

# Fiber Bragg Grating Sensor | os1100

## Applications

Long-term Monitoring, Risk and Damage Assessment of:

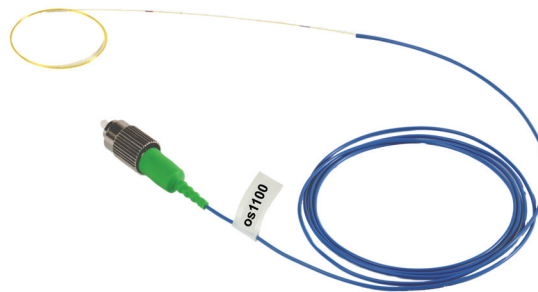
- Civil Structures/Civionics (bridges, dams, tunnels, buildings)
- Energy (wind turbines, pipelines, nuclear reactors)
- Aerospace Vehicles (composite structures, wind tunnels, dynamic tests)
- Oil & Gas (platform structural health monitoring)
- Marine Vessels (hull, mast, rudder, submarine pressure tests)
- Transportation (railways, roadways)

## Features

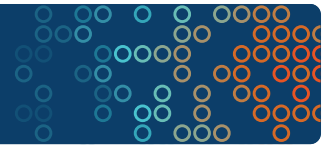
- Multi-Sensor Arrays: Easily facilitates many sensors on a single optical connection
- Remote Sensing: Long distances between sensors or between sensors and instrument
- Easy to Install: In most cases, can be mounted directly to concrete or composite structures
- Simple, Low Cost Installation: Due to multi-sensor array feature
- Non-Electrical Sensor Design: Eliminates ESD and spark hazard, and immune to electromagnetic interference
- Ideal for Harsh Environments. Small in size, made of optical fiber, uses lightwaves not visible to the naked eye, no electromagnetic field generation by the sensor

## Description

The os1100 series FBG sensor is a single, polyimide coated FBG and is the key component in optical sensing. It can be mounted directly on a structure to provide an optical alternative to conventional strain or temperature sensors (see Features). Installation is easy as the os1100 is mounted using conventional techniques and is designed for use as a single sensor or in series as part of a FBG array of sensors.



All Micron Optics sensors demonstrate excellent compatibility with Micron Optics sensing instruments and the combination is shown to be as accurate and linear as conventional sensing systems.



## Specifications

os1100

### Physical Properties

Number of Sensors	1
Strain Limit	5,000 $\mu\epsilon$
Strain Sensitivity	$\sim 1.2 \text{ pm}/\mu\epsilon$
Operating Temperature Range	- 40 to 120°C
Thermal Response	$\sim 9.9 \text{ pm}/^\circ\text{C}$
Fiber Lead Length	1 m $\pm$ 100 mm, each end
Fiber Type	SMF28-Compatible
Fiber Coating	Polyimide
Fiber Re-Coating Diameter	145 - 165 $\mu\text{m}$
Buffer Tube	0.9mm loose tube included with optional FC/APC connector
Fiber Bend Radius	12 mm

### Optical Properties

Center Wavelength	1462nm to 1618nm available ( $\pm 1 \text{ nm}$ )
Peak Reflectivity (Rmax)	> 70%
FWHM (-3 dB point)	0.25 nm ( $\pm .05 \text{ nm}$ ; apodized grating)
Isolation	> 12 dB (@ $\pm 0.4 \text{ nm}$ around center wavelength)
FBG Length	< 14 mm

## Ordering Information

os1100-**www**-1xx-1yy

(Example: os1100- 1560 -1FC- 1UT)

**www**: Wavelength in nm.  
Standard wavelengths:  
1512nm to 1588 in 4nm  
intervals.

**1xx**: Cable 1, Length & Connector  
1 Standard Cable Length, 1m  
**UT** Unterminated  
**FC** FC/APC Connector

**1yy**: Cable 2, Length & Connector  
1 Standard Cable Length, 1m  
**UT** Unterminated  
**FC** FC/APC Connector