FREE HOMEOWNER GUIDE

Level 1 vs Level 2 for Tesla, Rivian, and other big-battery EVs

The pattern we see every week

It goes like this: the new Tesla, Rivian, or Hummer EV arrives, the owner plugs the included cord into a garage outlet, and a week later they are doing math in the driveway. A standard outlet adds roughly 3 to 5 miles of range per hour, about 30 to 40 miles overnight. Against the battery in a modern long-range EV, that pace barely holds ground, and for the biggest packs it loses ground on any real commute.

That is the whole Level 1 vs Level 2 question for premium EVs: the bigger the battery, the less optional a dedicated 240-volt circuit becomes. The general comparison lives in our Level 1 vs Level 2 guide; this page is about what these specific vehicles need.

What Level 1 actually delivers

Level 1 is the cord in the trunk on a 120-volt household outlet, drawing 12 to 16 amps. It needs no installation, and for a plug-in hybrid or a very light driver it can genuinely be enough. For a long-range battery-electric vehicle it usually is not: an overnight charge that adds 35 miles does not keep up with a 45-mile daily round trip, and a deeply discharged big pack can take days to recover. On the largest packs on the market, a full charge from near empty on Level 1 can stretch toward a week.

What Level 2 looks like, vehicle by vehicle

Level 2 is a dedicated 240-volt circuit and a wall charger drawing 30 to 60 amps, adding roughly 25 to 45 miles of range per hour. In practice:

- [ ] Tesla (Model 3, Y, S, X): current models accept up to 48 amps at home, which means a 60-amp circuit for full speed, and a 48-amp setup comfortably refills a day's driving overnight
- [ ] Rivian R1T and R1S: big packs built for adventure mileage; on a 48-amp circuit expect roughly 25 miles of range per hour, which makes overnight charging genuinely practical
- [ ] Porsche Taycan: with a high-capacity Level 2 setup it can add roughly 40 to 50 miles per hour, which is what keeps a performance EV usable day to day
- [ ] GMC Hummer EV: with a pack over 200 kWh, one of the largest on the road, Level 2 at 48 amps or more is the only realistic way to charge at home

Bigger charger, same speed: know your car's ceiling

Charging speed is limited by your vehicle's onboard charger as much as by the wall unit, so a bigger charger only helps up to what the car accepts. Paying for a 60-amp-capable unit and the heavy circuit behind it makes no sense for a vehicle that tops out lower. We match the circuit and charger to the specific vehicle instead of defaulting to the biggest unit on the shelf.

The panel question

A 40-amp charger on a 50-amp circuit often fits a modern 200-amp panel with room to spare. The 50-to-60-amp circuits that suit a Rivian or Hummer are a different story on an older 100-amp service already running heat, laundry, and a kitchen. This is exactly what a load calculation settles, and we run one on every estimate. Sometimes smart load management, a charger that throttles itself when the house is busy, avoids a service upgrade entirely; sometimes the honest answer is a panel upgrade first. Our guide on whether an EV charger needs a panel upgrade walks through the options.

What the install includes

Every Level 2 EV charger installation we do is a dedicated circuit sized at 125 percent of the charger's draw, with proper grounding, GFCI protection where code requires it, an Oregon permit, and inspection. Hardwired or a NEMA 14-50 outlet both work, and we are not tied to any charger brand: Tesla Wall Connector, Rivian Wall Charger, ChargePoint, Emporia, Grizzl-E, whichever fits your vehicle. Pricing ranges are in the EV charger installation cost guide, and we give a free ballpark by phone or from a photo of your panel.

Frequently asked questions

Can I charge a Tesla on a regular outlet?

You can, and the mobile cord ships for exactly that, but it adds only about 3 to 5 miles of range per hour. For light driving it works; for a normal commute it falls behind. Most Tesla owners end up installing a 240-volt circuit, and current models charge at up to 48 amps at home, which means a 60-amp circuit for full speed.

Is Level 1 charging enough for a Rivian or Hummer EV?

Rarely. These are among the largest batteries on the market, and a standard outlet may add only a few percent of charge overnight. A deeply discharged Hummer EV pack could take the better part of a week on Level 1. A 48-amp or larger Level 2 circuit is the realistic home setup for both.

Do I need a panel upgrade for a 60-amp charger circuit?

It depends on your service size and what else the house runs. Modern 200-amp panels often handle it; older 100-amp services frequently cannot take a 60-amp continuous load on top of everything else. A load calculation gives the real answer, and smart load management sometimes avoids the upgrade. We check this on every estimate before recommending anything.

Does a more powerful wall charger charge my car faster?

Only up to your vehicle's onboard limit. The car sets a ceiling on what it accepts from a 240-volt charger, so a unit more powerful than that ceiling adds cost without adding speed. Matching the charger and circuit to the

specific vehicle is the efficient way to buy charging speed.

Sources

1. Electric Vehicle Charging Stations, U.S. Department of Energy, Alternative Fuels Data Center. https://afdc.energy.gov/fuels/electricity-stations
2. Charging Electric Vehicles at Home, U.S. Department of Energy, Alternative Fuels Data Center. https://afdc.energy.gov/fuels/electricity-charging-home
3. Electric Vehicle Charging Safety, Electrical Safety Foundation International (ESFI). https://www.esfi.org/electric-vehicle-charging-safety/

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> Call Smiley Electric at (503) 484-7556 (Mon–Sat, 7am–5pm) or visit smileyelectric.net/contact. For sparks, smoke, a burning smell or a hot panel, turn off the power if it is safe and call right away.

Reviewed by Joshua Smiley, owner & master electrician, Smiley Electric. Last reviewed November 13, 2026. Online version: smileyelectric.net/help/tesla-rivian-ev-charger-level-1-vs-2/. General information, not a substitute for an on-site inspection.

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