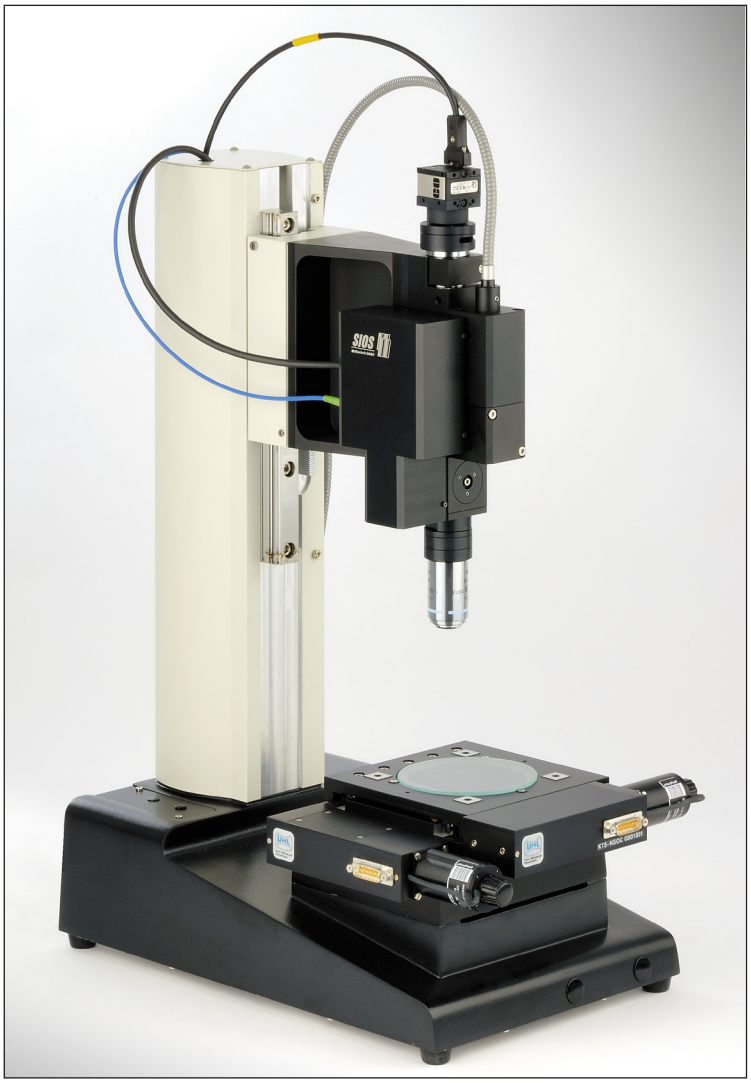
Nano Vibration Analyzer



NA-Series

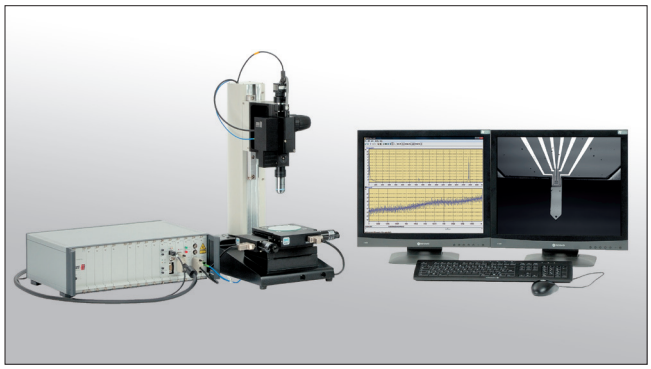
SIOS Meßtechnik GmbH

Design and Operation

The Nano Vibration Analyzer is a fiber-coupled laserinterferometric vibrometer integrated in a precision technical microscope. It is excellently suitable for measurements of dynamic properties and static displacements of micro structures, MEMS and cantilevers.

The flexible sample positioning in a wide range of 50 mm x 50 mm is achieved by the specific microscope set-up. The vibrating object can be watched on PC by means of an USB camera. Different objectives with magnifications of 10x and 50x are changeable. DC deflection measurements as well as spectral analysis up to a frequency of 5 MHz are possible. Amplitudes can be measured with sub-nanometer resolution.

Operation and display of results employs a PC running specially developed data analysis software. This software allows the frequency analysis of vibrations, the triggered data acquisition and a script-controlled scanning of surface structures.



Applications

- Noncontacting vibration measurements on micro objects, MEMS and cantilevers
- Determining the vibrational spectrum
- Determining the vibrational shapes (planar vibrations)
- Determining the resonance frequencies
- Measurement of the static deflection of membranes and other microstructures

Major Performance Features

- High precision, noncontact vibration measurements on micro objects
- Flexible sample positioning
- Different changeable objectives (10 x, 50 x)
- USB camera for observation of measuring objects
- Fiberoptic coupling of the laser beam (eliminates thermal influences on measurement results)
- Application-specific configuration
- Includes FFT spectrum-analysis software
- Open interfaces for OEM software under Windows and Linux

Software for Windows - INFAS Vibro

- 3D display of planar vibrations
- Script-controlled measurement procedure
- Integrability into customized systems by TCP/IP
- Calculation of velocity and acceleration of vibrational motion
- Spectrum analysis
- Averaging of spectra

Digital data output – RE 10

High-speed evaluation card with buffered data output

- Measurable frequency range: 0 to 5 MHz
- Sampling frequency: up to 12.5 MHz
- Data record length: 256...65.536 values
- External trigger input
- RS 232C interface
- USB interface

Digital data output – DP 10

Fast data recording in conjunction with a PC plug-in card

- Sampling frequency: up to 12.5 MHz
- Data width: 36 Bit
- High-resolution FFT analysis is possible
- Support for the INFAS Vibro software for NI-PCI 6534 and NI-PCIe 6535 PC cards

Technical Data		Model NA	
Amplitude resolution	pm	20	
Wavelength	nm	632.8	
Scan field range	mm	50 x 50	
Microscope magnification		10 x	50 x
Visual field size	µm	650 x 500	130 x 100
Laser spot diameter	µm	< 10	< 2
Working distance	mm	~ 35	~ 10
Dimensions (L x W x H) Microscope system incl. vibrometer Electronic supply and evaluation unit	 mm mm	 400 x 500 x 700 450 x 400 x 150	 60 x 36 x 170 450 x 400 x 150
Mass Microscope system incl. vibrometer Electronic supply and evaluation unit	 kg kg	 23 8	
Line voltage / frequency	VAC/Hz	100...240 /47...60	
Laser safety class according to EN 60825-1:2007 and ANSI Z136.1 (CDRH)		2M II	

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