

Accelerometer | os7500 ^{B1}



Description

The os7500 is a fiber optic accelerometer based on patent pending Fabry-Perot (FP) technology. Combined with Micron Optics HYPERION instrument platform, the os7500 offers unmatched multiplexing capabilities 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 tuned 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 two-fiber I/O design that enables multiplexing of the sensors in a daisy-chain architecture. This uses a novel approach for combining multiple sensors on a single interrogation channel. Each sensor only responds to optical signals within a 20 nm band, while passing all other wavelengths in both directions. The result is an extremely simple way to combine up to 8 sensors per optical channel, when used with a Hyperion instrument with a 160 nm wavelength range.

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

Key Features

Wide dynamic range

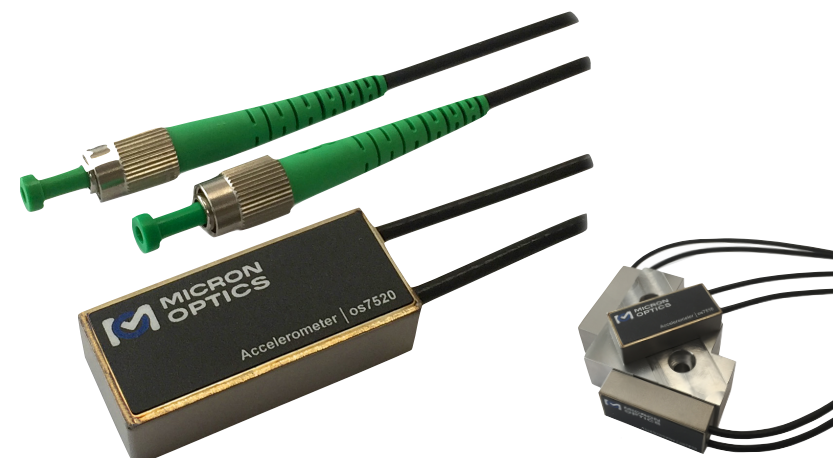
Unmatched sensitivity and **low noise**

Armored fiber cable and **rugged sensor package.**

Straightforward **multiplexing**

Standard threaded connection to a structure for **fast, simple, repeatable installation.**

Available mounting block for **two** and **three axis**



3-axis mounting block

Deployments

Homeland security (perimeter intrusion, voice detection, vibration monitoring)

Structures (bridges, dams, tunnels, mines, buildings, oil platforms)

Energy (wind turbines, oil wells, pipelines, nuclear reactors, generators)

Transportation (railways, trains, roadways, specialty vehicles, cranes)

Marine vessels (hull, deck, cargo containers)

Aerospace (airframes, composite structures, wind tunnels, static and dynamic tests)

Accelerometer | os7500 ^B¹



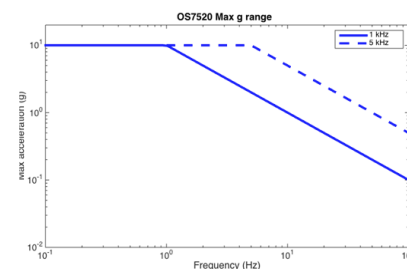
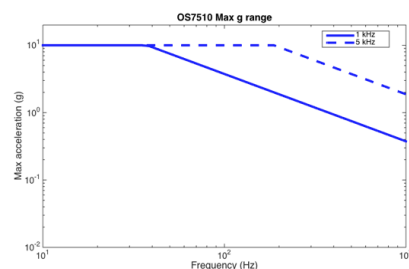
Performance Properties¹

	os7510	os7520
Input range ²	+/- 2.5 g, +/- 10 g below 10 Hz	+/- 0.1 g, +/- 1 g below 10 Hz
Frequency range ³	0 to 350 Hz	0 to 100 Hz
Output noise	< 50 µg/Hz ^{1/2}	< 1 µg/Hz ^{1/2}
Sensitivity	5 nm/	2500 nm/g
Bias temperature shift	< 0.1 g/C	< 0.005 g/C
Operating temperature range ⁵	-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 Weigh	20 mm x 45 mm x 12.5 mm; 50 g
Mounting method ⁶	10-32 Tapped hole
Case material / plating	304 Stainless steel
Cable type / length	3 mm armored cable / 1 m +/- 10 cm
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 Micron Optics si155/255 instrument operating with a 1 kHz and 5 kHz scan rate.



Accessories

PF	Universal IP-67 Connector Protection Fitting.
MB75	3 axis mounting block for os7500 series

Ordering Information

os75aa-wwww-1xx-1yy-z

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

Ordering Information Example

os7510-1520-1FC-1FC

Notes

- Denotes Beta product. For more details see <http://www.micronoptics.com/wp-content/uploads/2016/08/Product-Designations.pdf>. Compatible with HYPERION platform instruments.
- See figures below. Input range tolerance is +/- 25%.
- Aliasing can occur for frequencies > 0.5 the sampling frequency.
- As measured by a si255 HYPERION instrument. Tolerance is +/- 25%.
- Targeted temperature range by design. Specification to be verified.
- 3D mounting block available for 2 and 3 axis applications.
- See http://www.micronoptics.com/support_downloads/Sensors/ for sensor drawings and installation details.



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os7500 is patent pending.
Specifications subject to change without further notice.