



PDV-100 Portable Digital Vibrometer

Truly Portable Laser Vibration Measurement
Product Brochure



The PDV-100 Portable Digital Vibrometer is the truly portable, battery-powered digital laser vibrometer for field studies and quick and easy condition monitoring of machines and facilities.

The PDV-100 measures vibrational velocities without contact in the frequency range up to 22 kHz. The high vibrational velocity resolution of $0.02 \mu\text{m/s}$ in combination with the high level of linearity across the entire frequency range provides you with a sturdy and reliable mobile vibration analysis tool.

The Polytec Company

50 years of innovation, performance and quality ensures Polytec's continued role as the leading supplier of optical, non-contact vibration measurement solutions. As technology leader for about 30 years Polytec has set the standards worldwide for the very best products in laser Doppler vibrometry. For decades, Polytec systems are established tools in research and industrial applications.



We are surrounded by sounds and vibrations: Every product and every creature emits or responds with its own distinctive vibrations. Analyzing the dynamic behavior of these structures is key for a comprehensive research, product development and quality assessment.

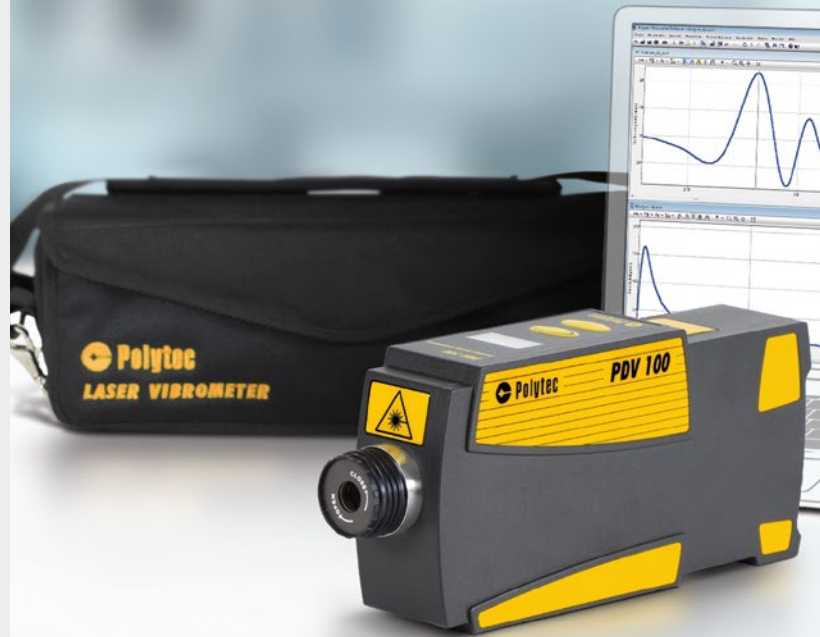


Truly Portable Laser Vibration Measurement



Highlights

- Non-contact vibration measurement for fast and easy analysis in the field
- Truly portable, robust and reliable vibration sensor with laser precision
- Versatile with a frequency range up to 22 kHz
- Three velocity measuring ranges for maximum resolution up to 0.02 $\mu\text{m/s}$
- Outstanding linearity and precision thanks to digital electronics
- Variable stand-off distances from 0.09 to 30 m
- Visible and eye-safe laser for easy positioning and adjustment



Point, Shoot and Measure

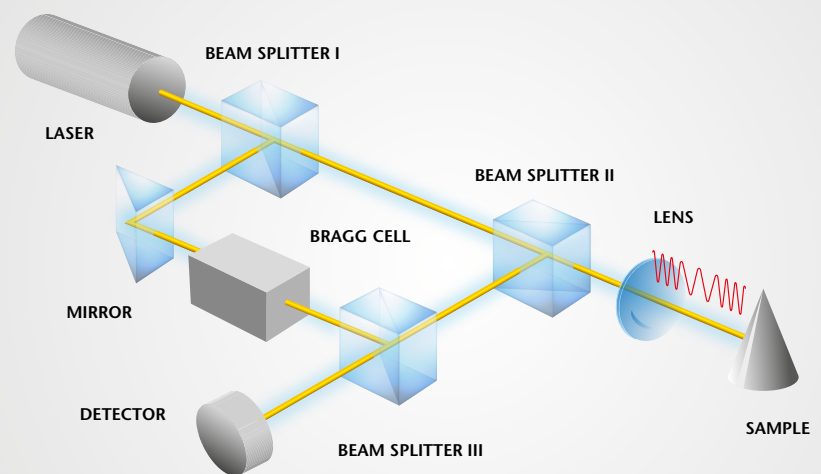
Vibration measurements are made easy with the PDV-100. After focusing the laser beam on the vibrating object, the suitable measurement range can be set with push buttons. An illuminated display shows the selected range, the measurement signal level (amount of light returning to the sensor), and, if applicable, velocity over-range and low-battery warnings. Selectable high and low pass frequency filters condition the velocity signal to suppress low-frequency background vibrations or unwanted high-frequency signals. The analog velocity output interfaces to conventional analog signal processing and recording equipment.

A reliable tool for many applications

If you are looking for a portable multi purpose, non-contact vibration measurement system the PDV-100 is the ideal solution. In combination with lightweight signal processing equipment and the PDV-BS transportation bag providing a battery for nominal 5 hours operation time, machinery vibrations even on difficult to access or hazardous objects can conveniently and safely be measured.



Non-contact and highly precise vibration measurement based on the laser Doppler principle.



Advantages of digital signal processing

- Excellent velocity resolution up to $0.02 \mu\text{m/s}$
- Outstanding measurement linearity and accuracy
- Demodulation principle independent of aging and environmental influences
- Unequalled longterm calibration stability
- Digital low pass output filters with excellent properties

How it works: Laser Doppler Vibrometry

If a light beam is reflected by a moving object, the frequency of the light is shifted proportional to its velocity, a phenomenon referred to as the Doppler shift. Through this process, the velocity information becomes coded in the frequency of the light and is subsequently used by the laser Doppler vibrometry to measure the vibration. A precision interferometer and digital decoding electronics transform the frequency shift into a voltage signal that can be processed by standard data acquisition systems.

A significant property of the technology, the velocity information is independent of the intensity of the reflected light; hence, the robust measuring principle works well even for objects with low reflectivity surfaces.

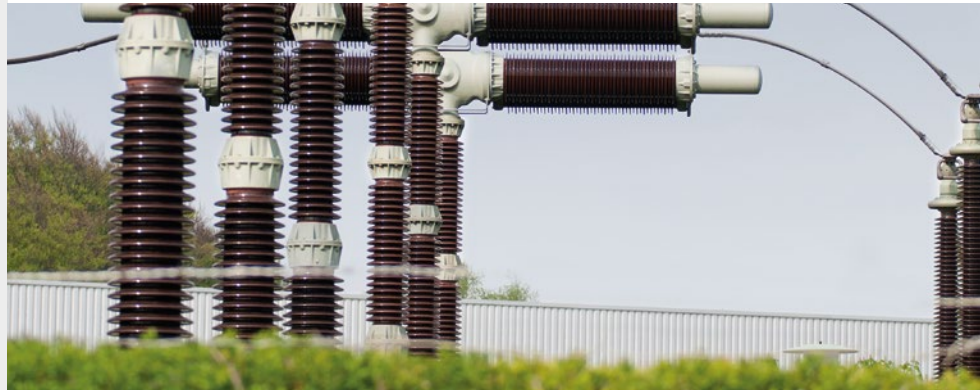
Vibration Analysis in the Field

- Predictive maintenance of machinery
- Multi purpose field testing
- Operating vehicles, trains or airplanes
- Scientific expeditions
- Buildings, bridges or other large outdoor structures

PDV-100 enables a reliable and precise vibration analysis, e.g. for condition monitoring, predictive maintenance of machinery, civil engineering studies and quality control.



Condition monitoring in the field at distances up to 30 m especially for hard-to-access areas or from safe distances.



Predictive maintenance of machinery, tools and installations in challenging industrial environments



Non-contact vibration analysis without influencing sensitive or biological samples, e. g. studying insect communication and behaviour.





Packages & Accessories

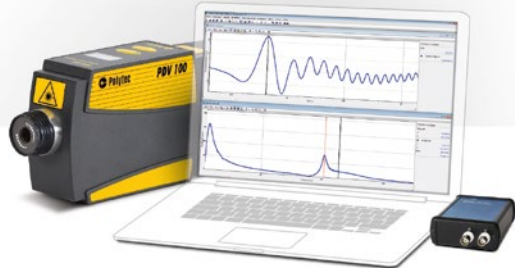
1 PDV-100

Use the stand-alone compact laser sensor with your existing data acquisition systems and analysis software.



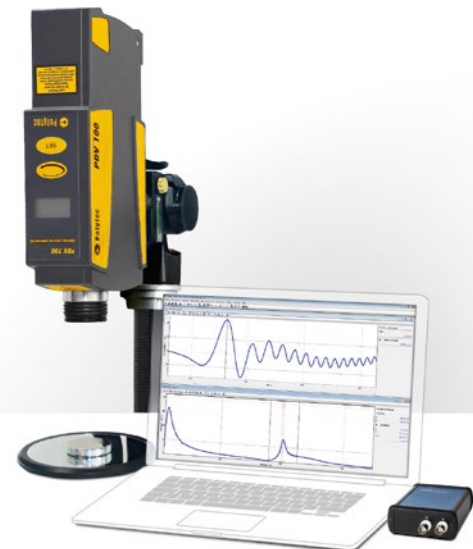
2 PDV-100 Plus

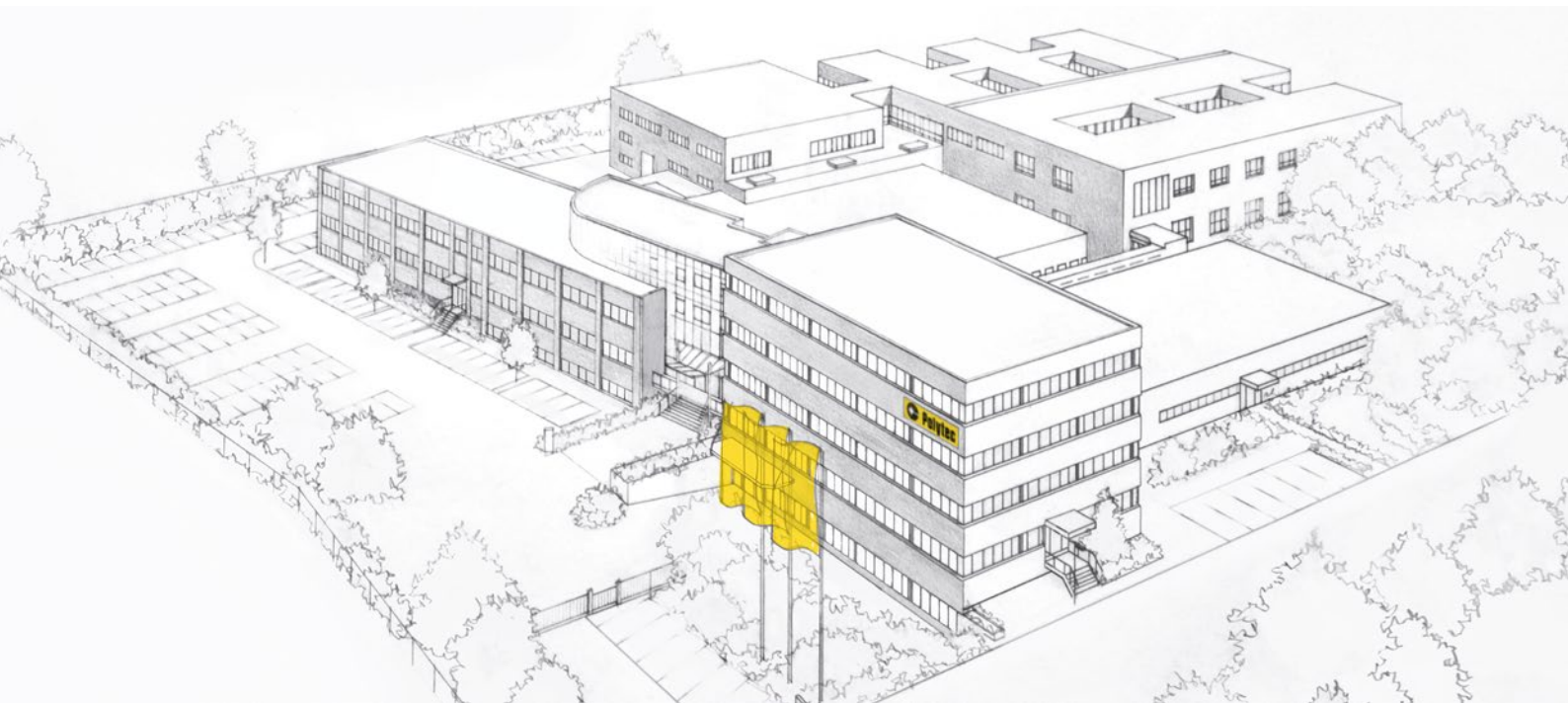
The PDV-100 Plus is a ready-to-use package comprising the laser sensor and Vib-Soft-20 USB data acquisition with data analysis software. Connect your laptop or personal computer, and analyze vibrating structures onsite, wherever you are.



3 PDV-100 Education Kit

The PDV-100 Vibrometer Education Kit is designed to introduce non-contact vibration measurement to students, young researchers and tomorrow's innovators with experimental measurements using the innovative technology of laser vibrometers. Like the PDV-100 Plus package this EduKit comes with VibSoft-20 USB data acquisition with data analysis software and includes two experimental setups to start learning right away.





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