

Charging a Tesla

A Tesla can only draw the minimum of the capability of **A. the car**, **B. the source charging station** and **C. the connecting cable or adaptor**

A. Car capability

	kW	Exceptions
Model S before Jun2016	AC: Either one or two 11kW chargers (rectifies	Some old cars cannot draw more than 16 amp from a single phase source, but there are bridged cables which activate all three subchargers for each phase.
Facelift Model S and Model X	AC: Single charger 24amp 3phase = 16.6kW	Some cars are software limited to 16A 3phase or 48A single phase, but can buy the upgrade on line.
Model 3	AC: Probably all in Australia will have a 16amp	3phase charger = 11kW
Model S, X	DC: Maximum of 175kW	Smaller batteries may be restricted to less than 175kW
Model 3	DC: Maximum of 250kW	Smaller batteries may be restricted to less than 250kW

B. Source capability

Source	AC/DC	Amps	kW	Connector required	
GPO (AS 3112)	AC	10	2.3	BYO EVSE	
T1 J1772 (Chargepoint and RAC EHighw	AC	30 amp single phase	6.9	BYO adaptor	
T2 Mennekes (Old REV Project)	AC	20 to 30amp single phase	6.9	BYO cable	
T2 Mennekes (Newer stations Freo, Subic	AC	up to 32 amp 3phase	22	BYO cable	
3 Phase sockets (AS 3123)	AC	20,32 or 50amp	22	BYO EVSE	This is our bush standard in WA, since Synergy gave us 50 sockets to install in a 100kms grid on all main roads. We still have some to give out and some are awaiting install.
T2 Mennekes (RAC electric highway)	AC	up to 63A 3phase	44	Tethered lead	
Old DC chargers (RAC electric highway)	DC	up to 122A @ 350-400V	up to 47	CHAdemo and CCS tethered leads (CCS1 are being converted to CCS2)	
Tesla Supercharger V2	DC	up to 350A @ 350-400V	up to 120	Tesla T2 leads are being converted to CCS2	
Tesla Supercharger V3	DC		up to 250	Tethered lead CCS2	
CCS2 (eg ChargeFox)	DC and AC		up to 350	Tethered lead	

C. Connector capability

	kW	Models		Cost	Store
Tesla UMC Mobile connector 10amp (EV1	2.3	Model 3, S, X	Other pigtaills increase the capability (see below)	Free	
T1 to T2 adaptor	6.9	Model 3, S, X		\$220	https://store.jetcharge.com.au/collections/tesla-model-s/products/type-1-to-type-2-adaptor
Tesla UMC Gen2 with 16amp pigtail 1pha	3.7	Model 3	32 amp single phase might be possible with a new adaptor.	Free	
Tesla UMC Gen1 with RedEuro adaptor	11	Model S, X (should also fit	Pigtails for 20amp and 32amp 3phase sockets are also required.	\$375	https://store.jetcharge.com.au/collections/tesla-model-s/products/tesla-umc-adaptor or Tesla on 1800 646 952
T2 to T2 cable	22	Model 3, S, X	There is a bridged single phase version for old Teslas.	\$295	https://store.jetcharge.com.au/products/type-2-to-type-2-lead , or Tesla on 1800 646 952
EVSE (eg Juice Booster)	22	Model 3, S, X	Pigtails for all sockets included	\$2,200	https://store.jetcharge.com.au/collections/tesla-model-s/products/juice-booster-2
Tesla HPWC (Destination charger/Wall c	22	Model 3, S, X	Tesla give these to destinations they approve, & have offered us pairs of them for 37 WA locations, if we can persuade them to install them.		
CHAdemo adaptor	50	Model S, X	For old DC charging stations, but most will get a CCS2 lead also.	\$600	Tesla on 1800 646 952
CCS2 adaptor (and retrofit Hardware in c	150	Model S, X	CCS2 lead fits directly into Model 3.	\$275	Tesla on 1800 646 952

Charging Rate

1 amp for 1 hour gives about 1kms of range for Model S (less for Model X and more for Model 3)
Hence 11kW gives about 50kms of range per hour (less for Model X and more for Model 3). 230volts has been assumed for AC.
DC chargers bypass the cars' on board chargers, and all have tethered leads, but there are still limits on what the cars can receive.
The charge rate increases slowly increases on DC, but as the battery voltage increases, it tapers especially when nearly full.

Plugshare

Mobile app or <http://plugshare.com/>

This is the best way to find charging points, since owners add them and rate them if working or not.
Owners can also log in, which tells others that the charging point is in use and gives a means of contacting the owner from within the app.
Owners can filter the type of stations in which they are interested.
Remember that locations who have installed AESY 3phase sockets or Destination chargers for us, have had to pay electricians and the cost of the electricity.
We promised them a return on their investment, which is usually by patronising the location. Please offer to pay or patronise the location and leave complimentary posts on Plugshare.

Connectors

The two car clubs **TOCA Tesla Owners Club Australia** and **TOCWA Tesla owners Club West Australia** both have loan adaptors to lend to their members for particular trips.
Contact me on Slack or ift@iinet.net.au for TOCA loan Adaptors in Perth (T1 to T2 adaptor, T2 to T2 cable, CHAdemo adaptor, 3phase pigtails with RedEuro adaptor, 3phase extension lead, 13 amp EVSE)



Type 1
J1772



Type 2
Mennekes



Combo/CCS Type 1



Combo/CCS Type 2



CHAdeMO



Tesla CHAdeMO adapter

3 Phase sockets in Australia



50A 500V
56P450
56PA450
56CSC450



32A 500V
56P532
56PA532
56CSC532
56PO532



40A 500V
56P540
56PA540
56CSC540
56PO540



50A 500V
56P550
56PA550
56CSC550
56PO550



T
10A 500V
56P510
56P510QC
56PA510
56CSC510
56PO510



U
20A 500V
56P520
56P520QC
56PA520
56CSC520
56PO520



V
10A 500V
56P610
56PA610



W
10A 500V
56P710
56PA710



X
20A 500V
56P720
56PA720