



TECHNOLOGY

OE-MEMS Chip-Based Mass Sensor for Chemical, Gas, and Bio-Hazard Sensing

OVERVIEW

Currently three methods are used to generate a readout of MEMS cantilever sensors: 1) measurement of the change in cantilever resonance frequency upon mass loading, 2) measurement of the cantilever deflection by reading the laser beam reflection from the cantilever, and 3) measuring the piezoelectric voltage generated by cantilever deflection.

All three techniques have inherent disadvantages. The first requires an electric signal that is subject to electromagnetic interference (EMI), the second has all the disadvantages of intensity measurement technology, including lack of portability and sensitivity to optical power fluctuations, and the third technique requires uneven application of piezoelectric material to the two faces of the cantilever.

Inventors at the University of Maryland have developed a reliable and low-cost detection system having immunity to EMI, from a wavelength shift of a light source, a wide dynamic range and a high accuracy unaffected by a noisy environment that has turbulent gas flow, abrupt pressure changes or mechanical vibrations.

In addition, the invention employs an integrated VLSI processing module allowing for a smart sensor configuration.

For additional information, contact the University of Maryland Office of Technology Commercialization at otc@umd.edu or 301- 405-3947.

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Chemical

EXTERNAL RESOURCES

PS-2005-032