Green Motion Building Load balancing and commissioning guide

E·T·N

Powering Business Worldwide

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Content overview

1. Introduction

Thank you for choosing the Eaton Green Motion Building EV charger.

Before you start

This manual contains important instructions that must be followed during the commissioning of the Eaton Green Motion Building electric vehicle charger. All instructions must be read before commissioning and operating the equipment. This manual should be retained for future reference.

Please note that the Green Motion Building EV charger must only be installed and maintained by professional and qualified personnel, i.e. an Eaton technical support representative or professional installer. Professional and qualified personnel must be expert in the field and must therefore be responsible for commissioning the system in accordance with the manufacturer's instructions and ensure that all steps of the installation, operation and maintenance comply with local legislation.

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1.1 Symbols used in this manual

1.1.1 Related icons

Imminent dangers causing serious injuries. Danger of death.

Hazardous behaviors that could cause serious injuries.

Hazardous behaviors that could cause death.

Read the instructions. These instructions are intended for professional and qualified personnel, expert in the field and 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.

2. Charging current limitation

By default, the charging current is limited to 32 A for the Green Motion Building 22 kW EV charger.

In case the maximum capacity of the electrical installation is lower than 32 A, the maximum charging current for the Green Motion Building EV charger can be reduced through a DIP switch located on the backside of the Green Motion Building EV charger's front cover.

In the event of damage caused by improper current adjustment, the product guarantee is void and no returns will be accepted. Eaton declines any responsibility for improper current adjustment and cannot be liable for any inappropriate operation.

Follow these steps to change the maximum charging current for the Green Motion Building EV charger:

Step 1. Open the housing of the Green Motion Building EV charger. Please refer to the installation manual for instructions on opening the housing of the Green Motion Building EV charger.

Step 2. Locate the DIP switch 1 on the LED-panel on the backside of the Green Motion Building EV charger front cover. See Figure 1.

Step 3. Determine the maximum capacity of the electrical installation in which the Green Motion Building EV charger is installed.

Step 4. Use Table 1 to select a maximum charging current for the EV charger LOWER than the maximum capacity of the electrical installation and configure the DIP switch 1 accordingly.

Please note: the switch positions in Table 1 are given for an orientation where the label DP1 is located on the left side of the switch.

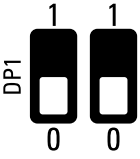**Step 5.** Close the housing of the Green Motion Building EV charger.
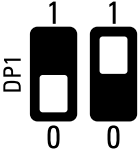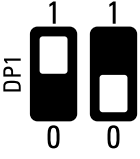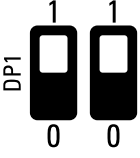
Figure 1. LED-Panel (PCB) located on the backside of the Green Motion Building EV charger front cover
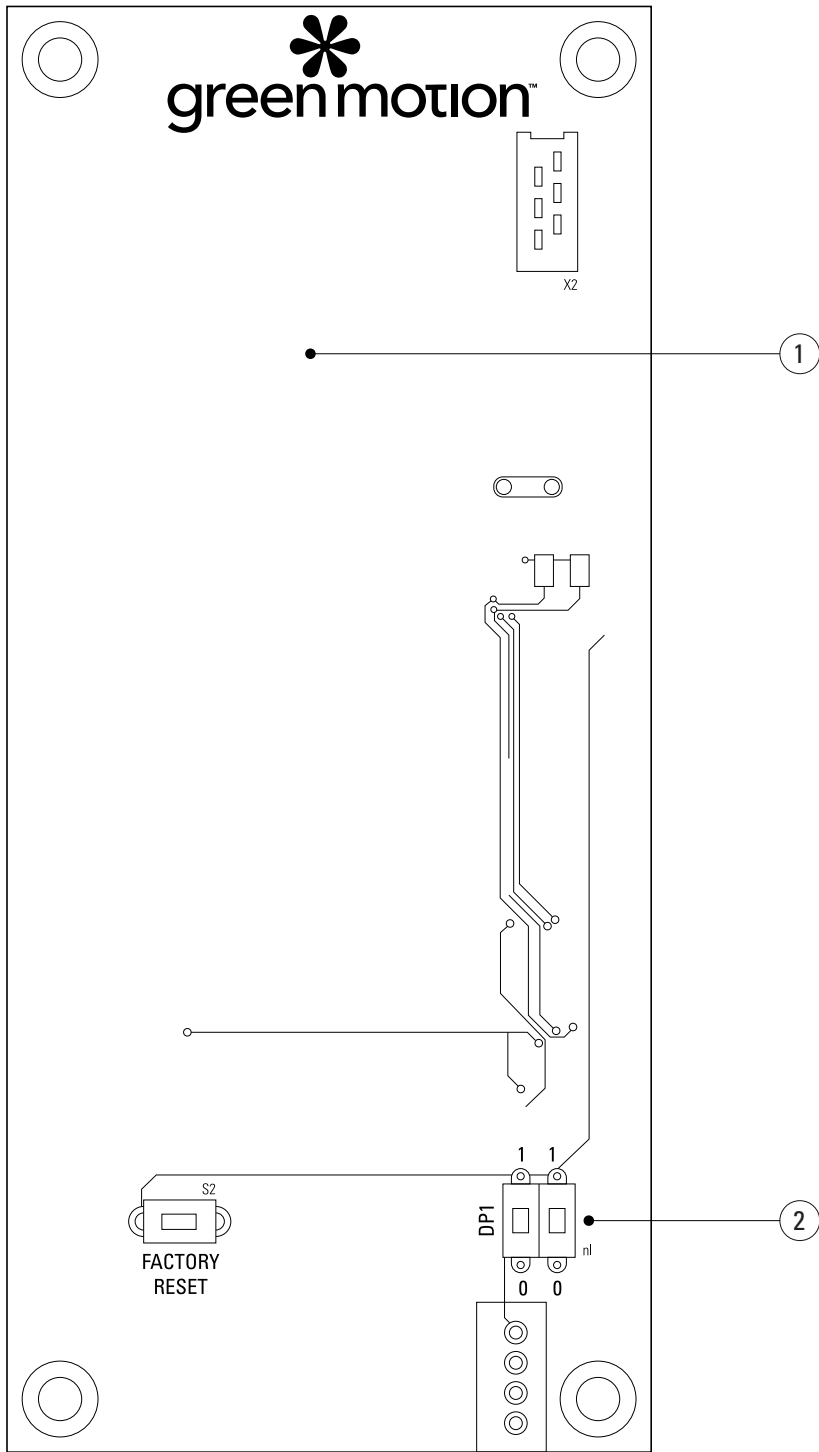
Tag	Description
1	LED Panel (PCB)
2	DIP Switch 1 to limit the output power

Table 1. Configuration to limit maximum capacity of the EV charger

Green Motion Building EV charger version: 22 kW	Switch position
16 A	DP1 — both switches at 0 (down)
20 A	DP1 — switch 1 at 1 (up), switch 2 at 1 (up)
26 A	DP1 — switch 1 at 0 (down), switch 2 at 1 (up)
32 A	DP1 — both switches at 1 (up)

3. Load and phase balancing

For load and phase balancing the EV chargers must be online.

3.1 Definitions

Eaton load balancing algorithm: The Eaton load balancing algorithm allows a continuously optimised current distribution to the EV chargers based on:

- Total available current
- Number of cars connected
- Maximum current capacity per car
- Energy delivered per car
- Charging stations' priorities
- Maximum current capacity of the EV charger

The continuous optimisation means that for each event (ex. a car is arriving) or at periodic times, the algorithm recalculates the optimal output current of each EV charger and instructs the EV chargers to limit the output current to this value. See Figure 2.

Figure 2. Load balancing algorithm outputs
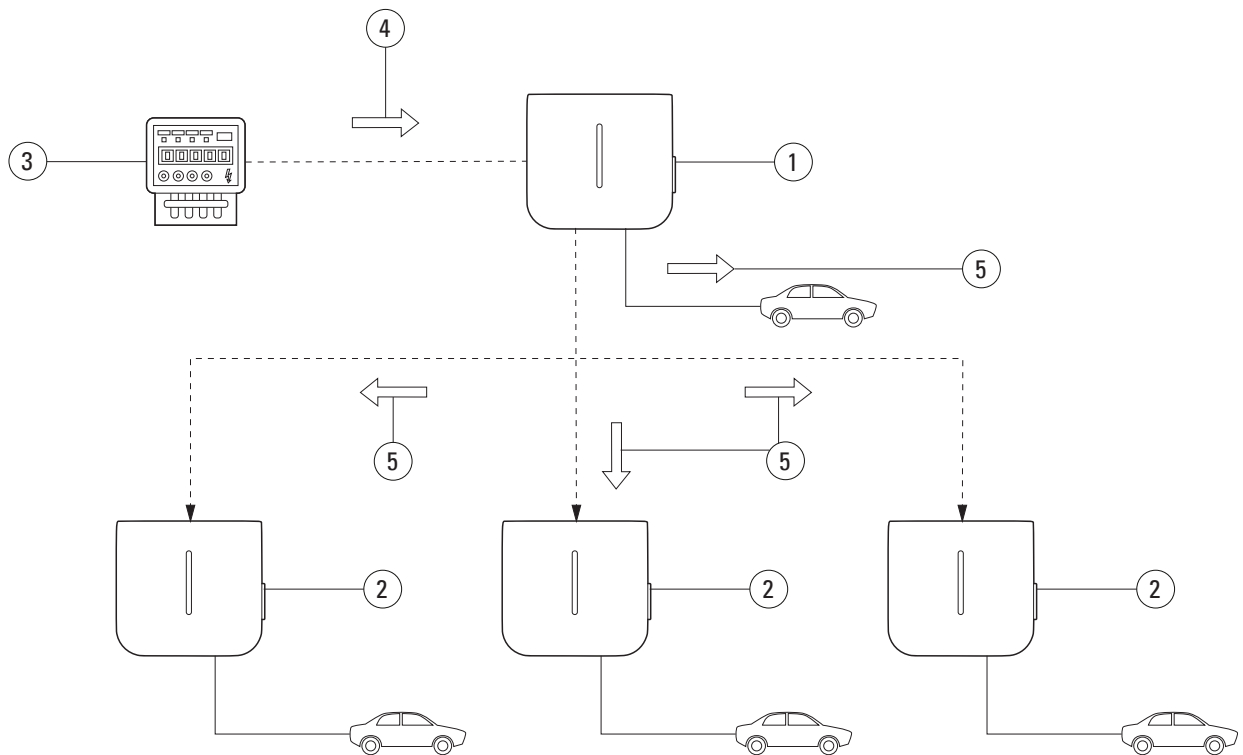
Tag	Description
1	Green Motion Building EV charger Master
2	Green Motion Building EV charger Node
3	Energy meter
4	Maximum available current for charging (= Maximum current capacity of building - Energy meter reading)
5	Optional output current (depending on the Eaton load balancing algorithm)

Static load balancing: The total available current is divided over the EV chargers according to the Eaton load balancing algorithm. The total available current is a FIXED VALUE depending on the electrical installation.

Total available current $_{static}$ **= Total current** $_{building}$ **- Maximum other loads** $_{building}$ **- Margin**

Dynamic load balancing: The total available current is divided over the EV chargers according to the Eaton load balancing algorithm. The total available current is a DYNAMIC VALUE updated according to the building consumption monitored real-time with an energy meter.

Total available current $_{dynamic}$ **= Total current** $_{building}$ **- Other loads** $_{monitored\ by\ energy\ meter}$ **- Margin**

Phase balancing: Limits current differences between phases. This is needed for network stability.

3.2 Load balancing

3.2.1 Load balancing parameters

The load balancing parameters can be configured in the configuration page. Refer to Chapter 5. The relevant parameters for understanding load balancing by the Eaton load balancing algorithm are described in Table 2.

Table 2. Load balancing parameters

Parameter	Description
Maximum station capacity [A]	The maximum current [A] the local electrical infrastructure can supply to the EV chargers.
	This value ensures that the combined load of the EV chargers never exceeds the maximum current dedicated to the EV charging electrical infrastructure.
	This value is fixed and is used by the algorithm for both static and dynamic load balancing.
Maximum current capacity of the building	The maximum current [A] capacity of the local electrical infrastructure including, but not limited to, the EV charging electrical infrastructure.
	This value is fixed and is used by the algorithm for dynamic load balancing.
Charger privilege	It is possible to assign a priority from 1 to 10 to a Green Motion Building EV charger. The EV charger with a priority level at 10 will have a high priority and a priority level at 1 will have a low priority.
	If all the levels are set at the same value, there will be no priority differences during the charge.
	If one EV charger has a higher priority level that the other EV chargers, it will charge faster.

3.2.2 Static load balancing

For static load balancing the Eaton load balancing algorithm uses the parameter MAXIMUM STATION CAPACITY [A] as the total available current for EV chargers. The algorithm then divides this current over the EV chargers, considering:

- Number of cars connected
- Maximum current capacity per car
- Energy delivered per car
- Charging stations' priorities

The parameter CHARGER PRIVILEGE determines the importance the Eaton load balancing algorithm attaches to each EV charger. This parameter can differ from one EV charger to the next. Please refer to Chapter 5.1.7. for setting the parameters on the configuration page of the EV charger.

Example

Three EV chargers will be installed in a building with a total current capacity of 100 A. The maximum load of all other installed equipment is 60 A. The electrical infrastructure supplying the EV chargers can supply 50 A. There is no energy meter present and EV charger 1 is reserved for an essential service vehicle that should always be charged as fast as possible. The parameters for the three EV chargers in this case should be as follows:

Parameters	EV charger 1	EV charger 2	EV charger 3
Dynamic load balancing enabled	No	No	No
Mode	Master	Node	Node
Hostname	masterhostname	eatongm (default)	eatongm (default)
Phase balancing limit	N/A, see Section 3.3	N/A, see Section 3.3	N/A, see Section 3.3
Energy meter enabled	No	No	No
Energy meter IP address	N/A	N/A	N/A
Maximum station capacity [A] [1]	40 A	40 A	40 A
Maximum current capacity of the building	100 A	100 A	100 A
Priority of charger	10	5	5
Master URI	wss://eatong mp03:223	wss://eatong mp03:223	wss://eatong mp03:223

[1] The electrical infrastructure supplying the EV chargers can supply 50 A. However, the maximum load of all other installed equipment is 60 A. Total current capacity – maximum load of all other installed equipment = Maximum station capacity [A]. 100 A – 60 A = 40 A.

3.2.3 Dynamic load balancing

For dynamic load balancing the Eaton load balancing algorithm uses the two parameters MAXIMUM STATION CAPACITY [A], MAXIMUM CURRENT CAPACITY OF THE BUILDING and the input from the energy meter to calculate the total available current for EV chargers.

IF the total available current for EV chargers is LOWER than the parameter MAXIMUM STATION CAPACITY [A], the total available current for EV chargers is calculated as follows:

IF:
[Maximum current capacity $_{building}$ - Energy meter reading]
< Maximum available current for EV charging
THEN:
Total available current $_{dynamic}$ = Maximum current capacity $_{building}$ - Energy meter reading

However, IF this calculated total available current is HIGHER than the parameter MAXIMUM STATION CAPACITY [A], the latter value is used instead:

IF:
[Maximum current capacity $_{building}$ - Energy meter reading]
< Maximum available current for EV charging
THEN:
Total available current $_{dynamic}$ = Maximum available current for EV charging

The algorithm then divides the total available current over the EV chargers, considering:

- Number of cars connected
- Maximum current capacity per car
- Energy delivered per car
- Charging stations' priorities

The parameter CHARGER PRIVILEGE determines the importance the Eaton load balancing algorithm attaches to each EV charger. This parameter can differ from one EV charger to the next. Please refer to Chapter 5.1.7. for setting the parameters on the configuration page of the EV charger.

Example

Three EV chargers will be installed in a building with a total current capacity of 100 A. The maximum load of all other installed equipment is 60 A. The electrical infrastructure supplying the EV chargers can supply 50 A. There is an energy meter present and EV charger 1 is reserved for an essential service vehicle that should always be charged as fast as possible. The parameters for the three EV chargers in this case should be as follows:

Parameters	EV charger 1	EV charger 2	EV charger 3
Dynamic load balancing enabled	Yes	Yes	Yes
Mode	Master	Node	Node
Hostname	masterhostname	eatongm (default)	eatongm (default)
Phase balancing limit	N/A, see Section 3.3	N/A, see Section 3.3	N/A, see Section 3.3
Energy meter enabled	Yes	Yes	Yes
Energy meter IP address	XXX	XXX	XXX
Maximum station capacity [A] [2]	50 A	50 A	50 A
Maximum current capacity of the building	100 A	100 A	100 A
Priority of charger	10	5	5
Master URI	wss://eatong mp03:223	wss://eatong mp03:223	wss://eatong mp03:223

[2] The electrical infrastructure supplying the EV chargers can supply 50 A.

For an energy meter reading of 80 A

The algorithm, in this case, will subtract the energy meter reading from the MAXIMUM CURRENT CAPACITY OF THE BUILDING: 100 A – 80 A = 20 A. This value is LOWER than the MAXIMUM STATION CAPACITY [A], therefore this value (20 A) is used as the total available current for EV charging. EV charger 1 has a PRIORITY OF CHARGER of 10, which means that most, if not all, the current will be used by EV charger 1.

For an energy meter reading of 20 A

The algorithm, in this case, will subtract the energy meter reading from the MAXIMUM CURRENT CAPACITY OF THE BUILDING: 100 A – 20 A = 80 A. This value is HIGHER than the MAXIMUM STATION CAPACITY [A], therefore the parameter MAXIMUM STATION CAPACITY [A] (50 A) is used as the total available current for EV charging. EV charger 1 has a PRIORITY OF CHARGER of 10, which means that EV charger 1 will charge faster and EV chargers 2 and 3 (PRIORITY OF CHARGER of 5) will divide the remainder of the total available current.

3.3 Phase balancing

For grid stability, the difference in current between phases should be limited as large differences decrease the power quality. In EV charging, the phase imbalance is created when there is simultaneous three-phase charging, two-phase charging, and one-phase charging. Most cars that charge in one phase use L1, hence increasing the difference in the current of L1 and the current of the other phases.

To ensure grid stability, it is good practice to alternate the phase connections during installation to have a robust and optimised system. On top of that, the Green Motion Building EV charger is equipped with a phase balancing algorithm that allows for a continuous monitoring and balancing of the phase current, ensuring grid stability at all times.

3.3.1 Alternating the phase connections

The schematics in Figure 3 explain how to wire multiple Green Motion Building EV chargers.

Step 1. Connect the wires of EV charger 1 in the numerical order of phases (L1 on terminal L1, L2 on terminal L2 and L3 on terminal L3).

Step 2. Connect the wires of EV charger 2 with the phases alternated one way (L2 on terminal L1, L3 on terminal L2 and L1 on terminal L3)

Step 3. Connect the wires of EV charger 3 with the phases alternated the other way (L3 on terminal L1, L1 on terminal L2 and L2 on terminal L3).

Step 4. Connect the wires of EV charger 4 in the numerical order of phases (L1 on terminal L1, L2 on terminal L2 and L3 on terminal L3), in the same way as EV charger 1.

Step 5. Repeat the cycle by connecting the wires of EV charger 5 like EV charger 2 and EV charger 6 like EV charger 3. The cycle should be repeated for all Green Motion Building EV chargers.

Figure 3. How to wire multiple Green Motion Building EV chargers
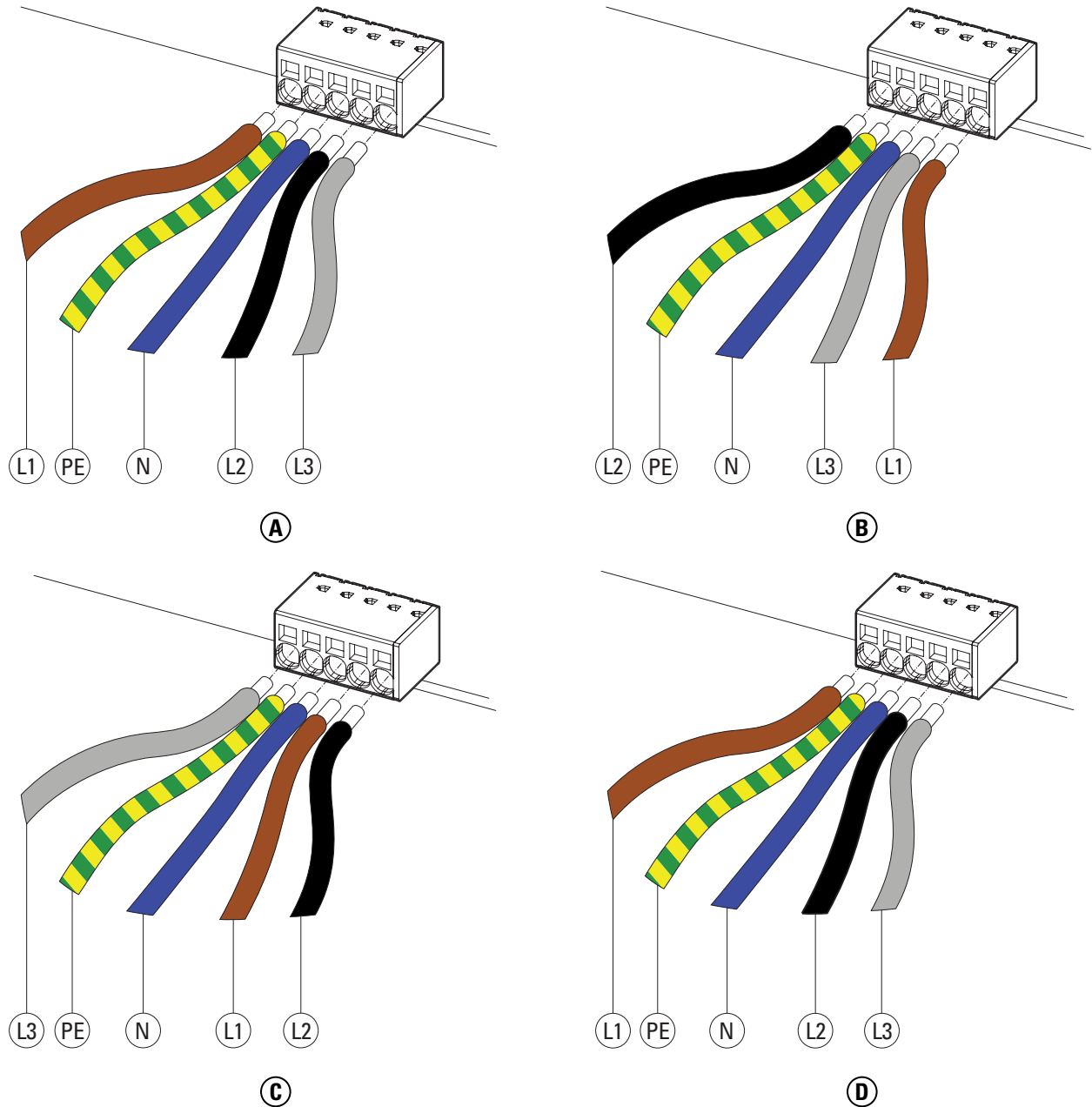
Tag	Description
A	EV charger 1: Standard wiring of phases
B	EV charger 2: Alternate phases
C	EV charger 3: Alternate phases again
D	EV charger 4: Back to standard wiring of phases

Tag	Description
L1	Line L1
L2	Line L2
L3	Line L3
PE	Protective Earth
N	Neutral

3.3.2 Phase balancing algorithm

For each EV charger, the phase alternance needs to be specified for the optimisation algorithm to come to the correct results.

On the configuration page, the association between the phase name at grid side (phase wires L1, L2 and L3) and at charger side (terminal L1, L2 and L3) can be set. Please refer to Chapter 5.1.7 to define the association.

4 Ethernet connection

The Green Motion Building EV charger can be connected to a router, a switch or to an energy meter through Ethernet. Follow the steps below to connect an RJ45 cable to the Green Motion Building EV charger.

Step 1. Open the Green Motion Building EV charger. See Chapter 10.1 of the Green Motion Building EV charger Installation manual.

Step 2. Locate the two Ethernet ports on the lower edge of the Control unit. The Ethernet port LAN 1 GBs is the rightmost Ethernet port. See Figure 4.

Step 3. Connect the RJ45 cable to the port.

Figure 4. Ethernet port location
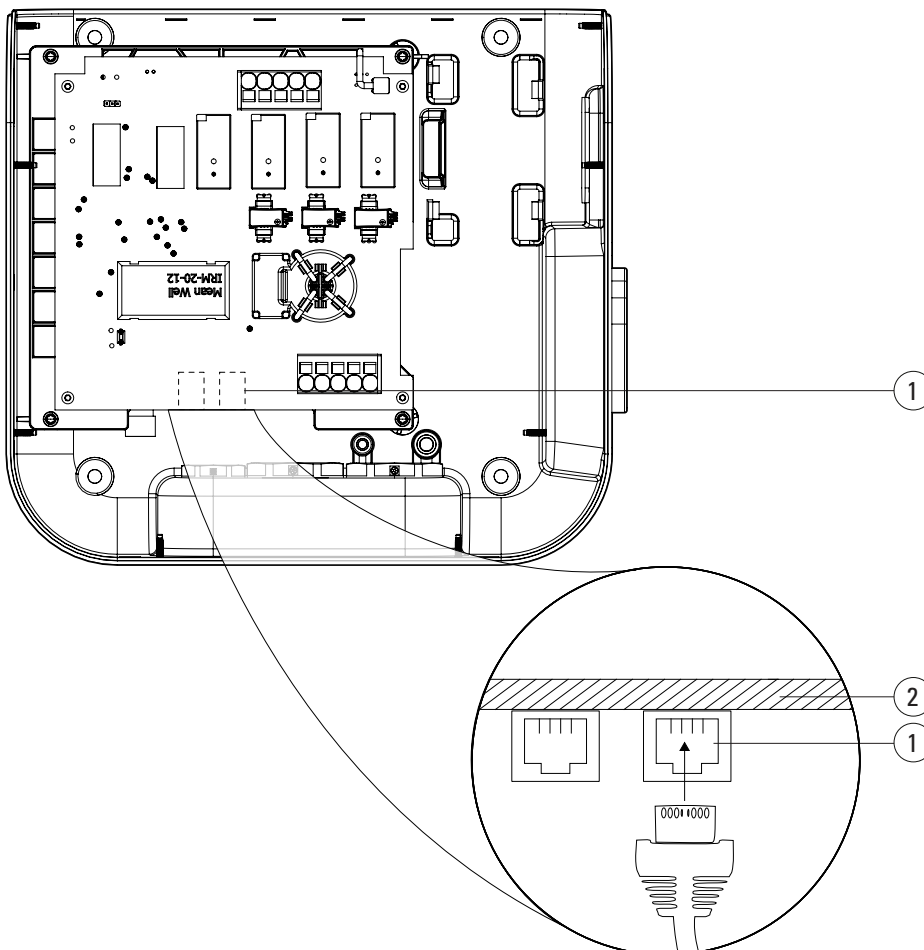
Tag	Description
①	Ethernet port LAN 1 GBs
②	Edge of PCB

For more details, please refer to the Green Motion Building EV charger installation manual.

5 Commissioning

Professional and qualified personnel must be expert in the field and are therefore responsible for commissioning the system in accordance with the manufacturer's instructions and local legislations.

5.1 Device configuration

To configure the settings for the Green Motion Building EV charger, access the configuration page through a Wi-Fi Hotspot and fill in the necessary parameters.
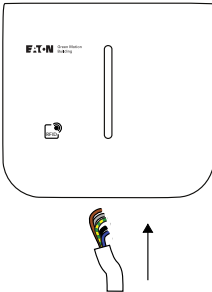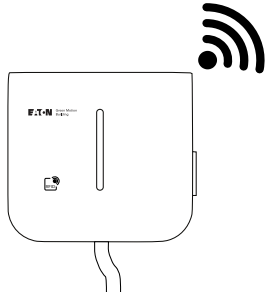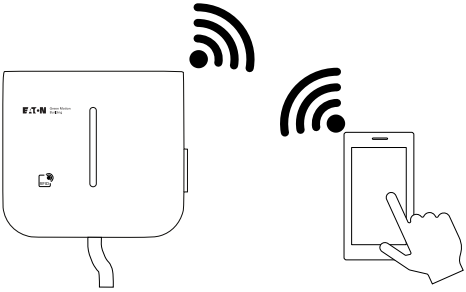
5.1.1 Access to configuration page

The configuration page is active for 30 minutes. After 30 minutes, you will need to switch the EV charger off and on to reactivate the configuration page.

Follow the steps below:

Step 1. Switch the EV charger off and on by switching the circuit breaker off and on.

Step 2. Turn on the Wi-Fi on your phone or computer.

Step 3. Display all the EV chargers that are detected by your phone or your computer.

Step 4. Select the EV charger unit on the list under the name **GM_MXXXX**, XXXX being the last four digits of the EV charger's serial number.

Step 5. Connect to the EV charger unit with the password: **GreenMotion!1052**

Step 6. Go to the address: **http://192.168.53.1.** The configuration page for the selected EV charger appears.

Step 7. You might have a warning message before accessing the configuration page. Click on continue.

Power the EV charger:

For 30 minutes the EV charger will provide a Wi-Fi hotspot:

Connect to the Wi-Fi hotspot by smartphone or laptop:

Configure the EV charger:

☞ If the fields are blank as below, check that you are connected to the Wi-Fi of the EV charger. If you have a Wi-Fi connection with the EV charger but the fields are still blank, try to clear cache.

The configuration page contains the most up-to-date information regarding the parameters.

5.1.2 Device configuration

☞ Do NOT change the BoxId, Name or Serial Number of the EV charger.

Step 1. Check the Plug & Charge check box if the selected EV charger requires NO authentication with RFID.

Step 2. Click on "**Apply**" and proceed to the next section.

5.1.3 Network configuration

Step 1. Define the hostname of the EV charger. You will use this hostname to connect the Nodes to the Master. Do not modify the **DHCPServer domain.**

  - For a Master EV charger the hostname is: **masterhostname**
  - For a Node EV charger the hostname is: **eatongm**

Step 2. Click on "**Apply**" and proceed to the next section.

5.1.4 OCCP configuration

Step 1. Check the **Online** check box if the selected EV charger requires an online connection with CPO software. In case the selected EV charger doesn't require an online connection, do NOT check the check box, skip this section and continue with the next paragraph.
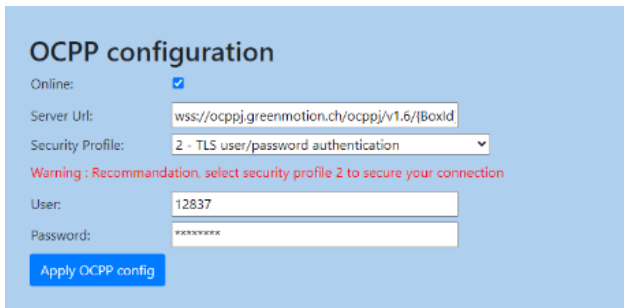
Step 2. Enter the URL of the OCPP server in the field Server URL. For the Eaton Charging network manager this URL is: **wss://ocppj.greenmotion.ch/ocppj/v1.6/{BoxId}**

This URL is followed by the BoxId of the selected EV charger.

Step 3. Select the Security Profile of the OCPP communication. It is strongly advised to use the following security profile: **2 – TLS user/password authentication**

Step 4. For the native Eaton Charging network manager OCPP connection the username is the BoxId of the EV Charger by default, no changes are required. In case of a 3rd party OCPP connection, enter the username for the OCPP server in the field **User**.

Step 5. For the native Eaton Charging network manager OCPP connection the username is given by default, no changes are required. In case of a 3rd party OCPP connection, enter the password for the OCPP server in the field **Password**.

Step 6. Click on "**Apply OCPP config**" and proceed to the next section.

5.1.5 Network configurations

There are several ways in which the EV chargers can be connected to the network. For the Ethernet network configuration given in Figure 5 - A the following sections of the configuration page of the EV chargers must be enabled and configured:

Table 3. Ethernet network configuration

	Ethernet 1 configuration	Wi-Fi Hotspot	Wi-Fi station configuration	Cellular configuration
Master EV charger	Fixed IP mode			
Node EV charger	Fixed IP mode			

For the Wi-Fi network configuration given in Figure 5 - B the following sections of the configuration page of the EV chargers must be enabled and configured:

Table 4. Wi-Fi network configuration

	Ethernet 1 configuration	Wi-Fi Hotspot	Wi-Fi station configuration	Cellular configuration
Master EV charger			SSID of local Wi-Fi network	
Node EV charger			SSID of local Wi-Fi network	

Figure 5. Network configurations
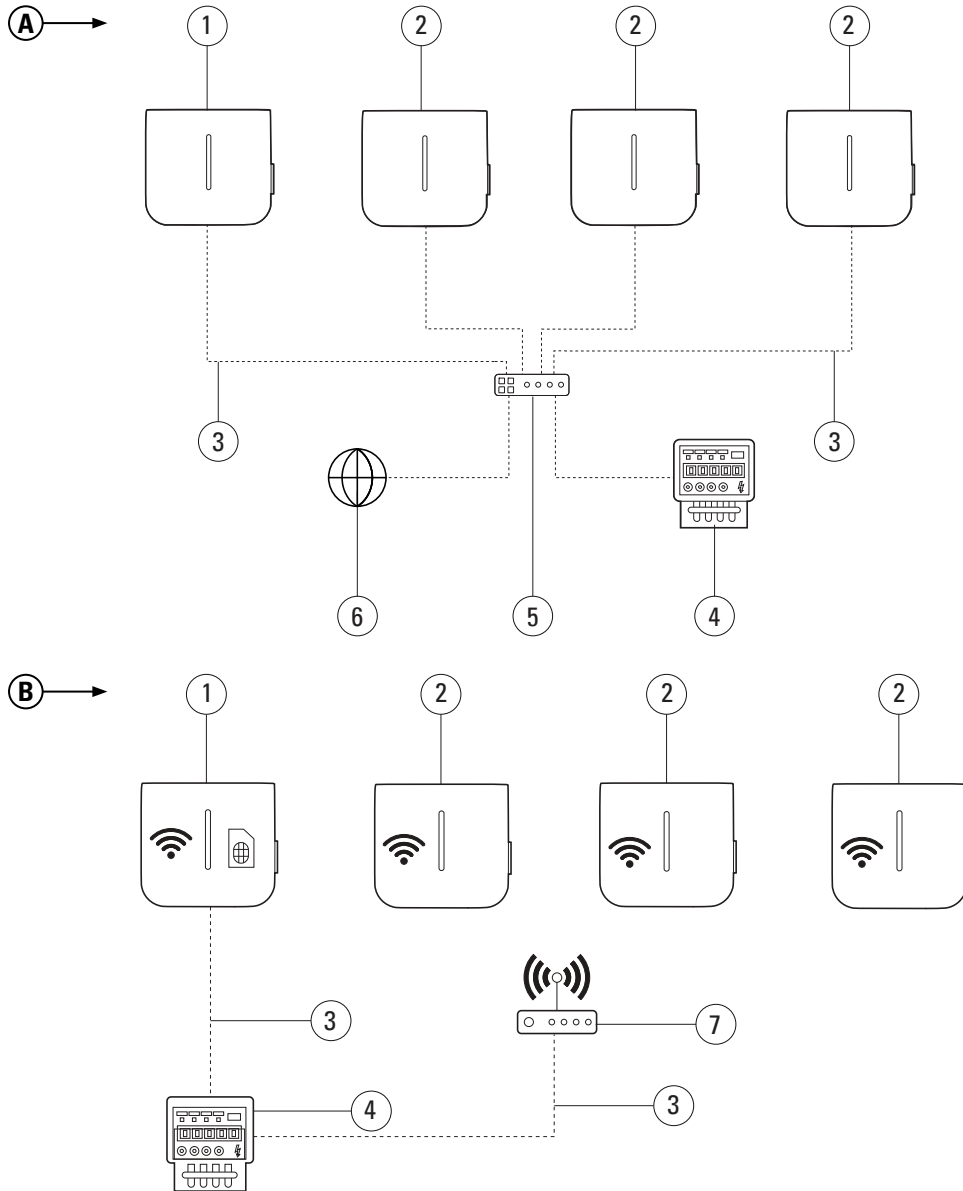
Tag	Description
A	Ethernet network
B	Wi-Fi network
1	Green Motion Building EV charger Master
2	Green Motion Building EV charger Node
3	RJ45 cable

Tag	Description
4	Energy meter
5	Ethernet router
6	Internet
7	Wi-Fi router

5.1.5.1 Ethernet 0 configuration

☞ The section on Ethernet 0 does not need custom configuration. Do NOT modify it.

5.1.5.2 Ethernet 1 configuration

Step 1. Check the Enabled check box if the selected EV charger uses an Ethernet connection via Ethernet port LAN 1 GBs.

Step 2. Select the **Mode** of allocating IP addresses, either **Fixed address** or **DHCP.**

     • For **Fixed address** continue with **Step 3.**

     • For **DHCP** continue with **Step 7.**

Step 3. Enter the **IP** address of the EV charger.

Step 4. (Optional) Enter the **Mask** of the EV charger.

Step 5. (Optional) Enter the **Gateway** of the EV charger.

Step 6. (Optional) Enter the **DNS** of the EV charger.

Step 7. Click on "**Apply config**". If the Ethernet connection has been configured correctly, the word "**Connected**" will appear in green.

5.1.5.3 Wi-Fi Hotspot

 The section on Wi-Fi Hotspot does not need custom configuration. Do NOT modify it.

5.1.5.4 Wi-Fi station configuration

Step 1. Check the **Enabled** check box if the selected EV charger uses a Wi-Fi connection.

Step 2. Enter the name of the Wi-Fi network in the field **SSID**. Beware, the SSID is case sensitive.

Step 3. Enter the password for the Wi-Fi network in the field **Passphrase**.

Step 4. Check the **DHCP** check box for allocating IP addresses with DHCP, leave the check box unchecked for allocating a fixed IP address.

   • For **Fixed address** continue with **Step 5.**
   • For **DHCP** continue with **Step 9.**

Step 5. Enter the **IP** address of the EV charger.

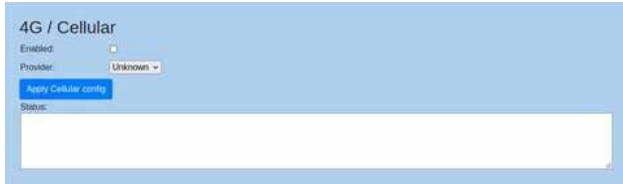**Step 6.** (Optional) Enter the **Mask** of the EV charger.

Step 7. (Optional) Enter the **Gateway** of the EV charger.

Step 8. (Optional) Enter the **DNS** of the EV charger.

Step 9. Click on "**Apply Wi-Fi Station config**" and proceed to the next section.

5.1.5.5 Cellular configuration

Step 1. Check the **Enabled** check box if the selected EV charger uses a 4G/Cellular connection.

Step 2. Select the SIM card **Provider**.

Step 3. Click on "**Apply Cellular config**" and proceed to the next section.

5.1.6 Grid installation configuration

Step 1. Check the Max current per phase [A] check box to limit the maximum current the selected EV charger uses and select the appropriate maximum current per phase in Ampere.

Step 2. Check the **Max overall power [kW]** check box to limit the maximum overall power the selected EV charger uses and select the appropriate maximum power in kW.

Step 3. Select the installation method used for the **Phases connection to station**. For an explanation of phase balancing and phase alternation, see Chapter 3.3

☞ The **Voltage (V)** is set at 230 V by default and should not be changed.

Step 4. Click on "**Apply Grid config**" and proceed to the next section.

5.1.7 Dynamic load balancing configuration

To understand the implications of the parameters that are configured in this section, please READ Chapter 3.

Before configuring the Load Balancing, choose the charger that will be the "**Master**" and ensure its hostname is given as such. See Chapter 5.1.3 - Step 1.

Step 1. Check the **Enabled** check box to enable the load balancing algorithm, the load balancing algorithm can be used for Phase balancing, as well as Static and Dynamic load balancing.

Step 2. Select the appropriate **Mode** for the selected EV charger, either "**Master**" or "**Node**" mode, the EV charger that is configured as "**Master**" controls the current distribution of the other EV chargers in the network that are configured as "**Node**".

Step 3. Check the check box **Phase Balancing Limit [A]** to enable the phase balancing algorithm and enter the limit in Amperes in the field given.

Determine the type of load balancing desired:
- For Dynamic load balancing continue with Chapter 5.1.7.1.
- For Static load balancing continue with Chapter 5.1.7.2.

5.1.7.1 Dynamic load balancing

Step 1. Check the check box **Energy Meter Enabled** if an energy meter is used and enter the IP address of the meter in the field given.

Step 2. Enter the maximum current [A] limit of the building/location in the field **Maximum building capacity [A]**. See Chapter 3 for an explanation of this value.

Step 3. Enter the maximum current [A] the local electrical infrastructure can supply to the EV chargers in the field **Maximum station capacity [A]**. See Chapter 3 for an explanation of this value.

Step 4. Enter the **Master URI.**
The Master URI can have two forms:
wss://MASTER-HOSTNAME:8080/{BoxId}
wss://MASTER-IP:8080/{BoxId}

Step 5. Enter the privilege of the selected EV charger in the field **Charger privilege**. The privileges range from AC1 (lowest privilege) to AC10 (highest privilege).

Step 6. Click on "**Apply load balancing config (requires reboot)**".

5.1.7.2 Static load balancing

Step 1. Enter the maximum current [A] the local electrical infrastructure can supply to the EV chargers in the field **Maximum station capacity [A]**. See Section 3 for an explanation of this value.

Step 2. Enter the **Master URI** in case the selected EV charger is configured as "**Node**". Leave the field **Master URI** empty in case the selected EV charger is configured as "**Master**".

Step 3. Enter the privilege of the selected EV charger in the field **Charger privilege**. The privileges range from AC1 (lowest privilege) to AC10 (highest privilege).

Step 4. Click on "**Apply load balancing config (requires reboot)**".

5.1.8 Switch EV charger off and on

 After defining all required parameters and clicking on apply for each modified section, the charger needs to be switched off and on before the modifications take effect.

5.1.9 Ports required for communication

The following port addresses are required for load balancing and for the communication of the terminal with the backend: 443, 80, 83, 123, 8080, 7, 53.

Make sure that your IT infrastructure allows access to these ports.

5.2 LED indicator

The list below summarises the possible LED indications and their significance during the operation of the Green Motion Building EV charger.

Figure 6. LED indicator of the Green Motion Building EV charger
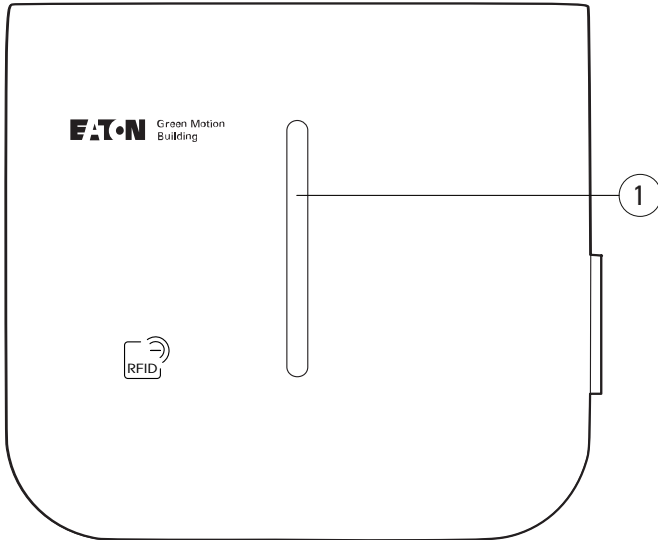
Tag	Description
①	LED indicator

Visual	Description
	Solid green light: EV charger ready for use
	Flashing green light: establishing a connection with the vehicle
	Flashing blue light: the vehicle is being charged
	Solid blue light: the vehicle is fully charged
	Solid red light: charging error or mechanical fault
	No light: EV charger has no power

5.3 Removing the plug

To remove the plug from the holder you need to pull it first vertically then horizontally. See Figure 7.

Figure 7. Removing the plug from the Green Motion Building EV charger
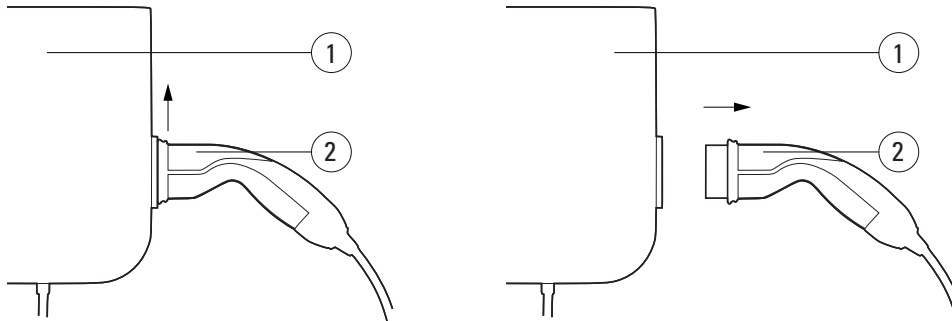
Tag	Description
①	Green Motion Building EV charger
②	Type 2 connector

6 Product warranty and technical support

Should any technical problems arise during the warranty period of the Green Motion Building EV charger, contact your local installer or 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

7 Appendix

Table 5. Parameters that can be set on the configuration page

Parameter	Description	To be installed by the electrician
Device configuration		
BoxId/ChargingStationId	Change Charging Station Designation	No
Name	Change the Charging Station name	No
Serial Number	Change the serial number of the charging station	No
Plug & Charge	If the box is ticked, the charge can start without authentication	Yes, if the authentication with RFID is not needed
OCPP server		
Online	Put the charging station online	Yes, if the charging station is online
Server URI	URI address of the OCPP server that is used	
Charging network manager URL:		
wss://ocppj.greenmotion.ch/ocppj/v1.6	Yes, if a third-party backend is used.	
Security Profile	Security Profile of the OCPP communication. It is strongly advised to keep the security profile 2.	
User	ID to connect to the OCPP server	Yes, if a third-party backend is used
Password	Password to connect to the OCPP server	Yes, if a third-party backend is used

Ethernet 0		
No configuration required		
Ethernet 1 (Right side Ethernet Port)		
Enabled	Activate Ethernet	Yes, if an Ethernet connection is used
Mode	Either Fixed either DHCP	Yes, if an Ethernet connection is used
IP address	In case of Fixed IP address	
Mask		Optional
Gateway		Optional
DNS		Optional
Wi-Fi Hotspot		
No configuration required		
Wi-Fi station		
Enabled	Enable the connection to a Wi-Fi router	Yes, if a Wi-Fi connection is used
SSID	Name of the Wi-Fi network	Yes, if a Wi-Fi connection is used
Passphrase	Password for the Wi-Fi connection	Yes, if a Wi-Fi connection is used
DHCP	Tick for a DHCP configuration	Optional
IP	In the case where IP is fixed	Optional
Mask		Optional
Gateway		Optional
4G/Cellular		
Enabled	Enable GSM connection	Yes, if option 4G
Provider	Select the SIM card provider	Yes, if option 4G
Grid installation		
Max current per phase	Limit the current value of the EV charger [A]	Yes, if the DIP switch is not enough
Max overall power [kW]	Limit the power of EV charger [kW]	Yes, if the DIP switch is not enough
Phase connection to the station	Specify if your phases are alternated or not	Yes
Dynamic load balancing		
Enabled	Enable load balancing	Yes, if Load Balancing is used
Mode	Choose between Master or Node	Yes, if Load Balancing is used
Phase Balancing Limit	Maximum current deviation tolerated between two phases	Yes, if Phase Balancing is used
Energy Meter enabled	Enable the use of an external energy meter Janitza UMG96RM-E	Yes, if Dynamic Load Balancing is enabled
Maximum building capacity [A]	Enter Energy meter IP address	Yes, if Dynamic Load Balancing is enabled
Maximum station capacity [A]	The maximum current [A] the local electrical infrastructure can supply to the EV chargers.	Yes, if Load Balancing is used
Master URI	Enter the Master URI in case the selected EV charger is configured as "Node". Leave the field Master URI empty in case the selected EV charger is configured as "Master".	Yes, if Load Balancing is used and the selected EV charger is configured as "Node"
Charger privilege	Assign a priority from 1 to 10 to a Green Motion Building EV charger. The EV charger with a priority level at 10 will have a high priority and a priority level at 1 will have a low priority.	
Firmware and Charge Statistics and Charge Session		
No configuration required		

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