

FOSA™ Series Fiber Optic Accelerometers



**The Leading Wave
in Passive Fiber Optic
Accelerometers**



SOUND SOLUTIONS FROM LIGHT TECHNOLOGY

Highest Resolution for the Toughest Applications

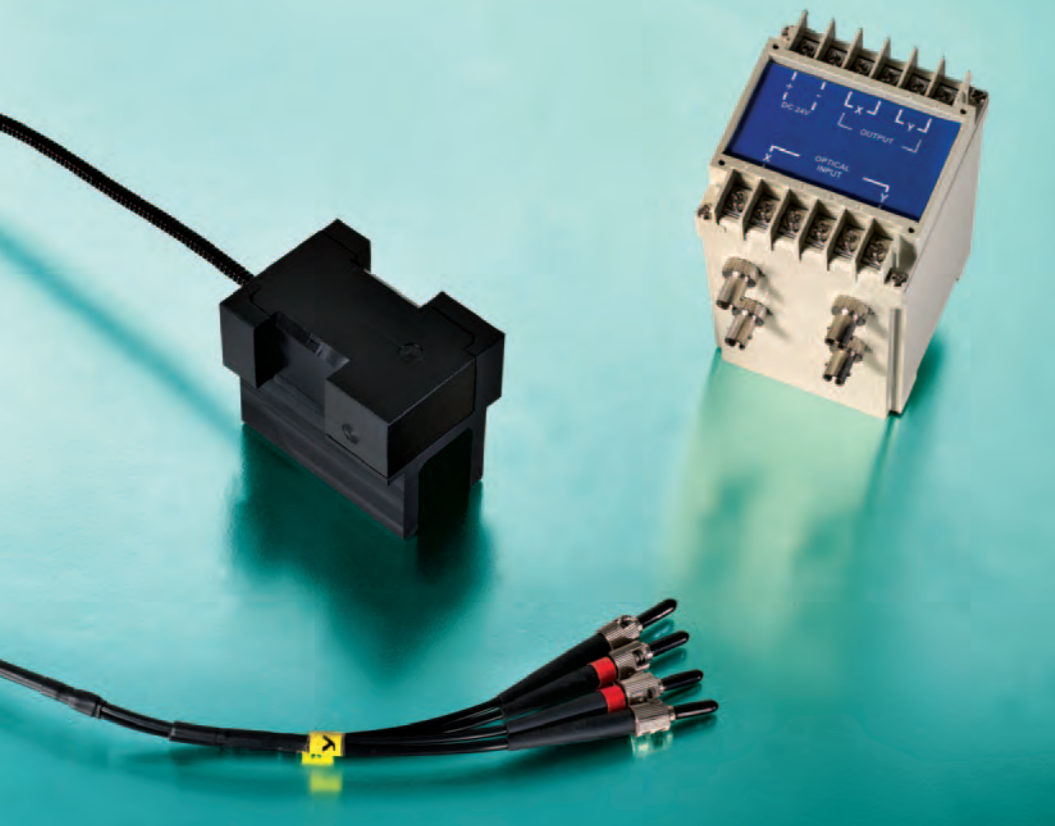
Our FOSA™ fiber optic accelerometers bring high precision monitoring and early fault detection capabilities to any equipment, regardless of the environment. FOSA offers **500 times higher resolution** than competing accelerometers, with the lowest noise density available in its class.

- ▶ Completely passive, spark-free and EMI/RFI immune, Optoacoustics' FOSA is ideal for the harshest conditions: high temperature, high voltage, high RF, high volatility or high corrosion.
- ▶ The FOSA Series is ideal for monitoring frequencies from 1 to 1000 Hz, and produces standard analog output for any type of monitoring equipment.
- ▶ FOSA optical fiber connections can be extended over great distances with negligible signal loss, and offer outstanding long-term reliability and environmental stability.
- ▶ FOSA provides complete end-to-end monitoring hardware flexibility, with a wide variety of mounting, feedthrough and installation options.

FOSA Applications

Optoacoustics manufactures a wide variety of fiber optic accelerometers, suitable for a broad range of settings and applications:

- ▶ Power generation facilities
- ▶ Industrial equipment monitoring
- ▶ Structural vibration monitoring
- ▶ Pantograph and railway equipment
- ▶ Seismic vibration monitoring
- ▶ Hazardous area monitoring
- ▶ High voltage facility monitoring
- ▶ Oil and gas exploration
- ▶ MRI patient and machine monitoring
- ▶ High RFI or EMI areas
- ▶ Highly explosive areas
- ▶ EMC test labs



Dual axis FOSA 2665 with standard fiber optic cable and electro optical unit EOU 400.

FOSA System Components

Each FOSA is delivered as a complete, plug-and-play system comprised of our advanced optical accelerometer attached to 10 meters of fiber optic cable, electro-optical unit (EOU), line out cable, DC power supply and carrying case.

Optoacoustics' FOSA system is purely analog with standard line output. It does not require any additional pre-amplifiers or amplifiers. Each sensor is calibrated individually to its nominal performance specifications at the factory, and is guaranteed to perform flawlessly throughout its lifetime.

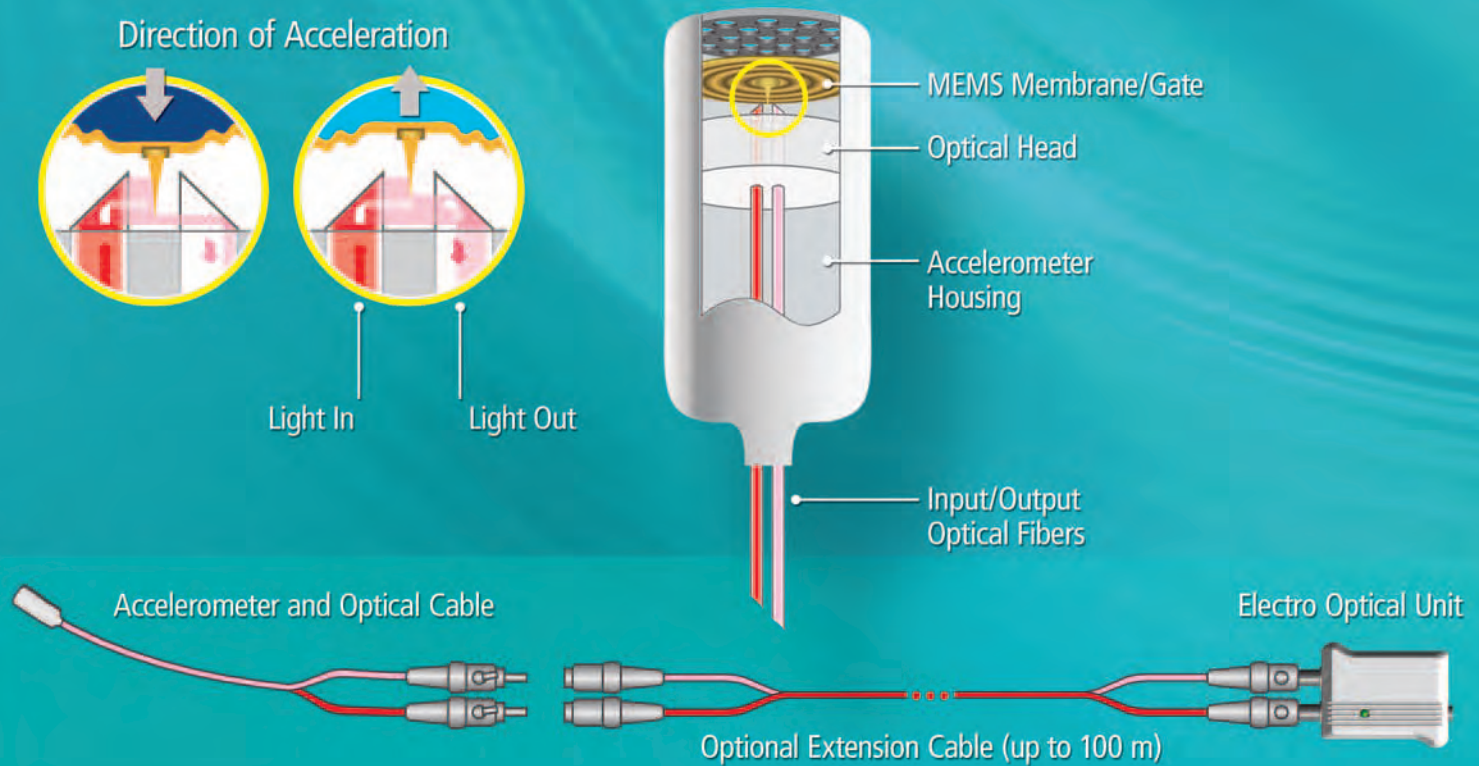


The rack-mountable EOU 2100 multi-channel electro-optical unit supports simultaneous monitoring by up to six single axis FOSA units.

FOSA™ Series Accelerometers – AVAILABLE IN SINGLE, DUAL AND TRI-AXIAL MODELS

Model	1550	1650	1660	1670	1760	2660	2665	3660	Notes
Description	Basic fiber optic accelerometer for small structures.	Fiber optic accelerometer for medium structures.*	Fiber optic accelerometer for extended temperatures.*	Fiber optic accelerometer for large structures, extended temperatures.*	Slim fiber optic accelerometer for narrow structures.*	Fiber optic accelerometer for orthogonal monitoring.*	Fiber optic accelerometer for power generator monitoring.	Fiber optic accelerometer for tri-axial seismic monitoring.	<p>* These models are available in three distinct types with varying frequency response ranges and acceleration sensitivities.</p> <p>Extension cables of up to 100m in length are available.</p> <p>A wide selection of cable types and optional accessories are available.</p>
Laboratory	•	•			•	•		•	
Seismic								•	
Heavy Industry		•	•	•	•	•	•		
Monitoring Axis	Single	Single	Single	Single	Single	Dual	Dual	Tri-axial	
Max. Frequency Response	300 [Hz]	100, 330, 1000 [Hz]	100, 330, 1000 [Hz]	100, 330, 1000 [Hz]	100, 330, 1000 [Hz]	100, 330, 1000 [Hz]	330 [Hz]	80 [Hz]	
Max. Acceleration	15 [g]	3, 20, 80 [g]	3, 20, 80 [g]	3, 20, 80 [g]	3, 20, 80 [g]	3, 20, 80 [g]	20 [g]	1 [g]	
Noise Density	<50 micro-g/√Hz	<3, <30, <300 micro-g/√Hz	<3, <30, <300 micro-g/√Hz	<3, <30, <300 micro-g/√Hz	<3, <30, <300 micro-g/√Hz	<3, <30, <300 micro-g/√Hz	<100 micro-g/√Hz	<1 micro-g/√Hz	
Nominal Sensitivity	100 mV/g	100 mV/g	100 mV/g	100 mV/g	100 mV/g	100 mV/g	100 mV/g	4000 mV/g	
Operating Temperature	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]	-20/+100 [°C] -4/+212 [°F]	-20/+100 [°C] -4/+212 [°F]	-20/+60 [°C] -4/+140 [°F]	-20/+100 [°C] -4/+212 [°F]	-20/+100 [°C] -4/+212 [°F]	-20/+100 [°C] -4/+212 [°F]	
Weight	0.7 g	1.5 g	1.5 g	3 g	5 g	20 g	140 g	20 g	
Footprint Ø/H, L/W/H	6/16 [mm]	20/16 [mm]	20/16 [mm]	10/30 [mm]	40/5 [mm]	45/16/21 [mm]	70/50/60 [mm]	45/25/22 [mm]	

FOSA™ Series Fiber Optic Accelerometers



Optoacoustics' core platform blends the natural physical intelligence of optics and acoustics.

It's built around a tiny MEMS membrane and two optical fibers. Alternative acceleration forces impinge on the membrane and cause it to vibrate, changing the intensity of light that is reflected from incoming to outgoing fibers. This patented mechanism detects even the slightest changes in membrane displacement, with resolutions at a fraction of an Angstrom. Such precision translates to high resolution with low self-noise, and results in outstanding accelerometer performance.



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Optoacoustics is a leading manufacturer of high performance, optical fiber-based sound and vibration sensors. Each of our products combines the natural intelligence of optics and acoustics to meet technical performance demands which cannot be addressed by conventional sensing solutions. Optoacoustics' pioneering technology is protected by over 20 international patents.