

Seminar Details

Seminar Name:

Data connectivity systems in upcoming Automotive architectures

Lead Experts:

Dr. Christian Rusch, Mgr R&D/Product Dvl Engineering

Area of Interest: Automotive

When: May 10th – 11th 2023 (Offline)
November 15th – 16th 2023 (Online)

Where: Online & Offline

Cost: Online: 600 € excl. VAT (incl. seminar documents)
Offline: 990 € excl. VAT (incl. seminar documents)

Target Group:

The seminar is aimed for anyone who is interested in data communication for Automotive, from apprentices to managers.

Summary:

The development from advanced driver assistance systems (ADAS) to fully autonomous-driving vehicles will lead to fundamental changes in the requirements for vehicle architectures. Recently discussed approaches show a trend towards centralization of computing power on the one hand and the need for redundancy and decentralized aggregation of high-speed sensor and camera data on the other. This development requires robust and reliable data transmission throughout the vehicle. For this purpose, Ethernet is already established in the Automotive industry as a flexible network solution in the vehicle. Serializer/Deserializer technology (SerDes) is also widely used for multi-gig point-to-point (p2p) connections for cameras and displays. This leads to a mix of different technologies and the parallel use of links with data rates from <10 Mbit/s to 10 Gbit/s and beyond. These different technologies and transmission rates require an efficient portfolio of connector systems with optimized adaptation to the respective transmission technology. Particularly at high data rates of 10 Gbit/s, this places ever higher demands on the individual system components, from the connector to the cable to the chip. It has been shown that the established technologies are confronted with physical limitations and there is the question to the maximum data rate that can be reliably transmitted via wired links in cars.

To answer this question, current transmission channels in cars must be checked for the limits of their individual components and the decisive influencing factors must be named and analyzed. These analyses provide important insights for the design of future data communication architectures in cars with regard to technologies to be used, usable link lengths, reliability and interference immunity.

Course Content:

- Architecture trends for data communication systems in vehicles
- Basics of RF-Data Connectors o Coaxial, differential
 - UTP vs. STP
 - The most important physical parameters in RF connector development
 - Development methods using EM-simulations
 - Structure of RF-connectors
- Overview of the Data Connectivity portfolio suitable for the different transmission technologies
- Qualification of the connectors o Fundamentals of measurement methods
 - Parameters to be checked
 - Future trends regarding advanced ADAS systems
- The data transmission system with focus on the transmission channel o Important parameters of the channel with impact on the system performance
 - Impact of the component performance on the channel
- EMV analysis of passive components o Most important parameters and standards
 - Measurement methods and simulation
- Study results on maximum achievable data-rates under automotive conditions

Schedule:

Day 1: 9:00am – 1:30pm CET

Day 2: 9:00am – 1:30pm CET

Contact:

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