

Seminar Details

Seminar Name:

High Voltage Connectors: Architectures & Design Requirements

Lead Experts:

Uwe Hauck, Director Technology & Innovation

Markus Eckel, Principal Field Applications Engineer HEMS

Area of Interest: Automotive

When: September 15th and 16th 2021

Where: Online

Cost: 600 € excl. VAT (incl. seminar documents)

Target Group: Anyone who is interested, from apprentices to managers.

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 car become more and more the oil of the 21st century. That is why it is becoming all the more important that these data can be conveyed error-free and in coexistence with high motor capacity in the car.

Course Content:

The participant receives a practice-oriented overview of the various plug connectors in the electrical system of the voltage classes (12V, 48V, 400V / 800V). The differences between the 12V contact systems, the 48 V and HV on-board electrical systems with their connector components will be analyzed, explained and shown.

- Overview of contacts and contact systems in the high-voltage electrical system
- Basics of contact systems and their influencing factors
- Overview of basic materials and coverings
- Connection technologies for high-voltage contact systems
- Performance classes and charging interfaces in the high-voltage on-board electrical system
- Challenges to the on-board network components for future on-board network architectures

Schedule:

Day 1: 9:00am – 1:30pm CET

Day 2: 9:00am – 1:30pm CET

Contact:

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