

Inertial sensor | SMI970

Robust operation

enables ESC, RSC, ADAS, and roll-over

Function



The SMI970 is a state-of-the-art 6-in-1 inertial sensor designed specifically for Electronic Stability Program (ESP) as well as airbag and rollover applications. Engineered to deliver exceptional performance, the SMI970 stands out with its unparalleled vibration robustness and superior specifications.

Application



Electronic Stability Program (ESP)

Helps maintain vehicle control during sudden maneuvers.

Airbag and Rollover Detection

Activates safety mechanisms to protect occupants in rollover scenarios.

ADAS/Highly Automated Driving (HAD)

Provides reliable data for advanced driving assistance systems.

Key Features



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

Precision Measurement: Provides accurate data crucial for ESP and airbag systems.

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



The SMI970 is developed according to ASIL D process (ISO26262:2018)

Safe and precise

integrated sensor solution for systems up to ASIL D



Technical features

Package	19 pin DF N, 6 x 6.5 mm	
Supply voltage	3.3 5 V	
Supply current	< 30 mA	
Operating temperature	-40 to +125 °C	
Interface	SPI (in-frame out-of-frame)	
Data resolution	16 20 bit	
	Gyro	Accel
Sensing axes	X, Y, Z	X, Y, Z
Range	± 300 °/s	Low-g: ± 6 8 g Mid-g: ± 35 25 g
Sensitivity ²	100 LSB per °/s	5000 LSB per g

Performance over temperature

Accelerometer	Typ.	unit
Offset ¹	8.75	mg
Sensitivity err (x, y, z)	0.5	%
Non-linearity	2.5	mg
Velocity random walk	326	µg/√Hz
Bias stability	50	µg
Gyroscope	Typ.	unit
Offset ¹	0.5	°/s
Sensitivity err (x, y, z)	0.5	%
Non-linearity	0.125	°/s
Angular random walk	0.5	°/√h
Bias stability	2	°/h

1) Zeroed on PCB 2) For 300°/s range, 6g range respectively, and 16bit configuration
For the lifetime specification and additional parameters please see the corresponding TCD.