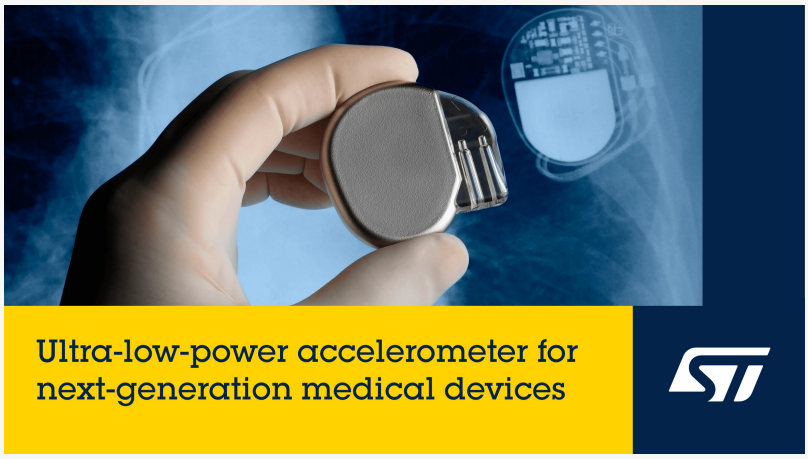
STMicroelectronics’ tiny motion sensor boosts comfort and precision in wearable and implantable medical applications

Targets pacemakers and skin patches



ST medical accelerometer

GENEVA, SWITZERLAND, February 26, 2026 /EINPresswire.com/ -- STMicroelectronics’ MIS2DU12 MEMS accelerometer combines ultra-low power, signal processing, and an ultra-low profile suitable for wearable and implantable medical applications.

Produced using biocompatible materials and manufacturing processes, the MIS2DU12 has a 20nA power-down and sub-1µA active mode to extend the operating envelope of implantables such as cardiac monitors and pacemakers. At only 0.74mm high, and 2mm x 2mm, it enables skin patches to become extremely slim, lightweight, and comfortable to wear.

In skin patches such as glucose monitors and other bio-parameter sensors, the MIS2DU12’s sensor fusion ensures precision even during macroscopic motion and environmental stress. The applications benefit from high micro-motion sensitivity, power efficiency. The dedicated internal engine for motion processing detects free-fall, wake-up, single/double-tap, activity/inactivity, and calculates 6D/4D orientation. There are also built-in self-test and an embedded temperature sensor.

With integrated motion processing for event detection and wake-up, the MIS2DU12 contains an anti-alias filter to maximize output-data quality. By removing out-of-band vibration sources, this filter offloads the main application processor to help cut system power consumption. The sensor draws just 0.47µA in ultra-low-power active mode with 1.6Hz output data rate, and 5.6µA in normal operation with the anti-alias filter enabled.

The MIS2DU12 has user-selectable full scales of ±2g/±4g/±8g/±16g, output data rates from 1.6Hz to 800Hz, and operates over the extended temperature range from -40°C to +85°C. An integrated 128-level FIFO buffer provides generous data storage and extra flexibility to save system power

consumption.
For rapid evaluation, the STEVAL-MKI255A adapter board contains a MIS2DU12 sensor and has a standard DIL24 pin arrangement for use with the STEVAL-MKI109D evaluation board. The board includes a high-performance 32-bit microcontroller and is ready to use with ST's MEMS Studio GUI.

The MIS2DU12 is in production in the 2.0mm x 2.0mm x 0.74mm plastic land grid array (LGA) package and available by the end of H1 2026 from $9 for orders of 1000 pieces. An evaluation board, the STEVAL-MKI109D, is also available.

For more information visit www.st.com/misdu12

ST's new medical motion sensor will be demonstrated at Embedded World 2026, March 10-12, Nuremberg, Germany (Hall 4A, stand 148)

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