

Press release

## **Rail Vision wins order to supply high-tech sensor systems for trains**

- **Israeli tech company Rail Vision – in which Knorr-Bremse holds a strategic stake – has secured an order from Israel Railways to equip passenger trains with high-performance sensor systems**
- **By intelligently recognizing potential obstacles such as people, vehicles and infrastructure at distances of up to 2 kilometers, they help to significantly improve the safety, efficiency and punctuality of rail operations**
- **High-tech sensor systems are essentially “Argus eyes” for trains, and an important step on the way to smart, automated train operation (ATO) in both passenger and freight segments**

**Munich, February 13, 2023 – Rail Vision has been commissioned to fit passenger trains run by Israel Railways with electro-optical sensor systems. The Israeli company, which is listed on the U.S. NASDAQ technology exchange and in which Knorr-Bremse holds a 33% stake, will supply the operator with ten systems by the end of 2023. This driver assistance technology enables trains to detect objects and obstacles over long distances, and represents an important building block in the development of automated train operation (ATO).**

Dr. Nicolas Lange, Chairman of the Management Board of Knorr-Bremse Rail Vehicle Systems, comments: “For Rail Vision, this first commercial order is a milestone in successfully bringing its high-tech products to market. The firm’s performant, highly reliable driver assistance technology has the potential to further enhance safety on railroads and help to make rail operations even more efficient, dependable and stable. All in all, it represents a key step in the creation of smart, automated rail operations for the future.”

Rail Vision systems are based on the smart interplay of sensor technology with artificial intelligence and deep learning. Because the technology was developed specifically for rail transportation, it can provide train drivers and operators with very effective support in a variety of operating scenarios. The systems are capable of recognizing potential obstacles such as people, animals, oncoming trains and incorrectly set switches over distances of up to 2 kilometers – even in poor weather or lighting conditions – and of alerting train drivers accordingly. Because they can also identify infrastructure, signals and vegetation along the track, they can provide rail operators with valuable information on the condition of the line, making it easier to plan maintenance work, for example.

To bring its sensor systems to market, Rail Vision’s step-by-step development process included numerous pilot and test projects in different parts of the world, such as Israel, Australia, the USA and various German-speaking countries. High-tech systems for environment observation, object detection and driver assistance are regarded as crucial elements in the development of automated train operation (ATO). This involves digitizing many processes and subprocesses that are currently still manual, to make them faster, safer and more efficient. In this regard, the intelligent networking of these systems with train braking systems is a key development objective which Knorr-Bremse and Rail Vision are pursuing together. Where necessary, the technology will also help to offset staff shortages in the rail sector.

With its domain expertise in connected train subsystems and vehicle dynamics, Knorr-Bremse is investing extensively in technologies that will drive forward digitalization in the rail

sector. Passenger and freight train operations around the world urgently need to be upgraded with automated and digital technologies so the industry can meet future challenges such as rising passenger numbers, increased traffic flow, and more sustainable freight transportation.

**Captions:** Israeli tech specialist Rail Vision – in which Knorr-Bremse has a stake – has won an order from Israel Railways to equip passenger trains with high-performance sensor systems. | © Rail Vision

**Knorr-Bremse (ISIN: DE000KBX1006, ticker symbol: KBX)** is the global market leader for braking systems and other systems for rail and commercial vehicles. Knorr-Bremse's products make a decisive contribution to greater safety and energy efficiency on rail tracks and roads around the world. Around 30,500 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2021, Knorr-Bremse's two divisions together generated revenues of EUR 6.7 billion. For more than 115 years, the company has been the industry innovator, driving developments in mobility and transportation technologies with an edge in connected system solutions. Knorr-Bremse is one of Germany's most successful industrial companies and profits from the key global megatrends: Urbanization, Sustainability, Digitalization and Mobility.

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