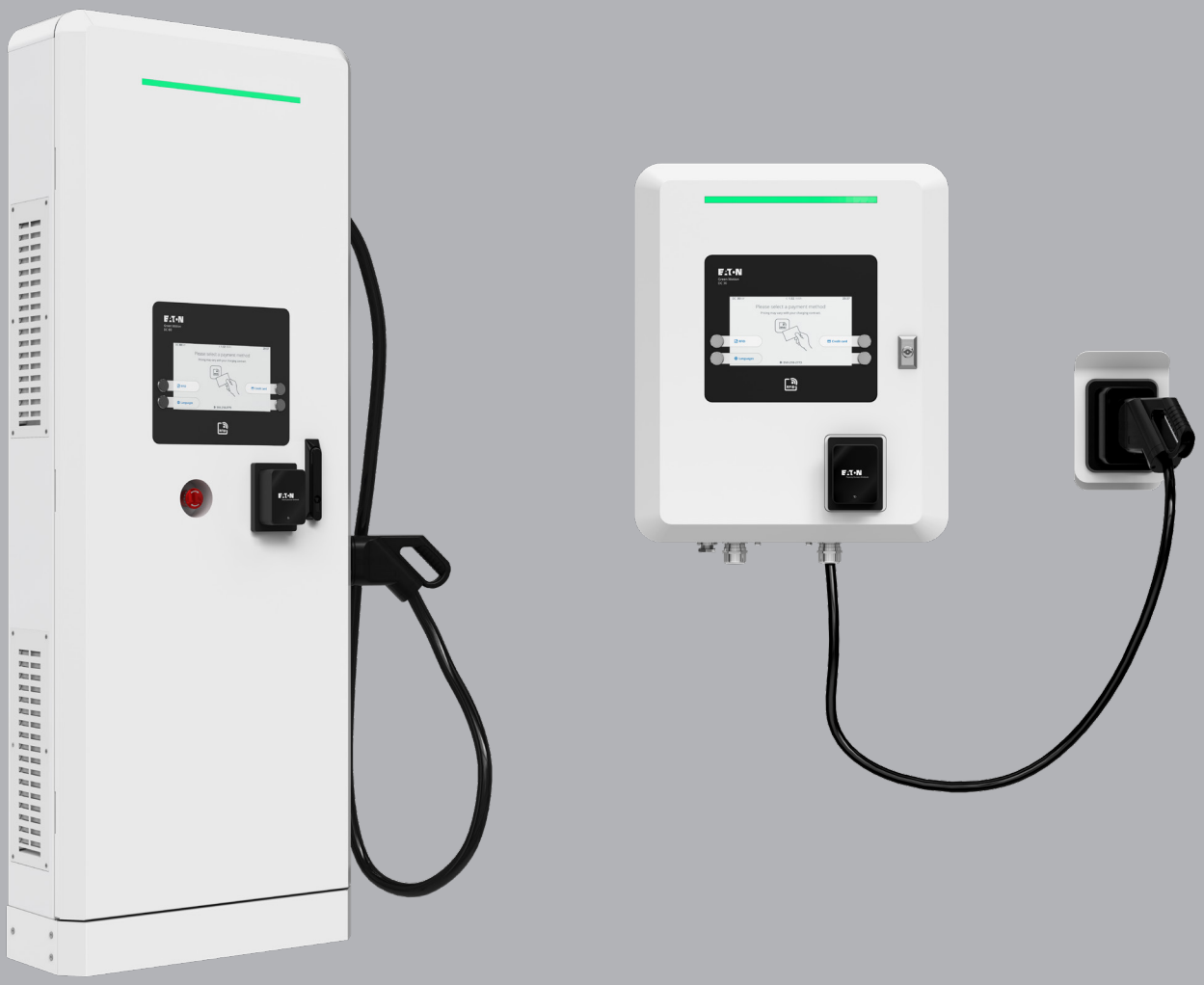
Green Motion DC 30 and Green Motion DC 60 Installation Manual



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 otherwise 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

Before you start

This manual contains important instructions that must be followed during installation, operation and maintenance of the Eaton Green Motion DC 30/60 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 30/60 EV charger must only be installed by professional and qualified personnel, that is, an Eaton technical support representative or a professional installer. There are no user serviceable parts inside the Green Motion DC 30/60 EV charger. Failure to observe the above will void the guarantee provided and Eaton cannot be held legally accountable.

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.

Legal entity

Eaton Industries Manufacturing GmbH

Address: Eaton Manufacturing LP
Glasgow, Morges branch
Route de la Longeraie 7
CH-1110 Morges

Web: www.eaton.com

1.1 Field of applications

This installation manual is intended for professional installers. It describes how to securely install and commission the Eaton Green Motion DC 30/60 EV charger:

Table 1. Green Motion DC 30 EV charger overview

Power input	
Input nominal voltage	3-phase, 400 V L-L
Input voltage range	350 Vac – 460 Vac
Input current (nominal)	47 A
Input current (maximum)	54 A
Input frequency	50/60 Hz ±10%
Grid Compatibility	3 phase (Compatible to TT, TN)
Power Factor	> 0.99
Input current TDD	< 5%
Peak efficiency	96%
Standby input power	Less than 20 W
Power output	
DC output voltage	150 – 1000 V DC
Maximum output power	30 kW
Maximum output current	80 A
Charging cable and connector	1x CCS2 @ 80 A, 5m Length
Environmental	
Operating temperature	–35 °C to +55 °C (derating after 45 °C)
Extended Operating temperature	–40 °C to +80 °C
Acoustic Noise	50dBA @ 3m
Altitude	Up to 2000 m without derating
Installation	Indoor or outdoor
Humidity	< 95% relative humidity
Mechanical	
Mounting method	Wall-mounted / Floor-mounted pedestal (Optional)
Power input cable entry	Top / Bottom
Dimensions (W x H x D) in mm	580 x 700 x 240
Weight of the charging station	60 kg
Material	Stainless steel
Degree of protection	IP55
Impact strength	IK10 for Enclosure / IK08 for Display and DC Meter Cover
Protection	
Protections	Short Circuit, Overload Protection, Surge Protection, Protective Earth, Insulation Failure, Residual Current protection
Other Monitoring	Over current, Over Voltage, Under Voltage, Thermal Protection, Tilt detection, Emergency stop, door interlock
User interface and control	
User Interface	10" Display with 4 control buttons LED status indicator, DC meter display
Authentication Methods	RFID (IEC 14443 / IEC 15693) ISO 15118-2 Free charging Mobile App (Not included)
Payment terminal	Yes (Optional)
Connectivity	
Network connection	Wired: Ethernet (10/100Mbps) Wireless: Wi-Fi (IEEE 802.11b/g/n) Cellular: LTE 4G
Communication Protocol	OCPP 1.6J, Upgradable to OCPP2.0.1
Communication interface	Modbus TCP/IP, Modbus RTU
Remote monitoring	Yes
Firmware Upgrade	Over The Air (OTA)
E-metering	
MID	Yes (Optional)
Eichrecht	Yes (Optional)
LNE	Yes (Optional)
Standards	
Safety Compliance	IEC 61851-1, IEC 61851-23

Electro Magnetic Compatibility (EMC)	IEC 61851-21-2 Emissions: Class B (Residential) Immunity: Class A (Non-Residential)
Electro Magnetic Field (EMF)	EC 62311: 2008
Radio (EU only)	EN 301 489-1 V2.2.3: 2019 (EMC generic) EN 301 489-3 V2.1.1: 2019 (RFID) EN 301 489-52 V1.1.2: 2020 (4G) EN 301 489-17 V3.2.4: 2020 (Wi-Fi)
ROHS (EU)	EN IEC 63000: 2018
ISO15118-20 HW-ready	Yes
ISO15118-2 PlugNCharge	Yes (upgradable by OTA)
Eichrecht	Yes (Optional)
Smart UK	Yes

Technical specifications – Green Motion DC 60

Power input		
Input nominal voltage	3-phase, 400 V L-L	
Input voltage range	350 Vac – 460 Vac	
Input current (nominal)	94 A	
Input current (max)	108 A	
Input frequency	50/60 Hz ±10%	
Grid Compatibility	3 phase (Compatible to TT, TN)	
Power Factor	> 0.99	
Input current TDD	< 5%	
Peak efficiency	96%	
Standby input power	Less than 35 W	
Power Output	**1 connector**	**2 connectors**
DC output voltage	150 – 1000 V DC	
Maximum output power[1]	60 kW	
Maximum output current	160 A	
Charging cable and connector	1x CCS2 @ 200A, 5 m Length	2x CCS2 @ 200A, 5 m Length
Simultaneous charging	N/A	Yes
Cable Management	Optional	
Environmental		
Operating temperature	–35 °C to +55 °C (derating after 45 °C)	
Extended Operating temperature	–40 °C to +80 °C	
Acoustic Noise	53 dBA @ 3 m	
Altitude	Up to 2000 m without derating	
Installation	Indoor or outdoor	
Humidity	< 95% relative humidity	
Mechanical	**1 connector**	**2 connectors**
Mounting method	Floor-mounted	
Power input cable entry	Bottom	
Dimensions (W x H x D) in mm	675 x 1800 x 240	
Weight of the charging station	150 kg	170 kg
Material	Stainless steel	
Degree of protection	IP55	
Impact strength	IK10 (Enclosure) / IK08 for display and DC meter cover	
Protection		
Protections	Short Circuit, Overload Protection, Surge Protection, Protective Earth, Insulation Failure, Residual Current protection	
Other Monitoring	Over current, Over Voltage, Under Voltage, Thermal Protection, Tilt detection, Emergency stop, door interlock, Emergency Stop	
User interface and control		
User Interface	10" Display with 4 control buttons LED status indicator, DC meter display	
Authentication Methods	RFID (IEC 14443 / IEC 15693) ISO 15118-2 Free charging Mobile App (Not included)	
Payment terminal	Yes (Optional)	

Connectivity	
Network connection	Wired: Ethernet (10/100Mbps) Wireless: Wi-Fi (IEEE 802.11b/g/n) Cellular: LTE 4G
Communication Protocol	OCPP 1.6J, Upgradable to OCPP 2.0.1
Communication interface	Modbus TCP/IP, Modbus RTU
Remote monitoring	Yes
Firmware Upgrade	Over The Air (OTA)
E-metering	
MID	Yes (Optional)
Eichrecht	Yes (Optional)
LNE	Yes (Optional)
Standards	
Safety Compliance	IEC 61851-1, IEC 61851-23
Electro Magnetic Compatibility (EMC)	IEC 61851-21-2 Emissions: Class B (Residential) Immunity: Class A (Non-Residential)
Electro Magnetic Field (EMF)	EC 62311: 2008
Radio (EU only)	EN 301 489-1 V2.2.3: 2019 (EMC generic) EN 301 489-3 V2.1.1: 2019 (RFID) EN 301 489-52 V1.1.2: 2020 (4G) EN 301 489-17 V3.2.4: 2020 (Wi-Fi)
ROHS (EU)	EN IEC 63000: 2018
ISO15118-20 HW-ready	Yes
ISO15118-2 PlugNCharge	Yes (upgradable by OTA)
Eichrecht	Yes (Optional)
Smart UK	Non applicable

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 system is powered on.

Read the instructions. These instructions are intended for professional installers. A professional installer 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 30/60 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
CU	Control unit
DC	Direct current
DHCP	Dynamic Host Configuration Protocol
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
EV	Electrical vehicle
FW	Firmware
HW	Hardware
IEC	International Electrotechnical Commission
IP	Internet Protocol
LAN	Local area network
LCD	Liquid crystal display
N	Neutral
NAT	Network address translation
OV	Overvoltage
PAT	Port address translation
PE	Protective earth
PPE	Personal protective equipment
RCD	Residual current device
SIM card	Subscriber identity module card
SW	Software
TCP	Transmission Control Protocol
UI	User interface
WEEE	Waste electrical and electronic equipment
POS	Point of Sale
CSMS	Charging Station Management System
BEMS	Building Energy Management System
OCPP	Open Charge Point Protocol
CSC	Charge Station Controller

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 that occur because the information within this manual has not been read and followed.

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

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 the professional and qualified personnel or your Eaton sales representative.

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 omission of protective devices is extremely dangerous and relieves the manufacturer of any responsibility for damage caused to people and property.

A first aid kit must be provided near the installation site so that it is readily available in case of emergency.

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 shall be connected to the distribution network in accordance with local rules.

The unit shall 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.

Recommended operating temperature range of the unit is -35 °C to +55 °C.

The unit must be transported and stored in indoor locations inside the original packaging at temperature range -40 °C to +80 °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 an altitude not exceeding 2000 m above sea level.

2.2 Suggested protections during installation

The equipment is built according to the highest safety standards and is 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 housing during the equipment operation.

The housing could overheat during its operation or be heated by direct sunlight. To avoid burns from an overheated surface caused by sunlight, please use suitable PPE or wait for the equipment to cool down before accessing it.

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.

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.

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 near the installation site so that it is readily available in case of emergency.

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 closer than 20 cm from the equipment for long periods of time.

Professional and qualified personnel must be experts 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 BGTechSupport@eaton.com email address.

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

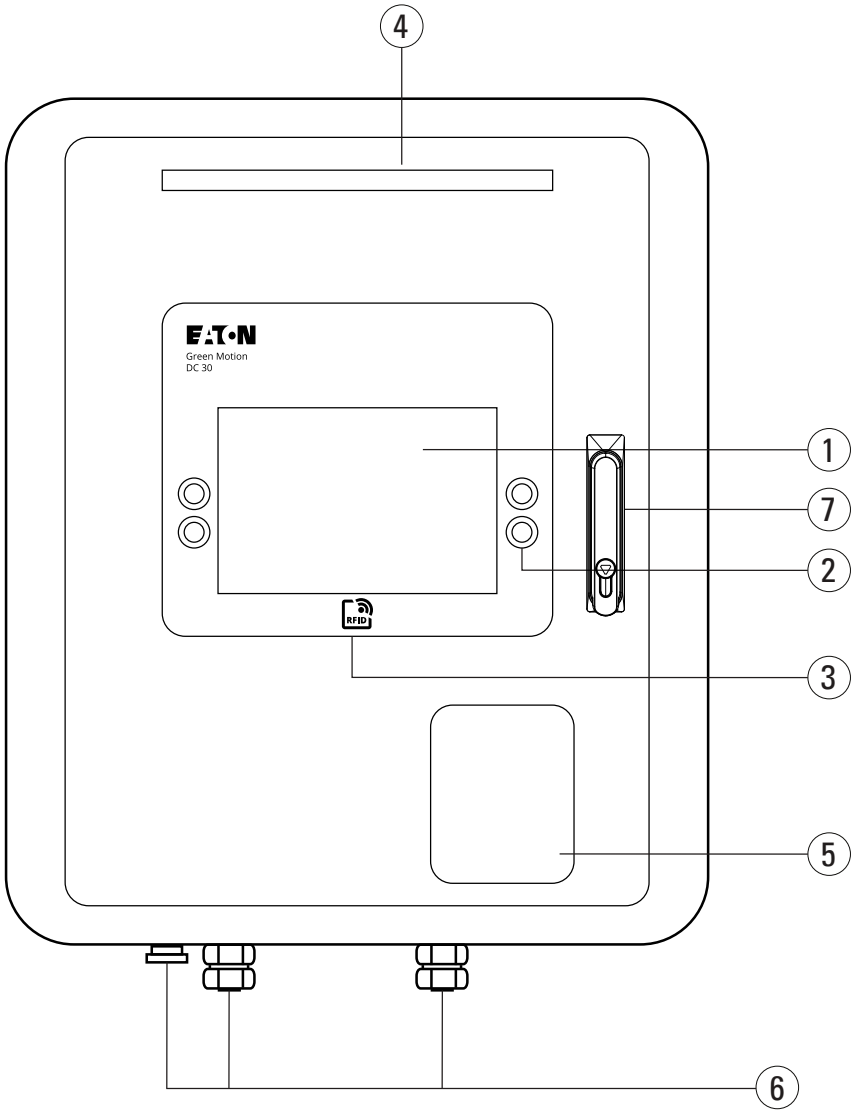
Risk assessment	Recommended solution
Noise pollution caused by installations in unsuitable environments or where professionals work on a regular basis.	Reassess the installation environment or site.
Unsuitable ventilation in the location, causing equipment to overheat, leading to discomfort for people 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 high.	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

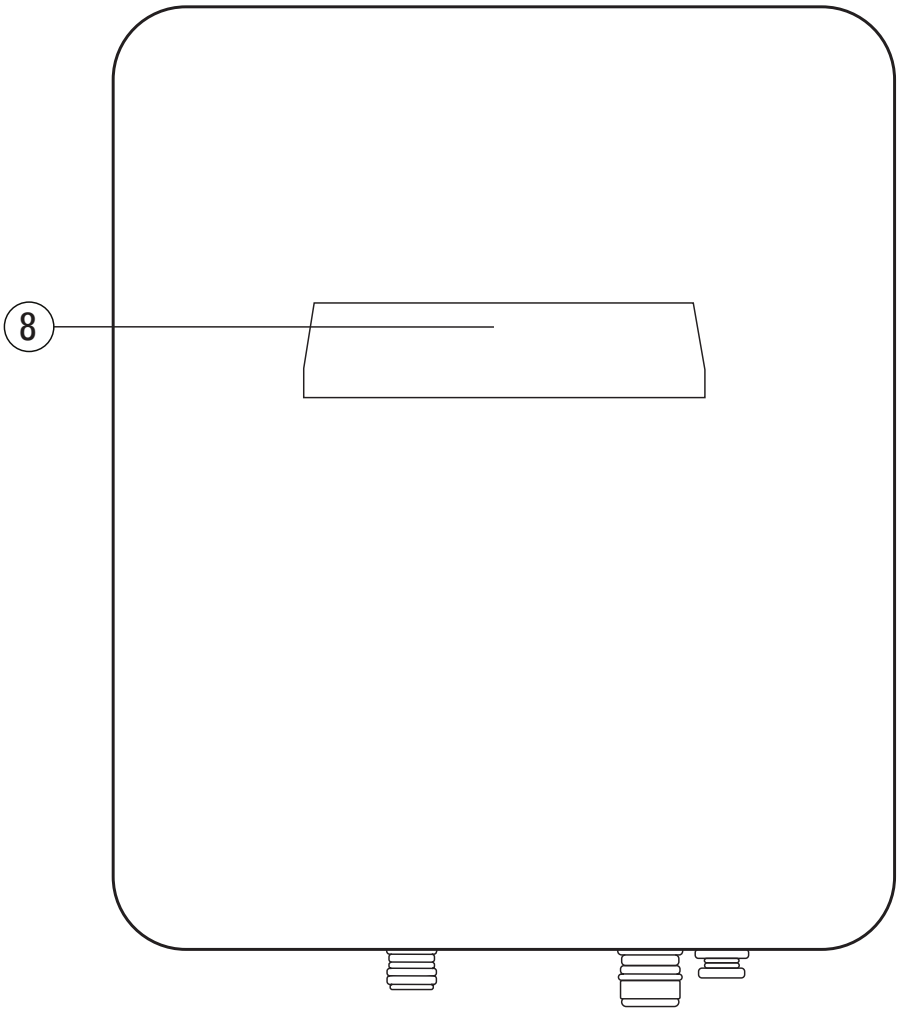
The following images show different views of the Green Motion DC 30 EV charger.

3.1 Front and back views of Green Motion DC 30 EV charger

Figure 1. Front and back views of Green Motion DC 30 EV charger



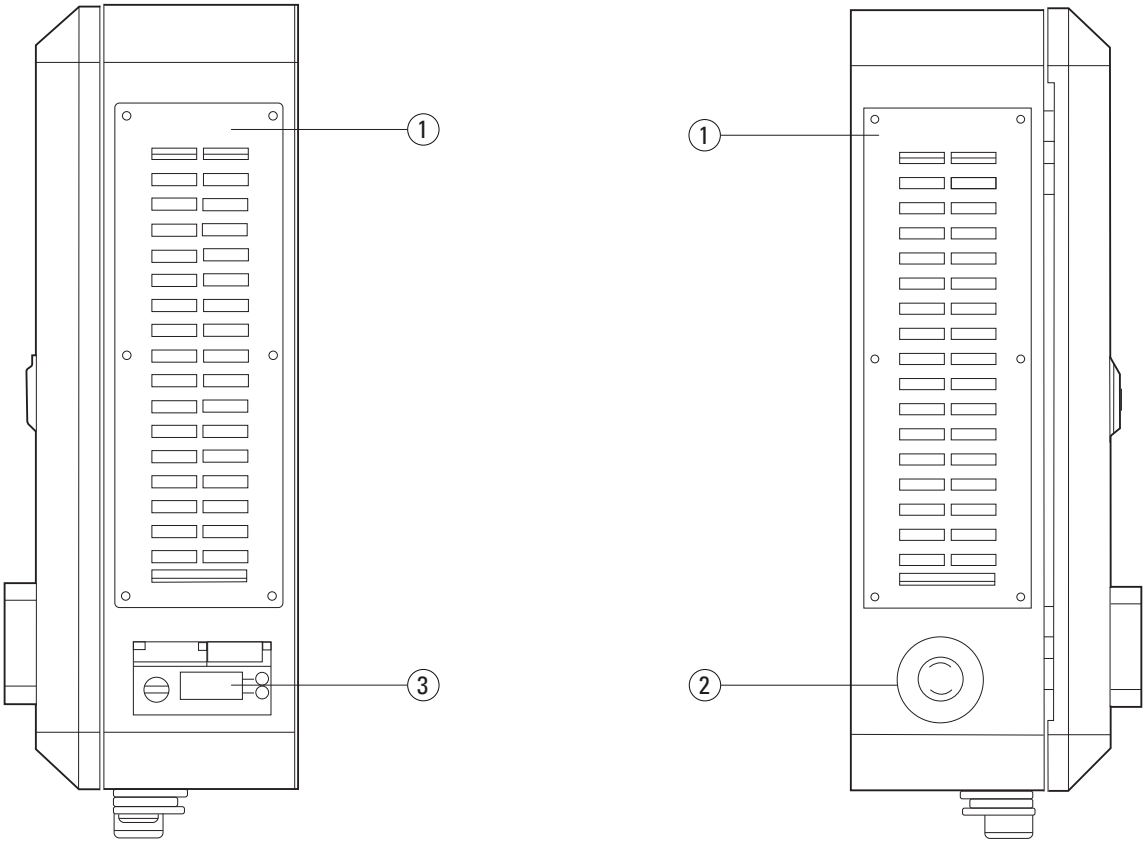
Tag	Description
1	Color display
2	Push buttons
3	RFID reader
4	LED indicator
5	Payment terminal (Optional)
6	Cable glands
7	Door lock



Tag	Description
8	Mounting slot

3.2 Left and right views of Green Motion DC 30 EV charger

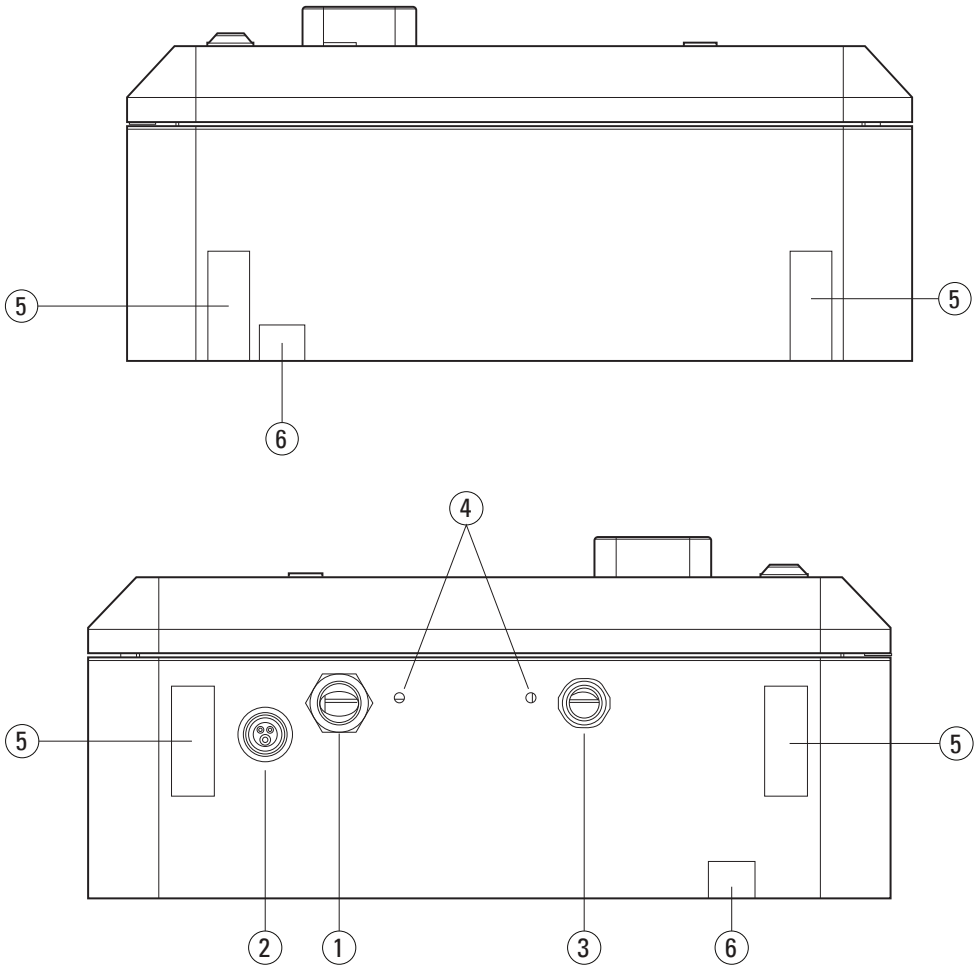
Figure 2. Left and right view of Green Motion DC 30 EV charger



Tag	Description
1	Side door with air flow grid
2	Emergency stop button
3	DC meter viewing window

3.3 Top and bottom views of Green Motion DC 30 EV charger

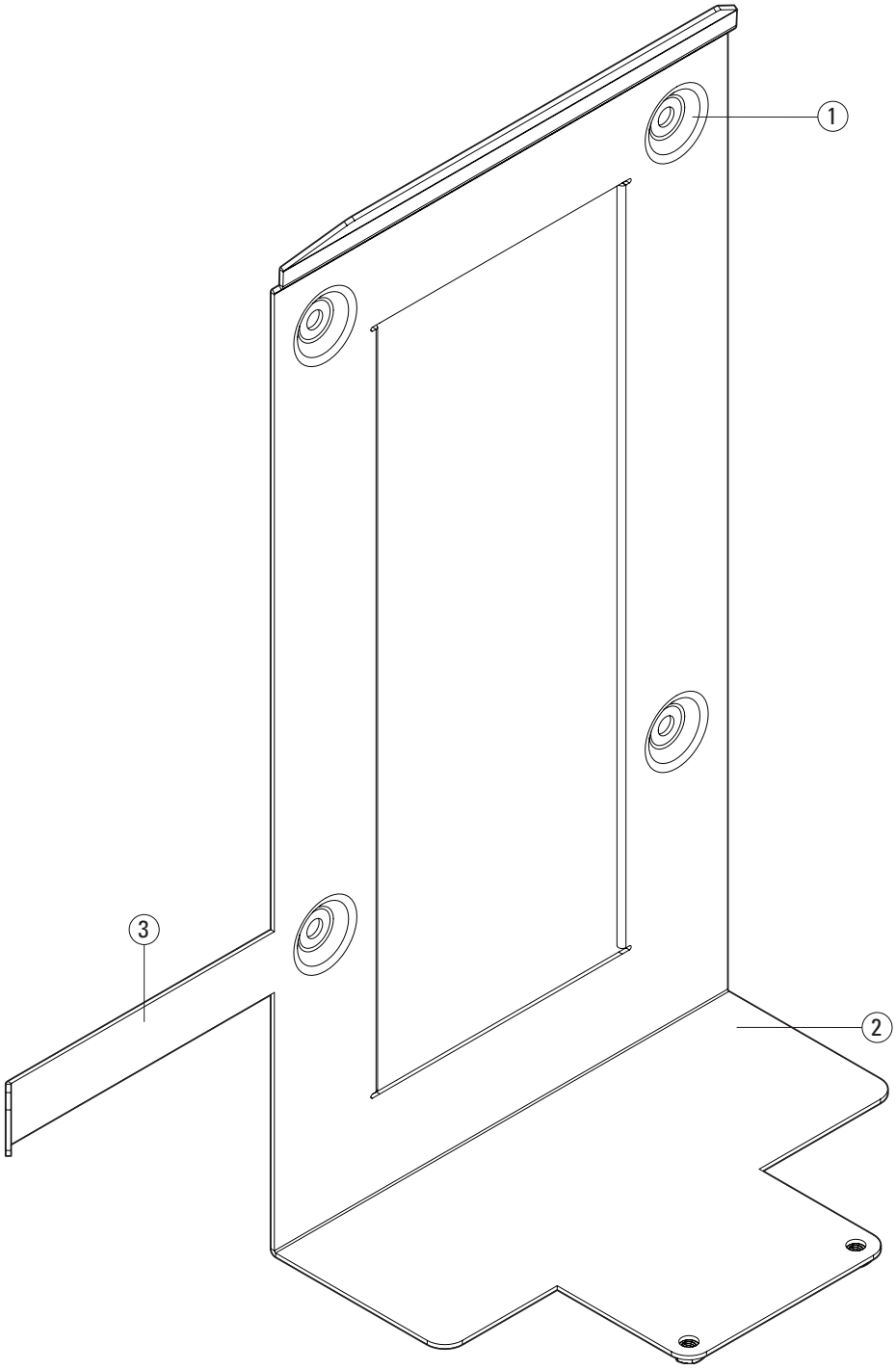
Figure 3. Top and bottom views of Green Motion DC 30 EV charger



Tag	Description
1	Cable entry for input power cable
2	Cable entry for the Ethernet cable
3	CCS2 cable gland
4	Screws for securing the charger to mounting plate
5	Handles for lifting the charger
6	Top cable entry channel

3.4 Mounting plate of Green Motion DC 30 EV charger

Figure 4. Mounting backplate view

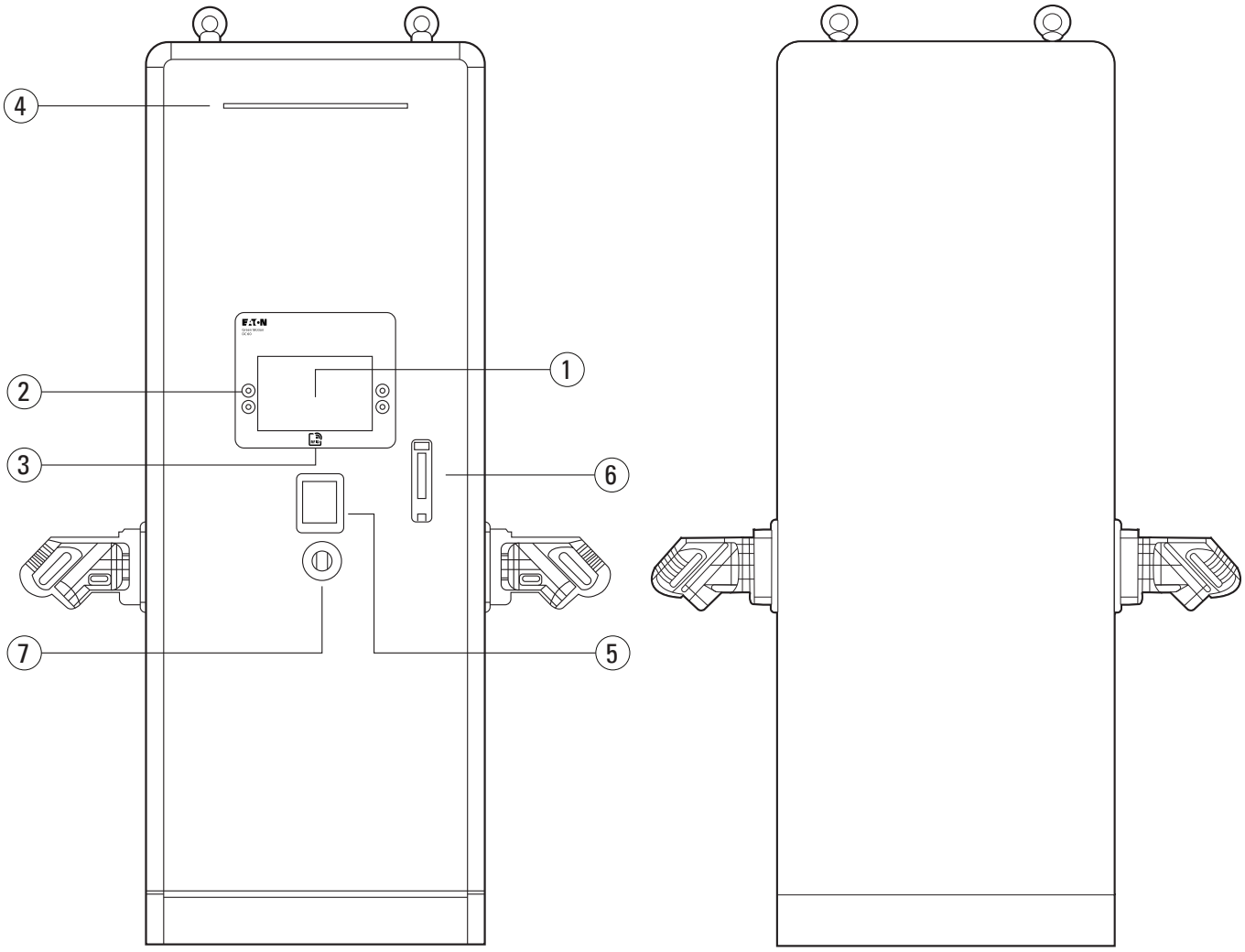


Tag	Description
1	Mounting hole's location
2	Bottom support flange
3	Charger position locator

The following images show different views of the Green Motion DC 60 EV charger.

3.5 Front and back views of Green Motion DC 60 EV charger

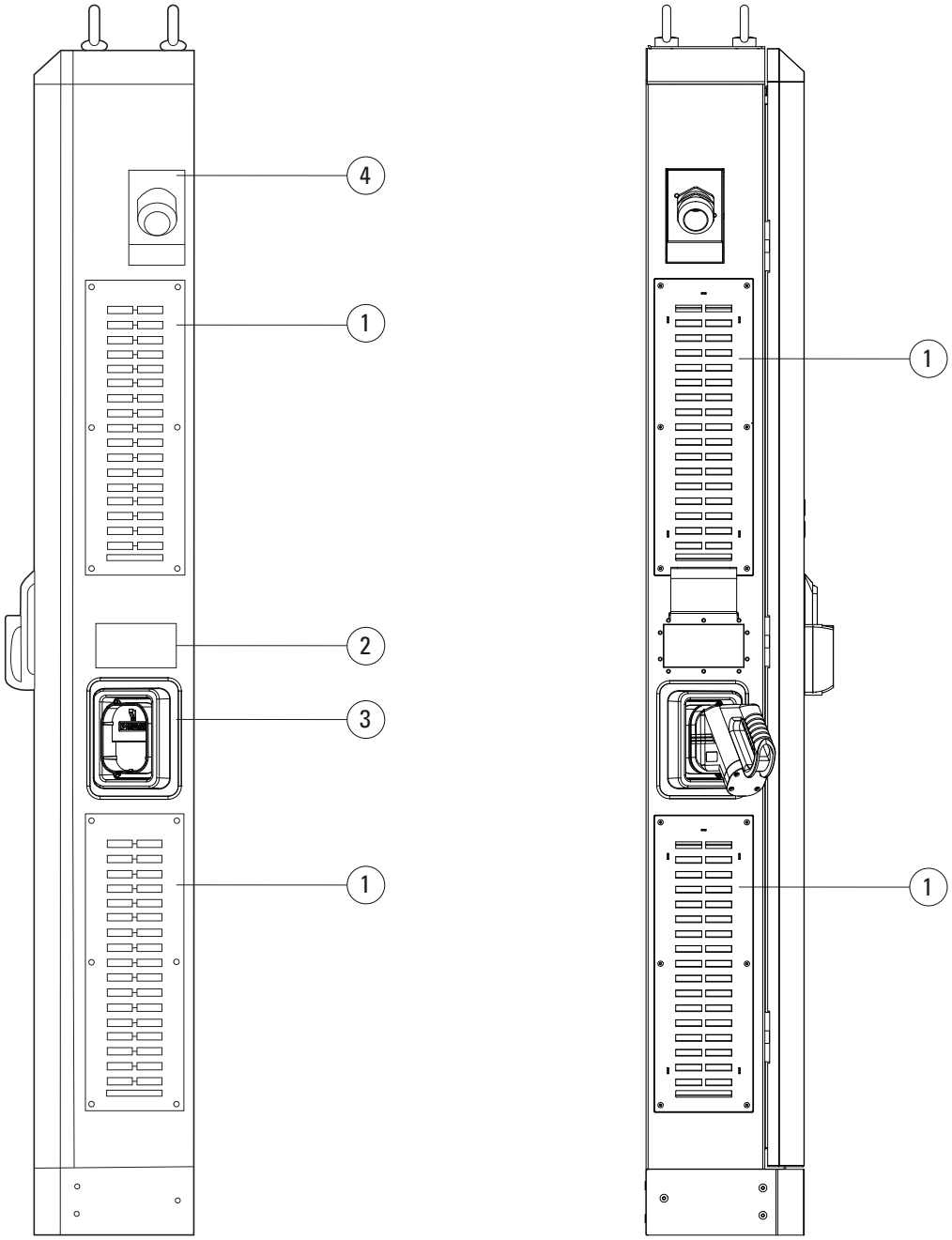
Figure 5. Front and back views of Green Motion DC 60 EV charger



Tag	Description
1	Color display
2	Push buttons
3	RFID reader
4	LED indicator
5	Payment terminal
6	Door lock
7	Emergency stop button

3.6 Left and right views of Green Motion DC 60 EV charger

Figure 6. Left and Right views of Green Motion DC 60 EV charger



Tag	Description
1	Side door with air flow grid
2	DC meter viewing window
3	Gun holder socket position
4	CCS2 cable gland

3.7 Top and bottom views of Green Motion DC 60 EV charger

Figure 7. Top view of Green motion DC 60 EV Charger

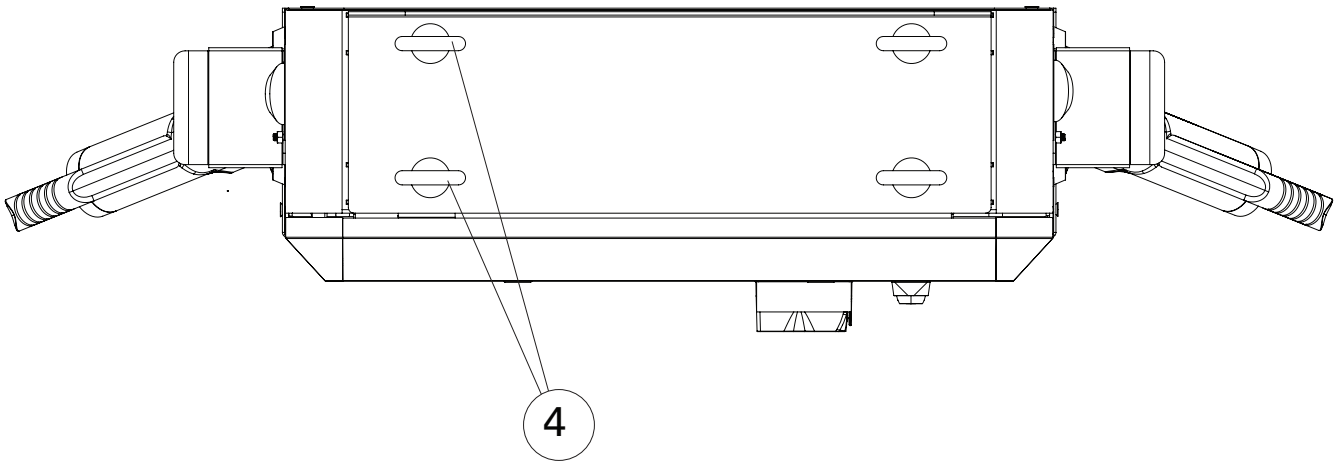
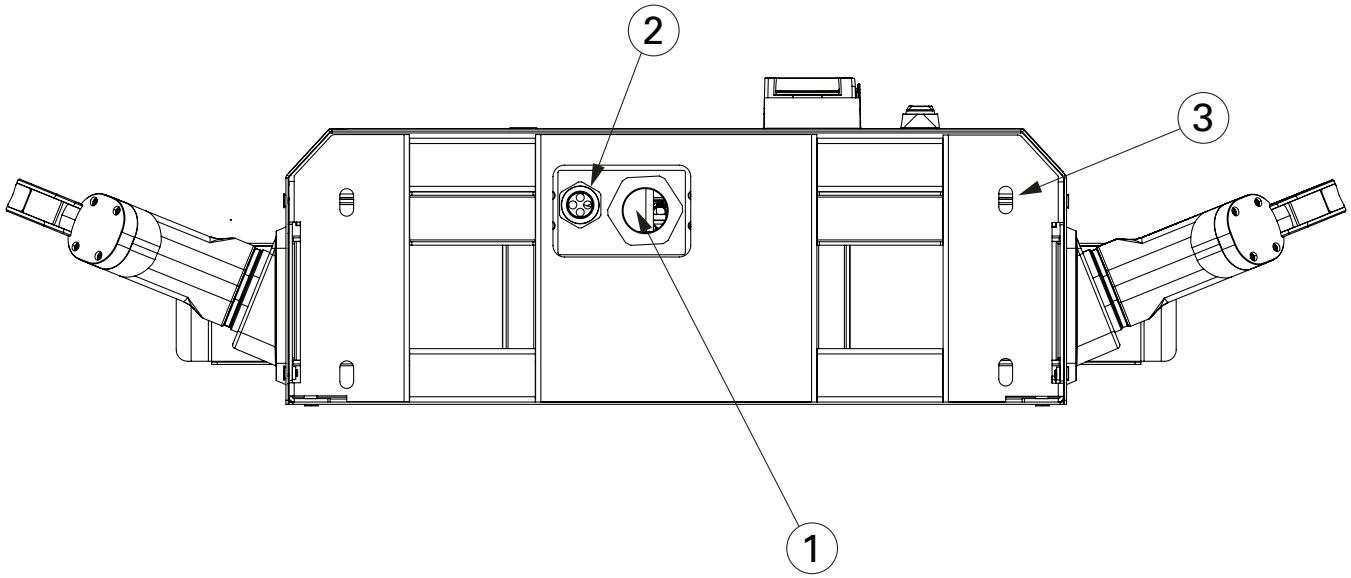


Figure 8. Bottom view of Green motion DC 60 EV Charger



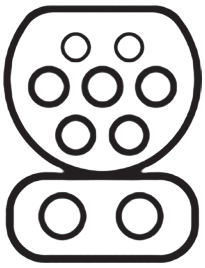
Tag	Description
①	Cable entry for input power cable
②	Cable entry for the Ethernet cable
③	Hole position to fix unit to concrete pad
④	Eyebolt position to lift the charger by crane

3.8 Types of cables

The Green Motion DC 30/60 EV charger provides Combined Charging System (CCS Type 2) for EU market as default cable.

The maximum power of the Green Motion DC 30 EV charger is 30 kW. The maximum power of the Green Motion DC 60 EV charger is 60 kW. However, the actual charging power may vary due to external factors such as the available grid power, capacity of the electrical installations, thermal conditions and EV model. For this reason, Eaton disclaims any liability concerning the actual power output.

Figure 9. Illustration of connector types available with Green Motion DC 30/60 EV charger



①

Tag	Description
①	CCS Type 2

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 charging station 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 installation

To perform installation, professional and qualified personnel requires the following tools:

- Screwdrivers
  - Screwdrivers set (T20,Phillips head)
  - Socket wrench(M6,M10,M8)
  - Rachet set
  - Allen key set
- Door lock key
- Open-ended wrenches (M25,M32,M50)
- Drilling machine (depending on the mounting surface)
- Laptop or smartphone
- SIM card, in case of online chargers with 4G modem

4.2 Package contents

The Green Motion DC 30 wall box contains the following parts:

- Green Motion DC 30 EV charger x1
- Mounting backplate x1
- Door key x1
- EV cables(s)-CCS 2 plug with 5 m cable x 1
- M6 X40 screws x 6
- M6 X 12 Hex Bolts x 2
- 30kw power module x1 (assembled inside the charger)
- Cap for emergency button
- Gun/cable holder with mounting plate
- Quick start guide
- Safety guidelines

The Green Motion DC 60 contains the following parts:

- Green Motion DC 60 EV charger x1
- Door key x1
- EV cables(s)-CCS2 plug with 5 m cable x 1 for single gun and 2 for dual gun
- M10 Nut with flat and spring washers x 4
- Lifting eye M16 x4
- 30kw power module x2 (assembled inside the charger)
- Cap for emergency button
- Quick start guide
- Safety guidelines

4.3 Dimensions and weight

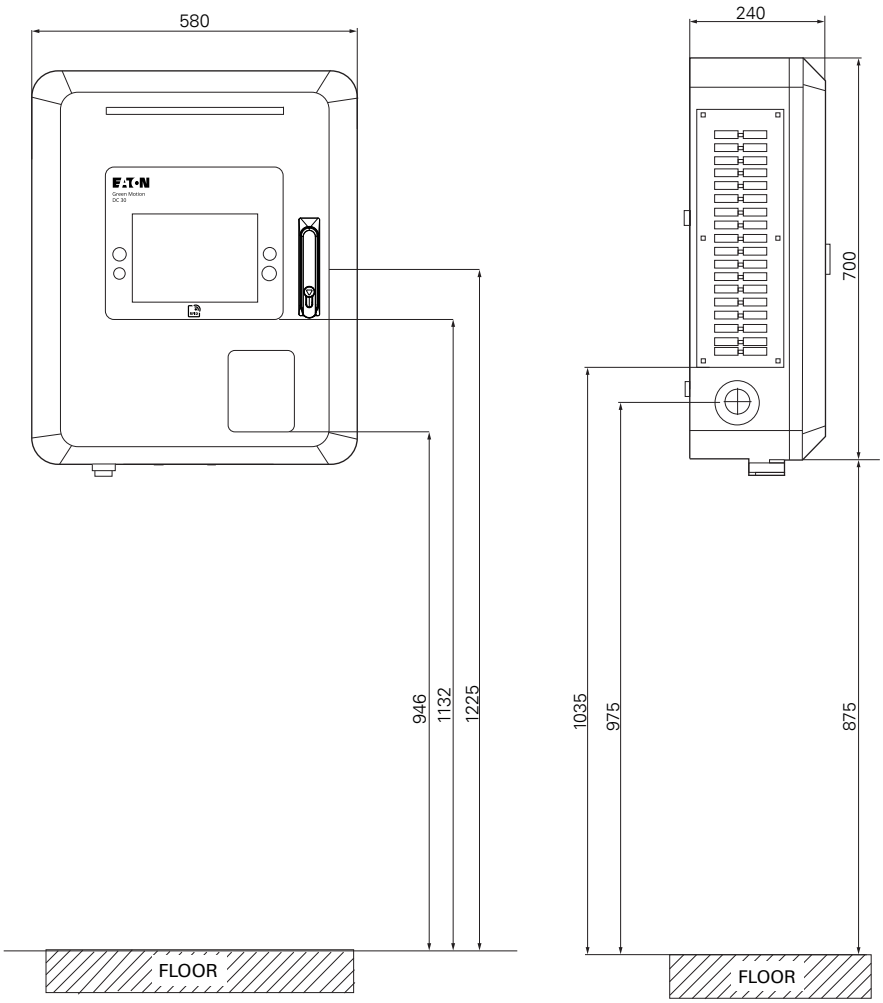
The Table below shows the dimensions and weight of the Green Motion DC 30 EV charger.

Table 4. Dimensions and weight of Green Motion DC 30 EV charger

EV charger	
EV charger dimensions (H x W x D) in mm	700 x 580 x 240
EV charger weight without cables in kg	60
Cables	
CCS2 weight in kg	5

The Figure below shows the front and side views of the EV charger with dimensions.

Figure 10. Green Motion DC 30 EV charger front and side views with dimensions in mm



The Table below shows the dimensions and weight of the Green Motion DC 60 EV charger.

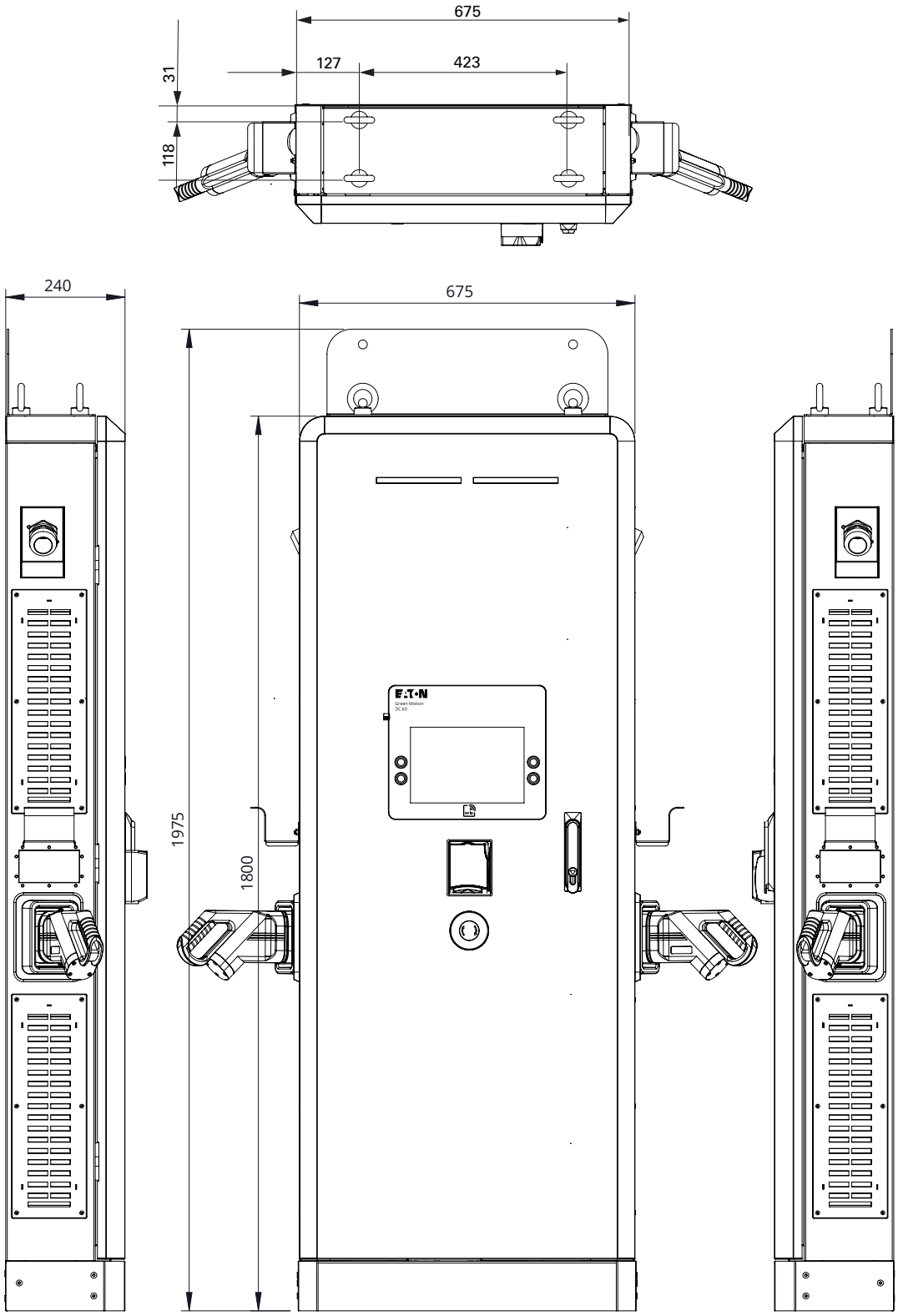
Table 5. Dimensions and weight of Green Motion DC 60 EV charger (Single and Dual gun)

EV charger	Single gun	Dual gun
EV charger dimensions (H x W x D) in mm	1800 x 675 x 240	
EV charger weight without cables in kg	150	170
Cables		
CCS2 weight in kg	10	

The Figure below shows the front and side views of the EV charger with dimensions.

Overall dimensions are identical for single and dual gun versions.

Figure 11. Dimensions and weight of Green Motion DC 60 EV charger (single and Dual gun) in mm



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.

The device is delivered packed on a pallet. During transport and storage, max. 4 numbers of DC 30 (1 at base and 3 on top of it) devices (pallet with packaging) may be stacked on top of each other.

The Green Motion DC 30/60 must be stored in its original packaging in a dry environment from -40 °C to +80 °C.

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 specialized 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.

Do not underestimate the weight of the unit. Check the technical specifications.

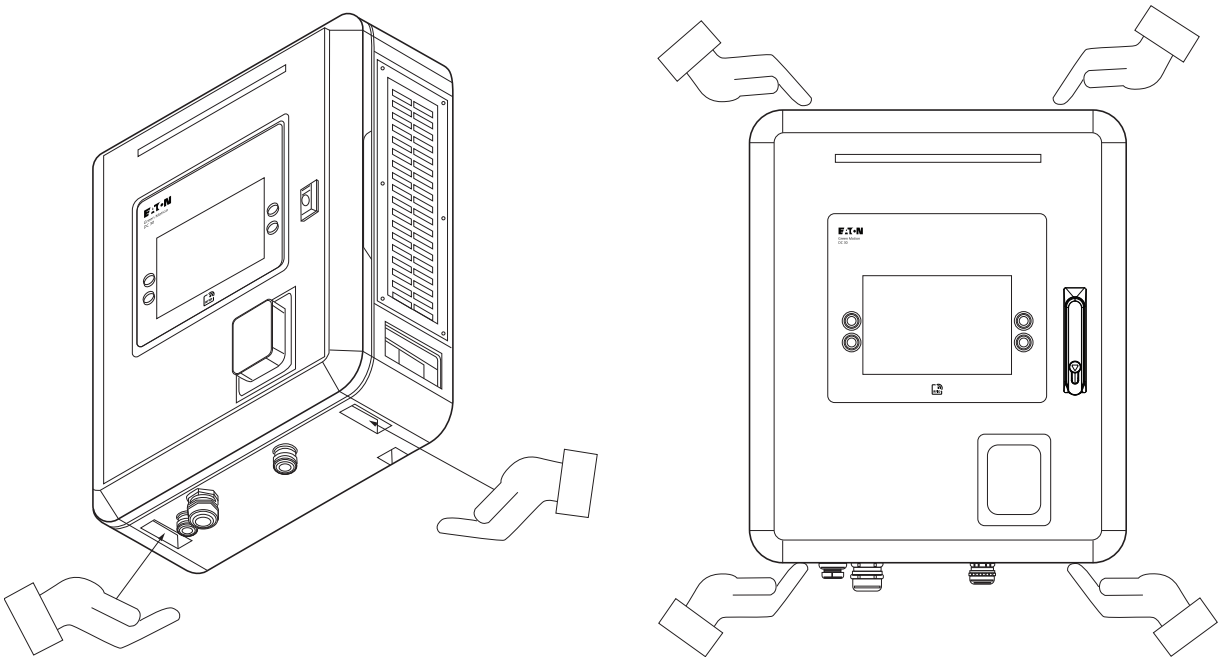
Manpower for transportation, handling and lifting must be considered based on the weight of the unit and the floor-mounted pedestal (optional) in accordance with the requirements of local regulations.

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 the equipment.

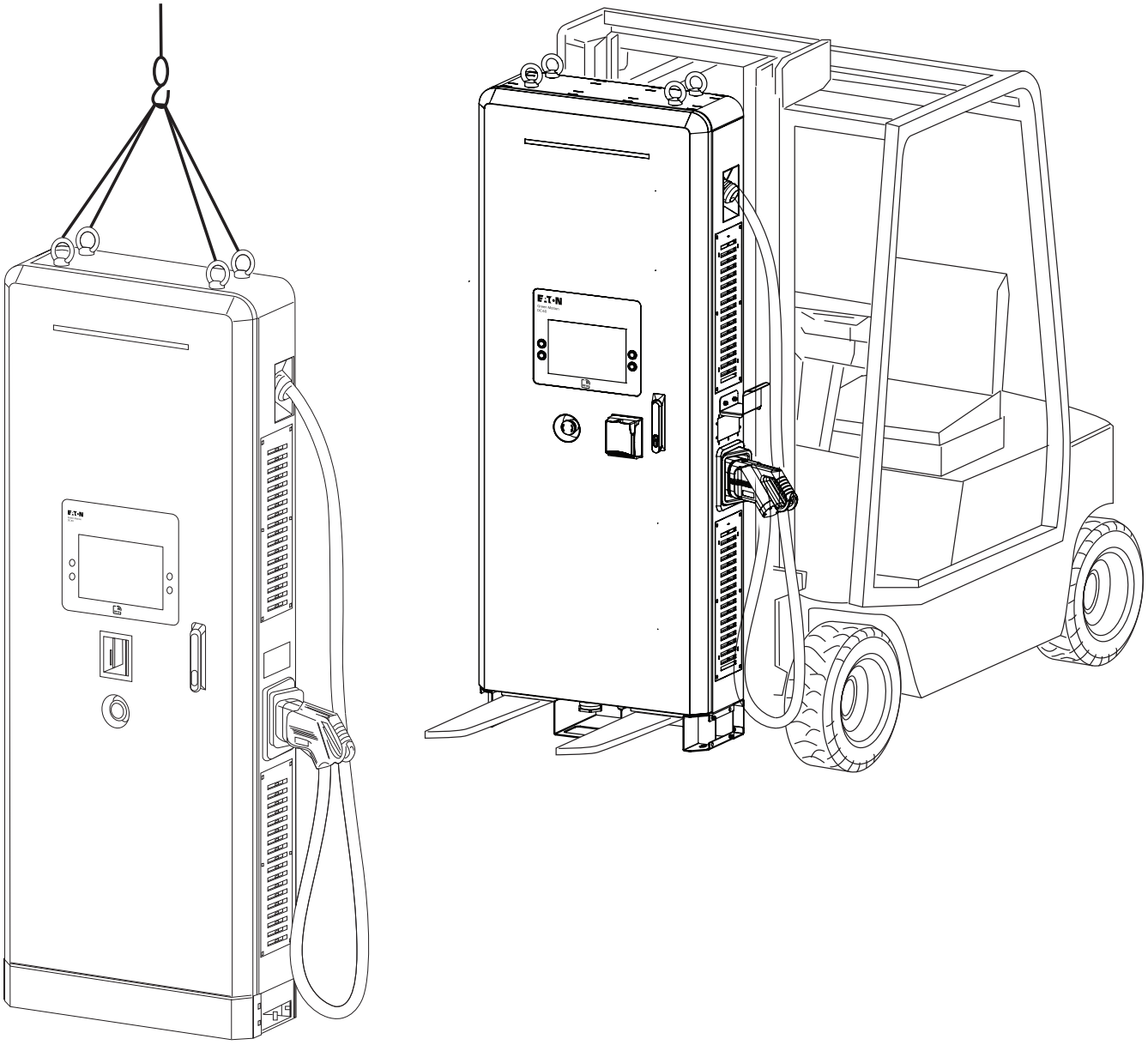
DC 30 wallbox has handles at both sides of bottom and top surface of charger for lifting.

Figure 12. Lifting instruction for the EV charger Green Motion DC 30 EV charger



The Green Motion DC 60 EV charger is not equipped with specific lifting tools.
The Green Motion DC 60 has a lifting eye provision at top surface of charger for lifting with crane, and a plinth at the bottom for lifting with the help of forklift. Remove the eyebolts from DC60 after installation.
The screen and the housing should be protected during the operation to avoid damage and paint scratches.

Figure 13. Lifting instruction for the EV charger Green Motion DC 60 EV charger



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 (for example, 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 unit 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.

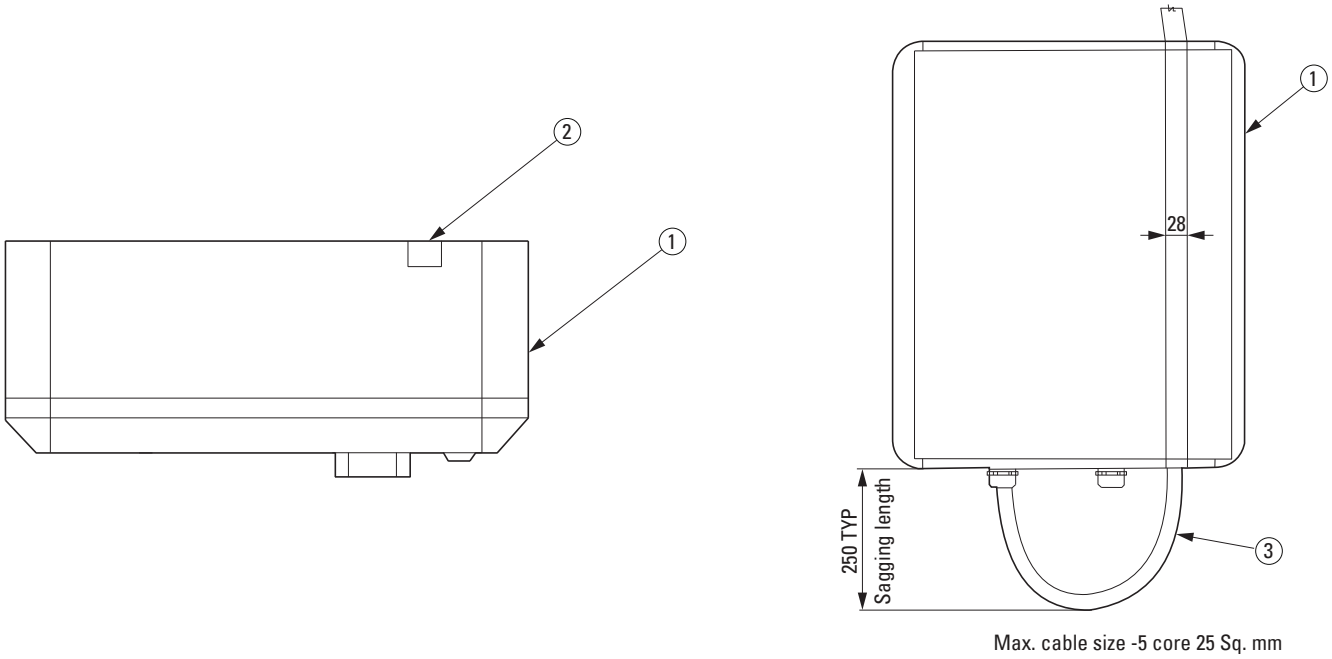
5. Mounting and installation

5.1 Positioning the Green Motion DC 30/60 charger

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

- Manpower to install the product must be considered, based on the weight , in accordance with local regulations.
- Recommended operating temperature range of the unit is -35 °C to +55 °C.
- Install the product to ensure easy access to the controls and connections.
- When mounting Green Motion DC 30 EV Charger on the wall, the surface on which the unit will be installed must be able to support its weight (60 kg).
- The unit must be used at an altitude not exceeding 2000 m above sea level.
- Green Motion DC 30 EV Charger should be fixed at a height of ~875 mm above ground level, for optimal accessibility.
- Keep at least 300 mm of free space from the right side of the unit to allow for adequate air circulation. Keep at least 1000 mm of free space from the left side of the unit to allow for rack-in/rack-out out Power module.
- In case of Green Motion DC 30/60 EV Charger the cable entries for power cables and the internet connection cable entries are through the bottom of the EV charger. In case of Green Motion DC 30 EV Charger with top cable entry, pass the cable (top to bottom end of enclosure) through the channel located at rear right side of charger enclosure (Shown in Figure 14). Connect the power cable at bottom of EV charger similar to the bottom cable entry.

Figure 14. Top cable entry in the DC 30 EV charger



Max. cable size -5 core 25 Sq. mm

Tag	Description
1	Green Motion DC 30 EV charger
2	Incoming utility cable trench
3	Incoming utility cable

Do not mount the product above or below flammable building materials.

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

Do not install the product in areas subject to explosion hazard.

To prevent the risk of electric shock or other injury, check that there are no electrical or hydraulic lines in the walls before drilling the mounting holes of the product.

Make sure there is enough free space for air circulation around the product. Local regulations may require larger clearances.

5.2 Mounting

Green Motion DC 30 EV charger can be wall-mounted, floor-mounted with a pedestal (optional), or mounted on a trolley.

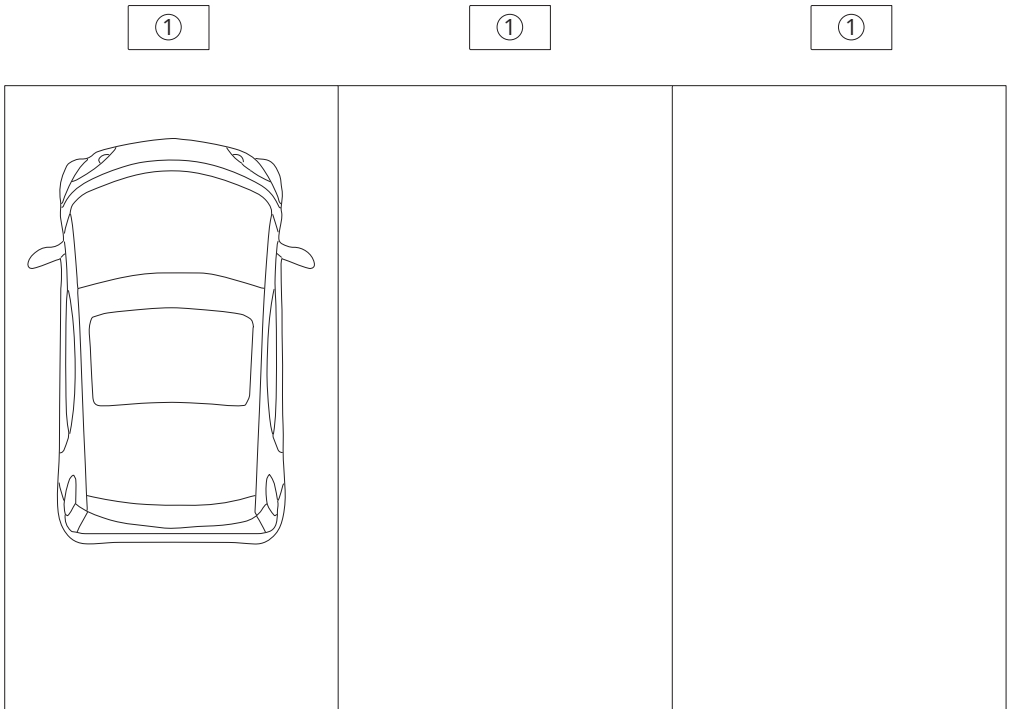
Green Motion DC 60 EV charger must be mounted on a concrete base.

5.2.1 Site design

A site for electric vehicles (EVs) equipped with charging stations 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 following Figure, Eaton recommends installing the EV charger at the front and center of the parking space, and each single gun EV charger should serve one parking space.

Figure 15. Optimal positioning of EV chargers



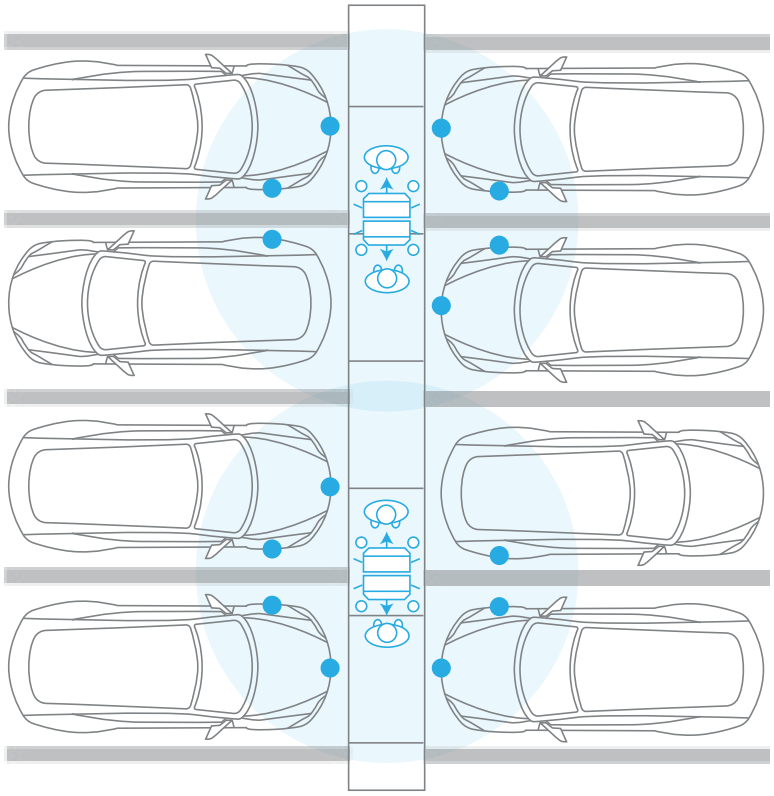
Tag	Description
①	EV charger

Alternative positions for the Dual gun EV chargers are shown in Figure 16. If a wall is not available for mounting it is possible to use a floor-mounted pedestal.

Figure 16. Alternative positioning of Dual gun EV chargers

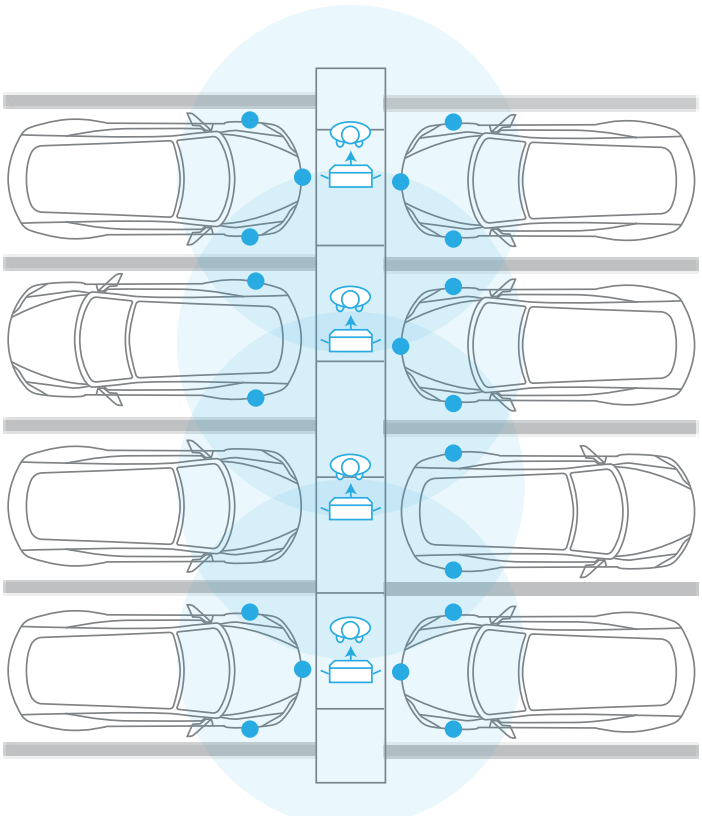
Configuration A

This parking scenario deploys freestanding chargers back-to-back with access for pedestrians on the sidewalk. The key is to avoid forcing the user to squeeze between their EV's and the charger.



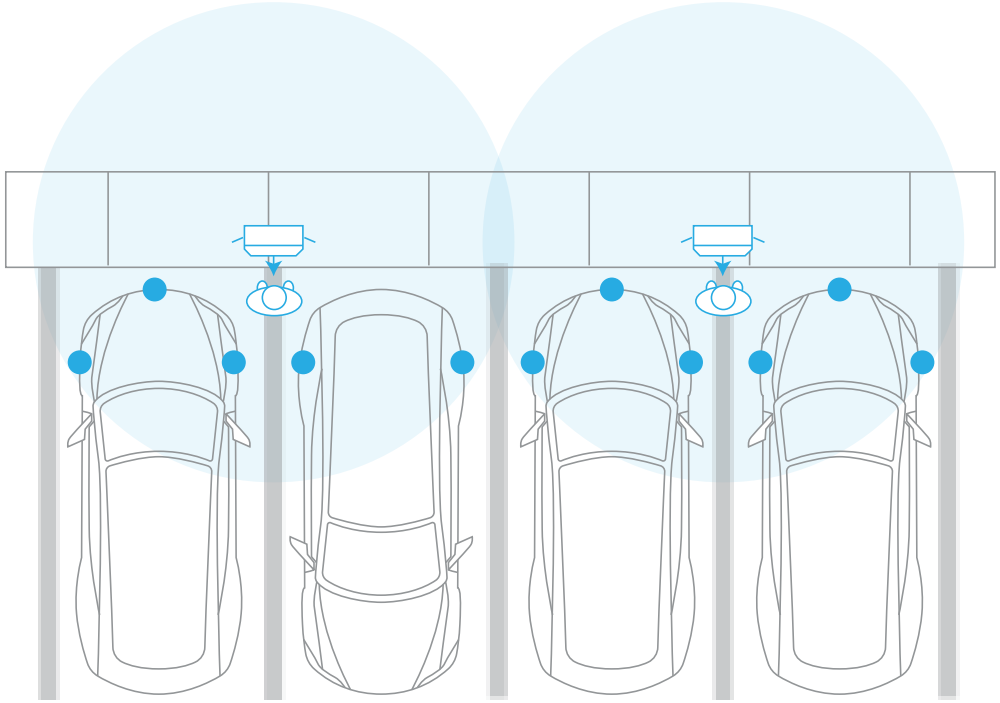
Configuration B

This scenario provides the most reach for vehicle charging ports at our chargers. Again providing space for people to stand without having to squeeze between their EV and the charger.



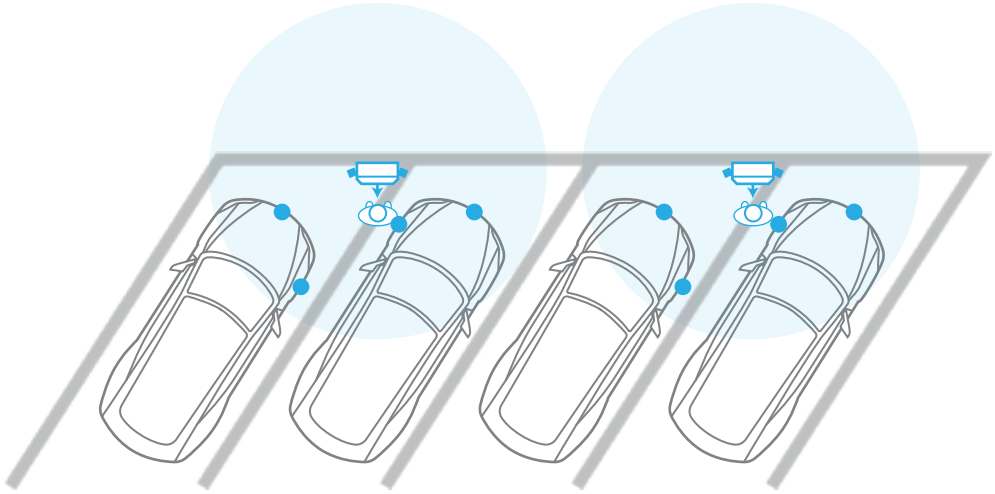
Configuration C

This scenario splits the parking spaces and allows the user to stand in front of the charger off the curb.



Configuration D

This scenario allows for wall mounted or floor mounted chargers against a wall. This is typically deployed in parking garages with limited space providing access between parking spaces for the end-user to stand.



The minimal distance recommended between the EV chargers positioned back-to-back is 600 mm.

5.2.2 Mounting the Green Motion DC 30 on the wall

The unit should be fixed ~875mm above ground level, for optimal accessibility, as shown on Figure 17.

Keep at least 300mm of free space from the right side of the unit to allow for adequate air circulation. Keep at least 1000 mm of free space from the left side of the unit to allow for rack-in/rack-out out Power module.

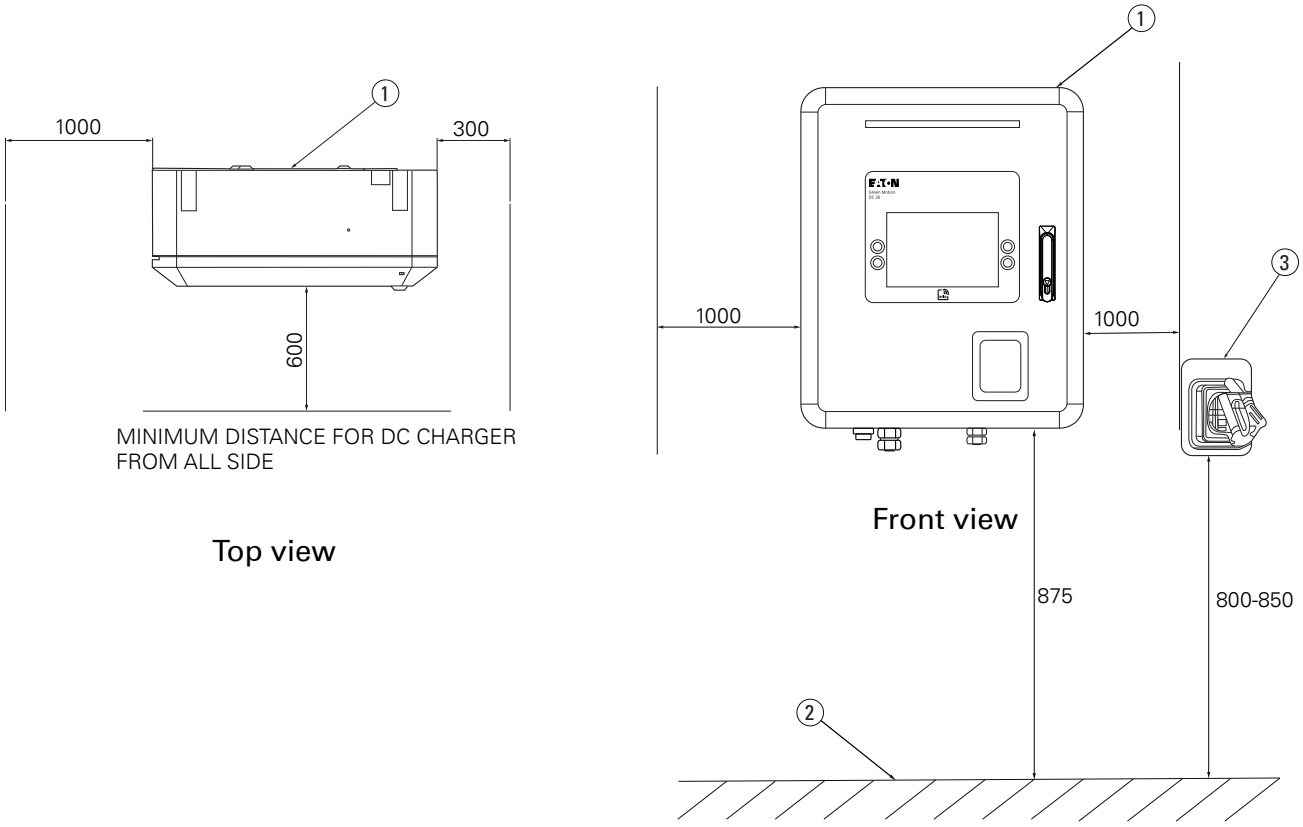
The power input electrical cable and the internet connection cable are inserted from the bottom side of the EV charger. See Section 6.3 for details.

The appropriate types of plastic plugs and screws must be selected by professional and qualified personnel, based on the following considerations:

- the location of installation, and
- the type of the wall on which the system is to be mounted.

In case of obstacles such as snow or similar, take precautions to keep at least 300 mm of free space from the left and right sides of the unit to allow for adequate air circulation.

Figure 17. Green Motion DC 30 EV charger with installation distances



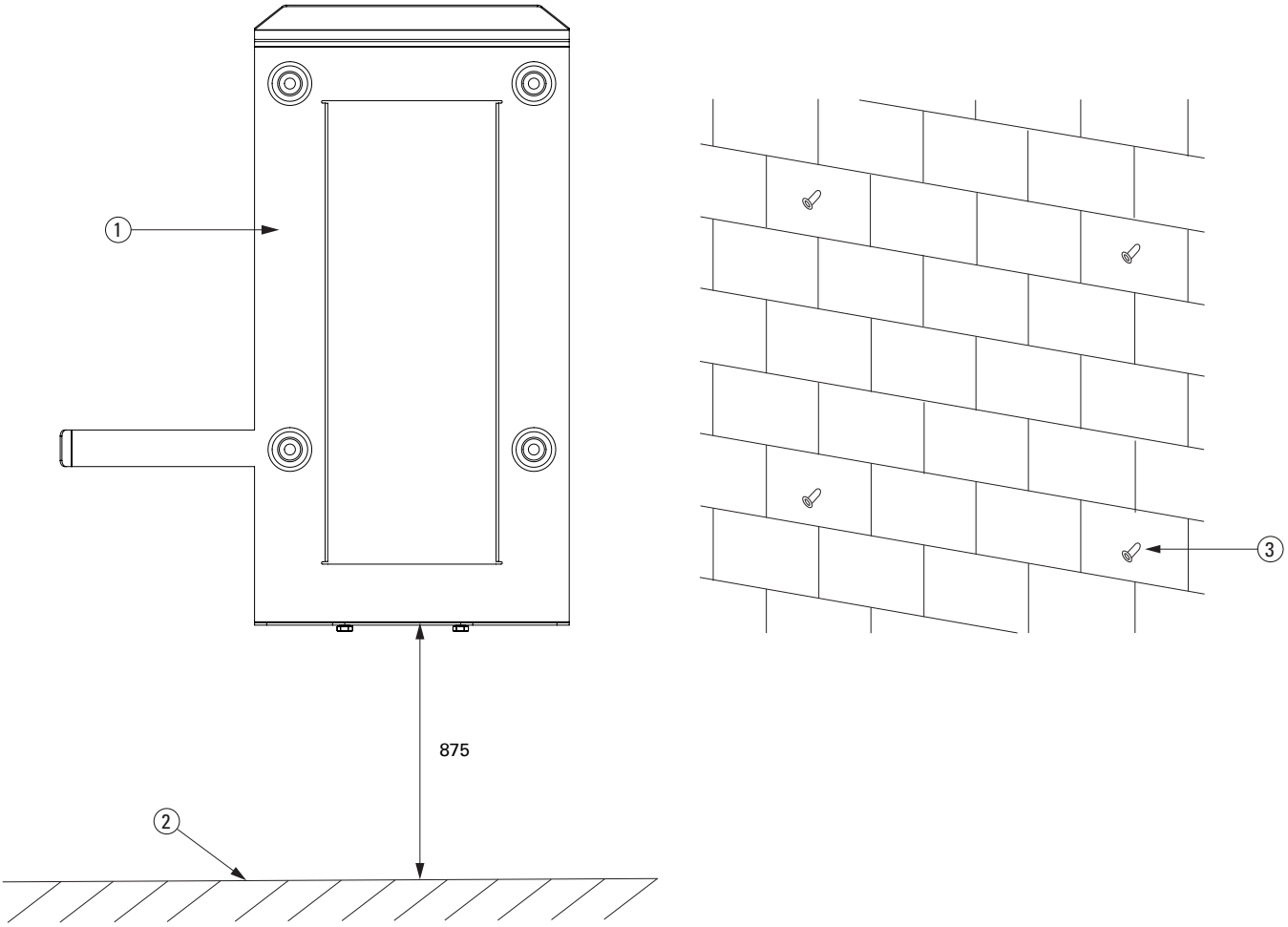
Tag	Description
1	Green Motion DC 30 EV charger
2	Floor
3	Plug holder

Drilling holes in the metal housing or making any modifications not described or approved in this document will void the product warranty.

Follow these steps to install the unit onto the wall:

Step 1. Locate the backplate on the wall for proper height and side clearances on the wall. Mark the hole position. Remove the backplate. Drill the holes on the wall.

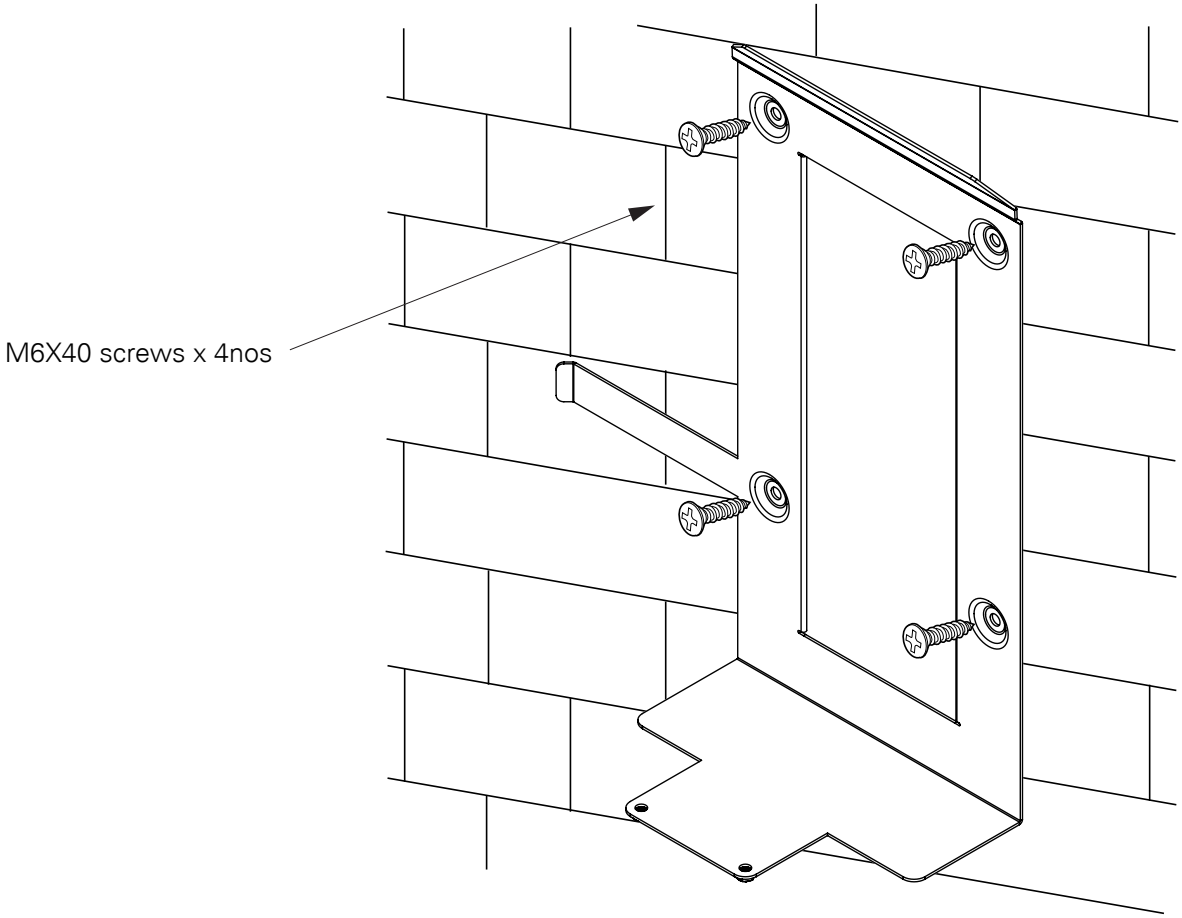
Figure 18. Dimensions details of backplate installation on the wall in mm



Tag	Description
1	Green Motion DC 30 EV charger mounting plate
2	Floor
3	Plastic Wall Screw Anchor Plugs

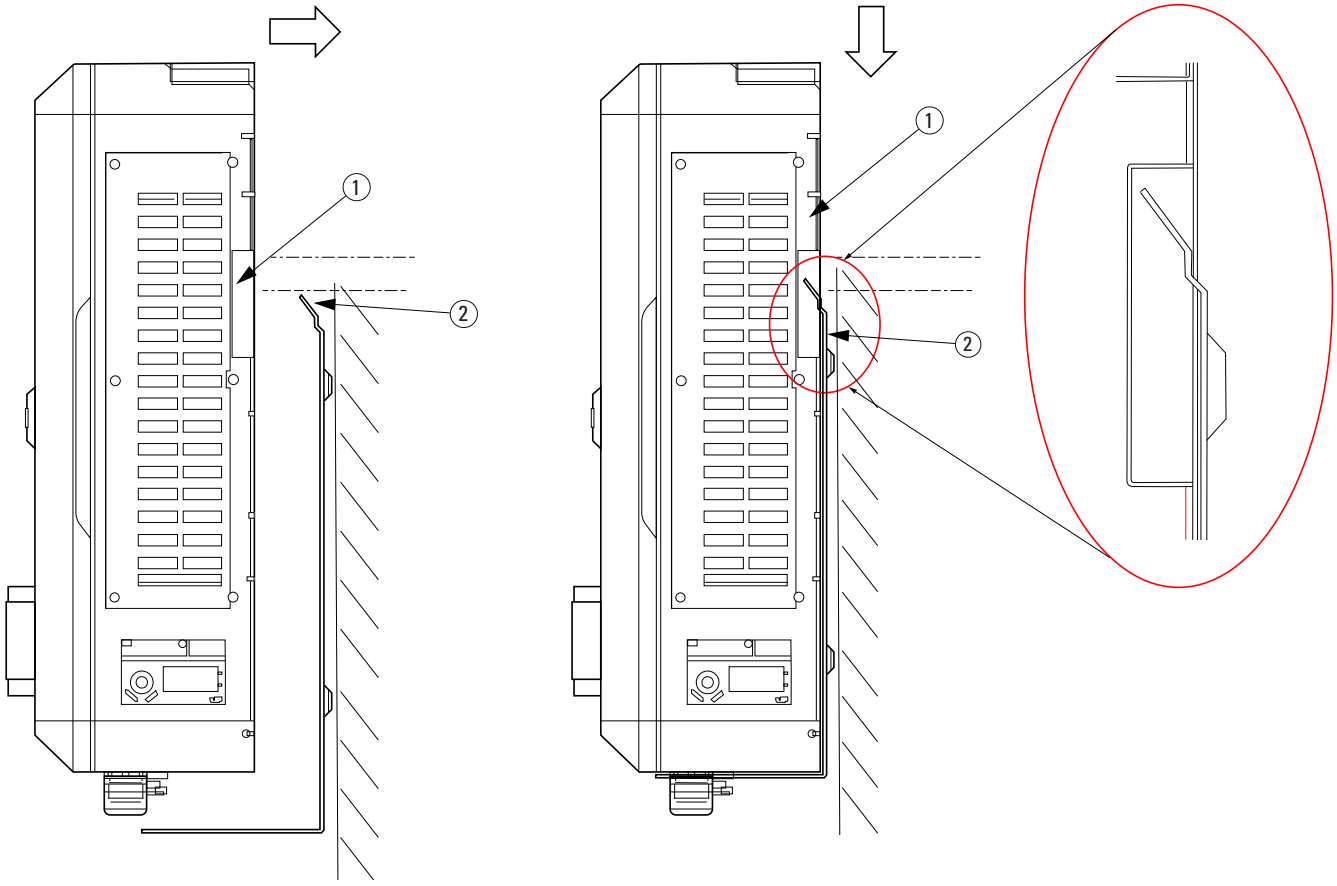
Step 2. Install the backplate on the wall. Fasten the screws securely, thus fixing the backplate against the wall.

Figure 19. installation of backplate on wall



Step 3. Lift the Green Motion DC 30 EV charger with the help of the handles at the top and bottom sides. Align the charger rear slot with top flange of backplate. Slowly lower down the charger on back plate. Slide charger sidewise to align left side of charger with left edge of back plate.

Figure 20. Installation of charger on wall



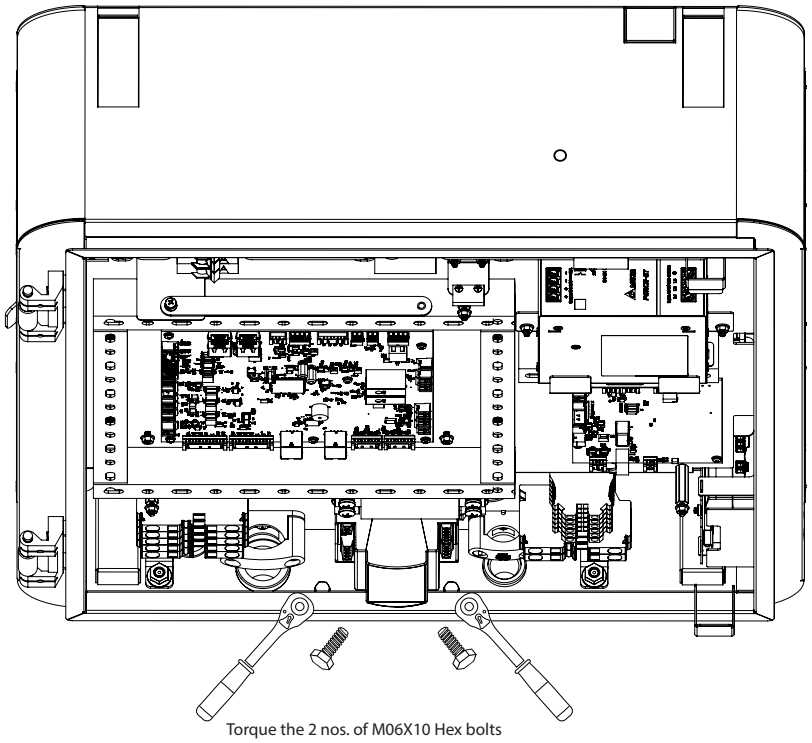
Tag	Description
1	Rear slot of Green motion DC30 EV charger
2	Mounting backplate

Do not underestimate the weight of the unit. Check the technical specifications.

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

Step 4. Fasten the screws at bottom securely, thus fixing the unit against the backplate.

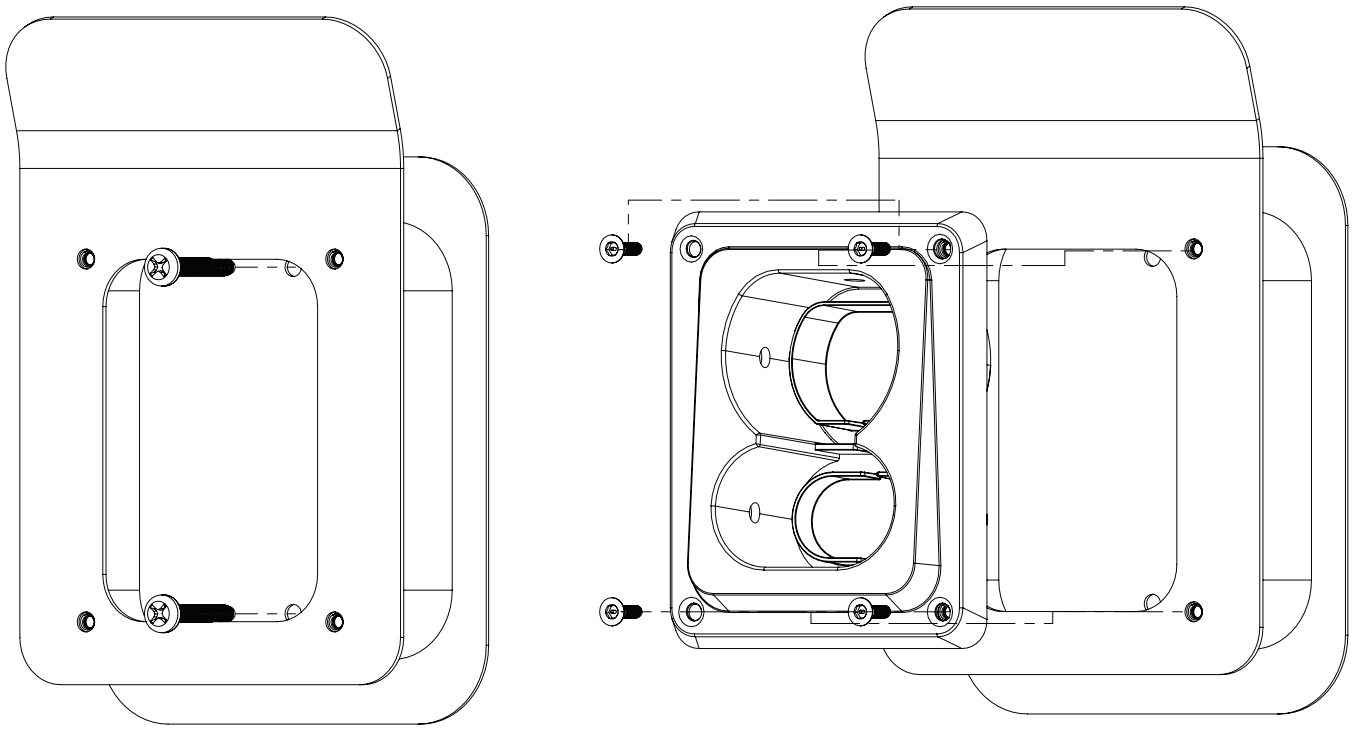
Figure 21. Securing unit to back plate



Once the EV charger is fixed onto the wall, mount the plug holder onto the wall at minimum 300 mm away from right side of charger and 800 mm to 950 mm from floor level.

Position the plug holder(s) very carefully, ensure that the water drain hole is located on the bottom side of the plug holder before fixing the plug holders to the wall bracket with screws. See Figure 22.

Figure 22. Securing the plug holder to the wall



5.2.3 Mounting the Green Motion DC 60 EV charger

When choosing the location of the EV charger, consider 300 mm of free space from the right side of the unit to allow for adequate air circulation. Keep at least 1000 mm of free space from the left side of the unit to allow space for the rack-in/rack-out out power module.

Step 1. Lift the Green Motion DC 60 EV charger with forklift or overhead crane.

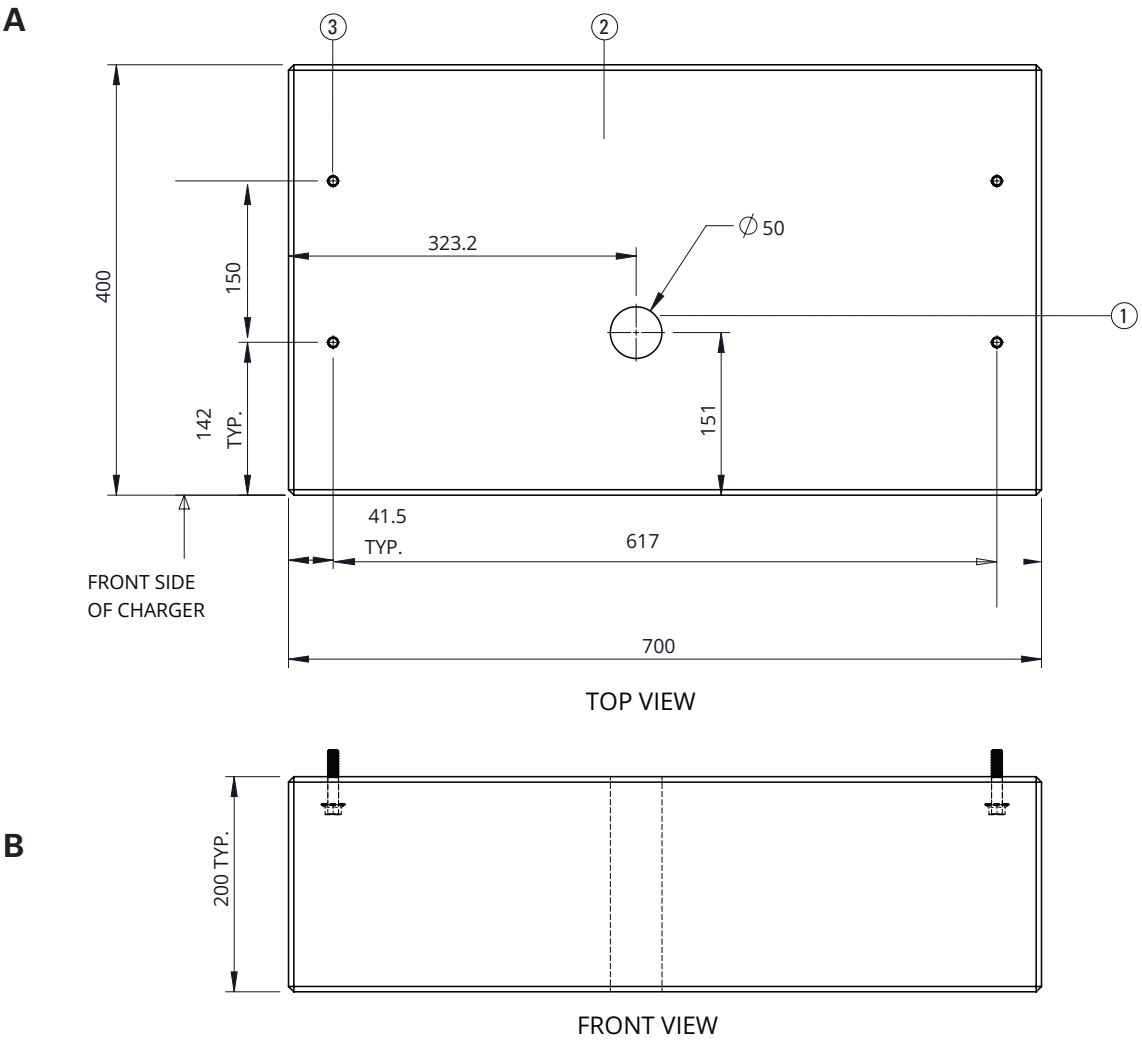
Step 2. Align the position of threaded rods on the concrete base with mounting holes on the charger.

Step 3. Insert the input utility cable from concrete base inside the Green Motion DC60 EV charger from botton gland plate hole.

Step 4. Slowly lower done the Green Motion DC60 EV charger until all the mounting holes are aligned and Green Motion DC60 EV charger rests on the concrete base. Guide and observe the input utility cable to prevent damage to insulation.

Step 5. Fix the Green Motion DC60 EV charger by securing 4 x M10 Nuts on the threaded rods on an 700 mm x 400 mm x 200 mm concrete base.

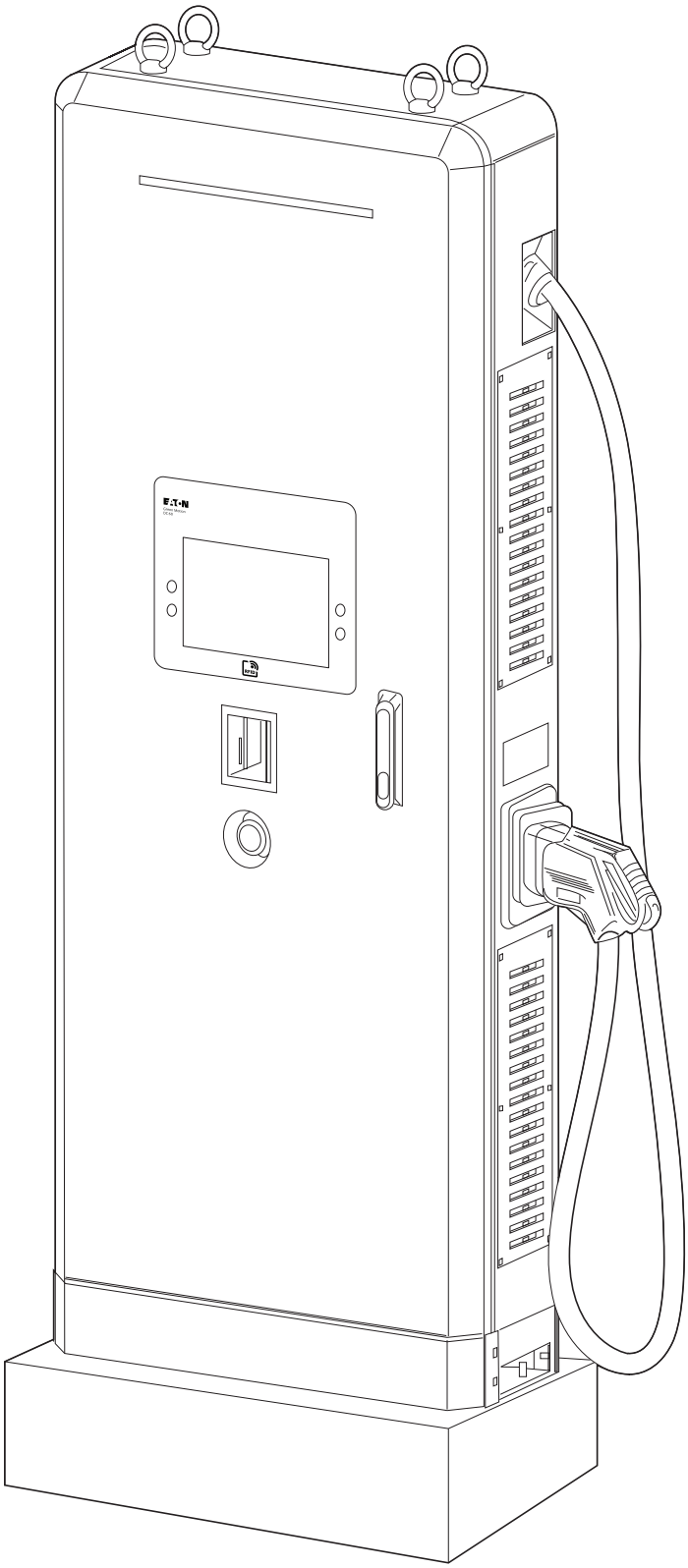
Figure 23. The top and front views of the concrete base of the EV charger with dimensions in mm



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

See a schematic representation of the Green Motion DC 60 EV charger mounted on a concrete base in Figure 24.

Figure 24. View of the EV charger mounted on a concrete base



Concrete base is typically part ground foundation & top face of concrete base is at floor level.

6. Electrical connections and wiring

6.1 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.

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.

Opening of the product by unqualified personnel is strictly prohibited.

For safety reasons, an appropriately rated input load disconnector 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 disconnector.

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 that requires opening the EV 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 consult Table 6 and consider the following guidelines.

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

	Green Motion DC 30	Green Motion DC 60
Maximum output power	30 kW	60 kW
Nominal input voltage	400 V AC, 50/60 Hz	400 V AC, 50/60 Hz
Nominal input current	47 A	94 A
Power supply system	3 phase, 3 Wire (L1,L2,L3and PE)	3 phase, 3 Wire (L1,L2,L3and PE)
Power supply terminal max. section	25 mm^2	50 mm^2

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 lengths and cross-sections must be reassessed by professional and qualified personnel in accordance with maximum power loss regulations. 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.

DC 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.

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.

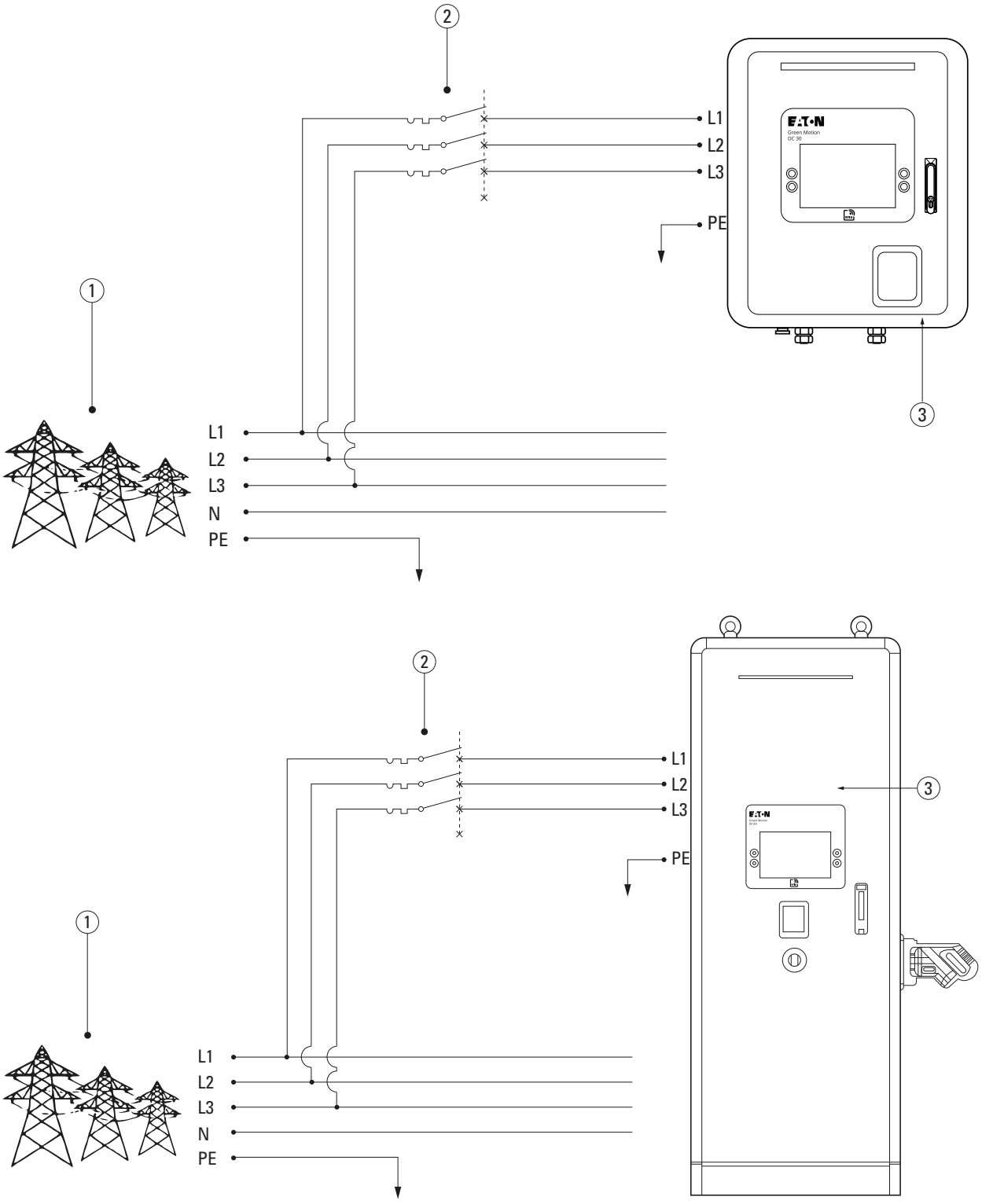
The circuit breakers and the power cable minimal cross-sections shall be over-dimensioned to ensure the functionality of the EV charger at higher temperatures.

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

When dimensioning the line circuit breaker, the increased ambient temperatures in the distribution 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 data on the nameplate and coordination with the desired charging power and the supply line.

Figure 25. Green Motion DC 30 and Green Motion DC 60 EV charger wiring

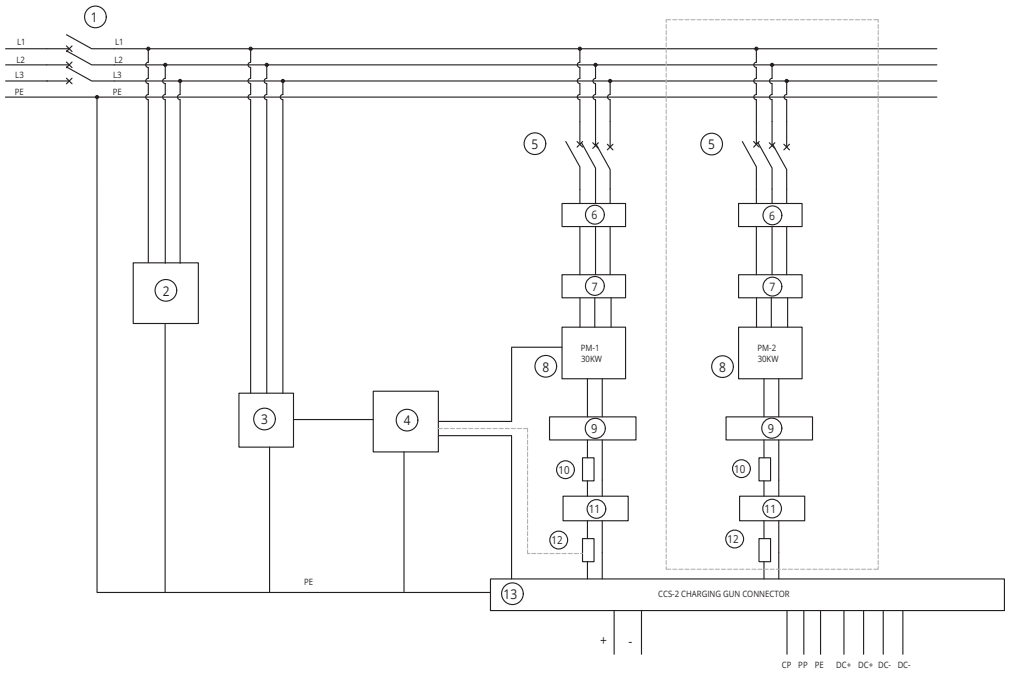


Tag	Description
1	Grid
2	Individual or branch circuit breaker
3	Green Motion DC 30/60 EV Charger

A detailed connection diagram of the Green Motion DC 30/60 EV charger in Figure 26 shows the main components, including the input switch, EMI filter, surge protection, power module, and the charging outputs. The Second 30 kV power module (PM) is only available in the Green Motion DC 60 EV charger version.

Figure 26. Detailed connection diagram of the EV charger,

Power schematic:



1. MCCB/MCB
2. SPD
3. PSU
4. AUXILLARY CONTROL
5. MCB
6. RCD
7. AC FILTER
8. POWER MODULE 30KW
9. DC-FILTER
10. DC-FUSE
11. DC-CONTACTOR
12. CURRENT SENSING
13. CCS-2 CHARGE GUN CONNECTOR

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

Table 7. Recommended protective devices for the Green Motion DC 30/60 EV chargers

30 KW DC CHARGER		
TYPE	**Manufacturer**	**ARTICLE NUMBER**
80 Amp 3 Pole MCB, PLHT-C80/3	Eaton	248039

60 KW DC CHARGER		
TYPE	**MAKE**	**ARTICLE NUMBER**
3 P Pole MCCB (160 A, 415 V, 50 KA,LSIG (Note-Set MCCB to max. current rating)	Eaton	"BZMX1N-3-EX160 Ordering No-CCX00367G"

6.3 Electrical connection and terminals

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

It is not possible to install the EV charger in an IT grid (we have design compatible for 3 Phase IT grid system).

6.3.1 Electrical connection Green motion DC 30 EV Charger

Follow the next steps to connect the Green Motion DC 30 EV Charger to the power supply:

Step 1. Remove outer insulation on cable (4 core or 5 core) by minimum 120 mm. Cut the phase, neutral and PE cable wire as per length shown below. Use 16 sq. mm/25 sq. mm Pin type lugs for phase and neutral wires. Use of 16 sq. mm to 25 sq. mm ring type for the PE cable.

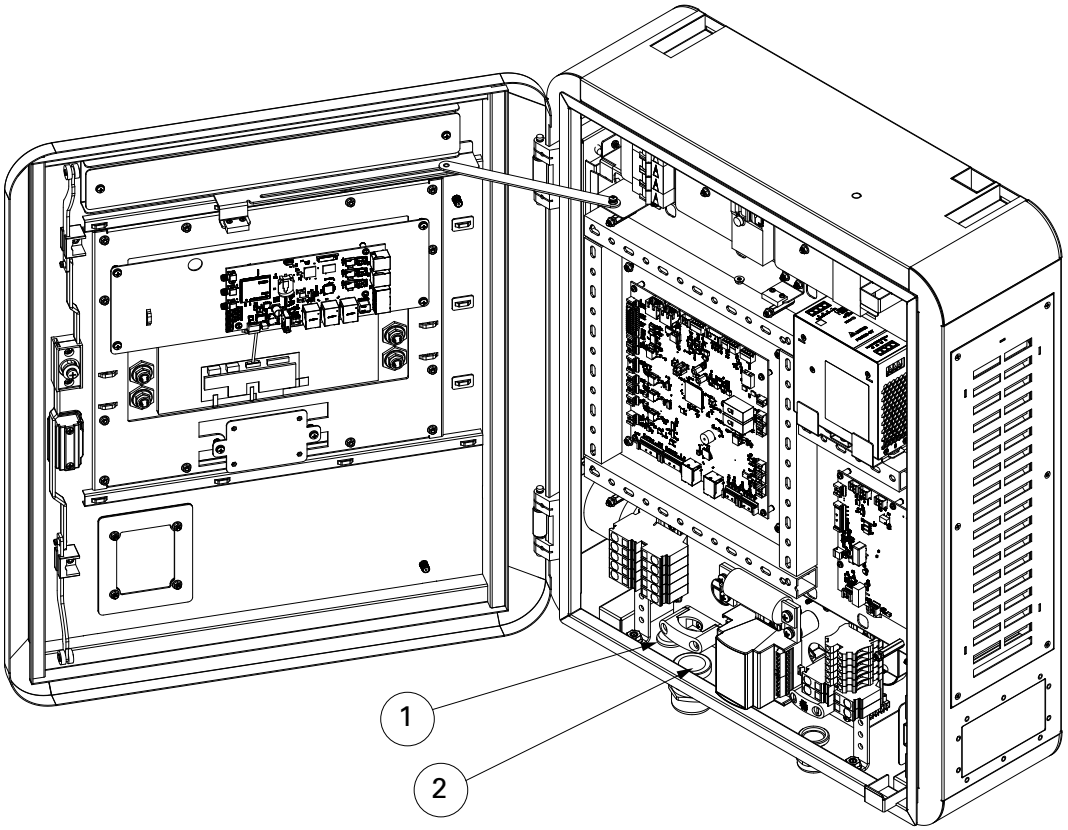
Table 8. Utility cable wire length for incoming cable of Green Motion DC 30 EV chargers

Phase (L1)	→	80 mm
Phase (L2)	→	90 mm
Phase (L3)	→	100 mm
Neutral (N)	→	110 mm
Protective earth (PE)	→	120 mm

Step 2. Open the front door of the EV charger. Use key to open front door of the Green Motion DC 30 EV charger.

Step 3. Insert AC power supply cables into the unit through the cable gland. (see Figure 27). The cable entries for power and communication cables are from the bottom-left side of the EV charger.

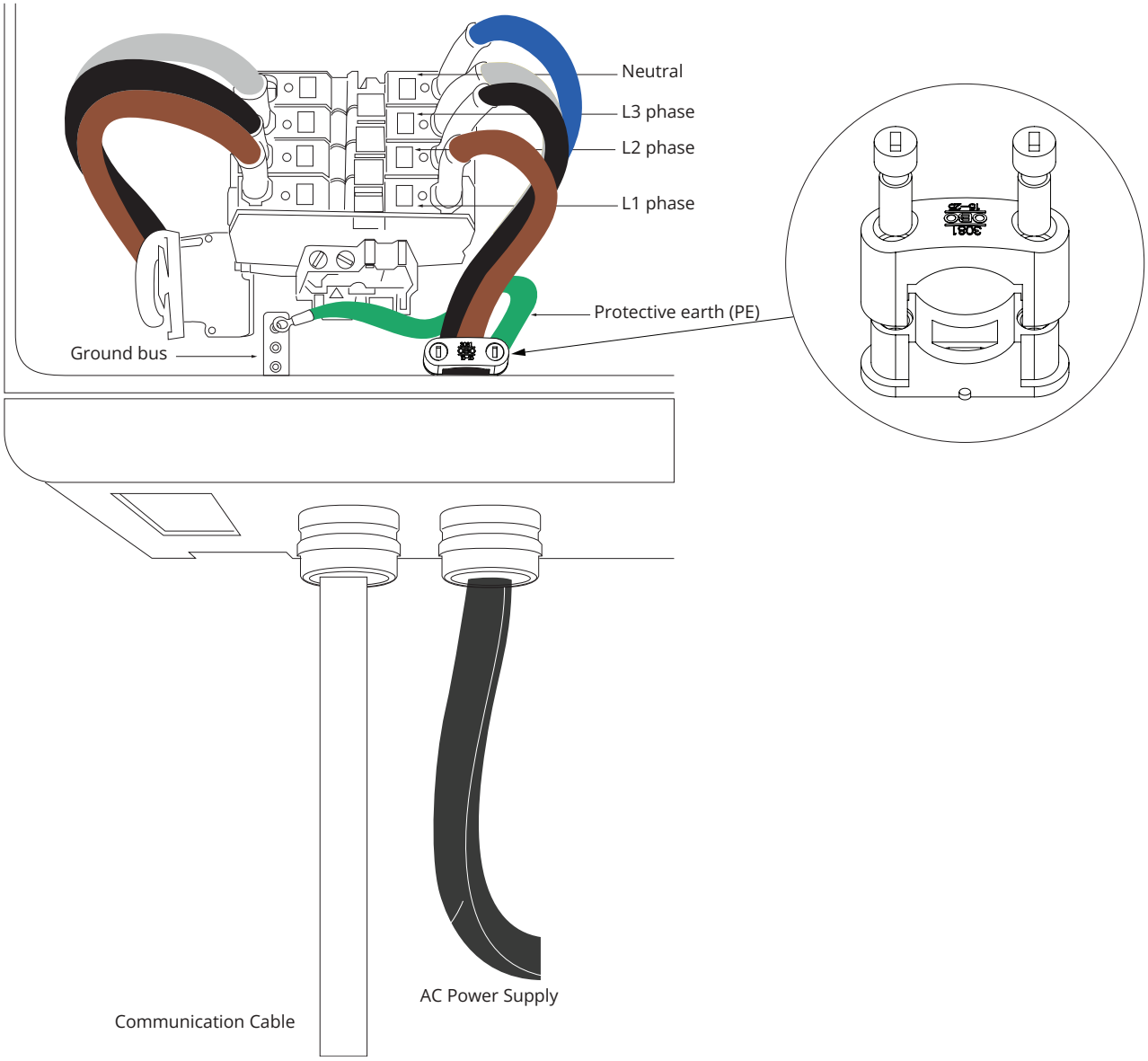
Figure 27. Locations of the AC power supply and communication cable entries inside the Green Motion DC 30 EV charger



Tag	Description
1	Communication cable
2	AC utility power supply

Step 4. Secure AC input cable to enclosure by cable pressure clip. Loose the screws of the cable pressure clip. Pass cable through the cable pressure clip. Fasten the screws of the cable pressure clip.

Figure 28. Secure AC input cable to DC30 enclosure by cable pressure clip



Step 5. The electrical connection is made directly to the terminal block (Figure 30), located at the bottom left of the EV charger.

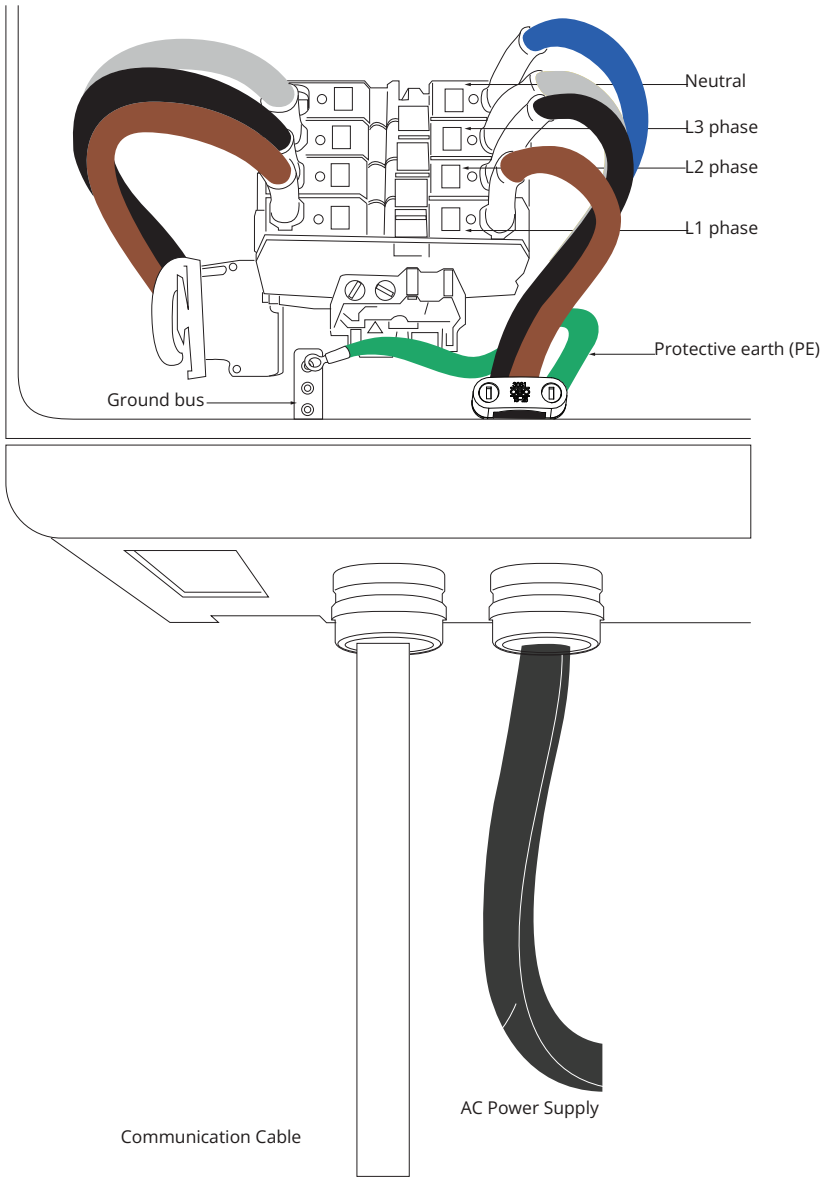
Follow the instructions below to wire the EV charger to the power supply.

Connect the three phases (L1, L2, L3), neutral (N)(Optional) cables to the terminal block respecting the correct assignment. Connect the earth (PE) to ground busbar.

Table 9. Cable Termination for Green Motion DC 30 EV chargers

Phase (L1)	→	L1 terminal
Phase (L2)	→	L2 terminal
Phase (L3)	→	L3 terminal
Neutral (N)	→	N terminal ---------- Optional, In case neutral is available
Protective earth (PE)	→	PE bolted joint

Figure 29. AC power supply connection inside the Green Motion DC 30 EV charger



Be careful not to reverse the phases with the neutral. If this happens, the system might malfunction.

6.3.2 Electrical connection Green motion DC 60 EV Charger

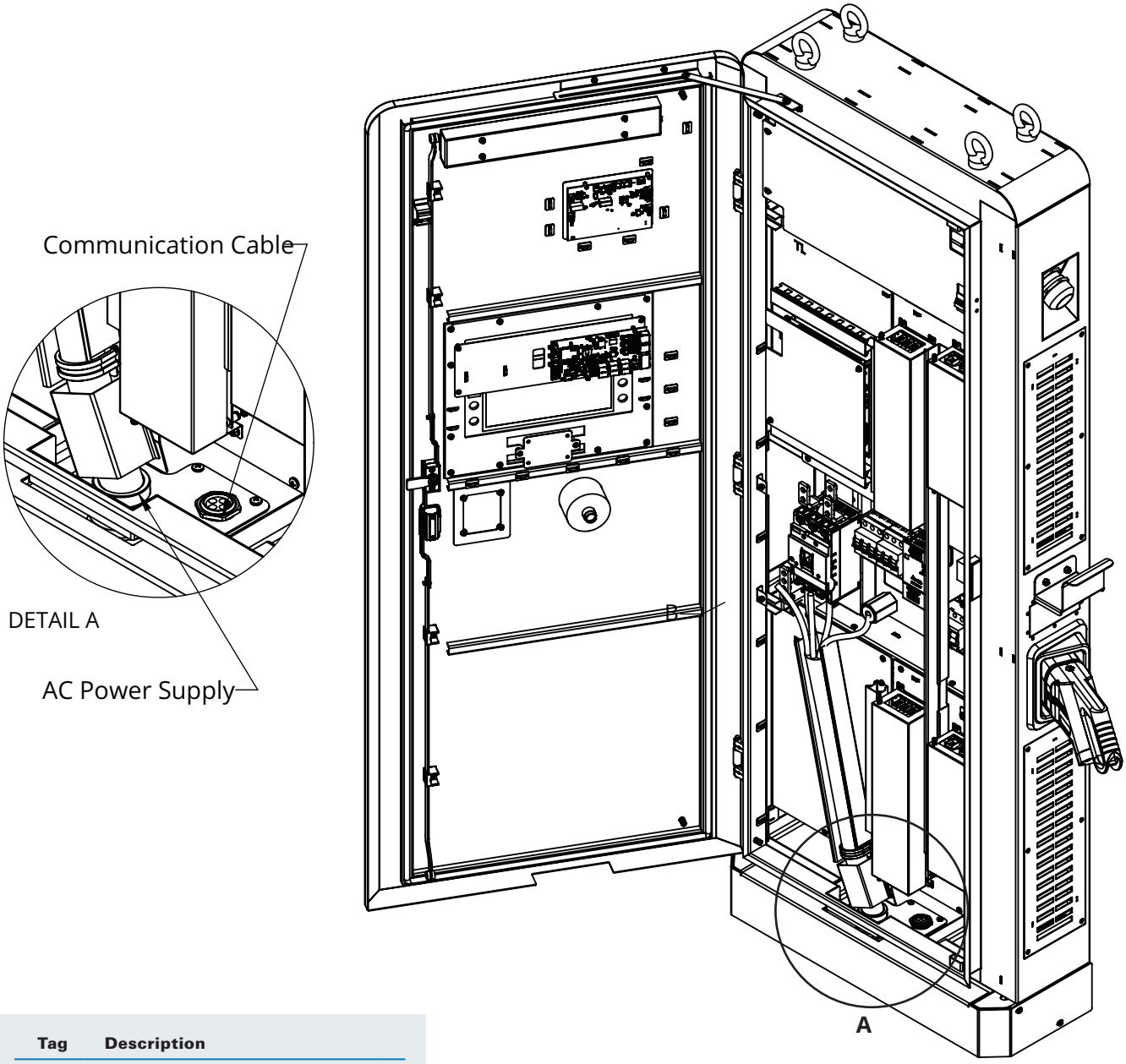
Follow the next steps to connect the Green Motion DC 60 EV Charger to the power supply:

Step 1. Remove outer insulation on cable (4 core or 5 core) by minimum 250mm.Cut the phase, neutral and PE cable wire as per length shown below. Use 50 sq. mm ring type lug for phase wires and neutral wires.
Use of 50 sq. mm to 70 sq. mm ring type for PE cable.

Phase (L1)	→	170 mm
Phase (L2)	→	180 mm
Phase (L3)	→	190 mm
Neutral (N)	→	200 mm
Protective earth (PE)	→	230 mm

Step 2. Insert the AC GRID cables into the unit by following the procedure mention in the mounting section 4.4 The openings for the AC GRID cables and the communication cable are located on the bottom-left side of the EV charger. Refer Figure 30.

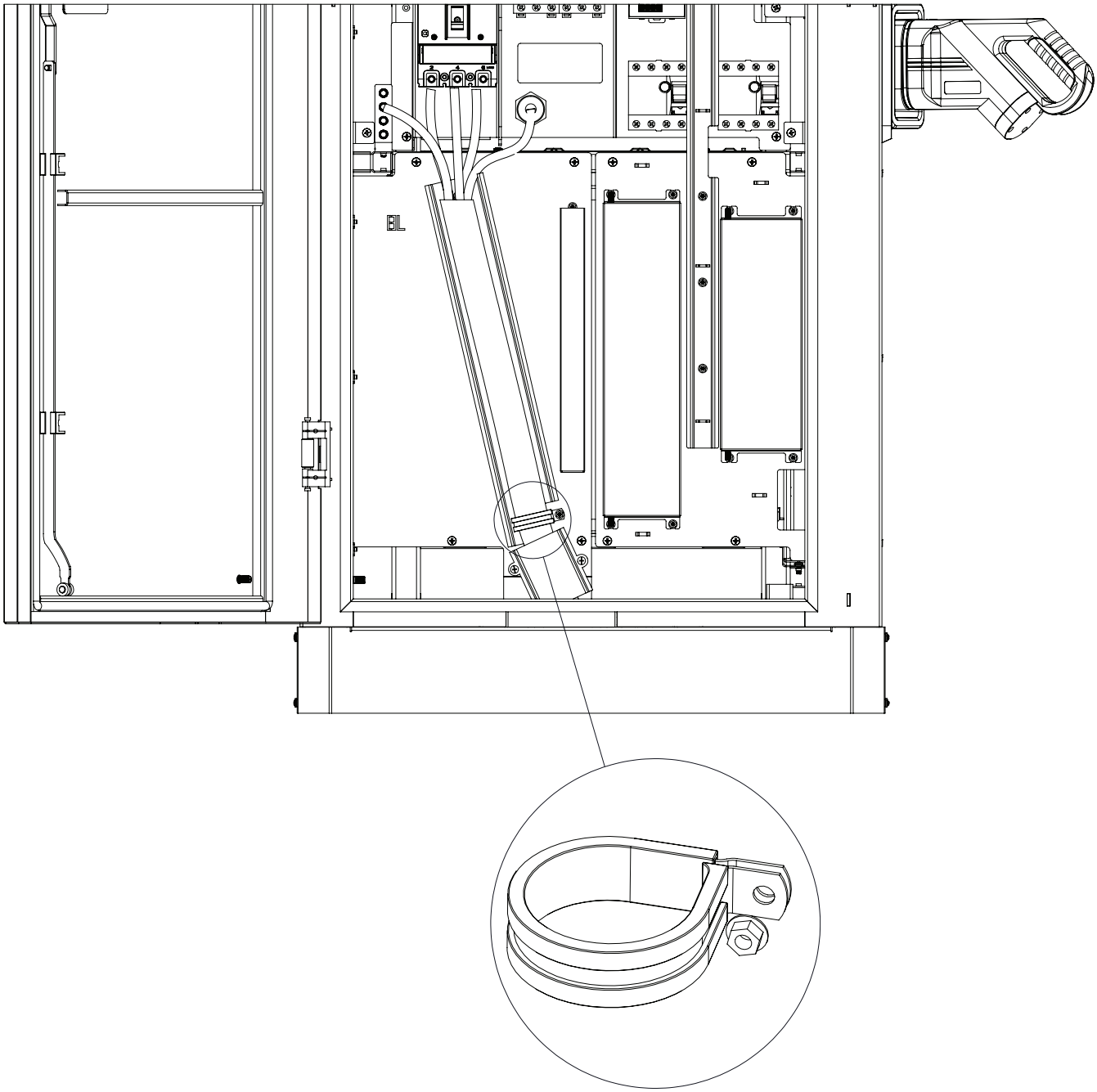
Figure 30. Location of the openings for the AC GRID and communication cables inside the Green Motion DC 60 EV Charger



Tag	Description
①	Communication cable
②	AC utility power supply

Step 4. Secure AC input cable to enclosure by cable cleat. Loose the screws of the cable cleat. Pass cable through the cable cleat. Fasten the screws of cable cleat.

Figure 31. Secure AC input cable to DC60 enclosure by cable cleat



Step 5. The electrical connection is made at the main switch terminals located in the middle left of the charger (see Figure 32). Optional neutral wire connection is made at insulation support provided. Route the power cable through duct provided front left side as in Figure 32.

Follow the instructions below to wire the EV charger to the power supply.

Connect the three phases (L1, L2, L3) to main switch terminals, neutral (Optional) to the Insulator and earth (PE) cables to earth stud respecting the correct assignment

Connect the three phases (L1, L2, L3), neutral (N)(Optional) cables to the MCCB terminal and Insulating support respecting the correct assignment.

Phase (L1)	→	L1 Terminal
Phase (L2)	→	L2 Terminal
Phase (L3)	→	L3 Terminal
Neutral (N)	→	N terminal-------Optional, In case neutral is available
Protective earth (PE)	→	PE bolted join

Figure 32. AC GRID connection inside the Green Motion DC 60 EV charge

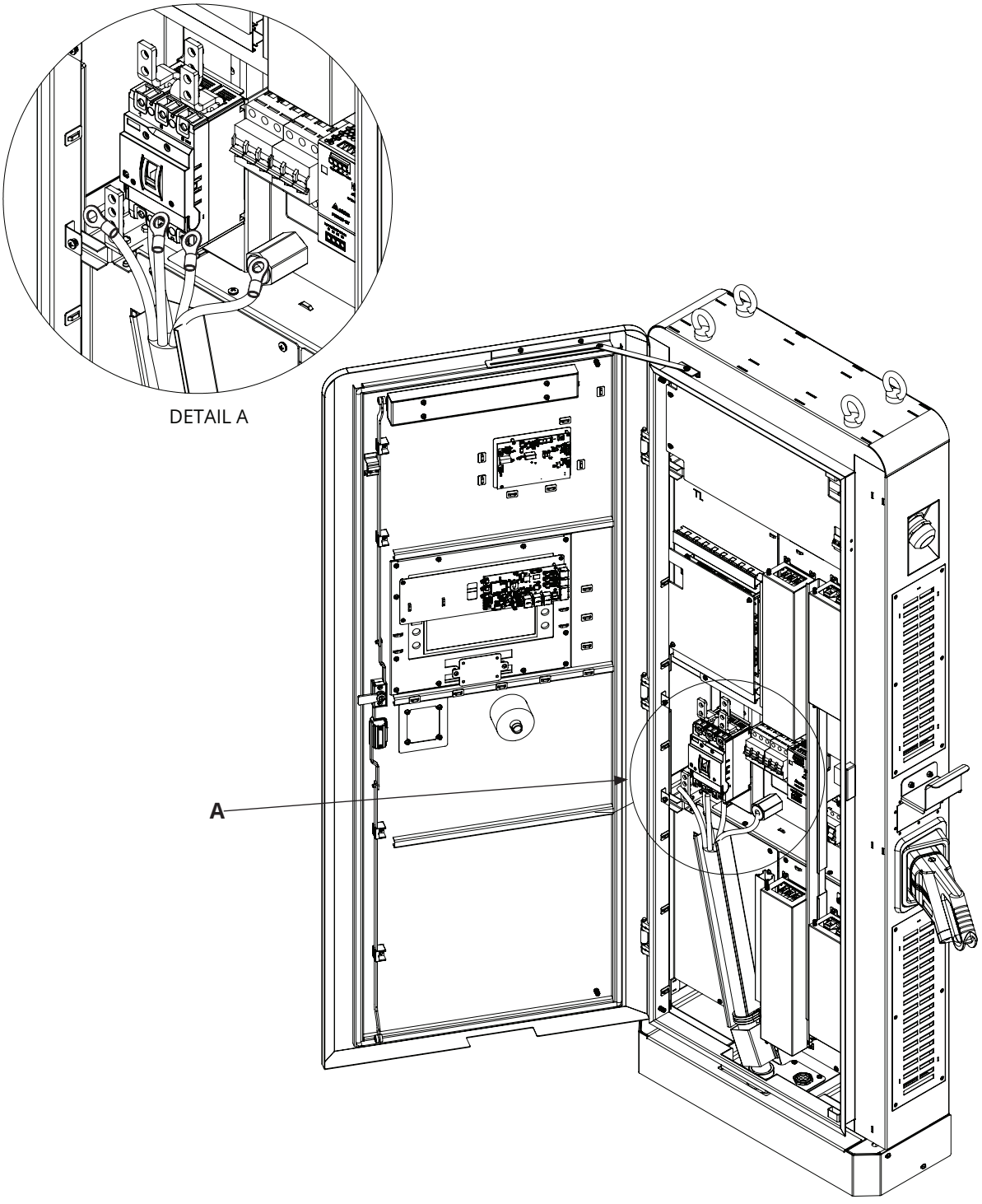
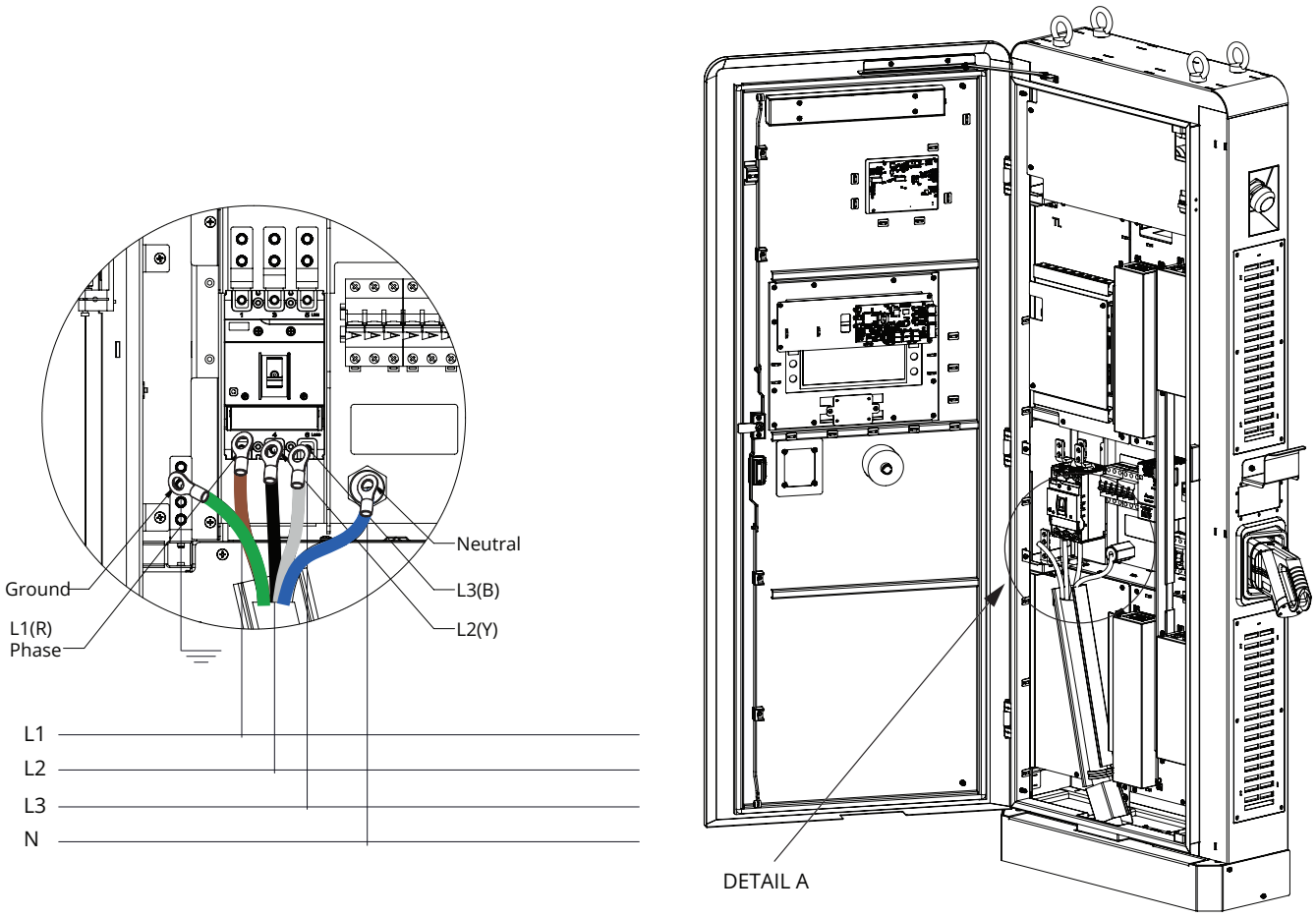


Figure 33. Connecting the EV charger to the AC GRID



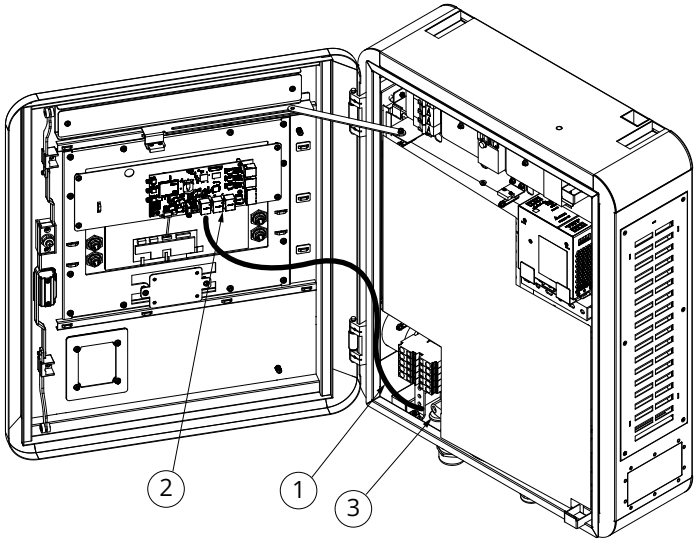
6.4 Communication cable connection

Communication cable connection is made at communication board (CSC) located on front door. Follow the instructions below to wire the communication cable to communication board (CSC)of EV charger.

Step 1. Insert the communication cable inside the charger from communication gland located at bottom as shown in Figure 27 and 30.

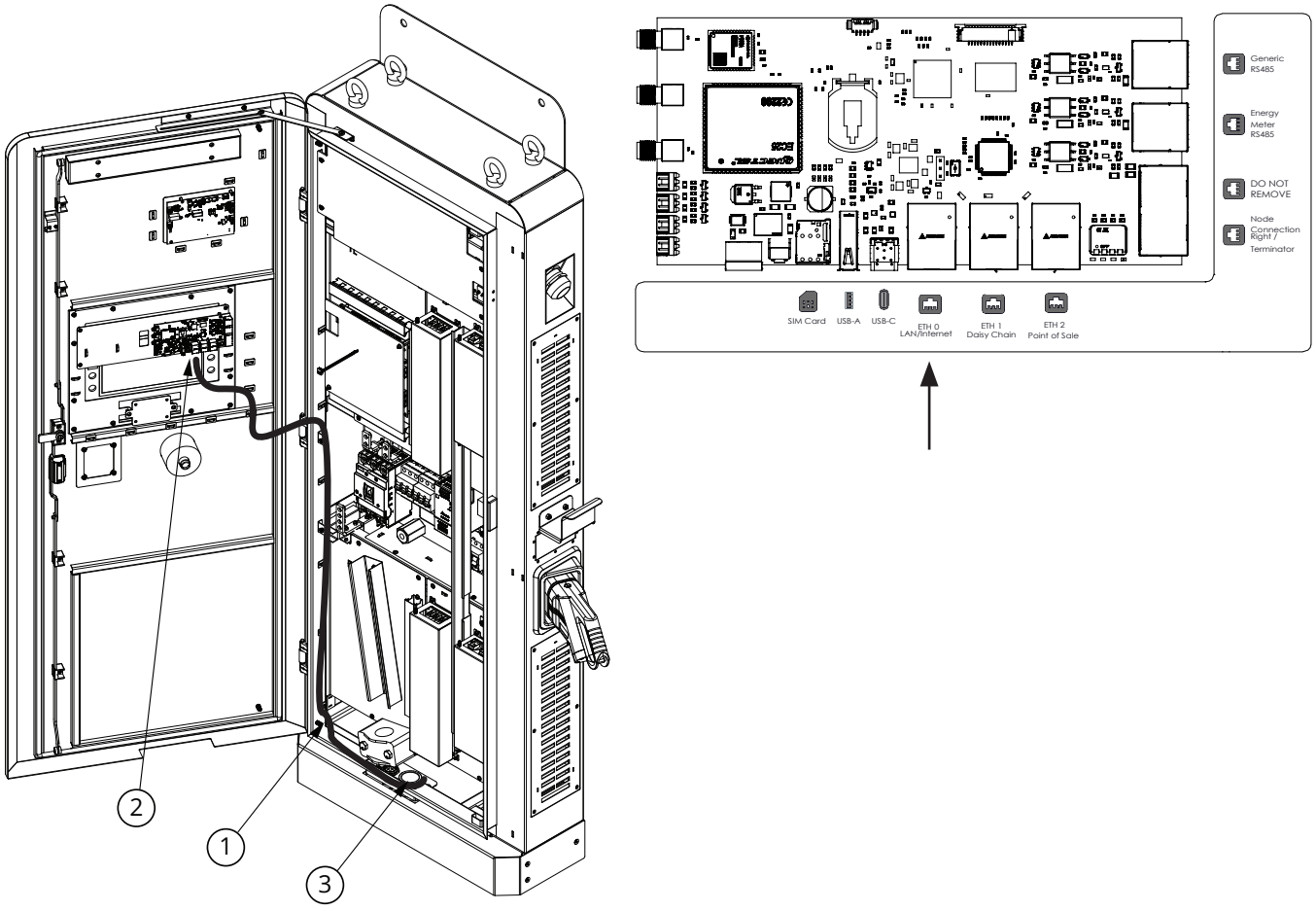
Step 2. Route the communication cable inside the charger as shown in the Figure 34 and 35.

Figure 34. Communication cable routing inside the Green Motion DC 30 EV charger



Tag	Description
1	Ethernet cable routing inside Green Motion DC 60 EV charger
2	Communication gateway
3	Ethernet cable entry

Figure 35. Communication cable routing inside the Green Motion DC 60 EV charger



Step 3. Crimp the RJ45 connector to communication cable if required. Plug the RJ45 connector to communication board (CSC) at position shown in Figure 35.

6.5 Earth connection (MANDATORY)

Check that the protective earth conductor from the supply network is properly connected to the earthing stud on charger frame, as shown on Figure 29 and 33.

Verify the electrical continuity between the front door and the EV charger housing. Check for continuity by measuring between areas not covered by insulating material (paint, rubber, dirt, etc.)

6.6 Remote shutoff DC

For remote shut-off of the EV charger, an external dry contact can be connected according to the schematic in Figure 36.

Figure 36. Connection of a dry contact to the Control unit (PCB) of the Green Motion DC 30/60 EV charger

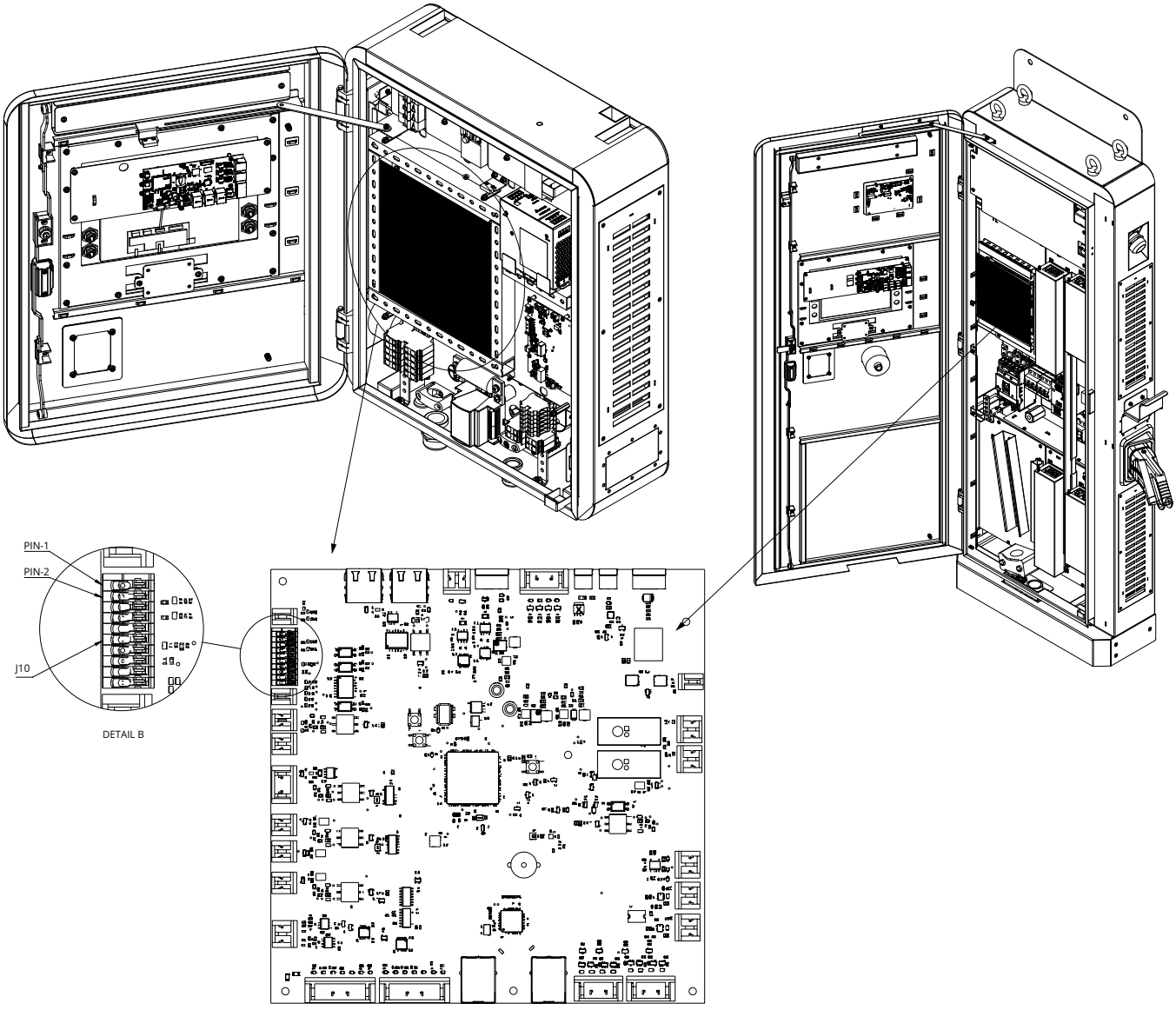


Table 10. Recommended wire size remote shut-off

	DC 30	DC 60
Maximum wire gauge in mm2	0.25 to 0.5	0.25 to 0.5
Maximum wire length in meter	0.75	1.5
Stripping length in mm	9	9

The dry contact should normally be in an open mode.

To connect your dry contact to the Green Motion DC 30/60 EV charger, follow these steps:

Step 1. Open front door of the Green Motion DC 30/60 EV charger.

Step 2. Access the Control unit.

Step 3. Locate the J10 connector as shown in Figure 36.

Step 4. Insert the external remote shutoff wires inside the charger from bottom communication cable gland. Refer Table 8 for wire details.

Step 5. Route wire along the left side wall of charger upto J10 connector of control unit.

Step 6. Prepare the wire by stripping cable insulation and tinning the wire.

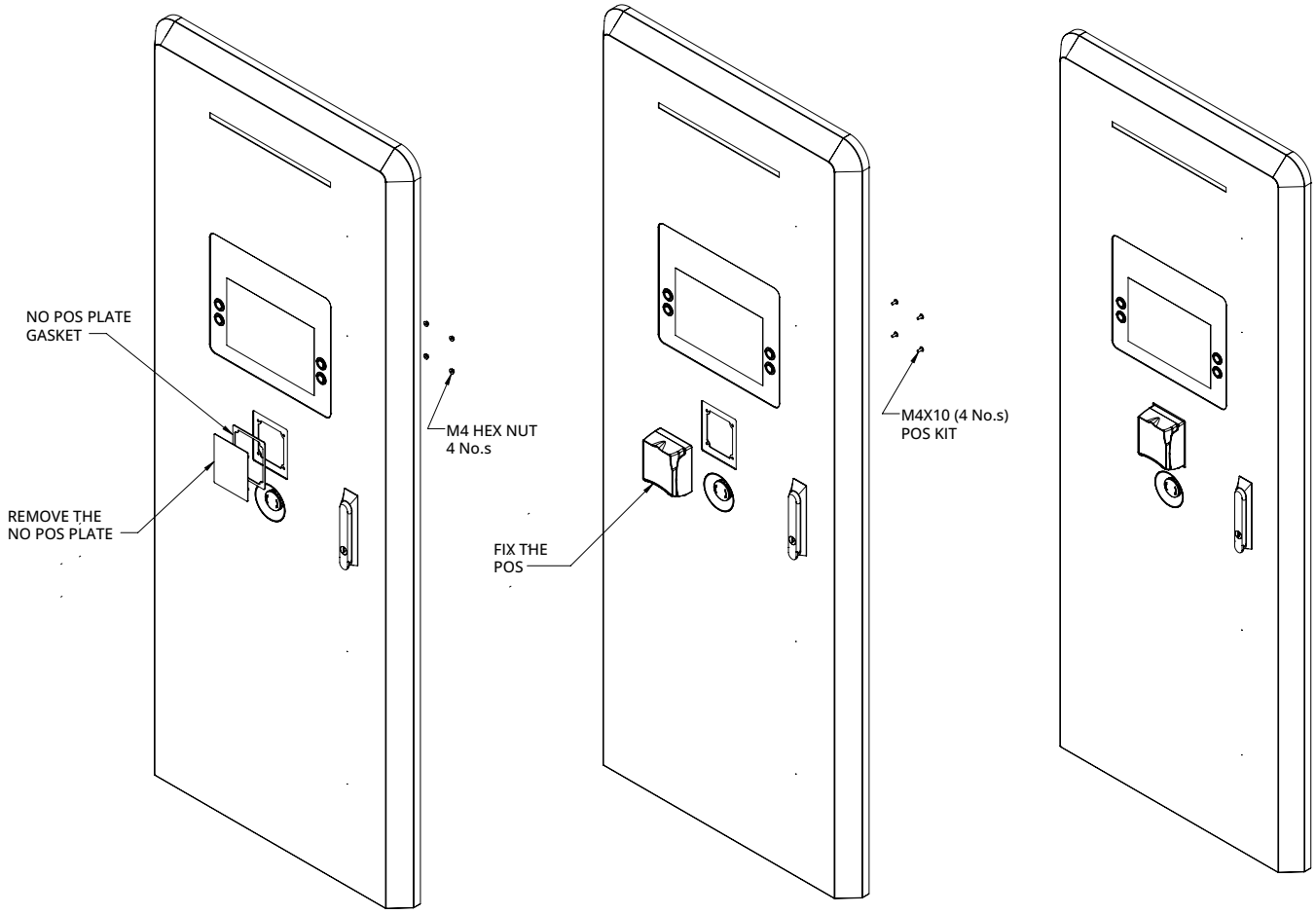
Step 7. Plug in the wires at pin number 1 and 2 of J10 connector by pressing the Push-in spring connection

6.7 PoS Device installation at site

Follow below steps for Payter or Nayax make PoS device installation at site.

1. Remove the NO PoS Plate & gasket by removing 4 nos. of nuts located at the rear side of front door. Refer attached Figure.
2. PoS device comes with its own gasket & fasteners provided by manufacturer. Place the PoS & gasket at front door slot. Secure 4 nos. of screws.
3. Connect the ethernet cable & power supply cables to PoS device. Ethernet cable & power supply cables are factory fitted & placed near rear side of NO PoS plate.

Figure 37. PoS device installation



6.8 Indicators and User interfaces

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

- LED indicator
- Color display and push buttons
- Emergency stop button

6.8.1 LED indicator

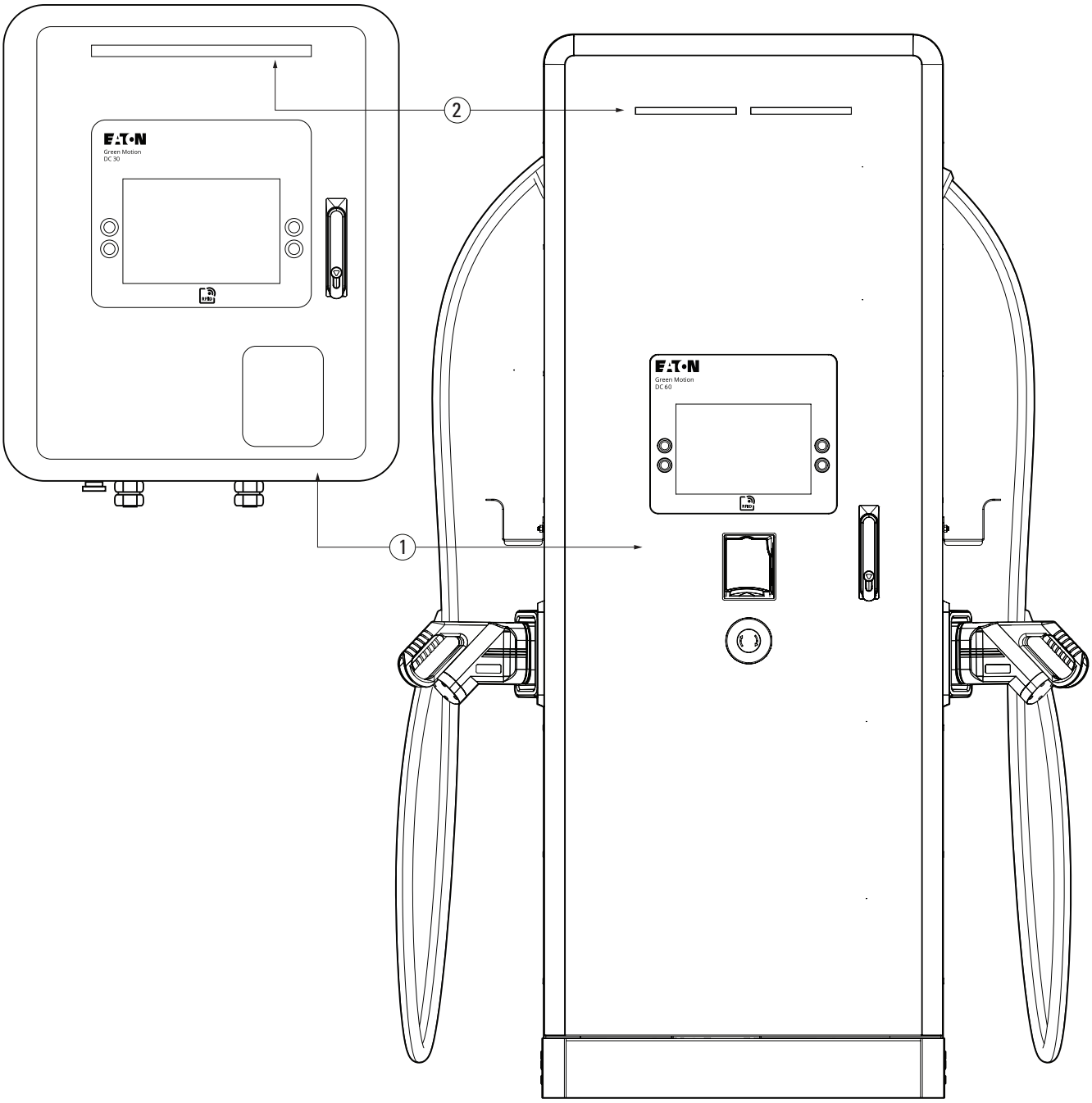
The EV charger is equipped with a LED indicator located on the front door (See Figure 1 and 6). Table 11 summarizes all possible LED indicators that may occur during the operation.

Table 11. LED indicator of the Green Motion DC 30/60 EV charger

	State Boot	Animation Progress	Color
	Ready	Static	Green
	Waiting for authentication	Pulse	Green
	Authentication success	No Animation, Only beep sound	White
	Authentication error	Flash 3 times	Red
	Charging	progress	Blue
		progress with battery percentage representation	
	Charging paused	Static	Blue
	Error (General, the station is not usable)	Static	Red
	Firmware update	Pulse	Orange
	Boot	Progress	Green
	Under test	Static	Orange

During the charging process, the LED indicator also shows the state of charge of the vehicle, as per Figure 38.

Figure 38. LED indicator of the state of charge

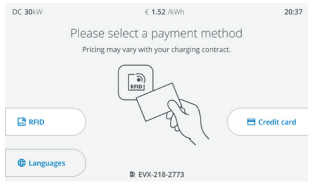
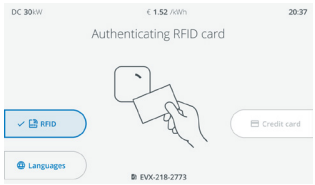
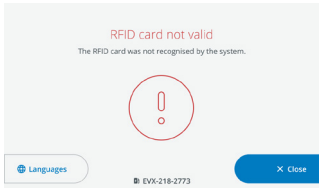
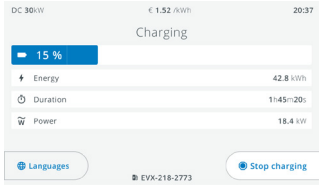


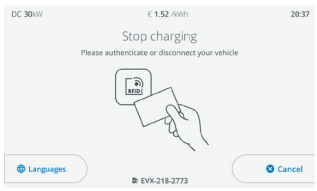
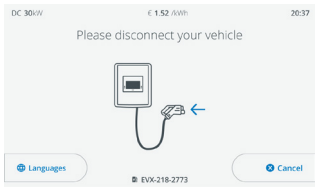
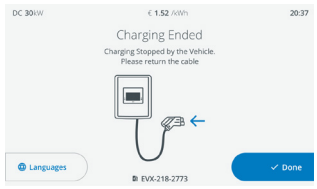
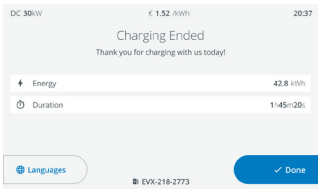
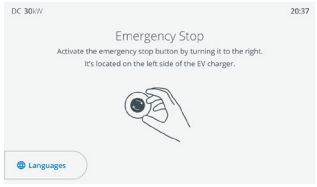
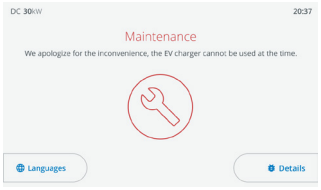
Tag	Description
1	Green Motion DC 30/60 EV charger
2	Status LED

6.8.2 Color display

Green Motion DC 30/60 EV charger is equipped with a color non-touchscreen display located on the front door. Table 12 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 12. Examples of information available from the color touchscreen display

Display	Description
	Display screen . Press any button to wake up.
	Select language. Choose any language by pressing the button.
	Present the RFID badge on the RFID reader to initiate authentication.
	Authentication screen.
	Authentication failed due to RFID card not recognized.
	Connect the vehicle. Authentication is successfully. Please connect the vehicle.
	Vehicle connected. Communcation established successfully between Vehicle and charger. Please wait to start the charging.
	State of charge of the vehicle.

	Stop charging.
	Disconnect the Vehicle. Once charging session completed, remove the charging gun from vehicle.
	Charging ended. Charging stopped by vehicle, remove charging gun from vehicle and return cable.
	Charging summary. Amount energy transfer and duration of charging session.
	After checking that there is no more risk, release the emergency stop button located on the bottom left side for DC30 and on front door for DC60.
	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.

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.

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 unit is correctly fixed to the wall or floor-mount in accordance with local regulations.

Step 2. Check that the electrical connections have been made correctly in accordance with local regulations.

Step 3. Check that the protective earth connection (MANDATORY) has been made correctly in accordance with local regulations. Note: check that all MCB and RCD are correctly turn ON (as in quickstart guide)

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 front door is closed and secured with the cam lock.

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

Step 1. Close the external AC mains isolator switch and/or turn on the main circuit breaker.

Step 2. Wait for the display to turn on.

Step 3. Enable Wi-Fi on your phone (PC or tablet).

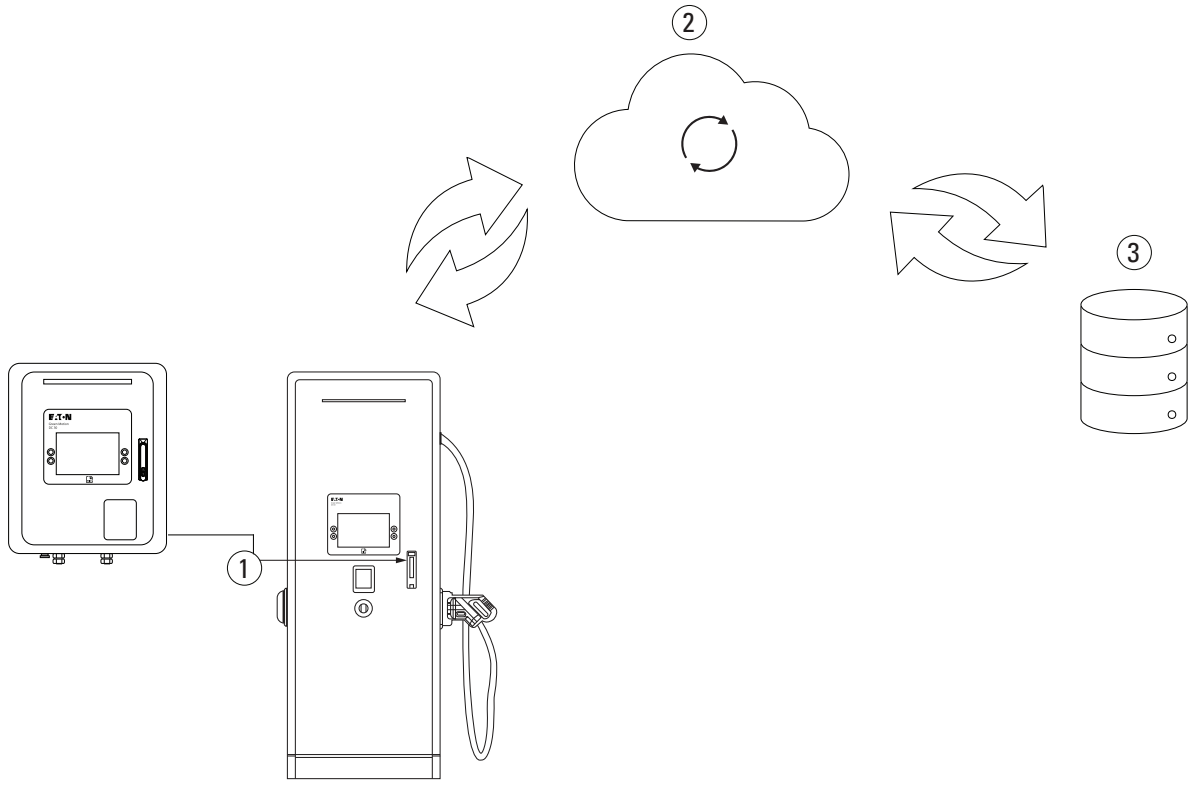
Step 4. Scan the QR code (or retype the SSID/Passphrase) and connect to the Wi-Fi network which is provided by the charger. Then landing page shall appear automatically in the open browser. If not, please open your web browser and type any web address e.g. www.eaton.com

Step 5. The welcome commissioning screen of the charger should display.

7.2 Online station

The Green Motion DC 30/60 DC EV charger communicates with the remote database via the cloud infrastructure.

Figure 39. Simplified illustration of the EV charger communication



Tag	Description
1	Green Motion DC 30/60 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 directly connected to a local modem/router that provides internet connection
2. SIM card: in this case a SIM card must be installed and configure on the main control unit (CSC)

To configure the network the EV charger must be powered and in standby mode.

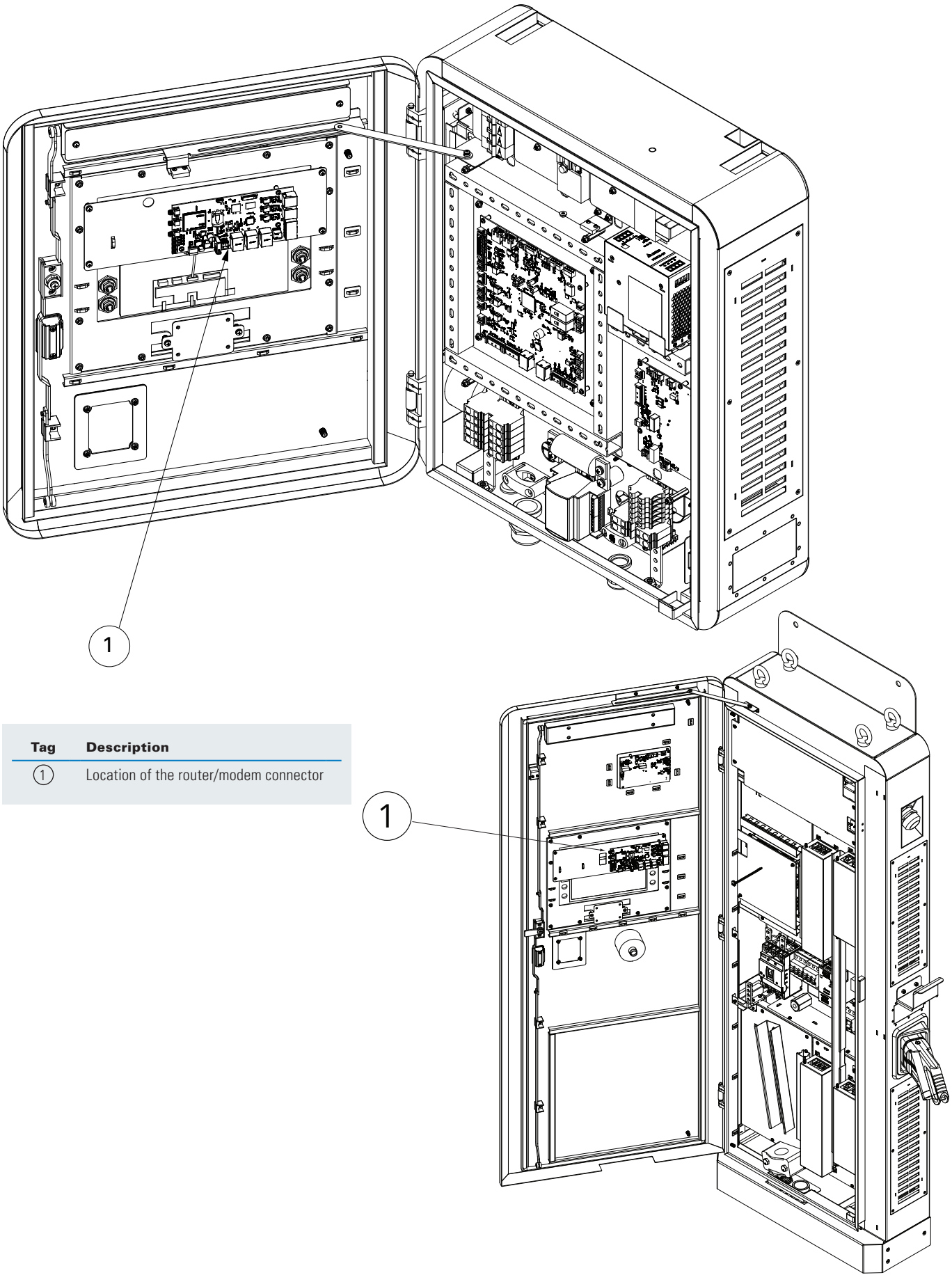
Commissioning and configuring of the network of the EV charger must be performed by professional and qualified personnel who are responsible for complying with existing standards and local installation regulations.

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

Please refer to Section 10.1 of this manual on how to open the Green Motion DC 30 EV charger housing.

It is possible to configure the network settings of the router (CSC) located inside the EV charger. The router (CSC) is located inside the EV charger and mounted on front door as shown in Figure 40.

Figure 40. Location of the router/modem in Green Motion DC 30/60 EV charger



Tag	Description
①	Location of the router/modem connector

7.3 How to start charging

To start the charging session, simply connect the appropriate charging cable to the electric vehicle socket. Hold the RFID card in front of the reader.

If the card is recognized, the LED starts flashing blue and then it shows the charge level (battery state of charge). Refer to the description in Section 6.8.1.

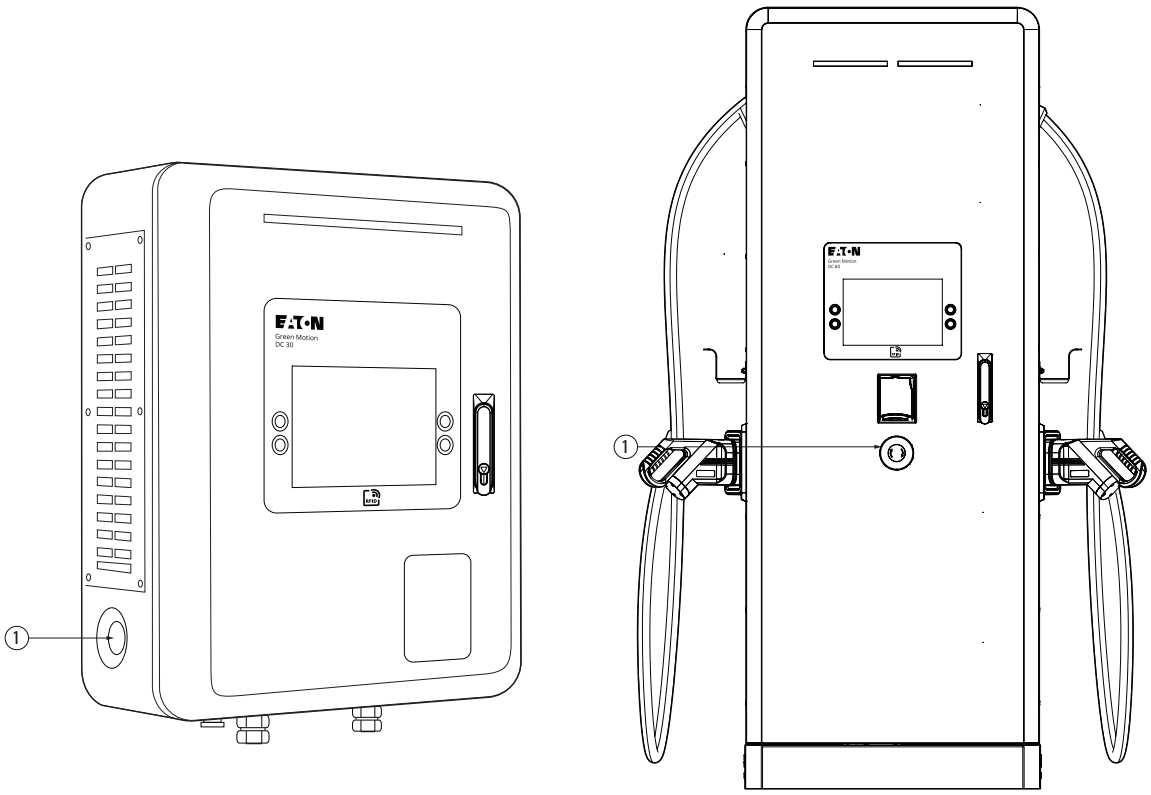
If the card is not authorized, the charging will not start and a red circle is displayed on the charging station status display. See Section 6.8.2.

If the charging cable is disconnected from the electric vehicle and there is no power consumption within two minutes, the user is automatically deauthenticated.

7.4 Emergency stop button

The emergency stop button is located on the left side of the Green Motion DC 30 EV charger and on front door for Green Motion DC 60 EV charger, as per Figure 41. Push the button in case of emergency.

Figure 41. Location of the emergency stop button



Tag	Description
1	Emergency stop button

7.5 Create the EV Charging Network (connecting multiple DC30/60 together)

When installation is consisting multiple DC30/60 those could:

- Work completely independently.
  - Each charger might be not visible for another and maintain its own internet connectivity.
  - Autonomous Local Load balancing is possible only in the scope of each cluster separately (one charger and its nodes)
  - Load balancing of multiple chargers can be achieved only by the central system (CSMS or BEMS, using OCPP smart charging profiles)
- Be interconnected and act as bigger unit – EV charging Network:
  - sharing the internet connectivity (e.g., all using the same 4G modem/SIM and save communication costs)
  - sharing the power distribution in local Load balancing scenarios
  - for this scenario the important is that all chargers will see each other on the same LAN segment or interconnected directly by daisy chain.

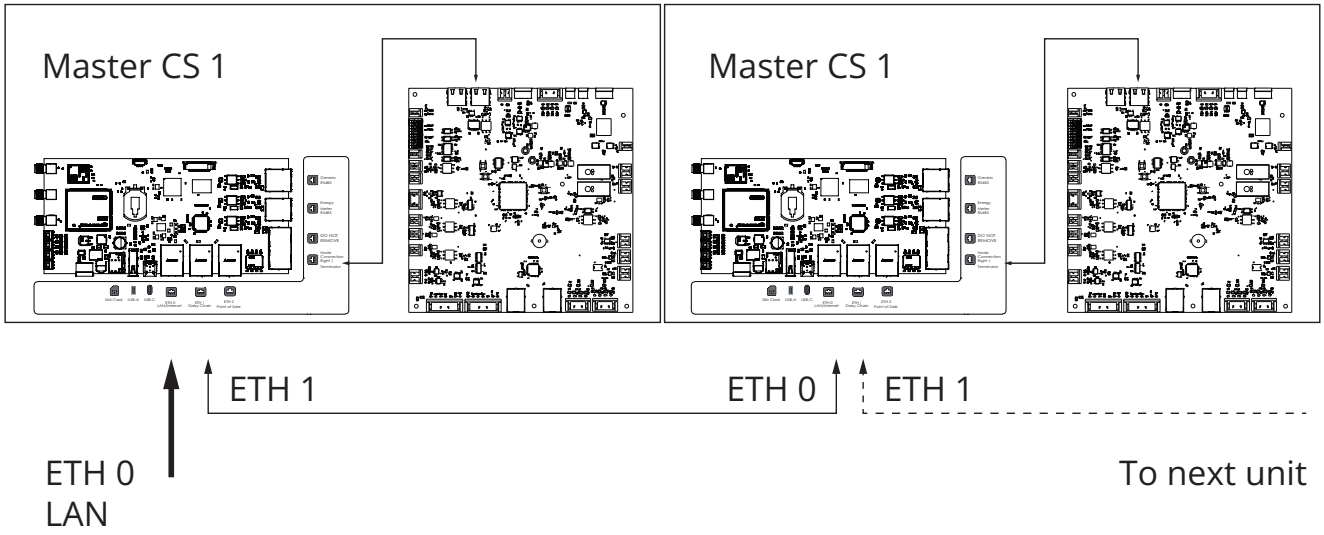
Rest of this chapter is describing the interconnected charger scenario.

Inter charger communication is based on the TCP/IP protocol and could be achieved by following:

1. **Star Ethernet**
   Each charger is connected directly to the local ethernet switch by its own dedicated ethernet CAT5/6 cable connected to the ETH0 port of CSC, typically receives the IP address by DHCP in the LAN.
2. **Daisy Chain Ethernet**
   All charger chargers are interconnected by ethernet cables between themselves.
   Recommended connection: ETH0 port of the next charger is connected to ETH1 port of the previous charger.

   This effectively can save a significant cabling costs/effort. Cons might be a slightly reduced reliability of the network (once the first charger breaks, the following chargers might lose the connectivity)

Figure 42. ETH Daisy Chain



3. **WIFI**
   Similarly, to the Star Ethernet configuration, it this scenario, each charger connects to the same WIFI access point available in the installation location. No network cabling is needed.

Note: NOTE: at the current version the DC30/60 is not supporting the WIFI interconnectivity between chargers (e.g. WIFI daisy chain or mesh).

Note: NOTE: Star/Daisy Chain and even WIFI connections can be combined in one location see chapter 5.4

7.6 Connection to the building/installation energy meter

Building energy meter (EM) can be connected to the GM DC30/60 to perform the Dynamic load balancing via:

- Modbus TCP
- Modbus RTU (RS485)

The SW commissioning and testing of the EM data reading is described in the Load Balancing setup chapter (9.4)

Energy meter connected Modbus TCP

Prerequisites, Energy meter must be:

1. in the supported EM list,
2. installed in the building/location power distribution,
3. must be on the same TCP/IP network segment - reachable via the local network (LAN/Wifi) by the GM DC30/60,
4. Its IP address of the EM needs to be known.

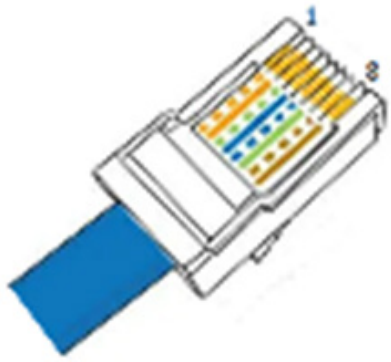
No specific physical installation steps needed to connect the energy meter on TCP/IP to charger.

Energy meter connected via Modbus RTU (RS485)

Installation steps:

1. Preparation / crimping of the cable which will map the pins (+,-.GND) on the Energy meter to the relevant pins of the RJ45 connector of CSC.

Figure 43. RJ45 pins of the CSC for the energy meter on RTU



2. Consult with documentation of the Energy meter or use table below for mapping of the supported models of the Energy meters):

Table 13. Physical connections of the energy meter RS485 Pins

Physical connections of the Energy Meter RS485 pins	A(-)	B(+)	Ground
Eaton charger CSC RJ45	5	4	8
Energy meters pins:			
Eaton EM20 M/MH	19	21	23
Eaton EMi3P-Y2C0	15	16	17
Eastron SDM120CTM	9	10	8
Eastron SDM630MCT	14	13	12
Temco SPM1	3	4	-
Carlo Gavazzi EM112	5	4	6
Carlo Gavazzi EM330	12	11	13
Carlo Gavazzi EM340	12	11	13

3. Connect the Energy meter with charger CSC port “Energy Meter RS485” by prepared cable.

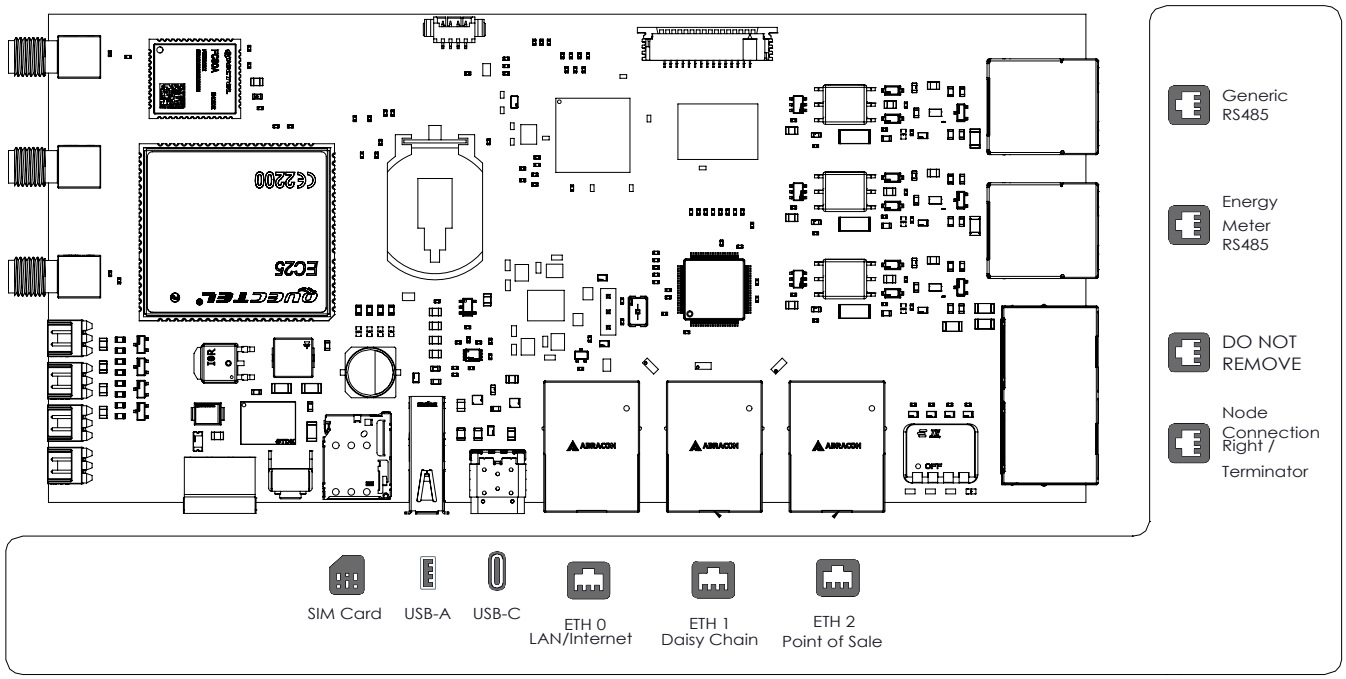
8. Internet connectivity

The CSC (PCBA board) is the main communication device for DC30/60.

It is equipped by multiple networking interfaces which can be used to connect the charging cluster to the Internet and control backend system:

- Ethernet ports: ETH0, ETH1, ETH2 (10/100MB)
- WIFI (2.4 and 5GHz)
- Cat4 4G modem

Figure 44. CSC control unit in the GM DC30/60 Charger and its (network) interfaces.



8.1 Internet connection over Ethernet

GM DC30/60 CSC is equipped with three Ethernet ports (ETH0, ETH1, ETH2). The ports are located on the right side of the PCB boards.

- **ETH0** is used to the LAN/Internet source (local switch, router, modem…).
- **ETH1** is dedicated for the Daisy Chain connection of the next charger as described in chapter 4.9 to 8.4.
- **ETH2** is designated for the Point of Sale (POS) system. An ethernet cable is pre-connected during manufacturing to ease installation of the POS.

The installation step is just to plug the LAN/ethernet CAT5/6 cable from local network switch/hub/router into the ETH0 port.

Once the LAN contains a DHCP server, the charger will automatically obtain an IP address upon startup. Otherwise, the IP address needs to be set manually during software configuration.

8.2 Charger Internet connection over the local WIFI Access point

The GM DC30/60 charger is equipped by a WIFI modem capable to connect to the 2.4GHz and 5GHz networks with relevant antenna out the production.

There is no physical installation needed to make it work.

8.3 Charger Internet connection over 4G/cellular network

Each GM DC30/60 is equipped by the CAT4 4G/LTE modem for the WAN connectivity using the Mobile Network Operator networks (MNO).

The HW installation consists of inserting the relevant MNO SIM card during installation.

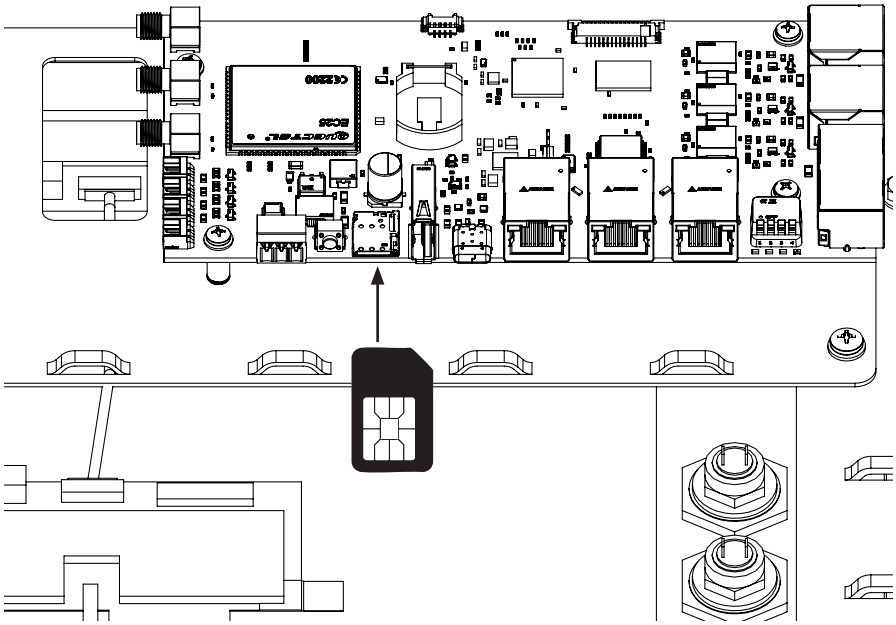
Step 1. Open the DC30/60

Step 2. Locate the sim card slot on the CSC board

Step 3. Insert the SIM card. Ensure it is not loosely fitted.

Step 4. Close the DC30/60. Power it.

Figure 45. SIM Card location



The SIM is in the Nano format (8.8x12.3mm) and should provide the following features:

- Universal integrated circuit card (UICC) pin support

Security measures against the SIM:

- Universal integrated circuit card (UICC) pin support
- Security measures against the SIM cloning

Prefer MNO which is providing:

- Private access point name (APN)
- Option to encrypt data communication.
- SIM card dedicated to IoT application (reduce potential cybersecurity risks)

Data Consumption: (data rates should be checked)

The amount of data transferred between an EV charger and the backend server may vary, based on the network structure. It is recommended to select an unlimited data plan or at least a data plan that takes into account the usage pattern listed below:

- The expected average monthly data traffic may reach up to 80 MB per EV charger.
- An additional annual data usage of up to 500 MB should be considered for firmware and feature updates twice a year per EV charger.

In network installations where a single EV charger is used to route the traffic for the entire network, data usage will be multiplied by the number of EV chargers in the network.

Note: When using the 4G connection, ETH0 and ETH1 must not be connected to customer's local network to avoid DHCP conflicts.

8.3.1 Use of external antenna for 4G/cellular network

When there are local needs (MNO signal limited) the internal 4G antenna can be replaced by external one.

Step 1. Open the DC30/60

Step 2. Locate the SMA connector for 4G antenna.

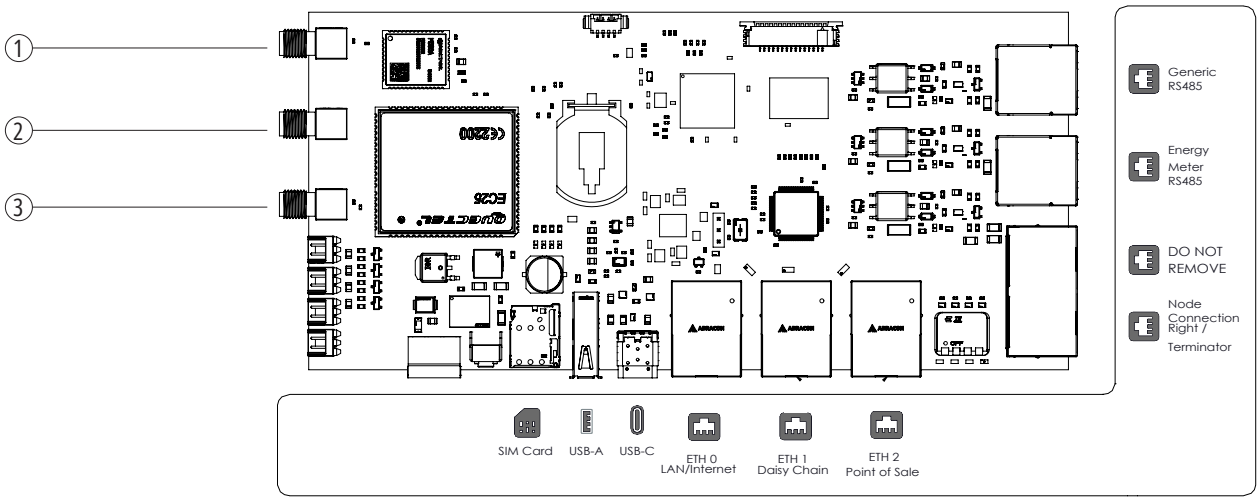
Step 3. Unscrew the internal antenna connector.

Step 4. Route the external antenna via cable gland inside the charger

Step 5. Screw the SMA connector of external antenna to the CSC PCBA of the charger.

Step 6. Close the DC30/60

Figure 46. Location of the 4G antenna SMA connector



Tag	Description
1	J31 - WIFI/BT SMA antenna connector
2	J29 - 4G DIVERSITY SMA antenna connector
3	J30 - 4G MAIN SMA antenna connector

8.4 Network Configurations

In this chapter there are listed and explained typical/possible network configurations.

GM DC30/60 chargers are simplified and represented on the pictures by the communication controllers (CSC). Green color on the chart sis representing local networking infrastructure (Routers, Switches, Access points,…) outside of the GM DC30/60 chargers.

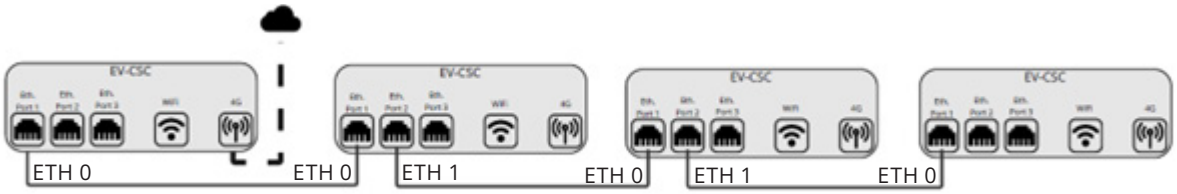
When all chargers are in the same LAN segment (visible each other). Charger to charger communication can be established and all chargers can act as charging network including the local load balancing.

8.4.1 Standalone network with 4G modem internet connection and daisy chain

This is the typical installation on the locations without any local network infrastructure.

- The first GM DC30/60 is connected to internet by its 4G modem and shares its internet connectivity with others.
- The second charger is connected to first one via ethernet cable UTP CAT5/6 using the daisy chain method.
- Third and eventually fourth, fifth… chargers are following the same method.

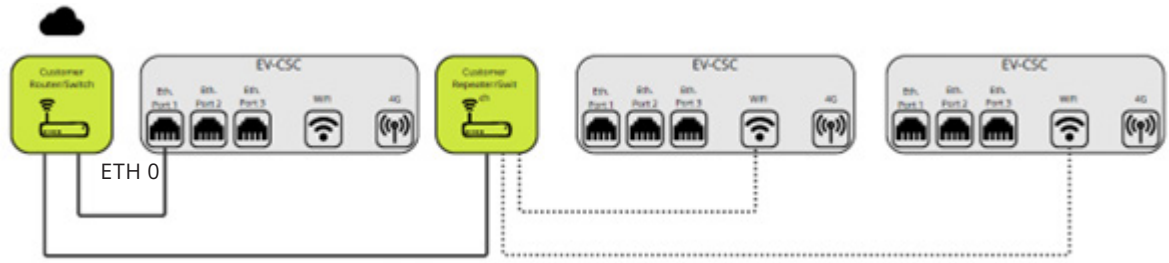
Figure 47. 4G and daisy chain



8.4.2 Star Network combining the Ethernet and WIFI

In this sample network configuration, the first GM DC30/60 is connected directly to existing LAN while other two are connected to the local WIFI access point.

Figure 48. LAN and WIFI combined

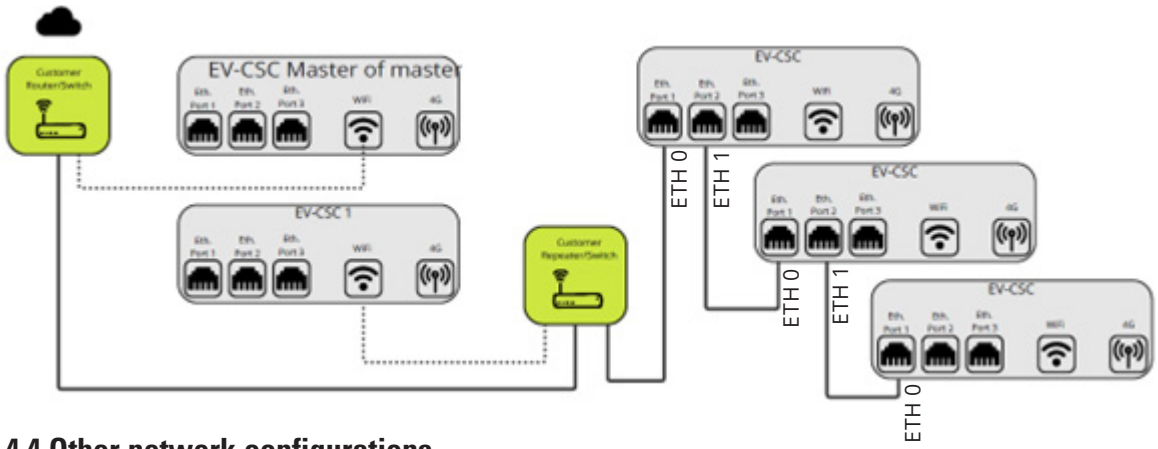


8.4.3 Network combining WIFI and ethernet daisy chain

In this sample network configuration:

- the first GM DC30/60 is connected directly to primary WIFI access point.
- second charger is connected to secondary WIFI Access Point (repeater/switch)
- the third charger is connected to secondary switch by ethernet LAN
- other two chargers are connected to the third one by ethernet cable using the daisy chain method

Figure 49. WIFI and ethernet daisy chain



8.4.4 Other network configurations

Above are the sample configurations, but impossible to list all other possible options. More complex scenarios consult with Eaton technical support.

The basic rules for creating charging networks are:

1. All chargers should be visible in the same network segment.
2. Primary GM DC30/60 with 4G modem is sharing internet with others.
3. Daisy chain connecting charger to charger is possible only over Ethernet cable.
4. For wireless Charger connectivity local WIFI infrastructure (access point/s, mesh network) is needed.

Note: When the GM DC30/60 is connected to the Local Network over Wi-Fi, Daisy chaining is not going to work. So, the charger which is connected with Wi-Fi interface shall be the last node for the charger network.

9. Commisioning

Commissioning is the process of configuration of the GM DC30/60 according the primary use case and local networking possibilities.

Charger commissioning has following basic steps:

1. Access to the commissioning screen – mobile web page
2. Setup of the internet connectivity
3. Update of the firmware
4. Configuration of the EV charger parameters
5. Establishment of the backend connectivity (CSMS, OCPP server)

9.1 Accessing commissioning screen

The GM DC30/60 is configured via the web portal using the configuration page. The configuration page can be accessed using a laptop, tabled or smartphone to the charger via Wi-Fi Hotspot or local LAN.

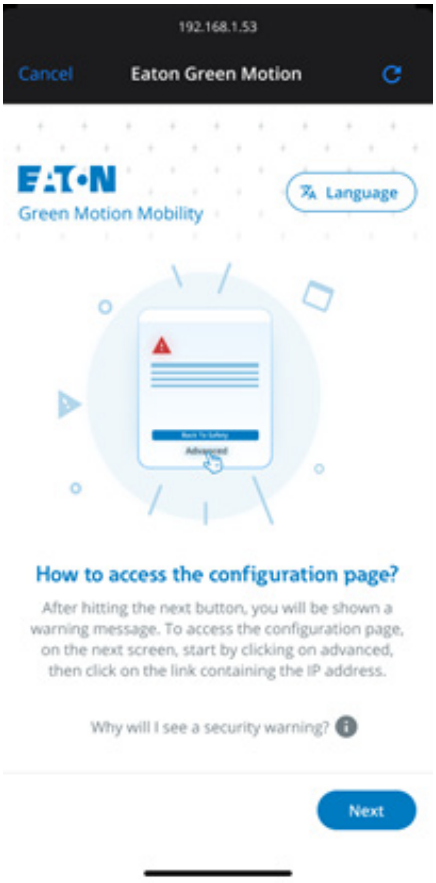
9.1.1 WIFI hotspot

This is the preferred/standard method of the commissioning. Installer will need only smartphone with WIFI capability and build-in web browser. But alternatively, can use also tablet of PC…

During the first 30 minutes after power-up or restart, the GM DC30/60 is creating an WIFI hot spot.
(QR code or WiFi SSID information is on a product sticker).

Web browser of the phone/tablet/PC shall open automatically with address of the charger Web UI.

Figure 50. Landing web page

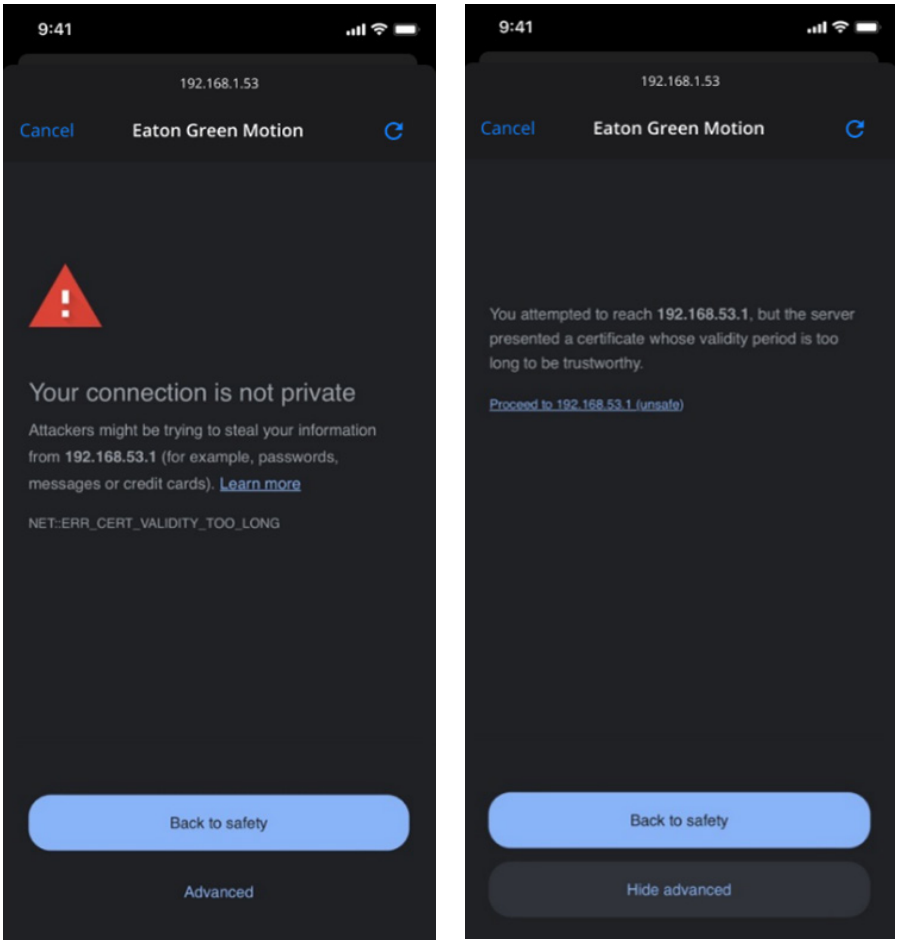


Commissioning steps:

1. Turn on the EV charger OFF and ON
2. Enable Wi-Fi on your phone (PC or tablet).
3. Scan the QR code (or retype the SSID/Passphrase) and connect to the Wi-Fi network which is provided by the charger. Then landing page shall appear automatically in the open browser. If not, please open your web browser and type any web address e.g. www.eaton.com
4. The welcome commissioning screen of the Charger charger should display.
5. Switch to alternative Language if needed.
6. Press Next button to start commissioning wizard.
7. Accept the security warning (the charger is not connected yet to internet, and it is not possible to verify certificate):

   - On the browser press Advanced button
   - And then select link: "**Proceed to unsafe web/IP address.**"

Figure 51. Access to offline web page.



9.1.2 Local network

When installer's PC/Tabet/Phone is connected to the customer's network local area network, they can access the charger via it's IP address (need to be obtained from the customer's DHCP server).

Prerequisite: Charger is installed in the local LAN (via ETH0) and has known IP address

Commissioning steps:

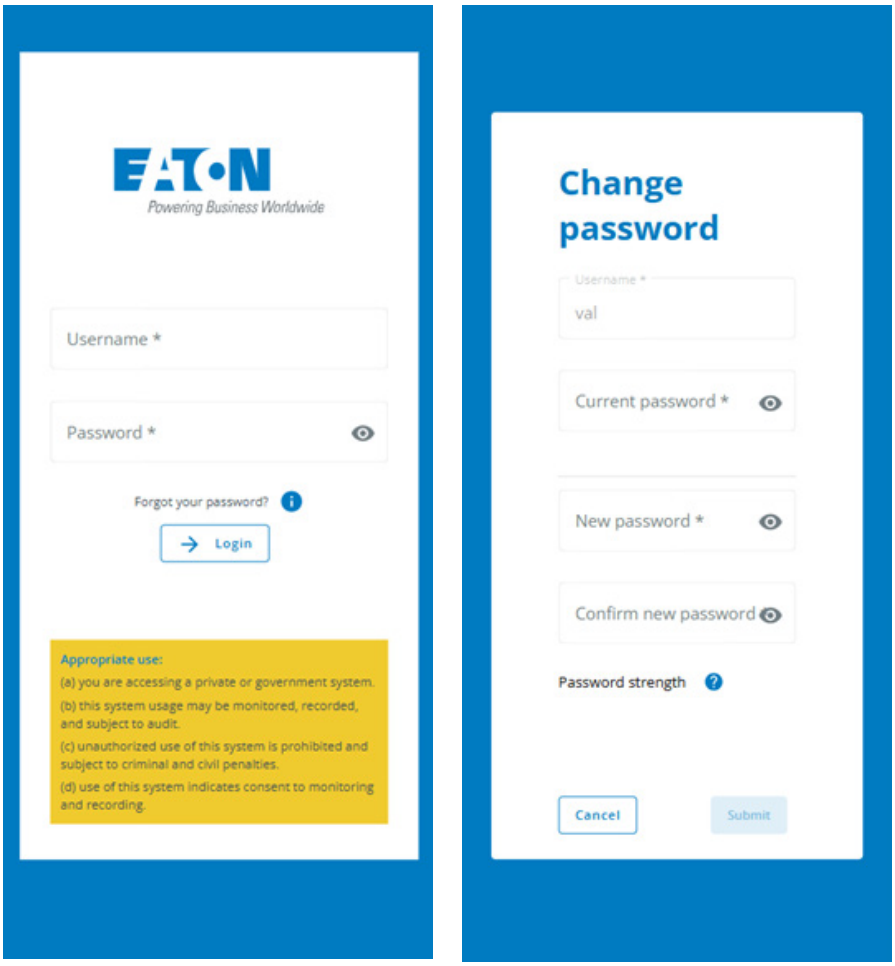
1. Obtain the IP address of the GM DC30/60 (from local network support)
2. Using web browser, navigate to the address which is obtained at Step 1.
3. Accept the unsecure access to offline web pages as above.

9.1.3 Access to the commissioning page

Commissioning steps:

1. Change the password and/or username after the first login (use suggested password complexity)
2. Store new password securely
3. Accept the End User Licence Agreement (EULA)

Figure 52. User login and password



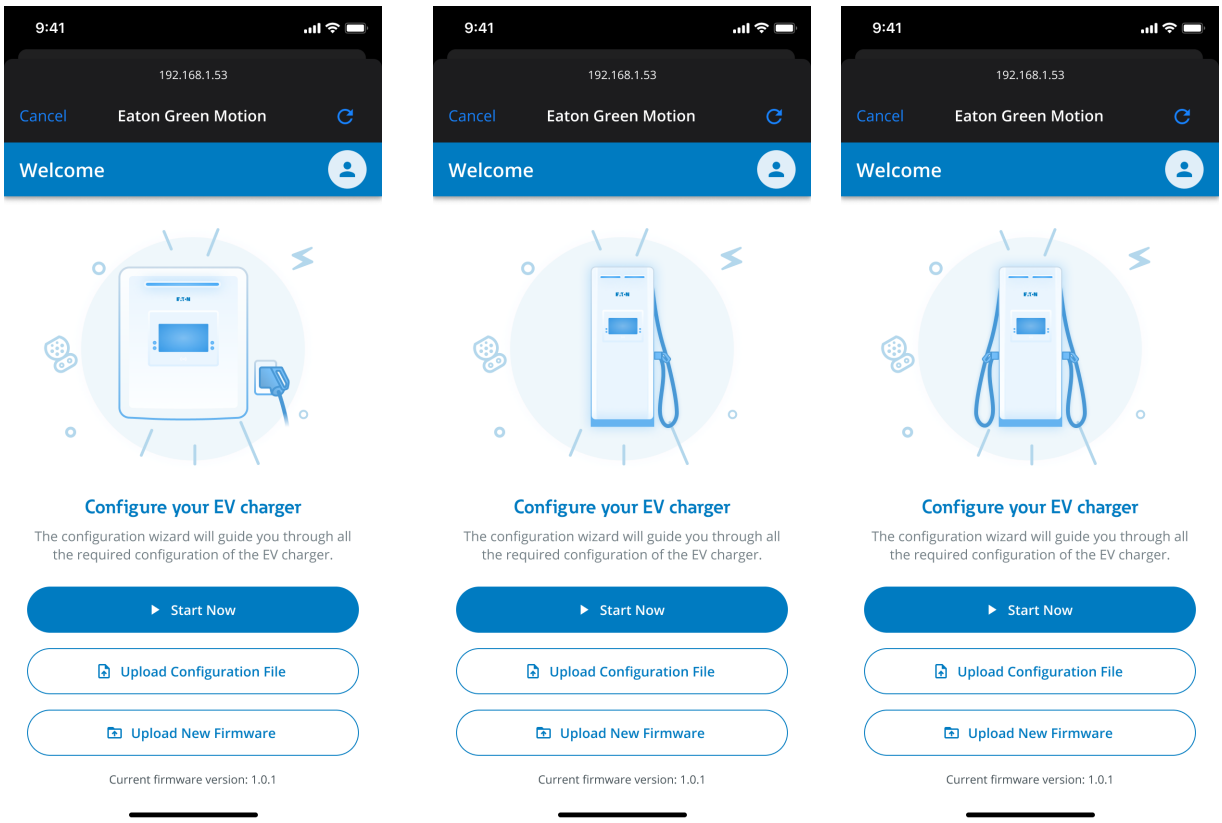
9.2 Welcome screen, upload new FW or configuration file

If installer has downloaded the latest the GM DC30/60 firmware to his device (phone, tablet, laptop) here he can upload the new FW to the installed charger.

Note: the FW version is checked later after the charging station is connected to internet automatically, so manual upload is only optional step, but it can speed up installation and reduce the charger's network traffic.

Similarly, when charging station accepts the upload of the pre-downloaded configuration file here it can be uploaded to the Charger.

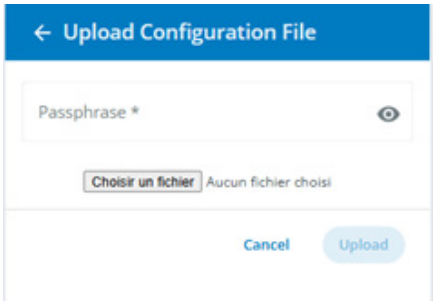
Figure 53. Commissioning wizard



Commissioning steps:

1. Select/press "Upload" button
2. Browser is showing the local (phone/PC) file system
3. Navigate to the location of the stored FW or configuration file
4. Upload it to the Charging station
5. Lets the new configuration takes the effect (restart CS)
6. Reconnect.

Upload Configuration File



Installers can apply similar configuration from a charger to another via configuration file import/export. In the very first page of the commissioning flow, he can upload a configuration file that contains the data to be applied from another charger, by clicking on "Upload Configuration File".

He will be asked to provide the passphrase with which the configuration file has been encrypted and to provide the relevant file (JSON format).

Upload New Firmware

Installers can apply a new firmware from a file stored locally on the device they are using for commissioning the product.

A confirmation will be prompted to the user and the file will then be transferred. The firmware update will be performed through several steps with a loading bar.

Once the firmware update is complete, the charger will reboot.

9.3 Connection to internet

Connected Charger operation

As described in the installation chapter 5 GM DC30/60 can get the user connectivity via local network infrastructure (ethernet LAN or WIFI) or use its own 4G modem.

OCPP protocols

Connected GM DC30/60 communicates with remote control systems via standardized OCPP 1.6 (J) protocol (HW ready for the upgrade to OCPP 2.01). And offer the seamless integration to any compatible SCMS system. All OCPP 1.6 profiles are supported (except of Reservation). For the details, please refer to the GM DC30/60 OCPP reference document.

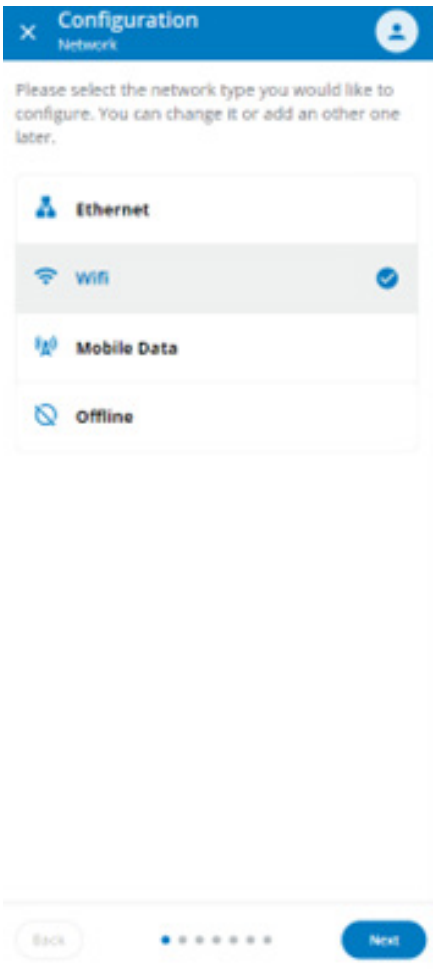
ChargeCentral

GM DC30/60 is by default configured to use Eaton proxy (ChargeCentral) between the Charger and the CPO central system (CSMS). ChargeCentral is collecting the statistical EV charging use data, which are used for remote support and preemptive maintenance.

Island mode

In specific use cases can work also completely standalone/offline (without internet and cloud integration) – in the so called "Island mode". Even though it can save the communication costs it is generally not recommended as it can limit the visibility of the GM DC30/60 for the eventual remote support.

Figure 54. Internet connection wizard



Commissioning steps:

1. Navigate to the first screen of the commissioning wizard.
2. Select internet connection method according to the local network configuration.
3. Configure the details of the selected method.

9.3.1 Ethernet

Prerequisite is connection as described in chapter 5.1.

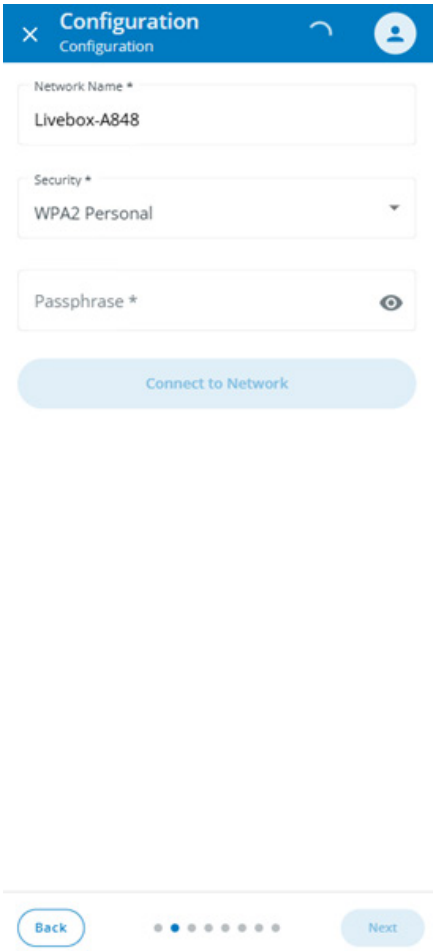
Normally no further setup is needed. The GM DC30/60 will get an IP address from local network and can connect to the internet which is provided by local network infrastructure.

In opposite situation refer to the 6.2.3 Advanced settings

9.3.2 Wi-Fi connection

When the Wi-Fi is chosen for the GM DC30/60, then next screen of the configuration wizard will ask installer to enter the local WIFI access point credentials.

Reminder: When the charger is connected to the Local Network over Wi-Fi, daisy chaining is not going to work (see chapter 5.3)



Commissioning steps:

1. Select WIFI and press Next button.
2. Charger will search and display available WIFI networks.
3. Select the preferred wireless network or enter the SSID manually.
4. Enter the Password
5. Check the Internet connectivity.

9.3.3 Cellular (Mobile Data/4G)

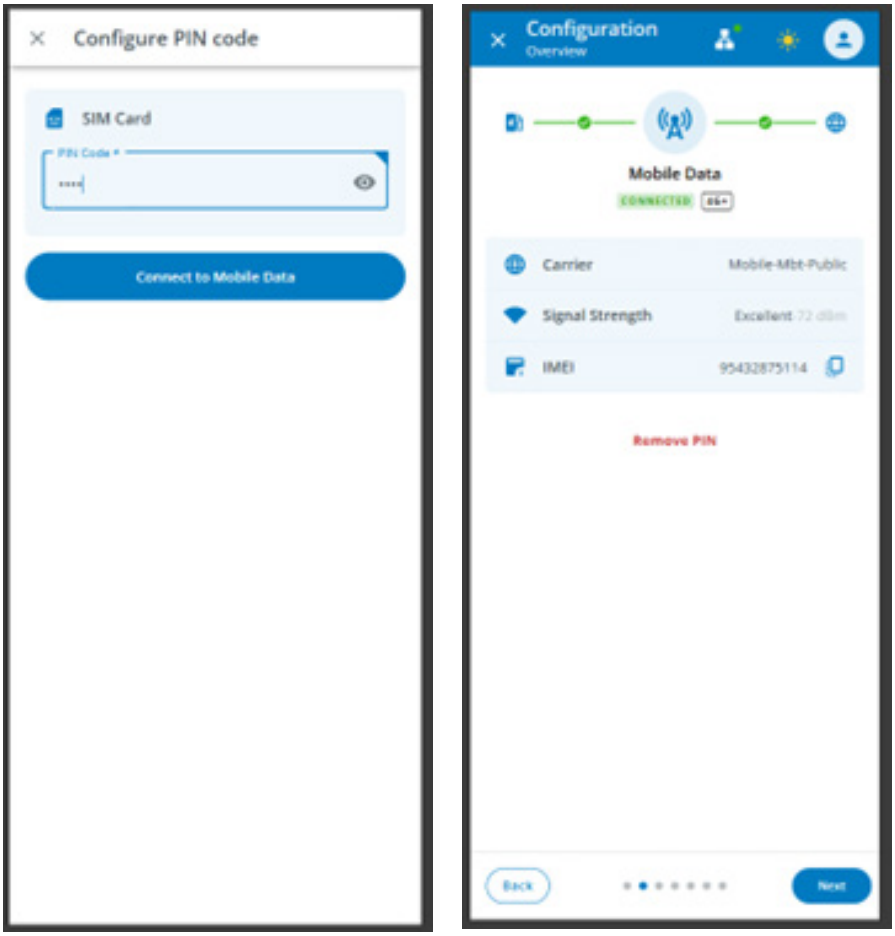
When the Mobile Data is chosen as a source of internet, then SIM card should be inserted.

GM DC30/60 can connect to the mobile network automatically.

Typically, there is no need to configure any settings for the Cellular.

Only if the SIM card is protected by PIN, GM DC30/60 is going to ask for PIN code.

Figure 55. SIM card PIN entry



Commissioning steps:

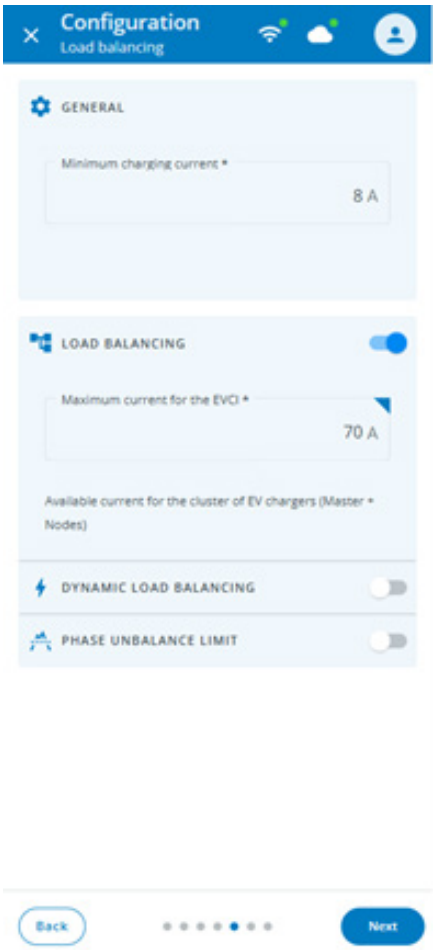
1. Select WIFI and press Next button.
2. Charger will search and display available WIFI networks.
3. Select the preferred wireless network or enter the SSID manually.
4. Enter the Password
5. Check the Internet connectivity.

9.4 Load Balancing setup – single DC30/60

GM DC30/60 is offering 2 basic methods of the local load balancing:

- Static local load balancing
- Dynamic local load balancing

Alternatively, the load balancing can be performed remotely by cloud or locally installed systems (e.g. using OCPP Smart charging profiles and/or BEMS systems)



9.4.1 Local load balancing (static)

This basic method is used to enable charging to maximum number of plugged EVs, when the ***Maximum AC current for EV charging*** available in by installation is not sufficient to cover all charging demand.

The available charging current will be distributed using selected ***Load Balancing Algorithm*** between the plugged EVs.

- ***Equal current distribution method*** will equally reduce the charging current for plugged EVs (with defined minimum 6 or 8 A) and/or suspending the charge transactions when just reduction of current is not sufficient. Opposite, when some charging transaction is finished, the relevant current is allocated to other running transactions or allow starting new transaction.
- ***Other load balancing algorithms*** (e.g. with priority to selected chargers) will be added by the new versions of the GM DC30/60.

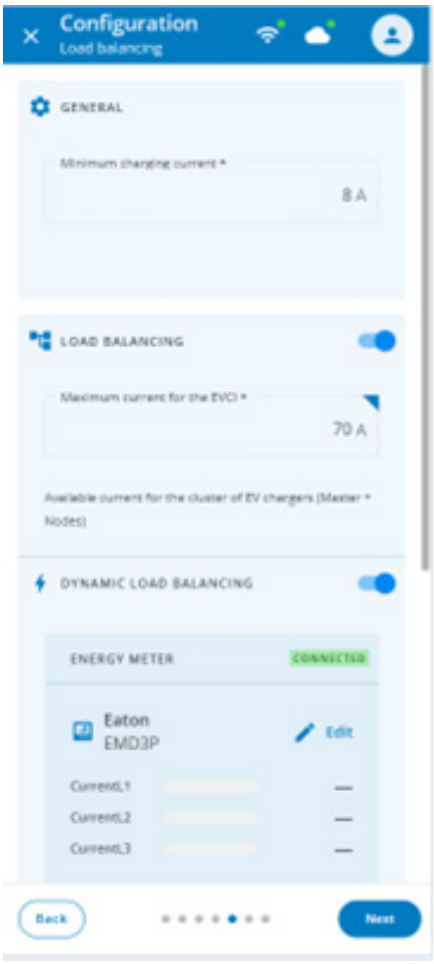
9.4.2 Dynamic local load balancing

When supported external "building" energy meter is connected to the DC30/60 (over modbus RTU or TCP/IP, see chapter 4.10), the load balancing algorithm is considering the other building energy consumption and dynamically allocate for EV charging remaining energy according to formula:

Dynamic current for EV charging = min(Maximum current for EVCI, Maximum Building Current – Other Building consumption, Building Fallback Current)

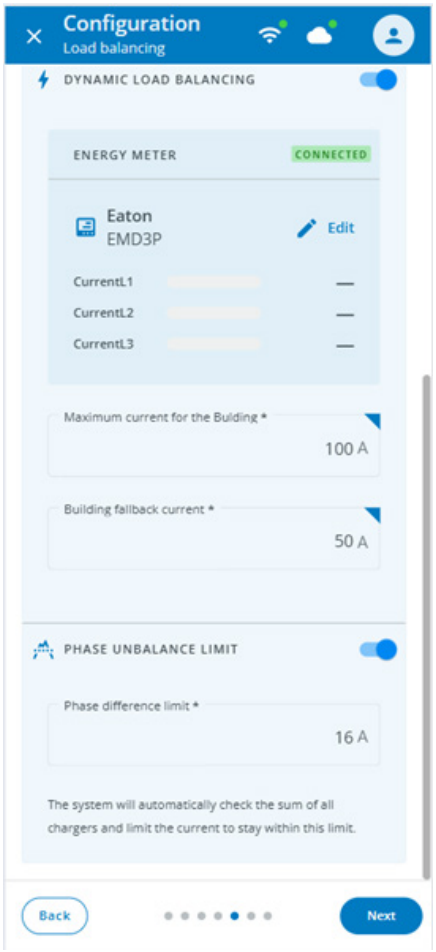
Building Fallback Current is used only in situation, when communication with external energy meter is lost and load balancing algorithm is not able to consider the other building electricity consumption.

Figure 56. Cluster Dynamic load balancing setup



Commissioning steps for Dynamic Load balancing:

1. Make sure the building energy meter is connected to charger.
2. Switch on the Dynamic Load Balancing.
3. Configure the Energy meter:
   a. Select Manufacturer
   b. Select the model of the EM.
   c. For TCP/IP setup the EM IP address
   d. For Modbus RTU configure its parameters
4. Test the connection (message CONNECTED close to the Energy meter)
5. Set the Maximum Building current.
6. Set the Building fallback current.



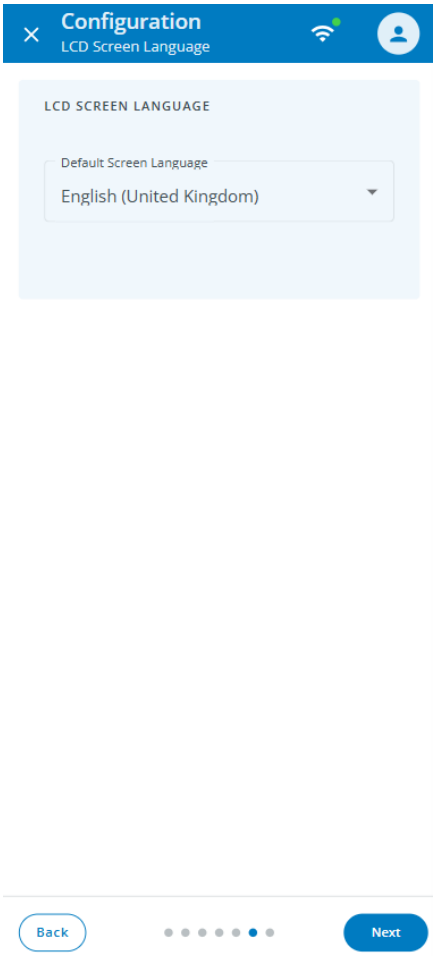
9.4.3 Phase balancing

Phase Balancing only available if one or multiple Green Motion Duo are connected to the DC 30/60.

When activated **Phase Balancing** the load balancing will consider the EVs with single-phase on-board chargers and algorithm will respect the **Phase Difference Limit.**

9.5 LCD Screen language

Installer can set the default language of the user interface for the LCD screen embedded in the station. EV driver will have the possibility to change this language directly via the screen interface.



9.6 Configuration Summary

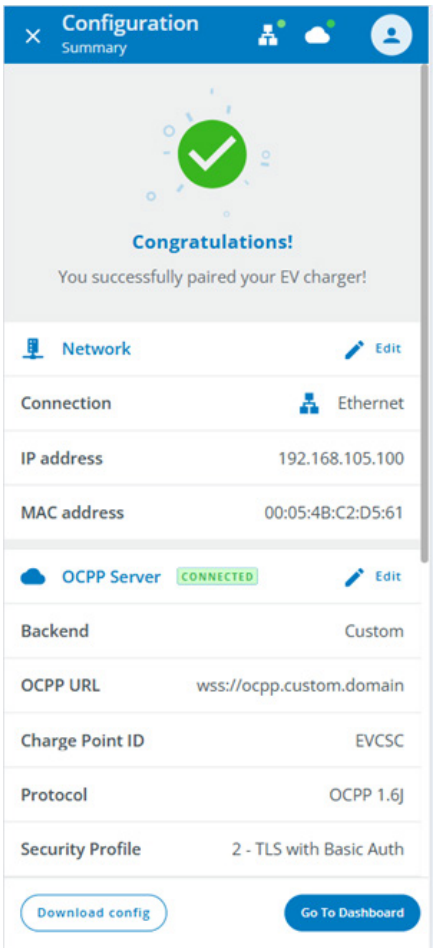
At the end of the commissioning flow, the installer has a configuration summary of the charger.

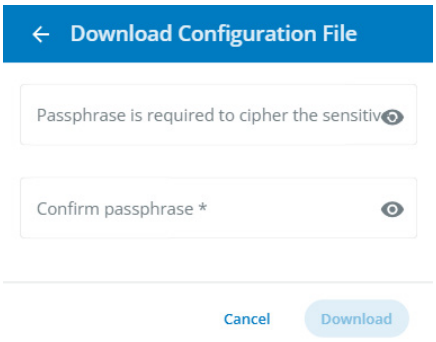
This page presents the charger configuration details of:

- Network
- CSMS (OCPP Server)
- Load Balancing

By clicking on “Edit” links, the installer can to get back to the related section of the commissioning flow to update the values he configured previously.

From this page, he can also download a JSON file that contains all the charger configuration data (the sensitive data are protected with a passphrase). He can then use this file to apply the same configuration to another charger.





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

Any operation requiring the opening of the housing of the EV 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 housing 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 backed server. The EV charger will also prevent the connected EV from charging.

10.1 How to open/close the Green Motion DC 30/60 EV charger housing

Before attempting to open the EV charger, ensure that the external AC mains isolator switch and/or main circuit breaker is switched off (open).

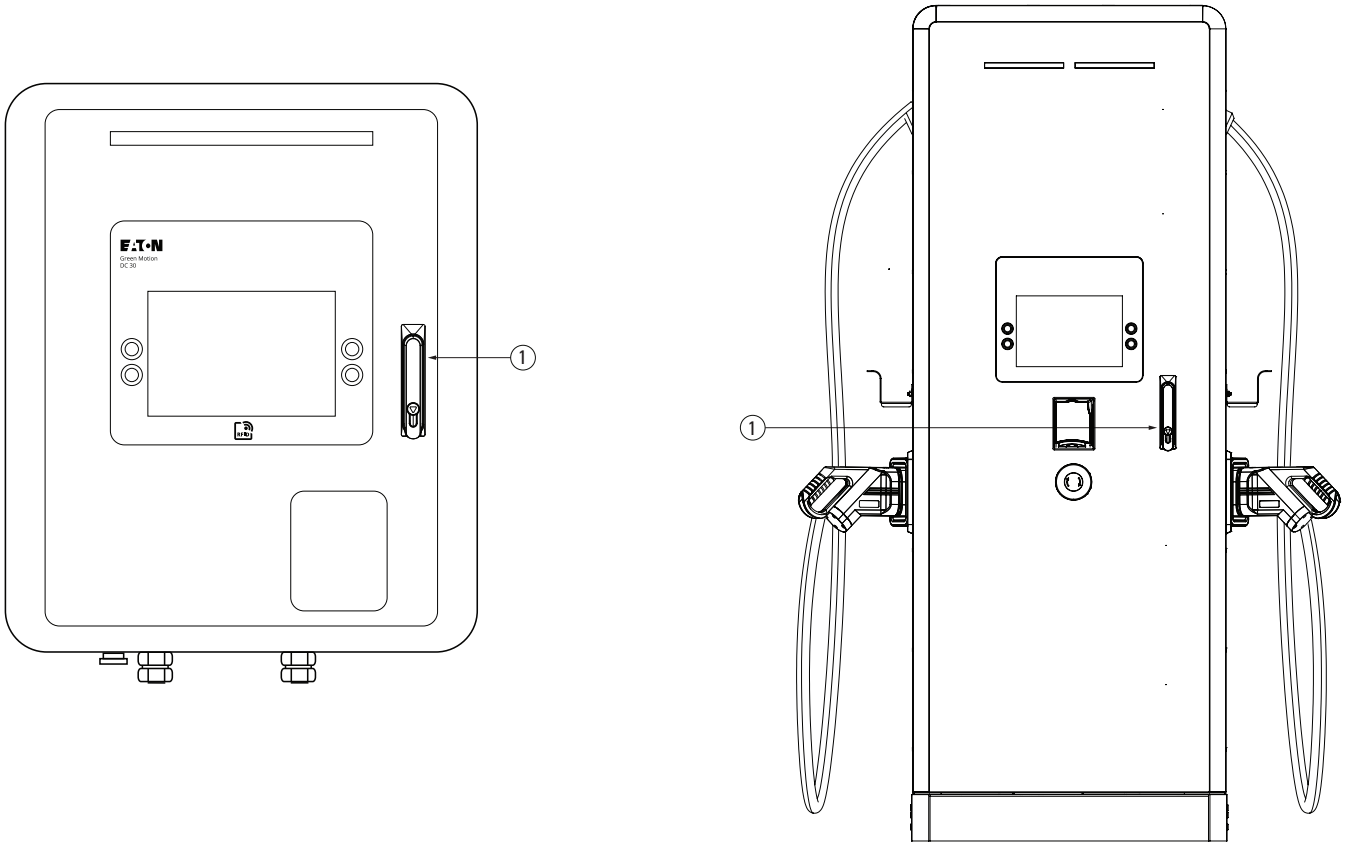
Wait at least 10 minutes after disconnecting the unit from the power supply to allow its components to cool down and any static electricity storage devices to discharge, before operating on the unit.

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

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

Step 1. Use key to unlock the front lock. Rotate the lock handle anti-clockwise by 90 degree.

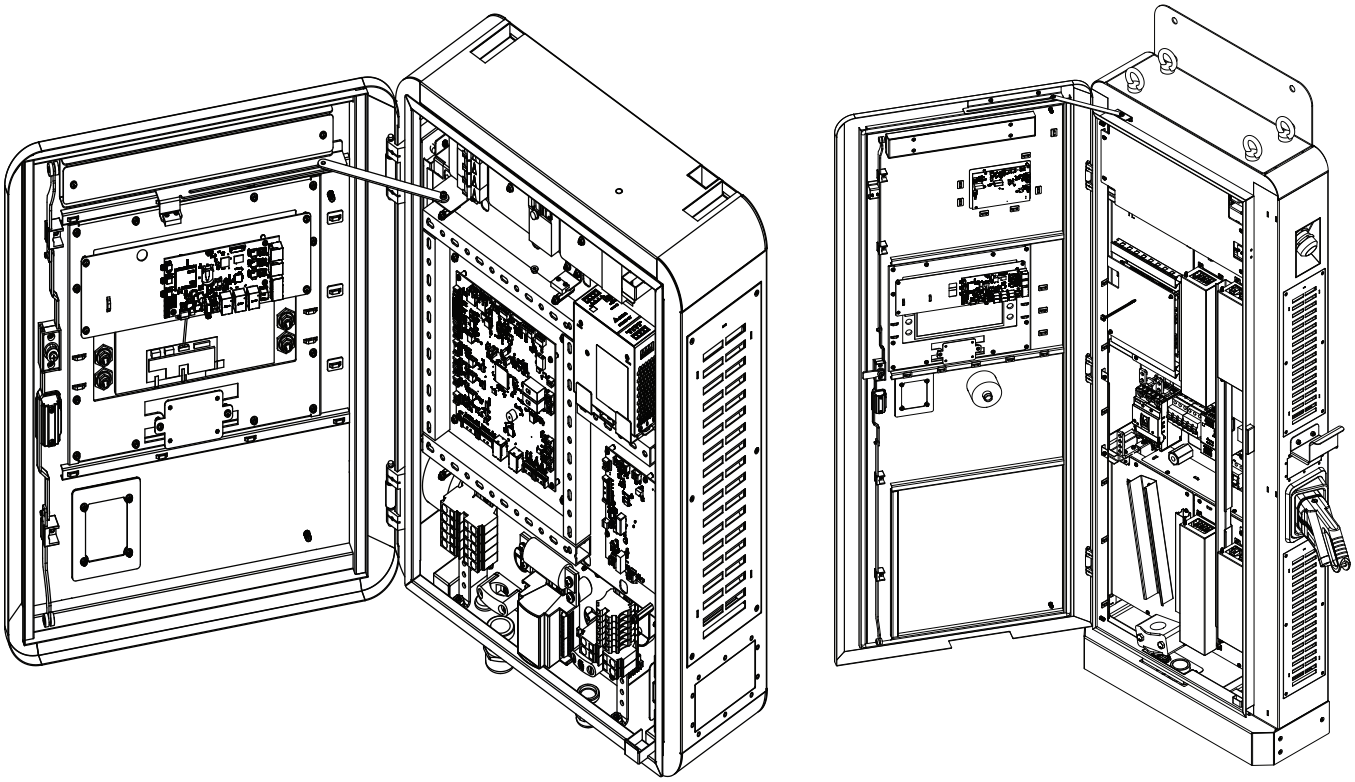
Figure 57. Location of the front door lock for Green Motion DC 30 and Green Motion DC 60 EV chargers



Tag	Description
1	Door handle

Step 2. Open the front door sideways.

Figure 58. Green Motion DC 30/60 EV charger with the door open



10.2 How to set the unit as out of order

The Green Motion DC 30/60 EV charger can be set as out of order by following the steps below:

1. On site method: Press the emergency stop button.
2. Connect to the commissioning page to disable the station.
3. Send remotely an OCPP message to disable the station.

10.3 Replace the SIM card

To replace the SIM card, proceed as follows:

Step 1. Remove the existing SIM card from the card slot.

Step 2. Insert the new SIM card into the card slot.

Step 3. Update the credentials in the mode configuration page (if applicable)

10.4 Cleaning or replacing filters

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

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.

Please make sure the filters are checked on a yearly basis to ensure they are not obstructed and working 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 wait for the replacement of the filters.

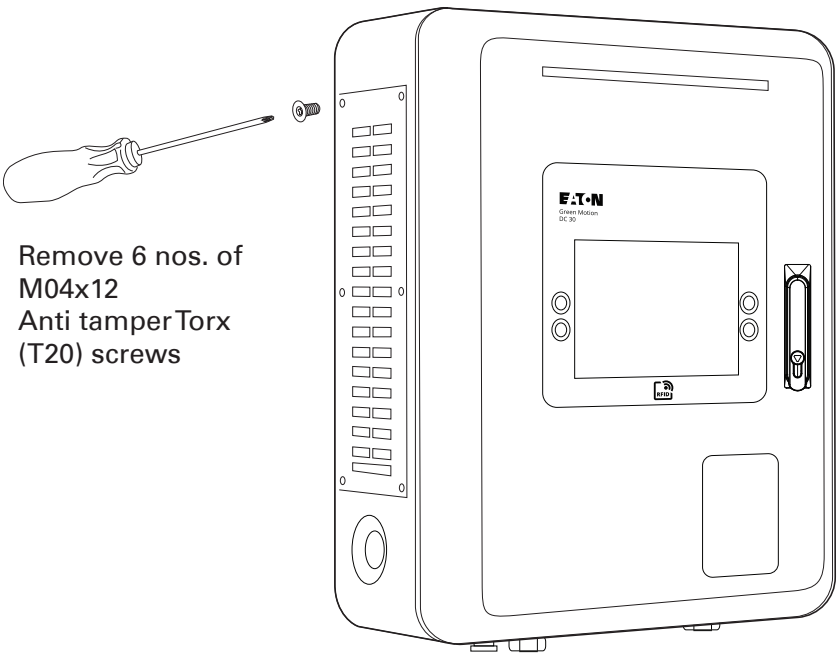
Please contact your Eaton service representative for the new filter reference using the email address BGTechSupport@eaton.com.

Follow the steps below to replace the filters:

Step 1. Open the side door by removing the fixing screws as shown in the Figure 59. The filters are located on both left and right side doors of the unit, behind the louvers. Side door assembly method is same for Green Motion DC 30 and DC 60 EV chargers.

Step 2. Hold the side door from outside by one hand.Remove the side door screws. Open the side door as shown in the Figure 60

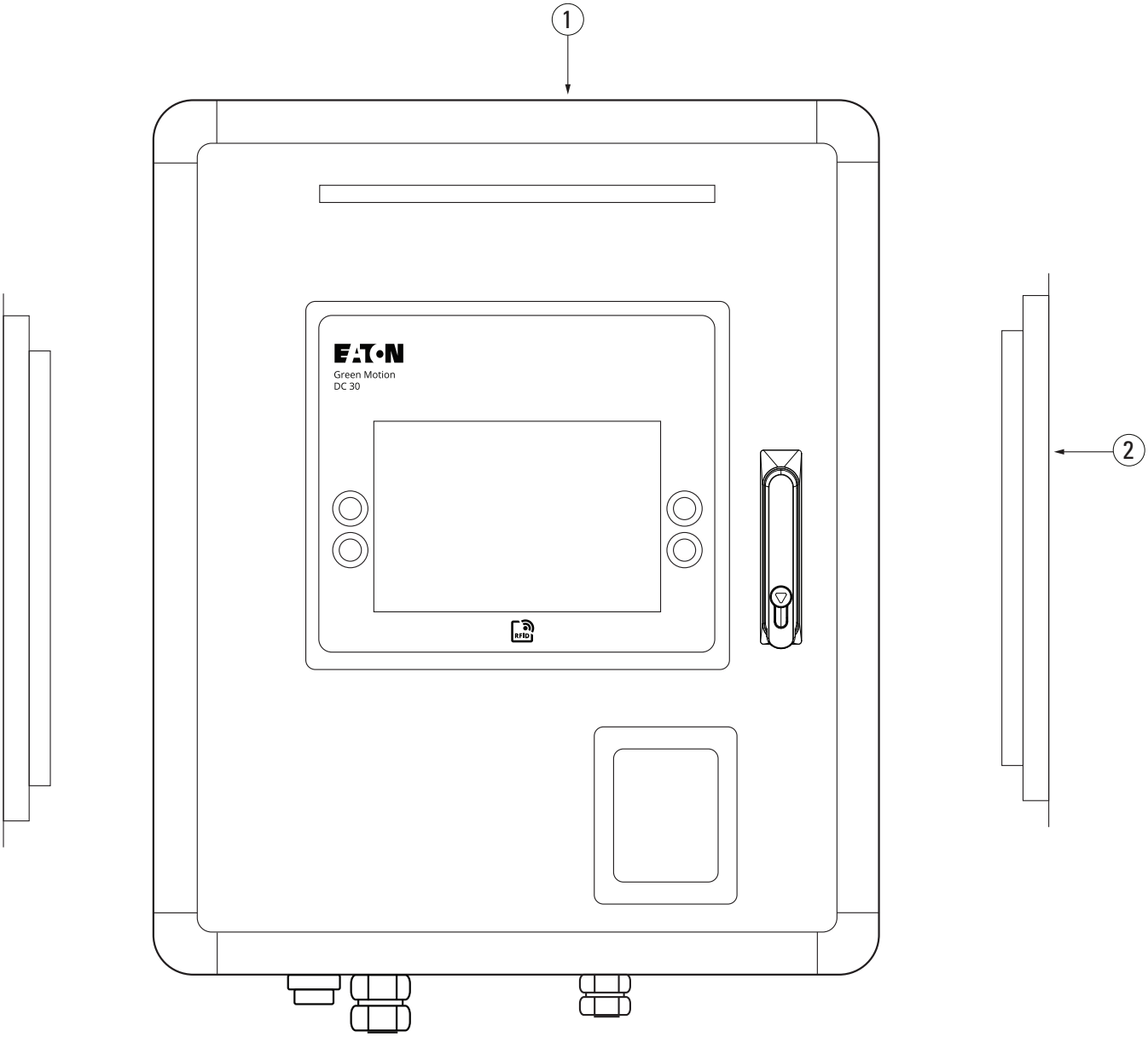
Figure 59. How to open side door



Step 3. The filters are located behind the air flow grid..It is possible now to replace the filters. Pull the air filter from top side of the side door.

Figure 60. Location of the filter on the left side of the unit

Air filter and Side door assembly method is same for Green Motion DC 30 and DC 60 EV chargers.

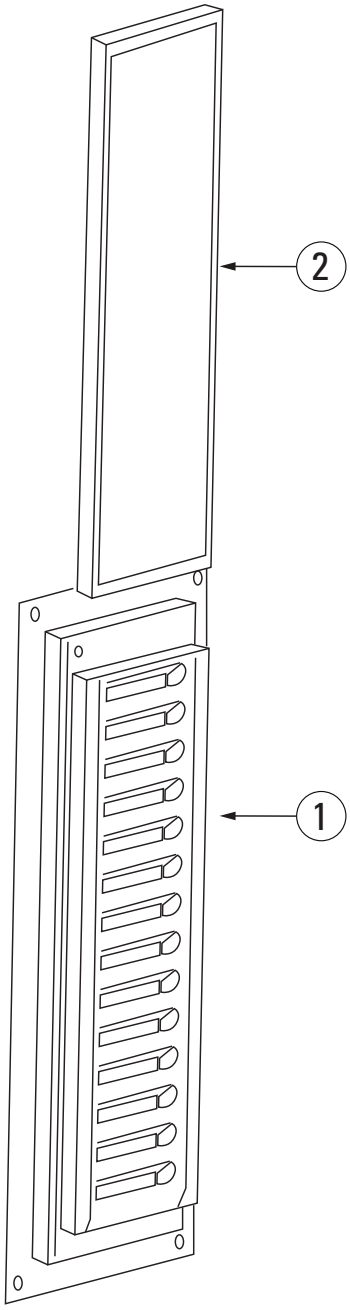


Tag	Description
1	Green Motion DC 30 EV charger
2	Side door

Step 4. Clean or replace the air filter. Clean the air flow grid by blower to make sure air opening cleared if there any blockage.

Step 5. Insert the new/cleaned filter air filter in the slot behind the air flow grid.

Figure 61. Air filter removal and assembly at side door



Tag	Description
1	Side door
2	Air filter

Step 6. Assemble the side door to enclosure and secure it by screws.

Step 7. Repeat the same process for other side doors and restart the unit.

10.5 Power module replacement

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

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.

Follow the steps below to replace the power module. Power module replacement procedure is identical for Green Motion DC 30/60 EV chargers.

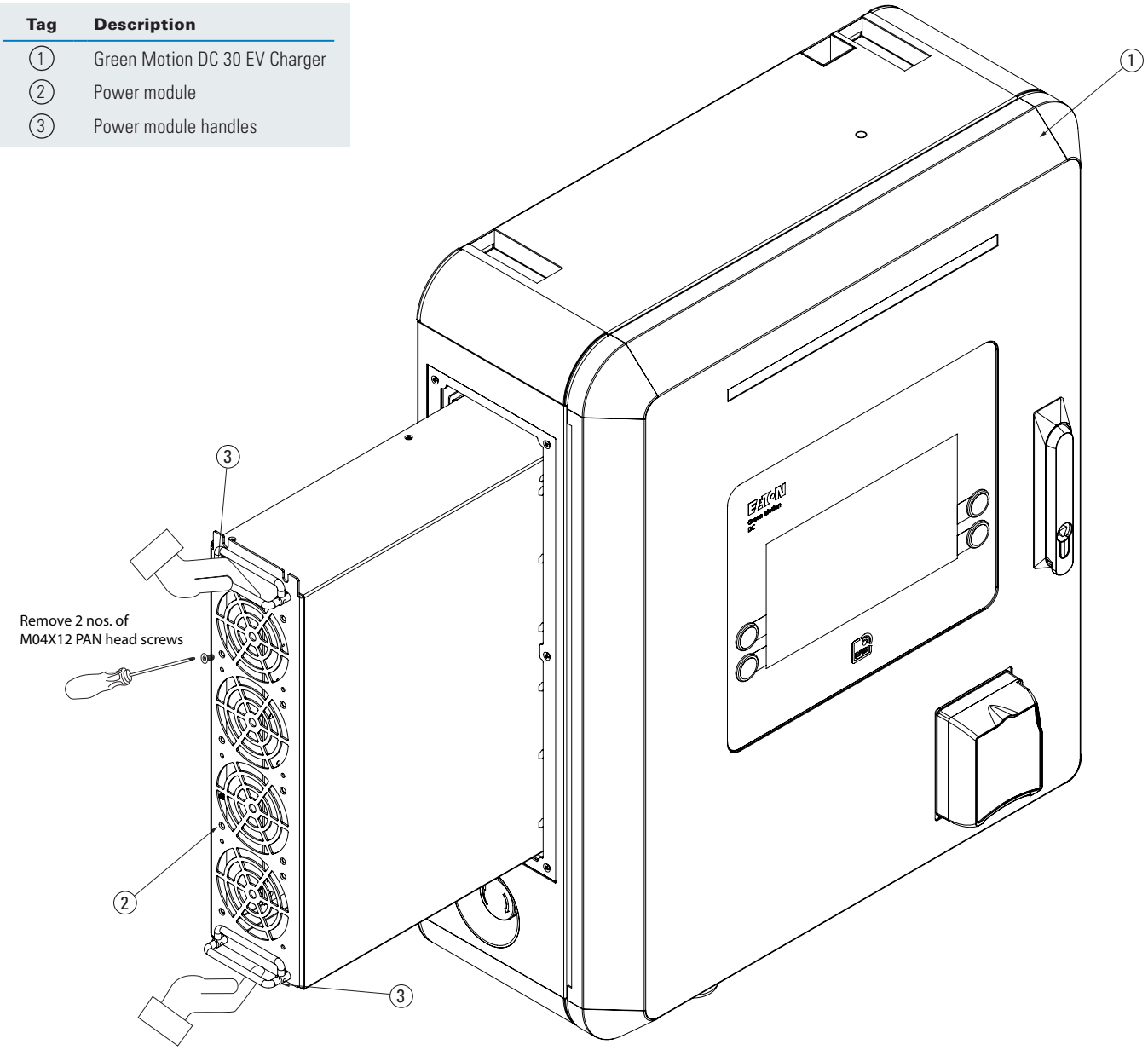
Step 1. Hold the left side door from outside by one hand. Remove the side door screws. Open the side door as shown in the Figure 59.

Step 2. Remove the screws located at top flange of the power module as shown in the Figure 63.

Step 3. Pull the power module gradually outside EV charger with the help of two handles (as shown in the Figure 62) located on the power module.

Figure 62. Removal of the power module from EV charger

Tag	Description
1	Green Motion DC 30 EV Charger
2	Power module
3	Power module handles



Do not underestimate the weight of the unit. Check the technical specifications.

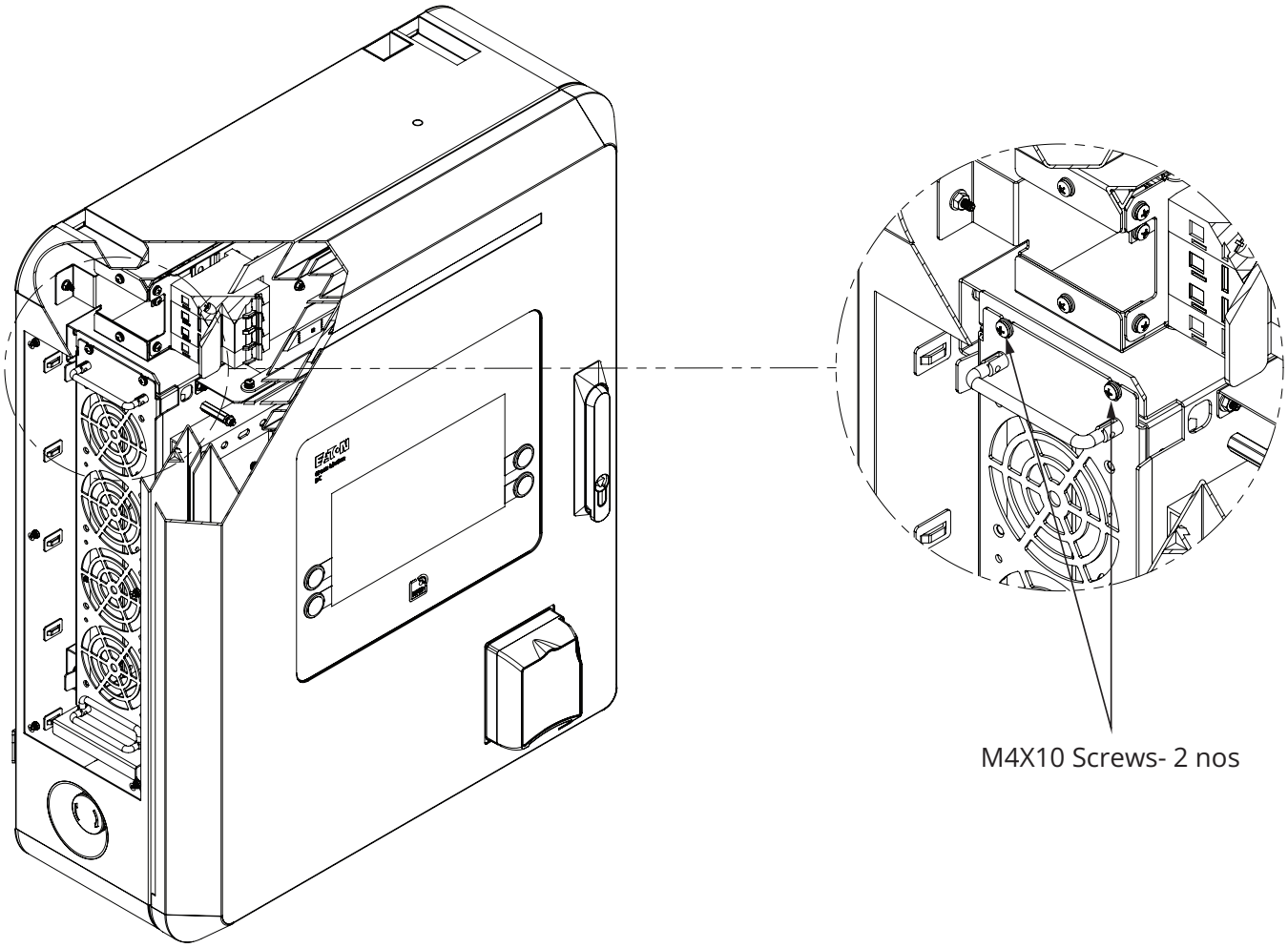
Number of manpower for transportation, handling and lifting in accordance with the requirements of local regulations.

Do not pull it with too much force.

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

Step 4. Left the new power module and insert inside EV charger. Push the power module gradually inside the EV charger until top power module flange rest on the enclosure frame as show in Figure 63.

Figure 63. Fixing the power module to EV charger



Step 5. Secure power module to EV charger by securing 2 screws at top flange of power module

Step 6. Assemble the side door to enclosure and secure it by screws and restart the unit.

10.6 Dismount

Before starting any maintenance operations, ensure that the external AC mains isolator switch and/or main circuit breaker are switched 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 housing 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 opening front door as described in Section 10.1.

Step 3. Disconnect the AC power supply cables from the terminal block and the protective earth bolted joint.

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

Step 5. Dismount the floor-mounted pedestal if present.

Step 6. The product can now be removed for disposal or repair.

10.7 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 Charge Central (Eaton platform) or any backend which support OTA. for further details. For units that are offline, please contact your Eaton service representative using the BGTechSupport@eaton.com email address.

10.8 Disposal

When the EV charger 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.

11. Troubleshooting

This section contains information and procedures for solving problems that may occur with the EV charger.

Check the warnings or error messages and act as indicated in Table 14.

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

Table 14. List of alarms and troubleshooting

Possible problems	Solutions
Router does not 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 display on the screen. 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 stop button is pushed	Check that the unit is not damaged, the installation and commissioning have been correctly made. Check the led status color and read the indication display on the screen. The emergency stop button located on left side for DC 30 & on front door for DC 60. Pull it out until it clicks in to open postion. If the unit was set as out of order, it is possible now to change the physical status directly from the Eaton Charge Central platform or from your CSMS.
The EV charger visual indicators are red	Check the led status color and read the indication display on the screen. Try to disconnect the electric vehicle from the EV charger and retry. Check the emergency stop button, it should be pulled out. If still not successful, please restart the charging station.
Antenna bar graph is red	Check the led status color and read the indication display on the screen. 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 display on the screen. 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 display on the screen. Check the power supply on the electrical panel, switch off and reset the circuit-breaker to restart it.
The charging cable cannot be released from the vehicle	Check the led status color and read the indication display on the screen. In some cases, the user must unlock the plug from the electric vehicle'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 stop button to release the cable. The emergency stop button can then be set to the initial position, after inspection.
The vehicle does not charge	Check the led status color and read the indication display on the screen. Check the condition of the CCS cable. Check the power supply on the electrical panel, switch off and reset the circuit-breaker to restart it. Try starting and moving the vehicle, then try charging again.

12. Technical data

12.1 Rating plate

To locate the rating plate on the equipment, refer to Figure 64.

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

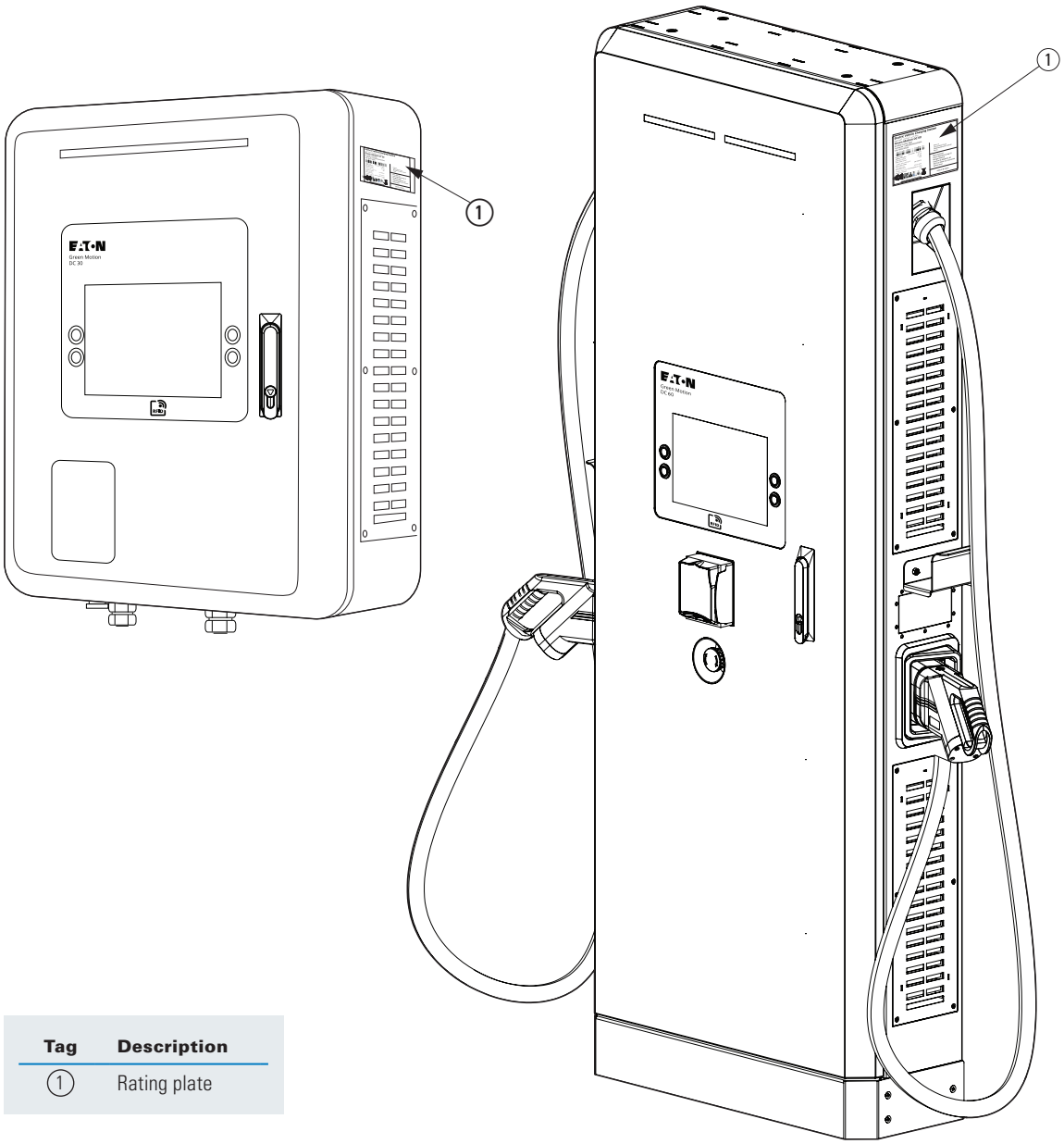
The labels attached to the equipment must NEVER be removed, damaged, soiled or hidden for any reason.

The information displayed on the rating plate:

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 64. Location of the rating plate



Tag	Description
1	Rating plate

12.2 Technical datasheet

The latest version of the technical datasheet is available for download from eaton.com/greenmotiondc30 and eaton.com/greenmotiondc60 web pages. The Green Motion DC 30/60 EV charger complies with the standards listed in the Table 15.

Table 15. List of standards the Green Motion DC 30/60 EV charger complies with

Standards	
Safety compliance	IEC 61851-1, IEC 61851-23
Electromagnetic compatibility (EMC)	IEC 61851-21-2 Emissions: Class B (Residential) Immunity: Class A (Non-Residential)
Electromagnetic field (EMF)	IEC 62311: 2008
Radio (EU only)	EN 301 489-1 V2.2.3: 2019 (EMC generic) EN 301 489-3 V2.1.1: 2019 (RFID) EN 301 489-52 V1.1.2: 2020 (4G) EN 301 489-17 V3.2.4: 2020 (Wi-Fi)
ROHS (EU)	EN IEC 63000: 2018
ISO15118-20 HW-ready	Yes
ISO15118-2 Plug & Charge	Yes
Eichrecht	Yes (Optional))
Smart UK	Yes

13. Contact support information

Should any technical problems arise during the operation of the charging station, 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

Eaton Manufacturing LP,
Morges Branch
Chemin de Maillefer 61
1052 Le Mont-sur-Lausanne
Switzerland
eaton.com/greenmotiondc30
eaton.com/greenmotiondc60

Powering Business Worldwide

Publication No. MN191041EN
December 2025

Follow us on social media to get the latest product and support information.