

Inertial sensor | SMI240

Hands-free driving

enables semi-autonomous driving

Function



The SMI240 is a state-of-the-art 6-in-1 inertial sensor with an ASIL B rating designed for Advanced Driver Assistance Systems (ADAS). Engineered for outstanding performance, the SMI240 comes with a vibration robust design and excellent technical specifications.

Application



The SMI240 combines angular rate and low-g acceleration MEMS chips with a readout ASIC including SPI communication in a small LGA package. Target applications for this sensor include L2 semi-autonomous driving, dead reckoning / safe navigation, positioning applications and further ADAS functions.

Key Features



High Vibration Robustness: Ensures reliable operation even in the most demanding environments.

Precise Measurement: Provides accurate data crucial for ADAS.

Compact Design: Easy integration into existing systems without compromising performance.

Customizable Features: Allows customers to configure specific features to meet their unique requirements, enhancing versatility.

Safety



On-board safety controller with self-diagnostic features.

The SMI240 is developed according to ASIL B process (ISO26262:2018) and provides sensor signals with safety requirements up to ASIL B.

Safe and precise

integrated sensor solution for systems up to ASIL B



Technical features

Package	16 pin LGA 3.3 x 3.3 mm	
Type	Combined inertial sensor	
Supply voltage	3.3 V	
Supply current	< 5 mA	
Operating temperature	-40 to +105 °C	
Interface	SPI	
Data resolution	16 bit	
	Acceleration	Angular Rate
Sensing axes	X, Y, Z	X, Y, Z
Range	± 16 g	± 300 °/s
Sensitivity	2000 LSB/g	100 $\frac{\text{LSB}}{^\circ/\text{s}}$

Performance

Accelerometer	typ	unit
Offset	25	mg
Sensitivity error	0.8	%
Non-linearity	8	mg
Offset over temp. XY / Z	10 / 15	mg
Velocity random walk	0.15	$\frac{\text{m/s}}{\sqrt{\text{h}}}$
Bias stability	50	µg
Angular Rate	typ	unit
Offset	1.5	°/s
Sensitivity error	0.8	%
Non-linearity	0.15	°/s
Angle random walk	0.5	°/√h
Bias instability	5	°/h