



# WiTricity Halo™

## 11kW Wireless Charging System



## Installer Manual

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## IMPORTANT SAFETY NOTIFICATIONS

### WARNING

When using electric products, basic precautions should always be followed, including the following:

- Before installing, operating, or repairing the equipment, please read this safety information carefully to review and familiarize yourself with the equipment.
- This device should be supervised when used around children.
- Do not install this product if AC or ground pad cables are frayed, have broken insulation, or any other signs of damage.
- An insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors except that it is green with or without one or more yellow stripes is to be installed as part of the branch circuit that supplies the equipment.
- The grounding conductor is to be grounded to earth at the service equipment or, when supplied by a separately derived system, at the supply transformer.
- Do not operate the charger in temperatures outside its operating range of -40°F to 131°F (-40°C to 55°C).

### GROUNDING INSTRUCTIONS

This product must be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.

- Only use licensed professionals to install WiTricity Halo EV charger and adhere to local and national building codes and standards.
- Do not use water jets (hoses, pressure washers, etc.) to clean WiTricity Halo Wall Box and Ground Pad.
- Do not use the charger if the Wall Box or Ground Pad enclosure is broken, cracked, or shows any signs of physical damage. Immediately contact WiTricity Customer Support at [customersupport@witricity.com](mailto:customersupport@witricity.com).
- Do not attempt to remove Wall Box cover or open the Ground Pad enclosure. Only authorized and qualified personnel is allowed to do so.
- The WiTricity Halo Wireless EV Charger may not be modified or adjusted in any unauthorized manner.
- Do not remove any identifiers, such as security signs, warning instructions, nameplates, labels, or cable markings.
- Use rated to 90°C wire copper conductors only. Aluminum conductors are not permitted.

### INSTRUCTIONS RELATING TO RISK OF FIRE OR ELECTRIC SHOCK

- The charger is not suitable for use in hazardous locations. Do not install it near flammable, explosive, or combustible materials.
- Turn off the circuit breaker before installing the charger.

## What's in the Box

### **Box #1 - WallBox**

Item	QTY	Picture
Wall box	1	
Wall box to bracket screws, lock washers, flat washers	4 sets	<p>M6 x 1.0 mm Size, 16 mm Long screw    6.5mm split lock washer    6mm flat washer  </p>
Accessory Bag: keys, ethernet gland,	TBD	TBD

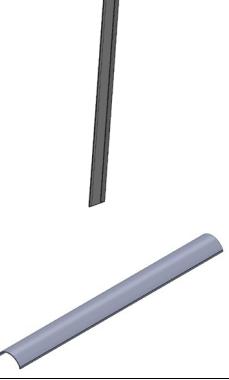
### **Box #2 – Ground Pad**

Ground Pad	1		
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### **Box #3 – Ground Pad Cable**

Ground Pad Cable	1 x 2.3m		
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**Box #4 – WallBox Mount**

Wall box mounting bracket	1	
Wall side conduit	1	
Wall box transition piece	1	
Wall box transition piece screws	4	M4 screws at 3mm hex 
Wall ankle	1	
Wall ankle screws	4	T15 torx drive 

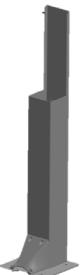
**Box #5 – Ground Pad Cables Cover**

Ground Pad Cable Protector Cover	1 x 1m	
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Ground pad transition piece	1	
Ground pad transition piece screws	2	
Ground conduit fastener	6	

**Note: If wall box is not being installed to a pedestal, disregard the contents of Box #6 below.**

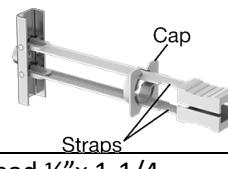
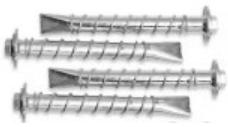
**Box #6 – Pedestal – (Optional)**

Pedestal	1	
Pedestal ankle	1	
Pedestal ankle screws	4	<p>M6 x 1.0 mm Size, 16 mm Long screw    6.5mm split lock washer    6mm flat washer  </p>

**Additional Equipment Required (Not Included)**

WiTricity recommends using the following screws and anchors based on the surface of installation.

Component	Surface Material	Quantity	Recommendation
Wall bracket	Dry wall with studs	4	1/4 x 3" wood screws 

	Dry wall	4	3/8"-3-5/8" High-Strength Toggle Anchors 
	Masonry/ Brick	4?	Hex head 1/4"x 1-1/4 
Ground Pad & Accessories: Ground Pad Transition Piece, Ground Conduit, Ankle, & Wall Box Transition Piece	Concrete	4	5/16"x 3" Tapcons 
	Asphalt	4	3/8" x 6" asphalt anchors 

## Tools Required

- Wire stripper
- Diagonal Cutting Pliers
- Torque driver
- Torx head screw driver
- Phillips head (screw appropriate sizes)
- Drill & hammer drill
- Masonry drill bits (screw appropriate sizes)
- Stud finder
- Tape measure
- Level
- Pencil/Marker
- Wrench (customized wrench included)
- Multimeter

## General Notes

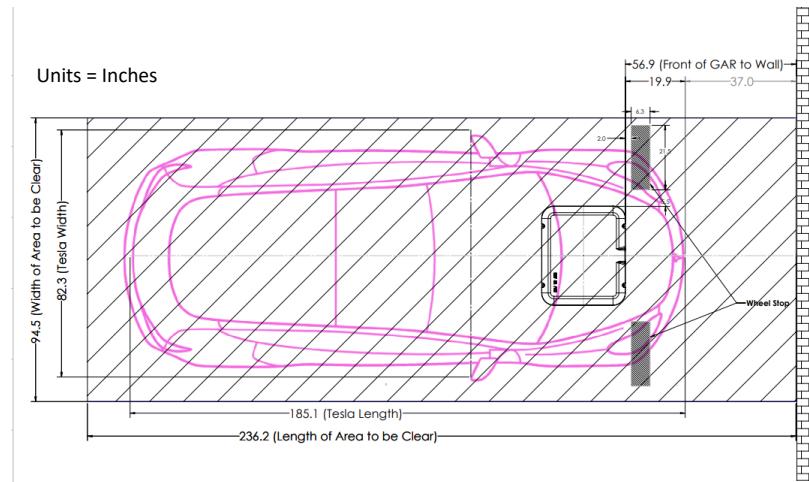
- **Wall Box** – The wall box houses high power electronics that convert the grid supply to high frequency energy that is then delivered to the ground pad.
- **Ground Pad** – is the charging pad anchored to the ground that converts high frequency energy from the wall box to a magnetic field that is used to efficiently transfer energy to the vehicle receiver.

## Installation Prerequisites

- The installation of the WiTricity Halo™ charger must be done by a certified electrician.
- The Wall Box may be installed on any flat, vertical surface capable of supporting a weight of at least 50lbs (e.g. dry wall with or without studs, etc.)
- Use appropriate anchors and screws for respective wall material.
- Make sure the specified power supply (208/240V single-phase) is available with a hard-wired electrical connection that complies with the local code. Premise wiring shall be suitable for desired charging level output power.
- The charger must be connected to a circuit breaker that is rated for at least 125% of the device's continuous load. (refer to circuit breaker table below in "Wallbox Installation")
- Recommended wall box height: 1.44m (56.8 inches) from the top of the Wall Box mounting bracket to the floor.
- For indoor installation: Wall box cannot be installed less than 18" above the floor (measuring from the bottom of the wall box).
- For outdoor installation: Wall box cannot be installed less than 24" above the floor (measuring from the bottom of the wall box).
- Make sure the installation location is within the range of a cellular or local Wi-Fi network.
- Follow all applicable codes and ordinances and pull a permit for completing the electrical work as required.

## Choosing Location

- Determine the parking location of the vehicle by parking it in the desired parking spot. Make sure there's sufficient space in the front and back of the vehicle. This is where the Ground Pad will be installed in your parking space.
- Make sure the floor is flat and is made of concrete, asphalt, or tile.



**Figure 1 – Ideal Parking Location**

*Note: For an outdoors installation, measure based on center of parking spot. Proper drainage around the area.*

# INSTALLATION INSTRUCTIONS

## Wallbox Installation

### 1. Preparing the circuit

- Determine the desired charging amperage with the customer. WiTricity Halo EV charger can operate at different input currents. The factory default setting is 48A (60A circuit breaker). Choose based on electrical capacity of the panel, available space for a two-pole breaker and desired speed of charging.

*Note: The charger must be connected to a circuit breaker that is rated for at least 125% of the device's continuous load.*

Circuit Breaker Size	Max charger load
60A	48A (factory default)
50A	40A
45A	36A
40A	32A
35A	28A
30A	24A
25A	20A

### **WARNING: READ BEFORE PREPARING THE CIRCUIT**

- Turn off the main circuit breaker before performing any electrical work.
- It is required to install the charger in a hardwired configuration.
- Do not cross the AC cable with the ground pad cable.
- Ensure that a non - GFCI 240V circuit breaker is used to power the charger if connecting to a hardwired 240V split phase supply.

*Note: This charger can also be connected to a 208V L-N from a three-phase supply with a 60A breaker.*

- Recommended liquid tight conduit: "3/4 inch 2-Piece 90° Liquid Tight Connector" or equivalent piece to support the wiring to the bottom-left of the wall box (can't cross cables).

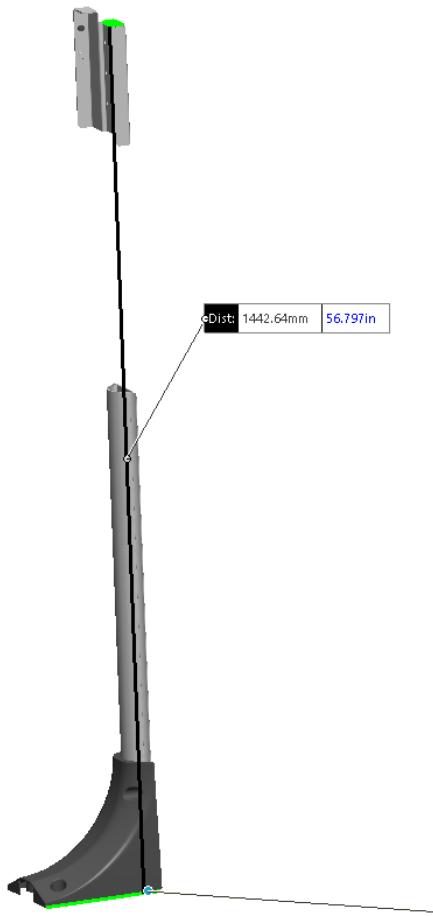
2. Prepare Mounting Bracket or Pedestal

*Note: The Wall Box can be mounted on dry wall, brick, wood, or studs. Follow the instructions based on what material is relevant.*

**If mounting on a wall, use the mounting bracket provided and follow the instructions below:**

1. If applicable, find a stud using a stud finder on the wall that you have identified as ideal for the wall box installation. Mark the center of the stud. Other flat surfaces capable of supporting the weight may also be used, such as wood beams.
2. Place the mounting bracket against the wall at your desired location and use a bubble level to make sure it is level to the ground.

*Note: WiTricity recommends that the mounting bracket should be mounted at **1.44m (56.8 inches)** from the top of the bracket to the floor. The recommended height has a tolerance range within an inch or two, but any height outside the tolerance, and the conduit won't fit.*



**Figure 2: Distance from Mounting Bracket to Ground**

3. Mark the corner four mounting holes through the wall mount bracket.

**Mounting screw recommendations (additional equipment not included):**

Finished wall with wood studs:  $\frac{1}{4}$  x 3" lag wood screws

Dry wall: 3/8"-3-5/8" High-Strength Toggle Anchors

Brick Wall/Masonry: tapcon hex head  $\frac{1}{4}$ " x 1-1/4

4. Remove the bracket and drill the mounting holes. For dry wall, drill in each of the four corners with a drill bit appropriate for the type of screw you chose. For wood studs, drill the three down the center of the bracket.
5. Attach the bracket to the mounting location using your selected fastening hardware, screws or anchors.



**Figure 3: Driving screws into wall through bracket**

**3. Mount the Wall Box**

*Note: WiTricity recommends 2 persons to handle the wall box for a safe install.*

1. Lift the Wall box and slide it onto the mounting bracket.



**Figure 4: Wall Box Sliding onto Mounting Bracket**

2. Tools required to secure wall box to bracket: M6 x 1.0 mm Size, 16 mm temp-resistant torx long screw, 6.5mm split lock washer, and a 6mm flat washer.
3. Use a torque driver to secure with a T27 safety torx bit.



**Figure 5: Wall Box Secured to Wall**

#### 4. Wiring Connections

1. Open the Wall Box bezel by unlocking it with the key provided.



**Figure 6: Locating the Key on Wall Box**

2. Remove 1 x screw on the inside of the bezel to get access to the LED cable connector. Use T10 torx bit for this purpose.



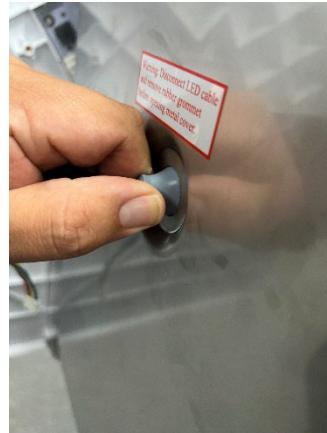
**Figure 7: Screw that needs to be removed inside of bezel**

3. Unplug the LED cable from the connector by pulling the tab on top.



**Figure 8: LED Cable Connector with Tab**

4. Squeeze and push the rubber grommet into the shield to free the LED cable from the metal shield.



**Figure 9: Rubber grommet being pushed into shield**

5. Remove led cable - Remove the metal shield by unscrewing 14 screws around its perimeter. Use T10 torx bit for this purpose.

*Note: These are unique screws. Place them in a secure place.*



**Figure 10: Removing the metal shield**

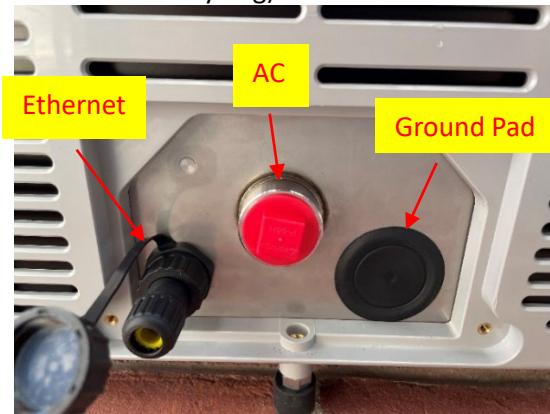
6. Remove the 14 M3x5 hex screw covers to get access to the AC and Ground Pad connection terminals.



**Figure 11: Differentiating AC & Ground Pad Connections**

## 5. AC Input Connections

1. Remove the dust covers, the ethernet gland from the bottom of the Wall Box. (Ethernet gland will later be in accessory bag)



**Figure 12: Connections on bottom of the Wall Box**

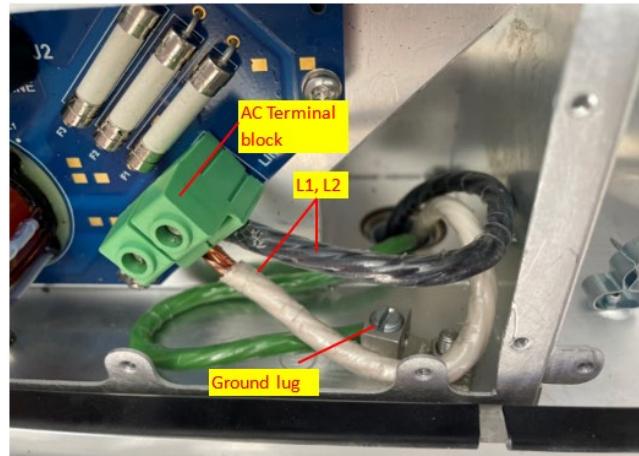
2. Screw the liquid tight elbow (not included) to the adapter on the bottom of the Wall Box. Make sure the elbow points to the left.

*Note: Liquid tight elbow is recommended to prevent water and debris intrusion.*



**Figure 13: Liquid Tight Elbow**

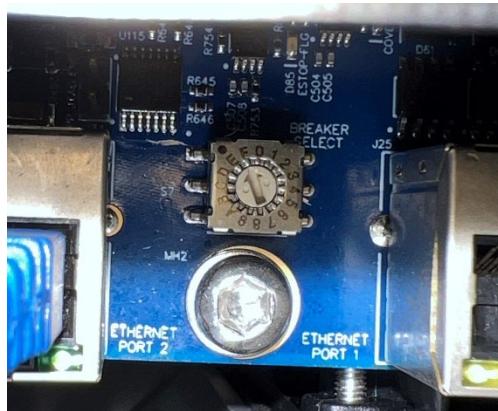
3. Route the wires into the entry point to the Wall Box as shown below, in Figure 14. Strip the insulation from the wires ~1/2 at the ends in (13mm) and connect each wire in its terminal block. Connect L1 to line and L2 to neutral wires to the terminal block.



**Figure 14: Wiring in the AC Terminal of the Wall Box**

4. Connect the ground wire (color based on local codes) to the ground lug.
5. Select the appropriate current setting using the “Rotary Dial” in the wall box. To change the dial, a small flat screwdriver is required to rotate the dial.

The WiTricity Halo™ wireless charger (11kW) is optimized to operate at maximum current of 48A for single-phase. However, if 60A circuit breakers are not available, the system may be operated at a lower current setting at a reduced power output level. The allowable breaker ratings are:



**Figure 15: Rotary Dial in Default Position**

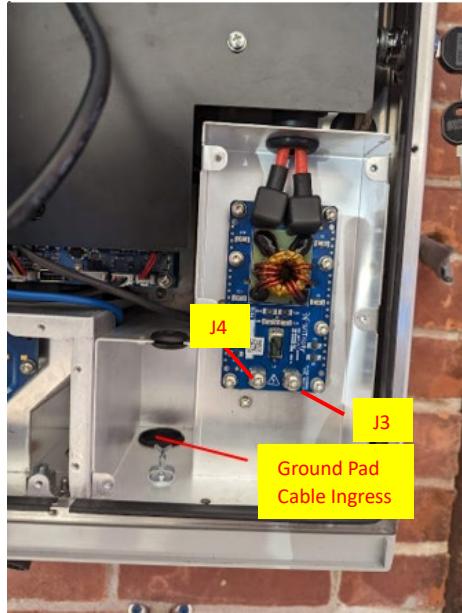
*Rotary Dial Settings Table*

<b>Rotary dial setting</b>	<b>Circuit breaker rating (A)</b>	<b>Max Input Current (A)</b>
0	x	x
1	x	x
2	x	x
3	x	x
4	x	x
5	x	x
6	x	x
7	x	x
8	x	x
9	25	20
A	30	24
B	35	28
C	40	32
D	45	36
E	50	40
F (default)	60	48

6. Replace the AC connection enclosure cover.

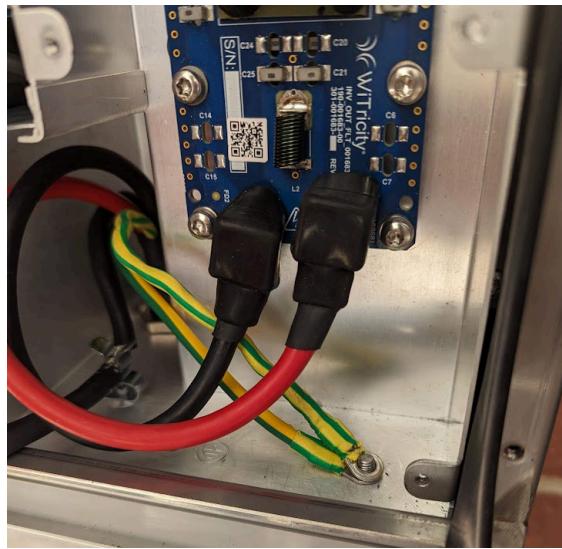
## 6. Ground Pad Cable Connections

1. Take the nut off from the longer end of the cable and route it into the Wall Box ingress.



**Figure 16: Ground Pad Cable Ingress Labeled**

2. Feed the cable gland nut back through the cables, making sure the teeth of the nut face the housing. Tighten the nut.
3. Slide the insulation boots (provided in the accessory bag) on the red and black wires.
4. Connect the red (right terminal) and black (left terminal) wires with ring terminals to the terminal block. Use T15 bit to unscrew the terminal screws.



**Figure 17: Red & Black Terminal Wires**

5. Attach the two yellow/green ground wires to the ground stud with an 8mm wrench. Following the sequence: star lock washer, terminal ring x2, star lock washer, hex nut



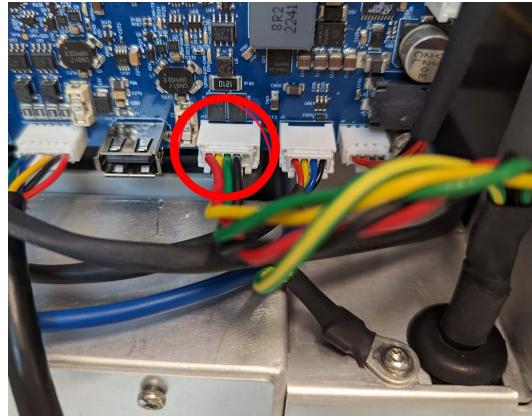
**Figure 18: Yellow & Green Wires Closeup**

6. Feed the four-wire cable through the grounding clip. Connect the ground clip on the exposed mesh.



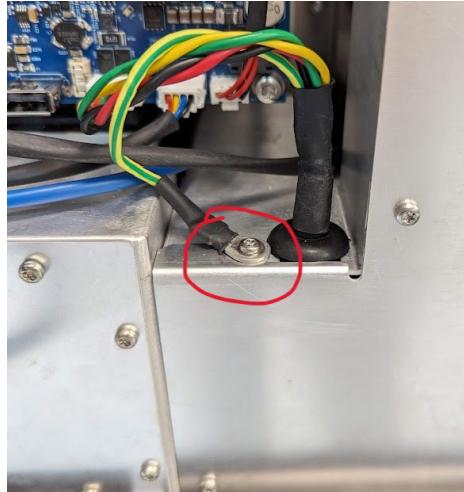
**Figure 19: Grounding Clip Circled**

7. Insert the four-wire connector on the control board into the vacant female connector.



**Figure 20: Four-Wire Connector Placement on the Control Board**

8. Route the LED cable through the shield and pull the rubber grommet so that it is attached to the shield.
9. Replace the Ground Pad enclosure cover.
10. Connect the remaining yellow/green stripe cable through the ground screw on the ground pad connector enclosure cover.



**Figure 21: Ground Screw where Yellow/Green Stripe Cable Connects**

11. Screw the metal shield back to the Wall Box using the T10 torx bit. (Refer to Figure 10 if necessary)
12. Thread LED cable through metal shield, put the gromet back - Connect the LED cable back to its connector on the back of the bezel. (Refer to Figure 7, 8 & 9 if necessary)
13. Put the LED connector cover back and replace the screw using a T10 torx bit. Make sure latch is engaged.

*Note: Make sure the LED cable sits in the bezel's cavity*

14. Close the bezel and lock it with the key. (Refer to Figure 6 if necessary)

## Ground Pad Installation

*Note: Two persons are required to handle the Ground Pad for a safe install.*

### 1. Choose a Location to Install Ground Pad

- Due to weight, it is recommended to place the ground pad close to installation location for the next three procedures listed below.
- Refer to the “Choosing Location” section of the manual for assistance on placement and distance of the ground pad from the Wall Box (Figure 1). The distance should be 1.45m from the front of the ground pad to the wall.
- Before proceeding, make sure the area abides to appropriate flatness and is free of any rocks, dents, or debris.

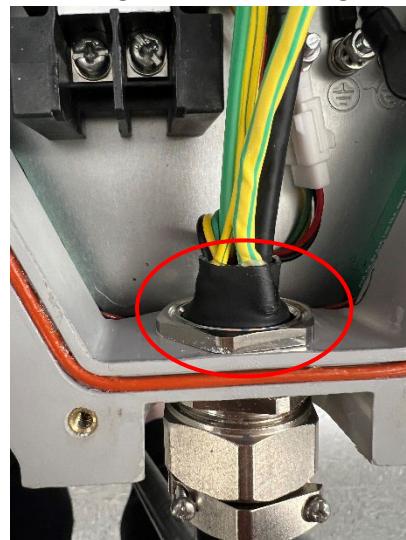
*Note: Hold the four bolt covers for later*

### 2. Access the Terminal Block

- Remove the two screws to slide out the transition cover. Use T25 torx bit for this purpose.
- Remove all seven screws on the sealing plate to get access to the terminal block. Use T20 torx bit for this purpose.

### 3. Connecting the Ground Pad Cables

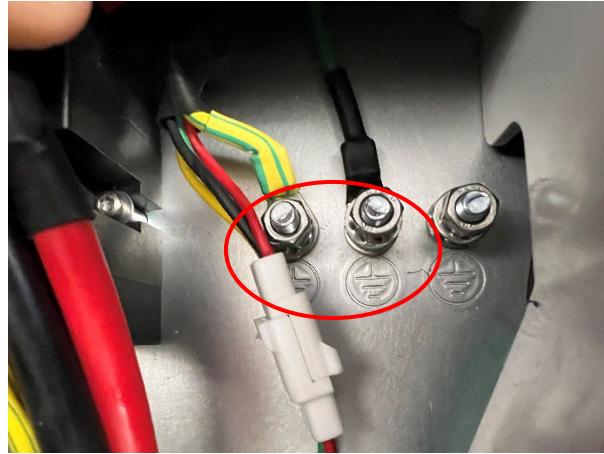
1. Take the nut off from the ground pad cable and feed the cables into the ground pad entry point. Feed the nut back through the wires and tighten it with a wrench.



**Figure 22: Nut Tightened Around Wires**

2. Remove the plastic piece from the terminal block and store it. This needs to be placed back after making the connections. Remove the terminal screws first. Connect the red (left terminal) and black (right terminal) wires to the terminal blocks. Tighten back onto wires.
3. Replace the plastic cover back on to the terminal block.
4. Connect the four-wire connector to the mating female connector.

5. Use an 8mm hex nut driver to remove the top ground nut and lock washer from left and middle stud.



**Figure 23: Both Ground Nuts**

6. The two thicker gauge yellow/green “SHIELD” and “GND” wires connect to the left most stud.



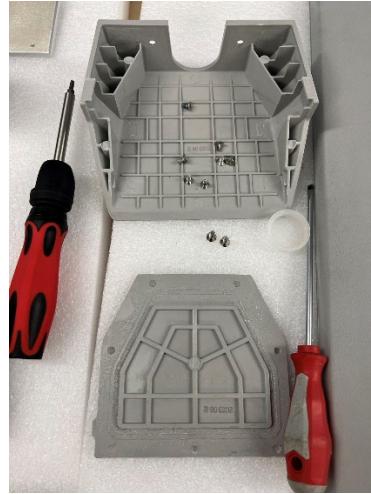
**Figure 24: Wire Differentiation**

7. The thin gauge yellow/green “CAN GND” wire connects to the middle stud, leaving right most stud untouched.

#### 4. Replace Covers

1. Ensure the O-ring is properly seated in the groove and replace the sealing cover. Use T20 torx bit to put sealing cover back on. Slide the transition cover into place and use

T25 torx bit to replace the transition cover. Use the appropriate removed screws for each.



**Figure 25: Transition cover (top) & sealing cover (bottom)**

## 5. Secure Ground Pad to Floor

1. Place the Ground Pad in the parking spot at the desired distance from the front wall. (Refer back to figure 1 if necessary)
2. Mark the four mounting holes of the Ground Pad on the floor.  
\*show a graphic that shows where the mounting holes are\*
3. Remove the Ground Pad and drill appropriate sized holes into the floor, based on hardware that is used and follow the appropriate hardware instructions.

### **Mounting screw recommendations:**

Concrete: 5/16" x 3" Tapcons

Asphalt: 3/8" x 6" asphalt anchors

- Secure the Ground Pad to the floor using the appropriate hardware.

## Install Accessories

### 1. Wall Box Vertical Cable Protector

1. Place the Wall Box Ankle at the wall to ground transition as a place holder to determine proper spacing of the Vertical Cable Protector.
2. Stick the backing of the Vertical Cable Protector to the wall just above the Wall Box Ankle place holder. From above, slide the front half in place over the wires. If the backing does not stick, drill holes through the back piece only into the wall. Then, use the appropriate screws/anchors to fasten to the wall before sliding the top piece on.

### 2. Wall Box Ankle

1. Place the ankle at the wall to ground transition and mark the mounting holes.
2. Remove the piece and drill holes matching the anchors/screws provided with it.
3. Replace the transition piece and tighten using the screws provided.

### 3. Wall Box Transition Piece

1. Place the Wall Box transition piece and tighten it to the Wall Box using the screws provided.



**Figure 26: Where to place Wall box transition piece**

### 4. Ground Pad Transition Piece

1. Place the Ground Pad transition piece on the ground covering the ground pad cable gland and mark the mounting holes.



**Figure 27: Where to Place Ground Pad Transition Piece**

2. Remove the piece and drill holes matching the anchors/screws provided with it.
3. Replace the transition piece and tighten using the screws provided.

### 5. Ground Cable Protector Cover

1. Place the ground conduit provided over the cable on the ground and mark the mounting holes.



**Figure 28: Ground Pad Assembled with Ground Conduit**

2. Remove the conduit and drill holes into the ground matching the anchors provided with the conduit.
3. Replace the conduit on the ground over the cable and tighten using the screws provided.

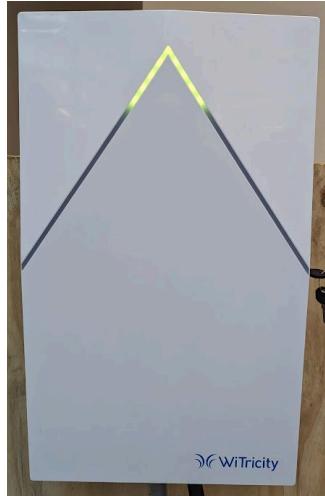
## Final Assembly



**Figure 29: Final Assembly**

## Power On and Completion

- Restore power to the circuit at the electrical panel.
- The Wall Box will power ON and take about 2 minutes for the LEDs to turn ON. You will see Blue LEDs chasing sequence on the Wall Box.
- Once boot up is complete, the blue LED chasing sequence will end. The Wall Box will show solid yellow LEDs at the apex indicating that the wall box is ready to be onboarded.



**Figure 30: Successful Wall Box Power On**

**NOTE: Refer to User Guide for onboarding process.**

## Wallbox LEDs

The LED light on the Wall Box bezel shows the status of the WPT charging system shown in below table.

LED Sequence	Meaning	Action Required
Upward chevron motion, blue, for 3 seconds	Initial boot up sequence	No action needed.
Solid yellow top LEDs	Charger installed and power is supplied but not set up yet.	Activate the charger using your mobile app.
Fast blinking blue	Charger ready for BLE connection from mobile app	Follow the instructions on the mobile app.
Slow blinking blue	Mobile app has connected to Charger over BLE and charger has entered Setup Mode.	Follow the instructions on the mobile app.
Solid blue top LEDs	Charger is configured and is available for a Vehicle to connect to it over WiFi.	Bring vehicle to connect to the charger.
Solid Blue	Vehicle is connected to charger over WiFi, but is either not aligned, parked, or authorized to use the charging pad yet.	Vehicle can be driven to the ground pad.
Slow blinking green	Ready to charge	Charging about to begin automatically.
Breathing green	Charging	Charging ongoing, check status on the mobile app.
Solid green	Charging complete	Vehicle is ready.
Fast blinking red	Fault state	
Slow blinking red	Object detected	Check pad for any foreign object. Clear the pad and press the button on the Wall Box to reset.

## Customer Support

- If you notice any damage or have difficulties with the installation process, please contact WiTricity Customer Support at [customersupport@witicity.com](mailto:customersupport@witicity.com)