



os7500

Accelerometer

The os7500 is a fiber optic accelerometer based on patent pending Fabry-Pérot (FP) technology. Combined with the Micron Optics HYPERION instrument platform, the os7500 offers unmatched sensitivity and multi-sensor distributed systems with other FP and FBG sensors.

The os7500 family of sensors covers a wide range of vibration measurement applications. These sensors can be used as a replacement for conventional accelerometers, while offering the added benefits of EMI immunity, robust packaging and lightning/corrosion resistance.

Specifically designed to address challenging environments, the os7500 family of sensors provides the user the ability to accurately measure vibrations with frequency ranges up to 350 Hz and with the highest level of sensitivity from the industry leader in optical measurement technology.

The os7500 employs a unique two-fiber I/O design that enables multiplexing of the sensors in a daisy-chain architecture. Each sensor only responds to optical signals within a 20 nm band, while passing all other wavelengths in both directions. The result allows combining up to 8 accelerometers per optical channel when used with a HYPERION instrument with a 160 nm wavelength range. The ENLIGHT Sensing Software provides a utility to calculate and then record, display, and transmit data for large networks of sensors.

**Wide dynamic range and high sensitivity.
Multiplexing capability for eight
sensors per channel plus EMI immunity.**

KEY FEATURES

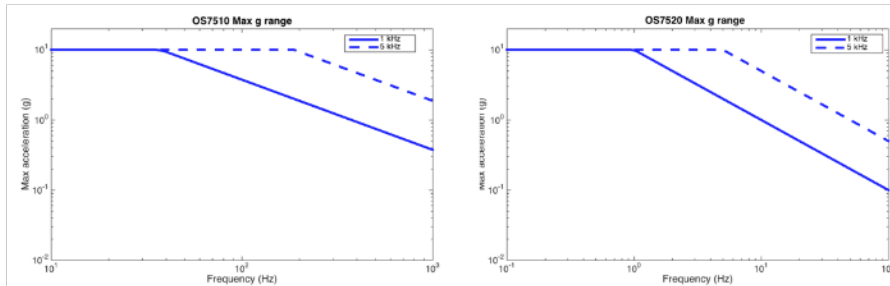
- Wide dynamic range
- Unmatched sensitivity
- Low noise
- Armored fiber cable
- Rugged sensor package
- Straightforward multiplexing for distributed measurement systems
- Standard threaded connection to a structure for fast, simple, and repeatable installation.
- Available mounting block for two and three axis
- Simple configuration and setup with ENLIGHT Sensing Software

DEPLOYMENTS

- Homeland security
- Structures
- Energy
- Transportation
- Marine vessels
- Aerospace

KEY FEATURES

Performance Properties	os7510	os7520
Input range ¹	+/- 2.5 g, +/- 10 g below 10 Hz	+/- 0.1 g, +/- 1 g below 10 Hz
Frequency range ²	0 to 350 Hz	0 to 100 Hz
Output noise	< 50 µg/Hz ^{1/2}	< 1 µg/Hz ^{1/2}
Sensitivity ³	65 nm/g	2500 nm/g
Bias temperature shift	< 0.1 g/C	< 0.005 g/C
Operating temperature range	-40 to 80 C	
Scale factor temperature shift	+/- 100 ppm/C	
Nonlinearity	< 2 %	
Transverse sensitivity	< 2%	
Maximum mechanical shock	500 g, Peak	
Physical Properties		
Dimension ⁶ ; Weight	43 mm x 14 mm x 12.6 mm; 45 g	47.5 mm x 20 mm x 12.6 mm; 68 g
Mounting method ⁶	10-32 Tapped hole	
Case material / plating	Gold over nickel-coated Kovar	
Cable type / length	Ruggedized tactical cable / 1m +/-0.1 m	
Fiber type	SMF-28	
Sensor wavelength range	20 nm	



Shown is the actual peak acceleration that can be measured on the os7510 (left) and os7520 (right) as a function of the frequency of the applied acceleration when measured with a HYPERION si155/255 instrument operating with a 1 kHz and 5 kHz scan rate.



os7500 accelerometer on a 3 axis mounting block

ORDERING

os7510-**www-1xx-1yy-z**

os7520-**www-1xx-1yy-z**

www Center Wavelengths (20nm band) Standard -1470, 90, 1510, 30, 50, 70, 90 & 1610nm

xx Termination type
 1xx Cable 1, Length & Connector
 1 1 m Standard, Cable Length
 UT Unterminated
 FC FC/APC Connector

yy Termination type
 1yy Cable 2, Length & Connector
 1 1 m Standard, Cable Length
 UT Unterminated
 FC FC/APC Connector

ACCESSORIES

PF Universal IP-67 Connector Protection

MB75 3 axis mounting block for os7500

NOTES

1. See figures below. Input range tolerance is +/- 25%.
2. Aliasing can occur for frequencies > 0.5 the sampling frequency.
3. As measured by a si255 HYPERION instrument. Tolerance is +/- 25%.
4. See http://www.micronoptics.com/support_downloads/Sensors/ for sensor drawings and installation details.

