

OFV-551/552 Fiber-Optic Sensor Head

The OFV-551/552 fiber-optic sensor heads are designed for flexible vibration measurement where space is restricted.

Another benefit is their ability to adjust the laser intensity especially for sensitive objects like nanostructures and biological samples.

The system comprises the OFV-5000 Vibrometer Controller and a Fiber-Optic Sensor Head.

The OFV-551 sensor head utilizes flexible single point fiber-optics while the dual-fiber OFV-552 sensor head permits direct measurements of differential movements between two monitored points.



Highlights

- Highest flexibility with fiber optics
- Single-point (OFV-551) or differential (OFV-552) sensor heads
- Small spot size down to 4 μm
- Optional laser dimmer for sensitive objects
- Eye-safe laser

OFV-551/552 Fiber-Optic Sensor Head

Big Insights from Small Spaces

Datasheet



Technical Data



Optical Specifications

Laser type	Helium Neon (HeNe)
Laser class	Class 2, < 1 mW, eye-safe
Laser wavelength	633 nm, visible red laser beam
Focus	Manual focus
Visibility maxima ^{1,2}	135 mm + n · 204 mm; n = 0, 1, 2, 3 ... measured from the shoulder of fiber head
Controller compatibility	OFV-5000, OFV-2520, OFV-2570 Vibrometer Controller, VDD-E-600 Digital Front-End
Total fiber lengths	1,000 mm; 2,000 mm; 3,000 mm ³

¹ Tolerance of ± 15 mm for position of coherence maximum.

² Single point measurement with OFV-552: with OFV-151 reference head: 63 mm + n · 204 mm.

Differential measurement with OFV-552: ±n · 204 mm between stand-off distance of both arms.

³ OFV-552: Length of the Y-fiber cable from branch to fiber head: always 500 mm.

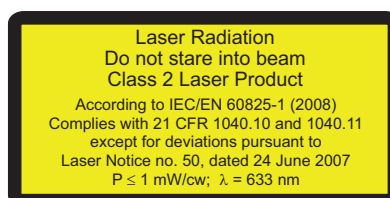
Working Distance and Laser Spot Size

Fiber head	[mm]	Mini sensor ⁴	OFV-102 ⁵	OFV-130-3 ⁵	OFV-130-5 ⁵
Focal length	[mm]	16	20	36	42
Stand-off distance	[mm]	>60 ⁶	>80 ⁶	55 ± 2	76 ± 2
Exit beam diameter 1/e ²	[mm]	>2.5	>3.2	11.4	11.6
Typical spot size [µm] at working distance					
@ 55 mm		–	–	4.0	–
@ 60 mm		21	–	–	–
@ 76 mm		20	–	–	5.3
@ 80 mm		21	30	–	–
@ 100 mm		27	25	–	–
@ 300 mm		92	72	–	–
@ 500 mm		154	124	–	–
@ 1,000 mm		324	256	–	–
@ each additional meter plus		350	260	–	–

⁴ Standard

⁵ Option

⁶ The maximum stand-off distance depends on the backscattering properties of the sample.



General Specifications	
Operating temperature	5 ... 40 °C (41 ... 104 °F)
Relative humidity	max. 80%, non-condensing
Dimensions (Laser Unit) [W x L x H]	235 x 155 x 335 mm (9.3 x 6.1 x 13.2 in)
Weight	~8 kg
Storage temperature	-10 ... 65 °C (14 ... 149 °F)
Protection class	IP 40
Power consumption	max. 15 W



Compliance with Standards	
Laser safety	IEC/EN 60825-1; CFR 1040.10 and 1040.11
Electrical safety	IEC/EN 61010-1
EMC	IEC/EN 61326-1

Options and Accessories

OFV-102 Fiber Head	High precision, compact fiber head, 23 mm outer diameter, f = 20 mm front lens, centering to 0.5 mrad
OFV-130-5 Fiber Head	For model OFV-552 ⁴ 25 mm outer diameter, 130 mm length, stand-off distance 76 mm ±2 mm, spot diameter 4 µm
OFV-130-3 Fiber Head	25 mm outer diameter, 135 mm length, stand-off distance 56 mm ±2 mm, spot diameter 3 µm
OFV-C-103 Side Exit Head	90° deflection, 5 mm diameter
VIB-A-P35 Precision 4-Axes Stage	xz-traverse stage featuring 18 mm travel with +/- 5° tip/tilt function
OFV-036 Tip/Tilt Precision Stage	For positioning a single 10 mm outer diameter mini sensor fiber head Travel range ±5°

Polytec offers a wide range of accessories including tripods, tilt and traverse stages for mounting and positioning fiber heads.

Please contact your local vibrometer sales engineer or visit our website www.polytec.com/vibrometers for more detailed information.



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