

Difference between j1772 and ccs

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Amid the growing shift to electric vehicles (EVs), understanding EV charging standards, notably J1772 and CCS, is indispensable. These standards, formulated by vehicle and charging equipment manufacturers, dictate the charging process's parameters, such as connection interface, charging speed, and power types. Despite sharing a common goal—consistent and safe charging—J1772 and CCS have distinct features and differ in areas including connector design, charging speed, and station support.

Understanding these differences is critical as they heavily influence charging options. This knowledge equips both existing EV owners and potential adopters to make informed decisions that can significantly impact their electric motoring experience. Familiarity with J1772 and CCS, from charging speeds to station choice and home charging setups, paves the way to harnessing the full potential of EVs.

In this article, we navigate the differences and unique advantages of these two EV charging standards. By dissecting their characteristics and pivotal roles, we aim to shed light on their influence on the overall EV charging experience.

Developed by the Society of Automotive Engineers (SAE), the J1772 standard, often referred to as Type 1, is a ubiquitous charging protocol primarily utilized in the United States for electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs). The J1772 standard forms the backbone of EV charging infrastructure in the United States and is integral in simplifying and standardizing the charging process for a wide range of vehicles.

Distinctive attributes of the J1772 standard include the support for both Level 1 and Level 2 AC charging. Level 1 charging utilizes a 120V supply, similar to a standard household outlet, offering a slow but convenient charging solution. Level 2 charging, on the other hand, involves a higher voltage of 240V, offering significantly faster charging speeds, and is typically used in public charging stations and dedicated home charging setups.

Another notable feature of the J1772 standard is its inherent safety characteristics. This includes a locking mechanism that securely connects the charging plug to the vehicle, effectively eliminating the risk of accidental disconnections during the charging process. This feature is especially beneficial when charging in public or unsecured locations, as it prevents unintentional dislodging of the connector.

Perhaps one of the most significant benefits of the J1772 standard lies in its universality. By adhering to this standard, charging infrastructure developers have ensured that vehicles outfitted with a J1772 receptacle can universally accept charges from nearly all charging stations, irrespective of the brand or the manufacturer. This means that irrespective of whether you drive a Nissan Leaf, a Chevrolet Bolt, or a BMW i3, you can confidently plug into any J1772-equipped charging station, be it standalone charge points, public parking lots,

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or even dedicated EV charging parks.

Taken together, the J1772 standard is characterized by its safety, convenience, and above all, its capability to offer universal charging for a vast array of electric and plug-in hybrid vehicles—a crucial factor driving the EV revolution forward.

Addressing the need for a more versatile charging solution, the Combined Charging System (CCS) was brought to life. Conceptualized and developed primarily by leading European and American car manufacturers, which include BMW, Daimler, Ford, and Volkswagen, the CCS charging standard blends AC slow charging and DC fast charging capabilities into a solitary plug. This holistic approach marks a significant leap in the functionality and ease of use of EV charging systems.

The CCS charging standard is essentially an extension of the J1772 charging interface, building on its foundational five-pin design and adding two extra pins dedicated to DC fast charging. This ensemble of seven pins comprises three for AC charging (just like J1772) and adds two larger pins that are designed to handle high-power DC for fast charging.

This coupling of both AC and DC charging options within the same connector offers a multitude of charging opportunities to users. On the one hand, it guarantees compatibility with slower Level 1 and Level 2 AC charging, which is ideal for at-home charging or when there's plenty of time to spare.

Alternatively, for a quick top-up when on the move, the CCS connector can switch over to DC fast charging, also known as Level 3 charging. This type of charging bypasses the vehicle's onboard charger, delivering a high current directly to the vehicle's battery and significantly slashing charging time, making mid-journey recharging more practical and convenient. In response to the vehicle's needs and the specific circumstances of the charging site, the CCS standard can flexibly shift between AC and DC charging modes, showcasing its true versatility.

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