

***EV Quick Charger – DC 60 kW
Model EVQC060-3xxx***

Installation and Operation Manual



MNL213

READ THIS MANUAL CAREFULLY

SAVE ALL INSTRUCTIONS

This manual contains important information regarding Power Innovations International products or processes listed on the title page. Please read all instructions carefully before assembling, installing, or operating equipment. Keep this manual handy for easy reference.

This manual may accompany other instructional guides or manuals for standard installation and operations of the supported products. Please contact Power Innovations if you need additional guides or manuals and have not received them.

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1—Product Overview

This section provides product overview for EVQC060-3xxx, Power Innovations DC 60 kW Quick Charger.

1.1 Introduction

This quick charger is an all-in-one electric vehicle (EV) power supply and charging authorization terminal. Once installed and operational, an operator can plug the EV charging cable into their electric vehicle, use an RFID payment card to tap on, be authorized by the system, and start a charging session.

Although some assembly is required, each 60 kW quick charger ships with all parts required for installation except the electrical conduit and wires (provided by installer). The supported mounting solution is a kit that includes a steel pedestal that mounts on a concrete pad or driveway. A pedestal kit for each 60 kW quick charger ordered is included by default in the order.

Use this document to help you:

1. Safely prepare installation site
2. Mount pedestal
3. Attach charger to pedestal
4. Install power modules and shelf controllers
5. Configure cellular modem and register charger on network
6. Configure and wire AC input power to quick charger
7. Operate EV quick charger (Charge an electric vehicle)
8. Maintain EV quick charger

1.2 Highlighted Features

Feature	Description
AC Input Power Options	240V single-phase 208/240V 3-phase Delta (3-wire + PE) 480V 3-phase Wye (3-wire + Neutral + PE)
DC Output Power	60 kW
Communication	Cellular 4G LTE Network, Wi-Fi
User Interface	Emergency Stop Button LCD Screen RFID Card Reader 2 Buttons
Mounting Solution	EVQC060-PEDP Pedestal Kit (sold separately): Includes a powder-coated steel pedestal and hardware that mounts on a 4 inch or thicker concrete pad or driveway.

1.3 Charger Features Identified

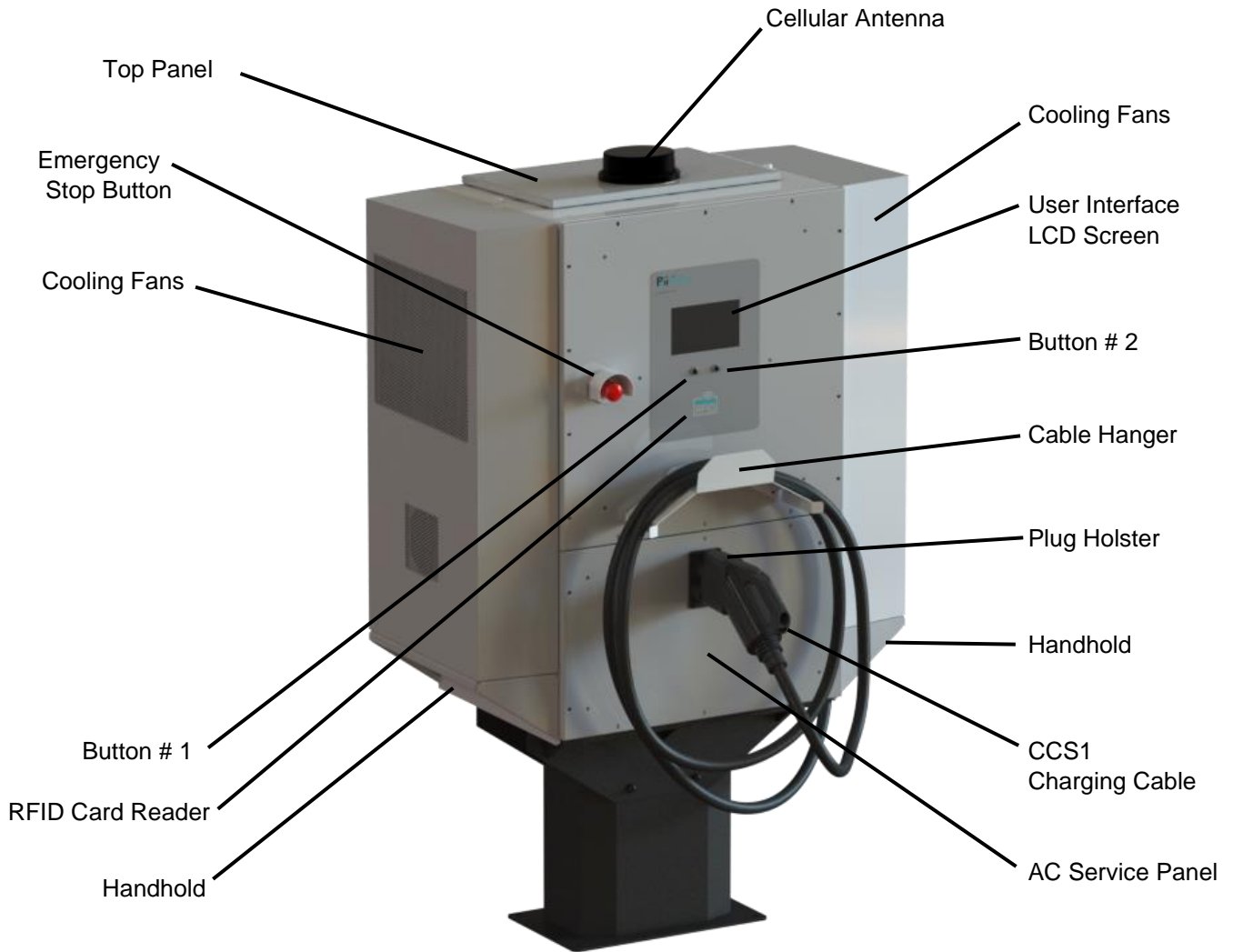






Figure 1 - EV Quick Charger Model EVQC060-3xxx

1.4 Symbols Used in this Manual

Icons or symbols are occasionally used throughout this manual to help identify safety warnings and other pertinent content contained here. These icons are described in the table below.

Icon	Type of Warning	Description
	ELECTRICAL WARNINGS	WARNING! RISK OF ELECTRIC SHOCK! ADDITIONAL TEXT THAT FOLLOWS THIS SYMBOL PROVIDES MORE INFORMATION ABOUT THE SPECIFIC WARNING.
	WARNINGS	WARNING! RISK OF ELECTRIC SHOCK! ADDITIONAL TEXT THAT FOLLOWS THIS SYMBOL PROVIDES MORE INFORMATION ABOUT THE SPECIFIC WARNING.
	CAUTION!	CAUTION! Indicates a potentially hazardous situation which, if not avoided, can result in minor to moderate injury, or serious damage to the equipment. Important safety measures may also be described in Cautions.
	Note	Note Offers practical advice that may be helpful but can be disregarded.

1.5 Acronyms Used in this Manual

Acronym	Explanation
AC	Alternating Current
ADA	American Disabilities Act
DC	Direct Current
EV	Electric Vehicle
PSU	Power Supply Unit (described in Section 3.7)
SC	Shelf Controller (described in Section 3.7)

2—Safety and Specifications

The following safety instructions apply throughout the EV Charger installation process. Be familiar with them before moving on to the next section to complete the installation.

2.1 IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS



ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK!

WARNING! RISK OF ELECTRIC SHOCK!

ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED SHOULD ADJUST, MODIFY, AND SERVICE THIS EQUIPMENT. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

WARNING! RISK OF ELECTRIC SHOCK!

READ THIS MANUAL THOROUGHLY PRIOR TO INSTALLING AND ENERGIZING THE EQUIPMENT. INSPECTION AND MAINTENANCE OF THIS EQUIPMENT SHOULD BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES DETAILED IN THIS MANUAL.

WARNING! RISK OF ELECTRIC SHOCK!

THIS UNIT CONTAINS NO INTERIOR PARTS THAT CAN BE SERVICED WITHOUT QUALIFIED PERSONNEL. IF MAINTENANCE PROCESSES SPECIFIED IN THIS MANUAL FAIL TO SOLVE THE PROBLEM, QUALIFIED PERSONNEL MUST SERVICE THE UNIT.

WARNING! RISK OF ELECTRIC SHOCK!

THE PURPOSE OF THIS MANUAL IS TO PROVIDE YOU WITH INFORMATION NECESSARY TO SAFELY INSTALL, OPERATE, AND MAINTAIN THIS EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

WARNING! RISK OF ELECTRIC SHOCK!

SHUT OFF POWER SUPPLY BEFORE BEGINNING INSTALLATION ACTIVITIES OR MAINTENANCE WORK. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

WARNING! RISK OF ELECTRIC SHOCK!

THIS EV QUICK CHARGER CONTAINS HIGH VOLTAGE POWER THAT IS POTENTIALLY DANGEROUS IF NOT HANDLED PROPERLY.



CAUTION! The installer is responsible for conforming to all local and national electrical codes and standards applicable in the jurisdiction this equipment is installed in, including providing suitable wire sizes per NEC for the input configuration.

2.2 Specifications - EV Quick Charger Model EVQC060-3xxx

Electrical Specifications	
AC Input	
AC Input Power Options (Field configuration patent pending)	240V single phase 208V/240V 3-phase Delta (3-wire + PE) 480V 3-phase Wye (3-wire + Neutral + PE)
AC Input Voltage Operating Range and Current	240V single phase: 190V to 305V, 225A max, 60 Hz 208V/240V 3 phase Delta: 190V to 264V, 172A max, 60 Hz 480V 3 phase Wye: 384V to 528V, 100A max, 60 Hz
Recommended upstream overcurrent protection device rating	240V single phase: 400A 208V/240V 3 phase Delta: 220A 480V 3 phase Wye: 160A
Power factor	> 0.98
Efficiency	> 95% @ full load
DC Output	
Maximum DC Output Power	60 kW
DC Output Voltage Range	250V – 920V (400V and 800V nominal)
Maximum DC Output Current	150A with DC output < 450V 75A with DC output > 450V
DC Connector	CCS1
DC Charging Cable Length	5 m (16.4 ft.) standard
Dimensions and Weights	
Dimensions -EV Charger with Pedestal (H x W x D)	1605 x 997 x 650 mm (63.2 x 39.2 x 25.4 in.)
Dimensions-Pedestal Baseplate (W x D)	457 x 286 mm (18 x 11.3 in.)
Dimensions-Mounting hole pattern (W x D)	415 x 244 mm (16.4 in. x 9.6 in.)
Weight–60 kW EV Charger	Pre-install (no PSUs or SCs loaded) = 213.2 kg (470 lbs.) Fully Loaded = 260.8 kg (575 lbs.)
Weight–Pedestal for 60 kW EV Charger	24.5 kg (54 lbs.)
Environment Specification	
Operating Temperature Range	-30°C to +50°C
Storage Temperature Range	-40°C to +80°C
Ingression Protection of Enclosure	IP54, NEMA 3S
Relative Humidity	95%
Altitude - Operation	2000 m (6560 ft.)
Certificate/Compliance	
Complies with UL Standards for Safety	UL 2202: Electric Vehicle (EV) Charging System Equipment UL 2231-1: Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits; Part 1: General Requirements

3—Installing EV Charger



ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK! SHUT OFF POWER SUPPLY BEFORE BEGINNING INSTALLATION ACTIVITIES AND BEFORE REMOVING EV QUICK CHARGER’S AC SERVICE PANEL FOR ANY INSTALLATION OR MAINTENANCE WORK. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK! ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS TYPE OF EQUIPMENT AND THE HAZARDS INVOLVED SHOULD ADJUST, MODIFY, AND SERVICE THIS EQUIPMENT. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK! DO NOT CONNECT POWER SUPPLY TO THE EV QUICK CHARGER UNTIL THE WIRING AND BUS BAR CONFIGURATION IS COMPLETE AND THE AC SERVICE PANEL IS IN PLACE AND SECURE.

3.1 What’s Provided with Charger

Part Number	Description
EVQC060-3xxx	1 EV Quick Charger for DC 60kW output, fully assembled exterior
	6 Shelf Controllers (SCs)
	18 Power Supply Units (PSUs)
	3 Configuration Bus Bars, each uniquely configured Note: These ship in a storage position, secured inside charger on its lower-back wall.
MNL213	“EV Quick Charger – DC 60 kW Model EVQC060-3xxx, Installation and Operation Manual”

3.2 What’s in Pedestal Kit (Required Base for 60 kW EV Quick Chargers)

Part Number - EVQC060-PEDP	Pedestal Kit includes:	Qty.
	A: Pedestal weldment	1
	B: Wedge anchors, ½" x 3 ¾", concrete	4
	C: Mounting plates	2
	D: Socket button-head bolt, M10 x 20 mm	8
	E: Split washers: M10 (qty. 8) & M12 (qty. 4)	12
	F: Flat washers: M10 (qty. 8) & M12 (qty. 4)	12
	G: Hex nut, M12 (qty. 4)	4
	H: Silicone rubber washer, M12 (qty. 4)	4

3.3 Additional Tools and Supplies Required

- Level, Pencil
- Tape measure
- Hand drill
- Philips screwdriver
- Allen wrench set
- T25 Torx t-handle screwdriver
- Electrical conduit and wires
- Ring Terminals (Lugs) - suitable for accepting cables of the required input current per NEC and Cu or Al wires
- (Optional) Duct Seal
- (Optional) Cable Gland, appropriately sized for AC input cable

3.4 Prepare Installation Site

1. Become familiar with essential dimensions of EV Quick Charger EVQC060-3xxx and pedestal as shown in Figure 2.1, 2.2, and 2.3.

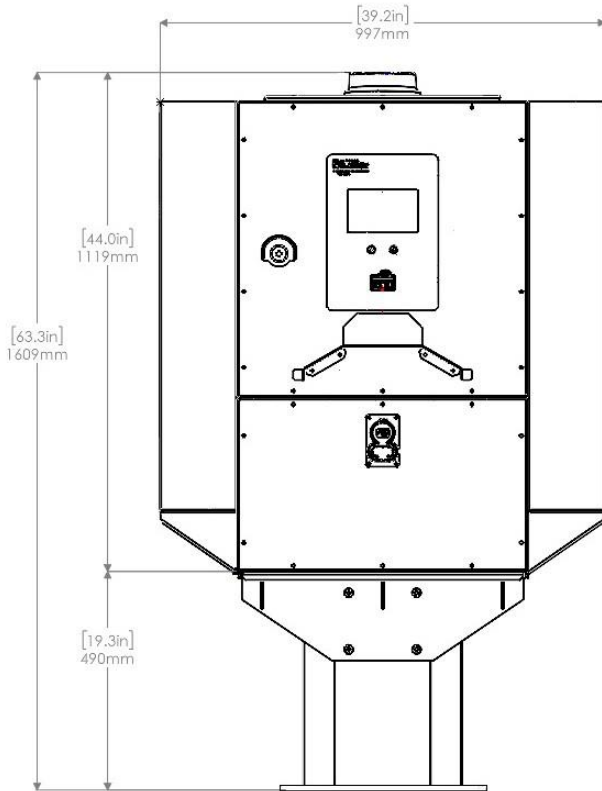


Figure 2.1 - Height and Width of 60kW Charger and Pedestal

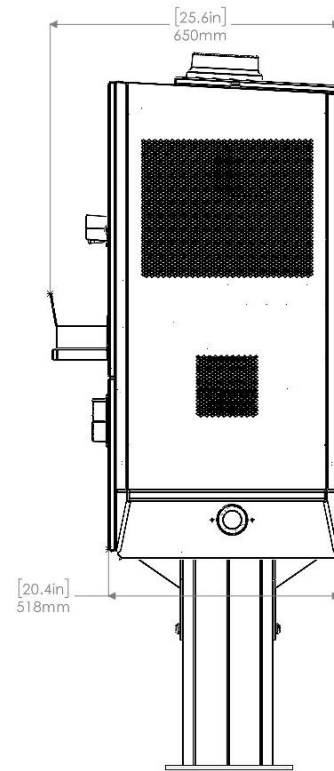


Figure 2.2 - Depth of 60kW Charger and Pedestal

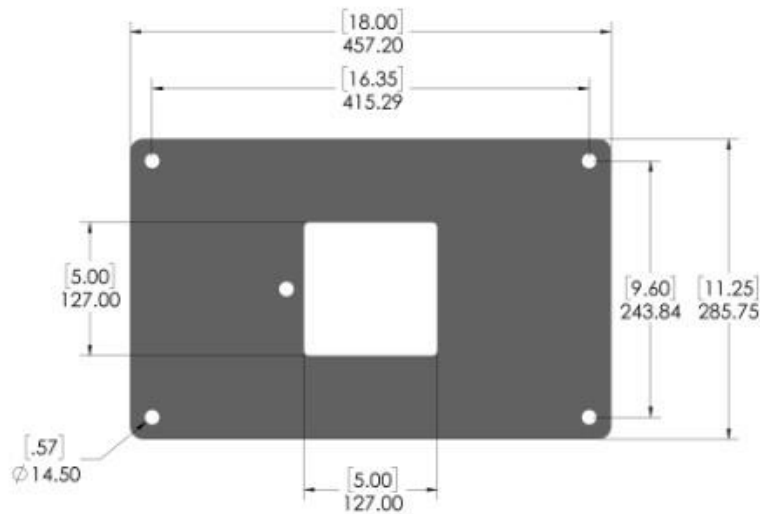


Figure 2.3 - Dimensions of Pedestal Baseplate

2. Do not install or plan to install the quick charger in a hazardous location.



**ELECTRICAL WARNING – WARNING! RISK OF ELECTRIC SHOCK!
DO NOT INSTALL OR PLAN TO INSTALL CHARGER IN A HAZARDOUS LOCATION.**

3. Pedestal should be mounted on a concrete pad or driveway that is 4 inches thick or thicker. The wedge anchors will secure the charger to the concrete when the anchors are installed to a depth of 2.25 inches (Figure 3).

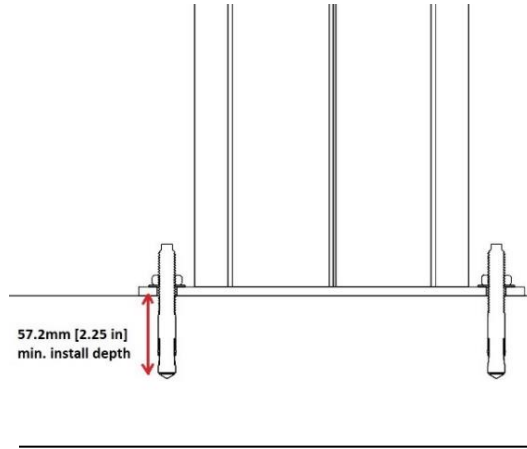


Figure 3 - Wedge anchors secure Pedestal when installed in concrete 2.25 inches

4. Best practices for pedestal-mounted chargers installation locations:

- a. Select location where charger will not be in direct sunlight.
- b. The minimum space between two installed EV quick chargers should be 36 inches (914 mm) to help ensure good air flow and user accessibility around charger (Figure 4).
- c. When laying out placement of two or more 60 kW chargers, note the 60 kW charger width is 39.2 inches. You need to ensure center mark for first charger's pedestal is 75.2 inches (1910 mm) away from center mark of second charger's pedestal.

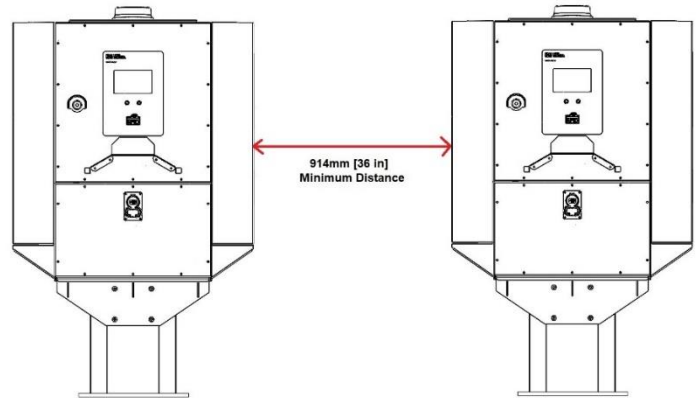


Figure 4 - 914 mm (36 in.) Minimum space between chargers

- d. If laying out placement using a pedestal baseplate template, have center of two baseplate templates be at least 75.2 inches (1910 mm) apart (Figure 5) and then mark the floor or ground.



Figure 5 - 1910 mm (75.2 in.) Minimum space between pedestal baseplate centers

3.5 Mount Pedestal on Concrete Pad or Driveway



Note: When mounting charger, be sure to follow spacing recommendations provided in Section 3.4 to comply with the guidelines outlined in the American Disability Act (ADA).

1. Ensure AC power-in to EV Quick charger installation location is turned OFF at site's upstream AC breaker.
2. Route AC power-in conduit/cable up through concrete pad or driveway at center mark for pedestal baseplate (Figure 6), leaving sufficient cable length to later route cable up and through pedestal and into mounted charger.

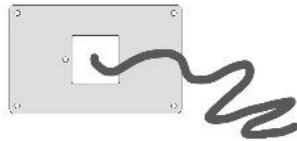


Figure 6 - AC power cables routed out of concrete

3. (Optional) Add Duct Seal around opening of conduit/cable coming out of the ground.
4. Center unmounted pedestal over AC power-in cable and route power-in cable up the pedestal's center.
5. Drill holes in concrete for pedestal's four wedge anchors using a 12 mm (1/2 in.) diameter drill bit.
6. Secure pedestal to concrete using the four wedge anchors provided and install them at least 2.25 inches into the concrete with a torque setting of 780±10 in-lbs (90±10 N-m) (Figure 7).

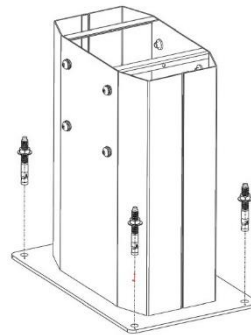


Figure 7 - Anchor Pedestal

7. Attached mounting plate to front and back of pedestal using 8 sets of M10 socket button-head bolt, split washer, and flat washer provided (Figure 8), and then tighten the bolts with a torque setting of 389±10 in-lbs (44±10 N-m).

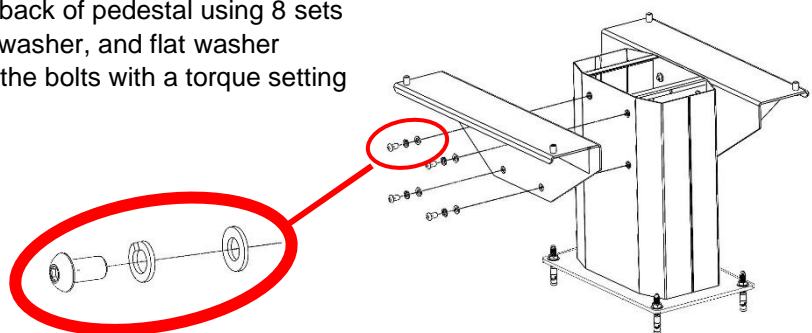


Figure 8 - Attaching Pedestal's mounting plates

3.6 Attach Charger to Pedestal



ELECTRICAL WARNING – WARNING! RISK OF ELECTRIC SHOCK!

WARNING! RISK OF ELECTRIC SHOCK! SHUT OFF POWER SUPPLY BEFORE BEGINNING INSTALLATION ACTIVITIES AND BEFORE REMOVING EV QUICK CHARGER’S AC SERVICE PANEL FOR ANY INSTALLATION ACTIVITY. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

WARNING! RISK OF ELECTRIC SHOCK! DO NOT PROVIDE LIVE POWER TO THE EV QUICK CHARGER UNTIL THE WIRING AND BUS BAR CONFIGURATION IS COMPLETE AND THE AC SERVICE PANEL IS IN PLACE AND SECURE.



CAUTION! - This EV quick charger weighs at least 213.2 kg (470 lbs.) before installation and 260.8 kg (575 lbs.) after fully loaded with power supply units (PSUs) and shelf controllers (SCs). To help avoid injury, use a crane or fork lift, eye bolts and straps, AND other lift supports, such as jacks, weight belts, lifting partners and handholds, when lifting and setting charger onto pedestal studs.

1. On uninstalled charger, open AC Service Panel by using a T25 Torx t-handle screwdriver to remove all screws around panel’s perimeter (Figure 9).
2. Use the 2 installed eye bolts (Figure 10a), straps, and other lift supports, such as a crane, jack, weight belt, lifting partners, and handholds to safely lift the charger.



Note: Eyebolts should be aligned on charger as shown.

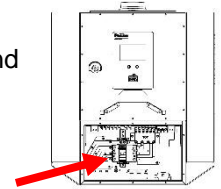


Figure 9 - Open AC Service Panel

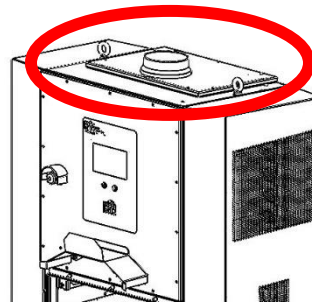


Figure 10a – Eye bolts in shipping position

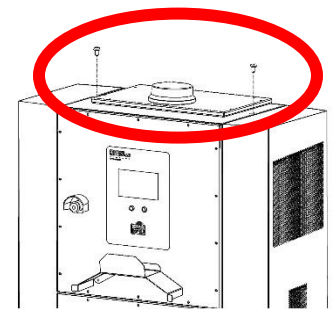


Figure 10b – Eyebolts removed and replaced with plastic screws

3. Lower charger’s mounting holes onto four pedestal studs (Figure 11).
4. In bottom corners of charger, secure charger to pedestal studs using four sets of M12 silicone rubber washer, flat washer, split washer, and hex nut provided as shown in Figure 12; Tighten nuts to 780±10 in-lbs (90±10 N-m) torque.
5. Remove eyebolts and replace with the plastic screws provided (Figure 10b).

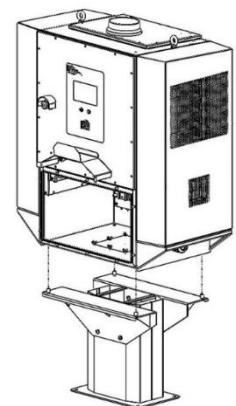


Figure 11 - Charger mounting holes being lowered onto four pedestal studs

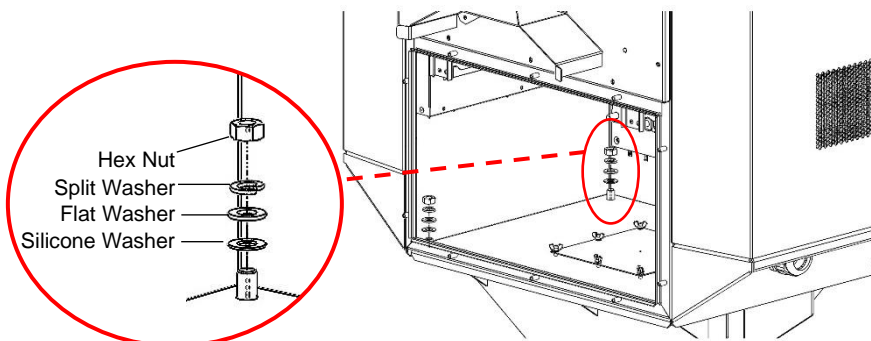


Figure 12 - Securing charger to pedestal with hardware provided

6. Remove all 8 sets of M5 wingnut, split washer, and flat washer securing removable plate to charger (Figure 13) and then remove plate (Figure 14), taking care not to damage gasket attached to down-side of plate.

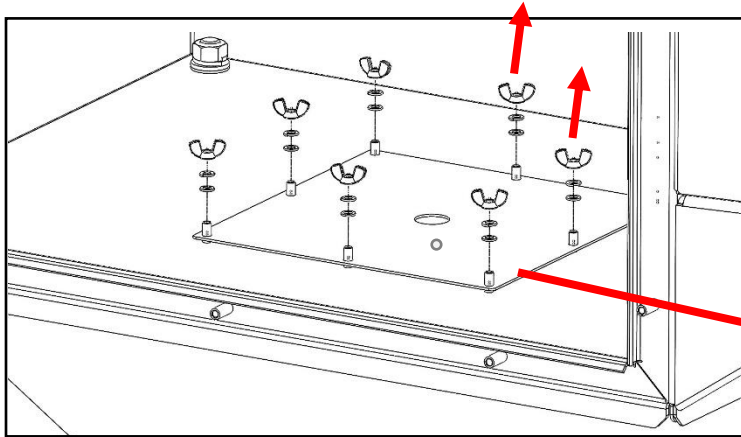


Figure 13 – Location of Removable Plate inside bottom of charger

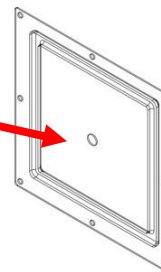


Figure 14 – Down-side of Removable Plate

7. Ensure center hole in removable plate is large enough to feed AC power-in cable through. If you need to enlarge the hole, do so outside of and away from the charger.
8. Feed AC power-in cable in center of pedestal up through removable plate, taking care not to damage gasket on down-side of plate, and lower plate back onto 8 small studs (Figure 15).
Suggestion: We recommend using a cable gland (installer supplied) appropriately sized for the cable being fed through plate to complete this step OR using duct seal later after securing plate to pedestal (step 10).
9. Return the 8 sets of M5 wingnut, split washer, and flat washer to studs and hand-tighten to secure plate to charger (Figure 15).
10. (Conditional) If not using a cable gland as described in step 8, use Duct Seal around conduit or cables fed into EV Quick Charger. This is especially helpful when the cable has an elevation change to help ensure water does not feed into charger.

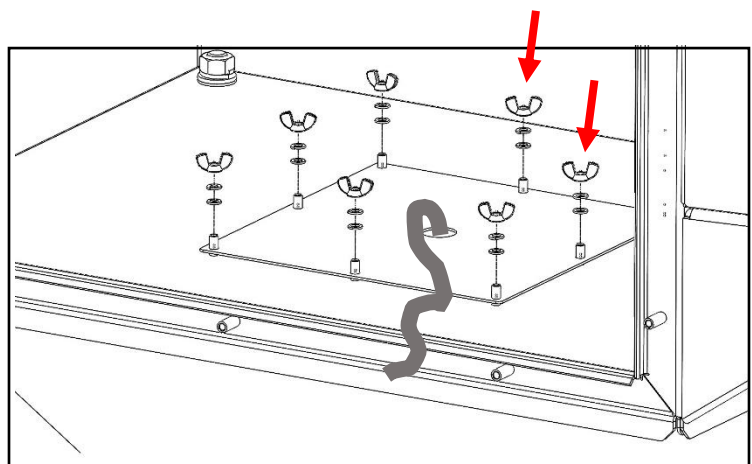


Figure 15 - Placement of Removable Plate inside bottom of charger (optional Cable Gland not shown)

3.7 Install Power Supply Units and Shelf Controllers



ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK!

WARNING! RISK OF ELECTRIC SHOCK!

ENSURE POWER SUPPLY IS SHUT OFF BEFORE STARTING OR CONTINUING INSTALLATION ACTIVITIES AND BEFORE OPENING EV QUICK CHARGER’S TOP PANEL. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.

This EV Quick Charger ships with many of its components pre-installed, such as a cellular antenna, CCS1 charging cable, and empty power shelves. Essential charger components that do not ship preinstalled are shelf controllers (SCs) and power supply units (PSUs). These can be installed anytime and in any order prior to powering the charger on.



Note: BEFORE you install the SCs and PSUs, we recommend you first mount the pedestal to the ground (section 3.5) and then secure the charger to the pedestal (section 3.6). This will lessen the weight of the charger while it is being lifted, placed, and secured.

To install shelf controllers (SCs) and power supply units (PSUs):

1. Ensure AC power to EV Quick charger is turned OFF at site’s upstream AC breaker.
2. Open EV charger’s Top Panel (Figure 16) by removing screws around perimeter with T25 Torx t-handle screwdriver.
3. If necessary, temporarily disconnect cables from modem that tether top panel to modem and then set top panel and screws aside.



Figure 16 - Remove screws around Top Panel to open

4. Insert up to 6 Shelf Controllers (SCs), 1 on each shelf in the slot provided (Figure 17.1); then secure each SC with its built-in screw to hand tight (Figure 17.2).



Figure 17.1 – Install Shelf Controllers

Figure 17.2 – Secure Shelf Controllers

5. Insert up to 18 power supply units (PSUs), 3 on each shelf (Figure 18), so that each PSU's locking tab side is closer to its shelf controller than the PSU's other side AND so each locking tab clicks into the locked position.
6. (Optional) To configure cellular modem now, leave top panel open and skip to next section (3.8).
7. If modem cables were temporarily disconnected in step 3, reconnect cables to modem before continuing.
8. Return Top Panel to top of charger and secure with its original screws using T25 Torx t-handle screwdriver.

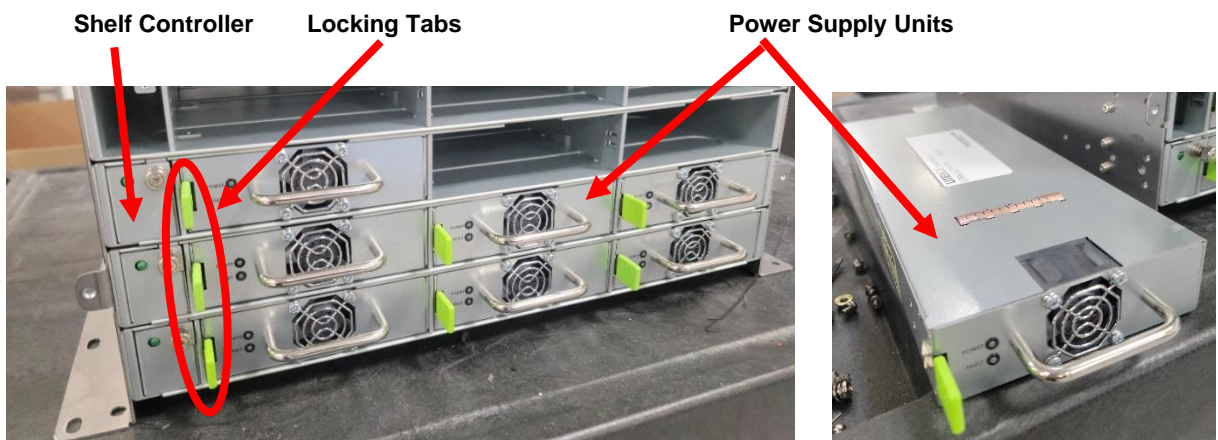


Figure 18 – Install Power Supply Units with Locking Tab sides closer to Shelf Controllers

3.8 Configure Cellular Modem and Registering Charger on Network



WARNING! RISK OF ELECTRIC SHOCK!
DO NOT CONNECT AC POWER SUPPLY TO EV QUICK CHARGER UNTIL SIM CARDS ARE INSERTED INTO CELLULAR MODEM AND TOP PANEL COVER AND SCREWS ARE REINSTALLED.



Note: SIM cards for cellular modem must be provided by product owner or administrator.

To configure cellular modem and register charger on the backend network:

1. Ensure AC power to EV Quick charger is turned OFF at site's upstream AC breaker.
2. If EV charger's Top Panel is closed: (1) open it by removing screws around perimeter using T25 Torx t-handle screwdriver, (2) temporarily disconnect cables from modem as needed to free top panel, and (3) set top panel and screws aside (Figure 19).

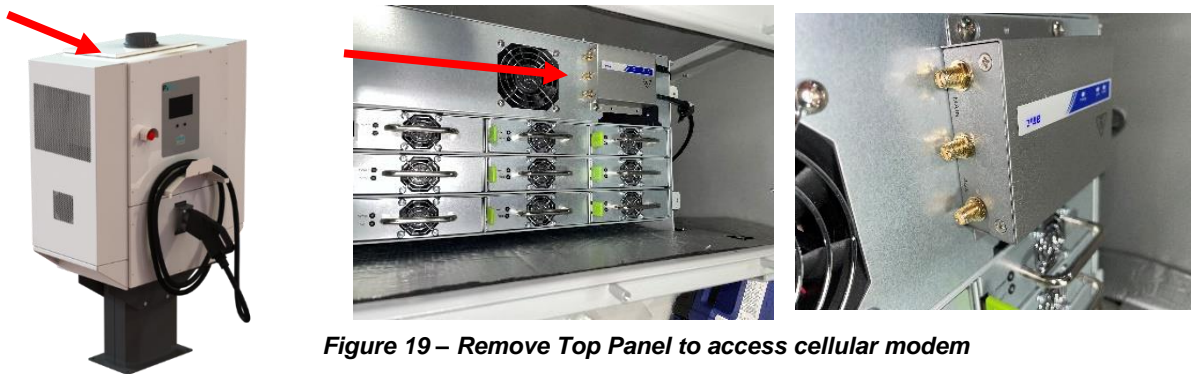


Figure 19 – Remove Top Panel to access cellular modem

3. Inside open top of charger, remove one or two screws from face of cellular modem as indicated in Figures 20 and 21 (depends on the brand of modem included), and then remove slot cover to expose modem's expansion slots.



Figure 20 – For Amit Modem, remove 2 screws and slot cover to expose SIM card slots



Figure 21 – For Peplink Modem, remove 1 screw and small slot cover to expose SIM card slots A and B

4. Insert a SIM card in slot A only.
5. Return slot cover to its original position on modem and secure it with original screw(s).

6. If you disconnected cables connecting modem to top panel, then reconnect cables to modem now.
7. Return Top Panel to top of charger and then use T25 Torx t-handle screwdriver again to secure panel with its original screws.
8. Register this EV charger as one of the supported devices on the owner's backend network. Later, after you have configured and wired the AC power input and you apply power to the charger, the modem will find the cellular network and attempt to automatically connect.
9. Continue to next section to configure and wire AC input power.

3.9 Configure and Wire AC Input Power



ELECTRICAL WARNINGS – WARNING! RISK OF ELECTRIC SHOCK!

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**WARNING! RISK OF ELECTRIC SHOCK!
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CAUTION! The installer is responsible for conforming to all local and national electrical codes and standards applicable in the jurisdiction this equipment is installed in, including providing suitable wire sizes per NEC for the input configuration.

1. Ensure AC power to EV quick charger is turned OFF at site's upstream AC breaker.
2. If AC Service Panel is closed, open it using a T25 Torx t-handle screwdriver to remove all screws around the front panel's perimeter (see Figure 22).

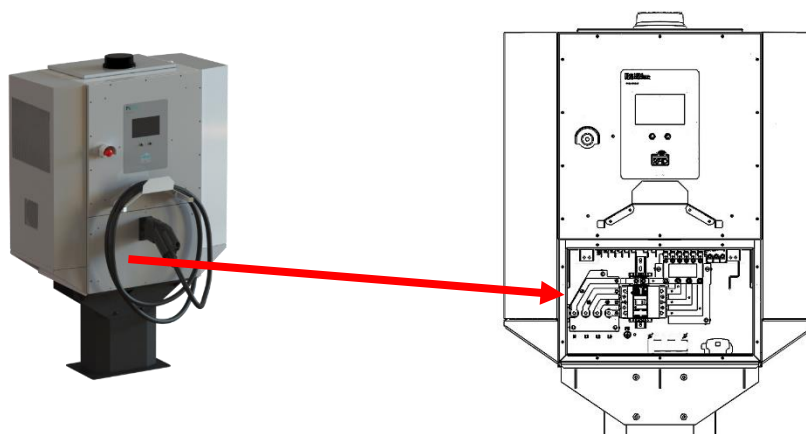


Figure 22 - Opening AC Service Panel by removing screws around panel's perimeter

3. Locate Bus Bar with plastic spacer plate installed in upper-back wall of charger; then locate shipping/storage location of 3 Configuration Bus Bars anchored with wingnuts in lower-back wall of charger (Figure 23).

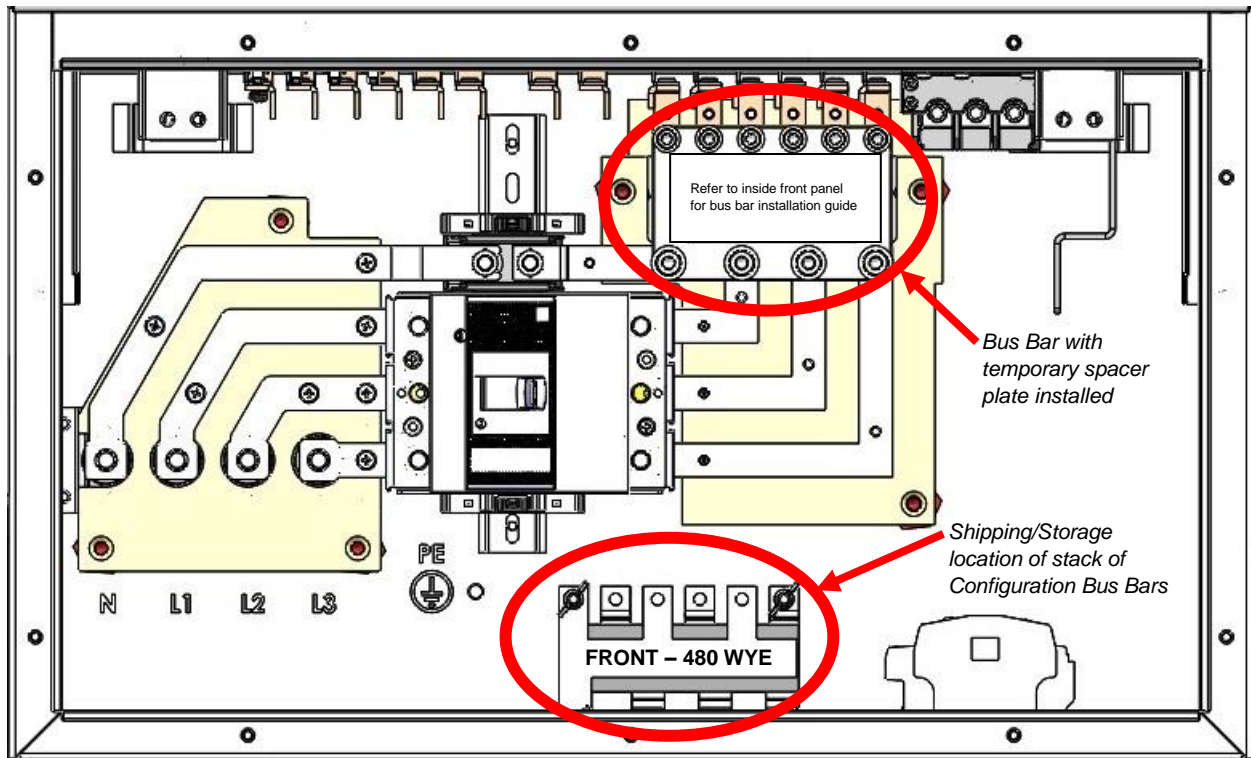


Figure 23 – (Top) Bus Bar with plastic spacer plate temporarily installed; (Bottom) Shipping/Storage location of stack of Configuration Bus Bars anchored with “FRONT – 480 WYE” on top of stack

4. Remove the six M6 and four M8 socket head cap screws that secure plastic spacer plate to Bus Bar (Figure 24), remove spacer plate from Bus Bar, and discard spacer plate.

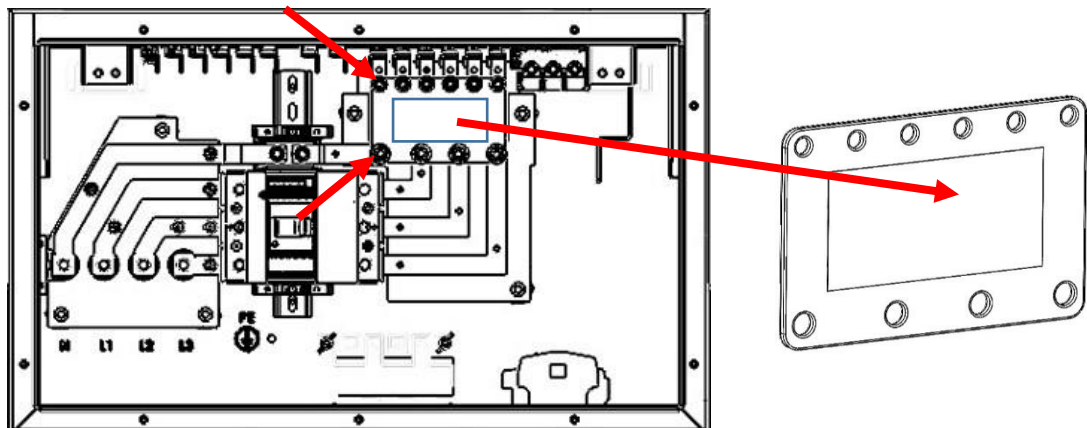


Figure 24 - M6 and M8 socket head cap screws must be removed to remove plastic spacer plate

5. Determine which of the three supported AC Input Power configurations is required for this installation (see Figure 25).

240V (single phase): Line 1, Line 3, Ground

208V/240V 3-phase Delta (3-wire + PE): Line 1, Line 2, Line 3, Ground

480V 3-phase Wye (3-wire + Neutral + PE): Line 1, Line 2, Line 3, Neutral, Ground

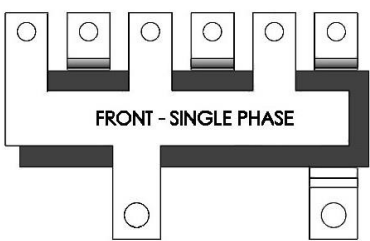
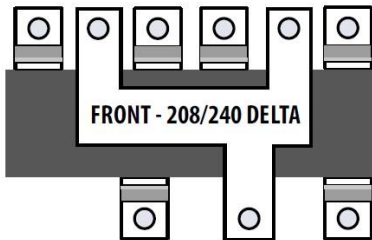
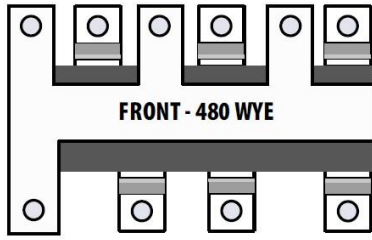


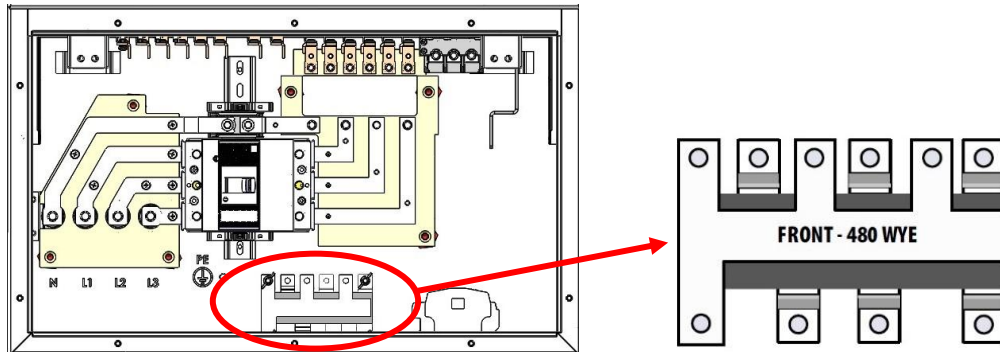
240 V (single phase)	208/240 V 3-phase Delta (3-wire + PE)	480 V 3-phase Wye (3-wire + Neutral + PE)
 <p>FRONT - SINGLE PHASE</p>	 <p>FRONT - 208/240 DELTA</p>	 <p>FRONT - 480 WYE</p>
	 <p>CAUTION! Do not use this Delta bus bar for a 480V 3-phase Wye (3-wire + Neutral + PE) source, which requires a neutral.</p>	 <p>CAUTION! This source requires the Neutral line to be supplied and connected to prevent damage to equipment.</p>

Figure 25 - Configuration Bus Bar to install for each supported AC Input Power Configuration



CAUTION! Configuration Bus Bar must be loaded on and anchored to Bus Bar with the “FRONT” stamp facing out, as shown in Figure 25 and Figure 27.

6. Remove wing nuts anchoring configuration bus bars together in the lower back of charger, select the one needed for this installation (like the 480 Wye example shown in Figure 26), and re-anchor the two spare configuration bus bars in their original shipping/storage location.

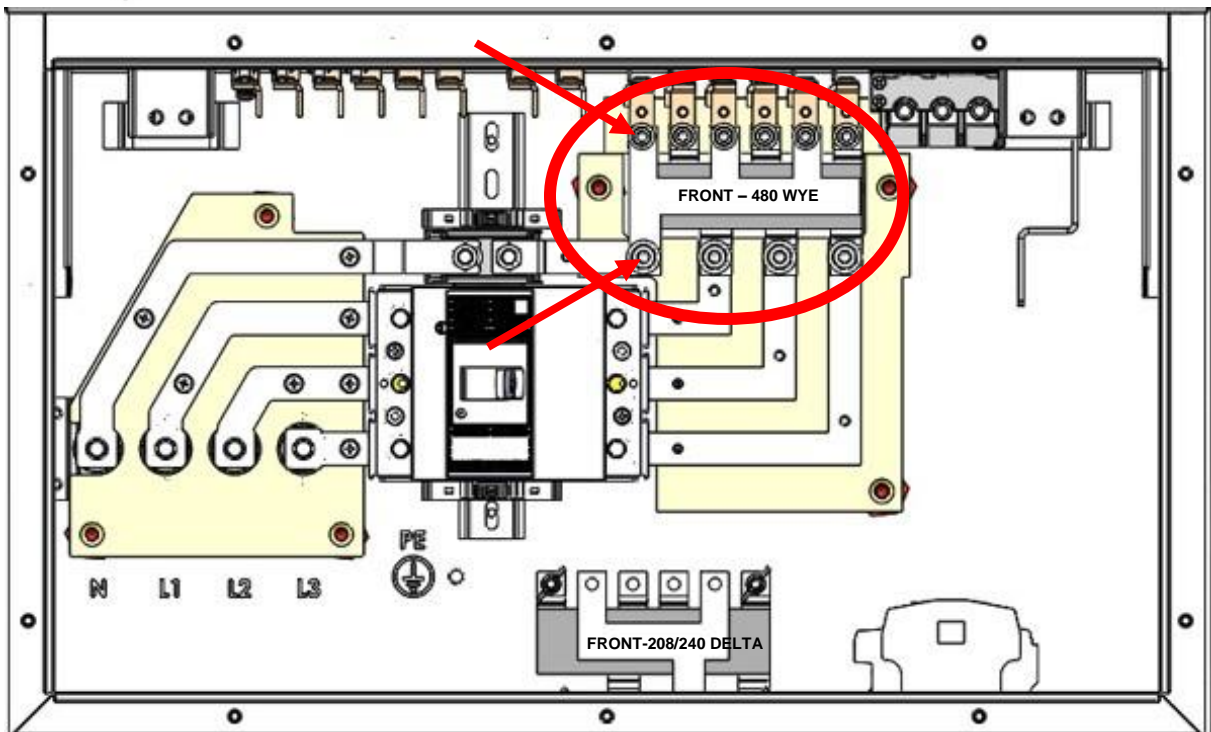


**Figure 26 – Removing FRONT – 480 WYE Configuration Bus Bar;
Spare configurations (Delta and Single) anchored together in storage area**

7. Install the Configuration Bus Bar required for this charger's AC input power as follows:
 - a. Place selected Configuration Bus Bar on the Bus Bar with its “FRONT” stamp facing out (such as the “FRONT – 480 WYE” example shown in Figure 27).
 - b. Secure 6 upper socket head cap screws, hand tight only and not over 177 in-lbs (48 N-m).
 - c. Secure 4 lower socket head cap screws, hand tight only and not over 424 in-lbs (20 N-m).



CAUTION! Configuration Bus Bar must be loaded and secured on Bus Bar with the “FRONT” stamp facing out, as shown in Figure 27.



**Figure 27 - FRONT – 480 WYE Configuration shown secured on Bus Bar;
Spare configurations (Delta and Single) anchored together in storage area**

8. Notice the three AC input power wiring configurations shown in Figure 28, then select the wiring configuration and ring terminals needed for this charger.
 - Ring terminal (ring lug) for Neutral or a Line wire must fit 3/8 inch diameter Junction Block stud.
 - Ring terminal (ring lug) for Earth Ground must fit M8 (5/16 inch) diameter stud.

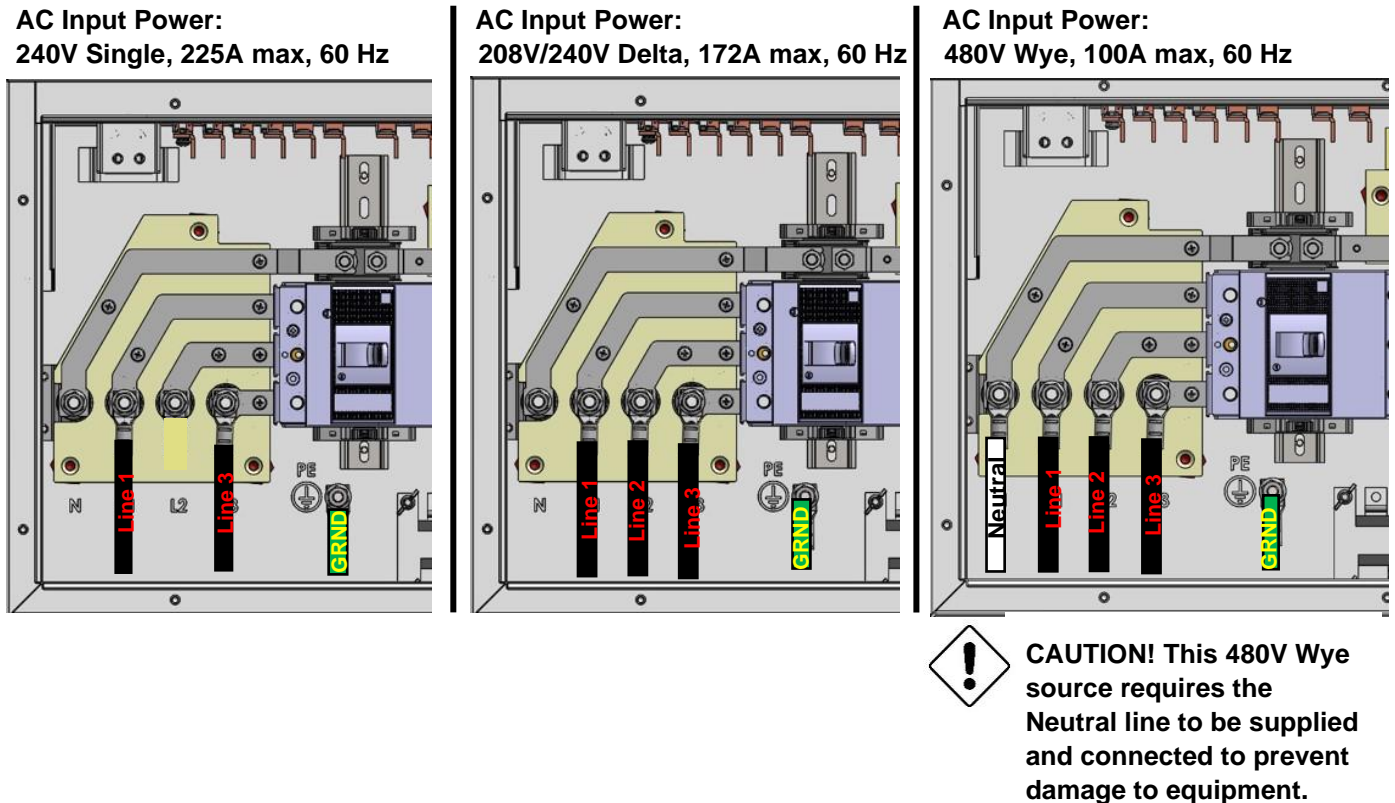


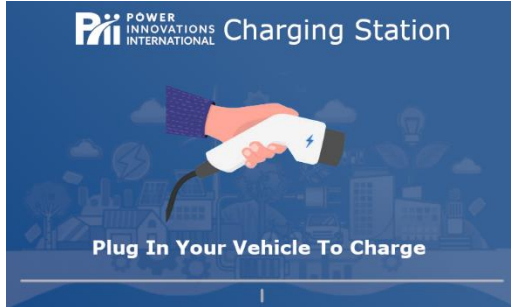
Figure 28 - AC Input Wiring for different AC Input Power Configurations

9. Using properly-sized ring terminals (described in Step 8), wire AC Input Power to charger's AC Main Switch studs per Figure 28 and local and national regulations, then tighten the nuts on all 5 studs (N, L1, L2, L3, PE) to 17 N-m (150 in-lb.).
 - **Reminder: The installer is responsible for conforming to all local and national electrical codes and standards applicable in the jurisdiction this equipment is installed in, including providing suitable wire sizes (Figure 28) and ring lugs (Step 8) per NEC for the input configuration.**
 - **This charger can accept Copper (Cu) and Aluminum (Al) input cables suitable for the current rating per NEC by using the installer-provided ring terminals (or ring lugs) rated to accept the Cu or Al input cables.**
10. After all input power wires have been secured to AC Main Switch connectors, at site's AC circuit breaker, turn on breaker and check voltage input. If voltage input is OK, turn ON charger's AC Main Switch (LCD screen will light). If voltage input is not OK, turn OFF upstream AC circuit breaker and troubleshoot the issue.
11. Reinstall AC Service Panel and secure with original screws using the T25 Torx t-handle screwdriver to 142±10 in-lbs (16±5 N-m).

4—Operating EV Quick Charger

To charge an electric vehicle (EV):

1. Click to release EV cable plug from docking station and plug into EV.



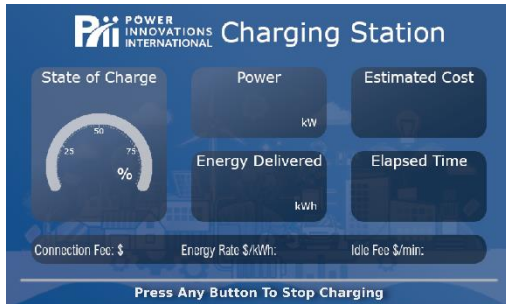
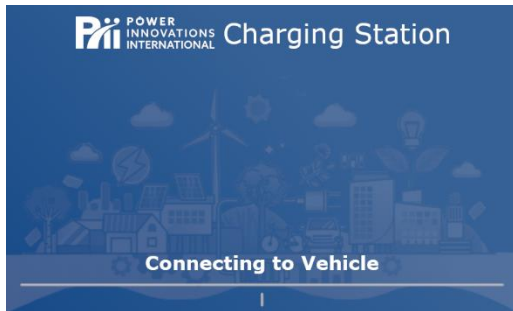
2. Use one of the payment methods your charger supports to initiate a charging session. For example, if using an RFID card provided for this charger, tap the card on the charger's RFID Reader.



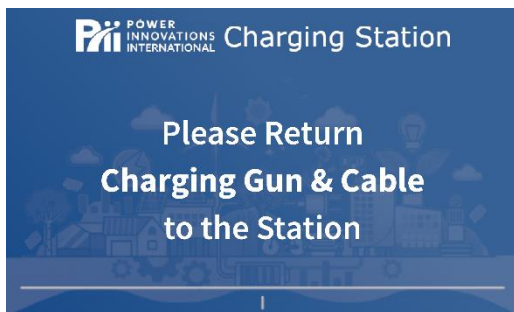
3. Watch display for payment authorization:
If payment method was accepted, the message "Authorized" displays and you can continue.
If payment method was not accepted, leave EV cable plugged into EV and try payment method again.



- Follow on-screen displays to ensure charger connects to vehicle and the charging cycle begins. Once charging cycle successfully starts, the charging progress displays.



- The charger will automatically complete the charging cycle if left undisturbed. If you wish to stop charging cycle early, press any button. When the charging cycle ends or is stopped, the following prompt displays.



- Click to release EV cable plug (gun) from EV and return it to docking station. An on-screen receipt displays.



5—Maintaining EV Charger



ELECTRICAL WARNING: SHUT OFF POWER SUPPLY AT AC BREAKER BEFORE BEGINNING INSTALLATION ACTIVITIES AND BEFORE REMOVING EV QUICK CHARGER'S AC SERVICE PANEL FOR ANY MAINTENANCE WORK. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE INJURY OR DEATH.



CAUTION! Maintenance tasks should only be completed as directed in this section. When in doubt, contact Power Innovations on how to proceed.

5.1 Clean Air Vents

To help maintain the life of your cooling fans, clean fans and vents as needed in the following manner:

- (1) Remove AC Service Panel and turn AC main switch power OFF.
- (2) Use large Allen wrench to remove screws in bottom of Cooling Fan covers, then gently remove covers.
- (3) Vacuum around fans and vents.
- (4) Return Fan Covers and secure with screws.
- (6) Turn the AC Power ON.

5.2 Restart after Emergency Stop



Any time the Emergency Stop button is pushed, it stays pushed in until it is reset for the next charging session. To reset the Emergency Stop button, simply pull the button out.

If the Emergency Stop button is pushed during a charging session, charging is stopped, an Error Message displays in LCD (see Figure 29), and the button stays pushed in.



Figure 29—Error Message displays in LCD screen when Emergency Stop Button is pushed

Before a new charging session can be started following this Error Message:

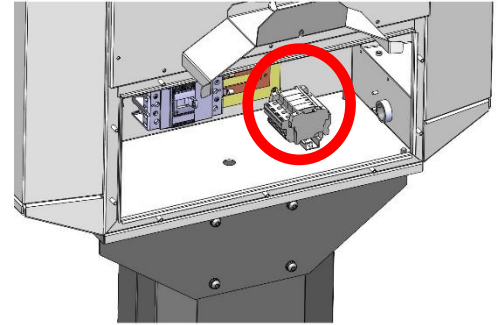
1. Charging cable must be unplugged from EV and returned to Docking Station.
2. Emergency Stop button must be reset (pulled out).

Note: Resetting the button does not start a new charging session, but it prepares the charger to support the next charging session started.

5.3 Replace Surge Modules in Surge Protective Device

This EV Quick Charger is equipped with a Surge Protective Device (SPD) that contains four replaceable Surge Modules (Figure 30).

Figure 30 - Surge Protective Device that contains replaceable surge modules



A window in each module indicates its status by color (see Figure 31):

- Green = OK
- Red = Replace

If surge modules need to be replaced, the replacement modules should have:

- Same manufacturer as charger's original SPD
- Same MCOV value as charger's original SPD and modules

If you need assistance in ascertaining SPD manufacturer, MCOV value, or surge module replacement process, contact Power Innovations.



Figure 31 - SPD with four green modules

6—Regulatory

UL

This product and its documentation comply with the following UL Standards:

- UL 2202 Standard for Safety: Electric Vehicle (EV) Charging System Equipment
- UL 2231-1 Standard for Safety: Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits; Part 1: General Requirements

7—Warranty

Power Innovations International warrants that products purchased hereunder are free and clear of all liens and encumbrances.

Power Innovations International warrants that products are to be free from material or workmanship defect under normal use for a period of two (2) years from the invoice date.

In the event that any defect is found under normal usage conditions during the above warranty period, Power Innovations International will be responsible for repair or replacement at its sole discretion and subject to the replacement may be refurbished products.

All repair covered by this warranty must be done at Power Innovations International factory, or other repair facilities as designated by Power Innovations International unless Power Innovations International specifically directs that this service be performed at another location or service provider.

Customer shall, at its own costs, be responsible for shipping the defective products to the designated repair facilities subject to a RMA issued by Power Innovations International.

Power Innovations International will be responsible for shipping the repaired or refurbished unit back to the customer.

Power Innovations International shall not have any warranty obligations for claims: (i) caused by the misuse or abuse of products by end users; (ii) caused by modifications or repairs made to the products or disassembly of products by any person other than Power Innovations International, unless receiving Power Innovations International authorization; (iii) in relation to the appearance damage.

This Warranty Term states the exclusive liability of Power Innovations International and the exclusive remedy of buyer/customer with respect to any claim or defects of the products.

8—Contact Information

If there are any questions or comments about this product, please feel free to contact us.

Power Innovations International, Inc.

Web: www.powerinnovations.com/support

Phone: 801-785-4123

Mailing Address: 1305 South 630 East, American Fork, UT 84003

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