os3610 | Surface Mount Strain Sensor

Part #	os3610-ggg-tttt/ssss-1xx-1yy-U
Serial #	
Nominal Wavelength, λ_{0Temp} (nm) @22°C	0000.0
Nominal Wavelength, $\lambda_{0Strain}$ (nm) @22°C	0000.0
Certified by:	

Variable	Description	Value	Units
$F_{G, Strain}$	Gage Factor @22°C		-
C_1	Gage Constant 1 @22°C	0.813	-
C_2	Gage Constant 2	11	µm/m-°C
CTE_S	CTE of Test Specimen	User Defined	µm/m-°C
$\Delta\lambda_{Strain}$	Wavelength Shift (Strain)	Interrogated	nm
$\Delta\lambda_{Temp}$	Wavelength Shift (Temp)	Interrogated	nm
S_T	Temperature Sensitivity	22.0	pm/°C

Strain (mechanically induced µm/m):

$$\varepsilon = [(\Delta\lambda/\lambda_0)(1x10^6)/F_G]_{Strain} - \varepsilon_{TO}$$

Thermal Output (thermally induced apparent strain, µm/m):

$$\varepsilon_{TO} = [(\Delta\lambda/\lambda_0)(1x10^6)/C_1]_{Temp} + (CTE_S - C_2)(1x10^3)(\Delta\lambda_{Temp}/S_T)$$

A template for this conversion is available in ENLIGHT. Make sure that the numbers in the table above match those entered in the ENLIGHT template.

Thermal Output and Temperature Compensation

Fiber Bragg grating (FBG) based strain gages respond to both strain and temperature. Temperature induced strain results from a combination of two factors.

1) Thermal expansion of the substrate on which the gage is mounted.
2) Thermally induced index of refraction changes in the FBG.

Both factors affect the FBG's center wavelength.

Several methods are available to decouple strain and temperature components in measurements using this gage. Popular methods involve using FBGs to measure change in temperature or employing dummy FBG strain gages (as with conventional electronic strain gages).

The os3610 gage is self compensating. That is, a second FBG is built in for temperature compensation. Additional temperature gages representing temperature of the test specimen may be required to improve compensation in many applications.

For additional information about temperature compensation techniques and converting wavelength values to strain and temperature, see*:*

http://www.micronoptics.com/support_downloads/Sensors/

Micron Optics Quality and Performance

Products displaying the "Micron Optics Tuned" logo include Micron Optics tunable technologies thus ensuring high quality and performance. Certified sensors have been tested and qualified for use with Micron Optics Sensing Instruments.

Qualification Statement

This sensor has been manufactured using procedures and materials documented under Micron Optics, Inc's ISO 9001:2008 quality management system.

Patent Certification


MICRON OPTICS, INC.
INTERNATIONAL CERTIFICATION FOR
FIBER OPTIC SENSING

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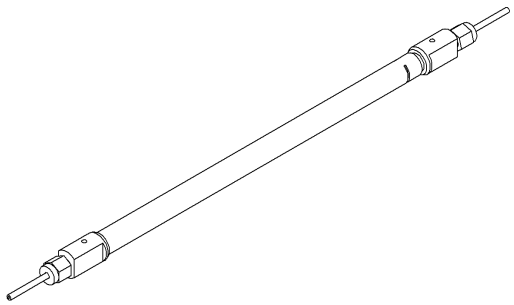
Installation Information

The os3610 strain gage may be mounted to a variety of surfaces, such as structural steel or concrete, by selecting the appropriate attachment method. Universal ends fit into a variety of end bracket types that can be welded to the surface of steel or grouted onto a concrete or rock surface. Brackets are also available for bolt attachment to a variety of surfaces. The os3610 strain gage measures the relative movement of the two mounting brackets along the axis of the gage. It is important that the mounting brackets be securely attached to the specimen if accurate results are to be obtained.

Installation instructions are available at:

http://www.micronoptics.com/support_downloads/Sensors/



This Sensor Information Sheet is verification of conformance.