

SmartBond™ DA14583 IoT Sensor Development Kit

The World's Lowest Power 12-DOF Wireless Sensor Module

The **SmartBond** IoT Sensor Development Kit makes developing motion and environmental sensing applications easy. Merging cutting-edge Bluetooth® Smart hardware, sensors and sensor fusion software, it enables the world's lowest power 12 degree-of-freedom (DOF) wireless sensor module. Highly integrated, it cuts system size and cost and includes all essential hardware and software to speed creation of advanced IoT devices.

This complete development platform helps you create environmental and/or motion sensing modules for wearable computing, immersive gaming, augmented reality, 3D indoor mapping/navigation and weather stations. Developed by Dialog Semiconductor on the basis of Bosch Sensortec sensors, it combines Bluetooth wireless communications and an ARM Cortex-M0 processor with an accelerometer, gyroscope, magnetometer and environmental sensors. All this on a board measuring just 16 x 15 mm.



It also includes SmartFusion, Dialog's unique smart sensor fusion software library for data acquisition, sensor calibration and fusion. Ideal for resource-constrained systems, it minimizes memory, processing requirements and power consumption.

Applications

- ▶ Wearables
- ▶ Immersive gaming
- ▶ Augmented reality
- ▶ 3D indoor mapping / navigation
- ▶ Weather stations
- ▶ And other IoT sensor based applications

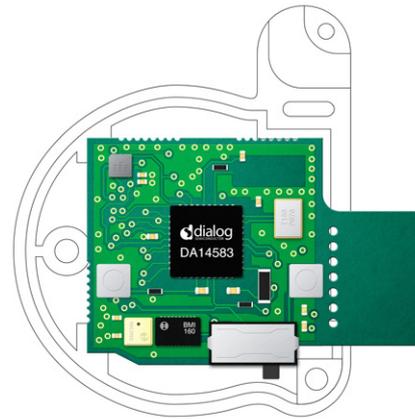
Benefits

- ▶ Lowest power consumption for a 12-DOF wireless sensor
- ▶ Faster time-to-market
- ▶ Reduced development effort and resources
- ▶ Ideal for resource-constrained applications
- ▶ Smaller-sized end products

Accelerating your IoT Development

Key Features

- ▶ 12-DOF wireless sensor module development platform
 - DA14583 low-power Bluetooth Smart SoC
 - BMI160 6-axis inertial measurement unit
 - BMM150 3-axis geomagnetic field sensor
 - BME280 integrated environmental unit (pressure, temperature and humidity)
 - Smart sensor fusion software including auto-calibration
- ▶ Board size: 16 x 15 x 5 mm
- ▶ Stream fused quaternion orientation and/or sensor data via Bluetooth Smart interface
- ▶ User interface: IoT Sensors app (Android and iOS) that allows visualisation of sensor and orientation data as well as precise tuning and configuration.
- ▶ Performance for sensor fusion and streaming
 - Settings: 12.5 Hz Accelerometer; 25 Hz Gyroscope, 10 Hz Magnetometer, 0.5 Hz Environmental (Pressure, Temperature and Humidity)
 - Connected : < 1.3 mA
 - Advertising: < 110 μ A
 - Power save: < 11 μ A



- ▶ Resource requirements for sensor fusion and auto-calibration:
 - Processor load:
 - 0.5 MIPS on Cortex M0 for combined magnetometer auto-calibration + 9 DOF sensor fusion (gyroscope and accelerometer at 100 Hz and magnetometer at 10 Hz)
 - Memory footprint:
 - 4.5 kB ROM code
 - 0.5 kB RAM

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