

MEMS

automotive sensors



Making our cars safer and more comfortable

ST MEMS automotive sensors are specifically designed for the most stringent automotive environmental conditions. Our portfolio includes digital accelerometers with low- and high-g full scale, digital 3-axis gyroscopes, and 6-axis system-in-packages with both sensors housed in the same chip. ST products are often developed together with leading tier1 system makers to the highest possible requirements. Moreover, cooperation with leading car manufacturers on new sensing solutions make ST working at the forefront of innovative developments.



KEY FEATURES

- AEC-Q100 qualification
- Extended operating temperature
- High reliability guaranteed by dedicated automotive flow
- Embedded self-test of the mechanical elements
- Smart power management features
- Small footprint

APPLICATIONS

Non-safety

- Navigation assistance
- Anti-theft systems
- Telematics (eToll, eCall)
- Infotainment
- Insurance boxes

Passive Safety*

- Complete airbag sensor systems (Peripheral and central accelerometers)

* Passive safety includes all applications that protect car occupants during a crash and feature post-crash effects mitigation.

3-axis accelerometers (AIS328DQ, AIS3624DQ, AIS1120SX/AIS2120SX, AIS1200PS)

Low-g 3-axis accelerometers, on top of high resolution and low noise level, offer ultra-low-power operational modes - for advanced power-saving - and smart sleep-to-wakeup functions. High-g acceleration sensors feature wider signal amplitude detection, a more extended temperature range and are suitable for precise deployment of airbags in vehicle safety restraint systems.

Gyroscopes (A3G4250D)

Our 3-axis gyroscope offers high stability over time and temperature and guarantees the level of accuracy required by the most advanced navigation systems embedding dead reckoning.

6-axis system-in-package (ASM330LXH)

iNEMO® 6-axis system-in-package integrates accelerometer and gyroscope in a single device, with benefits in terms of accuracy, space and cost optimization. Multi-axis gyroscopes and accelerometers are used for assisted navigation and empower sophisticated dead reckoning software algorithms that calculate the current position from a previously determined location updated by time, speed, and change of direction.

Features	Accelerometers				Gyroscope	System-in-package
	AIS328DQ	AIS3624DQ	AIS1120SX/ AIS2120SX	AIS1200PS	A3G4250D	ASM330LXH
Acceleration Full Scale [g]	±2/4/8	±6 /12/24	±120	±200	-	±2/4/8/16
Angular rate [degree per second]	-	-	-	-	±245	±125/245/500/1000/2000
Package	QFN-24 4x4x1.8 mm ³	QFN-24 4x4x1.8 mm ³	SO-8	SO-16	LGA-16 4x4x1.1mm ³	LGA-16 3X3X1.1 mm ³
Target applications	Navigation, telematics, security	e-Call & telematics	Airbag Central Unit	Airbag Satellite Sensor	Navigation & telematics	Navigation, telematics, security

EVALUATION TOOLS

ST offers a complete evaluation solution for non-safety applications, including an eMotion motherboard, a full set of DIL24 MEMS non-safety sensor adapters, and UNICO graphic user interface for direct and real-time access to the sensor outputs and configuration registers.

Order code	Description
STEVAL-MKI109V2	eMotion motherboard compatible with all adapters and based on an STM32 microcontroller
STEVAL-MKI110V1	Adapter board for AIS328DQ
STEVAL-MKI158V1	Adapter board for AIS3624DQ
STEVAL-MKI125V1	Adapter board for A3G4250D
STEVAL-MKI171V1*	Adapter board for ASM330LXH

* in development

