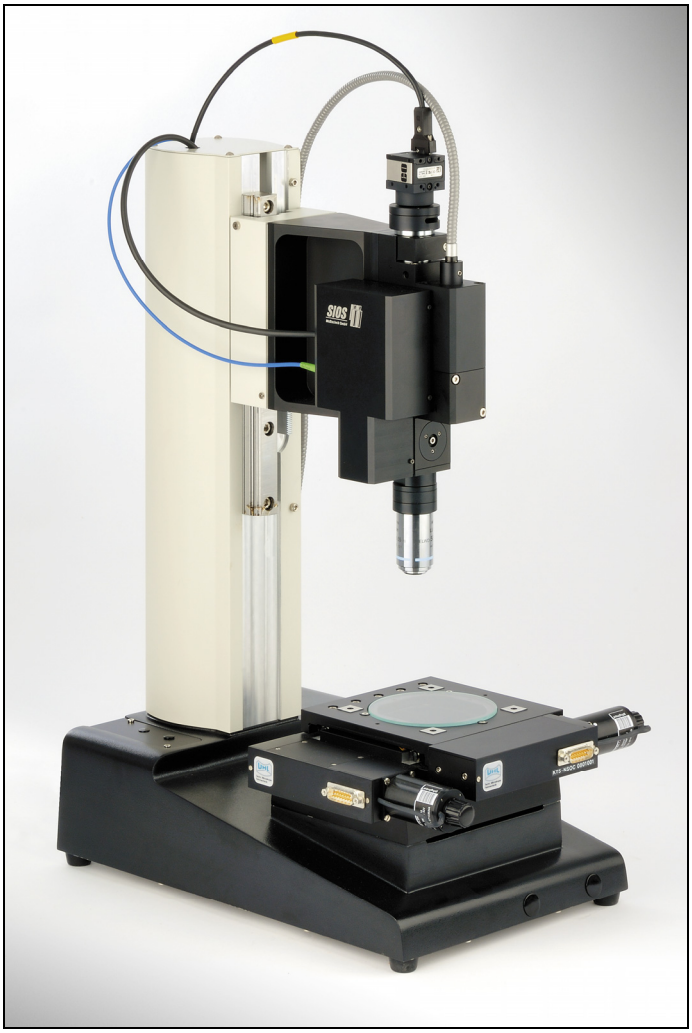
Nano Vibration Analyzer



NA-Series

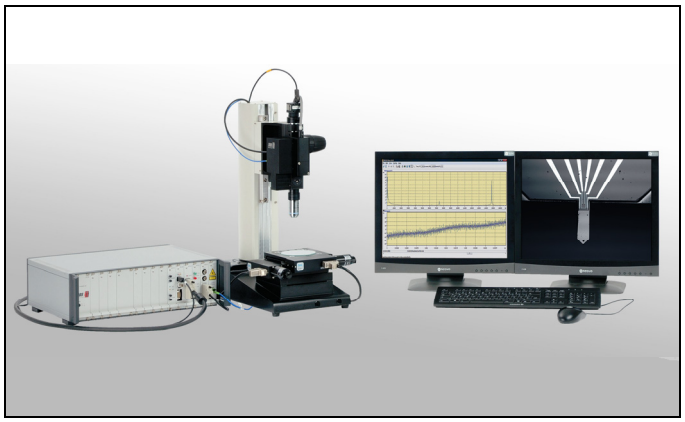
SIOS Meßtechnik GmbH

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 a 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 2 MHz are possible. Amplitudes can be measured with sub-nanometer resolution.

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



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

Software für 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

Applications

- Noncontacting vibration measurements on micro objects, MEMS und cantilevers
- Determining the vibrational spectrum
- Determining the vibrational shapes (planar vibrations)
- Determining the resonant frequencies

Technical Data

Amplitude resolution:	< 0.1 nm	
Wavelength:	632.8 nm	
Scan field range:	50 mm x 50 mm	
Microscope magnification:	10 x	50 x
Visual field size [µm]:	650 x 500	130 x 100
Laser beam diameter [µm]:	< 10	< 2
Working distance [mm]:	~ 35	~ 10

Data output:

	Sampling frequency	Object frequency range	Data output	Data set length	Feature
RE 06	200Hz – 1MHz	0 – 500 kHz	USB, RS232	256-32,768 data points	Triggering possible
DP 02	< 4 MHz	< 2 MHz	44-pol. HD-SUB-D-Connector	up to 260,000 (2^{18}) data points	-

Dimensions H x W x D [cm]:	
Microscope system incl. Vibrometer:	70 x 40 x 50
Electronic signal processing/ power-supply unit:	15 x 45 x 40

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