



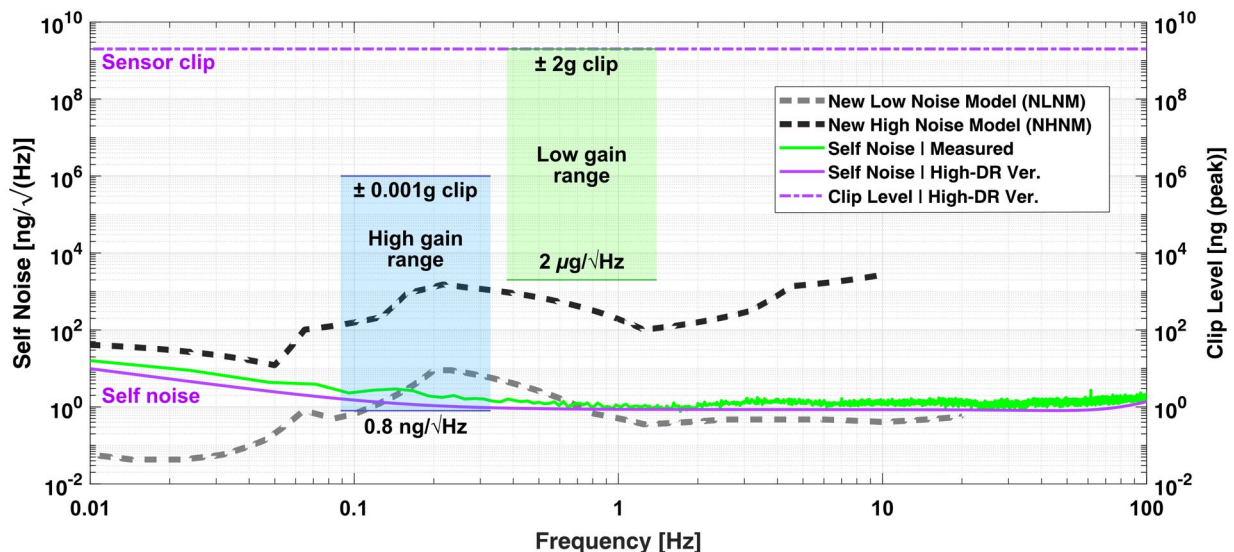
To capture the full performance of our optical interferometer-based seismometer we developed a complete digital sensor system. High levels of integration allow for compact, low mass and high-performance sensor installations.

Performance Attributes:

- Integrated double digitization to capture the 183-dB dynamic range of the sensor.
- Smart sensor system with state of health, sensor response and metadata integrated.
- Unique in-situ calibration custom to our optical sensor technology.
- Embedded Linux server allows easy system integration via Seedlink and an expandable architecture.
- Direct burial: Easy to deploy, lightweight, rugged.
- Wide bandwidth and dynamic range.
- High clip levels and low distortion levels.
- Bridges weak- and strong-motion applications.
- Low power design.
- High shock tolerance.
- Very large tilt tolerance.
- Customizable packaging/configuration.
- Modular design for simple maintenance.



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 digital sensor.





Specifications

SENSOR PERFORMANCE		503-15
Passband	0.004 – 800Hz	
Noise	0.8ng/√Hz at 10Hz	
	1ng/√Hz at 1Hz	
	3ng/√Hz at 0.1Hz	
	10ng/√Hz at 0.01Hz	
Clip Level	±2.0g peak	
Dynamic Range (@1Hz over 1Hz BW)	183dB	
Sensitivity (custom settings available)	15V/g	
Max V _{out}	60V pk-pk	
Spurious Resonance	> 600Hz	
Tilt Tolerance	±15°	
Distortion	< 0.03% at 12Hz and 0.7in/s pk-pk	
POWER		
Power	<ul style="list-style-type: none"> • 2W max (sensor, ethernet, GPS, 8 channels at 1000 sps) • < 0.6W low power mode (sensor, no network, duty cycled) • Optional internal 65W solar charge controller 	
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 (polar-rated sensors available)	
Environmental Protection	IP68 rated immersion to 10m	
DIGITAL RECORDER		
Converters	<ul style="list-style-type: none"> • 8 channels 24-bit delta sigma simultaneous sampling • 3 channels low gain (±2g 60 V p-p) • 3 channels high gain (±0.001g 0.03V p-p) • 2 auxiliary channels 	
Sample rates	100, 200, 250, 500, 1000Hz	
Filters	Linear phase 0dB at 80% Nyquist	
State of Health / Auxiliary sensors	Voltage, Current, Temperature, Humidity, MEMS accelerometers	
GPS timing	<ul style="list-style-type: none"> • Internal 72 channel receiver • Continuous or duty cycled power 	
Connectivity	Ethernet connection for Seedlink Server, remote access and web settings interface	
Metadata management	Generates StationXML	
Storage	<ul style="list-style-type: none"> • Removable External USB media (miniSEED formatted data) • Internal SD Card 32GB (miniSEED formatted data) 	
GENERAL		
Dimensions	<ul style="list-style-type: none"> • Posthole Digital Sensor 3.25" Diameter × 5.7" Length (83mm D × 145mm L) • TSB-GC 8" long × 4" wide × 1" thick (203mm × 102mm × 25 mm) 	
Mass	<ul style="list-style-type: none"> • Posthole Digital Sensor: 1.4kg • TSB-GC: 0.6kg 	