

Optical Fiber | Strain Gage

Strain Gauge series (SG)

Optical Fiber Sensor – Product Information Sheet

Fiber optic sensors provide high accuracy and high-resolution measurement of strain and temperature, beneficial for test and measurement applications involving extreme conditions where conventional sensors cannot perform well.

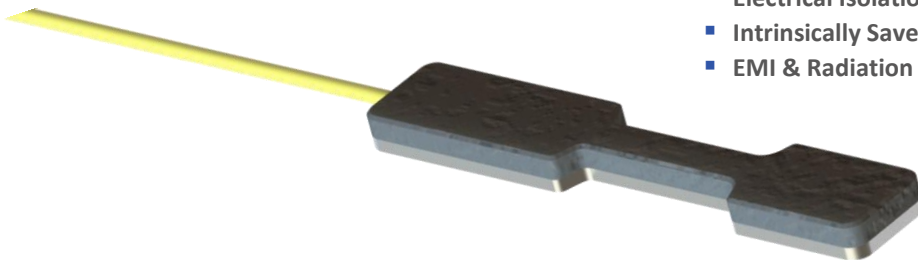
metallic base materials can be selected depending on the target operating environment

This optical strain sensors meet PiMS™ (Pi-FBG Measurement Standard). To achieve the performance specifications presented, a Q.series X F108 Optical Gage Amplifier is required.

The F108 Optical Gage Amplifier seamlessly integrates with the Q.series X data acquisition platform. The modularity and versatility of the Q.series X product line can address any of your measurement challenges. Utilize GI.bench software for quick and easy setup and combine with GI.cloud for cloud storage and remote monitoring.

Key Features

- **Operating Range: -50 up to 200 °C**
- **±0.25% FSO Uncertainty**
- **Electrical Isolation**
- **Intrinsically Safe**
- **EMI & Radiation Immune**



Typical applications:

Oil & Gas

Measure temperature, vibration and strain in hazardous areas for condition monitoring of critical assets to reduce failure frequency and increase equipment reliability.

Battery testing & monitoring

Non-conductive measurement of temperature, strain, and vibration for testing and monitoring new energy storage technologies while avoiding electrical safety hazards.

Nuclear power, research & fusion reactor monitoring

Ensure low sensor degradation with hermetically sealed sensors to monitor critical reactor components without the impact of high gamma radiation and temperature.

Transformers & Generators

Measure vibration and voltage at high electrical potential without electromagnetic interference

Electric powertrain testing

Performance testing and validation of powertrain components in electric vehicles and aircraft with temperature sensors exposed to electromagnetic fields.

Space simulation testing

Measure strain, pressure, acceleration, and temperature in an environmental test chamber under cryogenic and high vacuum conditions

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Technical Data

Performance

Sensor operating range	-50 up to 200 °C
Strain range	-1000 $\mu\epsilon$ to +1000 $\mu\epsilon$
Dynamic response	DC to 5kHz
Strain Measurement uncertainty (uncalibrated)	± 2 % full scale output (FSO)
Strain Measurement uncertainty (calibrated)	± 0.25 % FSO
Strain resolution	0.01 % FSO
Strain sensitivity	0.26 $\mu\text{m}/\mu\epsilon$
Optical sensor specifications	PiMS™ complaint

Environmental

Substrate materials	Metal, plastic, ceramic
Cable temperature (OFNP cable)	-40 up to 70 °C
Cable temperature (stainless steel cable)	-60 up to 150 °C
Minimum cable bend radius	16 mm
Optical connector	E2000/APC
Fiber type	SMF28 compatible

Ordering Information

Model part number	SG-SSBA-NA1E2
Additional information	Strain Gauge, -50 to 150°C, stainless steel carrier, no temperature compensation, adhesive mount, OFNP 0.9mm jacket, 2.5m cable length, E2K/APC

For Detailed Information about standard geometries, material substitutions, custom tip dimensions and alternative cable lengths please contact your sales partner.

For further information visit [Q.series X F108 landing website](#) or contact your local [Gantner Instruments sales representative](#).