AUTEL

MAXICHARGER™
DC FAST 60KW-240KW WITH 20KW INCREMENTS
SPECIFICATIONS

- FLEXIBLE POWER MODULE DESIGN
- MULTIPLE CABLE & CHARGING CONNECTOR OPTIONS
- 27-INCH TOUCHSCREEN DISPLAY
- SMART CLOUD PORTAL WITH REMOTE DIAGNOSTICS
- DYNAMIC LOAD BALANCING
- ISO 15118 PLUG & CHARGE

SPECIFICATIONS MAXICHARGER DC FAST 60KW-240KW WITH 20KW INCREMENTS

PART NUMBERS	DCFC 60KW-120KW	DCFC 140KW-240KW
	60kW: UF060xxxxx; **80kW:** UF080xxxxx; **100kW:** UF100xxxxx; **120kW:** UF120xxxxx	**140kW:** UF140xxxxx; **160kW:** UF160xxxxx; **180kW:** UF180xxxxx; **200kW:** UF200xxxxx; **220kW:** UF220xxxxx; **240kW:** UF240xxxxx

The "xxxxx" portion of the product part number represents the various product configurations.

ELECTRICAL		
CONNECTOR OPTION*	Dual CCS1, or CCS1 + CHAdeMO	Dual CCS1/CCS1 Boost, or CCS1 + CHAdeMO
MAX. INPUT AC CURRENT	**60kW:** 91A; **80kW:** 122A; **100kW:** 152A; **120kW:** 182A	**140kW:** 213A; **160kW:** 245A; **180kW:** 270A; **200kW:** 305A; **220kW:** 335A; **240kW:** 365A
NOMINAL INPUT AC CURRENT	**60kW:** 83A; **80kW:** 110A; **100kW:** 138A; **120kW:** 165A	**140kW:** 181A; **160kW:** 207A; **180kW:** 230A; **200kW:** 260A; **220kW:** 285A; **240kW:** 310A
INPUT VOLTAGE RANGE	480 V AC - 15 % to +10 % @ 60 Hz	
DC OUTPUT VOLTAGE	CCS1: 150 to 950 V DC; CHAdeMO: 150 to 500 V DC	
NETWORK TYPE	TN-S, TN-C, TN-C-S, & TT (External RCD** Required)	
AC INPUT CONNECTION	3P + PE (No Neutral)	
PROTECTION	Over-Current, Over-Voltage, Under-Voltage, Ground-Fault, Over-Temperature, Short-Circuit, Insulation Monitor (IMD), & Surge Protection	
OVERVOLTAGE CATEGORY	AC Side (Input) OVC: III	
POWER FACTOR (> 50 % LOAD)	≥ 0.98	
THDI (> 50 % LOAD)	≤ 5 %	
PEAK EFFICIENCY	≥ 96 %	
STANDBY POWER	80 W	
SHORT CIRCUIT CURRENT RATING	≥ 65 kA	
ENERGY METERING	Class A	

USER INTERFACE & COMMUNICATION	
CONNECTIVITY	Internet Access Via 4G / Wi-Fi / Ethernet (RJ 45)
USER AUTHENTICATION	QR Code, RFID, Credit Card (Optional)
ISO 15118 PLUG & CHARGE	Yes
DIN 70121	Yes
INTERFACE	27" LCD High-Contrast Touchscreen (15.6" Optional)
ACCESSIBLE FOR WHEELCHAIR USERS	Yes
COMMUNICATIONS PROTOCOLS	OCPP 1.6 JSON, OCPP 2.0.1 (Can Be Upgraded Later)
RFID READER	ISO 14443 A+B to Part 4 & ISO/IEC 15693, Mifare, NFC, Calypso, Ultralight, PayPass, HID & More
EMERGENCY BUTTON	Yes
SOFTWARE UPDATE	OTA Update Via Web Portal
CONTROL AND CONFIGURATION	Web Portal, On-Board Service Portal

GENERAL CHARACTERISTICS		
PROTECTION RATINGS	NEMA 3R Outdoor Use & IK-10	
ENCLOSURE TYPE	Stainless Steel 430	
OPERATION ALTITUDE	6561 Ft. (6561 to 9843 Ft. with Power Derating)	
OPERATING TEMPERATURE	-31 °F to +131 °F (+122 °F to +131 °F with Linear Power Derating)	
STORAGE TEMPERATURE	-40 °F to +158 °F	
HUMIDITY	< 95 % RH, Non-Condensing	
NOISE LEVEL	< 65 dB @1 m/25 °/Full Load/800 VDC	
MOUNTING	Free-Standing Cabinet	
CABLE LENGTH	15 ft (Optional: 20 or 25 ft)	
DIMENSIONS (H X W X D)	76.8 x 32.3 x 23.6 In. (1950 x 820 x 600 mm)	76.8 x 32.3 x 27.6 In. (1950 x 820 x 700 mm)

CERTIFICATIONS & STANDARDS	
COMPLIANCE & SAFETY	UL 2202, UL 2231-1, UL 2231-2, NEC Article 625, CSA C22.2 No. 107.1-16
EMC COMPLIANCE	FCC Part 15 Class A, Class B (Optional)
WARRANTY	24 Months with Warranty Extensions Available

* CCS1 Max 200A, CCS1 Boost 300A (Max 400A) ** RCD: Residual Current Detector For Ground Fault Protection

Installation and Operation Manual

MaxiCharger DC Fast (UL)

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Autel will not be liable for any direct damages or for any special, incidental, or indirect damages or for any economic consequential damages (including the loss of profits).

IMPORTANT

Before operating or maintaining this equipment, please read this manual carefully and pay extra attention to the safety warnings and precautions.

For Services and Support (24/7):

Web: www.autelenergy.us

Tel: (844) 765-0150

Email: evsupport@autel.com

Address: 36 Harbor Park Drive, Port Washington, New York, USA

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

CONTENTS

1. Using This Manual

This manual describes the installation and use of the MaxiCharger DC Fast 120kW (DF120) and MaxiCharger DC Fast 240kW (DF240). Prior to installation, read through this manual to become familiar with the instructions of this MaxiCharger to ensure a successful installation and smooth operations.

1.1 Conventions

The following conventions are used.

1.1.1 Bold Text

Bold text is used to highlight selectable items such as buttons and menu options.

1.1.2 Illustrations

Illustrations used in this manual are only examples; the actual product(s) or screens may vary.

1.1.3 Hyperlink

Hyperlinks or links that take you to other related articles, procedures, and illustrations are available in electronic documents. Blue underlined colored text indicates a selectable hyperlink.

1.1.4 Notes and Important Messages

Notes

A **NOTE** provides helpful information such as additional explanations, tips, and comments.

Important

IMPORTANT indicates a situation which, if not avoided, may result in damage to the test equipment or vehicle.

1.1.5 Procedures

An arrow icon indicates a procedure.

➢ **To charge an EV**

1. Park an EV with the charging port within reach of the connector.
2. Plug in the vehicle. Avoid any extensive stretch of the charging cable.
3. Start the charging session.
4. Stop the charging session.

1.1.6 Revision History

Version	Date	Descriptions
V1	2022.05.10	Initial version
V2	2023.04.12	Complete manual overhaul

1.2 Terminology

Term	Definition
AC	Alternating current
CCS	Combined Charging System, a standard charging method for electric vehicles
CCU	Charging Control Unit: a control unit used to communicate with the BMS (Battery Management System) and control the power delivery to the EV
CHAdeMO	Abbreviation of CHArge de MOve, a standard charging method for electric vehicles
DC	Direct current
EV	Electric vehicle
OCPP	Open charge point protocol, open standard for communication with charge stations
RCBO	Residual current breaker with overload
RCD	Residual current device; a device that breaks an electrical circuit when it detects a current leakage
RFID	Radio-frequency identification; a method of charging authentication
SPD	Surge protection device, a device intended to protect electrical devices from voltage spikes in AC circuits
TCU	Transaction Control Unit; intelligent hardware to handle the human-machine interface, metering, transaction, and communication with back office

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.

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.

- Preview the standard operating procedures and ensure that local building and electrical codes are reviewed before installing the MaxiCharger.
- Read the manual before installing or using the MaxiCharger.
- Do not use the MaxiCharger if the cabinet, power cord or charging cable are frayed, have broken insulation or shows any other signs of damage.
- Do not install or use the MaxiCharger 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 MaxiCharger and should not be used for any other product. Before installation or use of this equipment, review this manual carefully and consult with a licensed contractor, licensed electrician or trained installation expert to ensure compliance with local building codes and safety standards.

2.1 Safety Warnings

- Ensure there is no voltage on the AC input cables during the complete installation procedure.
- Keep unqualified personnel at a safe distance during installation.
- All electrical wires used in the installation must comply with National Electric Code (NEC) to meet the rated current and voltage demand.
- Ensure the load capacity of the grid is in accordance with the MaxiCharger.
- Ensure the MaxiCharger 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 MaxiCharger comply with all applicable local rules.
- Ensure the wiring inside the MaxiCharger 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 MaxiCharger 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 MaxiCharger 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 MaxiCharger 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 MaxiCharger.
- Ensure the MaxiCharger has installed the protective devices.
- Ensure all the protective devices are installed after installation or maintenance.
- Ensure the space around the MaxiCharger 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 MaxiCharger 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 MaxiCharger.

2.3 Installation Engineer Qualifications

- Fully understands the equipment and its safe installation procedures.
- Qualified according to local regulations to carry out the installation work.
- Able to follow all the local regulations and this manual to complete the installation of the MaxiCharger.

2.4 Usage Instructions

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

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

2.5 Signs on the MaxiCharger

Symbol	Risk Description
	General risk
	Hazardous voltage that gives risk of electrocution
	Waste from electrical and electronic equipment
	Hot surface that gives risk of burn injuries

2.6 Disposal Instructions

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

2.7 Cyber Security

NOTE

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

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

Appropriate measures shall be taken by the owner to shield the MaxiCharger, 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

This MaxiCharger is designed to charge an electric vehicle (hereinafter called EV). The MaxiCharger provides you with safe, reliable, fast, and smart charging solutions.

Intended Use

This MaxiCharger 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.

NOTE

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

3.1 Product Descriptions

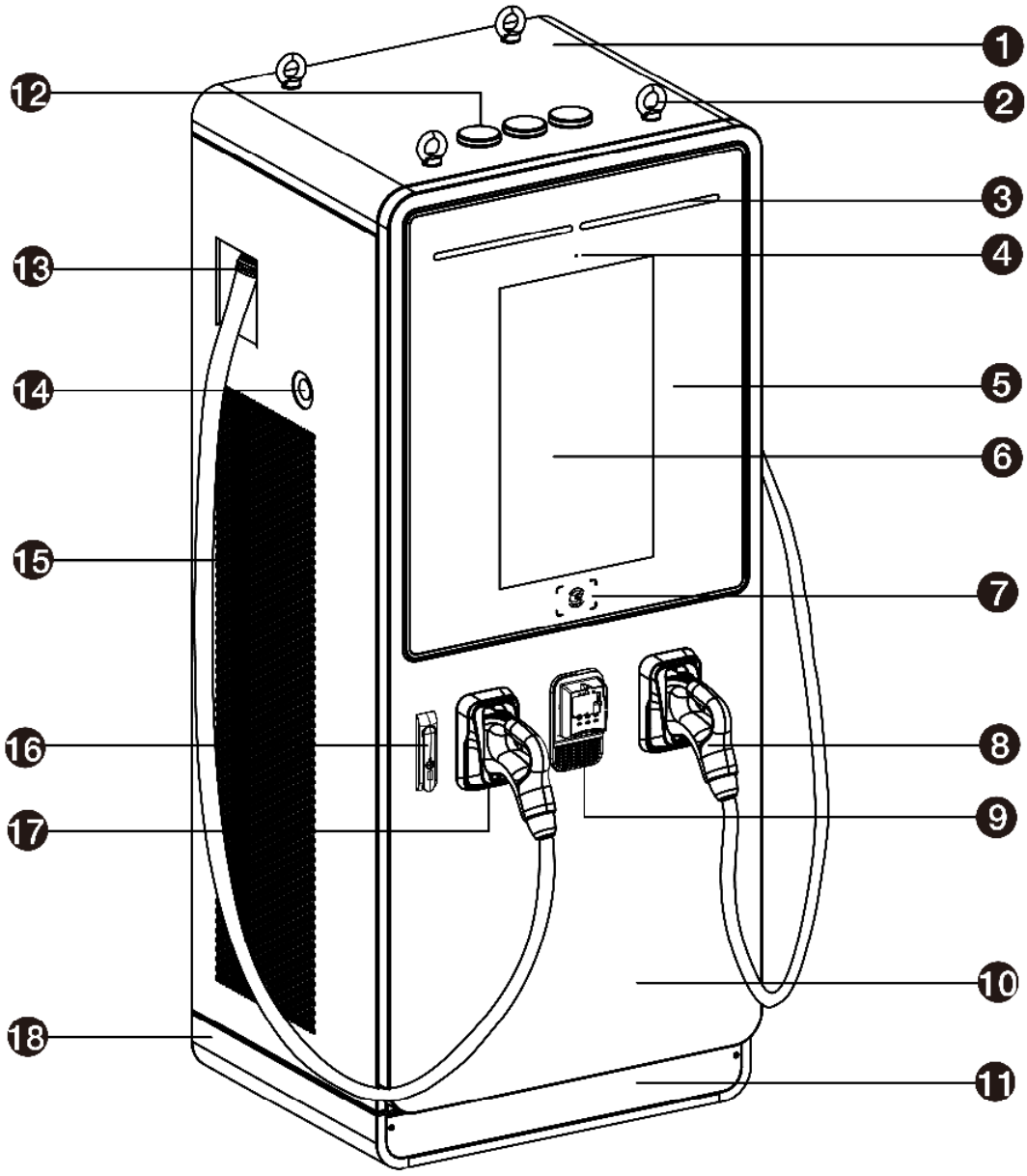


Table 3-1 Product Descriptions (Outside)

No.	Parameter
1	Main Cabinet
2	Spare Ring — equipment movement, loading and unloading
3	Indicator — displays the current status of the MaxiCharger. See *Table 3-2 Indicator Descriptions* for details.
4	Ambient Light Sensor
5	Tempered Glass — protects indicator and touchscreen
6	Touchscreen
7	RFID Card Reader
8	Connector
9	POS (Optional)
10	Front Door
11	Front/Rear Base Cover — remove them before using a forklift to move the cabinet
12	Antenna
13	Waterproof Cable Fixing Connector — for the extended charge cable
14	Emergency Stop Button
15	Vent
16	Handle Lock
17	Holster
18	Base

NOTE

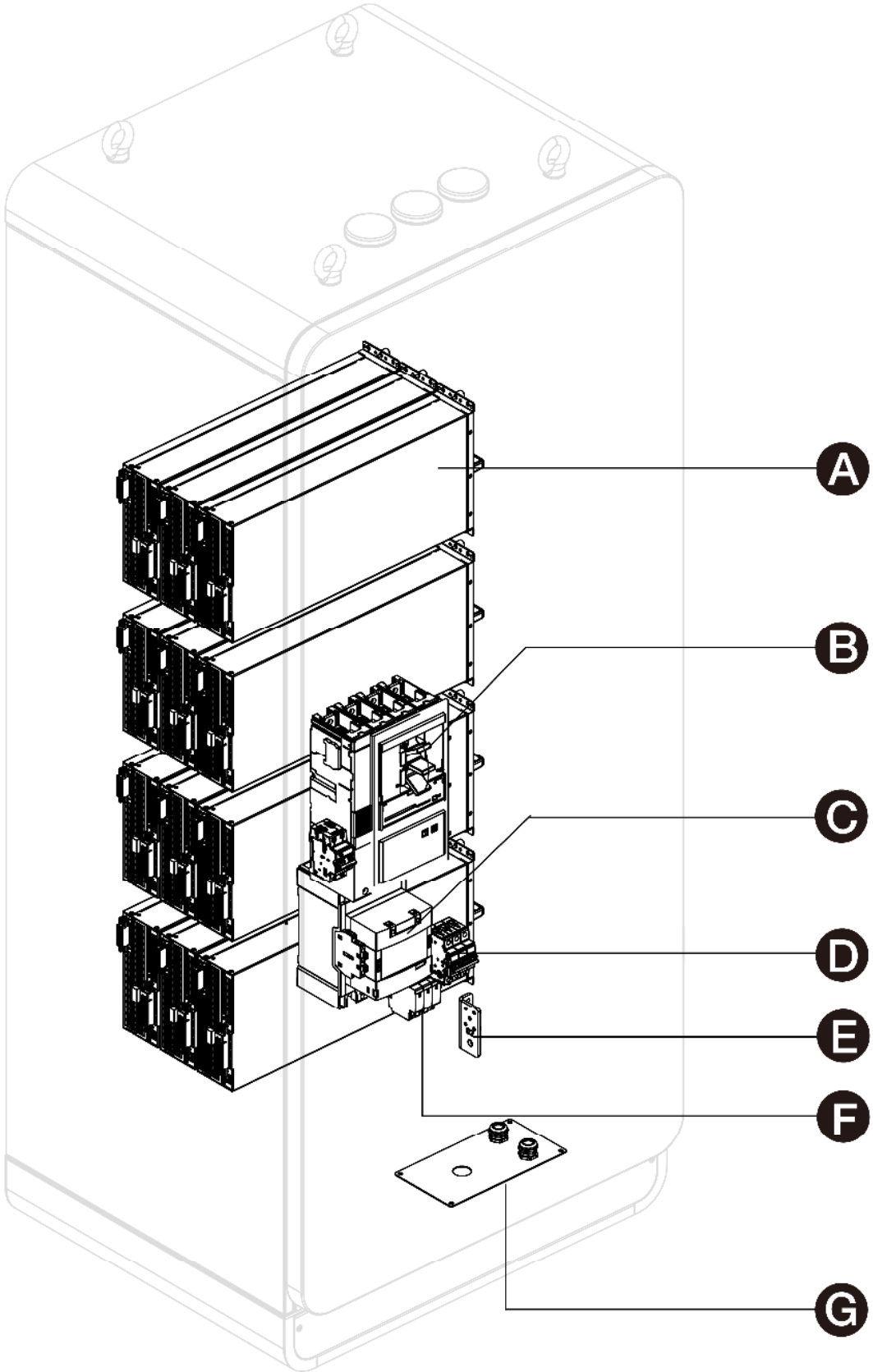
Autel can deliver the MaxiCharger with different payment terminals. The available options vary depending on the region of the installation. Consult Autel's customer service to obtain more information about the different payment options.

Table 3-2 Indicator Descriptions

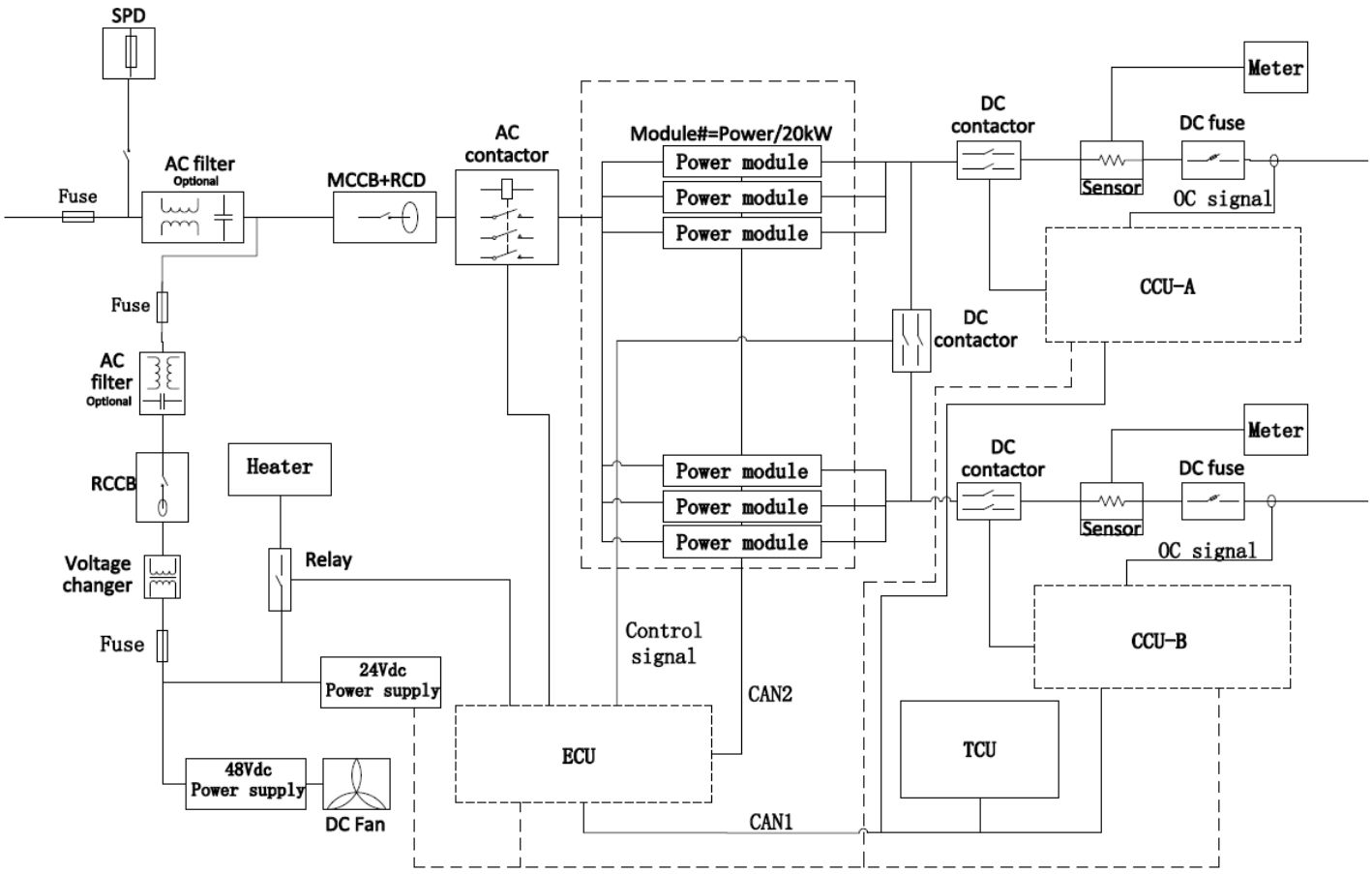
Charging Status	Color	Description
Standby Mode	Solid Green	A connector is available.
EV Connected	Solid White	An EV is connected to the MaxiCharger.
Charging	Illuminating Green in Turn	Indicates the charging progress.
Charging Completed	Flashing Green	An EV is fully charged or has stopped charging.
Reservation	Flashing White	The MaxiCharger is reserved.
Error	Solid Red	An error has occurred.

Table 3-3 Product Descriptions (Inside)

No.	Parameter
A	Charging Module — varies depending on power output
B	Main Breaker — connects/disconnects the charging module
C	AC Input Fuse
D	Auxiliary AC Fuse
E	PE Busbar — connects the PE cable
F	RCD Breaker
G	Cable Gland Plate


A
B
C
D
E
F
G

3.2 Working Principle



3.3 Local Service Portal

The Local Service Portal is a service tool provided by Autel that provides information pertaining to the equipment. This service tool configures key parameters for commissioning, enables on-site diagnostics. For the operation procedures, refer to *Local Service Portal Operations*.

Table 3-4 Parameter Descriptions

Parameter	Example (“*” indicates variables)
Charger ID	DG1120B1**********
OCPP IP	********** ******* **
OCPP-URL address	**********
Port number	***
OCPP encryption method	***
Country code	US
Network selection	auto/Wi-Fi/4g
Supplier	Autel
Control board SN	C06G120**********

Parameter	Example (“*” indicates variables)
MAC address	ba:9f:aa:8c:**:**
Password	000000
Connection ID	0: Connectors 1 and 2 initialization
Charger configuration model	120:120kW
MGR IP	********** *** **
MGR URL	******
MGR PORT	***
MGR SEC	https
MGR ENABLE	1: Enable
http API address	temporarily useless
Running environment	1: China /3: Europe /4: UK /5: USA
Payment method	1: QR code 2: NFC module 3: QR code and NFC module 4: Credit card 5: QR code and credit card 6: NFC module and credit card 7: All
Http test switch	1: Production environment
Device Model	Maxi US **********
Rated Power	120kW
Rated Voltage	950V
Maximum current	200A
Set Current	200A
Max Power	120kW

3.4 Cloud Service Portal

Different cloud-based tools are provided to commission, monitor, and troubleshoot the MaxiCharger. For more information, contact Autel support.

4. Preparation

General installation procedure:

1. Ensure the installation site is ready and you have all the parts and tools described in the sections below.
2. Install the MaxiCharger as described in *Chapter 5*.
3. Energize the MaxiCharger and verify it is fully operational as described in *Chapter 6.*

4.1 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.

IMPORTANT

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.

General installation site design procedure:

1. Select a suitable site. Refer to *4.1.1.*
2. Complete the electrical design. Refer to *4.1.2.*
3. Prepare the cables, including the AC input wire, PE wire, and Ethernet cable (if no cellular network is available).

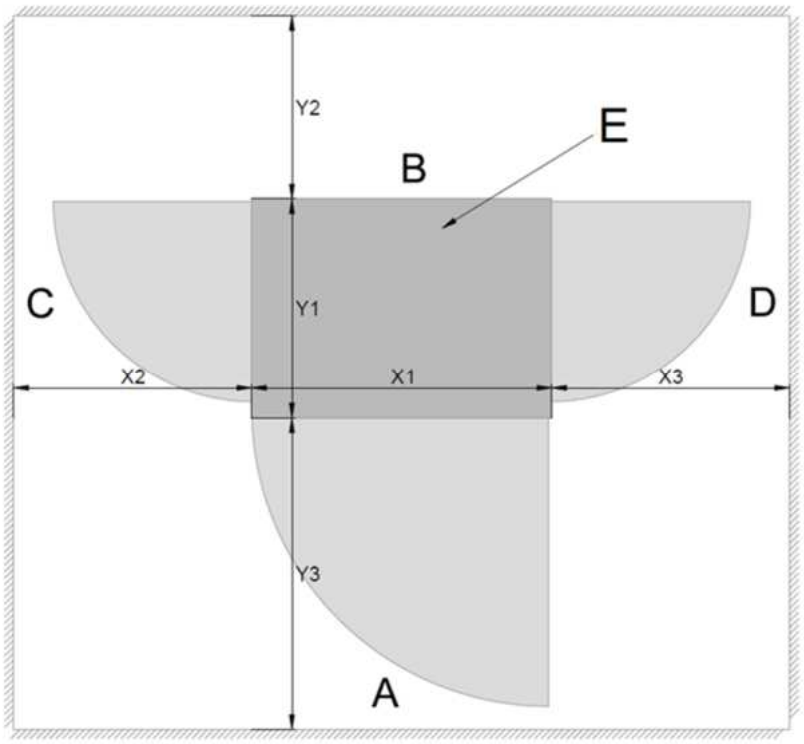
NOTE

- The cables enter the cabinet from the bottom.
- Ensure the maximum opening of the cabinet inlet can sufficiently fit all cables.

4. Ensure that the cable slack is sufficient to guide the cables into the cabinet.
5. Prepare the foundation for the cabinet. Refer to *4.1.3.*

4.1.1 Location Requirements

- The MaxiCharger requires an installation space of 95 x 81 inches (2420 x 1950 mm, for DF120) or 103 x 81 inches (2620 x 2050 mm, for DF240) in order to ensure the normal operation and airflow around the MaxiCharger. The space is calculated as follows:



A. Front side of the MaxiCharger
B. Rear side of the MaxiCharger
C. Left side of the MaxiCharger
D. Right side of the MaxiCharger
E. Cabinet

Table 4-1 Space Requirements for DF120

Parameter	Specification	
	in	mm
X1	32.3	820
X2	31.5	800
X3	31.5	800
Y1	23.6	600
Y2	19.7	500
Y3	33.5	850

Table 4-2 Space Requirements for DF240

Parameter	Specification	
	in	mm
X1	32.3	820
X2	35.4	900
X3	35.4	900
Y1	27.6	700
Y2	19.7	500
Y3	33.5	850

- Ensure the charger's installation location can sufficiently reach the parked EV with the chosen charging cable length. The standard length of a charging cable is 4-meter, but 6- or 7.5-meter cables are also available.
- Ensure that the site complies with the relevant usability standards, such as ADA and DIN 18040:
  - Limit the curb heights.
  - Take into account the limited reach of a wheelchair user.
- Determine appropriate ground anchoring locations where concrete exists or can be installed (no asphalt surfaces).
- Consider locations where stations can be easily added in the future.
- 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 MaxiCharger 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.

NOTE

While Autel tests the MaxiCharger 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.

IMPORTANT

Place each MaxiCharger centered at the head of its parking space, with the touchscreen facing the vehicle. This placement maximizes cable reach for the varied charge port locations on different EVs.

- Pull-through parking (gas station model) is not recommended.

4.1.2 Electrical Design

The MaxiCharger 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.

IMPORTANT

As a continuous load device, the electrical branch circuits to the MaxiCharger must be sized at 125% of the load on each leg of a 3-phase panel for North America installations, in accordance with National Electric Code requirements. For other regions, refer to local code.

4.1.2.1 Use of RCD

The use of RCD is not recommended as RCDs can cause a nuisance trip during transient conditions such as power restoration, line surge or line dips.

To reduce the risk of electric shock, the MaxiCharger provides the following protective measures:

- Galvanic isolation between the AC input and DC output so that current does not flow to earth.
- The output isolation monitor interrupter (IMI). As UL2231-1 requires, the MaxiCharger has the IMI installed, which is evaluated during operation as part of certification testing.

However, the use of RCD is unavoidable on the MaxiCharger. Adjust the following settings to minimize nuisance trips:

- Type: A, F or B (the latter two are preferred)
- Trip threshold: 100 mA
- Trip delay: 100 ms

4.1.2.2 Grounding Requirements

The MaxiCharger must be connected to a grounded, metal, and permanent wiring system. A ground service neutral conductor must be run with circuit conductors and connected to an equipment-grounding terminal on the MaxiCharger.

IMPORTANT

Ensure a grounding conductor complies with local codes and is properly grounded to earth at the MaxiCharger.

4.1.2.3 Wiring Requirements

The AC terminal blocks on the MaxiCharger accept a maximum wire size of 250 Kcmil solid or stranded wires. If you plan to use a larger gauge wire to accommodate a long run, reduce the wire size at the local external disconnect.

Refer to *Technical Specifications* of the MaxiCharger to ensure that the service wiring at the installation location supports the MaxiCharger power requirements:

- Neutral conductors as required by region (a Neutral connection is not required for the MaxiCharger operation)
- AC conductors (L1, L2, and L3) and ground should refer to the specifications in *9.6*.

4.1.3 Preparing the Foundation

General Procedures:

1. Select a suitable base to install the cabinet on.
2. Embed the cables in the ground with a cable conduit.
3. Prepare the foundation.

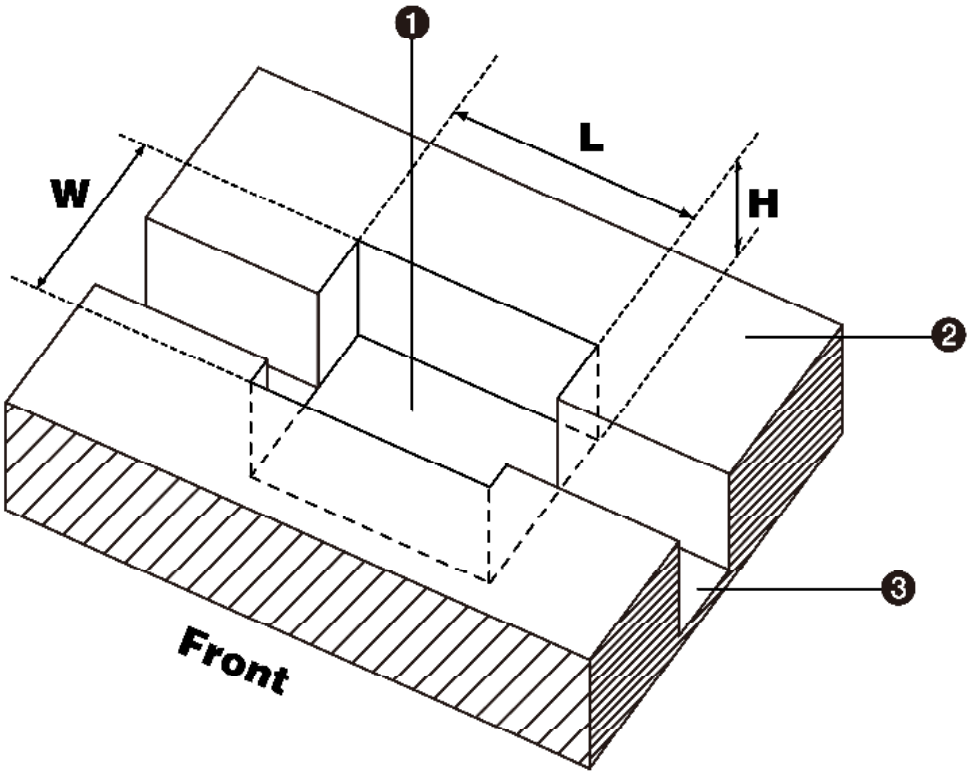
4.1.3.1 Preparing the Foundation

1. Dig a hole according to the foundation dimensions. The recommended dimensions of the hole are:
   - For DF120: 32 x 25 x 20 inches (820 x 640 x 500 mm) (L x W x H)
   - For DF240: 32 x 29 x 20 inches (820 x 740 x 500 mm) (L x W x H)

   See *Figure 4-1 Digging a Hole*.
2. Trench and excavate an opening to accommodate the wiring conduit.

IMPORTANT

The outer diameter of conduit must not exceed the sizes specified in *Table 4-4 Foundation Specifications 2*. Conduit stub-ups should not be higher than 2.4 inches (60 mm) above the surface of the foundation.



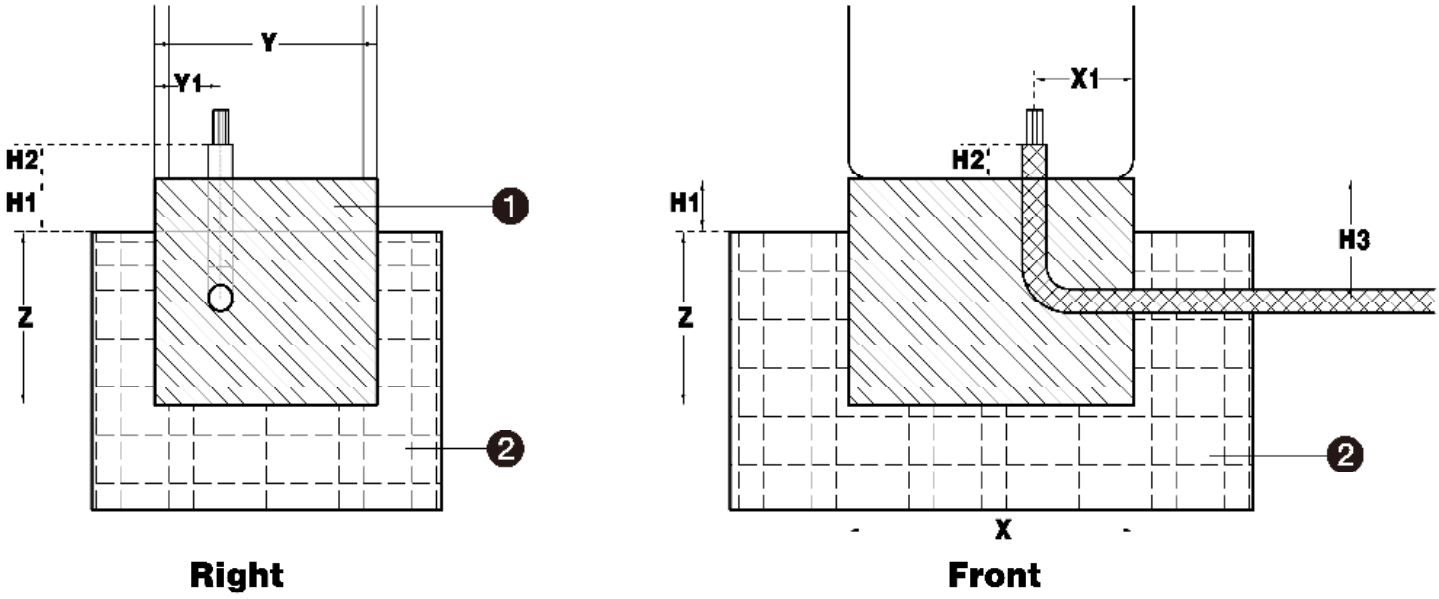
1. Foundation Size
2. Surface
3. Cable Tunnel

Figure 4-1 Digging a Hole

3. Run the conduit to the designated location.

4. Pour the concrete into the hole and wait until the concrete has hardened. Verify that the foundation should be 5.9 inches (150 mm) higher than the surface. The concrete should be at a rated minimum of 2500 PSI.

5. Feed the AC input cables and the Ethernet cable (if available) out of the marked area (C). Ensure a length of at least 2 ft. (61 cm) is available above the foundation to allow wiring to reach the AC terminals. See *Figure 4-2 Preparing the Foundation* and *Figure 4-3 Foundation Diagram*.



1. Foundation
2. Land

Figure 4-2 Preparing the Foundation

Table 4-3 Foundation Specifications 1

Parameter	Specifications			
	DF120		DF240	
	in	mm	in	mm
X	32.3	820	32.3	820
Y	25.2	640	29.1	740
Z	19.7	500	19.7	500
X1	10.8	275	11.2	285
Y1	7.5	190	5.9	151
H1	5.9	150	5.9	150
H2	3.9	100	3.9	100
H3	13.8	350	13.8	350

6. Place the drilling template on the concrete surface, aligning with the marked area (**C**). Mark the four mounting holes (**D**) and remove the drilling template. Drill into the holes with depth over 4.3 inches (110 mm) and 4/5 inch (20 mm) in diameter. Clean any debris.

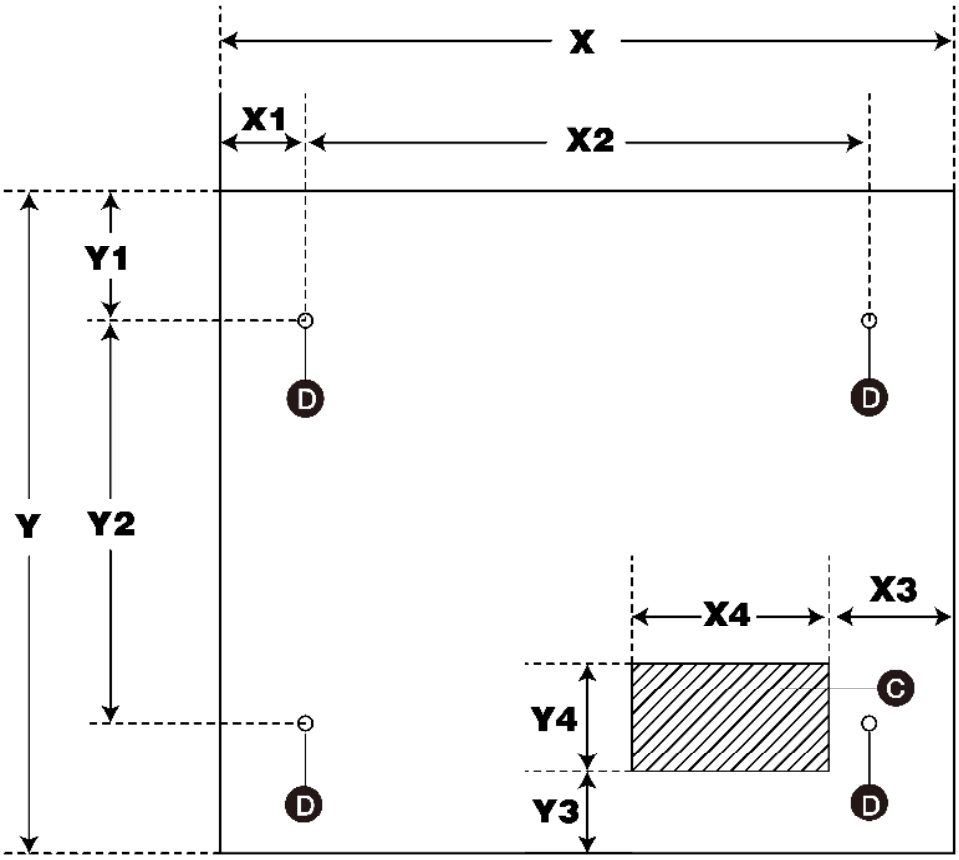


Figure 4-3 Foundation Diagram

Table 4-4 Foundation Specifications 2

Parameter	Specifications			
	DF120		DF240	
	in	mm	in	mm
X	32.3	820	32.3	820
Y	25.2	640	29.1	740
X1	3.7	95	3.7	95
X2	24.8	630	24.8	630
X3	5.5	140	5.5	140
X4	8.7	220	8.7	220
Y1	3.7	94.3	5.7	144.3
Y2	17.7	450	17.7	450
Y3	5.2	131	3.6	91.5
Y4	4.7	120	4.7	120

7. Embed four M16 expansion bolts into the holes, leaving 2.4 inches (60 mm) above the ground.
8. Cut the wires to the correct length.

NOTE

- Since bell ends may interfere with station placement, no bell ends should be left on the conduit after all wires are pulled.
- Depth of conduit may vary depending on the site. The diagram above does not specify the conduit depth, as long as the stub-ups are vertical and placed correctly.
- Fill the foundation with gravel to prevent rodents from entering the MaxiCharger.

4.2 Unpacking

1. Check the tilt and inversion indicators and Shockwatch.
   - Observe the sensors attached to the package for the degree of the tilt and complete overturn. If the sensors demonstrate over 30° of tilt or total overturn, refuse the delivery.
   - If the Shockwatch displays red, contact Autel customer service and the delivery personnel, and then inspect the product for any damage. **Do not** accept the delivery until the inspection is complete and no damage is found.

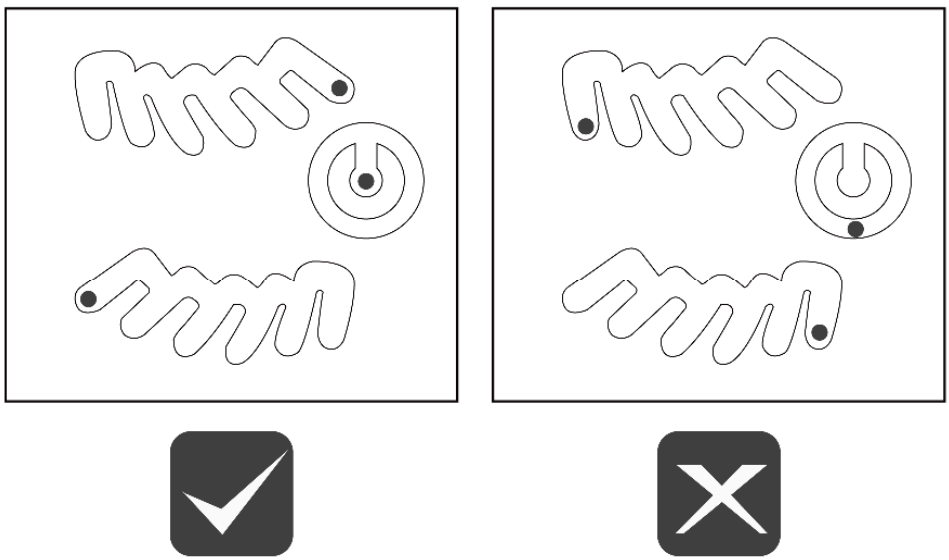
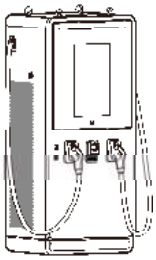
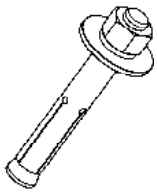
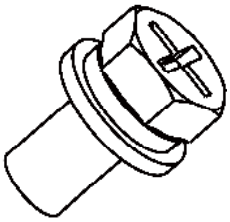
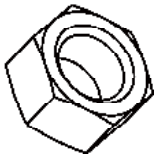
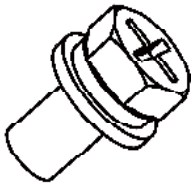
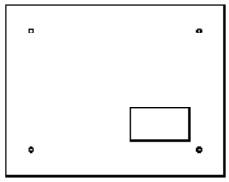


Figure 4-4 Tilt and Inversion Indicators

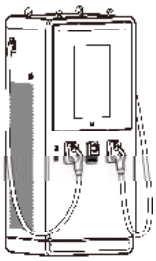
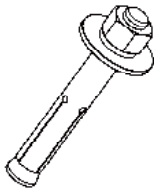
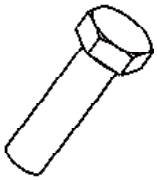
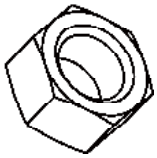
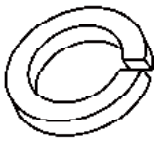
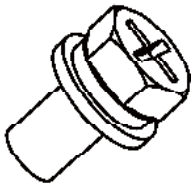
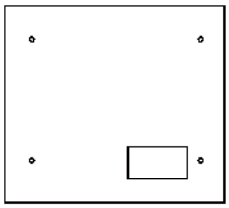
2. Remove the outside packaging and interior protection materials using appropriate tools.
3. Inspect the MaxiCharger and the parts for installation for damage. If you find damage or the parts are not consistent with the order, contact your local dealer.
4. Ensure that all parts are delivered according to the order.

4.3 Packing List

4.3.1 Packing List for DF120

MaxiCharger 1 PC		Expansion Bolt (M16 x 150) 4 PCS	
Bolt (M10 x 30) 7 PCS		Flat Gasket (Size 10) 10 PCS	
Hex Nut (M10) 7 PCS		Screw (M4 x 10) 24 PCS	
Bolt (M8 x 25) 2 PCS		Eye Bolt (M16) 4 PCS	
Cabinet Door Key 2 PCS		Drilling Template 1 PC	
Packing List 1 PC			

4.3.2 Packing List for DF240

MaxiCharger 1 PC		Expansion Bolt (M16 x 150) 4 PCS	
Bolt (M10 x 35) 7 PCS		Flat Gasket (Size 10) 14 PCS	
Hex Nut (M10) 7 PCS		Spring Washer (Size 10) 7 PCS	
Bolt (M8 x 25) 2 PCS		Screw (M4 x 10) 48 PCS	
Cabinet Door Key 2 PCS		Eye Bolt (M16) 4 PCS	
Packing List 1 PC		Drilling Template 1 PC	

4.4 Recommended Tools

The following tools are recommended when installing the MaxiCharger. Ensure you have these tools readily available prior to installation.

- Multimeter
- Spirit Level
- Tape Measure
- Brush
- Cellular Signal Detection Device
- Wire Stripper
- Cable Lug
- Crimping Plier
- Power Drill
- 16 mm Drill Bit
- PH2 Screwdriver
- Monkey Wrench
- Hex Wrench

NOTE

- 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 required.

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 is in place at the installation site.
- A grounding conductor that complies with local codes is properly grounded to earth.
- The cellular coverage at the installation site should be consistently strong when choosing to communicate over cellular network for the MaxiCharger. Use a cellular signal detection device to ensure the signal is above -90 dBm. If the signal is below -90 dBm, install repeaters to boost the strength of the cellular signals. Repeaters are often required when installing the MaxiCharger in an underground environment such as an underground garage or enclosed parking space.
- There is enough space available around the installation site to accommodate using a forklift or other lifting equipment, to unpack, and to allow people to work around freely.
- All the parts and tools are available.
- Ensure all the details are followed in this installation procedure.

IMPORTANT

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

General Installation Procedure:

1. Take into consideration of the center of gravity of the MaxiCharger when moving the equipment. Refer to *5.2*.
2. Move the cabinet to the installation site. Refer to *5.3*.
3. Install the cabinet. Refer to *5.4*.
4. Complete the electrical wiring. Refer to *5.5*.
5. Install the charging module. Refer to *5.6*.

5.2 Center of Gravity

Please see the figure below for the center of gravity when installing the MaxiCharger.

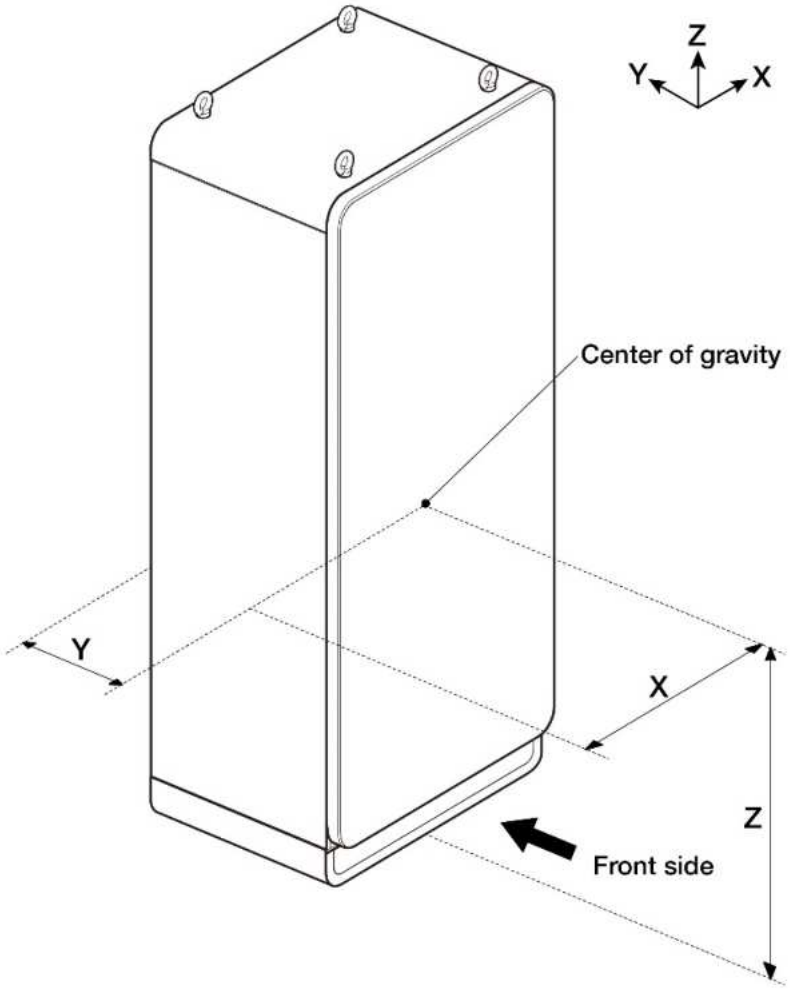


Figure 5-1 Center of Gravity

Parameter	Specifications			
	DF120		DF240	
	in	mm	in	mm
X	15.8	400	15.8	400
Y	13.0	330	11.8	300
Z	33.1	840	33.1	840

5.3 Moving the Cabinet to the Site

There are two ways to move the cabinet to the construction site:

- Hoist
- Forklift

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 MaxiCharger.

CAUTION

- DO NOT drop the cabinet or subject it to strong impact.
- DO NOT exceed a tilting angle of 30°.
- Ensure that there is no dynamic force on the hoisting points.

5.3.1 Hoisting the Cabinet

➢ **To hoist the cabinet**

1. Install the four M16 eye bolts to the four lifting holes (**A**).
2. Connect the cables of the hoisting equipment to the eye bolts with lifting loops.
3. Move the cabinet to the construction site.

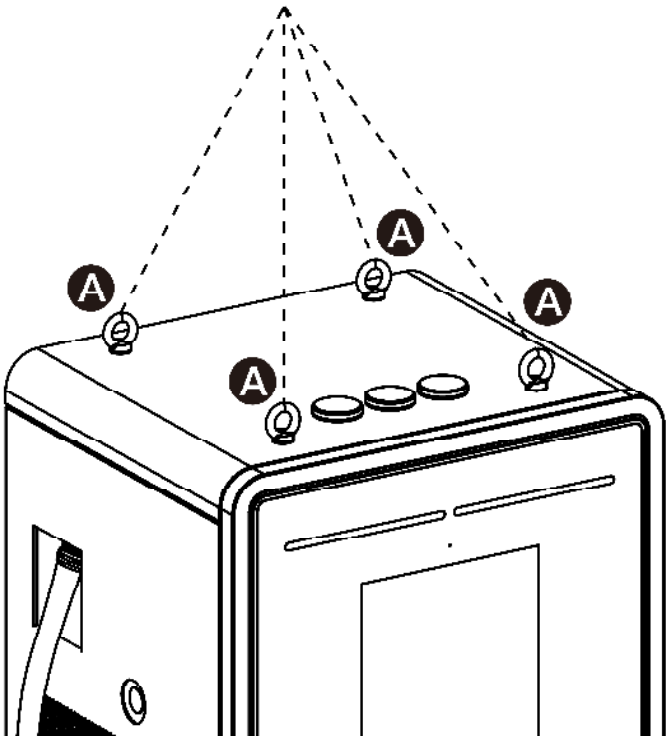


Figure 5-2 Hoisting the Cabinet

5.3.2 Forklifting the Cabinet

- **To forklift the cabinet**

1. Ensure the forks (**A**) of the forklift truck in the gaps go through the gaps in the side of the pallet.
2. Move the cabinet to the construction site.

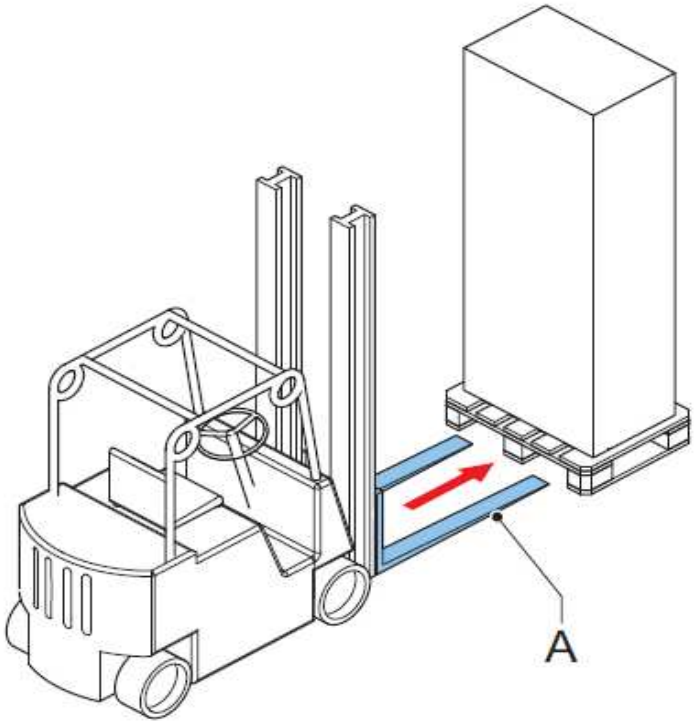


Figure 5-3 Transporting the Cabinet by Forklift

5.4 Installing the Cabinet

1. Remove the front and rear base covers (**A**) using a screwdriver. **Reinstall them after all the installation work is completed**.

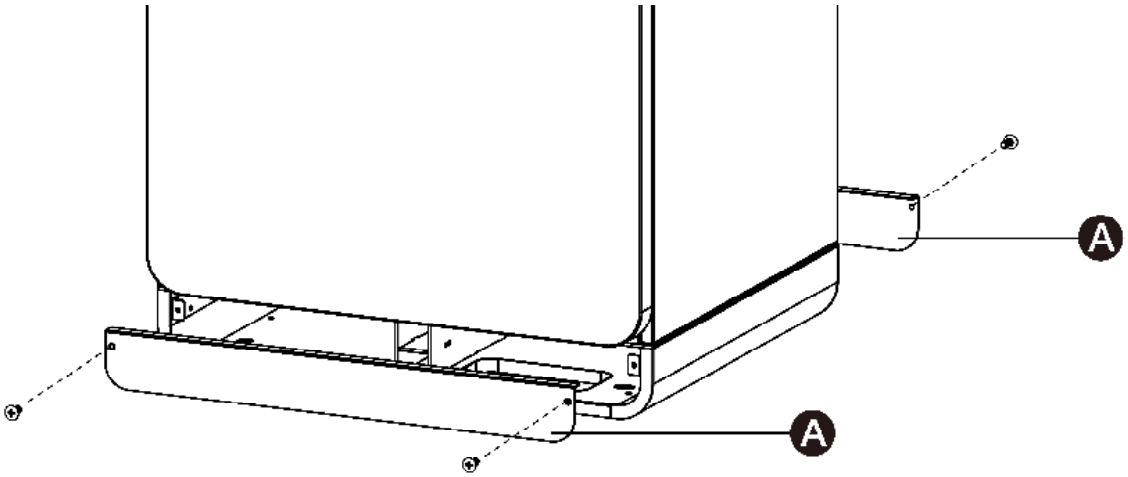


Figure 5-4 Removing the Base Covers

2. Open the front door of the MaxiCharger.

DANGER

Hazardous voltage

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

- **To open the front door**

  1) Use the door key to unlock the front door.
  2) Open the front door.
  3) If necessary, open the left or right door after opening the front door.

3. Remove the three M6 screws and the galvanic isolation board (**A**) from the cabinet. (**Reinstall the board after the commissioning work is completed.**)

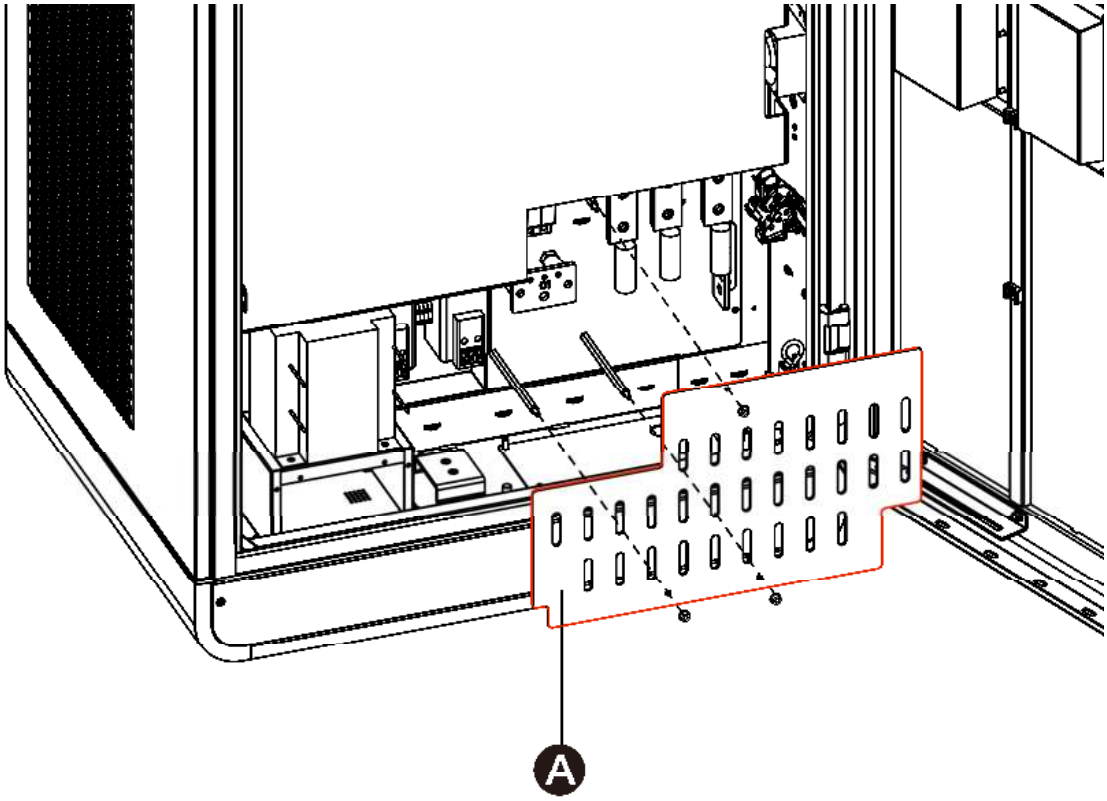


Figure 5-5 Removing the Galvanic Isolation Board

4. Loosen the four fasteners (**A**) on the cable gland plate, remove the plate, and close the door.

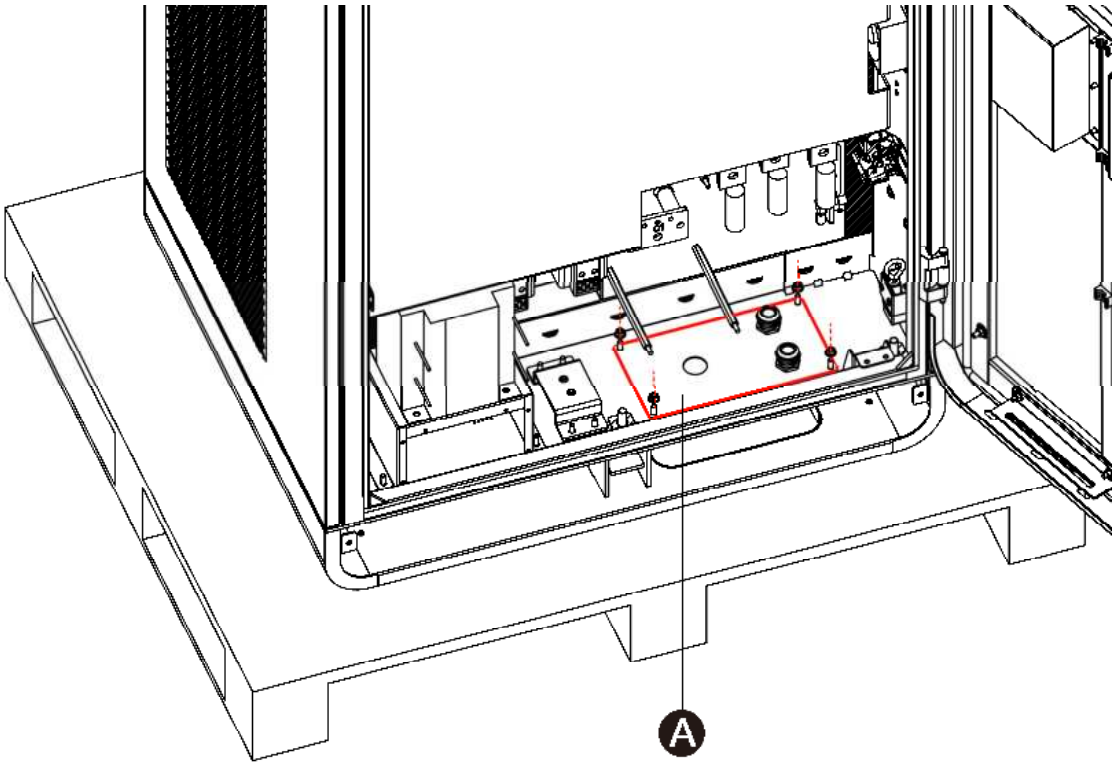


Figure 5-6 Loosening the Fasteners

5. Remove the cabinet from the pallet by removing the four hex nuts (**D**), spring washers (**E**), flat gaskets (**F1**), expansion bolts (**G**), and flat gaskets (**F2**).

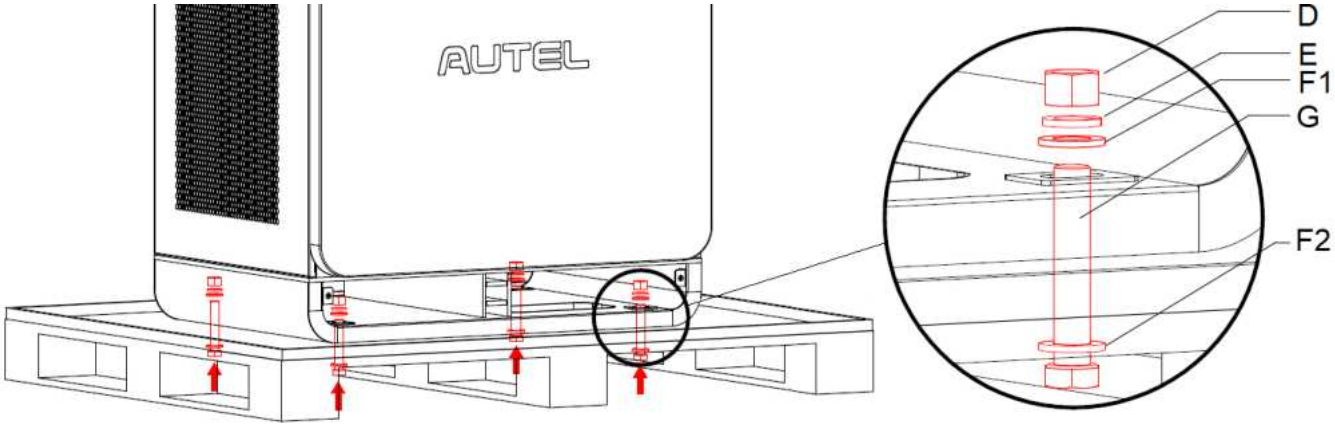


Figure 5-7 Removing the Cabinet from the Pallet

6. Hoist the cabinet. If the cabinet has not been hoisted before, refer to *5.3.1* for hoisting instructions.
7. Carefully move the cabinet at 20 inches (500 mm) above the foundation. Put the service wiring through the AC inlet hole.
8. Carefully lower the cabinet on the foundation. Ensure that the cabinet is aligned with the installation holes.
9. Tighten the bolts to 103.26 ft·lb (140 N·m).

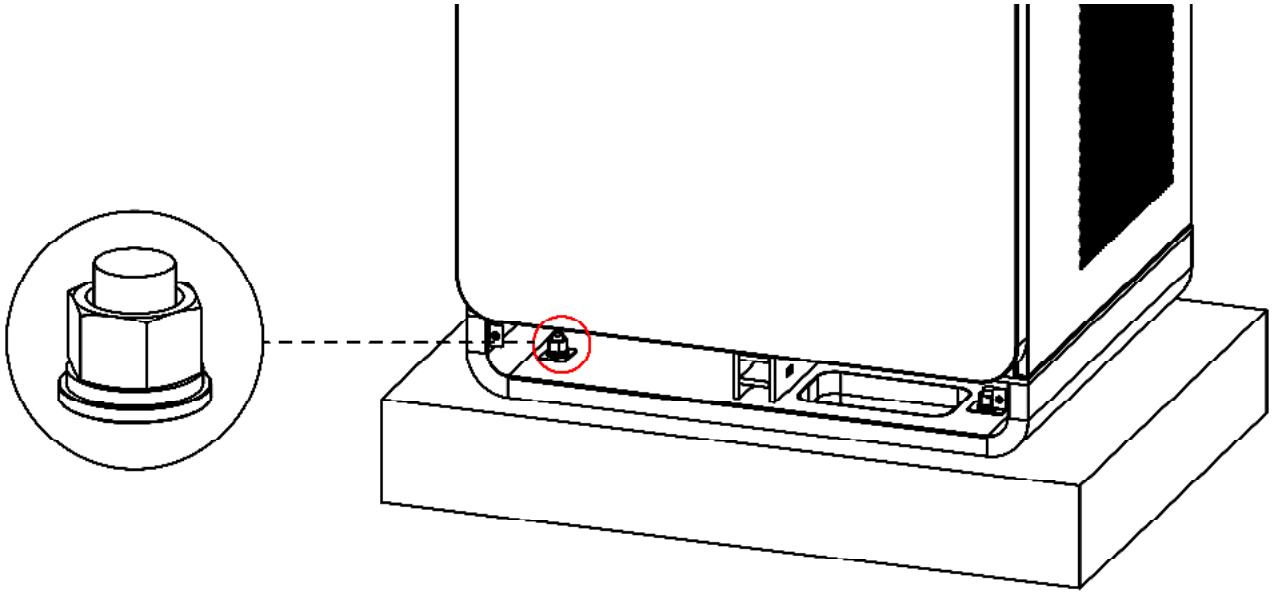


Figure 5-8 Tightening the Bolts

10. Remove the M16 eye bolts on the top of the cabinet and seal the holes.

5.5 Electrical Wiring

5.5.1 Preparing for the Electrical Wiring

1. Reinstall the cable gland plate.

2. Guide the service wiring (**A**) and the Ethernet cable (**C**) through the cable gland plate as per the diagram below. Reinstall and tighten the four fasteners to secure the cable gland plate.

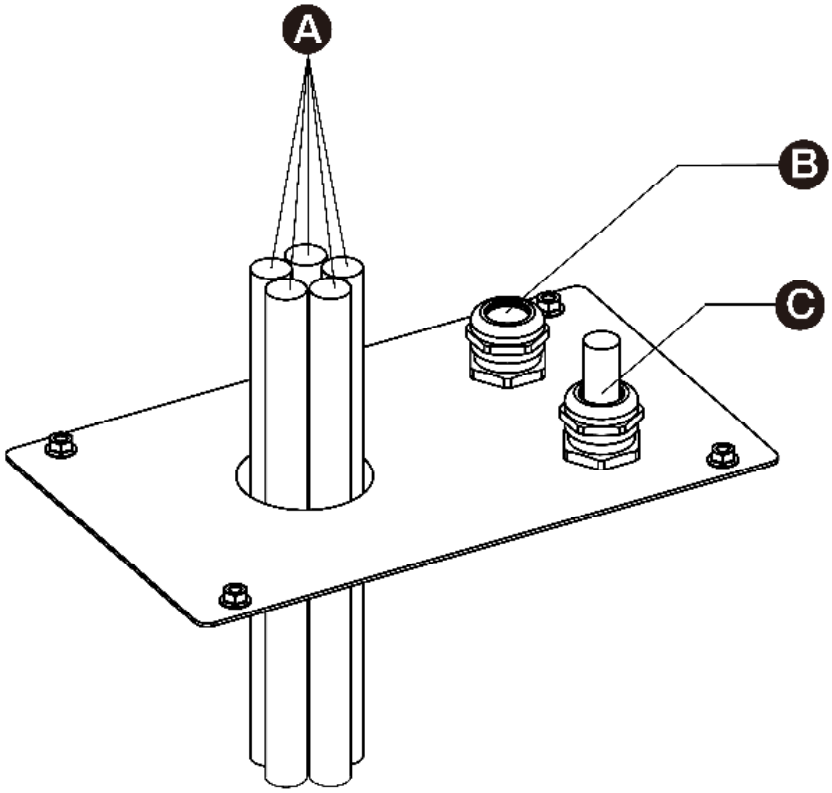


Figure 5-9 Guiding the Cables through the Cable Gland Plate

NOTE

Install a spare Ethernet cable through cable gland (**B**) only as needed.

CAUTION

Ensure the cable gland is closed and sealed if the Ethernet cable is not used.

5.5.2 Connecting the PE Wire

1. Cut the PE wire (**C**) of the power cable to the correct length to reach the PE busbar (**A**).
2. Use the wire stripper to remove 0.8 in (20 mm) of the insulation from the end of the PE wire. Ensure the stripped length is compatible with the cable lug (**B**).
3. Use the crimping tool to attach the cable lug to the end of the wire.
4. Use the fasteners to attach the PE wire to the PE busbar.
5. Tighten the fasteners to 15.12 ± 1.84 ft·lb (20.5 ± 2.5 N·m).

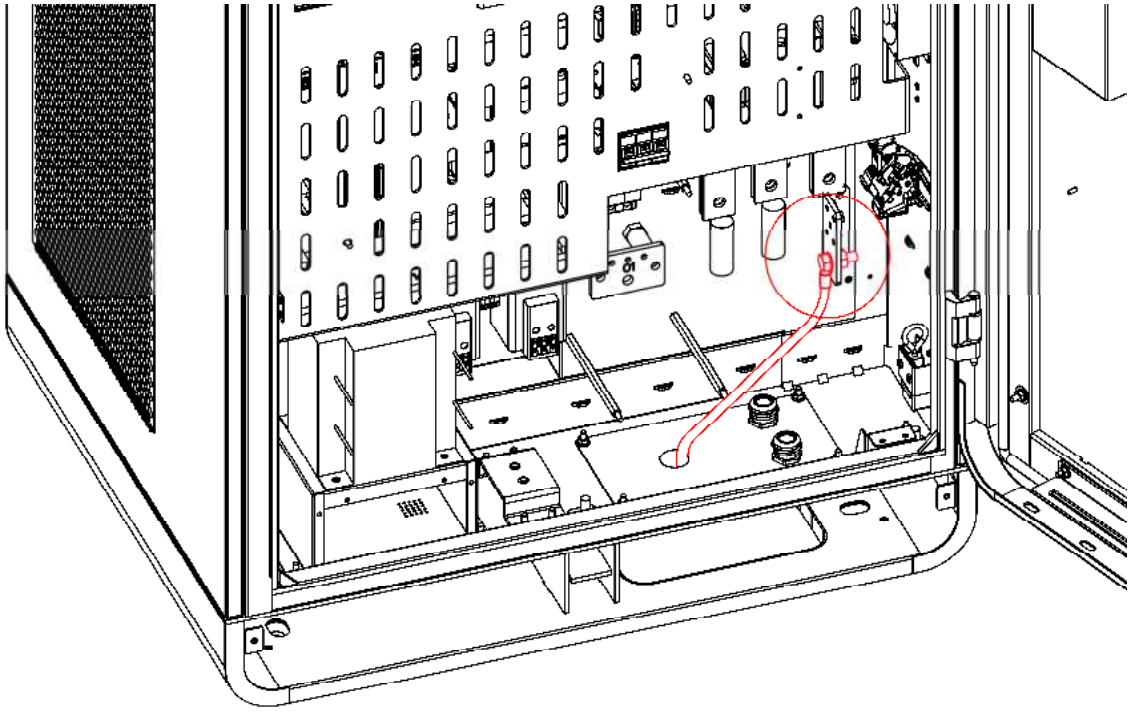


Figure 5-10 Connecting the PE Wire (1)

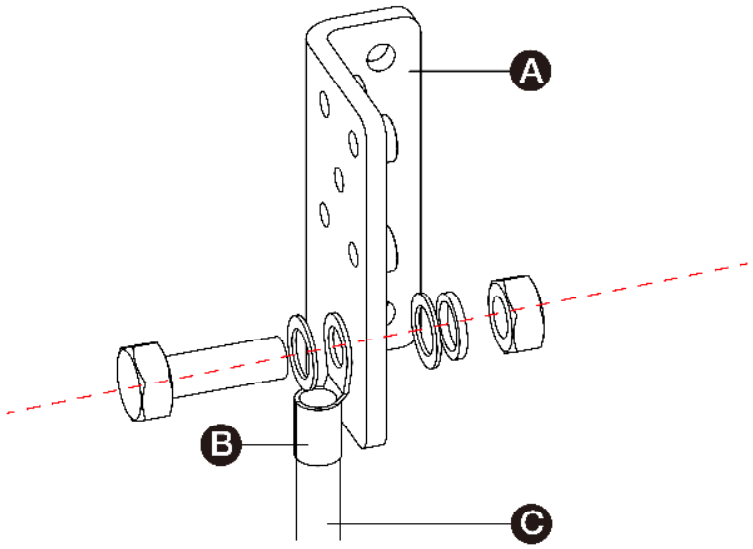


Figure 5-11 Connecting the PE Wire (2)

NOTE

From left to right, the fasteners (B) are assembled in order of one M10 x 35 bolt, two #10 flat gaskets, one #10 spring washer, and one M10 hex nut. (See the diagram above.)

5.5.3 Grounding the Enclosure

1. Connect the earth conductor to the pin of the enclosure.
2. Connect the earth conductor to the earth electrode.

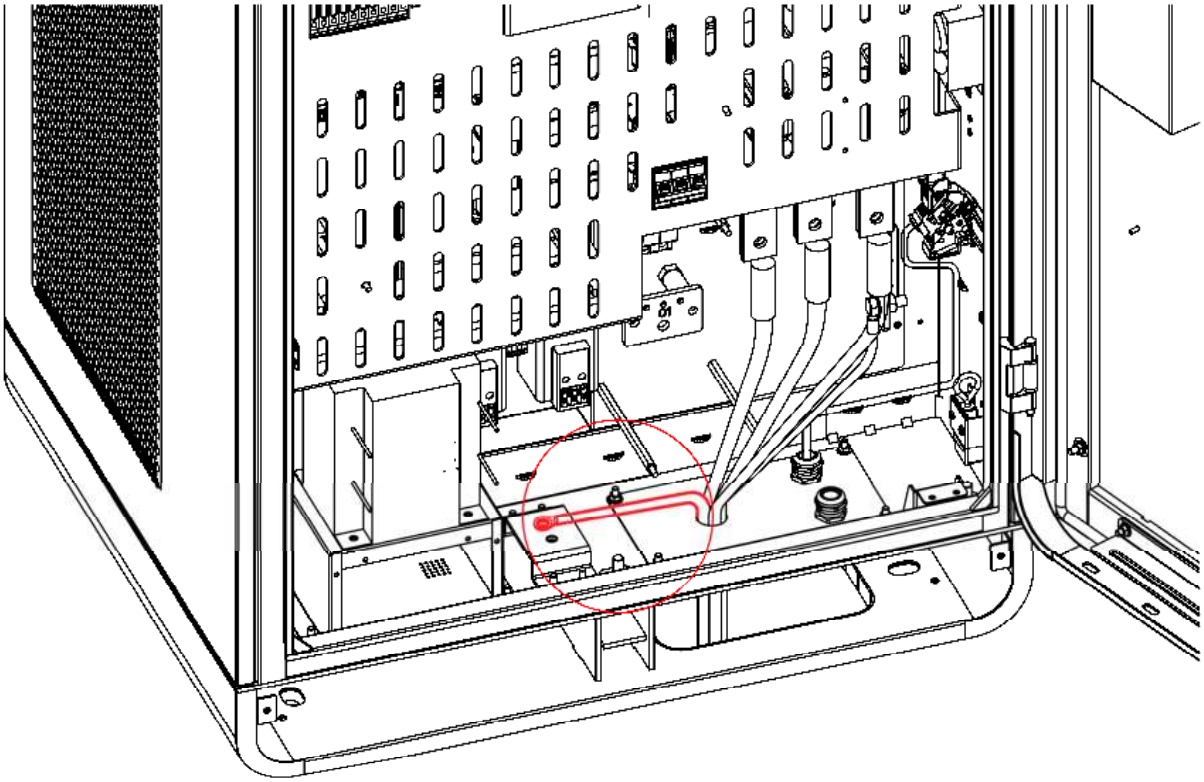


Figure 5-12 Grounding the Enclosure

5.5.4 Connecting the AC Input Wires

1. Cut the wires L1, L2, and L3 to the correct length to reach the connectors on the AC fuse.
2. Use the wire stripper to remove 0.8 in (20 mm) of the insulation from the end of the wires. Ensure the stripped length is compatible with the cable lugs (**A**).
3. Use the crimping tool to attach the cable lugs to the end of the wires.
4. Use the fasteners (**B**) to attach the wires to the connectors:
   - L1 wire to the connector A.
   - L2 wire to the connector B.
   - L3 wire to the connector C.
5. Tighten the fasteners to 15.12 ± 1.84 ft·lb (20.5 ± 2.5 N·m).

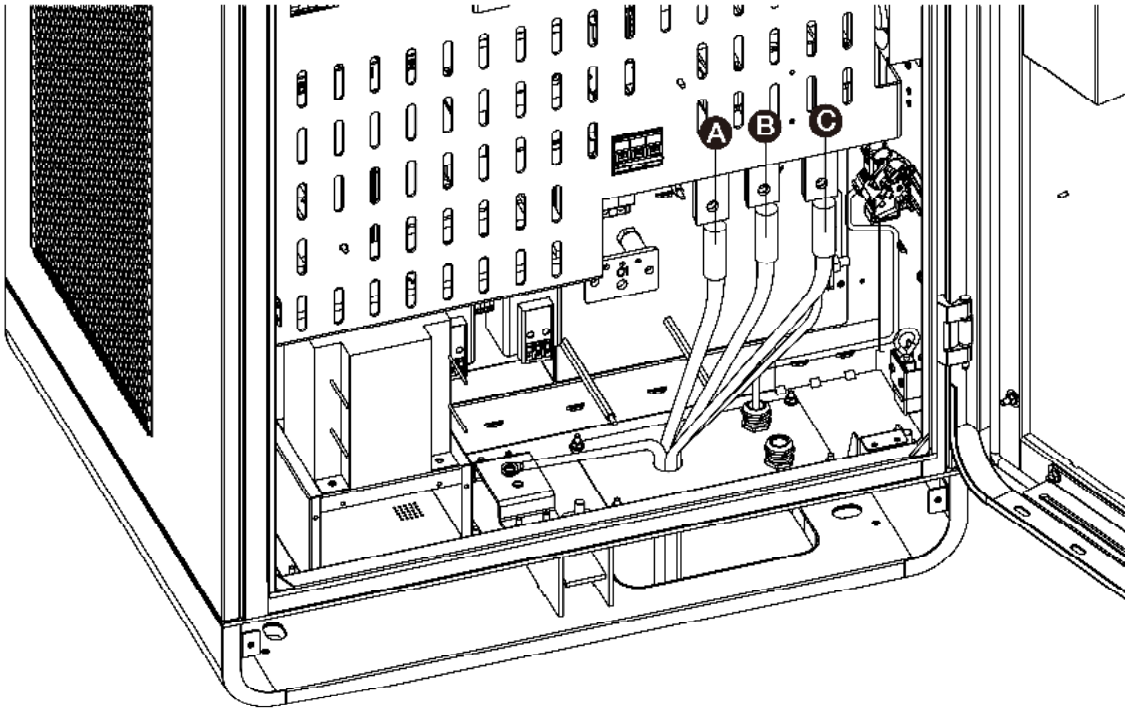


Figure 5-13 Connecting the AC Input Wires (1)

6. Use duct seal to seal the conduit opening as needed.

IMPORTANT

The conduit opening must be sealed to protect the wiring from the environment.

If needed, connect two AC input wires of the same type to each connector as shown below:

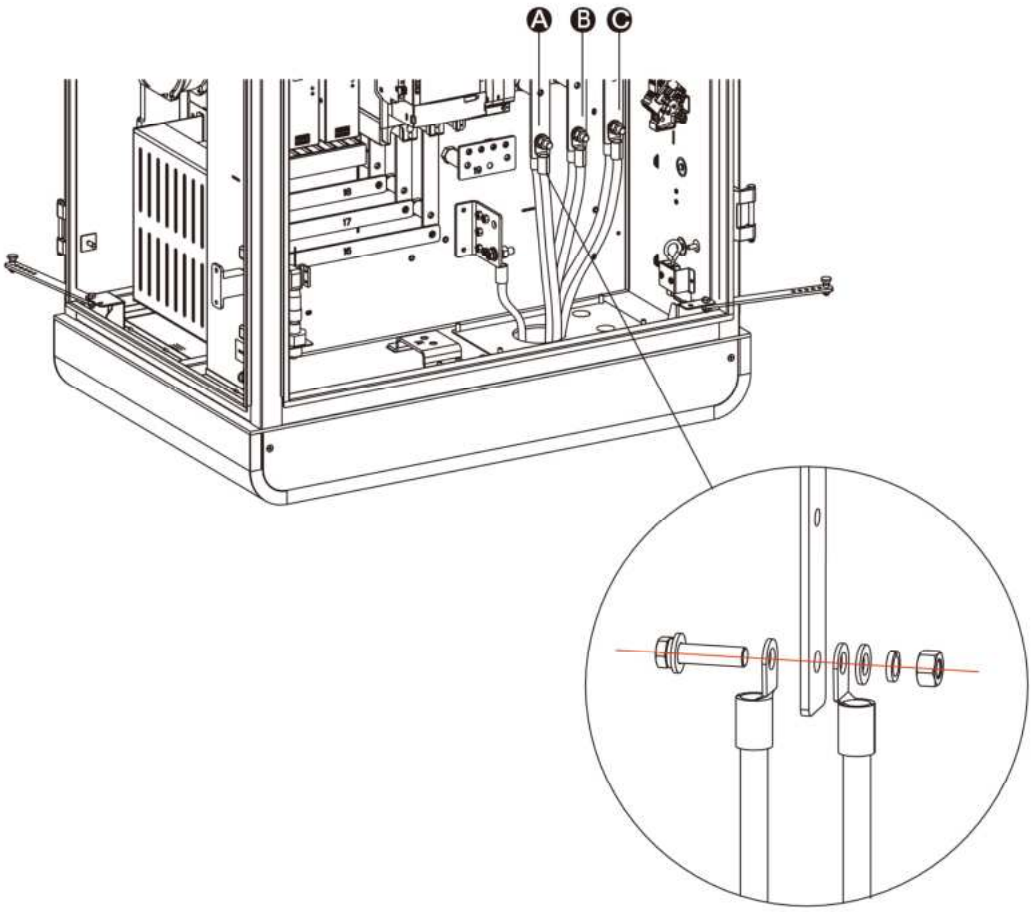


Figure 5-14 Connecting the AC Input Wires (2)

5.5.5 Connecting to the Internet

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

5.5.5.1 Connecting the Ethernet Cable

Plug the Ethernet cable into the RJ45 port.

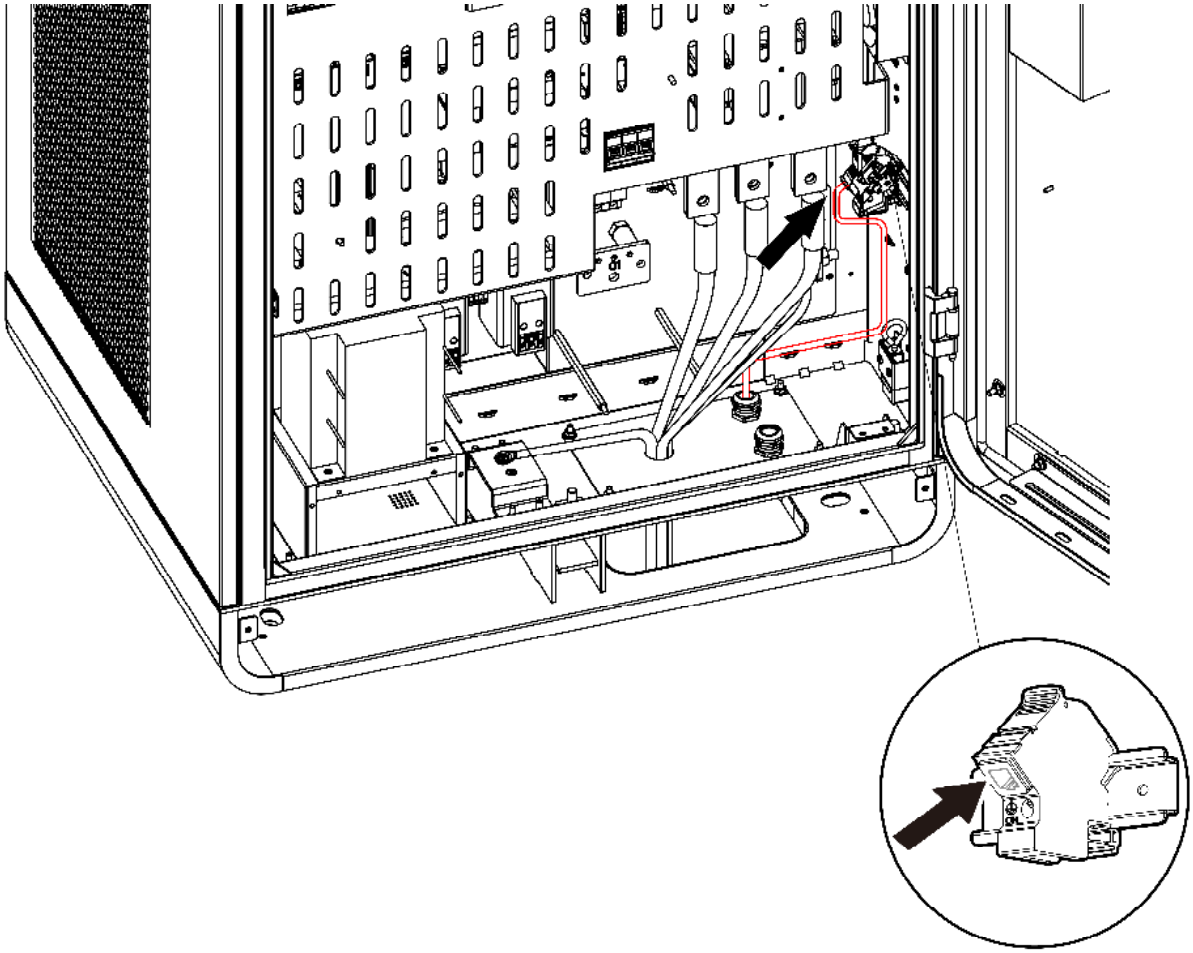


Figure 5-15 Connecting the Ethernet Cable

5.5.5.2 Installing the SIM Card

1. Press the button (**A**) to release the SIM card tray.
2. Insert the SIM card into the tray. Ensure the card is placed correctly.
3. Push the card tray into the slot.

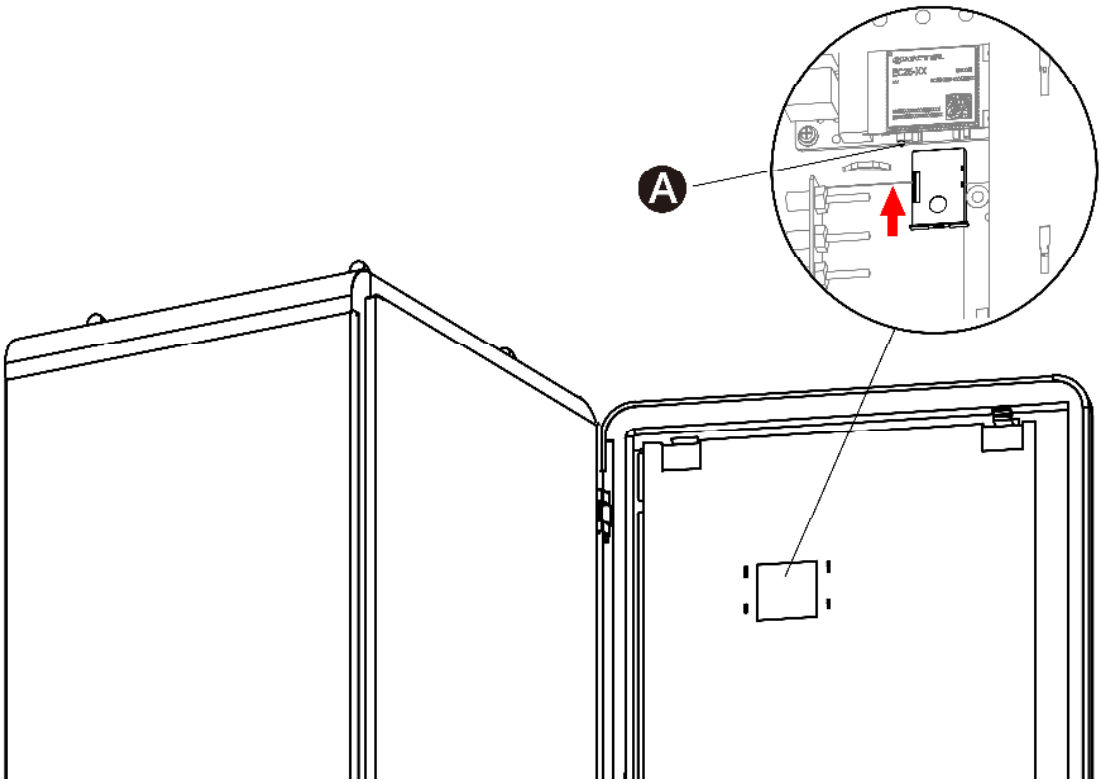


Figure 5-16 Installing the SIM Card

5.6 Installing the Charging Module

1. Slowly push the module into the slot.

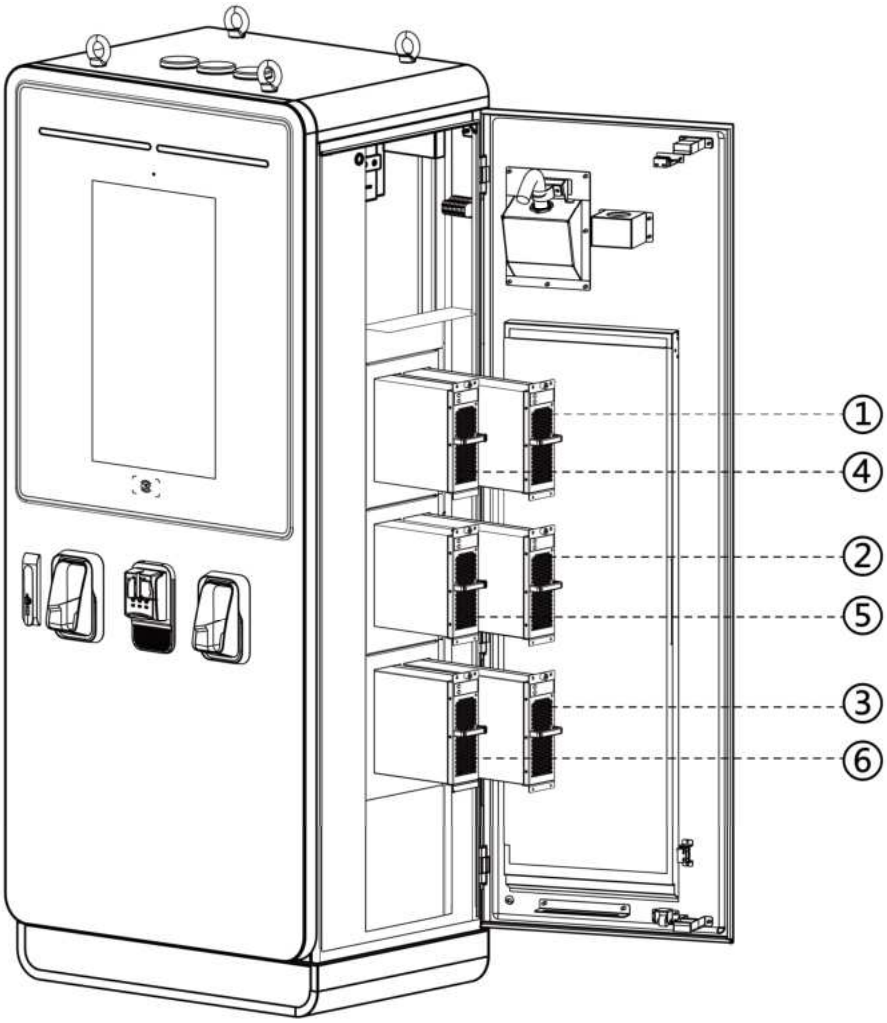


Figure 5-17 Installing the Charging Module (for DF120)

Table 5-1 Charging Module Installation Specifications

Model	Rated Power	Number of Modules	Location
DF120 (UF60A3001)	60 kW	3 PCS	1, 2, 4
DF120 (UF80A3001)	80 kW	4 PCS	1, 2, 4, 5
DF120 (UF100A3001)	100 kW	5 PCS	1, 2, 3, 4, 5
DF120 (UF120A3001)	120 kW	6 PCS	1, 2, 3, 4, 5, 6

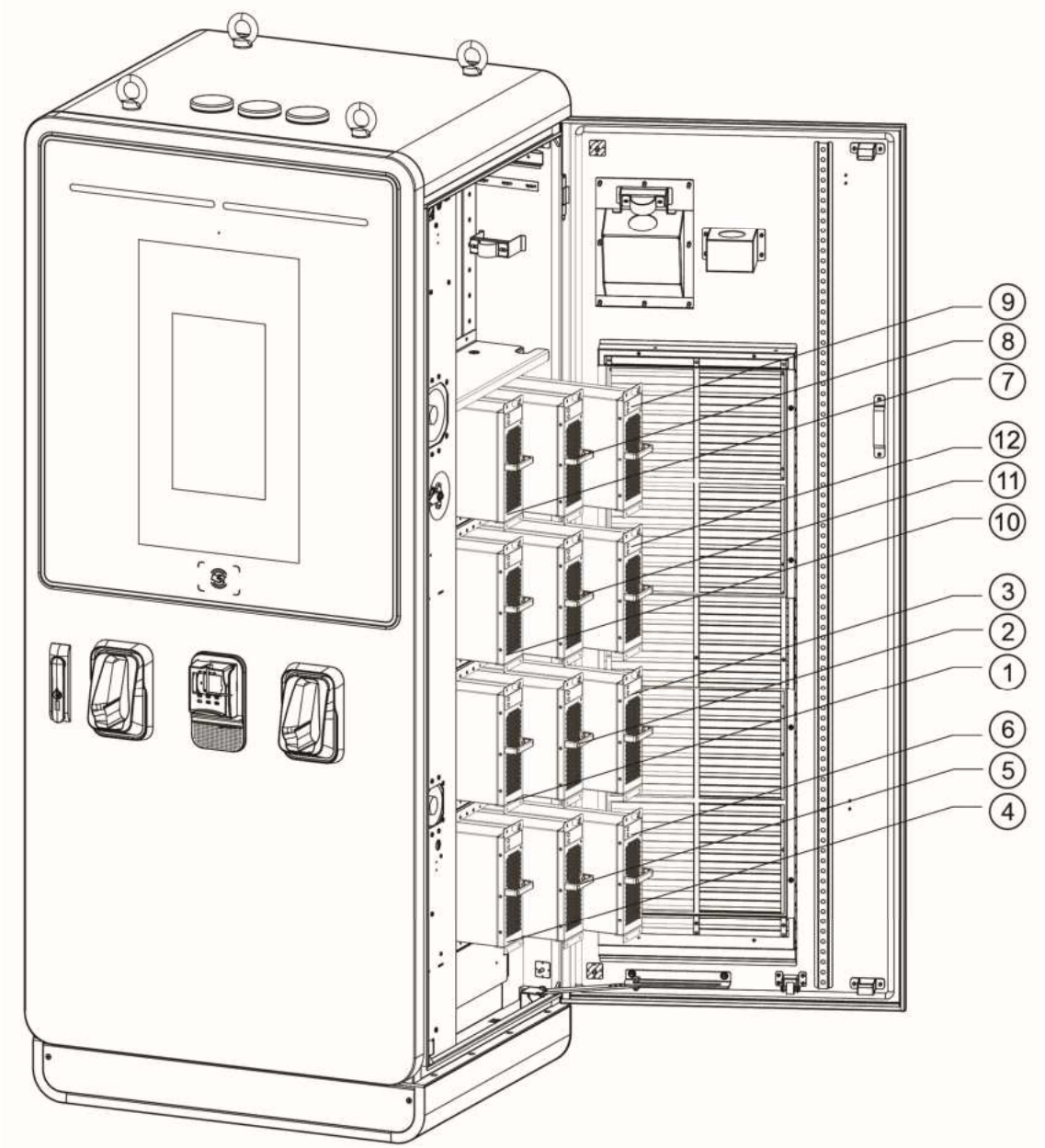


Figure 5-18 Installing the Charging Module (for DF240)

Table 5-2 Charging Module Installation Specifications

Model	Rated Power	Number of Modules	Location
DF240 (UF140A4001/UF140A3001)	140 kW	7 PCS	1, 2, 3, 4, 7, 8, 9
DF240 (UF160A4001/UF160A3001)	160 kW	8 PCS	1, 2, 3, 4, 7, 8, 9, 10
DF240 (UF180A4001/UF180A3001)	180 kW	9 PCS	1, 2, 3, 4, 5, 7, 8, 9, 10
DF240 (UF200A4001/UF200A3001)	200 kW	10 PCS	1, 2, 3, 4, 5, 7, 8, 9, 10, 11
DF240 (UF220A4001/UF220A3001)	220 kW	11 PCS	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
DF240 (UF240A4001/UF240A3001)	240 kW	12 PCS	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

NOTE

The above illustrations are for reference only. Install the charging modules based on the location number.

2. Install and torque the M4 x 10 screws to 10.6 lb·in (1.2 N·m) to secure the module.

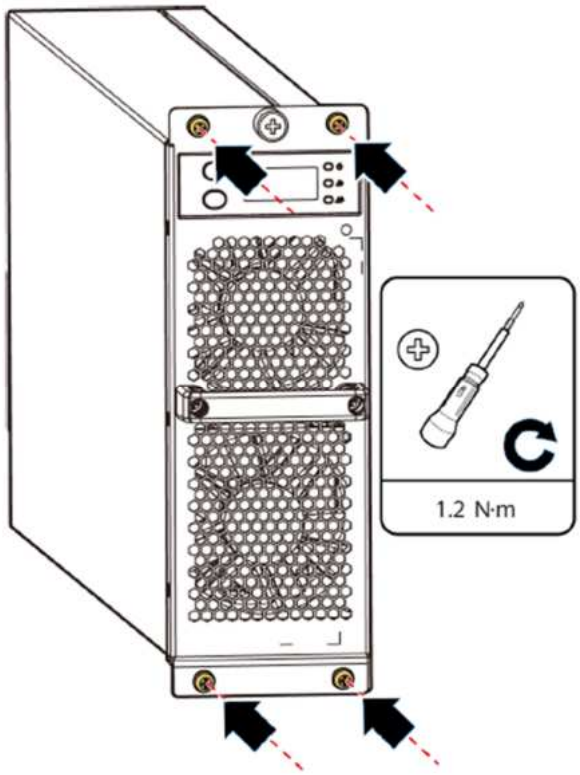


Figure 5-19 Tightening the Screws

3. After the installation is completed, set the hardware address. For details, contact manufacturer certified installation engineer.

4. Seal the cable holes of the cabinet and close the doors.

➢ **To close the doors**

1) If the left or right door is open, close it through the opening of the front door.

2) Close the front door.

3) Use the door key to lock the front door.

5.7 Preparing for Commissioning

DANGER

Hazardous voltage

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

1. Ensure that the site complies with these requirements:
   - The MaxiCharger 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 connector of the MaxiCharger 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 MaxiCharger
   - Longitude and latitude of the MaxiCharger. If there are more than one MaxiCharger on one location, the coordinates should be slightly different (at least 0.0001 degree) so that not all the equipment are at the same location on the map.
   - Photo of the surroundings of the MaxiCharger
   - Specification of the external fuse at the electrical panel
   - Date of installation completion
   - Contact information of the contact person on site
   - Special remarks

6. Operation

6.1 Before Use

- Ensure that the MaxiCharger is installed according to the instructions in this manual.
- 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. Contact the manufacturer when the MaxiCharger is ready for commissioning.
- The space around the MaxiCharger shall not be blocked by snow or other objects.
- Ensure that the maintenance work has been carried out on the MaxiCharger.
- If the MaxiCharger is de-energized for more than four hours, activate the internal heater to remove condensation from the cabinet.

6.2 Powering Up the MaxiCharger

1. Ensure that the upstream breaker stays in the **OFF** position and locked during the procedure.
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 circuit connections among L1, L2, L3, and PE. If short circuit occurs, contact Autel technical support.
4. Ensure that the RCCB and MCCB stay in the **OFF** position.
5. Contact Autel technical support to turn on the upstream breaker, then use a voltage tester to measure the voltage of AC power input between the terminals on the surge protection device switch. Ensure that all the measured voltages are in accordance with local regulations.
6. Set the main breakers to the **ON** position.
7. Set the RCCB to the **ON** position and check the indicators on CCU, ECU, TCU, and the screen display.
   - If any indicator of CCU, ECU or TCU is off or the screen display is abnormal, please contact Autel technical support.
   - If all indicators and the screen display normal, go to next step.
8. Set the MCCB to the **ON** position and connect to the main circuit. Close the doors of the cabinet. The MaxiCharger is now ready for use.

6.3 Emergency Situations

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

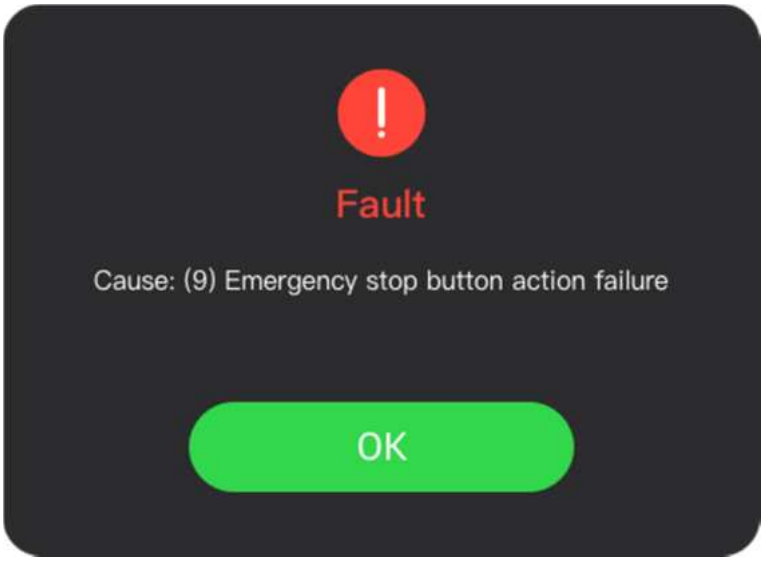


Figure 6-1 Fault Message Screen

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

6.4 Charge Sessions

General charging procedure

- **To charge an EV**

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

6.4.1 Standby Screen

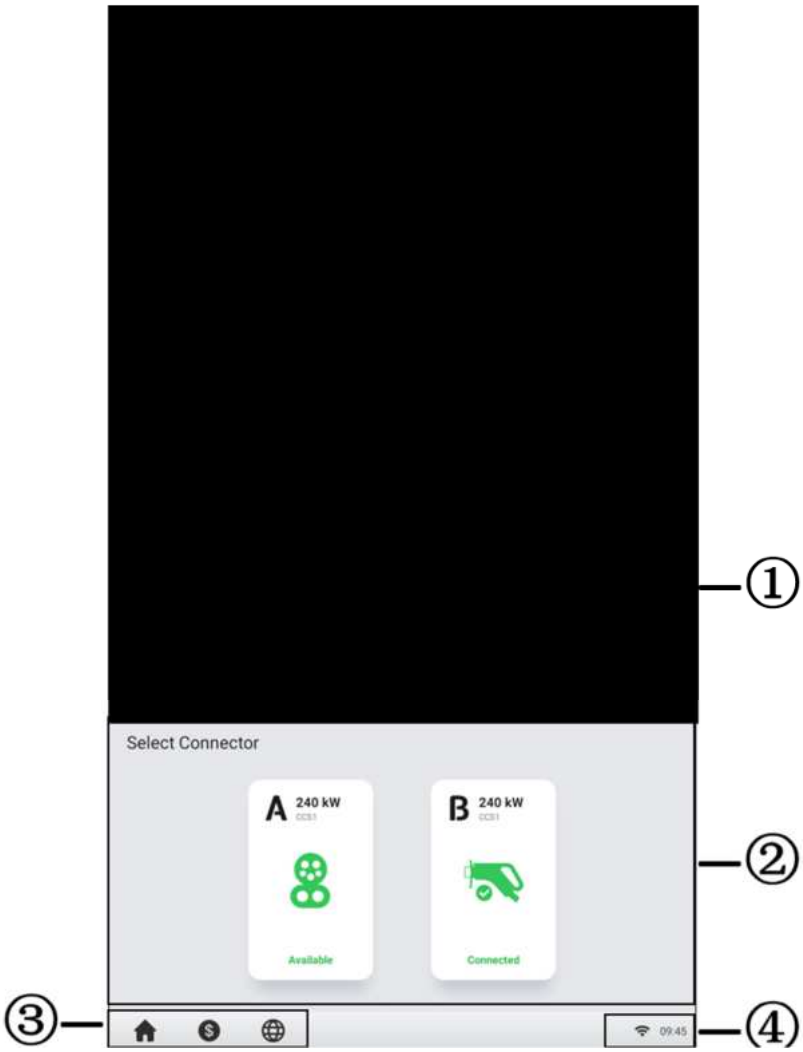


Figure 6-2 Standby Screen

1. Advertisement page — can be displayed on a full screen and is omitted in the following sample figures
2. Connector options — tap to view the connector information
3. Home button, Cost information, and language options
4. Time and Internet icon — an x appearing at the lower corner of the Internet icon indicates the MaxiCharger is not connected to the Internet

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

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

6.4.2 Authorization

IMPORTANT

- Observe the screen for any abnormality, such as an error message, before starting a charge session. Check the surroundings and the MaxiCharger for any abnormality or damage as well.
- **DO NOT** operate the MaxiCharger if the screen displays an error message. Contact Autel personnel for support.

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

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

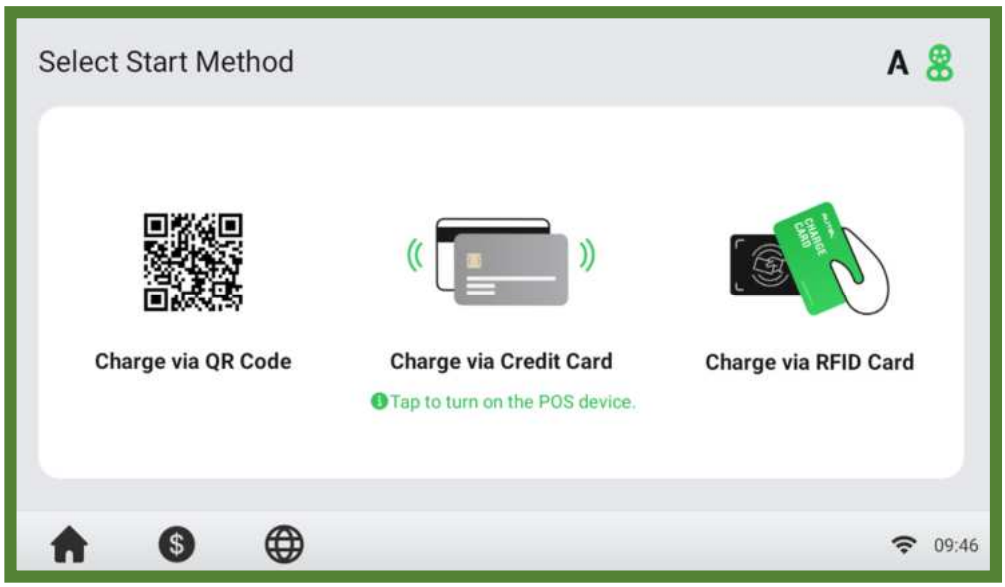


Figure 6-3 Authorization Screen

6.4.3 Start Charging

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

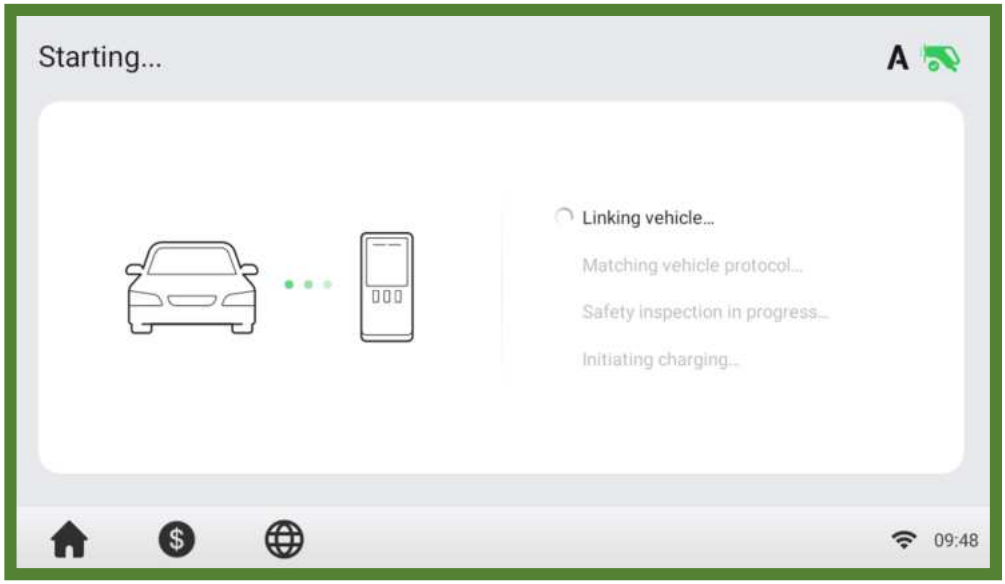


Figure 6-4 Start Charging Screen

6.4.4 Charging

Information about the charging duration, volume, cost, and power will appear on the Charging screen. Tap the **Right Arrow** button on the right to view more information about the charging status, including SoC (State of Charge), current, and voltage.

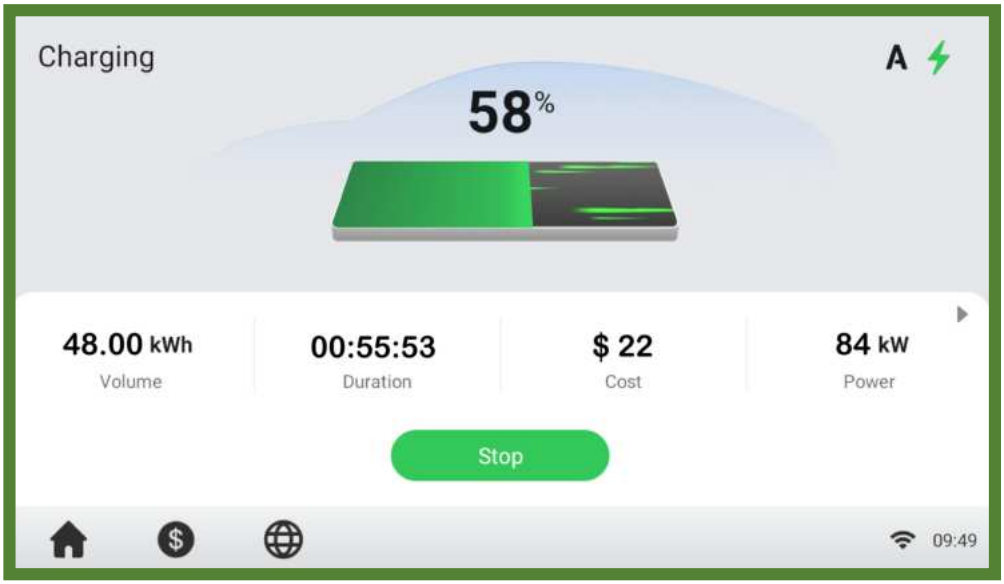


Figure 6-5 Charging Screen

6.4.5 Stop Charging

➢ **To stop charging**

1. Unplug the vehicle or tap the **Stop** button on the touchscreen.
2. If a session stops unexpectedly, the charger requires another authorization to restart a charge session. Use the same authentication method to begin the charge again.
   - QR Code/Credit Card: Tap the **Stop** button on the Charging Screen of the Autel Charge app.
   - RFID Card: Tap the RFID card on the card reader again to finish charging.

NOTE

The charging session stops automatically when the battery is full.

The order details will appear on the screen when a charge session is complete.

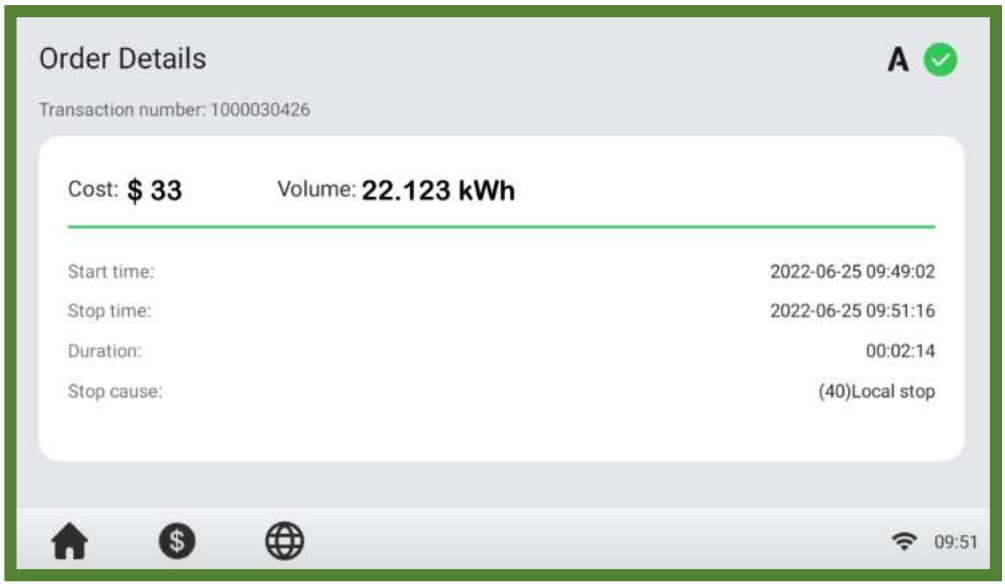


Figure 6-6 Order Details Screen

WARNING

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

6.4.6 Finish Charging

Return the connector to the holster on the MaxiCharger.

6.5 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.

6.5.1 Connector Connection Error

If the connector 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.

6.5.2 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.

6.5.3 Charge Start Failure

The Charge Start Failure screen appears when the charger 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.

6.5.4 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.

6.6 Powering Down the MaxiCharger

General Procedure:

1. Set the upstream breaker which provides the power to this MaxiCharger to **OFF** and lock it. Ensure that this breaker stays in the **OFF** position during the procedure.
2. Open the front door.
3. Measure the AC voltage. Ensure that all the measured voltages are 0 V.
4. Measure the DC voltage. Ensure that all the measured voltages are 0 V.
5. Close the door.

6.6.1 Measuring the AC Voltage

Use a voltage tester to measure the AC voltage between the terminals on the surge protection device switch:

- L1 to L2
- L1 to L3
- L2 to L3

NOTE

The surge protection device switch shows the indications L1, L2, and L3.

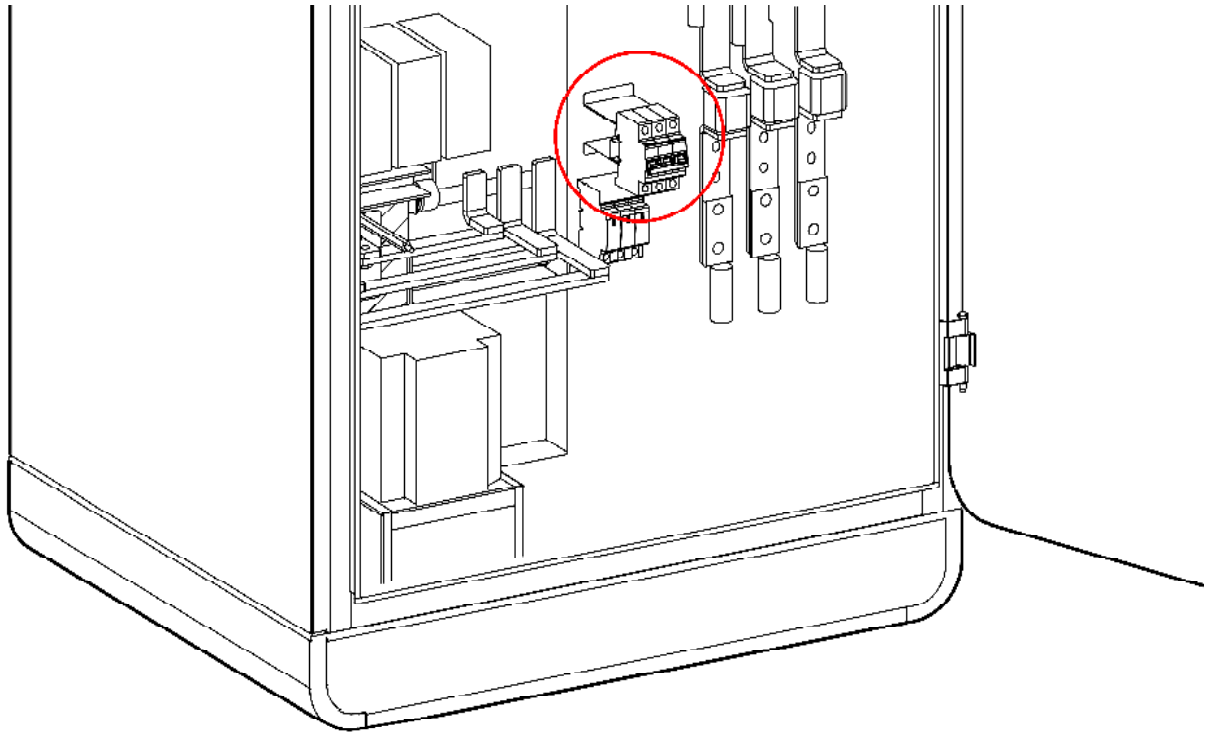


Figure 6-7 Measuring the AC Voltage

6.6.2 Measuring the DC Voltage

Use a voltage tester to measure the DC voltage between the output terminals:

- Power module group output 1- (B) to power module group output 1+ (A)
- Power module group output 2- (D) to power module group output 2+ (C)
- EV charging cable 1 output - (F) to EV charging cable 1 output + (E)
- EV charging cable 2 output - (H) to EV charging cable 2 output + (G)

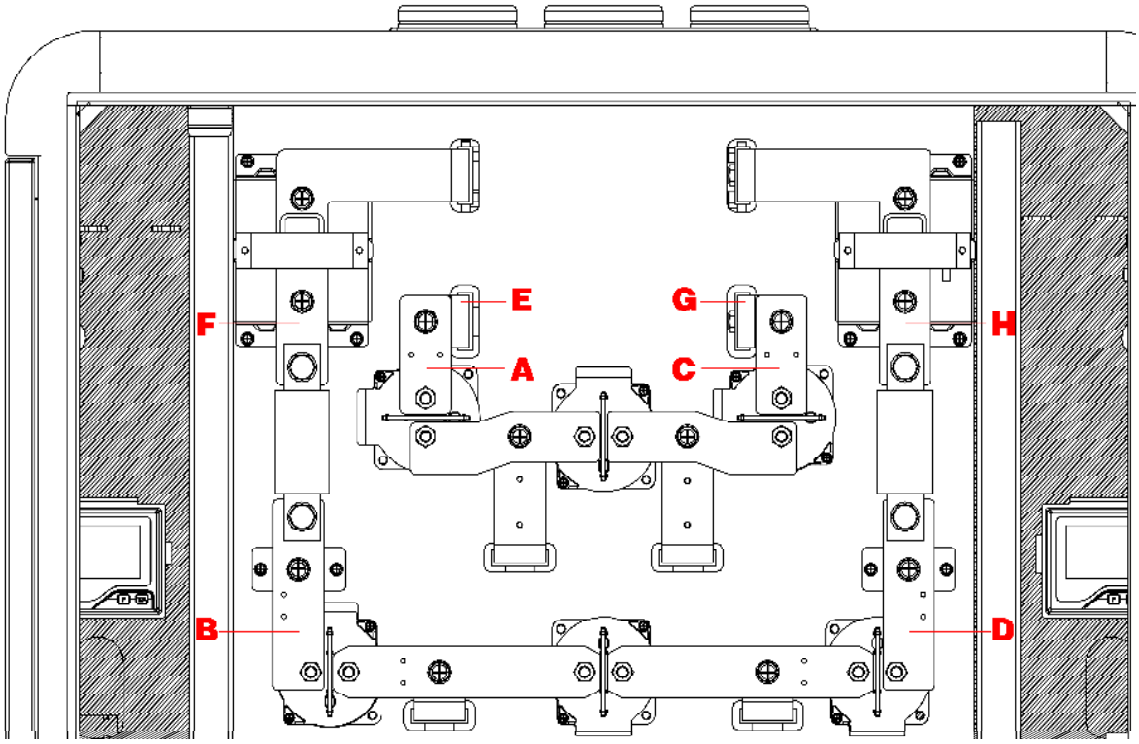


Figure 6-8 Measuring the DC Voltage

6.7 Removing Condensation

NOTE

There may be condensation in the charger if the charger is powered off for more than four hours.

➢ **To remove condensation from the cabinet**

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

6.8 Local Service Portal Operations

NOTE

The OCPP parameter setup should be performed by an installation engineer.

6.8.1 Setting the OCPP Parameters

➢ **To set the OCPP parameters**

1. Tap the upper-left corner of the screen.
2. Tap **Device Maintenance**. Enter the default password (contact Autel customer service to obtain the password).
3. Tap **Set Parameters**. Wait for the system to load the data. This can take a few seconds.
4. (Optional) On the screen, tap the column of desired parameter values to modify the data for these subjects:
   - **Running environment**: current running environment
   - **OCPP IP**: IP address of the OCPP
   - **OCPP URL**: URL of the OCPP
   - **OCPP PORT**: port number of the OCPP
   - **MGR IP**: IP address of the management platform
   - **MGR URL**: URL of the management platform
   - **MGR PORT**: port number of the operational management platform

NOTE

Ensure the URL or ID is correct and does not contain spaces.

5. Tap **Save** to save the changes.

7. Maintenance

7.1 Routine Maintenance

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

- Clean the cabinet every quarter, tighten the screws and bolts of key parts, and check whether the wire connection of the connector is burned out. If any abnormality is found, replace the parts in time.
- Clean the air filter and dust filter at least twice a year.
- Test the residual current device once a year.

WARNING

- Disconnect the power supply to the MaxiCharger 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.

7.1.1 Cleaning the Cabinet

The cabinet is powder-coated. The coating must be kept in good condition. When the MaxiCharger 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 MaxiCharger.
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.

7.1.2 Residual Current Device Maintenance

The internal residual current device (RCD) and residual current breaker with overload (RCBO) should be tested annually for correct functioning. Before testing, unplug the MaxiCharger from the EV and stop the charge session.

➢ **To test the residual current device**

1. Open the front door of the MaxiCharger. When the cabinet door is open, the MaxiCharger should not be directly exposed to a windy and rainy environment.
2. The MaxiCharger must be in the Standby mode. Tapping the touchscreen can wake up the MaxiCharger.
3. Locate the RCD (under the MCCB) and press the **Test** button to start testing.
   - Pass: The MaxiCharger stops operation when the MCCB is set to the middle position. The MaxiCharger starts operating again when the MCCB is set to the **OFF** then **ON** position.

- Fail: There is no response when pressing the **Test** button. Please disconnect the AC power of the MaxiCharger and close the cabinet door, then contact Autel technical support. Do not use the MaxiCharger until the repair is completed.

4. Close the front door of the MaxiCharger after the test is finished.
5. Mark the time when the test is needed to be repeated annually.

7.1.3 Cleaning and Replacing the Air Filters

The MaxiCharger is equipped with an air inlet filter and an air outlet filter 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 or replace the air inlet filter**

1. Ensure there is no active charge session and perform lockout-tagout to secure the charger.
2. Open the right-side door of the MaxiCharger. When the cabinet door is open, the internal components of the MaxiCharger should not be exposed to rain, snow or harsh environments.
3. Remove the bezel (**A**) after removing the screws (**E**) using a screwdriver and take out the dust gauze (**B**), air inlet filter (**C**), and fixing board (**D**).
4. Clean the air inlet filter of debris or dust and reinstall the cleaned filter. Or install a new air inlet filter.
5. Reinstall the bezel and screws.
6. Close the right-side door of the MaxiCharger.

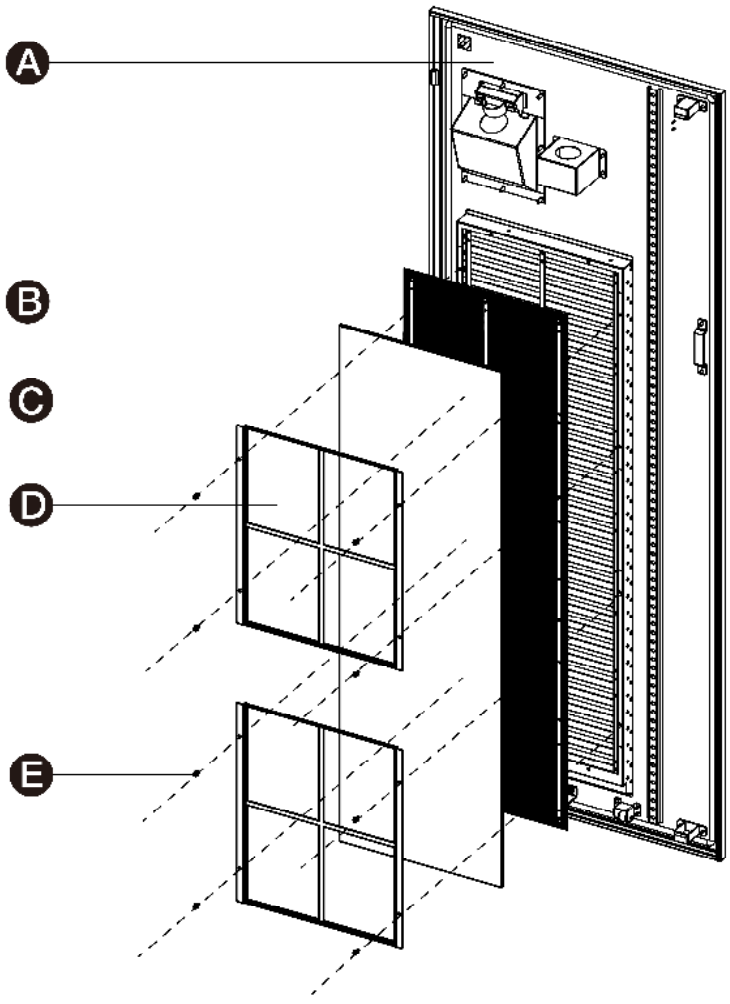


Figure 7-1 the Air Inlet Filter

➢ **To clean or replace the air outlet filter**

1. Ensure there is no active session and perform lockout-tagout to secure the MaxiCharger.
2. Open the left-side door of the MaxiCharger. When the cabinet door is open, the internal components of the MaxiCharger should not be exposed to rain, snow or harsh environments.
3. Remove the bezel (with fans) (**A**) after removing the screws (**C**) using a screwdriver and take out the air outlet filter (**B**) and fixing board (**D**). Be sure that the bezel cannot be placed on the floor after taking out the air outlet filter. It should be hung on the left-side door or held in the hand to prevent the cables of the fans from being pulled off.
4. Clean the air outlet filter of debris or dust and reinstall the cleaned filter. Or install a new air outlet filter.
5. Reinstall the bezel and screws.
6. Close the left-side door of the MaxiCharger.

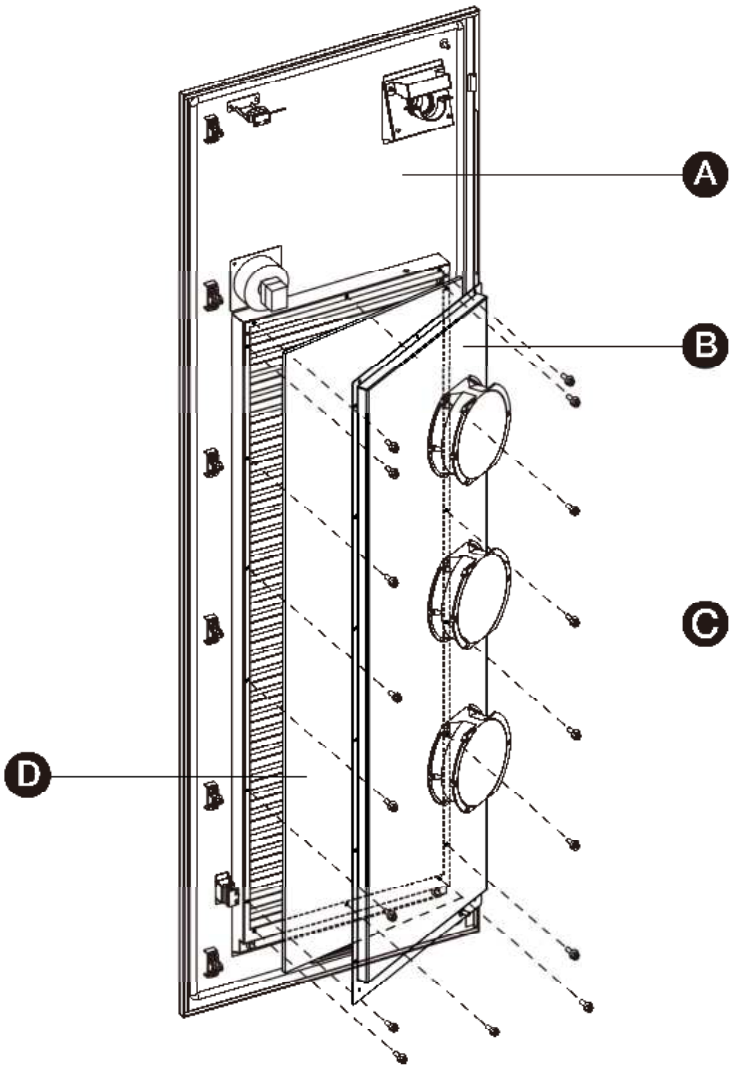


Figure 7-2 the Air Outlet Filter

7.2 Inspection and Maintenance

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

Refer to *Troubleshooting* or contact Autel technical support to resolve any error.

When parts need to be replaced, cut off the power supply upstream and inside the equipment before proceeding.

Regularly conduct visual inspection of the following:

- Cable and connector: Check for cracks or ruptures.
- Display: Check for damage and cracks. Check whether the touchscreen works.
- Coating of the cabinet: Check for damage, cracks or ruptures.
- Cabinet: Check for rust or damage.

The following special inspections are needed for safe use:

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

WARNING

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

7.3 Remote Maintenance

The MaxiCharger 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 upgrade.

7.4 Maintenance Schedule

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

8. Troubleshooting and Service

8.1 Troubleshooting

The table below describes the most common faults when operating the MaxiCharger. Contact Autel technical support if the fault encountered is not in this table.

Error	Error Code	Possible Cause	Solution
CP voltage abnormal	0x2037	It may be caused by signal interference, poor contact or software errors.	Perform remote restart or reset. If the fault persists, contact Autel technical support.
Communication error with the entire charging module group	0x3011	There is a problem with the module's address setting.	Power off the MaxiCharger and restart it.
Overvoltage	0x202D	The DC output voltage is above the upper limit of the vehicle or the rated voltage of the MaxiCharger during charging.	Stop the charge session and contact Autel technical support.
Communication error with the power control module	0x200E	The CCU does not receive messages from the ECU and the communication is timed out.	Perform remote restart or reset. If the fault persists, contact Autel technical support.
BMS communication error	0x2007	It may be caused by charging incompatibility.	Perform remote restart or reset. If the fault persists, contact Autel technical support.
Cooling fan abnormality	0x304A	Fan aged or damaged.	Power off the MaxiCharger and contact Autel technical support for repair or replacement of the fan.
Charging port electronic locking fault	0x2002	It might be caused by a vehicle-related fault.	Contact the vehicle manufacturer and Autel technical support.
CCU auxiliary power supply shutdown	0x202C	Sever power fault due to aged key components or lines.	Power off the MaxiCharger. Then locate the faulty component or line and contact Autel technical support for its repair or replacement.
Meter communication error	0x0001	Aged meter or line.	Stop the charge session and contact Autel technical support.
Insulation monitoring fault	0x2003	If it appears from time to time, it might be due to the vehicle or software error; if it appears frequently, there may be an aged key component.	Perform remote restart or reset. If the fault persists, contact Autel technical support.

Error	Error Code	Possible Cause	Solution
AC contactor stuck	0x3008	AC contactor fault or line aging	Power off the MaxiCharger and contact Autel technical support.
FPGA fault	0x3010	Controller fault	Stop the charge session, power off the MaxiCharger, and contact Autel technical support.
CCU current sampling and module output current accumulation fault	0x3014	Charging module output or sampling fault	Perform remote restart or reset. If the fault persists, contact Autel technical support.
Power distribution contactor sticking (charging possible)	0x3047	Contactor or sensor fault or line aging	Power off the MaxiCharger immediately and contact Autel technical support.
Communication error on one charging module	0x3051	Abnormal charging module	Contact Autel technical support to identify the fault, and then clear the fault or replace the module.
Fan fault with one charging module	0x305A	Abnormal charging module	Contact Autel technical support to identify the fault, and then clear the fault or replace the module.
Inconsistent CCU voltage sampling and the module output voltage	0x305C	Abnormal charging module	Contact Autel technical support to identify the fault, and then clear the fault or replace the module.
Insulation detection alert	0x2040	If it is a one-time problem, there is may be a falling object, and no operation is required; if it has occurred for several times, the connector cable may be damaged or there are foreign objects in the busbar.	Power off the MaxiCharger immediately and contact Autel technical support.
Charger offline	0x9001	Communication error between gateway and the Autel Charge Cloud	Check the network connection and OCPP configurations.

9. Technical Specifications

9.1 General Specifications

Table 9-1 Product Specifications

Parameter	Description
Compliance and Safety	• UL 2202 • UL 2231-1, UL 2231-2, • CSA C22.2 No. 107.1-16; • NEC Article 625 • FCC Part 15 Class A
IP Rating	NEMA 3R
IK Rating	IK10
Short Circuit Current Rating	65 kA
EMC	• FCC Part 15 Class A • Class B (Optional)
Output Voltage	• CCS: 150 to 950 V DC • CHAdeMO: 150 to 500 V DC
Output Current	• CCS: 200 A • CCS boost: 300 A (Peak: 400 A) • CHAdeMO: 125 A/200 A
EV Charging Cable Length	• 13.1 ft. (4 m) • 24.6 ft. (7.5 m)
Maximum noise level at a distance of 1 m	< 65 dB @ 1 m /77 ° F (25 ° C)/full load
Input AC Power Connection	3P + PE (No neutral)
Input Voltage Range	480 V AC (+10 % to -15 %), 60 Hz
Power Factor at Full Load	>= 0.98
Peak Efficiency	>= 96%
Total Harmonic Distortion (current / > 50% load)	<= 5%, 150 to 950 VDC

Table 9-2 Operating Conditions

Parameter	Specification
General Environment	● Indoor ● Outdoor
Storage Temperature	-40 to 158 ° F (-40 to +70 ° C)
Operation Temperature Range	● -31 to + 131 ° F (-35 to + 55 ° C) ● +122 to + 131 ° F (+50 to +55 ° C) with linear power de-rating
Maximum Altitude above Sea Level	< 6561.7 ft. (2000 m)

9.2 Packaging Specifications

Table 9-3 General Dimensions

Parameter	Specifications			
	DF120		DF240	
	in	mm	in	mm
Width of the Cabinet	32.3	820	32.3	820
Depth of the Cabinet	25.2	640	29.1	740
Height of the Cabinet	76.8	1950	76.8	1950
Length of the charging cable (air-cooled)	157.5 inches (4000 mm)			
	295.3 inches (7500 mm) (Optional)			

Table 9-4 Packaged Product Specifications

Parameter	Specification	
Width	48.8 in	1240 mm
Depth	39.8 in	1000 mm
Height	84.5 in	2146 mm
Mass of the Package	121 lbs.	55 kg
Maximum Tipping Angle	30°	
NOTE: The MaxiCharger is mounted on a standard size wooden pallet and protected to prevent damages during transport.		

9.3 Installation Specifications

Table 9-5 Operable Element Specifications

Parameter	Description	Specification	
		in	mm
Z1	Highest user operable element of MaxiCharger	53.2	1350
Z2	Lowest user operable element of the POS	30.2	766
Z3	Foundation height of MaxiCharger	5.9	150

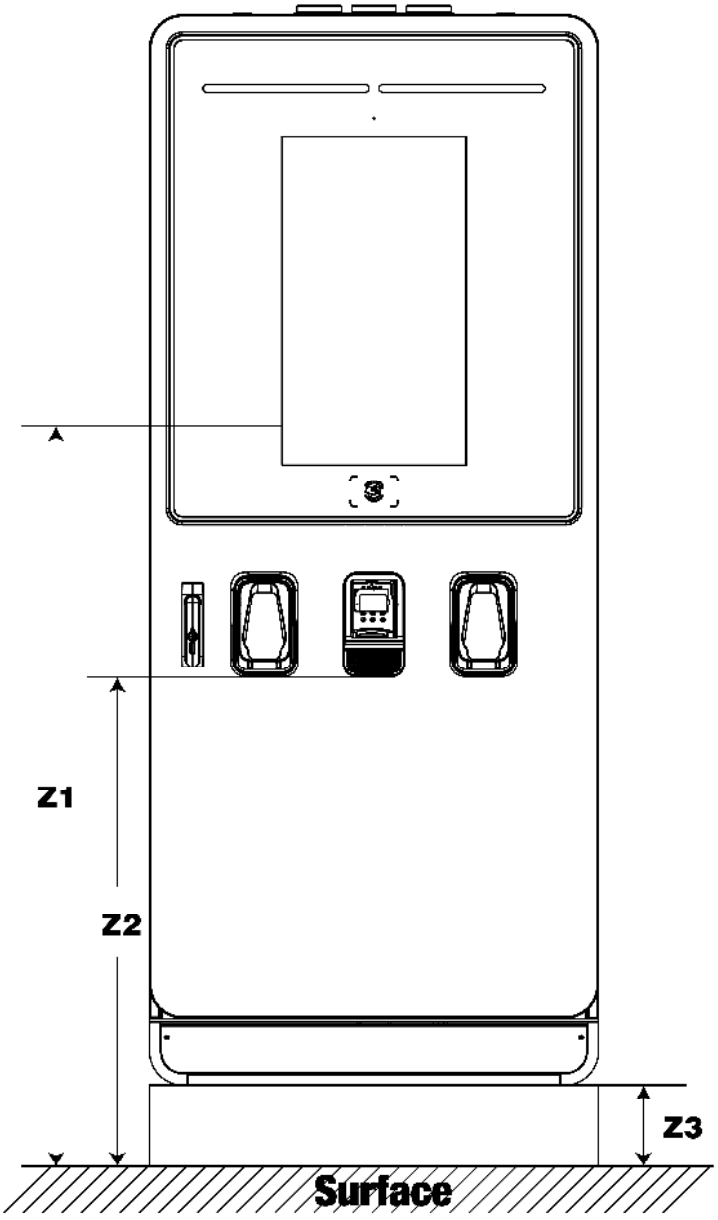


Figure 9-1 Operable Element Specifications

9.4 Communication Interface Specifications

Table 9-6 Communication Interface Specifications

Parameter	Specification
RFID Standard	ISO 14443 A + B to part 4 ISO/IEC 15693
RFID-supported Applications	● Mifare ● NFC ● Calypso ● Ultralight, Pay-Pass ● HID For information about the options, contact the manufacturer.
Network Connection	● 3G/4G modem ● 10/100 Base-T Ethernet ● Wi-Fi

Table 9-7 Ethernet Cable Specifications

Parameter	Specification
Ethernet Type	RJ45
Cable Type	8P + PE, Shielded
Uploading Bandwidth	Minimum 128 Kbit/s
Downloaded Bandwidth	Minimum 4 Mbit/s
Availability	99.9%

9.5 Power Rating Specifications

Table 9-8 Rating During Normal Duty Operation

Model	Specification
DF120 (UF60A3001)	60 kW
DF120 (UF80A3001)	80 kW
DF120 (UF100A3001)	100 kW
DF120 (UF120A3001)	120 kW
DF240 (UF140A4001/ UF140A3001)	140 kW
DF240 (UF160A4001/ UF160A3001)	160 kW
DF240 (UF180A4001/ UF180A3001)	180 kW
DF240 (UF200A4001/ UF200A3001)	200 kW
DF240 (UF220A4001/ UF220A3001)	220 kW
DF240 (UF240A4001/ UF240A3001)	240 kW
NOTE: Normal duty operation applies for use in public applications with moderate traffic.	

Table 9-9 De-rating During Normal Duty Operation

Ambient Temperature		Power Output (%)	Derating (%)
° F	**° C**		
-31 to +122	-35 to +50	100	0
+122 to +131	+50 to +55	100 to 75 (linear de-rating)	0 to 25
NOTE: Steady state rating of the MaxiCharger at specific ambient temperatures.			

9.6 AC Input and DC Output Specifications

Table 9-10 Rating During Heavy Duty Operation

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.
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 MaxiCharger and local regulations.
Material	Copper
Maximum Temperature of the Input Wires	167 ° F (75 ° C)

Table 9-11 Detailed AC Input Specifications

Parameter	MaxiCharger DC Fast									
	60	**80**	**100**	**120**	**140**	**160**	**180**	**200**	**220**	**240**
Maximum Rated Input Current (A)	81	107	133	158	184	209	235	260	286	312
Recommended Input Circuit Breaker (A)	125	225	225	250	400	400	400	400	500	500
Maximum Power Dissipation (kVA)	65.4	86.4	107.5	128.5	149.6	170.6	191.7	212.7	233.8	254.8
Short Circuit Current Rating (kA)	65	65	65	65	65	65	65	65	65	65
Maximum Size of the Input Wire (Kcmil)	250 x 2									

NOTE

- Refer to the above table to determine the electrical specifications needed for installation in order to meet NEC standards.
- Refer to local code for specific design verification.
- Use proper cable routing methods (such as underground conduit and cable grooves, etc.) to ensure environment factors are taken into consideration.
- If local laws and regulations have different requirements, the provisions of local laws and regulations shall prevail.
- XLPE insulated power cable is recommended.
- The MaxiCharger can be upgraded to larger power ratings. Take the cable size into consideration at the point of purchase in case that an upgrade is needed in the future.

Table 9-12 General DC Output Specifications

Parameter	Specification
DC Output Voltage Range	● CCS: 150 to 950 V DC ● CHAdeMO: 150 to 500 V DC
Minimum DC Output Current	5 A
Connection Standard	● CCS: IEC 62196-1:2014 and IEC 62196-3:2014, UL2251:2013, 3rd Ed. and SAE J1772™:2017 ● CHAdeMO: CHAdeMO 1.2

Table 9-13 Detailed DC Output Specifications

MaxiCharger	Parameters			
	Maximum DC Output Power for One EV Charging Cable (kW)	**Maximum DC Output Power for Two EV Charging Cables**	**Simultaneous DC on Two Outlets**	**Maximum DC Output Current**
60	60	40 + 20 kW	Yes	● CCS connector: 200 A ● CCS boost: 300 A (Peak: 400 A) ● CHAdeMO connector: 125 A/200 A
80	80	40 kW x 2		
100	100	60 + 40 kW		
120	120	60 kW x 2		
140	140	80 + 60 kW		
160	160	80 kW x 2		
180	180	100 + 80 kW		
200	200	100 kW x 2		
220	220	120 +100 kW		
240	240	120 kW x 2		

NOTE

The output power of each connector depends on its rated voltage and maximum current.

9.7 Power Consumption Specifications

Table 9-14 Power Consumption during Stand-by

Parameter	Specification
Stand-by Power (Heater Off)	0.08 kVA
Stand-by Power (Heater On)	1.00 kVA

NOTE

The heater will operate daily when the outside air reaches the dew point, to avoid condensation inside the cabinet. When the heater is working, it will consume most of the required stand-by power.

9.8 Input Short Circuit Current Specifications

Table 9-15 Input Short Circuit Current

Situation	Specification
Rated Peak Withstand Current (kA peak)	65 kA
Rated Short-time Withstand Current (kA rms)	65 kA