

STMicroelectronics' automotive inertial module boosts positioning and motion sensing accuracy

Combining advanced low noise MEMS accelerometer and gyroscope with synchronized output for calculation, correlation, and sensor fusion

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STMicroelectronics' [ASM330LHHG1](#)

automotive-qualified inertial measurement unit (IMU), which operates from -40°C to 125°C, can be mounted in vehicle zones including

those where the ambient temperature may be a concern. Combining low-noise sensors, temperature compensation, and a 6-channel synchronized output, the IMU fulfils the industry's need for greater dead-reckoning accuracy to support navigation and positioning.

Today's cars, vans, and trucks, as well as industrial and agricultural vehicles, can leverage increasingly accurate GNSS positioning technologies for applications such as routing, tracking, navigation, and driver assistance. These new and enhanced systems need high-quality dead reckoning to maintain continuity between satellite updates and provide effective fallback during GNSS outages or corruption, ensuring superior performance and greater resilience.

ST's ASM330LHHG1 meets this need by delivering 3-axis accelerometer and 3-axis gyroscope data through its synchronized output that ensures consistent signal timing for dead-reckoning calculations, motion-data correlation, and GNSS fusion. Both sensors leverage the latest MEMS processes for low noise and benefit from built-in temperature compensation for enhanced stability.

The IMU provides accurate data for other non-safety applications throughout the vehicle, with accelerometer full-scale range of $\pm 16g$ and extended gyroscope range covering $\pm 125dps$ to $\pm 4000dps$ with minimal bias drift. These include vehicle-to-everything (V2X) systems, telematics, eTolling, anti-theft, impact detection, crash reconstruction, driving comfort, vibration monitoring



High-temperature automotive IMU
for enhanced motion accuracy



ST's ASM330LHHG1 automotive inertial module

and compensation, and general motion-activated functions.

With dual operating modes that cover high-performance and low-power system requirements, the ASM330LLHG1 supports flexible utilization of the vehicle's power budget. Digital interfaces including I²C, MIPI I3C[®], and SPI ease system integration, while a 3KB built-in FIFO provides buffering to offload the host processor and save power.

The ASM330LHHG1 is AEC-Q100 qualified and is in production now, in a compact 2.5 mm x 3.0 mm LGA-14L package. Contact your local ST office for sample requests and pricing options.

Visit <http://www.st.com/asm330lhhg1> for more information.

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