Press release
Bosch Sensortec

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Bosch barometric pressure sensor raises the bar for accuracy and performance in mobile devices

BMP581 combines highest precision and low power consumption to enable fitness tracking, indoor localization and more

- Outstanding accuracy for altitude tracking applications
- Low power consumption enables longer battery life in mobile devices
- First capacitive barometric pressure sensor from Bosch Sensortec

Bosch Sensortec introduces the BMP581, a barometric pressure sensor that couples low power consumption with extreme accuracy to provide altitude tracking in wearables, hearables or IoT devices. This capability makes it ideal for applications such as fitness tracking, fall detection, indoor localization and navigation, enabling new use cases that were previously impossible.

"Building on the excellent performance and low power consumption of previous generations of Bosch sensors, our new BMP581 now delivers an entirely new level of accuracy", says Dr. Stefan Finkbeiner, CEO at Bosch Sensortec. "It's breathtakingly accurate: it can measure a barometric pressure fluctuation that's equivalent to one-thousandth of the weight of a mosquito (7.6 µg)."

This extreme level of accuracy enables the sensor to detect an altitude change of just a few centimeters. It can, therefore, monitor movement in fitness applications down to the level of individual pull-ups or push-ups, and can provide highly accurate location information for indoor localization, navigation, and floor detection to provide key data for emergency call requirements (E-911).

The sensor can noticeably improve flight stability and landing accuracy in drones, and help detect water levels in household appliances to avoid flooding.

Low power consumption coupled with high accuracy

The BMP581 provides an excellent relative accuracy of +/-0.06 hPa and a typical absolute accuracy of +/-0.3 hPa. Full accuracy is available over a wide measurement range from 300 hPa to 1100 hPa. The BMP581 has a typical

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temperature coefficient offset (TCO) of just +/-0.5 Pa/K and low RMS noise of 0.08 Pa @ 1000 hPa (typical). Long-term drift over 12 months is only +/-0.1 hPa.

Compared to BMP390, the previous generation of Bosch barometric pressure sensors, the BMP581 draws 85% less current, noise is 80% lower, and TCO is reduced by 33%.

Typical current consumption of just 1.3 µA at 1Hz substantially extends battery life, while the deep standby mode draws only 0.5 µA. The sensor provides an I2C, I3C and SPI (3-wire/4-wire) digital, serial interface.

The BMP581 is provided in a compact 10-pin LGA package shielded by a metal cover, measuring just 2.0 x 2.0 x 0.75mm^3.

Virtual unveiling event:
Watch the video to find more detailed information and application examples for the new sensor and to get an insight into the product's development.
https://www.bosch-sensortec.com/unveil/event/

Availability:
The BMP581 is available now and offers a strong price-performance ratio.

Press photos:
ce581614, fa8cd3c0, 40e29f35, d3aed97c, e814c40a, 684d2696, 65987e82, fead8a69, 634e8c8e, c3a7a49e

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Bosch Sensortec GmbH, a fully owned subsidiary of Robert Bosch GmbH, develops and markets a wide portfolio of microelectromechanical systems (MEMS) sensors and solutions tailored for smartphones, tablets, wearables and hearables, AR/VR devices, drones, robots, smart home and IoT (Internet of Things) applications. The product portfolio includes 3-axis accelerometers, gyroscopes and magnetometers, integrated 6- and 9-axis sensors, smart sensors, barometric pressure sensors, humidity sensors, gas sensors, optical microsystems and comprehensive software. Since its foundation in 2005, Bosch Sensortec has emerged as the MEMS technology leader in the markets it addresses. Bosch has been both a pioneer and a global market leader in the MEMS sensor segment since 1995 and has, to date, sold more than 15 billion MEMS sensors.

For more information, please visit www.bosch-sensortec.com, twitter.com/boschMEMS, community.bosch-sensortec.com, linkedin.com/company/bosch-sensortec/, youtube.com/user/BoschSensortec

The Bosch Group is a leading global supplier of technology and services. It employs roughly 401,300 associates worldwide (as of December 31, 2021). According to preliminary figures, the company generated sales of 78.8 billion euros in 2021. Its operations are divided into four business sectors: Mobility Solutions, 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 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 440 subsidiary and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 28 locations across the globe, Bosch employs some 76,300 associates in research and development, of which more than 38,000 are software engineers.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPresse.