

Green Motion DC 22

Installer training



Green Motion DC 22

Disclaimer

This presentation does not supersede any standard operating procedures that may be in place at your company and is not a substitute for the Green Motion DC 22 installation manual and user manual.

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Green Motion DC 22

Resources and Documentation

Please refer to the technical documentation available at www.eaton.com/greenmotiondc22

For more information, contact us at BGtechSupport@eaton.com.

Green Motion DC 22

Product overview

- DC charging for everyone
- Fast charging speed, high efficiency
- Future-proof charging station
- Compact charging station
- Quiet DC charging experience suited to all types of vehicles

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Technical specifications

POWER INPUT	
Input voltage AC	3 x 400 V 50 Hz, 3-phase
Nominal input current AC	3 x 32 A (22 kW), 3-phase
POWER OUTPUT	
Nominal output power	22 kW
Output voltage for the DC range	50 V - 500 V
Output type	- CCS Type 2 (default) - CCS Type 2 and CHAdeMO (optional)
OPTIONS	
Floor-mounted	Mounted on a floor-mount pedestal
Network interface	Ethernet cable or 4G (optional)
Access control	RFID, Scan & Charge
WARRANTY	
Warranty	2 years



Package contents

Green Motion DC 22 includes the following parts:

- Green Motion DC 22 EV charging station
- Quick start guide
- Safety guidelines
- EV cable(s), depending on customer configuration:
 - CCS plug and cable
 - CCS and CHAdeMO plugs and cables
- Plug holder(s) for cable(s),
- Screws, cable glands and cable cap,
- Wall-mount gaskets (four pieces)

NOTE: Optional floor-mount pedestal is sold separately

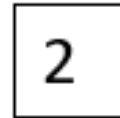
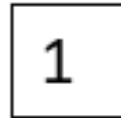


Types of cables and connectors



The Green Motion DC 22 EV charger offers two types of cables with connectors:

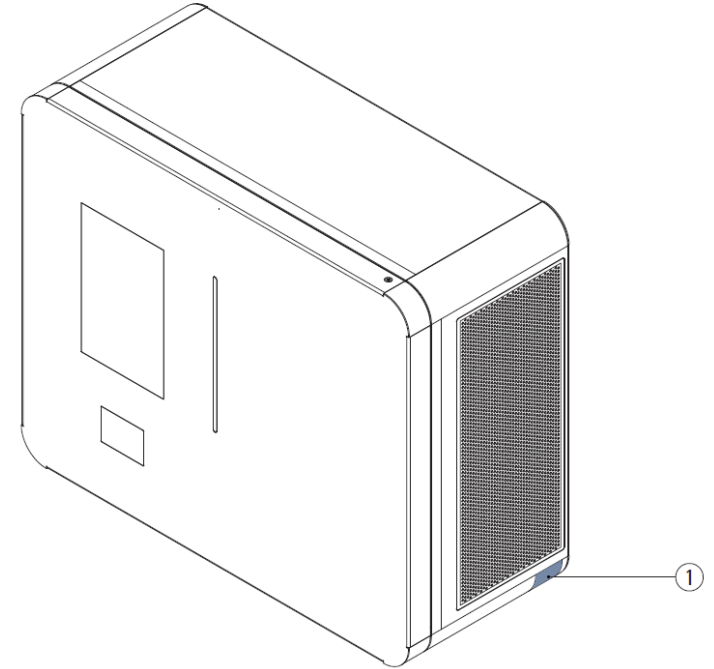
1. CCS Type 2
2. CHAdeMO (optional)



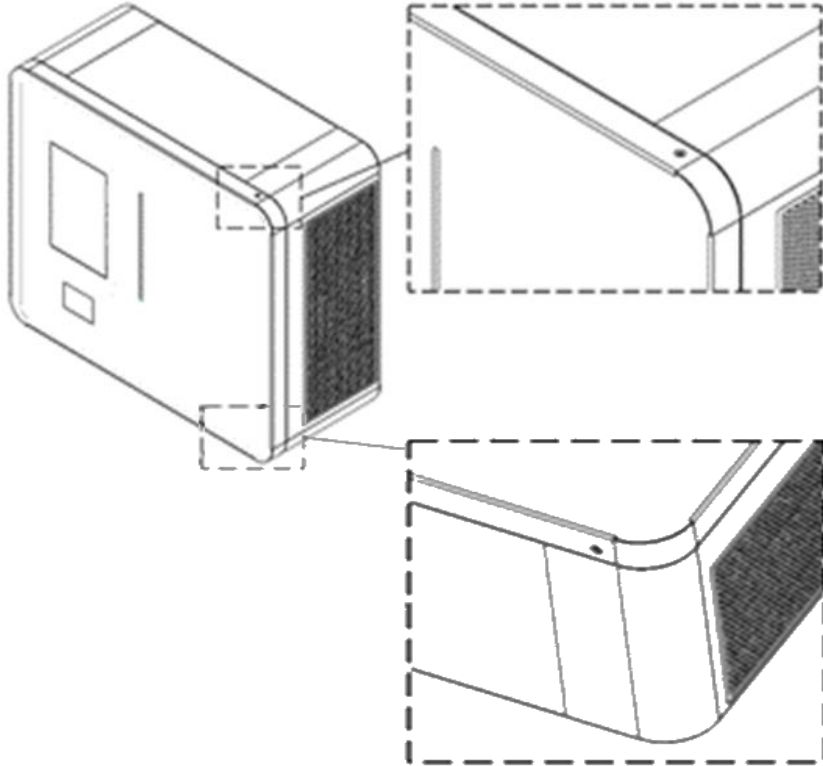
Rating plate

Information that can be found on the rating plate (1):

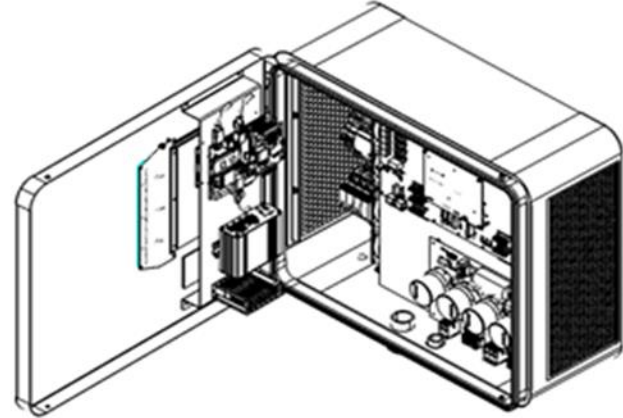
- A. Manufacturer
- B. Model
- C. Power ratings
- D. Certification marks
- E. Warnings
- F. Serial number



Open/close housing



1. Unscrew the screws located on the **top-right** and the **bottom-right** side of the charging station using the T20 screwdriver.
2. Open the front door.



Green Motion DC 22

Mounting and installation

- Environmental and mounting conditions
- Site design
- Mounting on the wall
- Mounting on the floor-mount pedestal (optional)



Environmental and mounting conditions



- Relative humidity below 95%.
- Temperature range from -25 °C to +45 °C
- Altitude not exceeding 2000 m above sea level
- Mounting height of 1600 mm above ground level
- At least 300 mm of free space on both sides for unobstructed air circulation
- An easy access to controls and connections

Environmental conditions

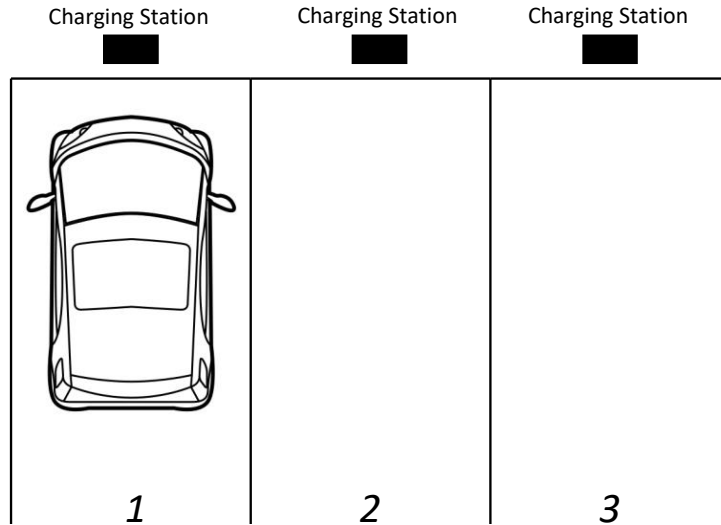


- Do not mount the unit above or below flammable building materials.
- Do not install the unit in areas where highly flammable substances are present.
- Do not install the unit in areas subject to explosion hazard.

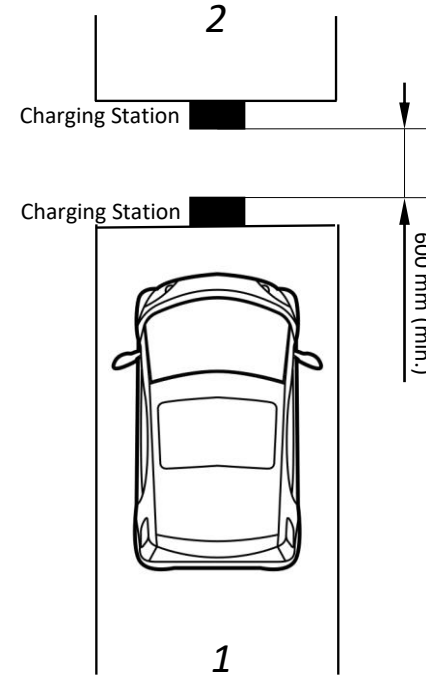


Site design

Site design 1



Site design 2



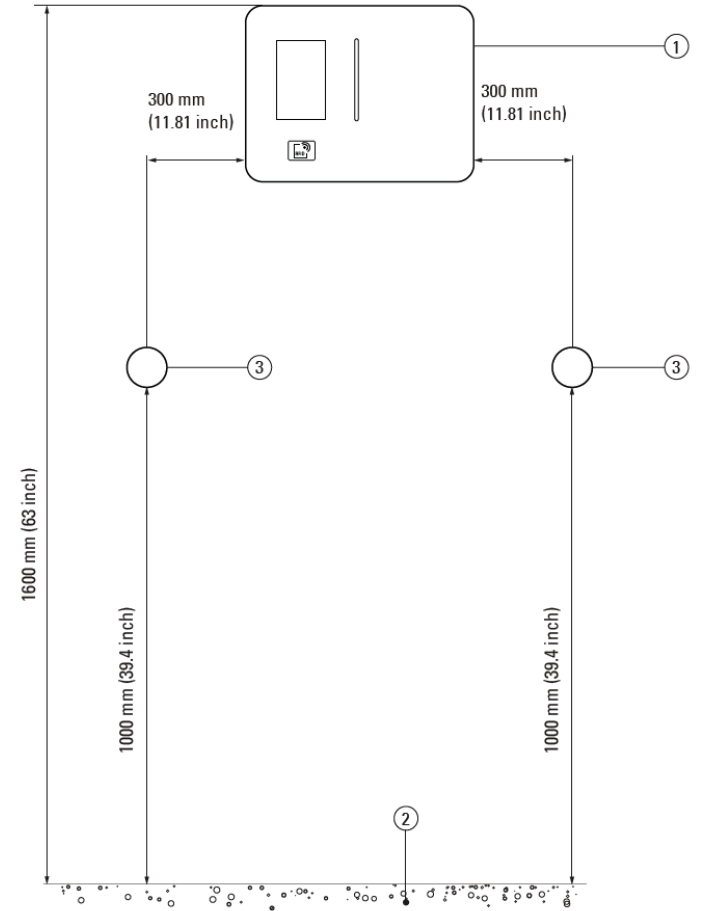
Mounting on the wall



- Make sure the wall can support the weight of the unit, providing enough load-bearing capacity to withstand additional stress caused by cable tensioning:
 - The charging station 53 kg
 - The CCS cable 4 kg
 - The CHAdeMO cable 6 kg
- Note that the appropriate types of plastic plugs and screws must be selected by a professional installer, based on the following considerations:
 - The installation site
 - The type of the wall

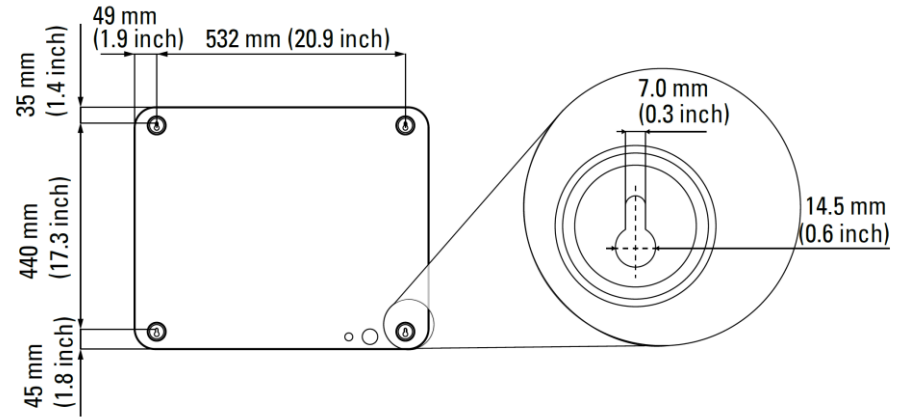
Mounting on the wall (total overview)

1. Green Motion DC 22 EV charger
2. Floor
3. Plug holders

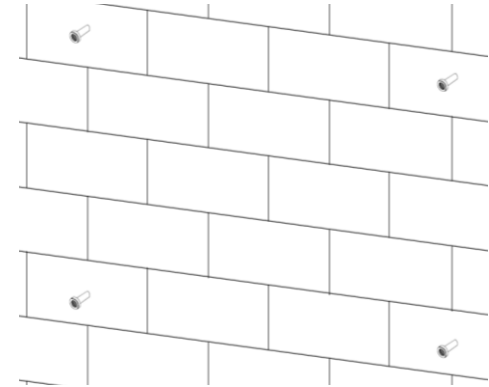


Fixing the unit onto the wall

1. Place four gaskets on the back of the charging station:

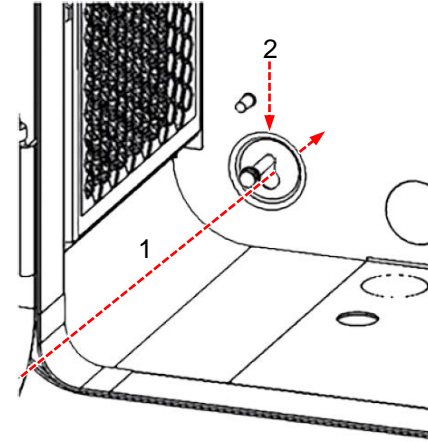


2. Install the four M6 x 50 stainless steel screws into the wall, leaving them to protrude 10 mm from the surface.

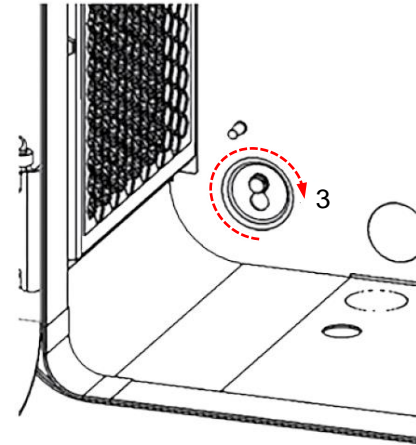


Fixing the unit onto the wall

3. Mount the unit onto the protruding screws, temporarily using them as holders.

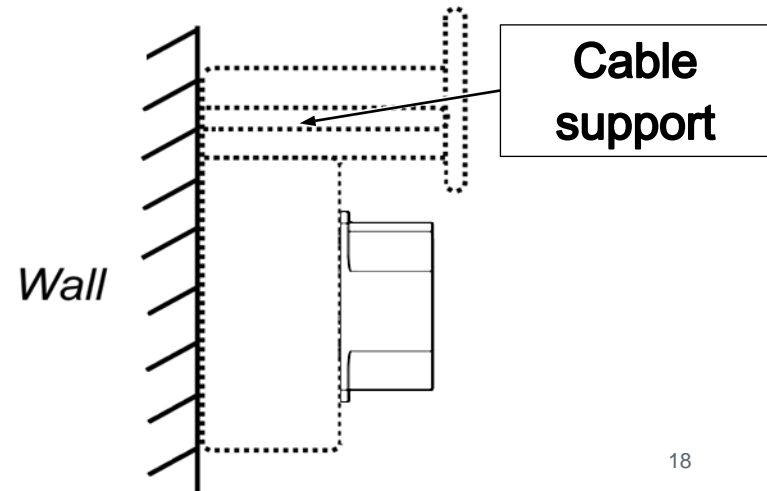
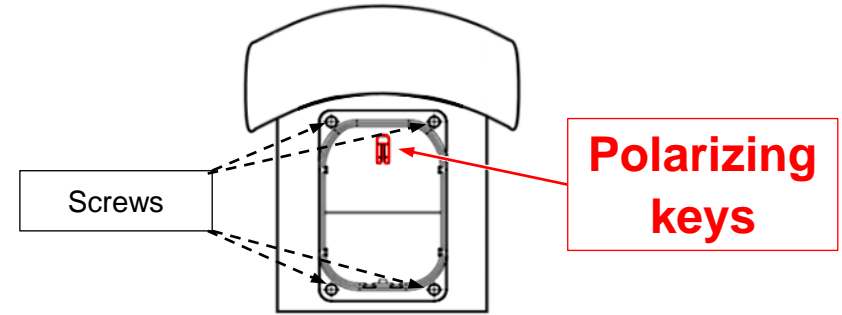


4. Fasten the screws tightly and securely, thus fixing the unit against the wall



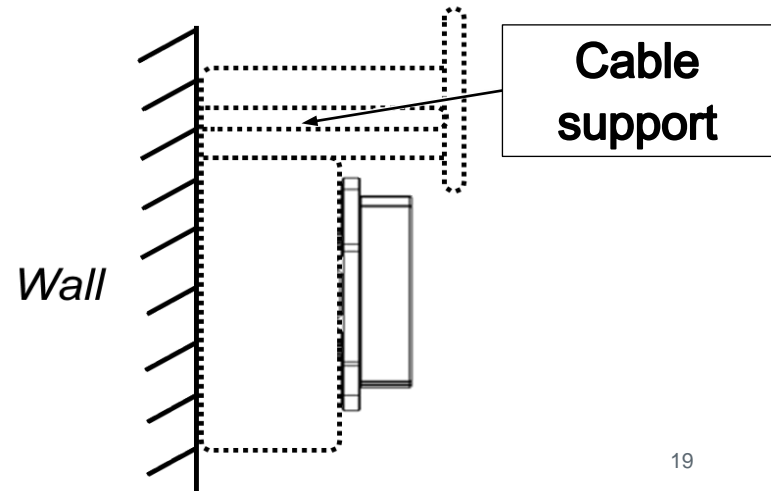
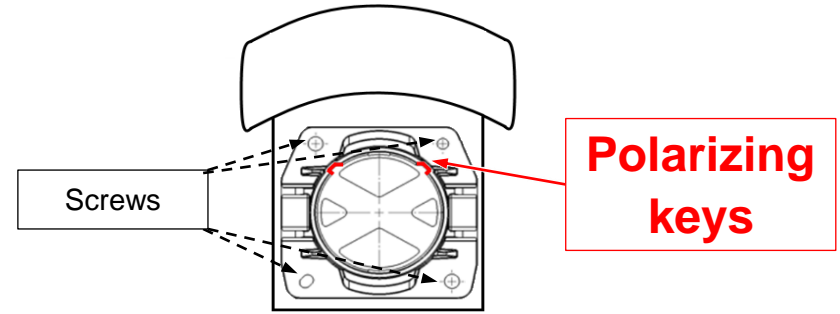
Fixing the CCS plug holder to the wall

1. Keep 300 mm free space between the EV charger and the plug holder.
2. Mount the metal sheet cable support on the wall at a height between 1000 mm and 1100 mm from the ground.
3. **Ensure that the polarizing keys are on the top side of the plug holder.**
4. Fix the CCS plug holder with screws to the cable support.



Fixing the CHAdeMO plug holder to the wall

1. Keep 300 mm free space between the EV charger and the plug holder.
2. Mount the metal sheet cable support on the wall at a height between 1000 mm and 1100 mm from the ground.
3. **Ensure that the polarizing keys are on the top side of the plug holder.**
4. Fix the CHAdeMO plug holder with screws to the cable support.



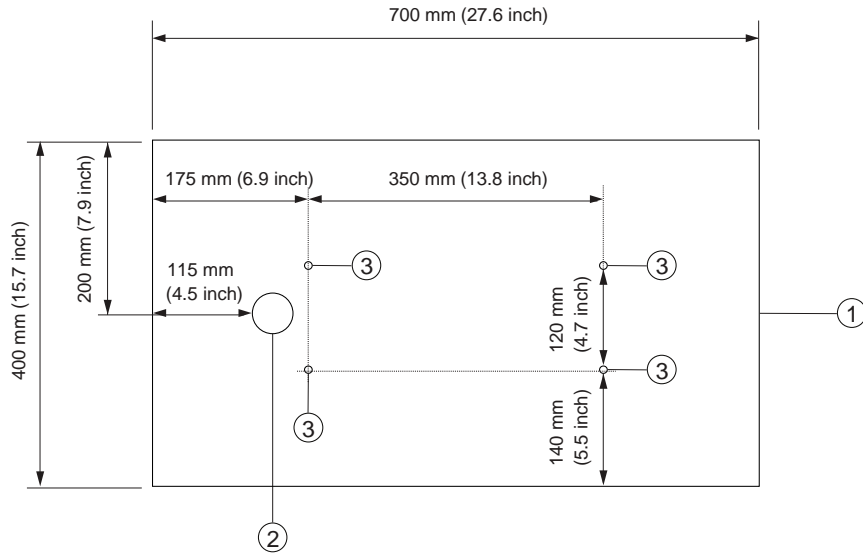
Mounting on a floor-mount pedestal (optional)



It is possible to install the Green Motion DC 22 EV charger on a dedicated floor-mount pedestal. The following slides will show the correct way of installing the EV charger on the pedestal.

- Please note that the appropriate types of stainless-steel rods, nuts, and flat washers must be selected by the installer, considering the conditions at the installation site.
- **Make sure to keep at least 300 mm of free space on both sides of the pedestal!**
- **Make sure no objects prevent the use of the unit by obstructing the access to the charging plug and cables!**

Mounting on a floor-mount pedestal (optional)



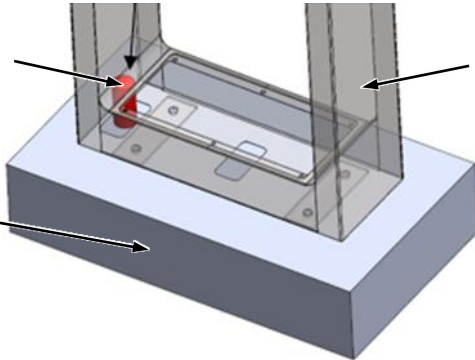
1. Prepare a concrete base measuring 700 mm x 400 mm x 150 mm (W x D x H).
2. Position four M10 stainless steel rods in the concrete base.
3. Leave a 48 mm diameter opening in the concrete base for unobstructed cable routing.

1. Concrete base
2. 48 mm diameter cable opening
3. M10 stainless steel threaded rods

Mounting the charging station

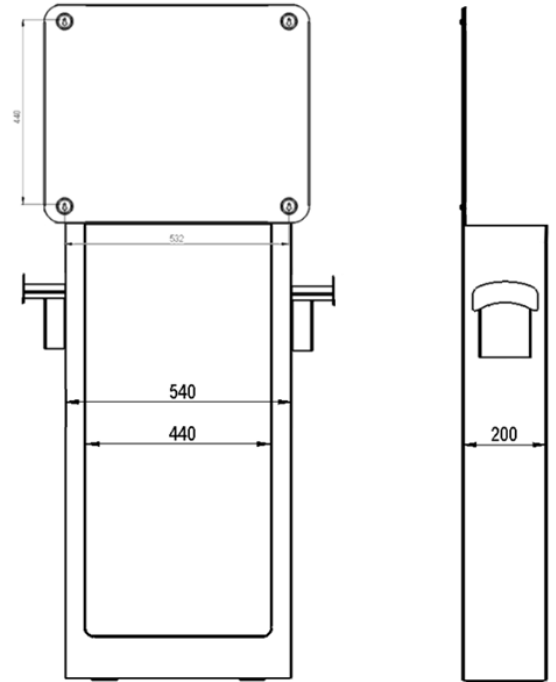
Fix the floor-mount pedestal to the prepared base using the four M10 stainless steel rods, flat washers, and nuts. Also, check that no objects prevent the use of the unit by obstructing access to the charging plug and the cables. Ensure the charging plug can be freely detached from the plug holder and reach the EV's charging socket.

AC grid power cable



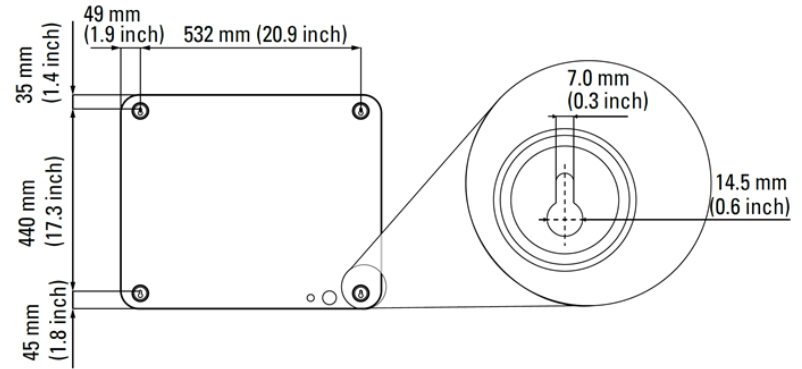
Column

Concrete base

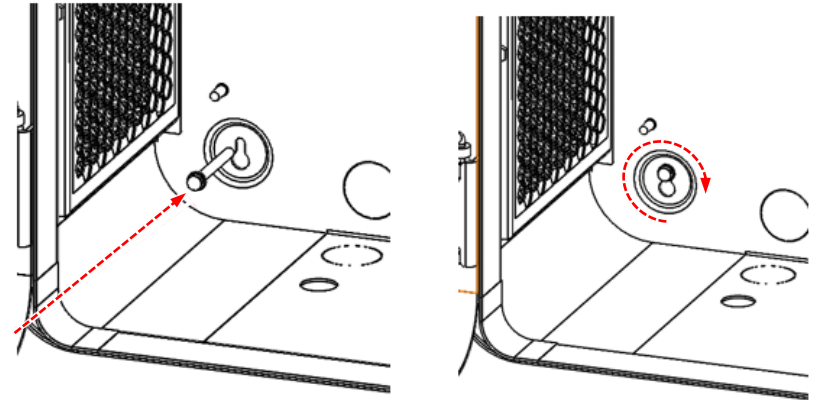


Mounting the charging station

1. Place the four gaskets on the back of the charging station.

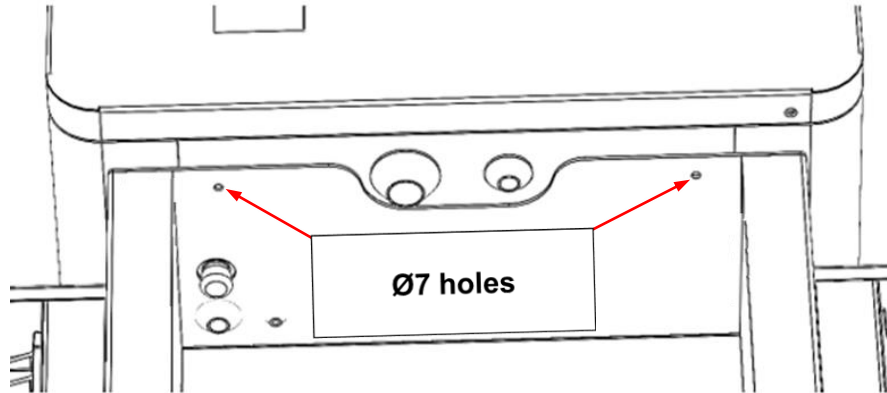


2. Fix the unit to the backplate of the column with four M6 stainless steel screws and securely lock them in place.



Mounting the charging station

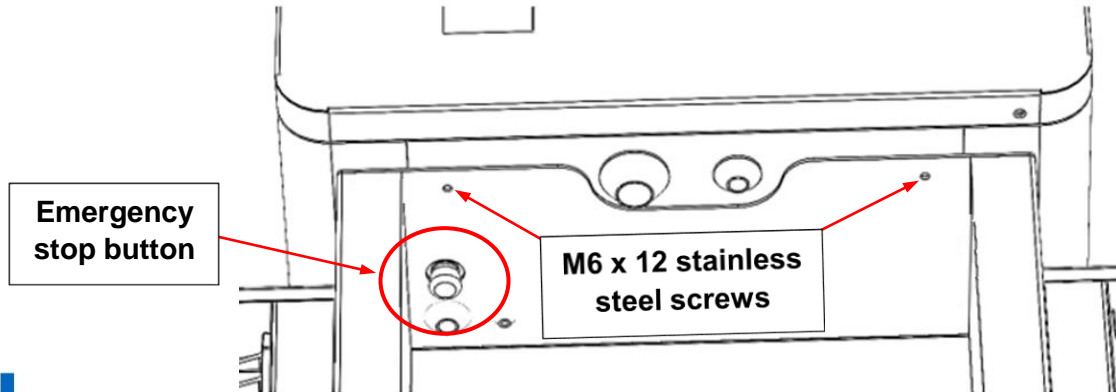
3. Drill two 7 mm diameter holes in the bottom of the EV charger housing at the locations corresponding to the holes on the floor-mount pedestal, and clean the metal shavings (see the picture below). Alternatively, use a screwdriver to break the two knockout holes on the bottom of the EV charger.



Mounting the charging station

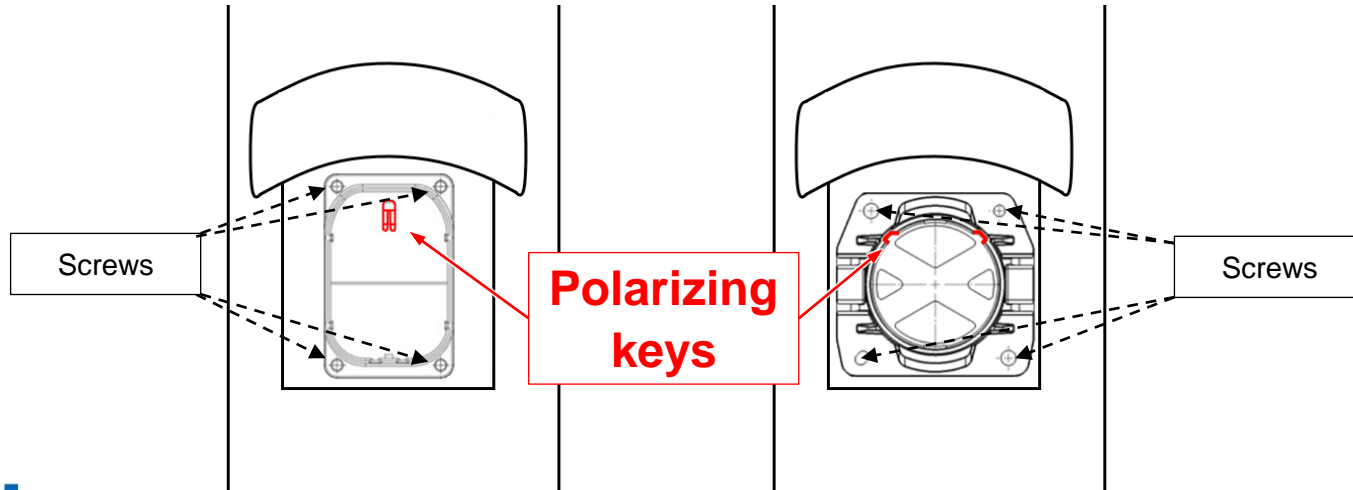
Fix the bottom of the EV charger using the two provided M6 x 12 stainless steel screws and two hexagonal nuts with a serrated base to the pedestal.

NOTE: Be careful not to break the emergency stop button while mounting the unit on the floor-mount pedestal.



Fixing the plug holder(s) to the column

1. Ensure that the polarizing keys are on the top side of the plug holder.
2. Fix the plug holder(s) with screws to the cable supports.



Green Motion DC 22

Electrical connections and wiring

- Power supply and protection
- Electrical connection
- Earth connection

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Warnings



- DC leakage protection is provided by means of electrical galvanic separation and an internal Insulation Monitor Device (IMD).
- Eaton recommends that DC EV chargers installed in a TT system are equipped with an RCD upstream according to IEC 60364-7-722.
- Eaton recommends that DC EV chargers installed in a TN system where a fire hazard is present are equipped with an RCD upstream in accordance with IEC 60364-7-722.
- Eaton's support team can help with the selection of the proper RCD to be used.
- In case of connection in TN-C-S networks, earth rods must be used.
- It is not possible to install the unit in an IT grid configuration.
- Always refer to local regulations which may differ from and can supersede the international regulations listed above.



AC grid connection and protection

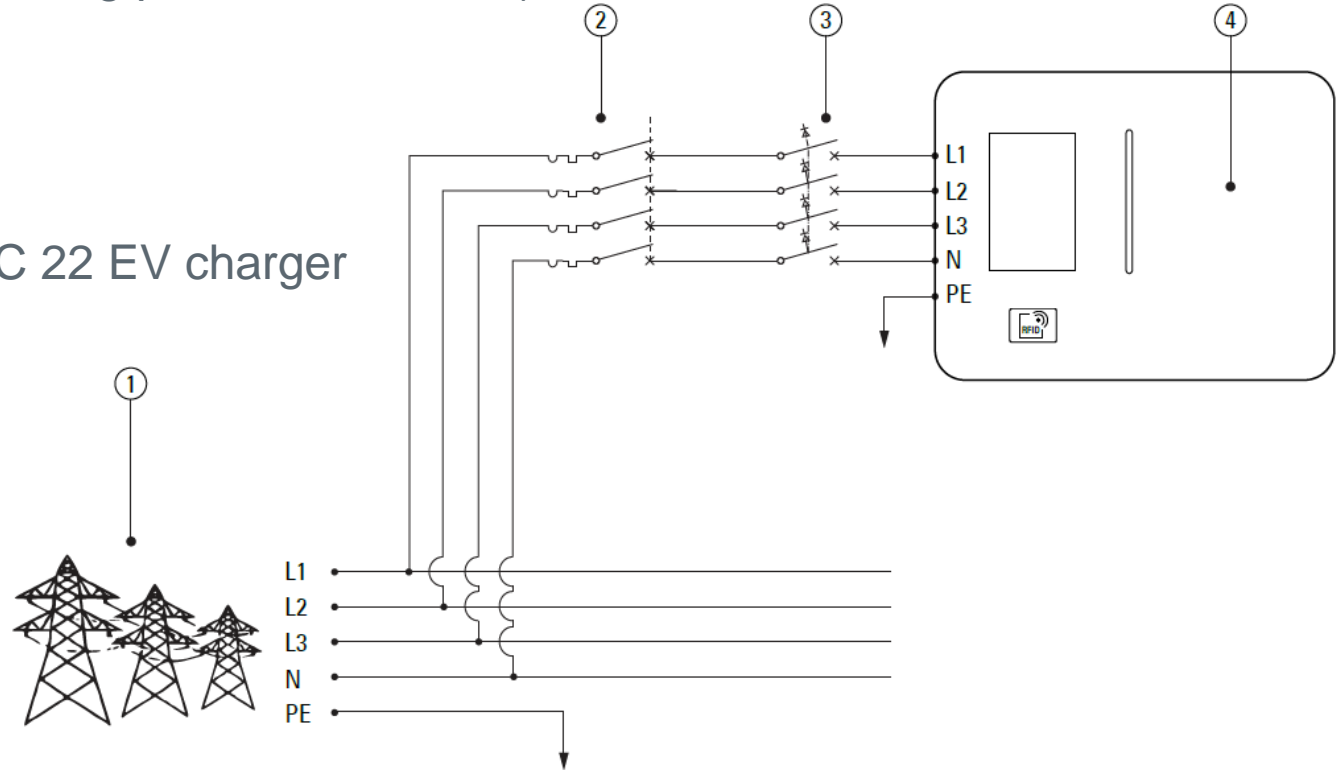
Parameters for dimensioning protective devices and electrical installations:

Nominal input voltage (phase/line-to-line)	230 / 400 V _{AC}
Nominal input current at panel	32 A _{RMS}
Electrical distribution system	3-phase
AC input terminals max. cross-section	16 mm ²
Recommended circuit breaker type	C40 (40 A)
Recommended cabling cross-section (min.)	10 mm ²

AC grid connection and protection

Wiring diagram (including protective devices):

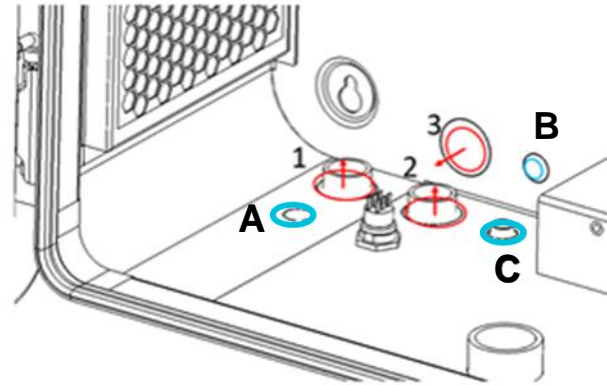
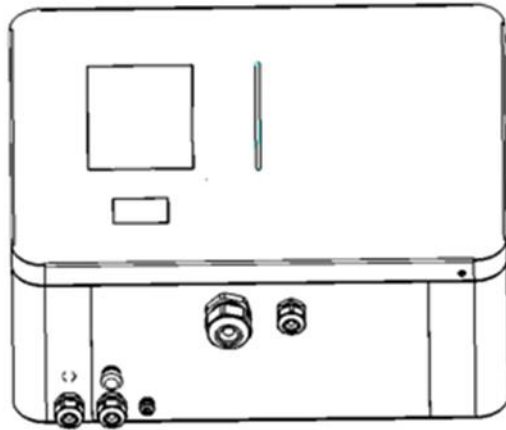
1. Grid
2. Circuit breaker
3. RCD (optional)
4. Green Motion DC 22 EV charger



Electrical connection

The cable entries on the bottom-left or rear-left side of the charging station are used for the:

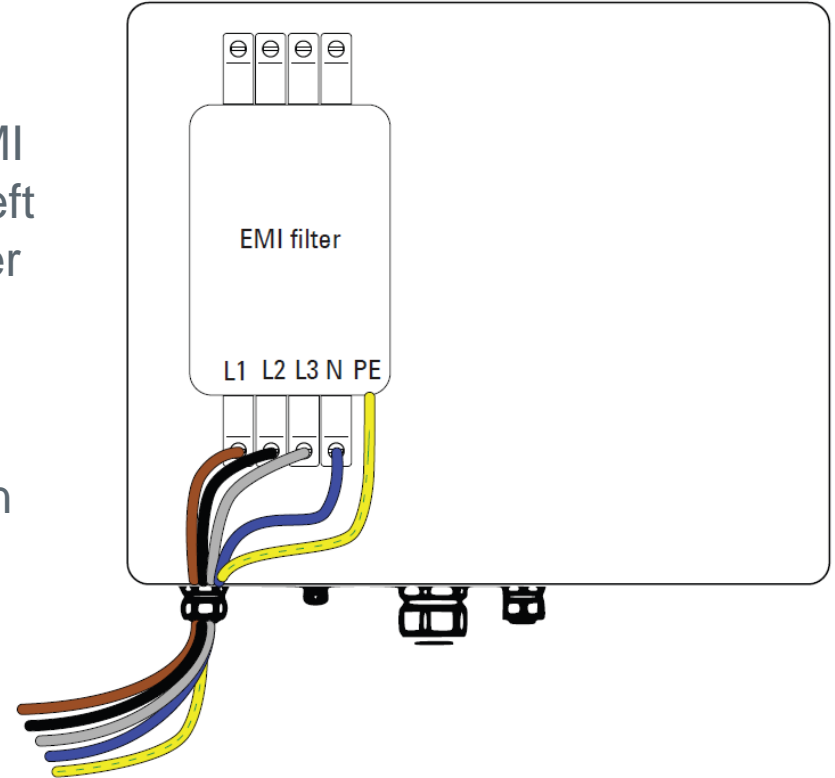
1. AC grid power cable (holes **1**, **2**, **3**)
2. Ethernet cable (holes **A**, **B**, **C**)



Electrical connection

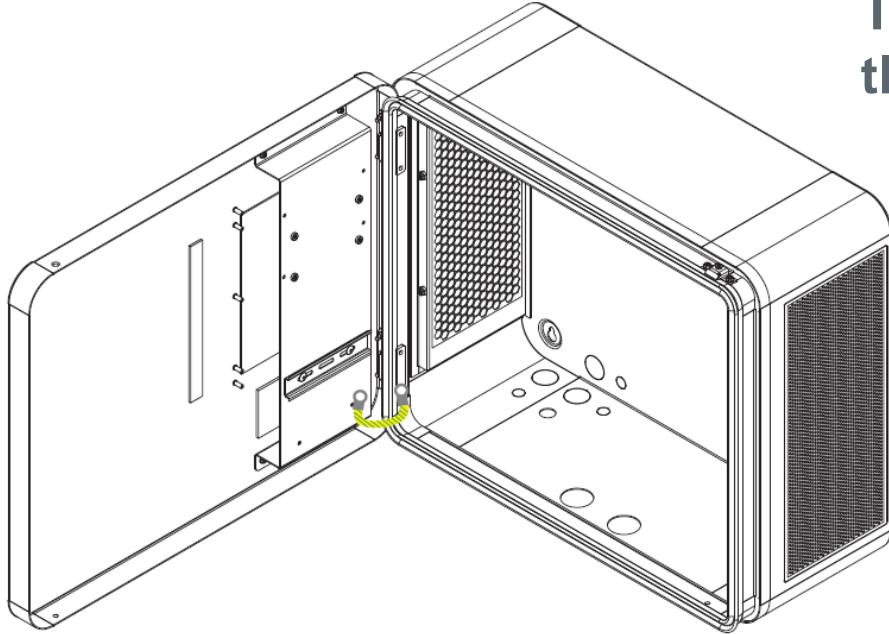
Electrical connections are made on the EMI filter input terminals, located at the lower left part of the Green Motion DC 22 EV charger housing.

NOTE: Ensure a good connection between the EV charger housing and the protective earth (PE) cable by using a ring terminal.



Earth connection (MANDATORY)

The front door and the housing of the unit must be grounded properly.



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Commissioning

- Unit switch-on
- Configure online station via LAN
- Configure online station modem/SIM

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Unit switch-on CHECKLIST

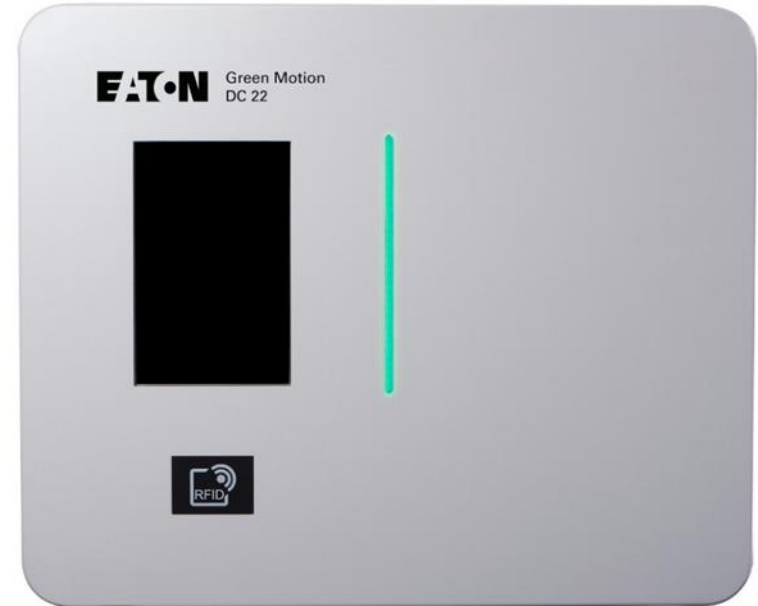
Before switching on the unit, please perform the following checks:

1. Check that the equipment is properly fixed to the wall or to the floor-mount pedestal, according to local regulations.
2. Check that all the electrical connections have been made correctly in accordance with local regulations.
3. Check that the protective earth connection (MANDATORY) has been made correctly in accordance with local regulations.
4. Perform checks on the continuity of the connections of the protective earth conductor, insulation resistance, RCD triggering current (optional), triggering time, phase rotation, etc., in accordance with local regulations..
5. Check that the front door is closed and secured with the fixing screws.

Unit switch-on

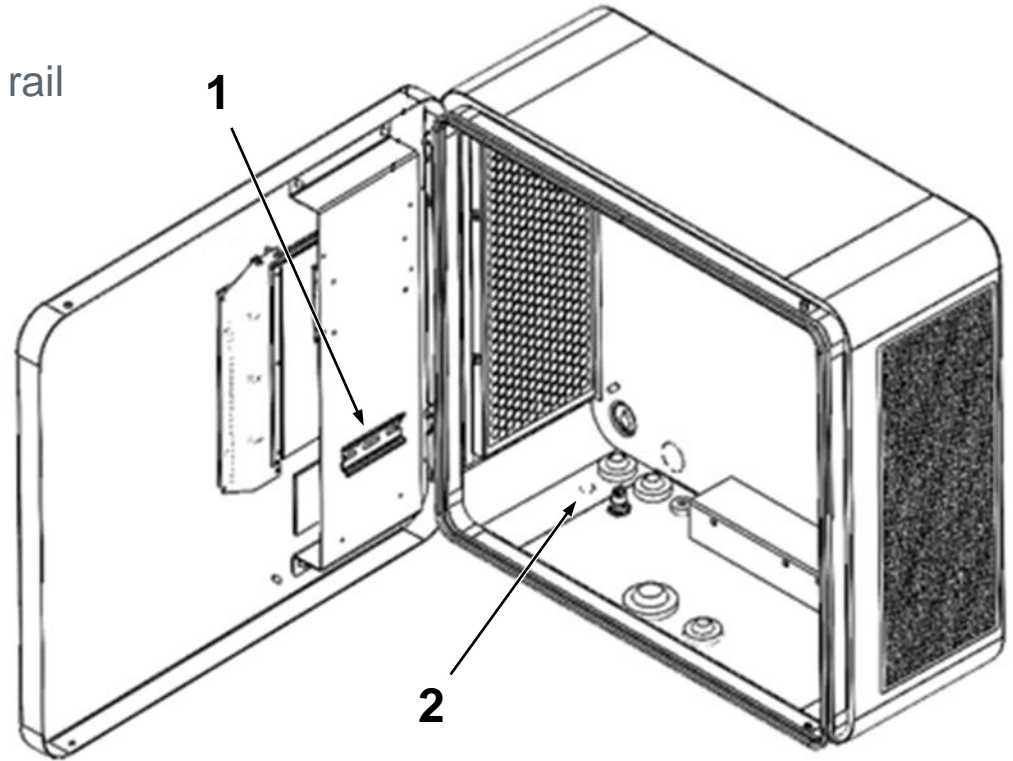
If the checks listed above were successful, proceed as follows:

1. Close the main circuit breakers,
2. Wait for the display to turn on.



Configure online station via LAN

- Find the router mounted on the DIN rail on the front door of the unit.
- Route an Ethernet cable through a cable entry in the housing.



1. Location of the router
2. Ethernet cable entry

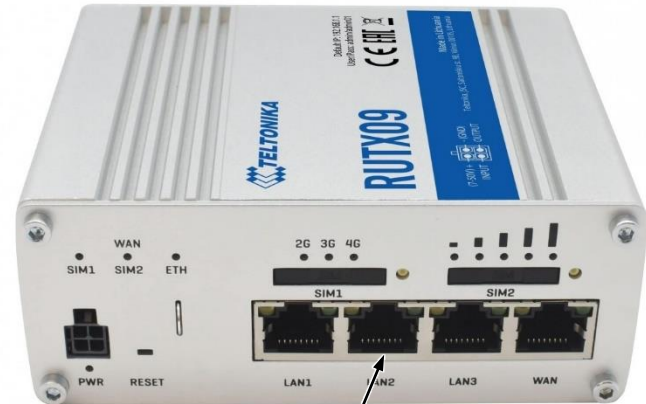
Configure online station via LAN

Step 1. Connect your laptop with one of the **LAN ports** of the router via an Ethernet cable.

Step 2. Ensure the laptop is under the same subnet of the RUTX09 router. The default IP address (192.168.52.1) as well as the login credentials can be found on the printed label on the unit itself.

Step 3. Connect to the router. If the "Setup Wizard" appears, ignore it and proceed with the steps described below.

Step 4. Go to the Network > WAN menu.



LAN port

Configure online station via LAN

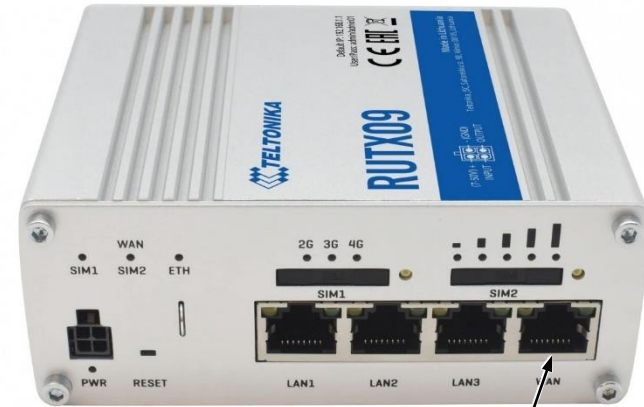
Step 5. Activate the WAN network and deactivate the other networks.

Step 6. Press Save & Apply.

Step 7. Authorize the management of the router from WAN (only in a private network). Go to System > Administration > Access control.

Step 8. Check the “Enable Remote HTTP” and “Enable Remote HTTPS” options.

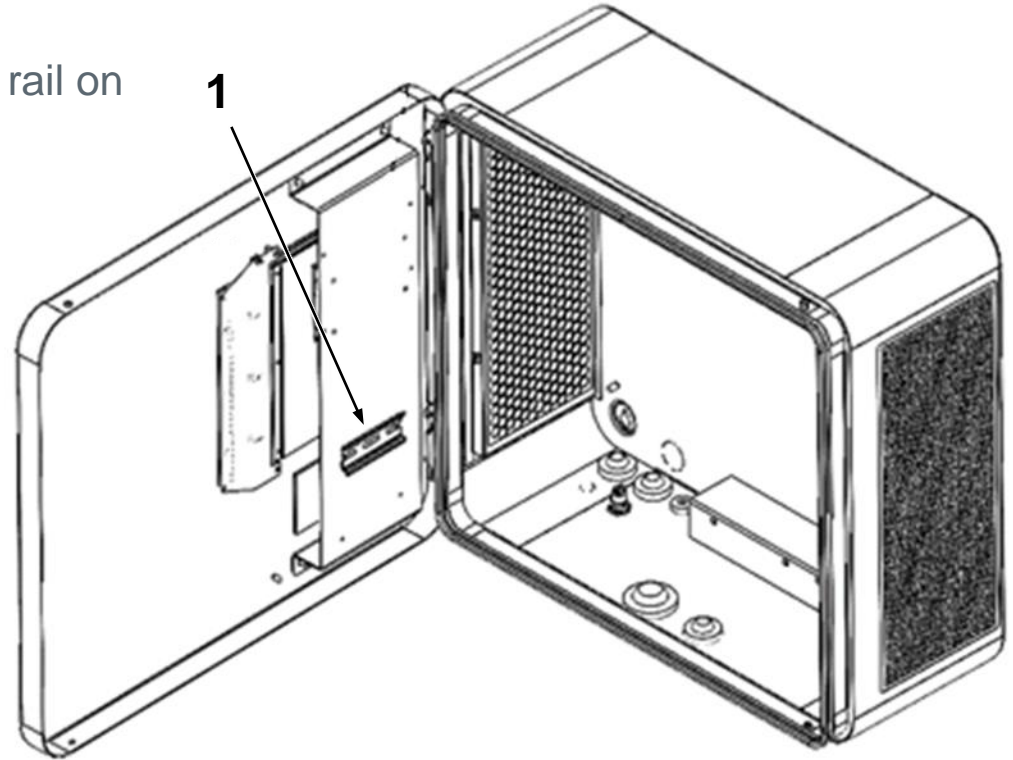
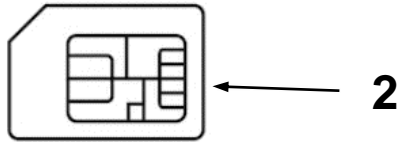
Step 9. Connect the **WAN ethernet port** of the Teltonika RUTX09 router via an Ethernet cable to a local modem.



WAN port

Configure online station via SIM (optional)

- Find the router mounted on the DIN rail on the front door of the unit.
- Keep your SIM card ready.



1. Location of the router
2. Mini-SIM 2FF

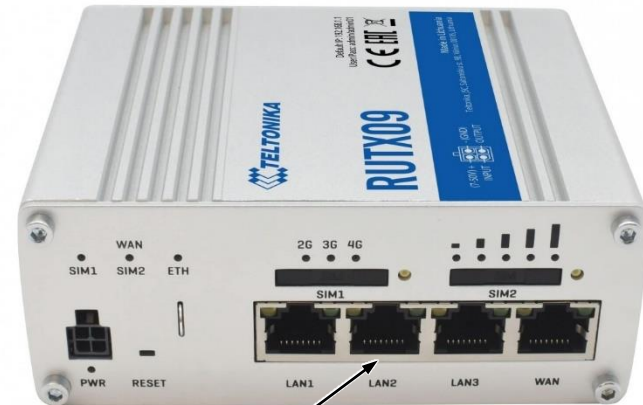
Configure online station via SIM (optional)

Step 1. Connect your laptop with one of the **LAN ports** of the router via an Ethernet cable.

Step 2. Ensure the laptop is under the same subnet of the RUTX09 router. The default IP address (192.168.52.1) as well as the login credentials can be found on a printed label on the unit itself.

Step 3. Connect to the router. If the "Setup Wizard" appears, ignore it and proceed with the steps described below.

Step 4. Go to the Network > WAN menu.



LAN port

Configure online station via SIM (optional)

Step 5. Activate and edit the MOB1S1A1 network. If necessary, enter the APN and the PIN code of the SIM card (APN: shared.m2m.ch).

Step 6. Press Save & Apply.

Step 7. Insert the SIM card in the SIM card slot on the modem/router.



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Warning

After configuring the online station, make sure to properly close and secure the front door of the unit with the fixing screws. Leaving the front door of the unit open or improperly secured may result in a risk of electric shock.

Green Motion DC 22

User interface

- LED indicator
- Color touchscreen display
- RFID reader



LED indicator



NO light:
a. Not powered

LED indicator



Green light ON:
a. Ready for use

Green light FLASHING:
b. Start-up stage

Green light BREATHING:
c. Waiting for user interaction

LED indicator



Blue light ON:

- a. Charging session completed

Blue light FLASHING:

- b. Charging session start-up

Blue light BREATHING:

- c. Charging session in progress

LED indicator



RED light ON:

- a. Error in charging

LED indicator



YELLOW light ON:

- a. Charger is set to unavailable

LED indicator



ORANGE light BREATHING:
a. An update is in progress

LED indicator



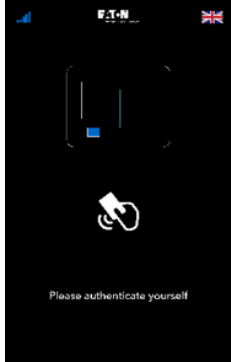
WHITE light with RED DOT FLASHING:
a. Network error. EV charger cannot connect to the Internet /backend.

Color touchscreen regular displays (1/2)



Welcome opening screen.

1. Touch the screen to wake up the unit.



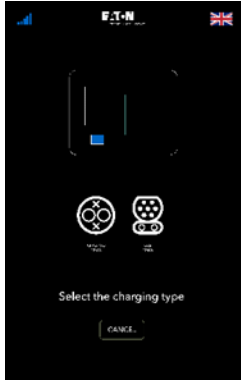
Authentication screen.

2. Check the 4G sign for connection with the server:
BLUE (the unit is online)
RED (the unit is offline)

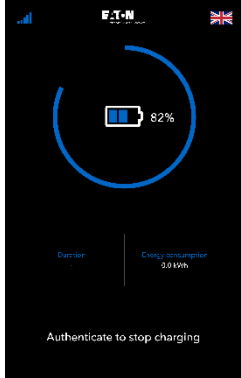
If the 4G sign is RED and the unit is offline, check the router settings and the Ethernet cable connections. If the problem persists, call your Eaton technical support representative.

3. Select the language by touching the country flag

Color touchscreen regular displays (2/2)

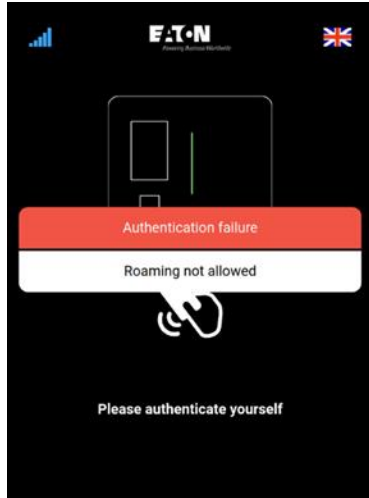


Charging plug selection screen
4. Select the appropriate plug type.

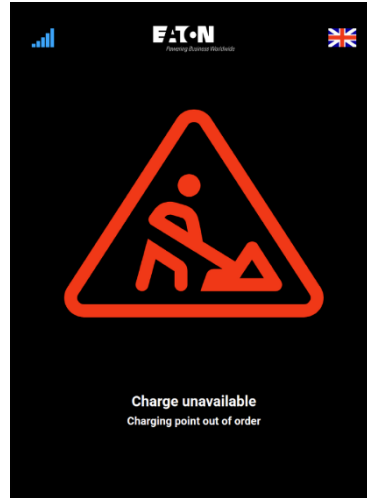


State of charge of the vehicle

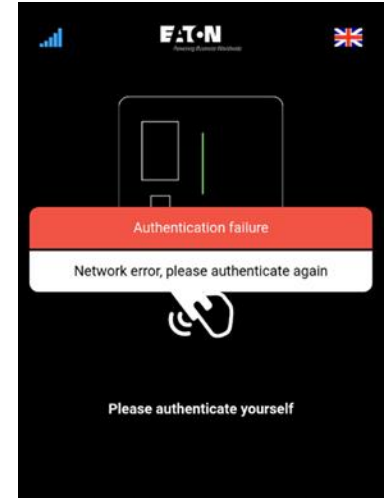
Color touchscreen warning displays (1/3)



This charger is not part of your eMSP, and you do not have roaming rights. You can not start the charging session with your RFID card. Use Scan & Charge if available.

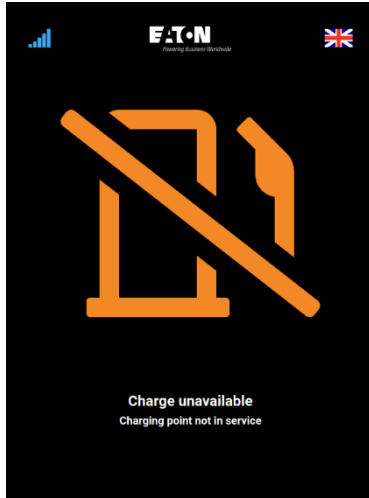


Authentication failed due to network issues. Try again. Check if the 4G sign is displayed in blue.

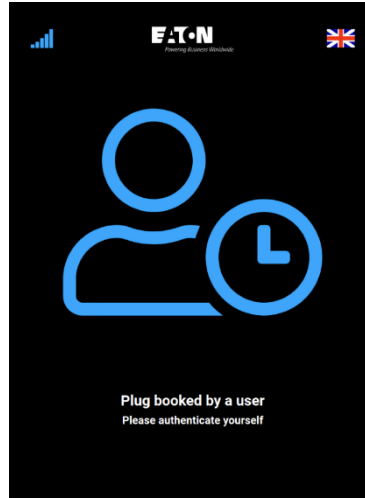


Charger is out of order. Maintenance is required before putting the charger back in service.

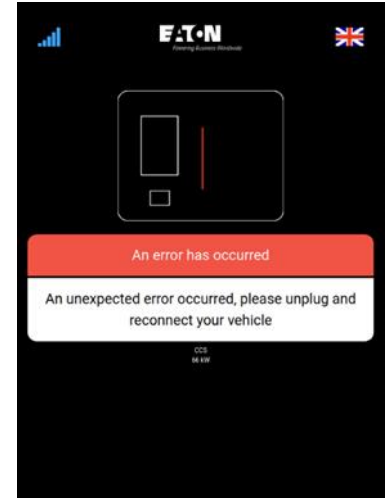
Color touchscreen warning displays (2/3)



Contact the technical support to put the charger back in service.



Charging station is already booked by a user. If you are not the one who booked it, you cannot start charging.



Unplug and reconnect the vehicle to correct the error.

Color touchscreen warning displays (3/3)



After checking that there is no more risk, exit the emergency mode by releasing the emergency stop button located at the bottom of the charger.



Open door detected. Front door needs to be closed before starting a new charging session.

RFID reader CHECKLIST

1. Connect the appropriate charging cable to the vehicle (CCS2 or CHAdeMO).
2. Hold an authorized RFID card in front of the reader.
 - a. If using the CCS2 plug: the charging session will start automatically.
 - b. If using the CHAdeMO plug: select the plug on the screen to start the charging session.
3. Unplug the charging cable and wait two minutes; the user will be automatically unauthenticated.



**RFID
reader**

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Questions?

Contact your Eaton technical support representative for assistance.



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Appendix

- Limitations on guarantee
- Cleaning or replacing air filters



Green Motion DC 22

Limitations on Guarantee

1. The guarantee period for the Product Guarantee of the Covered Products (“Guarantee Period”) starts (the “Guarantee Start Date”) on the initial purchase of the Covered Product by user (as evidenced by the invoice date on the purchase order). For those products the warranty period is two (2) years from the date of purchase.
2. The Product Guarantee do not apply for external equipment such as charging cables and plugs.
3. Claims under this Product Guarantee can only be made by user provided that the Covered Product remains in its original location and configuration.
4. The Product Guarantee will terminate immediately and be void in case of:
 - Damage and dysfunction caused by third-party products that are not approved by Eaton.
 - Inappropriate transportation damage.
 - Installation or operation in a country not approved by Eaton.

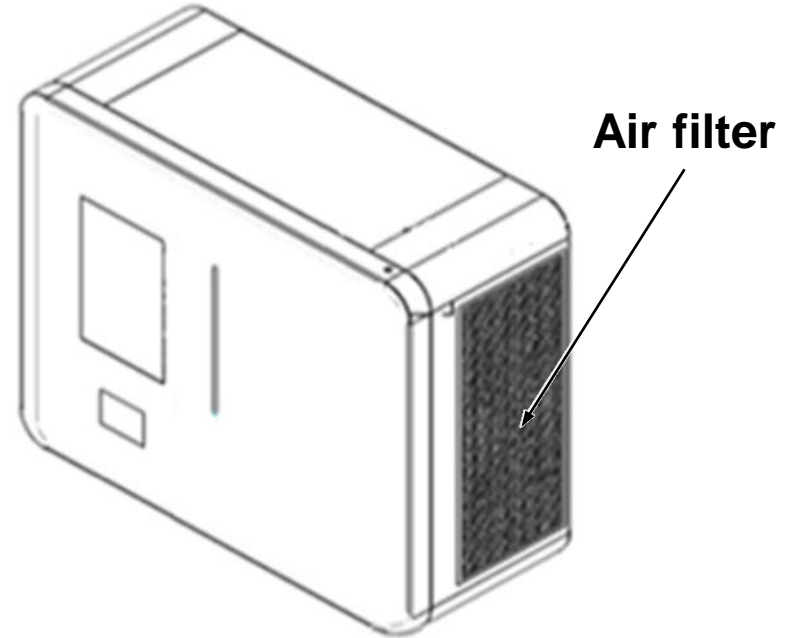
Green Motion DC 22

Limitations on Guarantee

5. This Product Guarantee shall not apply, and any Guarantee Claim shall be void in relation to any Covered Products or parts thereof which:
- have been attempted to be repaired or altered outside the Eaton's factory or authorized Eaton factory in any way that, in Eaton's sole judgment would affect its performance;
 - have been subject to alteration, accident, misuse, abuse, neglect or abnormal wear;
 - have been installed, operated or used in a manner contrary to Eaton's instructions, or due to failure to follow Eaton's instructions for operation and maintenance;
 - have been subject to force majeure (violent or stormy weather, lightning, overvoltage, flooding, fire etc.);
 - have been inadequate to follow and observe good engineering practices relating to installation and safety;
 - have been subject to inappropriate maintenance;
 - have been subject to physical or electrical stress or environmental conditions, misused or negligently handled or operated; or
 - are not or have not been updated with the latest system update, software or firmware to enable new features and bug fixes.

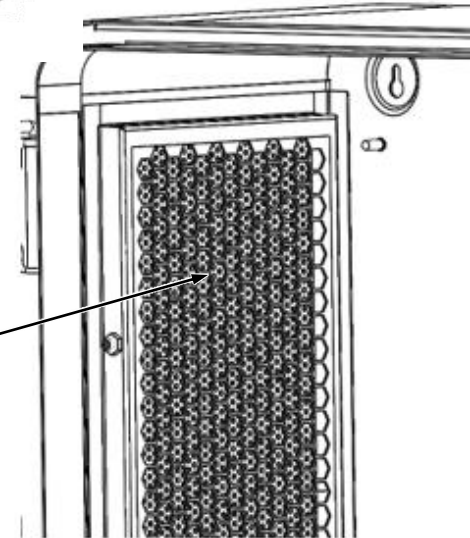
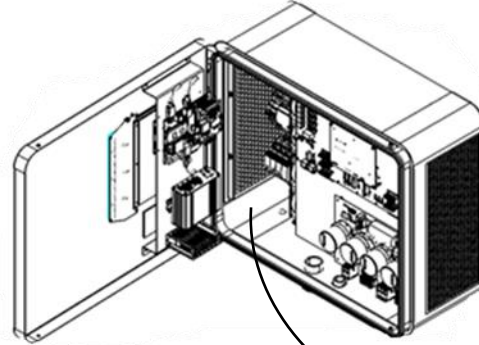
Cleaning or replacing air filters

- Please check the filters on a yearly basis to ensure they are not obstructed and working properly.
- Please make sure that the fans are turned off and that the station is not in use during the maintenance operation. Rotating fans can be dangerous and may cause injuries.



Cleaning or replacing air filters

1. Disconnect the AC-line main switch.
2. Open the circuit breakers.
3. Open the front door of the housing.
4. Using a 2.5 mm hex key, remove the two screws attaching the left filter cartridge to the unit.
5. Repeat step 4 for the second filter on the right side of the unit.
6. Place new filters behind the air flow grid.
7. Close the front door and restart the unit.



Air filter

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