Green Motion
EV smart breaker chargers

Installation guide:

EV direct connect and junction box kits

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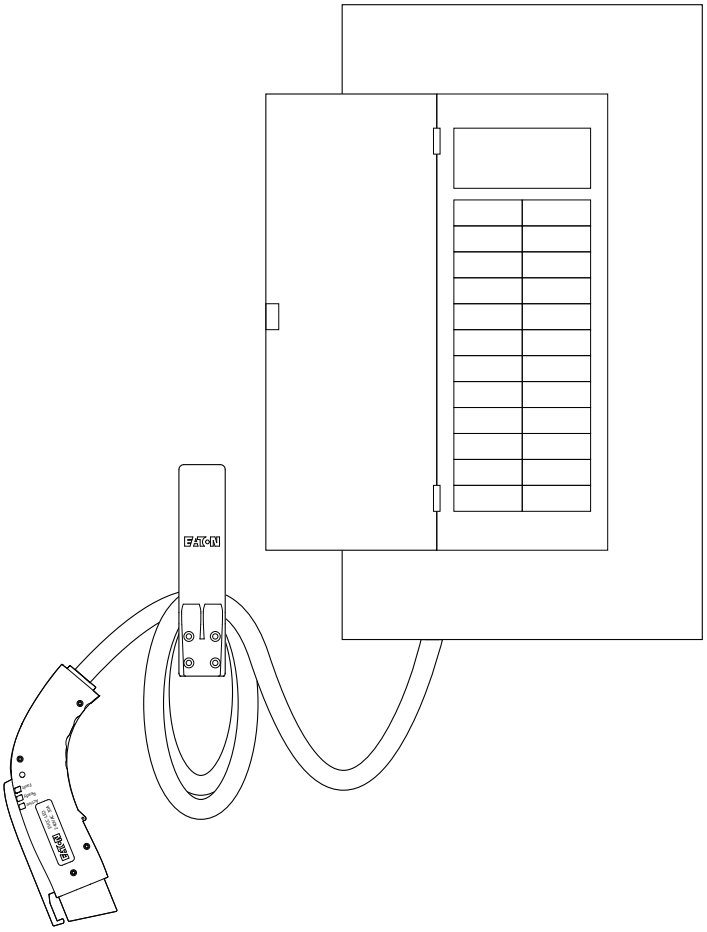
Powering Business Worldwide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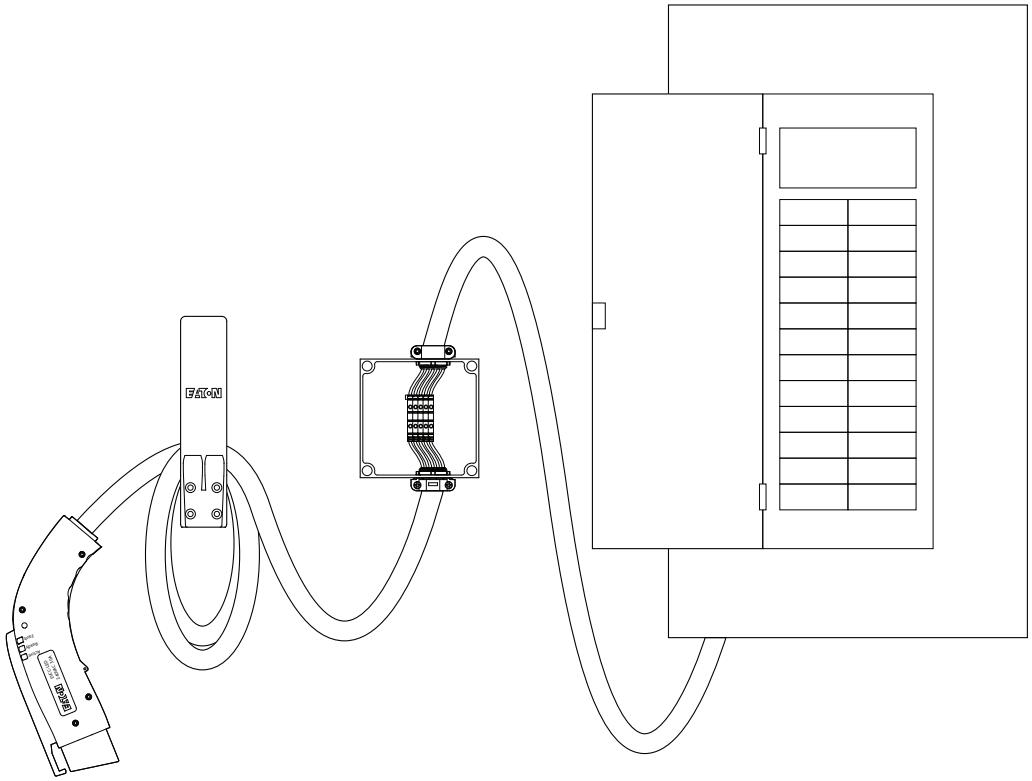
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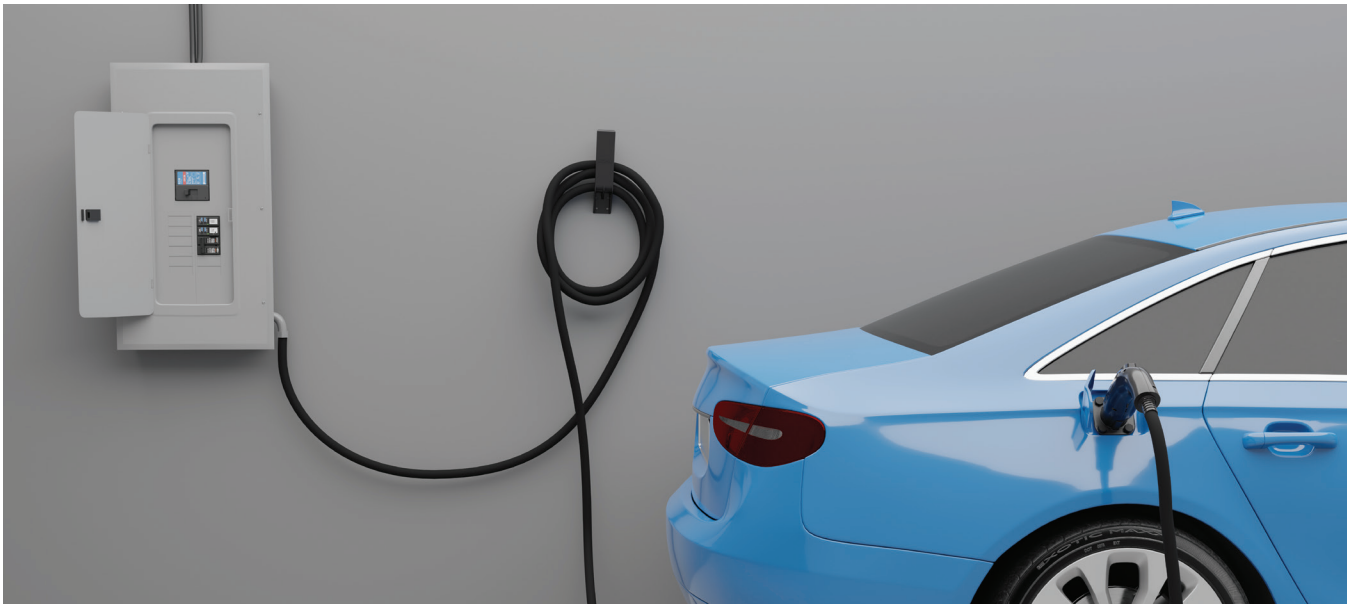
Contents

EV direct connect kit

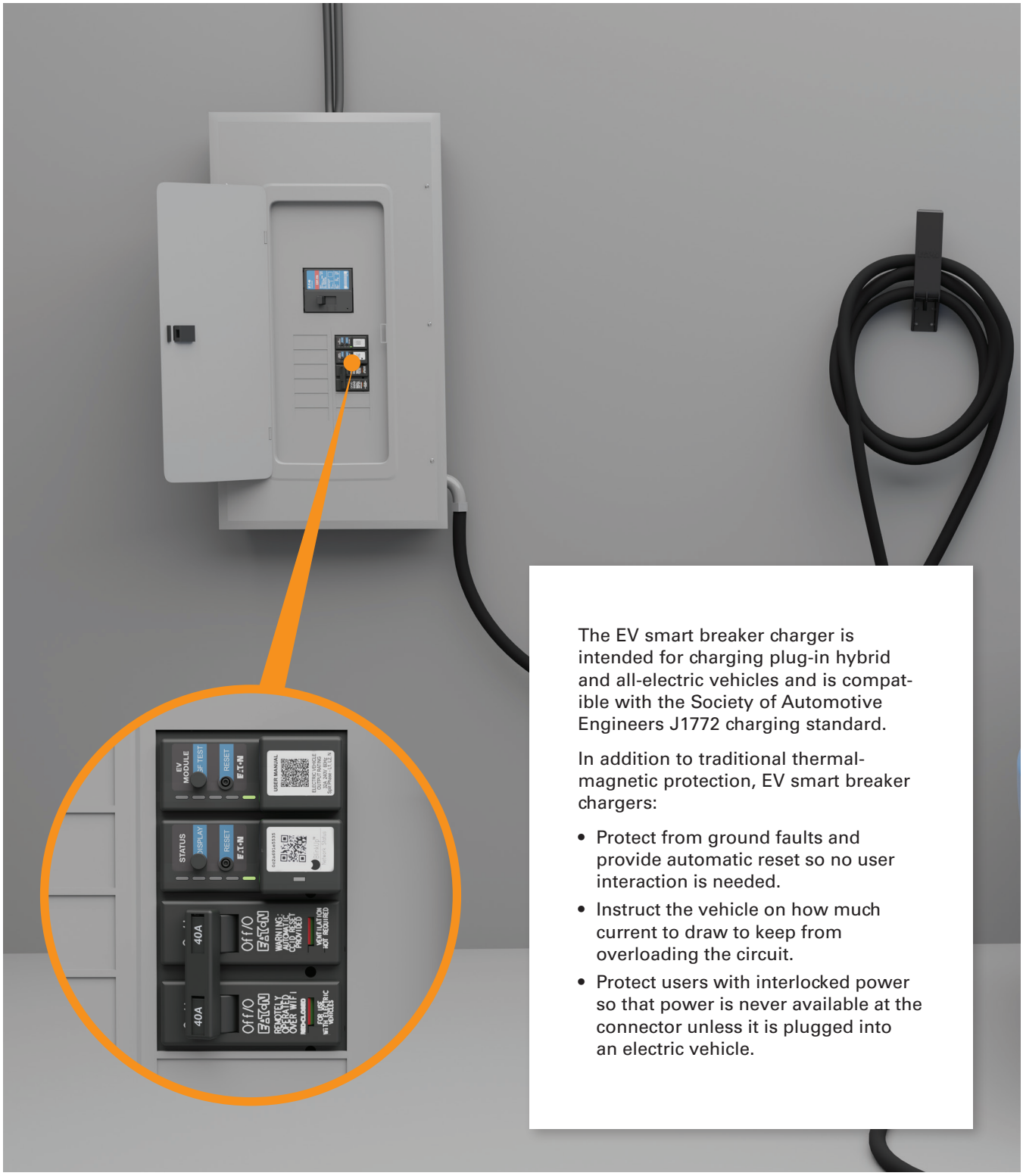


Installs directly in BR loadcenters or PRL3X panelboards close to where the electric vehicle is parked.

EV direct connect + junction box kit

Installs directly in BR loadcenters or PRL3X panelboards. Includes a junction box for when the electric vehicle is parked further away.

EV smart breaker charger



The EV smart breaker charger is intended for charging plug-in hybrid and all-electric vehicles and is compatible with the Society of Automotive Engineers J1772 charging standard.

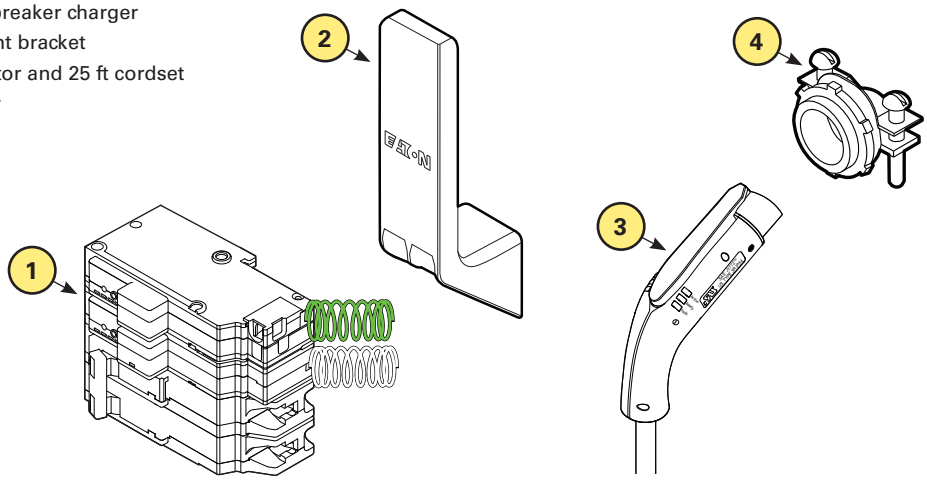
In addition to traditional thermal-magnetic protection, EV smart breaker chargers:

- Protect from ground faults and provide automatic reset so no user interaction is needed.
- Instruct the vehicle on how much current to draw to keep from overloading the circuit.
- Protect users with interlocked power so that power is never available at the connector unless it is plugged into an electric vehicle.

Package contents

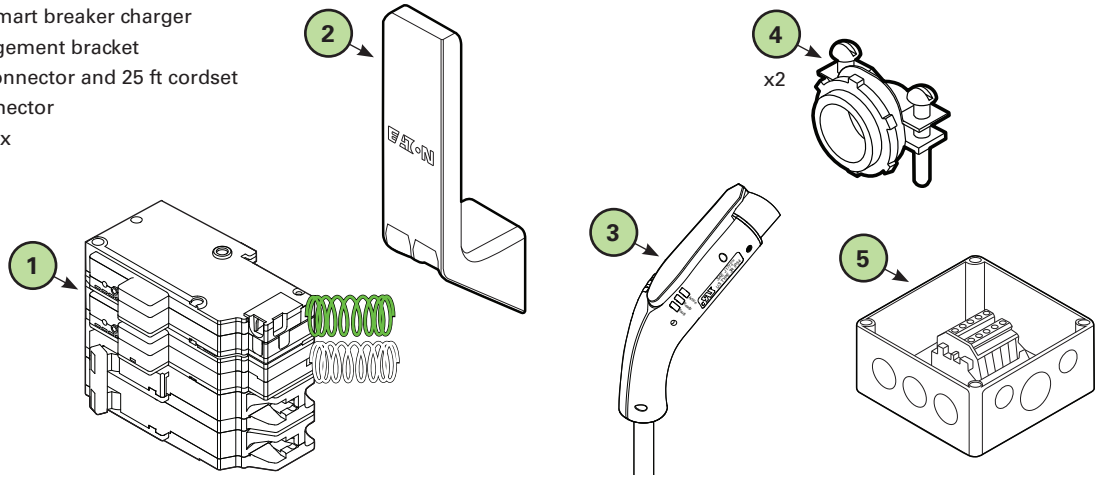
EV direct connect kit (GMEV32BR-DC, GMEV32BAB-DC)

1. 7.7 kW EV smart breaker charger
2. Cord management bracket
3. J1772 EV connector and 25 ft cordset
4. NM/SE connector



EV direct connect + junction box kit (GMEV32BR-JB, GMEV32BAB-JB)

1. 7.7 kW EV smart breaker charger
2. Cord management bracket
3. J1772 EV connector and 25 ft cordset
4. NM/SE connector
5. Junction box



Required items not included:

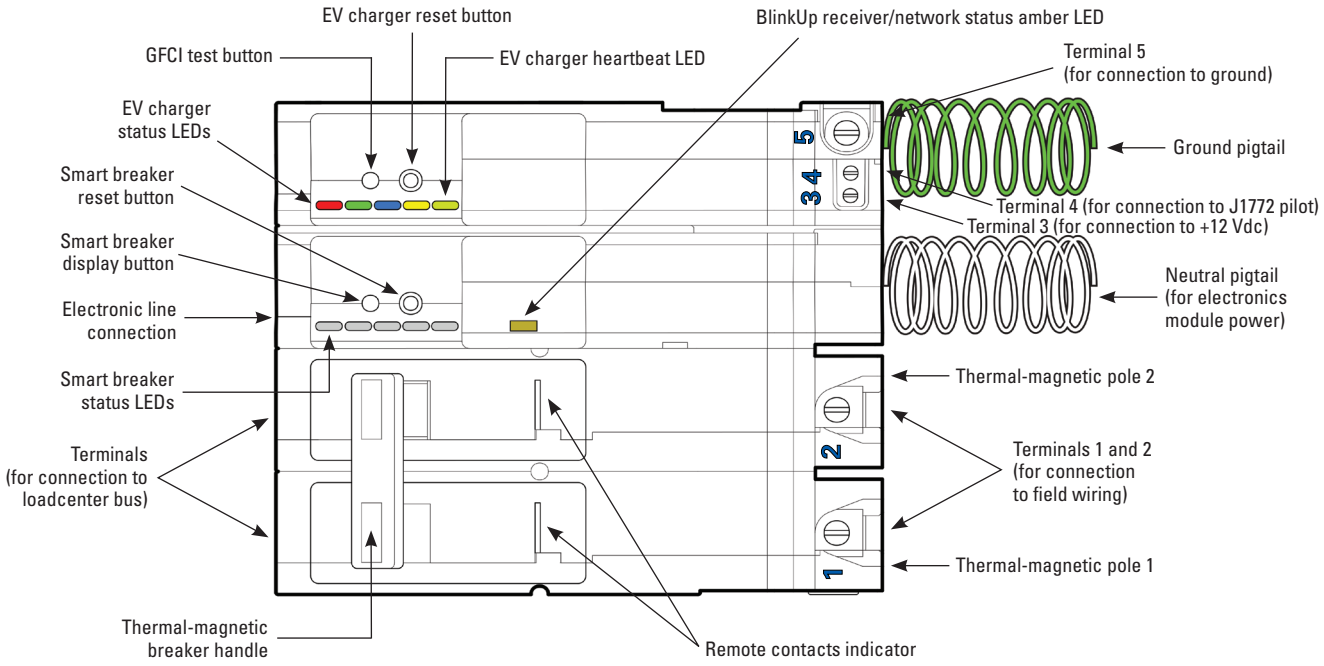
- #10 woodscrew 1-1/2 inches long - x4

EV smart breaker charger operation

QUICKLAG thermal-magnetic breaker

The EV smart breaker charger contains integral solenoid controlled contacts in series with QUICKLAG™ thermal-magnetic breaker. The instructions below describe how to operate the main handle of the EV smart breaker charger:

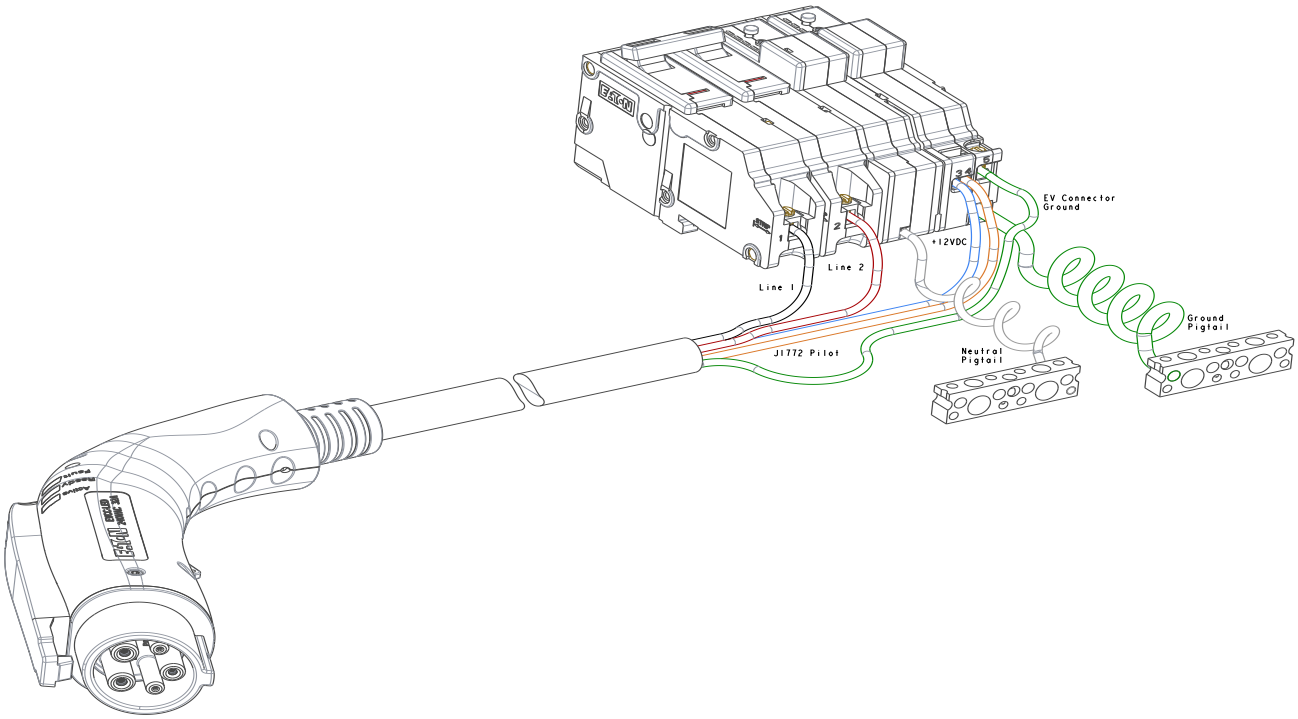
- Main handle must be in the ON position to supply power to the load
- When breaker trips, handle will move to the center-tripped position
- To reset breaker, push handle to OFF position, and then to ON position



Item	Description
GFCI test button	Initiates a ground fault self-test. Recommended to perform this test when J1772 connector is plugged into the EV.
EV charger reset button	Resets the EV charger.
EV charger status LEDs	Display status of the EV charger and various fault conditions, if present.
Smart breaker display button	1 press – Wi-Fi signal strength is displayed on the smart breaker status LEDs and enable BlinkUp™. 2 presses – For non-OCPP EV chargers, this will initiate a manual override of any schedules/advance option restrictions and will allow for a single charge session. The 3 middle LEDs will flash green to indicate the override was successful. 3 presses – If red EV charger status LED is flashing, this action will clear the fault *Smart Breaker Status LEDs will indicate how many button presses are recorded.
Smart breaker reset button	Reset the Wi-Fi antenna module and regain connectivity or clear any errors that may have occurred during the BlinkUp process.
Smart breaker status LEDs	LEDs show how loaded the circuit is compared to its capacity. The color of the LEDs will range from off indicating no load or too small of a load detected. Green indicates a low load, yellow indicates a medium load, and red indicates a high load. If the LEDs are flashing, this indicates that the current exceeds the rating of the smart breaker. When the smart breaker display button is pressed, these LEDs also show the Wi-Fi signal strength.
BlinkUp status LED	Indicates the status during the BlinkUp process.
Thermal-magnetic breaker handle	To manually trip or reset the thermal-magnetic breaker.
Remote contact indicator	Indicates status of secondary contacts (Open: Green / Close: Red).

Direct connect wiring example

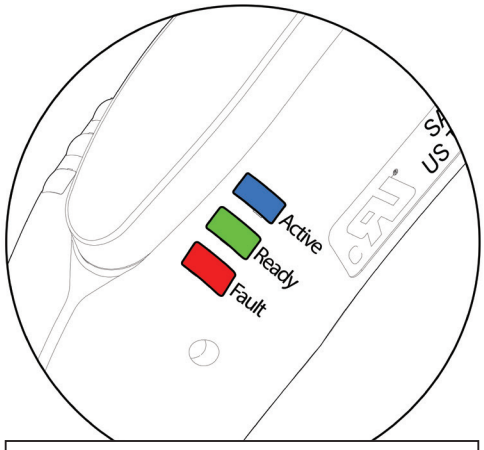
EV smart breaker charger and EV connector



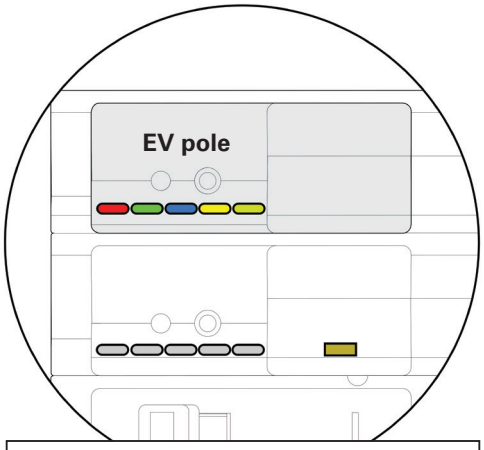
EV connector wire color code:

1. **(RED)** Line 1
2. **(BLACK)** Line 2
3. **(BLUE)** +12 Vdc
4. **(ORANGE)** J1772 pilot
5. **(GREEN)** EV connector ground

LED indicator descriptions



EV connector



EV smart breaker charger

State	Blink Type	Color	
Loss of line power	Medium		EV connector
Fault (4)	Long		
Idle / Ready	No Blink		
Vehicle connected	Medium		
Vehicle connected, EVSE ready	Long		
Vehicle charging state, EVSE not ready (1)	Short		
Charging	No Blink		
Vehicle connected	No Blink		EV pole only
J1772 State D (2)	Medium		
Cold Load Timeout Active (3)	Long		
EV charger heartbeat	Heartbeat		

1. Not a valid J1772 State, the EV smart breaker charger will commence charging when prompted to through the EV smart breaker charger application.
2. J1772 State D, the ventilation required state, is not supported and will cause the EV smart breaker charger to enter the fault state.
3. Cold Load Timeout: Following a complete loss of power during an active charging session, a phenomenon occurs called Cold Load Timeout. When power is restored, there may be a 2–5 minute delay to resume charging per SAE J2894.
4. Refer to troubleshooting guide on page 19 for details on various fault codes.

Installation

Important safety instructions

⚠ DANGER

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, PERSONAL INJURY, OR PROPERTY DAMAGE. CIRCUIT BREAKERS MUST BE INSTALLED AND SERVICED BY A QUALIFIED ELECTRICIAN. REMOVE ALL POWER SOURCES TO THE PANEL BEFORE STARTING INSTALLATION OR MAINTENANCE.

⚠ WARNING

THIS EQUIPMENT SHOULD BE INSTALLED, ADJUSTED, AND SERVICED BY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN DEATH OR SEVERE INJURY.

READ THIS MANUAL THOROUGHLY AND MAKE SURE YOU UNDERSTAND THE PROCEDURES BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT. THE PURPOSE OF THIS MANUAL IS TO PROVIDE YOU WITH INFORMATION NECESSARY TO SAFELY OPERATE, MAINTAIN, AND TROUBLESHOOT THIS EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

DO NOT USE THIS PRODUCT IF THE EV CONNECTOR CORD IS FRAYED, HAS DAMAGED INSULATION, OR HAS ANY OTHER INDICATION OF DAMAGE.

DO NOT USE THIS PRODUCT IF THE EV SMART BREAKER CHARGER, THE EV CONNECTOR, OR THE LOADCENTER IS BROKEN, CRACKED, OPEN, OR SHOWS ANY OTHER INDICATION OF DAMAGE.

INTENDED FOR USE WITH PLUG-IN ELECTRIC VEHICLES ONLY. PREMISE VENTILATION NOT REQUIRED.

THIS DEVICE SHOULD BE SUPERVISED WHEN USED AROUND CHILDREN.

⚠ WARNING

TURN OFF OR DISCONNECT THE POWER SUPPLYING THIS EQUIPMENT BEFORE BEGINNING WORK. THIS MAY REQUIRE THAT YOU CONTACT YOUR ELECTRIC UTILITY TO DISCONNECT POWER TO AN EXISTING LOADCENTER. THE LINE SIDE OF THE MAIN BREAKER IS ENERGIZED UNLESS POWER IS DISCONNECTED UPSTREAM. EATON WILL NOT ASSUME RESPONSIBILITY FOR PROPERTY DAMAGE OR PERSONAL INJURY RESULTING FROM MISUSE OF THE INFORMATION IN THIS PUBLICATION.

NOTICE

INSTALL EQUIPMENT IN CONFORMANCE WITH CODES.

Grounding instructions

⚠ WARNING

IMPROPER CONNECTION OF THE EQUIPMENT-GROUNDING CONDUCTOR IS ABLE TO RESULT IN A RISK OF ELECTRIC SHOCK. CHECK WITH A QUALIFIED ELECTRICIAN OR SERVICEMAN IF YOU ARE IN DOUBT AS TO WHETHER THE PRODUCT IS PROPERLY GROUNDED.

For a permanently connected product

This product must be connected to a grounded, metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.

REFERENCE THE QR CODE ON THE EV SMART BREAKER CHARGER FOR LATEST DOCUMENTATION AS THE INFORMATION CONTAINED IN THIS MANUAL IS SUBJECT TO CHANGE.

This product must be installed in accordance with the National Electrical Code® (NEC®) and any applicable local codes. Before installing equipment, check with your local electrical inspector for requirements and information. If you have questions or need assistance, contact a qualified electrical contractor.

SAVE THESE INSTRUCTIONS.

FCC

FCC ID

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.

FCC ID: VPYLB1CBIMP003

RF radiation exposure statement

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

Canada low-power license exempt radio communication devices (RSS-210)

Common information operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

IC: 772CVLB1CDIMP003

Definitions

EVSE—Electric Vehicle Supply Equipment. EVSE is a general term used for all of the equipment used to supply electricity to the car.

J1772—SAE Recommended Practice for conductive charging of hybrid and electric vehicles. This standard spells out the physical dimensions of the J1772 connector and the pilot communication between the plug-in vehicle and the EVSE.

Pilot—The communication signal through the J1772 connector. This signal tells both the vehicle and the EVSE when both are ready to charge and how much current is permitted in the circuit. This signal is part of the SAE J1772 standard.

SAE—Society of Automotive Engineers. The group that organizes and leads committees of transportation experts to create standards, such as J1772, for the transportation industry.

ADA—Americans with Disabilities Act.

UL®—Underwriters Laboratories. UL is an accredited standards developer in the U.S. and Canada.

Moving, transporting, and storage instructions

Store the equipment indoors and in its original packaging until it is ready to be installed. Storage temperature should be between –40 °C and +60 °C. Never attempt to lift, move, or carry the equipment by the EV connector cord or power cord. Improper storage or handling may cause damage to the equipment.

⚠ WARNING

ONLY QUALIFIED PERSONNEL FAMILIAR WITH THE OPERATION AND CONSTRUCTION OF THIS EQUIPMENT SHOULD INSTALL, ADJUST, MODIFY, AND SERVICE THIS EQUIPMENT. FAILURE TO FOLLOW THE INSTRUCTIONS COULD RESULT IN SEVERE BODILY INJURY OR DEATH.

NOTICE

THE USER IS RESPONSIBLE FOR CONFORMING TO ALL LOCAL AND NATIONAL ELECTRICAL CODES AND STANDARDS APPLICABLE IN THE JURISDICTION IN WHICH THIS EQUIPMENT IS INSTALLED.

NEC Article 625 requires that the coupling means of the electric vehicle supply equipment shall be stored or located at a height of not less than 18 inches (450 mm) and not more than 4 ft (1.2 m) above the floor level for indoor locations and 24 inches (600 mm) above the grade level for outdoor locations.

Americans with Disabilities Act requirements to consider for workplace charging installation

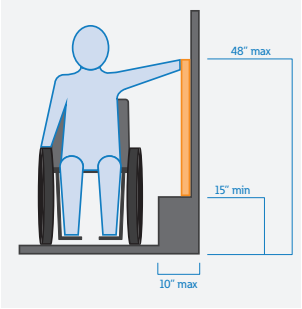
The ADA and workplace charging

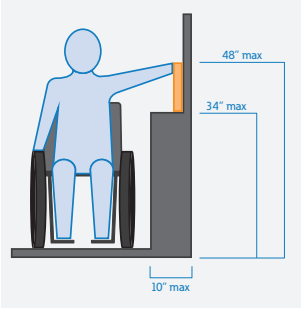
The Americans with Disabilities Act (ADA) is a federal civil rights law that prohibits discrimination in public places against individuals with disabilities. As an employer installing plug-in electric vehicle (PEV) charging stations, also known as electric vehicle supply equipment (EVSE), you need to follow special design guidelines to accommodate people with disabilities, as required by the ADA. Although the ADA does not provide design standards for charging station-equipped parking spots, several industry studies and PEV planning guides do. In addition, several plans developed under the U.S. Department of Energy's (DOE) Clean Cities EV Community Readiness projects describe best practices for installing ADA-compliant charging stations.

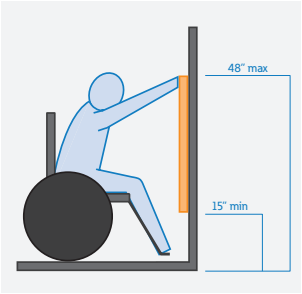
Best practices for designing ADA-compliant PEV charging stations

When designing ADA-compliant PEV charging stations, consider accessibility, ease of use, and safety for disabled drivers, including those using wheelchairs or other assistive equipment. Key considerations include ensuring adequate space for exiting and entering the vehicle, unobstructed access to the EVSE, free movement around the EVSE and connection point on the vehicle, as well as clear paths and close proximity to any building entrances.

For information about the ADA, including the revised 2010 ADA regulations, please visit the Department's website: **http://www.ada.gov**; or, for answers to specific questions, call the toll-free ADA information line at 800-514-0301 (voice) or 800-514-0383 (TTY).

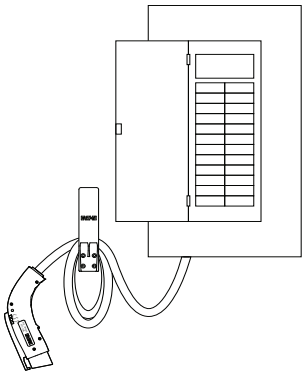




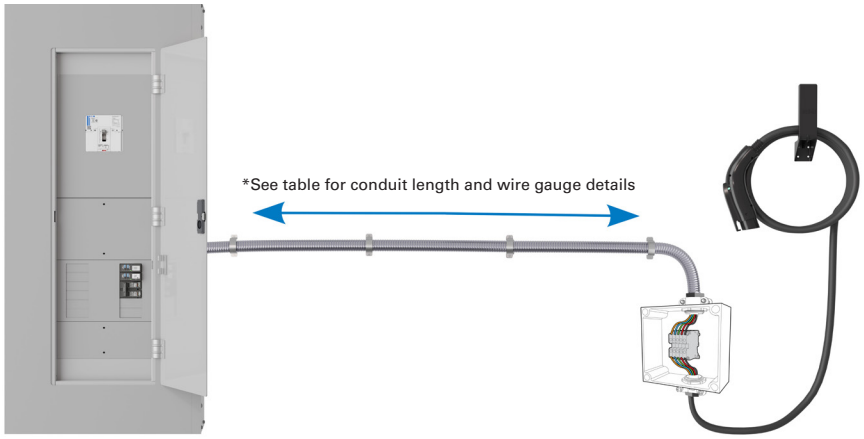


The following sections detail the instructions for various installation options.
Failure to follow these instructions may result in nonfunctional and/or unprotected equipment.

EV direct connect kit installation in an Eaton BR loadcenter or PRL3X panelboard



EV direct connect + junction box kit installation in an Eaton BR loadcenter or PRL3X panelboard



Conduit installation (all conduit types)	Conduit length between loadcenter/ panelboard to junction box	Wire gauge	Wire rating
Above ground	Up to 150′ (no water in conduit)	1. Line 1 (RED): 8 2. Line 2 (BLACK): 8 3. +12 Vdc (BLUE): 18 4. J1772 pilot (ORANGE):18 5. GND (GREEN): 10	90°C; 600V; copper
Under ground	Up to 150′	1. Line 1 (RED): 8 2. Line 2 (BLACK): 8 3. +12 Vdc (BLUE): 18 4. J1772 pilot (ORANGE): RG6, Quad Shield AWG18[1] 5. GND (GREEN): 10	90°C; 600V; copper
Above ground or under ground	Up to 250′	1. Line 1 (RED): 6[2] 2. Line 2 (BLACK): 6[2] 3. +12 Vdc (BLUE): 18 4. J1772 pilot (ORANGE): RG6, Quad Shield AWG18[1] 5. GND (GREEN): 10	90°C; 600V; copper

Note 1: Co-axial cable shield should be grounded at the distribution panel board.
Note 2: If using Eaton Junction Box, replace the L1/L2 terminal blocks to accommodate 6AWG conductors. Reference terminal block part number is DN-T6 (DINnector)

A

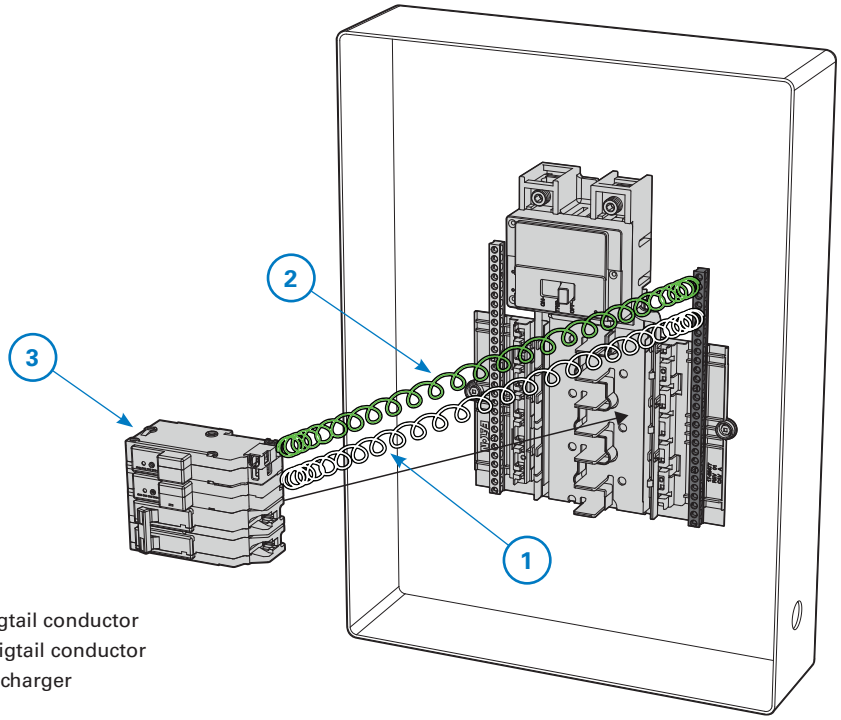
EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

Connect EV smart breaker charger

Follow the steps below, in addition with the considerations listed on page 9, in order to ensure proper installation and wiring of the EV smart breaker charger and the EV connector and cordset.

STEP A-1	EV direct connect and junction box kits

- Disconnect power to the loadcenter or panelboard where the EV smart breaker charger is being installed.
- Remove the loadcenter or panelboard deadfront.
- Ensure the EV smart breaker charger handle is in the OFF position.
- Connect the coiled, white "pigtail" conductor **(1)** from the circuit breaker to the neutral bus terminal **(ensure the connection is secure per the designated torque specifications).**
- Connect the green "pigtail" conductor **(2)** to panel ground **(ensure the connection is secure per the designated torque specifications).**
- Install the EV smart breaker charger **(3)** to the desired location in the loadcenter/panelboard.
- If the EV smart breaker charger is a type BAB bolt-on device, screw the breaker into the panelboard "LINE" bus.
- If the EV smart breaker charger is a type BR plug-on device, plug the breaker into the loadcenter "LINE" bus.



Reference:

1. Neutral - White pigtail conductor
2. Ground - Green pigtail conductor
3. EV smart breaker charger

Figure 1

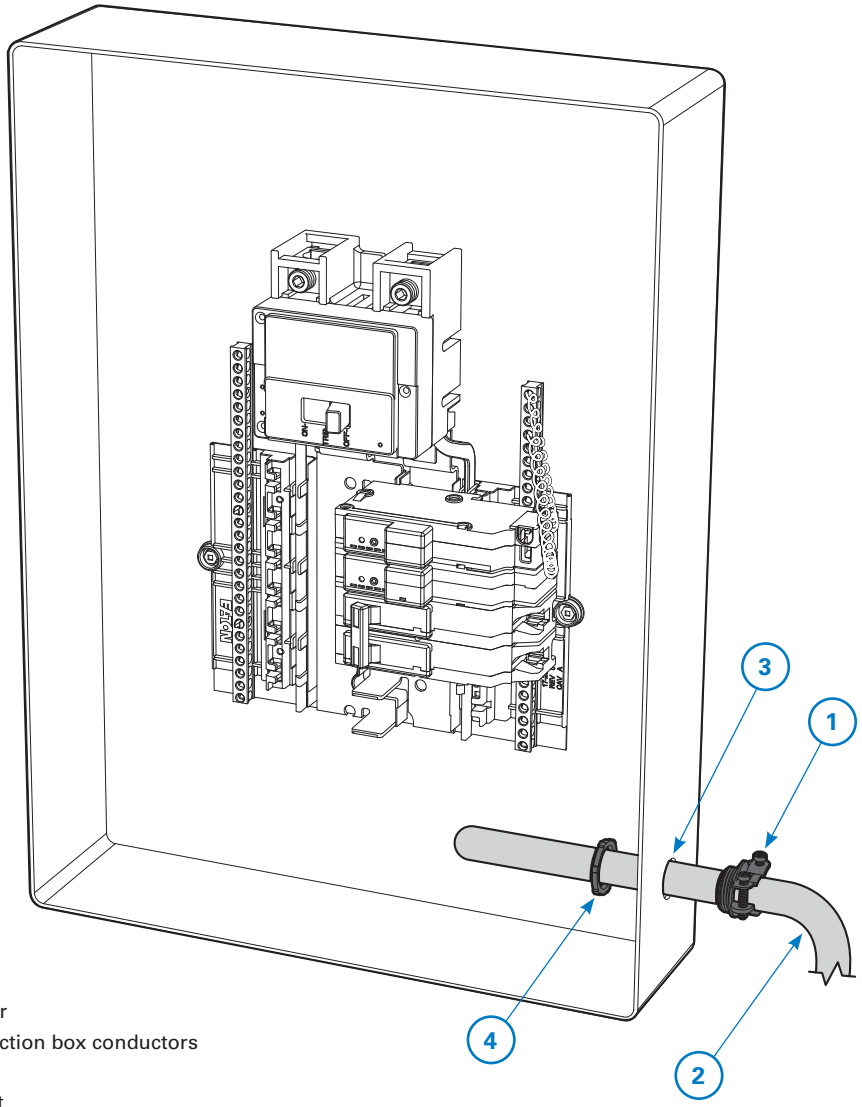
B

EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

Insert conductors into loadcenter

STEP B-1 | **EV direct connect and junction box kits**

- Conductors from the EV connector or junction box are connected to the EV smart breaker charger directly inside the loadcenter. The NM/SE connector **(1)** for the EV connector cord or junction box conductors **(2)** must be installed at the loadcenter knockout **(3).**



Reference:

1. 3/4 inch NM/SE connector
2. EV connector cord or junction box conductors
3. Loadcenter knockout
4. NM/SE connector locknut

Figure 2

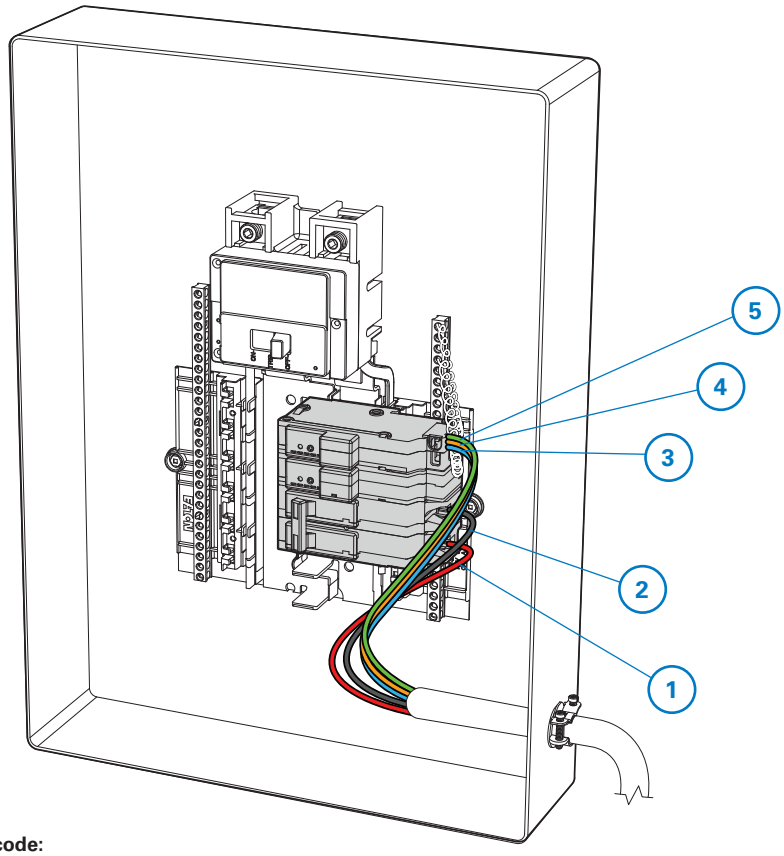
C

EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

Connect EV connector

STEP C-1 | **EV direct connect kit**

- Connect the EV smart breaker charger and the EV connector and cordset.
- After the EV smart breaker charger is installed, attach the loadcenter or the panelboard deadfront.
- Energize the loadcenter or the panelboard. The EV smart breaker charger electronics should power immediately, and the BlinkUp™ status LED will begin blinking. The indicator LEDs on the EV connector will begin blinking. If no LED indicators are on, there is no power to the EV connector.
- Finally, ensure the EV smart breaker charger handle is in the ON position. Turn the EV smart breaker charger on by moving the breaker handle from the OFF to the ON position.



EV connector wire color code:

1. **(RED)** Line 1
2. **(BLACK)** Line 2
3. **(BLUE)** +12 Vdc
4. **(ORANGE)** J1772 pilot
5. **(GREEN)** EV connector ground

Figure 3

NOTE: The pilot conductor **(ORANGE)** is 1 inch shorter than all other conductors in the EV connector cord assembly. This difference in conductor lengths must be maintained to comply with NFPA Article 625.19.

D

EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

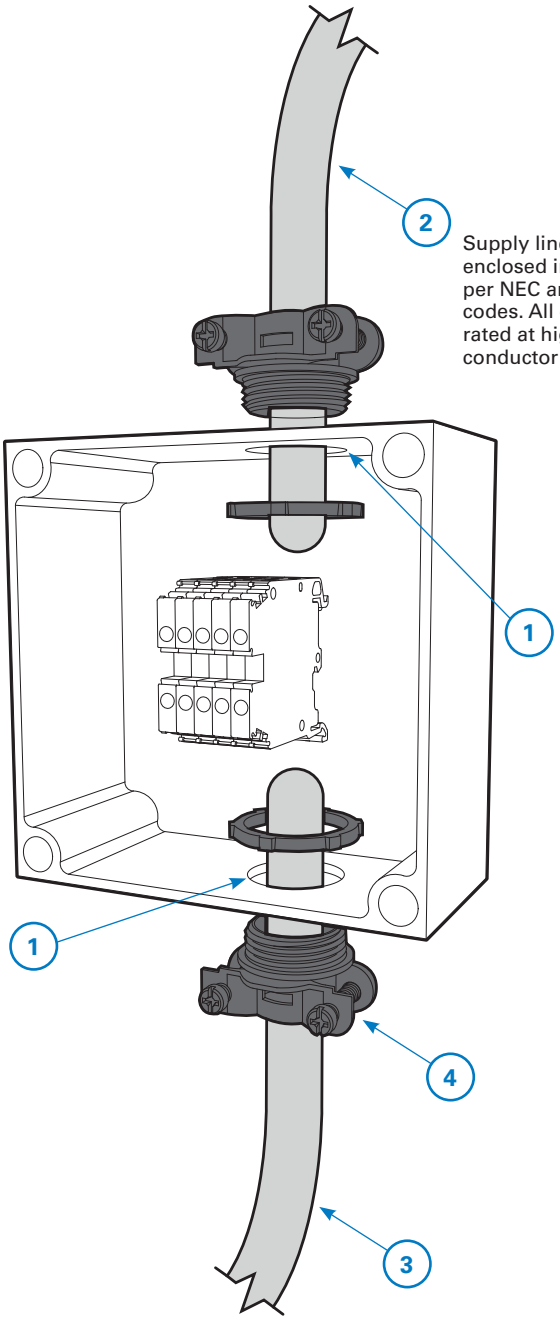
Connect EV smart breaker charger & EV connector

STEP D-1 | **EV direct connect + junction box kit**

Conductors from the EV connector are connected to the EV smart breaker charger inside the approved junction box via terminal blocks as described in the following steps.

Note: Junction box can be up to 250 feet away from loadcenter or panelboard. See table on page 10 for details.

- Open the junction box cover and mount the junction box to the wall.
- Remove the appropriate ¾-inch junction box knockouts **(1)** to insert the EV smart breaker charger conductors **(2)** and EV connector cord **(3).**
- Install the NM/SE connector **(4)** in the knockout where the EV connector cord will be inserted.
- Insert the EV connector cord through the NM/SE connector in the knockout.



Reference:

1. NM/SE connector knockout
2. EV smart breaker charger conductors
3. EV connector cord
4. NM/SE connector

Figure 4

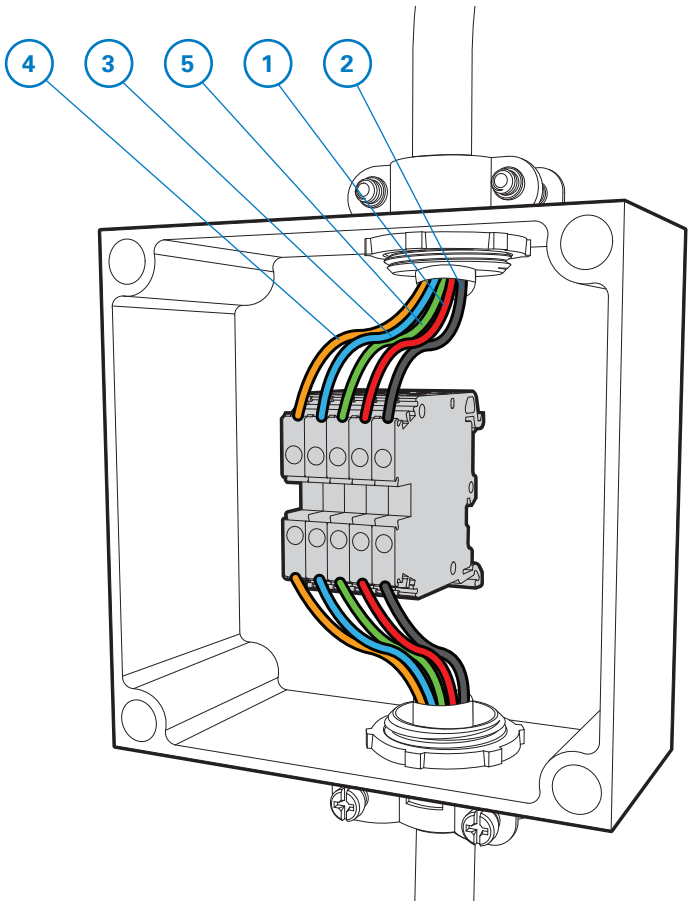
D

EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

Connect EV smart breaker charger & EV connector

STEP D-2 | **EV direct connect + junction box kit**

- Terminate all conductors of the EV connector to the terminal blocks. Match the color of each EV connector conductor to the color of the terminal block.
- Tighten the NM/SE connector.
- Remove the appropriate ¾-inch loadcenter knockouts.
- Secure the EV smart breaker charger conductors to the junction box and loadcenter.
- High-voltage conductors (Line 1, Line 2, EV connector ground) and low-voltage conductors (+12 Vdc and J1772 Pilot) can be routed within the same conduit if all insulated conductors are rated for at least 250 V. Otherwise, the high-voltage and low-voltage conductors must occupy different conduit.
- Secure the conductors to the junction box and loadcenter using two NM/SE connectors.
- Connect the conductors in the terminal blocks according to the wiring diagram to the right.
- Tighten all connectors.
- Install the cord management bracket on the wall near the junction box. (Instructions for installing the cord management bracket can be found in **Step E-1**). The cord management bracket must be installed in an orientation so that the EV connector cable coming out of the junction box can be wrapped around the cord management bracket.



NOTE: The pilot conductor (ORANGE) is 1 inch shorter than all other conductors in the EV connector cord assembly. This difference in conductor lengths must be maintained to comply with NFPA Article 625.19.

EV connector wire color code:

1. **(RED)** Line 1
2. **(BLACK)** Line 2
3. **(BLUE)** +12 Vdc
4. **(ORANGE)** J1772 pilot
5. **(GREEN)** EV connector ground

Figure 5

Connection data:

Connection method	Screw connection
Screw thread	M4
Stripping length	39.00 inches (10.0 mm)
Tightening torque, minimum	13.30 in-lb (1.5 Nm)
Tightening torque, maximum	15.90 in-lb (1.8 Nm)

E

EV DIRECT CONNECT AND JUNCTION BOX KITS INSTALLATION

Install the cord management bracket

STEP E-1 | **EV direct connect and junction box kits**

The cord management bracket is necessary for the EV direct connect kit and EV direct connect + junction box kit.

If mounting bracket to a drywall surface:

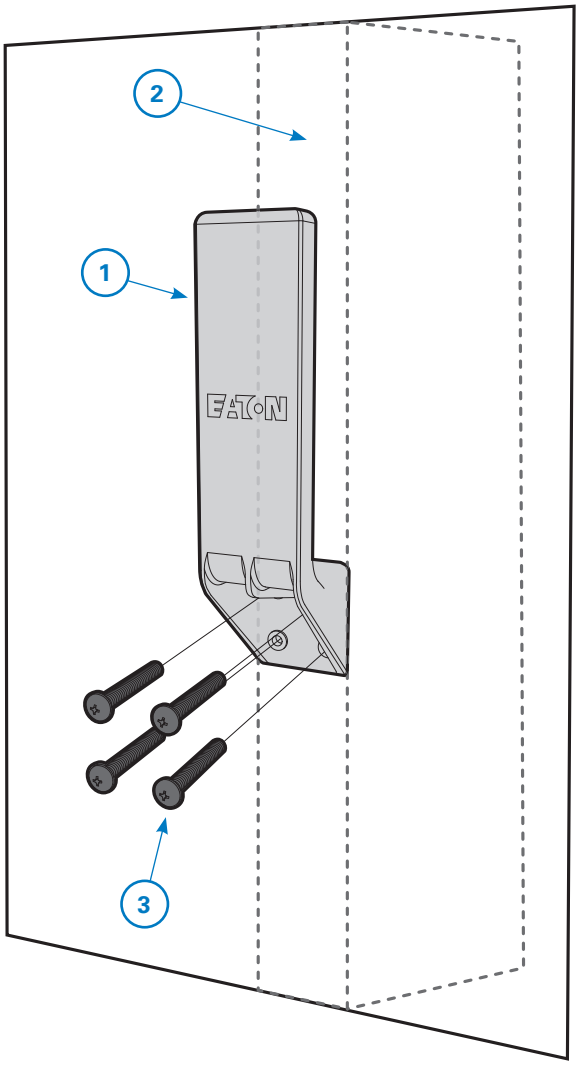
- Locate the center of the stud where you wish to install the bracket.

Note: Please reference the ADA website for accessibility requirements.

- Using the cord management bracket **(1)** as a template, precisely align two holes of the bracket (right or left side) along the center line of the stud **(2)** and mark each of the four mounting holes.
- Using the marks aligned with the stud, pre-drill a 1/8-inch hole at both of the hole locations to a depth of 5/8 inches.
- For the other two holes (the ones not aligned with the stud), drill a clearance hole to the size specified for an appropriate drywall anchor or toggle bolt.
- Install the two drywall anchors or toggle bolts to the holes.
- Attach the cord management bracket to the wall using four #10 x 1-1/2 inch Phillips pan head screws **(3).**

If mounting bracket to a plywood or similar surface:

- Determine where you wish to install the bracket.
- Mark screw hole locations (four locations on 1-inch centers).
- Using the marks, pre-drill a 1/8-inch hole at each of the four hole locations to a depth of 5/8 inches.
- Attach the cord management bracket to the wall using four #10 x 1-1/2 inch Phillips pan head screws.



Reference:

1. Cord management bracket
2. Stud
3. #10 woodscrew 1-1/2 inches long - x4

Figure 6

Connect to Wi-Fi

Wi-Fi commissioning and operation

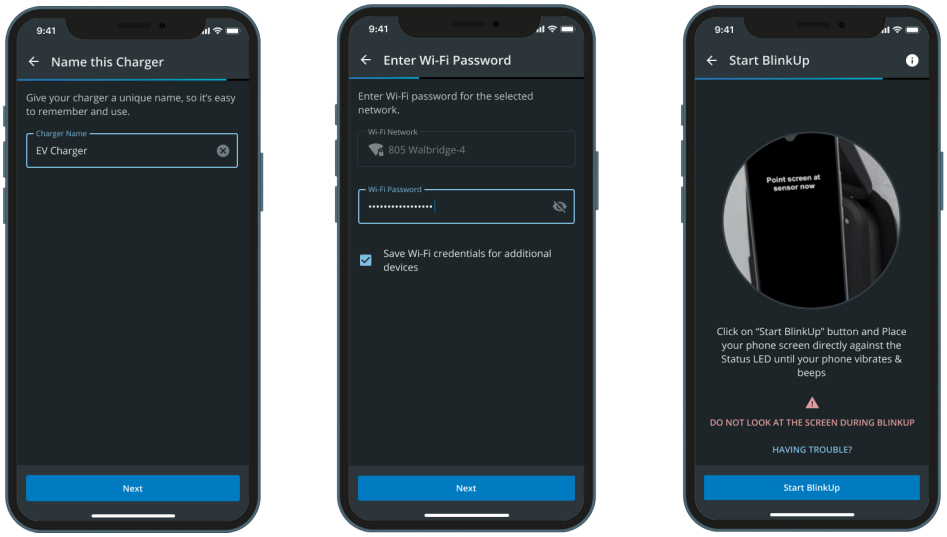
After the EV smart breaker charger has been successfully installed and power has been restored to the loadcenter or panelboard, the EV smart breaker charger must be commissioned. Ensure that a Wi-Fi signal is available where the EV smart breaker charger has been installed.

Get started by downloading the Brightlayer Home app. Available on IOS and Google Play stores.

iOS install

Google Play install

- Name your charger
- Enter your Wi-Fi credentials
- Connect your breaker following the steps in the app



To use the EV smart breaker charger with your preferred charge management system, please visit our developer portal (www.Eaton.com/developer) for complete API documentation. Once the integration is complete, download the EM Install app to commission the EV smart breaker charger.

Technical specifications

Description	Specification
Catalog number	GMEV32BR-DC, GMEV32BAB-DC, GMEV32BR-JB, GMEV32BAB-JB
Electrical input	
Input power	7.7 kW
Input voltage	208-240 Vac
Input breaker rating	40 A
Electrical output	
Power output	7.7 kW
Output voltage	208-240 Vac
Output amperage	32 A
Connector	SAE J1772
Installation	Directly installs in an Eaton BR loadcenter or PRL3X panelboard
Cable length (in feet)	25
Safety	UL
Interlocked power protection	Yes
Ground fault protection	20 mA
Overcurrent protection	Yes
Automatic reset after nuisance trip feature	Yes
Randomized restart on power failure (delay before charging resumes after a power failure)	Yes
Frequency rating	60 Hz
Storage temperature	–40 °C to +60 °C
Ambient operating temperature	–30 °C to +40 °C
Humidity	0% to 90%, noncondensing
kAIC rating	10 kA
Warranty	Seller warrants that the Products manufactured by it will conform to Seller's applicable specifications and be free from failure due to defects in workmanship and material for three (3) years from the date of original purchase, installation of the Product, or from the date of shipment of the Product, whichever occurs first. In the event any Product fails to comply with the foregoing warranty, Seller will, at its option, either (a) repair or replace the defective Product, or defective part or component thereof, F.O.B. Seller's facility freight prepaid, or (b) credit Buyer for the purchase price of the Product. All warranty claims shall be made in writing. Seller requires all non-conforming Products be returned at Seller's expense for evaluation unless specifically stated otherwise in writing by Seller. This warranty does not cover failure or damage due to storage, installation, operation or maintenance not in conformance with Seller's recommendations, including as set forth in these Terms and Conditions of Sale, and industry standard practice or due to accident, misuse, abuse, or negligence. This warranty does not cover breach of data or system security, including that of information technology infrastructure, computers, software, hardware, databases, electronic systems (including database management systems), and networks. This warranty does not cover reimbursement for labor, gaining access, removal, installation, temporary power or any other expenses, which may be incurred in connection with repair or replacement. This warranty does not apply to equipment not manufactured by Seller. Seller limits itself to extending the same warranty it receives from the third-party supplier, to the extent such third party permits assignment of its warranty. For other general terms and conditions of sale, please refer to Eaton's selling policy 25-000.
Certifications	UL 489—Molded case circuit breakers, molded case switches, and circuit breaker enclosures UL 2231—These requirements cover devices and systems intended for use in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Article 625, to reduce the risk of electric shock to the user from accessible parts, in grounded or isolated circuits for charging electric vehicles. These circuits are external to or on-board the vehicle UL 1998—These requirements apply to non-networked embedded software residing in programmable components performing safety-related functions whose failure is capable of resulting in a risk of fire, electric shock, or injury to persons UL 2251—Plugs, receptacles, and couplers for electric vehicles UL 2594—Electric vehicle supply equipment CSA® C22.2 No. 5—Molded case circuit breakers, molded case switches and circuit breaker enclosures SAE J1772 2017 Ed. NFPA 70 Article 625 FCC Compliant, Part 15 Energy Star Level 2 Certified charger

Troubleshooting

Condition	Troubleshooting Tip
Why is my EV smart breaker not charging my EV?	Check for any schedules set on the 'EV smart breaker charger' or the EV. If you are attempting to charge outside of these 'schedules', charging may not occur. You will have to manually over-ride the schedule to start a new charging session. See Brightlayer Home app for instructions.
EV smart breaker charger has tripped. How do I reset the breaker?	Eaton's EV smart breaker chargers behave like a standard Eaton BR thermal mag breaker – once tripped, you have to push it to full-off position and then turn it back on.
I see a blinking RED LED on the EV connector. What does this mean and how can I resume normal operation?	Red LED on the EV connector blinks at two different speeds. One of the blink patterns is half-a-second-ON and half-a-second-OFF. This is an indication of loss of line side power. Please turn the breaker OFF and recheck the line side wiring of the EV smart breaker. The second blink pattern is one-second-ON and one-second-OFF. This indicates a fault condition. Refer to the instruction sheet for various possible fault conditions.
Why is the yellow LED flashing on the EV pole?	This means that the EV is requesting the charger to go into an unsupported state. The LED will stop flashing once a valid and supported request is received.
Why is my BlinkUp process not successful?	Refer to the EM Install app or the Brightlayer Home app for additional information on BlinkUp errors and solutions. You can also refer to the installation video under the 'Resources' section of the product web page.
Why is the charger's RED LED flashing after GFCI Test button is pushed?	The charger entered a permanent fault mode since a GFCI self-test is initiated while the EV connector is not plugged into the EV. Press the 'smart breaker display button' three times to clear the fault.
Why is my EV smart breaker showing as "NO INTERNET" in my Brightlayer Home app.	Check to make sure both the mobile device and the EV smart breaker charger have an active internet connection.
I unplugged EV connector in the middle of a charge and now the EV charger is not working.	If you were charging outisde of a pre-defined schedule and you unplugged the EV connector, the EV charger will stop charging since the schedule kicks in again. Check for any schedules set on the 'EV charger' or the EV. If you are attempting to charge outside of these 'schedules', charging may not occur. You will have to manually over-ride the schedule to start a new charging session. See Brightlayer Home app for instructions.
Why does my mobile app say "waiting" while my EV smart breaker charger is already charging the EV?	Depending on the Wi-Fi traffic, the mobile app may take few seconds to update and show the correct status. If the mobile app continues to shows an incorrect status, check the Wi-Fi connection on your mobile device and the EV smart breaker charger.

For more troubleshooting tips, please refer to the Eaton's knowledge center website or contact Eaton TRC at 877-ETN-CARE (386-2273) Option 2, Option 9.

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Printed in USA
Publication No. IL191009EN
(Rev. 08)
February 2025

Powering Business Worldwide