ANALOG DEVICES
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LOW NOISE MEMS ACCELEROMETERS FOR MACHINE HEALTH MONITORING

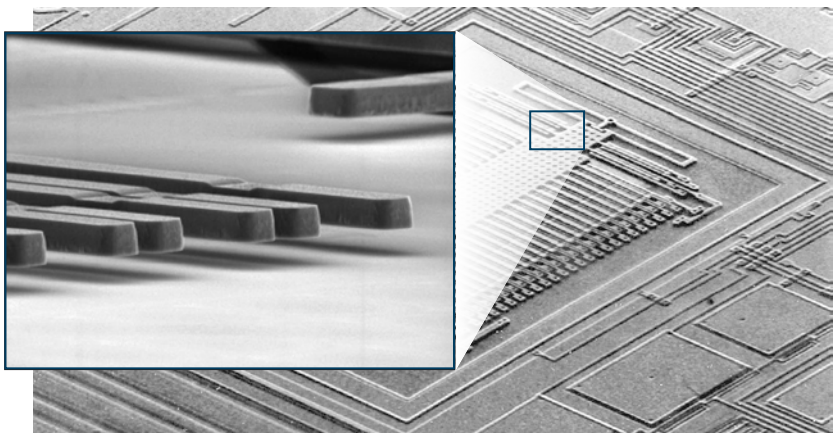
Enabling intelligent, reliable condition monitoring solutions that are easy to deploy and cost-effective.

Why MEMS? Why Now?

Machine health monitoring with vibration analysis is widely utilized to minimize machine downtime and prevent unscheduled maintenance. While piezoelelctric transducers are commonly used, their high cost of deployment has limited the expansion of condition monitoring programs beyond mission critical machinery or where the cost associated with failure is very high.

In recent years, the availability of flexible, compact, and economical solutions based on MEMS accelerometers has expanded the implementation of condition monitoring to new applications, enabling improved operational efficiency and maintenance costs for a wider range of machines, including balance of plant assets, as well as diverse categories of equipment.

MEMS accelerometers offer many attractive attributes that complement existing technologies and enable new condition monitoring product categories, including wireless smart sensors.



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Advantages of ADI MEMS Accelerometers for Condition Monitoring

- Provides frequency response to dc for low RPM machinery, with high resolution and fast recovery from saturation
- Ensures stable sensitivity with high shock tolerance and good performance over temperature
- Simplifies design with high level functional integration in surface-mount packages, including signal processing and digital interfaces
- Enhances system confidence levels with a built-in, electromechanical self-test
- Supports high volume applications with consistent quality and performance of scalable semiconductor manufacturing
- Enables the embedding of highly integrated and connected solutions by combining chip scale packaging with ADI's broad portfolio of interface products
- Allows wireless sensors to achieve longer battery life with low power, single-supply operation

With breakthrough noise performance from dc to frequencies above 22 kHz, MEMS accelerometers are delivering good results when compared side by side with legacy solutions, making it possible for the expansion of condition monitoring services to more applications with new and innovative solutions.

Simplify the Design for Embedded Smart Sensors and Wireless Applications

For embedded applications, ADI's system-in-package manufacturing capability coupled with a broad portfolio of interface transceiver products such as RS-422/RS-485, 4 mA to 20 mA, LVDS, isolated interfaces, and RF transceiver products offer the flexibility to design a solution for any type of equipment. ADI's market leadership in high sample rate, high resolution, low power ADCs can make digital interfaces a reality without sacrificing resolution.

Our fully integrated accelerometers, including triaxial solutions with low power and a small package size, simplify wireless designs and enable longer battery life.

ADI Sensing Solutions for Smart Factories

Analog Devices offers the broadest portfolio of low power and triaxial accelerometers, signal conditioning, low power processing, and interface products, helping our customers to design solutions that sense, measure, and connect for the smart factories of the future.

EngineerZone Online Support Community

Engage with the Analog Devices technology experts in our online support community. Ask your tough design questions, browse FAQs, or join a conversation.

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Circuits from the Lab Reference Designs

Circuits from the Lab® reference designs are built and tested by ADI engineers with comprehensive documentation and factory-tested evaluation hardware.

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