

# **POWER UP AT HOME:** CHOOSING THE RIGHT EV CHARGER



**EV Optimum** 

TOLL FREE (844) 999-4786 www.evoptimum.com Owning an electric vehicle (EV) is an exciting step towards a cleaner and more sustainable future. But with a new EV comes the question of charging it conveniently and efficiently. That's where home charging stations come in. They offer a safe and reliable way to keep your car powered and ready to go.

This Electric Vehicle Buyer's Guide, brought to you by EV Optimum, will equip you with the knowledge to make an informed decision when choosing the right EV home charging solution for your specific needs.

## **UNDERSTANDING CHARGING LEVELS**

Not all EV chargers are created equal. They come in different levels, offering varying charging speeds and capabilities. Below is a breakdown of the two main levels available for home charging. Level 3 charging is not available for homes.



LEVEL 1	<b>LEVEL 2</b> (Outlet or Hardwired)	<b>LEVEL 3</b> (Public / Commercial)
120 VOLTS	208-240 VOLTS	480 VOLTS
TYPICAL CHARGE TIME: 24-48 HOURS	TYPICAL CHARGE TIME: 6-12 HOURS	TYPICAL CHARGE TIME: 20-30 MINUTES
RANGE PER HOUR OF CHARGING: 3-5 MILES	RANGE PER HOUR OF CHARGING: 25-44 MILES	RANGE PER HOUR OF CHARGING: 100+ MILES

## Level 1 Charging (Standard Wall Outlet)

This is the most basic and slowest charging option. It uses a standard 120-volt household outlet, similar to what you would use to power a toaster or lamp. While it's convenient and often included with your EV purchase, it can take a long time to fully charge your vehicle. According to the U.S. Department of Transportation, a Level 1 charger can take:

- 40-50 hours to charge a battery electric vehicle (BEV) from empty.
- 5-6 hours to charge a plug-in hybrid electric vehicle (PHEV) from empty.

Advantages: Despite the slow speed, Level 1 chargers offer these benefits.

- 1. Convenience: They use a standard outlet, eliminating the need for special installation.
- 2. Cost-effective: They are typically the most affordable option.

One noteworthy disadvantage is if you plan on driving regularly or taking longer trips, a Level 1 charger might not be sufficient.



## Level 2 Charging (240-Volt Outlet or Hardwired)

This is a significantly faster charging option, offering speeds up to eight times faster than Level 1. It operates on a 240-volt outlet, similar to what you would use for a dryer or oven. While this translates to quicker charging times, it often requires professional installation by an electrician, as most homes are not pre-wired for 240-volt outlets in the garage. Additionally, Level 2 chargers themselves typically cost more than Level 1 chargers.

The increased cost and potential need for professional installation might seem like drawbacks, but the benefits of Level 2 charging can outweigh them for many EV owners.

#### Advantages:

- 1. Faster charging: Get back on the road quicker, especially beneficial for daily commutes or longer trips.
- 2. Peace of mind: Knowing your car can be fully charged overnight provides greater convenience and flexibility.

The disadvantages on a Level 2 Charger include the increased cost and the possible need for a licensed and certified professional to handle the installation.

Ultimately, the best choice for you depends on your individual driving habits and needs. Consider your daily commute, how often you take long trips, and your budget when making your decision.





# CONNECTOR COMPATIBILITY: MATCHING YOUR EV TO THE CHARGER

When charging your electric vehicle, ensuring compatibility between the car's connector and the charging station's plug is crucial. Most EVs in North America, except Tesla, utilize the J1772 connector, compatible with both Level 1 and Level 2 chargers.



# **TESLA NACS CONNECTOR**

Tesla uses its proprietary North American Charging Standard (NACS) connector for its vehicles. To facilitate charging at non-Tesla stations, they include a J1772-to-Tesla adapter with every car.

However, the landscape is evolving. Many automakers have announced plans to adopt the Tesla standard, allowing their future EVs to access Tesla Superchargers. These new models will be equipped with NACS charging ports.

# **UNIVERSAL WALL CONNECTOR**

Tesla's Universal Wall Connector offers a convenient solution, supporting both J1772 and NACS connectors without needing additional adapters.



# **CHOOSING THE RIGHT CONNECTOR**

While the industry is aligning towards the NACS standard, most EVs on the road currently use the J1772 connector. Consider your current and future needs to determine the most suitable option for your situation.



# **CONSIDERATIONS: PLUG-IN VS. HARDWIRED**

The installation process for your EV charger depends on its amperage rating. Chargers delivering up to 40 amps are available as plug-in units, offering greater convenience and portability. However, chargers exceeding 40 amps require hardwired installation by a qualified electrician.

#### **Balancing Power and Cost**

While higher amperage chargers like 48 amps offer faster charging, they necessitate hardwiring and thicker wires, potentially increasing installation costs. For most daily charging needs, a 40-amp plug-in charger with a NEMA 14-50R outlet often strikes a good balance between power, cost, and portability.

## **Safety First**

Regardless of the chosen amperage, always prioritize safety by having a licensed electrician install your EV charger. Their expertise ensures proper installation and adherence to code, preventing potential damage to your car or home.

#### **Location Matters**

Consider the charging cable's reach to your parked vehicle and potential future EV models with different charging port locations. A central location in your garage usually provides the most flexibility.



## MAINTAINING YOUR EV CHARGER AND MAXIMIZING EFFICIENCY

Once installed, proper care extends the lifespan of your EV charger. Here are some recommended practices:

#### **Coil the cable**

Prevent damage by coiling it when not in use, avoiding situations where it might be driven over.

#### **Protect the connector**

Use a holster to safeguard the connector's metal pins from dirt and moisture when not in use. Keep the connector off the ground to prevent damage.

#### **Unplug during storms**

Disconnect your charger during thunderstorms to minimize potential damage from lightning strikes.

#### **Secure plug-in connections**

Ensure a secure connection between the plug and the outlet for plug-in units.

#### **Battery Care**

Some manufacturers recommend limiting daily charging to less than 100% to prolong battery life. Check your vehicle's settings for recommended daily charging limits and adjust accordingly.

#### **Leaving the Charger Connected**

Don't worry about harming your EV by leaving it plugged in after finishing charging. The vehicle automatically stops charging upon reaching its desired level.

#### **Take Advantage of Potential Savings**

Explore time-of-use (TOU) electricity plans to potentially save on charging costs by scheduling charging during off-peak hours when electricity rates are lower. Many EVs and smart chargers allow setting charging schedules to leverage TOU plans.

When acquiring your next EV, investigate potential incentives from your local utility company. These incentives may cover a portion or the entire cost of a Level 2 charger and installation.





# **ABOUT EV OPTIMUM**

At EV Optimum, we're driving the future of electric vehicle (EV) infrastructure in the areas we serve across the United States. Specializing in professional EV charger installation services, we empower homeowners to maximize the benefits of their electric vehicles with efficient, reliable and affordable home charging solutions.

As a certified EV installer with Tesla, Enphase and Emporia, our team of experts are committed to providing top-tier service, from the initial consultation to the final installation, ensuring your transition to electric is seamless and straightforward.

## Get a quick quote today!

Contact an EV Optimum representative by calling toll-free **(844) 999-4786** or visit **www.evoptimum.com**.





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**Standard NEMA Outlet** 



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