Seminar Details

Seminar Name:
High Voltage Connectors in Cars – Seminar in Cooperation with HDT

Lead Experts:
Markus Eckel, Principal Field Applications Engineer HEMS

Area of Interest: Automotive

When: October 12th, 2022

Where: Hybrid (Online and in Essen, Germany)

Cost: 745 € VAT free (including event-related working documents)

Target Group: Leaders and Experts of the automotive industry, experts in e-mobility, electrical energy storage and bord architectures, students in relevant subject-related fields of study, lateral entrants

Seminar Prerequisites: Automotive Connector and Contact Systems seminar (recommended)

Summary:
Due to the more and more critical limit values for CO2 electric vehicles become a major instrument to reach legal fleet emission values. Actual trends show that in the electrification of the power train electronic vehicles with electrical systems of 400V or 800V become top priority of research. In the next decade the Battery Electric Vehicle [(B)EV] has a potential to become financially attractive for customers because of expected cost optimization in sections as energy storage and High Voltage (HV) aggregates.

Beside the purely EV hybrid architecture electrical systems with 48V/400V electrical system will come into play in the market. HV connectors, as well as HV electrical-system-architecture, have different challenges than the 12V architecture**.** Based on increasing complexity of the needed HV connectors, high requirements are put on design, inspection, validation, and analysis. Product safety need to be ensured under the variety of operational conditions and standards. The charging infrastructure and the charging interface of the vehicle are looming larger for the acceptance of the electromobility. Charging currents up to 500A are expected to shorten charging times significantly. To enable these highly energy transmissions, by existing charging interfaces and consideration of various international standards, components of the car need to be established. Fast charging demands the highest requirements for HV-connection-technology.

For the designing of the HV-connection-technology, HV electrical system components such as battery, charging socket, AC/DC charger, inverter, e-motor, heating element, air-conditioning compressor need to be considered, as well as the digital environment. The digital interconnection and the generated data inside and outside the care become more and more the oil of the 21st century. That is why it is becoming more important that these data can be conveyed error-free and in coexistence with high motor capacity in the car.

Course Content:
Participants will receive a practice-oriented overview of the various connectors and their applications in the vehicle electrical system of the voltage classes 12V, 48V and 1000VDC. This seminar focuses on high-voltage connectors and all connectors that are essential for the current vehicle electrical systems in electric and hybrid vehicles.

In addition to the basics of contact systems and their influencing factors, the differences between the 12V contact systems, the 48V and high-voltage on-board networks with their components are explicitly analyzed, explained, and demonstrated. During the seminar, the requirements for high-voltage connectors and their performance classes as well as the charging interfaces in the high-voltage vehicle electrical system will be explained in depth. In addition, the most important high-voltage design features will be examined in more detail. Finally, the challenges posed by today's specification environment to the components for future vehicle network architectures will be highlighted.

Schedule:
Day 1: 9:00am – 5:00pm

Contact:
The-Academy@te.com