

# ChargePoint®

by Coulomb Technologies

## CT2100 Family ChargePoint® Networked Charging Stations

CT2101 Bollard Mount



CT2102 Pole Mount



CT2103 Wall Mount



## Installation Guide



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Part Number: 75-001020 Revision: 1.3

## **IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS**

This manual contains important instructions that must be followed during installation of a ChargePoint® Networked Charging Station.

### **Grounding instructions**

The ChargePoint® Charging Station must be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor is to be run with circuit conductors and connected to the equipment grounding terminal or lead on the Electric Vehicle Supply Equipment (EVSE). Connections to the EVSE shall comply with all local codes and ordinances.

### **FCC Compliance Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, you will be required to correct the interference at your own expense.

**Important:** Changes or modifications to this product not authorized by Coulomb Technologies, Inc., could affect the EMC compliance and revoke your authority to operate this product.

**Exposure to Radio Frequency Energy:** The radiated power output of the Zigbee radio and cellular modem (optional) in this device is below the FCC radio frequency exposure limits for uncontrolled equipment. This device should be operated with a minimum distance of at least 20 cm between the Zigbee and Cellular antennas and a person's body and must not be co-located or operated with any other antenna or transmitter by the manufacturer, subject to the conditions of the FCC Grant.

### **Safety and compliance**

This document provides instructions to install the ChargePoint® Charging Station and should not be used for any other product. Before installing the ChargePoint® Charging Station, you should review this manual carefully and consult with a licensed contractor, licensed electrician and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.

The ChargePoint® Charging Station should be installed only by a licensed contractor and a licensed electrician and in accordance with all local and national codes and standards. The ChargePoint® Charging Station should be inspected by a qualified installer prior to the initial use. Under no circumstances will compliance with the information in this manual relieve the user of his/her responsibility to comply with all applicable codes or safety standards. This document describes the most commonly-used installation and mounting scenarios. If situations arise in which it is not possible to perform an installation following the procedures provided in this document, contact Coulomb Technologies. Coulomb Technologies is not responsible for any damages that may occur resulting from custom installations that are not described in this document.

### **No accuracy guarantee**

Reasonable effort was made to ensure that the specifications and other information in this manual are accurate and complete at the time of its publication. However, the specifications and other information in this manual are subject to change at any time without prior notice.

### **Warranty information and disclaimer**

Your use of, or modification to, the ChargePoint® Charging Station in a manner in which the ChargePoint® Charging Station is not intended to be used or modified will void the limited warranty. Other than any such limited warranty, the Coulomb products are provided "AS IS," and Coulomb and its distributors expressly disclaim all implied warranties, including any warranty of design, merchantability, fitness for a particular purposes and non-infringement, to the maximum extent permitted by law.

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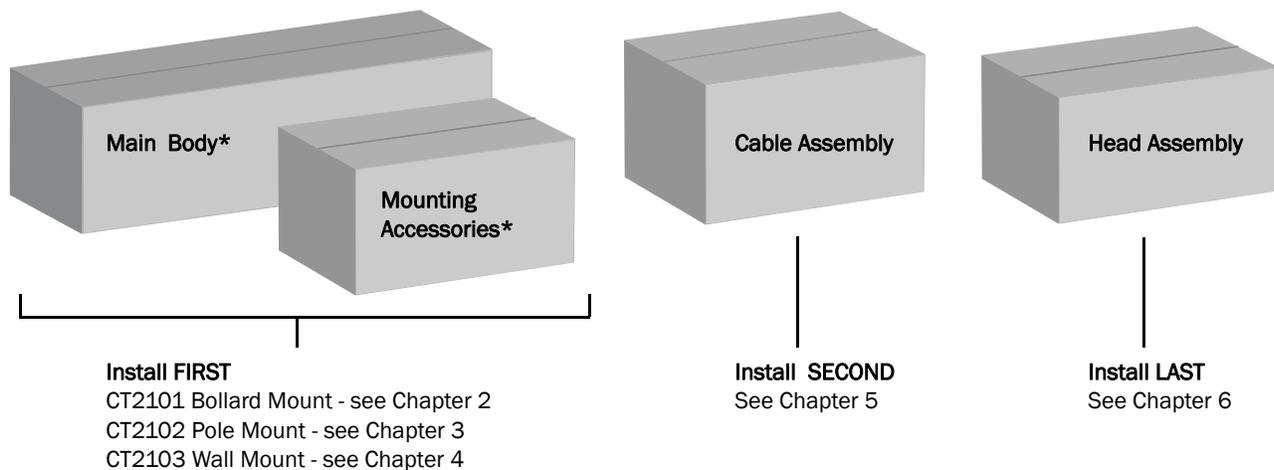
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# Introduction

# 1

This document provides step-by-step instructions on how to install any ChargePoint® Charging Station in the CT2100 family. Each model ships in three or four boxes, depending on the mounting option:



**\*NOTE:** The CT2101's main body and mounting accessories ship in the same box.

## Before installing stations

The instructions provided in this guide assume that the appropriate wiring, circuit protection, and metering is in place at the installation location. Before you install, you must also ensure that the type of modem in each station you are installing is compatible with the type of modem coverage available at the installation site (CDMA or GPRS).

To assist in the process of preparing the installation site, thoroughly review the following documents:

- wiring diagrams (provided on page 1-3 of this document)
- CT2100 Charging Stations Data Sheet (available at [www.coulombtech.com](http://www.coulombtech.com) by clicking the "Products" link, then the "Library" link)
- Mounting Template for Bollard Mount and Wall Mount stations (provided in this document and in the box containing the station's body)



**IMPORTANT:** If you are printing the PDF version of the Mounting Template, be sure to print at full scale using 11" x 17" paper.

**Note:** If you are installing a Bollard Mount charging station, prepare the site according to the instructions provided in "Step 4 - Install J-Bolts and conduit" on page 2-5 of this document.

It is also recommended that before you begin installing charging stations, you thoroughly review the contents of this document to familiarize yourself with the required installation steps.

# Specifications

Electrical Input	Level 1	Level 2
Input Power	2.0 kW	7.2 kW
Input Voltage	120 VAC	208/240 VAC
Input Current	16 A	30 A
Input Power Connections	Line, Neutral, Earth	Line 1, Line 2, Earth
Required Service Panel Breaker	20A single pole breaker (non-GFCI type) on dedicated circuit	40A double pole breaker (non-GFCI type) on dedicated circuit
Service Panel GFCI	Do not provide external GFCI as it may conflict with internal GFCI (CCID)	
Standby Power	5 W typical	

## Electrical Output\*

Output Charging Power	2.0 kW	7.2 kW
Output Voltage	120 VAC	208/240 VAC
Output Current	16 A	30 A
Output Charging Connector	NEMA 5-20 receptacle	SAE J1772™ EV connector on 18' (5.48 m cable)

## Functional Interfaces

Card Reader	ISO 15693, 14443	
Ground Fault Detection	5 mA CCID with auto retry (15 minute delay, 3 tries)	20 mA CCID with auto retry (15 minute delay, 3 tries)
Plug-Out Detection	Programmable arm and trip current thresholds	Power terminated per SAE J1772™ specification
Power Measurement	2% @ 15 minute intervals	
Local Area Network	2.4 GHz 802.15.4 dynamic mesh network	
Wide Area Network	Commercial CDMA or GPRS cellular data network	

## Safety and Operational Ratings

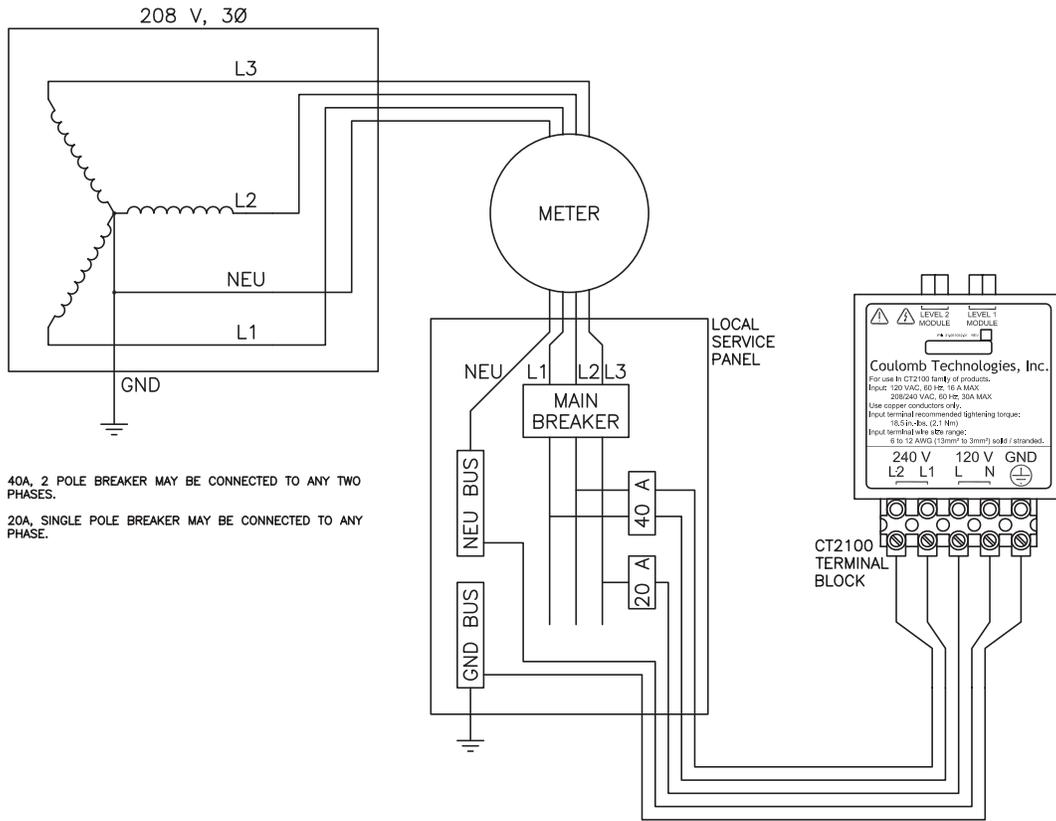
Safety Compliance	UL listed for USA and cUL certified for Canada; Complies with UL 2594, UL 2231-1, UL 2231-2, UL 1998, UL 991, and NEC Article 625	
Surge Protection	6 kV @ 3000 A. In geographic areas subject to frequent thunder storms, supplemental surge protection at the service panel is recommended.	
EMC Compliance	FCC Part 15 Class A	
Operating Temperature	-22°F to 122°F (-30°C to +50°C)	
Operating Humidity	Up to 95% non-condensing	
Enclosure	NEMA 3R	
Terminal Block Temperature Rating	212°F (100°C)	
Maximum Charging Stations per 802.15.4 Radio Group	100 (each station must be within 150 feet "line of sight" of at least one other station)	
Approximate Shipping Weights	Bollard (CT2101) 77 lbs (34 kg) Pole Mount (CT2102) 52 lbs (23 kg) Wall Mount (CT2103) 55 lbs (25 kg)	

\*NOTE: Both the 120VAC and the 208/240VAC charging outputs can operate simultaneously.



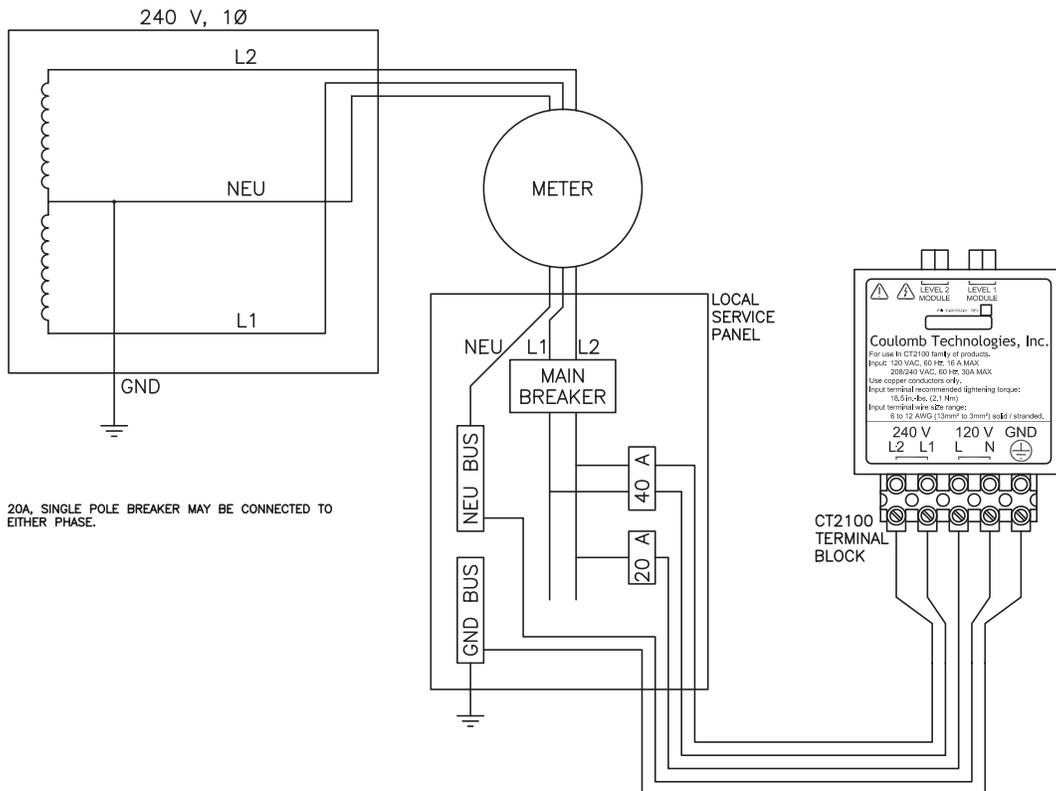
**Important:** You must connect BOTH the 120VAC and the 208/240VAC circuits. The CT2100 will not operate if only one of the circuits is connected.

# Wiring information



40A, 2 POLE BREAKER MAY BE CONNECTED TO ANY TWO PHASES.

20A, SINGLE POLE BREAKER MAY BE CONNECTED TO ANY PHASE.



20A, SINGLE POLE BREAKER MAY BE CONNECTED TO EITHER PHASE.

# Installing a Bollard Mount

# 2

## Before you start

You will need:

- CT2101 ChargePoint® Charging Station body assembly
- 3 J-Bolts with matching nuts and washers: up to ½" (12.7 mm) thread diameter, length must comply with local codes
- 1 ½" (38 mm) conduit
- #2 Phillips screwdriver
- #2 Slotted screwdriver

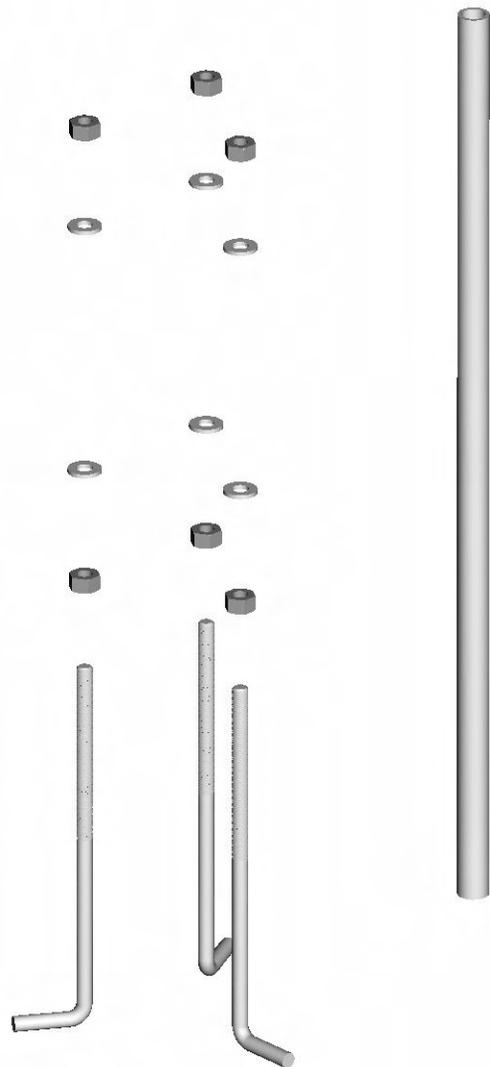
## Overview of steps

Installing the CT2101 ChargePoint® Charging Station's body assembly involves a few simple steps:

1. Check box for correct contents (see page 2-2)
2. Remove front panel (see page 2-3)
3. Remove mounting pole and base plate from body (see page 2-4)
4. Install J-Bolts and conduit (see page 2-5)
5. Mount base plate/pole assembly (see page 2-6)
6. Install body (see page 2-7)
7. Connect wires to wiring terminals (see page 2-8)
8. Replace front panel (see page 2-9)

These steps are detailed in the remainder of this chapter. When you have completed these steps, you will be ready to install the holster and cable assembly as described in Chapter 5.

Installer-supplied components:

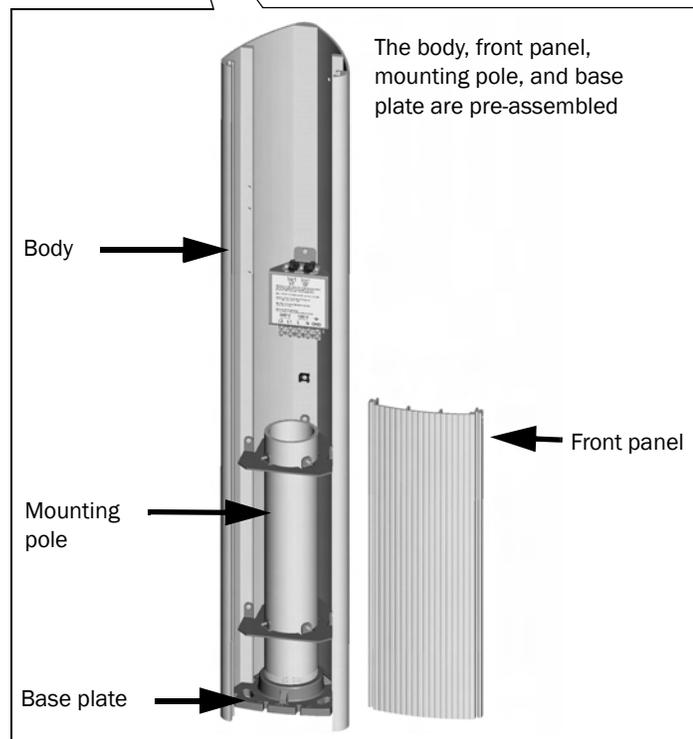
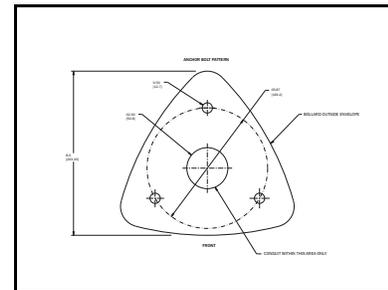
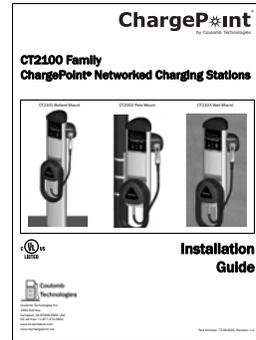


# Step 1 - Check box for correct contents

## Bollard Mount Assembly

The CT2101 ChargePoint® Charging Station's body assembly ships in a box containing:

- Main body assembly (including body, front panel, mounting pole, and base plate)
- Base plate template
- Installation Guide
- 3/32" allen wrench

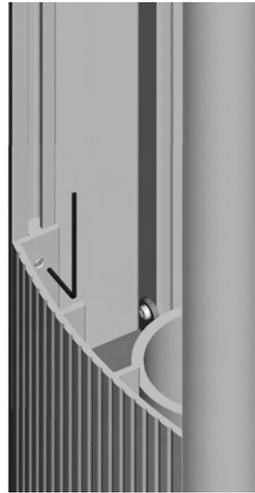


## Step 2 - Remove front panel

To remove the front panel:

- Use the supplied allen wrench to loosen the 2 screws that fasten the panel to the body.
- Remove the ground wire connector from its tab.

Slide the front panel upward to remove.

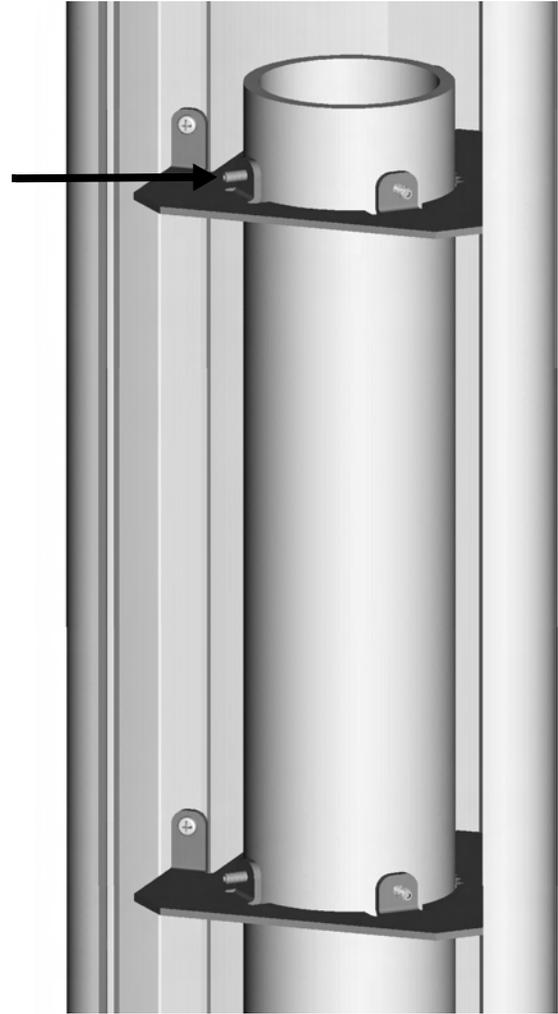


### Step 3 - Remove mounting pole and base plate from body

To remove the body:

- Use the supplied allen wrench to loosen the 4 set screws (2 on each bracket).
- Lift the body upward.

Loosen the four set screws to remove the pole.



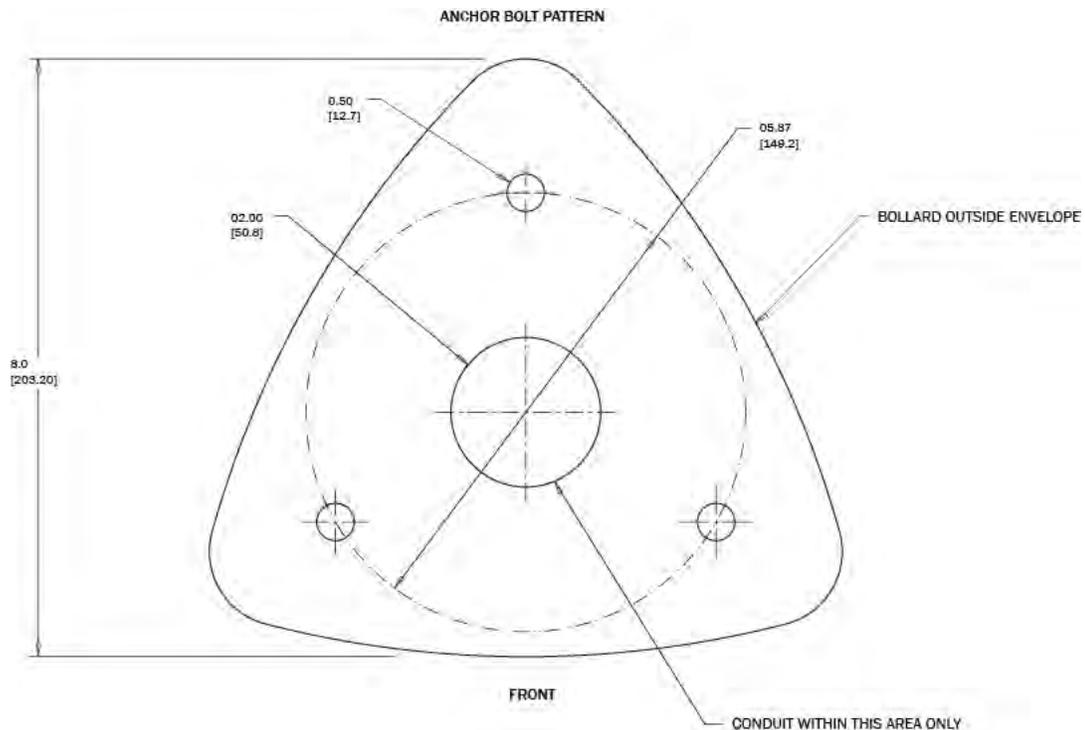
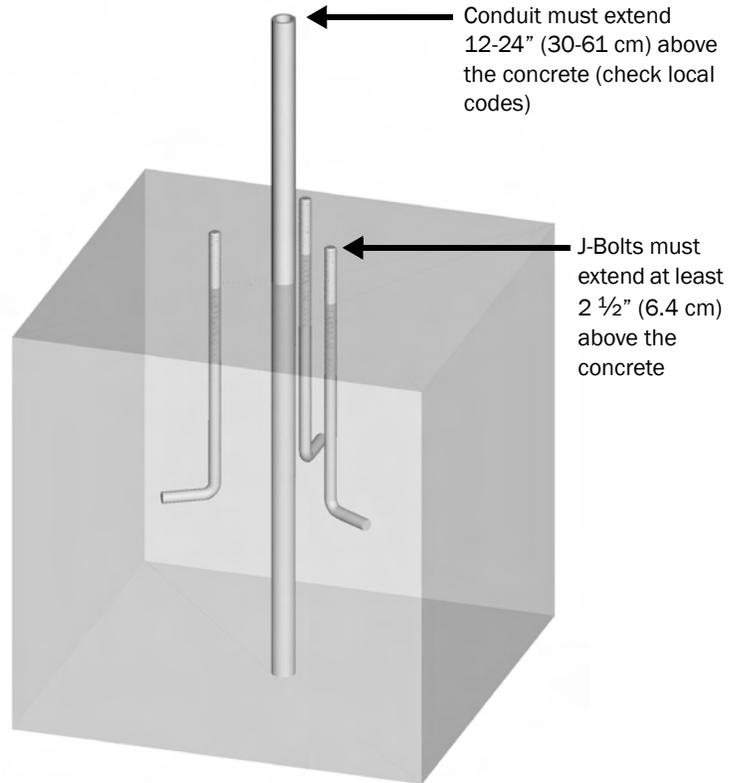
## Step 4 - Install J-Bolts and conduit

Install J-Bolts and conduit into concrete as illustrated. Use the supplied base plate template to ensure correct alignment.



### IMPORTANT:

- The concrete block must measure at least 18" (46 cm) on all sides. Check local codes to ensure compliance.
- The J-Bolts must extend at least 2 1/2" (6.4 cm) above the concrete.
- The conduit must extend 12" to 24" (30 to 61 cm) above the concrete, or according to local codes.



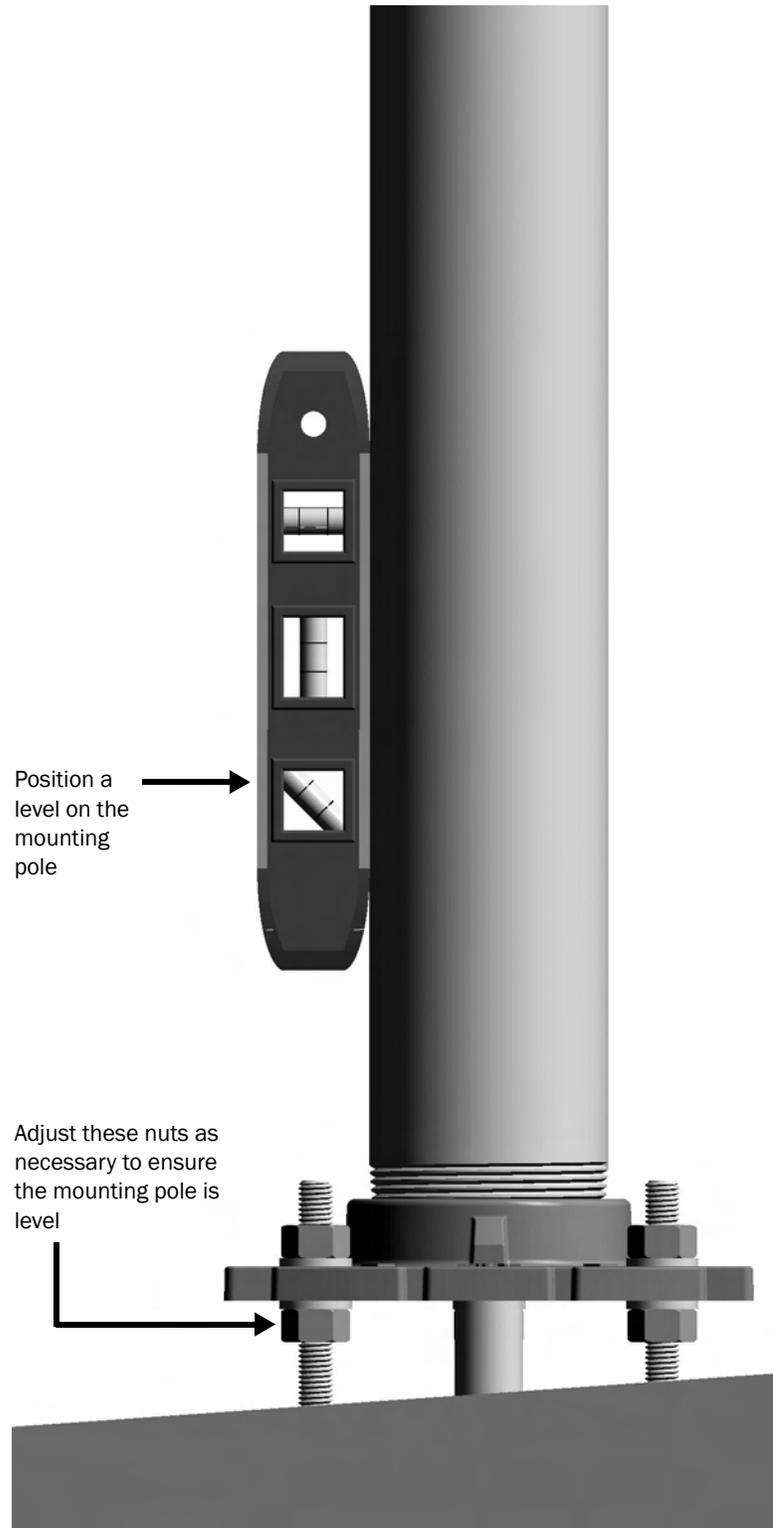
## Step 5 - Mount base plate/pole assembly

Pull all five wires up through the conduit and the mounting pole.

Place the base plate/mounting pole assembly over the wiring conduit and attach the base plate to the J-Bolts using the installer-supplied nuts and washers as shown.

Adjust the nuts as necessary to ensure the mounting pole is level. When level, tighten the nuts.

**!** **IMPORTANT:** Ensure the base plate/pole assembly is level by adjusting the nuts underneath the base plate.



## Step 6 - Install body

Slide the body over the mounting pole and base plate.

Ensure the body is level.

Secure the body to the mounting pole by tightening the four set screws using the supplied allen wrench.

 **IMPORTANT:** Ensure the body is firmly aligned to the bottom surface and that no movement (rocking) can take place, even when significant pressure is applied.



When level, tighten  
all 4 set screws



## Step 7 - Connect wires to wiring terminals

Pull the 240VAC L2 (blue) and L1 (red) and the 120VAC Line (black), Neutral (white), and Ground (green) wires into body assembly and connect to wiring terminals.

Strip wires ¼" (6 mm), insert in terminal block, and tighten screws to 18 ½ inch-lbs (2.1 Nm).

**! IMPORTANT:**

- Requires dedicated 20A breaker for 120VAC and 40A breaker for 208/240VAC.
- Use copper conductors only.
- Do NOT provide GFCI protection at panel. The CT2101 has built-in GFCI protection.
- In areas with frequent thunder storms, add surge protection at the service panel for all circuits.

**TIP:** To make it easier to connect the wires, you can remove and replace the terminal block. To do so, simply loosen the two mounting screws holding the terminal block to the body a few turns. Then slide the terminal block up and off the screws. Insert the wires and tighten the wiring screws as described above. Then, slide the terminal block back over its two mounting screws, and tighten the mounting screws.



LEVEL 2 MODULE      LEVEL 1 MODULE

### Coulomb Technologies, Inc.

For use in CT2100 family of products.  
 Input: 120 VAC, 60 Hz, 16 A  
 208/240 VAC, 60 Hz, 30 A  
 Use copper conductors only.  
 Input terminal recommended tightening torque:  
 18.5 in.-lbs. (2.1 Nm)  
 Input terminal wire size range:  
 6 to 12 AWG (13mm<sup>2</sup> to 3mm<sup>2</sup>) solid / stranded.

SEE INSTALLATION GUIDE

PART NUMBER LABEL HERE

SERIAL NUMBER LABEL HERE

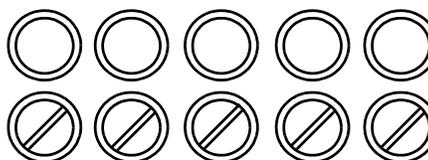
240 V

L2 L1

120 V

L N

GND

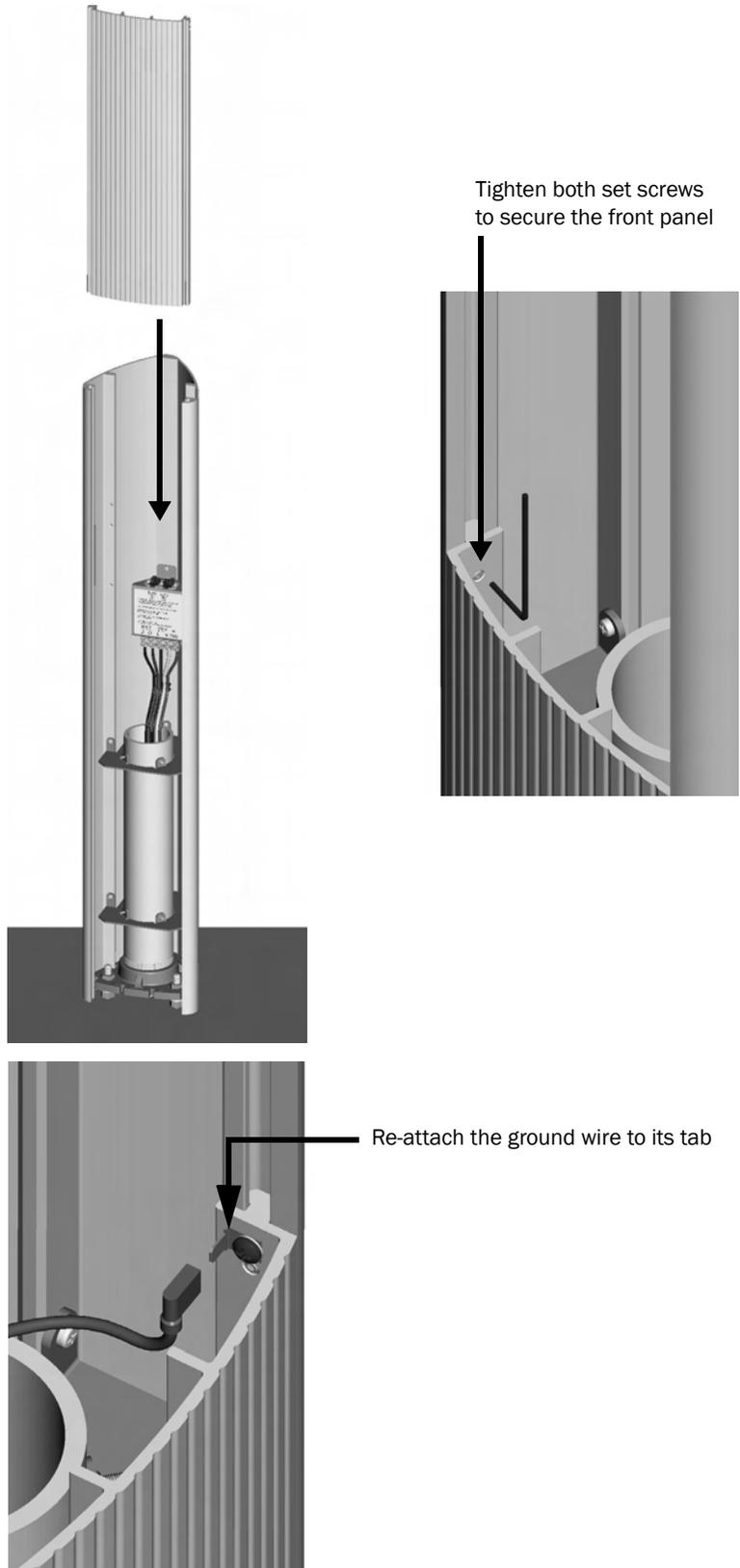


← Use these 5 screws

## Step 8 - Replace front panel

Slide the front panel into place. Use the supplied allen wrench to tighten the two set screws.

Re-attach the ground wire by pushing it onto its tab.



You have now finished installing the body assembly for the CT2101 ChargePoint® Charging Station's body assembly. You are ready to install the holster and cable assembly. See Chapter 5.