

**Shaking Up The Wideband Vibration Market**  
*New Sensor Technology Improves Efficiency in Industrial Manufacturing  
And Public Safety*

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The latest advancements in sensors have lead to new developments in system architecture where vibration sensor data is at the core. While the advancement of signal processing has lowered costs and at the same time enabled more complex algorithms, the core sensor technology has not advanced at the same pace, limiting the end application. In the past, collecting accurate vibration signals used to often require significant size, power, scalability, and cost investments. Recent manufacturing and test advancements has lead to a silicon MEMS based integrated solution, taking a technology out of the laboratory and into a scalable product, enabling system architects to easily and efficiently add high performance vibration sensors to their system.

This paper will start by reviewing how various industries are making use of this vibration signal processing to improve system uptime, detect structural integrity flaws, and protect consumers. It will then discuss how recent research has enabled new MEMS-based sensor technology for capturing accurate wideband vibration signals under a variety of system constraints and conditions. Specifically, the paper will cover new techniques that enable the beginning of a new generation of scalable low-power sensors, even opening up the possibility of wireless wideband systems. This paper will also explore how wideband vibration sensors expand the scope of applications and create smarter systems.