

PowerShift Charger

Installation Manual

Version 1.0 - April 2024

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IMPORTANT CONVENTIONS

The following conventions are used in this manual:



Note:

Indicates additional information that is relevant to the current process or procedure.

WARNING

Warnings indicate a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Cautions indicate a hazardous situation which, if not avoided, could result in minor or moderate injury, or that could result in property or equipment damage.



IMPORTANT SAFETY AND WIRING INSTRUCTIONS

Save These Instructions

This manual contains important instructions that must be followed during installation.

WARNING

To ensure that the GM Home Energy system (“the system”) will operate and perform safely and as intended, the system must be designed, installed, commissioned and placed into operation only by qualified persons, and in compliance with all product requirements, including, but not limited to: equipment integrated as listed and not exceeding capacities or ratings; equipment secured, fastened and sealed as required; equipment components installed per National Electric Code ANSI/NFPA 70 requirements and best practices; equipment commissioned, provisioned and tested as required; and end users oriented for proper operation.

WARNING

The installation, adjustment, commissioning or repair of the system involves the risk of contact with potentially lethal voltages and currents. Read this entire guide before beginning the installation. Failure to follow the warnings and instructions may result in fire, electric shock or serious injury. Note and observe all warnings and remove all sources of energy prior to interfacing wiring or electrical panels.

CAUTION

If the equipment is damaged during installation, stop the installation and contact the GM Energy Support Center at 1-833-64POWER.



Safety and Compliance

WARNING

Read the entire manual before installation or usage of device.

To reduce the risk of fire, electric shock or serious injury:

- Do not put tools, material or body parts into the electric vehicle connector
- Do not use the GM Energy PowerShift Charger if the cabinet, power cord or charging cable is damaged or frayed, if the insulation material is broken or if the system shows any other signs of damage
- Do not install or use the GM Energy PowerShift Charger if the enclosure is broken, cracked, open or shows any other indications of damage
- Do not touch the contacts of the Charging Coupler
- Before charging, you must check the exterior of the system for any damage
 - Check to see if the Charging Coupler is wet/damp or has any dirt or debris
 - Check if the charging cable has any slashes or cracks
 - Check if the insulating material has any wear and tear
 - Check if the charging cable output is firm and stable
- Do not use a water hose or pressure washer to clean the charger
- When installed outdoors, do not open front or middle cover when it is raining or snowing
- GM Energy is not responsible for physical injury, damage to property or damage to equipment caused by the installation of this device
- The GM Energy PowerShift Charger does not have its own main switch. The circuit breaker installed on the building is used as a main isolation device. Use a normal non-GFCI breaker for overcurrent protection. Do not use a GFCI breaker



Installation Site Selection

The GM Energy PowerShift Charger can be installed in both indoor and outdoor environments. It is necessary to consider the installation conditions and protection at the site.

WARNING

To reduce the risk of fire, electric shock or serious injury, do not install the system in or on any of the following:

- Locations near flammable liquids or vapors
- Locations where the charging system may be struck or hit by falling objects (e.g., near where a car door could be opened or under hanging objects)
- Locations where the charging system might be sprayed by water (e.g., near a self-service car wash, water jet or garden hose)
- Locations where the charging system's charging cable may be tripped over
- Surfaces that are not sturdy enough to withstand the mechanical stress of use

If possible, install the charging system in a location with no direct sunlight or rainfall to prevent damage caused by the weather, ice, snow or hail.

CAUTION

- Select a location where the cord can easily reach the charging port on the vehicle and the vehicle will not drive over the cord (the cord length: 25 ft.)
- Ensure GM Energy PowerShift Charger ambient temperature is within -40°F and 122°F (-40°C and 50°C). Sun shading is recommended for install locations exposed to direct sunlight and where ambient temperatures can exceed 104°F (40°C)



Note:

- Confirm adequate Wi-Fi signal strength at the determined mounting location of the GM Energy PowerShift Charger
 - Signal strength of -75dB or greater at both locations is required in order to commission this system. A stronger Wi-Fi signal will be less negative, or closer to zero



Service Wiring

Ground Connection

The GM Energy PowerShift Charger must be installed compliant with local codes and standards, and the main service must always have the Neutral connection to Earth Ground (PE). The GM Energy PowerShift Charger requires 240V single-phase connection with Earth Ground (PE).

240V Single-Phase (L1, L2, PE)

⚠ CAUTION

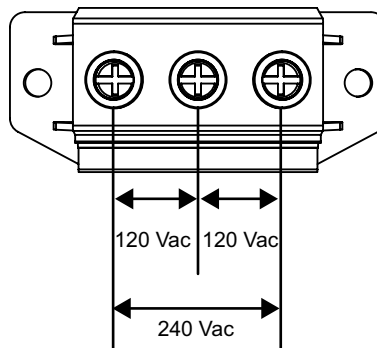
The GM Energy PowerShift Charger is a single-phase device; do not connect to a three-phase feed.

⚠ CAUTION

The following diagram illustrates the GM Energy PowerShift Charger connection to L1 and L2 in a single-phase power grid feed. The Earth Ground must be connected to Neutral at a single point: at the main service disconnect point.

⚠ CAUTION

An Earth connection is essential before connecting supply.



Federal Communications Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.



INTRODUCTION

The GM Energy PowerShift Charger was designed for GM electric vehicle (EV) home charging. Its wall mounting design allows for flexible installation, making the process easier for technicians and homeowners alike. The GM Energy PowerShift Charger also features network communication capabilities to update the user with real-time information.

When paired with the GM Energy Vehicle-to-Home (V2H) Enablement Kit, the GM Energy PowerShift Charger can also direct power from a Compatible GM EV back to the home. With bidirectional charge and discharge power, the GM Energy V2H Bundle (GM Energy PowerShift Charger and GM Energy V2H Enablement Kit) has the ability to provide power to a home in the event of a power outage.

This manual was designed for installers of the GM Energy PowerShift Charger e1.19, referred throughout this manual as the GM Energy PowerShift Charger.



Note:

- A GM EV is a General Motors electric vehicle
- A Compatible GM EV is a General Motors electric vehicle equipped with discharging capabilities. For compatibility details, refer to the [GM Energy website](#)



BEFORE INSTALLATION

Safety Requirements

- A disconnect switch for each ungrounded conductor of AC input shall be provided by the installer in accordance with the National Electric Code, ANSI/NFPA 70

WARNING

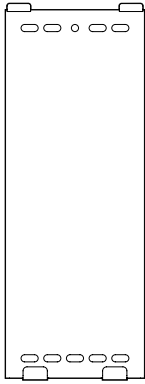
Connections to the main power distribution cable should only be performed by qualified persons with appropriate PPE in accordance with NFPA 70E.

WARNING

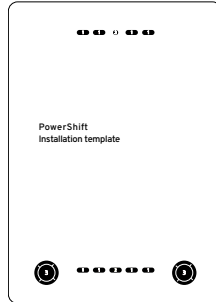
To reduce risk of fire for 1 phase 240VAC input, in accordance with the National Electric Code, ANSI/NFPA 70, the final branch circuit overcurrent device for the GM Energy PowerShift Charger should be installed with rated current in accordance with DIP switch settings (reference section [“Configuring the DIP Switches”](#)).



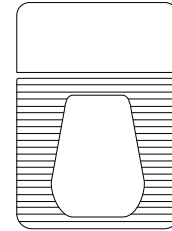
Accessory Kit



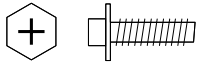
Mounting bracket



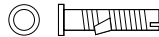
Mounting template



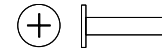
CCS1 holster



Wall mounting screws for GM Energy PowerShift Charger x 4
(Lag Screw M8 L60)



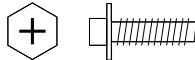
Wall mounting screw anchors for GM Energy PowerShift Charger x 4
(Anchor 10x50)



Flat bracket screws for GM Energy PowerShift Charger x 2
(Screw Flat M6 L30)



Hex bracket screws for GM Energy PowerShift Charger x 2
(Screw Hex M6 L14)



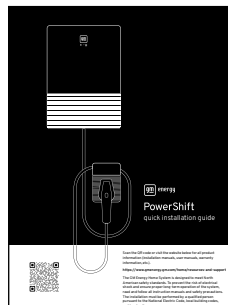
Wall mounting screws for holster x 2
(Lag Screw M8 L60)



Wall mounting screw anchors for holster x 2
(Anchor 10x50)



Screws for holster x 2
(Screw Flat M4 L10)



Quick Installation Guide



Recommended Tools

The following tools are recommended for the GM Energy PowerShift Charger installation:

- Appropriate personal protective equipment (PPE) for the application
- Tape measure
- Pencil or marker
- Power drill
- 10 mm (3/8") concrete masonry drill bit (for installations in concrete wall)
- 5-6 mm (7/32") wood drill bit
- Channellock pliers
- Ferrule crimper
- Torque tool(s) (values from 3.5 to 33 in.-lbs.)
- Caulking gun (and sealant for outdoor installations)
- Voltmeter or multimeter
- Water level
- T20 Torx head bit
- PH3 Cross head bit
- 1/8-in. flat blade head bit
- 13 mm socket wrench
- Wire cutters/wire strippers
- Hole saw (1/2" – 1-1/4" Trade Size)

Hole Saw Size (in.)	Hole Size (mm)	Conduit/Pipe Size (in.)
7/8"	22.225	1/2" EMT, 1/2" Rigid
1"	25.4	3/4" EMT, 3/4" Rigid
1-1/8"	28.575	1" EMT, 3/4" Rigid
1-3/4"	44.45	1-1/4" EMT, 1" Rigid



Important Safety Instructions

WARNING

To reduce the risk of electric shock or serious injury, turn off power at the panel board or load center before working inside the equipment or removing any component. Do not remove circuit protective devices or any other component until the power is turned off.

CAUTION

To avoid damage to the charger or personal injury, make sure the installation location is able to support the weight of the GM Energy PowerShift Charger.



INSTALLING THE GM ENERGY POWERSHIFT CHARGER

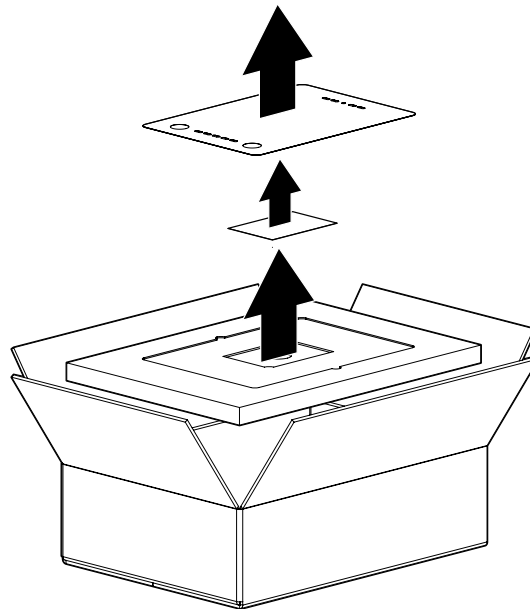


Note:

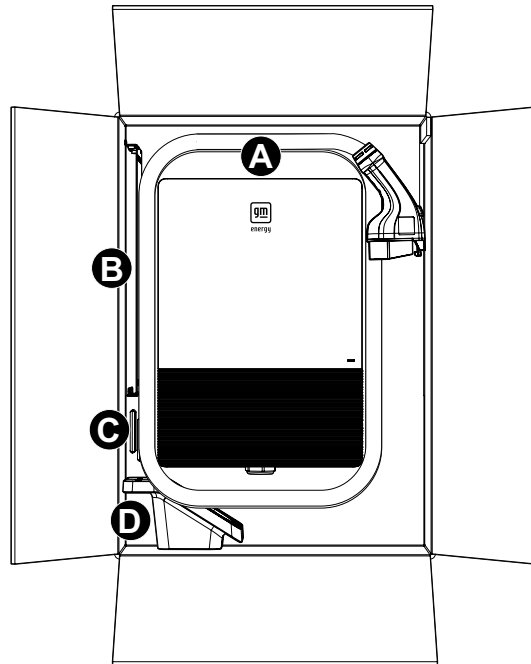
The GM Energy PowerShift Charger can be installed as a GM EV charger only (AC Power) or as part of the GM Energy V2H Bundle (AC and DC Power).

Preparation

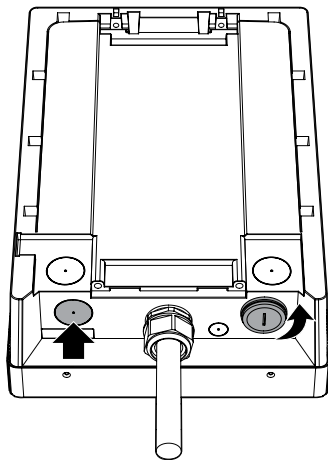
1. Open the top side of the box
2. Take out the mounting template
3. Take out the Quick Installation Guide
4. Remove the top foam



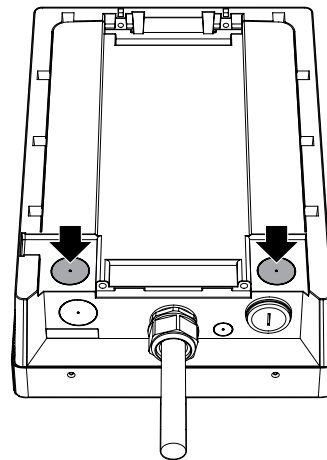
5. Take out the unit (A), mounting bracket (B), two bags of screws (C) and Charging Holster (D) from the packaging



6. Create openings for bottom-fed or rear-fed wiring, depending on what works best for the installation space
- **For bottom-fed wiring:** Use a flat-headed screwdriver to remove the waterproof cap from the bottom of the enclosure. Also, additional wiring portals can be drilled open on the rear or bottom of the enclosure as needed, depending on the installation site wiring
 - **For rear-fed wiring:** Drill open the two wiring portals on the rear of the enclosure



Bottom-fed wiring



Rear-fed wiring

CAUTION

- Before drilling, place the system face down on a flat surface with a protective covering or sheet to prevent the front of the system from getting damaged
- When drilling out holes for raceways, take care to not damage internal components. Remove debris from drilled raceway holes



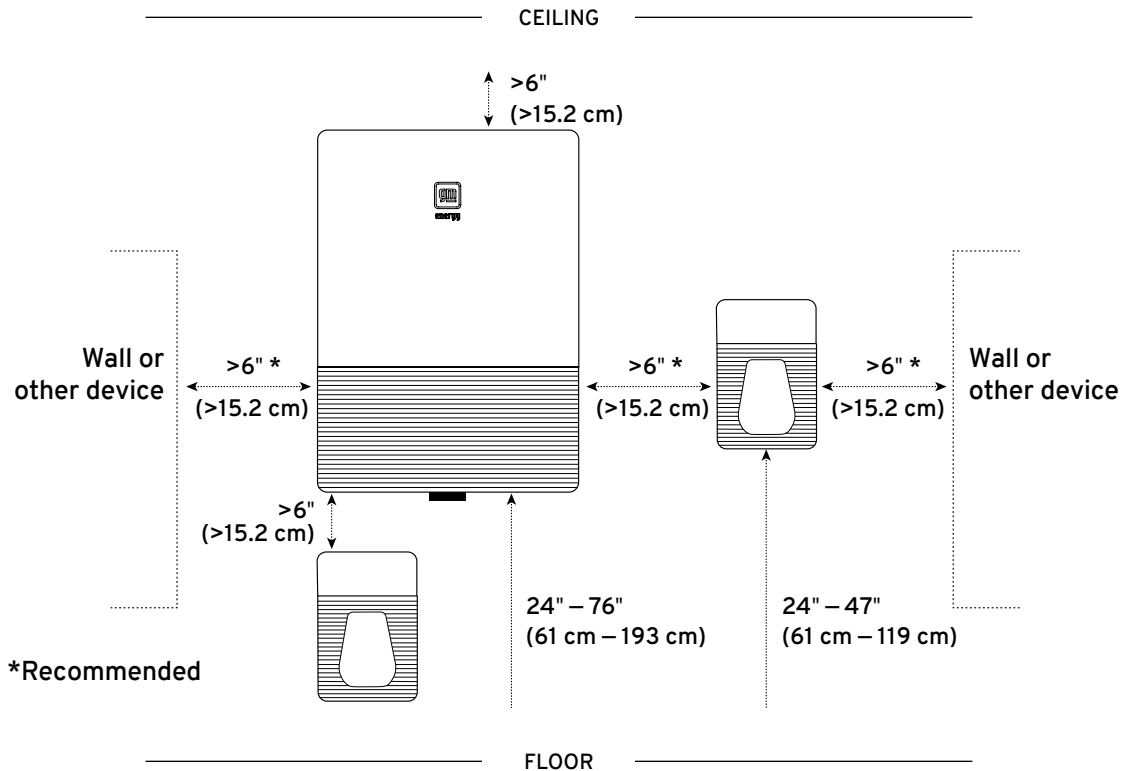
Note:

- When drilling the openings for the wiring, reference table in ""Recommended Tools" on page 13 for hole size and associated conduit/pipe
- When drilling the openings for the wiring, ensure the drill is centered on the dimple of the respective wiring portal
- Watertight conduit connector is required for incoming wires, up to 1-1/4" trade size on guided dimples. AC threaded inlet takes 1-1/4" trade size
- Watertight conduit connectors are required to maintain NEMA rating of device. Watertight connections are only required for external installations or internal installations where exposure to water may occur. Connectors may be up to 1-1/4" trade size.



Wall Mounting

The range of distance between where the unit and Charging Holster can be mounted alongside their surroundings, including other objects, is indicated in the image below:



CAUTION

Install the GM Energy PowerShift Charger on a non-flammable support that is suitable to handle the weight of the unit.



Note:

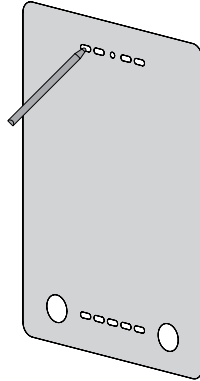
- Ensure ambient temperature is between -40°F and 122°F (-40°C and 50°C)
- The image above shows the Charging Holster installed to the right of the unit. The same range of distance is applicable if the holster is installed to the left of the unit

This manual specifies the most common mounting types; for any applications out of this scope, it is the responsibility of the qualified technician to ensure that the mount is adequate to support the components.



1. Mount the bracket and Charging Holster per the appropriate wall type:

- **Drywall and stud framing (centered):** The thickness of the drywall must be equal to or less than 12.7 mm (1/2"). Use the provided sets of mounting screws to secure the bracket centered on the wooden stud behind the drywall and the Charging Holster on the wall

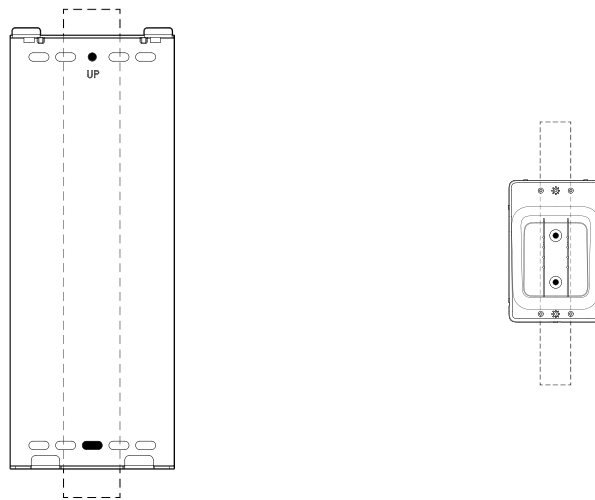


– **Bracket**

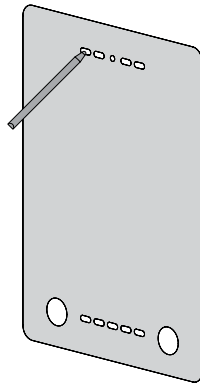
Use the mounting template to mark at least 2x locations on the wall for wooden stud mounting as shown in the figure below. Drill a pilot hole at the locations marked with a 7/32" drill bit into the drywall and stud a depth of ~2-1/2". Drive the provided 2x M8 lag screws through the bracket, securing to the wall. Ensure screws have more than 1-1/2" engagement into solid wood

– **Charging Holster**

Use the Charging Holster as a template to mark 2x screw holes over your stud location on the drywall. Drill a pilot hole at the locations marked with a 7/32" drill bit into the drywall and stud a depth of ~2-1/2". Drive the provided M8 lag screws through the Charging Holster, securing to the wall. Ensure screws have more than 1-1/2" engagement into solid wood



- **Drywall and stud framing (offset):** The thickness of the drywall must be equal to or less than 12.7 mm (1/2"). Use the provided set of mounting screws to secure the bracket offset to the left or right on the wooden stud behind the drywall

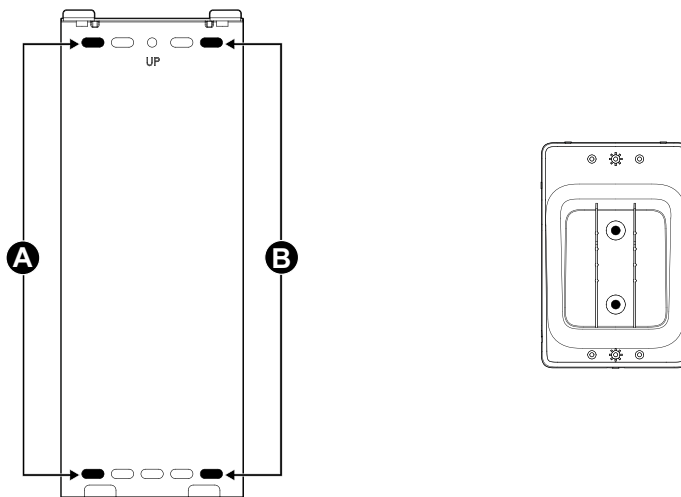


– **Bracket**

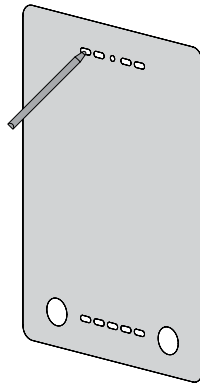
Use the mounting template to mark at least 4x locations marked A or B for 1 side wooden stud and 1 side drywall mounting as shown in the figure below. Drill a pilot hole at 2x locations marked A or B on the bracket below with a 7/32" drill bit into the stud a depth of ~2-1/2". Drive the provided 2x M8 lag screws through the bracket, securing to the wall. Ensure screws have more than 1-1/2" engagement into solid wood. For the drywall-only side of the bracket, use at least a #12 drywall-rated anchor and screw set, following manufacturer instructions for mounting, to secure bracket to wall at remaining 2x locations at least. Ensure screw head has sufficient contact to bracket

– **Charging Holster**

Use at least a #12 drywall-rated anchor and screw set, following manufacturer instructions for mounting, to secure the Charging Holster to wall at the 2x locations marked. Ensure the screw head has sufficient contact to the Charging Holster



- **Non-cracked concrete, cinder block or brick:** Use four sets of the provided mounting screws and anchors to secure the bracket on the wall, and two sets of the provided mounting screws and anchors to secure the holster on the wall, using the following locations on the template/bracket

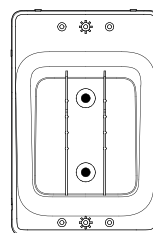
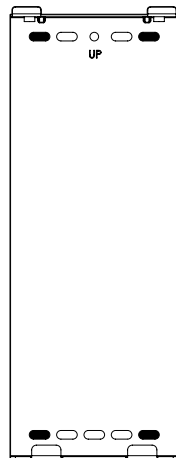


– **Bracket**

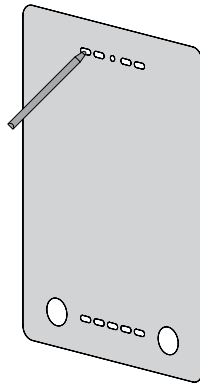
Use the mounting template to mark the wall in at least the 4x locations shown on the bracket below for concrete or brick mounting. Drill a pilot hole at the 4x locations marked on the bracket below with a 3/8" masonry drill bit a depth of ~2-1/2". Insert the 4x anchors and drive the provided 4x M8 lag screws through the locations marked, securing the bracket to the wall

– **Charging Holster**

Use the holster as a template to mark 2x screw holes in your wall at the desired location. Drill a pilot hole at the locations marked with a 3/8" masonry drill bit to a depth of ~2-1/2". Insert the 2x anchors and drive the provided 2x M8 lag screws through the locations marked, securing the Charging Holster to the wall



- **Solid wood:** Use four sets of the provided mounting screws to secure the bracket on the wall, and two sets of the provided mounting screws to secure the holster on the wall, using the following locations on the template/bracket

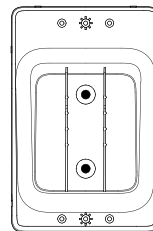


– **Bracket**

Use the mounting template to mark the wall in at least the 4x locations shown on the bracket below. Drill a pilot hole at the 4x locations marked on the bracket below with a 7/32" drill bit to a depth of ~2-1/2". Drive the provided 4x M8 lag screws through the locations marked, securing bracket to the wall

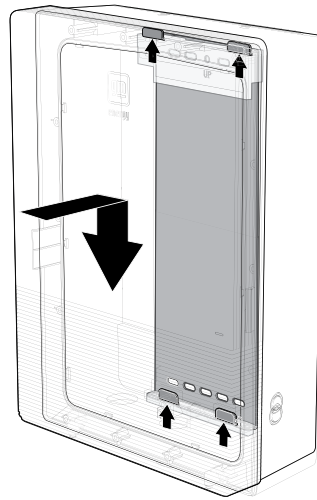
– **Charging Holster**

Use the holster as a template to mark 2x screw holes in your wall at the desired location. Drill a pilot hole at the locations marked with a 7/32" drill bit a depth of ~2-1/2". Drive the provided 2x M8 lag screws through the locations marked, securing the Charging Holster to the wall



Installing the GM Energy PowerShift Charger

1. Place the unit onto bracket
 - a. Horizontally align the slots on the back chassis of the unit to the corresponding hooks on the bracket
 - b. Slowly slide down the unit until it sits firmly on the bracket

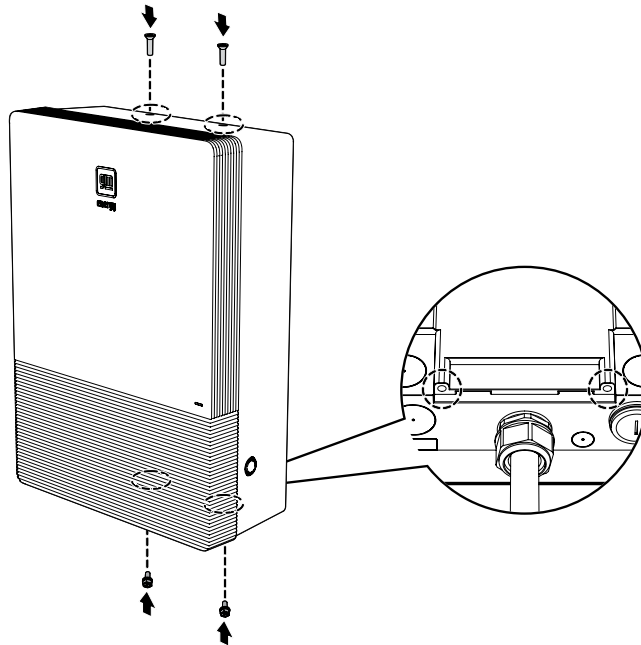


Note:

- When the unit is placed on the bracket correctly, the plane of the front chassis should be completely parallel to the wall. If the unit is somewhat slanted or uneven, lift the unit off the bracket and repeat this step until it is correctly placed on the bracket
- If rear raceway entries will be used, prepare raceway fittings and apply sealant on wall above entry (entries) if outdoors



2. Fasten the two flat bracket screws (M6x30 mm countersunk screw) from the top (torque: 20 kgf-cm/17.4 lbf-in.) and the two hex bracket screws (M6x14 mm hex head screw) from the bottom (torque: 20 kgf-cm/17.4 lbf-in.)



Note:

Use the flat screws and hex screws provided in the accessory kit for the top and bottom, respectively.

Installing the Charging Holster

Before completing the following steps, ensure the Wall Mounting process (found on pages 18-22) is complete.

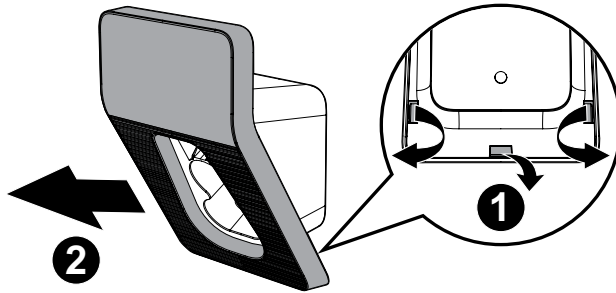


Note:

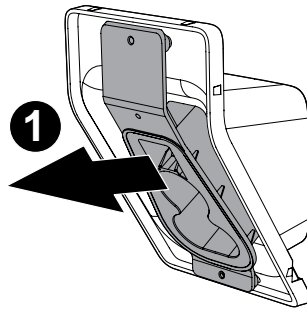
Ensure the position of the Charging Holster is within the range described in the “Wall Mounting” section on page 18.



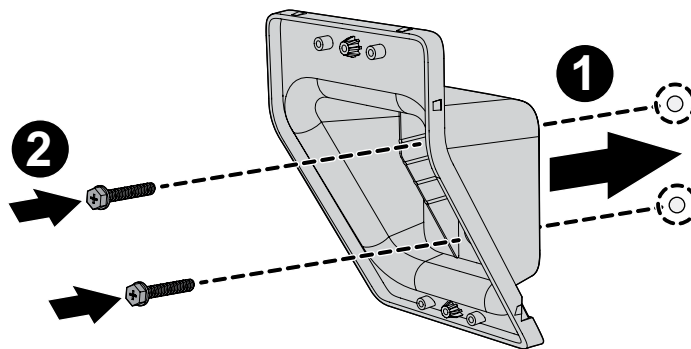
1. Insert the appropriate hardware into the holes
2. Pry the latches of the front cover outwards from the rear of the Charging Holster and remove the front cover from the Charging Holster assembly



3. Remove the inner slot from the Charging Holster



4. Mount the Charging Holster onto the wall using the M8 lag screws provided

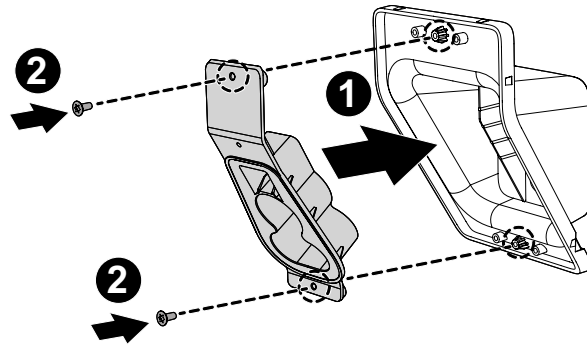


Note:

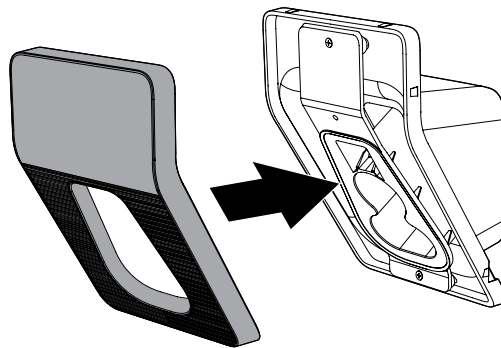
Use the screws and screw anchors provided in the accessory kit. A drill might be needed for certain conditions.



5. Re-insert the inner slot into the Charging Holster and fasten its two screws. Use M4x10 mm screws and Torx T20 head bit (Torque: 12 kgf-cm/10.4 lbf-in.)

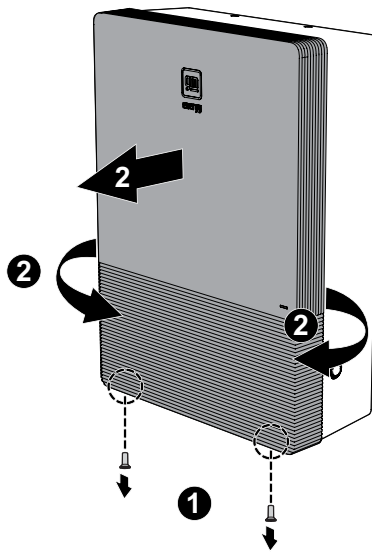


6. Re-install the front cover onto the Charging Holster until it clicks into place



RACEWAYS AND WIRING CONNECTIONS

1. Remove the front cover for wiring
 - Remove two screws from the bottom
 - Use T20 Torx head bit
 - Pry the left and right sides of the front cover outwards
 - Remove the front cover from the unit

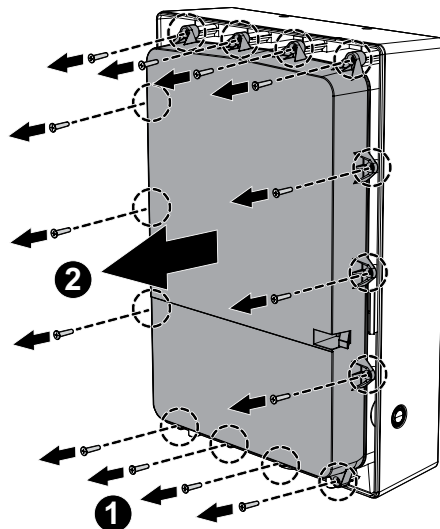


2. Remove the middle cover for wiring
 - Remove the 14 screws from the sides of the middle cover
 - Remove the middle cover from the unit



Note:

After removing the 14 screws, keep them in a safe location nearby so they will not get misplaced.



3. Install raceways and conductors for AC circuit and, if applicable, DC circuit and communication cables and conductors. Mark cables for proper terminations. If using the 1-1/4" threaded hole on bottom, remove raceway plug from bottom left. Drill out raceway holes on bottom or rear of enclosure as needed
4. Preferred wire routing options are shown below. Make sure the wiring can sufficiently reach the connectors before securing. Alternate options can be utilized if they are compliant with electrical code guidelines

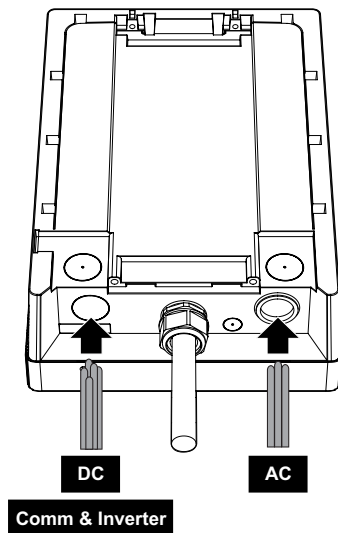


Note:

- Maximum raceway size: 1-1/4" (31.75 mm) conduit connector
- Minimum raceway size: 1/2" (12.7 mm) conduit connector
- Ingress protection rating: NEMA 4X min. (when using watertight connectors)

Bottom-fed wiring:

- With the back of the unit facing up, feed the AC wires through the right-side opening
- Feed the DC wires (if applicable) through the left-side opening
- Feed the communication cable and inverter wires (if applicable) through the left-side opening

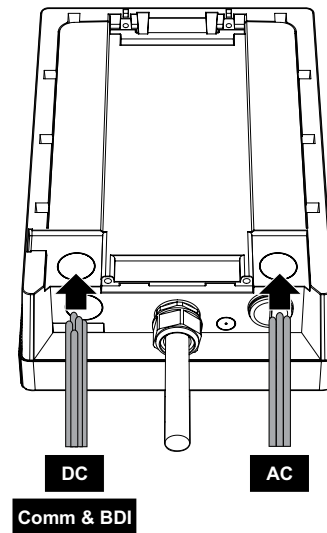


Bottom-fed wiring



Rear-fed wiring:

- With the back of the unit facing up, feed the AC wires through the right-side opening
- Feed the DC wires (if applicable) through the left-side opening
- Feed the communication cable and inverter wires (if applicable) through the left-side opening



Rear-fed wiring

5. Continue with connecting the wires; see the following sections



AC Wire Connections (from Power Grid)

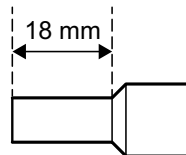
GM Energy PowerShift Charger Connections				
NO.	LOCATION	CONDUCTOR CROSS-SECTION	SCREW TORQUE	CONNECT TO
1	L1/PE/L2	2 AWG/2 AWG-8 AWG/2 AWG	33 in.-lbs.	Grid

AC Wire Specifications:

L1 and L2 Wires: 2 AWG, screw torque: 33 in.-lbs., 90°C, 600V above, copper wire

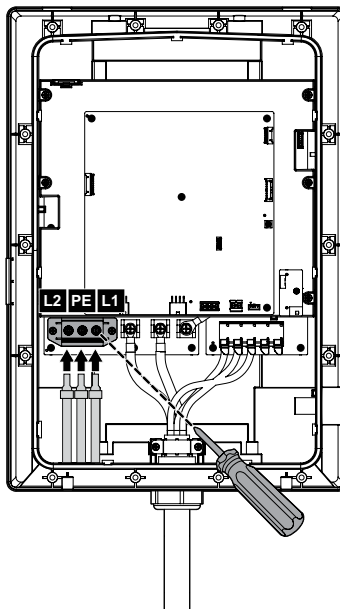
PE Wire: 8 AWG, screw torque: 33 in.-lbs., 90°C, 600V above, copper wire

1. Strip the wires 0.71" (18 mm), recommended to crimp insulated ferrules on each end terminal sized per conductor gauge



2. Connect the wires

- Insert the corresponding power conductors and grounding conductor to the respective input terminals marked “L2,” “PE” and “L1”
- Secure each conductor at the terminal with a Phillips-head torque tool (torque: 38 +/- 2 kgf-cm/33 +/- 2 lb.-in.)

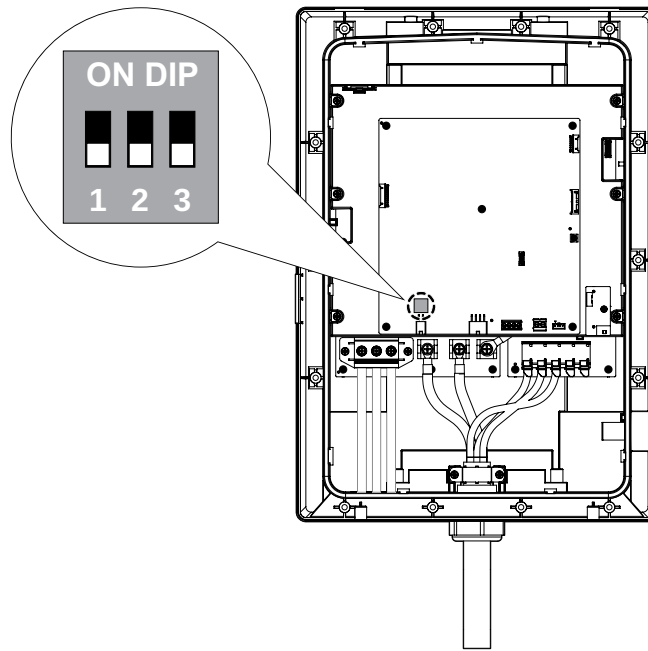


3. Once you have connected the AC wires, configure the DIP switches to set the maximum output current ratings



Configuring the DIP Switches

The factory default output is 0A for the GM Energy PowerShift Charger. Use the DIP switches to configure the maximum output current ratings.



Max. AC Output	Pin Configuration			Example	Circuit Breaker Amps
	1	2	3		
0A (Default)	Off (0)	Off (0)	Off (0)		N/A
16A	On (1)	Off (0)	Off (0)		20
24A	Off (0)	On (1)	Off (0)		30

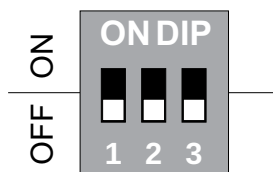


Max. AC Output	Pin Configuration			Example	Circuit Breaker Amps
	1	2	3		
32A	On (1)	On (1)	Off (0)		40
40A	Off (0)	Off (0)	On (1)		50
48A	On (1)	Off (0)	On (1)		60
64A	Off (0)	On (1)	On (1)		80
80A	On (1)	On (1)	On (1)		100

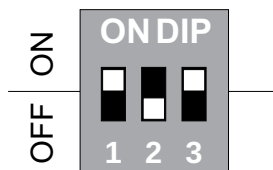


Configuring DIP Switches During Initial Installation

1. Open the middle cover and locate the DIP switch. The default setting should be 000



2. Change the DIP switch to the desired output current based on pin configuration table. The example below is for a 48A output current

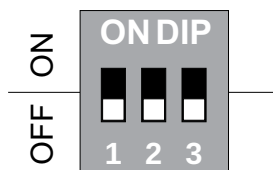


3. Turn on the breaker to power on the GM Energy PowerShift Charger. When the LED lights up solid white, plug the Charging Coupler into the GM EV to start charging
4. The installer can use the commissioning app to confirm whether the DIP switch setting has been completed. See “Commissioning the Device Via Mobile App” on page 42 for more information

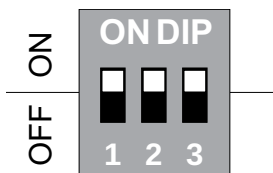
Changing Output Current After Initial Setup

Refer to the following steps if the output current has already been set using the DIP switches and you want to change the output current.

1. Power off the GM Energy PowerShift Charger and open the middle cover
2. Change the DIP switch to the original factory settings (e.g., 000)



3. Power on the GM Energy PowerShift Charger until the LED lights up solid red
4. Turn off the breaker to power off the GM Energy PowerShift Charger
5. Change the DIP switch to the new desired output current based on pin configuration table. The example below is for a 80A output current



6. Turn on the breaker to power on the GM Energy PowerShift Charger. When the LED light is solid white, plug the Charging Coupler into the GM EV to start charging
7. The installer can use the commissioning app to confirm whether the DIP switch setting has been completed. See “Commissioning the Device Via Mobile App” on page 42 for more information



DC Wire Connections (Only if Installed with V2H Enablement Kit)

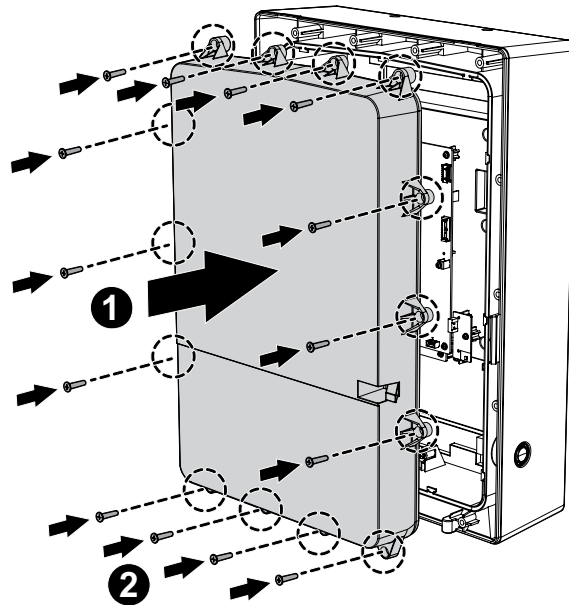
The GM Energy V2H Enablement Kit is required for DC wire connections. See GM Energy V2H Bundle System Installation Instructions available at <https://gmenergy.gm.com/for-home/installation-support>



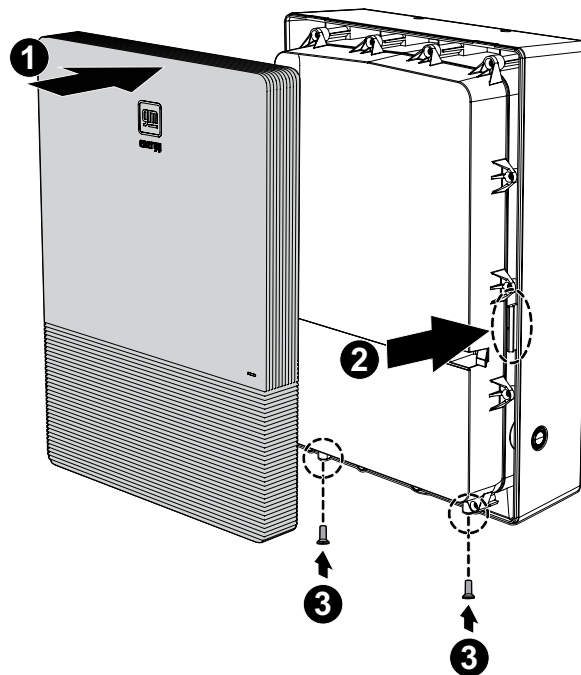
Completing the Installation

Once you have finished making all the connections, follow the steps below.

1. Put the middle cover back and fasten the 14 screws (M4x12 mm Torx T20 head bit) securely using a T-20 torque tool (torque: 12 kgf-cm/10.4 in.-lbs.)



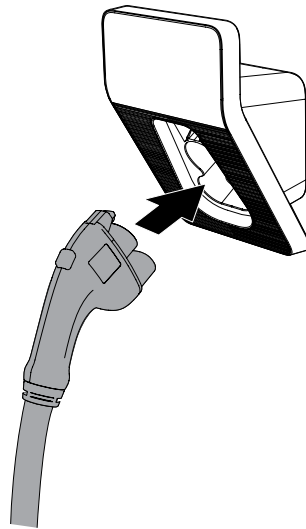
2. Hook the top features of the front cover, then the side hook features to the back cover, and then fasten the two screws (M4x10 mm Torx T20 head bit) securely (torque: 12 kgf-cm/10.4 in.-lbs.)



3. Properly place the Charging Coupler into the Charging Holster

CAUTION

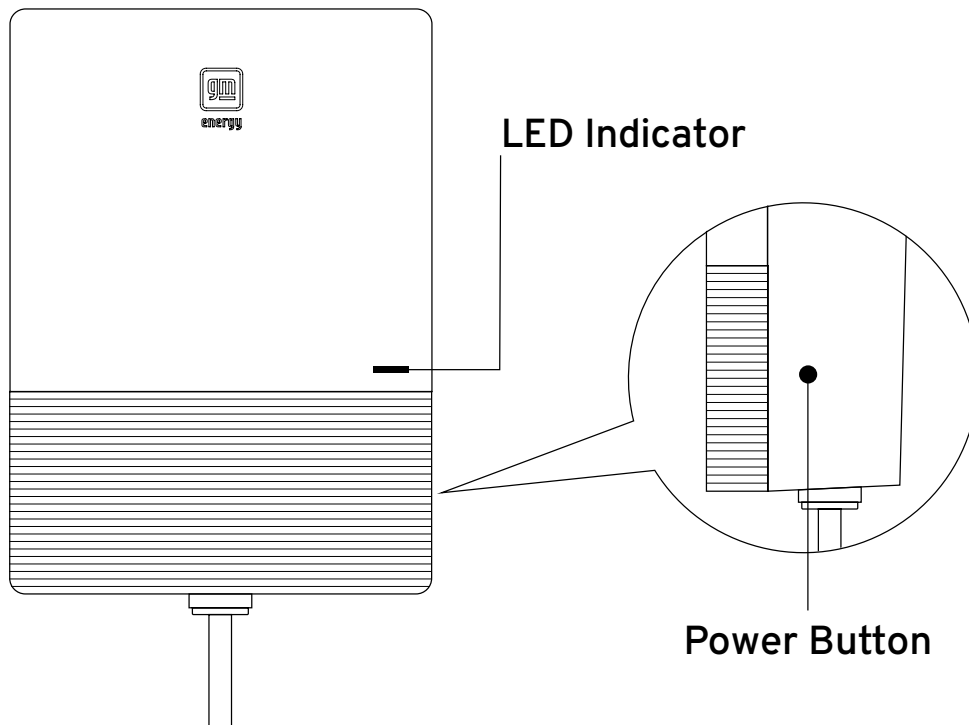
When the Charging Coupler is not being used to charge a GM EV, ensure that it is placed into the Charging Holster properly. DO NOT leave it on the floor/ground.



COMMISSIONING THE DEVICE

To commission the device after proper installation, the installer will need to access the commissioning app and follow the on-screen prompts. For detailed instructions on commissioning the device, review the “Commissioning the Device Via Mobile App” section.

THE GM ENERGY POWERSHIFT CHARGER



Power Button Behavior

Action	Behavior
Press, hold for 10 or more seconds, and release	Reboots the GM Energy PowerShift Charger
When the GM Energy PowerShift Charger is in sleep mode: Press and release	Wakes up the GM Energy PowerShift Charger
When the GM Energy PowerShift Charger is in charging or discharging* mode: Press and release	Forces the GM Energy PowerShift Charger to stop AC charging or DC discharging*. Pressing the Power Button again will resume the charging or discharging* session

*Discharge capabilities are only available when the GM Energy PowerShift Charger is paired with the GM Energy V2H Enablement Kit and a Compatible GM EV.



LED Indicator Definition

LED Behavior		Definition
WHITE	BLINKING	Charger is initializing (at install or after reset)
	SOLID	Charger is ready (unplugged)
GREEN	STEADILY BLINKING (1 SECOND ON, 1 SECOND OFF)	Active charging
	STEADILY BLINKING (1 SECOND ON, 4 SECONDS OFF)	Compatible GM EV is actively discharging* power to the home
	SOLID	Charger is ready (plugged in, not charging)
BLUE	SOLID	Discharge* session is initializing
YELLOW	BLINKING	OTA (over-the-air) software update in progress
RED	BLINKING	Charger error
	SOLID	Installation incomplete (DIP switch not set)

*Discharge capabilities are only available when the GM Energy PowerShift Charger is paired with the GM Energy V2H Enablement Kit.



SYSTEM CODES

System alarm codes need to be viewed via the commissioning app.

Alarm Code	Description
EV4010	System inlet temperature OTP
EV4011	Critical component MPU temperature is invalid
EV4012	Temperature of system inlet is invalid
EV4013	Critical component Wi-Fi temperature OTP
EV4015	Critical component Wi-Fi temperature is invalid
EV4016	Critical component MPU temperature OTP
EV4017	GM Energy Inverter (BDI) is unavailable: SAFETY FAULT
EV4018	GM Energy Inverter (BDI) is unavailable: SYSTEM FAULT
EV4019	GM Energy Inverter (BDI) is unavailable: DCDC-FAULT
EV401A	GM Energy Inverter (BDI) is unavailable: POWER FAULT
EV4103	DC charging connector: Output over voltage
EV4104	DC charging connector: Output over current
EV4106	DC charging connector temperature OTP
EV4112	DC charging connector: Temperature is invalid
EV4126	DC charging connector: Disconnect
EV412F	DC charging connector: Insulation detection outside voltage >60V
EV4134	Insulation test detection outside voltage > insulation voltage $\pm 5\%$
EV4141	DC charging connector CCS: PLC module fault
EV4149	CCS module communication failure
EV4150	DC charging connector: DC relay operation failure
EV4152	DC charging connector CCS: Pre-charging and vehicle communication failure (waiting for pre-charge status)
EV4153	DC charging connector CCS: Pre-charging relay failure
EV4154	DC charging connector: Vehicle communication failure (waiting for charging status)
EV4158	DC charging connector: GM Energy Inverter bleed failure
EV4159	DC charging connector CCS: Vehicle communication failure (waiting for insulation test status)
EV4160	DC charging connector: Stop charging and current drop less than 5A



Alarm Code	Description
EV4161	DC charging connector: Stop charging and failed to obtain stop charging status
EV4162	DC charging connector: Proximity voltage out of range (too high)
EV4163	DC charging connector: Proximity voltage out of range (too low)
EV4164	DC charging connector: Output short-circuit
EV4165	DC charging connector: CP short-circuit
EV4279	AC charging connector: AC charger MCU self-test fail
EV4280	AC charging connector: AC drop
EV4281	AC charging connector: AC charger OVP Fault
EV4282	AC charging connector: AC charger OCP Fault
EV4283	AC charging connector: AC charger UVP Fault
EV4284	AC charging connector: AC charger Ambient OTP Fault (NTC)
EV4285	AC charging connector: RCD Fail
EV4286	AC charging connector: AC charger RCD/CCID self-test fail
EV4287	AC charging connector: AC charger Welding Fault
EV4288	AC charging connector: GMI Fault
EV4289	AC charging connector: AC charger Driving Fault
EV4290	AC charging connector: AC charger Terminal OTP Fault (NTC)
EV4291	AC charging connector: AC charger Pilot Error
EV4292	AC charging connector: AC charger Pilot Short
EV4293	AC charging connector: AC charger Plug_L1 OTP Fault
EV4294	AC charging connector: AC charger Plug_L2 OTP Fault
EV4295	AC charging connector: AC charger HW Fault (Ambient NTC Short)
EV4296	AC charging connector: AC charger Plug Temperature is invalid
EV4297	Power Button stuck
EV4298	AC charging connector: AC charger HW Fault (Terminal NTC Short)
EV4299	AC charging connector: AC charger DIP read fault or DIP switch is faulty
EV429A	AC charger HW DIP switch setting is 0A
EV429B	The AC charging maximum current value is less than 6A
EV500E	Master CSU and OCPP communication failure



Alarm Code	Description
EV5080	CAN Communication timeout with the GM Energy Inverter
EV5014	Master CSU and IMD communication failure
EV5016	Master CSU and AC charger communication failure
EV5019	Master CSU and MCU communication failure
EV9100	DC charging connector: Self-test failure
EV9101	DC charging connector: Insulation Detection alarm
EV9103	DC charging connector: Insulation Detection Warning
EV9107	DC charging connector: IMD self-test timeout alarm



COMMISSIONING THE DEVICE VIA MOBILE APP

After successfully installing the GM Energy PowerShift Charger, the device must be commissioned and maintained. If you have not completed the installation process, please refer back to the “Installing the GM Energy PowerShift Charger” section.

Visit <https://gmenergy.gm.com/for-home/installation-support> to download the most recent commissioning app.



For the intent and purpose of this section, the GM Energy PowerShift Charger will be referred to as the EVSE (Electrical Vehicle Supply Equipment).

Pre-Commissioning Systems Check

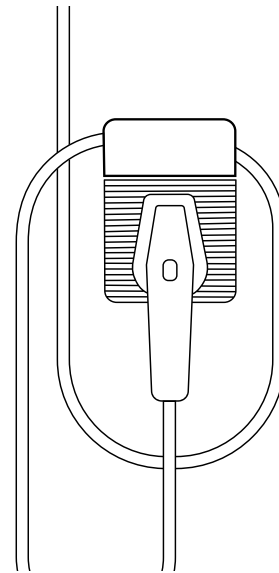
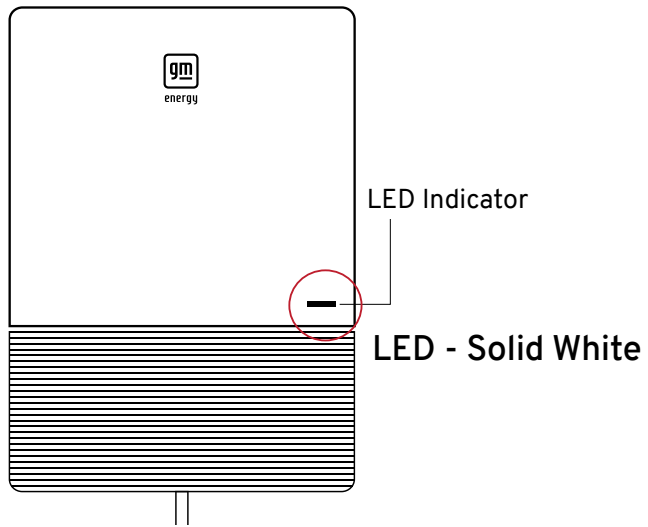
Power on all systems

- Energize the EVSE's circuits
- Ensure the Charging Coupler is in the Charging Holster and not plugged into the vehicle

Verify LED status

- Verify the LED light is solid white before commissioning the system. Please reference the “LED Indicator Definition” section in this manual if needed





Charging Coupler:
Keep connected to holster.
Do not plug in to EV.

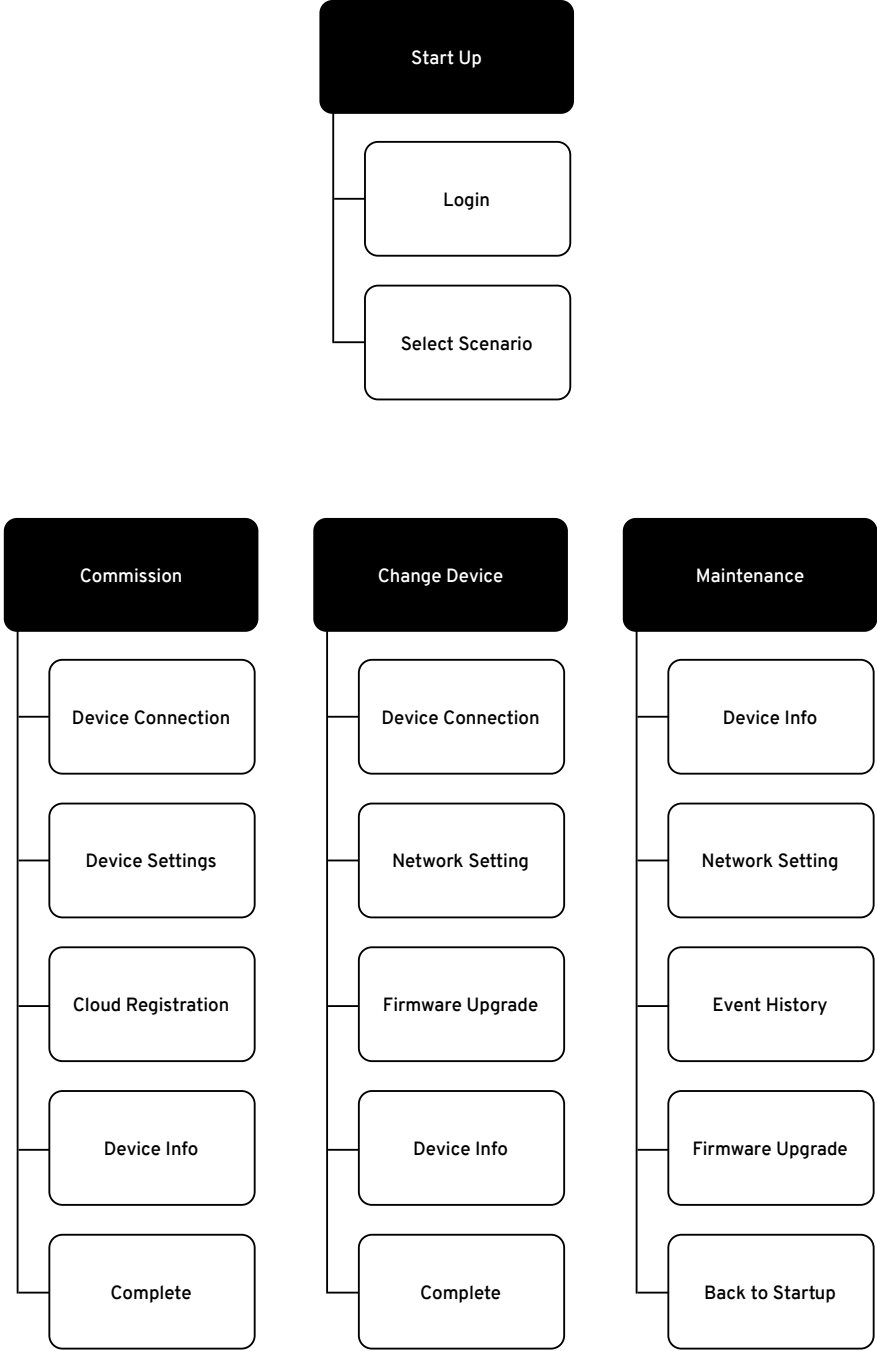
If the LED light is solid red for the EVSE, this indicates the DIP switches must be set. Please refer to the “Configuring the DIP Switches” section of this manual before proceeding.



Commissioning Process

App flow

Please refer to the following click path below for expected commissioning steps.



App login

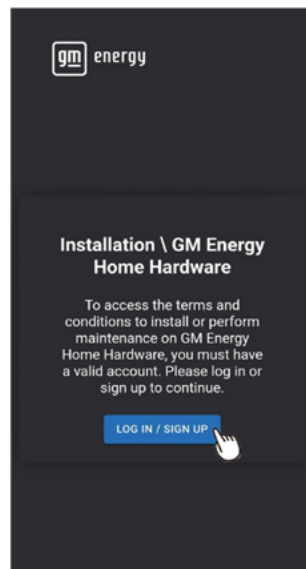
1. Open the PowerShift Install App

- If you are commissioning the equipment for the first time or performing maintenance, you will need to set up an account and agree to the terms and conditions
- If you do not have an existing account, use the following link to start the process to obtain a login code: <https://euss-prod.musea2.azure.ext.gm.com/>



2. Navigate to the installer website: <https://euss-prod.musea2.azure.ext.gm.com/>

- If you are commissioning the equipment for the first time or performing maintenance, you will need to set up an account and agree to the terms and conditions



3. This is the GM Energy Installer website sign-in page

- Sign in using user credentials. If you do not have an existing account, follow the prompt to create a new account
- Each installer must create their own GM account; this is separate from the customer's account



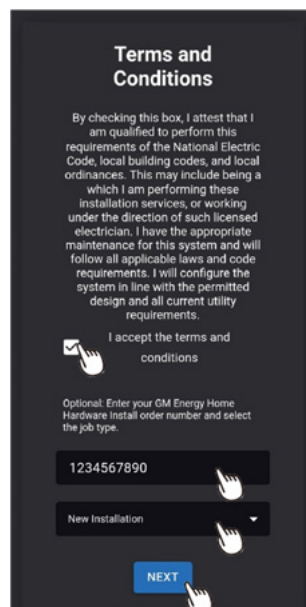
4. Input the GM Energy hardware order number if available



Note:

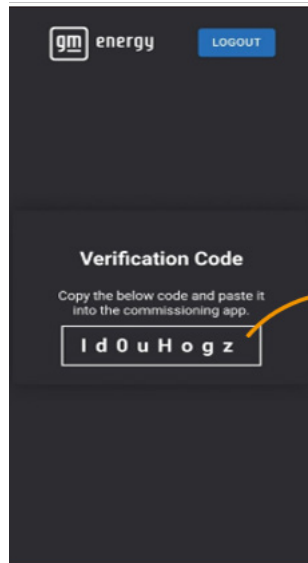
Customers will have received the order number as part of the receipt of their purchase.

- Select installation type. For new installs, select “New Installation”
- Click “Next” to proceed



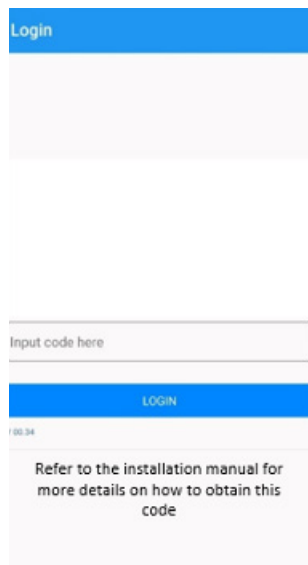
5. A verification code will be generated

- Copy the code as instructed



6. Return to the PowerShift Install App

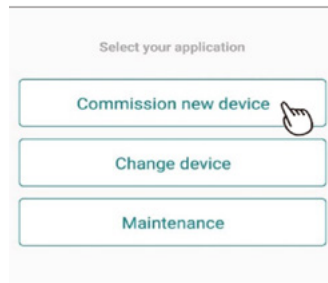
- Paste the code and click “Login”



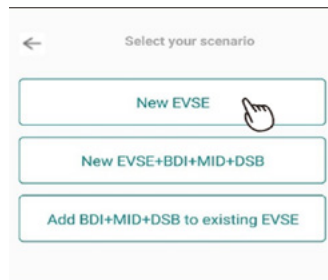
Commissioning

(Includes device connection, device setting, cloud registration and device information)

1. Select “Commission new device”

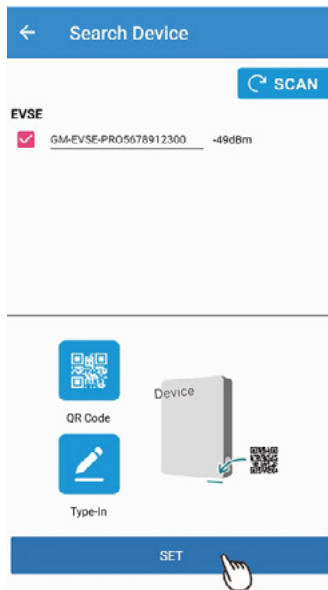


2. Select “New EVSE” if installing a new GM Energy PowerShift Charger without the GM Energy V2H Enablement Kit



3. Search for the target EVSE as prompted

- Ensure the serial number matches the physical serial number on the product
- The device serial number and QR codes can be found in two locations:
 - The bottom of the EVSE
 - A sticker on the Quick Installation Guide
- This process automatically connects the app to the wireless signal generated by the target device
- If the target device does not populate automatically (only available to Android users), then you will need to add the device manually



4. If available, please enter the order number associated with this hardware. Doing so will help the customer connect to the system in their vehicle’s mobile app post-commissioning



Note:

Customers will have received the order number as part of the receipt of their purchase.

- Connect to the customer’s Wi-Fi network
- If the customer’s Wi-Fi credentials are not available, a personal hotspot may be used for commissioning purposes. The customer can later use their vehicle mobile app* (myChevrolet, myBuick, myGMC or myCadillac) to connect their hardware to their home Wi-Fi router
- Click “Set” to proceed to the next step

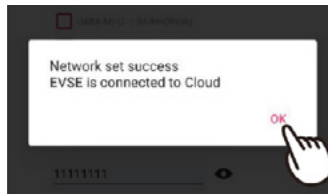
*Available on select Apple and Android devices. Service availability, features and functionality vary by vehicle, device and the plan you are enrolled in. Terms apply. Device data connection required. Actual images and features may vary and are subject to change.





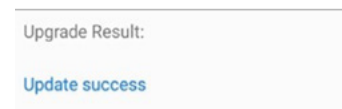
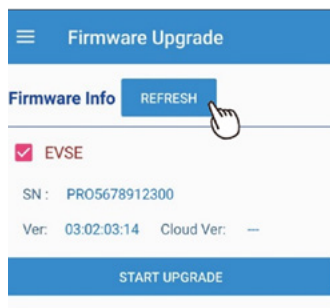
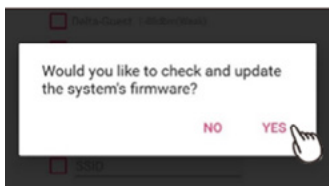
5. Once the Wi-Fi network is connected, a confirmation message should appear

- Click “OK” to proceed to the next step. This may take up to 160 seconds to complete. Please do not close the app while the devices are connecting

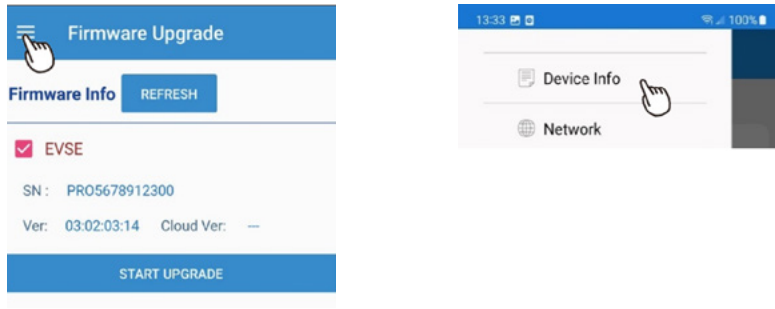


6. Check for system firmware updates

- Click “Refresh” to search for most recent firmware updates. If the “Cloud Version” shows a more recent version available, select device(s) requiring updates and click “Start Upgrade”
- Please do not close the app during firmware update(s). These may take up to 15 minutes
- Once the update is complete, you should receive a success message

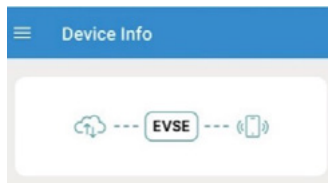


7. To complete commissioning after a firmware update, navigate to the “Device Info” page by selecting it from the menu in the upper-left corner



8. Review the device information and data checks below to confirm commissioning is complete and successful

- Confirm Cloud and hardwired connections
- The image will display green connections if complete; a disconnected device will display gray
- If there is a connectivity issue, red text will display with the type of error if the system was disconnected due to a fault
- If you have connectivity issues, please go to the maintenance section of network settings and try to connect the system again. If further issues occur, call the GM Energy Customer Support Center at 1-833-64POWER



9. Confirm EVSE setup:

- Confirm the values listed next to EVSE voltage, current, power and HW Dip Switch are accurate
- Current Event: EV0000 is an acceptable event code. If any other event code is present, you can go to “Event History” in the maintenance section of the app to see more details about the error
- If you have any questions on how to troubleshoot a fault, please call the GM Energy Customer Support Center at 1-833-64POWER

EVSE	PRO1234567890
Status	Available
Voltage	---
Current	---
Power	---
HW Dip Switch	80 A
Current Event	EV0000
FW Version	AC EVSE: V01.00.01.29 DC EVSE: V03.02.03.12 MCU EVSE: V01.04.00.13 IMD EVSE: V01.07.00.01



10. Functional Checks:

- If the system is safely installed per the correct installation manual requirements listed in this manual and was approved to operate at this point, the installer can test the functionality of the system
- Attempt to charge the vehicle. Confirm that the EVSE status on the “Device Info” page shows as “Charging”

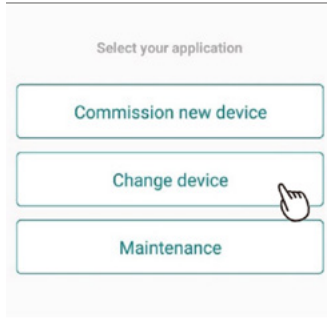
EVSE	PRO1234567890
Status	Available
Voltage	0.00 V
Current	0.00 A
Power	0.00 W
HW Dip Switch	80 A
Current Event	--
FW Version	AC: V01:00:01:29 DC: V03:02:03:12 MCU: V01:04:00:13 IMD: V01:07:00:01



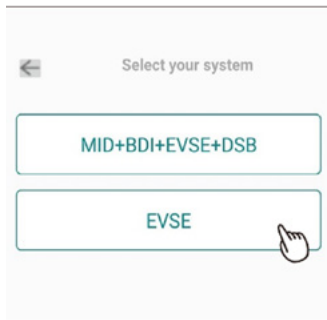
Change Device

This function will be used in the event that a component of the system that was previously installed is replaced.

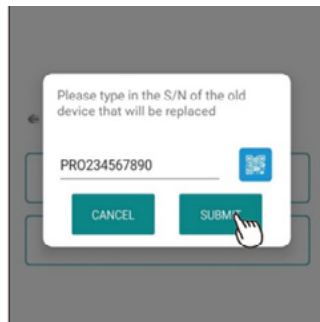
1. Select “Change device”



2. Select “EVSE” if replacing an existing, standalone EVSE



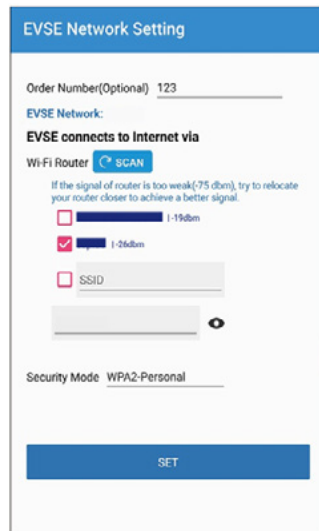
3. Please enter the serial number of the prior EVSE that has been replaced
 - The previous EVSE should be uninstalled and the new EVSE should be connected and fully installed before it is ready to be commissioned



4. Search for the target device as prompted. Ensure the serial number matches the physical serial number on the product
 - The device serial number can be found on the bottom of the product
 - If nothing shows up when you search, or you are using an iOS device, scan the QR code or type in the serial number to continue



5. Connect to the local wireless network
 - If the customer's Wi-Fi credentials are not available, a personal hotspot may be used for commissioning purposes. The customer can later use their vehicle's mobile app* (myChevrolet, myBuick, myGMC or myCadillac) to connect the hardware to their home Wi-Fi router
 - Once Wi-Fi is connected, click "Set" to move on

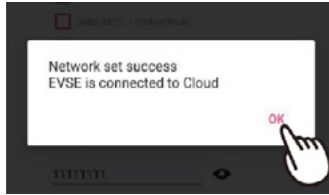


*Available on select Apple and Android devices. Service availability, features and functionality vary by vehicle, device and the plan you are enrolled in. Terms apply. Device data connection required. Actual images and features may vary and are subject to change.



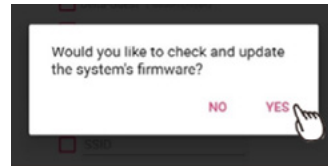
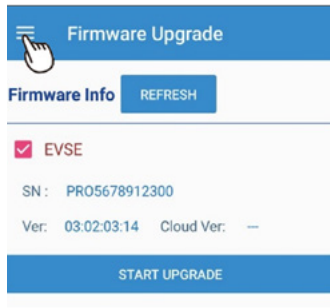
6. Complete registration

- Once completed, a confirmation message will appear
- Click “OK” to proceed to the next step



7. Check for system firmware updates

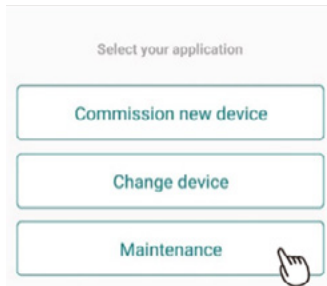
- Click “Refresh” to search for the most recent firmware updates. Select device(s) requiring updates and click “Start Upgrade”
- A confirmation message should pop up once the update is complete



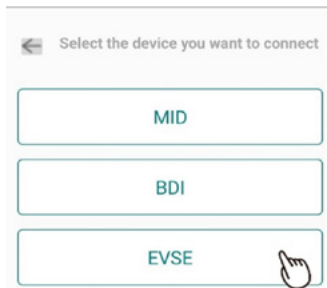
Maintenance

The following section instructs you on how to view the system configuration for troubleshooting purposes, perform firmware upgrades or update device settings. If you are replacing a component of the system, please refer to the “Change Device” section above.

1. Select “Maintenance” to monitor device properties and alter device settings

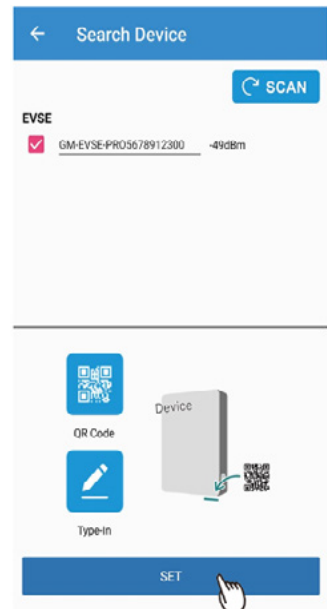


2. Select “EVSE” if viewing settings for an EVSE-only system



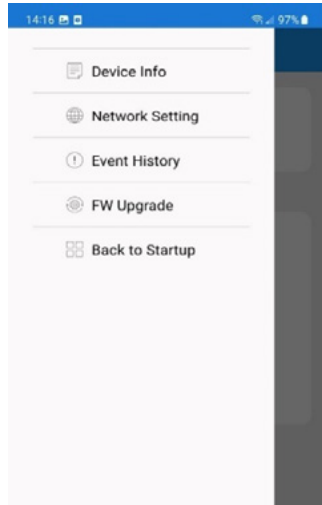
3. Select target device

- Ensure the device serial number is displayed correctly



4. Access the maintenance menu by selecting the icon at the top left of the screen

- Select the target setting you wish to view or alter



5. Device Info:

- Displays device connection status and real-time system information

- Connection Status: Monitor the connection status of device and internet

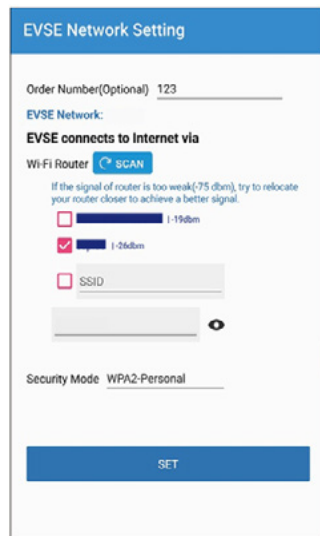
- The connected device will display green
- The disconnected device will display gray

- System Status: Monitor real-time system values of connected devices or any event codes (faults, errors, etc.)



6. Network Setting:

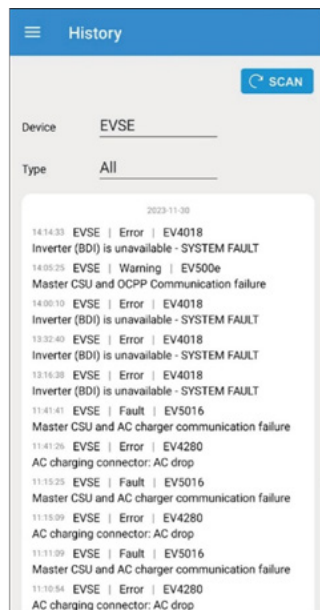
- Manage device internet network settings and click “Set” once all settings have been updated



The image shows a mobile application screen titled "EVSE Network Setting". At the top, there is a blue header with the title. Below the header, the "Order Number(Optional)" is set to "123". Under the "EVSE Network:" section, it states "EVSE connects to Internet via" and offers a "Wi-Fi Router" option with a "SCAN" button. A note below says, "If the signal of router is too weak(-75 dbm), try to relocate your router closer to achieve a better signal." There are two signal strength options: "-119dbm" (unchecked) and "-126dbm" (checked). Below this is an "SSID" input field with a toggle for visibility. The "Security Mode" is set to "WPA2-Personal". At the bottom, there is a large blue "SET" button.

7. Event History:

- View the event history by device or event type (fault, error, warning, etc.)



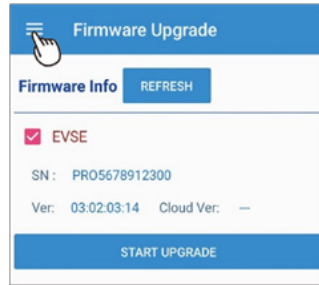
The image shows a mobile application screen titled "History". At the top, there is a blue header with the title and a "SCAN" button. Below the header, there are filters for "Device" (set to "EVSE") and "Type" (set to "All"). The main content area displays a list of events for the date "2023-11-30".

Time	Device	Type	Event ID	Description
14:14:33	EVSE	Error	EV4018	Inverter (BDI) is unavailable - SYSTEM FAULT
14:05:25	EVSE	Warning	EV500e	Master CSU and OCPP Communication failure
14:00:10	EVSE	Error	EV4018	Inverter (BDI) is unavailable - SYSTEM FAULT
13:32:40	EVSE	Error	EV4018	Inverter (BDI) is unavailable - SYSTEM FAULT
13:16:39	EVSE	Error	EV4018	Inverter (BDI) is unavailable - SYSTEM FAULT
11:41:41	EVSE	Fault	EV5016	Master CSU and AC charger communication failure
11:41:26	EVSE	Error	EV4280	AC charging connector: AC drop
11:15:23	EVSE	Fault	EV5016	Master CSU and AC charger communication failure
11:15:09	EVSE	Error	EV4280	AC charging connector: AC drop
11:11:09	EVSE	Fault	EV5016	Master CSU and AC charger communication failure
11:10:54	EVSE	Error	EV4280	AC charging connector: AC drop

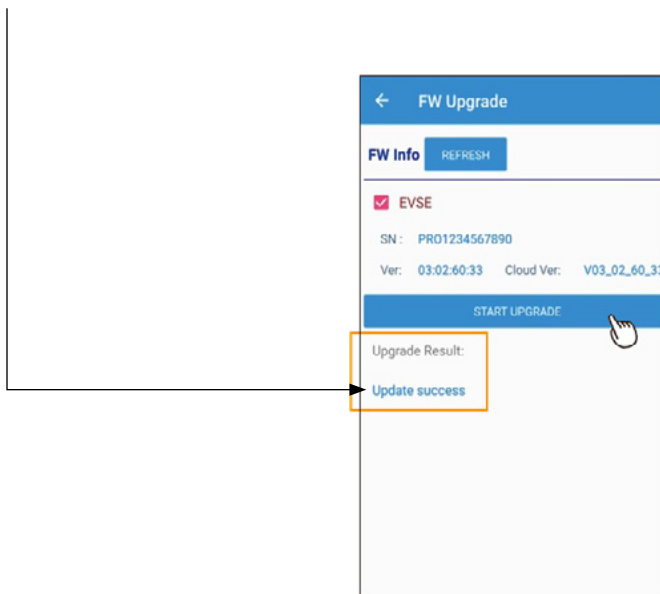


8. Firmware Upgrade:

- Monitor and upgrade device firmware versions
- Click “Refresh” to search for recent firmware versions
- Select the device(s) requiring an upgrade and click “Start Upgrade”



9. The update process should take a few minutes. Once complete, the Upgrade Result should read “Update success”



Before Leaving

After commissioning is successful, leave the system in a state that is compliant with all local requirements imposed by the utility, AHJ or other regulatory body. This may require locking out or flipping breakers to the equipment. The installer should communicate with the customer of when the system is approved to operate.

To continue on in the GM Energy PowerShift Charger installation process, go to “The GM Energy PowerShift Charger” section.





PowerShift Charger