



Laser Vibrometers

Optical Measurement Solutions for Vibration
Product Brochure



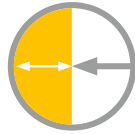


Laser Doppler Vibrometry

Polytec manufactures a range of laser vibrometers that have become the accepted gold standard for non-contact vibration measurement.

The laser Doppler vibrometer is a precision optical transducer used for determining vibration velocity and displacement at a fixed point. The technology is based on the Doppler effect, sensing the frequency shift of back scattered light from a moving surface.

Whether the application is for 100% Q.A. inspection of motors on a production line, optimizing an ultrasonic cutting tool, confirming the characteristics of a MEMS micro-resonator or identifying torsional modes in a vehicle's drive-train, there is a Polytec system that can provide the measurement solution.



Single point measurement

OFV – Modular Laser Vibrometer

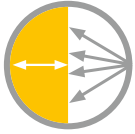
Universal system, designed as a flexible, upgradeable solution for research, development and general vibration measurements

This modular system makes non-contact vibration analysis very simple, flexible and precise, regardless of whether the sample is large or small, delicate or difficult to access.

The system comprises

- An optical sensor head, select from
 - high sensitivity sensor heads
 - compact sensor heads with integrated camera
 - fiber-optic sensor heads
- An extendable vibrometer controller
- Decoder modules

Various analog and digital decoder options for displacement and velocity seamlessly cover frequencies from DC to 24 MHz.



Scanning of surfaces

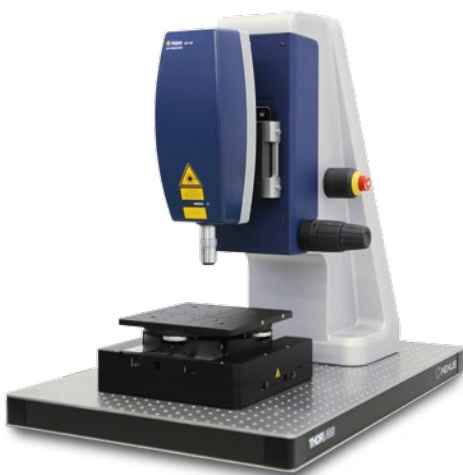
PSV – Scanning Vibrometer

A full-field vibration measurement and visualization system that is fast and easy to use

- Simplifies and enhances complex noise and vibration characterization for R&D, commercial and industrial applications, up to 25 MHz
- Complete PSV Software Package provides detailed vibration data analysis including graphing and animation of 3D color maps
- Powerful accessories and options. For example, geometry data can be determined directly from the test structure via the optional Geometry Scan Unit
- Compact model based on notebook computer available

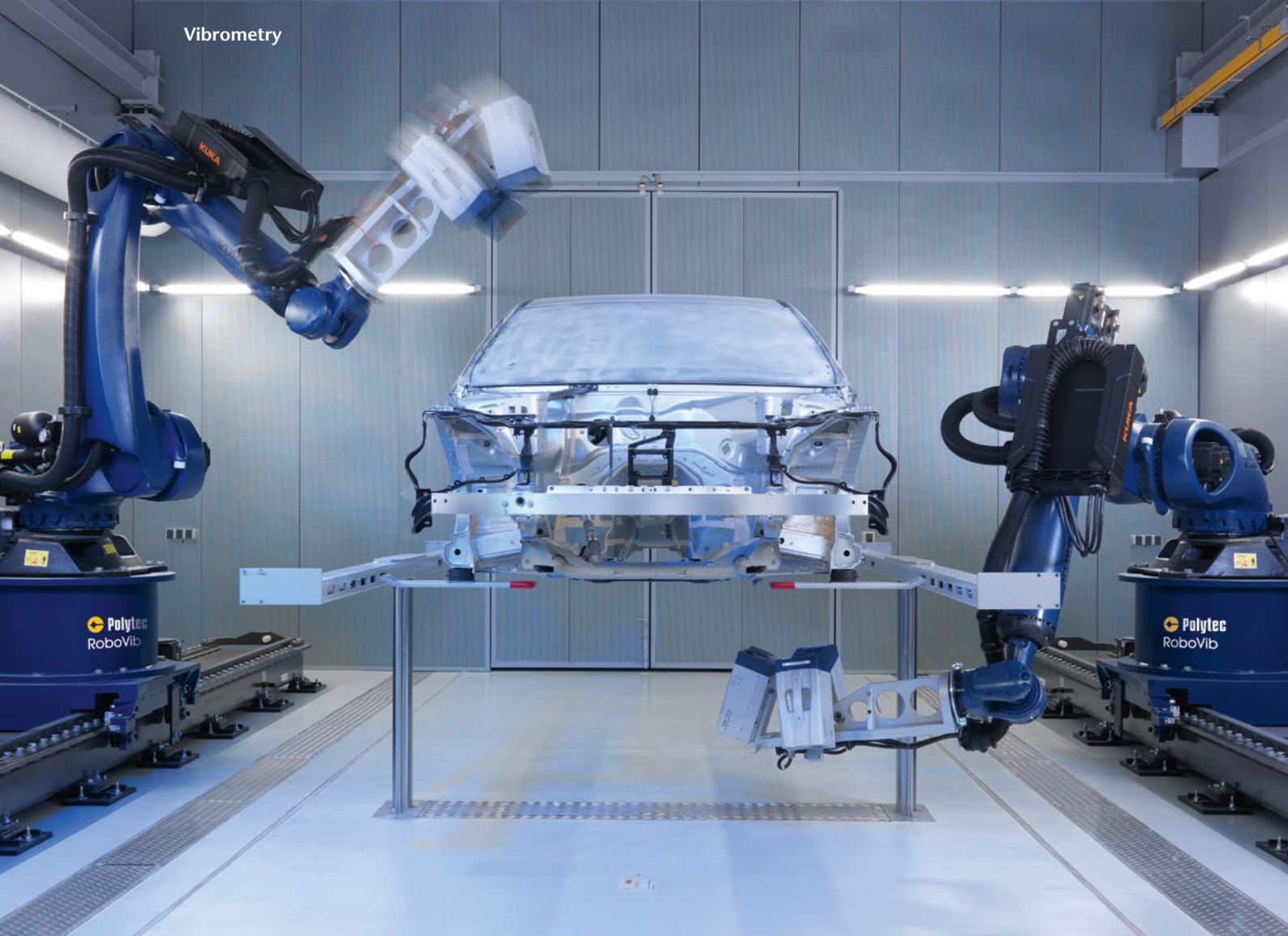


UHF – Ultra High Frequency Vibrometer



A compact and non-contact sensor for ultra high frequency vibration measurements up to 1.2 GHz

- Single point and full-field measurements
- Precise dynamic characterization of Out-of-Plane motion
- Small spot size in the μm -range for measurements of short acoustical wavelengths



Full-field 3D vibration characterization

PSV-3D – Scanning Vibrometer

The ideal measurement system for gathering non-contact three-dimensional vibration data from both simple and complex geometries

- High spatial resolution measurement
- Data interface to Modal Analysis and FEA Software
- High frequency version available (up to 5 MHz) for ultrasonic transducer and device development
- Allows dynamic stress and strain evaluation with optional StrainProcessor
- Fully automated modal testing with the RoboVib Structural Test Station

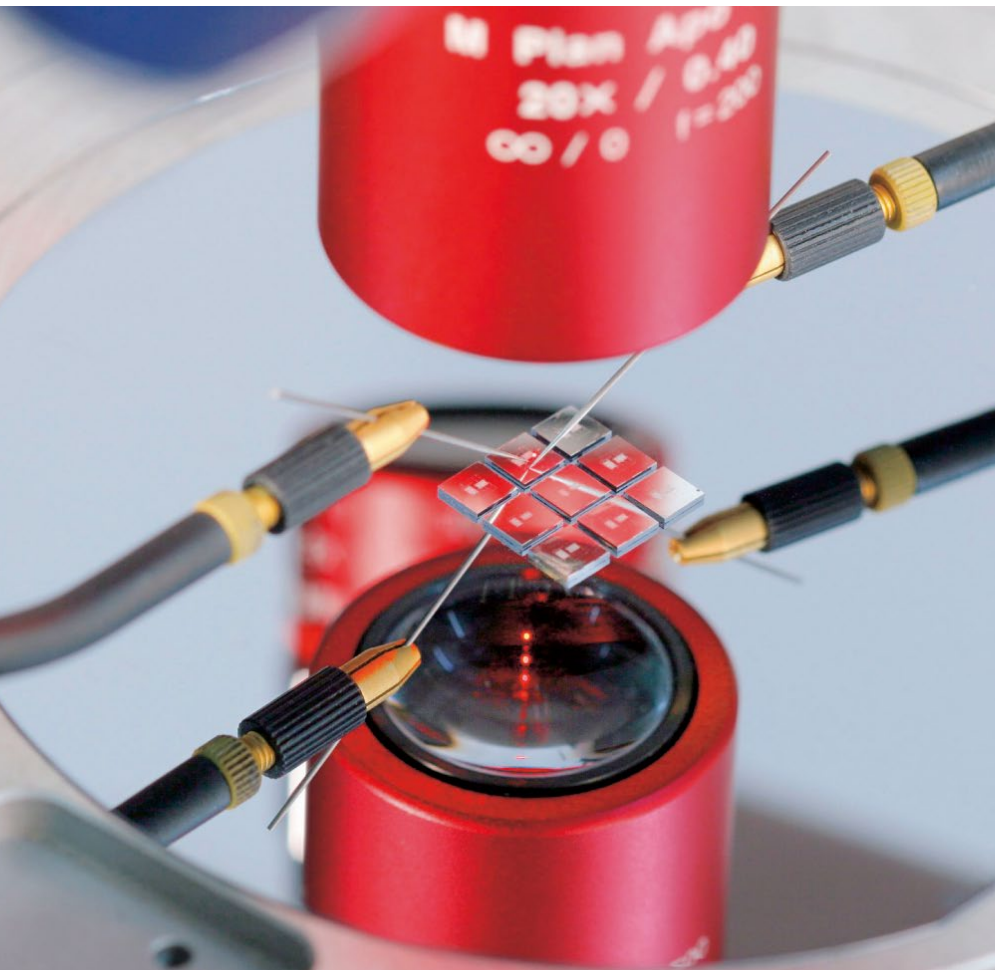
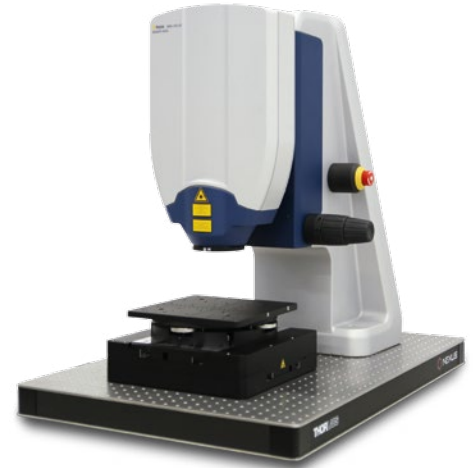


Microscopic vibration analysis

MSA – Micro System Analyzer

Unified technology simplifies precise measurements and quick analysis of 3D dynamics and topography of MEMS, MOEMS and other microstructures

- Dedicated instruments available for
 - Real-time 3D vibration measurements
 - both static topography and dynamic out-of-plane and in-plane vibration analysis
- Rapid identification and visualization of out-of-plane and in-plane resonances
- Integrated microscope optics are optimized to guarantee highest lateral resolution and image quality
- Full field data for modal analysis and FE validation
- Simple and intuitive operation, ready to make measurements in a matter of minutes
- Easily mounts to MEMS probe stations



Portable and Industrial Vibrometers



IVS Industrial Vibration Sensors

- Robust all-in-one vibrometer for quality control
- Available with integral digital signal processing for accurate measurements from arbitrary surfaces



PDV Portable Digital Vibrometers

- Portable digital vibrometer for condition monitoring and other mobile measurement tasks

CLV Compact Laser Vibrometers

- Compact lightweight sensor head design with remote controller and near DC up to 3.2 MHz frequency response
- Integrated camera



RSV Remote Sensing Vibrometers

- Robust and portable vibrometer for mobile outdoor measurements over long distances with high sensitivity
- High optical sensitivity, also for challenging R&D lab measurement tasks with short range lens





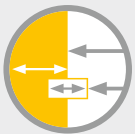
RLV Rotational Vibrometers

- For torsional vibration and rotational speed variation measurement, e.g. automotive engine and drivetrain torque, motors and pumps, etc.
- Provides angular velocity, displacement and rpm outputs



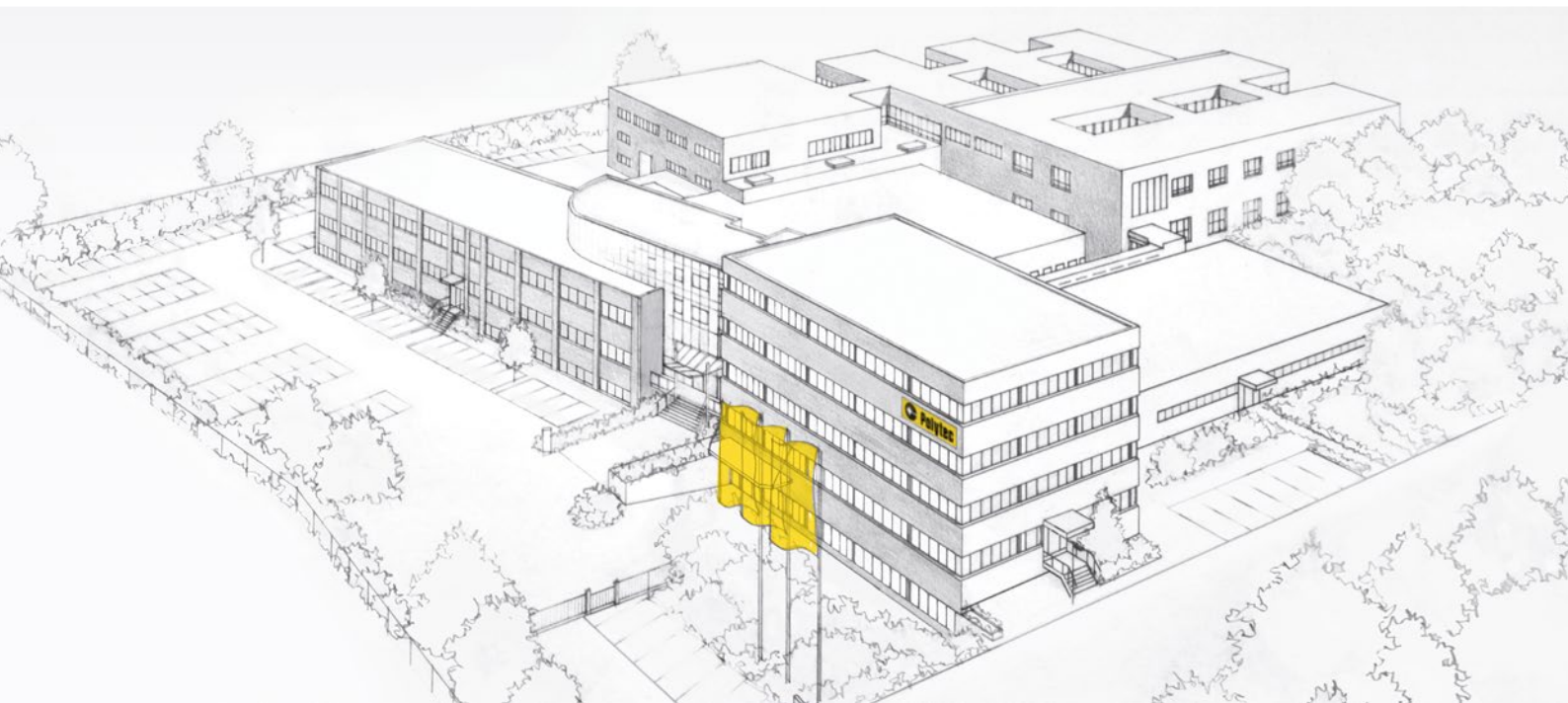
IPV In-Plane Vibrometers

- Transverse (in-plane) vibration measurement
- Lateral examination of stroke movements



Differential Vibrometers

- Optical Subtraction of ambient vibrations
- Specially suited for microsystems and valve train dynamics
- Multi-channel measurements with arbitrary number of channels



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