

OFV-534 Compact Sensor Head



MODULAR VIBROMETER SYSTEM

- OFV-5000
Vibrometer Controller
– Velocity Decoders
– Displacement Decoders
- OFV-505/503
Standard Sensor Heads
- OFV-551/552
Fiber Interferometers
- OFV-534
Compact Sensor Head

VIBRATION MEASUREMENT IN TIGHT SPACES

By combining Laser-Doppler technology with a CCD video sensor, the new OFV-534 Compact Vibrometer Head can easily measure mechanical vibrations, while visually monitoring the sample under test. Sophisticated technology packed into a small housing allows precise vibration measurements in space-limited situations such as production applications or OEM installations. Fitted with a microscope lens, the OFV-534 can measure vibrations on microstructures with a 3 micron spot.

OFV-534 Compact Vibrometer Head “Sees” Where It Measures

The Compact Vibration Head is the perfect solution to making vibration measurements in tight spaces, under difficult positioning conditions, or when direct visual control of the measurement volume is needed.

Polytec vibrometers are the Gold Standard in optical sensitivity. With the new generation OFV-534, this sensitivity is packed into an extremely compact, versatile and adaptable housing and can be manually focused from 200 mm to infinity. The housing is IP-50 protected and has a 5 m cable to the external laser unit.

For the first time an optional color video camera has been integrated into a compact vibrometer head. In addition, an optional microscope objective can be attached for measuring small and microstructure test objects.

Designed to cover a wide range of challenging applications, the OFV-534 Compact Vibrometer Head has measurement versatility that covers

anything from a macro test stand with camera-supported positioning to measuring vibrations on microstructures positioned with a probe station.

The new sensor head can be operated with either the modular OFV-5000 Vibrometer Controller or a controller from the new OFV-2500 Controller Family.

Features

- Very compact, industry-rugged optical vibration sensor
- Practical, easy, “point & measure” capability
- Low power, visible, eye-safe (class 2) laser
- Variable focus lens from 200 mm to infinity
- Video camera option
- Microscope objective option for measuring microstructures
- Operates with OFV-5000 or OFV-2500 Vibrometer Controllers

OFV-534 Technical Data

Optics Specifications							
Laser type	Helium neon (HeNe)						
Laser protection class	Class 2, < 1 mW, eye-safe						
Laser wavelength	633 nm, visible red laser beam						
Cavity length	204 ± 1 mm						
Minimum stand-off distance	200 mm						
Aperture diameter 1/e ²	6.2 mm ... 5.2 mm (depending on stand-off distance)						
Minimum spot size	3.0 µm (with 10X Mitutoyo objective)						
Maxima of visibility (coherence)	287 mm + n · 204 mm; n = 0; 1; 2; ...						
Video camera (optional)							
Camera type	¼" CCD Color Board Camera						
Active pixels (H x V)	510 x 492						
Lens	F 4.5						
Shutter speeds	Automatic from 1/60 to 1/100,000						
Characteristics							
Stand-off distance*	mm	200	300	500	1000	2000	each m
Depth-of-field	mm	±2	±6	±19	±81	±339	-
Spot size (1/e ²)	µm	25	40	70	148	302	add 150
Camera field of view mm x mm		10 x 8	17 x 13	31 x 24	64 x 49	130 x 100	-

* Measured from the front edge of the sensor head housing

General Specifications	
Ambient temperature	+5 °C ... +40 °C (41 °F ... 104 °F)
Storage temperature	-10 °C ... +65 °C (14 °F ... 149 °F)
Relative humidity	max. 80 %, non-condensing
Housing protection	IP-50 standard
Dimensions (L x W x H)	201 mm x 38 mm x 71 mm
Power consumption	max. 15 W
Compatibility	OFV-5000, OFV-2500 Series Vibrometer Controllers

Compliance with Standards	
Laser safety	IEC/EN 60825-1 (CFR 1040.10, CFR 1040.11)
Electrical safety	IEC/EN 61010-1
EMC	IEC/EN 61326 Emission: FCC Class B, IEC/EN 61000-3-2 and 61000-3-3 Immunity: IEC/EN 61000-4-2 to 61000-4-6 and IEC/EN 61000-4-11

Options & Accessories	
Camera Option	OFV-A-534-CAM (NTSC output); OFV-A-534-CAP (PAL output)
Microscope Objective	VIB-A-10xLENS, provides a laser spot diameter of 3 µm at 33.5 mm stand-off distance. Use option OFV-A-534-CAM/CAP for viewing and displaying the image of the test object.

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