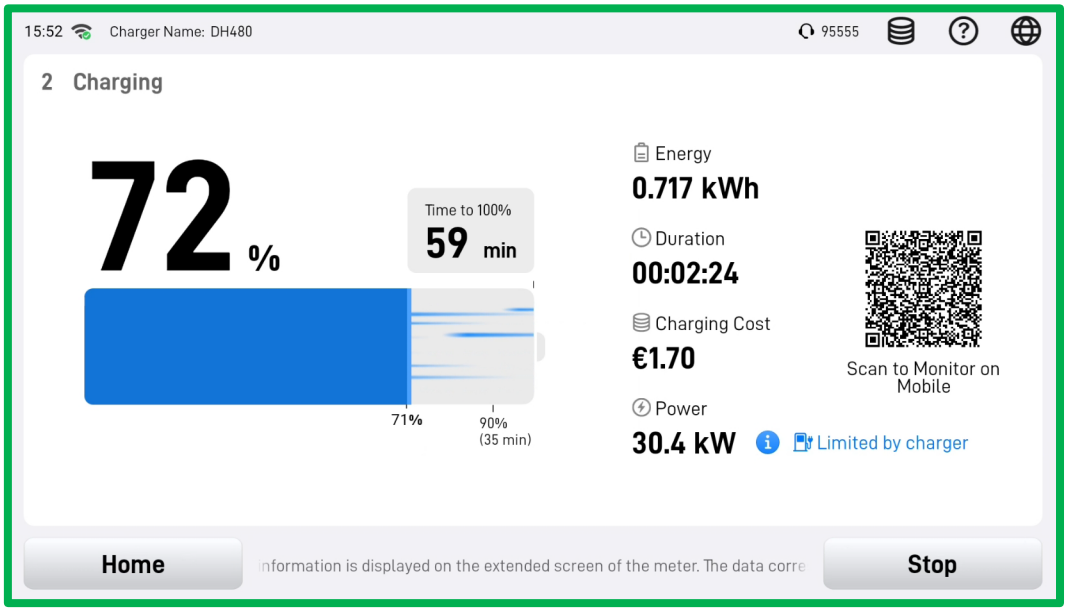


Figure 6-26 Charging Screen (not legal relevant)

6.6.5 Stop Charging

The way to stop charging will vary depending on the way to start charging:

- Credit Card/Plug & Charge/Autocharge: Tap the **Stop** button on the touchscreen.
- QR Code: 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. If needed, click the **Email** icon on the screen and enter your email address to obtain the receipt, the public key, and OCMF data.

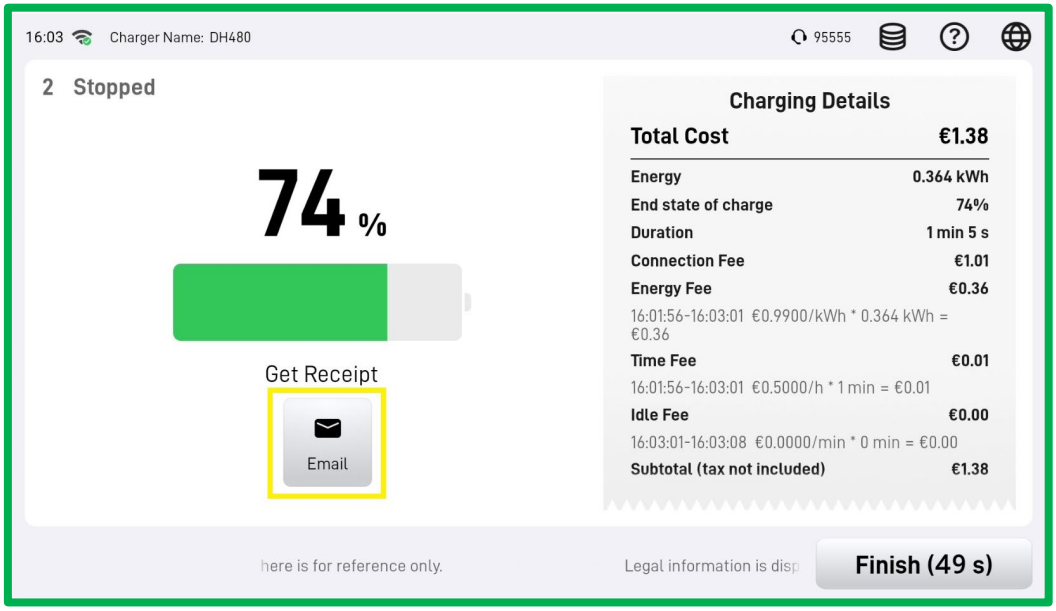


Figure 6-27 Charging Details Screen (not legal relevant)

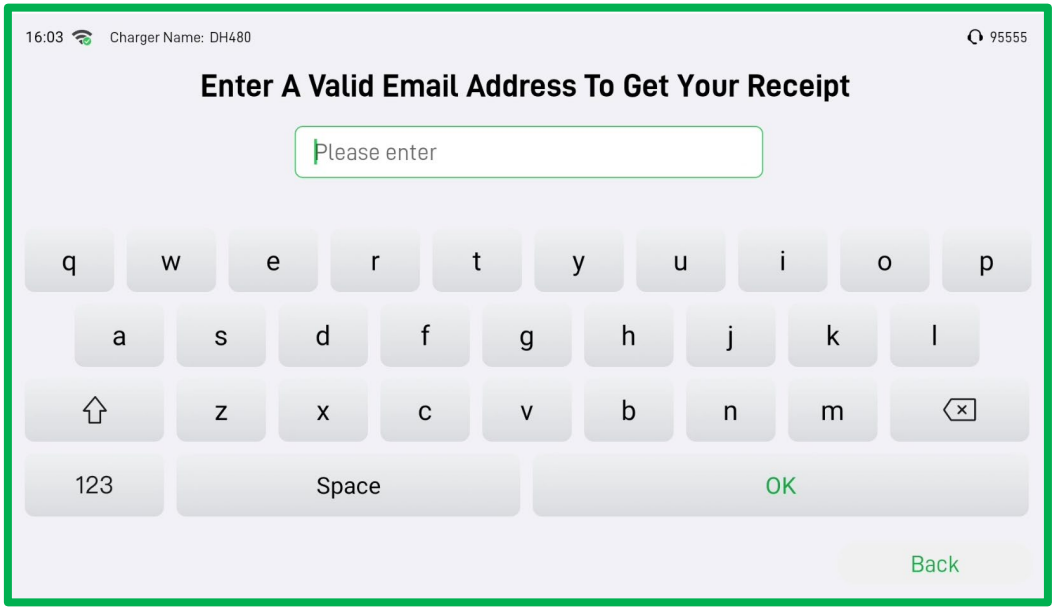


Figure 6-28 Entering the Email Address Screen (not legal relevant)

The receipt is as follows.

AUTEL

Site: Germany_Autel

Address: Spandauer, Str. 5, 13179 Berlin, Germany

Transaction ID: **AU25062300098940**

Connector: **DE7480B2GS1C00010R, Port B**

Maximum Rating: **480.0kW DC**

Start Time: **2025-06-23 16:01:56**

End Time: **2025-06-23 16:03:01**

Reason for Stopping: **Remote stop**

Energy Delivery Duration: **1 min 5 s**

Energy: **0.364 kWh**

Payment Status: **Paid**

Item	Period	Unit Price	Details	Fee
Energy Fee	Mon.16:01:56-16:03:01	€0.990/kWh	0.364 kWh	€0.36
				Subtotal: €0.36
Charging Time Fee	Mon. 16:01:56-16:03:01	€0.500/h	16:01:56-16:03:01 (1 min)	€0.01
				Subtotal: €0.01
Idle Fee	Mon.16:03:01-16:03:19	€0.000/min	16:03:01-16:03:19 (0 min)	€0.00
				Subtotal: €0.00
Connection Fee				€1.01

Amount Payable: **€1.38**

Amount Paid: **€1.38**

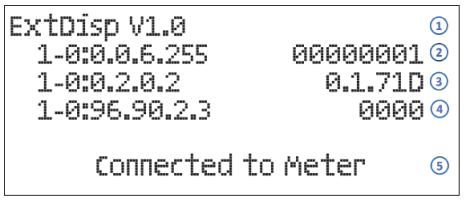
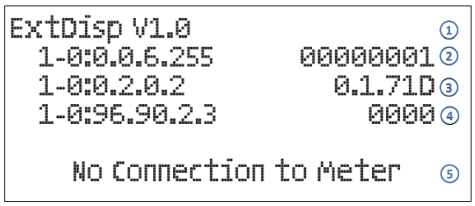
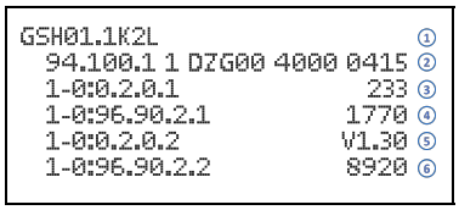
Figure 6-29 Receipt (not legal relevant)

6.6.6 Finish Charging

Return the charging handle to the socket on the charging station.

6.6.7 Meter Display

Table 6-1 Meter Display Descriptions

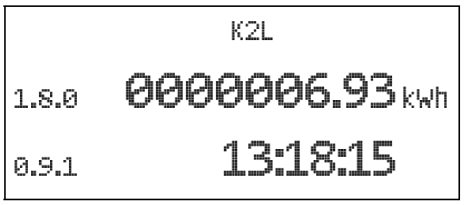
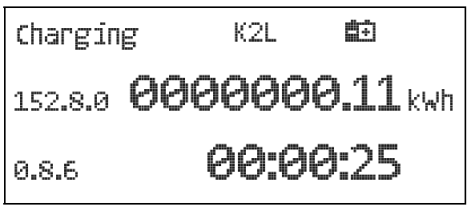
<table>
<tr><th>Status</th><th>Display/Figure</th><th>Description</th></tr>
<tr><td>Meter Connected</td><td> 
</td><td>
<table>
<tr><th>Line</th><th>OBIS</th><th>Information</th></tr>
<tr><td>1</td><td></td><td>Type</td></tr>
<tr><td>2</td><td>1-0:0.0.6.255</td><td>Reserved for future use</td></tr>
<tr><td>3</td><td>1-0:0.2.0.2</td><td>Firmware version</td></tr>
<tr><td>4</td><td>1-0:96.90.2.3</td><td>Firmware checksum</td></tr>
<tr><td>5</td><td></td><td>Pairing status</td></tr>
</table>
</td></tr>
<tr><td>Meter Not Connected</td><td> 
</td><td>
<table>
<tr><th>Line</th><th>OBIS</th><th>Information</th></tr>
<tr><td>1</td><td></td><td>Type</td></tr>
<tr><td>2</td><td>1-0:0.0.6.255</td><td>Reserved for future use</td></tr>
<tr><td>3</td><td>1-0:0.2.0.2</td><td>Firmware version</td></tr>
<tr><td>4</td><td>1-0:96.90.2.3</td><td>Firmware checksum</td></tr>
<tr><td>5</td><td></td><td>Pairing status</td></tr>
</table>
</td></tr>
<tr><td>Initialisation Display Meter</td><td> 
</td><td>
<table>
<tr><th>Line</th><th>OBIS</th><th>Information</th></tr>
<tr><td>1</td><td></td><td>Type designation of the meter</td></tr>
<tr><td>2</td><td>94.100.1</td><td>Meter-ID according to DIN 43863-5 [3]</td></tr>
<tr><td>3</td><td>1-0:0.2.0.1</td><td>Application Firmware Version</td></tr>
<tr><td>4</td><td>1-0:96.90.2.1</td><td>Application Firmware Checksum</td></tr>
<tr><td>5</td><td>1-0:0.2.0.2</td><td>Metering Firmware Version</td></tr>
<tr><td>6</td><td>1-0:96.90.2.2</td><td>Metering Firmware Checksum</td></tr>
</table>
</td></tr>
<tr><td>Meter Public Key Display</td><td> 
</td><td>The Meter Public Key Display shows the following information from the connected GSH01:

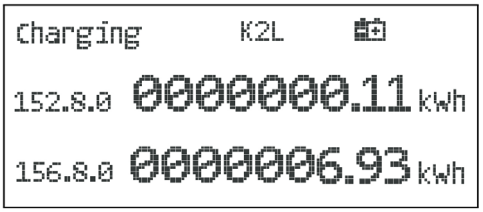
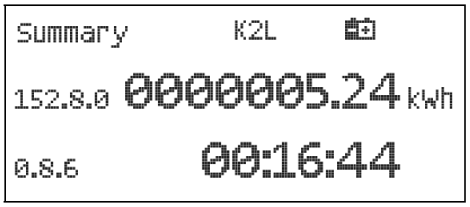
1. Meter-ID according to DIN 43863-5 [3]

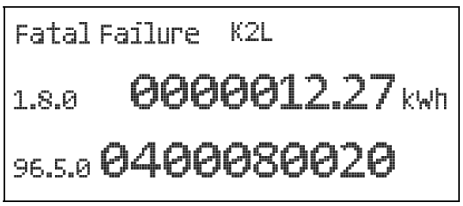
2. Public Key as QR-Code

This display is shown once per turn for 5 seconds in the Normal Operation Display, Charging Display and the Charging Summary Display.

By short presses on either user button, this display can be called up in the above mentioned displays.</td></tr>
</table>

Normal Operation Display		– During the *Normal Operation Display*, all meter readings obtained from the meter in general outside of a charging process as well as general information of the meter can be displayed as shown in the figure. – During the scrolling display, the *Meter Public Key Display* is displayed once per cycle for 5 seconds. – The values to be displayed are rotated according to a configurable interval. The standard setting is 6 seconds. – All billing relevant values are displayed in the upper line and all informative values in the lower line. – The registers in the bottom line (informative registers) can be altered by the user at any time. – The general information of the meter is displayed with symbols in the headline. An explanation of the displayed symbols can be found in section *6.6.8*. – Starting a charging session during the *Normal Operation Display* results in a transition to the *Charging Display*. – If a fatal error occurs within this state, the display will enter the *Fatal Error Display*.
Charging Display		– The backlight remains on during charging. – All billing relevant values are displayed in the upper line and all informative values in the lower line as illustrated in the figure. – The values are rotated by the configured time period. – During the scrolling display, the *Meter Public Key Display* is displayed periodically for 5 seconds.

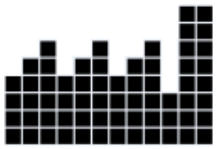
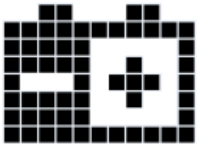
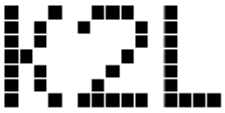
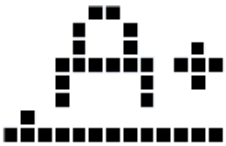
		– Charging is displayed in the left half of the headline. All other shown symbols are described in more detail in section *6.6.8*. – The registers in the bottom line (informative registers) can be altered by the user at any time. – If a fatal error occurs within this state, the display will enter the *Fatal Error Display*. – After stopping the charging session the display transits into the *Charging Summary Display*.
		The data following 152.8.0 represents the energy for each charging order, while the data following 156.8.0 represents the compensated energy recorded in the OCMF data.
Charging Summary Display		– The backlight remains on during the *Charging Summary Display*. – The *Charging Summary Display* is a summary of the charging process that has just been carried out. – All meter values necessary for a complete billing procedure should be shown to the customer as shown in the figure. – All values are also displayed in rotation. – All billing relevant values are shown in the upper line of the display whereas all informative values are displayed in the lower line. – "Summary" is displayed in the left half of the headline. – During the scrolling display, the *Meter Public Key Display* is displayed periodically for 5 seconds.

		– All other symbols are described in section *6.6.8* in more detail. – The display will repeat the rotation 18 times; one iteration takes 10 seconds. – All listed registers are written to the meter during production. – The registers in the bottom line (informative registers) can be altered by the user at any time. – If a fatal error occurs within this state, the display will enter the *Fatal Error Display*.
Fatal Error Display		If the meter detects a fatal failure, the external display ED-DC-01 will show Fatal Failure in its headline. The other displays are not affected as long as the meter is providing the data.

6.6.8 Meter Display Symbols

During *Normal Operation Display*, *Charging Display* and *Charging Summary Display* some symbols can be visible. These symbols extend the displayed information by meter status information flags. The following symbols are possible:

Table 6-2 Display Symbols

Status	Symbol	Description
Production Mode		Indicates a currently active production mode of the meter. This Mode is only available during production of the meter. The symbol remains visible as long as the production mode is active.
Assembling Mode		Indicates a currently active assembling mode of the meter. This mode is only available during assembly of the charging point. The symbol remains visible as long as the assembling mode is active.
Charging		Indicates charging, either during active charging or while viewing the summary.
Measurement Mode		Indicate the currently active line loss energy measurement mode of the Meter is K2L, which means that the meter calculates the line losses according to a given line impedance.
Start Current Reached		Indicate that the measured current reached the starting threshold. At this point the meters is within the measurement range and starts measuring.

6.7 Charging Errors

This section depicts several common problems that may arise during a charge session along with possible causes/solutions to resolve them. If the problem persists, contact Autel technical support.

6.7.1 Charging Handle Connection Error

If the charging handle is not connected to the EV, then the Connector Not Connected screen will appear. Disconnect completely, then plug in the EV and recheck the screen to see if the error message is resolved.

6.7.2 Authorization Failure

The Authorization Failure screen appears when there is an error processing the chosen authentication method. The cause and possible solution(s) will display on the screen. Follow the on-screen instructions to resolve the problem, or contact Autel technical support.

6.7.3 Charging Start Failure

The Charging Start Failure screen appears when the charging station has failed to pass the initialization process. The cause and possible solution(s) will display on the screen. Follow the on-screen instructions to resolve the problem, or contact Autel technical support.

6.7.4 Charging Failure

The Charging Failure screen appears when various errors occur during a charge session. The cause and possible solution(s) will be displayed on the screen. Follow the on-screen instructions to resolve the problem, or contact Autel technical support.

6.8 Autel Charge App Guide

The Autel Charge app allows you to track, manage, and optimize EV charging at your location. With our app, you are able to start and stop charging remotely and track your EV battery health while charging.

After downloading and installing the Autel Charge app, open the app and log in with your phone number or email. If you do not have an account yet, register with your phone number first. Then follow the procedures below to start charging.

6.8.1 APP-Layout

6.8.1.1 Main Screen

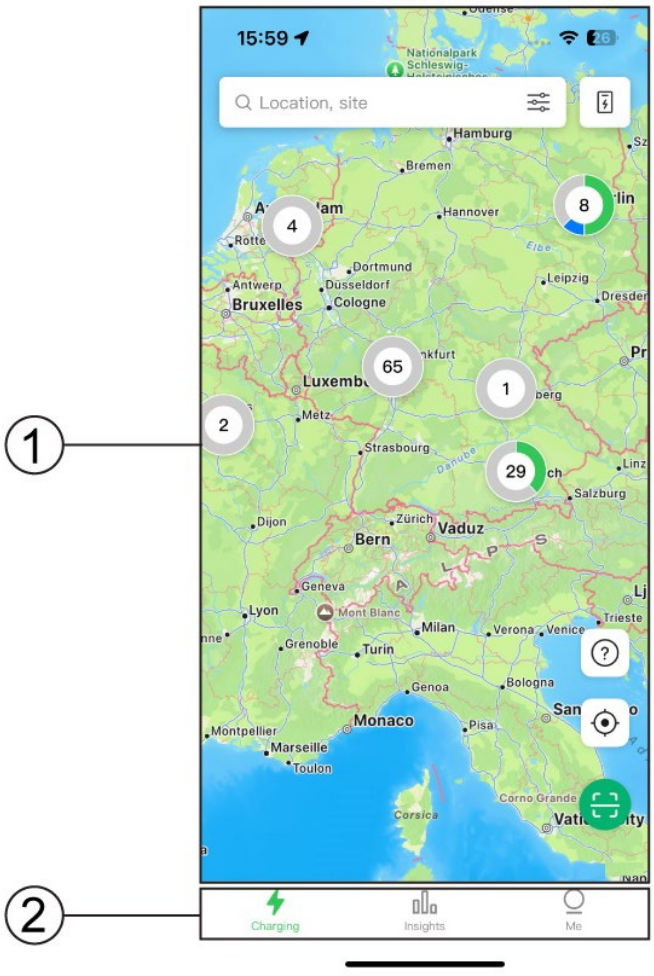


Figure 6-30 Autel Charge APP Main Screen

1. Main screen

2. Charging station information, charging statistics, and profile

6.8.1.2 Personal Data

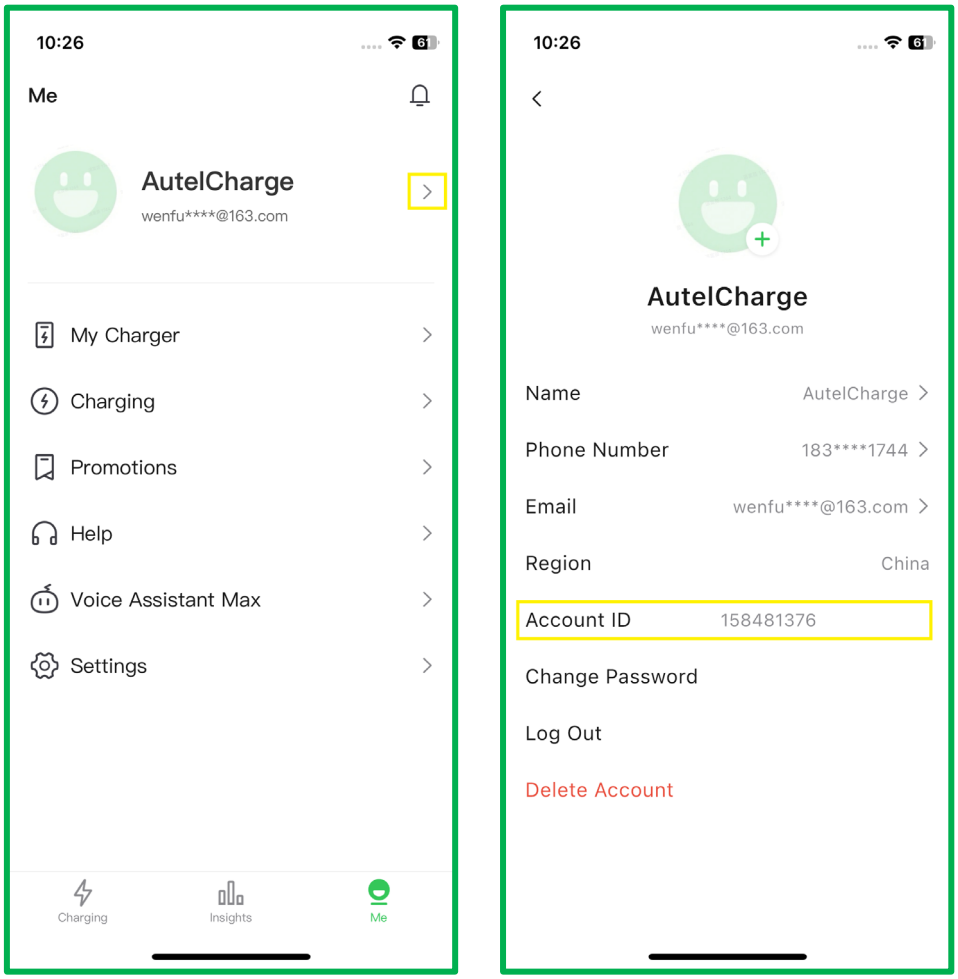


Figure 6-31 Autel Charge APP Personal Data

NOTICE

Account ID is included in OCMF data.

6.8.2 Charge via APP

STEP 1

Open the Autel Charge app, tap the "**Scan icon**" located at the bottom right corner and scan the QR code displayed on the screen of the charging station.

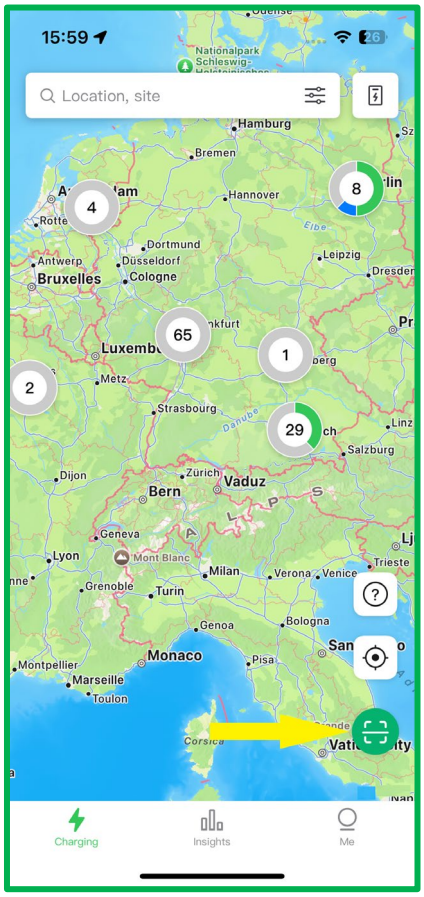


Figure 6-32 Autel Charge APP "Scan"

STEP 2

Tap “**Start**” to start charging.

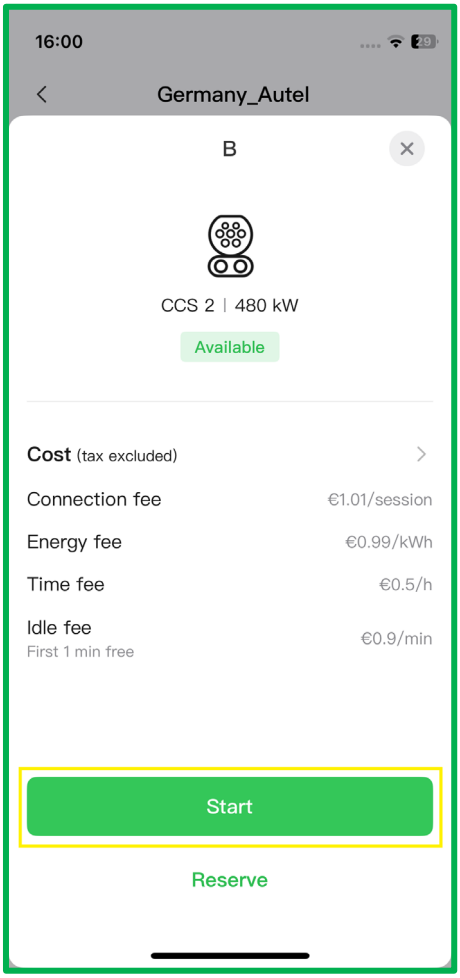


Figure 6-33 Autel Charge APP “Start”

STEP 3

Charging.

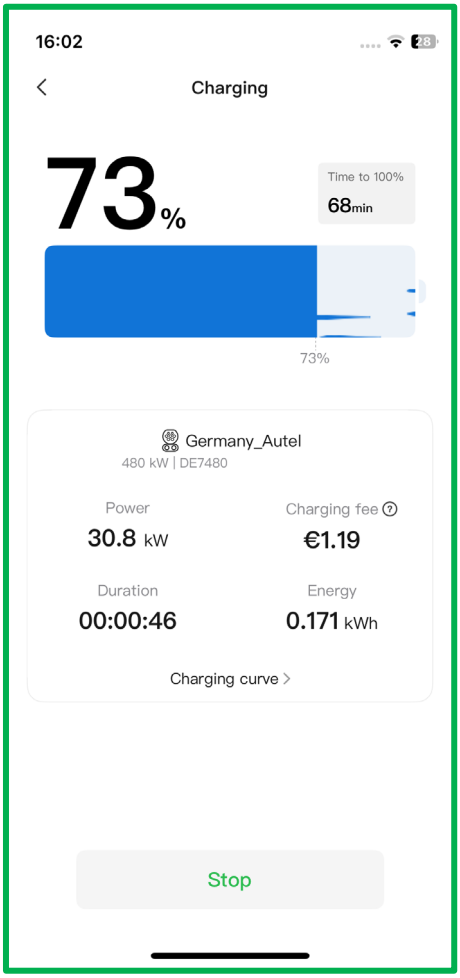


Figure 6-34 Autel Charge APP "Charging"

STEP 4

Tap "**Stop**" to complete the charging process.

6.9 Authentication of Measurement

After completion of the charging process, your mobility service provider provides the signed measured values relevant under calibration law. This data can be delivered as an email. You can use the free S.A.F.E. transparency software (https://www.safe-ev.de/de) to check the measured values for authenticity.

Inform the mobility service provider if incorrect readings are displayed during the authenticity check. The following uses the Autel cloud platform as an example.

6.9.1 Retrieval of Measured Values and Public Key

The signed measurement values and public keys are sent by email after stopping charging and entering the email address (*see section 6.6.5*).

AUTEL

Charge Stopped

Session ID: AU25062300098940

Name: Germany_Autel

Transaction Details: Duration 1 min 5 s，Energy 0.364kWh，Fees €1.38

Start Time: 2025-06-23 16:01:56

End Time: 2025-06-23 16:03:01

Connector ID: DE7480B2GS1C00010R_2

Charger Brand: Autel

Charger Model: EH480-NBB00550053000BB01

OCMF

Public Key:

3056301006072A8648CE3D020106052B8104000A03420004F1D8F85467968276C4441665A2517D884345303C4
5099C0316ADBC7033B193292BC1A3B616180CA4E01BF10F3DA87B5AEDB7B9ED18FD3FAA5EC868C0F0A6425F

OCMF|{"FV" : "1.0","GI" : "DZG-GSH01.1K2L.B","GS" : "1DZG0028293072","GV" : "233","PG" : "T32","MV" : "DZG","MM" : "GSH01.1K2L.B","MS" : "1DZG0028293072","MF" : "233","IS" : true,"IT" : "LOCAL","ID" : "1584813760004960257","CT" : "EVSEID","CI" : "DE48000010","RD" : [{"TM" : "2025-06-23T16:01:56,000+0800 I","TX" : "B","RV" : 0.000,"RI" : "01-00:98.08.00.FF","RU" : "kWh","RT" : "DC","EF" : "","ST" : "G"},{"TM" : "2025-06-23T16:03:01,000+0800 I","TX" : "E","RV" : 0.364,"RI" : "01-00:98.08.00.FF","RU" : "kWh","RT" : "DC","EF" : "","ST" : "G"}],"U" : [{"TM" : "2025-06-23T16:01:56,000+0800 I","TX" : "B","RV" : 609.519,"RI" : "01-00:9C.08.00.FF","RU" : "kWh","RT" : "DC","EF" : "","ST" : "G"},{"TM" : "2025-06-23T16:03:01,000+0800 I","TX" : "E","RV" : 609.883,"RI" : "01-00:9C.08.00.FF","RU" : "kWh","RT" : "DC","EF" : "","ST" : "G"},{"TM" : "2025-06-23T16:01:56,000+0800 I","TX" : "B","RV" : 0.0028,"RI" : "01-00:8C.07.00.FF","RU" : "Ohm","RT" : "DC","EF" : "","ST" : "G"},{"TM" : "2025-06-23T16:03:01,000+0800 I","TX" : "E","RV" : 65,"RI" : "01-00:00.08.06.FF","RU" : "s","RT" : "DC","EF" : "","ST" : "G"}]}|{"SA" : "ECDSA-secp256k1-SHA256","SD" : "3046022100FE52854EA47C30973CFCE2A8B91A1A7F17E4EAF24676388B5EF45C0E0D23323C022100D9C78EE13E765C75BBFFA5643544F4E2E42F3E879785BACD66C3BAC0518F4265"}

The display cuts off decimal places. The charging energy is determined and calculated internally with a higher resolution than that shown on the meter display.
The charging details recorded by the OCMF are verified by the charger and cannot be changed. The required transparency software to verify the OCMF data packet is called S.A.F.E. Transparency Software. Download it to your computer: https://www.safe-ev.de/de/transparenzsoftware.php (only compatibility with S.A.F.E. Transparency Software 1.3.0 is guaranteed).

Figure 6-35 Email with Measured Values and Public Key Screen

If you did not receive the email, you can check the readings in “**Me**” - “**Charging**” - “**Charge History**” via Autel Charge APP. If you did not receive the OCMF data, the charging process will not be billed.

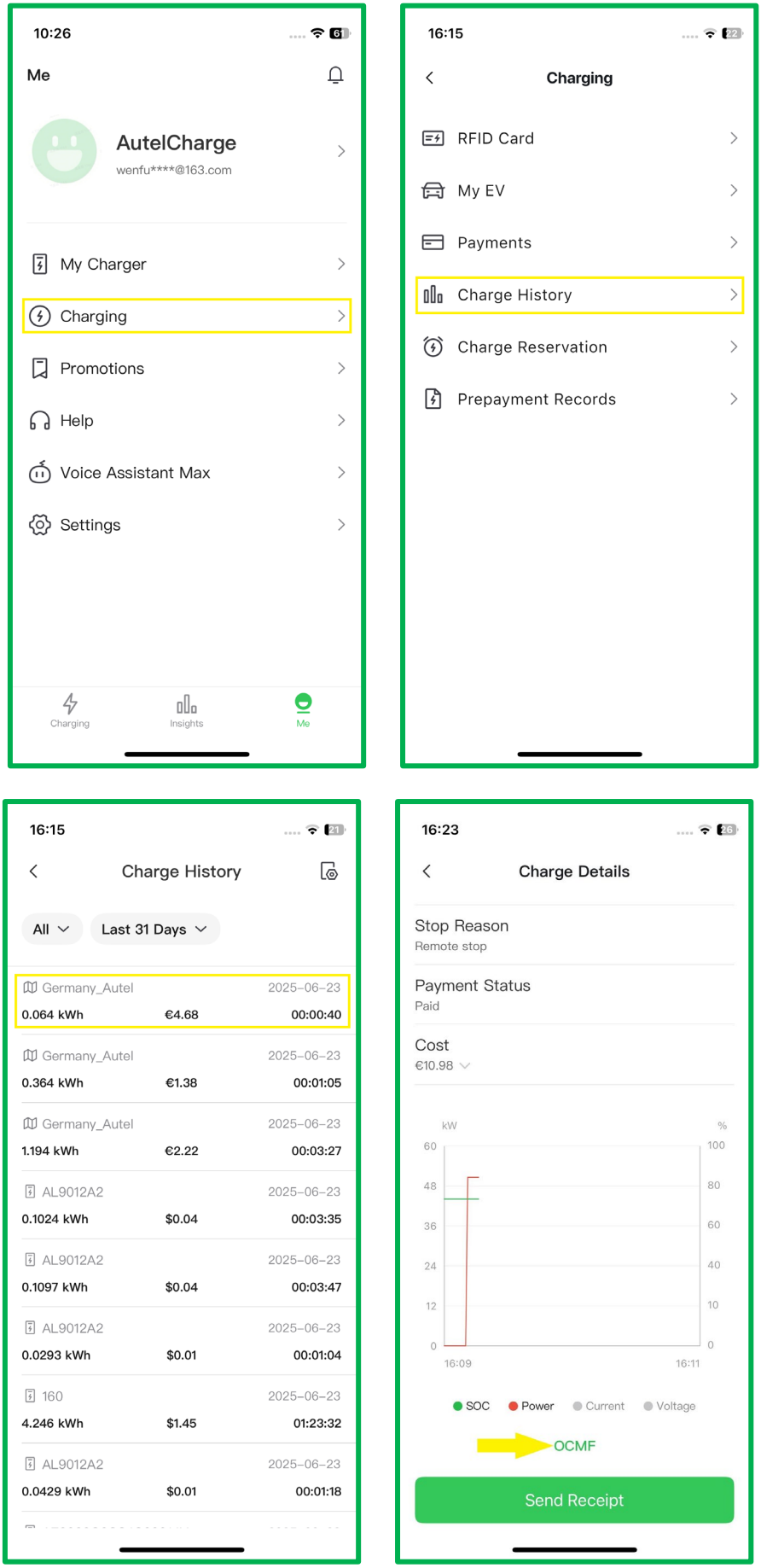


Figure 6-36 OCMF Screens

The public key is required to verify or validate the data packets with the transparency software. Each charging point has its own public key. The public key can be obtained by scanning the data matrix on the external display of the DC meter, which can be read through the viewing window on the corresponding side of the plug. By comparing the public key read on the external display of the DC meter with the public key retrieved from email or APP, the user ensures that the signature of the meter value cannot be tampered with.

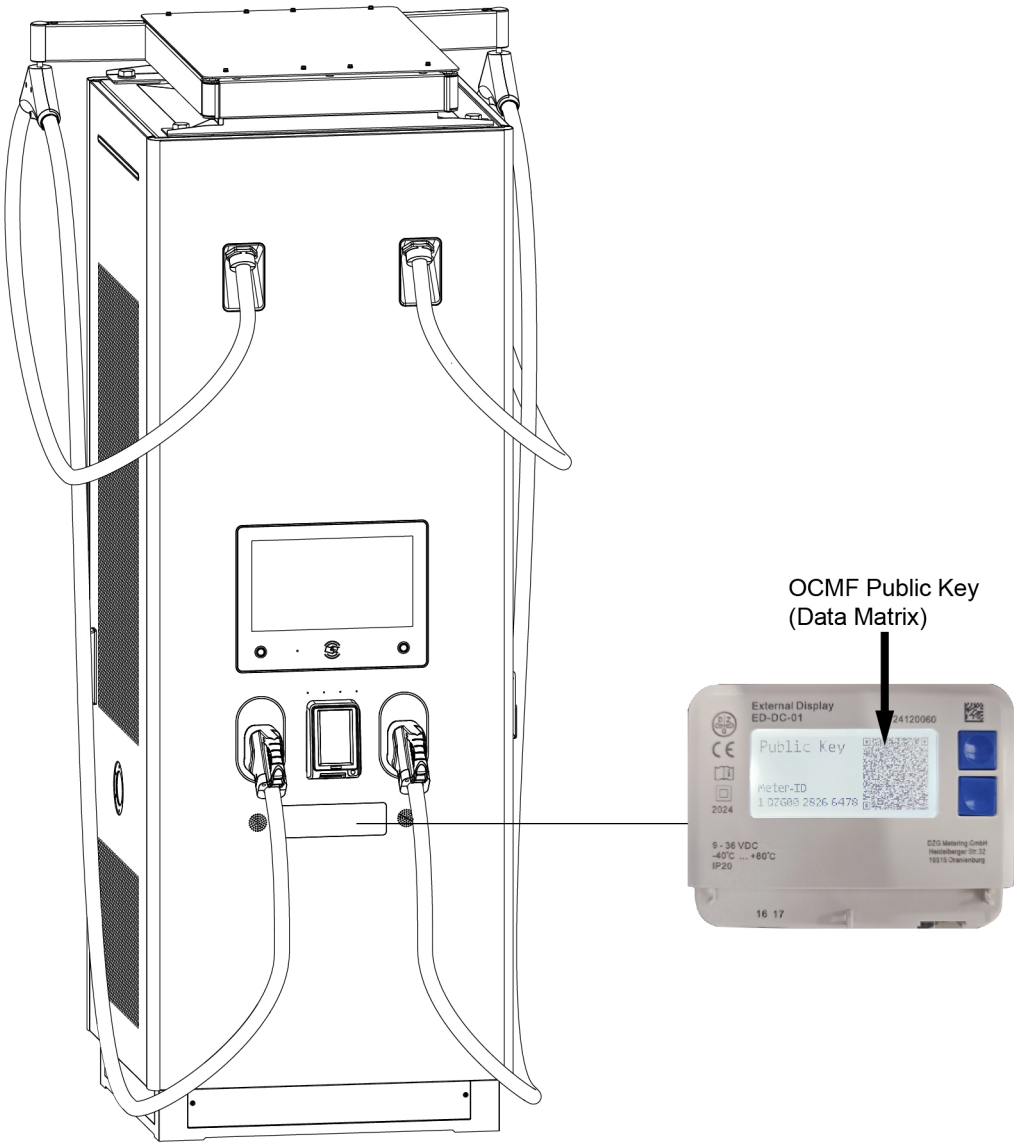


Figure 6-37 Location of the Public Key

6.9.2 Installing the Transparency Software

1. Download the S.A.F.E. transparency software to your computer at https://www.safe-ev.de/de/transparenzsoftware.php. (Compatibility is only guaranteed with the S.A.F.E. transparency software 1.3.0 or the latest version).

2. Make sure that the JAVA framework is installed in a current version or in the required version 4.

3. Launch the transparency software with a double click.

6.9.3 Data Verification

1. Open the transparency software.

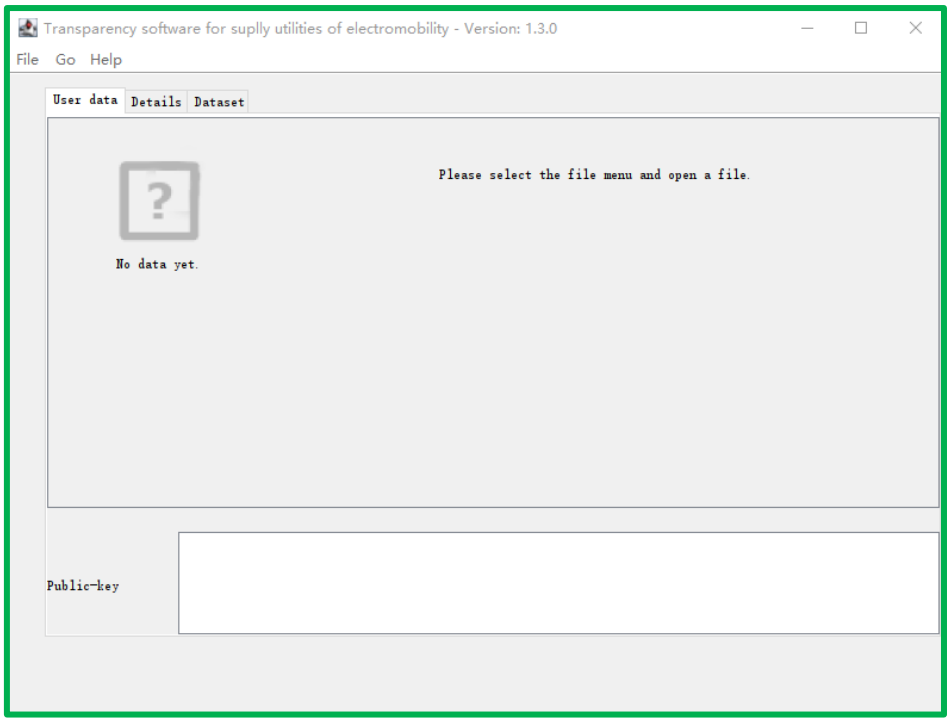


Figure 6-38 Transparency Software Startup Screen

2. The accounting data is loading.

Under the “File” section you will find three options: “Open”, “Manual data input” and “Quit”. Select the “Manual data input” function.

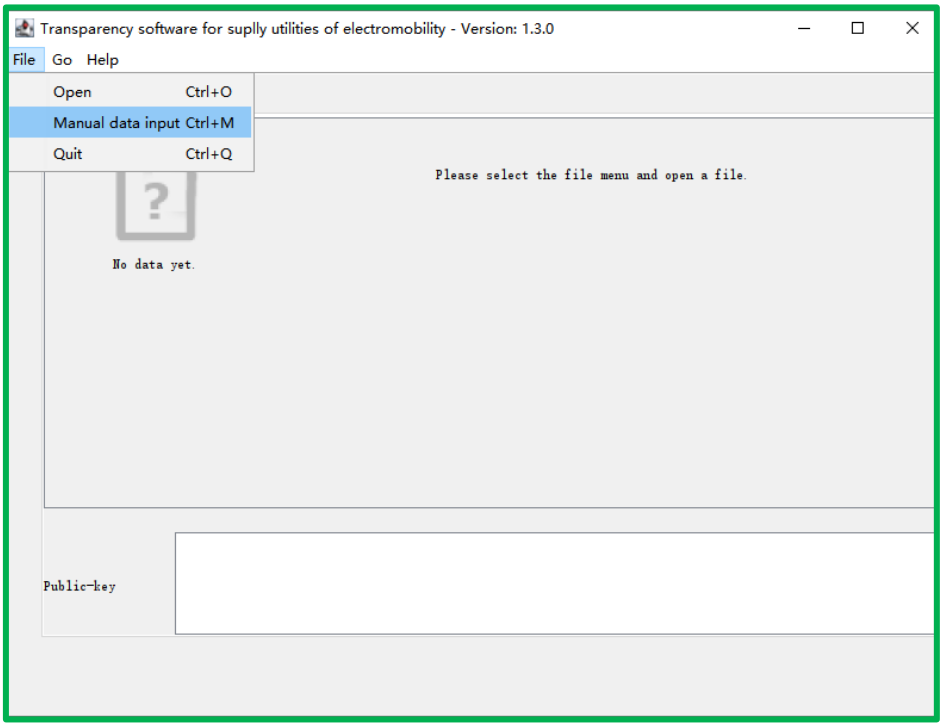


Figure 6-39 “Data” Menu Screen

3. Enter the OCMF readings/data tuples provided to you and the charging station's public key.

Figure 6-40 Data Input Screen

6.9.4 Test Result

The transaction with negative verification result is not calculated. After the verification, the custody transfer information of the signed record is displayed.

– Positive verification result

If the digital signature of calibration law is valid, the transparency software shows a green check mark.

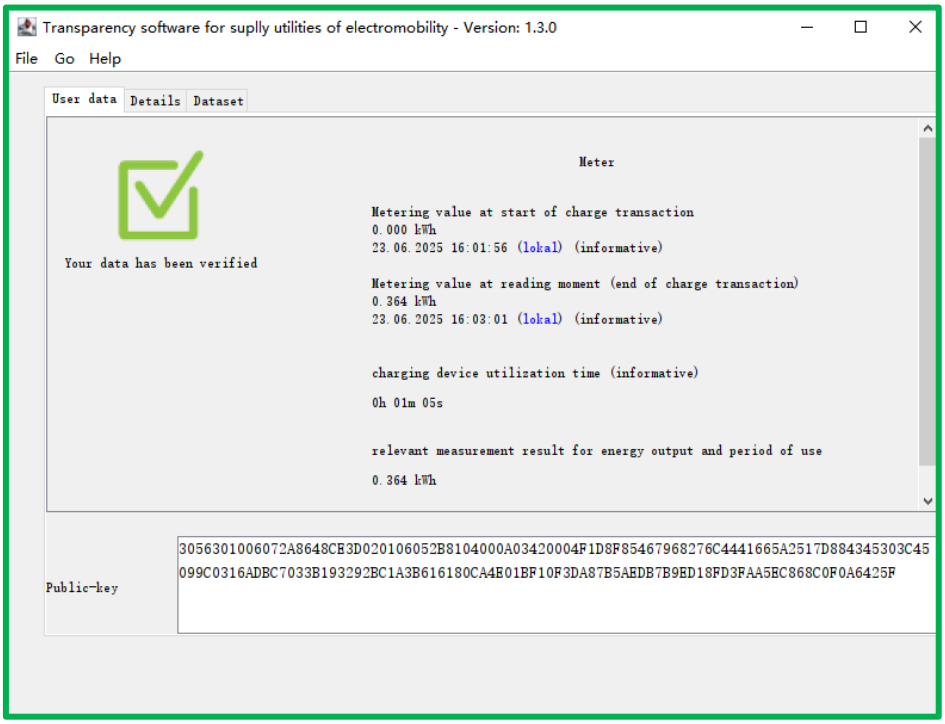


Figure 6-41 Positive Test Screen

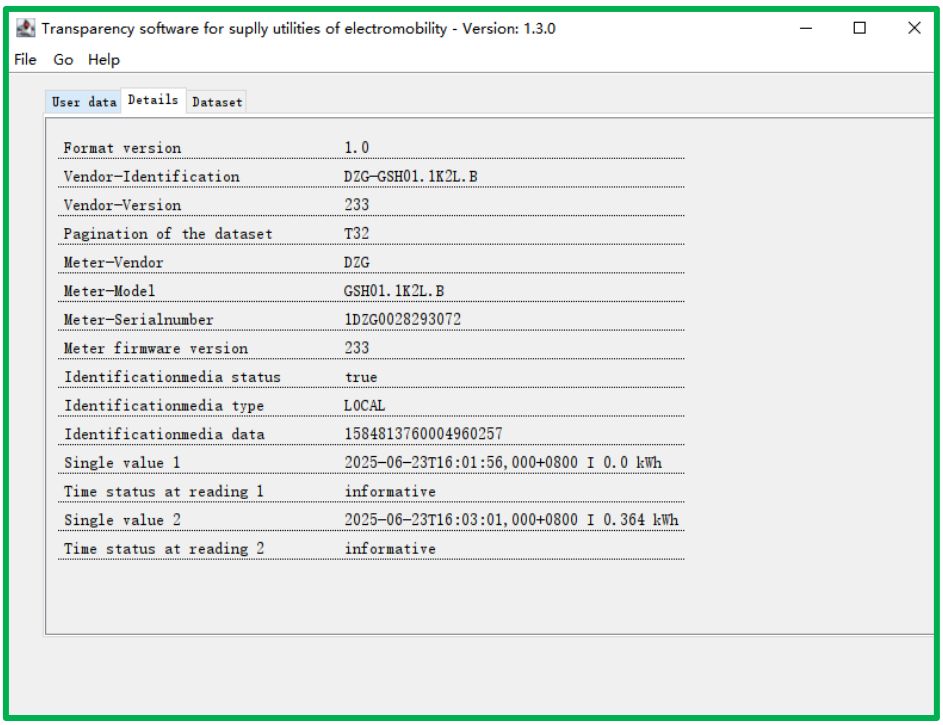


Figure 6-42 Test Details Screen

The transparency software simultaneously displays the starting meter reading and the stopping meter reading and calculates the total amount of energy delivered.

– Negative verification result

If the calibration law data is manipulated and the check no longer works, the transparency software detects this and displays a red cross.

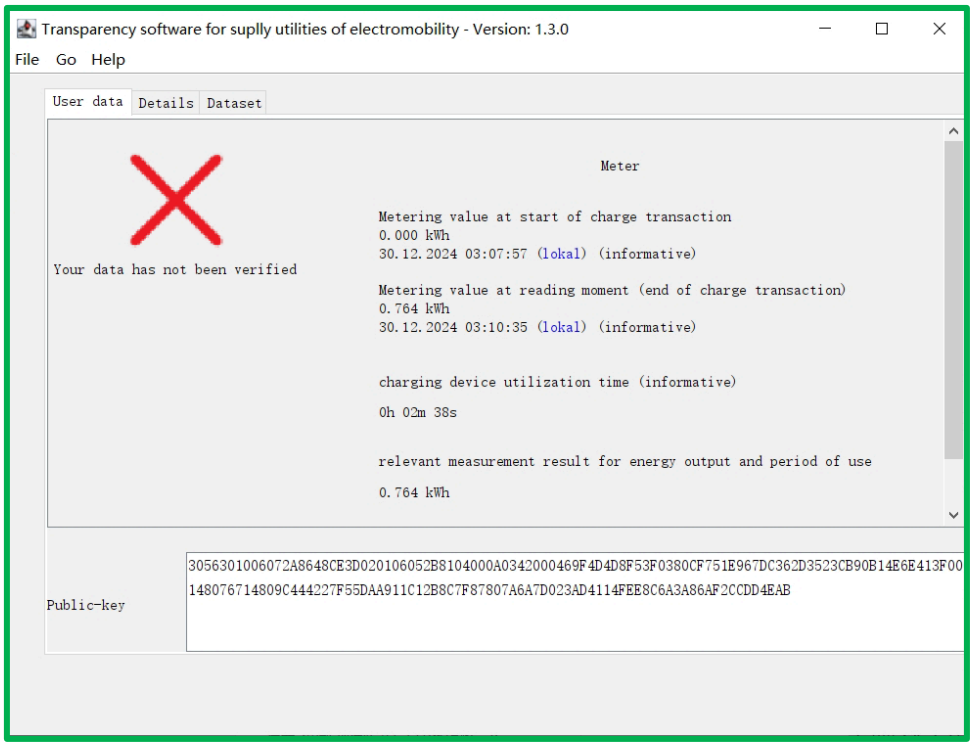


Figure 6-43 Negative Test Result Screen

In case of a negative check result we recommend the following:

- Check whether the entered data and public key are correct.
- Check whether the public key entered belongs to the charging station at which the charging took place.

NOTICE

Each charging point at a charging station has its own public key. Use the public key of the charging point at which you have charged.

Notify the mobility service provider if your entries are correct and a negative check result was generated.

7. Test Purpose

If user seals are broken, do not power on the charging station. The operator must contact Autel who then will perform a functional test. If no problem is found, Autel will apply new user seals.

The functional test is to check whether the charging station functions properly. No particular tools required.

Test procedures:

1. Swipe the RFID card or scan the QR code on the touchscreen to start charging.
2. Observe the legally required warnings while charging.
3. Confirm that the OCMF data package can be received via email and that it is valid via the S.A.F.E. transparency software.

8. Maintenance

8.1 Routine Maintenance

WARNING

- For safety, do not carry out maintenance work on rainy days.
- Disconnect the power supply to the charging station 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 cabinet is powder-coated. The coating must be kept in good condition. When the charging station 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 charging station.
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 charging station is equipped with two air inlet filters and two 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 filters:

1. Ensure there is no active charge session and perform lockout-tagout to secure the charging station.

2. Open the left door of the charging station. When the cabinet door is open, the internal components of the charging station should not be exposed to rain, snow or harsh environments.

3. For the filter with a temperature sensor, use wire cutters to cut the zip ties and remove the sensor. Set it aside.

4. Manually unscrew the screw (**A**).

5. Lift the filter upwards, then slide it to the left, and finally rotate it to the left to take it out from the fixing board as shown.

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

7. For the filter with a temperature sensor, reattach the sensor and secure it with new zip ties.

8. Close the left door of the charging station.

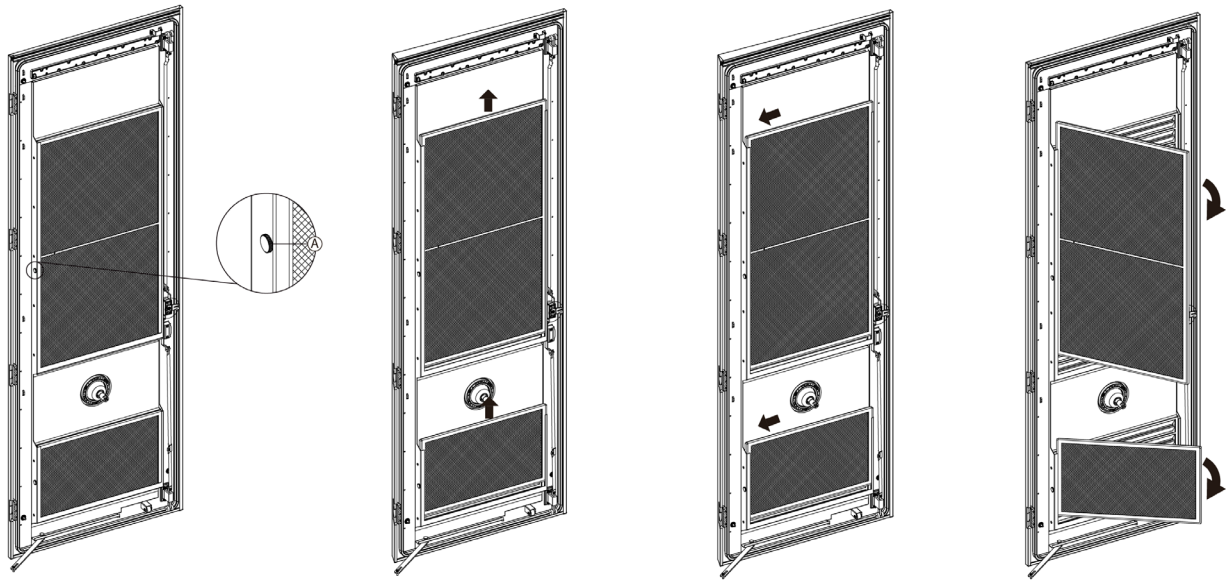


Figure 8-1 Removing the Air Inlet Filter

To clean the air outlet filters:

The air outlet filters are at the right door of the charging station. Refer to the steps above to operate.

8.1.3 Connectivity of the SIM Card

Over time, the SIM card may develop contact issues with the slot, causing connectivity problems. It is necessary to check if the SIM card is making proper contact with the slot.

To ensure the connectivity of the SIM card:

1. Stop the charge session and power off the charging station.
2. Open the left door of the charging station. When the cabinet door is open, the internal components of the charging station should not be exposed to rain, snow or harsh environments.
3. Locate the RBU at the control module. Loosen the two screws using a Phillips screwdriver and then pull out the RBU.
4. Remove the SIM card from the slot. Press the SIM slot slightly together so that the contacts are better in contact.
5. Place the SIM card into the correct slot. Ensure the card is placed correctly.
6. Close the SIM card slot cover. Put the RBU back in place and tighten the two screws.
7. Close the left door of the charging station.

8.2 Regular Inspection

Regular inspection and maintenance are needed even if the charging station is operating in normal condition. 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 charging handle: 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. 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.
- RCD: Test the RCD regularly.

The following special inspections are needed for safe use:

- Check if the charging station was struck by lightning.
- Check if the charging station is damaged due to an accident or fire.
- Check if the charging station installation site has been flooded.

WARNING

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

8.3 Remote Maintenance

The charging station can connect to the Autel cloud platform to monitor parameters in real time. Autel'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 update.

8.4 Maintenance Schedule

Item	Frequency	Operations
Charging Handle	Annually	Check for cracks or ruptures.
Input Cable	Annually	Check for cracks or ruptures.
Inlet Air Filter	Annually	Replace the inlet air filter.
Outlet Air Filter	Annually	Replace the outlet air filter.
Cabinet	Annually	Clean and check for damage, including the air filters.
SIM Card	Annually	Check if the SIM card is making proper contact with the slot.

9. Technical Specifications

9.1 General Specifications

Table 9-1 Product Specifications

	480 kW (Air-cooled)	480 kW (Liquid-cooled)
AC Input		
AC Input Capacity	520 kVA	520 kVA
Input Connection	3P + PE	3P + PE
Input Voltage	3-phase 400 VAC ± 10% (2 routes)	3-phase 400 VAC ± 10% (2 routes)
Input Frequency	50/60 Hz	50/60 Hz
Earthing Systems	TN-S, TN-C, TN-C-S, TT (Requires external RCD) When connected to the TN-C system, the grounding continuity must be ensured. When connected to the TT system, the equipment enclosure must be grounded.	TN-S, TN-C, TN-C-S, TT (Requires external RCD) When connected to the TN-C system, the grounding continuity must be ensured. When connected to the TT system, the equipment enclosure must be grounded.
Power Factor	≥ 0.99	≥ 0.99
Overvoltage Category	AC Side (Input) OVC: III	AC Side (Input) OVC: III
Harmonic Distortion (THDi)	< 5% (full load)	< 5% (full load)
Maximum Current (each route)	416 A	416 A
DC Output		
Output Power	480 kW	480 kW
Output Voltage	CCS2: 150-1000 V	CCS2: 150-1000 V
Max. Number of Outputs	2	2
Charging Mode	2*CCS2	2*CCS2
Output Current	380 A (Max. 500 A)	500 A (Max. 650 A)
Peak Efficiency	96%	96%

	480 kW (Air-cooled)	480 kW (Liquid-cooled)
General Characteristics		
Dimensions of the Cabinet (W x D x H)	782 x 782 x 2287 mm	782 x 782 x 2287 mm
Weight	With Charging Module: Approx. 760 kg (full load)	With Charging Module: Approx. 760 kg (full load)
	Without Charging Module: Approx. 580 kg	Without Charging Module: Approx. 580 kg
Mounting	Floor Standing	Floor Standing
Touchscreen	15.6-inch LCD Touchscreen 27-inch LCD Touchscreen	15.6-inch LCD Touchscreen 27-inch LCD Touchscreen
Connectivity	4G/5G (Dual SIM Card) Wi-Fi Ethernet	4G/5G (Dual SIM Card) Wi-Fi Ethernet
Software Update	OTA updates via web portal, FTP, FTPS, HTTPS	OTA updates via web portal, FTP, FTPS, HTTPS
Total Cable Length	6 m 7.5 m (Optional)	5.5 m 7.5 m (Optional)
Standby Power	≤ 85 W (Typical value)	≤ 85 W (Typical value)
Rated Service Breaking Capacity	35 kA	35 kA
Emergency Button	Yes	Yes
Enclosure Type	Zinc Aluminum Magnesium Alloy	Zinc Aluminum Magnesium Alloy
Internal RCD	Optional	Optional
Enclosure Rating	IP54/IK10	IP54/IK10
Communication to the EV	ISO/IEC 15118 with PnC DIN 70121	ISO/IEC 15118 with PnC DIN 70121
User Interface		
Status Indication	Standard	Standard
RFID Protocols	ISO 14443 A/B ISO/IEC 15693 MIFARE	ISO 14443 A/B ISO/IEC 15693 MIFARE

	480 kW (Air-cooled)	480 kW (Liquid-cooled)
Credit Card Readers	Payter Apollo PAX IM30 Castles S1U2	Payter Apollo PAX IM30 Castles S1U2
Communication Protocols	OCPP 1.6J OCPP 2.0.1 (Optional)	OCPP 1.6J OCPP 2.0.1 (Optional)
Cable Management System	Standard	Standard
User Authentification	AutoCharge Plug & Charge APP RFID Card QR Code Credit Card (Optional)	AutoCharge Plug & Charge APP RFID Card QR Code Credit Card (Optional)
Environmental Specifications		
Humidity	≤ 95% RH, non-condensing	≤ 95% RH, non-condensing
Operating Altitude	≤ 2000 m	≤ 2000 m
Operating Temperature Range	–35 to +55 °C	–35 to +55 °C
Storage Temperature Range	–40 to +70 °C	–40 to +70 °C
Noise	≤ 55 dBA (Silent mode)	≤ 55 dBA (Silent mode)
Environmental Conditions		
Mechanical Environmental Conditions	M1	M1
Electromagnetic Environmental Conditions	E2	E2
Safety and Compliance		
Protection	Surge, overcurrent, undervoltage, overvoltage, tilt sensor, access protection, over-temperature protection, short circuit and overload protection	Surge, overcurrent, undervoltage, overvoltage, tilt sensor, access protection, over-temperature protection, short circuit and overload protection
EMC Compliance	EMC Class A	EMC Class A

	480 kW (Air-cooled)	480 kW (Liquid-cooled)
Safety Standards	IEC 61851-1 IEC 61851-23 IEC 61851-21-2 IEC 61000	IEC 61851-1 IEC 61851-23 IEC 61851-21-2 IEC 61000
Certification	CE UKCA Einchrecht (REA-Dokument 6-A/PTB-A 50.7/PTB-A 50.8)	CE UKCA Einchrecht (REA-Dokument 6-A/PTB-A 50.7/PTB-A 50.8)
Warranty		
Design Life	10 Years	10 Years
Warranty	24 months, warranty extension possible	24 months, warranty extension possible

9.2 Detail AC Input Specifications

Table 9-2 Detail AC Input Specifications

Parameter		Power Rating (kW)									
	Cabinet	120	160	200	240	280	320	360	400	440	480
	One Route	80	80	120	120	160	160	200	200	240	240
Rated Input Current (A)		127	127	189	189	251	251	313	313	375	375
Recommended Upstream Breaker Current One Route(A)		160	160	250	250	320	320	400	400	500	500
Recommended Cross-section of Input Cable(mm^2)	Single	70	70	120	120	185	185	/	/	/	/
	Parallel	2*25	2*25	2*35	2*35	2*70	2*70	2*95	2*95	2*120	2*120

NOTICE

- Component selection must consider environmental derating factors. Upstream & Downstream device coordination for protection shall comply with IEC 61439.
- Cable selection shall be assessed according to IEC 60364-5-52 (Installation Method D1). Should the user's local specifications impose higher requirements, the corresponding regulations must be complied with.
- The information provided above is based on optimal conditions. Autel is not responsible for the final design, which remains the responsibility of the site designer or installer.

9.3 Output Voltage-Current Curve

- **For the Air-cooled Model:**

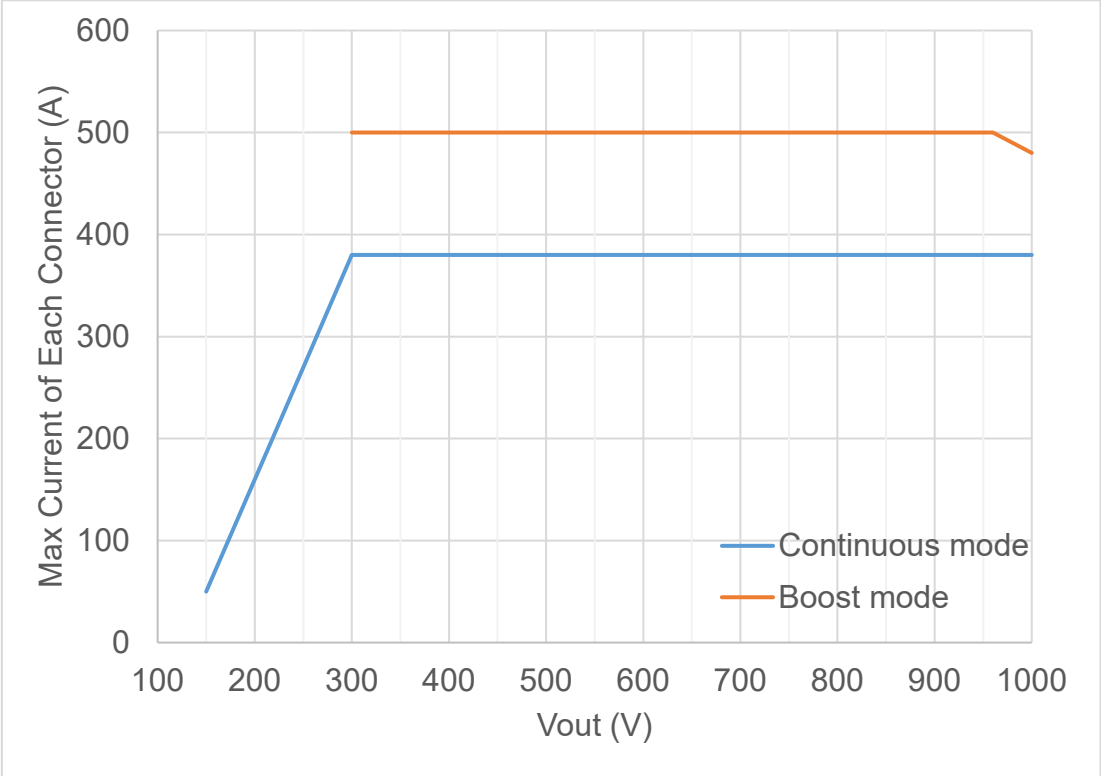


Figure 9-1 Output Voltage-Current Curve (Air-cooled)

- **For the Liquid-cooled Model:**

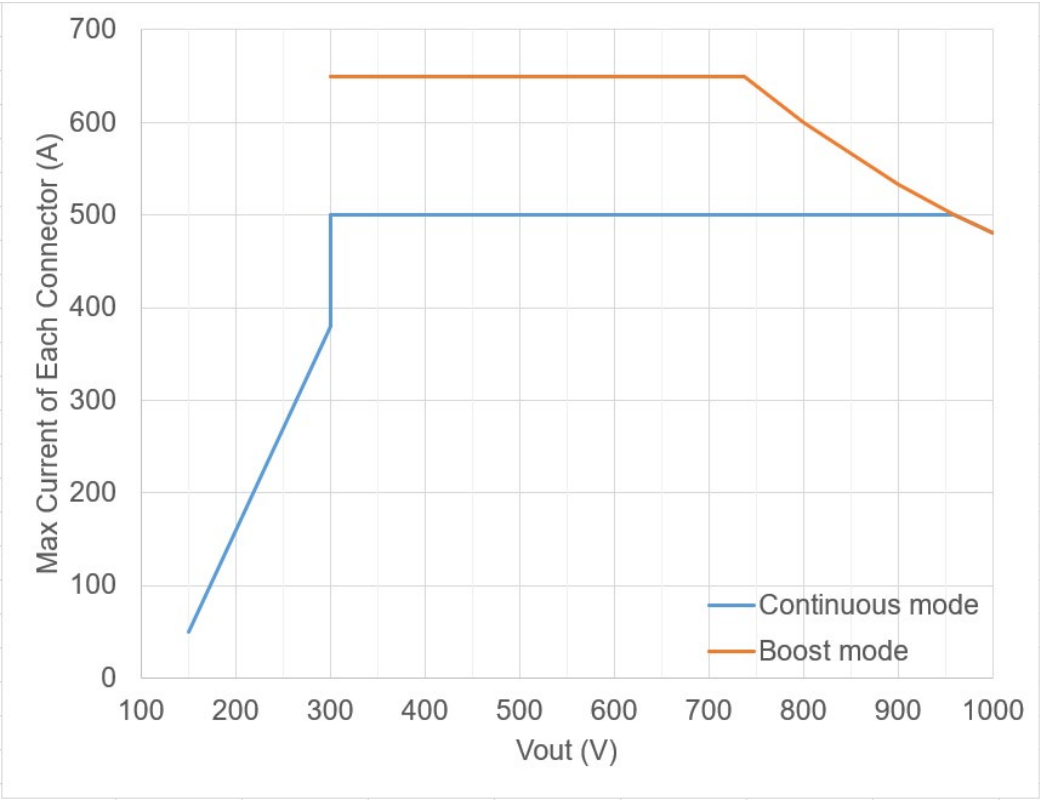


Figure 9-2 Output Voltage-Current Curve (Liquid-cooled)

9.4 Wireless Communication Parameters

Table 9-3 Wireless Communication Parameters

Type	Operating Band/Frequency		Max. Transmit Power (dBm)
2.4G wifi	802.11b/802.11g/802.11n		18
4G	GSM900		35
	DCS1800		33
	WCDMA Band 1/WCDMA Band 8		25
	LTE: Band 1/Band 3/Band 7/Band 8/Band 20/Band28/Band 38/Band 40		25
	GNSS: GPS, GLONASS, Galileo, BDS, QZSS		-146
5G (optional)	GSM900/DCS1800		25
	WCDMA Band 1/WCDMA Band 8		25
	LTE TDD: Band 1/Band 3/Band 7 /Band 8/Band 20/Band 28/Band 38 /Band 40/Band 42/Band 43		25
	FDD:	n1/n3/n8/n20/n28/n38/n42/n43/n75/n76	25
		n77/n78	28
	GNSS: GPS, GLONASS, Galileo, BDS, QZSS		-147
RFID	13.56 MHz		11.06
Radar	24.00-24.25 GHz		0.59

NOTICE

- This equipment has been tested and found to comply with the limits for a EN 300 440 v2.1.1 receiver Category 3.
- These limits are designed to provide reasonable protection against harmful interference in a residential installation.
- When placed in the vicinity of other device(s) radiating in the band 24-24.25 GHz this device will inadvertency trigger on.
- Please take appropriate measure to mitigate this eventuality.

10. Calibration Law Statement

Notes on accuracy of measurement according to type examination certificate I

Conditions for the operator of the charging device, which the operator must fulfil as a necessary prerequisite for the intended operation of the charging device.

The operator of the charging device is the user of the measuring device in the sense of § 31 of the MessEG.

1. The charging equipment is only considered to be used in accordance and compliance with the legal metrology regulations if it is not exposed to environmental conditions other than those for which its type examination certificate was issued.

2. When registering the charge points with the Federal Network Agency, the user of this product must also register the PK specified on the charging column for the charge points in their registration form! Without this registration, operation of the charging station in compliance with calibration regulations is not possible. Weblink:

   https://www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/HandelundVertrieb/Ladesaeulen/Anzeige_Ladepunkte_node.html

3. The user of this product must ensure that the reverification period for the components in the charging device and for the charging device itself is not exceeded.

4. The user must permanently store the signed data packets read out from the charging device - in accordance with the pagination, (also) on hardware dedicated for this purpose in his possession ("dedicated memory"), - keep them available for authorized third parties (operation obligation for the memory). Permanently means that the data must be stored not only until the conclusion of the business transaction, but at least until the expiry of possible statutory appeal periods for the business transaction. For billing purposes, no substitute values may be formed for non-existent data.

5. The user of this product shall provide an operating manual in electronic format to users of measured values who receive these measured values from this product from him and use them in business transactions. In doing so, the user of this product must refer in particular to No. "II Requirements for users of measured values from the charging device".

6. The user of this product is subject to the obligation to notify according to § 32 MessEG (excerpt):

   § 32 Obligation to notify (1) Anyone who uses new or renewed measuring instruments must notify the authority responsible under state law no later than six weeks after commissioning.

7. To the extent deemed necessary by relevant authorities, the complete contents of the dedicated local memory or the memory present at the charge point operator, including all data packets of the billing period, must be made available by the user of the measuring device.

II Requirements for users of measured values from the charging device (EMSP)

The user of the measured values must comply with § 33 of the MessEG:

§ 33 MessEG (citation)

§ 33 Requirements for the use of measured values

(1) Values for measured variables may only be specified or used in business or legal transactions or for measurements in the public interest if a measuring device was used as intended and the values can be traced back to the respective measurement result, unless otherwise stipulated in the

statutory ordinance pursuant to Section 41 number 2. Other federal regulations that serve comparable protective purposes continue to apply.

(2) Anyone who uses measured values must ensure, within the scope of their possibilities, that the measuring device meets the legal requirements and must have the person using the measuring device confirm that they are fulfilling their obligations.

(3) Whoever uses measured values must

1. ensure that invoices, insofar as they are based on measured values, can easily be traced by the party for whom the invoices are intended in order to check the measured values given and

2. if necessary, provide suitable aids for the purposes specified in number 1.

For the user of the measured values, this regulation gives rise to the following specific obligations regarding the use of measured values in accordance with calibration law:

1. The contract between EMSP and customers must clearly state that subject of the contract is only the supply of electrical energy and not the duration of the charging service.

2. The time stamps on the measured values come from a clock in the charging column that is not certified according to measurement and calibration law. They must therefore not be used for the purpose of tariffing the measured values.

3. The EMSP must make the billing-relevant data packages available to the customer at the time of billing, including the signature, as a data file in such a way that they can be checked for integrity using the transparency and display software. These can be provided via channels that have not been checked under calibration law.

4. The EMSP must make available to the customer the transparency and display software associated with the charging device to check the integrity of the data packets.

5. The EMSP must be able to show in a verifiable manner which means of identification was used to initiate the charging process associated with a specific measured value. This means that it must be able to prove for every business transaction and billed measured value that it has correctly assigned the personal identification data to them. The EMSP must inform its customers of this obligation in an appropriate manner.

6. The EMSP may only use values for billing purposes that are available in a dedicated memory that may be available in the charging facility and/or in the memory of the operator of the charging facility. It is not permitted to create substitute values for billing purposes.

7. The measuring capsule is able to detect an error in the form of a difference in the meter register readings between charging processes. This error is displayed as the status term “meter reading difference” in the transparency software. The EMSP must monitor and evaluate this status term and must not use values for billing purposes for which a “meter reading difference” occurs. This also includes the charging process that precedes the process in which this “meter reading difference” was detected.

8. The EMSP must make appropriate agreements with the operator of the charging facility to ensure that the data packets used for billing purposes are stored for a sufficient period of time in order to be able to fully complete the associated business processes.

9. In the event of a justified notification of need for the purpose of carrying out verifications, diagnostic tests and use of monitoring measures, the EMSP must provide suitable means of identification to enable authentication on the specimens of the product belonging to these operating instructions, used by them.

10. All of the above obligations apply to the EMSP as the meter user within the meaning of Section 33 MessEG even if it obtains the meter readings from the charging facilities via a roaming service provider.

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