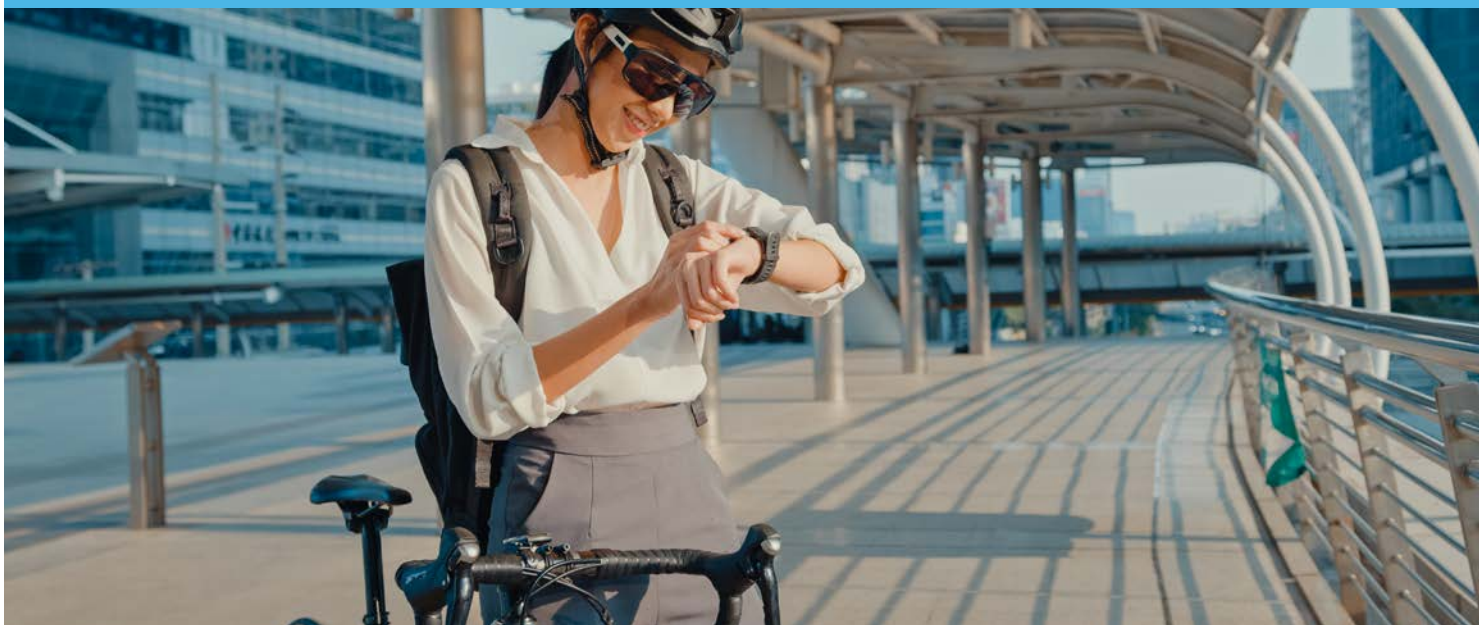
LSM6DSV320X

You and all around you: connecting users with their environments



Now, you can accurately sense and capture all events around you

Imagine a world where technology seamlessly integrates into our daily lives, harmonizing our actions and environments. The LSM6DSV320X is an advanced inertial measurement unit (IMU) that sets a new benchmark in personal electronics and IoT applications. This innovative sensor is designed to monitor and safeguard users in their unique surroundings.

The LSM6DSV320X introduces new sensor technologies that enhance how devices interact with their environments and users. By delivering unparalleled accuracy and adaptability, it paves the way for innovative applications that aim to improve everyday experiences.

KEY BENEFITS

- **Unlocking new applications:** richer, more precise motion data across extreme ranges enabling user insights that were previously unreliable or impossible.
- **Compact solution:** dual high- impact and low-acceleration sensing in a single package, simplifying the overall hardware design.
- **System power optimization:** edge processing and self-configuration to enhance efficiency.

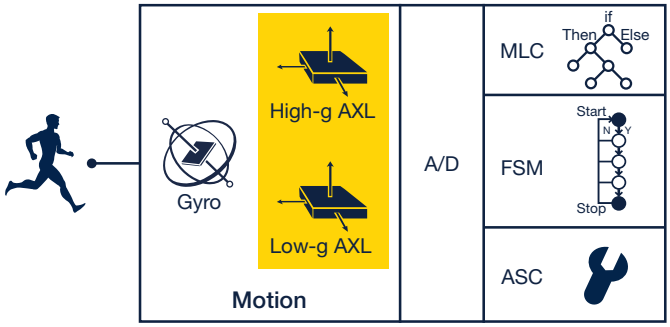
http://www.st.com/lsm6dsv320x

A look inside

The LSM6DSV320X features an innovative mechanical structure that integrates three advanced sensing capabilities within a standard compact package measuring just 2.5 x 3 mm.

This cutting-edge design includes:

- A low-g accelerometer **up to 16 g, ideal for capturing subtle movements and vibrations.**
- **A high-g accelerometer up to 320 g**, designed to accurately detect and analyze high-impact events.
- **A gyroscope up to 4000 dps**, providing precise angular rate measurements for dynamic motion tracking.



This combination of sensors in a single, compact package makes the LSM6DSV320X a versatile solution for a wide range of applications.

Key applications


Wearables


Smartphones


Asset trackers


Gaming devices

Event data recorders


AR / VR/ MR headsets

- Motion tracking and gesture recognition
- Shock detection and car crash detection
- Asset tracking
- Augmented reality (AR) / virtual reality (VR) / mixed-reality (MR) applications
- Indoor navigation
- EIS and OIS for camera applications
- Vibration monitoring and compensation

Software solutions and libraries

Order code	Description
MEMS-Studio	Software solution for MEMS sensors featuring graphical no-code algorithm design and development of embedded AI features
X-CUBE-MEMS1	Software expansion for STM32Cube, providing sensor and motion algorithm support
Motion XLF (high and low-g fusion)	Library that accurately fuses low-g and high-g data
Motion FX (sensor fusion)	Library that combines heterogenous data from multiple sensors
Motion AR / Motion AW / Motion FD (context awareness)	Libraries that enable human activity recognition, gesture from wrist, head movements, fall detection, and more using machine learning core (MLC).

Evaluation tools

Order code	Description
STEVAL-MKI251A	LSM6DSV320X adapter board compatible with a standard DIL24 socket
STEVAL-MKI109D	Professional MEMS tool: evaluation board for all ST MEMS sensors
STEVAL-MKBOXPRO	SensorTile.box PRO with multiple sensors and wireless connectivity for intelligent IoT nodes
X-NUCLEO-IKS4A1	Motion MEMS and environmental sensor expansion board for STM32 Nucleo