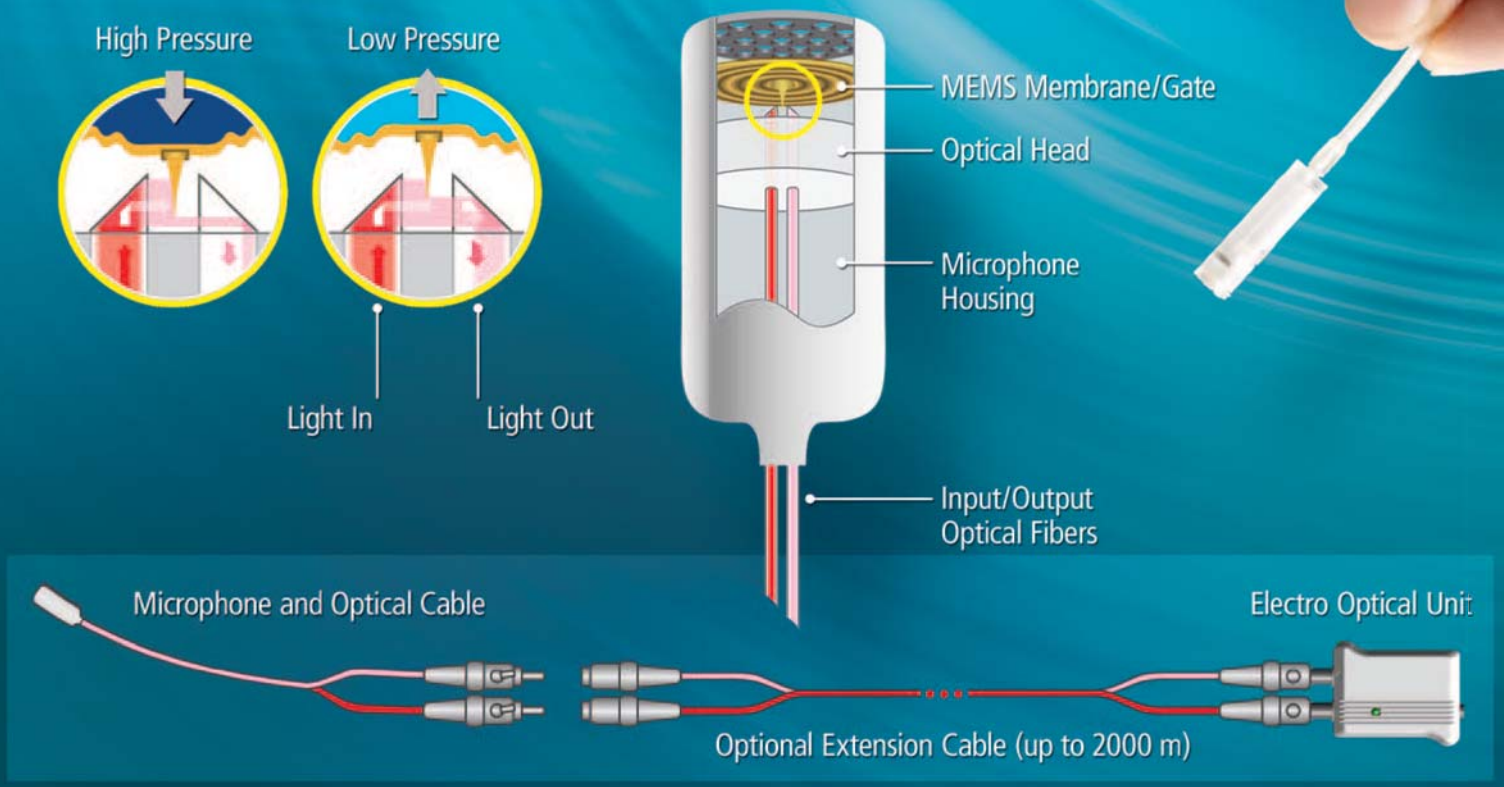
OPTIMIC™ Series
Fiber Optic Microphones

The Leading Wave in Passive Fiber Optic Microphones

Opto acoustics

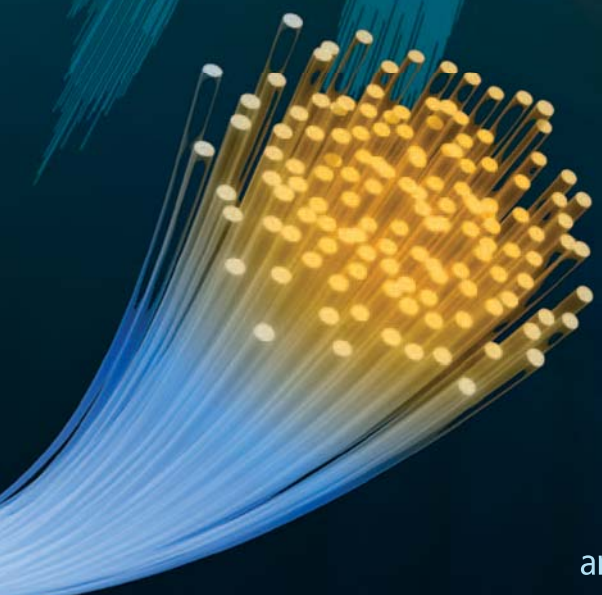
SOUND SOLUTIONS FROM LIGHT TECHNOLOGY

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.

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.

EOU 100 electro-optical unit showing fiber optic connectors, audio output, and power supply connections

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

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OPTIMIC™ Omnidirectional

Models 1140 - 1200

Models 2140 - 2200

Model	1140	2140	1150	2150	1160	2160	1170	2170
Description	Basic fiber optic microphone.		For monitoring acoustic signals with high Sound Pressure Levels (SPL) up to 140 dB.		For monitoring acoustic signals with extended frequency range.		For operation over an extended temperature range.	
Ruggedized		●		●		●		●
High SPL			●	●				
Extended Frequency			●	●	●	●		
High SNR								
Long Fiber Cable (> 1 km)								
Extreme Temperature							●	●
Stereo Functionality								
Polar Pattern	Omnidirectional		Omnidirectional		Omnidirectional		Omnidirectional	
Frequency Response	30-8000 [Hz]		10-15000 [Hz]		10-15000 [Hz]		30-8000 [Hz]	
Equivalent Self-Noise	≤31 [dBA SPL]		≤55 [dBA SPL]		≤31 [dBA SPL]		≤31 [dBA SPL]	
Maximum Acoustic Pressure	114 dB SPL		140 dB SPL		114 dB SPL		114 dB SPL	
Operating Temperature	-20/+60 [°C] -4/+140 [°F]		-20/+60 [°C] -4/+140 [°F]		-20/+60 [°C] -4/+140 [°F]		-50/+120 [°C] -58/+248 [°F]	
Microphone Head Dimensions D/L	6/16 [mm]	10/70 [mm]	6/16 [mm]	10/70 [mm]	6/23 [mm]	10/70 [mm]	6/16 [mm]	10/70 [mm]

Model	1180	1190	2190	1200	2200	2180
Description	Stereo fiber optic microphones with extended frequency range.	For operation with low levels of acoustic signals or long distance requiring high SNR.		Combines extended frequency range, high SNR, long distance and extreme temperature capabilities for demanding applications.		Ruggedized infrasound fiber optic microphone with extended frequency range.
Ruggedized			●		●	
High SPL						
Extended Frequency	●			●	●	
High SNR		●	●	●	●	
Long Fiber Cable (> 1 km)		●	●	●	●	
Extreme Temperature				●	●	
Stereo Functionality	●					
Polar Pattern	Omnidirectional	Omnidirectional		Omnidirectional		Omnidirectional
Frequency Response	10-15000 [Hz]	10-10000 [Hz]		10-15000 [Hz]		0.5-15000 [Hz]
Equivalent Self-Noise	≤31 [dBA SPL]	≤19 [dBA SPL @10 m]		≤19 [dBA SPL @10 m]		≤31 [dBA SPL]
Maximum Acoustic Pressure	114 dB SPL	114 dB SPL		114 dB SPL		114 dB SPL
Operating Temperature	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]		-50/+120 [°C] -58/+248 [°F]		-20/+60 [°C] -4/+140 [°F]
Microphone Head Dimensions D/L	6/23 [mm] x 2	6/16 [mm]	10/70 [mm]	6/23 [mm]	10/70 [mm]	30/90 [mm]

LITEMIC™ Directional

Model	3120	3130	3140
Description	Cardioid fiber optic microphone for noisy environments.	Close talk fiber optic microphone for noisy environments.	Highly directional fiber optic microphone system for MRI communications.
Ruggedized High SPL Extended Frequency High SNR Long Fiber Cable (> 1 km) Extreme Temperature Stereo Functionality			
Polar Pattern	Unidirectional	Bidirectional	Super directional
Frequency Response	50-8,000 [Hz]	50-8,000 [Hz]	50-8,000 [Hz]
Equivalent Self-Noise	≤ 30 [dBA SPL]	≤ 30 [dBA SPL]	≤ 20 [dBA SPL]
Maximum Acoustic Pressure	130 dB SPL	130 dB SPL	130 dB SPL
Operating Temperature	-10/+60 [°C] 50/+122 [°F]	-10/+60 [°C] 50/+122 [°F]	-10/+60 [°C] 50/+122 [°F]
Microphone Head Dimensions D/L	40/30/17 mm [L/W/H]	35/15 mm [L/D]	60/25/25 mm [L/W/H]

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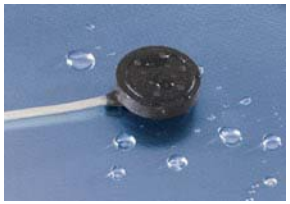
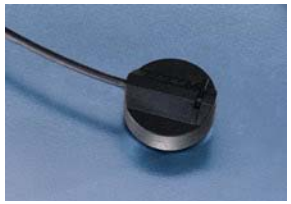
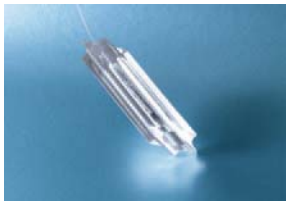
OPTIMIC™ Special Models

Model	4110	4120	4130	4140	4150
Description	Ultra low noise optical microphone for monitoring very weak sounds in photacoustic spectroscopy.	Fully-sealed fiber optic microphone for remote monitoring applications with humid/wet/sea environments.	Fiber optic contact microphone for indoor/outdoor remote monitoring of structure-borne audio signals.	Multiple microphone fiber optic probe for measuring 3D sound intensity and energy density.	High fidelity transparent optical microphone for concert hall stage recordings.
Ruggedized High SPL Extended Frequency High SNR Long Fiber Cable (> 1 km) Extreme Temperature Stereo Functionality					
Polar Pattern	Omnidirectional	Omnidirectional	Contact microphone	Omni- and Bi-directional	Omni- and Uni-directional
Frequency Response	Resonance at 1.650 kHz	30-7000 [Hz]	10-200 and 10-5000 [Hz]	10-2000 [Hz]	10-18000 [Hz]
Equivalent Self-Noise	≤ 5 [dBA SPL]	≤ 31 [dBA SPL]	≤ 10 and ≤ 20 [micro-g]	≤ 20 [dBA SPL]	≤ 20 [dBA SPL]
Maximum Acoustic Pressure	84 dB SPL	114 dB SPL	114 dB SPL	114 dB SPL	114 dB SPL
Operating Temperature	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]	-20/+60 [°C] -4/+140 [°F]
Microphone Head Dimensions D/L	6/33 [mm]	27/12 [mm]	36/21 [mm]	36/55 [mm]	18/75 [mm]

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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.

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