

# Surface Mount Strain Sensor | os3610



## Applications

- Continuous long-term health monitoring of bridges, dams, buildings, tunnels, ships, trains, and other complex structures.
- Measurement of strain on the surface of concrete, rock, steel, composite, and other structures.

## Features

- Qualified to same rigorous standards used for comparable electronic gages.
- Temperature compensation sensor integrated inside. Measurement of relative temperature for compensation of strain measurements.
- Cable integrated with sensor package for fiber protection and strain relief.
- Fast, simple, repeatable installation.
- 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.
- Included in ENLIGHT's sensor templates- allows for quick and easy optical mechanical conversions.
- IP67 rated for protection from dust and water ingress.
- User adjustable zero point optimizes full use of strain range.

## Description

The os3610 Surface Mount Strain Sensor measures average strain over the length of the gage while providing integrated temperature compensation. It is based on fiber Bragg grating (FBG) technology. The os3610 is intended exclusively for surface mounting. Each end of the os3610 is attached to the structure via rigid brackets that are either welded, bolted, epoxied, or grouted to the surface of a concrete, rock, steel, composite, or other structure.



os3610 surface mount strain sensor



Bolt-on



Grout-in



Weldable

Armored cables, a rugged sealed steel body, and optional connector protection fittings make the os3610 suitable for harsh environments. Two FBGs are well protected inside the os3610 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.

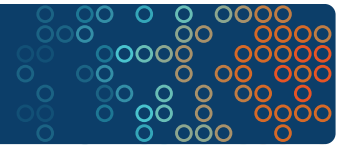


Connector Protection Fitting

In side-by-side comparisons with vibrating wire and foil strain gages, the os3610 is equally sensitive and accurate, while providing corrosion insensitivity and 100 times more fatigue life. The os3610 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 less cumbersome than comparable electronic gage networks.

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## Specifications <sup>β</sup> 1

os3610

### Performance Properties

Strain; Temperature Sensitivity <sup>2</sup>	~ 1.2 pm/με; 22 pm/°C
Temperature Compensation	Integrated into each gage
Gage Length	25 or 100 cm
Operating Temperature Range	-40 to 80°C
Strain Limits	5,000 με (Zero point set by user)
Water Resistant	Suitable for wet, high humidity environments (IP67)
Fatigue Life	> 1x10 <sup>8</sup> cycles @ ± 2,000 με

### Physical Properties

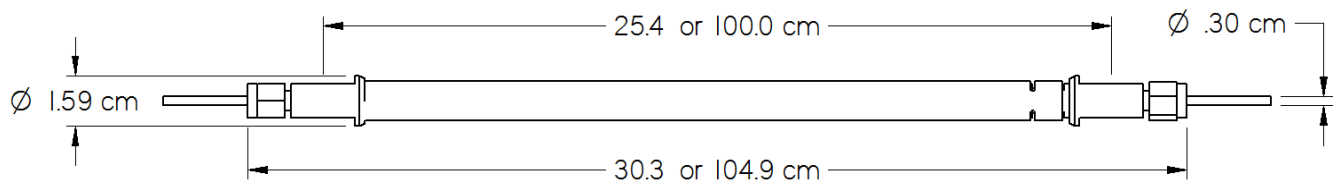
Dimensions	See diagram below
Weight	190 g (25 cm); 384 g (100 cm)
Material	Stainless steel construction
Cable Length	1 m (± 10 cm), each end
Cable Type	3 mm armored cable
Cable Bend Radius	≥ 17 mm
Anchoring Methods <sup>3</sup>	Surface mount only: bolt-on, grout-in, weldable brackets available

### 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](http://www.micronoptics.com/product_designation.php).
2. Actual gage factor provided with gage.
3. See [http://www.micronoptics.com/support\\_downloads/Sensors/](http://www.micronoptics.com/support_downloads/Sensors/) for installation details.



## Ordering Information

os3610-ggg-tttt/ssss-1xx-1yy-a (Example: os3610-025-1512/1516-1FC-1FC-U)

<b>ggg:</b> Gage Length 025 (cm) 100 (cm)	<b>tttt/ssss:</b> 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	<b>1 xx:</b> Cable 1, length & connector 1 1m standard, cable length UT Unterminated FC FC/APC connector	<b>a:</b> Anchoring Method U Universal
		<b>1 yy:</b> Cable 2, length & connector 1 1m standard, cable length UT Unterminated FC FC/APC connector	