

MSA-500 *Micro System Analyzer*



Non- Contact MEMS Characterization - Measuring 3-D Dynamics and Topography with Light

The MSA-500 Micro System Analyzer is the premier measurement instrument for the analysis and visualization of structural vibrations and surface topography in micro structures such as MEMS (Micro-Electro-Mechanical Systems) devices. It provides precise 3-D dynamic and static response data that simplifies troubleshooting, enhances and shortens design cycles, improves yield and performance, and reduces product cost.

- **Faster**
- **Simpler**
- **More precise**

Get a complete characterization of your microstructure including:

Topography Information

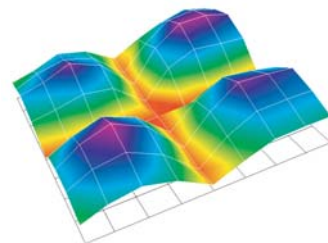
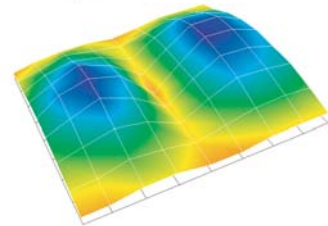
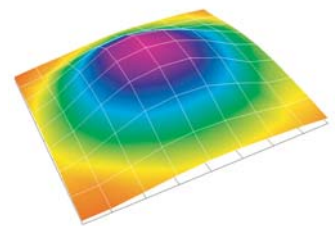
- Rapid, non-contact 3-D topography measurements
- Sub-nanometer resolution of structure heights and shapes
- Measures roughness, waviness, volumes or flatness
- New green LED light source for higher optical resolution
- Direct geometry scan data acquisition for the vibration measurement

Out-of-Plane Vibration

- High resolution measurements with picometer resolution up to 24 MHz
- Broadband excitation provides frequency response function within milliseconds
- Scanning system for full-field mapping
- Frequency- and time-domain data
- Versatile data import and export interfaces to validate FE models

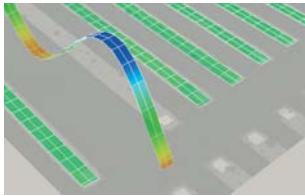
In-Plane Vibration

- High resolution measurements with nanometer resolution up to 1 MHz
- Provides amplitude and phase information (Bode Plots)
- Out-of-plane measurements identify in-plane areas of interest, simplifying analysis
- Time-saving multi-band processing

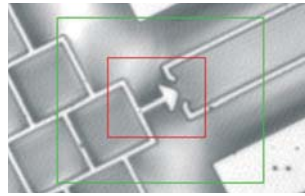


Modal shapes of a pressure sensor membrane

Unique Combination of Non-Contact Measurement Techniques



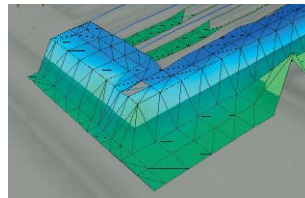
- **Scanning Laser-Doppler Vibrometry** for characterization of out-of-plane vibrations



- **Stroboscopic Video Microscopy** for measurement of in-plane motion and vibration



- **White Light Interferometry** for determination of surface topography



- **Geometry Scan data acquisition** for the vibration measurement

Key Features of the Micro System Analyzer

- Confocal microscope with LCD screen including three measurement techniques
- Easy to integrate with a wafer probe station for wafer and individual die tests
- Frequency measurements up to 24 MHz
- Differential measurements to remove background motion
- Internal signal generator for device excitation
- Has external trigger capability
- Complete software controlled measurement system
- Scripting engine to automate your application
- Easy integration on probe stations for R&D and production purposes
- Modular setup, upgradeable

More Information

Visit our web site and download our comprehensive Micro System Analyzer brochure:

- www.polytec.com/microsystems

Contact your local Polytec sales/application engineer:

- info@polytec.com (North America)
- LM@polytec.de (all other regions)

Visit our MEMS portal and the Polytec Web Academy to learn the latest applications of MSA technology to MEMS characterization:

- www.mems-analysis.com (English)
- www.polytec.de/mems (German)
- <http://polytec-de.webex.com/>



Polytec GmbH (Germany)
Polytec-Platz 1-7
76337 Waldbronn
Tel. + 49 (0) 7243 604-0
Fax + 49 (0) 7243 69944
info@polytec.de

Polytec France S.A.S.
32 rue Délizy
93694 Pantin Cedex
Tel. + 33 (0) 1 48 10 39 30
Fax + 33 (0) 1 48 10 09 66
info@polytec.fr

Lambda Photometrics Ltd. (Great Britain)
Lambda House, Batford Mill
Harpenden, Herts AL5 5BZ
Tel. + 44 (0) 1582 764334
Fax + 44 (0) 1582 712084
info@lambdaphoto.co.uk

Polytec Japan
Hakusan High Tech Park
1-18-2 Hakusan, Midori-ku
Yokohama-shi, 226-0006
Kanagawa-ken
Tel. +81 (0) 45 938-4960
Fax +81 (0) 45 938-4961
info@polytec.co.jp

Polytec, Inc. (USA)
North American Headquarters
1342 Bell Avenue, Suite 3-A
Tustin, CA 92780
Tel. +1 714 850 1835
Fax +1 714 850 1831
info@polytec.com

Midwest Office
3915 Research Park Dr.
Suite A-12
Ann Arbor, MI 48108
Tel. +1 734 662 4900
Fax +1 734 662 4451

East Coast Office
25 South Street, Suite A
Hopkinton, MA 01748
Tel. +1 508 544 1224
Fax +1 508 544 1225