What Capacity EV Charger : Explained

The biggest factor that will affect your choice of EV Charging Point will be the available electrical capacity at your property. The majority of private domestic properties are Single-Phase electrical supply (where just one cable delivers the incoming power from the street to your fuse box) and will not support an EV Charge Point larger than 7kW. Three-Phase supplies are normally associated with commercial premises and can be identified as the name suggests, with three incoming single-phase cables delivering the power to your fuse box.

Step One:
Identify the size of your primary fuse in Amps. Normally 32Amp, 40Amp, 60Amp, or 80Amp.

How to identify your Primary Fuse capacity:
Locate the primary fuse box (circuit box) for your property. This fuse box will have one large fuse near the point where the incoming electric cable enters into the fuse box. Or it may be located next to the electricity meter. This fuse will have a numbered rating on it, which is normally 32Amp, 40Amp, 60Amp, or 80Amp. Note this number.

Step Two:
Ascertain your incoming power supply in either kVA or Watts.

These two factors of measurement are assumed to be equivalent in the majority of cases (1kVA = 1kW). If you have a Smart Meter, you can scroll through the options until you find a number following by the identification 'kVA'. This will normally be between 7 and 18kVA.

If you cannot find a kVA value, then your incoming power supply can be approximately calculated by multiplying your primary fuse capacity in Amps by 230 (230V is the standard circuit voltage for domestic properties in the U.K.).

For example:
32 Amp fuse = 7.4kW (32 x 230V)
40 Amp fuse = 9.2kW (40 x 230V)
60 Amp fuse = 13.8kW (60 x 230V)

Step Three:
Estimate what power you are currently using in 'instantaneous' appliances.

For example:
- a 1000W electric heater uses 1kW.
- a washing machine uses 1kW.
- a microwave will use up to 1kW.
- an electric kettle will use up to 500W.
- a heated hot water tank could use up to 1.5kW.
- Lighting is negligible with modern LED bulbs.

Add all these kW values to calculate the total power used by 'instantaneous' appliances.
The above example would total 5.0kW.

Step Four:
Calculate what power remains for your EV Charge Point

After totalling your estimation of what power your are currently using through 'instantaneous' appliances, deduct this value from your incoming power supply. For example:

Single Phase Installation - 40Amp Fuse:
Amperage of your primary fuse is 40Amp. Multiply this by 230V. Ex: 40A x 230V = 9.2kW. Then deduct this from the total power you consume in instantaneous appliances. Ex: 2 electric radiators of 1kW, 1 microwave oven 1kW, 1 washing machine 1kW, 1 hot water tank of 1.5kW. Total is 5.5kW. So you have about 3.7kW left for your EV Charger. So your choice of charger will be limited to up to 3.6kW, unless you arrange an increase of power supply with your electricity provider.

Single Phase Installation - 60Amp Fuse:
Amperage of your primary fuse is 60Amp. Multiply this by 230V. Ex: 60A x 230V = 13.8kW. Then deduct this from the total power you consume in instantaneous appliances. Ex: 3 electric radiators of 1kW, 1 microwave oven 1kW, 1 washing machine 1kW, 1 hot water tank of 1.5kW. Total is 6.5kW. So you have about 7.3kW left for your terminal. So your choice of charger will be limited to up to 7.2kW.

Step Five:
Choose an EV Charge Point with a maximum charger capacity to suit the power available at your property.

Don't worry.
It is important to note that the majority of EV Charge Points supplied by **EV-Pow.com** have integrated ALM (Automatic Load Management) software installed as standard. As such, the unit will 'scan' what power is available to it after all your usual domestic appliances have been provided for, and will only use up to this level of available power. This will avoid the occurrence of power outages.

However, if the available power for use by the EV Charge Point is less than the kW rating of the unit, it will affect the achievable rates of charge / hour. For example, a 7.2kW unit may only be able to charge at a rate similar to that of a 3.6kW charger, if it cannot source 7.2kW of available power.

EV-Pow.com therefore recommends to complete an accurate calculation of available power, in order for you to choose the most appropriate charger for your property.

Get in touch.

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