

### **Bosch presents new assistance system rail forward assist for railway** More safety in rail transportation

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- ▶ Modular approach with tailored solutions for local public transport, shunting operations, and maintenance vehicles of the yellow fleet
- ▶ New collision warning system rail forward assist enables seamless monitoring of the area in front of the railway vehicle
- ▶ Innovative technology for automating rail transportation

Abstatt – While trains are one of the safest means of transport in Germany, even rail transportation is not entirely free of accidents. According to the German Federal Statistical Office, 490 accidents involving personal injury occurred on the nation's railways in 2022 alone. The new assistance system **rail forward assist** from Bosch Engineering ensures greater safety in rail transportation and thus helps to further reduce the number of accidents. In urban areas, the company has offered a collision warning system for trams since 2017. “With **rail forward assist**, we are now transferring the successful concept to railway. The application areas of the collision warning system are local public transport, shunting operations, and track maintenance vehicles,” explains Heiko Mangold, head of rail technology at Bosch Engineering. The modular assistance system consists of a control unit and various sensors, which ensure seamless monitoring of the area in front of the rail vehicle. The sensor cluster employed depends on the specific use case and can comprise camera, radar, LiDAR, and ultrasonic modules.

#### **Mainline and urban forward assist for urban traffic**

For metro, urban, -suburban, and regional trains, the **mainline and urban forward assist system** monitors not only the area in front of the rail vehicle but also the platform environment. The system warns of obstacles on the track as well as dangerous situations at rail stations. It also offers signal detection and a braking assist function. It thereby reduces the risk of accidents in station areas and prevents disruptions to operations due to missed signals or incorrect stopping at stations.

### **Shunting forward assist**

Shunting operations are particularly challenging for rail personnel since, for their own protection, they must remain aware of railway activity on parallel tracks while also carrying out their actual shunting tasks. **Shunting forward assist** supports shunting personnel by warning of obstacles in the track area, such as incorrectly parked wagons, and of impending collisions due to incorrectly set switches. The system also features coupling assist and signal detection functions as well as an overhead catenary assist for locomotives with hybrid powertrains. The resulting benefits include significant mental and psychological relief for personnel, increased safety, fewer personal injuries, less property damage, and prevention of costly overhead wire damage.

### **Maintenance vehicle forward assist**

Construction and maintenance measures often require work to be carried in the area of the tracks. During such activities, maintenance personnel are under particular pressure to ensure both their own safety and operational reliability. This is where the **maintenance vehicle forward assist** system provides welcome support with its monitoring of the environment. The system protects persons by detecting and warning of obstacles in the track area, impending collisions with incorrectly parked wagons in rail switch areas, and damage to the overhead catenary. It thus ensures better situational awareness, which allows personnel to focus on their construction and maintenance tasks, and reduces the risk of both personal injury and property damage.

### **On the path towards full automation**

The **rail forward assist system** from Bosch Engineering is based on a robust multisensor concept and is tailored to the specific requirements of the rail sector. It is also certified according to EN 50155 and EN 50128. The system's modular design enables flexible use in different rail segments, both for customer-specific use cases and in special applications. Initial pilot projects for the surround sensing function in the rail sector have been implemented with great success. "With our expertise and technologies, we want to play a key role in driving the complex automation of rail transportation. We are thus edging ever closer to the long-term vision of fully automated, highly connected, and thus more efficient and safer rail traffic," adds Mangold. Initial steps toward full automation are being made in low-speed applications. These include the automation of train preparation as well as fully automated shunting operations.

**Further information:** <https://www.bosch-engineering.com/industries/rail/railway/>

**Press photos and infocharts are available on the Bosch Media Service at**  
[www.bosch-press.com](http://www.bosch-press.com).

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