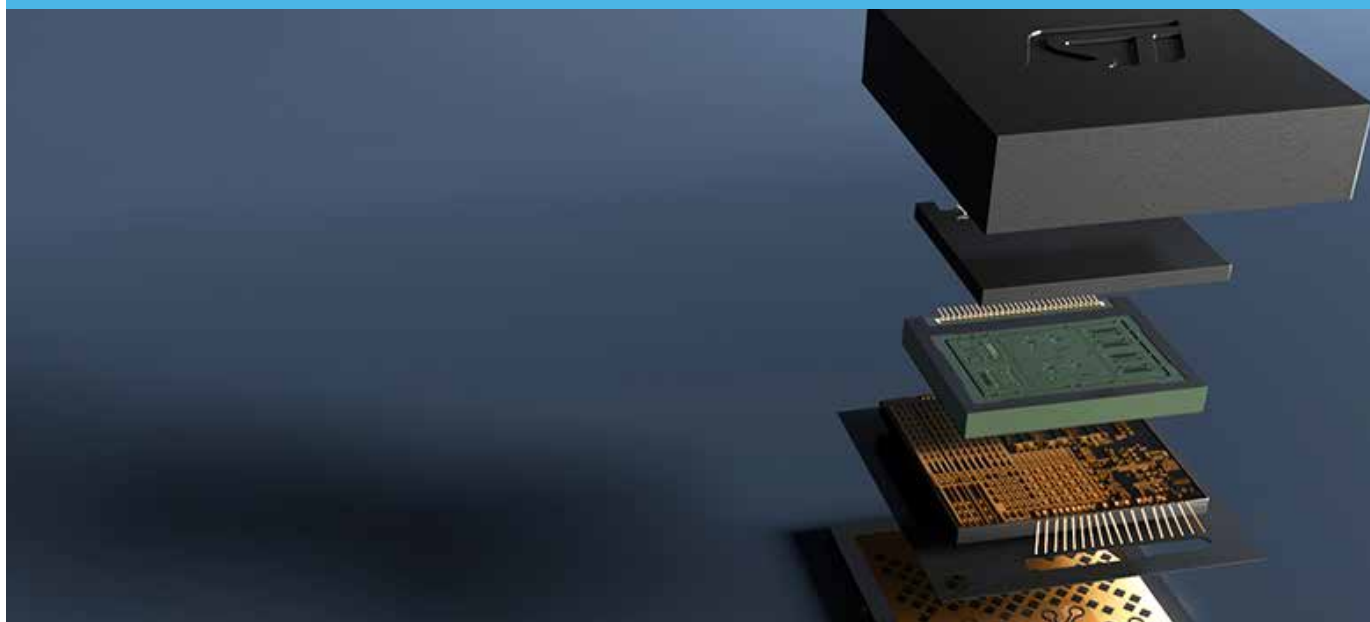


IIS3DWB10IS

Turn vibration data into faster, smarter maintenance decisions



Advanced vibration sensor for next-generation predictive maintenance

Unlock the future of predictive maintenance with the IIS3DWB10IS, ST's next-generation MEMS vibration sensor. It delivers precise sensing, edge processing, and robust reliability where they matter most.

Built for modern industrial applications, it combines high-performance vibration monitoring with ISPU-driven edge AI capabilities. The IIS3DWB10IS enables faster insights, real-time data processing, and smarter condition monitoring at the sensor level. Its robust design is engineered for harsh environments and provides dependable long-term operation: it reduces downtime, improves asset visibility, and supports efficient predictive maintenance strategies.

KEY APPLICATIONS

- Vibration monitoring for industrial applications with embedded real-time calculation of complex features (such as FFT, RMS, envelope) or AI algorithms.
- High-end shock sensor with unprecedented capabilities to accurately reconstruct the shock pulse waveform and embedded real-time calculation capabilities.
- Robotics

KEY BENEFITS

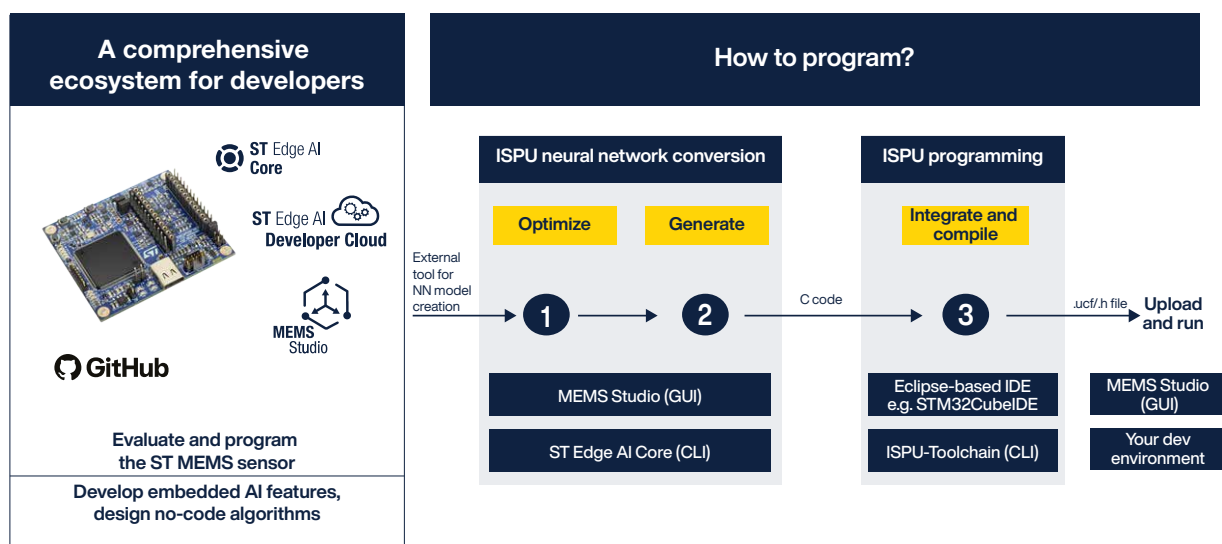
- Unprecedented vibration sensing capabilities: 3-axis digital, ultrawide bandwidth (10 kHz), and dynamic range (full scale up to 200 g) with ultralow noise make condition monitoring of any vibration possible.
- Decision-making in the edge with ISPU 2.0: ISPU 2.0 with hardware accelerators to process real-time vibration data at the edge with customer-defined algorithms.
- Suitable for harsh environments and long-term availability: the device operates up to 125°C and is available long term, in line with industrial environment and product life cycles.

The intelligent sensor processing unit (ISPU) 2.0 for IIS3DWB10ISCapture colorful images

ISPU 2.0 brings intelligence into the sensor to accelerate development, simplify system design, and improve power efficiency. With a complete tool ecosystem (MEMS Studio, ST Edge AI Core, and ST Edge AI Developer Cloud), users can move smoothly from model training to code generation and hardware deployment.

Key benefits:

- Faster prototyping: prebuilt examples, reference algorithms, and no-code options help evaluate ideas in hours, not weeks.
- Simpler design: processing inside the sensor reduces host firmware complexity and maintenance.
- Lower cost: offloading signal processing and AI tasks to the sensor can reduce MCU requirements and the overall BOM.
- Faster time to market: updatable models let you launch sooner and enhance features over time without hardware redesign.
- Better efficiency: event-driven operation lowers power consumption and reduces data traffic.
- More robust systems: local processing enables real-time decisions with deterministic latency, even without cloud connectivity.



Software solutions and libraries

Order code	Description
MEMS-Studio	Embedded AI software solution for MEMS sensors with graphical, no-code algorithm design and feature development
ST Edge AI Core	Artificial intelligence (AI) optimizer technology for ST products
ST Edge AI Developer Cloud	Generate and test optimized AI libraries based on trained neural network models
FP-SNS-DATALOG2	ST High Speed Datalog: comprehensive multi sensor data capture and visualization toolkit
ISPU-Examples	Examples and tutorials for the intelligent sensor processing unit (ISPU)

Evaluation tools

Order code	Description
STEVAL-MKI253KA	IIS3DWB10IS evaluation kit based on ultrawide-bandwidth, 3-axis digital vibration sensor with ISPU
X-NUCLE0-IKS5A1	STM32 Nucleo motion and environmental MEMS expansion board for industrial applications



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