

# 12<sup>th</sup> International Conference

## BORDNETZE IM AUTOMOBIL

May 7 and 8, 2024  
Ludwigsburg, Germany



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### Main Topics 2024:

- Harness Trends in the Automotive Industry
- Wiring Harness Production Automation
- Glass Fiber Optics
- Digital Wiring Harness Development
- OEM Views
- Virtual Tools / Digitalization
- Safety & Sustainability

### Company presentations by:

Astotec ++ AUDI ++ APTIV ++ BMW ++  
Caresoft ++ CARIAD ++ Corning ++ DRÄXLMAIER ++  
Föhrenbach ++ Fujikura ++ GG Group ++Hydro ++  
Kromberg & Schubert ++ Mercedes-Benz ++  
Molex ++ Robert Bosch ++ SEI Automotive Europe ++  
TE Connectivity ++ TMT CoPilots ++ tesa ++  
Vector Informatik ++ Volkswagen

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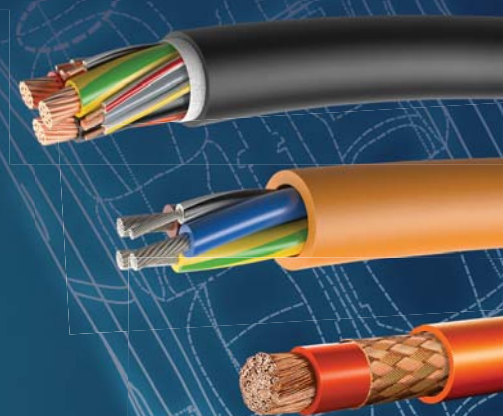
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**1<sup>st</sup> Day: Tuesday, May 7, 2024**

**08:50** Welcome and Kick-Off by Chairman, Georg Sterler

**09:00** Industry Transformation – Adapting to Win



- Legacy companies and working models under pressure
- Assessment of culture, technology, customer and business model
- Combining hardware, software and AI platform to win

**Joachim Langenwalter**, Senior Industry Advisor, Founder, TMT CoPilots

**09:30** Change in Electrical Systems: Time to Switch on 48V?



- Why is this new discussion strongly recommended?
- What requirements and prerequisites have changed?
- How does future energy architecture may look like?

**Ole Mende**, Director for Electrical Distribution Systems, AUDI AG



**Bodo Specht**, Head of Vehicle Electrical System Development, Volkswagen AG

**10:00** OEM View on Wiring Harness Production Automation



- Advantages of a production automation
- Standards as an enabler
- Common industry wide focus

**Rainer König**, Senior Manager Wiring Harness, Mercedes-Benz AG



**Mario Spoljarec**, General Manager Wiring Harness, BMW AG

**10:30** Coffee break & Networking

**11:00** Flexible Circuits in the Automotive and Battery Industries



- Flexible circuit compositions in electric vehicles
- Advantages + Comparison with common wiring harnesses used in a vehicle

**Robert Wuyts**, General Manager, Föhrenbach Application Tooling NV

**11:30** Advanced Multigigabit Automotive Ethernet Link



**Michael Linder**, Senior Manager Commercial Technology, Automotive Glass Solutions, Corning



**Gordon Mueller-Schlomka**, Senior Product Development Engineer for Optical Applications, Corning

**12:00** Harness Trends in the Automotive Industry



- Harness design trends supporting electrical architectures for EU-, China- and US-OEM
- Harness packaging and vehicle integration techniques

**Matt Schroeder**, Chief Engineer, Caresoft Global Technologies, Inc.

**12:30** Joint Lunch sponsored by Schunk & Networking in the Trade Exhibition



**14:00** Ready for the Digital, Automated Future of the Wiring Harness



- Automation in the wiring harness and new possibilities
- Creating the value of digital transformation

**Ingo Busche**, Head of Development/Design Engineering Wiring Harness Concept & Package, AUDI AG



**Andreas Weber**, CEO, semantic PDM

**14:30** Systems Approach to 48V Wiring Harness Optimization



- New features driving content growth, impacting complexity, weight, package size and cost
- Transition to 48V systems will help drive optimization of WH
- 48V architectures can provide benefits

**Magnus Svensson**, Senior Manager Advanced Vehicle Architecture, APTIV

**15:00** The Next Generation of Connectors in the Wiring System – Further Optimization of Packing Density



**Martin Bleicher**, Director Engineering, TE Connectivity GmbH

**15:30** The Contribution of Tape for Automizing Wire Harnessing Production



- Specific characteristics of tape in production
- Contribution of tape towards automation
- Opportunities of automatic tape wrapping

**Christian Oswald**, International Product Manager, tesa SE



**Matthias Seibert**, Head of Product Development Electrical Systems, tesa SE

**16:00** Coffee break & Networking

**16:30** Model-based Schematic Generation in the Digital Wiring Harness Development



- Motivation and intended added value
- Strategic and operative objectives
- Solution concept, status and outlook

**Rainer König**, Senior Manager Wiring Harness, Mercedes-Benz AG



**Georg Zimmermann**, Director Product Line Process Tools, Vector Informatik GmbH

**17:00** CAN XL: With a View to Optimizing the Wiring System – Implementation and Protection



- CAN XL is real-time capable, performant and easy to implement in the wiring harness, as is familiar with CAN
- Practical example: Application for chassis/drive functions

**Marko Moch**, Senior System Development Engineer, CARIAD SE

**17:30** Green W/H – Analysis and Potentials for CO2 Reduction on Examples of different W/H



- Development of an LCA tool based on the IMDS and secondary data
- CO2 emission analysis of typical W/Hs and potentials for reduction
- Availability of recycling material and actual recycling technologies for W/H

**Stefan Trippler**, Coordinator – Environment & Sustainability, SEI Automotive Europe GmbH

**18:00** End of Day 1 – Conclusions by Georg Sterler

**19:00** Get-together at the Reithaus





## NET-AX+ Modular Hybrid Connector System

The next generation of automotive infotainment and ADAS controllers require an increasing number of high-speed data connections in increasingly smaller PCBs. Some future vehicle architectures can require dozens of differential and coaxial ports, in addition to multiple connections for signal and power. To meet these challenges, TE Connectivity's NET-AX+ modular hybrid connector can integrate coaxial and differential data ports with signal and power connections in a single compact connector. Supporting up to 56 Gbps, NET-AX+ connector is designed for high performance computers and Electronic Control Units (ECUs) to support the ethernet and SerDes applications of next generation vehicles.

### KEY FEATURES AND BENEFITS:

High performance: Supporting up to 56 Gbps

Scalability: Modular solution can integrate differential and coaxial data, signal and power contacts in a single connector assembly

Miniaturization: Chiclet-based building-block design reduces PCB footprint by up to 40%\*

Assembly Efficiency: Customizable modular headers enable up to 80%\* reduction in connector mating assemblies

\* Based on real use case



**2<sup>nd</sup> Day: Wednesday, May 8, 2024**

**08:25** Welcome by Conference Chairman, Georg Sterler

**08:30** Optimized Zonal Power Grid Architecture with eFuses



- Power grid architectures
- Advantages with eFuses
- Challenges with eFuses

*Ingo Weber, Head of Power Grid 12V, 48V, BMW AG*

**09:00** Software Engineering Methods for Future Wiring Harness Development



- GitHub as a model of efficient and collaborative software development
- VOBES 2025: Cloud-based wiring system development inspired by software methods

*Tobias Carsten Müller, Head of VOBES, Libraries and System Schematics, Volkswagen AG*

**09:30** Enabling Future Automotive Wire Harnesses – Digital Connector Models and Virtual Design Evaluation



- Impact of zonal in-vehicle architectures to connectors
- Simulation of thermo-electric characteristics of power contacts for harness design and optimization
- Signal integrity simulation of data connections for virtual design evaluation

*Michael Ludwig, Principal Engineer, TE Connectivity Germany GmbH*  
*Bert Bergner, Fellow R&D Engineer, TE Connectivity Germany GmbH*

**10:00** Coffee break & Networking

**10:30** Lean HV Connector: Improved Performance by close Collaboration along the Supply Chain



- Innovative design concept for a HV connector
- Simultaneous engineering product / process
- Performance benefits: packaging, derating, system cost

*Thomas Kaiser, Director Engineering Connectors, Robert Bosch GmbH*  
*Till Beck, General Manager Advanced Engineering, Kromberg & Schubert*

**11:00** Solid Extruded Aluminium Cables for Electrical Vehicle Applications



- Al alloys and tempers for extruded HV cables
- Connections and surface treatment for extruded Al
- Sustainability – CO2 footprint and recycling of Al

*Jonas Kristoffer Sunde, Research Engineer – Alloy Development, Hydro*

**11:30** Charging Parks: Safety-critical Significance of the Wire Inductance for Pyro-fuses



- Short circuits in a charging station protection must be handled by the charging vehicle's on-board protection system
- High inductive energies are a major challenge for used pyro-fuses
- Rapid overcurrent diagnostics and pyrotechnic triggering are crucial for safe allround protection

*Dietmar Haba, Lead Product Engineer, Astotec Automotive Safety GmbH*

**12:00** Joint Lunch sponsored by Schunk & Networking in the Trade Exhibition



**13:00** Innovative Solutions for High-Speed Datacable Design to Develop Automotive Standards



- Latest digitalization activities e.g. modelling (2D/3D, digital twin)
- Innovative cable design based on new developments
- Suitable datacables for any application leading to new standards

*Tobias Kupka, Manager Wires Development, GG Group*  
*Stefan Gianordoli, Head of Global Wires Development, GG Group*

**13:30** Optical Data Transmission Systems for EDS



- Technology: from data center to automotive data transmission
- Advantages and properties of GOF in vehicles
- Trend - or revolution ?

*Kazu Itoi, General Manager, Technical Marketing Department, R&D Strategy Center, Fujikura Ltd.*

**14:00** Selectivity and Scalability in the Context of Safe 12V Supply in Vehicle E/E-System



- Selectivity in the context of eFusing
- Impact of 12V Li-Ion Battery
- Scalability vs. selectivity

*Michael Wortberg, Product Line Manager Smart Energy Supply, DRÄXLMAIER Group*

**14:30** Effect of Wire Quality on Crimp Performance



- Quantification of wire surface quality
- Effect of wire surface quality on crimp reliability
- Role of terminal and wire suppliers

*James Lowrie, Project Leader & Crimp Subject Matter Expert, Molex, LLC*

**15:00** Concluding remarks by Chairman Georg Sterler & End of the 12th International Conference



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## Members of the Advisory Board:



### Chairman

**Georg Sterler**  
Former Head of Wire  
Harness System Development  
**AUDI AG**



**Frank Dambacher**  
Head of Energy  
Net and Concept  
**PORSCHE**



**Frédéric Holzmann**  
Head of Customer  
Architecture &  
Product Innovation  
**LEONI BORDNETZ-  
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**Rainer König**  
Senior Manager Wire  
Harness Development  
and Technology  
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**Mario Spoljarec**  
Head of Physical  
On-Board Power  
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### Registration information

May 7 + 8, 2024

### Event location

Forum am Schlosspark Ludwigsburg  
Stuttgarter Straße 33  
71638 Ludwigsburg  
Phone: +49 7141 910 3910  
[www.forum.ludwigsburg.de](http://www.forum.ludwigsburg.de)

### Accommodation

You can book these hotels with the keyword "SV Veranstaltungen" at the following conditions. Please note that there is only a limited number of rooms available per hotel:  
<https://www.bordnetze-kongress.de/participate/hotel/>

### Participation fee

The participation fee until March 31 for the conference is: € 2,195 plus VAT  
From April 1, the participation fee will increase to: € 2,395 plus VAT

### Services included in the participation fee

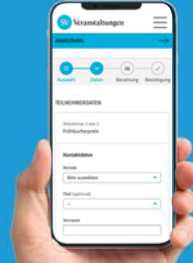
- Participation in the conference
- Conference documentation
- Refreshments in the breaks
- Lunch on both conference days
- Evening event on the first day of the event

### Registration

We request your registration via Internet at [www.bordnetze.eu](http://www.bordnetze.eu)

Upon receipt of your written registration, you will be registered as a participant and will receive a confirmation of registration as well as an invoice, which has to be paid before the start of the event. In case of cancellation after April 22, 2024 or in case of a No-show, the full registration fee will be charged. However, a substitute participant can be named. Cancellations before this date will be charged with 150 € administrative fee. Cancellations and registrations must always be made in writing. The organizer reserves the right to relocate, change or cancel the entire event or individual parts of it at short notice.

Please register online  
[www.bordnetze.eu](http://www.bordnetze.eu)  
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