

Press Release

Date: August 2004

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New Polytec Microscope-based Vibration and Motion Analyzers

Polytec presents a new generation of its proven and awarded microscope-based vibration and motion measurement systems on the basis of completely new designed system components. The new generation comprises the

- MSV-400 Microscope Scanning Vibrometer, the
- PMA-400 Planar Motion Analyzer and the
- MMA-400 Micro Motion Analyzer



MSV-400 Microscope Scanning Vibrometer

For full-field vibration analysis on very small objects such as MEMS optical switches, Polytec has developed the MSV-400 Microscope Scanning Vibrometer, a successor of the award-winning MSV-300. The laser beam, delivered through the optics of a standard microscope, can scan an object up to 320 x 240 μm with a lateral resolution of about 1 μm . The new MSV-400 is the ideal tool for research on structures that are too small for analyzing with the standard PSV-400 Scanning Vibrometer. Polytec's MSV-400 is the perfect instrument for a quick and accurate vibration and motion analysis of unpackaged MEMS devices. For wafer-level testing, the MSV-400 can easily be mounted onto manual or fully automated probe-stations.

Publication free of charge

For questions
please contact
Frauke Fughe
Tel. +49 (0)7243-

604-236

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PMA-400 Planar Motion Analyzer

The new PMA-400 Planar Motion Analyzer is designed for in-plane microstructure vibration and motion analysis. In-plane measurements of microscopic structures such as MEMS or MOEMS require specialized techniques. While Laser Doppler Vibrometry provides superior resolution for out-of-plane measurements, the PMA-400 features in-plane motion analysis using specialized stroboscopic video microscopy.

The PMA-400 Planar Motion Analyzer is a fully integrated, high performance imaging system combining drive electronics, data acquisition and motion analysis software. The system includes high-speed imager, stroboscopic illumination source, Data Management System with data acquisition, and synchronized signal generator.

Motion data based on pixel deviations are extracted and displayed as X, Y displacement values or as Bode diagrams, Step-response plots, Ring-down plots, or Trajectory plots. Sub-pixel resolution enables the measurement of vibration amplitudes with resolution better than 10 nm in a frequency range up to 2 MHz.

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MMA-400 Micro Motion Analyzer

Polytec's new MMA-400 Micro Motion Analyzer is designed for combined out-of-plane and in-plane vibration and motion analysis of microstructures and broadens Polytec's product range for a full insight into the dynamics of the micromechanical world.

The MMA-400 Micro Motion Analyzer features a modular concept combining the MSV-400 Microscope Scanning Vibrometer and the PMA-400 Planar Motion Analyzer. Whether out-of-plane-, in-plane- or 3D vibration measurements are of interest, the system can be configured to meet every need. The combination of two different measurement technologies - Laser Doppler Vibrometry (LDV) and video microscopy - provides superior performance compared to single-technology solutions for investigating the vibrational behavior of small structures. LDV allows for a very fast identification of in-plane resonances through their parasitic out-of-plane contributions. The in-plane motion of the resonances is subsequently investigated with the stroboscopic video microscopy in great detail.

Polytec GmbH is providing world class high-tech solutions for the microstructure, data storage, automotive, aerospace, transportation, steel industry, mechanical engineering and scientific research markets for decades. Polytec is known throughout the high-tech world for its leadership in the design and manufacture of laser-based vibration, speed & length measurement instruments. Global sales offices are located throughout Europe, the United States and Japan.

More information can be found at www.polytec.com

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Frauke Fughe
Tel. +49 (0)7243-
604-236