

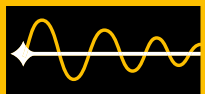
## VibroFlex TriMount



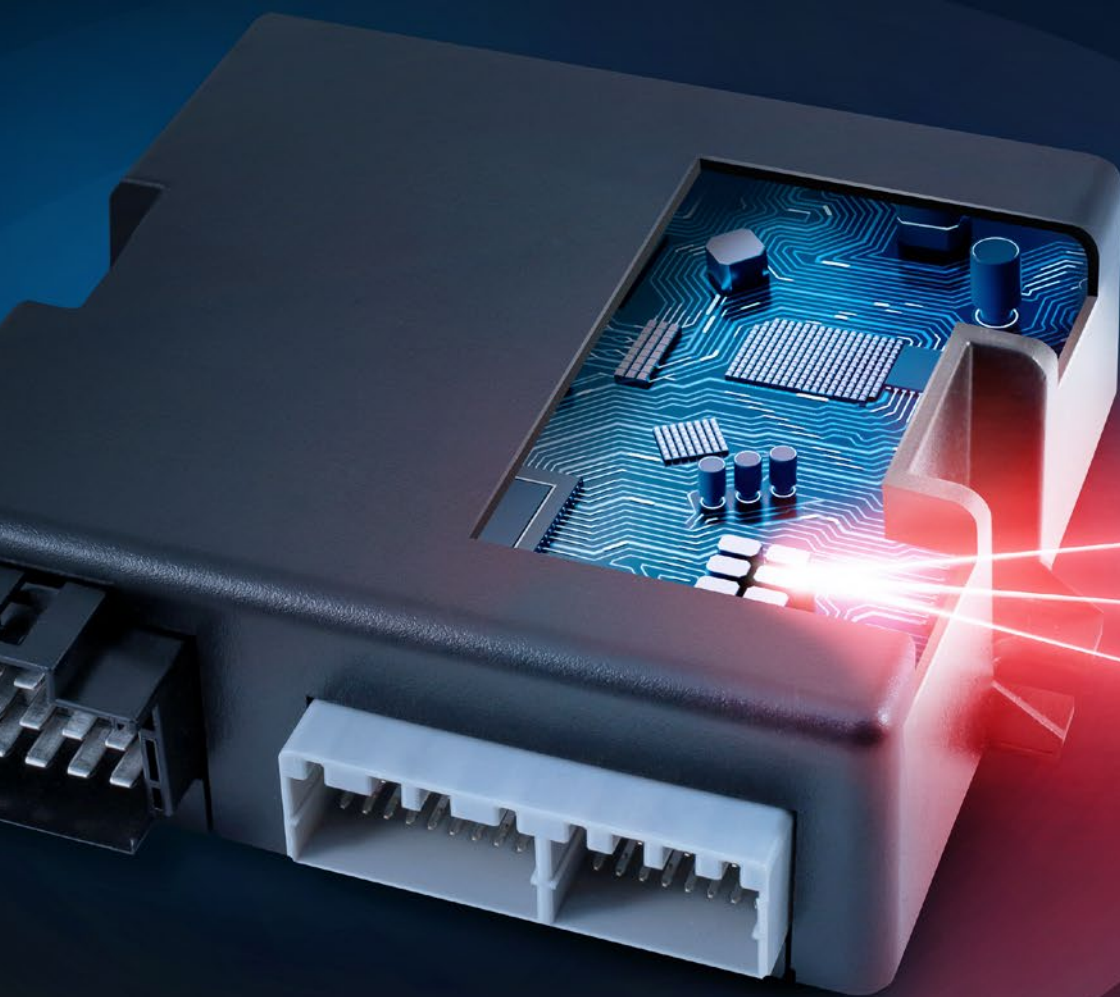
## VibroFlex TriMount

Modular 3D vibration measurement

Product brochure



VibroFlex TriMount is a modular setup for non-contact 3D vibration measurements.



EXAMPLE: 3D VIBRATION  
MEASUREMENT OF A  
DEVICE ON A SHAKER



**VibroFlex TriMount is a modular setup for non-contact 3D vibration measurements, consisting of a sturdy sensor holder with three VibroFlex Compact measuring heads, each interacting with a powerful VibroFlex Connect front-end. This combination enables precise and reliable vibration measurements with a frequency bandwidth up to 24 MHz for a wide range of applications. Its latest generation FPGA-based signal processing takes care of decoding raw measurement data in displacement, velocity and acceleration.**

## Highlights

One of the three VibroFlex Compact measuring heads is equipped with an integrated camera, viewing the sample, which simplifies measurement setup and test documentation.

The dedicated VibSoft-PRO data acquisition converts the raw vibration data into the cartesian x, y and z components for further analysis. The sensor holder offers fine adjusters facilitating the easy and precise alignment of the three laser beams for unambiguous measurement data.

In addition to using the VibroFlex TriMount as a 3D vibration measurement system, the three laser vibrometers serve as stand-alone 1D single point vibration measurement systems. This versatility opens up a wide range of applications – from research and product development to reliable and cost-effective quality control.

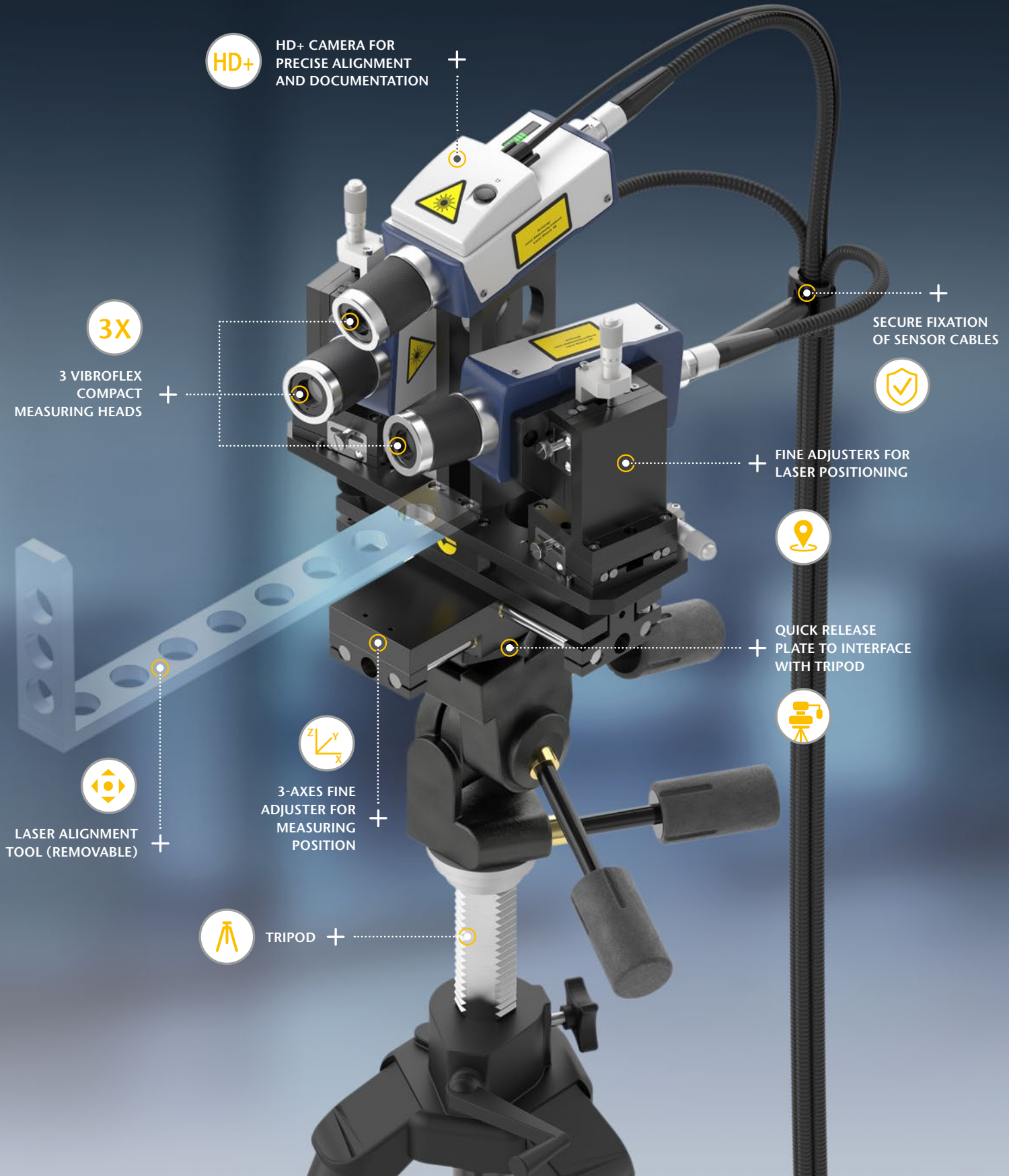


- True 3D non-contact vibration measurement
- Precise laser positioning with fine adjustment and camera
- Highest bandwidth and time resolution
- Ready-to-go with VibSoft-PRO data acquisition
- Measuring the real acceleration, velocity and displacement

### The Polytec company

For more than 50 years and with over 400 employees worldwide Polytec develops, produces, and distributes optical measurement systems for research and industry. The metrology solutions cover vibration measurement, surface metrology, speed and length measurement, machine vision, optical systems as well as process analytics. Polytec has offices in Europe, North America and Asia and earned its excellent reputation with innovation, superior quality and worldwide service.

# Modular 3D vibration measurement



The VibroFlex TriMount draws on the components of the versatile VibroFlex family, VibSoft-Pro and a robust sensor holder.

**VibroFlex  
Connect**



Core of VibroFlex TriMount as modular 3D vibration measurement solution are three front-ends VibroFlex Connect with large bandwidth from DC to 24 MHz. Its latest generation FPGA-based signal processing takes care of decoding raw measurement data in displacement, velocity and acceleration.

**VibroFlex  
Compact**



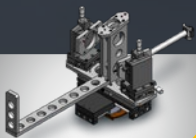
VibroFlex Compact sensor heads with excellent optical sensitivity can easily be applied to the sensor holder. One sensor head with integrated camera can be mounted on top, which simplifies measurement setup and test documentation.

**VibSoft-PRO  
Data acquisition**



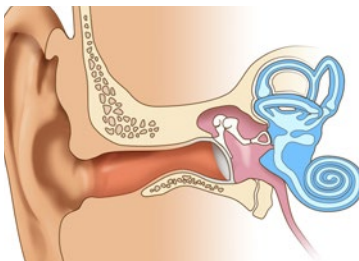
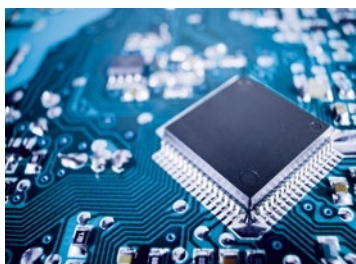
VibSoft-PRO data acquisition for transforming the raw 3 vibration signals into Cartesian x, y and z directions. Includes comprehensive toolbox for analysis in the time and frequency domain.

**Sensor holder  
for 3D measurement**



Sensor holder for 3D Measurements (compatible to VibroFlex Compact and VibroOne). Ideally mounted on a tripod for a stable measurement.

# Allows a wide range of applications



For detailed technical specifications of the new VibroFlex TriMount laser vibrometer refer to the corresponding datasheets.  
[www.polytec.com/vibroflex](http://www.polytec.com/vibroflex)

## Vibrations everywhere

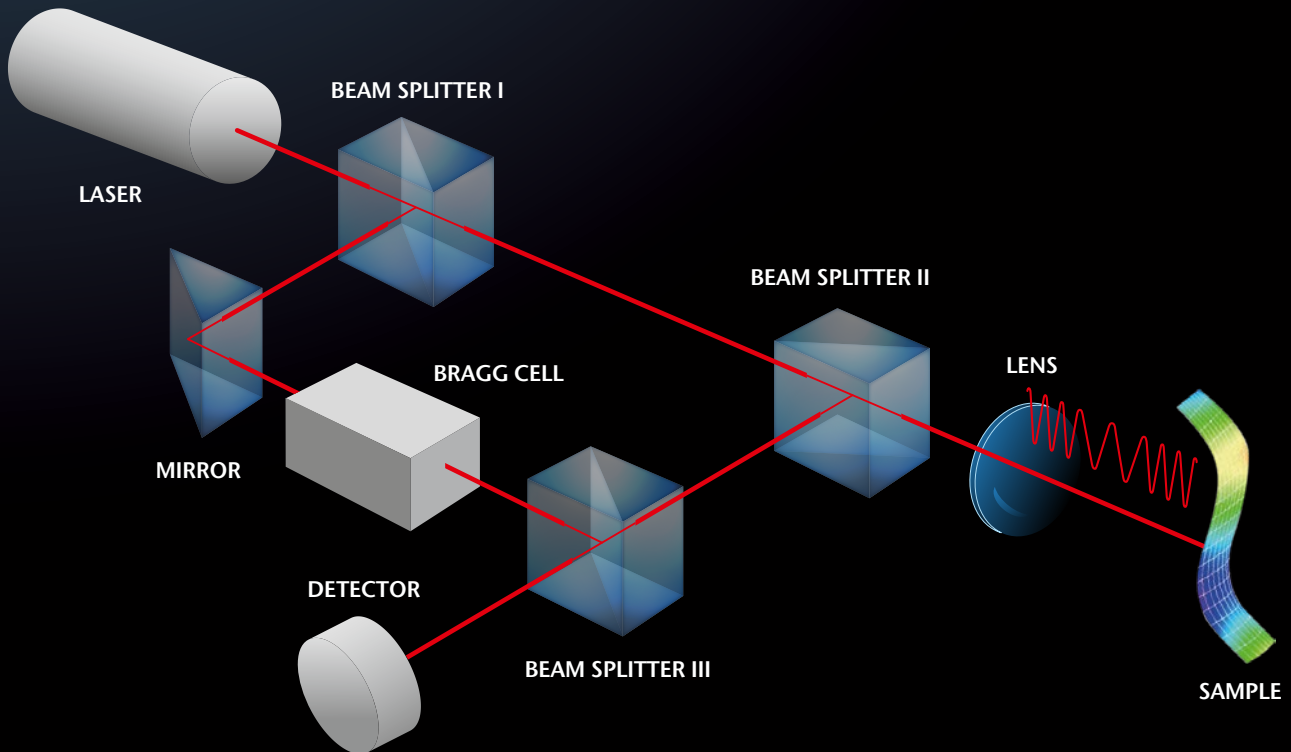
The heart beats, wings flap, sounds are sent out and received – life would be much too quiet without vibrations.

In the field of industrial research and development, Polytec's laser Doppler vibrometers are used to study objects of very different sizes including large automobile bodies, airplane fuselages, ship engines and buildings as well as tiny silicon micromachines, hard disk drive components and wirebonders. There are numerous other research applications in mechanical and civil engineering.

Demanding applications such as measurements on hot running exhausts, rotating surfaces, under water objects, delicate structures or ultrasonic devices are all made possible by non-contact laser vibrometry.

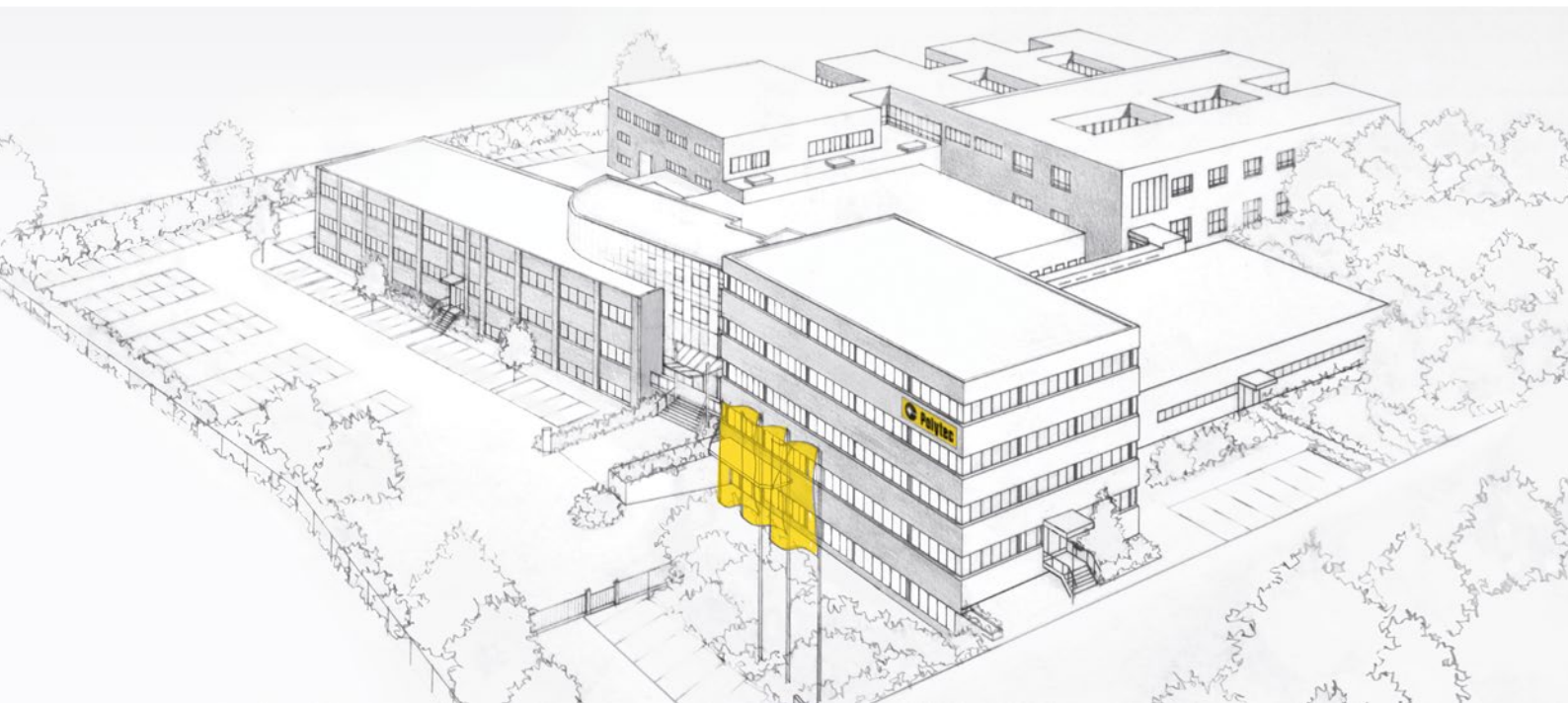
Truly undisturbed investigation of vibrating systems requires sensitive and flexible measurement systems that are completely non-contact. Optical based laser Doppler vibrometers are first choice for many applications.

# Laser Doppler vibrometry – how it works



**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 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 high-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.



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