CT4000

Networked Charging Station

Wiring Verification Guide

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WARNING:

1. **Read and follow all warnings and instructions before servicing, installing, or operating the ChargePoint® charging station.** Install and operate only as instructed. Failure to do so may lead to death, injury, or property damage, and will void the Limited Warranty.
2. **Only use licensed professionals certified by ChargePoint for installation and service, adhere to all national and local building codes and standards, and ensure compliance** with local building and electrical codes and standards, climate conditions, safety standards, and all applicable codes and ordinances. Inspect the charging station for proper installation before use.
3. **Always ground the ChargePoint charging station.** Failure to ground the charging station can lead to risk of electrocution or fire. The charging station must be connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor shall 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 applicable codes and ordinances.
4. **Install the ChargePoint charging station on a concrete pad using a ChargePoint-approved method.** Failure to install on a surface that can support the full weight of the charging station can result in death, personal injury, or property damage. Inspect the charging station for proper installation before use.
5. **This charging station is not suitable for use in Class 1 hazardous locations, such as near flammable, explosive, or combustible vapors or gases.**
6. **Supervise children near this device.**
7. **Do not put fingers into the electric vehicle connector.**
8. **Do not use this product if any cable is frayed, has broken insulation, or shows any other signs of damage.**
9. **Do not use this product if the enclosure or the electric vehicle connector is broken, cracked, open, or shows any other signs of damage.**
10. **Use only copper conductor wire rated for 90 °C (194 °F).**

IMPORTANT: Under no circumstances will compliance with the information in a ChargePoint guide such as this one relieve the user of the responsibility to comply with all applicable codes and safety standards. This document describes approved procedures. If it is not possible to perform the procedures as indicated, contact ChargePoint. **ChargePoint is not responsible for any damages that may result from custom installations or procedures not described in this document or that fail to adhere to ChargePoint recommendations.**

Product Disposal

Do not dispose of as part of unsorted domestic waste. Inquire with local authorities regarding proper disposal. Product materials are recyclable as marked.

Document Accuracy

The specifications and other information in this document were verified to be accurate and complete at the time of its publication. However, due to ongoing product improvement, this information is subject to change at any time without prior notice. For the latest information, see our documentation online at chargepoint.com/guides.

Copyright and Trademarks

Symbols

This guide and product use the following symbols:

DANGER: Risk of electric shock

WARNING: Risk of personal harm or death

CAUTION: Risk of equipment or property damage

IMPORTANT: Crucial step for installation success

Read the manual for instructions

Ground/protective earth

Illustrations Used in This Document

The illustrations used in this document are for demonstration purposes only and may not be an exact representation of the product. However, unless otherwise specified, the underlying instructions are accurate for the product.

Verifying Station Wiring and Voltage

In This Document

Tools Needed


Needle Nose Pliers


Solenoid Voltage Meter (Wiggy)


Alligator clip leads or pass-through leads (optional)


Wire stripper


T-25 Security Torx


Digital Multi-Meter (DMM)


Power share jumper*
Note: * indicates that the power share jumper is *not required* for all stations

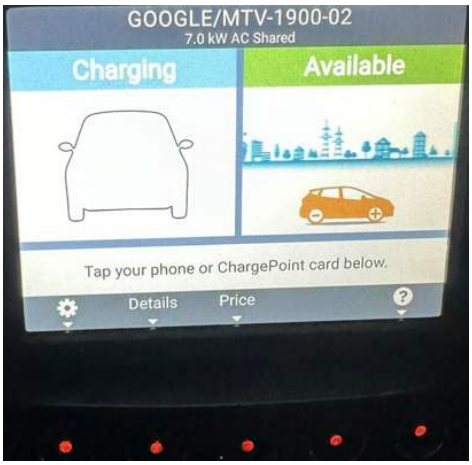

DANGER: The tasks below require technicians to work on live electrical equipment. So only qualified ChargePoint personnel service can perform these service tasks.

Station Wiring Checks

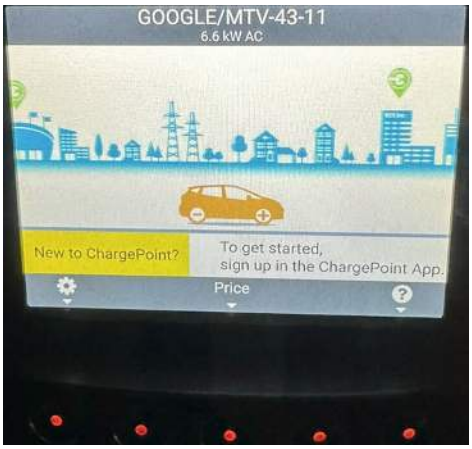
1. With the station powered on:

   Make note if the station shows as power shared under the station name in the upper middle of the display screen.

   Power sharing

   No Power sharing

2. Remove the handles from the holsters.

IMPORTANT:

- This can be done with a local card tap if the station is sufficiently operational.
- You can also have the holsters released remotely if that's possible.
- If neither of the above options are possible, you can manually release the holster catches with a paper clip, zip tie, or coffee stirrer.
- If necessary, contact ChargePoint's channel support group at 1-877-850-4562 for a walkthrough of the process.

3. Remove the rubber stoppers if present (the needle nose pliers are useful for this). Loosen (do not remove entirely) the security screws using the T-25 Security Torx.
4. Lift the head unit and insert the T-25 through the hole on the right side of the head unit.

IMPORTANT: If there is a label applied to the black plastic cover of the power plate, make note of what it says. It may note that:

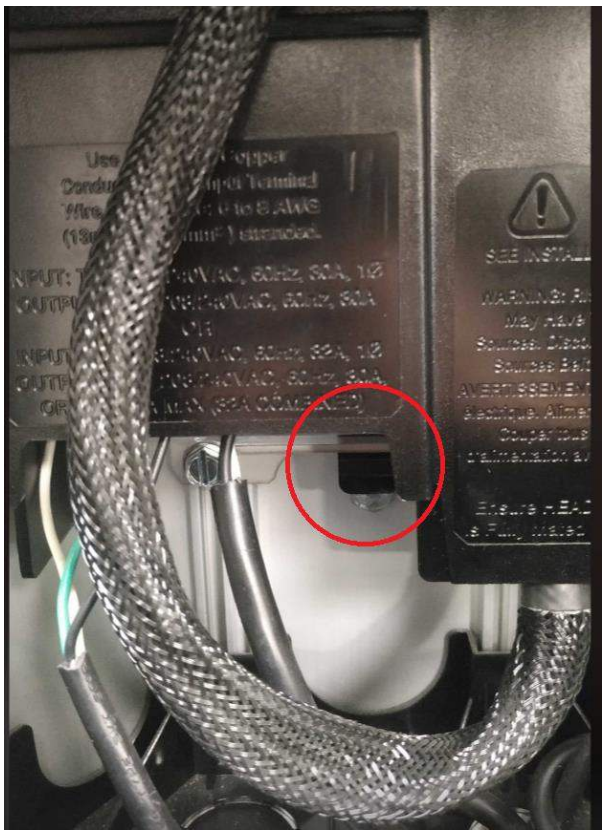
- Power sharing jumpers are installed

  Or

- Power select options are in use to limit total station current for the circuit.

5. At the bottom of the now exposed power plate, locate the black plastic tab.

6. Push this tab back and lift the black cover to expose the wiring block.



Verifying Voltages

Once proper wire placement has been verified, you need to check the voltages and impedances using a Digital multimeter (DMM) in parallel with a Solenoid voltage meter (wiggy).

Since digital meters (DMM) are high impedance devices, the amount of current that flows through the circuit while testing voltage with one is negligible.

IMPORTANT:

- Adding the voltage measurements in parallel will confirm that the voltage measurements do not significantly deviate with current flow (unexpected impedance) and are not the result of a "floating" voltage on any wire.
- If voltages are not measured with some additional load -- like a parallel wiggy or dummy load -- the values will not confirm useful functionality or impedance, instead they will only verify proper placement of phases and ground. Loaded values must be measured for complete troubleshooting.

1. Test each wire relative to *each other wire in the block, phase to phase,* and *phase to ground*:
    a. First, by connecting the DMM by itself and noting the voltage.
    b. Next, by adding the wiggy in parallel and noting the voltage.while there is current flowing (using the alligator clips or pass through leads, if available).
2. Use the Test probe holes that are present behind the plastic latches of the wiring block

IMPORTANT:

Readings with *and* without the wiggy in parallel should be near 208 V or 240 V (Bonded Neutral Wye or Split Phase) phase to phase and 120 V phase to ground.

- A significant deviation from these values can denote a wiring problem or unsupported supply type (refer to the *CT4000 Installation Guide*).
- A significant deviation from these values only with the wiggy in parallel would indicate an unexpected impedance in the system. This includes any of the following:
    - A possibly worn or damaged beaker (or, pole within that breaker)
    - Corrosion or insufficient bonding of the breaker to the bus bar or the breaker leads
    - Insufficient bonding of neutral to ground at the panel

Expected Voltage Readings

The following table lists the expected input voltage measurements (with or without the wiggy in parallel)

Measure Between	Volts (Nominal)
L1R – L2R	208/240
L1L – L2L	208/240
L1R – GND	120
L2R – GND	120
L1L – GND	120
L2L – GND	120

CAUTION: The Line to Ground Maximum Voltage must never exceed 132 V.

Voltage Readings (with the DMM alone)

IMPORTANT: When connecting the DMM by itself:

Note down your Voltage readings in the **Results** Column below and **send back** the Voltage readings to ChargePoint's Support group.

Connection Points (Measure Between)	Results: Volts (Nominal)
L1R – L2R	
L1L – L2L	
L1R – GND	
L2R – GND	
L1L – GND	
L2L – GND	

Voltage Readings (with the DMM in parallel with the Solenoid Voltage Meter)

IMPORTANT: When connecting the DMM in parallel with the Solenoid Voltage Meter (wiggy):
Note down your Voltage readings in the **Results** Column below and **send back** the Voltage readings to ChargePoint's Support group.

	Results: Volts (Nominal)
L1R – L2R	
L1L – L2L	
L1R – GND	
L2R – GND	
L1L – GND	
L2L – GND	

Verifying Connections

IMPORTANT:

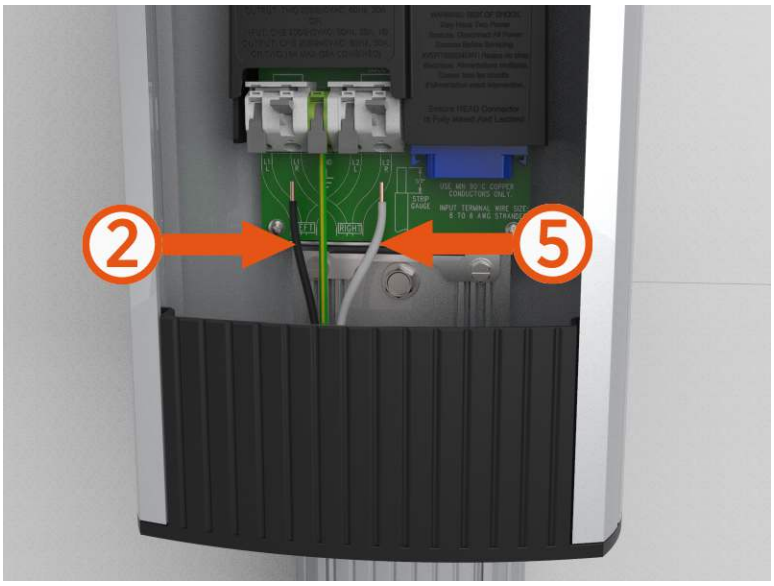
- You can power down the station to perform the physical checks.
- Make sure that you are not removing live wires from the power plate, and also that you are not removing jumpers *while the power is still on*.
- So, it is ideal that you complete the steps below while the station is powered off, *but only after taking the voltage readings*.

1. Inspect the topmost slots of the leftmost and rightmost pairs of wiring blocks and note if power share jumpers are installed.

IMPORTANT: If these jumpers are installed and the station did not show power sharing as enabled on the screen, contact ChargePoint's Support group to enable the power sharing option in the software.

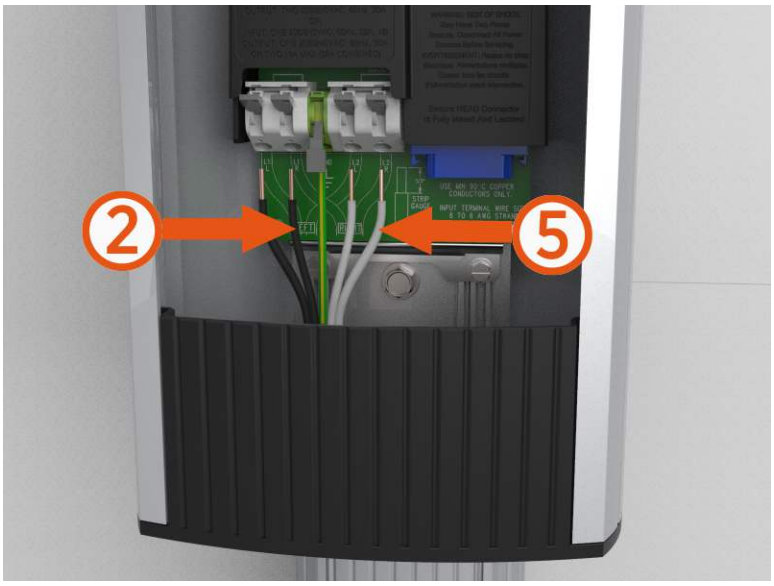
2. Inspect the leads going into the wiring block - these should be 6 or 8 gauge copper, stripped half an inch, and fully seated.
3. Inspect the latches for the wiring block - all should be snapped fully down (vertical).

4. If a station is wired for single port or has power share jumpers installed:
    a. The hot wires from a single 240 V or 40 A Double Pole breaker should be connected to the #2 and #5 position (right side of each outer pair)

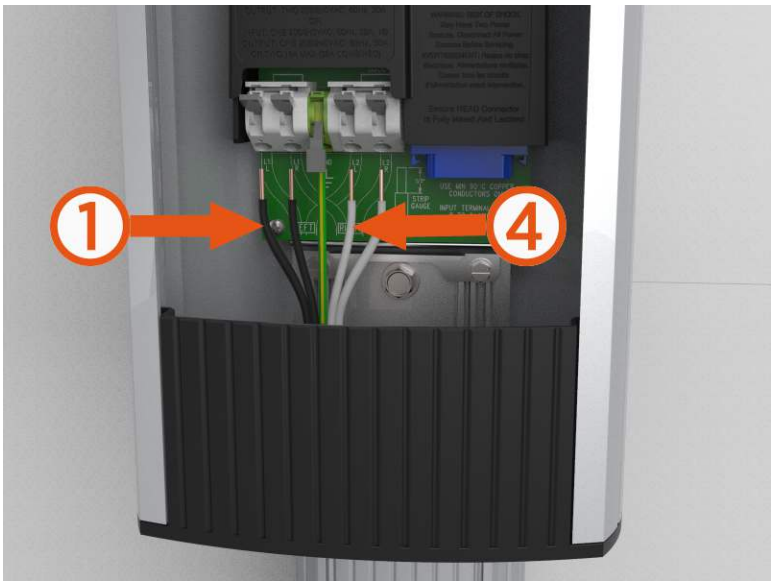


    b. The neutral wire (grounded/earth bonded at the panel) should be connected to the #3 (center) position.

5. If a station is wired for dual port use and *does not* have power share jumpers installed:
    a. The hot leads from one 240 V or 40 A Double Pole breaker should be connected to the #2 and #5 position (right side of each outer pair)



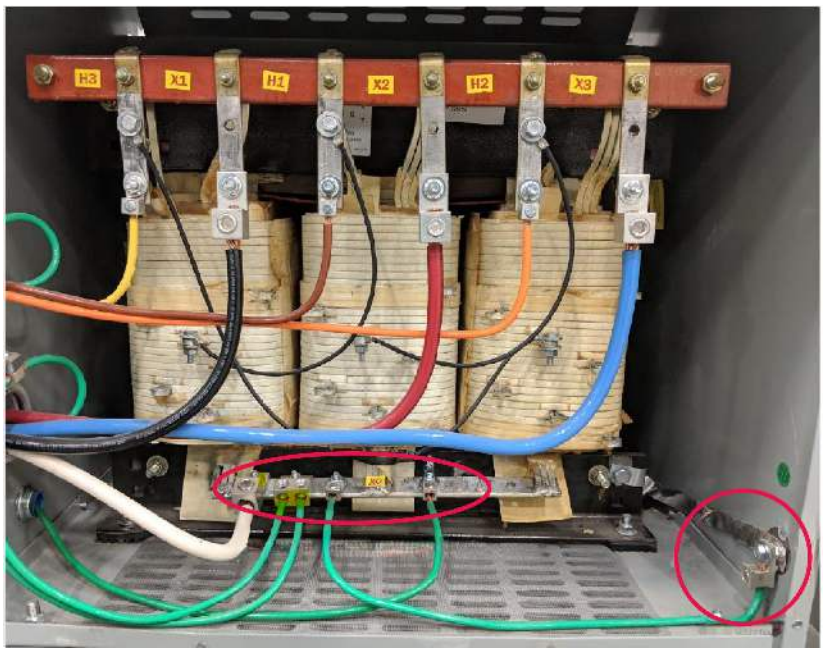
    b. The hot leads from the other 240 V or 40 A Double Pole breaker should be connected to the #1 and #4 position (left side of each outer pair)



c. The neutral wire (grounded/earth bonded at the panel) should be connected to the #3 (center) position.

IMPORTANT: To ensure that breakers and phases have not been crossed, it is best to verify each hot wire to ground with only one breaker on, and then again with only the other breaker on.

d. Ensure that there is proper earth connection at the main transformer side also. The Neutral and Chassis Ground should be bonded in the main transformer as shown below:



IMPORTANT: In the above image, the neutral white wire is attached to the bus bar (as indicated by the red oval) and this bus bar is bonded to the Chassis Ground (as indicated by the red circle).

Power On the Station

As you had powered off the station to perform the physical checks, you need to also do these steps:

1. Power the station back on.
2. Put the head unit back in place.
3. Lock it in.
4. Confirm that there are no faults on the display.

Limited Warranty Information and Disclaimer

The Limited Warranty you received with your charging station is subject to certain exceptions and exclusions. For example, your use of, installation 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. You should review your limited warranty and become familiar with the terms thereof. Other than any such limited warranty, the ChargePoint products are provided "AS IS," and ChargePoint, Inc. 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

CHARGEPOINT IS NOT LIABLE FOR ANY DIRECT, 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, THE CHARGING STATION, UNDER ANY THEORY OF LIABILITY, WHETHER IN AN ACTION IN CONTRACT, STRICT LIABILITY, TORT (INCLUDING NEGLIGENCE) OR OTHER LEGAL OR EQUITABLE THEORY, EVEN IF CHARGEPOINT KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY EVENT, THE CUMULATIVE LIABILITY OF CHARGEPOINT FOR ALL CLAIMS WHATSOEVER RELATED TO THE CHARGING STATION WILL NOT EXCEED THE PRICE YOU PAID FOR THE CHARGING STATION. THE LIMITATIONS SET FORTH HEREIN ARE INTENDED TO LIMIT THE LIABILITY OF CHARGEPOINT AND SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

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 ChargePoint, 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 802.11 b/g/n radio and cellular modem (optional) in this device is below the FCC radio frequency exposure limits for uncontrolled equipment. The antenna of this product, used under normal conditions, is at least 20 cm away from the body of the user. This device must not be co-located or operated with any other antenna or transmitter by the manufacturer, subject to the conditions of the FCC Grant.

ISED (formerly Industry Canada)

This device complies with the licence-exempt RSS standard(s) of Innovation, Science and Economic Development Canada (ISED). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux flux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada (ISDE). L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter.

Radiation Exposure Statement: This equipment complies with the IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Énoncé d'exposition aux rayonnements: Cet équipement est conforme aux limites d'exposition aux rayonnements ioniques RSS-102 Pour un environnement incontrôlé. Cet équipement doit être installé et utilisé avec un Distance minimale de 20 cm entre le radiateur et votre corps.

FCC/IC Compliance Labels

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