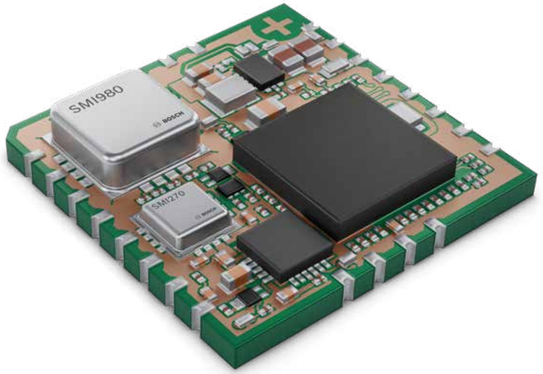
Inertial measurement unit - integrated

This 6DOF high-performance inertial measurement unit, is a system-on-module which can be directly integrated into an ECU, enabling localization functionalities for assisted and automated driving from SAE Level 2

Automated driving requires reliable, highly available and redundant vehicle positioning information



- Dead reckoning/bridging for localization: perception sensor outages can be bridged by inertial navigation (e.g., loss of GNSS under bridge or in tunnel, loss of camera)
- Safe stop functionality enables the vehicle to safely follow a prede-fined trajectory using inertial navigation, with inertial measurement unit performance directly impacting positioning accuracy
- Vehicle state monitoring enables the detection of light collisions or driving over objects through continuous inertial sensing

Highest safety

First ASIL-D-capable integration solution enabling the highest system safety level

Reduced TCO

Lower system cost by reducing or eliminating multiple distributed inertial measurement units

Flexible

integration into different ECU types, tailored to specific customer architectures

Technical characteristics

Size	25 x 25 x 4.8 mm
Supply range	3.13 V ... 3.47 V
Current consumption	250 mA
Signal offset over temp.	0.02 °/s | 1 mg
Signal sensitivity	0.07% | 0.05%
Angular random walk (ARW)	0.1 °/√h
Velocity random walk (VRW)	0.06 m/s/√h
Safety acc. to ISO 26262	ASIL D (Accuracy) ASIL B (Availability)

All values are typical values (confidence interval 1-sigma).

6DOF = angular rate and acceleration in all three dimensions
TCO = Total cost of ownership