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.

HEADQUARTERS
17 Hanotaya Street
73160 Mazor
Israel

TOLL-FREE +1 866-867-5029
OFFICES +972 3-634-4488
FAX +972 3-634-9292
EMAIL info@optoacoustics.com

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.
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 EM/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 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.

FOSA Series Accelerometers

<table>
<thead>
<tr>
<th>Model</th>
<th>1550</th>
<th>1650</th>
<th>1660</th>
<th>1670</th>
<th>1760</th>
<th>2660</th>
<th>2665</th>
<th>3660</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Basic fiber optic accelerometer for small structures.</td>
<td>Fiber optic accelerometer for medium structures.*</td>
<td>Fiber optic accelerometer for extended temperatures.*</td>
<td>Fiber optic accelerometer for large structures, extended temperatures.*</td>
<td>Slim fiber optic accelerometer for narrow structures.*</td>
<td>Fiber optic accelerometer for orthogonal monitoring.*</td>
<td>Fiber optic accelerometer for power generator monitoring.</td>
<td>Fiber optic accelerometer for tri-axial seismic monitoring.</td>
</tr>
<tr>
<td>Laboratory</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Monitoring Axis</td>
<td>300 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>100, 330, 1000 [Hz]</td>
<td>330 [Hz]</td>
</tr>
<tr>
<td>Max. Frequency Response</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
</tr>
<tr>
<td>Max. Acceleration</td>
<td>15 [g]</td>
<td>3, 20, 80 [g]</td>
<td>3, 20, 80 [g]</td>
<td>3, 20, 80 [g]</td>
<td>3, 20, 80 [g]</td>
<td>3, 20, 80 [g]</td>
<td>3, 20, 80 [g]</td>
<td>20 [g]</td>
</tr>
<tr>
<td>Nominal Sensitivity</td>
<td>&lt;50 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;3, &lt;30, &lt;300 micro-g/Hz</td>
<td>&lt;1 micro-g/Hz</td>
</tr>
<tr>
<td>Noise Density</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
<td>100 [mV/g]</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-20°/+60 °C</td>
<td>-4°/+140 °F</td>
<td>-20°/+60 °C</td>
<td>-4°/+140 °F</td>
<td>-20°/+60 °C</td>
<td>-4°/+140 °F</td>
<td>-20°/+60 °C</td>
<td>-4°/+140 °F</td>
</tr>
<tr>
<td>Weight</td>
<td>0.7 g</td>
<td>1.5 g</td>
<td>1.5 g</td>
<td>3 g</td>
<td>5 g</td>
<td>20 g</td>
<td>140 g</td>
<td>20 g</td>
</tr>
<tr>
<td>Footprint (HxWxL)</td>
<td>6/16 [mm]</td>
<td>20/16 [mm]</td>
<td>20/16 [mm]</td>
<td>10/30 [mm]</td>
<td>40/5 [mm]</td>
<td>45/16/21 [mm]</td>
<td>70/50/60 [mm]</td>
<td>45/25/22 [mm]</td>
</tr>
</tbody>
</table>

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

* These models are available in three distinct types with varying frequency response ranges and acceleration sensitivities.

Extension cables of up to 100m in length are available.

A wide selection of cable types and optional accessories are available.
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.

The Leading Wave in Passive 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.