

PRESS INFORMATION

Radar-based collision avoidance

Manuela Kessler | 26.09.2023 | Lohr am Main / Germany | PI 031/23

Advanced automation and improved safety for mobile machines: Bosch Rexroth expands its range of assistance functions with an easy-to-integrate complete solution

- Complete solution requiring minimal development work
- Versatile: Suitable for all travel drives thanks to clearly defined interfaces
- Developed in accordance with the ISO 21815 standard



Improved safety for off-highway vehicles: The modular solution from Bosch Rexroth with open CAN interfaces reduces the time to market for a radar-based collision protection system. (Image source: Bosch Rexroth AG)

The new radar-based collision avoidance system from Bosch Rexroth improves the safety of off-highway vehicles and makes development easier. With the help of the modular, easy-to-integrate solution for radar-based collision protection, accidents can be avoided – especially when traveling at high speeds.

Collision protection plays an important role in the off-highway sector. In order to minimize accidents with the help of warning signals and assistance systems, manufacturers need reliable system solutions which are easy to implement. These help drivers to keep track of things in confusing situations and to recognize imminent hazards early on. The proven ultrasonic technology from Bosch Rexroth covers close-up ranges of up to approximately five meters. However, the new radar-based solution is also suitable for greater distances and higher speeds.

Bosch Rexroth's modular radar-based collision avoidance system is based on proven building blocks from the BODAS ecosystem and offers manufacturers of off-highway vehicles a complete solution from the sensor to the drivetrain. After basic suitability testing as regards travel speeds and the braking capacity of the particular machine at the start of the project, OEMs can immediately begin integrating and commissioning the system with little development effort of their own.

Proven automotive radar sensors from Bosch, which have been adapted for the off-highway sector with its different terrains such as grass, gravel and asphalt, form part of the hardware.

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Other components include the Bosch inertia sensor MM7.10, a Rexroth controller (e.g. RC 40 small) and adaptable software modules. These have the intelligence needed to enable off-highway vehicles to detect collision hazards early on and warn operators, slow down or initiate emergency braking.

Complete solution – from sensing to acting

Using the steering angle and the machine's own speed, the Rexroth solution calculates the expected travel path and classifies detected objects according to the probability of a collision. Depending on the OEM's machine concept, the operating personnel is given a visual, auditory or tactile warning regarding the hazard detected. If a collision is imminent, the system overrides any acceleration on the part of the cab crew and reduces the vehicle's speed via the hydrostatic travel drive.

Thanks to the CAN interface, the system is compatible with travel drives from various manufacturers. With their Rexroth Drive Controller, Rexroth travel drives are already "Radar Ready". The ISO 21815-compliant system can be used in both directions of travel or only in one direction.

Bosch Rexroth plans to have the system solution for radar-based collision protection available for various applications from Q1/2024. In the future, the ultrasonic system or a video camera will complement the solution. This means that hazards can then be ideally detected both at close range at low speeds and at greater distances and higher speeds.

Bosch Rexroth at Agritechnica: Hall 16, Booth A08.

Basic Information Bosch Rexroth

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries more than 32,000 associates generated sales revenue of around 7.0 billion euros in 2022.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 421,000 associates worldwide (as of December 31, 2022). The company generated sales of 88.2 billion euros in 2022. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is

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to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is “Invented for life.” The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch’s global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company’s future growth is its innovative strength. At 136 locations across the globe, Bosch employs some 85,500 associates in research and development, of which nearly 44,000 are software engineers.

Press Contact

Please get in touch with our Press Contact



Manuela Kessler

Spokesperson
technology topics
+49 9352 184145

Manuela.Kessler@boschrexroth.de