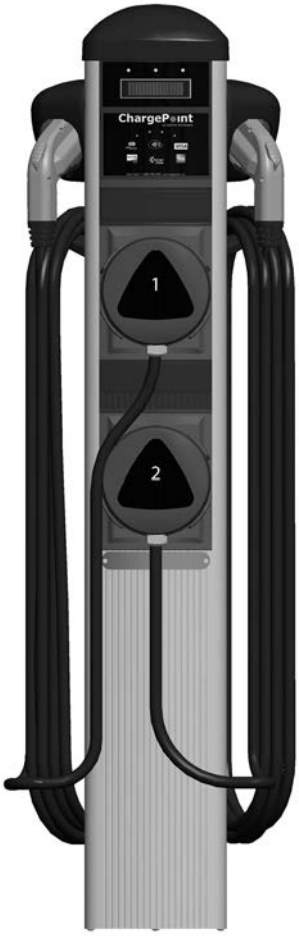
ChargePoint®
by Coulomb Technologies

CT2023
ChargePoint® Networked Charging Station



Installation Guide

c UL us
LISTED

Coulomb Technologies

Coulomb Technologies Inc.
1692 Dell Ave.
Campbell, CA 95008-6901 USA
US toll free: +1-877-370-3802
www.chargepoint.net

Part Number: 75-001089-01 Revision: 2.0

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 802.15.4 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 802.15.4 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.

Limitation of liability

IN NO EVENT SHALL COULOMB TECHNOLOGIES, INC. OR ITS AUTHORIZED DISTRIBUTORS BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST DATA, LOSS OF USE, COST OF COVER, OR LOSS OR DAMAGE TO THE CHARGEPOINT® CHARGING STATION, ARISING OUT OF OR RELATING TO THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF COULOMB TECHNOLOGIES, INC. OR ITS AUTHORIZED DISTRIBUTORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

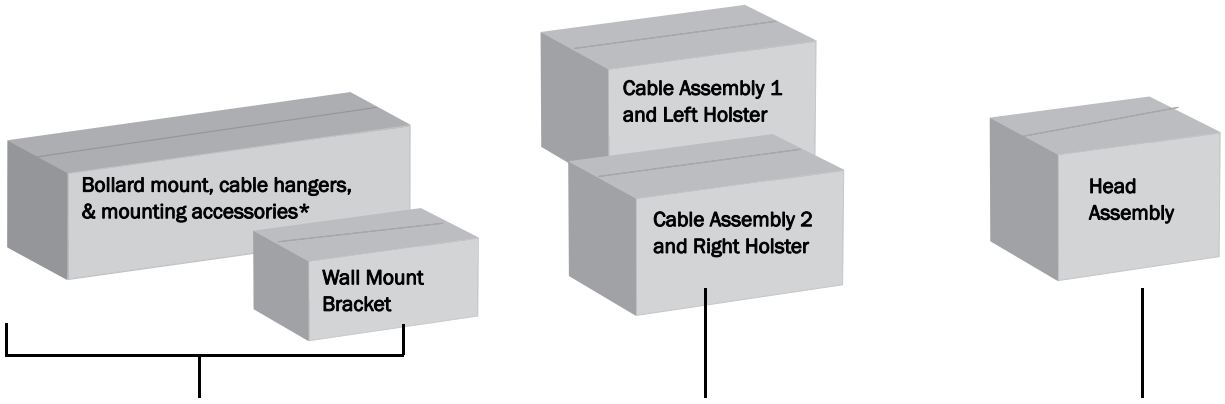
Copyright and trademarks

Contents

Introduction

1

This document provides step-by-step instructions on how to install a CT2023 ChargePoint® Charging Station. As shown here, the CT2023 ships in five boxes:



***NOTE:** *The screws used to mount the holsters are included in the box containing the bollard mount AND in the boxes containing the holsters. Use those provided in the box containing the bollard mount.*

Before installing stations

Before you begin installing a CT2023 charging station as described in this document, you must:

- ensure that the appropriate wiring, circuit protection, and metering is in place at the installation location (see wiring diagram on page 1-3 of this document)
- 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)
- review the CT2023 Charging Stations Data Sheet (available at www.coulombtech.com/support/)
- review the mounting template (provided in this document and in the box containing the station's body)

⚠ **IMPORTANT:** A PDF version of the mounting template is also available at www.coulombtech.com/support/. When printing this version, print at 100% scale using 11" x 17" paper and verify at least one dimension to ensure accuracy.

It is also recommended that you thoroughly review this document to familiarize yourself with the contents of each shipping box, and the required installation steps.

Specifications

Electrical Input

Input Power	7.2 kW (x 2)
Input Voltage	208/240 VAC
Input Current	30 A (x 2)
Input Power Connections	Two independent 40 A branch circuits, each providing Line 1 and Line 2. A single protective Earth conductor.
Required Service Panel Breaker	40A double pole breaker (non-GFCI type) on each dedicated circuit
Service Panel GFCI	Do not provide external GFCI as it may conflict with internal GFCI (CCID)
Standby Power	7 W typical

Electrical Output

Output Charging Power	7.2 kW (x 2)
Output Voltage	208/240 VAC
Output Current	30 A (x 2)
Output Charging Connector	SAE J1772™ EV connector on 18' (5.48 m) cord (x 2)

Functional Interfaces

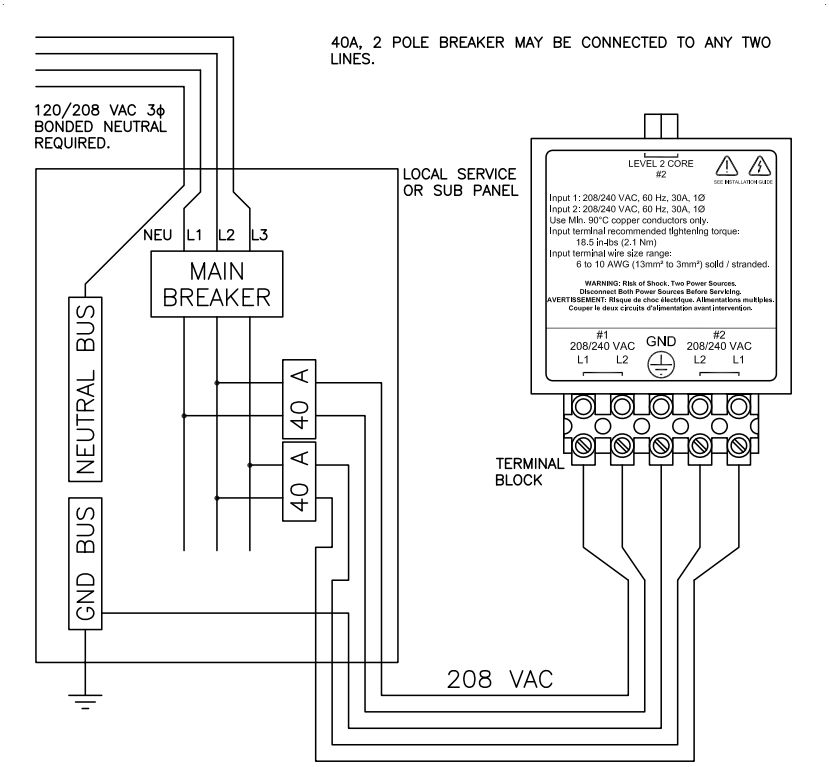
Card Reader	ISO 15693, 14443
Ground Fault Detection	20 mA CCID with auto retry (15 minute delay, 3 retries)
Plug-Out Detection	Power terminated per SAE J1772™ specification
Power Measurement	2% @ 15 minute intervals
Local Area Network	2.4 GHz 802.15.4 dynamic network
Wide Area Network	Commercial GPRS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

Safety and Operational Ratings

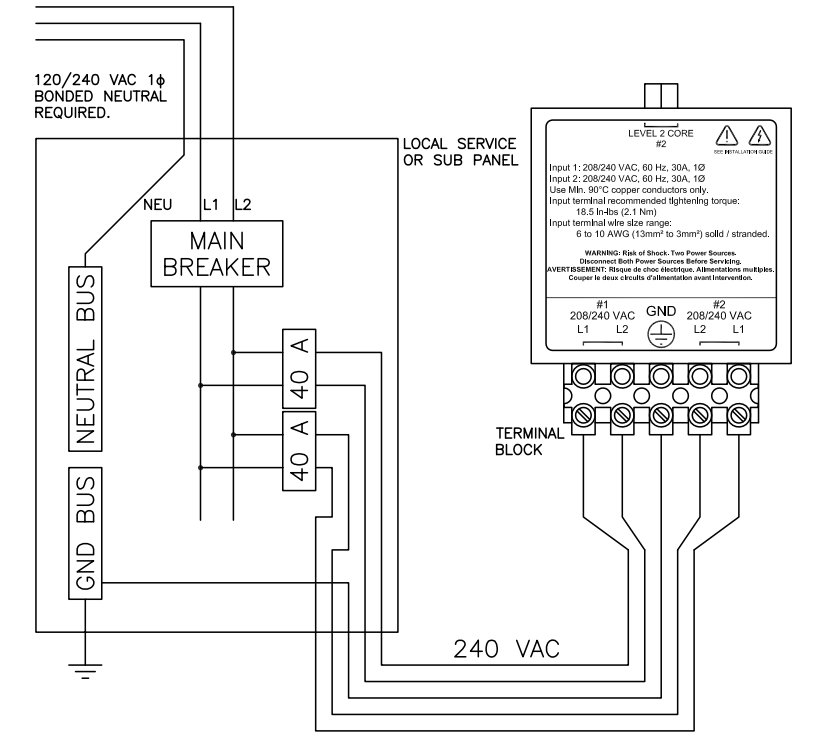
Safety Compliance	UL listed for USA and cUL certified for Canada; Complies with UL 2594, UL 2231-1, UL 2231-2, UL 1998, UL 991, and NEC Article 625
Surge Protection	6 kV @ 3000 A. In geographic areas subject to frequent thunder storms, supplemental surge protection at the service panel is recommended.
EMC Compliance	FCC Part 15 Class A
Operating Temperature	-22°F to 122°F (-30°C to +50°C)
Operating Humidity	95% non-condensing
Enclosure	Type 3R
Terminal Block Temperature Rating	212°F (100°C)
Maximum Charging Stations per 802.15.4 Radio Group	24. Each non-gateway station must be located within 150 feet "line of sight" of a gateway station.
Approximate Shipping Weight	45 lbs (20.4 kg)

Wiring information

NOTE: Requires two dedicated circuits, each with its own 40 A breaker.



208 VAC, THREE PHASE PANEL



240 VAC, SINGLE PHASE PANEL

Installing the Wall Mount 2

Before you begin

In addition to the contents of the CT2023 wall mount's shipping box, you will need the following:

- Hammer drill
- 3/8" masonry drill bit
- 3/8" drive ratchet with extension
- 5/16" HSS (High Speed Steel) drill bit
- 9/16" deep hex socket
- 7/16" hex socket
- #3 Phillips screwdriver
- T25 Tamper-resistant Torx driver
- ¾" (trade size) conduit coupler
- Silicone sealant, electrical grade

Overview of steps

Installing the CT2023 ChargePoint® Charging Station's body assembly involves a few simple steps:

1. Check boxes for correct contents *(see page 2-2)*
1. Remove front panel *(see page 2-4)*
2. Remove channel struts from body *(see page 2-5)*
3. Install channel struts *(see page 2-6)*
4. Attach wall mount bracket *(see page 2-7)*
5. Remove terminal block from main body *(see page 2-8)*
6. Drill holes in main body *(see page 2-9)*
7. Attach body assembly to wall bracket *(see page 2-10)*
8. Attach coupler and connect conduit *(see page 2-11)*
9. Reattach terminal block to main body *(see page 2-12)*
10. Connect wires to wiring terminals *(see page 2-13)*
11. Replace front panel *(see page 2-14)*

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 3.

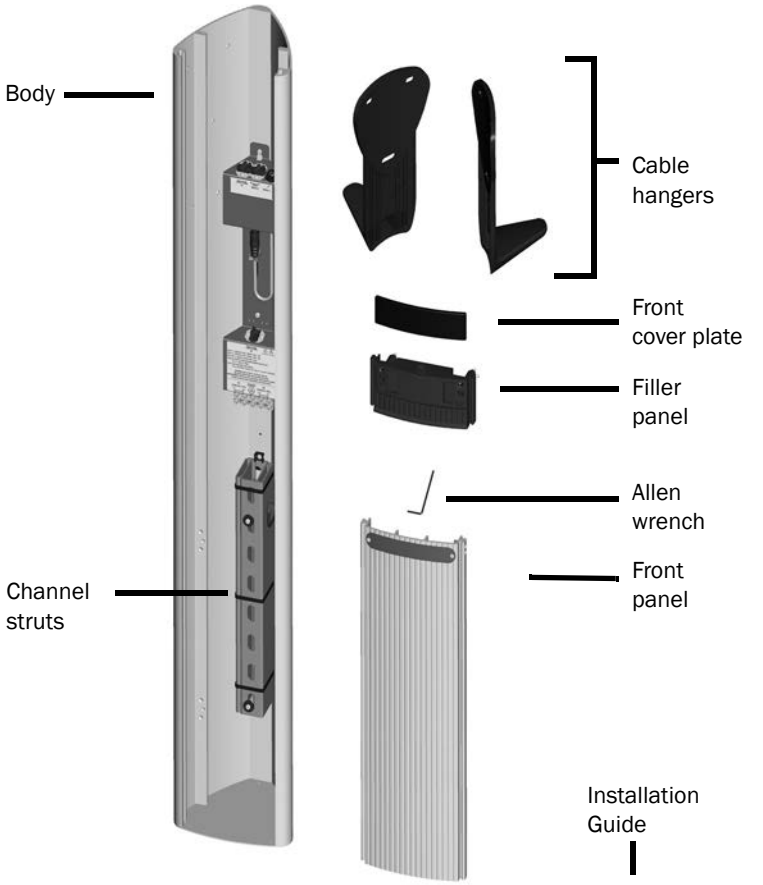
Step 1 - Check boxes for correct contents

The CT2023 ChargePoint® Charging Station's wall mount components ship in two boxes as shown below.

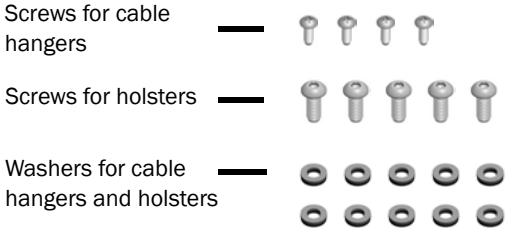
Main body assembly:

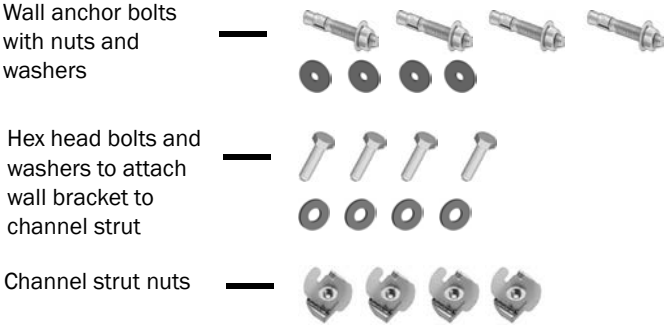
- Body* (1)
- Channel struts* (2)
- Cable hangers (2)
- Front cover plate (1)
- Filler panel* (1)
- 3/32" Allen wrench (1)
- Front panel* (1)
- Screws for cable hangers (4)
- Screws for holsters (6)
- Washers for cable hangers and holsters (10)
- Wall anchor bolts with nuts and washers (4)
- Hex head bolts and washers to attach bracket to channel struts (4)
- Channel strut nuts (4)
- Installation Guide (1)
- Base plate mounting template (1)

**Body, front panel, and filler panel are pre-assembled. Channel struts are attached to body for shipping purposes only.*



Installation Guide

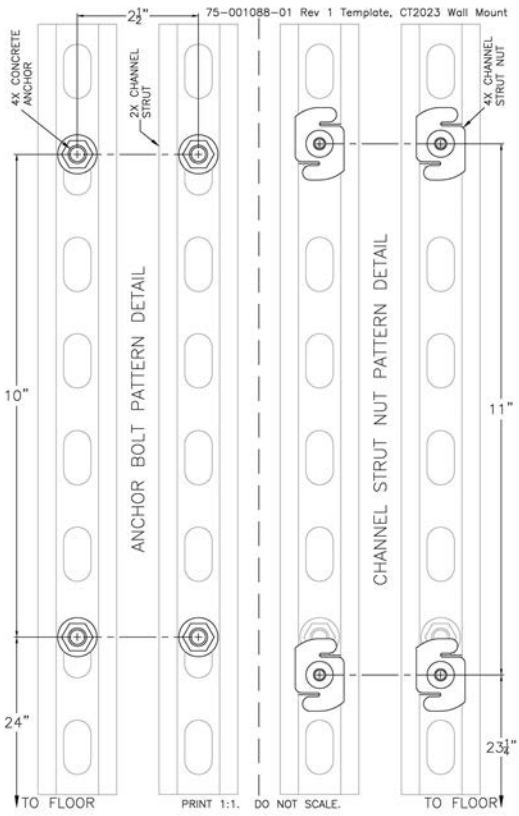




Wall mount bracket and accessories

- Wall mount bracket (1)
- Screws and washers (6)*
- Conduit sealing ring and washer (1)
- 3/32” Allen wrench (1)
- Template for drilling wall holes (1) (stapled into the centerfold of this guide)

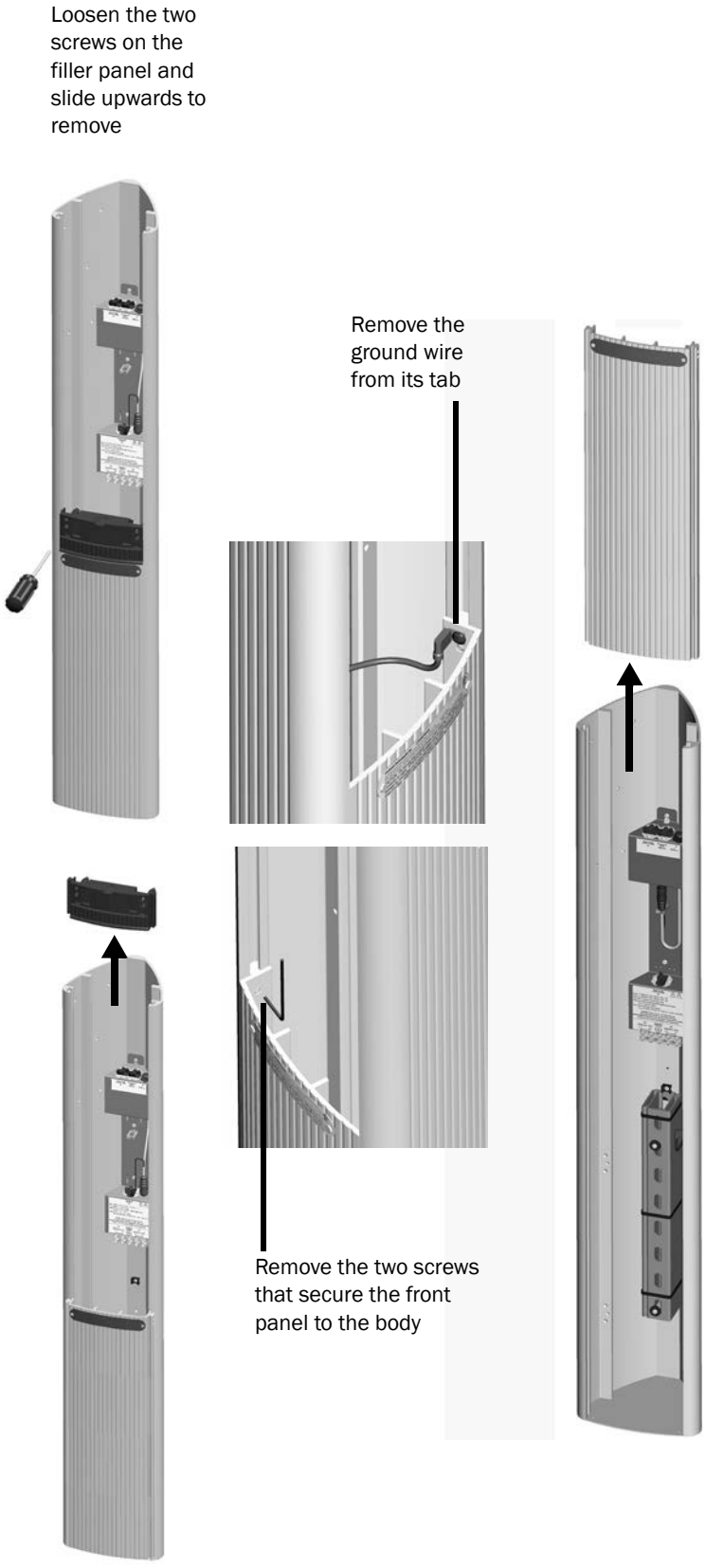
**Two extra screws and washers are included in the shipping box. These can be discarded.*



Step 2 - Remove front panel

To remove the front panel:

- Using a T25 Torx driver, remove the two captive screws in the filler panel.
- Slide the filler panel upward to remove.
- Remove the ground wire connector from its tab located on the front panel.
- Use the supplied allen wrench to loosen the two screws that fasten the panel to the body. These screws are used for shipping only and can be discarded.
- Slide the front panel upward to remove.



Step 3 - Remove channel struts from the body

The channel struts are attached to the main body for shipping purposes only. Remove them using a Phillips (2 Ls) screwdriver.

NOTE: The cable ties are releasable—cutting is not required. Screws and washers can be discarded.

Step 4 - Install channel struts

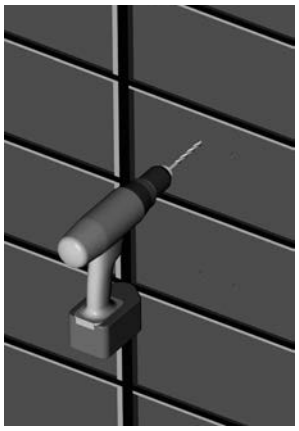
To mount the channel strut sections to the concrete wall:

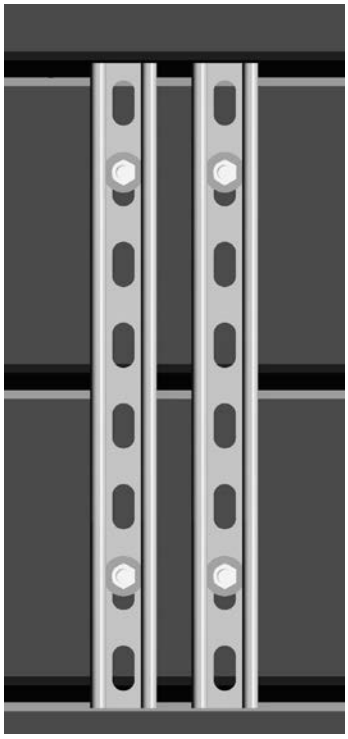
- Use the supplied wall mount template to mark the location of the four holes on the wall. Holes must be 24” and 34” up from the floor and be spaced exactly 2 1/2” apart.
- Using a Hammer drill and a 3/8” masonry drill bit, drill four holes 2 1/2” deep.
- Install the four supplied 3/8” anchor bolts.
- Mount each channel strut to the wall with the four 3/8” nuts and large, thick washers supplied in the shipping box (discard the washers that came with the anchor bolts). Tighten using a 3/8” drive rachet with extension.

NOTES:

The bottom of the channel strut should be located 20 1/2” above the floor.

The two channel struts must be plumb and parallel to each other.

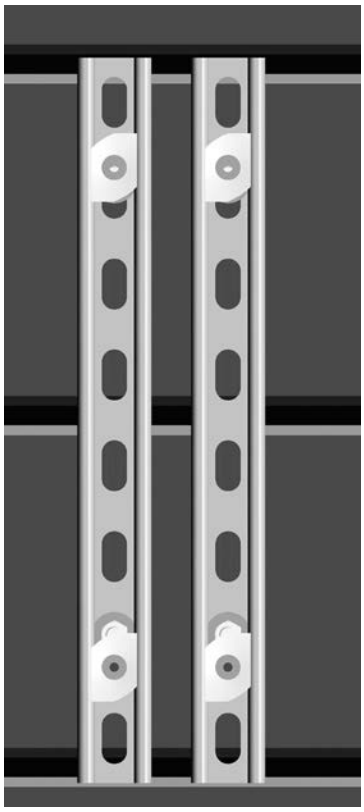




Step 5 - Attach wall mount bracket

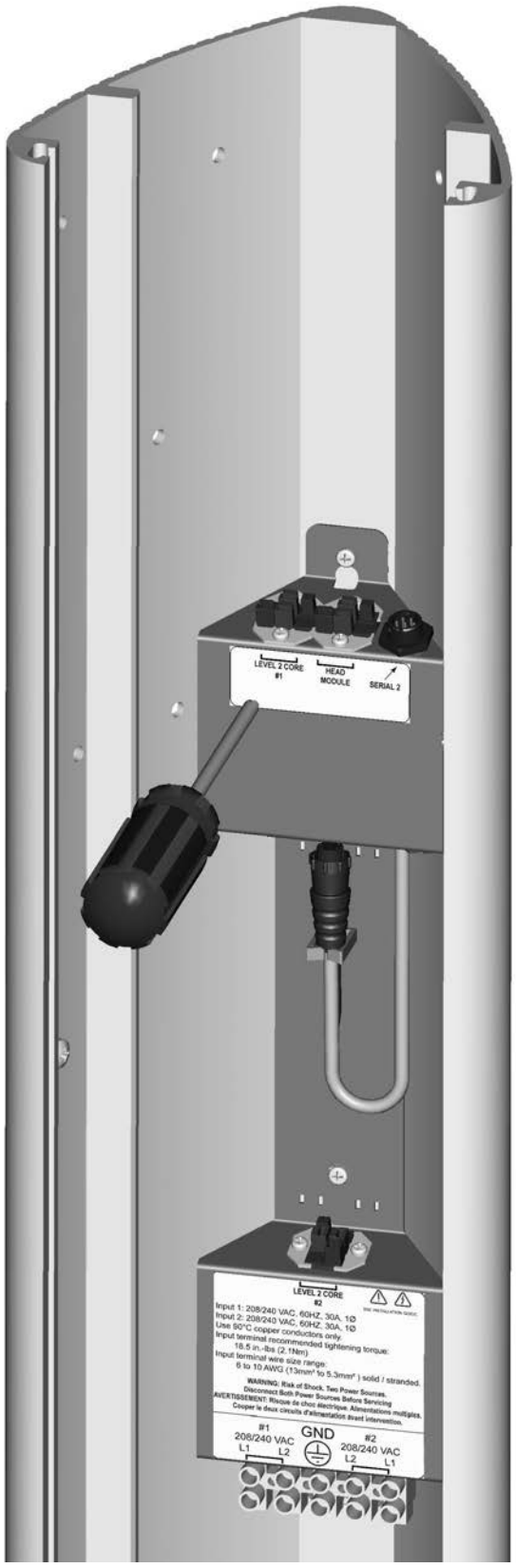
To install the wall mount bracket:

- Using the template as a guide to determine their exact location, install the four channel strut nuts into the channel struts as shown.
- Mount the bracket to the channel struts using the four supplied hex head bolts and washers, as shown. Tighten using the 3/8” drive and 9/16” socket.



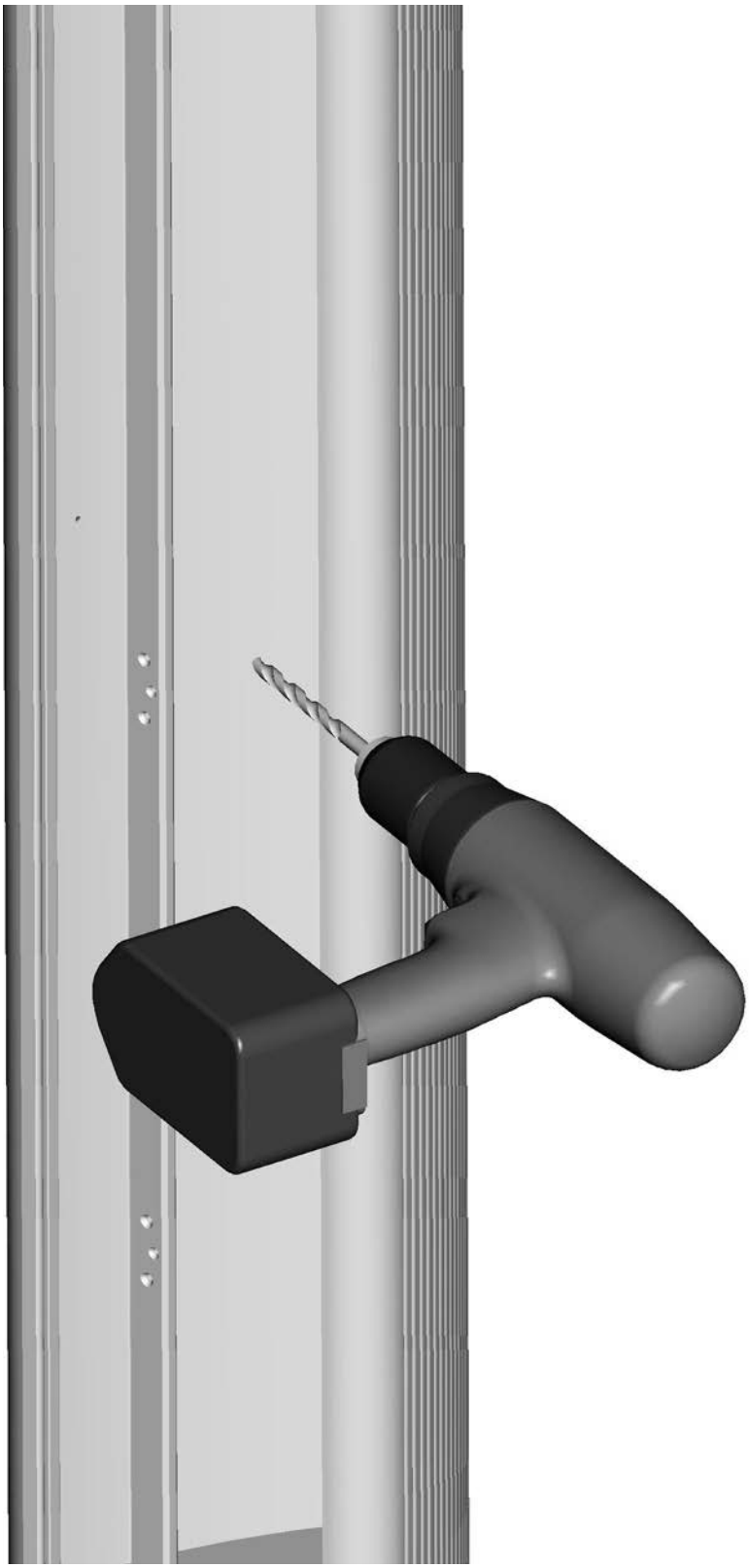
Step 6 - Remove terminal block from body

Four screws are used to fasten the terminal block to the body. Remove the two center screws and loosen the top and bottom screws.



Step 7 - Drill holes in main body

Use a 5/16” (8 mm) drill to drill out the four mounting holes in the back of the body assembly. These holes are partially pre-drilled. Two are located on the back and two are located on the side.



Step 8 - Attach body assembly to wall bracket

Attach the body assembly to the wall bracket using the four supplied hex head bolts and washers. Tighten using a ratchet and 7/16” socket.

NOTE: You may need to adjust the height of the mounting bracket slightly so the body assembly sits on, or just above, the floor.

Step 9 - Attach coupler and connect conduit

Drill a 1 1/8" diameter (3/4" trade size) hole in the main body no higher than 24" from the bottom.

Attach installer-supplied coupler and water-tight sealing washer to the body assembly, as shown, and connect the conduit.

Seal the conduit fitting with RTV silicone sealant.

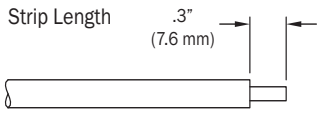
Step 10 - Re-attach terminal block to main body

Slide the terminal block onto the two fastening screws, install the two middle screws, then tighten all of the screws until snug.

Step 11 - Connect wires to wiring terminals

To connect the wiring:

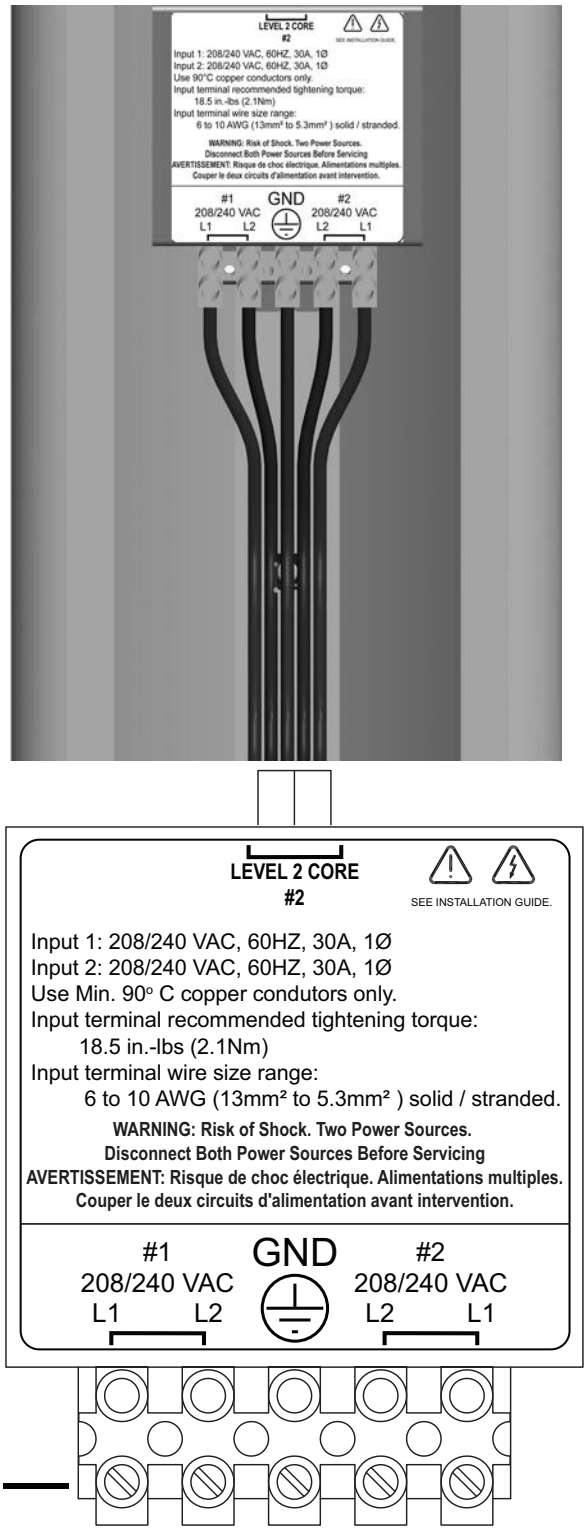
- Pull the Ground wire and the 240 VAC L1 and L2 wires into the body assembly.
- Strip wires .3" (7.6 mm) and insert into the terminal block as shown



- Tighten screws to 18 ½ inch-lbs (2.1 Nm).

IMPORTANT:

- Requires two dedicated circuits, each with its own 2 pole, 40 A breaker.
- Use copper conductors only.
- Do NOT provide GFCI protection at panel. The CT2023 has built-in GFCI protection.
- In areas with frequent thunder storms, add surge protection at the service panel for all circuits.



Step 12 - Replace front panel

To replace the front panel:

- Slide the front panel into place, as shown.
- Re-attach the ground wire by pushing it onto its tab.

Re-attach the ground wire to its tab

You have now finished installing the wall mounting assembly for the CT2023 ChargePoint® Charging Station's body assembly. You are ready to install the holsters and cable assemblies. See Chapter 3.

Installing the holsters and cable assemblies

3

Before you start

You will need a short or right-angle Phillips screwdriver.

Before installing the holsters and cable assemblies, complete the installation procedure for the CT2023's main body as described in the previous chapter.

Overview of steps

Installing the ChargePoint® Charging Station's holsters and cable hangers involves a few simple steps:

1. Check boxes for correct contents *(see page 3-2)*
2. Attach holsters/cable hangers to body assembly *(see page 3-3)*
3. Install cable assembly 2 *(see page 3-4)*
4. Install the filler panel *(see page 3-6)*
5. Install cable assembly 1 *(see page 3-7)*

These steps are detailed in the remainder of this chapter. When you have completed these steps, you will be ready to install the head assembly, as described in Chapter 4.

Step 1 - Check boxes for correct contents

The ChargePoint® Charging Station's cable assemblies/holsters ship in two boxes.

Each box contains:

- Holster
- Cable assembly
- Screws (3) - DISCARD THESE*
- Washers (3) - DISCARD THESE*
- 5/32" Allen wrench

**Do not use the screws and washers provided in the shipping box with the holsters—use the longer ones provided in the shipping box with the bollard mount.*

NOTE:
To complete the installation steps described in this chapter, you will also need the following components that are included in the shipping box for the main body (see page 2-2).

Cable hangers, screws and washers:

Filler panel:

Cable Assembly 1 \ Left Holster:

Cable Assembly 2 / Right Holster:

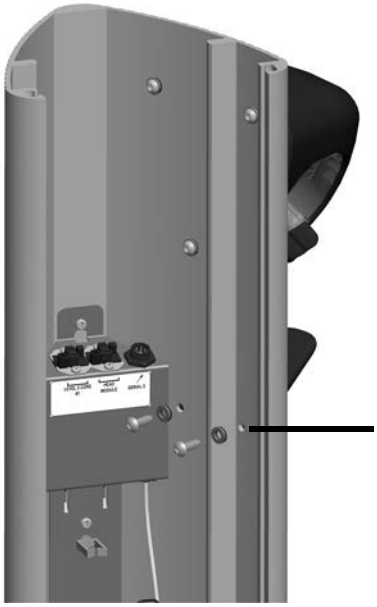
Step 2 - Attach holsters/cable hangers to body assembly

Align the right holster with the cable hanger and attach as follows:

- Insert the three screws/washers to attach the cable hanger/holster to the main body but do not tighten.
- Insert the two screws/washers to attach the lower end of the cable hanger to the main body.
- Tighten all five screws.

Repeat for the left holster/cable hanger.

NOTE: Use the screws and washers provided in the shipping box with the bollard mount (see page 2-2).

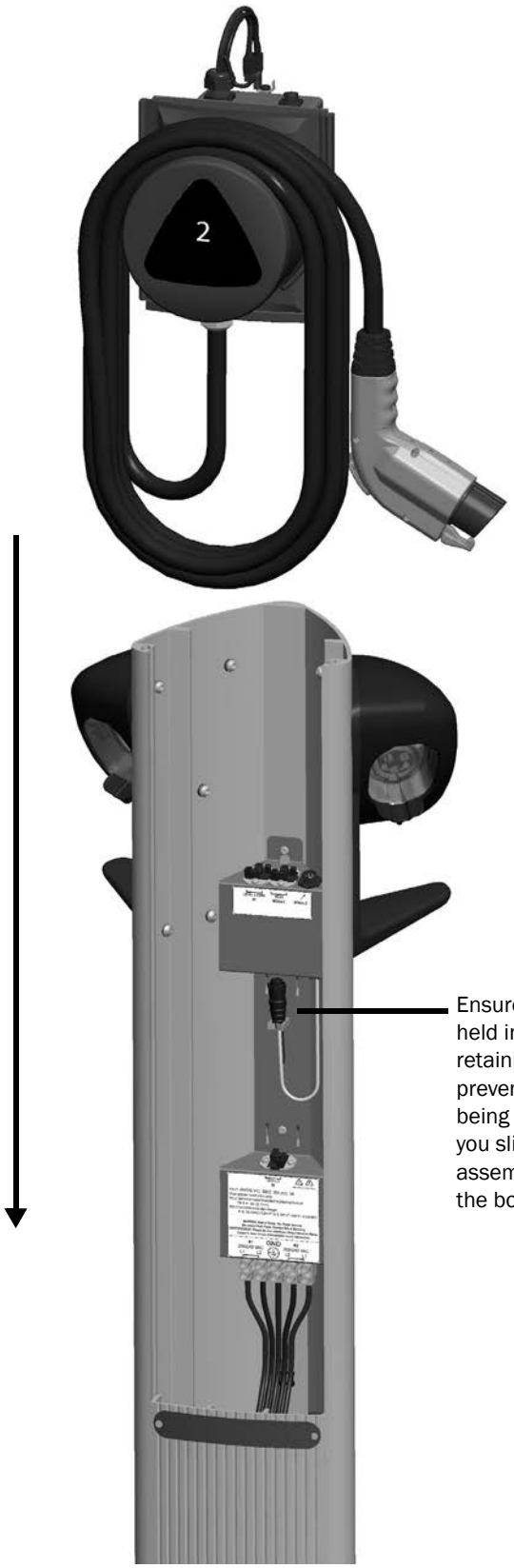


Step 3 - Install cable assembly 2

Slide cable assembly 2 into the body all the way until it is flush with the top of the front panel.

IMPORTANT NOTES:

- When sliding the cable assembly into the body, ensure that the serial cable that hangs down from the topmost terminal block does not get caught between the cable assembly and the bottom terminal block. It should be held in place by the clip, as illustrated.
- Ensure the cable assembly is fully seated and that there is no gap between the bottom of the cable assembly and the top of the front panel. The cable assembly fits tightly and may require extra downward force to ensure it is fully seated.

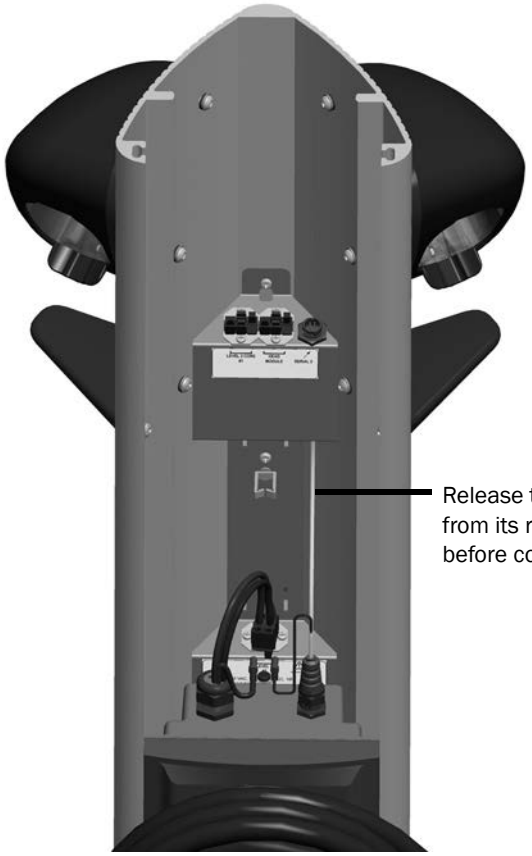


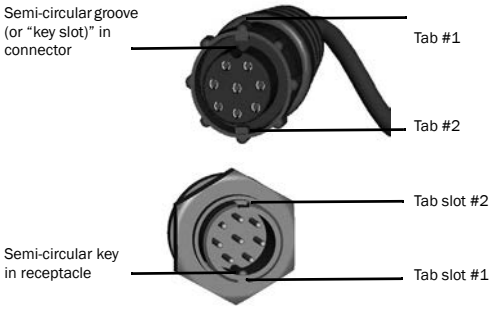
Step 3 - cont'd

To connect the cable assembly:

- Plug the cable assembly's rectangular connector into the body assembly's terminal block, ensuring it is fully seated.
- Connect the circular connector (that hangs down from the upper terminal block) to the cable assembly by aligning the white arrow. For details, refer to the illustration and instructions provided on this page.
- Connect the Ground wires to the tabs on the cable assembly.

⚠ **IMPORTANT!** Do not insert the charging station's SAE J1772 connector into the holster until after installing the head assembly and powering up the charging station. The station is equipped with a locking holster, and if you insert the connector before the station has powered up, the holster will not unlock!





Align the circular connector so that:

- the white arrows aligns with the white dot on the receptacle
- the key slot in the connector matches up with the key in the receptacle AND
- the tabs on the connector match up with the tab slots on the receptacle

Insert the connector until fully seated (do not use excessive force).

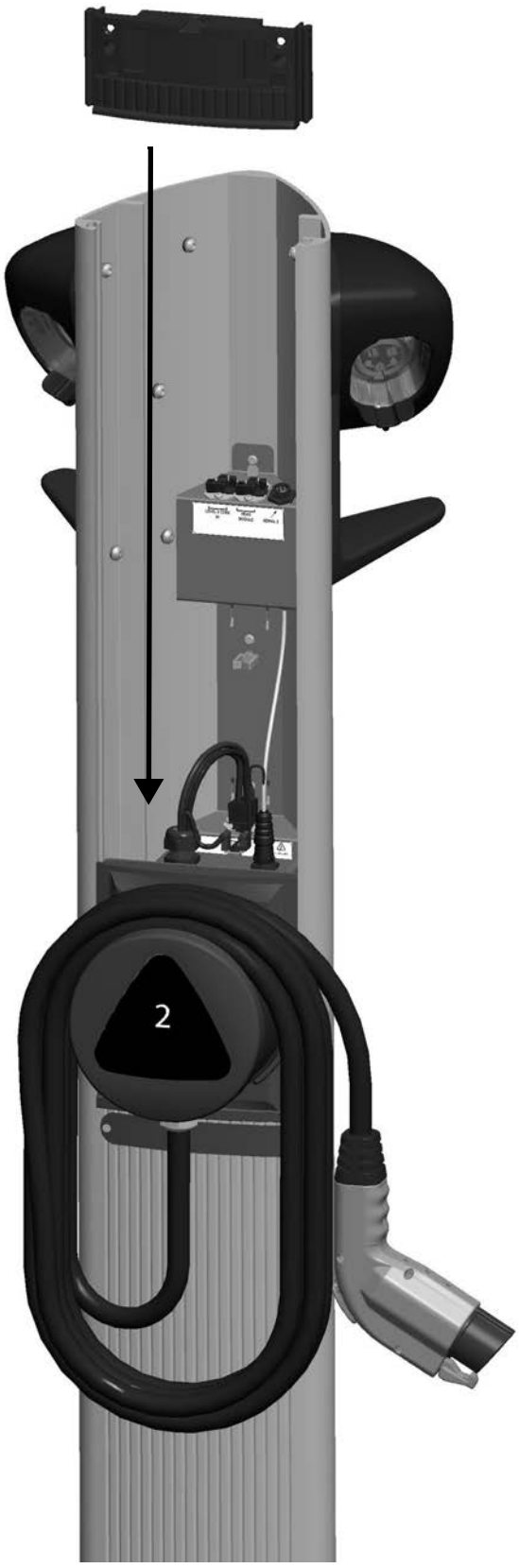
Rotate connector's outer ring in a clockwise direction until snug.

Step 4 - Install the filler panel

Slide the filler panel into the body assembly until it is flush with the top of cable assembly 2, as illustrated.

NOTES:

- The filler panel is included in the shipping box for the main body (see page 2-2).
- Ensure that the filler panel isfully seated and that no gap exists between the bottom of the filler panel and the top of the cable assembly. The filler panel fits tightly and may require extra downward force to ensure it is fully seated.
- Do not tighten the filler panel's security screws until you've verified that the station is operating correctly (as described on page 4-4).



Step 5 - Install cable assembly 1

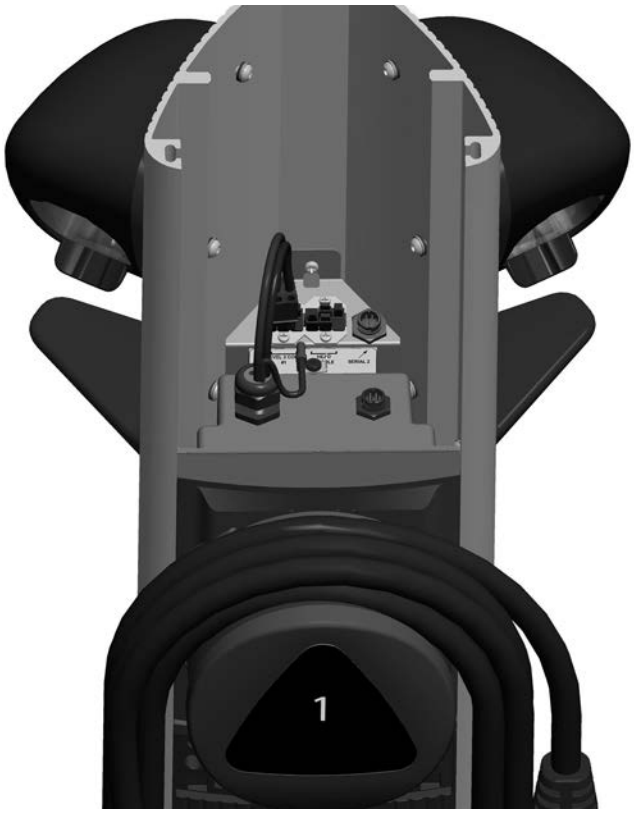
Slide cable assembly 1 into the body all the way until it is flush with the top of the filler panel, as illustrated.

⚠ **IMPORTANT:** Ensure the cable assembly is fully seated and that no gap exists between the bottom of the cable assembly and the top of the filler panel. The cable assembly fits tightly and may require extra downward force to ensure it is fully seated.

Step 5 - cont'd

Plug the cable assembly's rectangular connector into the left receptacle on the body assembly's terminal block, ensuring it is fully seated.

Connect the ground wire to the tab at the top of the cable assembly.



⚠ **IMPORTANT!** Do not insert the charging station's SAE J1772 connector into the holster until after installing the head assembly and powering up the charging station. The station is equipped with a locking holster and if you insert the connector before the station has powered up, the holster will not unlock!

You have now finished installing the ChargePoint® Charging Station's holsters and cable assemblies and are ready to install the head assembly. See Chapter 4.

Installing the head assembly 4

Before you start

You will need:

- Head assembly
- Torx Driver T25 - Tamper-Resistant. This driver is available at www.wihatools.com (Item 36281) and www.mcmaster.com (Item 83335A64).

In addition, you must complete the installation of the body assembly, the holsters, and the cable assemblies (see previous chapters).

Overview of steps

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

1. Check box for correct contents *(see page 4-2)*
2. Install head assembly *(see page 4-3)*
3. Verify that the station operates correctly and if necessary, refer to Chapter 5 to troubleshoot faults *(see page 4-4)*
4. Secure head assembly and filler panel *(see page 4-5)*
5. Install front cover plates *(see page 4-6)*
6. Arrange for station provisioning *(see page 4-7)*

Step 1 - Check box for correct contents

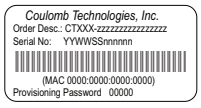
Head assembly

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

- Head assembly
- Front cover plate
- Spare provisioning label (a duplicate label has been attached to the head assembly)

⚠ **IMPORTANT:** Keep the spare provisioning label for future reference. It contains critical information that is needed for system provisioning (see page 4-7).

NOTE: To complete the installation steps described in this chapter, you will also need the additional front cover plate included in the shipping box for the main body (see page 2-2).



A provisioning label is attached to the head assembly under the front panel. A duplicate label is included to provide important information that is needed for system provisioning.

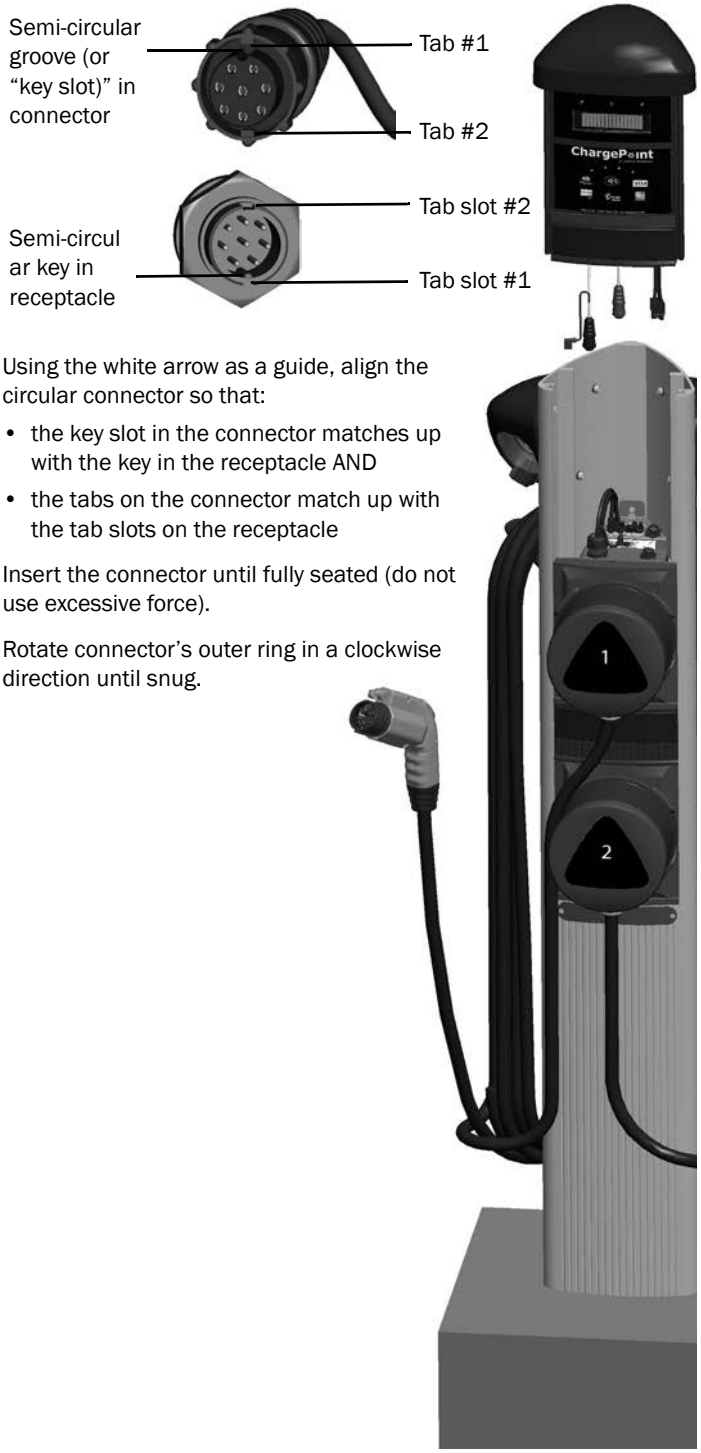
Step 2 - Install head assembly into body

To install the head assembly:

- Remove the plastic wrap from the face of the head assembly and retain the affixed provisioning label for future use (see page 4-7).
- Slide the head assembly into the main body far enough to connect the wiring.
- Connect the blue circular connector (without the Ground wire) to the blue connector on the terminal block, as illustrated.
- Connect the head assembly's rectangular connector to the receptacle on the right side of the terminal block, ensuring it is fully seated.
- Connect the black circular connector containing the Ground wire to the black connector on the cable assembly (as illustrated), then connect its Ground wire to the vacant Ground tab on the cable assembly.
- Keeping cables out of the way (by pushing them to the back and side), firmly slide the head assembly all the way into body.

  ⚠ **IMPORTANT:** Ensure the head assembly is fully seated and that no gap exists between the bottom of the head assembly and the top of the cable assembly. The head assembly fits tightly and may require extra downward force to ensure it is fully seated.

- If the head assembly is not fully seated, visually verify that the cable assemblies and the black filler panel are fully seated. If necessary, press down on the head assembly to seat the gaskets.



Using the white arrow as a guide, align the circular connector so that:

- the key slot in the connector matches up with the key in the receptacle AND
- the tabs on the connector match up with the tab slots on the receptacle

Insert the connector until fully seated (do not use excessive force).

Rotate connector's outer ring in a clockwise direction until snug.

Step 3 - Verify that the station operates correctly

Before securing the head assembly, follow these instructions to ensure that the charging station is fully operational:

- Turn on the main power to **ensure that the head assembly powers up**. When the circuit is live and the head assembly's wiring is connected, a sequence of power-up messages will be displayed. If this is not the case, check that the head assembly's rectangular connector is properly seated onto the terminal block. If the connector is properly seated and the station still does not power up, contact Coulomb Customer Support at 1-877-850-4562.
- Ensure that **none of the LEDs above the station's display are illuminated or blinking RED**. This indicates that the station has detected an error and you'll need to read the station's display to troubleshoot the error. Refer to "Chapter 5, Troubleshooting" for a detailed description of error messages.
- After powering up, insert the charging station's connectors into their corresponding holsters (cable assembly 2's connector into the right holster and cable assembly 1's connector into the left holster). Scan a valid and authorized ChargePass card to **confirm that both holsters unlock**. The LED on the holsters should also illuminate. If either holster does not unlock, check the connectors for the corresponding cable assembly. If the connectors are properly connected and fully seated, contact Coulomb Customer Support at 1-877-850-4562.
- Observe the display as it sequentially displays the current state of each charging port. **Both ports should be "AVAILABLE**". If this is not the case, an error message will be displayed instead. Refer to "Chapter 5, Troubleshooting" for a detailed description of error messages.

Refer to "Chapter 5, Troubleshooting" for information on how to resolve faults.

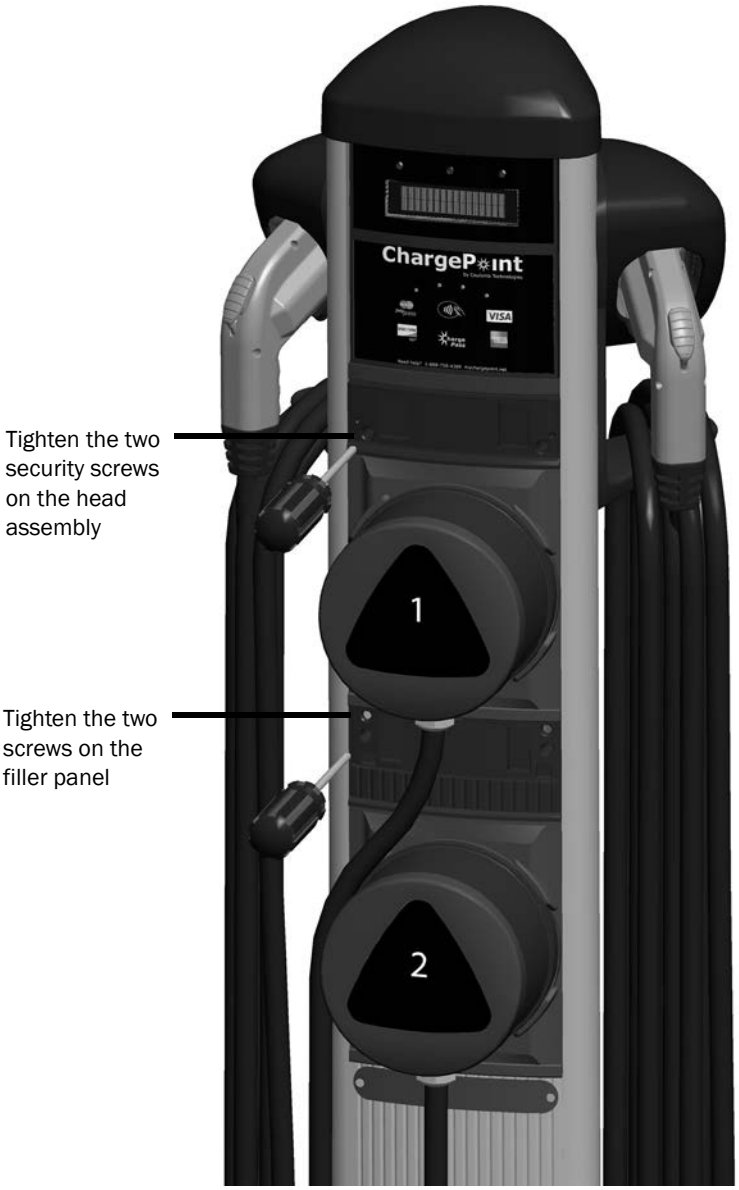
Step 4 - Secure head assembly and filler panel

Push down on the cable assemblies, and the head assembly to ensure they are fully seated and that there are no gaps. All assemblies fit tightly and may require extra downward force to ensure they are fully seated.

Using a T25 Torx driver, secure the head assembly to the body by tightening its two captive security screws.

Then tighten the two captive screws on the filler panel.

⚠ **IMPORTANT!** Tighten screws only until snug (approximately 15 in-lbs). Do NOT overtighten.

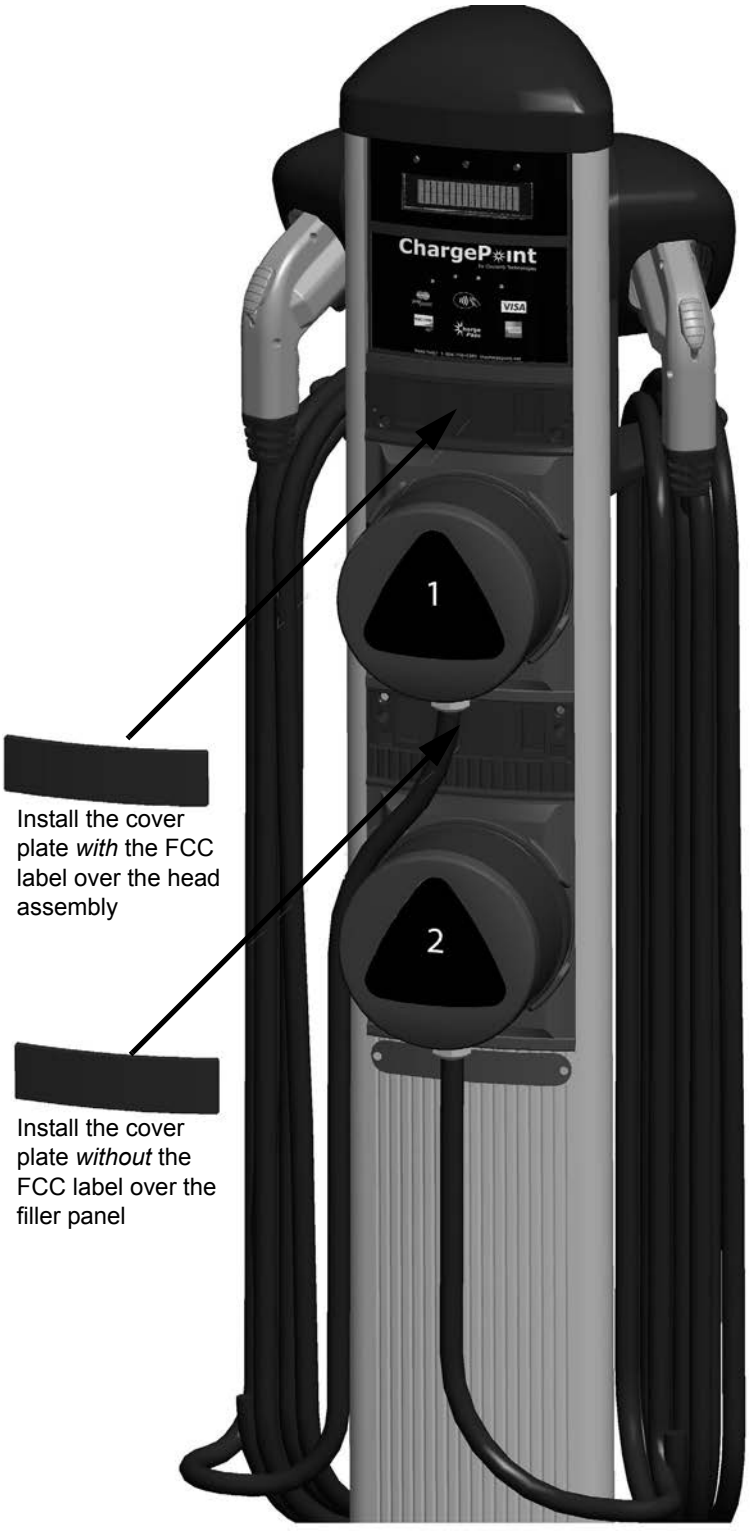


Step 5 - Install front cover plates

NOTE: An FCC label has been applied to one of the front cover plates—install this cover plate over the head assembly. Install the cover plate *without* the FCC label over the filler panel.

Align the protruding features on the front cover panel with the openings on the head assembly. Ensure the slot in the back of the panel is at the bottom. Snap into place, one side at a time.

Repeat to install the second front cover panel over the filler panel.



You have now finished installing the ChargePoint® Charging Station.

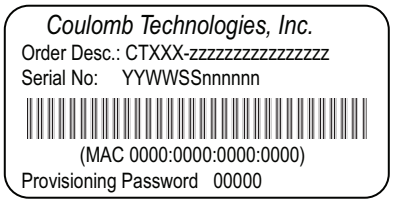
Step 6 - Arrange for station provisioning

After a charging station has been physically installed, it is ready to be provisioned. Provisioning is the act of connecting the charging station to the ChargePoint™ network and establishing its network identity. In other words, you provision a station to "go live" on the network.

To ensure the charging station is provisioned, provide your Coulomb distributor with the following information:

- Model number
- Serial number
- MAC address
- Provisioning password
- Location information (mailing address, and if possible, exact coordinates)

The station's model number, serial number, MAC address, and provisioning password is duplicated on two labels. One label is affixed to the head assembly (once installed, you can no longer see this label). A spare label is included in the shipping box. Use the spare label to keep a record of the charging station's exact installation location. To ensure data accuracy, the label has a bar code that you can scan.



NOTE: A station's address and physical location may vary slightly. The goal is to make it easy to identify the station's location on a Google™ map. Therefore, you will need to be as accurate as possible when providing a station's location. This is especially important when you install multiple stations at the same mailing address. It is best to determine the exact coordinates of the parking space in which the charging station is located.

TIP ! Take a picture of the label using your Smartphone. You can also use your Smartphone to scan the bar code (if you have a bar code scanning application installed), and to determine the station's GPS coordinates.

Troubleshooting 5

The station's display

To troubleshoot your charging station, pay attention to the messages that are displayed on the two-line display. The display sequentially shows the name of the charging station and the current state of each of its ports. The following example shows how a CT2023 displays the state of its #1 charging port under normal conditions:

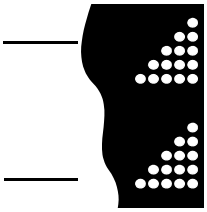
The top line displays the current state of the station's charging ports. This line includes a port number prefix and the station displays the state of each port sequentially.

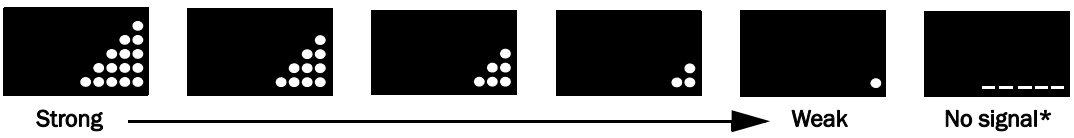
The bottom line displays more information about the current status and, if applicable, instructions that describe what action to take. Information is scrolled across this line.

To determine the current strength of the communications signals, observe the small indicators on the rightmost side of the display:

LAN (802.15.4)
To top set of dots indicate the strength of the LAN connection. LAN is the local connection that stations use to communicate to each other. All ChargePoint charging stations have a LAN connection.

WAN (CELLULAR)
If the station is a Gateway, a bottom set of dots will indicate the strength of the WAN connection. Gateways use this connection to communicate to the NOC (Network Operations Center). If the station is a non-gateway, this signal indicator is not displayed.





**If a LAN signal is not available, the station may not be situated within 150' line of sight of a gateway station, or there may an obstruction. If a WAN signal is not available, it may be necessary to install cellular repeaters at the installation site to boost the signal.*

Understanding error messages

The following pages describe the error messages that can occur on a CT2023 charging station. If one of the LEDs above the charging station's display illuminates RED, read the display for information about the type of error that has occurred.

Power up errors

The following messages can occur when the station powers up.

#1: FAULT INSTALLATION PROBLEM (L2 CORE) / CHECK CONNECTOR / FOR ASSISTANCE: <phone>
Cause/Other Symptoms: Upon power up, the station detected that the head assembly is not properly connected. In most cases, this indicates that the circular connector that attaches the head assembly to the cable assembly is not correctly installed. The station will be unavailable until the head assembly is correctly attached to the cable assembly.
Solution/Action: Lift the head assembly and re-attach the circular connector. For details, refer to the installation instructions for the head assembly.

#1: HALTED GFCI SELF-TEST FAILED / FOR ASSISTANCE: <phone>
Cause/Other Symptoms: Upon power-up, the station detected a ground fault.
Solution/Action: Disconnect and reconnect power (by turning the power to the charging station off then back on again, or by unplugging the head assembly from the terminal block and plugging it back in). If the message continues to be displayed, it is possible that the head assembly will need to be replaced—call Coulomb Customer Support at 1-877-850-4562.

Ground fault errors

The following ground fault errors can occur during charging, or when attempting to begin a charging session:

#1: SUSPENDED GROUND FAULT / AUTO RE-TRY IN 00:mm:ss
Cause/Other Symptoms: The station detected a ground fault during a charging session. The left or right LED will flash RED and the station will not charge.
Solution/Action: The charging station will wait 16 seconds before attempting to restore power. If after three attempts, the station continues to detect a ground fault, it displays the message below (HALTED). Instead of waiting, you can try ending and restarting the charging session as described below.

#1: HALTED GFCI HARD FAULT / RETURN PLUG TO HOLSTER
Cause/Other Symptoms: During charging, the station detected a ground fault (see message above) and made three unsuccessful attempts to continue charging. Or, the station detected a ground fault when attempting to begin a charging session. The left or right LED will illuminate solid RED and the station will not charge.
Solution/Action: End and restart the charging session. To do so, return the charging connector to its holster, then tap a valid and authorized ChargePass card on the station's front panel to begin a new session. If the message continues to be displayed, the station is out of service—call Coulomb Customer Support at 1-877-850-4562.

User errors

The following errors occur as a result of an inappropriate action that was performed by a person using the charging station.

#1: DISABLED BREAKAWAY
Cause/Other Symptoms: The cable assembly was subjected to a strong pulling force and has detached (as part of the station's safety features). The station is out of service until the cable assembly is replaced.
Solution/Action: To replace the station's cable assembly, call Coulomb Customer Support at 1-877-850-4562.

#1: SUSPENDED OVERCURRENT / AUTO RETRY IN 00:mm:ss / RETURN PLUG TO HOLSTER
Cause/Other Symptoms: During charging, this message is displayed if the vehicle is attempting to draw too much power (over 30 A). The vehicle will not charge.
Solution/Action: The charging station will wait 15 minutes before re-attempting to charge. If after three attempts, the overcurrent fault continues to be detected, the station ends the charging session and displays the message below (ENDED). Instead of waiting, try ending and restarting the charging session. To do so, return the charging connector to its holster, then tap a valid and authorized ChargePass card on the station's front panel to begin a new session. If the message continues to be displayed, it may be possible to set and/or reduce the amount of current that your vehicle draws when charging. Refer to your vehicle's owner documentation for more information.

#1: ENDED OVERCURRENT / RETURN PLUG TO HOLSTER
Cause/Other Symptoms: An overcurrent fault occurred (see message above) and, after three unsuccessful attempt to charge, the station continues to detect too much current being requested by the vehicle.
Solution/Action: End and restart the charging session. To do so, return the charging connector to its holster, then tap a valid and authorized ChargePass card on the station's front panel to begin a new session. If the message continues to be displayed, it may be possible to set and/or reduce the amount of current that your vehicle draws when charging. Refer to your vehicle's owner documentation for more information. For assistance, call Coulomb Customer Support at 1-877-850-4562.

Other errors

The following errors occur as a result of a potential equipment failure or utility failure.

#1: FAULT
RELAY STUCK OPEN / FOR ASSISTANCE CALL ...

Cause/Other Symptoms: After power-up, this message is displayed if a connector is damaged or if the station is not wired properly. When attempting to charge a vehicle, this message is displayed if the relay is stuck open. When this fault occurs, the charging station can not provide power. You may also notice that the holster will remain locked and you can not release the charge connector.

Solution/Action:
If the error is displayed immediately after installation when initially powering up the station, follow the instructions on page 5-6. If the error is displayed during charging, end and restart the charging session. To do so, tap a valid and authorized ChargePass card on the station's front panel, unplug the cord and return the charge connector to its holster. Then tap the ChargePass card on the station's front panel again to begin a new session. If the message continues to be displayed, follow the instructions on page 5-6.

#1: FAULT
RELAY STUCK CLOSED / FOR ASSISTANCE CALL ...

Cause/Other Symptoms: When attempting to end a charging session, this message is displayed if the relay is stuck closed. When the relay is stuck closed, the charging station can not end the charging session, although a driver can return the connector to its holster. However, a new charging session can not be initiated until this error is resolved.

Solution/Action: End and restart the charging session.To do so, return the charging connector to its holster, then tap a valid and authorized ChargePass card on the station's front panel to begin a new session. If the message continues to be displayed, it is possible that the cable assembly needs to be replaced—call Coulomb Customer Support at 1-877-850-4562.

#1: ENDED
PWR RESTORED / RE-ENERGIZING AFTER RANDOM DELAY

Cause/Other Symptoms: A power outage occurred and power is being restored to the charging stations. For load balancing reasons, not all charging stations power up at the same time.

Solution/Action: No action is required—charging will resume automatically after a brief delay of up to five minutes.

Resolving a Relay Stuck Open fault

A relatively common installation issue is a RELAY STUCK OPEN fault. When this fault is in effect, the station is unable to deliver power, and will display the following message upon power-up:

NOTE: *The exact message may vary slightly depending on the station's software version.*

In most cases, this fault is caused by either a damaged power plate connector or a wiring problem. Before calling Coulomb Customer Support, follow these two steps to determine the cause:

1. Inspect the station's power plate connectors

   Power plate assemblies are extensively tested before being shipped. However, damage can occur during installation. Visually inspect the power plate connectors for any damage.

   Note that the contacts have a rounded leading edge. The leaf spring which applies pressure but carries no current has a straight leading edge. The ground contacts are extended in length so they mate first and break last for safety. Therefore, you may experience correct voltages even though the contacts are pushed in.

   If a connector is damaged, the power plate will need to be replaced by calling Coulomb Customer Support at 1-877-850-4562.

2. If, after close visual inspection, the connectors look OK, check the voltages as described on the next page.

   If the voltages are not as expected, review the wiring instructions in this installation guide and the tips on the following page to identify and solve any wiring problem(s).

If you've completed the above steps and have eliminated the possibility of a damaged connector and a wiring problem, and the station continues to display a Relay Stuck Open error message, call Coulomb Customer Support at 1-877-850-4562.

Checking voltages

Use a solenoid type voltage tester (sometimes referred to as a “Wiggy”) to check the charging station’s voltages at the terminal block. This type of tester will draw sufficient current to expose a poor connection.

Wiring problems include mis-wired or open lines, open neutral, open ground, or an unbonded neutral.

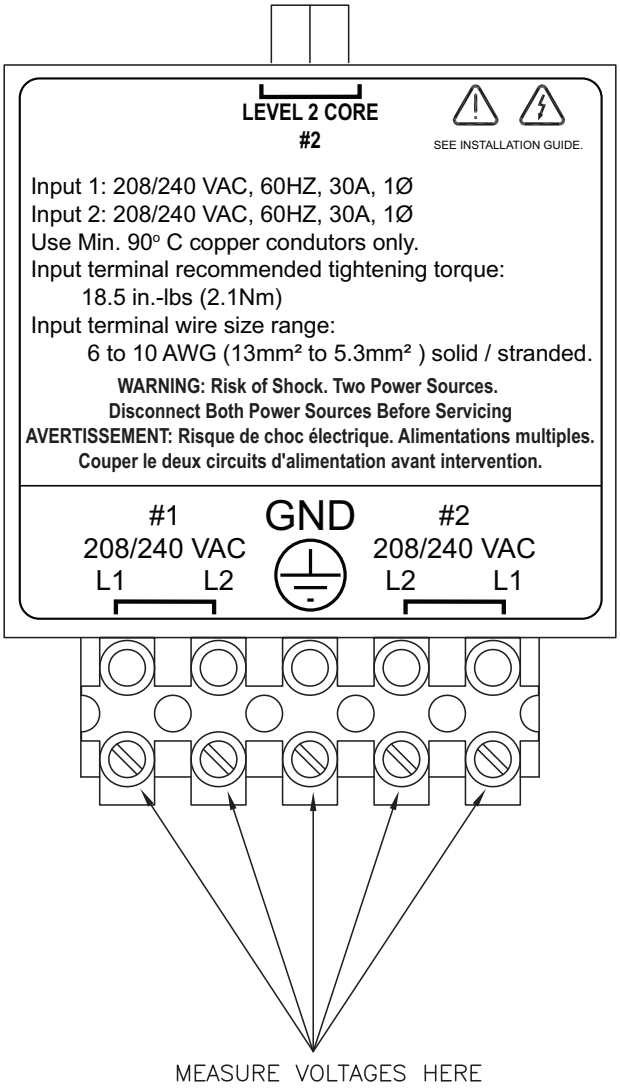
To determine if the station has been properly wired, note the following:

- Neutral and Ground MUST be bonded at some point in the AC supply. This is usually done at the transformer, the main panel, or at a sub-panel.
- The voltage between Neutral and Ground must measure less than 4 volts. An unbonded neutral will result in excessive voltage between neutral and ground, causing lower voltage on one side of the 208/240 volt lines.
- The voltages between each line and Ground must measure within 8 volts of each other

Check the tables below for your specific station model number to verify the voltages are as expected. If the voltages are not as expected, follow the instructions in the installation guide to ensure that the wiring has been properly connected.

NOTE:

- It is imperative that Neutral and Ground be bonded at some point in the AC supply. This is usually done at the transformer, the main panel, or at a sub-panel.
- At the service panel, the voltage between Neutral and Ground must measure less than 4 volts.
- The voltages between each line and Ground must measure within 8 volts of each other.



MEASURE VOLTAGES HERE

Measure both sides (#1 and #2)

Measure Between	Volts
L1 and L2	208/240
GND and L1	120
GND and L2	120

APPENDIX

A

Limited Product Warranty

COULOMB TECHNOLOGIES INC.
LIMITED PRODUCT WARRANTY

This Limited Product Warranty applies to you, a customer who has purchased COULOMB's ChargePoint™ Networked Charging Stations and/or related products ("***Products***") from COULOMB TECHNOLOGIES, INC. ("***COULOMB***") or one of its authorized distributors and not for resale.

LIMITED ONE-YEAR WARRANTY

Subject to the exclusions from warranty coverage set forth below, COULOMB warrants that the Product will be free from any defects in materials and/or workmanship (the "***Limited Warranty***") for a period of one (1) year after the date of the initial installation of the Product (the "***One-Year Warranty Period***"). If the Product becomes defective in breach of the Limited Warranty, COULOMB will, upon written notice of the defect received during the One-Year Warranty period, either repair or replace, at Coulomb's election, the Product if it proves to be defective; *provided*, that COULOMB will not be responsible for the cost of any labor associated with the repair or replacement of any defective Product.

FIVE-YEAR EXTENDED WARRANTY (Additional Charge Applies)

Subject to the exclusions from warranty coverage set forth below, if you have purchased a five (5) year extended warranty ("***Five-Year Extended Warranty***"), and if the Product becomes defective in breach of the Limited Warranty above at any time during the five (5) year period after the date of the initial installation of the Product (the "***Five-Year Warranty Period***"), COULOMB will, upon written notice of the defect received during the Five-Year Warranty Period, either repair, provide replacement parts for the defective parts of the Product or replace the Product, at Coulomb's election, if it proves to be defective; *provided*, that COULOMB will not be responsible for the cost of any labor associated with the repair or replacement of any defective Product.

COULOMB's OPTIONS

You acknowledge that **r**eplacement products provided by Coulomb under each of the Limited Warranty and the Five-Year Extended Warranty may be remanufactured or reconditioned Products or, if the exact Product is no longer manufactured by COULOMB, a Product with substantially similar functionality ("***Replacement Products***"). Any Replacement Products so furnished will be warranted for the remainder of the original Warranty Period or ninety (90) days from the date of delivery of such Replacement Product, whichever is greater. Should COULOMB be unable to repair or replace the Product, COULOMB will refund the purchase price of the Product.

EXCLUSIONS FROM LIMITED WARRANTY AND FIVE-YEAR EXTENDED WARRANTY

IMPORTANT: The Limited Warranty and, if purchased, the Five Year Extended Warranty on your Product shall not apply to defects, or service repairs, resulting from any of the following:

- Alteration or modification of the Product in any way not approved in writing by COULOMB.
- Vandalism, abuse, damage or otherwise being subjected to problems caused by negligence (including but not limited to physical damage from being struck by a vehicle) or misapplication, or use of the Products other than as specified in the applicable COULOMB documentation.
- Installation or relocation of the Products unless performed by COULOMB or by a Coulomb authorized installer or service provider.
- Improper site preparation or maintenance.
- Damage as a result of accidents, extreme power surge, extreme electromagnetic field, acts of nature or other causes beyond the control of COULOMB.
- Use of the Product with software, interfacing, parts or supplies not supplied by COULOMB.

You are responsible for the proper installation and maintenance of the Product. Any service or repairs beyond the scope of the Limited Warranty or the Five-Year Extended Warranty above are subject to COULOMB's then prevailing current labor rates and other applicable charges.

Third Party Products

The above Limited Warranty and Five-Year Extended Warranty are exclusive of products manufactured by third parties ("***Third Party Products***"). If such third party manufacturer provides a separate warranty with respect to the Third Party Product, COULOMB will include such warranty in the packaging of the COULOMB Product.

OBTAINING WARRANTY SERVICE

To obtain warranty service you must: (a) obtain a return materials authorization number ("**RMA#**") from COULOMB by contacting 1-877-370-3802 (or for customers outside the U.S., contact 408-370-3802) and ask for Customer Service, and (b) deliver the Product, in accordance with the instructions provided by COULOMB, along with proof of purchase in the form of a copy of the bill of sale including the Product's serial number, contact information, RMA# and detailed description of the defect, in either its original package or packaging providing the Product with a degree of protection equivalent to that of the original packaging, to COULOMB at the address below. You agree to obtain adequate insurance to cover loss or damage to the Product during shipment.

If you obtain an RMA# and return the defective Product as described above, COULOMB will pay the cost of returning the Product to COULOMB. Otherwise, you agree to bear such cost, and prior to receipt by COULOMB, you assume risk of any loss or damage to the Product. COULOMB is responsible for the cost of return shipment to you if the COULOMB Product is found to be defective.

Returned products which are found by COULOMB to be not defective, returned out-of-warranty or otherwise ineligible for warranty service will be repaired or replaced at COULOMB's standard charges and shipped back to you at your expense.

At COULOMB's sole option, COULOMB may perform repair service on the Product at your facility, and you agree to provide COULOMB with all reasonable access to such facility and the Product, as required. On-site repair service is not available outside the United States.

All replaced parts, whether under warranty or not, are the property of COULOMB.

WARRANTY LIMITATIONS

The LIMITED warrantY set forth above IS exclusive and no other warranty, whether written or oral, is expressed or implied BY COULOMB, TO THE MAXIMUM EXTENT PERMITTED BY LAW. THERE ARE NO OTHER WARRANTIES RESPECTING THE PRODUCT AND DOCUMENTATION AND SERVICES PROVIDED UNDER THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF COULOMB OR DISTRIBUTOR HAS BEEN INFORMED OF SUCH PURPOSE) OR AGAINST INFRINGEMENT.

Some states or jurisdictions do not allow the exclusion of express or implied warranties so the above exclusions may not apply to you. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED UNDER APPLICABLE LAW, THEN SUCH IMPLIED WARRANTY SHALL BE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD DESCRIBED ABOVE. NO WARRANTIES APPLY AFTER THE TOTAL WARRANTY PERIOD. Some states or jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

NO AGENT OF COULOMB IS AUTHORIZED TO ALTER OR EXCEED THE WARRANTY OBLIGATIONS OF COULOMB.

COULOMB SPECIFICALLY DOES NOT WARRANT THAT ANY SOFTWARE WILL BE ERROR FREE OR OPERATE WITHOUT INTERRUPTION.

THE REMEDIES IN THIS LIMITED PRODUCT WARRANTY ARE YOUR SOLE AND EXCLUSIVE REMEDIES.

LIMITATIONS OF LIABILITY

You acknowledge and agree that the consideration which you paid to COULOMB or one of its authorized distributors does not include any consideration by COULOMB or one of its authorized distributors of the risk of consequential, indirect or incidental damages which may arise in connection with your use of, or inability to use, the Product. THUS, COULOMB OR ONE OF ITS AUTHORIZED DISTRIBUTORS WILL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS, LOST BUSINESS, LOST DATA, LOSS OF USE, OR COST OF COVER INCURRED BY YOU ARISING OUT OF OR RELATED TO YOUR PURCHASE OR USE OF, OR INABILITY TO USE, THIS PRODUCT OR THE SERVICES, UNDER ANY THEORY OF LIABILITY, WHETHER IN AN ACTION IN CONTRACT, STRICT LIABILITY, TORT (INCLUDING NEGLIGENCE) OR

OTHER LEGAL OR EQUITABLE THEORY, EVEN IF COULOMB KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY EVENT, THE CUMULATIVE LIABILITY OF COULOMB OR ONE OF ITS AUTHORIZED DISTRIBUTORS FOR ALL CLAIMS WHATSOEVER RELATED TO THIS PRODUCT OR THE SERVICE WILL NOT EXCEED THE PRICE YOU PAID FOR THIS PRODUCT.

THE LIMITATIONS SET FORTH HEREIN ARE INTENDED TO LIMIT THE LIABILITY OF COULOMB AND SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

Some states or jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THIS LIMITED PRODUCT WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE OR JURISDICTION TO JURISDICTION.

ADDITIONAL INFORMATION

This Limited Product Warranty is valid for U.S.A. and Can only.

This Limited Product Warranty shall be governed by and construed in accordance with the laws of the State of California, U.S.A., exclusive of its conflict of laws principles. The U.N. Convention on Contracts for the International Sale of Goods shall not apply.

This Limited Product Warranty is the entire and exclusive agreement between you and COULOMB with respect to its subject matter, and any modification or waiver of any provision of this statement is not effective unless expressly set forth in writing by an authorized representative of COULOMB.

The Limited Product Warranty is not transferable by you to anyone else.

All inquiries or claims made under this Limited Product Warranty must be sent to COULOMB's address as follows:

Coulomb Technologies, Inc.
1692 Dell Avenue.
Campbell, California 95008-6901
Tel: 408-370-3802
Fax: 408-370-3847

Coulomb Technologies Inc.
1692 Dell Ave.
Campbell, CA 95008-6901 USA
US toll free: +1-877-370-3802
www.coulombtech.com
www.mychargepoint.net