

INNOTRANS 2014

Sensors for rail vehicles

At the Innotrans tradeshow in Berlin, FSG (Germany) exhibited its range of sensors. These included angle, tilt, and length measuring sensors, as well as control units such as joysticks and foot pedals.

The sensors and control units are optionally available with CAN connectivity (Photo: FSG)

AT THIS YEAR'S INNOTRANS EXHIBITION, FSG focused on measuring technology and sensors for rail vehicles. The exhibited units have already proven themselves in many applications, e.g. in Berlin's underground and rapid transit trains. Amongst other things, the company showed rotary encoders featuring a potentiometric, inductive, magnetic, or optoelectronic measuring system. They are especially suited for use as driving/brake control switches to regulate speed, for positioning and measuring in overhead contact lines, and for load measuring or suspension control in undercarriages. The rotation angle available as single or dual axis systems, tilt angle sensors from FSG are for instance used for level control in undercarriages or in track construction. Most of the presented products are optionally available with a CAN interface.

Depending on the application, users can choose between oil-damped pendulum systems and micro-electromechanical measuring systems. Rope length transmitters, which are combined with encoders for electrical analysis, can be used in rail construction machines for track bed maintenance, in conveyor vehicles for controlling the tilting mechanism of the transport container, in automated guided vehicles for positioning the hoisting device, or for connecting track elements. They enable length measurement up to 60 m.

Pedal-actuated transmitters and multi-axis joysticks are used for speed input and speed control. Both devices are based on wear-free, non-contact magnetic measuring systems that provide analog or digital control signals at the output. The joysticks can be designed as one-, two-, or three-axis models. Indicators are available with customer-specific display, lighting, and function configurations. They are installed in the driver's cab to display the speed including target-actual comparison, or to display other state variables.

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Between 23 and 26 September about 140 000 visitors from more than 100 countries attended the trade fair in Berlin (Germany). At the leading bi-annual international rail technology event more than 2700 companies presented their products.

Ethernet communication was one of the most discussed topics on the booths, where electronics was presented. Nevertheless, CAN-based networks are used in many rail vehicles. But they are mainly hidden, meaning they are embedded or even deeply embedded in the locomotives and coaches. For example, Stadler Rail (Switzerland) and Pesa (Poland) are using CANopen networks in their rail vehicles. During the Innotrans, Stadler Rail announced that the Finnish rail operator Junakalusto Oy has placed an order worth 200 million € for a further 34 Flirt trains. An agreement was signed between Deutsche Bahn and the Polish manufacturer Pesa for the supply of 26 Link trains for Bavaria. According to Deutsche Bahn this investment is valued at some 100 million €.

The first Link trains by Pesa for the Deutsche Bahn in Bavaria (Source: Innotrans)