



## WALL CONNECTOR, 40A SINGLE PHASE INSTALLATION MANUAL

**THIS MANUAL IS OF HIGHEST IMPORTANCE**

Approved Markets: China, Hong Kong

## PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product modifications at any time.

## ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, please send an email to: [ownersmanualfeedback@teslamotors.com](mailto:ownersmanualfeedback@teslamotors.com).

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## IMPORTANT !

READ THIS ENTIRE MANDATORY DOCUMENT BEFORE INSTALLING OR USING THE WALL CONNECTOR. FAILURE TO DO SO OR TO FOLLOW ANY OF THE INSTRUCTIONS AND WARNINGS IN THIS DOCUMENT CAN RESULT IN FIRE, ELECTRICAL SHOCK, SERIOUS INJURY OR DEATH.

THE WALL CONNECTOR MUST BE INSTALLED BY A DULY REGISTERED AND QUALIFIED ELECTRICIAN, AND IN ACCORDANCE WITH LOCAL REGULATIONS AND ORDINANCES GOVERNING ELECTRICAL APPLIANCES AND THEIR INSTALLATION, USE, AND MAINTENANCE.

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## SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

This document contains important instructions and warnings that must be followed when installing and maintaining the Wall Connector.



### WARNINGS

The Wall Connector must be grounded through a permanent wiring system or an equipment grounding conductor.

Do not install or use the Wall Connector near flammable, explosive, harsh, or combustible materials, chemicals, or vapors.

Turn off input power at the circuit breaker before installing or cleaning the Wall Connector.

Use the Wall Connector only within the specified operating parameters.

The Wall Connector is designed only for charging a Tesla vehicle (excluding Tesla Roadster). Do not use it for any other purpose or with any other vehicle or object.

Never spray water or any other liquid directly at the wall mounted control box. Never spray any liquid onto the charge handle or submerge the charge handle in liquid. Store the charge handle above the ground to prevent unnecessary exposure to contamination or moisture.

Stop using and do not use the Wall Connector if it is defective, appears cracked, frayed, broken, or otherwise damaged, or fails to operate, or continue operation.

Do not attempt to disassemble, repair, tamper with, or modify the Wall Connector. The Wall Connector is not user serviceable. Contact Tesla for any repairs or modification.

When transporting the Wall Connector, handle with care. Do not subject it to strong force or impact or pull, twist, tangle, drag, or step on the Wall Connector, to prevent damage to it or any components.

Do not touch the Wall Connector's end terminals with sharp metallic objects, such as wire, tools, or needles.

Do not forcefully fold or apply pressure to any part of the Wall Connector or damage it with sharp objects.

Do not insert foreign objects into any part of the Wall Connector.

Do not use the Wall Connector when a vehicle cover is on the vehicle.

Use of the Wall Connector may affect or impair the operation of any medical or implantable electronic devices, such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator. Check with your electronic device manufacturer concerning the effects that charging may have on such electronic devices before using the Wall Connector.



### CAUTIONS

Incorrect installation and testing of the Wall Connector could potentially damage either the vehicle's Battery and/or the Wall Connector itself. Any resulting damage is excluded from New Vehicle Limited Warranty and the Wall Connector Limited Warranty.

Do not operate the Wall Connector in temperatures outside its operating range of -22°F to 113°F (-30°C to +45°C).

Ensure that the Wall Connector's charging cable is positioned so it will not be stepped on, driven over, tripped on, or subjected to damage or stress.

Do not use cleaning solvents to clean any of the Wall Connector's components. The outside of the Wall Connector, the charging cable, and the connector end of the charging cable should be periodically wiped with a clean dry cloth to remove accumulation of dirt and dust.

Be careful not to damage the circuit board when removing the power entry knock-out.



# Specifications

The maximum rating for the Wall Connector is 10 kW or 40 amps at 220 volts. Your vehicle can charge from 180 to 265 volts.

	SPLIT PHASE	SINGLE PHASE
Voltage and Wiring	220V AC single-phase: LINE 1, LINE 2, EARTH	220V AC single-phase: LINE, NEUTRAL, and EARTH
Current	Maximum 50A circuit breaker	Maximum 50A circuit breaker
Frequency	60 Hz	50-60 Hz
Cable Length	Approximately 25' (7.6 m)	
Bracket Dimensions	Height: 15" (382 mm) Width: 6.22" (158.2 mm) Depth: 3.7" (96 mm)	
Weight (including bracket)	20 lbs (9 kg)	
Operating Temperature	-22°F to 113°F -30°C to 45°C	
Storage Temperature	-58°F to 185°F -50°C to 85°C	
Enclosure Rating	IP 44	
Agency Approvals	CE	



## OPTIONAL CIRCUIT RATINGS

For the fastest charging, using a circuit breaker rated for 50 amps is recommended.

## SELF-MONITORING AND RECOVERY

The Wall Connector has a ground monitoring circuit that continuously checks for the presence of a safe ground connection and automatically recovers from faults. Manual testing and resetting is not required.

Temporary problems such as ground faults or utility power surges are overcome automatically. If a GFCI fault occurs that interrupts charging, the Wall Connector automatically tries to clear the fault and re-attempt charging.

If the problem is immediately sensed a second time, the Wall Connector waits 15 minutes before trying to charge. This process repeats eight times and if all attempts are unsuccessful, power is removed and no further attempts are made. In this case, a red error light lights up on the front panel (refer to the troubleshooting table on page 15). It is recommended that when you see a red error light, you power off the Wall Connector by switching off the circuit breaker, and then power it back on again.

## POWER OUTAGES

If a power outage occurs, the Wall Connector automatically resumes charging when power is restored. If the charging cable is plugged into the vehicle when power is restored, the lights blink and the unit does not energize the charging cable for approximately 15 seconds to 3 minutes. This prevents the utility grid from experiencing a large surge when power is restored, allowing vehicles to begin drawing current at random times, rather than all at once.



# Service Wiring - Split Phase

**WARNING:** The Wall Connector is a single-phase device. Do not connect all 3 phases of a 3-phase feed.

**WARNING:** Before installing the Wall Connector, identify the type of utility service connection available on site. If you are unsure about the type of connection available at the service panel, consult the local utility company, or contact Tesla for assistance.

**CAUTION:** Earth ground must be connected to neutral at only one point, usually at the breaker panel.

For most branch circuits of 50A, use 6 AWG (13 mm<sup>2</sup>), 167°F (75°C) copper wire. Ground wiring should be at least 8 AWG (8.4 mm<sup>2</sup>). If your ground wiring does not fit into the bus, use a wire nut or other suitable connection method.

Run 1" (25 mm) conduit on the left side of a wall stud. The conduit fits into the opening on either the back or the left side of the Wall Connector as described on page 9.

Only three wires are connected, but care must be taken that the service transformer secondary connection is definitely known, and that the three wires from the main circuit breaker panel are correctly connected and labeled. The illustrations shown are the most commonly used wiring formats.

**NOTE:** The L1, L2, and ground outputs labeled on the illustrations correspond to the inputs on the Wall Connector.

## Ground Connection

Always connect neutral at the service panel to earth ground. Ground fault protection is not possible unless the neutral (center tap on the service transformer) is connected to an earth ground.

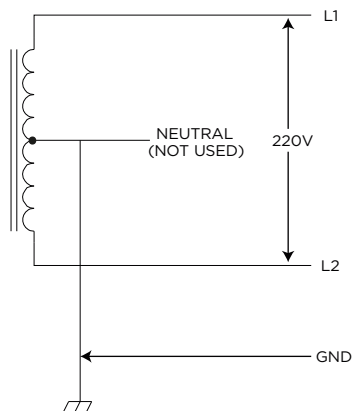
If ground is not provided by the electrical service, you must install a grounding stake nearby. The grounding stake must be connected to the ground bar in the main breaker panel, and neutral connected to ground at that point.



**WARNING:** Follow local electrical codes when installing the grounding stake.

## 220V Split Phase

**IMPORTANT!** Dip switch 4 must be set to the 0 (right) position. See page 12.



**NOTE:** Illustrations in this document are for demonstration purposes only.





**WARNING:** The Wall Connector is a single-phase device. Do not connect all 3 phases of a 3-phase feed.

**WARNING:** Before installing the Wall Connector, identify the type of utility service connection available on site. If you are unsure about the type of connection available at the service panel, consult the local utility company, or contact Tesla for assistance.

**CAUTION:** The line connection must measure 220V RMS to neutral. earth must also be connected to the Wall Connector.

For most branch circuits of 50A, use 6 AWG (13 mm<sup>2</sup>), 75°C (167°F) copper wire. Ground wiring should be at least 8 AWG (8.4 mm<sup>2</sup>). If your ground wiring does not fit into the bus, use a wire nut or other suitable connection method.

Run 25 mm (1") conduit on the left side of a wall stud. The conduit fits into the opening on either the back or the left side of the Wall Connector as described on page 9.

When connecting the line and neutral wires, care must be taken that the service transformer secondary connection is definitely known, and the wires from the main circuit breaker panel are correctly connected and labeled. The illustrations provided show the most commonly used wiring format in Europe.

**NOTE:** The line, neutral, and earth outputs labeled on the illustrations correspond to the inputs on the Wall Connector.

## Ground (Earth) Connection

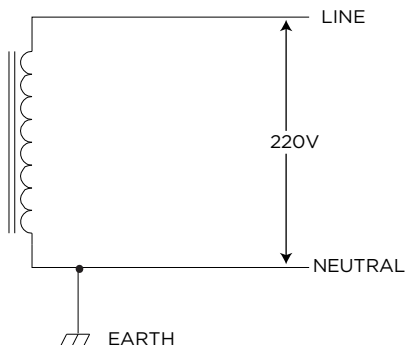
Always connect the neutral line at the service panel to earth. Ground fault protection is not possible unless the neutral line is connected to earth.

If an earth connection is not available, you must install a grounding stake nearby. The grounding stake must be connected to the ground bar in the main breaker panel, and neutral connected to earth at that point.

**WARNING:** Follow local electrical codes when installing the grounding stake.

## 220V Single Phase

**IMPORTANT!** Dip switch 4 must be set to the 1 (left) position. See page 12.





## TOOLS REQUIRED

Before installing the Wall Connector, ensure you have the following tools:

- Pencil or marker
- Drill and 9/32" (7.1 mm) drill bit
- T20 torx driver
- Hole saw, 1 1/4" (32 mm)
- Sharp knife or razor
- Phillips screwdriver
- Wire stripper
- Ratchet wrench with 8 mm and 17 mm sockets, and a 2" (50 mm) minimum extension
- Voltmeter or digital multimeter (to measure AC power at the site)

## OVERVIEW OF STEPS

After running service wiring to the desired installation location using 1" (25 mm) conduit, (see pages 4 through 5), and installing the appropriate circuit breaker, **TURN OFF THE POWER SUPPLY**. Then follow these steps to install the Wall Connector:

- 1 Check box contents (see page 7)
- 2 Install wall bracket (see page 8)
- 3 Prepare for installation (see page 9)
- 4 Mount on wall (see page 10)
- 5 Connect wiring (see page 11)
- 6 Set the operating current (see page 12)
- 7 Confirm a successful installation (see page 13)
- 8 Secure cover and power up (see page 14)



In addition to this Installation Guide, the shipping box contains the following components. If any components are damaged or missing, contact Tesla.

Wall Connector assembly



Mounting bracket



M10 lag screws and washers (2)



Ground wire



M6 flange screws (2)





## Step Two - Install Wall Bracket

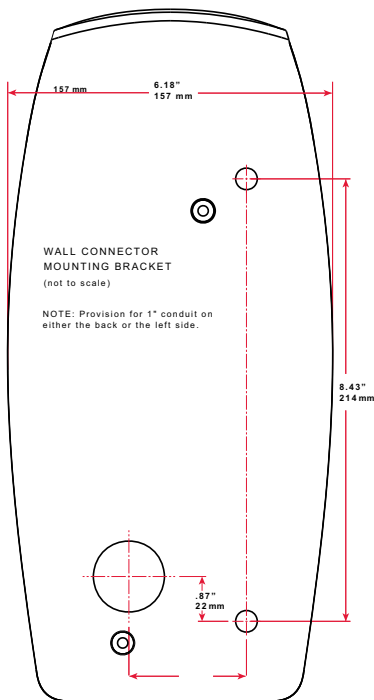
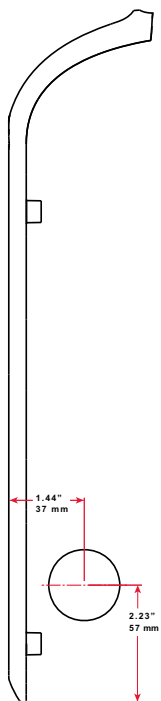
You can run 1" (25 mm) conduit into either the back or the left side of the Wall Connector's main enclosure. Regardless of the conduit opening you use, always run the conduit on the left side of a wall stud. Refer to the illustration below for dimensions.

When determining where to mount the Wall Connector, keep in mind that its 25' (7.6 m) charge cable should easily reach the vehicle's charging port without straining the connections at either end.

- 1 Use the mounting bracket as a guide to mark the location on the wall for the two mounting screws.
  - Space the holes exactly 8 7/16" (214 mm) apart.

- The height of the bracket should ensure that the charging connector is located at a maximum of 48" from floor level. The minimum height is 18" (46 cm) if mounting indoors, and 24" (61 cm) if mounting outdoors.

- 2 Drill two 9/32" (7.1 mm) holes in the wall.
- 3 Attach the wall bracket using fasteners appropriate for the type of wall material. Use the supplied lag screws and washers only if mounting to a solid wooden wall stud. If mounting to another type of wall (hollow, masonry, etc.), use fasteners that are long enough to securely anchor the Wall Connector and that can support at least 80 pounds (36 kg).





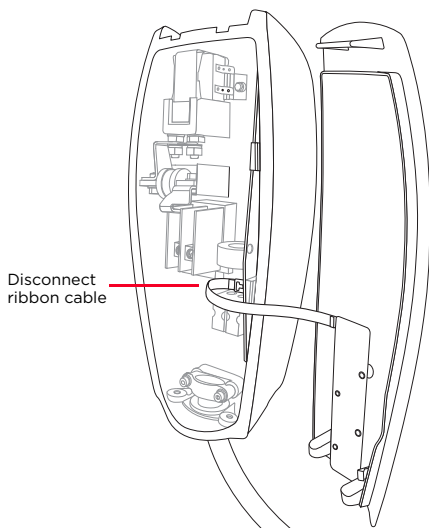
- 1 Using a T20 Torx driver, remove the two security screws from the bottom of the Wall Connector.



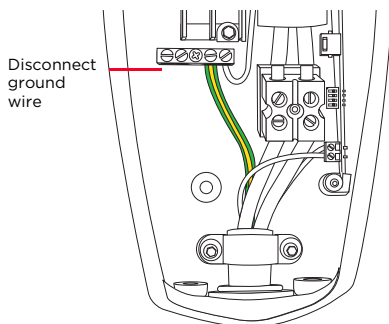
- 2 Release the front cover carefully by pulling it towards you far enough to disconnect the ribbon cable. Disconnect the ribbon cable from inside the main enclosure to fully release the front cover.



**CAUTION:** When removing the front cover, do not damage the ribbon cable. Disconnect the ribbon cable before fully releasing the front cover.



- 3 Disconnect the ground wire from the terminal block and push it out of the way to avoid damaging it when completing the next step.



- 4 Use a 1 1/4" (32 mm) hole saw to remove the power entry knock-out from either the side or back of the connector.

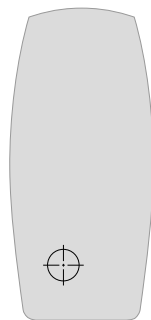


**CAUTION:** When using the hole saw, do not damage internal components.

If using the side knock-out, center the hole saw at the indented hole and drill through all layers. After drilling, use a sharp knife or razor to cut and remove the rubber molding, as indicated by the indentations in the rubber.



Side knock-out



Back knock-out

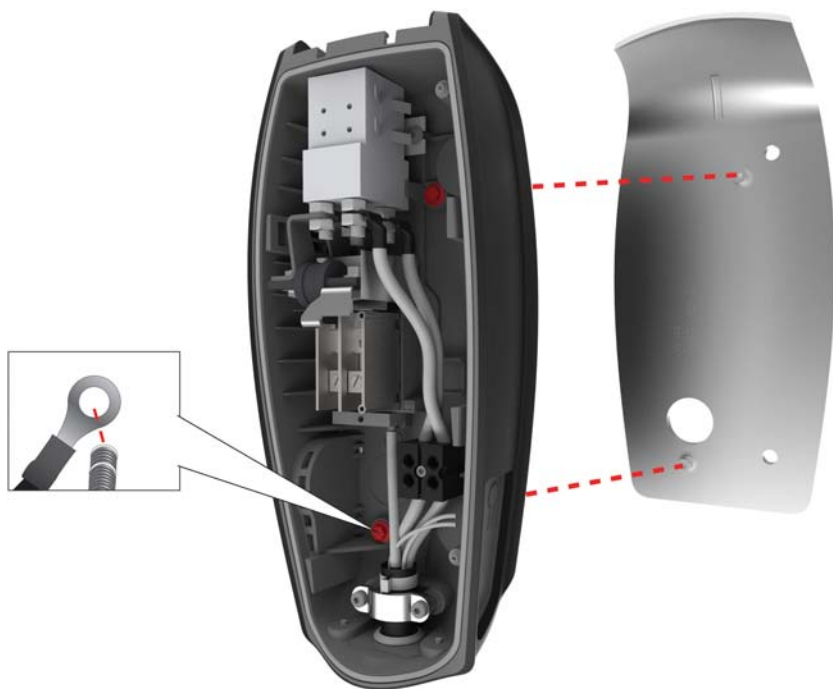
**NOTE:** Use the back knock-out when mounting to a pedestal or when running wires from behind a wall.

- 5 Reconnect the ground wire to the terminal block.



## Step Four - Mount on Wall

- 1** Position the connector over the bolts on the mounting bracket as shown below.
- 2** Attach the ground wire, as shown below.
- 3** Use the supplied flange screws to fasten the connector onto the bracket. Use a ratchet wrench and 8 mm socket to tighten until snugly fitted.





NOTE: For most branch circuits of 50A, use 6 AWG (13 mm<sup>2</sup>), 75°C (167°F) copper wire.

**WARNING:** Do not connect service wiring **until you have read and fully understand pages 4 and 5 in this document describing the service wiring.** If you are uncertain about the type of power available at the service panel, consult your local utility, or contact Tesla for assistance.

- 1 Turn off the power.

**WARNING: RISK OF ELECTRIC SHOCK!** Before connecting the wiring, use a voltmeter to confirm that NO POWER is available at the service wiring or terminals.

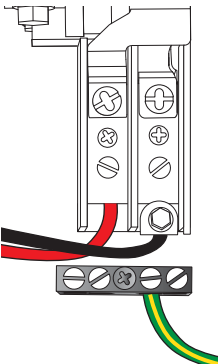
- 2 Pull the service wiring into the Wall Connector. If using a hub, connect conduit to the hub before connecting it to the enclosure.

- 3 Strip the three wires 3/8" (10 mm).

- 4 Connect wiring to the terminal block. Connect L1 to black, L2/N to red, and green ground to one of the two available ground connectors, as shown.

**CAUTION:** Cut the wire strands flush and insert them fully into the terminal block.

NOTE: The Ground wire should be at least 8 AWG (8.4 mm<sup>2</sup>). Also note that neutral is not used by the Wall Connector. To ensure proper operation, verify that neutral is connected to earth ground inside the circuit breaker box or the main electrical panel.



- 5 Tighten the L1 and L2 screws to (3.5 to 5.6 Nm (35 to 50 in-lbs), depending on wire gauge. Tighten the ground screw as follows:

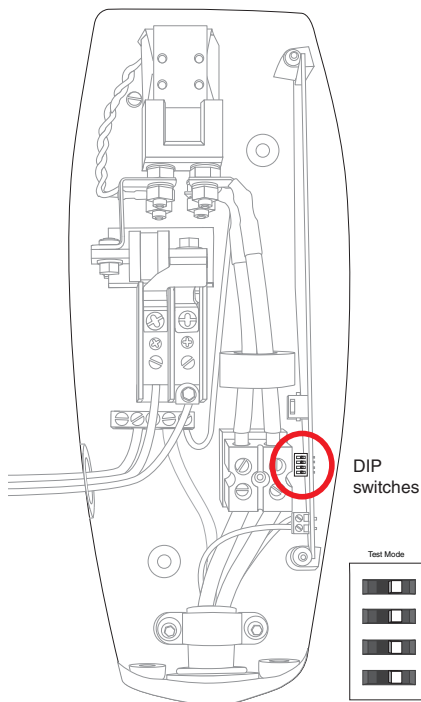
Wire Gauge AWG (Copper)	Torque Nm (in-lbs)
14-10 (2-5 mm <sup>2</sup> )	2.3 (20)
8 (8 mm <sup>2</sup> )	2.8 (25)
6-4 (13-21 mm <sup>2</sup> )	3.5 (35)
Two 14 or 12 (2-3 mm <sup>2</sup> )	2.8 (25)



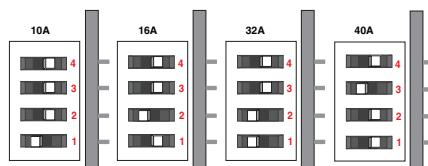
## Step Six - Set the Operating Current

Adjust the DIP switches to set the operating current. Use a pointed non-conductive object such as a plastic pen.

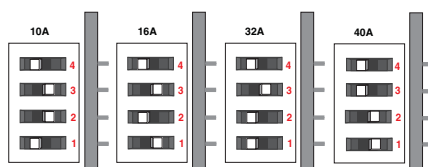
**WARNING:** Power **MUST** remain off before setting or changing DIP switches. If you set DIP switches with the power on, not only is it dangerous because of the risk of electric shock, but the changes are not recognized.



### SETTINGS - SPLIT PHASE



### SETTINGS - SINGLE PHASE



### CIRCUIT BREAKER

Adjust the operating current based on the type of circuit breaker being used:

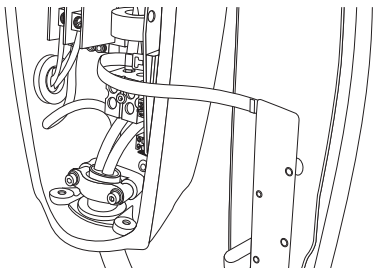
Circuit Breaker Rating (Amps)	Maximum Current Supplied to Vehicle (Amps)
50	40
40	32
20	16
16	10

To determine the type of electrical breaker you need, examine the distribution panel/circuit breaker box to identify the amperage available at the installation site.





- 1 While holding the front cover near the connector, re-connect the ribbon cable.



- 2 Hang the front cover over the hinge located at the top of the connector. Do not secure the front cover yet.
- 3 Turn on the power.
- 4 Hold the RESET button for five seconds. This button is located on the lower right side of the Wall Connector.



You should hear the contacts close and see the Wall Connector's lights sequentially illuminate green.



## Step Eight - Secure Cover and Power Up

- 1** Reposition the front cover over the unit, aligning the five tabs on the back of the front cover with their corresponding slots. Starting at the bottom and working upwards, press firmly on both sides of the front cover until it clicks into place.
- 2** Using a T20 torx driver, re-attach the two security screws that you removed from the bottom of the Wall Connector in "Step Three - Prepare for Installation" on page 9.
- 3** Turn on the power.
- 4** Attempt to charge the car to ensure the Wall Connector is operating correctly and charging at the selected operating current. For instructions on how to charge, refer to the owner information provided with your vehicle.



Observe the lights on the front of the Wall Connector, then use the following table to resolve a fault.

Green Lights	Red Light	What It Means	What To Do
Top light on	Off	Power on. Wall Connector is powered, but not charging.	Make sure the Wall Connector is plugged into the car.
Off	1 flash	Ground fault. Electrical current is leaking through a potentially unsafe path.	This should automatically reset in 15 minutes. If not, make sure nobody is touching the car, then press the RESET button.
Off	2 flashes	The Wall Connector did not pass its internal self check.	Unplug the Wall Connector from the car and press the RESET button. Plug the Wall Connector back into the car. If the error persists, unplug the Wall Connector from the car, power off the Wall Connector, then power it back on again before plugging it back into the car.
Off	3 flashes	Contactor failed.	Unplug the Wall Connector from the car and wait 10 seconds. If the error persists, contact Tesla.
Off	4 flashes	Ground lost.	Make sure the power outlet is properly grounded. Make sure the hot and neutral pins are wired properly. If uncertain, ask your electrician.
Off	5 flashes or more	The Wall Connector requires servicing.	Contact Tesla.



Always ensure that after charging, the charging cable is wrapped around the Wall Connector.

Regularly inspect the Wall Connector and charging cable for signs of damage. If damage is found, contact Tesla.

The Wall Connector contains no user-serviceable components. If the unit is not operating correctly, contact Tesla.

Wipe the outside of the Wall Connector, the charging cable, and the connector end of the charging cable with a clean dry cloth to remove any accumulation of dust and dirt.



**WARNING:** Turn off input power at the circuit breaker before cleaning the Wall Connector.



**WARNING:** Do not use cleaning solvents, scouring powder, or any type of abrasive pad to clean the Wall Connector, its charging cable, or the vehicle's charging port.



**CAUTION:** To reduce the risk of electrical shock or equipment damage, do not allow liquid to enter the Wall Connector while cleaning it.





3500 Deer Creek Road  
Palo Alto, CA 94304

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