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Lenord, Bauer & Co. GmbH
Dohlenstrasse 32
46145 Oberhausen
www.lenord.de

Assured position information even after a logged-out standstill

Press contact:

Kerstin Frohn
Tel.: +49 (0)208 9963-123
kfrohn@lenord.de

Increased route utilisation thanks to Cold Movement Detection

Lenord + Bauer has developed a Cold Movement Detector. This is suitable for all rail vehicles which are to be equipped with an on-board "European Train Control System (ETCS)" including Cold Movement Detection (CMD) according to Baseline 3. Use of the new sensor eliminates the need to travel slowly so that the Radio Block Center (RBC) can determine the position reliably. The valid vehicle position is reported to the RBC immediately after the login. Operational processes are significantly accelerated, allowing route utilisation to be optimised.

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If the advantages of the ETCS are to be used for greater route utilisation, it is critical to know whether a vehicle was moved during the shut-down phase. The retrofittable axle encoder with integrated Cold Movement Detection function from Lenord + Bauer acquires movements of the wheel axle in the de-energised state and supplies assured position information immediately after the login. Thanks to the batteryless operation, the position remains reliably stored for more than 72 hours. If no movement was detected, the train can return to route operation immediately with a valid position. This removes the need for a slow, time-consuming start so that the position can be reliably determined at the next balises, significantly reducing the time required to return the rail vehicle to operation.

The robust axle encoders from Lenord + Bauer have proven their worth in the rail industry for decades. They are now being coupled with the Cold Movement Detector to form a customised encoder system. The contactless, magnetic measuring system and the battery-free operation enable long-lasting use in the toughest of ambient conditions.

For the first time, the detector can be used in vehicles which are fitted with an ETCS system from Thales Deutschland GmbH. "The sensor from Lenord + Bauer enables our ETCS on-board system to offer SIL 4-level position monitoring that allows our customers to start up quickly with an assured position. This saves both time and energy," reports Angelika Barth, who as product architect is responsible for the ETCS vehicle unit at Thales.

About the ETCS: The European Train Control System is a train protection system and fundamental component of the future standardised European Rail Traffic Management System ERTMS. In the long term ETCS is intended to replace the different train protection systems in Europe.



Figure 1: The Cold Movement Detector from Lenord + Bauer in the proven axle encoder housing

About Lenord, Bauer & Co. GmbH:

We are an international specialist in the field of motion sensors and integrated drive technology. We develop, produce and distribute technology-leading solutions for the mobility and machinery sectors. Our activities are focused on railway rolling stock, machine tools and packaging machines. Our customers have been benefiting from our considerable technical consultancy skills and expertise in customer applications for more than 50 years.

Lenord + Bauer is certified according to DIN EN ISO 9001 and 14001, as well as IRIS.