Aclara

EV2c Electric Vehicle Supply Equipment
Installation Guide

Y21065-TUM
Revision 1
www.Aclara.com

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SAFETY AND COMPLIANCE

SIGNAL WORD DEFINITIONS

Safety messages are used throughout this manual to emphasize important and critical information to help ensure safety and prevent product damage. These safety messages are defined below.

⚠ DANGER DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE NOTICE is used to address important installation, operation, and maintenance practices which are not hazard-related (e.g., messages relating to property damage).

IMPORTANT SAFETY INFORMATION

The information contained herein is general and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Aclara reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawing or supplementary material or both, the latter shall take precedence.

Always read, understand, and follow the warnings and instructions in this manual before using your EV2c device. Failure to read and follow the warnings and instructions in this manual may result in death, serious injury, and/or property damage. Always consult and adhere to all local and national safety codes, regulations, and standards.

⚠ DANGER When using electric products, basic precautions should always be followed to prevent death, serious injury, or property damage.

FOR RESIDENTIAL USE ONLY. NOT FOR COMMERCIAL USE.

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

- Only use the EV2c with electric vehicles (EVs).
- Installation, maintenance, and removal of the EV2c unit from service must be performed by a licensed electrician in accordance with electrical codes, utility safety practices, and other applicable standards.
- Turn off the circuit breaker on the main service panel before performing installation or any electrical work with the EV2c.
- Do not install the EV2c under sprinkler heads or in areas directly exposed to streaming water. The EV2c's rainproof enclosure provides water resistance; however, the enclosure is not fully water-tight, and moisture may enter under certain conditions. In outdoor installations, the enclosure provides protection from rain, sleet, snow, and the external formation of ice.
- Do not install the EV2c in the path of windblown dust. The EV2c's enclosure provides protection from falling dirt and debris.
- Do not install the EV2c near flammable, combustible, or explosive materials.
- Avoid installing the EV2c in locations with direct sunlight.
- Do not use an extension cord to supply power to the EV2c.
- Do not use the EV2c if the red Fault Indicator is illuminated or if any LED indicators are blinking rapidly.
- Inspect the device before each use. Do not initiate a charging session if there is any apparent damage to the EV2c.
- Do not charge if temperatures are outside of the operating range: –30°C to 50°C (–22°F to 122°F).
- If the device enclosure appears broken, cracked, or damaged in any way, do not use the EV2c and contact the providing utility.
- If the flexible power cord and/or J1772 cable is frayed or damaged in any way, do not use the EV2c.
- Do not use any extension cables to increase the length of charging cable.
- Certain EV models may require an adapter (not supplied) for connection. If an adapter is required to connect to your EV, ensure the adapter has been safety-certified and approved for use by the EV manufacturer before using with the EV2c.
- Do not close the garage door on the cable connecting the EV2c to your EV.
- Do not put your fingers or any metallic objects (e.g., wire, tools, needles, etc.) into the J1772 connector.

- Do not attempt to modify, repair, disassemble, or tamper with the EV2c. Contact your providing utility and/or a qualified electrician for any necessary repairs.
- Hazardous voltage inside: Do not attempt to open or remove the cover from the EV2c enclosure. There are no user-serviceable parts inside. Contact licensed electrician for service.
- The EV2c is NOT INTENDED for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they are supervised or given proper instruction concerning use of the EV2c by a person responsible for their safety.
- Always ensure children or pets in the vicinity of the EV2c are supervised, especially when charging your vehicle.

The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

All electronic components within the device are susceptible to damage from electrostatic discharge. To prevent damage when handling this product, use approved static control procedures.

Hazardous voltages can cause shock, burns, or death. To prevent exposure to hazardous voltages, disconnect and lock out all power sources before servicing and removing components.

If the device is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

GROUNDING

The EV2c must be grounded. If the EV2c malfunctions, grounding provides a path of least resistance for the electric current and reduces the risk of electric shock.

⚠ WARNING

Electric Shock Hazard. The EV2c must be properly grounded to reduce risk of electrocution and fire. Contact a licensed electrician to inspect that the wiring meets the minimum branch circuit overprotection requirements in ANSI/NFPA 70 if you are concerned the EVSE is improperly grounded.

For areas with frequent thunderstorms, you should have surge protection installed at the service panel by a licensed electrician.

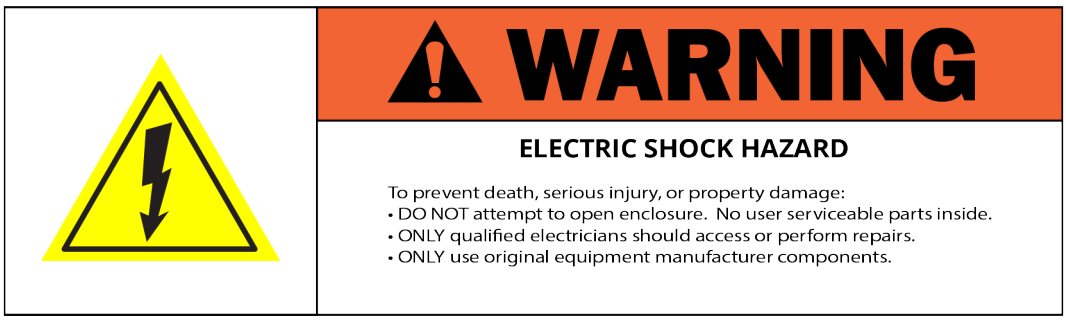
⚠ WARNING

Do not modify the plug provided with the product; if it will not fit the outlet, have a proper outlet installed by a licensed electrician. Outdoor installation requires an outdoor rated, weather resistant electrical outlet.

For a cord-connected, plug-in product: This product is equipped with a cord having an equipment grounding conductor and a ground plug. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances. Plugs must be snug and must not be damaged, loose, or worn.

NOTE If local codes require a ground fault circuit interrupter (GFCI) breaker for plug-in installation, it is recommended to hardwire the EV2c.

For a permanently connected (hardwired) product: This product must be connected to a grounded, copper wire, 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 EV2c.



LICENSED ELECTRICIAN

For the purpose of this manual, a licensed electrician is one who is familiar with the installation, configuration, maintenance, operation, and/or removal of the equipment and the hazards involved. In addition, the person is trained and authorized to work with electrical equipment, including experience with the proper installation procedures for EVSE in accordance with established safety practices.

Any work on or near energized equipment presents the danger of electrical shock. All work on these products must be performed by licensed electricians only. All work must be done in accordance with local utility safety practices and procedures.

FCC Part 15 Compliance

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 EV2c and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

CHAPTER

1

INTRODUCTION

The purpose of this document is to provide licensed electricians with the procedures for installing the EV2c.

Prior to installation, consult with a licensed electrician to ensure the process used to install your EV2c device will comply with electrical codes and standards, in addition to relevant local building codes.

⚠ WARNING Any work on or near energized electrical equipment presents the danger of electrical shock. All work on these products must be performed by licensed electricians.

NOTE Any documentation produced by Aclara is not intended as a replacement for a licensed electrician for the purpose of installing or removing the EV2c device.

Licensed electrician(s) hired for the installation or removal of this device should not consider any documentation produced by Aclara as a replacement for the training required for performing Electric Vehicle Supply Equipment (EVSE) installation, maintenance, or removal from service.

Contact the utility for assistance if the EV2c needs to change location or configuration for any reason.

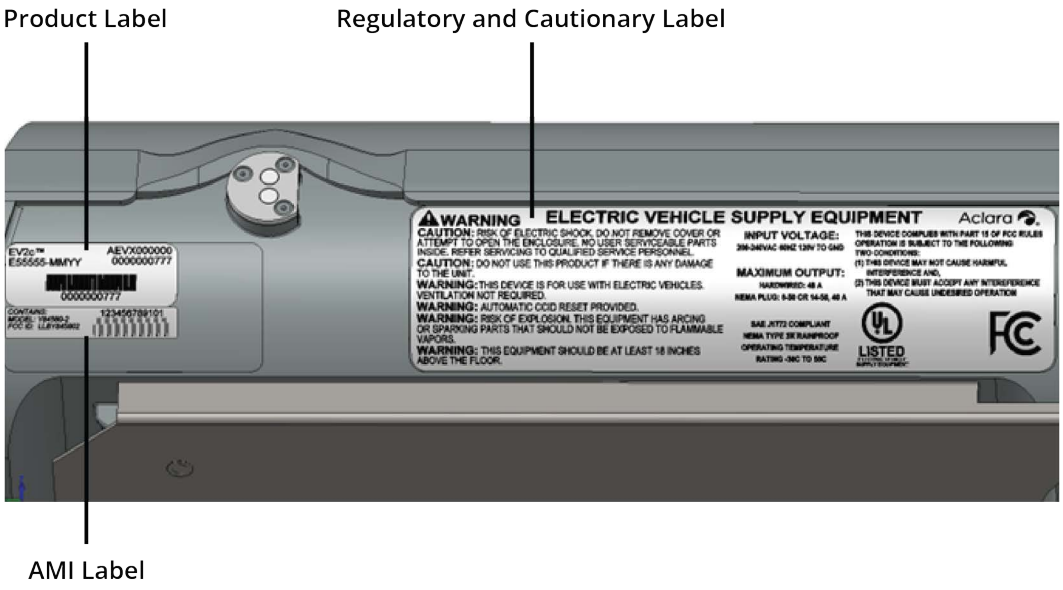
Always review the *IMPORTANT SAFETY INFORMATION* on page v before installing an EVSE.

Labels

The following sections provide information about the location of all external labels on the EV2c and how to interpret each label.

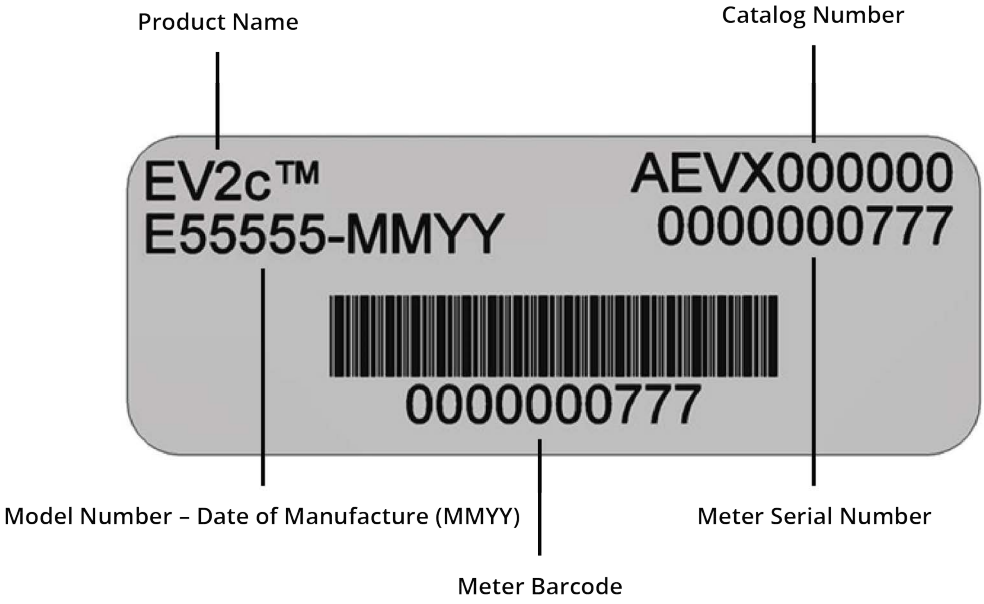
Location of Labels

There are three labels on the side of the unit, next to the Optical Port, as shown below.



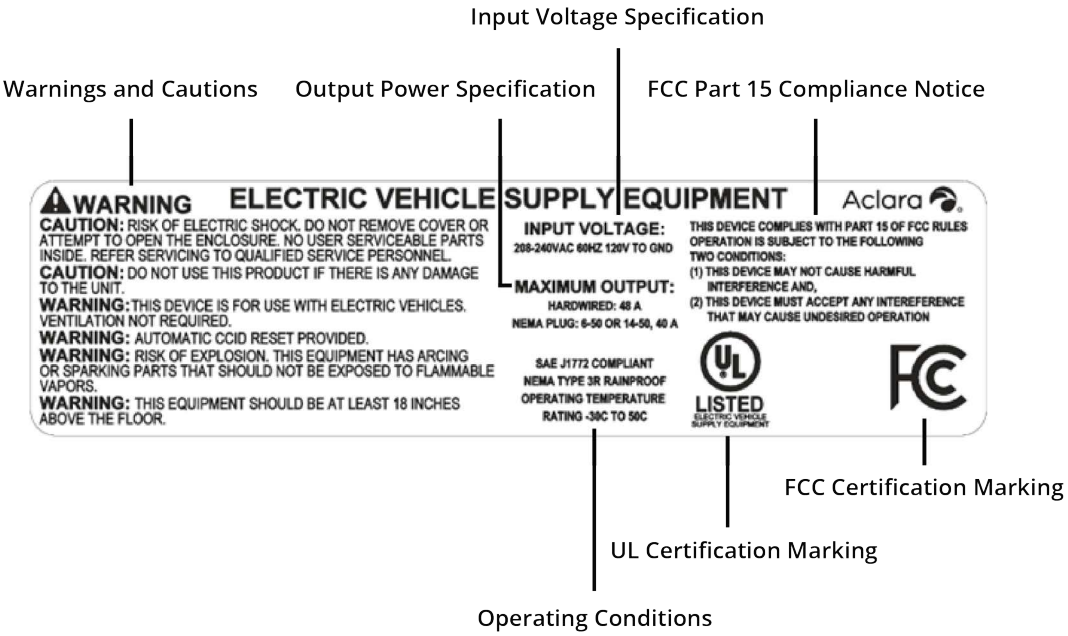
Product Label

The following image identifies the components of the Product Label.



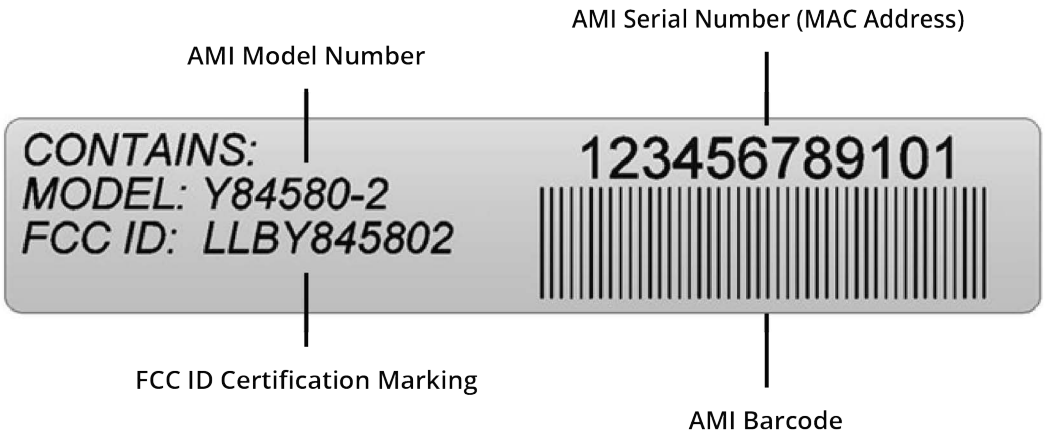
Regulatory and Cautionary Label

The following image identifies the components of the Regulatory and Cautionary Label.



AMI Label

The following image identifies the components of the AMI Label.



CHAPTER
2

PREPARE FOR INSTALLATION

This chapter covers the items included in the box, the required supplies to prepare for installation, and the breaker size information.

Items in the Box

The following table describes the items included in the box.

Qty	Item	Description
1	EV2c Unit	Includes a complete EVSE unit, screw and washers to secure cover closed, integrated J1772 cable, and (for pluggable variants only) an integrated NEMA plug. Three variations of the unit: hardwired, NEMA 6-50 plug, or NEMA 14-50 plug.
1	NPT Sealing Plug	Waterproof, plastic 1” sealing plug for hardwired variant to seal bottom access port when back wire entry location is used.
	Mounting Materials	
1	Metal Mounting Bracket	Metal mounting bracket with two screw holes for securing the bracket to the installation location.
2	Washers	Flat M6 washers for 1/4” screw size to secure lag bolts to the mounting bracket.
2	Lag Bolts	Zinc-plated steel screws with a hex head to secure the mounting bracket to the installation location. Screw size: 1/4” | Length: 1 1/2” | Hex head: 7/16”
	Securing EV2c to Mounting Bracket	
1	Lock Washer	M6 external-tooth lock washers.
1	Washer	Flat M6 washer for 12mm screw to secure the screw to the mounting bracket.
1	Screw	M6 x 12mm screw to secure the EVSE unit to the mounting bracket.
	Installing Tamper Seal & Cable Hook Cover (following successful installation)	
1	Tamper Seal	A small seal on a transfer paper backing with tamper-proof slits. This sticker covers the screw boss on the cover to prevent tampering of the device.
1	Cable Hook Cover	Plastic-molded cable hook cover for storing the J1772 connector cable.
2	Lock Washers	M6 external-tooth, lock washers.

Qty	Item	Description
2	Washers	M6 for 12mm screws washers to secure cable hook cover to the mounting bracket.
2	Screws	M6 x 12mm screws to secure cable hook to the mounting bracket.

NOTE This device must be installed by a licensed electrician working in conjunction with the utility.

Tools and Supplies

The following list includes the tools and supplies typically needed for installation:

- Stud finder
- Bubble level
- Pencil
- Measuring tape
- Power drill and 7/32” bits (to drill pilot holes for installing the metal mounting bracket)
- Impact driver or socket wrench and 7/16” socket (to secure the lag bolts for installing the mounting bracket to the installation location)
- M5 hex key
- 2mm or 1/16” flat-head, insulated screwdriver (to adjust rotary switch)
- Stud-driven hole punch (if back entry knockout option will be used in hardwired installation)
- Wire strippers
- NEMA 6-50 industrial-grade receptacle, NEMA 14-50 industrial-grade receptacle, or electrical material for hardwired installation

NOTE For pluggable variants, ensure the receptacle used is specifically designed for EV charging and can sustain continuous, hours-long operation at max current during a charging session. We recommend using Hubbell NEMA sockets (HBL9367 for the NEMA 6-50 receptacle or HBL9450A for the NEMA 14-50 receptacle).

Breaker Size and Max Current Switch Position Settings

The EV2c installation requires a separate circuit on a dedicated circuit breaker. The hardwired variant supplies a maximum charging current of 48A (requires a 60A breaker), and a maximum of 40A for the NEMA pluggable variant (requires a 50A breaker). If a smaller breaker is installed, the maximum charging capability is reduced accordingly. The circuit breaker must be rated for 125% of the full load current; the max load delivered cannot exceed 80% of the breaker and the rating. A dual pole breaker is required.

⚠ DANGER Use of a breaker rated higher than 125% of the max load can lead to fire and risk of death.

Before powering up the device, the rotary switch SW1 must be configured to match the allowable current based on the breaker size used for the installation. By default, the rotary switch will be set to an invalid position (zero). See *Rotary Switch Mapping vs. Circuit Breaker Rating* on page 16 for more information.

⚠ WARNING Failure to set the switch to a valid position before powering the breaker on will result in rapid blinking of the Plugged In LED (2 blinks per second) and charging will not be allowed. If this occurs, shut off power at the breaker before adjusting the switch position.

See *Setting the Rotary Switch* on page 14 for more information on the switch position details, *Check Indicator Status* on page 22 for information about the status indicators, and *Troubleshooting* on page 24 for more information about issues after powering on the device.

CHAPTER

3

INSTALLATION

This chapter provides basic information for installing the EV2c device by a qualified individual.

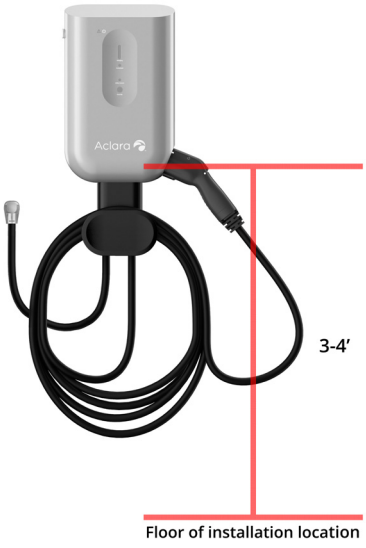
Choosing an Installation Location

The EV2c is designed for installation in both indoor and outdoor environments. This device may be mounted to wood framing studs or any flat wall surface which can support the weight of the EV2c unit (approximately 25 lbs).

NOTE The provided mounting hardware is intended for installation locations with wood framing studs. Mounting on other surfaces may require different hardware and additional tools which are not included.

The J1772 cable extends to 25 feet in length, so ensure the installation location accounts for the length of this cable from the mounted device to the typical proximity of the vehicle. For indoor and outdoor installations, mount the device between three and four feet above grade from the bottom of the unit and storage location of the coupling device. Consider the space needed to coil and store the J1772 cable. Refer to the image below.

⚠ CAUTION Avoid mounting the EV2c in locations exposed to direct sunlight.



Pluggable Variant Considerations

The pluggable variants, the NEMA 6-50P and NEMA 14-50P configurations, include a preattached power cord with a NEMA plug at the end. Units with a NEMA pluggable cable are prewired and tested at the factory.

⚠ WARNING Do not modify the plug (NEMA 6-50P or NEMA 14-50P configurations) provided with the product during installation. If the plug will not fit the outlet, have a proper outlet installed by a licensed electrician. Outdoor installation requires an outdoor rated, weather resistant electrical outlet.

The orientation of the NEMA 6-50R and NEMA 14-50R receptacles will depend on where the receptacle is positioned relative to the EV2c unit. The power cord length is approximately 35 inches between the molded plug and the point where it exits the weatherproof cable gland grip on the unit. The unit must be installed so the power cord does not touch the floor.

Position the EV2c unit in an installation location where the power cord has slack with a gentle curve rather than being stretched taut when plugged into the receptacle. If installing a NEMA receptacle for this device, ensure the receptacle placement allows space for power cord to have the necessary slack, room for the mounted device, and clearance for storage of J1772 connector and cable.

If an existing NEMA receptacle is already in location suitable for EV2c installation, ensure it is in compliance with all electrical codes. Before moving forward with installation, ensure the existing receptacle also has a designated circuit breaker with the appropriate size copper wiring.

⚠ WARNING Check the existing outlet to ensure it is grounded and not damaged, loose, or worn before continuing with the installation.

NOTE When installing the respective NEMA receptacle, position the ground prong on top, as shown above.

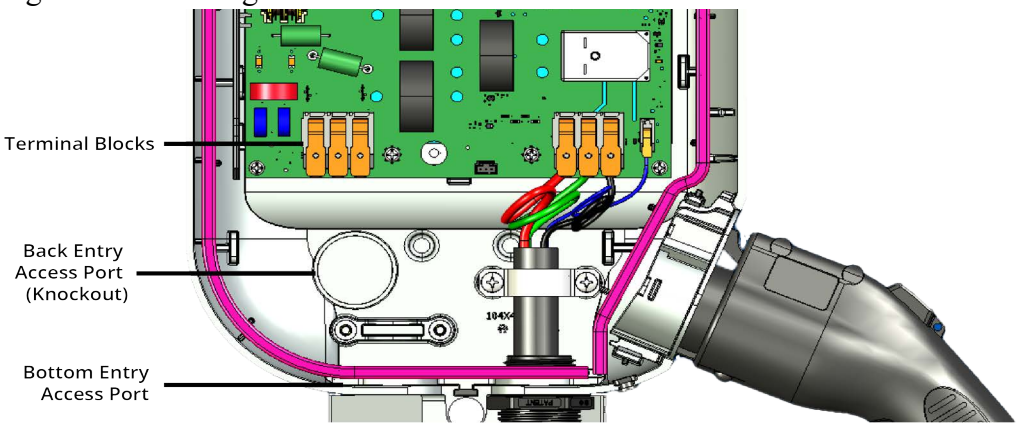
⚠ WARNING Do not use an extension cord to supply power to the EV2c.

When installing a NEMA 6-50R or NEMA 14-50R receptacle, ensure the licensed electrician has any necessary permits for an EVSE installation. The receptacle must be installed on the left side of the planned installation location of the device. The power cable with the NEMA plug exits the EV2c from the lower left side of the device. Install the NEMA receptacle at an appropriate distance from the planned location of the device, noting the power cable is 35 inches in length.

Hardwired Variant Considerations

For hardwired installations, wiring may exit the unit from the back or bottom access ports. If the back access port is needed for your installation location and/or circumstances, this port can be knocked out to accommodate this installation type. The metal mounting bracket also includes a back access port, matching up with the knockout option on the back of the EV2c unit for hardwired installations using the back access port. When back access port is used, the included 1" NPT Sealing Plug must be installed in the bottom access port to maintain the weatherproof seal. The placement for hardwired power supply wiring and conduit is set on the left side of the EV2c.

The terminal blocks and access ports for a hardwired installation are labeled in the image below showing a section of the EV2c unit inside the cover.



Mounting Instructions

⚠ WARNING Turn off the circuit breaker before proceeding with installation to prevent the risk of electrocution.

1. Locate a wood framing stud using a stud finder if applicable for the installation location.

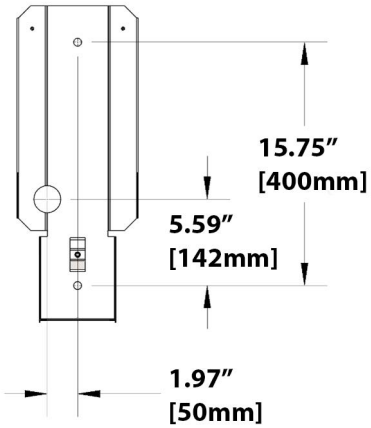
NOTE Ensure the planned stud location used for mounting the device allows for adequate connection of the power cable as well as space for the unit and J1772 cable.

2. Find and mark the center of the stud.

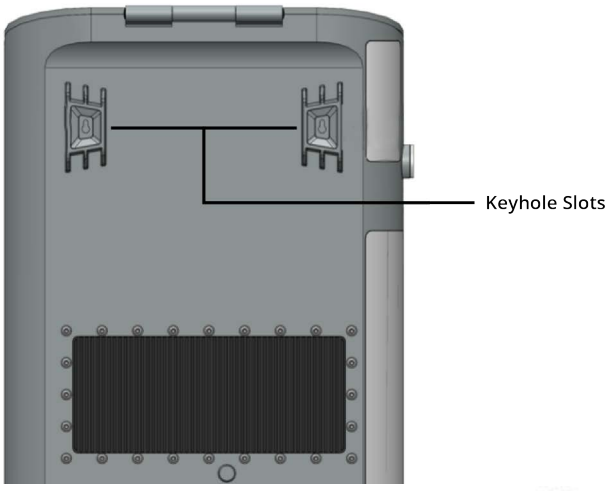
NOTE Use a bubble level to check the mounting bracket is level before marking the mounting holes.

3. Mark the mounting holes by placing the metal mounting bracket on the wall in the desired installation location.

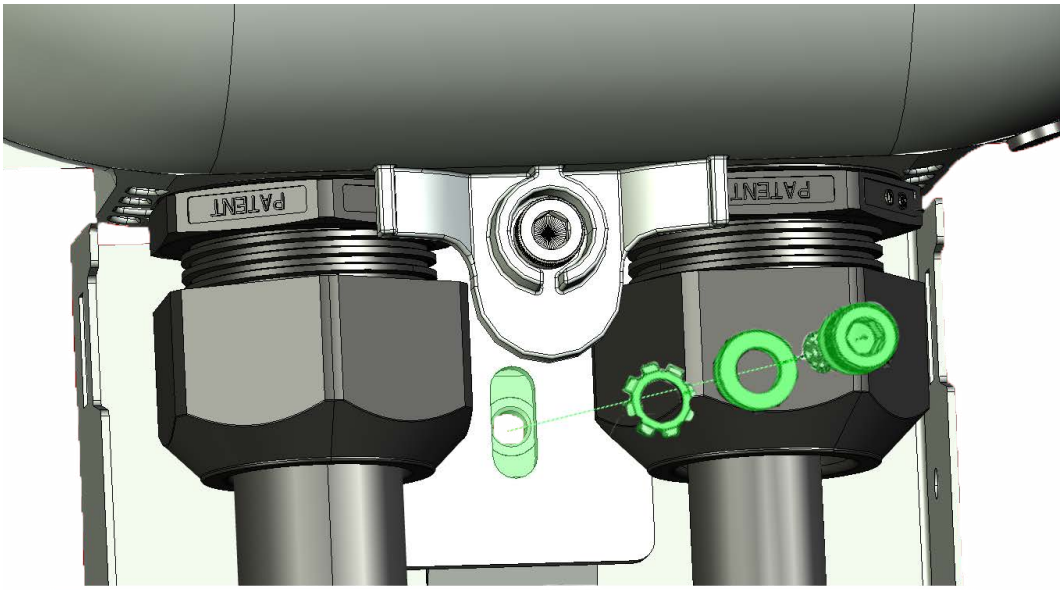
Refer to the below image for center-to-center measurements for the metal mounting bracket.



4. Use a 7/32” bit to drill two pilot holes into studs or other applicable mounting surface.
5. Secure the metal mounting bracket to the wall with the included washers and 1/4” lag bolts using an impact driver or socket wrench.
6. Align the keyhole slots on the back of the EV2c with the keyhole tabs on the metal mounting bracket and apply a gradual downward force to lock the device in place on the bracket.



7. Install the lock washer, washer, and screw to secure the EV2c to the metal mounting bracket, applying 30 in-lb torque to the screw.

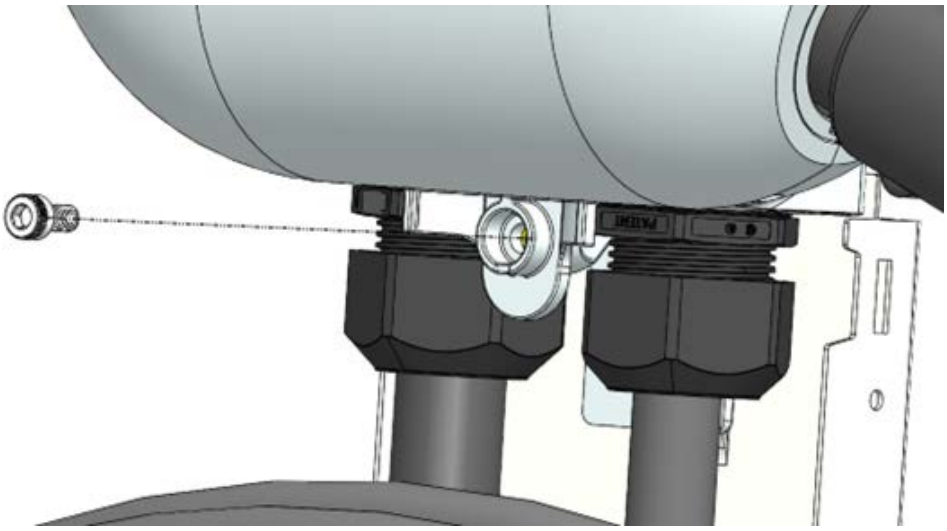


Setting the Rotary Switch

⚠ DANGER Electric shock hazard. To prevent serious injury or death, always ensure the breaker is switched off before opening the EV2c to set the rotary switch.

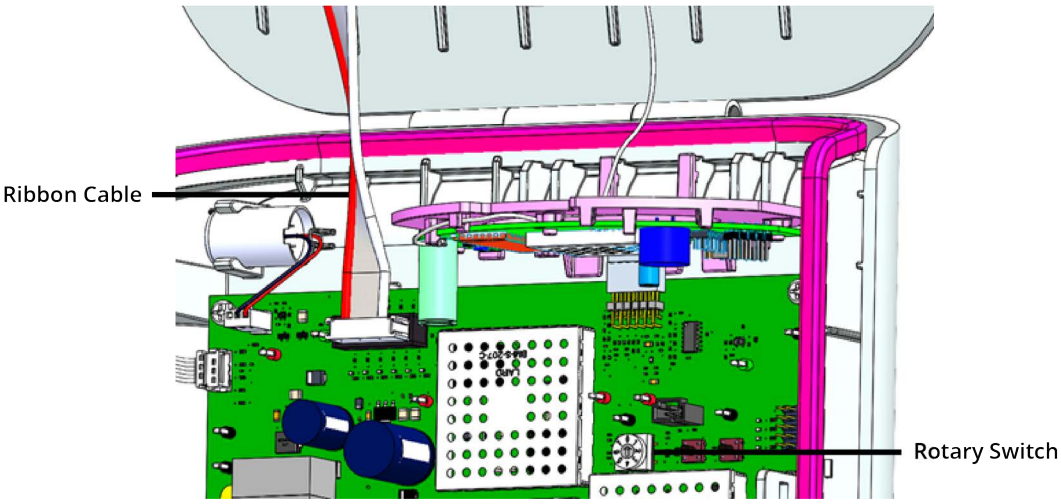
⚠ WARNING Never open the cover of the unit when electrical power is supplied to the EV2c.

1. Remove the screw from the cover.



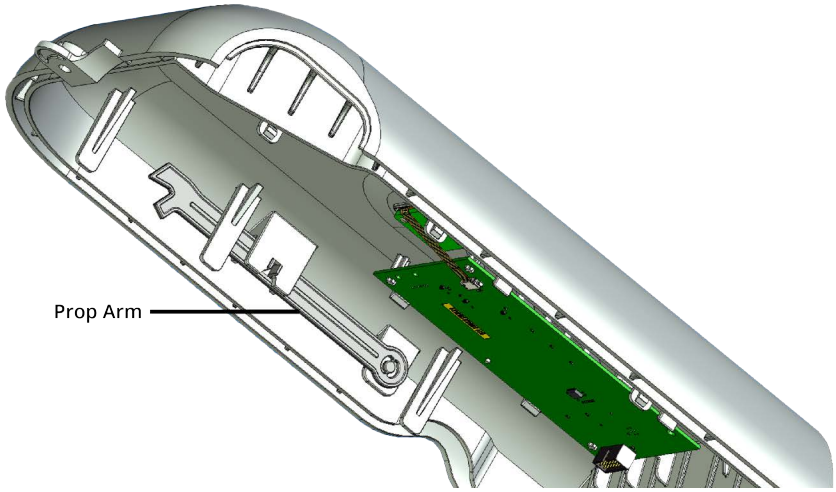
NOTICE Do not hyperextend the cover beyond 90 degrees as this can disconnect the ribbon cable from where it connects the main board to the front-panel board.

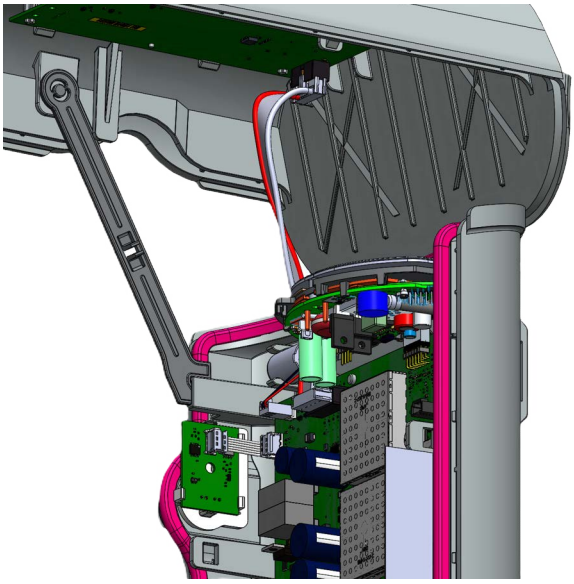
2. Open the cover and locate the rotary switch on the top right of the main board, see image labeled below.

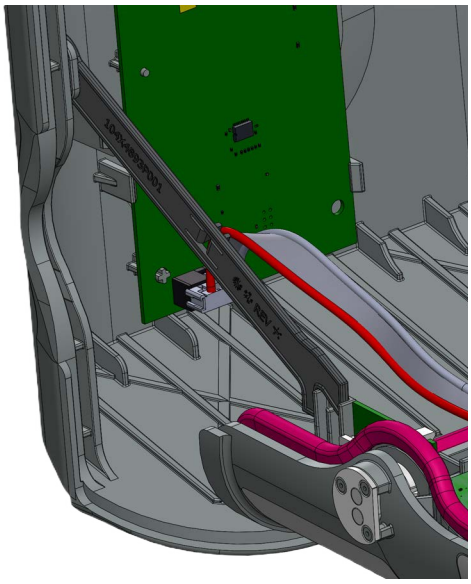


3. Use the prop arm, labeled in the image below, to hold the cover open while setting the switch.

   The prop arm is located in a set place on the inner left side of the cover as shown below.







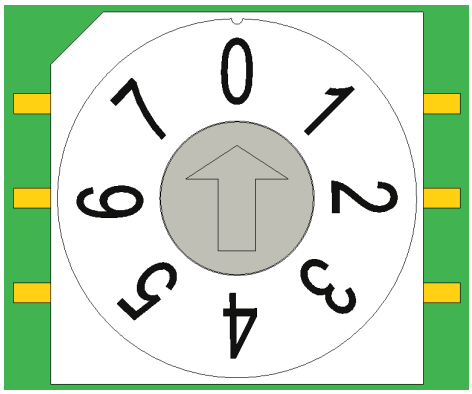
4. Determine the correct setting for the rotary switch in your specific installation circumstances using the information in the following table.

⚠ DANGER Use of a breaker rated higher than 125% of the max load can lead to fire and risk of death.

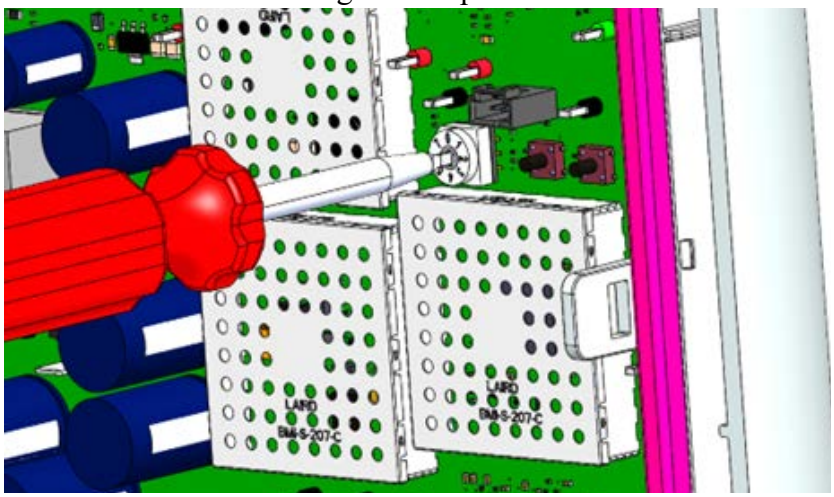
⚠ WARNING SW1 Switch Position 5 (48 A Max Charging Current) must ONLY be used for hardwired units using 60 A breaker. All pluggable variants, NEMA 6-50 and NEMA 14-50 configurations, using a receptacle MUST use a 50 A or smaller breaker and must ONLY use switch positions 1 through 4. Running 48 A through a NEMA 6-50 or NEMA 14-50 receptacle is a potential fire hazard.

Rotary Switch Mapping vs. Circuit Breaker Rating

SW1 Switch Position	Circuit Breaker Rating	Max Charging Current	Max Charging Power (208V)	Max Charging Power (240V)
0	NOT SET	N/A	N/A	N/A
1	20 A	16 A	3.3 kW	3.8 kW
2	30 A	24 A	5.0 kW	5.8 kW
3	40 A	32 A	6.7 kW	7.7 kW
4	50 A	40 A	8.3 kW	9.6 kW
5 (hardwired units only)	60 A	48 A	10.0 kW	11.5 kW
6	NOT SET	N/A	N/A	N/A
7	NOT SET	N/A	N/A	N/A



5. Use an insulated flat-head screwdriver (1/16” or 2mm) to adjust the rotary switch to the correct setting for this particular installation situation.



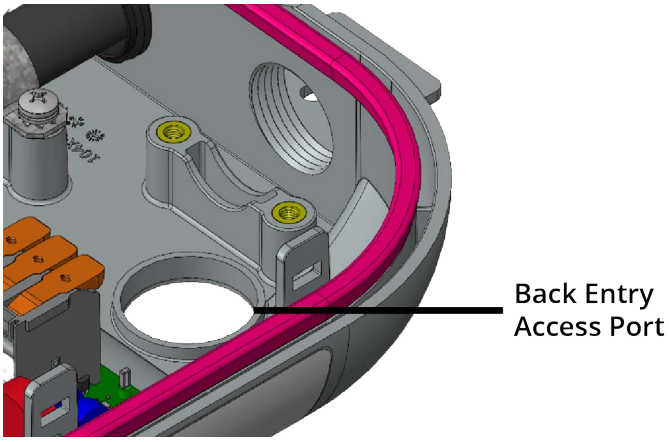
Installation Information for Hardwired Variants

NOTE This section only applies to hardwired units which will be wired during installation. For pluggable variants, proceed to the *Closing the Cover* section.

⚠ WARNING All units including a NEMA pluggable cable have been prewired and tested at the factory. Do not modify the plug (NEMA 6-50P or NEMA 14-50P configurations) provided with the product during installation.

Keep the cover open and use the following information to hardwire the unit. For indoor and outdoor applications, use a water-resistant IP-65 or NEMA 4 equivalent adapter. Use a liquid-tight flexible metal conduit hub adapter or a liquid-tight flexible plastic conduit hub adapter for the respective conduit applications (see the table below in *Input Wire Information* for examples). When using 6-3 non-metallic sheathed cable with no conduit on the back access port, use a cable gland grip. For any applications where the back access port is used, the bottom access port must be sealed using the included 1" NPT Sealing Plug.

If the installation location requires the use of the back access port, use a stud-driven hole punch to knock out the back entry access port. See the image below with the back entry access port knocked out and prepared for the hardwired installation.



The following information outlines line side voltage as the hardwired unit must be wired to either 240V (split phase) or 208V (polyphase) service:

- L1 to G (⏚): 120V AC (156V or greater indicates a potential wiring issue)
- L2 to G (⏚): 120V AC (156V or greater indicates a potential wiring issue)
- L1 to L2: 208V to 240V AC (156V or less indicates a potential wiring issue)

NOTE G (⏚) is a safety ground only; there is no current carrying Neutral.

Input Wire Information

⚠ WARNING Only connect using copper wire rated for 90°C or greater. Do not use aluminum wire.

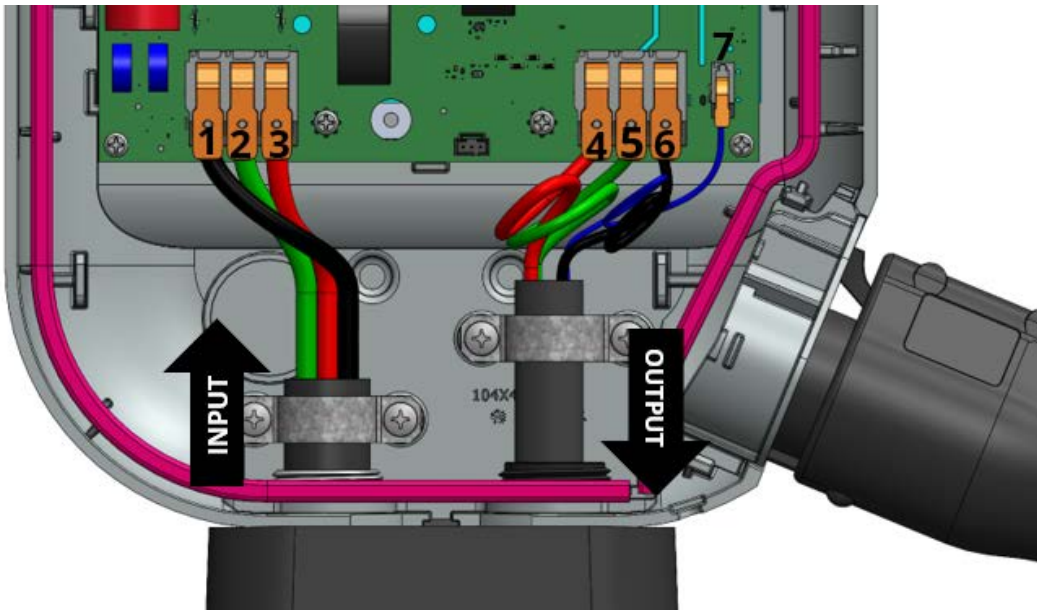
Refer to the following table for more information on the input wires to use for hardwired installation of the EV2c.

Wiring Conductor Details	
Strip Length	3/4” (19mm +/-1mm)
Wire Gauge	6 AWG
Wire Type	THHN or 6-3 Non-Metallic Sheathed Cable (e.g., Romex®) in accordance with local building code requirements

Wiring Conductor Details	
Wire Temperature Rating	90ºC or greater
Conduit Hub	Watertight Flexible Conduit Hub or Cable Gland Grips Liquid-Tight Flexible Metal Conduit Adapter (e.g., McMaster-Carr® 7119K61) Liquid-Tight Flexible Plastic Conduit Adapter (e.g., McMaster-Carr® 75145K34)

Terminal Connections

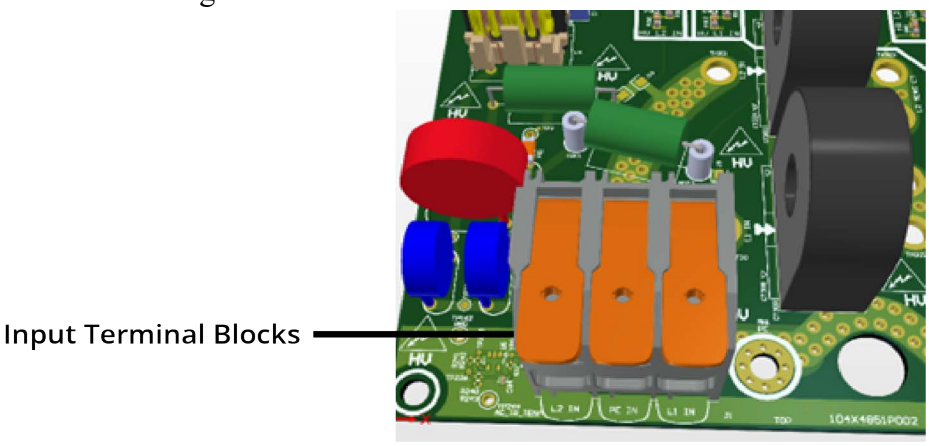
For more information about the wiring inputs and run wire list for the terminal blocks on the main board, refer to the image and table below.



Wiring Inputs/Run Wire List		
Wire Number	Sink and Source	PCB Labels
1	INPUT (From Load Center)	L2 IN
2	INPUT (From Load Center)	⏚
3	INPUT (From Load Center)	L1 IN
4	OUTPUT (To Vehicle)	L1 VEH
5	OUTPUT (To Vehicle)	⏚
6	OUTPUT (To Vehicle)	L2 VEH
7	OUTPUT (To Vehicle)	CP VEH

Input Terminal Block Wiring Instructions

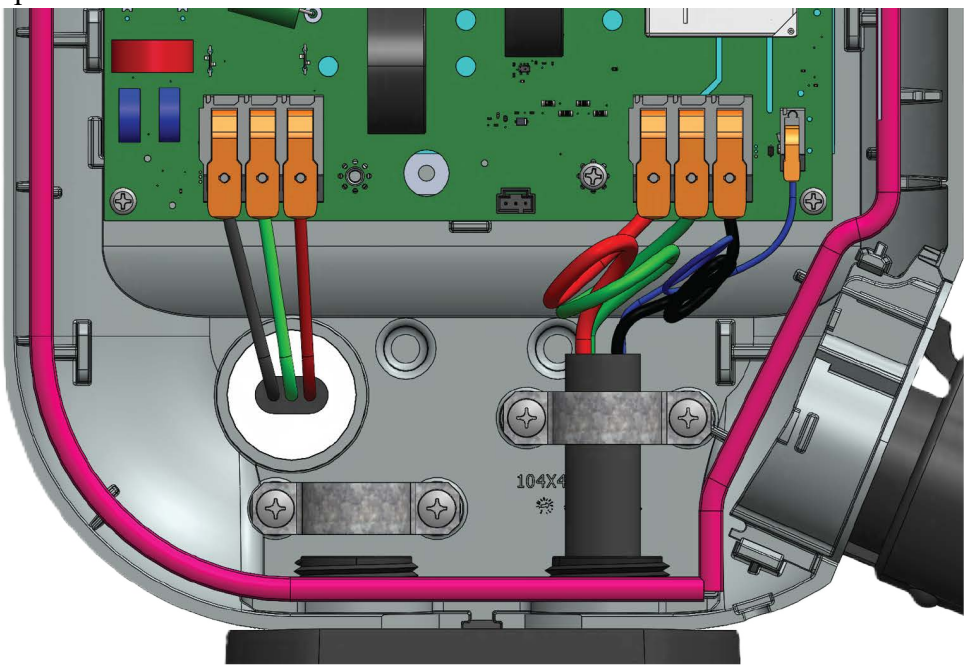
1. Locate the input terminal blocks on the lower left corner of the main board, refer to the image labeled below.



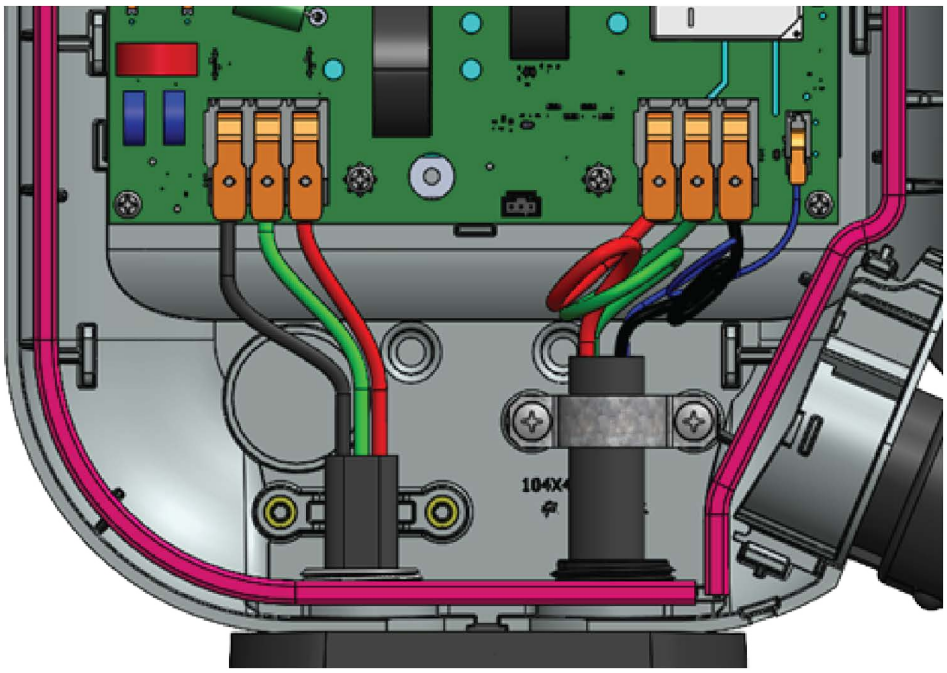
2. Flip all three levers on the input terminal blocks up into an open position.
3. Strip all three input wires 3/4” (19mm).
4. Insert each wire fully into the open input terminal blocks.
5. Flip each lever on the input terminal blocks down into a closed position.
6. Check each wire is secure by gently pulling on each wire after closing the levers on the input terminal blocks.

Hardwired Installation for Each Access Port

The following images show the hardwired installation for both wiring entry access port options.



Wires Installed for Back Entry Access Port Option



Wires Installed for Bottom Entry Access Port Option

Closing the Cover

NOTE If an external coupler is required to increase the wireless communications range of the EV2c, please refer to the installation process in *External Coupler Installation* on page 35 before closing the cover.

1. Verify the following connections remain in place:
   - Main board to front-panel board with a 14-pin ribbon cable
   - Main board to optical board with a 6-pin ribbon cable
   - Antenna to radio with a coax cable

NOTE Take care to ensure the antenna cable is not snagged or pinched when closing the cover.

2. Replace the prop arm to its stowed position on the cover.
3. Close the cover and reinsert the screw to secure the cover in place.

Prepare for Use

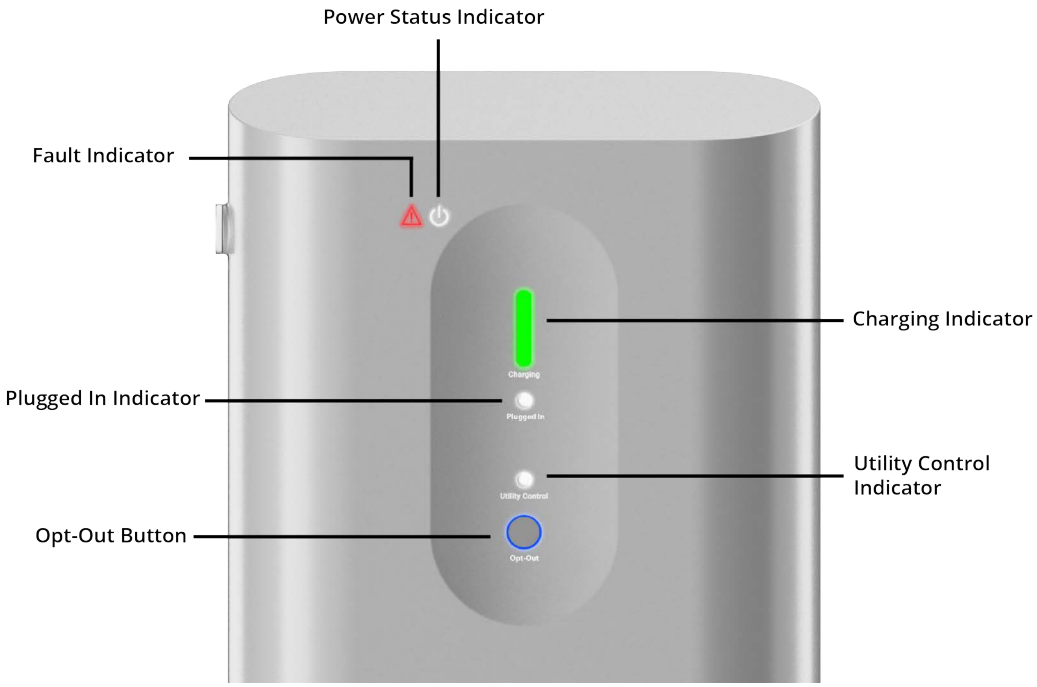
After closing and securing the cover with the screw, prepare the unit for a test charging session or for use by cutting the cable ties which secured the J1772 cable for shipping. Fully uncoil the charging cable and place the connector in the receptacle on the bottom right side of the unit. In the following section, proceed to checking the status indicators on the front interface when initially powering up the device to ensure it is functioning properly.

Check Indicator Status

⚠ WARNING Ensure the J1772 connector is not plugged into an electric vehicle until the installation is completed and the first power up is successful without indicated faults or blinking LEDs.

Once the device is wired to an appropriate power source, apply power and check the status indicators on the front of the EV2c unit. When the breaker is turned on to initiate the first power up of the device, all the status indicators will briefly light up, turning off within *five seconds* after performing all power up self-tests. The white Power Status Indicator will also light when the unit first powers up and remain lit as long as the unit is powered.

The image below displays all the status indicators in an illuminated status as they appear upon the first power up.



⚠ WARNING If the Charging, Plugged In, and Opt-Out indicators begin to blink rapidly five seconds after power up, do NOT connect the charging connector (J1772 connector) to a vehicle. Power off immediately and double check the wiring connections are correct before proceeding further with troubleshooting steps.

Troubleshooting

The following table describes troubleshooting issues based on the LED Indicators and possible actions to resolve these issues.

Condition	Possible Cause	Action
Charging Indicator, Plugged In Indicator, and Opt-Out indicator blinking rapidly together (2 blinks per second)	Miswiring condition detected at the AC input terminal block	Do not connect the charging connector to a vehicle (this action may energize the chassis of the vehicle with high voltage). Power the breaker off immediately.
		If this is a NEMA pluggable installation, double check to make sure the wiring connections are correct at the NEMA receptacle.
		If this is a hardwired installation, double check to make sure the AC input terminal block wiring connections are correct (green Earth ground wire must be in the center terminal). See *Terminal Connections* for details.
Charging Indicator and Plugged In Indicator blinking rapidly together (2 blinks per second)	Overcurrent condition detected	Power the breaker off, wait several seconds for Power Status Indicator to turn off, and then turn breaker on again. If this problem persists, the unit may be damaged or the EV may be drawing too much current. Contact the utility.
Plugged In Indicator blinking rapidly (2 blinks per second)	Invalid max current selection rotary switch setting	Power the breaker off, open the cover, verify breaker rating, set the rotary switch SW1 accordingly based on the breaker being used. Refer to the *Setting the Rotary Switch* section for more information.

Condition	Possible Cause	Action
Power Status Indicator is NOT illuminated	EVSE not plugged into the NEMA receptacle	Power the breaker off, plug in EVSE, and ensure plug is fully seated in the NEMA receptacle before switching breaker back on.
	Incorrect or incomplete wiring at the NEMA receptacle	Power the breaker off and verify wiring connections at the NEMA receptacle.
	Incorrect wiring at building breaker panel (for hardwired variants or NEMA pluggable variants)	Power the breaker off and verify wiring connections for the device on the service panel.
	Disconnected ribbon cable between the main board and front panel board	Power the breaker off, open the cover, and ensure both ends of the ribbon cable are connected without any twists or kinks.
	Other cause	Power the breaker off, wait several seconds, and then turn the breaker on again. If this problem persists, the unit may be damaged. Contact the utility.
Fault LED illuminated	Temperature is too high or bad Temperature Sensor	If the temperature monitored by the EVSE exceeds 80ºC (176ºF), the unit will not allow charging. Verify the unit is not installed in direct sunlight or adjacent to any other heat source. If this is not the case, the temperature sensor may be damaged. Contact the utility.
	Other cause	Power the breaker off, wait several seconds for Power Status Indicator LED to turn off, and then turn the breaker on again. If this problem persists, the unit may be damaged. Contact the providing utility.
Plugged In Indicator LED illuminated when the J1772 coupler is NOT connected to a vehicle	Device may be damaged	Contact the utility.

Condition	Possible Cause	Action
Charging Indicator LED illuminated when the J1772 coupler is NOT connected to a vehicle	Device may be damaged	Contact the utility.
LED Indicator around the Opt-Out Button does NOT change state/illuminate when pressed	Device may be damaged	Note this indicator will only turn off after removing the coupler from the EV. The Opt-Out LED Indicator remains lit even if the button is pressed again. If this indicator does not illuminate when initially pressed or remains on after disconnecting the J1772 coupler from the EV, contact the utility.

Initiate Test Charging Session

After installing and powering on the device, initiate a test charging session if an electric vehicle (EV) is present at the time of installation to ensure the EV2c is functioning properly. Before proceeding with this brief test charging session, ensure the Power Status Indicator is on, the Fault Indicator is off, and none of the LED indicators are flashing rapidly. Check with the EV owner to ensure there is not a charging schedule configured as the EV may not charge before the scheduled start time. If a charging schedule is configured, disable it to initiate the test charging session. Use the following instructions to initiate a test charging session:

⚠ CAUTION Avoid coiling cable tightly during charging.

1. Connect the J1772 connector to the EV.

NOTE Certain EV models may require an adapter (not supplied) for connection.

⚠ CAUTION If an adapter is required to connect to your EV, ensure the adapter has been safety-certified before using with the EV2c.

2. Verify the following LED Indicators illuminate when the coupler connects to EV:
   - Charging Indicator illuminates green
   - Plugged In Indicator illuminates white
3. Confirm the EV2c functions properly during the test charging session.

NOTE If the charging session does not initiate, refer to the *Troubleshooting* section for more information on possible actions to resolve an issue.

4. Disconnect the J1772 coupler after successful test charging session and continue with installation of cable hook and tamper seal.

Install Tamper Seal

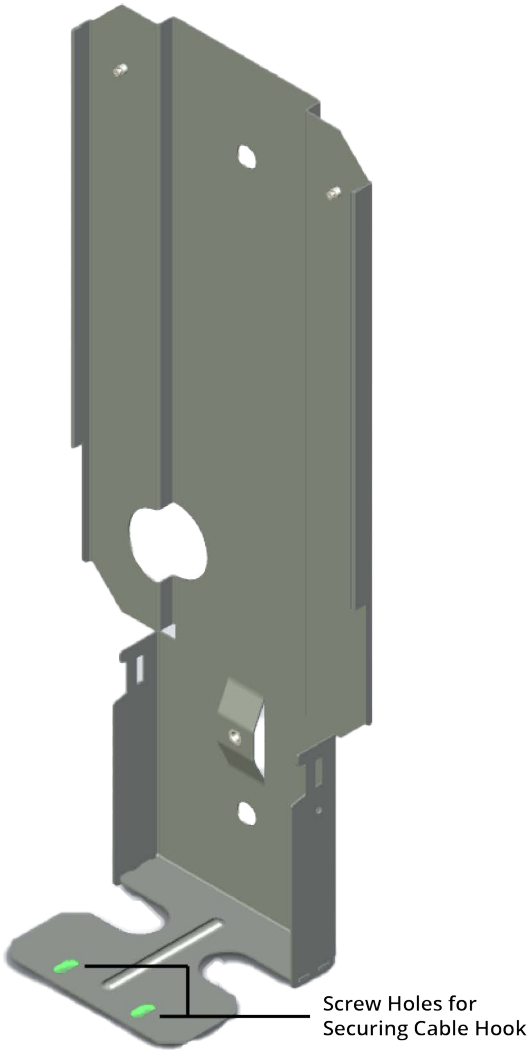
With the screw in place to secure the cover closed, proceed with the following steps to install the tamper seal.

NOTE The tamper seal cannot be repositioned as it has slits for tamper-proofing. If improperly installed, the seal will rip and leave behind adhesive residue. Improper installation of the seal will render it unusable as it cannot be repositioned or reapplied.

1. Peel the transfer paper backing from the tamper seal.
2. Align the seal with the screw boss on the cover.
3. Apply pressure to the seal on the screw and boss, ensuring it adheres properly.

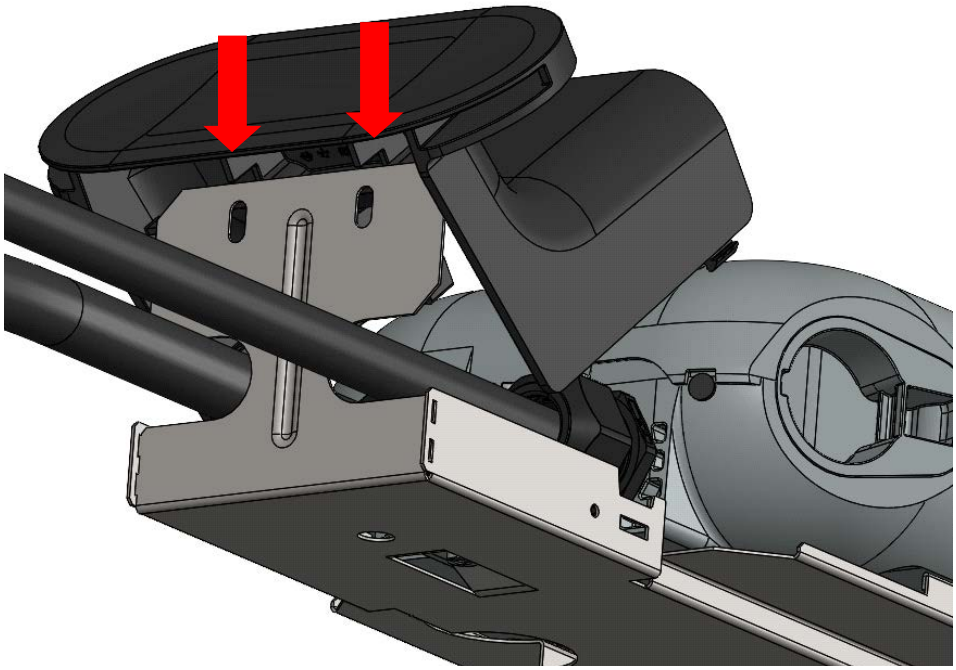
Install Cable Hook Cover

After successfully installing and initiating a test charging session, proceed with the final steps to finish installing the EV2c device. The cable hook cover is installed as the last step as this piece blocks the cover from opening when connected to the metal mounting bracket. The following image shows an isolated view of the metal mounting bracket with the screw holes for securing the cable hook highlighted in green and labeled.

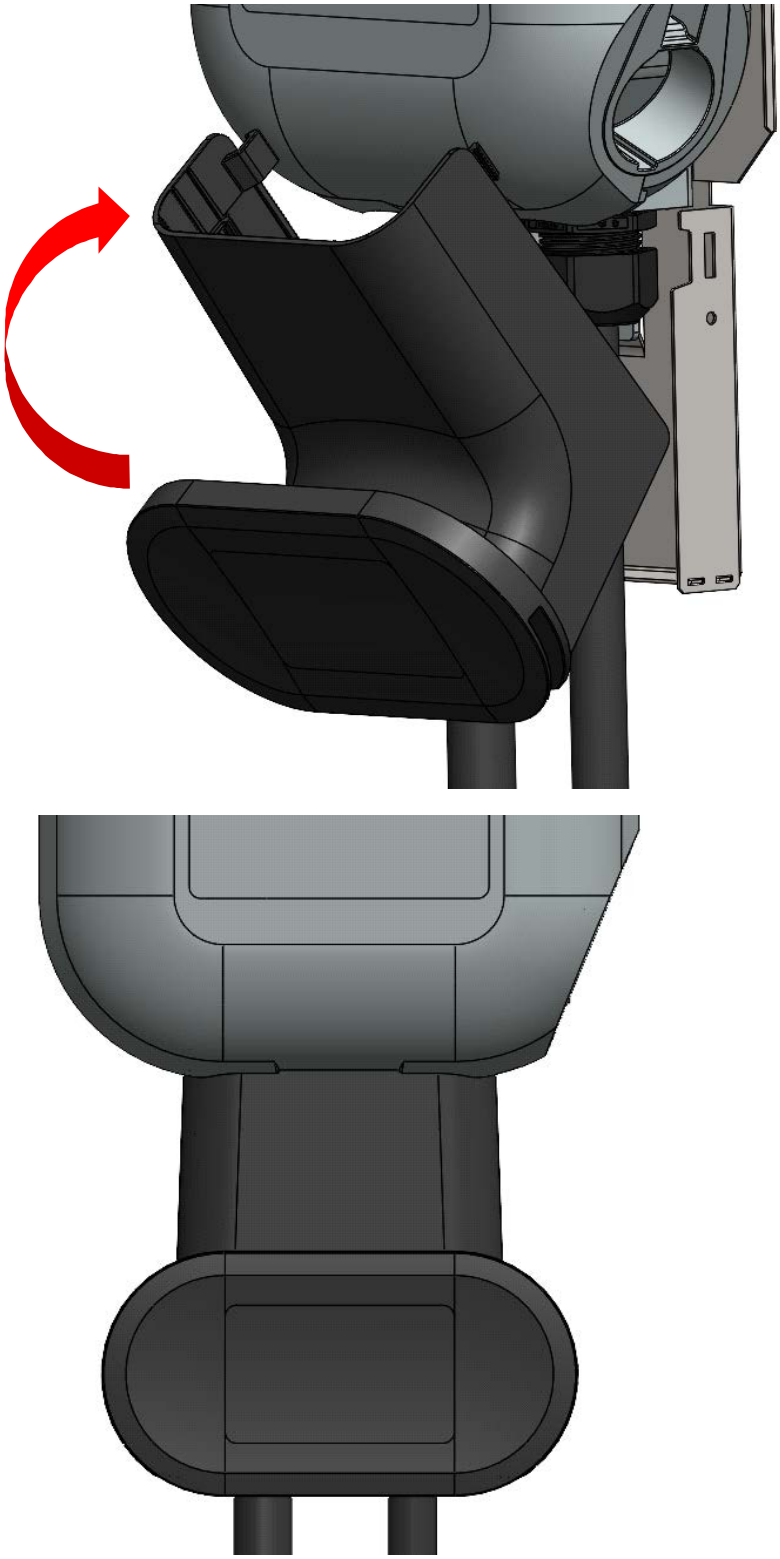


Use the following instructions to finish installation by securing the cable hook to the metal mounting bracket.

1. Align the cable hook with the screw holes on the bottom of the metal mounting bracket.
2. Tilt the cable hook cover forward until the bracket touches off with the ribs located on the underside of the cable hook cover.

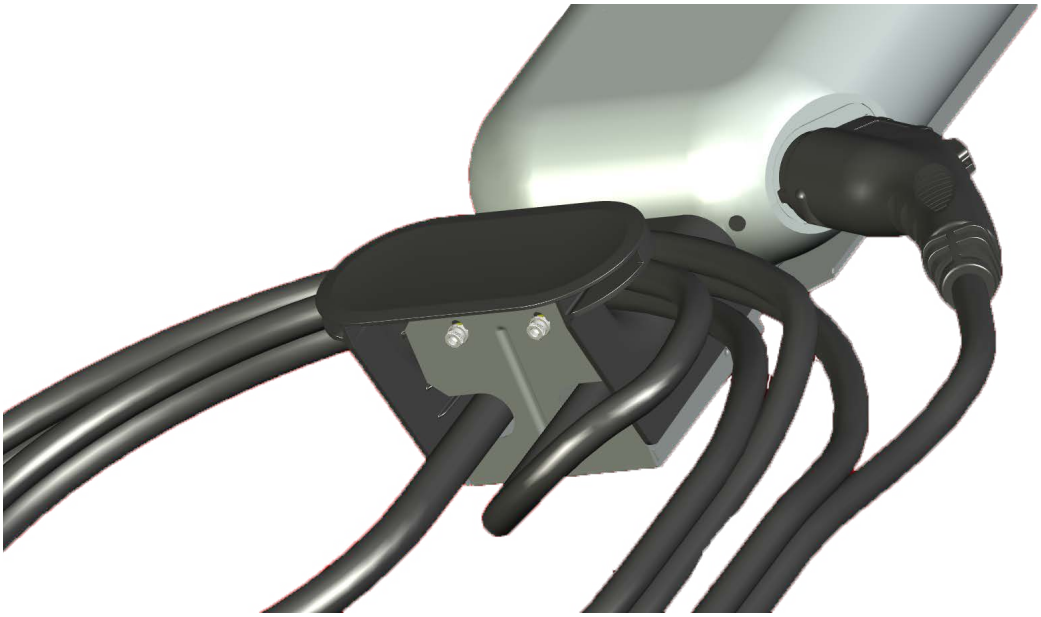


3. Engage the ribs and tilt the cable hook cover back in the opposite direction, towards the cover, until it is seated underneath the cover's lip as shown.



4. Use the provided washers and screws to secure the cable hook in place, as shown below.

5. Coil the J1772 cable loosely on the installed cable hook to store it, ensuring it does not rest on the ground.
6. Place the J1772 connector/coupler in the holster on the right side of the EV2c unit.



CHAPTER

4

SPECIFICATIONS

Parameter	Specification
Type	Level 2 EVSE
Environmental Design	Indoor and outdoor (NEMA 3R)
Installation Types	NEMA 6-50 plug, NEMA 14-50 plug, or hardwired
Dimensions Excluding the Cable	24.4 in H x 10.2 in W x 5.5 in D
Weight Including the Cable	< 25 lbs
Charging Connector	SAE J1772 (designed to withstand 10,000+ charging cycles)
Cable Length	25 ft (7.62 m)
Charging Power	3.3 kW to 11.5 kW
Power Measurement Accuracy	0.50%
Interval Lengths	1 minute to 60 minutes aligned to the hour
Voltage	208V AC or 240 V AC supply
Rated Current Settings	16 A, 24 A, 32 A, 40 A, 48 A
Maximum Current	40A for NEMA plug variant 48A for hardwired variant Internal configurable switch sets maximum advertised current to vehicle to be appropriate for the installed circuit breaker. Must be appropriately set during installation.
Operating Temperature	–30°C to 50°C (–22°F to 122°F)
Operating Humidity	5% to 95% Relative Humidity
Storage Temperature	–40°C to 85°C (–40°F to 185°F)
Moisture Protection	Rainproof (NEMA 3R) — Suitable for installation indoors or outdoors
Safety Feature	20 mA Charge Current Interrupting Device (CCID) integrated for ground fault protection with auto retry/restart
Cable Management	Provided with included cable hook

Parameter	Specification
Standards	UL 991 UL 1998 UL 2231-1 & UL 2231-2 UL 2251 UL 2594
Conformity	ANSI C12.1-2014 (limited) & C12.20-2015 (limited) ANSI C12.18 & C12.19 SAE J1772

APPENDIX

A

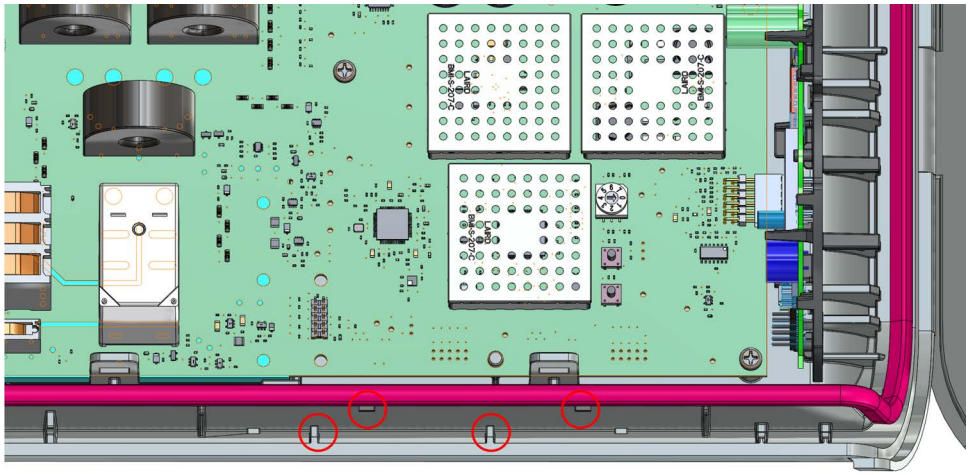
EXTERNAL COUPLER INSTALLATION

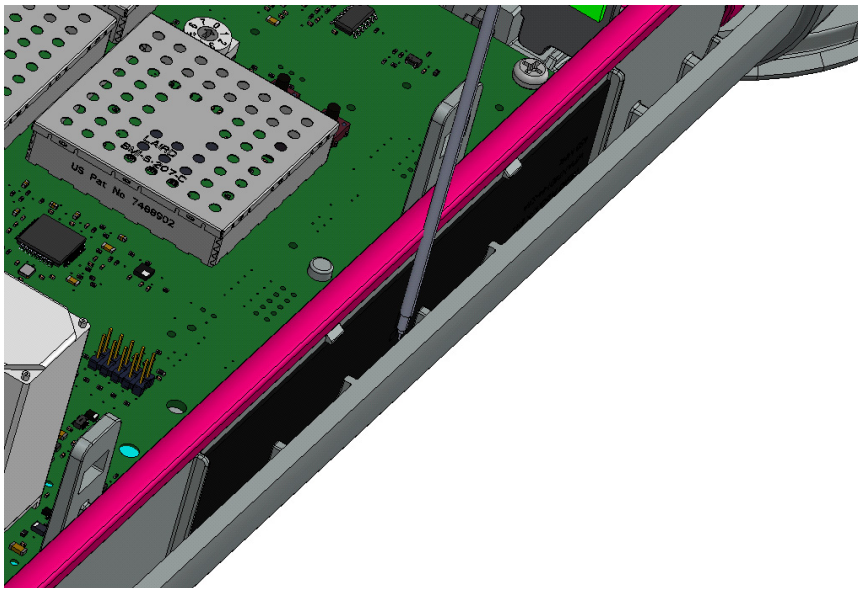
This appendix provides basic information for qualified individual(s) to install the optional external coupler on the EV2c. Use the following process to install the external coupler before closing the cover to the EV2c.

The table below describes the provided items for the external coupler installation.

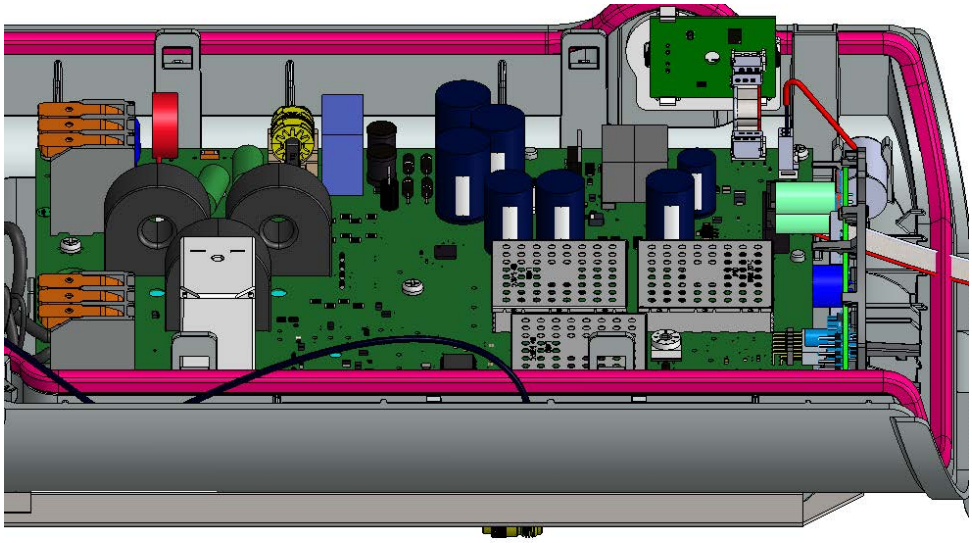
Qty	Item	Description
1	Coupler	Inductive coupler with Type N coax connector.
1	Coax Cable	50 ft LMR400 cable with Type N connectors.
1	Spiral Gland	Strain relief for the cable.
1	Winged Zip Tie	A push mount cable tie to attach the cable to the EV2c mounting bracket.
1	Zip Tie	A cable tie to secure the cable.
External Antenna & Mounting Materials		
1	External Antenna	A salt-shaker sized omni antenna.
1	L-Bracket	Bracket for mounting the external antenna.
2	Jaw Brackets	M8 x 1.25mm U-bolt bracket.
2	U-Bolts	M8 x 1.25mm U-bolts to accommodate up to a standard two-inch pipe installation.
4	Washers	M8 washers.
4	Lock Washers	M8 external-tooth, lock washers.
4	Hex Nuts	M8 x 1.25mm hex nuts to secure the U-bolts and jaw bracket to the L-bracket.

1. Align the external coupler into the groove slots of the base to engage the tabs with the top of the antenna.

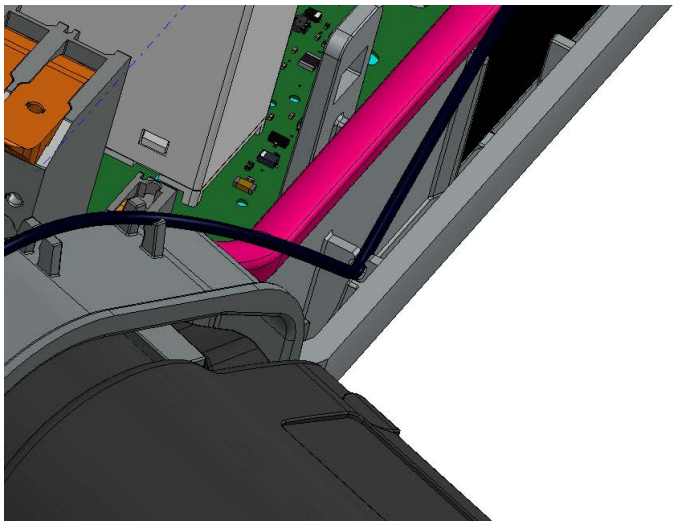




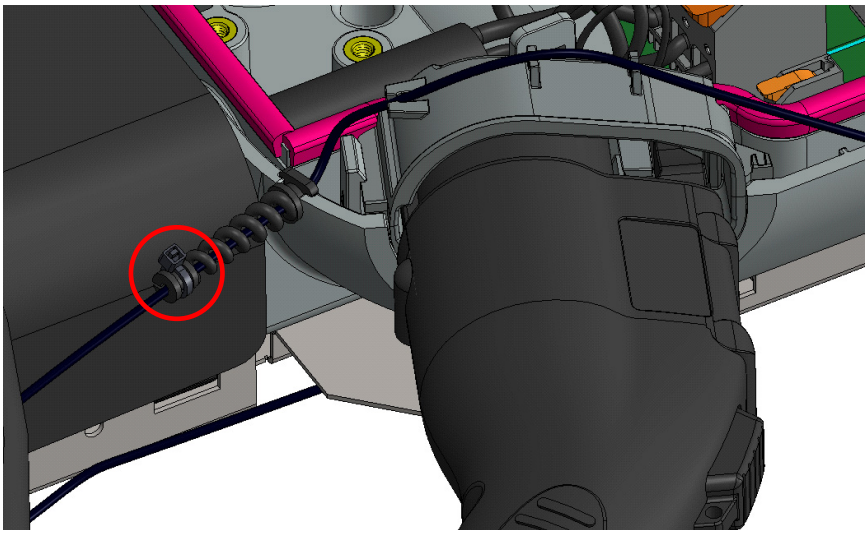
2. Route the cable in a manner which does not interfere with the gasket and does not violate the bend radius (a minimum of 1/2”).



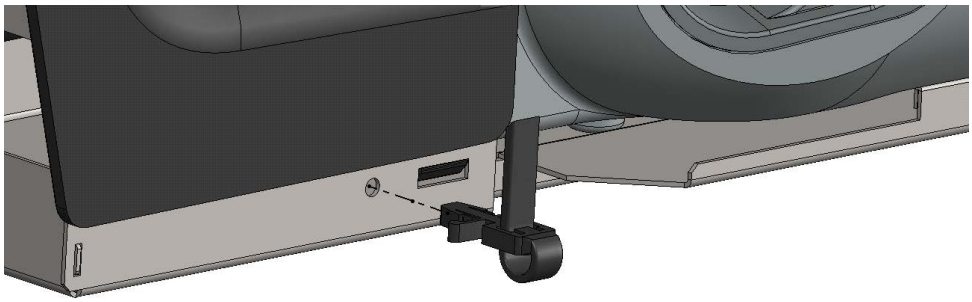
3. Push the cable into the alignment guide and start aligning it with the engagement forks on the holster.



4. Install the spiral gland onto the cable and then secure a zip tie to the end of the gland as shown below.



5. Press the provided winged zip tie into the sheet metal bracket.



NOTE Route and secure the cable to the bracket to prevent snagging on J1772 connector.

6. Route the cable away from the J1772 holster and secure the cable to the bracket with zip ties as needed.