



Configurable combo-sensor family for active and passive safety



Automotive safety is evolving

Passive safety



Detect the event

- Crash plausibility
- Roll-over detection

Active safety



Control vehicle dynamics

- Vehicle stability
- Roll stability

Predictive safety



Understand vehicle motion

- Position and trajectory
- Sensor resilience

Single sensing platform for control, protection, and resilient positioning

Passive safety

Detect critical events

KEY USE CASES

- Front crash plausibility
- Side crash plausibility
- Rollover detection

Active safety

Control vehicle dynamics

KEY USE CASES

- Vehicle stability control
- Vehicle dynamics
- Roll stability control

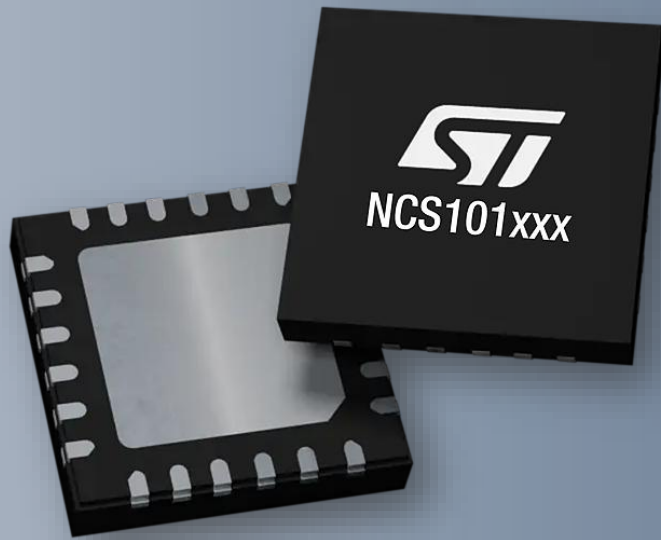
Predictive safety

Maintain motion awareness

KEY USE CASES

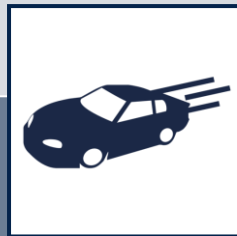
- Vehicle position & motion
- Short-distance dead reckoning
- Trajectory continuity

Which attributes for the MEMS combo family?



Beyond passive safety

This solution provides the sensor set needed to **support the evolution from passive to active safety** and to enable advanced functions.



15-years product commitment

Supports continuity for **long automotive program lifecycles**.



Mass-market readiness

The combo is designed to **provide advanced safety performance and the scalability** required for broader deployment.



Automotive combo sensors for active and passive safety

Safe, scalable motion sensing: angular rate + acceleration in a robust automotive platform



Core specifications

Angular rate

± 125 / ± 250 / ± 350 dps

Operating range

$-40\text{ }^{\circ}\text{C}$ to $+105\text{ }^{\circ}\text{C}$

Acceleration

NCS10135: $\pm 1.50\text{ g}$ to $\pm 34\text{ g}$
NCS1012 family: configuration-dependent

Interface

SafeSPI out-of-frame compatible

Filtering

Low-pass options up to 400 Hz
Optional high-pass filtering

Supply

3.3 V single supply

Key applications

Active safety:
Stability & vehicle dynamics

Passive safety:
Crash sensing & rollover detection

The family at a glance

Features	NCS10135	NCS1012xxx
Sensor configuration	1-axis gyro + 3-axis accelerometer	1-axis gyro + 2 axis accelerometer
Flexibility	Complete inertial sensing in one device	Multiple axis combinations to match application needs
System	Maximizes sensing capability	Optimizes cost and sensor content
Safety	ISO 26262 + SafeSPI	ISO 26262 + SafeSPI
Target	Advanced vehicle dynamics and rollover sensing	Electronic stability control and rollover prevention
Associated part number	<u>NCS10135AEP</u>	<u>NCS1012CAEP</u> <u>NCS1012EAEP</u> <u>NCS1012BAEP</u>

A complete system built around safety and continuity

1

ISO 26262

Safety-oriented
foundation

2

SafeSPI

Automotive
communication
inside the
sensor

3

Configurable

Multiple axis
combinations

4

Robust QFN

Wettable-flank
package
concept

5

15 years

Long-term
product
commitment

Why choosing NCS101xx family?

One product family for active and passive safety architectures

- **Scalable portfolio:** axis and range variants for active and passive safety
- **Safety-ready:** ISO 26262 positioning, SafeSPI, diagnostics, and monitoring
- **Simpler integration:** angular rate and acceleration sensing in one 6 × 6 mm QFN package
- **Long-term confidence:** at least 15 years of product availability

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