

The Boldest, Baddest Charging Station on the Planet!

WaltZilla

In-the-Wall, Flush Mount EVSE

WaltZilla™ Installation and Operation Guide

Software Version 2.0.1 or higher



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UL File # E473741

Product Description

- ◆ WaltZilla is a UL-listed electric vehicle charging station (EVCS), a category of EVSE charging equipment available from LiquidSky Technologies, Inc.
- ◆ WaltZilla is an in-the-wall 80 Amp EVCS built for interior use that is mounted nearly flush to drywall.
- ◆ WaltZilla will charge any electronic device or vehicle that conforms to the J1772 charging standard, including electric cars, boats, motorcycles, snowmobiles, bicycles, campers, etc.
- ◆ WaltZilla is designed to be the last charger you will ever need, housed inside a scratch-resistant, mirror-finished, Type 1, 316 stainless steel enclosure featuring proprietary gold plated circuit boards that resist corrosion.
- ◆ WaltZilla comes ready for your electrician to install anywhere in your home.
- ◆ WaltZilla installs inside a standard 2x4 construction with a small yet elegant footprint that makes it ideal for use in high-end homes, hotels, theaters, public accommodations offices, shopping centers and entertainment venues.



Figure 1. Wall-Mounted WaltZilla

- ◆ With WaltZilla you can charge a single electric vehicle (EV) (e.g., the Tesla Model S) at the highest rate that the J1772 AC standard permits.
- ◆ WaltZilla is easy to use - virtually plug and play.
- ◆ The WaltZilla requires 208-240 VAC at 50/60 Hz, single phase and one independent, properly fused and/or breakered 100 Amp branch circuit. Consult your electrician for additional local requirements.
- ◆ WaltZilla comes with one standard 25-foot cable complete with a J1772 coupler to reach between the charging port and the vehicle.¹ The coupler works with all electric vehicles sold in the US or Canada.
- ◆ WaltZilla features a multicolor front LCD that shows the amperage being delivered for the duration of the charge as well as other operational information.
- ◆ Features minimal stand-by power consumption with no on/off switch required.
- ◆ WaltZilla is warrantied for residential use only.
- ◆ Made in the USA.

¹.Some vehicles require special adapters. Consult your vehicle's user manual for more information. Tesla includes a J1772 adapter with every vehicle.

About the WaltZilla LCD

The LCD displays the operational status of WaltZilla, including the charging duration and the total number of Amps being delivered to the EV at that moment in time. The LCD codes displayed inside the WaltZilla enclosure are visible through the viewing lens on the cover of the enclosure. (See examples of the WaltZilla LCD codes in [Figure 2](#).) Information displayed on the LCD is color coded with the following meanings:

- **Green** — indicates the normal operational state.
- **Blue** — indicates a transitional state occurring when changing operational states.
- **Red** — indicates an error.



Figure 2. Examples of the WaltZilla LCD Codes

WaltZilla Installation Instructions

You can install the WaltZilla enclosure between two wall studs, either in a new installation. A typical installation is shown in [Figure 3](#).

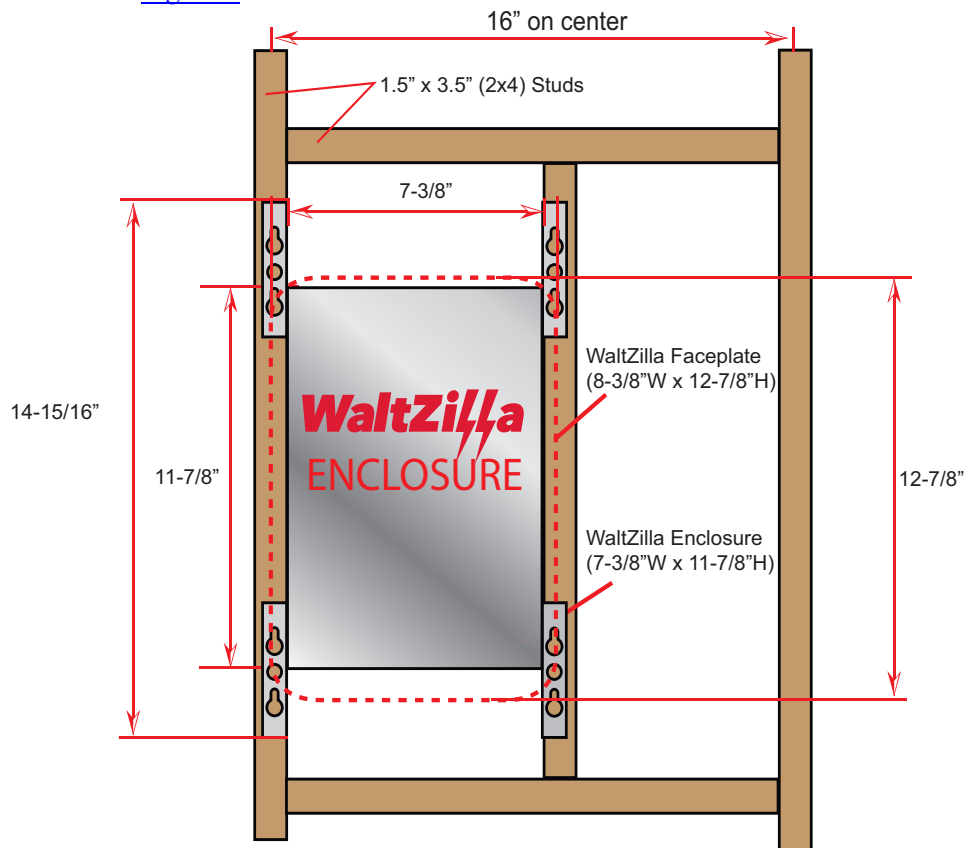


Figure 3. WaltZilla Mounting

Ensure that the WaltZilla enclosure is mounted securely to two studs and in accordance with your local requirements. Consult with your local building inspector for more information.

Read all of the installation instructions provided in this document prior to attempting installation of WaltZilla. Consult with your local building inspector and other required authorities as necessary to review the installation at the appropriate installation stages and prior to applying power to WaltZilla.



Warning: Do not apply power to WaltZilla until the installation is completed, your local building inspector has approved the installation and all other requirements have been fulfilled to operate WaltZilla.

PREREQUISITES:

- WaltZilla Enclosure and WaltZilla Completion Kit
- (8) 2-4 SS corrosion-proof Phillips lag screws
- (10) 8-32 x 3/8 PH FL 100 DG M/S 18-8SS Flathead screws
- Stud finder (as necessary), screwdriver, level, plaster and paint (customer supplied)

1. If installing WaltZilla in an existing structure, do the following:
 - a. Study the illustration in [Figure 3](#) to determine the size and location of the WaltZilla installation.
 - b. Identify and mark an installation area on the drywall between the outer edge of each stud (at least 18 in. W x 16 in. H) ([Figure 4](#)).

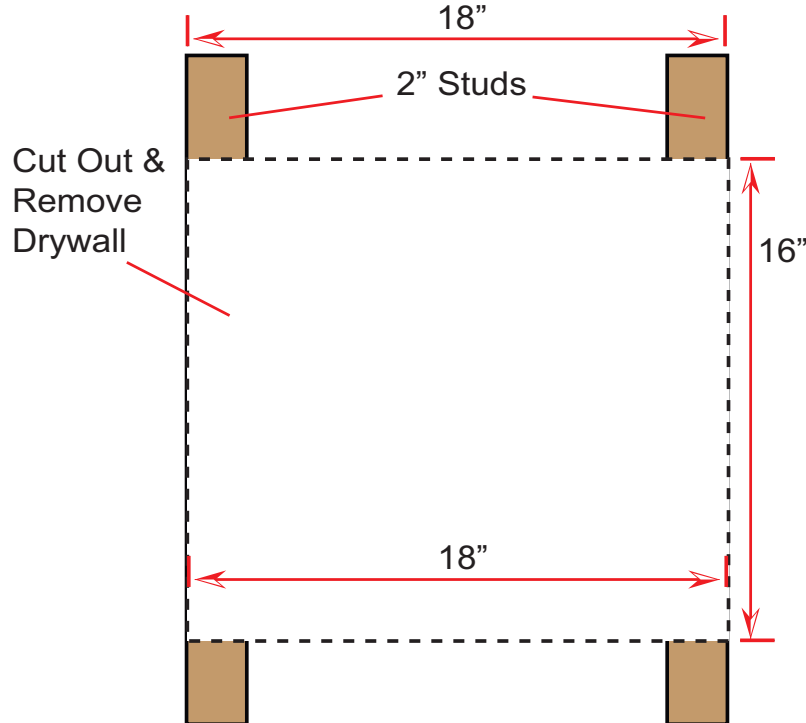


Figure 4. Exposing Studs in Existing Wall

- c. Cut out the area of the drywall you marked to expose the studs.

2. Consult with your local building inspector and local code requirements to determine a suitable and safe height and location for your WaltZilla enclosure.
3. Using [Figure 3](#) as a guide, install and secure 2x4 studs as necessary to allow WaltZilla to be secured to two vertical wall studs. [Figure 3](#) shows one possible configuration in which a vertical wall stud is located between two existing vertical studs and supported by horizontal studs below and above it.
4. On each of the four rack ears attached to the corners of WaltZilla, locate the holes that can be used to secure the enclosure to the studs (see A and B callouts in [Figure 5](#)).

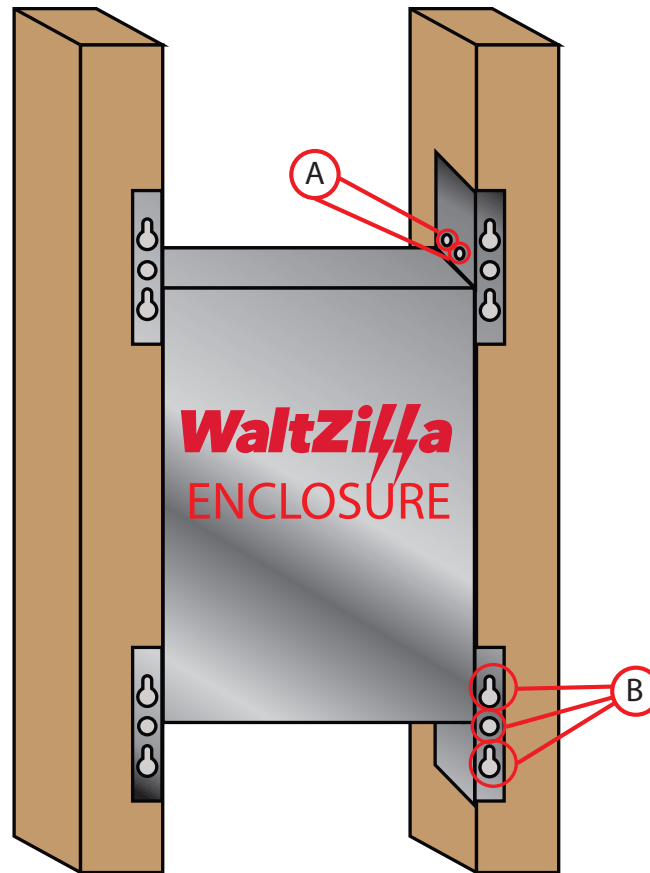


Figure 5. WaltZilla Rack Ear Screw Holes

5. Wire WaltZilla to an inactive, properly grounded 208-240 VAC at 50/60 Hz, single phase, independent, properly fused and/or breakered 100 Amp branch circuit. Consult your electrician for additional local requirements.



Warning: Do not apply power to WaltZilla until the installation is completed, your local building inspector has approved the installation and all other requirements have been fulfilled to operate WaltZilla.

6. **(Note: Two people are necessary to perform this step.)** With one person holding the enclosure in place between two vertical studs, use a Phillips screwdriver to install two 2-4 SS corrosion-proof Phillips lag screws (provided) into each rack ear. You can use any combination of available holes in each rack ear to secure the unit. Hand tighten each screw until the enclosure is secure.
7. As necessary, protect the WaltZilla exterior prior to refinishing the installation area. Use drywall, plywood with plaster or other material to finish the area as desired, and when dry, paint the finished surface. Remove protective material from WaltZilla when finished.
8. Using a flathead screwdriver, hand tighten the (10) 8-32 x 3/8 PH FL 100 DG M/S 18-8SS flathead screws to secure the chrome plated face plate to the front of WaltZilla.
9. Install the rackmount assembly (optional) and secure the J1772 coupler to the assembly.
10. Consult with your local building inspector and other required authorities as necessary to review the installation prior to applying power to WaltZilla.



Warning: Do not apply power to WaltZilla until the installation is completed, your local building inspector has approved the installation and all other requirements have been fulfilled to operate WaltZilla.

Operating WaltZilla

The following procedure explains how to use WaltZilla to charge an EV.



Warning: Before connecting WaltZilla to a vehicle, ensure that the vehicle is J1772 compatible, or the vehicle is supplied with an adapter (such as those provided by Tesla) to allow the unit to charge the vehicle.



Note: For information on codes or other information displayed on the LCD, please reference [“Interpreting LCD Codes” \(page 7\)](#) and [“Troubleshooting Error Codes” \(page 7\)](#).

To Charge a Vehicle Using WaltZilla:

1. Plug the coupler into the vehicle’s charging port. An audible bang indicates that the GFI circuit test is completed and WaltZilla has uncoupled the electrical connector to allow for charging.
2. The WaltZilla LCD should display **charging**.



Warning: If there is a fault, the display will turn red and display the fault. Remove the coupler and correct the fault before reinserting the coupler.

- To determine charging duration, please follow the charging times recommended by the manufacturer of your vehicle.

Interpreting LCD Codes

Please refer to the [Table 1](#) for interpreting the LCD information displayed on the WaltZilla LCD. For an understanding of error codes, please see the next section, [“Troubleshooting Error Codes” \(page 7\)](#).”

Table 1. LCD Codes and Meanings

LCD Display (Position)	Meaning
Ready (top line, left side)	WaltZilla is ready.
Charging (top line, left side)	WaltZilla is ready to charge or is charging.
Error (top line, left side)	WaltZilla has detected an error.
Stopped (top line, left side)	WaltZilla has been stopped.
Waiting (top line, left side)	WaltZilla is waiting for a timer.
Sleeping (top line, left side)	WaltZilla is sleeping.
L2:80A (top line, right side)	The meaning of these two default fields are defined here: <ul style="list-style-type: none"> L2 — when in Ready state, this field indicates that there is 240V input voltage. 80A — specifies the maximum allowed current by WaltZilla (e.g., 80A). Note: This information is displayed only when the state on the top line, left side of the LCD is Ready, Charging, Error, Stopped, Waiting or Sleeping .
EV State and Current Charging Session (bottom line)	Specifies one of the states of the EV and the current charging session: <ul style="list-style-type: none"> EV Not Connected — the EV is not connected to WaltZilla. EV Connected — the EV is connected to WaltZilla. Note: This information is displayed only when the state on the top line, left side of the LCD is Ready, Charging, Error, Stopped, Waiting or Sleeping .
Elapsed Time (bottom line, left side)	When WaltZilla is in the Charging state, the elapsed time since starting the charging session is displayed in the format hh:mm:ss (where hh is hours, mm is minutes and ss is seconds) (e.g., 00:03:08).

Troubleshooting Error Codes

Reference [Table 2](#) for a list and description of LCD error codes and corrective actions.

Table 2. Troubleshooting LCD Error Codes

LCD Error Code	Meaning	Corrective Action(s)
Errors During Power On Self Test		
Earth Ground Test Failed	WaltZilla could not detect a ground connection.	Check ground connections and AC_Test lines.
GFCI Self Test Failed	WaltZilla did not detect a ground fault circuit interrupt (GFCI) fault during test.	Check GFCI CT and self test coil.

Table 2. Troubleshooting LCD Error Codes

LCD Error Code	Meaning	Corrective Action(s)
Stuck Relay Test Failed	WaltZilla read AC voltage before relays were closed.	Check relay and AC_Test lines.
Operating-Time Errors		
GFCI Fault	WaltZilla detected a ground leakage of > 20ma.	WaltZilla will retry charging after 15 minutes up to 4 times.
No Diode	WaltZilla did not detect the J1772 vehicle diode.	N/A
No Ground	WaltZilla lost connection to ground.	Check grounds and AC_Test lines.

Safety Features

WaltZilla supports all the safety features required (and a few more) by standards documents for EV charging from standard SAE J1772, NEC and UL, including:

- ◆ UL2251 Standard for Plugs, Receptacles and Couplers for Electric Vehicles
- ◆ UL2231 Standard for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits
- ◆ SAE J1772™ Electric Vehicle Conductive Charge Coupler Standard
- ◆ NEC Article 625 Electric Vehicle Charging System Equipment

Power Interlock

WaltZilla includes an interlock that de-energizes the EV connector and cable whenever the electrical connector is uncoupled from the EV (NEC 625.18).

Pilot Signal

WaltZilla supports the SAE J1772 pilot signal that automatically de-energizes the cable conductors and EV connector upon exposure to strain that could result in either cable rupture or separation of the cable from the electric connector and exposure of live parts (NEC 625.19) (SAE J1772).

Self-Test

WaltZilla performs a self-test during start up to ensure the unit is working properly and safely. Upon power-up and/or at the time of charging, WaltZilla performs some or all (depending on state) of these self-test checks:

- ◆ GFCI fault detection checks for missing ground by responding to a 20mA ground fault condition
- ◆ Test for missing ground
- ◆ Test of the welded relay contact monitor circuit
- ◆ Other tests

Ground Monitoring

WaltZilla checks ground upon power-up and constantly monitors for the presence of a proper safety ground. (SAE J1772)

Ground Fault Interrupt

WaltZilla includes mandatory ground fault interruption with a 20ma trip in all models available for protection against electric shock of personnel. (NEC 625.22) (SAE J1772) (UL 2231)

After each GFCI event, WaltZilla will retry charging up to 4 times after a 15-minute delay per event. (UL 2231)

Stuck Relay Detection

WaltZilla checks relay contacts every time it starts to charge to ensure relays are functioning properly and providing proper power interlock.

EV Identification

WaltZilla verifies the pilot signal integrity by checking the EV diode. The pilot signal must be at BOTH the correct resistance AND pass the “diode check” to activate the circuit. (SAE J1772)



Note: This safety feature is commonly left out of many other commercial charging stations.

Ventilation Required

WaltZilla checks for the EV ventilation required request. WaltZilla will deny charging if ventilation is not available or allow charging if the charging station is equipped to activate ventilation. (SAE J1772)



Note: This safety feature is commonly left out of many other commercial charging stations or implemented with a warning label only.

Warnings and Notes

Please heed these warnings and notes.



Warning: Adult supervision is required when building, operating, servicing or inspecting.



Warning: Installation of an EV charging station requires wiring Alternating Current (AC) components that will be exposed to voltages from 100 to 250v. If you do not have the experience and knowledge required to safely work with AC voltages please consult with an experienced electrician for assistance and inspection of your work.



Warning: Do not install WaltZilla near flammable, explosive, or combustible materials. Do not locate or store flammable, explosive, or combustible materials near the charging station.



Warning: Do not operate the WaltZilla with a visibly damaged cable or if the enclosure or connector is broken, open, cracked, or shows any other signs of damage.



Note: Regularly inspect your WaltZilla. Pay special attention to excess heat.



Note: Important always disconnect your charging station from power before performing an inspection and/or maintenance.

About LiquidSky Technologies

LiquidSky Technologies, Inc. is a high technology company engaged in the design of state of the art products in the power industry.

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