



LOW NOISE OPTICAL SEISMIC SENSOR

GREATER PRECISION. BETTER DECISIONS.

Silicon Audio integrated the mechanics of conventional geophones with innovative optical technologies to create a scientific-grade seismic sensor with unparalleled characteristics and performance for resource exploration and scientific discovery. The sensor delivers superior signal-to-noise ratio and broadband response in a rugged, easy to deploy form factor. Developed originally for ocean bottom exploration, the sensor has been deployed around the world in a wide variety of seismic applications and is available in various packaging configurations.

Performance Attributes

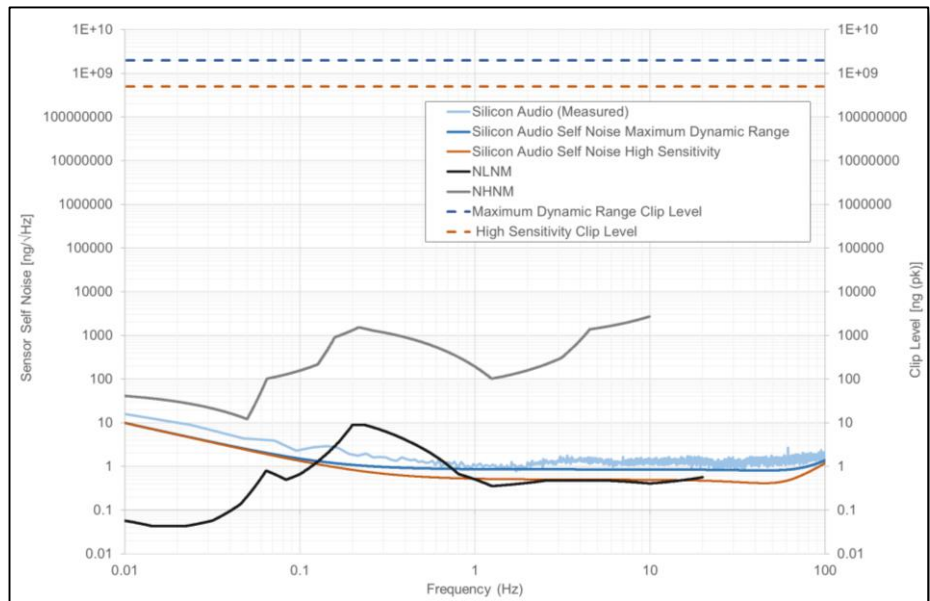
- Ultra low noise and low frequency
- High shock tolerance
- Wide bandwidth and dynamic range
- Bridges weak and strong motion applications
- Low cross-axis sensitivity
- Low power design
- Very large tilt tolerance
- High clip levels and low distortion levels
- Customizable packaging/configuration
- Small, lightweight, rugged form factor
- High linearity across full bandwidth
- High vector fidelity

With the largest dynamic range available among seismic sensors, the Silicon Audio sensor eliminates the need for multiple sensors to maximize the signal capture in terms of seismic amplitude and bandwidth. For example, applications which once required a broad-band seismometer paired with a strong-motion accelerometer can be addressed with a single Silicon Audio sensor.



LOW NOISE OPTICAL SEISMIC SENSOR CURRENT PERFORMANCE & SPECIFICATIONS

Dynamic Range Window



SENSOR PERFORMANCE	203-60 High Sensitivity	203-15 High Dynamic Range	213-40 Velocity
Passband	0.005-1.5kHz	0.004-800 Hz	0.025 – 90 Hz
Noise	0.5ng/√Hz [@ 10Hz]	0.8ng/√Hz [@ 10Hz]	0.5ng/√Hz [@ 10Hz]
	0.8ng/√Hz [@ 1Hz]	1ng/√Hz [@ 1Hz]	0.8ng/√Hz [@ 1Hz]
	3ng/√Hz [@ 0.1Hz]	3ng/√Hz [@ 0.1Hz]	3ng/√Hz [@ 0.1Hz]
	10ng/√Hz [@ 0.01Hz]	10ng/√Hz [@ 0.01Hz]	10ng/√Hz [@ 0.01Hz]
Clip Level	±0.5g peak	±2g peak	+/- 40mm/s
Dynamic Range (@1Hz over 1Hz BW)	172dB	183dB	154dB
Sensitivity (<i>custom settings available</i>)	60 V/g	15V/g	750 V/m/s
Max Vout	60V pk-pk		
Spurious resonance	>600 Hz		
Tilt tolerance	±15°		
Distortion	<0.03% @ 12Hz and 0.7in/s p-p		
POWER			
Power	140mW for 3 axis (<i>As low as 80 mW with reduced clip level</i>)		
Supply Voltage	6-25V DC		
HANDLING			
Transport	No mass lock required for transport		
Shock tolerance	>1500g (0.5ms ½ sine)		
Operating Temperature	-35°C to 75°C		
GENERAL			
Dimensions	Posthole Package: 3.25" Diameter x 4.7" Length (83mm D x 120mm L) Vault Package: 4.5" L x 4.5" W x 2.7" H (115mm x 155mm x 68mm)		
Configuration	3-axis (Single axis available)		
Sensing Method	Force balance with interferometric transducer		
Mass centering	Automatic		