

os4100

Temperature Compensation Sensor

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.

The os3610 Surface Mount Strain Sensor measures average strain over the length of the gage while providing integrated temperature compensation.



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.

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.

Applications

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

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

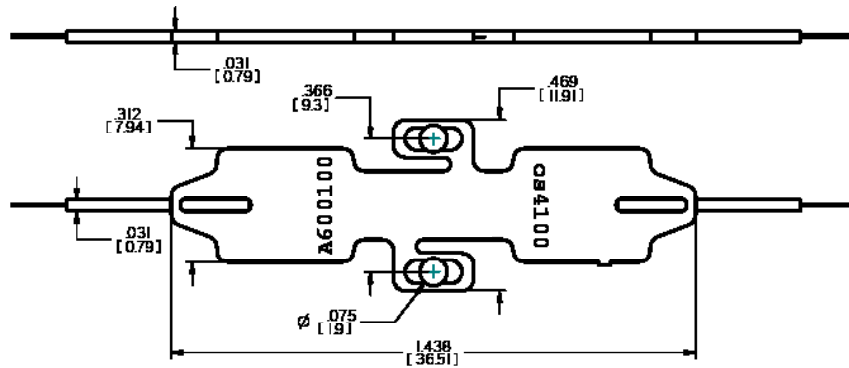
Transportation (railways, trains, roadways, specialty vehicles, cranes)

Marine vessels (hull, deck, cargo containers)

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

Properties

Thermal Properties	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	± 0.75°C (±21 pm)
Drift ²	± 1.0°C (±29 pm)
Physical Properties	
Dimensions (mm)	See Diagram Below
Weight	3.0g
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	Screws [1-72 (M1.6)], Spot Weld or Epoxy
Optical Properties	
Peak Reflectivity (R _{max})	> 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 - 1460 to 1620 nm in 4 nm intervals

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

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

Ordering Information Example

os4100-1520-1FC-1FC

Notes

- 1 Three thermal cycles from min to max temperature.
2. Typical: 50°C and 85% Relative Humidity. Extreme conditions: 1.3°C (±36pm); 1,000 hour soak 75°C and 75%Relative Humidity



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Specifications subject to change without notice.