Fiber optic dynamic pressure sensors

Evotis P

Plastic version



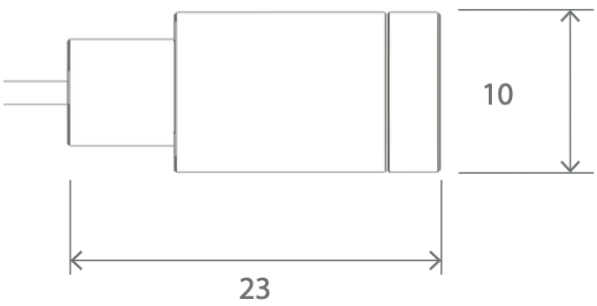
DESCRIPTION

This sensor has been designed to be used in harsh environment with high sensitivity on audible frequency range. This sensor is fully calibrated for sensitivity and frequency bandwidth.

Thanks to its small size, it makes possible the study of acoustic waves at high frequency in pipes

Typical applications:

- Crack monitoring in oven
- Non-destructive testing
- High voltage measurements (Overhead line, electrical transformer)
- MRI speech
- Measurements in ATEX environments



Acoustic

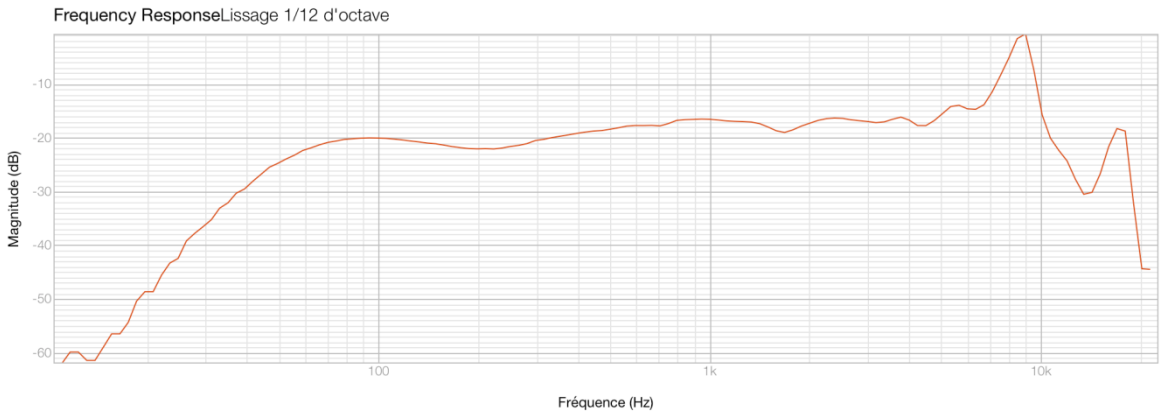
Transducer type	Silicon nitride membrane
Operational Mode	Differential (rear-vented)
Natural frequency	15kHz
Frequency range	20Hz-15kHz (-3dB)
Dynamic maximum pressure	0.05 Bar (≈167dB SPL)
Static maximum pressure	Not limited. (May change frequency response)
Self-noise	30dB SPL (BW: 1Hz, over full bandwidth). 20dB SPL with low noise conditioning unit
Damage threshold	>0.1 Bar (≈173dB SPL)
Sensitivity	10mV/Pa
Polar pattern	Omnidirectional
Sound field optimization	Free field
Calibration	Calibrated at factory. Adapter available

General

Pressure Media	Any gas
Rated Optical Excitation	150 µW @1310nm
Fiber type	Multimode 50/125 OM2
Sensor head dimensions	10 mm x 23 mm
Sensor head weight	2 grams
Fiber cable length	Standard 2 meters
Material	Ultem™ or equivalent

Environmental

Operating Temperature Range	-20° C to 65° C
Peak short-term	85° C
Temperature influence	<1% of response sensitivity
Environmental humidity	100% RH
EMI/RFI	Full immunity. No influence
Certifications	Waterproof IP65



Frequency response measured thanks to B&K type 4232 anechoic test box