

ACCELEROMETER INDUSTRIAL SERIES (ACI)

-  **10 km transmission**
-  **Electrical Isolation**
-  **Intrinsically Safe**
-  **EMI & Radiation Immune**

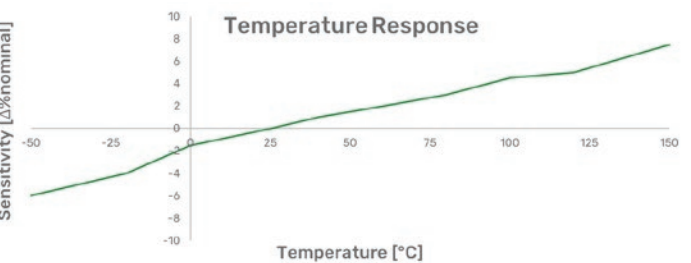
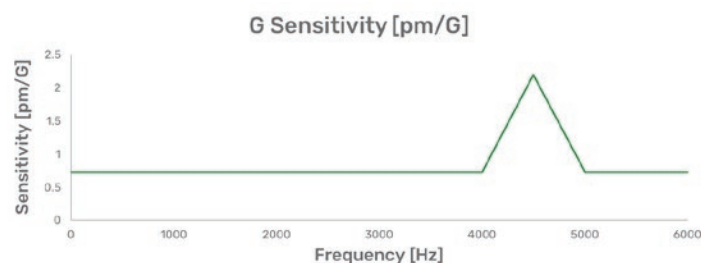
Optical accelerometers provide high-quality measurements in harsh environments not suitable for electrical equivalents. The Fibos ACI models are high frequency accelerometers that can capture vibration data from DC to 1500 Hz. Temperature compensation by means of an additional optical sensor is optional. Standard geometries are shown in the configuration table. Material substitutions, custom dimensions, and alternative cable lengths can be provided upon request.

Fibos optical accelerometers meet PiMS™ (Pi-FBG Measurement Standard). To achieve the performance specifications presented, a signal conditioner that utilizes the PiMS™ technique is required.

APPLICATIONS

Ideal for industrial applications, the ACI accelerometer is intended for applications that require high measurement frequency range. Mounting options include magnetic base, A-mount, and threaded fittings. Leverage the benefits of optical measurements to collect better quality data in applications requiring electromagnetic immunity, long transmission distance, high-voltage isolation, and/or intrinsic safety. Typical applications include:

- Structural health monitoring (i.e. bridges, buildings)
- Electric motor vibration monitoring
- Wind turbine health monitoring
- Short detection in power generators
- Machining tool bit quality control



PERFORMANCE

Transducer Operating Range ¹	-50 to 150°C
Sensitivity	0.5 pm/G
Acceleration Range	±100 g
Frequency Range	DC to 1,500 Hz
Acceleration Measurement Uncertainty ²	±5.0% Full Scale Output (FSO)
Resonant Frequency	4,500 Hz
Acceleration Resolution	15 mg
Maximum Shock	1,000g (peak)

Temperature Compensation Gauge Specifications

Temperature Absolute Uncertainty ^{2,3}	±0.5°C
Temperature Relative Uncertainty ^{2,4}	±0.2°C
Temperature Resolution	0.01°C
Optical Sensor Specifications	PiMS™ Compliant

¹ As designed. Laboratory tested between 0 to 150°C
² Measurement uncertainty includes error of signal conditioner (PiMS™ compliant)
³ Uncertainty possible due to interchanging signal conditioners
⁴ Uncertainty possible during continuous operation with signal condition in stable ambient conditions

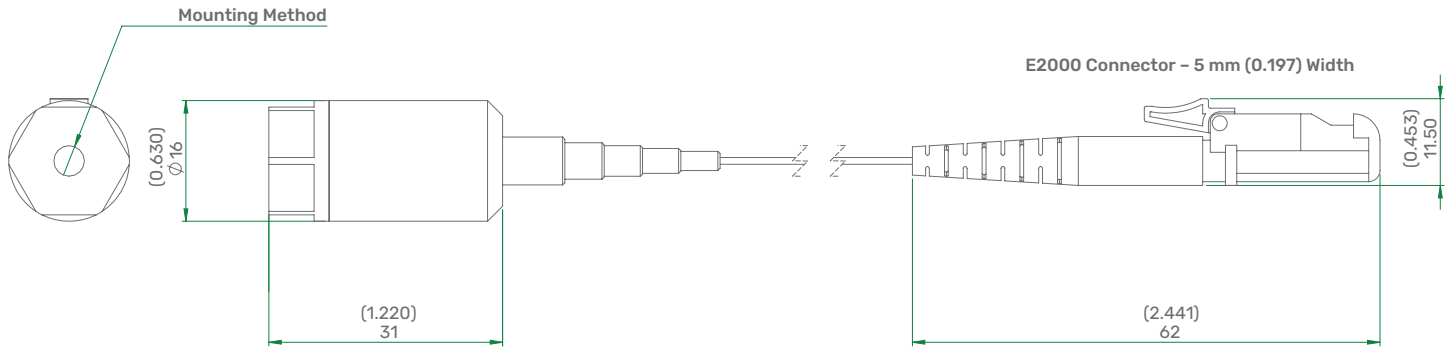
ENVIRONMENTAL

Cable Temperature (OFNP Cable)	-40 to 70°C
Minimum Cable Bend Radius	16 mm
Optical Connector	E2000/APC
Fiber Type	SMF28 compatible

Continued product improvement necessitates that Fibos reserve the right to modify these specifications without notice. With continuous improvement, extensive testing, and conservative specifications, Fibos ensures product reliability expected within the industry.

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Reference drawing provided for model #ACI-SABA-NA1E2



MODEL PART NUMBER TABLE

ACI - - - - - - - -

1 2 3 4 5 6 7 8

1. Temperature Range

S – Standard (-50 to 150°C)

2. Mounting Method

A – 10-32 Female thread
B – A-Mount
C – Magnetic
D – None
X – Custom

3. Temperature Compensation

A – Yes
B – No

4. Body Material

A – 316 Stainless steel
B – 3Al-2.5V Titanium
X – Custom

5. Cable Jacket

N – OFNP
S – Stainless steel coil
X – Custom

6. Cable Outer Diameter

A – 0.9 mm
B – 2.0 mm
C – 2.3 mm
X – Custom

7. Cable Length

1 – 2.5 m
X – Custom

8. Connector Type

E2 – E2000/APC

TYPICAL CALIBRATION DATA

Calibration Temperature [°C]	Sensitivity [µm/G]	Frequency Tested [Hz]
25	0.73	10
25	0.73	100
25	0.73	500
25	0.73	1000
25	0.73	2000
25	2.19	4500
25	0.73	6000

Calibration Temperature [°C]	Nominal Wavelength [nm]	G Sensitivity [Δ%nom]
-50	1548.350	-6
-20	1549.010	-4
0	1549.450	-1.5
25	1550.000	0
40	1550.330	1
60	1550.770	2
80	1551.210	3

Notes:

- Calibration can be performed via comparison between the device under test and a traceable reference sensor. A programmable shaker and stirred liquid bath is used to exercise the device under test through its calibrated range.
- Fibos can provide commercial calibration with metrological traceability to the SI from -20°C to 100°C and 1 Hz to 15,000 Hz. Calibration certificates from accredited calibration laboratories can be provided upon request.
- Calibration data is provided with every sensor produced. This information can be used with a PiMS™ signal conditioner to achieve the specifications listed on the previous page.

About us

Developers of a unique optical point sensing platform that can be utilized in a variety of industrial applications.

We design, manufacture and support customers of the optical platform from our headquarters in Toronto, Canada.

V1.0-083019

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