

Vehicle electrification is gathering steam within the current environment as automakers and governments drive the electric vehicle (EV) industry forward world-wide. The benefits of electrification are profound and numerous, creating a sustainable mode of transportation that helps to reduce the use of nonrenewable energy and reduce carbon emissions. With increased focus to support the building of a robust charging infrastructure, TE Connectivity works closely with customers to support their success by providing robust solutions tailored to their specific needs and vehicle architectures.

EV/HYBRID CHARGING INFRASTRUCTURE

Electric vehicle charging stations seem to be popping up everywhere. The need to be able to charge a vehicle in minutes rather than hours is apparent. There are many charger types options that all in common to addressing safety and efficiency requirements.

Charging Station Level	Description/ Typical Use	Time to Charge* (add 320 km/ 200 miles)
Level 1 AC Charging 1-2 kW	Utilizes standard wall outlet (AC). On-board charger (AC/DC conversion). Trickle charging while at home/sleeping.	30-60 hours
Level 2 AC Charging 2-20 kW	Charging station (AC). On-board charger (AC/DC conversion). At home/work/topping off if convenient while doing errands.	3-30 hours
DC Low Power Charging 20-50 kW	Dedicated charging station (DC). Bypasses on-board charger. Charge during coffee/meal break. Never deployed.	1-3 hours
TESLA Supercharger DC Charging 50-250 kW	Proprietary charging station (DC). Bypasses on-board charger. Charge during coffee/meal break	20 minutes-1 hour
DC Fast Charging 50-200 kW	Dedicated charging station (DC). Bypasses on-board charger. Getting close to conventional "petrol refuel" experience.	10 minutes-1 hour
DC High Power Charging (HPC) 50-500 kW		
Proposed Ultrafast DC Charging 500 kW-1 MW*	Dedicated high power charging station (DC) using active cooling technology. Similar times to conventional "petrol refuel" experience. Ideal for commercial vehicles. Solutions still under development.	Less than 10 minutes

*Based upon 30kWh/160 km (100miles) average of current passenger car applications

CHARGING SOLUTIONS

Vehicle electrification is gathering steam within the current environment as automakers and governments drive the electric vehicle (EV) industry forward world-wide. The benefits of electrification are profound and numerous, creating a sustainable mode of transportation that helps to reduce the use of nonrenewable energy and reduce carbon emissions. With increased focus to support the building of a robust charging infrastructure, TE Connectivity (TE) is on the forefront of developing sealing and shielding solutions for this vital infrastructure need.



ALTERNATIVE CURRENT (AC)

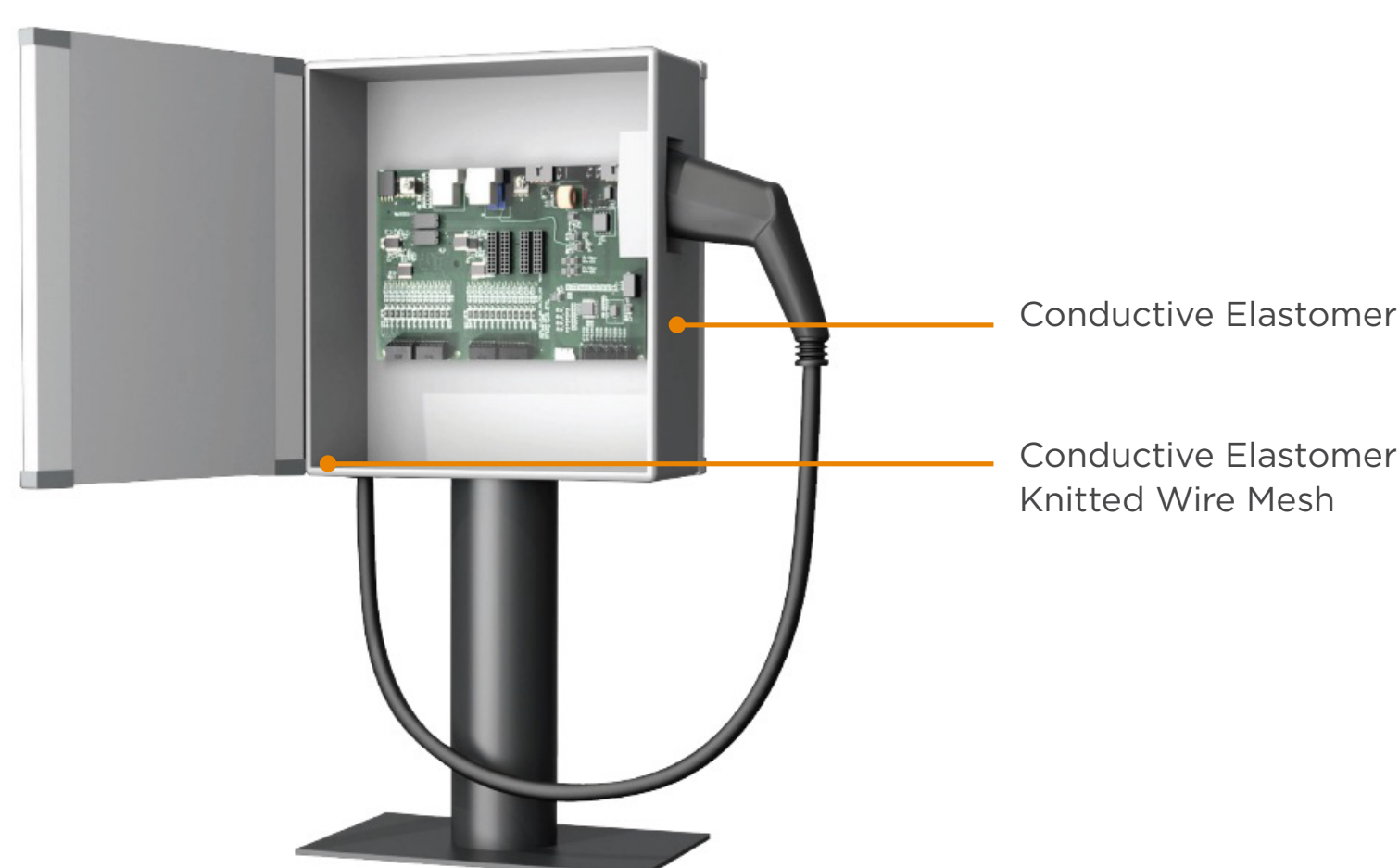
Charging your car at home or at work requires standard AC charging units. These units are typically cost effective and can be installed with greater flexibility, making them especially well-suited for home installation and overnight charging.

DIRECT CURRENT (DC)

DC charging stations, typically found near highways or public charging areas, offer faster charging capabilities in a larger, more complex unit.

AC CHARGING STATION

Application	Shielding Type	Features	Benefits
Conductive 1/2 Wrap	Panel Enclosure	<ul style="list-style-type: none"> Available in copper, tinned copper or aluminum An electrically conductive adhesive is applied to the foil. 	<ul style="list-style-type: none"> Temporary sealing of gaps for EMC testing Grounding
Knitted Wire Mesh	Enclosure	<ul style="list-style-type: none"> The mono-filament interlocking loop construction gives strength while allowing it to conform to almost any size or shape. A selection of elastomer cores are available to meet conditions such as temperature range, compression set, compression force. 	<ul style="list-style-type: none"> Delivers good galvanic match with mating flanges, thereby limiting the possibility of corrosion between gasket and flange. Excellent radio frequency interference (RFI)/electromagnetic interference (EMI) shield between two metallic surfaces.



DC CHARGING STATION

Application	Shielding Type	Features	Benefits
Conductive 1/2 Wrap Knitted Wire Mesh	Enclosure	<ul style="list-style-type: none"> Available in copper, tinned copper or aluminium An electrically conductive adhesive is applied to the foil 	<ul style="list-style-type: none"> Temporary sealing of gaps for EMC testing Grounding
Knitted Wire Mesh		<ul style="list-style-type: none"> The mono-filament interlocking loop construction gives strength while allowing it to conform to almost any size or shape A selection of elastomer cores are available to meet conditions such as temperature range, compression set, compression force. 	<ul style="list-style-type: none"> Delivers good galvanic match with mating flanges, thereby limiting the possibility of corrosion between gasket and flange. Excellent radio frequency interference (RFI)/electromagnetic interference (EMI) shield between two metallic surfaces.
EMI Shielded Window	Display	<ul style="list-style-type: none"> Termination of the EMI Shield windows to the enclosures is achieved with a continuous low resistance conductive edge around the window 	<ul style="list-style-type: none"> Providing optimum transparency and EMI shielding
EMI Vent	Ventilation	<ul style="list-style-type: none"> Hi-impact ABS UL94V-0 fire retardant moulding thick aluminum honeycomb and a nickel/copper fabric gasket to ground the honeycomb to the metalwork 	<ul style="list-style-type: none"> Deliver good air flow is required for cooling and ventilation but where EMC compliance must be ensured
Environmental Sealing Gasket	Power Supply	<ul style="list-style-type: none"> Offers versatile design and styles Enables complex shapes 	<ul style="list-style-type: none"> Sealing in the harshest environments
EVSW Heat Shrink Tubing	Sealing and Protection	<ul style="list-style-type: none"> Thinner wall, while strong electric insulation up to 2500V Modified polyolefin and crosslinked by irradiation Operating Temperature: -55°C to 135°C 	<ul style="list-style-type: none"> Excellent thermal stability High standard flame-retardancy High flexibility

