

OFV-525/-5000-S Modular 20 m/s Vibrometer



Special Purpose Vibrometers

- Differential Vibrometers
- Rotational Vibrometers
- In-Plane Vibrometers
- Tri-Axial Vibrometers
- High Speed Vibrometers
- High Frequency Vibrometers

The OFV High Speed Vibrometer series expands the ability of the proven OFV-5000 Modular Vibrometer System to handle high vibrational velocities. Now capable of measurements of velocities up to 20 m/s, the High Speed System can be optimized for demanding tasks such as engine and fuel injection development, fatigue testing and pyro-shock testing.

Modular, Communicative, Smart

The High Speed System is composed of the OFV-525 High Speed Sensor Head and the OFV-5000-S Vibrometer Controller. The latter is based on the OFV-5000 Vibrometer Controller and can likewise be configured with a wide range of decoders and decoder combinations tailored to the respective application. These options allow measurements that cover vibration frequencies up to 2.5 MHz or vibration displacements from subnanometer to several centimeters. The OFV-5000-S integrates seamlessly in all data acquisition environments, offering standard analog BNC voltage output for velocity and/or displacement signals. For easy test stand integration, full remote control via a standard RS-232 interface is provided. The OFV-525 single-point sensor head is dedicated to high-speed measurements, while offering all the features of the standard high-sensitivity sensor heads. It provides autofocus and an optional focus lock for test stand integration. A set of interchangeable

lenses guarantees optimal performance on any technical surface, even at distance.

Scanning and 30 m/s Systems

The OFV-5000-S and OFV-525 combination can be upgraded to the PSV-400-H4-S Scanning Vibrometer, enabling full-field vibration measurements up to 20 m/s with a vibration frequency of up to 80 kHz. For ODS and modal analysis of high-velocity samples such as fired engines, the PSV-400-H4-S is the smart choice. For even higher velocities, Polytec provides the HSV-2000 High Speed Vibrometer system that allows for single point and differential displacement as well as velocity acquisition up to ± 30 m/s. Typical applications are valve train measurements as well as examining shock, impact and other high velocity effects.

For more technical information and applications of Polytec High Speed Vibrometers please contact your local Polytec sales engineer or visit our website at www.polytec.com/usa/highspeed

OFV-525/-5000-S Technical Data

General Specifications		
Component	OFV-5000-S Controller	OFV-525 Sensor Head
Dimensions [W x L x H]	450 mm x 355 mm x 135 mm (17.7 in x 14.0 in x 5.3 in)	120 mm x 80 mm x 345 mm (4.7 in x 3.1 in x 13.6 in)
Weight	10 kg (22 lbs)	3.4 kg (7.5 lbs)
Power	100 VAC ... 240 VAC \pm 10 %, 50/60 Hz; max. 100 W	powered by OFV-5000-S; ~ 15 W
Operating 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	

Decoders Options for OFV-5000-S Vibrometer Controller				
Velocity Decoders	Max. Frequency	Meas. Ranges [mm/s/V]	No. of Ranges	Max. Velocity [m/s]
VD-02-S Wide-bandwidth	1.5 MHz	10, 50, 250, 2,000	4	20
VD-04-S Mid-frequency	250 kHz	20, 200, 2,000	3	20
VD-06-S Digital high-precision	350 kHz	2, 4, 20, 100	4	1
VD-09-S Digital broadband	2.5 MHz	10 ... 2,000	14	20
Displacement Decoders	Frequency Range	Measurement Ranges [μ m/V]	No. of Ranges	Full Scale [mm p-p]
DD-100-S Basic 14 bit-FC	0 Hz ... 250 kHz	160 ... 20,480	8	327
DD-400-S Analog Integrator	10 Hz ... 250 kHz	2, 20, 200	3	4
DD-500-S Digital 16 bit-DSP	0 Hz ... 350 kHz	0.1 ... 10,000	16	200
DD-900-S Digital broadband	0 Hz ... 2.5 MHz	3.2 ... 320,000	16	6,400

OFV-525 Sensor Head				
Laser type	Helium neon (HeNe), 633 nm, visible red laser beam			
Laser protection class	Class 2, < 1 mW, eye-safe			
Carrier frequency	80 MHz			
Maxima of visibility ²⁾	234 mm + n · 204 mm (n = 0,1,2,...)			
Front lens	OFV-SR short range	OFV-MR mid range	OFV-LR long range ³⁾	OFV-SLR super long range
Focal length [mm]	30	60	100	200
Min. stand-off distance ³⁾ [mm]	60	185	530	1,800

- 1) For more detailed optics specifications please see OFV-505 Data Sheet.
- 2) Measured from the front side of the focusing ring
- 3) Default configuration
- 4) Measured from the front side of the focusing ring. The maximum stand-off distance depends on the back scattering properties of the object. It can range up to 300 m for the OFV-525 sensor head measuring on a retro-reflective surface.



Compliance with Standards	
Electrical safety	IEC/EN 61010
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
Laser safety	IEC/EN 60825-1 (CFR 1040.10, CFR 1040.11)

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