

**NEW**

# Laserinterferometric Vibrometer



## LSV-Series

## PRELIMINARY DATA SHEET

The laserinterferometric vibrometer is an ideal instrument for accurate, noncontact determination of temporal changes in the positions of objects or surfaces of arbitrary roughness. It detects mechanical vibrations at frequencies ranging from 0 to 500 kHz with subnanometer resolution.

These instruments have been designed based on the proven concept of our SP-S Series laserinterferometric vibrometers. The working distance of the LSV-Series vibrometer can be adjusted continuously in a wide range by a zoom objective.

The complete system consists of a compactly designed fiberoptic-coupled sensor head, a modularly designed electronics unit incorporating a He-Ne laser, and various interfaces.

The fiber-coupled interferometer converts motions along the optical axes into interference fringes that are transmitted to fast, high-resolution, demodulation electronics for processing. Operation and display of results employs a PC running specialized data-analysis software.

### Technical Data LSV-standard

Working distance: (continuously selectable)	240 mm - 2500 mm
Coherence maxima:	240 mm + n*240mm, n=0,1,2..
Measurement range: (dependent on surface)	≤ ± 20 mm
Resolution:	0.1 nm
Sampling frequency range:	1...1000 kHz
Frequency range:	0...500 kHz
Wavelength:	632.8 nm
Surface roughness:	arbitrary
Surface reflectivity:	≥ 5 x 10 <sup>-4</sup>
Max. translation rate:	1.5 m/s
Dimensions (H x W x D)	
• Sensor head:	52 mm x 162 mm x 52 mm
• Sensor head with alignment fixture:	73 mm x 195 mm x 100 mm
• Elektronik signal processing/ power-supply unit:	150 mm x 450 mm x 400 mm
Length of the cable inter- connecting the sensor head and electronics unit:	3 m, optional bis 10 m

### Software for Windows

- Spectrum analysis
- Digital filtering
- Record lengths ranging from 256 to 32,768 data points
- Computation of the speeds and accelerations of vibrational motions
- Spectral averaging
- Triggering by external hardware

### Features

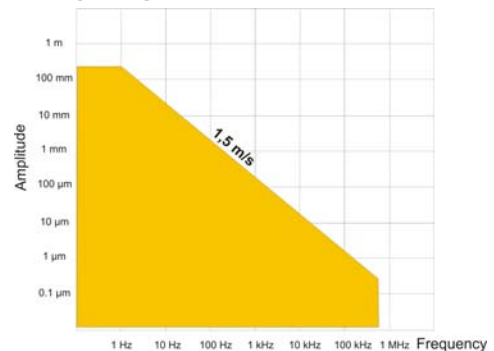
- High precision vibration analysis and length measurement system
- Noncontact measurements
- Flexible installation
- Adaptable to suit customers' needs
- Fiberoptic coupling of the laser beam (eliminates thermal influences on measurement results)
- Correction of ambient conditions
- Easy to align and use
- Includes FFT spectrum-analysis software

### Standard signal processor

#### Incremental signal-processing board equipped with vibrometer option:

- High speed signal processing board
- Cyclic data acquisition
- External triggering input
- Wavelength correction electronics
- RS-232 C serial interface
- USB interface

#### Working Range:



### Optional signal processor

#### Analog data output:

- 8 length ranges
- 16-bit resolution for output amplitudes up to ± 3 V
- Cutoff frequency 500 kHz
- Continuous data output

### Applications

- Making noncontacting vibration measurements on surfaces of arbitrary roughness
- Determining the vibrational modes of plates and shells
- Determining the resonant frequencies of microscopic objects
- Making multi-coordinate measurements employing several systems
- Performing high-precision length measurements

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