HOW CAN I KNOW THE STANDARD OF MY ELECTRIC VEHICLE?

If you still confused the Electric Vehicles Charging connector standard?
If you don't know which Type of ev charging station you should choose?
Please read this article to find a solution.

WHAT IS THE TYPE1 / SAE J1772 STANDARD

SAE J1772 (IEC Type 1), also known as a "J plug", is a North American standard for electrical connectors for electric vehicles.
SAE J1772 (IEC Type 1), is designed for single phase electrical systems with 120 V or 240 V such as those used in North America and Japan.

SAE J1772 Type 1 Plug
(install on charging station)

SAE J1772Type 1 Socket
(install on Electric Vehicle)

WHAT IS THE TYPE2 / IEC62196 STANDARD

IEC 62196 Type 2 connector (commonly referred to as mennekes) is used for charging electric cars within Europe. Electric power is provided as single-phase or three-phase alternating current (AC).
In January 2013, the IEC 62196 Type 2 connector was selected by the European Commission as official charging plug within the European Union. It has since been adopted as the recommended connector in some countries outside of Europe, including New Zealand.

IEC 62196 Type2 Plug
(install on charging station)

IEC 62196 Type2 Socket
(install on Electric Vehicle)

WHAT IS THE CCS2 OR CCS1 STANDARD

In order to know what is CCS2 and CCS1, we should know the Combined Charging System (CCS) first.

The Combined Charging System (CCS) covers charging electric vehicles using the Combo 1 and Combo 2 connectors at up to 80 or 350 kilowatts.
For both Type 1 (mainly in American) and Type 2 (mainly in E U) this has been accomplished by extending the inlet with two additional DC contacts below the existing AC and communication contacts. The resulting new configurations are commonly known as Combo 1 and Combo 2.

For the DC vehicle connector ,the implementation varies slightly between Combo 1 and Combo 2. In case of Combo 1 the connector is extended by two DC contacts, while the Type 1 portion of the connector remains the same with the AC contacts (L1 & N) being unused. For Combo 2 the AC contacts (L1, L2, L3 & N) are completely removed from the connector. Consequentl. In both cases, communication and protective earth functions are covered by the original Type 1 or 2 portion of the connector. The Type 1 and Type 2 connectors are described in IEC 62196-2, while the Combo 1 and Combo 2 connectors are described in IEC 62196-3 as Configurations EE and FF.

Automobile manufactures that support CCS include: Jaguar, Renault,Volkswagen Group, General Motors, Tesla, BMW, Daimler, Ford, FCA,Daimler, Kia and Hyundai.

Inlet Connector	**Type 2 Charging Plug** 	**COMBO2 (CCS2) Charging Plug** 
TYPE2 Charging Socket 	AC charging, single phase or three phase	Does not mate
COMBO2 (CCS2) Charging Socket 	AC charging, single phase or three phase	DC charging

Inlet Connector	Type 1 Charging Plug 	COMBO1 (CCS1) Charging Plug 
TYPE1 Charging Socket 	AC charging, single phase	Does not mate
COMBO1 (CCS1) Charging Socket 	AC charging, single phase	DC charging

Type 1 and Combo 1 chargers are primarily found in North and Central America, Korea and Taiwan, while Type 2 and Combo 2 can be found in North and South America, Europe, South Africa, Arabia, India, Oceania and Australia.

For DC charging the competing standard GB/T is used in China, while Japan uses CHAdeMO.

CHARGING COMMUNICATION

Basic signaling (BS) is done using a PWM signal which is transferred over the control pilot contact (CP) according to IEC 61851-1. This communication is used for safety-related functions, indicating for example if the connector is plugged in, before contacts are made live (or energized), and if both charging station and electric vehicle are ready for charging. AC charging is possible using the PWM signal only. In this case the charging station uses the duty cycle of the PWM to inform the onboard charger of the maximum available current at the charging station.

High-level communication (HLC) is done by modulating a high-frequency signal over the CP contact (also known as Power Line Communication or PLC) to transfer more complex information, which may be used e.g. for DC charging or for other services such as "plug and charge" or load balancing. High-level communication is based on the standard DIN SPEC 70121 and the ISO/IEC 15118-series. For DC charging DIN SPEC 70121 supports only charging powers up to 80 kW; for higher powers communication according to ISO/IEC 15118 is mandatory.

WHAT IS THE CHADEMO STANDARD

CHAdeMo is the name of a quick charging for battery electric vehicles. CHAdeMo 1.0 can deliver up to 62.5 kW by 500 V, 125 A direct current via a special CHAdeMo electrical connector. A new

revised CHAdeMO 2.0 specification allows for up to 400 kW by 1000 V, 400 A direct current.

CHAdeMo was proposed in 2010 as a global industry standard by an association of the same name formed by five major Japanese automakers and included in the IEC61851-23, -24 (charging system and communication) and the IEC 62196 standard as configuration AA. Competing standards include the Combined Charging System (CCS)—which used by most German (CCS2) and US automakers (CCS1) —and the Tesla Supercharger.

The CHAdeMO Association was formed by the Tokyo Electric Power Company (TEPCO), Nissan, Mitsubishi and Fuji Heavy Industries (now Subaru Corporation).

CHAdeMo Plug
(install on charging station)

CHAdeMo Socket
(install on Electric Vehicle)