

## Press release

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06/30/2025

ID: 457

## Sensor technology: Bosch sets standards for Bluetooth-based tire pressure sensors

New fully integrable MEMS sensor with ultra-low power consumption

- New Bosch tire pressure sensor SMP290 with Bluetooth Low Energy simplifies vehicle architectures.
- Standardized Bluetooth interface enables new use cases such as direct interaction with smartphones.
- Extremely low energy consumption ensures long lifespan of tire pressure sensors.

Stuttgart, Germany – Tire pressure sensors play a crucial role when it comes to safety and efficiency in road traffic – whether for motorcycles, trucks, cars, or buses. They help to extend tire life, reduce fuel consumption, and increase vehicle safety. Tire pressure monitoring systems (TPMS) are already required by law for passenger cars in many regions of the world, including Europe, the U.S., and China. With the new SMP290, Bosch has developed and launched the first extremely compact MEMS (micro-electromechanical system) sensor with an integrated Bluetooth Low Energy (BLE) interface for measuring tire pressure.

### **SMP290: energy and precision marvel with great potential**

The SMP290 is based on Bosch's leading MEMS technology. It is the first fully integrated solution with a Bluetooth interface available on the market. The sensor combines all essential components for TPMS. These include a microcontroller, Bluetooth interface, 2-axis acceleration sensor, as well as pressure and temperature sensors. What makes the SMP290 special is its high level of integration and extremely low power consumption, which enables an operating

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lifespan of up to ten years.

The greatest potential, however, lies in bidirectional wireless communication. “The Bluetooth functionality not only improves efficiency but also safety throughout the entire lifetime of the sensor,” explains Peter Wolfangel, member of the board of management of Bosch Mobility Electronics and responsible for development. The Bluetooth connection enables secure communication between the sensor and the vehicle. The software on the sensor can be updated quickly and easily via over-the-air updates, ensuring that the sensor remains up to date throughout its entire life cycle.

The SMP290 offers both technical and commercial advantages at several levels of the value chain: as a component for system integrators, it saves space and energy. As part of the vehicle architecture, it enables vehicle manufacturers to exploit synergies with other BLE systems. In addition, the Bluetooth capability facilitates user-friendly applications, such as convenient tire pressure monitoring directly via smartphone.

#### **Reduced vehicle complexity thanks to smart system architecture**

Many technological advances in vehicles improve the safety and comfort of road users. At the same time, however, they also make vehicles more complex. Bosch aims to leverage synergies and simplify components and vehicle architectures, as Peter Wolfangel explains: “The SMP290 is designed as an integrated system and can therefore make optimum use of synergies within a vehicle’s hardware and software.” The sensor can share communication modules with other components, such as keyless access systems, thereby preventing redundancies and complicated cabling. “This contributes to a more efficient and leaner design that benefits the vehicle throughout its entire life cycle,” says Wolfangel.

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## Basic information:

Mobility is the largest Bosch Group business sector. It generated sales of 55.8 billion euros in 2024, and thus contributed around 62 percent of total sales. This makes the Bosch Group one of the leading mobility suppliers. Bosch Mobility pursues a vision of mobility that is safe, sustainable, and exciting. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are electrification, software and services, semiconductors and sensors, vehicle computers, advanced driver assistance systems, systems for vehicle dynamics control, repair-shop concepts, as well as technology and services for the automotive aftermarket and fleets. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti-skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 418,000 associates worldwide (as of December 31, 2024). The company generated sales of 90.3 billion euros in 2024. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 490 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. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 87,000 associates in research and development.

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