

Megawatt Charging System (MCS)

To satisfy the market **demand of the Truck and Bus industry to charge electric heavy-duty vehicles within a reasonable time**, a new solution for high-power charging is needed.

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To give an answer to **global challenges like CO2 reduction** and energy saving, the automobile industry has been accelerating the development and commercialization of electric vehicles (EV), and hybrid electric vehicles. But climate-friendly mobility is **not just limited to passenger cars**. Most of the goods are transported by **trucks, ships or planes, a different dimension if we think about clean transportation**. Due to size and weight of these transport options, user-friendly and quick **High Power Charging is the key** to increase the acceptance of e-mobility also in this area.

To satisfy the market **demand of the Truck and Bus industry to charge electric heavy-duty vehicles within a reasonable time**, a new solution for high-power charging is needed. It will help meet climate and sustainability goals and offer maximized customer flexibility. Not just the truck industry will benefit from this solution. Other applications like Maritime and air vessels may use this charging system to fulfil their needs, too.

Therefore, batteries with larger capacities need to be taken in consideration. To charge those **large capacity batteries** in comparable times as today available or even faster, the **charging power needs to be increased**. Besides the charging voltage also the charging current needs to be increased to boost the charging power.

The larger charging current lead to either larger conductor cross sections for the cable assembly according to existing standards or additional measures in the cable assembly both still allowing for manual charging by the customer/ driver without the help of a supporting machine or robot.



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CharIN and the Megawatt Charging System (MCS)

In 2018, CharIN initiated the **Task Force "Megawatt Charging System (MCS)"** to invent a holistic system approach based on the Combined Charging System CCS. The CharIN Megawatt Charging System (MCS) Task Force represents the whole value chain of the Heavy Duty Vehicles industry segment which ensures that all perspectives are considered.

Today, they constitute an integral part of the **CharIN Focus Group "Charging Connection"** since also light electric airplanes, ferries, and other marine vessels go electric, the work of the Megawatt Charging System (MCS) group is essential in the field of extended applications.

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CharIN helps the industry create a common solution for **charging their electric heavy-duty vehicles** within a reasonable time.

MCS

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within the organization, helping to shape the standards that will drive the future of high-power charging.

MCS Connectors & Inlets from CharIN Members

Please **use your mouse to zoom** (mouse wheel back/forth) **or to rotate** the visualization by 360 (click and hold the left mouse button). Members in alphabetical order (fltr).



FAQ



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Stäubli's Megawatt Charging System (MCS) is designed to provide **efficient and user-friendly charging for heavy-duty vehicles**, with a focus on durability and ease of use. With high power charging and a rated current of up to 2000A with limited cooling needs, the system reduces charging time and increases the efficiency of vehicle operation. Prototypes of the system are available.

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MCS Inlet

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First of its kind public electric truck charging site in Portland, Oregon. Partnership between Portland General Electric and Daimler Trucks North America (PGE & DTNA). The place is prepared for installation of MCS charger and Battery Storage.

Recommendations and requirements

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The following requirements for the Megawatt Charging System (MCS) are currently discussed:



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customer flexibility when using fully electric commercial vehicles. The scope of the technical recommendation is to be limited to the connector, and any related requirements for the EVSE, the vehicle, communication, and related hardware.”

The standard focuses on Class 6, 7, & 8 commercial vehicles, but could easily be used for buses, aircrafts, or other large battery electric vehicles (BEVs) with huge battery packs and ability to accept a >1MW charge rate.

The Megawatt Charging System (MCS) shall comply with the holistic system approach of the Combined Charging System CCS.

With respect to the vast amount of CCS engineering expertise a maximum utilization of existing CCS building blocks and its related standards secures quality and reduces time to market. Compatibility will be a key success factor for market introduction and market stability.

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FAQ



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