Embeddable Strain Sensor | os3500

Description

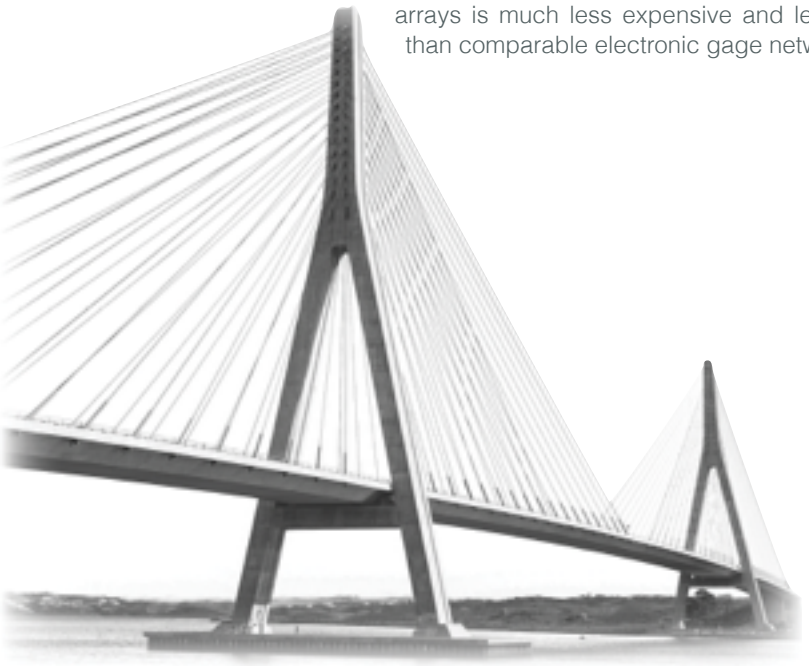
The os3500 Embeddable Strain Sensor measures average strain over the length of the gage while providing integrated temperature compensation. It is based on fiber Bragg grating (FBG) technology. The os3500 is intended exclusively for embedding in concrete structures. Disk ends form a solid bond to surrounding concrete or grout.

A rugged, stainless steel body, ruggedized cables and optional connector protection fittings make the os3500 suitable for harsh environments.Two FBGs are well protected inside the os3500 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.

All the advantages of an **optical sensor** in a **conventional**, vibrating-wire type **package**

In side-by-side comparisons with vibrating-wire and foil strain gages, the os3500 is equally sensitive and accurate, while providing 100 times more fatigue life. The os3500 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 part of an FBG sensor array. Installation and cabling for such arrays is much less expensive and less cumbersome than comparable electronic gage networks.



Key Features

Temperature compensation sensor integrated inside. Measurement of relative temperature for compensation of strain measurements.

Qualified to same rigorous standards applied to comparable electronic gages.

Connector protection fittings available for **harsh environments.**

Fast, Simple, repeatable installation

Non-metallic ruggedized sensor package.

Double ended design supports multiplexing of many sensors on one fiber

Micron Optics' **patented micro opto-mechanical** technology.

Deployments

Structures (bridges, dams, tunnels, mines, buildings, oil platforms)

Energy (wind turbines, oil wells, pipelines, nuclear reactors, generators)

Transportation (railways, trains, roadways, specialty vehicles, cranes)

Marine vessels (hull, deck, cargo containers)

Aerospace (airframes, composite structures, wind tunnels, static and dynamic tests)

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Performance Properties	os3500
Strain; Temperature Sensitivity [1]	~1.2 pm/ue; 23.8 pm/C
Temperature Compensation	Integrated into each package
Gage Length	110 mm
Operating Temperature Range	-40 to 80 C
Strain Limits	+/- 2,500 ue
Water Resistant	Suitable for wet, high humidity environments (IP67)
Fatigue Life	> 1x10^8 cycles @ +/- 2,000 ue
Physical Properties	
Dimension; Weight	See diagram below; 98 g
Material	Stainless Steel/Polyolefin construction
Cable type / length	6 mm/3 mm ruggedized cable/1 m (+/- 10 cm), each end
Cable Bend Radius	≥17 mm
Anchoring Methods [2]	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)

Ordering Information

os3500-ggg-tttt/ssss-1xx-1yy

tttt/ssss Strain/Temp Wavelengths (+/- 1nm)
Standard - 1462/1466, 1472/1476 1482/1486, 1492/1496, 1502/1506, 1512/1516, 1522/1526, 1532/1536, 1542/1546, 1552/1556, 1562/1566, 1572/1576, 1582/1586, 1592/1596, 1602/1606, 1612/1616

xx Termination type
- 1xx Cable 1, Length & Connector
- 1 1 m Standard, Cable Length
- UT Unterminated
- FC FC/APC Connector

yy Termination type
- 1yy Cable 2, Length & Connector
- 1 1 m Standard, Cable Length
- UT Unterminated
- FC FC/APC Connector

Ordering Information Example

o3500-1512/1516-1FC-1FC

Accessories

PF Universal IP67 Connector Protection Fitting

Notes

1 Actual gage factor provided with gage.

2 See http://www.micronoptics.com/products/sensing-solutions/support/ for installation details.

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