

MEMS sensors for car alarm, crash recorder and more



The high sensitivity and reliability of **STMicroelectronics'** (ST) MEMS accelerometers allows for their use in multiple vehicle systems.

An accelerometer can be used in a car alarm application, as well as in a dead-reckoning application to support the navigation system, if GPS reception is imperfect.

Dangerous driving can be detected with an accelerometer. It can be used as a crash recorder of the vehicle movements before, during and after a crash.

With signals from an accelerometer, a severe accident can be recognized. Post-crash, the doors can be unlocked to allow rescuers to enter the car and save the passengers.

3-axis accelerometer in a single package

The MEMS accelerometers family includes high-performance, high-reliability 3-axis, linear accelerometers in an SO, QFN, or LGA package, with analog or SPI/I²C digital interface.

Linear acceleration, sensed in the x, y, z axes is translated into a proportional analog or digital output signal.

High sensitivity and precision

An embedded non-volatile memory enables all critical device parameters to be trimmed and stored by ST during the final test phase, this allows the user to employ the device without further calibration. The products provide high sensitivity and precision with the economies of the 8-inch wafer process used in the manufacturing of the ICs.

Key features

- 3-axis linear accelerometer with analog or digital interface, in a single LGA, QFN, or SO package
- High sensitivity and precision
- Low power consumption
- High shock survivability
- Embedded self test
- ECOPACK® lead-free compliant
- Low cost

Applications

- Anti-theft systems
- Crash recorders
- Event recorders
- Dead reckoning

In anti-theft systems, the 3-axis accelerometer is used as an inclinometer which senses the inclination of a car or motorbike versus the ground. If a tow truck is used to steal a vehicle, the accelerometer detects the change of inclination and activates the security system. The accelerometer can also be used to detect the removal of a wheel.

In sophisticated anti-theft systems, the accelerometer can activate a CMOS camera immediately after the car has been damaged, to film the culprit.

From the accelerometer signal, a severe accident can be identified. The doors can be unlocked to allow rescuers to enter the car and save the passengers.

In crash recording, the accelerometer detects a collision and all the relevant data can be stored in the system for later analysis.

Inertial data for a post-crash analysis can be sampled and stored in the system and used to understand how the crash happened.

In car navigation, MEMS-based inertial sensors can assist the GPS if the signal is lost. A dead reckoning system continues tracking movements while the satellite signals are not being received or where they are not sufficiently accurate.

3-axis high precision accelerometers

Part number	Output	Package	pin/land	Full scale	V _{dd}
LIS3LV02DL	Digital	LGA	16 land	+/- 2 g/+/- 6 g	2.5
LIS3L02AL	Analog	LGA	8 land	+/- 2 g/+/- 6 g	3.3
AIS326DQ*	Digital	QFN**	28 land	+/- 2 g/+/- 6 g	3.3

*Automotive inertial sensor coming soon **For other packages contact sales offices



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Full product information at www.st.com

Order code: FLMEMSAUT1007



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