

Long Gage Strain Sensor | os3600

Applications

- Continuous lifetime health monitoring of bridges, dams, buildings, tunnels, ships, aircraft, trains, and other complex structures.
- Measurement of strain on a structure's surface.
- Measurement of relative temperature for compensation of strain measurements.

Features

- Qualified to same rigorous standards used for comparable electronic gages.
- Temperature compensation sensor integrated inside. Also available without temperature compensation.
- Cable integrated with sensor package for fiber protection and strain relief.
- Fast, simple, repeatable installation.
- Long gage length.
- Brackets for bolt, grout, embed, or weld.
- Connector protection fittings available for harsh environment.
- Armored fiber cable and rugged sensor package.
- Double ended design supports multiplexing of many sensors on one fiber.
- Two standard gage lengths.
- Micron Optics' patented micro opto-mechanical technology.

Description

The os3600 Long Gage Strain Sensor measures average strain over the length of the gage while providing active temperature compensation. It is based on fiber Bragg grating (FBG) technology. Each end of an os3600 is attached to a structure via rigid brackets that are either welded, bolted, or grouted to the surface of a steel, concrete, or carbon composite structure. The os3600 is designed to also be embeddable in concrete.

A rugged, steel-shielded body, armored cables, and connector protection fittings enable measurements that can continue for the entire lifespan of a structure. Two FBGs are well protected inside the os3600 body. One FBG measures strain, and the other provides for integrated temperature compensation. Since there are no epoxies holding the fiber to the carrier, long term stability is ensured by design.



os3600 strain sensor

Mounting options:



Bolt-on



Grout-in



Weldable



Embed

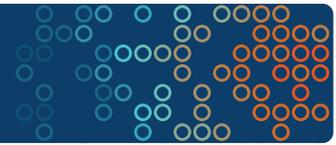
In side by side comparisons with foil strain gages, the os3600 is equally sensitive and accurate, while providing for greater strain range and 100 times more fatigue life. The os3600 strain gage is qualified for use in harsh environments and delivers the many advantages inherent to all FBG based sensors.



Connector Protection Fitting

This sensor can be used alone or in series as a part of an FBG sensor array. Installation and cabling for such arrays is much less expensive and cumbersome than comparable electronic gage networks.

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Specifications ^β 1

os3600

Performance Properties

Accuracy	± 0.5 % F.S.
Strain; Temperature Sensitivity ²	~ 1.2pm/με; 23.8 pm/°C
Gage Length	25.4, 100 or 150 cm
Operating Temperature Range	-40 to 80°C
Strain Limits	± 2,500 με
Water Resistant	Suitable for wet, high humidity environments.

Physical Properties

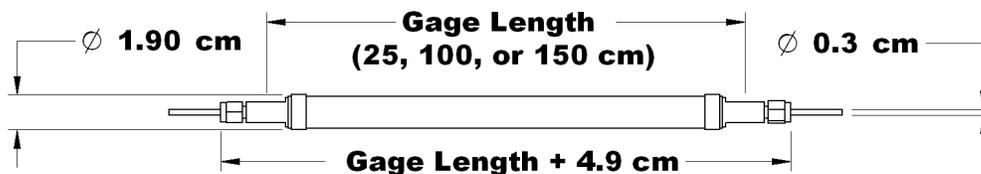
Dimensions	See Diagram Below
Weight	280 g
Material	Stainless steel/ Teflon construction
Cable Length	1 m (± 10 cm), each end
Cable Type	3 mm armored cable
Connectors	FC/APC with Connector Protection Fitting optional
Cable Bend Radius	≥ 17 mm
Fastening Methods ³	Bolt-on, Grout-in, Weldable, Embeddable

Optical Properties

Peak Reflectivity (Rmax)	> 70%
FWHM (-3 dB point)	0.25 nm (± .05 nm)
Isolation	> 15 dB (@ ± 0.4 nm around center wavelength)

Notes:

1. Denotes Beta product. For more details see www.micronoptics.com/product_designation.php.
2. Actual gage factor provided with gage.
3. See http://www.micronoptics.com/support_downloads/Sensors/ for installation details.



Ordering Information

os3600-ggg-tttt/ssss-1xx-1yy-f (Example: os3600-025-1512/1516-1FC-1FC-W)

ggg: Gage Length 025 (cm) 100 (cm) 150 (cm)	tttt/ssss: Temperature/Strain Wavelength (±1nm) Standard: 1512/1516, 1522/1526, 1532/1536, 1542/1546, 1552/1556, 1562/1566, 1572/1576, 1582/1586 Extended: 1460 to 1620 nm Note: os3600 may be configured without the temperature compensation FBG. Specify tttt as 0000 for this option.	1 xx: Cable 1, Length & Connector 1 1m Standard, Cable Length FC FC/APC Connector PF FC/APC Connector with Protection Fitting 1 yy: Cable 2, Length & Connector 1 1m Standard, Cable Length FC FC/APC Connector PF FC/APC Connector with Protection Fitting	f: Fastening Method B Bolt-on G Grout-in W Weldable E Embeddable
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