



### **MEMS sensors from Bosch make driving safer, more fun, and more relaxed**

#### **New SMI860 inertial sensor**

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- ▶ Sensor optimizes ESP®, driver assistance systems, and sophisticated driving dynamics applications
- ▶ Yaw rate, roll-rate, and acceleration measurement in a single compact package
- ▶ SMI860 is especially robust for withstanding vibrations

Munich and Reutlingen, Germany – Stable vehicle handling under all weather conditions and traffic situations makes car driving not only safer and more comfortable but also delivers a higher degree of enjoyment and dynamics to the driving experience. At the electronica exhibition in Munich, Bosch reveals for the first time its SMI860 five-axis inertial sensor. This extremely robust MEMS sensor enables a safe and natural driving experience – both in everyday as well as demanding situations – noticeably improving driving safety, comfort and dynamics.

#### **Car driving becoming even safer**

The intelligent SMI860 MEMS sensor provides important support for active safety and driver assistance systems inside the vehicle. For example, the ESP electronic stability control system (anti-skidding system), greatly increases traffic safety and has, to date, saved more than 8,500 lives in Europe alone. Necessary dynamic driving state data is delivered to the anti-skid system also from the SMI860. It recognizes whether the vehicle is travelling in the direction in which the steering wheel is turned. In the event that these values diverge, the skid protection system is activated. In addition, this new sensor can precisely determine the position of the vehicle, which can be utilized in precise vehicle heading applications.

The SMI860 is the first example of a package from Bosch containing five inertial data measuring elements in a single sensor for active safety applications. The package includes two 16-bit gyroscopes for measuring yaw rate and roll rate, and

three 16-bit acceleration sensors. Algorithms are used to calculate the dynamic driving state and position of the vehicle based on the received signals.

### **Compact, robust, reliable, and temperature-tolerant**

This intelligent sensor is built on Bosch's proven market-leading MEMS technology. Compared to its predecessor, it is better protected against vibrations and its exceptionally high offset stability will deliver reliable long-term operation. It has been developed according to ISO26262 for use in systems up to ASIL D.

Thanks to its small bias instability, the SMI860 delivers low noise performance, thereby further improving its accuracy. Noise (rms) is just  $\pm 0.1$  °/s for the gyroscope and 4 mg (x and y axes) and 6 mg (z axis) for the accelerometer. A signal conditioning ASIC provides on-chip processing and low-pass filtering, and an industry-standard SafeSPI interface is included for communication with other devices. To save space, the SMI860 is housed in a compact BGA package, measuring just 7mm x 7mm x 1.5mm. Required supply current for the sensor does not exceed 28mA. Its operating temperature range of -40°C to +125°C enables it to be installed in practically any location.

**Press photos:** #1487006, #1487007

### **Further information:**

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## **BOSCH AT ELECTRONICA 2018 IN MUNICH**

- **BOOTH: Tuesday to Friday, November 13–16, 2018**, booth 522 in hall C3
- **FOLLOW** the Bosch electronica 2018 highlights on Twitter: **#BoschMEMS**
- **PANELS WITH BOSCH EXPERTS:**
  - **Monday, November 12, 12:30 p.m.:** presentation “Sensors enabling future mobility solutions” by Dr. Markus Sonnemann, Vice President Pre-Development MEMS sensors at Robert Bosch GmbH, electronica Automotive Conference at ICM Munich
  - **Tuesday, November 13, 11:30 a.m.:** presentation “MEMS – one product one process?” by Dr. Udo-Martin Gómez, Senior Vice President MEMS sensors, Robert Bosch GmbH, SEMICON Europe, Fab Management Forum at ICM Munich in room 14c

- **Tuesday, November 13, 3:00 p.m.:** Automobilwoche panel discussion “electronica Talk from the Top” with Jens Fabrowsky, Executive Vice President Automotive Electronics at Robert Bosch GmbH, discovery stage in hall C6
- **Tuesday, November 13, 3:30 p.m.:** presentation “MEMS Mobility Sensors for motion detection” by Michael Rupp, Senior Expert Product Management Sensors at Robert Bosch GmbH, electronica Automotive Forum in hall B4
- **Wednesday, November 14, 3:40 p.m.:** presentation “The future of MEMS-based smart sensor nodes in the context of highly functional and ultra-low power IoT applications” by Dr. Ralf Schellin, Head of Product Area MEMS at Bosch Sensortec GmbH, International Congress Center (ICC)

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