OPTIMIC™ Series
Fiber Optic Microphones

The Leading Wave
in Passive Fiber Optic
Microphones
We Invented the Optical Microphone

Optoacoustics’ core platform blends the natural physical intelligence of optics and acoustics. It’s built around a tiny MEMS membrane and two optical fibers. When acoustic waves impinge on the membrane they 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 clear sound and low self-noise, and produces exceptional microphone performance.

Our award-winning sensor technology was first commercialized in 1992 by Optoacoustics scientists and engineers.

All of our microphones are engineered to the most demanding environmental and safety requirements. Being completely passive, they are ideal for locations and applications where conventional microphones and sensors cannot be used.

Today, OPTIMIC high performance microphones provide a complete set of solutions for industry, medicine, power generation, energy production, instrumentation monitoring and public safety.
SOUND SOLUTIONS FROM LIGHT TECHNOLOGY

The OPTIMIC 1190 is shown above with extended fiber optic cable and electro optical unit EOU 200.

OPTIMIC System Components

Each OPTIMIC is delivered as a complete, plug-and-play system comprised of our advanced optical microphone attached to 10 meters of fiber optic cable, electro-optical unit, audio cable, DC power supply and carrying case.

Optoacoustics’ OPTIMIC system is purely analog with standard line output. It does not require any additional pre-amplifiers or amplifiers. Each microphone is calibrated individually to its nominal performance specifications at the factory, and is guaranteed to perform flawlessly throughout its lifetime. A wide selection of cable types and optional accessories is available.
OPTIMIC Applications

Optoacoustics manufacturers a wide variety of fiber optic microphones, suitable for a broad range of settings and applications. OPTIMIC is ideal for use in:

- Industrial equipment monitoring
- Infrasound measurements
- High voltage electrical utilities
- Oil and gas detection sites
- Highly explosive areas
- MR imaging environments
- High EMI and RFI areas
- Aerospace measurements
- Petrochemical/nuclear facilities
- Secure communications
- Stage and broadcast recording
- EMC test labs
OPTIMIC™
Omnidirectional

Models 1140 - 1200

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>1140</th>
<th>1150</th>
<th>1160</th>
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<th>2160</th>
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Models 1180 - 1200

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<th>1200</th>
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## LITEMIC™ Directional

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>3120</td>
<td>Cardioid fiber optic microphone for noisy environments.</td>
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<tr>
<td>3130</td>
<td>Close talk fiber optic microphone for noisy environments.</td>
</tr>
<tr>
<td>3140</td>
<td>Highly directional fiber optic microphone system for MRI communications.</td>
</tr>
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</table>

### Special Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4110</td>
<td>Ultra low noise optical microphone for monitoring very weak sounds in photacoustic spectroscopy.</td>
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<tr>
<td>4120</td>
<td>Fully-sealed fiber optic microphone for remote monitoring applications with humid/wet/sea environments.</td>
</tr>
<tr>
<td>4130</td>
<td>Fiber optic contact microphone for indoor/outdoor remote monitoring of structure-borne audio signals.</td>
</tr>
<tr>
<td>4140</td>
<td>Multiple microphone fiber optic probe for measuring 3D sound intensity and energy density.</td>
</tr>
<tr>
<td>4150</td>
<td>High fidelity transparent optical microphone for concert hall stage recordings.</td>
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</tbody>
</table>

### Technical Specifications

#### Model 3120
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 50-8,000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Stereo Functionality**: No
- **Polar Pattern**: Unidirectional
- **Frequency Response**: 50-8,000 [Hz]
- **Equivalent Self-Noise**: ≤ 30 [dBA SPL]
- **Maximum Acoustic Pressure**: 130 dB SPL
- **Operating Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Microphone Head Dimensions D/L**: 40/30/17 mm [L/W/H]

#### Model 3130
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 50-8,000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Stereo Functionality**: No
- **Polar Pattern**: Bidirectional
- **Frequency Response**: 50-8,000 [Hz]
- **Equivalent Self-Noise**: ≤ 30 [dBA SPL]
- **Maximum Acoustic Pressure**: 130 dB SPL
- **Operating Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Microphone Head Dimensions D/L**: 35/15 mm [L/D]

#### Model 3140
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 50-8,000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Stereo Functionality**: Yes
- **Polar Pattern**: Super directional
- **Frequency Response**: 50-8,000 [Hz]
- **Equivalent Self-Noise**: ≤ 20 [dBA SPL]
- **Maximum Acoustic Pressure**: 130 dB SPL
- **Operating Temperature**: -10/+60 [°C], 50/+122 [°F]
- **Microphone Head Dimensions D/L**: 60/25/25 mm [L/W/H]

#### Model 4110
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 50-8,000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Stereo Functionality**: No
- **Polar Pattern**: Omnidirectional
- **Frequency Response**: Resonance at 1.650 kHz
- **Equivalent Self-Noise**: ≤ 5 [dBA SPL]
- **Maximum Acoustic Pressure**: 84 dB SPL
- **Operating Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Microphone Head Dimensions D/L**: 6/33 [mm]

#### Model 4120
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 50-8,000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Stereo Functionality**: No
- **Polar Pattern**: Omnidirectional
- **Frequency Response**: 30-7000 [Hz]
- **Equivalent Self-Noise**: ≤ 20 [dBA SPL]
- **Maximum Acoustic Pressure**: 114 dB SPL
- **Operating Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Microphone Head Dimensions D/L**: 27/12 [mm]

#### Model 4130
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 10-200 and 10-5000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Stereo Functionality**: Yes
- **Polar Pattern**: Contact microphone
- **Frequency Response**: 10-200 and 10-5000 [Hz]
- **Equivalent Self-Noise**: ≤ 10 and ≤ 20 [micro-g]
- **Maximum Acoustic Pressure**: 114 dB SPL
- **Operating Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Microphone Head Dimensions D/L**: 36/21 [mm]

#### Model 4140
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 10-2000 and 10-5000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Stereo Functionality**: Yes
- **Polar Pattern**: Omni- and Bi-directional
- **Frequency Response**: 10-2000 and 10-5000 [Hz]
- **Equivalent Self-Noise**: ≤ 20 [dBA SPL]
- **Maximum Acoustic Pressure**: 114 dB SPL
- **Operating Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Microphone Head Dimensions D/L**: 36/55 [mm]

#### Model 4150
- **Ruggedized**: Yes
- **High SPL**: Yes
- **Extended Frequency**: 10-2000 and 10-5000 [Hz]
- **High SNR**: Yes
- **Long Fiber Cable (> 1 km)**: Yes
- **Extreme Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Stereo Functionality**: Yes
- **Polar Pattern**: Omni- and Uni-directional
- **Frequency Response**: 10-2000 and 10-5000 [Hz]
- **Equivalent Self-Noise**: ≤ 20 [dBA SPL]
- **Maximum Acoustic Pressure**: 114 dB SPL
- **Operating Temperature**: -20/+60 [°C], -4/+140 [°F]
- **Microphone Head Dimensions D/L**: 18/75 [mm]
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.

SOUND SOLUTIONS FROM LIGHT TECHNOLOGY

http://www.optoacoustics.com

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