



# EV Charger Circuit Planning Before Installation

An EV charger is a continuous electrical load. Check the service, breaker, conductor, and distance as one decision before buying equipment.

The charger nameplate is only the starting point. A reliable installation verifies the existing service and the full branch-circuit path.

## Worked example from the live calculator

For a 48 A charger, the live EV circuit calculator applies the continuous-load factor and returns 6 AWG copper on a 60 A breaker, delivering about 11.5 kW at 240 V.

## Treat charging as continuous demand

The EV circuit engine applies the continuous-load logic to charger output. That result informs branch-circuit sizing but does not prove the service can absorb the new demand.

## Check capacity before upsizing hardware

Run the service-load calculation with the EV included. If the service is constrained, load management or a service upgrade may be more appropriate than guessing at a larger breaker.

## Size wire for ampacity and distance

The conductor must meet ampacity and voltage-drop needs over the actual route. A long detached-garage run can require a larger conductor even when the breaker is unchanged.

**Key takeaway.** For EV charging, verify continuous load, service capacity, breaker, conductor ampacity, and voltage drop in that order.

## Assumptions

- Charging equipment listing, load-management features, and local permit requirements control the final installation.

## Sources

- NEC Article 625 and equipment instructions, verify adopted edition

## **Frequently asked questions**

### **Can I install a larger breaker for faster charging?**

Only if the charger, conductors, and upstream capacity support it.

### **Does a smart charger eliminate service review?**

No. It may manage demand, but the installation still needs proper design and approval.

### **Why is run length important?**

Voltage drop increases with conductor length and charging current.

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