What is the difference between Level 1 and Level 2 EV Charging?

Here at EV-Chargers™ this is a frequent question from customers looking to upgrade or replace their current EV Charger. When you buy your car (pure electric or plug-in electric hybrid vehicle), the auto manufacturer will generally provide an industry standard level 1 charger. These chargers are slow and less powerful as they use the same power as your toaster to charge your car. They normally provide a slow charge but are flexible since they plug into your regular 3 pin plug at home (so good to have one in the car for example or at home). Unfortunately residential 3 pin plugs do not provide much power as they are designed for regular domestic appliances such as TVs, hair dryers and phone chargers.

As electric vehicle car batteries become larger (to increase range) or become fully electric, it is taking longer and longer to charge your electric vehicle with the low hourly power feed that a level 1 charger. In the future, all cars will essentially need a more powerful charger (Level 2 NEMA 14-50 or NEMA 6-50). As batteries get bigger to provide more electric driving range. so does the need for more power to charge quickly and "fill" your car's battery.

We generally recommend customers have a level one portable EV charger with a NEMA 5-15 plug (level 1 charging) and one portable level 2 charger with a NEMA 14-50, NEMA 6-50 or NEMA 14-30 plug. This gives you the maximum flexibility.

NEMA 14-50 and NEMA 6-50 plugs are especially versatile since they will charge your car at the maximum rate the battery can accept and will future proof you as EV car batteries become larger. The "50" denotes that the plug is designed for a 50 amper current, which is much faster than your regular 15 and 20 amper 3 pin sockets. The power to charge your electric vehicle is generally linked to the amount of current, so the more current the faster "fill" or charge time for your battery.

Table comparison of Level 1 v Level 2 EV Charger charge times

Charging Level	Plug Types	Miles per hour of charging*	Approximate charge time to full battery
Level 1 Charging (regular home 3 pin)	NEMA 5-15 NEMA 5-20	2 to 3 miles	8-24 hours (depends on size of battery)
Level 2 Charging (20-30 amp plug)	NEMA 6-20 NEMA 6-30 NEMA-10-30* NEMA 14-30 NEMA L14-30	5-15 miles	6-20 hours (depends on size of battery)
Level 2 Charging (50 amp plug)	NEMA 14-50 NEMA 6-50 NEMA 10-50*	Upto 30 miles	3-12 hours (depends on size of battery)

The continued use of NEMA 10-50 and 10-30 plugs is dangerous. If you have either a NEMA 10-50 or 10-30 plug we strongly recommend finding a licensed electrician in your area to change these plug outlets to grounded type outlets.. Both NEMA 10-50 and NEMA 10-30 are non grounded plugs i.e. hot hot neutral and are missing the critical ground conductor.

These pose a safety hazard (electrical or fire) as there is no ground for excess voltage or place ro remove voltage in case of product failure. In many states, these plug types are no longer up to electrical code. A NEMA 10-50 for example should be replaced with a 14-50 or 6-50 plug type as appropriate based on the total number of conductors by a licensed electrician. The 10-50 and 10-30 plug outlets were replaced with grounded safer plug types about 30 years ago. Due to the age of houses and some states being slower to enforce these standards, there are still plenty of houses with these older plug types.

Reasons to upgrade to a Level 2 portable EV Chargers:-

1) Time. Quicker to get to a full charge!

2) Less range anxiety. Who wants to drive their car with half a battery or not fully charged?

3) Lower cost. You can fully charge your car overnight when electricity is cheaper

4) Futureproof yourself. Save the hassle of upgrading to a level 2 charger when you buy your next electric vehicle

5) Avoid the installation of a wall charger and portability of plug and go EV Charger

At EV-Chargers™ we sell a range of level 2 chargers and try to offer the widest range of domestic plug options to fit your car's battery. By offering the majority of U.S. NEMA plug types, you can connect your charger into your existing receptacle without the hassle of changing out plugs or moving circuits.

We provide level 2 EV charging solutions that match your battery's maximum charge rate (ExactEV™) and a futureproof version that fits your current car perfectly and your next upgrade (TotalEV™). If you are not on a tight budget, we would recommend TotalEV™.