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Charging

# Types of Electrical Outlets for Electric Car Chargers

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There are many different types of electrical outlets for electric car chargers. Common outlets include the NEMA 14-30, 14-50, 6-30, and 6-50.

 7 min read

Charging an electric vehicle (EV) can seem a bit complicated at first, however, after some experience it will become very habitual. One topic that can trip a lot of prospective or first-time EV

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There are in fact many different electrical outlets for EV chargers. Some are low power for Level 1 charging, while others are higher power for Level 2 charging.

Selecting the right Electric Vehicle Supply Equipment (EVSE or “charger”) or directing an electrician to install the correct outlet takes the proper education. If the wrong charger is purchased or the wrong outlet is installed, you may find yourself unable to charge.

Let’s go over all the different types of electrical outlets for EV chargers so you are best prepared to set up your home EV charger. Note that the electrical content of this article is pertinent only to the U.S. and Canada.

## Summary:

- Types of 120 Volt Outlets
- Types of 240 Volt Outlets
- Best Electrical Outlets for Electric Car Chargers
- Electrical Outlets Not Suited Well for Electric Car Chargers
- Final Thoughts

## Types of 120 Volt Outlets

A good way of thinking about electrical outlets is to group them in their voltage classification. There are two voltages at residential applications, 120 Volts (V) and 240V. In general, the fewer the volts, the less power.

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There are a few 120V outlets, however, by far the most common is the NEMA 6-15. NEMA is the acronym for [National Electric Manufacturers Association](#). The first set of digits is the outlet class (6) and the second set is the maximum current (15 amps).

The typical household outlet, the NEMA 6-15, is the shocked-face thing you have seen for your entire life. It has been by your side (literally) when you need it most.

There are a few other 120V outlets, however, they are much, much less common in residential construction.

See, it's simple!

## Types of 240 Volt Outlets

Next up is 240V outlets. Unfortunately, there are many different types of 240V outlets. For those of you with an electric dryer, range, welder, etc., you may have seen these before, however, for others, these outlets could look quite foreign.

The most popular 240V outlets are now the NEMA 14-30, 14-50, and 6-50. Like voltage, the more amps, the more power.

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Electric Dryer	NEMA 10-30	30A	20
Electric Dryer, EV Charger	NEMA 14-30	30A	20
Welder	NEMA 6-50	50A	30
Electric Oven	NEMA 10-50	50A	30
EV Charger, Range	NEMA 14-50	50A	30

Heavy duty 240v appliances with corresponding NEMA outlets and EV charging speeds



Visual diagram of NEMA outlet types / Tesla



5-15	3	3	2	3
5-20	4	4	3	4
6-15	7	11	5	10
6-20	11	15	8	14
10-30	17	22	14	21
14-30	17	22	14	21
14-50	23	30	20	29
6-50	23	30	20	29

*240v NEMA outlets with Tesla model's charging speeds /  
Tesla*

A general rule of thumb to distinguish a 120V outlet from a 240V outlet is by the size of the outlet. In most cases, a 240V outlet is larger.

It is also worth noting that gas appliances utilize 120V power, therefore, are not capable of converting to 240V.

## Best Electrical Outlets for Electric Car Chargers

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So now that you know the common receptacles, what are the best types of electrical outlets for EV chargers?

For Level 1 chargers, the NEMA 6-15 outlet is the best outlet. Well, it's really your only option for 120V. Nevertheless, With a Level 1 charger, you can expect to charge an electric car at a rate of 4 miles of range per hour.

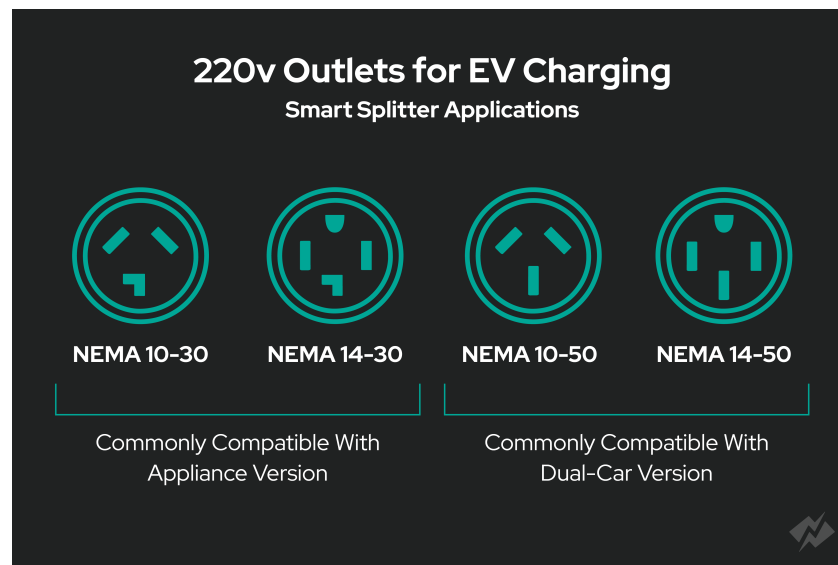


*NEMA 6-15 Outlet | Clint Patterson*

Keep in mind that a Level 1 charger comes standard with every EV. So getting started with Level 1 charging is fairly easy as you plug the charger into any available household outlet and begin to charge, albeit at a slow pace.

## Level 2

The best 240V (Level 2) electrical outlets for electric car chargers are the NEMA 14-30, 14-50, 10-30, 10-50, and 6-50. Depending on the amperage, a Level 2 charger can provide around 20-30 miles of range per hour. 30A circuits (e.g. NEMA 14-30 outlet) provide about 20 miles of range per hour while 50A circuits (e.g. NEMA 14-50 outlet) provides around 30 miles per hour.

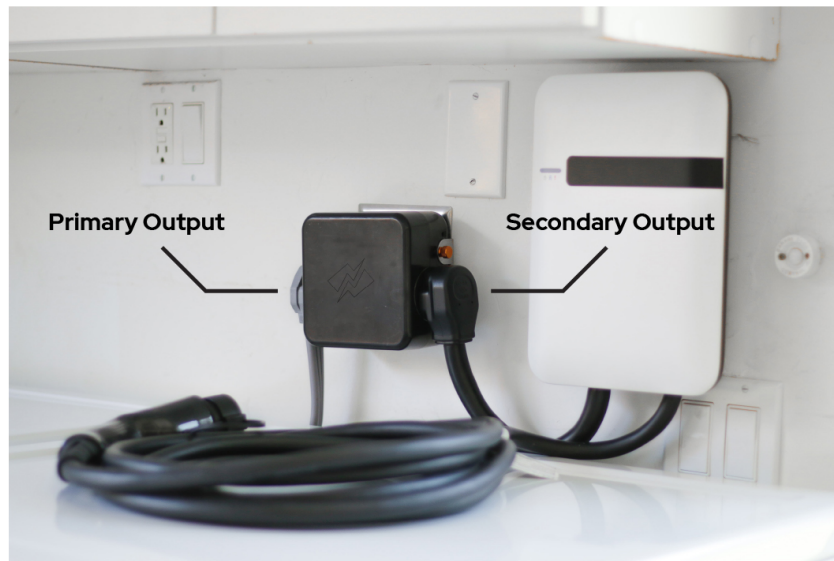


*Great electrical outlets for electric car chargers!*

Remember--the numbering is simple, the first set of digits is the outlet class and the second set is the maximum current (amps) that can be drawn.

Unlike the standard Level 1 charger, a Level 2 charger needs to be separately purchased. Additionally, most garages may not have a spare 240V outlet. Therefore, you will need to hire an electrician to install a new outlet and possibly upgrade your electrical panel. All of this can cost hundreds of dollars to thousands of dollars if a panel upgrade is needed. No bueno!

Fortunately, for those who have an existing 240V outlet currently occupied by an appliance or EV charger, there is a smarter and more affordable solution than to install a new circuit! The 240v [Smart Splitter](#) by [NeoCharge](#) plugs into an existing 240V outlet to create two outlets from one.



The Smart Splitter by NeoCharge can power an appliance and an EV charger with one outlet!

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# Electrical Outlets Not Suited Well for Electric Car Chargers

As aforementioned, there are not many other 120V outlets, therefore, it is hard to go wrong when needing to find an outlet for Level 1 charging. 240V, on the other hand, is a bit more complicated.

The NEMA 1-15 and 6-15 are not great electrical outlets for electric car chargers. The 1-15 outlet in particular is the old style without any ground conductor. Modern electrical wiring includes a ground wire for safety. In fact, the EV charger itself requires a ground, therefore, will not work with an outlet that does not have a ground conductor.

The NEMA 6-15 outlet is another outlet that isn't a great choice for an EV charger. This outlet is typically used for window-mounted air conditioning units, but does not provide a lot of amperage (current), meaning it won't charge the car as quickly as a higher current outlet like the 50A NEMA 14-50.

If for some reason you have any of these non-standard EV outlets, there are two options:

First option is to have your electrician replace the outlet with an EV charger-friendly receptacle. Of course, the breaker and the wire limit the maximum current, therefore, you will need to select an appropriate outlet that matches the corresponding circuit amperage.

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It is highly recommended to consult with an electrician before conducting any work. Of course, with the Smart Splitter, no electrician is required since you simply plug in the device to the existing outlet.

## Final Thoughts

Congratulations! If you've made it this far, you've learned a lot about what are the best and not so great electrical outlets for electric car chargers.

No matter if you use Level 1 or Level 2 charging, having a consistent and reliable place to charge an EV will make ownership much easier.

And for the individuals that do not have access to charging, there are literally thousands of public charging stations, you just may not have noticed them. Per the Law of Attraction, once you start looking for them you will begin to see them everywhere! For example, check out the [EVmatch](#) network below. EVmatch is just one of many EV public charging networks.

EVmatch  
charging  
network



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