

Product Manual

EVSE 50 | Home 50

Level 2 Electric Vehicle Charging Station



MADE IN THE USA



FROM DOMESTIC AND FOREIGN PARTS

ATTENTION: Read and follow all instructions, warnings, dangers, and notifications before installing. Return this guide to the owner after installation.

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1 IMPORTANT SAFETY INFORMATION

Read and follow all instructions, warnings, dangers, and notifications before installing and using EvoCharge Electric Vehicle Supply Equipment (EVSE) Products. THIS CHARGING STATION MUST BE INSTALLED BY A LICENSED ELECTRICIAN. Failure to follow these guidelines may result in death, injury, or property damage and will void the product warranty. Save these instructions.

WARNING

- High Voltage present, disconnect all power before servicing or installing the product. Failure to follow these guidelines may result in death, personal injury, or damage to property.
- Do not install or use the EVSE near flammable, explosive, harsh, or combustible materials, chemicals, or vapors. Failure to follow these guidelines can result in death, personal injury, or damage to property.
- Improper amperage setting to the supply wire sizing that does not meet NFPA 70 NEC 625 specifications, temperature rating and breaker sizing may result in death, personal injury, or damage to property.
- Installation must be done following an approved EvoCharge installation practice. Failure to follow these guidelines can result in death, personal injury, or damage to property.
- Do not use the EVSE if the flexible power cord or cable is frayed, broken, damaged, or fails to operate. Failure to follow these guidelines can result in death, personal injury, or damage to property.
- Operating temperature range is -30°C to +50°C (-22°F to +122°F); operating this device outside of this operating range may result in death, personal injury, or damage to property.

CAUTION

- Copper wire must be used and sized to follow NFPA 70 NEC wiring code guidelines.
- Children should not operate and must be supervised when around the equipment.
- Do not touch EVSE Connector's end terminals with fingers or sharp metallic objects, such as wire, tools, or needles. Damage to the terminals can result in damage to property.
- This product can expose you to one or more chemicals that are known to the state of California to cause cancer. Please see product packaging for Proposition 65 warning.

NOTICE

- This equipment must be grounded through a dedicated permanent wiring system or an equipment-grounding conductor according to the NFPA 70 NEC 626 specifications. Failure to properly ground this equipment could result in damage to property, serious injury, or death.
- Handle the equipment with care during transportation. To prevent damage to the equipment and its components, do not subject it to strong force or impact and do not pull, twist, tangle, drag or step on the equipment.
- Incorrect installation and testing of the equipment could potentially damage the vehicle's battery, components, and/or the equipment itself.
- In areas that experience frequent thunderstorms with lightning or areas that experience frequent power outages and power supply issues, add surge protection at the service panel for all circuits. Ensure all ground and power connections follow NFPA 70 NEC guidelines.
- Installation must be done by a licensed electrician.
- Device changes or modifications are not allowed at any time or for any reason.

- Ensure that the charging cable is positioned so it is not stepped on, tripped over, or subjected to damage or stress. Do not close a garage door on the charging cable.
- Do not drive over the charging cable or handle.

2 INSTALLATION

2.1 Included in the Box

- EV Charger with Cable (1)
- Mounting Bracket (1)
- Cable Holster (1)
- Mounting Screws (4)
- Quick Installation Guides (2)
- Amperage Label Sheet (1)

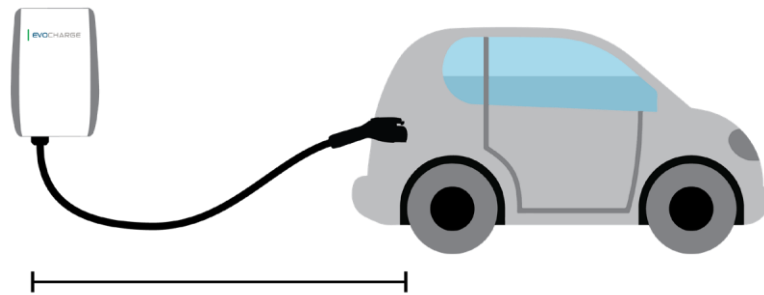
2.2 Tools Required

- T10 Driver
- T25 Driver
- #3 Phillips Screwdriver
- 5/16" Hex Screwdriver
- 3/8" Flathead Screwdriver
- 2mm Precision Flathead Screwdriver
- Level
- Pencil
- Stud Finder
- Wire Cutter
- Wire Stripper
- Drill with 3/16" Drill Bit (if pre-drilling holes is required)
- Mobile phone with the EvoCharge app installed

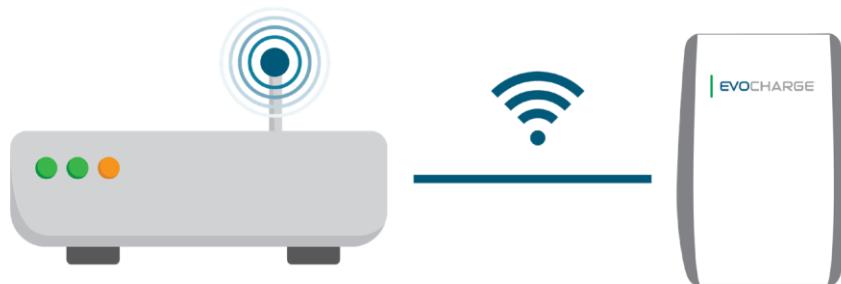
2.3 Planning Installation

When planning for the installation location, several factors should be taken into consideration to result in the best possible user experience.

- ✓ Electric Service**
The EV charger requires a two-pole circuit breaker and circuit directly from a service panel. Ensure there are two open spaces within the panel and a clean path from the panel to the charger. (Note: a licensed electrician must confirm that the panel can accept the additional load.)
- ✓ Charge Port of the Vehicle vs Cable Length**
Install the EV charger in a location that allows the charging cable to reach the car's charge port without putting strain on the cable.



- ✓ WiFi Signal Strength**
The EV charger uses a WiFi connection to access the internet and provide remote access via the mobile application. Use a WiFi connected device capable of measuring signal strength to verify that the WiFi signal is present and strong where the EV charger is intended to be installed.



- ✓ Outdoor Installations**
While the charger is weather-resistant, take care NOT to expose it to excessive heat or water when installing outdoors.

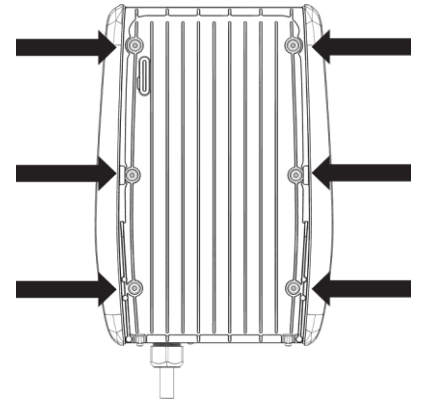
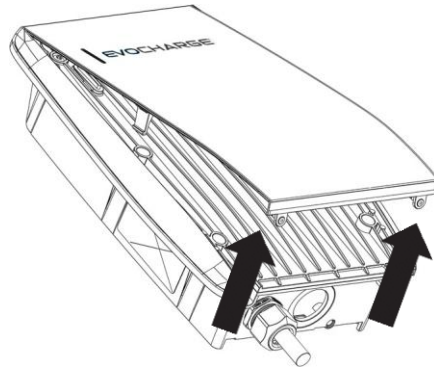
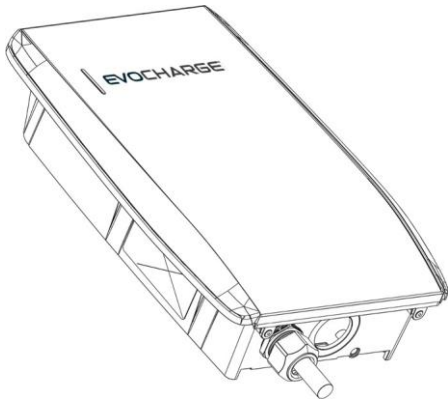
Prevent moisture from entering the charger. If there is moisture ingress, immediately discontinue charger use.

2.4 MOUNTING

2.4.1 Prepare the Charger

To prepare the charger for installation, remove the EV charger and charging cable from all packaging and place it on a level workspace. Removal of two covers from the rear enclosure is required to expose the wiring terminal block and the power output selector dial.

1. Loosen the T10 fasteners located on the bottom of the front cover.
2. Lift the front cover from the bottom to expose tabs located midway. Disengage the tabs while continuing to lift the cover to remove it from the rear enclosure. The cover will bend. Care is required to prevent irreversible damage when disengaging the tabs.
3. Loosen the six T25 fasteners holding down the sealed enclosure cover.



Watch on YouTube:

<https://youtu.be/cgleLMLkOWU>

2.4.2 Mounting Bracket Installation

The EV charger and cable holster must be mounted to a solid surface such as a stud framed wall, concrete wall, or anchored post/pedestal. Mounting the charger directly to drywall WITHOUT screw thread engagement to an underlying wood stud is NOT RECOMMENDED.

The mounting bracket has two rows of five mounting holes. Only two mounting holes are required for installation: one top hole and the corresponding bottom hole. The range of holes allows for centering the charger directly on a wood stud when using the bottom wire entry, or for positioning the unit off center of the stud to the left or right when using the rear wire entry option.

Suggestions:

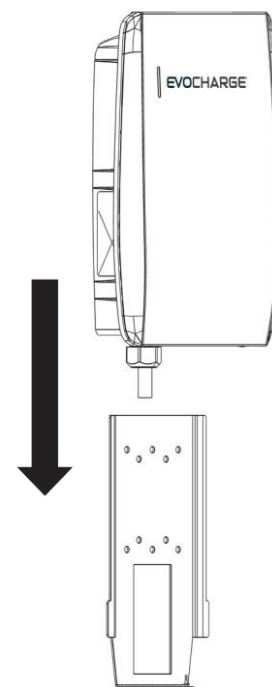
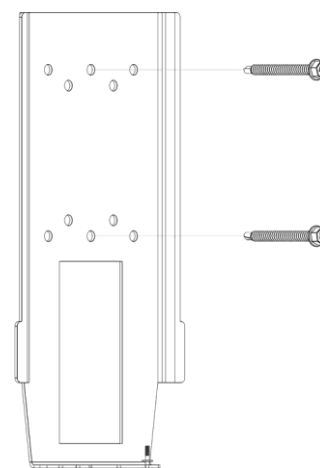
- For masonry walls, use 5/16" x 2" concrete screws.
- Utilize the mounting bracket as a template for pre-drilling holes if needed.
- Pre-drill holes with a 3/16" drill bit for wood studs.
- When installing the mounting bracket ensure there is 6" minimum clearance above the bracket to allow for charger placement.

To install the mounting bracket, follow these steps:

1. Locate a stud or solid surface to mount the bracket.
2. Make a pencil mark at the desired mounting height.
3. Hold the bracket in place with the pencil mark aligned to the top center mounting hole (for rear entry conduit select either the far right or left holes depending on conduit location to stud).
4. Using a level, align the mounting bracket and mark the location of the bottom hole.
5. Remove the bracket and pre-drill (using a 3/16" drill bit) the wall at the marks to a depth of 2".
6. Replace the mounting bracket and secure it to the wall using the included mounting screws.

2.4.3 Mount Charger to Bracket

- Slide the charger onto the mounting bracket.
- Fix the charger with the T10 screw and washer at the bottom of the bracket.



Install torque 3-4 in-lb

2.4.4 Cable Holster Installation

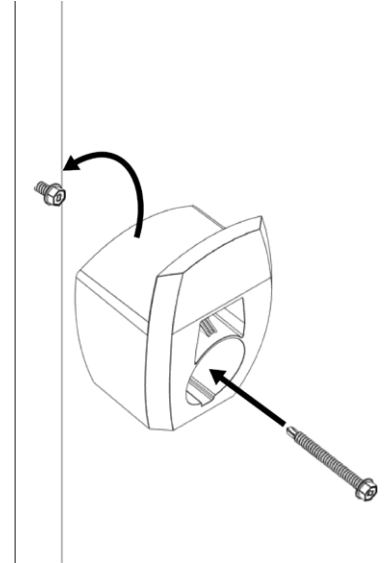
The cable holster can be located next to OR independent of the charger in a position that is most convenient with day-to-day charging.

Suggested locations for placement:

- Below the charger.
- Immediately to the left or right.
- Closest to the charging port of the EV when parked for charging.

To install the cable holster, follow these steps:

1. Locate a stud or solid surface to mount the cable holster.
2. Using the included mounting screws, drive one screw leaving a 1/8" gap between the head of the screw and mounting surface.
3. Position the top holster mounting U-slot on the protruding screw head.
4. Using the cable holster as a guide, drive a second mounting screw into the bottom holster mounting hole.
5. Snug the top screw to fully secure the cable holster.

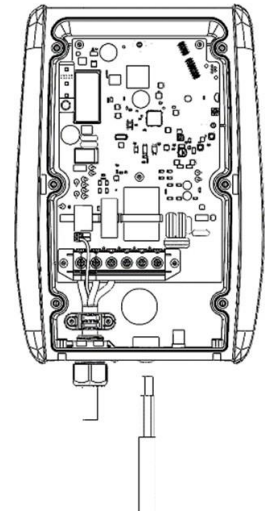


2.5 Wiring

WARNING: Failure to disconnect power prior to installation can lead to serious injury or death.

CAUTION: To reduce the risk of fire, connect only to a circuit that has the correct overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70, and the Canadian Electrical Code, Part I, C22.1.

CAUTION: If this unit is installed outdoors, all conduit, fittings, junction boxes, receptacles, etc. must be rated for outdoor installation. If using a wall receptacle, the receptacle must be installed properly to maintain the proper NEMA rating of the enclosure.

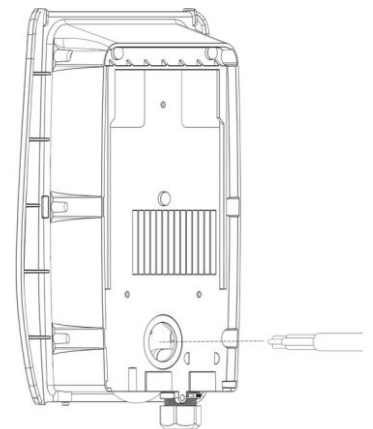


2.5.1 Wiring Entry

The charger is capable of accepting supply wiring from either a conduit knock-out located on the bottom of the charger, or a conduit knock-out located at the rear of the charger. Installation of all conduit and fittings should be completed in accordance with applicable NEC codes.

Bottom Entry


For bottom entry wiring, the charger only requires installation of NEC approved conduit fittings to complete the electrical installation.



Rear Entry

For rear entry wiring, the rubber blanking plug should be relocated from the rear knock-out to the now unused bottom knock-out. This can be performed by pressing on the plug with moderate force. Reapplication of the blanking plug to the bottom knock-out is essential for maintaining environmental rating. No tools are required. When using the rear entry knock-out, it is important to use fittings that preserve a watertight seal for outdoor installations. The charger does not sit flush to the wall or mounting surface when installed. Appropriate conduit fittings should be used when installing.


2.5.2 Electrical Wiring to the Charger

 **CAUTION:** Use copper conductors only. Fix wire on the corresponding terminal block position. The wiring instructions are printed on the terminal block L2/G/L1.

The charger is designed to be supplied with 120/208VAC WYE 3Phase or 120/240VAC 1Phase. All other utility service voltages are unsupported. The charger DOES NOT utilize a neutral conductor.

When wiring the charger to a 120/240VAC single-phase service, Line 1 and Line 2 are required in addition to a grounding conductor. The terminal block in the charger is labelled L2/G/L1 to facilitate the correct placement of the conductors.

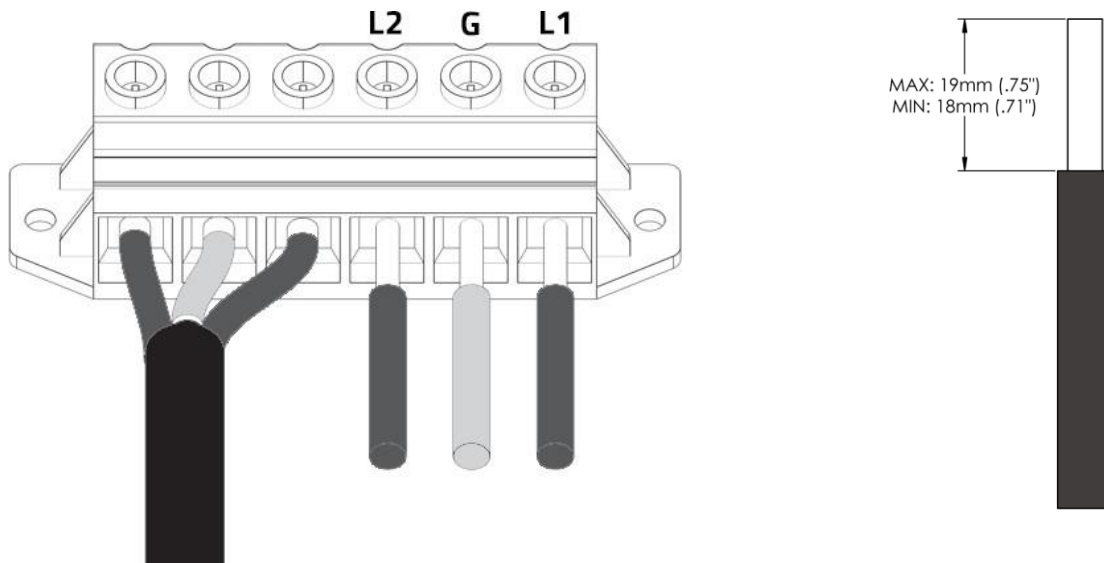
When wiring the charger to a 120/208VAC three-phase service, only two of the live conductors should be used: A-B, B-C, or A-C in addition to a grounding conductor. The charger does not require the use of the neutral conductor.

 **CAUTION:** The EV Charger CANNOT be used on services with voltages exceeding 120VAC to ground from and one powered leg. 240 Delta service IS NOT compatible.

- Strip 18mm length on terminal block.
- Insert wire to the correct terminal locations.
- Torque the terminal screws according to the table below.

AWG	Torque Pound Inches (N*m)
18-10	20 (2.3)
8	20 (2.8)
6-4	35 (4.0)
3	35 (4.0)
2	40 (4.5)

Select the applicable conduit in accordance with local and national electric code standards to the EVSE to maintain NEMA 4 rating.



2.6 Complete the Installation

To complete the installation:

- Carefully re-install the seal enclosure cover and front cover.
- Turn the breaker on.
- LED indicator light will illuminate YELLOW while the charger initializes.
- LED indicator light will illuminate WHITE or GREEN when ready to charge. If it is not white or green after approximately three minutes, see section 6 on troubleshooting.

The charger is configured for Instant Charge out of the box. Instant Charge will initiate a charging session immediately upon engaging the charging handle to an electric vehicle (EV). To use more advanced features, such as charge scheduling, follow the steps in the Connectivity section of this manual to establish a WiFi connection to the charger.












3 OPERATION

3.1 Start a Charging Session

1. To initiate a charging session, insert the charging cable connector handle into the charging port of an EV.
2. Verify that the connector handle is fully engaged with the charging port. When seated in the port, the retaining latch will click, and the connector handle will be locked in position.
3. Verify that the plug is fully engaged by trying to remove the connector handle without depressing the handle's release button.
4. When fully engaged, the charger and EV will begin communication and a charging session will start.

3.2 Indicator Light

The charger indicator light informs the user a quick status on the condition and state of the charger without requiring the use of the mobile app. When the charger is supplied power the indicator light will represent one of the conditions listed in the table below:

State/Message	LED Action	Color	EVSE 50	Home 50	Description
EVSE Available State	Solid		X	X	EV not connected
EVSE Available State	Solid	White		X	EV not connected, Network not connected
EVSE Preparing State	Solid		X	X	EV connected, waiting for slide to start
EVSE Preparing State	Pulse			X	EV connected, waiting for vehicle to accept charging
EVSE Charging state	Pulse		X	X	Charging
EVSE Suspended EVSE state	Pulse		X	X	Charging complete
EVSE Suspended EV state	Pulse		X	X	Charging complete
EVSE Finishing state	Pulse			X	Charging complete
Rebooting/ Unavailable	Pulse			X	Rebooting/Unavailable
Fault	Solid		X	X	Fault, reference appendix
Fault	Pulse		X	X	Fault, reference appendix
Firmware upgrade in progress	Pulse			X	Firmware update

Indicator Light Reference Table

3.3 Stop a Charging Session

1. To stop a charging session, simply press the latch release button on the handle.
2. The charging session will terminate, and the connector handle can be removed from the EV and returned to the cable holster.

Note: In some cases, the connector will remain locked in the vehicle's charging port. If this occurs, please refer to the owner's EV manual for the proper procedure to release the connector handle after ending the charging session.

4 CONNECTIVITY

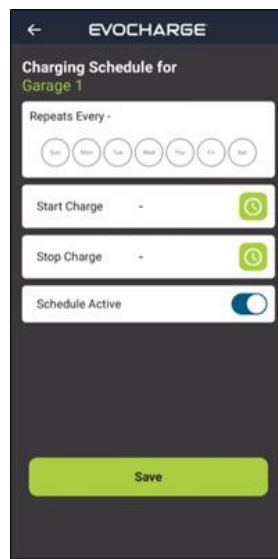
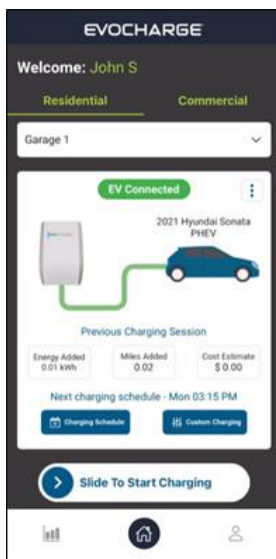
The EV charger is networkable via WiFi to enable remote features through the mobile app and desktop portal. Connection to a WiFi network can be established by using the mobile app at initial start-up. When the charger is not connected to a WiFi network it is in an Instant Charge state and charging will start automatically when it is plugged into a vehicle.

4.1 Mobile App and Desktop Portal

The mobile app is available online in the Apple and Google stores using the following QR code:

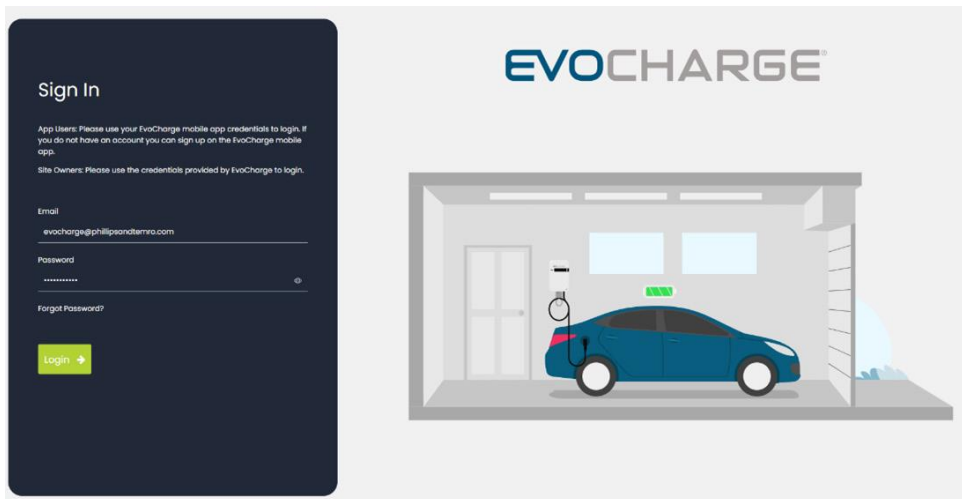


EvoCharge mobile app QR code

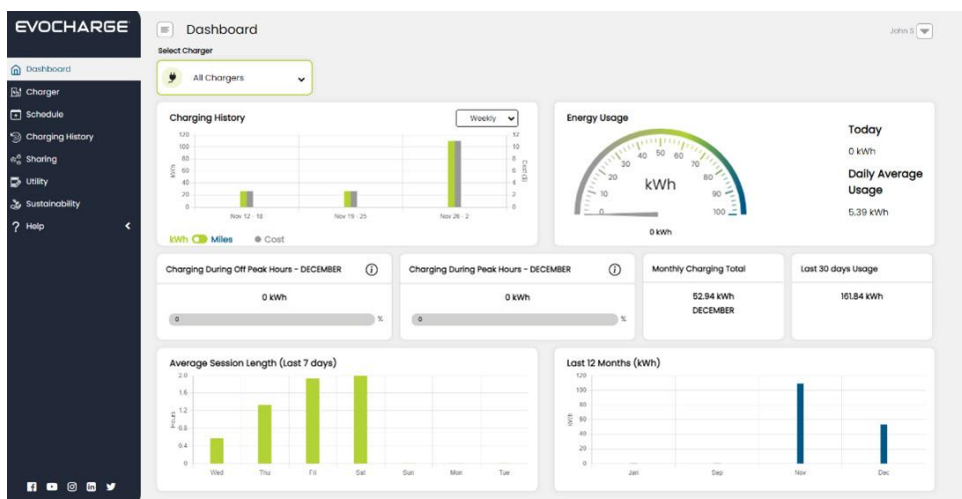


EvoCharge mobile app

The desktop portal can be accessed at portal.evocharge.com using the login credentials established in the mobile app during initial start-up.



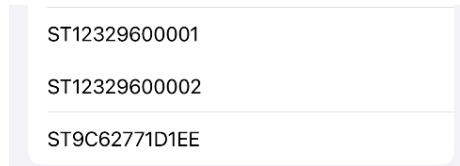
EvoCharge Web Portal Login



EvoCharge Web Portal Dashboard

4.2 Bluetooth® Wireless Technology

When the EvoCharge Home 50 is initially powered on it will broadcast a Bluetooth signal that matches the charger's serial number for 30 minutes.



Broadcasted Bluetooth Example

4.3 WiFi Connection

To connect the charger to local WiFi, a mobile phone with Bluetooth capability is needed. Using the EvoCharge mobile application, follow the in-app instructions to connect to the charger via Bluetooth. After connecting via Bluetooth, you will then connect the charger to your local WiFi network.

After the charger is connected to your local WiFi it will continue to broadcast its Bluetooth signal for 30 minutes. To rebroadcast the charger Bluetooth signal after 30 minutes, use the Reboot button in the EvoCharge mobile app or power cycle (toggle the circuit breaker) the charger.

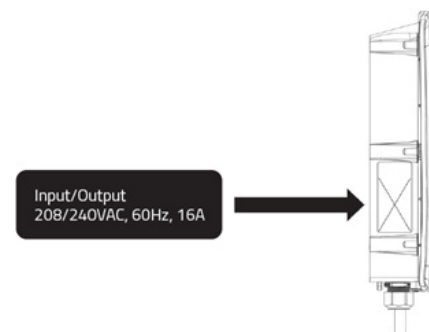
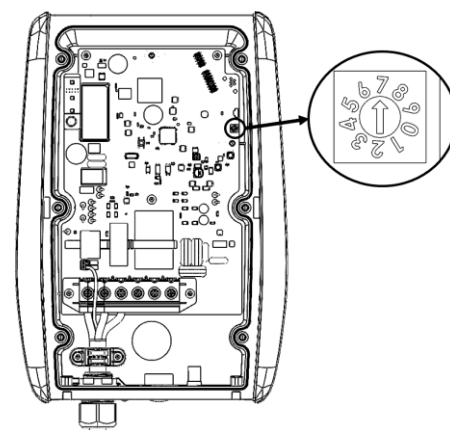
By using the Remove and Factory Reset button in the EvoCharge app the WiFi credentials in the charger will be removed. Anytime the charger loses its WiFi connection the indicator light will illuminate WHITE and the Bluetooth signal will continue to broadcast until the charger is onboarded again and connected to a WiFi network.

5 ADVANCED FEATURES

5.1 Setting the Amperage of the Charger

The EV charger is designed to manually adjust the maximum power output. This feature is useful when installing the charger in a location where the electrical service has limitations on the available power to the charger. The charger's default power out is set to a maximum of 48A when installed on a 60A-rated branch circuit. If less than a 60A rated circuit is available or cannot be added to the existing service, the charger can be adjusted to a setting that matches the installed circuit capacity by following these steps:

1. Determine the maximum branch circuit rating.
2. Turn the power off to the unit. Wait 5 seconds before removing the front cover.
3. Adjust the amperage output dial according to the table below.
NOTE: The charger output dial settings ARE NOT the same. According to the NEC, an EV charger can only output 80% of the branch circuit's rating.
4. Using a 2mm flathead screwdriver, rotate the arrow on the rotary switch to the desired amperage setting.
5. The table below provides a reference for the minimum conductor size for the circuit from the panel to the EVSE via raceway (NEC 310.16). The required conductor size may be larger than the table indicates due to application. A licensed electrician should be engaged for any wiring installations and modifications to existing wiring.
6. Apply corresponding amperage sticker from supplied decal sheet to charger (as shown to the right) and service panel.



Switch Position	Charger Rating	Breaker Rating	Minimum Conductor Size (75 °C) AWG (L1/L2)	Minimum Equipment Grounding Conductor AWG (G)
3	16A	20A	12	12
4	24A	30A	10	10
5	32A	40A	8	10
6	40A	50A	8	10
7	48A	60A	6	10
8	50A	70A	4	8
0, 1, 2, 9	Switch positions not used			

Switch position table

6 TROUBLESHOOTING

Issue	Description of Problem	Solution
Indicator light does not illuminate	Charger lacks power	Ensure the circuit breaker is in "ON" position. Have an electrician ensure the wiring is completed according to Section 3.4.
Indicator light is solid red	The charger has worked for an extended period but no longer works	Contact EvoCharge technical support: 888-653-0160
	The charger has only worked one or two times	The wiring may be incorrect. Have an electrician ensure the wiring is completed according to Section 3.4.
Indicator light is flashing red	EV Charger has gone into fault state	<ul style="list-style-type: none"> Power Cycle charger Check voltages Check terminal connections/torques
Breaker is tripping	Breaker trips during initial start-up self-test	Do not use a GFCI breaker.
	When charging, service panel breaker trips	Ensure the breaker size is correct for the charger rotary switch position according to Section 6.2.
Charger does not work after a power outage	There are several possible failures	Reset the circuit breaker.* Contact EvoCharge technical support if the problem persists.
Mobile app says charger is offline	<ul style="list-style-type: none"> WiFi strength low WiFi Network not present 	Increase WiFi strength by using signal booster or locate router closer to the charger.
	Incorrect password	Remove charger from the mobile app account. Re-onboard the charger through the mobile app.
	Charger lacks power	Check Indicator light for presence of power. Reset circuit breaker.*
Charging handle is stuck in EV		See EV Owner's Manual for release procedure.
Charger will not charge EV	Indicator light is solid blue	Check the mobile app for Charge Schedule, utility event notification, or use the "Slide to Start" feature. Check EV for Charge Schedule
	Indicator light is green	EV not recognized or no communication. Re-engage the charging connector handle.
Charger is charging slow	Charge rate is slower than expected	Check Charger Output Switch setting, reference Section 6.2.
Charger cannot connect to Mobile App	Unable to establish Bluetooth connection	Turn on Bluetooth on your phone.
		Reduce the distance between phone and charger.
		Reset the circuit breaker.*

* The car must be disconnected from the charger when resetting the circuit breaker.

7 APPENDIX

Specifications	
AC power output rating	Max 12 kW (240 VAC * 50A)
AC voltage input rating	208 / 240 VAC 60Hz 1Ø
Amperage input rating	50A maximum (de-ratable)
Power wiring	L1, L2, Earth Gnd (no neutral)
Ground fault detection	20 mA CCID
Open safety ground detection	Continuous monitoring of presence of earth ground
Weight	11.68lbs (5.3 kg)
Dimensions	9.7in (245mm) W x 13.8in (351mm) H x 3.5in (88mm) D
Ventilation	Not required
Environmental rating	NEMA 4
Operating temperature	-22°F to 122°F (-30°C to 50°C)
Storage temperature	-40°F to 158°F (-40°C to 70°C)
Operating humidity	Up to 95% RH (non-condensing)
EMI compliance	FCC Part 15 Class B
Safety and compliance	UL2594, UL2231-1, UL2231-2 NEC Article 625 ENERGY STAR® certified - Pending
Communications	2.4 GHz and 5 GHz (802.11 b/g/n/ac) Bluetooth® wireless technology

8 WARRANTY

The EvoCharge warranty statement is located here: <https://evocharge.com/legal#limited-warranty-content/>

FCC ID: 2BEYO-HEVSE50

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by EVOCHARGE INC. could void the user's authority to operate the equipment.

Note: 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 or more 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.

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

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

The device operates in the band 5150–5250 MHz to reduce the potential for harmful interference to co-channel mobile satellite systems.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by EVOCHARGE is under license. Other trademarks and trade names are those of their respective owners.

For technical support, contact us at:

888-653-0160

evochargesupport@phillipsandtemro.com



evocharge.com

For more resources and
product documents