L3 charging stations

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But what is a Level 3 charger, how fast can it charge an EV, and how does it fit in with the other levels of EV charging stations? This guide will answer those questions for businesses that are considering adding a Level 3 charger to their facilities, as well as for individuals who want the minimum amount of downtime between EV road trips (just don"t plan on installing one in your home garage, unless you have the budget and electrical infrastructure to back it up).

A Level 3 charger is an apparatus designed to intelligently charge the batteries of supported electrical vehicles at a speed that far outpaces other charger classes. Aside from their relative speed, the most important thing to know about Level 3 chargers is they are not nearly as standardized as Level 1 chargers or Level 2 chargers. While the two lower levels use the common SAE J1772 or "J Plug" connection (with the exception of Tesla chargers, which require proprietary adapters to work with standardized charging stations), there are no less than three different types of connectors for Level 3 chargers:

These differences are reflected in common trade names for Level 3 chargers. Depending on which manufacturer you ask, the answer to "what is a Level 3 EV charging station" may be "a Tesla Supercharger" or "a DC Fast Charger" or beyond. But the most important distinction is what makes Level 3 charging so fast, and that difference comes down to current and kilowatts.

A Level 3 charger"s output runs from 50kw to 350kw, letting it deliver the equivalent of up to 20 miles worth of range per minute to an EV. This level of speed is possible not only because a Level 3 charger transfers a great amount of electricity quickly, but also because it does so in a form that can be more easily stored by the EV.

Electricity is transmitted across the power grid with an alternating current, but most batteries--whether disposable, in your phone, or in your car--use a direct current. This means the electricity"s current must be converted before it can be used to recharge your battery, and Level 1 and Level 2 chargers rely on an EV"s built-in converter to handle the task. Level 3 chargers convert the electricity from AC to DC internally, allowing them to directly feed the current to an EV at a much greater rate than the vehicle"s built-in converter could handle.

The speed of a Level 3 charging station shows what a potent asset it can be for owners and drivers alike when managed correctly. If you"re considering outfitting a charging destination with Level 3 chargers, keep in mind you"ll also need the right software to manage it.

The cost of installing and operating a Level 3 EV charger is steep. Here are some figures to find as you arrive at your estimate:

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All told, you should expect at least five-figure costs to install the first of your Level 3 EV charging stations. You should prioritize placing them at high-traffic locations, such as a site off a major highway exit or beside another busy thoroughfare, to maximize returns from this investment.

Though they"re the fastest, Level 3 charging stations aren"t the only option for commercial and residential properties. What is a Level 3 charging station"s speed compared to the alternatives, as well as their cost and complexity? Here"s what you need to know.

Level 1 charging stations are also referred to as portable charger cables, and they"re commonly bundled in with the purchase of an EV. These cables move electricity at a trickle compared to Level 3 chargers, topping out at 2.4kW which could take days to fully charge a typical EV"s battery. However, Level 1 chargers come with one substantial benefit: You can plug them into any standard 120V outlet. Given their convenience and lack of installation costs, these cables may be all some short-distance or infrequent commuters need.

For many applications, Level 2 chargers occupy the sweet spot between expense and speed. They can deliver anywhere from 3kW to just under 20kW of AC power to EVs, which roughs out to about 30 to 50km (20 to 30 miles) of range per hour of charging. Still quite a bit slower than Level 3 chargers, but fast enough to top out an EV"s battery if a patron leaves their car parked at the mall parking lot for a few hours or overnight in their garage. Since Level 2 chargers can plug into standard 240V outlets (the same used for clothes dryers and other large electrical appliances), they"re also quite a bit cheaper to install than Level 3.

Whether you"re running a massive fleet of chargers from different manufacturers, are building your own EV charging business and need a white-label solution, or are starting your very first location, you need the right software to run it all. At ChargeLab, we"re building the most powerful and secure EV charging software, all created on open standards for optimal compatibility with leading hardware. Contact us today to find out how you can join other leaders in the space on our intuitive platform.

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