

OS3600

Long Gage Strain Sensor

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.
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- 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.
- Includes FC/APC connectors on each end.
- Two standard gage lengths.
- Applied Geomechanics' 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 a 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.

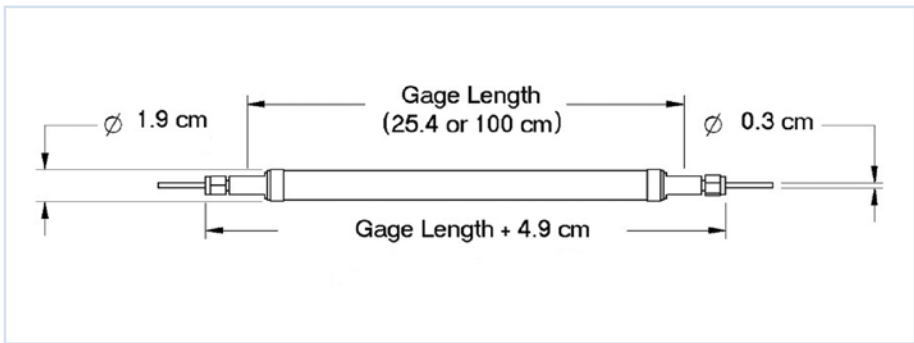
In side by side comparisons with foil strain gages, the os3600 is equally sensitive and accurate, while providing for greater strain range and 100 times more fatigue life. The os3600 strain gage is qualified for use in harsh environments and delivers the many advantages inherent to all FBG based sensors.

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. Multiple optical strain gages can be arranged in close proximity at 0, 45 and 90 degrees for strain rosette measurements.

SPECIFICATIONS ¹		OS3600
ACCURACY		± 0.5 % F.S.
STRAIN; TEMPERATURE SENSITIVITY ²		~ 1.2pm/µε; 23.8 pm/°C
GAGE LENGTH		25.4 cm and 100 cm standard
OPERATING TEMPERATURE RANGE		-40 to 80°C
STRAIN LIMITS		± 2,500 µε
WATER RESISTANT		Suitable for wet, high humidity environments.
DIMENSIONS		See Diagram Below
WEIGHT		280 g
MATERIAL		Stainless steel/ Teflon construction
CABLE LENGTH		1 m (± 10 cm), each end
CABLE TYPE		3mm armored cable
CONNECTORS		FC/APC with connector protection fitting included, each end
CABLE BEND RADIUS		≥ 17 mm
FASTENING METHODS ³		Bolt-on, Grout-in, Weldable, Embeddable
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.



APPLIED GEOMECHANICS

140 Chestnut St.
 San Francisco CA, 94111
 T: 1+415-364-3200
 F: 1+415-861-1448
 Geomechanics.com

A CARBO Company

ORDER CODES:

