Temperature Compensation Sensor | os4100

Description

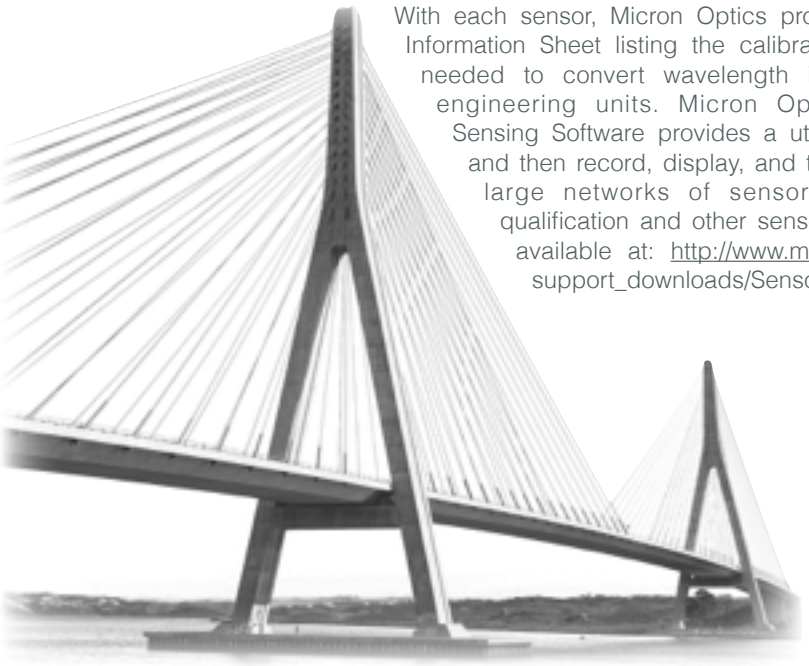
The os4100 is a spot-welded, epoxied or screw mounted temperature compensation sensor specifically designed for the os3100 strain gage and is based on fiber Bragg grating (FBG) technology.

The os4100 Temperature Compensation Sensor has a similar design and installation procedure to the os3100 Optical Strain Gage. When mounted in close proximity, it is a convenient choice for temperature compensation of the os3100. The os4100 Temperature Compensation Sensor is designed to make fiber handling easy and sensor installation fast and repeatable. It is based on fiber Bragg grating (FBG) technology.

The os4100's stainless steel carrier holds the FBG in tension and protects the fiber during installation. Since there are no epoxies holding the fiber to the carrier, long term stability is ensured by design. The universal attachment feature on the os4100 carrier design allows fastening by weld, epoxy or screw.

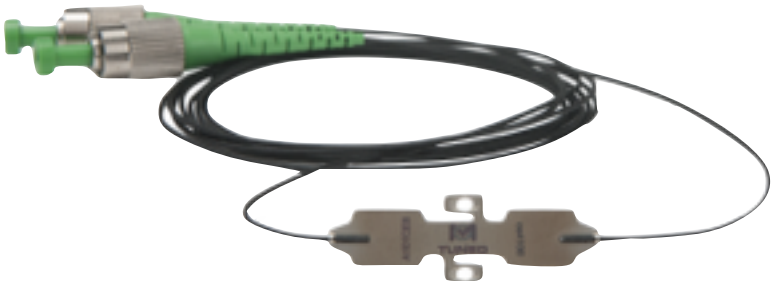
This sensor can be used alone or in series as a part of an FBG sensor array. Installation and cabling for such arrays is much less expensive and cumbersome than comparable electronic gage networks. The os4100 Temperature Compensation Gage is qualified for use in harsh environments and delivers the many advantages inherent to all FBG based sensors.

With each sensor, Micron Optics provides a Sensor Information Sheet listing the calibration coefficients needed to convert wavelength information into engineering units. Micron Optics' ENLIGHT Sensing Software provides a utility to calculate and then record, display, and transmit data for large networks of sensors. Installation, qualification and other sensor information is available at: http://www.micronoptics.com/support_downloads/Sensors/.



Key Features

Qualified to same rigorous standards used for comparable electronic gages.
Rugged, permanent weldable package.
Fast, simple, repeatable installation.
Designed specifically for temperature compensation of os3100 strain gages relief.
Fast, simple, repeatable installation.
Spot-weld, epoxy, or screw mounted.
Double ended design supports multiplexing of many sensors on one fiber.
Micron Optics' patented micro opto-mechanical technology.
Included in ENLIGHT's sensor templates - allows for quick and easy optical to mechanical conversions.



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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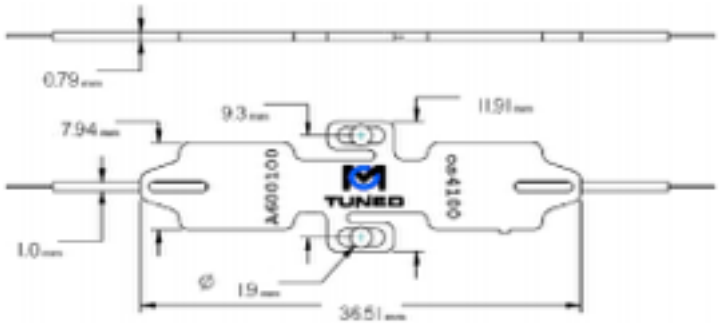
Thermal Properties[1]	os4100
Operating Temperature Range	-40 to 120°C (150°C short-term)
Temperature Sensitivity	~ 28.9 pm/°C (+/-0.5pm/°C)
Temperature Range	-40 to 150° C (Connectors: -40 to 80°C)
Short-Term Repeatability[2]	± 0.75°C (±21 pm)
Drift[3]	± 1.0°C (±29 pm)
Physical Properties	
Dimensions; Weight	See diagram below, 3.0 g
Frame Material	302 Stainless Steel
Cable Length	1 m (± 10 cm), each end
Fiber Type	SMF28-Compatible
Cable Type	1 mm Fiberglass Braid
Cable Bend Radius	≥ 17 mm
Fastening Methods[4]	Screws [1-72 (M1.6)], Spot Weld or Epoxy
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

os4100-wwww-1xx-1yy

wwww Wavelengths for (+/- 1nm)
Standard - 1516 to 1588 nm in 4 nm intervals
Extended - 1460 to 1620 nm

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

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

Ordering Information Example

os4100-1520-1FC-1FC

Notes

1 Beta product. For more details see http://www.micronoptics.com/products/product_designations/.

2 Three thermal cycles from min to max temperature.

3 Typical: 50°C and 85% Relative Humidity. Extreme conditions: ±1.3°C (±36pm); 1,000 hour soak 75°C and 75% Relative Humidity

4 See http://www.micronoptics.com/support_downloads/Sensors/ for installation details.

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