

KINGFISHER

Fiber Optic Microphone SOM(4) SPL



FEATURES

- Small, lightweight MEMS design
- Absolute EMI/RFI immunity
- Completely passive sensor with no metal or electrical parts
- Linear response of up to 140 dB SPL
- Extended frequency response
- High reliability and environmental stability
- Optical fiber connection over extended lengths without signal loss
- Exceptionally low sensitivity to vibration
- Cost-effective, long-term solution



APPLICATIONS

- MRI earmuff noise measurement
- fMRI headphone calibration
- Industrial and noisy environments
- Highly explosive areas
- High RF areas
- Severe electromagnetic fields
- Aerospace measurements



Miniature fiber optic microphone for indoor acoustic monitoring of signals with sound pressure levels (SPL) as high as 140 dB. Ideal where the microphone placement footprint is severely limited or where the microphone is a sub-component in another device or system.

The SOM(4) SPL system comprises of an advanced fiber optic microphone & single-channel electro-optic unit (EOU200), for digital-to-analog conversion of optical microphone output signals. The Single Channel EOU 200 with enhanced electronics box. It features two analog outputs (one with volume control for headphones, another with fixed gain for monitoring equipment); one pair of ST-style fiber optic connectors; two 3.5 mm sockets (one for analog output, another for headphones); green/red LED voltage indicator. DSP model provides up to 22 dB of real-time ambient noise removal (three levels: low, mid, high). Unit is powered either by internal battery or external DC power supply.

The SOM(4) SPL is supplied as standard with clear 1mm PVC fiber-optic cable. Where there is no benefit in the thin, transparent 1mm PVC cable, we recommend the more robust Kevlar reinforced black 3mm PVC cable.

TECHNOLOGY

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. ■

TECHNICAL SPECIFICATIONS

Polar Pattern	Omnidirectional
Frequency Response	10-15,000 Hz
Conformity 10 - 10,000 Hz	±1 dB
Conformity 10,000 - 15000 Hz	±3 dB
Sensitivity	7.5 mV/Pa ±10% at 1 kHz
Equivalent Self-Noise	≤55 dBA
Maximum Acoustic Pressure	140 dB SPL
Total Harmonic Distortion	<1% at 110 dB SPL
Equivalent Vibration Sensitivity	Max. 45 dB SPL/g at 1 kHz
Supply Voltage	8-15 V DC
Current Drain	110 mA
Operating Temperature	-20 to +60 °C (-4 to +140 °F)
Storage Temperature	-20 to +60 °C (-4 to +140 °F)
Humidity - 1000 hours	Up to 95% RH at +40 °C
MTBF	>100,000 hours
Microphone Head	
Material	Polycarbonate
Dimensions D/L	6/16 mm
Weight	0.5 g
Type of Fiber Optic Cable	Multimode 100µm
Optical Cable Length	10 m standard (lengths available up to 100m)

PRODUCT CODES

KINGFISHER SOM(4)SPL – Full Systems

- 3-299-604** **SOM(4)SPL010XT** - Security Optical Microphone with 10 meters of 1mm PVC coated optical fiber no extension tube, Electro Optical Unit (EOU200), Audio cable with 3.5mm jack, 8-12V DC power adapter & Guidance Manual
- 3-299-605** **SOM(4)SPL020XT** - Security Optical Microphone with 20 meters of 1mm PVC coated optical fiber no extension tube, Electro Optical Unit (EOU200), Audio cable with 3.5mm jack, 8-12V DC power adapter & Guidance Manual

The SOM(4)SPL can be supplied with Black 3mm Kevlar reinforced cable instead of the 1mm clear PVC cable at no extra cost.

KINGFISHER SOM(4) Accessories, Components & Upgrades

- 3-229-646** Extension Cable Type Outdoor, **5mm Milspec MIL STD** (specify length from 10-100m)
- 3-299-647** Extension Cable Type Outdoor, **5.1mm Polyamide, lightweight, rigid** (specify length from 10-100m)
- 3-299-648** Extension Cable Type Indoor, **3mm Kevlar reinforced** (specify length from 10-100m)
- 3-299-649** Extension Cable Type Indoor, **2x3mm Zip Cord** (specify length from 10-100m) will withstand bending and stepping on it
- 3-299-690** OPTIClear Software - PC Based speech enhancement utilizing a single channel noise reduction algorithm. OPTIClear works in both real-time and post-processing modes. Price for 1 license includes USB dongle
- 3-299-654** EOU200 + DSP (instead of EOU200) - **Built-in noise canceling via DSP**

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