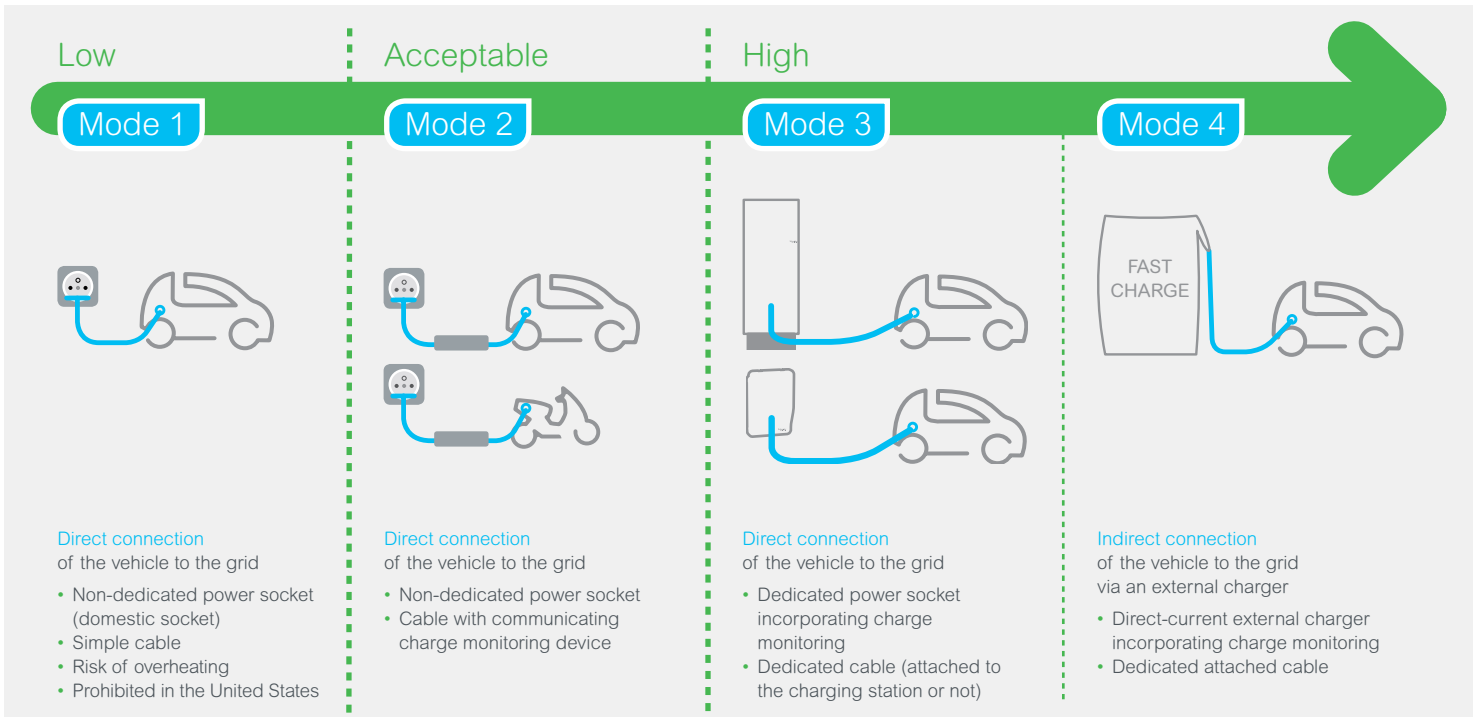


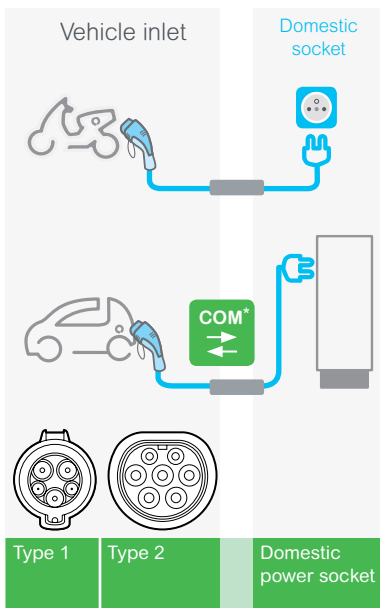
# Charging

➤ The charging mode determines the protection level

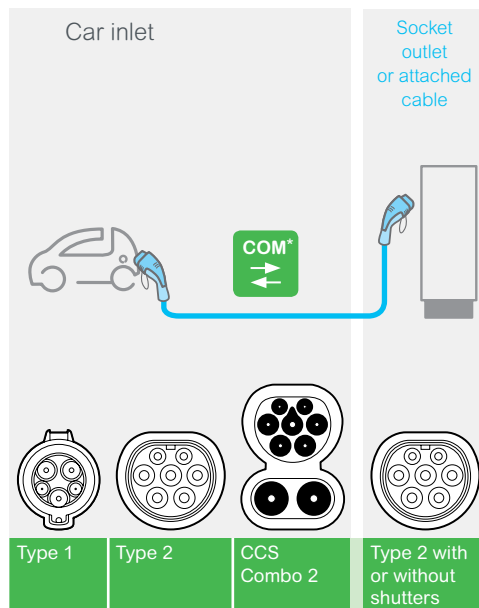


➤ Mode 2, Mode 3 or Mode 4 determines the type of charging connectors

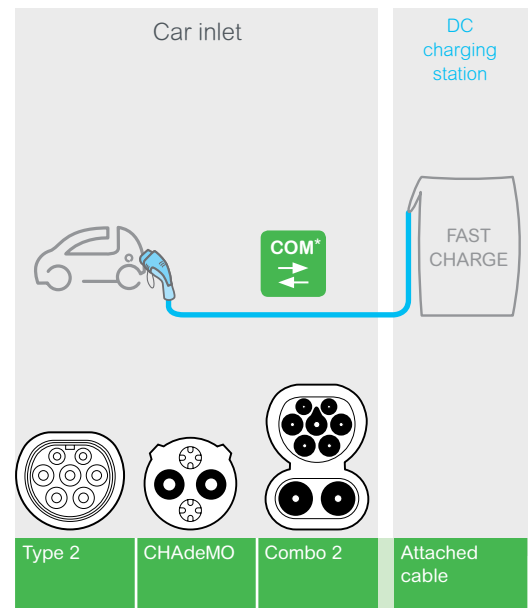
## Mode 2



## Mode 3



## Mode 4









**\*Focus on technology**

## Charging cable

A "COM" wire allows data communication between the vehicle and the charging station. The charging process starts only if the following information is OK:









- Vehicle earthing
- Indication of the charging cable rating.

➤ The effective charging capacity is that of the weakest "link", for example:

Vehicle charger	Cable/charging mode	Charging point	Effective charging capacity
 7 kW	 2.3 kW (Mode 2)	 Domestic power socket 2.3 kW (Mode 2)	2.3 kW
 7 kW	 7.4 kW (Mode 3)	 Charging station 22 kW	7.4 kW

➤ The power of the source determines the charging speed\*

Example: for a vehicle with a 40 kWh battery:

Source used	Domestic power socket	Dedicated AC power socket		Dedicated DC power socket
Power	Single-phase: 2.3 kW	Single-phase: 7.4 kW	Three-phase: 22 kW	Three-phase: 24 kW
Time to "fill up"	 18 h	 7 h	 2h30 min	 2h
% of charge reached in 30 min	 3%	 7%	 20%	 25%

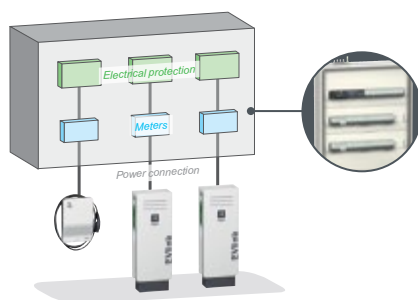
(\*) Subject to the use of a suitable cable.

## Focus on technology

## Electrical distribution architecture

### Standalone

One or several charging stations can be connected to the same protection panel. The protection could also be installed in the Parking station floor base (see chapter page 34). Each charging station operates independently. They are protected upstream and their consumption can be measured. The charging stations can be connected to a supervision.



### Clustered

An alternative way is to manage energy availability: [EVlink Load Management System](#). It makes it possible to consider various needs related to the use of the vehicles that will be charged. A cluster consists of charging stations, from 3 to 1000 charging stations, controlled by EVlink Load Management System, power meter, 3G/4G modem, etc., that can be connected to a supervision.

