

Green Motion DC 44/66 EV charger

Green Motion DC 44/66 Installation manual



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1. Introduction

Thank you for installing the **Green Motion DC 44/66 EV charger**.

Before you start

This manual contains important instructions that must be followed during installation, operation and maintenance of the Eaton Green Motion DC 44/66 EV charger. All instructions must be read before installing and operating the equipment. This manual should be retained for future reference. Please note that the Green Motion DC 44/66 EV charger must only be installed by professional and qualified personnel, i.e. an Eaton technical support representative or a professional installer. There are no user serviceable parts inside the Green Motion DC 44/66 EV charger. Failure to observe the above will void the guarantee provided and Eaton cannot be held legally accountable.

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Technical disclaimer

All drawings, descriptions and illustrations contained in this document serve to provide a clear overview and/or technical explanation of the present product and its various components and accessories. In line with our goal to continuously improve the products and the customer service we provide, all specifications contained in this document are subject to change without notice.

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1.1 Field of applications

This installation manual is intended for professional and qualified personnel. It describes how to securely install and commission the Eaton Green Motion DC 44 and the Eaton Green Motion DC 66 EV chargers:

Table 1. Eaton Green Motion DC 44/66 EV charger overview

Power input		
Input voltage AC	3 x 400 V 50 Hz	3 x 400 V 50 Hz
Nominal input current AC	3 x 64 A (44 kW)	3 x 96 A (66 kW)
Power factor	> 0.99	> 0.99
Phase	3 Phase	3 phase
Power output		
Nominal output power	44 kW	66 kW
Output voltage for the DC range	50 V - 500 V	50 V - 500 V
Output current DC at nominal power	110 A	165 A
Output type	- CCS2 (default) - CCS2 and CHAdeMO (optional)	- CCS2 (default) - CCS2 and CHAdeMO (optional)
Efficiency	≥ 96 %	≥ 96 %
Simultaneous charging	1	1
Options		
Cable	1 x CHAdeMO	1 x CHAdeMO
Network interface	3G/4G	3G/4G
Software licenses	Eaton Scan & Charge Eaton Charging network manager	Eaton Scan & Charge Eaton Charging network manager
Warranty		
Warranty	2 years	2 years

1.2 Symbols used in this manual

1.2.1 Related icons



Imminent dangers causing serious injuries. Danger of death.



Hazardous behaviors that could cause serious injuries.
Hazardous behaviors that could cause death.



Behaviors that could cause minor injuries to people or minor damages to things.



An electric shock can be fatal.
Avoid touching internal or external parts normally live while the system is powered on.



Read the instructions. These instructions are intended for professional installers. Professional and qualified personnel must be an expert in the field and is therefore responsible for commissioning the system in accordance with the manufacturer's instructions and local legislation.



The notes preceded by this symbol relate to technical issues and ease of operation.



The EU Directive on Waste Electrical and Electronic Equipment (WEEE).

1.3 Conventions used in this document

This manual adopts the following type conventions and acronyms to refer to Green Motion DC 44/66 EV charger or its parts:

ALL CAPITALS highlight critical points that require careful attention.

All abbreviations used in this document are listed in Table 2.

Table 2. Glossary

Abbreviation	Description
AC	Alternating current
CAN	Controller Area Network
CCS	Combined Charging System
CHAdemo	CHArge de MOve
DC	Direct current
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
FW	Firmware
HW	Hardware
IEC	International Electrotechnical Commission
IP	Internet Protocol
LAN	Local area network
LCD	Liquid crystal display
N	Neutral
OV	Overvoltage
PE	Protective earth
PPE	Personal protective equipment
RCD	Residual current device
RCMU	Residual current monitoring unit
SW	Software
UI	User interface
WEEE	Waste electrical and electronic equipment
EV	Electric vehicle
CU	Control unit
DHCP	Dynamic Host Configuration Protocol
NAT	Network address translation
TCP	Transmission Control Protocol
PAT	Port address translation
SIM card	Subscriber identity module card

2. Cautions

These instructions are intended for professional and qualified personnel.

Before carrying out any operations, ensure you have read and understood this manual. Do not make changes and do not carry out maintenance operations not described in this manual. The manufacturer does not accept responsibility for injuries to people and property damages if the information within this manual has not been read and followed.



The operations described here must be carried out only by professional and qualified personnel.

The customer is civilly liable for the qualification and mental or physical state of the professionals who operate this equipment. They must always use the personal protective equipment required by the laws of the country of destination and anything else provided by their employer.



It is strictly prohibited to open the unit except as described in this manual. The installation of the equipment must be carried out by professional and qualified personnel. They must not be under the influence of alcohol or drugs, or have prosthetic heart valves or pacemakers.



For any doubts or problems regarding the use of the system, even if not described here, please contact your Eaton sales representative via: bgtechsupport@eaton.com



The unit must not be subjected to any type of modification. Eaton declines any responsibility if the rules for correct installation are not respected, and it is not responsible for the system upstream or downstream of the equipment it supplies.

The exclusion of protective devices is extremely dangerous and relieves the manufacturer of any responsibility for damage to people and things.

A first aid kit must be provided.

2.1 Operating environment and restrictions

Each system must be used exclusively for the operations it was designed for and within the operative ranges specified in the nameplate and/or in the relative technical datasheet, in accordance with the national and international safety standards.

Any use different from the intended use specified by the manufacturer is to be considered totally inappropriate and dangerous, and in this case the manufacturer declines all responsibility.

Check the regulations applied by the electricity provider.

The unit can be connected to the distribution network in accordance with local rules.

The unit should comply with all the technical specifications.



Improper or unauthorized use:

Although carefully constructed, like all electrical appliances the unit can catch fire.

The unit is intended for indoor or outdoor installation.

Optimal operation of the unit is in the temperature range -25 °C to +45 °C.

The unit must be transported and stored in indoor locations in the temperature range -25 °C to +45 °C.

The unit must be used in locations free from acids, gases or other corrosive substances.

The unit must be used and stored in locations with relative humidity below 95 %.

The unit must be transported in conditions with relative humidity below 95 %.

The unit must be used at a maximum altitude of 2000 m above sea level.

2.2 Suggested protections during the installation

The equipment was built according to the highest safety standards and equipped with safety devices designed to protect operators and components.

For obvious reasons, the manufacturer cannot envisage all potential types of installations and locations where the equipment will be installed; the customer must therefore clearly inform the manufacturer of specific conditions of installation. Eaton declines any responsibility if the unit is incorrectly installed.

The operators must be correctly instructed. The operators must therefore read and follow the technical instructions contained in the manual and in the enclosed documentation.

The instructions provided in this manual do not replace the safety regulations of the installation and operational technical data printed on the products, nor do they replace the current safety standards enforced in the country where the equipment is installed, and the rules dictated by common sense.

The manufacturer can provide theoretical or practical training to operators, either on their site or on the customer's premises, as specified at the time of drawing up the contract.

The equipment must not be used if any operational fault is identified.

Temporary repairs should be avoided; repair work must be carried out only with genuine spare parts, which must be installed according to the intended use.

The responsibilities deriving from the commercial components are delegated to the respective manufacturers.

Avoid touching the equipment enclosure during operation. The equipment enclosure could overheat during operation and cause burns on contact. The equipment may remain hot even after it is switched off.

In the event of fire, CO₂ foam extinguishers must be used, and self-vacuum systems must be used to put out fires in enclosed spaces.

If the noise level exceeds legal limits, the working area must be restricted, and anyone who has access to the area must wear ear defenders or ear plugs.

The noise level produced by the equipment in normal working conditions is lower than 50 dB.

During the installation process, special attention must be paid to fixing the equipment and its components. At this stage, restricting or preventing access to the installation area is recommended.

Professional and qualified personnel are recommended to wear clothing and personal protective equipment (PPE) provided by their employer. Operators must not wear clothes or accessories that could start fires or produce static electricity, or any item of clothing that could affect personal safety. When carrying out any operation on the equipment, clothes and instruments must be suitably insulated.

Professional and qualified personnel must NOT access the equipment with bare feet or wet hands.

The maintenance engineer must always ensure that nobody else is able to reset or operate the equipment during maintenance and must report any fault or deterioration caused by wear or by aging, in order to restore the correct safety conditions.

The professional and qualified personnel must always pay attention to the working environment to ensure it is well lit and has a suitable escape route.

A first aid kit must be provided.

2.3 Protection from electric shock



An electric shock can be fatal.
Avoid touching internal or external parts normally live while the system is powered on.



Cables and connections must always be secured, in good condition, insulated and suitably sized.

2.4 Electromagnetic fields and interference



Electromagnetic fields may have harmful effects (unknown to date) on the health of people who are subjected to long exposure. Avoid standing less than 20 cm from the equipment for long periods of time.



The professional and qualified personnel must be an expert in the field, and are therefore responsible for commissioning the system in accordance with the manufacturer's instructions and local legislation. If electromagnetic interference is detected, the professional and qualified personnel should contact an Eaton technical support representative using the email address bgtechsupport@eaton.com



Connect the unit's external frame or other conductive parts to ground to ensure system protection and the highest level of safety for the operators.



National standards related to grounding must be complied with.

2.5 Warning decals and rating plate



The labels on the equipment must NOT be removed, damaged, soiled or hidden.

The labels must always be visible and in good condition.

The technical data shown in this manual do not replace those shown on the data plates on the equipment.

2.6 Residual risks



Despite the cautions and safety systems in place, some residual risks will still be present, which cannot be removed. These risks are listed in the following table, along with recommendations to prevent or mitigate them.

Table 3. Residual risks

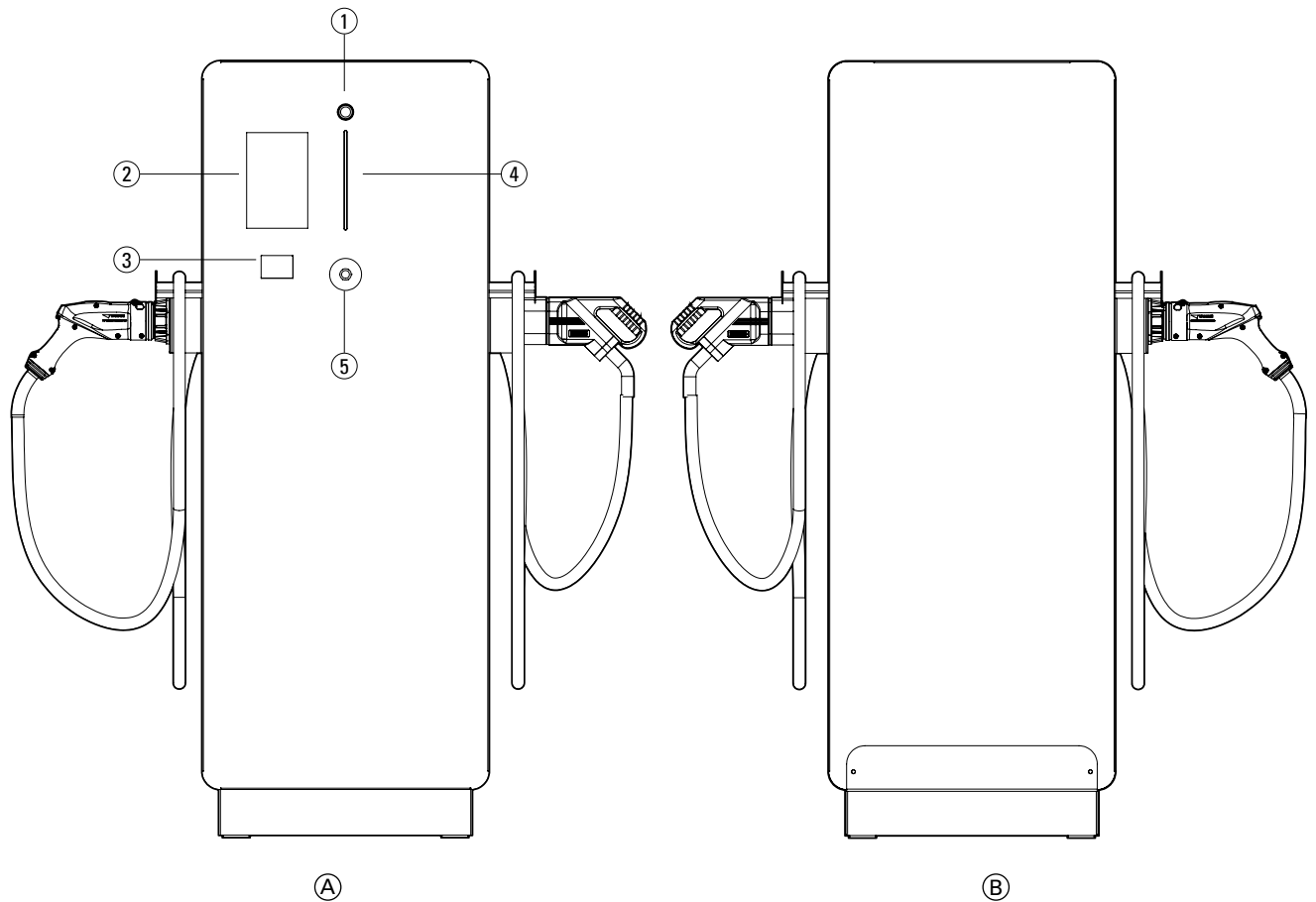
Risk assessment	Recommended solution
Noise pollution caused by installations in unsuitable environments or where professionals work on a regular basis.	Reassess the installation environment or site.
Unsuitable ventilation in the location, causing equipment to overheat, leading to discomfort for people who are on the site.	Restore adequate ambient conditions and ventilate the site.
Protection from the elements, such as water ingress, low temperatures, high humidity, etc.	Maintain adequate ambient conditions for the equipment.
Surface temperature is hot.	Do not obstruct openings on the equipment. Use suitable PPE or wait for the equipment to cool down before accessing it.
Dirt affects the system and prevents the safety labels from being read.	Adequately clean the equipment, the labels and the workplace.
Poor installation.	Request a training course.
During the installation stage, provisionally fixing the equipment or its components can be hazardous.	Take care and restrict access to the installation area.
Accidentally disconnecting the quick connectors while the equipment is operational or making incorrect connections can produce electrical arcs.	Take care and restrict access to the installation area.

3. General description

The following figures show different views of the Green Motion DC 44/66 DC EV charger.

3.1 Front and back views

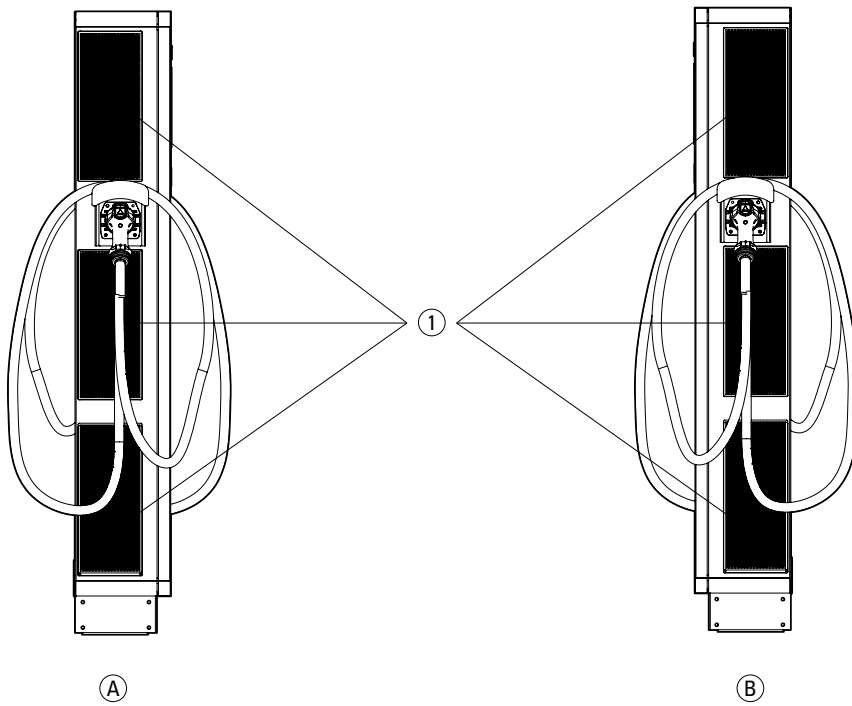
Figure 1. Front and back views of Green Motion DC 44/66 EV charger



Tag	Description
(A)	Front view
(B)	Back view
①	Button indicator
②	Color touchscreen display
③	RFID reader
④	LED display
⑤	Emergency stop button

3.2 Left and right views

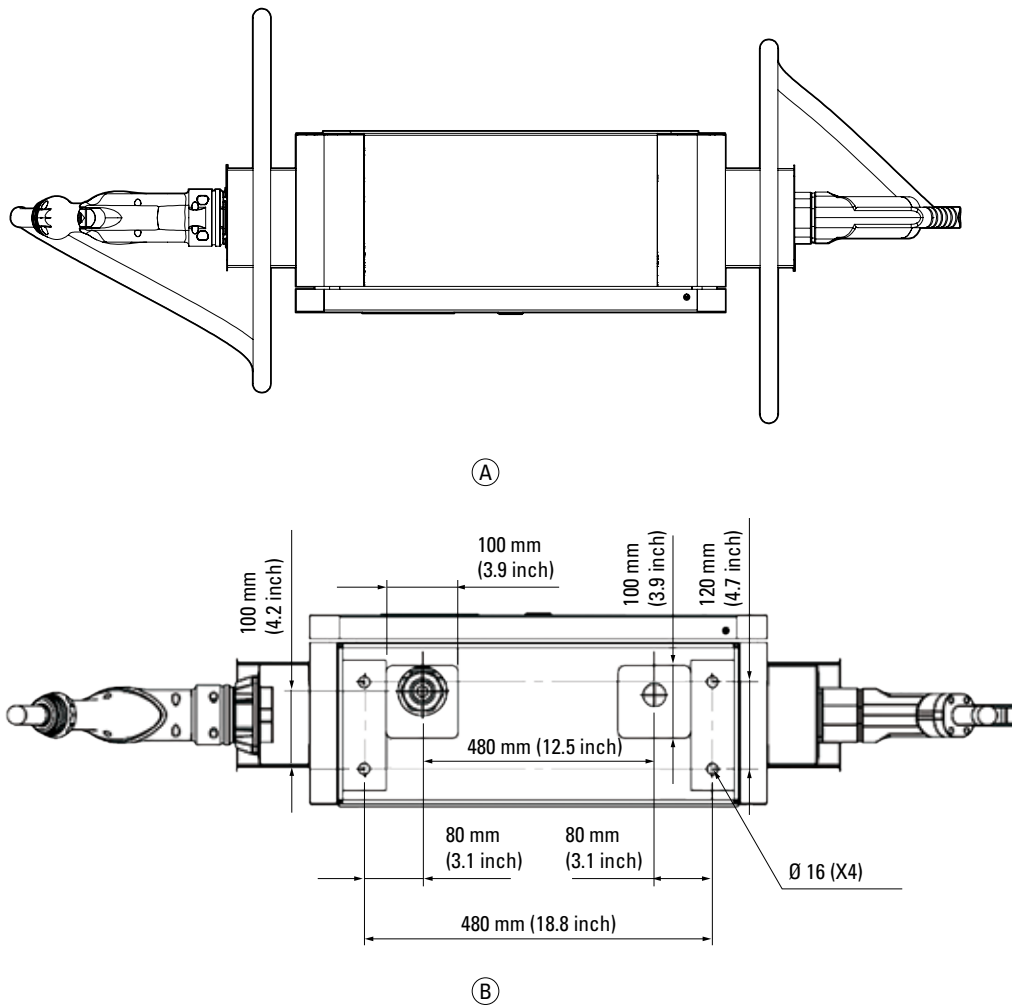
Figure 2. Left and right views of Green Motion DC 44/66 EV charger



Tag	Description
(A)	Left view
(B)	Right view
(1)	Air filters

3.3 Top and bottom views

Figure 3. Top and bottom views of Green Motion DC 44/66 EV charger



Tag	Description
(A)	Top view
(B)	Bottom view

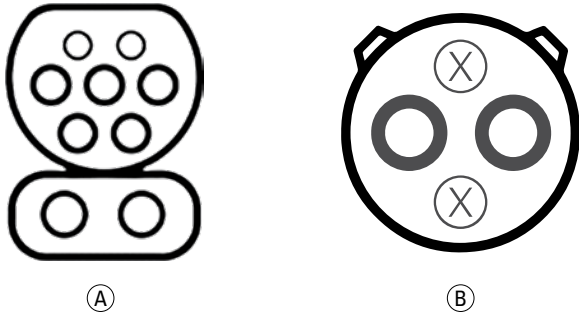
3.4 Types of cables

Green Motion DC 44/66 EV charger provides two types of cables and connectors:

1. Combined Charging System (CCS) for EU market. This is the default cable.
2. CHAdeMO. This cable is optional.

The maximum power that this EV charger can deliver is 44 kW or 66 kW, depending on the model. The instantaneous charging power can vary upon other variables such as grid power available, installation and car model. For those reasons, Eaton declines any responsibility on the total power delivered.

Figure 4. Illustration of connector types available with Green Motion DC 44/66 EV charger



Tag	Description
(A)	CCS (EU)
(B)	CHAdeMO

The unit can be equipped with either CCS or both types of cables as reported in the table below.

Table 4. Possible cable configurations available with the charger

Green Motion DC 44/66 Cable Options	CCS	CHAdeMO
Default	X	
Optional	X	X

4. Relevant information prior to the installation



The installation must be carried out only by professional and qualified personnel.



Installation, commissioning, maintenance or retrofitting of the EV charger must be performed by professional and qualified personnel who are responsible for complying with existing standards and local installation regulations.



During the installation, ensure the equipment is powered off.

4.1 Tools required for the installation

To perform the installation, the installer should have the following tools:

- Screwdriver,
- Open-ended wrenches,
- Drilling machine,
- Laptop,
- SIM card, in case of online chargers with 4G modem.

4.2 Checking the box contents

The Green Motion DC 44/66 box must contain the following parts:

- Green Motion DC 44/66 EV charger
- Quick start guide
- Safety guidelines.

4.3 Dimensions and weight

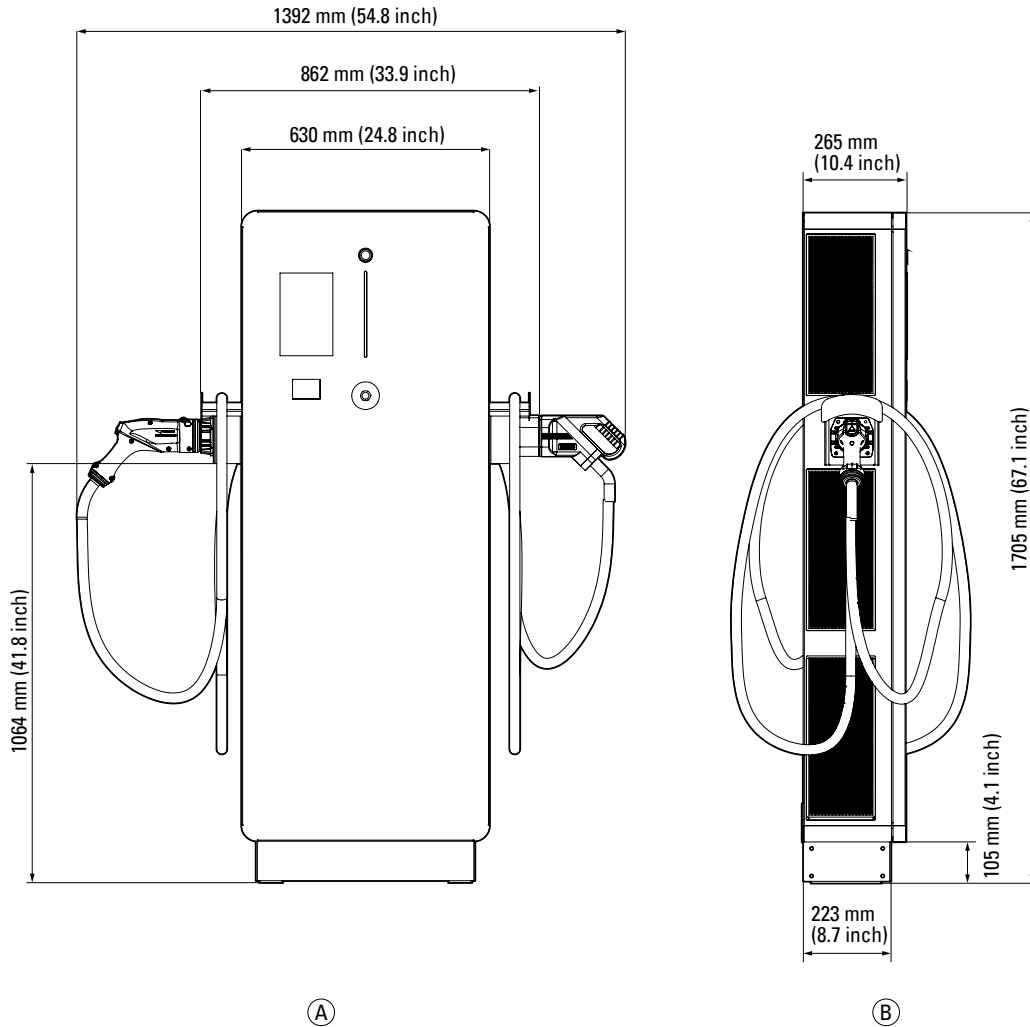
The table below shows the dimensions and weight of the Green Motion DC 44/66 EV charger.

Table 5. Dimensions and weight of Eaton Green Motion DC 44/66 EV charger

	Green Motion DC 44	Green Motion DC 66
EV charger		
Dimensions (H x W x D) in mm without cables	1705 x 862 x 265	1705 x 862 x 265
Weight in kg (approx.)	150	180
Cables		
CCS weight in kg	12	12
CHAdeMO weight in kg	14	14

Figure 5 shows the front and lateral views of the EV charger with dimensions.

Figure 5. Green Motion DC 44/66 EV charger front and lateral views with dimensions



Tag	Description
(A)	Front view
(B)	Lateral view

4.4 Lifting, transportation and unloading instructions

Transportation and handling

Transportation of the equipment, especially on the road, must be carried out in such a way as to protect the system components (especially electronic components) from major impacts, humidity, vibrations, etc.

During handling, sudden or fast movements which could cause the system to sway dangerously must be avoided.

Please refer to local regulations and laws for transportation and handling of the equipment.

Lifting

Eaton packs and protects each component by using devices that ease its transportation and handling. These operations must be carried out by professional and qualified personnel who specialize in loading and unloading components.

The ropes and vehicles used for lifting must be able to withstand the weight of the equipment.

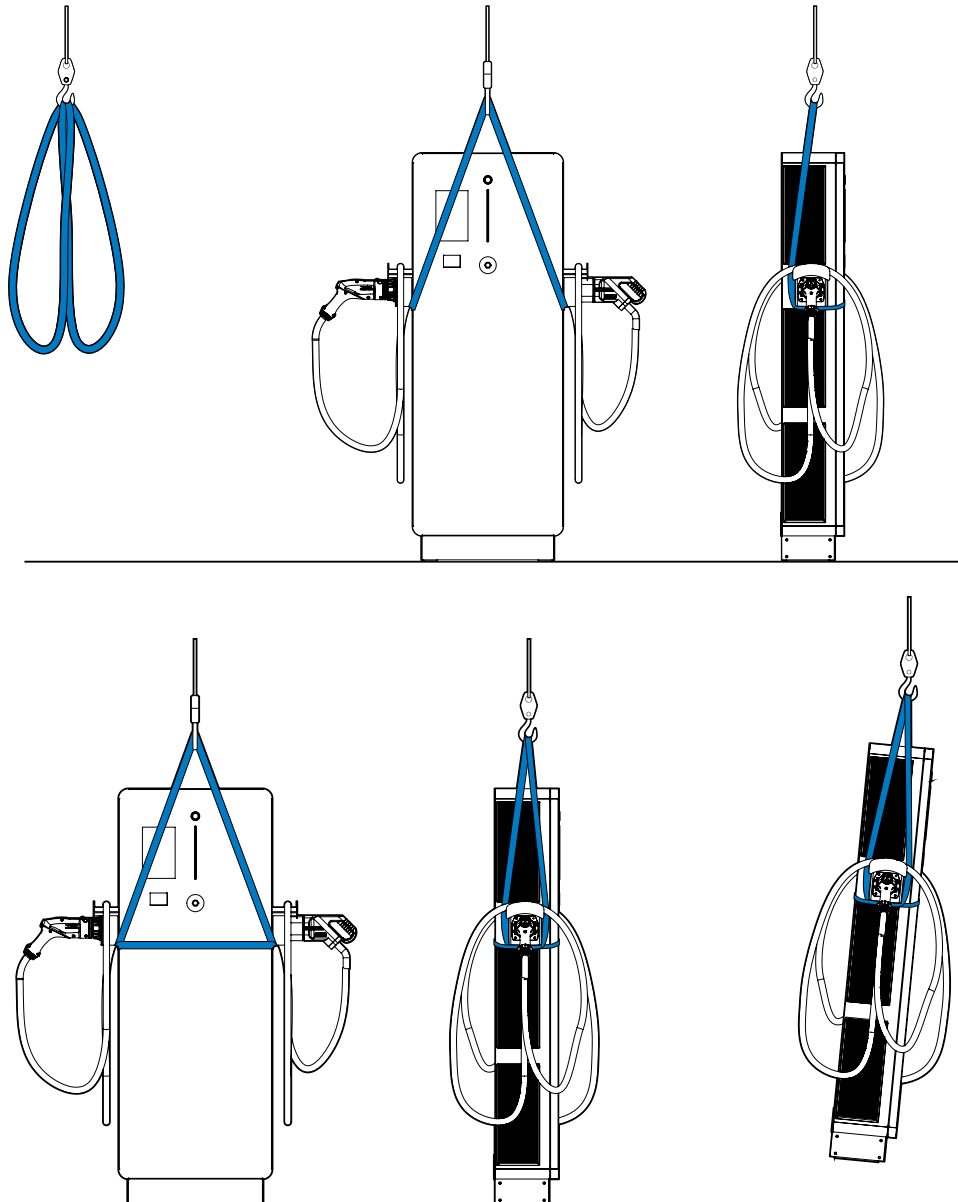
Do not lift multiple units or parts of the equipment at the same time, unless otherwise stated.

The Green Motion DC 44/66 EV charger is not equipped with specific lifting tools.

The unit should be lifted with sling loops under the two plug sockets (between the body and the cable), both loops secured with another sling.

The screen should be protected during the operation.

Figure 6. Lifting instruction for the EV charger



Do not underestimate the weight of the Green Motion DC 44/66 EV charger. Check the technical specifications.

Number of manpower for transportation, handling and lifting must be considered due to the weight of the unit in accordance with the requirements of local regulations.

Do not move or stop the hanging load above people or things.

Do not let it drop with too much force.

Please refer to local regulations and laws for lifting of the equipment.

4.5 Unpacking



Remember that the packaging elements (cardboard, cellophane, staples, adhesive tape, straps, etc.) can cut and/or injure, if not handled with care. They must be removed with appropriate tools and must not be handled by non-responsible people (i.e. children).

The packaging components must be removed and disposed of in accordance with the local regulations and laws of the country of installation.

Check the integrity of the packaging before opening.

Open the packaging and remove the Green Motion DC 44/66 EV charger carefully to avoid damaging the external casing or the internal electronic parts.

Before commissioning, ensure that the external casing of the unit is in good condition and free from damage sustained during transportation.

5. Mounting and installation

5.1 Positioning the Green Motion DC 44/66 EV charger

The installation position of the unit must meet the following conditions:

- The number of manpower required for the installation must be considered due to the weight of the unit in accordance with the requirements of local regulations.
- The unit must be installed in a place with relative humidity below 95 %.
- Optimal operation of the unit is in the ambient temperature range -25 °C to +45 °C.
- Install the unit to ensure easy access to the controls and connections.
- The unit system must be used below a maximum altitude of 2000 m above sea level.
- Please keep 300 mm free space on left and right sides to ensure adequate air circulation.
- The cable entries for power cables and the internet connection cable are through the bottom of the EV charger.



Do not mount the unit charger above or below flammable building materials.

Do not install the unit charger in areas where highly flammable substances are present.

Do not install the unit charger in areas subject to explosion hazard.



Make sure there is more than 300 mm of space for air circulation on both sides of the unit. Local regulations may require larger clearances. Ensure that the air circulation is unimpeded and prevent blocking of the inlet and outlet by snow or objects.

5.2 Mounting

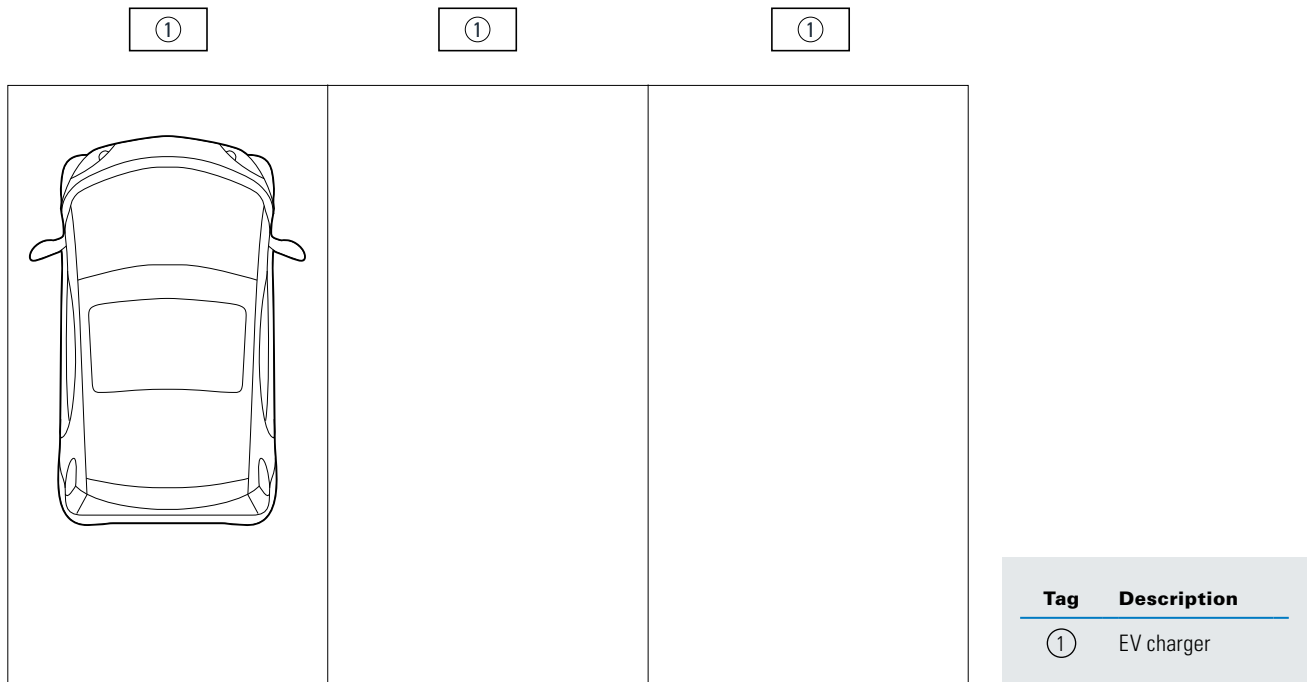
Green Motion DC 44/66 EV charger must be mounted on a concrete base and each EV charger must serve only one parking space.

5.2.1 Site design

A site for electric vehicles (EVs) equipped with EV chargers can be designed in different setups. This section is intended to provide some valuable information on the placement of the EV chargers with respect to parking spaces.

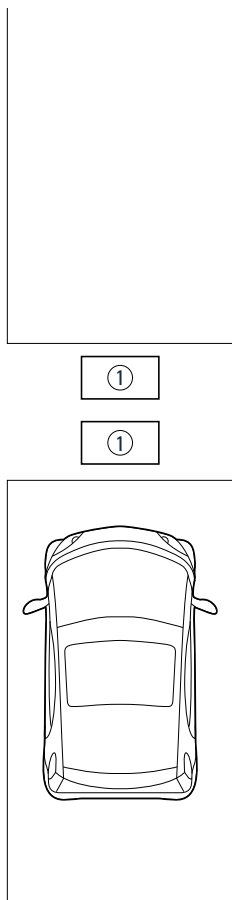
As shown in the Figure 7, Eaton recommends installing the EV charger at the front and center of the parking space, and each EV charger should serve one parking space.

Figure 7. Optimal positioning of EV chargers



An alternative positioning for the EV chargers is shown in Figure 8.

Figure 8. Alternative positioning of EV chargers



5.2.2 Mounting the Green Motion DC 44/66 EV charger

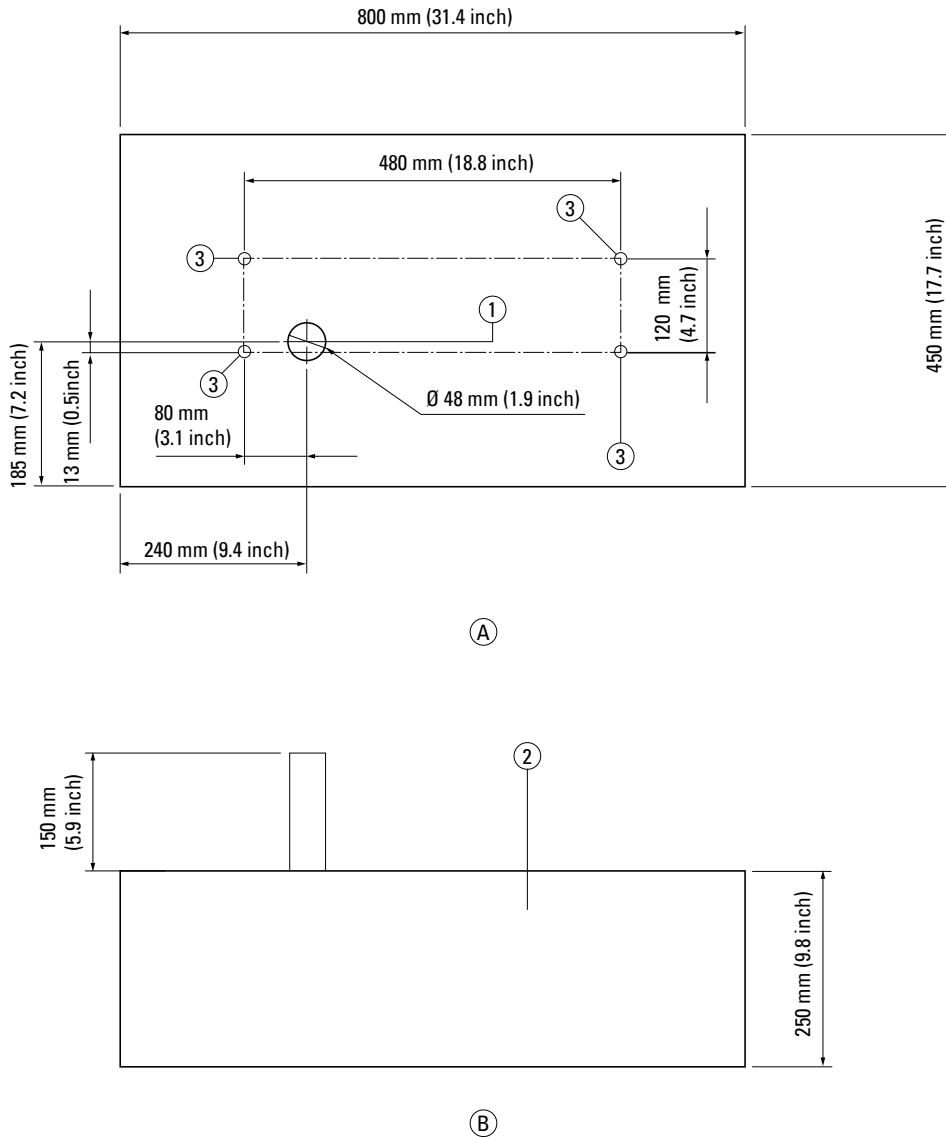
When choosing the location of the EV charger, consider a 300 mm free space requirement to the left and right sides of the EV charger for air circulation.

Fix the column with 4 x M10 stainless steel threaded rods on an 800 mm x 450 mm x 250 mm concrete base. Use the flat washers to secure the mounting.

The power input electrical cable has to be fed through the concrete base through a hole with 48-mm diameter.

Below is a schematic representation of the concrete base of the EV charger column.

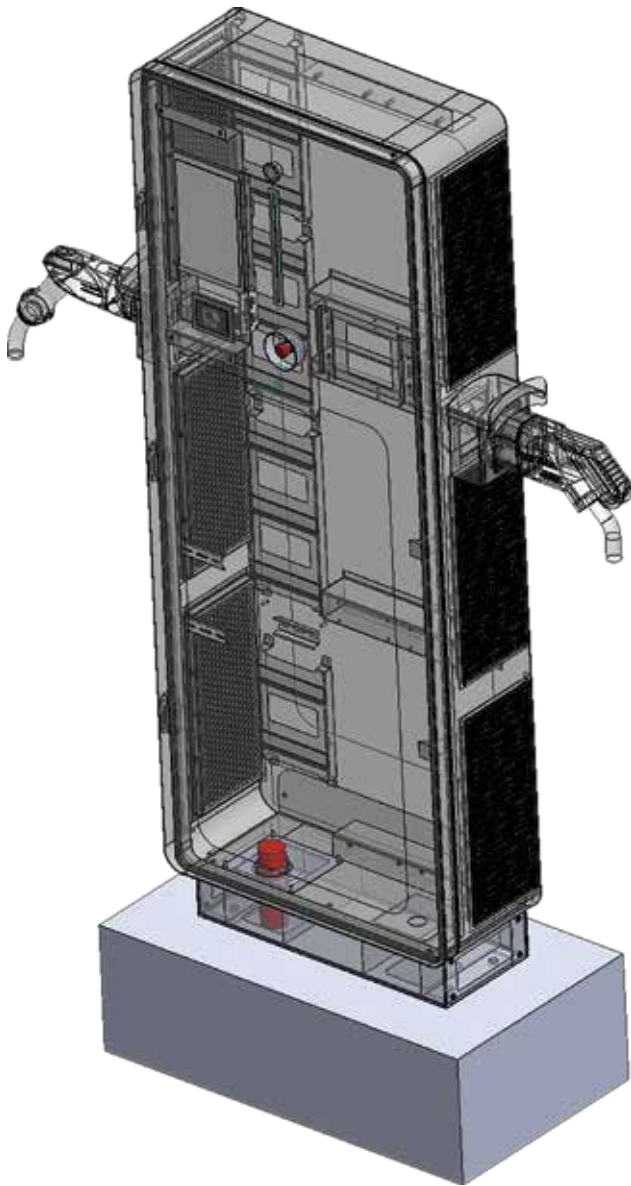
Figure 9. The top and front views of the concrete base of the EV charger with dimensions



Tag	Description
①	Hole for electrical cable
②	Concrete base
③	M10 stainless steel rod

See a schematic representation of the Green Motion DC 44/66 EV charger mounted on a concrete base in Figure 10.

Figure 10. View of the EV charger mounted on a concrete base



6. Electrical connections and wiring

6.1 Cautions



Installation, commissioning, maintenance or retrofitting of the EV charger must be performed by professional and qualified personnel who are responsible for complying with existing standards and local installation regulations.



For safety reasons, an appropriately rated input load disconnecter must be provided for each individual product. No load should be connected directly to the product during wiring.



Connect only one EV charger for each circuit breaker and residual current device (RCD). The circuit breaker serves as a mains disconnecter.



The protective earth conductor must have a cross-section at least equal to or greater than the cross-section of the cables for connection to the public grid (AC), and in accordance with the requirements of local regulations.



Before starting connection operations, ensure that the external AC-line main switch is disconnected, and that circuit breakers are open.



Any operation requiring the opening of the charger can lead to electric shock hazards.

6.2 Standard wiring

To connect the EV charger to the electrical panel, professional and qualified personnel should consider the following guidelines and consult Table 6.

Table 6. Overview of parameters for dimensioning of the protective devices and power supply line

	Green Motion DC 44	Green Motion DC 66
Nominal power	44 kW	66 kW
Nominal input voltage (Un/Uph)	230 V/400 V	230 V/400 V
Nominal input current	64 A	96 A
Phase	3 phase	3 phase
Power supply terminal block max. section	35 mm ²	50 mm ²



The power losses on the power supply line must be less than +/-10 % of the rated power in accordance with IEC 60038 and local standards. For this reason, the cable sections or line length must be reassessed by professional and qualified personnel in accordance with maximum power loss regulations. Also, when dimensioning the power supply line, observe the possible reduction factors and the increased environmental temperatures inside the connection area of the EV charger (see temperature rating of the supply terminals). Under certain circumstances, this can increase the cable cross-section and change the temperature resistance of the power supply line.



Professional and qualified personnel must define the types of RCD and circuit breaker in accordance with local standards.



Leakage protection is provided by means of electrical galvanic separation and an internal Insulation Monitor Device.

Eaton recommends that DC EV chargers installed in a TT system are equipped with an RCD upstream in accordance with 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 teams 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.

All applicable local legislations apply in addition to the above prescriptions.

The circuit breakers and the power cable minimal cross-sections are overvalued to ensure the functionality of the charging station with higher temperatures.

During installation, other important issues such as selection of a suitable line circuit breaker must be considered.

It is permitted to supply the terminal block, under the following conditions:

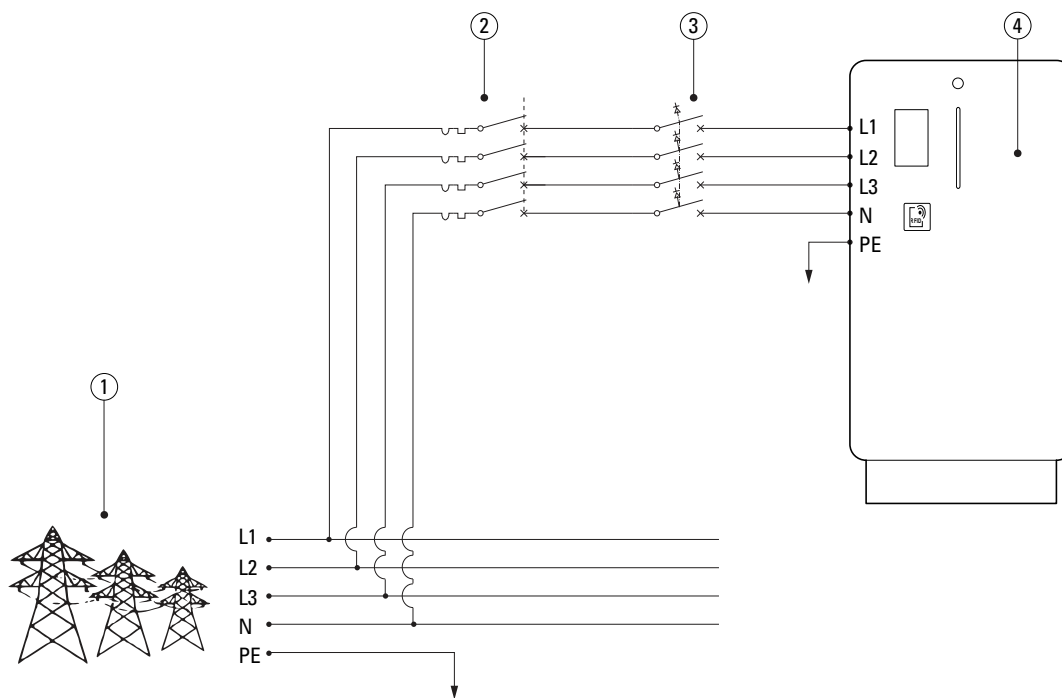
- If the temperature where the circuit breaker is located does not exceed its reference value.
- If the circuit breaker can withstand the maximum current without tripping under the worst temperature conditions.
- Please refer to local standards for further details.



When dimensioning the line circuit breaker, the increased ambient temperatures in the control cabinet must also be considered. Under certain circumstances, this can make a reduction of the charging current specification necessary in order to increase the system availability.

The nominal current must be determined in accordance with the type plate data in coordination with the desired charging power and the supply line.

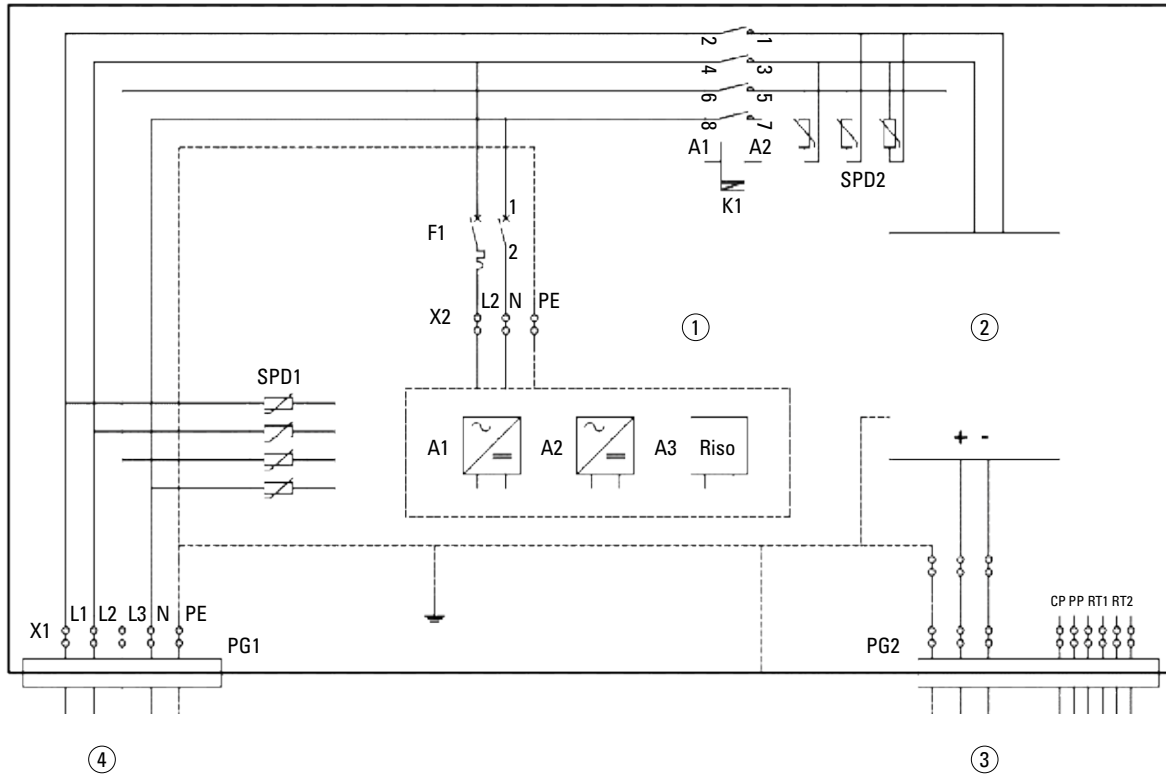
Figure 11. Green Motion DC 44/66 EV charger wiring



Tag	Description
①	Grid
②	Circuit breaker
③	RCD
④	Green Motion DC 44/66 EV Charger

A detailed connection diagram of the Green Motion DC 44/66 EV charger is in Figure 12 where output for power supply and charging cables are shown.

Figure 12. Detailed connection diagram of the EV charger with external output of power supply and charging cables



Tag	Description
①	Auxiliary controls
②	Power converter AC > DC
③	Out CCS or CHAdeMo
④	In 3 x 400 V

Eaton recommends the use of the equipment in Table 7 as protective devices.

Table 7. Eaton recommendations for protective devices for Green Motion DC 44/66 EV charger

	Green Motion DC 44	Green Motion DC 66
Type of protective device	80 A breaker for 3-phase 64 A charging current	125 A breaker for 3-phase 96 A charging current
Eaton product recommendation	AZ-3N-C80	AZ-3N-C125
Article number	211803	211813

6.3 Electrical connection and terminals



Before starting the connection operations, ensure that the external AC-line main switch is disconnected, and circuit breakers are open.

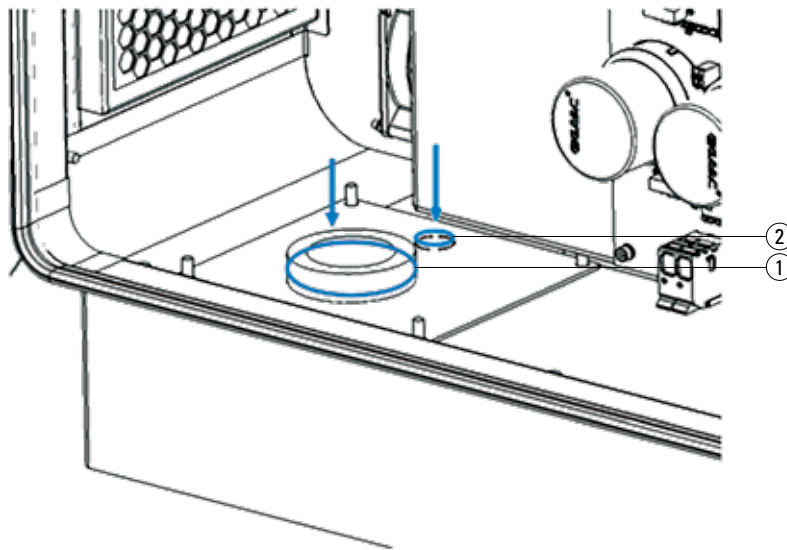
It is prohibited to connect the unit terminals to a circuit with an IT grid configuration.

Follow the next steps to connect the EV charger to the power supply:

Step 1. Open the door of EV charger. Please refer to Chapter 8.1 of this manual to open the Green Motion DC 44/66 EV charger housing.

Step 2. Remove the cable glands from the wires, if necessary, and introduce the power supply wires inside the unit. See Figure 13. The cable entries for power cables and communication cable are in the bottom-left side of the EV charger.

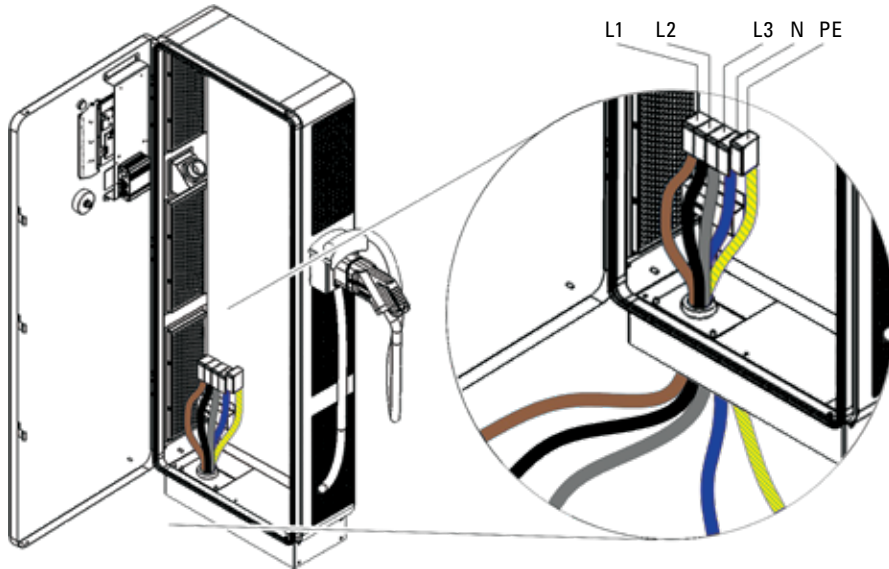
Figure 13. Where to introduce the power supply and communication cables inside the unit



Tag	Description
①	Hole for the cable, internal view bottom-left
②	Hole for the ethernet cable

Step 3. The electrical connection is made on the power supply terminals located at the bottom left of the charger. See Figure 14. Follow the instructions below to properly wire the EV charger to the power supply.

Figure 14. AC grid connectors inside Green Motion DC 44/66 EV charger



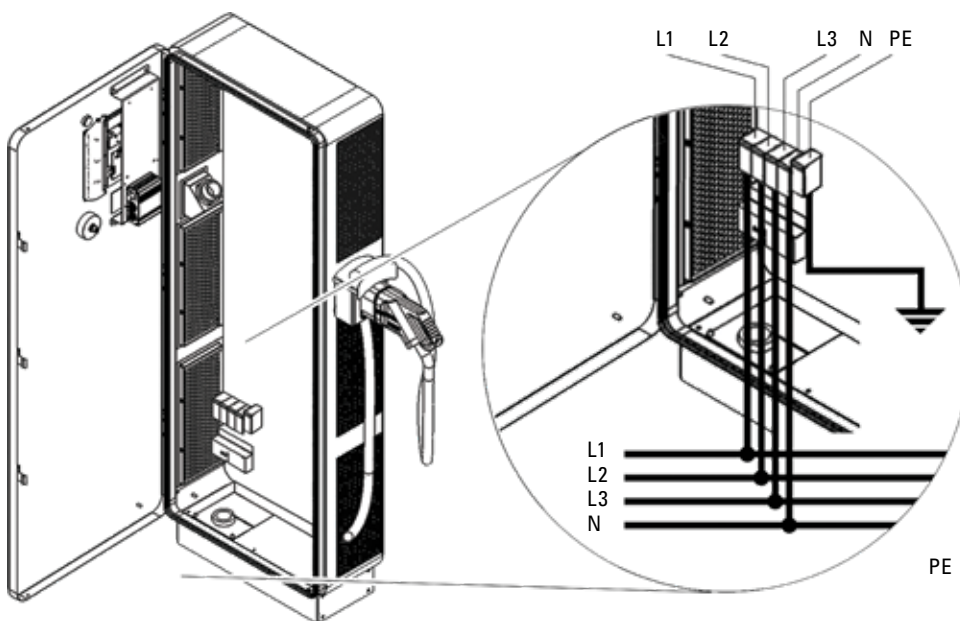
Please connect the three phases (L1, L2, L3), neutral (N) and earth (PE) wires of the AC terminals to the GRID terminal block, respecting the correct assignment:

- Phase (L1) → L1 terminal
- Phase (L2) → L2 terminal
- Phase (L3) → L3 terminal
- Neutral (N) → N terminal
- Earth (PE) → PE terminal



Be careful not to reverse the phases with the neutral. If this happens, the system might malfunction. Please measure the rotating field and the line voltage.

Figure 15. How to wire AC grid connectors to the energy distribution board



6.4 Earth connection (MANDATORY)

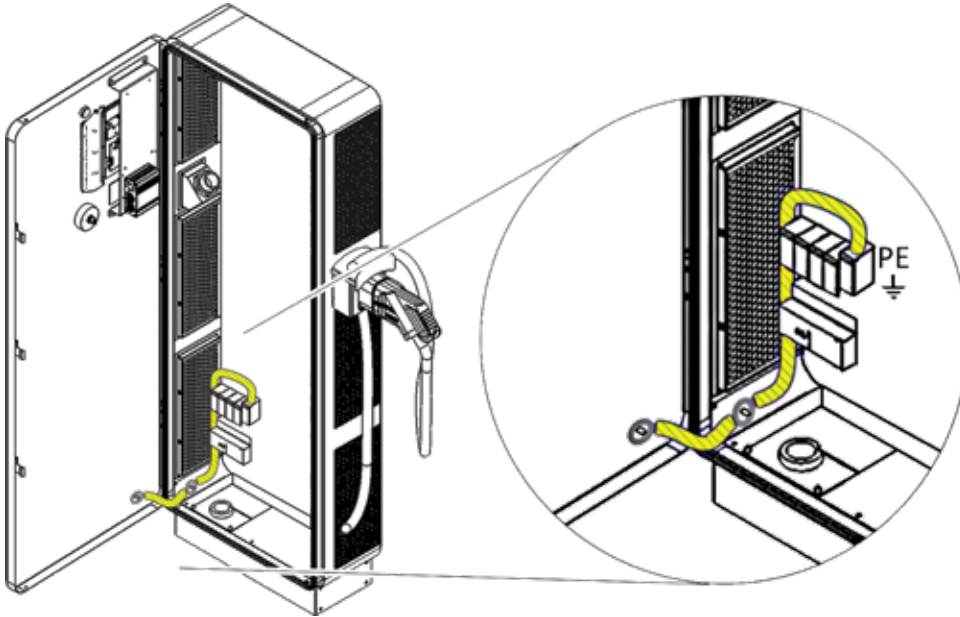


Check if the ground wire between the door and the housing of the Green Motion DC 44/66 EV charger is properly connected to the protective conductor on the terminal block.



See the connection instructions shown in Figure 16.

Figure 16. Extended terminal to protective earth



7. Commissioning



Professional and qualified personnel must be an expert in the field, and is therefore responsible for commissioning the system in accordance with the manufacturer's instructions and local legislation.



Please download the installation checklist available on www.eaton.com and check that all points on the checklist have been executed.

7.1 Unit switch-on



Before switching on the EV charger, check the effectiveness of the safety measure(s) of the system in accordance with the local regulations.

Electrical systems or devices must be checked by the installer of the system before commissioning and switching on the unit.

Before switching on the product, please do the following:

- Step 1.** Check that the equipment is correctly fixed on the concrete base in accordance with local regulations.
- Step 2.** Check that the AC GRID connections have been made correctly in accordance with local regulations.
- Step 3.** Check that the EARTH connection (MANDATORY) has been made correctly in accordance with local regulations.
- Step 4.** Perform checks on the continuity of the connections of the protective conductor, insulation resistance, RCD triggering current, triggering time, etc., in accordance with local regulations.
- Step 5.** Verify that the connection cover is closed and secured with the fixing screws.



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

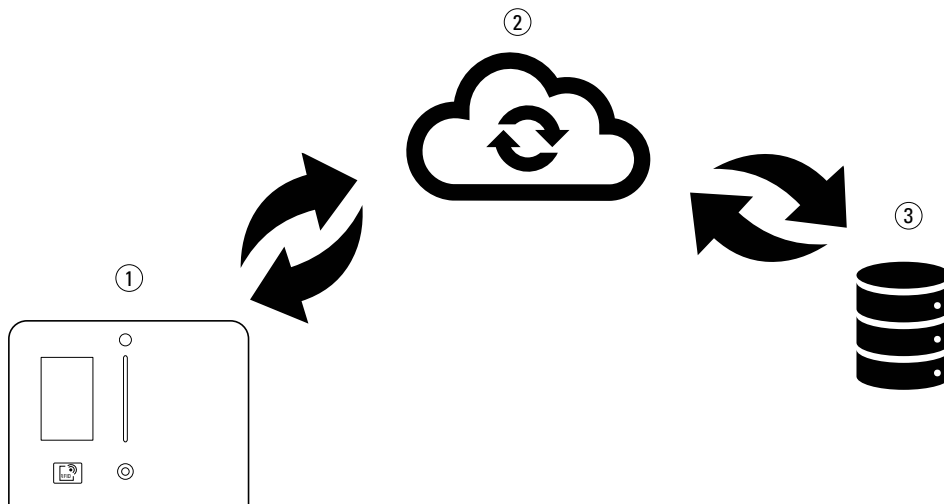
- Step 1.** Close the main AC GRID circuit breakers.
- Step 2.** Wait for the display to turn on.

7.2 Online EV charger

Green Motion DC 44/66 EV charger uses a software management system, Eaton Charging network manager which controls the EV charging stations network. Refer to the Eaton Charging network manager user manual, available on www.eaton.com, for further details.

The Eaton Green Motion DC 44/66 EV charger communicates with the remote database via the cloud infrastructure.

Figure 17. Simplified illustration of the EV charger communication



Tag	Description
①	Green Motion DC 44/66 EV charger
②	Cloud
③	Remote database

It is possible to establish the communication via internet in two ways:

1. LAN network: In this case the unit(s) are connected via ethernet cable to a local modem/router that provides internet connection.
2. SIM card: In this case a SIM card is installed in the EV charger's modem/router that provides internet connection.



To configure the router/modem the EV charger must be powered and in standby mode.



Commissioning and configuration of the router of the EV charger must be performed by professional and qualified personnel who are responsible for complying with existing standards and local installation regulations.

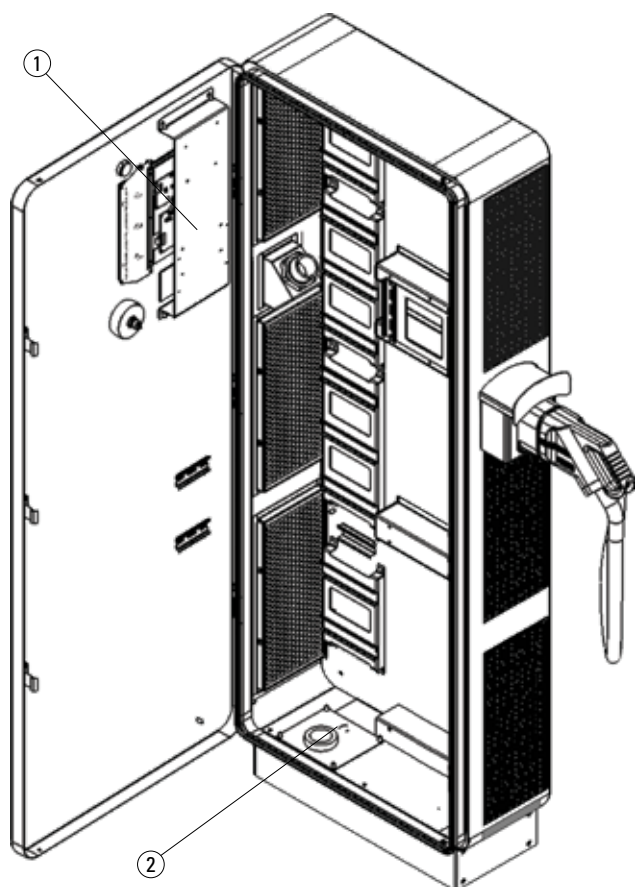


WARNING - Any operation requiring the opening of the charger can lead to electric shock hazards.

Please refer to the Chapter 8.1 of this manual to open the Green Motion DC 44/66 EV charger housing.

It is possible to configure the network settings of the router located inside the EV charger. The router is located inside the EV charger, mounted on the DIN rail on the front cover of the enclosure as shown in Figure 18.

Figure 18. Location of the modem/router in the EV charger



Tag	Description
-----	-------------

- | | |
|---|------------------------------|
| ① | Location of the modem/router |
| ② | Ethernet cable entry |

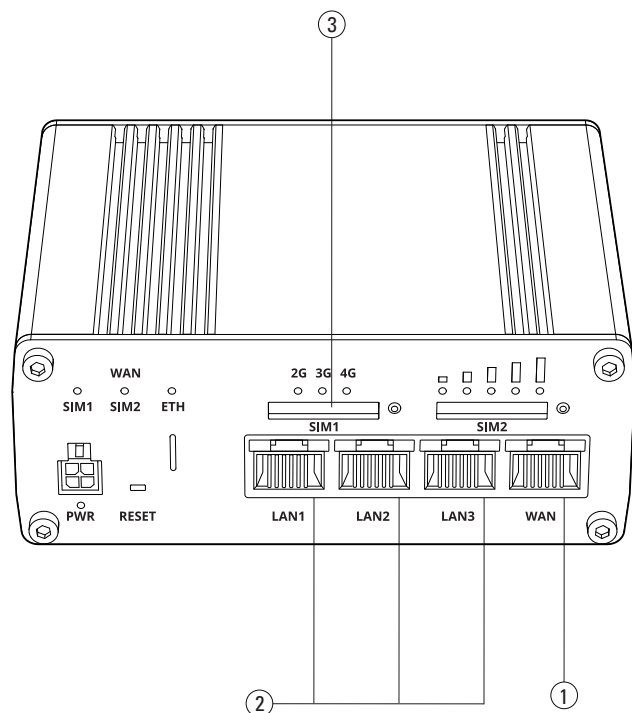
7.2.1 Configure an online EV charger via LAN network

The router of the EV charger is usually preconfigured. Final steps are required during the installation. Contact your Eaton service representative for further details.

Follow the steps below to configure the router of the unit for connection via LAN network:

Step 1. Connect your laptop with the router via the ethernet cable as it is shown in Figure 19. On the RUTX09 wire the internet signal cable inside a LAN (2).

Figure 19. Teltonika RUTX09 modem/router



Tag	Description
①	WAN Ethernet port
②	LAN Ethernet ports
③	SIM card slot

Step 2. Ensure the laptop is below the same subnet of the RUTX09 modem/router. The default IP address of the router is 192.168.52.1. Contact your Eaton service representative for further details for the router credential using the email address bgtechsupport@eaton.com

Step 3. Connect to the modem/router. If a step-by-step configuration menu "Setup Wizard" appears, ignore it and go directly to the menus described below.

Step 4. Go to the Network> WAN menu.

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 the WAN (Only in a private network). Go to System> Administration> Access control.

Step 8. Check Enable Remote HTTP and Enable Remote HTTPS.

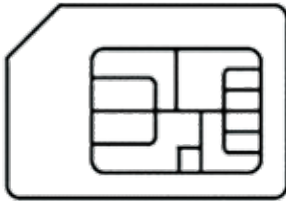
Step 9. Connect the WAN ethernet port of the Teltonika RUTX09 router via an ethernet cable to a local modem. The ethernet cable can be routed through the dedicated opening on the bottom-left or rear-left side of the Green Motion DC 44/66 EV charger. See Figure 13.

7.2.2 Configure an online EV charger via SIM card (optional)

The communication via SIM card is intended as optional. Please contact your Eaton service representative to enable it.

The SIM card is a mini-SIM 2FF format. The connection will be established automatically with the Eaton Charging network manager. Sometimes the SIM PIN can create connection issues. If this happens, please contact your Eaton service representative.

Figure 20. Example of a SIM card

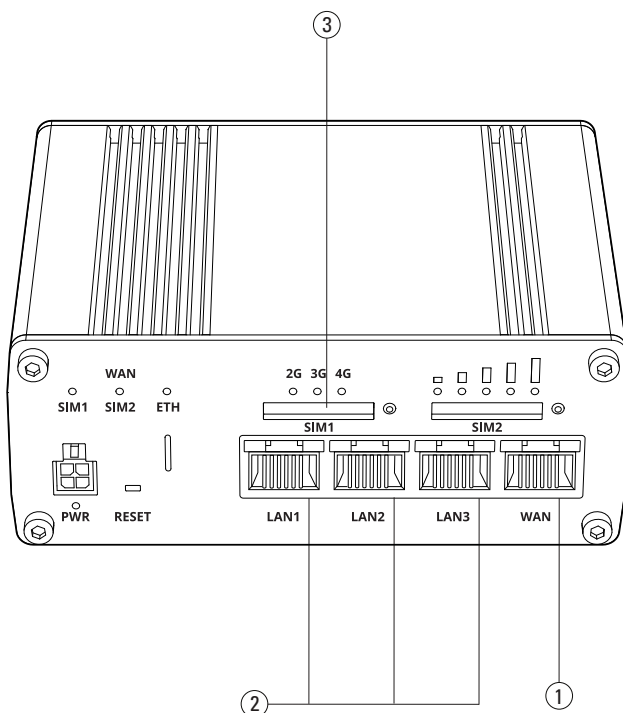


Always make sure the EV charger is on standby mode before inserting or removing the SIM card.

Follow the steps below to configure the modem/router of the unit for connection via SIM card:

Step 1. Connect your laptop with one of the LAN ports of the router via an ethernet cable. See Figure 21.

Figure 21. Teltonika RUTX09 modem/router



Tag	Description
①	WAN Ethernet port
②	LAN Ethernet ports
③	SIM card slot

Step 2. Ensure the laptop is below the same subnet of the RUTX09 modem/router. The default IP address of the router is 192.168.52.1. Contact your Eaton service representative for further details for the router credentials using the email address bgtechsupport@eaton.com

Step 3. Connect to the modem/router. If a step-by-step configuration menu “Setup Wizard” appears, ignore it and go directly to the menus described below.

Step 4. Go to the Network> WAN menu.

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.

7.2.3 Closing the front cover after configuration of online EV charger



WARNING – Not closing and securing the front cover after configuring an online EV charger can lead to electric shock hazards.

Please refer to the Chapter 8.1 of this manual to close the housing of the EV charger.

7.3 How to start charging

To start a charge, simply connect the appropriate charging cable to the car socket. Hold the RFID card in front of the reader (if the EV charger is equipped with a RFID reader).

If the card is recognized, the button indicator displays a blue light during the charge, the LED starts flashing blue and after it shows the level of state of charge. Refer to the description in Chapter 7.4

If the CHAdeMO plug is used, it is mandatory for the user to select the plug on the screen. Refer to Chapter 7.4

If the card is not authorized, the charge will not start and a red light is displayed on the EV charger status display.

If the charging cable is disconnected from the car and there is no power consumption within two minutes, the user is automatically de-authenticated.

7.4 Indicators and User interfaces





The Green Motion DC 44/66 EV charger has different indicators levels and user interface embedded, as shown in Chapter 3.1:

- Button indicators,
- LED indicators,
- Color touchscreen display.

7.4.1 Button indicator

Table 8 summarizes the possible colors of the button indicator during the operation. The button indicator is located on the front cover of the unit. See Figure 1.









Table 8. Button indications of Eaton Green Motion DC 44/66 EV charger

Visual indicator	Description	Status
	No light	Not powered or start-up stage
	Green light on	Ready for use or need user interaction
	Blue light on	Charge initialization, vehicle charging, or charge finished
	Red light on	Error in charging

7.4.2 LED indicator

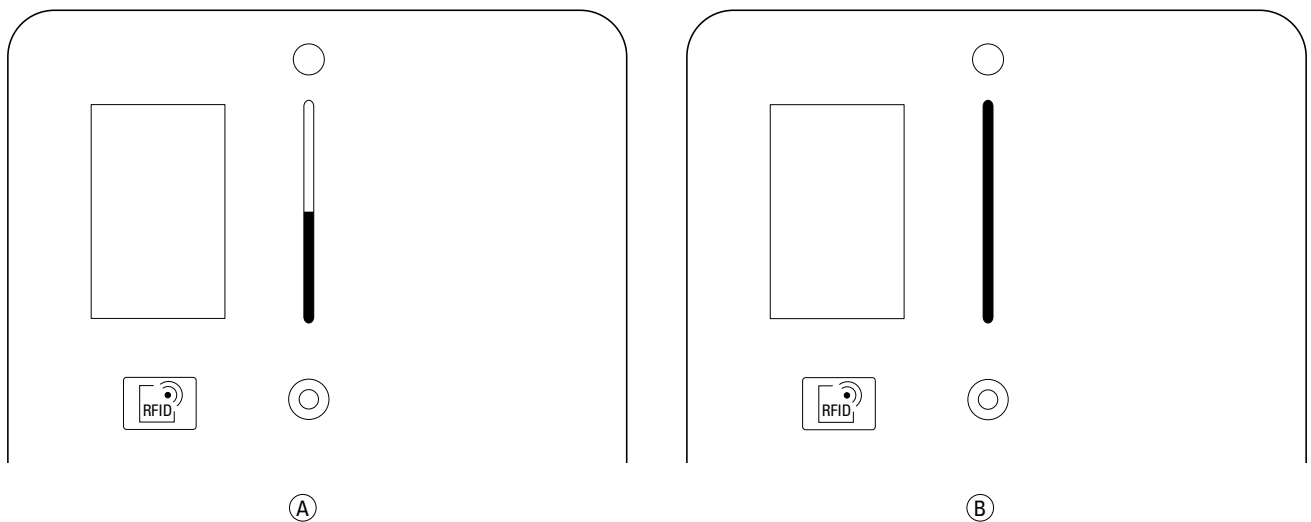
Green Motion DC 44/66 EV charger is equipped with a LED indicator located on the front cover. See Figure 1. Table 9 summarizes the possible LED indications during the operation.

Table 9. LED indications of Eaton Green Motion DC 44/66 EV charger

Visual indicator	Description	Status
	Green light on	Ready for use
	Flashing green light	Start-up stage
	Breathing green light	Waiting for user interaction
	Flashing blue light	Charge start-up stage
	Breathing blue light	Vehicle in charge
	Blue light on	Vehicle charged
	Red light on	Error in charging
	No light	Stopped or not powered

During the charge, the LED indicator also shows the state of charge of the vehicle, as per Figure 22.

Figure 22. LED indicator of the state of charge












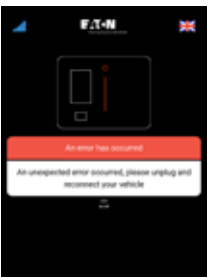

Tag	Description
(A)	50 % charge of the vehicle
(B)	100 % charge of the vehicle

7.4.3 Color touchscreen display

Green Motion DC 44/66 EV charger is equipped with a color touchscreen display located on the front door. See Figure 1. Information that the display shows is usually self-explanatory. Table 10 provides an example of the screens at startup phase. Due to continuous improvement, it is possible that changes will be implemented in the future to enhance the user experience.

Table 10. Examples of information available from the color touchscreen display

Display of the EV charger	Description
	<p>Touchscreen display. Touch the screen to wake up.</p>
	<p>Authentication screen. Before any operation, ensure that the 4G sign is colored in blue. If the bar graph is RED, there is no connection to the server.</p> <p>Choose your language by touching the flag.</p> <p>Present the RFID badge on the RFID reader to initiate authentication.</p>
	<p>Select the appropriate plug type.</p>
	<p>Status of the charge of the vehicle.</p>
	<p>Authentication failed due to network issues. Try again. Check that the 4G sign is colored in blue.</p>

	<p>Charger is out of order. Maintenance is needed before putting the charger back in service.</p>
	<p>Contact the technical support to put the charger in service</p>
	<p>This charger is not part of your eMSP and you do not have roaming rights. You can not charge with your RFID card. If available use Scan&Charge.</p>
	<p>After checking that there is no more risk, turn the button located under the terminal to turn off the emergency stop switch.</p>
	<p>Unplug and reconnect the vehicle to correct the error.</p>
	<p>Charging station is already booked by a user. If you are not the one who booked it you cannot start charging.</p>

8. Maintenance



Installation, commissioning, maintenance or retrofitting of the EV charger must be performed by professional and qualified personnel who are responsible for complying with existing standards and local installation regulations.



Before starting connection operations, make sure that the external AC-line main switch is disconnected, and circuit breakers are open.



Any operation requiring the opening of the charger can lead to electric shock hazards.

In case the unit shows a failure and the emergency stop button is pushed, check the integrity of the unit, cables and connectors before starting the maintenance process.

The opening of the EV charger as well as any configuration changes must be carried out by a qualified electrician in accordance with the local safety and electrical regulations and laws.



Disconnect the unit from the power supply and wait at least 10 minutes to allow its components to cool down and any static electricity storage devices to discharge, before carrying out any maintenance on the unit. The enclosure could overheat during its operation or be heated by direct sunlight, and it can cause burns by contact. To avoid burns, please use suitable PPE or wait for the equipment to cool down before accessing it.

8.1 How to open/close the housing of the Green Motion DC 44/66 EV charger and wire the display



Before attempting to open the EV charger, ensure the external AC-line main switch is opened, and circuit breakers are open.



Wait at least 10 minutes after disconnecting the unit from the power supply to allow its components to cool down and any static electricity storage devices to discharge, before operating on the unit.

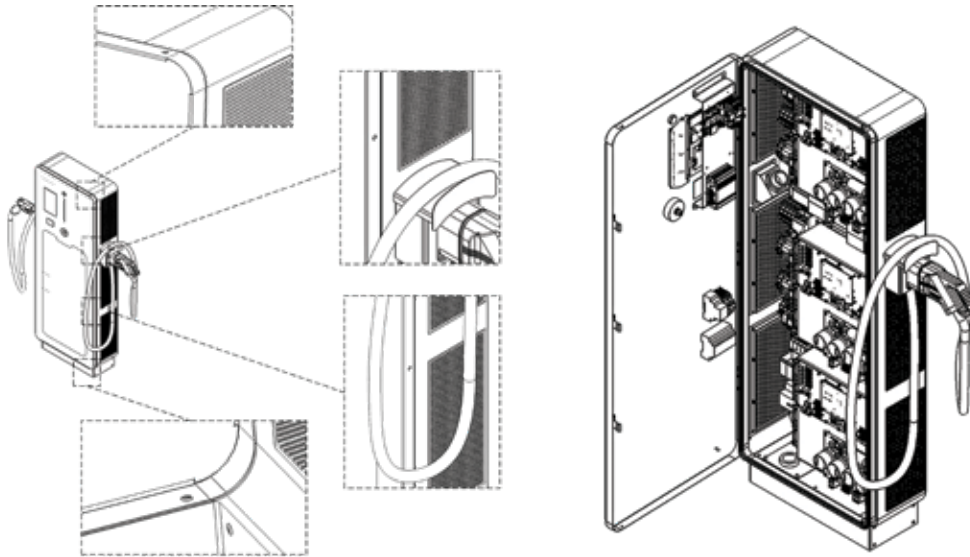
Follow these steps to open the housing of the EV charger.



When removing the front cover, be careful not to damage any cables connected to the display and the electronics boards.

Step 1. With a M3 Imbus screwdriver, unscrew the 6 screws located on the top and bottom right side of the door of the EV charger.

Figure 23. Location of the 6 screws at the right side of the unit



Step 2. The front door can be opened sideways.

8.2 How to put the unit as out of order

The Green Motion DC 44/66 EV charger can be set as out of order by following the steps below:

1. On site method: Press the emergency push button.
2. Remote method: Access the Eaton Charging network manager and set the unit as out of order.

8.3 Replace the SIM card

To replace the SIM card, proceed as follows:

Step 1. Remove the existing SIM card from the card slot. See Chapter 7.2.2.

Step 2. Insert the new SIM card into the card slot. See Chapter 7.2.2.

8.4 Cleaning or replacing filters



Please make sure that the fans are turned off and that the EV charger is not in use during the maintenance operation. Moving fans can be dangerous and cause finger injuries.

Before starting connection operations, make sure that the external AC-line main switch is disconnected, and circuit breakers are open.



Check the filters on a yearly basis to ensure they are not obstructed and they work properly. In case of obstruction, filters need to be replaced as soon as possible. In case of obstruction, Eaton recommends not to use the unit and to wait for the replacement of the filters.

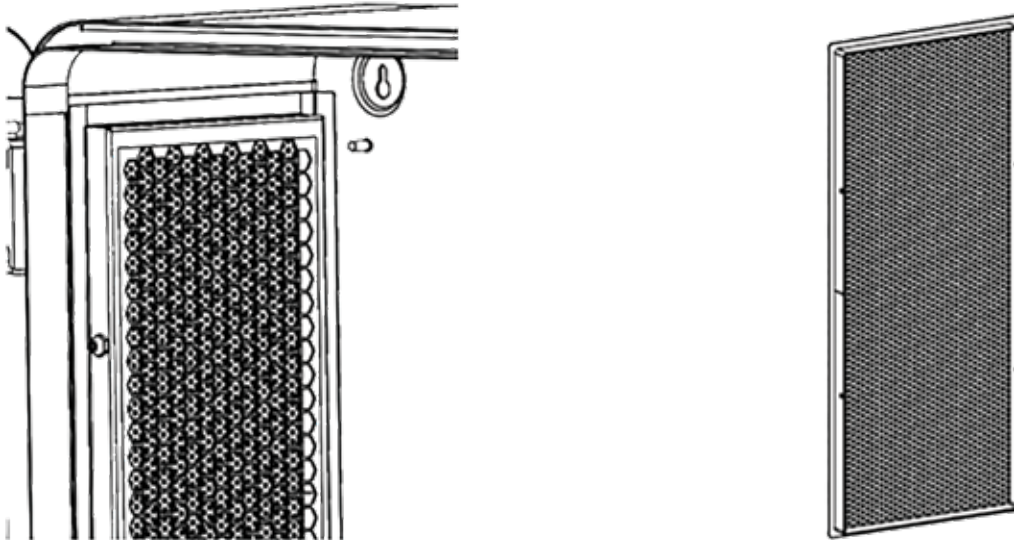
Before starting the operation, please contact your Eaton service representative for the new filter reference.

Follow the steps below to replace the filters:

Step 1. Open the housing by removing the fixing screws as described in Chapter 8.1.

Step 2. It is possible now to replace the filters. The filters are located on both left and right sides of the unit, behind the air flow grids. Using a 2.5 mm hex key, remove the 2 screws attaching each filter cartridge to the unit. See Figure 24.

Figure 24. Location of the filter on the left side of the unit



Step 3. Screw the new filters on the back of the air flow grid.

Step 4. Close the front cover and restart the unit.

8.5 Dismount



Before starting any maintenance operations, ensure the system has been switched off, and that the AC-line external main switch has been set to off. Disconnect the unit from the power supply and wait at least 10 minutes to allow its components to cool down and any static electricity storage devices to discharge, before removing the unit. The enclosure could be heated by direct sunlight and it can cause burns by contact. Please use suitable PPE or wait for the equipment to cool down before accessing it.

To uninstall the unit:



Step 1. Disconnect any load if present.

Step 2. Open the housing by removing the fixing screws as described in Chapter 8.1.

Step 3. Disconnect the AC GRID connectors.

Step 4. Disconnect the communication wires and external controls where present.

Step 5. The product can now be removed for disposal or repair.

8.6 EV charger updates



It is mandatory to install and maintain the units with the latest system updates to enable new features and bug fixes, or the guarantee conditions may be voided.

For units that are online, this must be done via the Eaton Charging network manager software platform. Please refer to the Eaton Charging network manager user manual, available on www.eaton.com, for further details. For units that are offline, please contact your Eaton service representative using the email address bgtechsupport@eaton.com

8.7 Disposal

When the unit reaches the end of its service life, the end user should contact professional and qualified personnel for disposal instructions.

Please refer to www.eaton.com/recycling for further details.



The EU Directive on Waste Electrical and Electronic Equipment (WEEE) (Directive 2012/19/EU) establishes common rules on the management of electrical and electronic equipment and minimizes its impact – from design until disposal – on the environment. As a manufacturer of electrical and electronic equipment, Eaton actively supports the requirements of the WEEE Directive.

In compliance with the EU standard EN 50419 for marking of electrical and electronic equipment, we include the crossed-out wheeled bin symbol on our products. This symbol alerts users that these products should be recycled in accordance with local environmental regulations and not discarded with household waste. When end users recycle WEEE they are helping to ensure that they are neither incinerated nor sent to landfill, minimizing the potential negative impact on human health and the environment.

Any device that is no longer needed must therefore be returned to the distributor or disposed of via an authorized collection and recycling center in the area. Eaton encourages all its customers and end users to make responsible decisions when disposing of products.

Eaton is not responsible for the transportation of the device to the collection point or recycling center.

9. Troubleshooting



This section contains information and procedures for solving problems that may occur with the Green Motion DC 44/66 EV charger.



Check the warnings or error messages and act as indicated in Table 11.

If the problem persists, contact your Eaton technical support representative using the email address bgtechsupport@eaton.com

Table 11. List of alarms and troubleshooting

Possible problems	Solutions
Router doesn't connect during configuration	Check that the EV charger is powered and in standby mode.
The EV charger does not start	Check the LED status color and read the indication on the touchscreen display. Check the power supply on the electrical panel, switch off and reset the circuit-breaker to restart it.
The EV charger indicates that the emergency button is pushed	Check that the unit is not damaged, the installation and commissioning are correctly done. Check the LED status color and read the indication on the touchscreen display. The emergency button is located on the front of the EV charger. Pull it out until it clicks into open position. If the unit was set as out of order, it is possible now to change the physical status directly from the Eaton Charging network manager.
The EV charger visual indicators are red	Check the LED status color and read the indication on the touchscreen display. Try to disconnect the car from the EV charger and retry. Check the emergency button, it should be pulled out.
Antenna bar graph (4G sign on touch screen display) is red	Check the LED status color and read the indication on the touchscreen display. Check that the connection of the EV charger to the backend is available/network is available.
Authentication refused	Check the LED status color and read the indication on the touchscreen display. Check that the user is recognized, and authorized user subscribed to the charging point operator database. Check that the connection of the EV charger to the backend is available.
The socket visual indicators are red	Check the LED status color and read the indication on the touchscreen display. Check the power supply on the electrical panel, switch off and reset the circuit-breaker to restart it.
The car is locked to the EV charger	Check the LED status color and read the indication on the touchscreen display. In some cases, the user must unlock the plug from the car's dashboard or use the key control (long press may be required). In case the user is not able to remove the cable, press the emergency button to release the cable. The emergency button could be then be set back to its initial position after an inspection.
The car does not charge	Check the LED status color and read the indication on the touchscreen display. Check the condition of the CCS or CHAdeMO cable. Check the power supply on the electrical panel, switch off and reset the circuit-breaker to restart it. Try to start and move the car, then retry to charge.

10. Technical data

10.1 Rating plate



To locate the rating plate on the equipment, refer to Figure 25.

The technical specifications shown in this manual do not replace those that appear on the rating plate attached to the equipment.



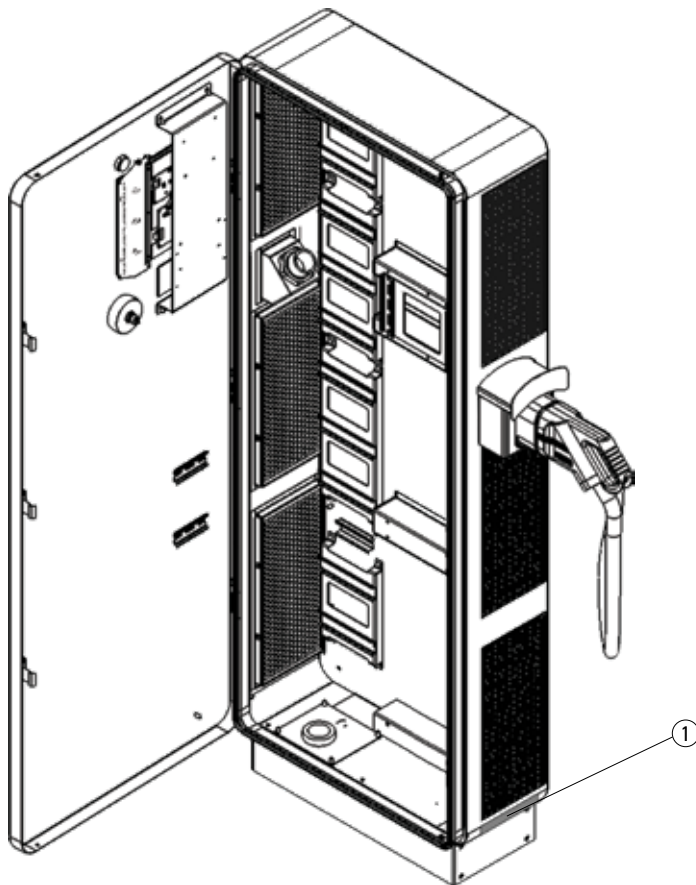
The labels attached to the equipment must NEVER be removed, damaged, soiled or hidden for any reason.

The information displayed on the rating plate is as follows:

1. Manufacturer
2. Model
3. Ratings
4. Certification marks
5. Warnings
6. Serial number

The labels must NOT be hidden with foreign objects (rags, boxes, equipment, etc.); they must be periodically cleaned and always kept clearly visible.

Figure 25. Location of the rating plate



Tag	Description
①	Rating plate

10.2 Technical datasheet

The latest version of the technical datasheet is available for download from www.eaton.com/greenmotiondc44_66. Green Motion DC 44/66 EV charger complies with the standards listed in Table 12.

Table 12. List of standards the EV charger complies with

Certifications and standards	
General	
Charging mode	EN 61851-21-2, EN 61851-23 and EN 61851-24
Insulation	EN 60664-1
Cable	
Version	EN 62196-1 and EN 62196-3
Electromagnetic compatibility	
Product	EN 61000-3-11 and EN 61000-3-12
Communication	
ISO	15118
DIN	70121
CHAdeMO	1.2/2.0

11. Contact support information

Should any technical problems arise during the operation of the Green Motion DC 44/66 EV charger, contact your Eaton technical support representative for assistance using the email address bgtechsupport@eaton.com. The following information should be provided when contacting the Eaton technical support representative:

- Product model and serial number,
- Fault messages.



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