Inertial sensor I **SMI330**

For Navigation

detects changes in the vehicle's motion and orientation

Function

The SMI330 goes beyond traditional MEMS sensors, combining precise motion sensing, on-chip intelligence, and ultra-low power to support a wide range of advanced automotive functions—from navigation and telematics to always-on systems and vehicle security.

Application

Navigation/infotainment
Low drift, low noise, and stable timing are key for accurate automotive navigation.

Telematics and tolling
Ultra-low-power, high-stability inertial sensing for reliable telematics and tolling.

Car alarm
The SMI330 enables car-door impact detection and theft or vandalism awareness through intelligent motion sensing.

Key Features

Ultra-Low Power
Ultra-low power consumption combined with short start-up time and efficient power management enables continuous, always-on operation in power-sensitive vehicle functions.

Maximum Versatility Through On-Chip Intelligence
Multiple interfaces, flexible power modes, and on-chip motion triggers enable easy integration across modern automotive architectures

Extended Automotive-Grade Temperature Range
With operation up to 125 °C, the SMI330 provides stable and reliable sensing performance even in harsh and demanding automotive environments.

Bosch MEMS Expertise for Proven Automotive Solutions
Built on decades of Bosch MEMS innovation and in-house manufacturing, QM-rated automotive solutions deliver proven reliability, industrial robustness, and long-term scalability.

Reliable and precise

integrated sensor solution for non-safety systems



Technical features

Package	14 pin LGA, 3 x 2.5 mm	
Supply voltage	1.7 – 3.63 V	
Supply current	< 0.8 mA	
Operating temperature	-40 to +125 °C	
Interface	SPI, I2C (+I3C)	
Data resolution	16	
	Gyro	**Accel**
Sensing axes	X, Y, Z	X, Y, Z
Range	± 125 | 250 | 500 | 1000 | 2000 °/s	Low-g: ± 2 | 4 | 8 | 16 g

Performance over temperature

Accelerometer	**Typ.**	**unit**
Offset	± 60	mg
Sensitivity err (x, y, z)	± 0.5	%
Non-linearity	± 5	mg
Velocity random walk	125	µg/√Hz
Bias stability	50	µg

Gyroscope	**Typ.**	**unit**
Offset	± 1	°/s
Sensitivity err (x, y, z)	± 4	%
Non-linearity	± 0.1	°/s
Angular random walk	0.32	°/√h
Bias stability	3.7 x;4.5y;3 z	°/h

TechnicalSupportSemiconductors.Bosch@bosch.com

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