



Sensor tech #LikeABosch: new smart sensor system is more than a digital fitness coach in miniature size

Programmable, AI-enabled sensor for various high-performance applications

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- ▶ Best-in-class performance/power consumption ratio
- ▶ Built-in, ready-to-use algorithms simplify integration
- ▶ Self-learning AI software enables personalized workouts
- ▶ Bosch at CES: booth 16115 and start of new #LikeABosch campaign

Today's consumers want portable and smart devices that have high performance and a full set of features, yet provide a long battery life. For product designers, this means making difficult decisions to minimize power consumption without affecting the user experience.

At CES® in Las Vegas, Nevada, Bosch Sensortec announces a new smart sensor system that delivers a best-in-class performance/power consumption ratio, yet is simple to integrate due to its small size and built-in, ready-to-use software algorithms.

The new BHI360 is a programmable IMU-based sensor system combining a gyroscope with an accelerometer that enables full customization. The integrated sensor fusion library enables 3D audio with head orientation for personalized sound experiences as well as simple gesture recognition.

A product variant, the BHI380 equips the sensor with additional algorithms. BHI380 is based on the same architecture but also includes self-learning AI software suitable for a wide variety of fitness tracking, thus making training and tracking a breeze and enabling personalized workouts. Dedicated swim tracking software measures swimming style and boosts users to the next fitness level in the water, while the pedestrian dead reckoning (PDR) algorithm helps users reach their destination, even when the GPS signal drops out for a few minutes. This means it is particularly suitable for hearable and wearable devices. Typical

applications include pedestrian navigation, 3D audio, personalized fitness tracking, and human-machine interaction.

The smart sensor system has an integrated, low-power custom processor. This custom processor can run simpler sensor processing algorithms itself, such as gesture detection or step counting, thus avoiding waking the main device processor and keeping power consumption ultra-low. The custom processor also helps achieve better power consumption for high-end algorithms.

“When we say that the BHI360/380 is the most intelligent programmable IMU ever, we mean it has the most powerful built-in microprocessor, paired with an extensive software library of integrated algorithms,” said Dr. Stefan Finkbeiner, CEO at Bosch Sensortec.

The sensor is provided in a compact 20-pin LGA package measuring 2.5 x 3 x 0.95 mm³. This means it is 50% smaller than its previous generation, and that it is the smallest programmable dual-core IMU sensor in the market.

Typical total current consumption is less than 600 µA for 3D orientation. It provides fast SPI (50MHz) and I2C (3.4MHz) host interfaces, as well as multiple SPI, I2C, and GPIO interfaces for external sensors.

Bosch at CES 2023 under the motto “Sensor tech #LikeABosch”:

As a global market leader in MEMS sensor solutions, Bosch will showcase numerous innovations for consumer electronics. [Click here](#) for an overview of the sensor solutions from Bosch Sensortec.

Availability:

The BHI360 is available at our distribution partners from April 2023 onwards.

The BHI380 is available on direct request from May 2023 onwards.

Website:

BHI360: www.bosch-sensortec.com/products/smart-sensor-systems/bhi360/

BHI380: www.bosch-sensortec.com/products/smart-sensor-systems/bhi380/

Press photos:

#27796aea, #0d2b0f66, #24e1cc45, #3d80f947

Contact:

Constantin Schmauder
phone: +49 7121 35-31058

Contact person for press inquiries:

Katharina Sorg
phone: +49 711 811-26074
Twitter: @BoschMEMS

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