



## AcoustiSens<sup>®</sup> Wideband Vibration Sensor Fiber Improved OSNR for Great ASNR



AcoustiSens Wideband Vibration Sensor Fiber	
Specifications	
<b>Enhancement</b> <small>(over naturally occurring Rayleigh backscatter in G.657.A1 fiber)</small>	10-15 dB
<b>Base Fiber Type</b>	G.657.A1
<b>Operating Range</b>	1536-1556 nm
<b>Fiber Attenuation @ 1550 nm</b>	<0.7 dB/km
<b>Glass Outer Diameter</b>	125 μm
<b>Coating Outer Diameter</b>	200 μm
<b>Operating Temperature</b>	-40 to +85 °C
<b>Min. Bend Radius</b>	
Long Term	17 mm
Short Term	10 mm
<b>Proof Test</b>	≥ 100 kpsi

### Product Description

AcoustiSens Wideband Single-Mode Optical Fiber, the newest addition to the OFS LineaSens<sup>®</sup> family, is a vibration sensing fiber with optimal performance for Distributed Acoustic Sensing (DAS) systems. Using a waveguide design based on the ITU-T G.657.A1 telecom-grade single-mode standard, AcoustiSens Wideband fibers significantly increase Rayleigh backscatter while maintaining low attenuation to improve Optical Signal to Noise Ratio (OSNR). Furthermore, the AcoustiSens Wideband fibers provide bend-insensitivity and expand the operating wavelength band (1536 - 1556 nm) ensuring interoperability with all known DAS interrogators. AcoustiSens Wideband is intended for use in cables designed as sensing components in DAS systems.

Without the need for changes in interrogation equipment or complex optical amplification schemes AcoustiSens Wideband is a drop-in fiber replacement that provides greatly improved sensing performance with OSNR orders of magnitude better than telecom-standard fibers. This translates into significantly improved ASNR in DAS systems. Due to its waveguide design, AcoustiSens fibers are also bend-insensitive and splice compatible with G.657.A1 and G.652.D optical fibers, assuring smooth integration with commonly deployed sensing solutions.

### Typical Applications

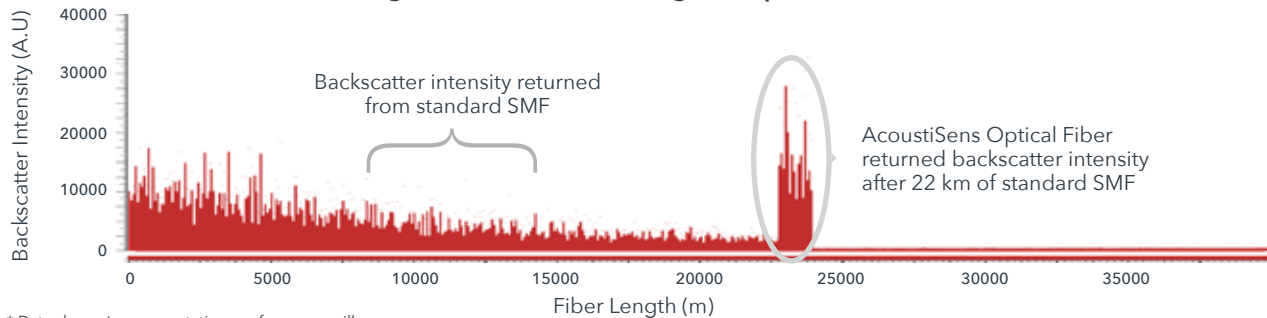
OFS AcoustiSens optical fibers are intended for use as components in optical and hybrid cables designed for vibration or acoustic sensing applications such as:

- Pipeline monitoring (midstream)
- Rail monitoring
- Perimeter monitoring
- Subsea monitoring
- Highway monitoring
- Smart City applications

As critical components within acoustic and vibration sensing cables for DAS, AcustiSens WideBand fibers improve sensitivity by increasing Rayleigh backscatter while adding little attenuation thereby lowering the noise floor of the sensor to improve the ASNR of the sensing system.

Features	Benefits
10-15 dB increase in Rayleigh backscatter	Fiber has greater sensitivity to environmental vibration (acoustics)
1536 to 1556 nm window	Compatible with all known, commercial interrogator operating wavelengths
Little added attenuation over commercially available G.657.A1 and G.652.D optical fibers	Increased sensitivity with little added noise dramatically improves Signal to Noise Ratio (SNR) enabling improvements Distributed Acoustic Sensing (DAS) Systems
Simplified coupling	Splice-compatible with telecom grade G.657.A1 and G.652.D optical fibers
Dramatically improved OSNR for detection of vibration/acoustics	Enables design of sensing cables for increased offset from assets being monitored: oil and gas pipelines, railroads, perimeters, borders  Detection of weaker acoustic/vibration events as compared to standard G.657.A1 and G.652.D fibers
	Improves effectiveness of DAS systems allowing extension of traditional sensing range

### Significant Backscatter Signal Improvement\*



\* Data shown is representative; performance will vary.

### AcustiSens Ordering Information

Part Number	Nominal Interrogator Wavelength Band (nm)	Optically Compatible with
GS86545	1536 to 1556 nm	G.657.A1 and G.652.D

**NOTE:** Custom AcustiSens designs are also possible. Please consult OFS with inquiries and for design guidance. Contact information shown below.

For additional information please contact Paul Toller at 860-678-6636.

You can also visit our website at [www.ofsoptics.com](http://www.ofsoptics.com) or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.

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OFS Marketing Communications  
Date: 01/20

