Battery management and fire detection

This year's Innotrans transport trade fair has set out to be the largest ever: The eleventh edition of the event includes 2950 exhibitors from 60 countries. Some of them brought products with CAN.

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International manufacturers are exhibiting the latest-generation rail vehicles in the outdoor display (Photo: Innotrans)

200 companies are exhibiting for the first time at the Innontrans transport trade fair this year. At 62 %, international participation is higher than ever before. More than 130 000 trade visitors from all parts of the world are expected to attend over the four days of the trade fair. "This year's Innotrans is the largest ever and with it, the physical limits of the exhibition grounds have finally been reached", said Dr. Christian Göke, CEO of Messe Berlin. "Just over a year ago the trade fair had a waiting list for 6000 square meters of floor space. By optimizing all available areas on the outdoor display and in the halls we were able to satisfy every exhibitor's request, which I am absolutely delighted with." Compared to 2014, the display area has risen to 112 000 m^2, an increase of 8 %.

At this year's trade fair, the share of exhibitors from non-European countries has risen again and now stands at 22 %. The largest increase is in companies from Asia and Australia. At 77 % each, the increase in exhibitors from China and Australia compared to 2014 is particularly noteworthy. The majority of exhibitors at Innotrans are from key European markets, with Germany, Italy, and France in the top three spots. Once again, the combined display of Japan occupies an entire hall. Belgium, Tunisia, Portugal, and the Federal State of Hesse are all hosting combined displays for the first time. The eleventh Innotrans takes place on the Berlin exhibition grounds from September 20 to 23, 2016. During the Public Days on September 24 and 25, visitors of all ages can enjoy a range of entertainment and culinary delights, including sights, sounds, and snacks. Technically interested visitors can marvel at the next generation of rail vehicles on the rail track and outdoor display site. A few companies present products with CAN communication, among them battery management, battery cooling, and fire detection systems.

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The BCS system solution uses CAN connectivity to integrate with the train management system (Photo: Powernet)

Rail battery management systems

Powernet (Finland) shows the BCS battery management system for rolling stock applications at Innotrans 2016. The company also presents the ADC9000-series modules for auxiliary power need in the 500-W to 3200-W range, which can be found in hall 17, booth 112. The BCS-system is based on the ADC9000 family modules. By combining several ADC9000 units in a system solution, the power range can be configured from 6,4 kW to 12,8 kW with redundancy built in. The system is closely integrated with the train management system via CAN. The system controller optimizes the usage of the internal switching mode power supply modules independently. IP65 enclosures for rooftop installations is included.

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The modular cooling unit Zeta Line offers synchronized communication to battery management systems via CAN (Photo: Technotrans)

Battery cooling systems

Technotrans (Germany) presents cooling solutions for the electro-mobility of buses and trains at this year's Innotrans. The main focus is placed on mobile and stationary cooling solutions. The fluid and cooling technology specialist can be found in hall 14.1 at stand 202. The company shows its expanded range of modular Zeta Line cooling units. "Zeta Line has proven itself in the field and is now a well-established product on the market," explained Christian Walczyk, head of the sales team for industrial system solutions. "We now offer our battery coolers as certified standard units – also with extensive railway certifications."

Zeta Line ensures ideal operating conditions regardless of the climatic conditions and cooling demand. The systems guarantee the process reliability of temperature control systems in a temperature range between -25 °C and +55 °C. Under favorable external conditions, the systems use the ambient air for passive, energy-saving cooling. In other cases, the batteries are actively cooled by way of a compressor. In combination with communication and diagnostic systems, e.g. CAN, the units become an integral part of energy storage and traction systems.

Robust modules for wireless data communication

Selectron (Switzerland) shows devices for wireless data communication (train-to-ground), for storing, preprocessing, and reactionless TCMS data access. Furthermore, the security gateway concept will be presented. The IPC-based computing platform is based on either Linux or Windows operating systems; network interfaces used in the rail vehicles (Ethernet, CANopen, MVB, EIA-422, etc.) are available. Selectron can be found in hall 6.2, stand 215.

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The AOA fire protection control systems control up to 32 smoke detectors (Photo: AOA)

Fire detection systems

AOA Apparatebau Gauting has built fire alarm systems in aviation and rail transports for many years. From individual smoke alarms and control units for the entire fire alarm system through to a single fire detection control panel – the spectrum of adaptable solutions meets the specific safety requirements for rail transport in any situation. AOA fire detectors can be used autonomously or, when connected with a CAN data line, as part of a complete fire detection and suppression system – a so-called fire protection control system.

At the heart of these fire detection and suppression systems is a fire detection control panel approved as per EN 50128 and EN 50129 SIL-2, which can control and monitor two loops with 32 addressable loop element (individual smoke detectors) s each via an internal CAN network. In case of an alarm, the train and engine driver are informed, can locate the source of the fire, and activate the Wagner fire suppression system technology. Additionally, the control panel offers a direct connection to the train's bus system via CANopen. Wagner Rail presents its fire detection systems in hall 5.2, stand 524. Visitors can also experience the company's water mist compact system at the booth of Swiss Rail in hall 2.2.

Enhancement for vehicle performance

Knorr-Bremse (Hall 1.2, stand 210) strives to improve vehicle performance. The German company showcases various subsystems and networking solutions designed to enhance vehicle performance, including iCOM, a new platform from the company's Rail Services division. The solution offers various apps which share the system's hardware to help operators improve component and system management and performance. This includes a smart component monitoring system, iCom Monitor, which combines measurements and analytical data with diagnostic functions to display the current status and servicing requirements of all the train's main systems and can inform preventative and predictive maintenance practices. In addition, iCom Assist and iCom Meter can help drivers to maximise energy efficiency and reduce wear and tear.

The company also shows its modular CCB-3 locomotive brake unit and CFCB Light, a compact freight train braking system. Selectron also presents on Knorr-Bremse's main stand and in Hall 6.2, stand 215, where it shows various products including the Smartio 110 V, a remote I/O system of SIL/non-SIL modules that reduces wiring effort within rail vehicles' Ethernet, CANopen or MVB systems. In addition, the system allows peripheral interconnectivity for various signal conditioning I/Os and analog I/Os.