

Green Motion DC 22 EV charger

Green Motion DC 22 User manual



Powering Business Worldwide

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

The information, recommendations, descriptions and safety notations in this document are based on Eaton Corporation's ("Eaton") experience and judgment and may not cover all contingencies. If further information is required, an Eaton sales office should be consulted. Sale of the product shown in this literature is subject to the terms and conditions outlined in appropriate Eaton selling policies or other contractual agreement between Eaton and the purchaser.

THERE ARE NO UNDERSTANDINGS, AGREEMENTS, WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OTHER THAN THOSE SPECIFICALLY SET OUT IN ANY EXISTING CONTRACT BETWEEN THE PARTIES. ANY SUCH CONTRACT STATES THE ENTIRE OBLIGATION OF EATON. THE CONTENTS OF THIS DOCUMENT SHALL NOT BECOME PART OF OR MODIFY ANY CONTRACT BETWEEN THE PARTIES.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or other-wise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein. The information contained in this manual is subject to change without notice.

Content overview

1. INTRODUCTION	4
1.1 Scope of the document	5
1.2 Symbols used in this manual	5
2. CAUTIONS	6
2.1 Operating environment and restrictions	6
3. DISCOVER YOUR GREEN MOTION DC 22 EV CHARGER	7
3.1 Package contents	7
3.2 Front and back views	7
3.3 Bottom view	8
3.4 Type of cables	8
3.5 Green Motion DC22 Mobile	9
4. INDICATORS AND USER INTERFACES	10
4.1 LED indicators	10
4.2 Color touchscreen display	11
4.3 Emergency stop button	13
5. HOW TO START AND STOP CHARGING	14
6. SOFTWARE SUITE	15
7. MAINTENANCE	15
7.1 How to put the unit as out of order	15
7.2 Firmware updates	15
7.3 Cleaning or replacing filters	16
7.4 Disposal	16
8. TROUBLESHOOTING	17
9. FREQUENTLY ASKED QUESTIONS	18
10. TECHNICAL DATA	19
10.1 Rating plate	19
10.2 Technical datasheet	20
11. CONTACT SUPPORT INFORMATION	20

1. Introduction

Thank you for purchasing the Green Motion DC 22 EV charger. The Green Motion DC 22 offers fast charging speed with high efficiency in a compact design. The charging unit can be delivered as a fully assembled product on a mobile platform (trolley) or mounted on the wall or floor (with the help of a floor-mount pedestal). The Green Motion DC 22 EV charger is designed for indoor and outdoor use.

Before you start

This manual contains important instructions that must be followed during the installation, operation and maintenance of the Green Motion DC 22 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 22 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 22 EV charger. Failure to observe the above will void the guarantee provided and Eaton cannot be held legally accountable.

The contents of this manual are the copyright of the publisher and may not be reproduced (even in extracts) without the prior written approval of Eaton. While every care has been taken to ensure the accuracy of the information contained in this manual, Eaton assumes no liability for any error or omission. Eaton reserves the right to modify the designs of its products. The unauthorised copying and lending of this manual is prohibited.

Technical disclaimer

All drawings, descriptions or 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.

Legal entity

Eaton Industries Manufacturing GmbH

Address: Place de la Gare 2

1345 Le Lieu

SWITZERLAND

Web: www.eaton.com

1.1 Scope of the document

This manual is intended for end-users of Green Motion DC 22 EV charger. It describes the operating environment, the product and its operating behavior. The document does not cover installation and uninstallation, commissioning guidance and troubleshooting.

1.2 Symbols used in this manual



Imminent dangers causing serious injuries. Danger of death.



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



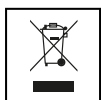
Behaviors that could cause minor injuries to people or minor damages to things.



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



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



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

2. Cautions



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 damages to things occurred if the information within this manual has not been read and followed.



The installation, commissioning, maintenance or retrofitting must be carried out only by professional and qualified personnel.



It is strictly prohibited to open the product by unqualified personnel.

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 only be used in accordance with the technical specifications.



Improper or unauthorised use:

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

The unit is intended for indoor or outdoor installation.

Recommended operating temperature range of the unit is -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 altitude not exceeding 2000 m above sea level.

3. Discover your Green Motion DC 22 EV charger

3.1 Package contents

The Green Motion DC 22 EV charger package should contain the following parts:

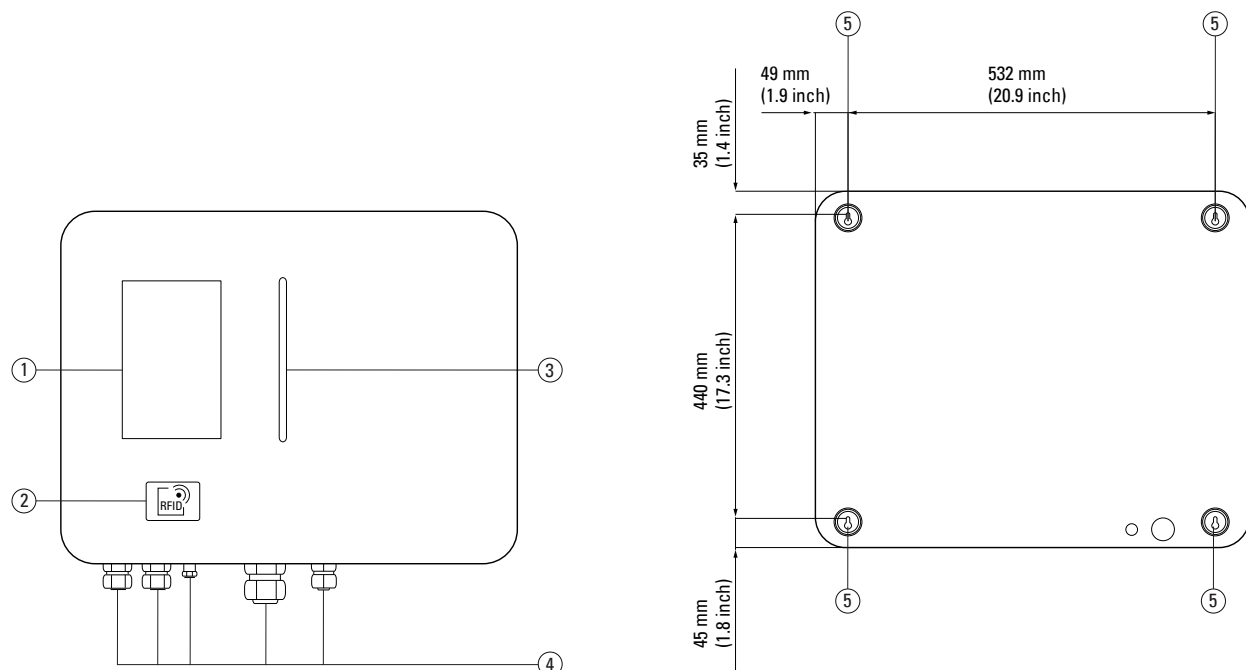
- EV Charger
- Quick start guide,
- Safety guidelines
- EV cable(s), depending on customer configuration:
 - CCS plug, cable, plug holder,
 - CCS and CHAdeMO plugs, cables, plug holders,
- Screws, cable glands and cable gland cap,
- Wall-mount gaskets (four pieces)



The Green Motion DC22 Mobile is factory-preassembled, shipped with the AC power supply cable (15m) and mounted on a trolley.

3.2 Front and back views

Figure 1. Front and back views of Green Motion DC 22 EV charger

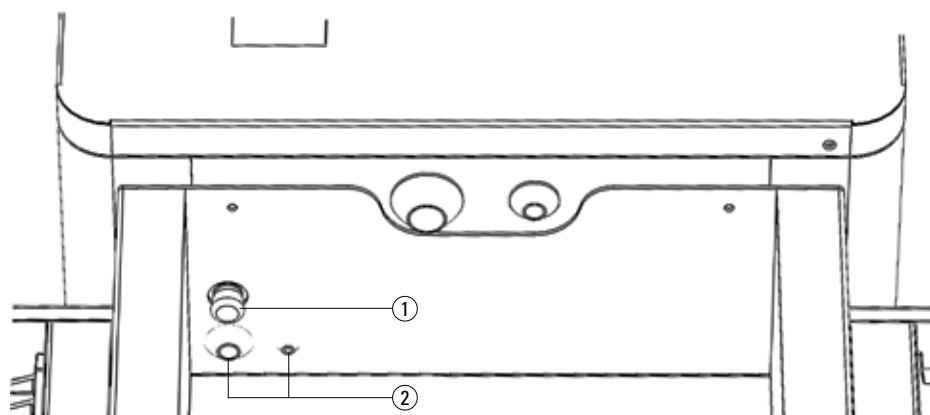


Tag	Description
-----	-------------

- | | |
|---|---------------------------|
| ① | Color touchscreen display |
| ② | RFID reader |
| ③ | LED indicator |
| ④ | Cable glands |
| ⑤ | Mounting holes |

3.3 Bottom view

Figure 2. Bottom view of Green Motion DC 22 EV charger



Tag	Description
①	Emergency stop button
②	Cable glands

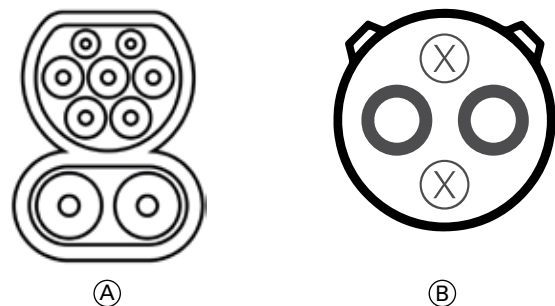
3.4 Type of cables

The Green Motion DC 22 EV charger is provided with two types of cables and connectors:

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

The nominal output power of the Green Motion DC 22 EV charger is 22 kW. However, the actual output power may vary due to external factors such as the available grid power, the capacity of the electrical installations, climatic conditions, and the EV model. For those reasons, Eaton declines any responsibility on the actual power value delivered.

Figure 3. Illustration of connector types available with Green Motion DC 22 EV charger



Tag	Description
(A)	CCS Type 2
(B)	CHAdeMO

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

Table 1. Possible cable configurations available with the charger

Green Motion DC 22 EV charger Cable Options	CCS	CHAdeMO
Default configuration	X	
CCS and CHAdeMO	X	X

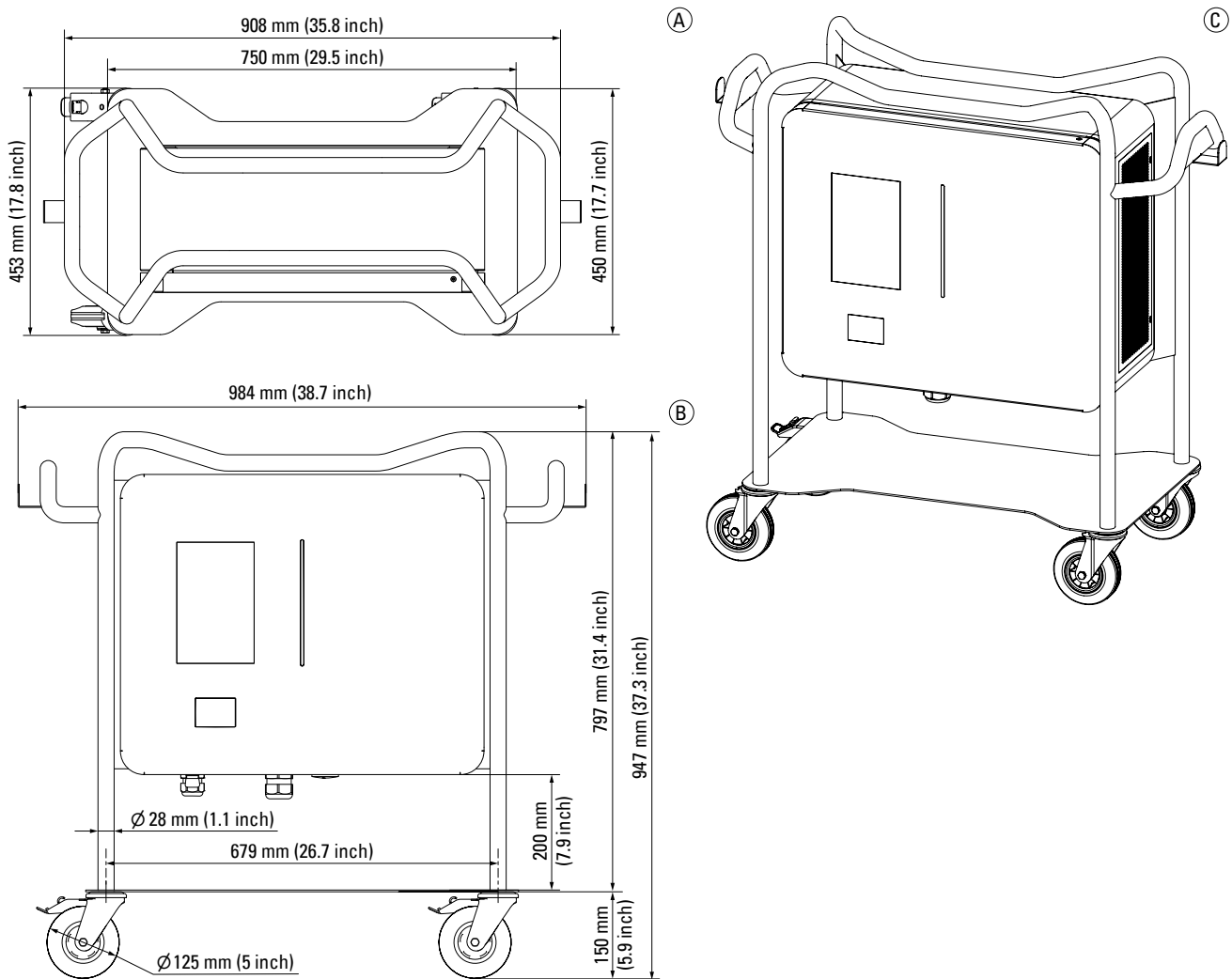
3.5 Green Motion DC22 Mobile

The Green Motion DC22 Mobile EV charger is shipped with a factory-preassembled kit consisting of a single Green Motion DC22 Mobile unit mounted on a mobile platform (trolley) and equipped with an AC power supply cable (15m).

The AC power supply cable is equipped with a 5-pole IEC 60309-compliant connector (CEE), which allows the unit to be used out of the box without additional installation steps.

The connector has an IP44 ingress protection rating, enabling the unit to be used in all weather conditions (subject to the limitations specified in the technical datasheet).

Figure 4. Front, top, and angle views of the Green Motion DC22 Mobile EV charger



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

- | | |
|---|------------|
| Ⓐ | Top view |
| Ⓑ | Front view |
| Ⓒ | Angle view |

4. Indicators and User interfaces

The EV charger has three indicator and user interface means, as shown in Chapter 3:

- LED indicator,
- Color touchscreen display,
- Emergency stop button.

4.1 LED indicator

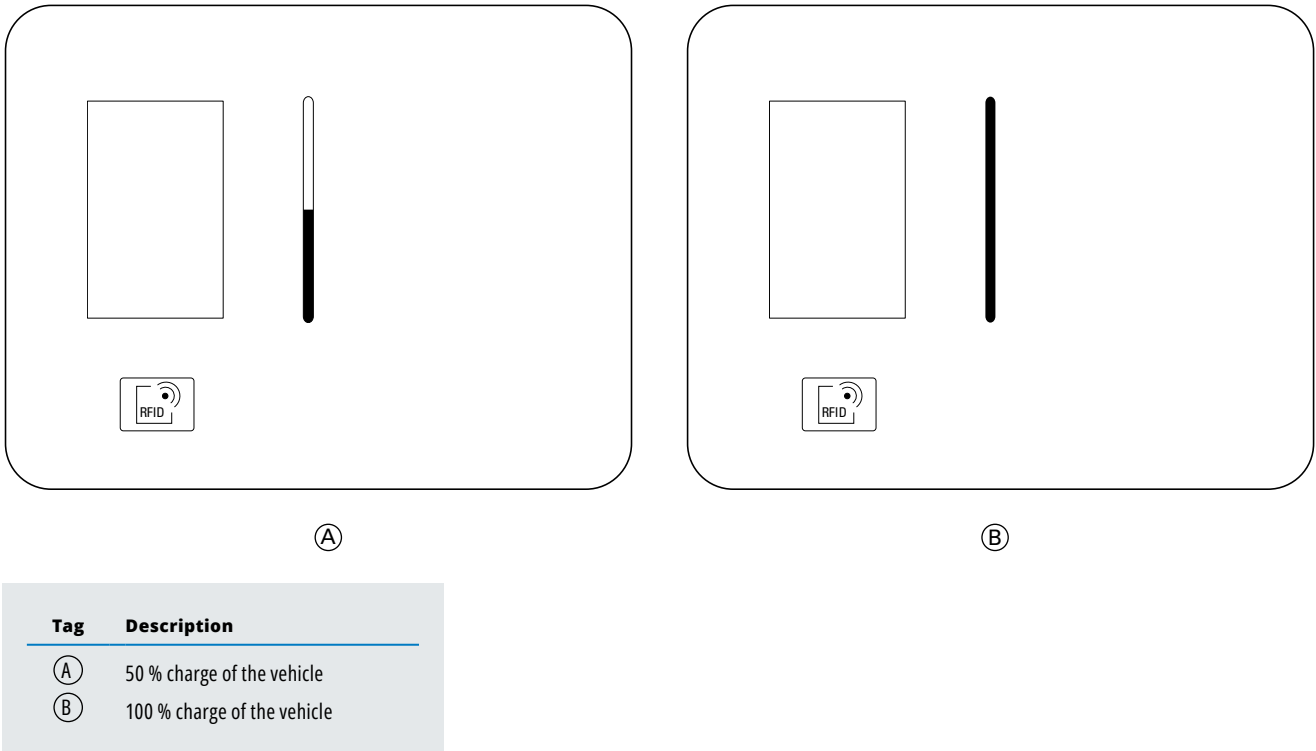
The EV charger is equipped with a LED indicator located on the front door. See Figure 1. Table 2 summarises all possible LED indicator states that may occur during operation, providing a brief explanation for each.

Table 2. LED indicator states of the Green Motion DC 22 EV charger

Visual state	Description	Status
	No light	Stopped or not powered
	Incremental green light Flashing green light Steady green light Breathing green light	Integrity check Start-up stage Ready for use Waiting for user interaction
	Steady white + flashing red dot light	No internet / No server connection
	Flashing blue light Breathing blue light Steady blue light	Charge start-up stage Vehicle in charge Vehicle charged / Reserved
	Steady yellow light	Not in service / Maintenance
	Breathing orange light	Updating stage
	Red light on	Error in charging / Hardware fault /Emergency switch on
	No light + flashing red light	Integrity check failed

During the charging process, the LED indicator also shows the state of charge of the vehicle, as per Figure 5.




Figure 5. LED indicator of the state of charge












4.2 Color touchscreen display

Green Motion DC 22 EV charger is equipped with a color touchscreen display located on the front door. See Figure 1. Table 3 provides examples of the screens. Due to continuous improvement, it is possible that changes will be implemented in the future to enhance the user experience.

Table 3. Examples of information available from the color touchscreen display

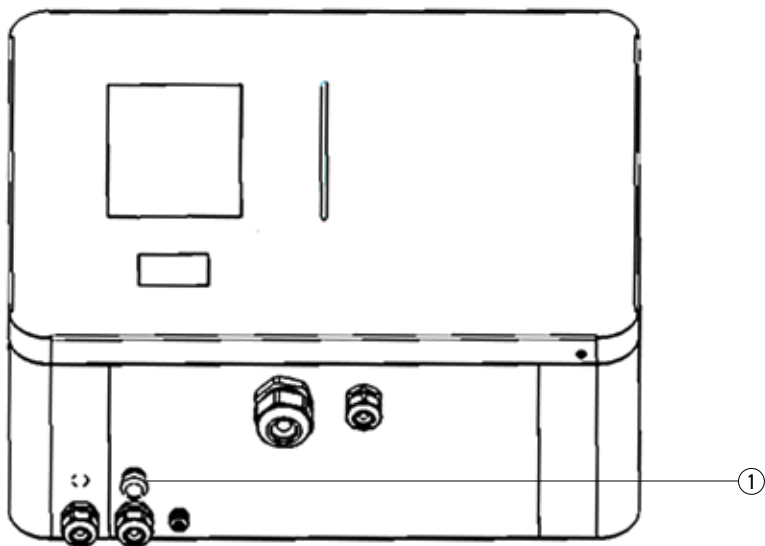
Display	Description
	Touchscreen display. Touch the screen to wake up.
	Authentication screen. Before any operation, ensure that the 4G sign is colored in blue. If the bar graph is RED, there is no connection to the server. Choose your language by touching the flag. Present the RFID badge on the RFID reader to initiate authentication. See Figure 1.
	Select appropriate plug.

Display	Description
	State of charge of the vehicle.
	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.
	Authentication failed due to network issues. Try again. Check that the 4G sign is colored in blue.
	Charger is out of order. Maintenance is needed before putting the charger back in service.
	Contact the technical support to put the charger 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.
	After checking that there is no more risk, release the emergency stop button located on the bottom side of the unit. See Figure 2.
	Open door detected. The door needs to be closed before starting a new charging session

4.3 Emergency stop button

The emergency stop button is located on the bottom left side of the Green Motion DC 22 EV charger, as per Figure 6. Push the button in case of emergency.

Figure 6. Location of the emergency stop button



Tag	Description
①	Emergency stop button

5. How to start and stop charging



The product must be verified by the installer before commissioning and switching on the unit for the first time. Before any operation, ensure that the network status icon is colored BLUE. The RED color indicates that the connection with the backend server is broken. You may choose your language by touching the flag icon.

Follow these steps to start a charging session:

Step 1. Ensure that the unit is ready for use, as indicated by the green LED indicator.

Step 2. Set the desired charging mode.

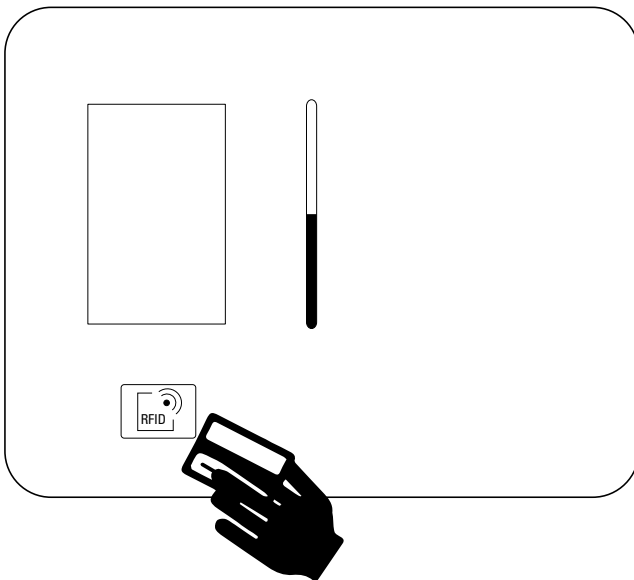
- The charging settings screen is available before the connector is plugged in or while charging is paused. It can be accessed via the gear icon.

Step 3. Plug the charging cable connector into the electric vehicle charging socket.

Step 4. Place the RFID card close to the reader to authenticate (see Figure 7).

- This operation can also be performed before plugging the charger connector into the EV charging socket. If the RFID card is recognised, the LED indicator starts flashing blue and shows the state of charge level of the battery.

Figure 7. Location of the RFID reader



6. Software suite

The Green Motion DC 22 EV charger can be used in combination with the advanced management solution from Eaton called Charging network manager (CNM). Eaton CNM is an all-in-one software solution designed to control and manage a charging network over OCPP 1.6 JSON. Refer to the Eaton Charging network manager user manual, available on www.eaton.com, for further details.

7. Maintenance



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



Before starting connection operations, ensure that the external AC mains isolator switch and/or main circuit breaker is switched off (open).



Opening the product for any operation 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 act of opening the product as well as any configuration changes must be carried out by trained and qualified service personnel, according to the local safety and electrical regulations and laws.



Before carrying out any maintenance on the unit, disconnect the unit from the power supply and wait at least ten minutes to allow its components to cool down and any static electricity storage devices to discharge. 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.



Green Motion EV chargers are equipped with tamper detection functionality. In case the EV charger is opened while powered on, a notification will be sent to the backend server. The EV charger will also prevent the connected EV from charging.

7.1 How to put the unit as out of order

The unit can be set as out of order in two ways:

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

7.2 Firmware 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.

7.3 Cleaning or replacing filters



Check the filters on a yearly basis to ensure that they are not obstructed, and they work properly.

In case of clogging, filters need to be replaced as soon as possible. Eaton does not recommend using the unit until the filters have been replaced.

Before starting any operation, please contact your Eaton service representative using the email address BGTechSupport@eaton.com.

7.4 Disposal

When the charging station 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 minimise 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 landfills, minimising 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 to an authorised collection and recycling center in the area. Eaton encourages all its customers and end users to make responsible decisions when it comes to disposing products.







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



8. Troubleshooting

If there is an issue with the charging unit, an error message will appear on the screen, offering a brief description of the problem with the suggested solution. Some problems are difficult to solve and require the assistance of a qualified professional.

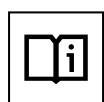
If you cannot find a solution to your problem in Table 4, contact your local technical support representative or reach out to Eaton technical support via email at BGTechSupport@eaton.com.

Table 4. Meaning of UI messages and troubleshooting steps

Display	Description
	<p>Authentication failure:</p> <p>The charging unit is not part of your eMSP and you do not have roaming access. You cannot start a charging session with your RFID card. Use Scan & Charge if available.</p>
	<p>Authentication failure:</p> <p>Authentication failed due to a network problem. Try again. Check if the network status icon is colored BLUE (refer to Figure 6).</p>
	<p>Charger unavailable:</p> <p>The charging unit is out of order. Maintenance is required before it can be put back into service.</p>
	<p>Charger unavailable:</p> <p>Contact technical support to put the charging unit back into service.</p>
	<p>Plug booked by a user:</p> <p>Another user has already booked the charging unit. You cannot start the charging session if you are not the user who booked it.</p>
	<p>An error has occurred:</p> <p>Disconnect and reconnect the electric vehicle to the charging unit to rectify the error.</p>

	<p>The emergency stop switch is on:</p> <p>After confirming there is no risk any longer, release the emergency stop button.</p>
	<p>Open door detected:</p> <p>An open-door event was detected. The unit door must be closed before a charging session can start.</p>

9. Frequently asked questions



This section contains information and procedures for solving possible problems that may occur with the product.

Table 5. Frequently asked questions

Possible problems	Solutions
The EV charger does not start	<ul style="list-style-type: none"> Check that the connection between the connector of the charging cable and the car socket is properly established. Check the LED status color and read the indication on the touchscreen display.
The EV charger visual indicators are red	<ul style="list-style-type: none"> Unplug the connector from the vehicle and reinsert it. Check the LED status color and read the indication on the touchscreen display.
The vehicle does not charge	<ul style="list-style-type: none"> Visually inspect the condition of either the CCS or CHAdeMo cable. In case the CHAdeMO cable is used, select the appropriate plug on the touch screen to initiate the charging session.
The charging cable cannot be released from the vehicle	<ul style="list-style-type: none"> Check that the charging session has been stopped. Check the LED status color and read the indication on the touchscreen display. Usually, the connector must be released from inside your vehicle first. Refer to the instruction manual of your vehicle. In case of an emergency, the cable can always be unlocked using the emergency stop button.
Authentication refused	<ul style="list-style-type: none"> 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.
How long is the warranty period?	<ul style="list-style-type: none"> The warranty period is 3 years.

If the problem persists, contact your local installer or your Eaton technical support representative using the email address BGTechSupport@eaton.com.

10. Technical data

10.1 Rating plate



Refer to Figure 8 on where to find the rating plate on the product.



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



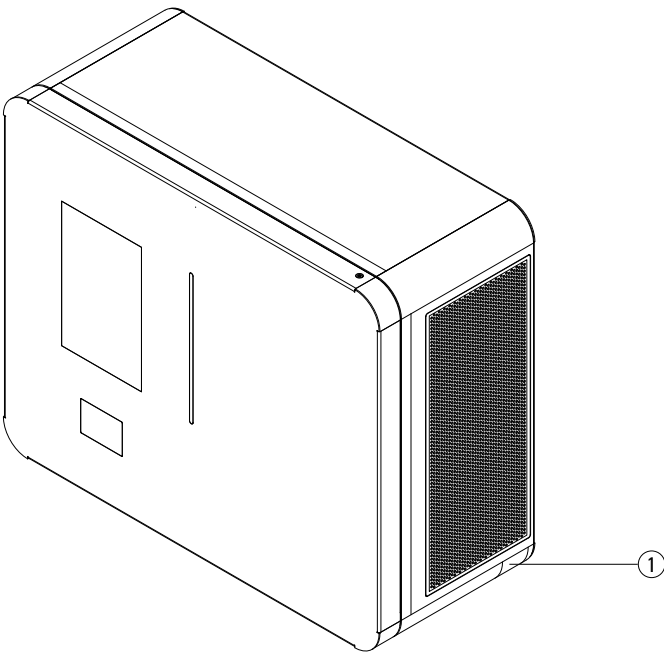
The labels attached on the product must NEVER be removed, damaged, soiled or hidden for any reason. The information reported on the rating plate:

- 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 kept always clearly visible.

Figure 8. 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/GreenMotiondc22.

CE certification is also available on www.eaton.com/GreenMotiondc22 For further information, contact your local Eaton service representative.

11. Contact support information

Should any technical problems arise during the operation of the 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.

To report concerns or problems regarding the charge point's security, visit this link:

<https://www.eaton.com/us/en-us/company/news-insights/cybersecurity/vulnerabilitydisclosure.html>