Fiber Bragg Grating | os1100

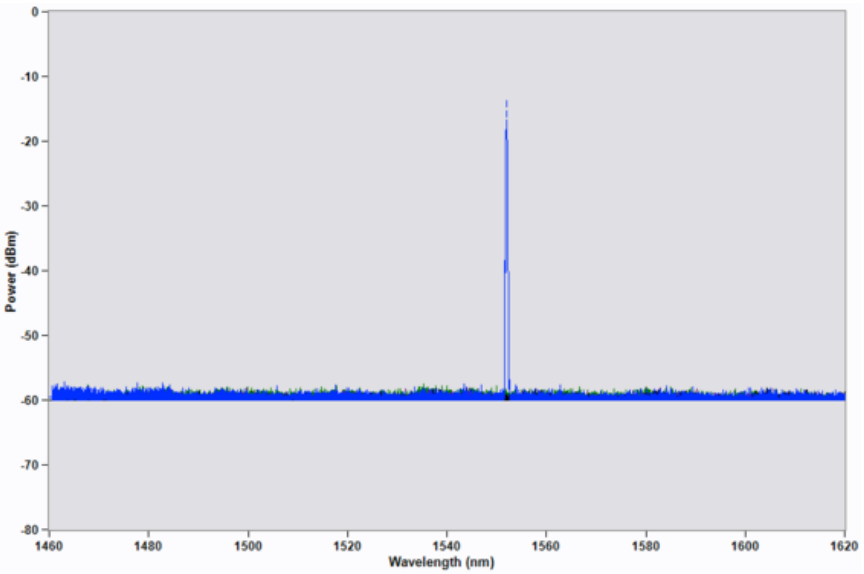
Description

The os1100 Fiber Bragg Grating (FBG) is designed for use in fiber optic sensing applications. It is a single FBG centered in a two meter length of polyimide coated optical fiber. It may be used individually or can be spliced into an array of many FBGs.

Fiber Bragg gratings are the fundamental elements upon which most fiber optic sensors are based. An FBG is an invisible reflector inside the core of the fiber that is set to a specific wavelength of light. When the fiber where the FBG is located is exposed to strain or temperature, the FBG's "center wavelength" shifts to a higher or lower wavelength. The direction and magnitude of the shift is proportional to the change in strain or temperature. os1100's are available in dozens of distinct center wavelengths. Using different wavelengths allows multiplexing of dozens of FBGs on a single fiber.

A single polyimide coated FBG

os1100's are used in applications ranging from basic experiments to construction of complex transducers containing one or more FBGs. The polyimide coating provides excellent transfer of strain through the fiber coating to the FBG in the fiber core. Polyimide also performs well over a wide temperature range. One or two FC/APC connectors, and loose buffer tube protection, are available as packaging options.

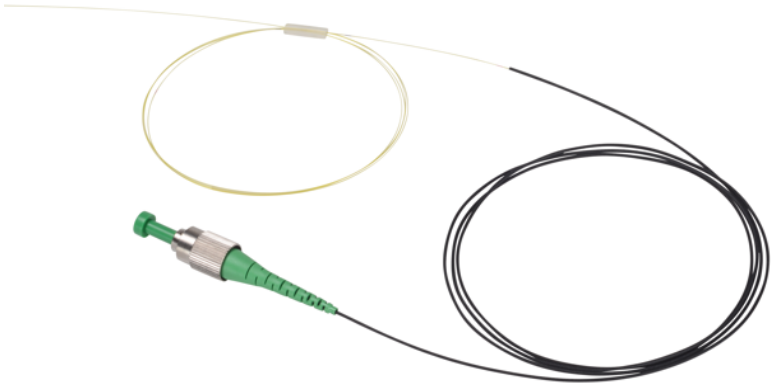


Key Features

Optional FC/APC connector and loose buffer tube for ease of handling

Clearly marked FBG location

Non metallic construction



Benefits

Longevity – resistant to lightning, corrosion, EMI.

Passive – no spark hazard, no power at sensor

Multiplexing – many sensors, few cables, long range

Versatility – small size, long distances and sense many properties with one system

Installation – weld, glue, embed, connect in series

Ruggedness – fatigue over 100 million cycles, wide temperature range

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Physical Properties	os1100
Number of FBGs	1
FBG Length	10 mm
Strain Limit	5,000 με
Strain Sensitivity	~ 1.2 pm/με
Operating Temperature Range	- 40 to 120 C
Thermal Response	~ 9.9pm/C
Fiber Lead Length	1 m (± 10 cm), each end
Fiber Type	SMF28-Compatible
Fiber Coating	Polyimide
Fiber Re-Coating Diameter	145 - 165 μm
Buffer Tube	1 mm loose tube included with optional FC/APC connector
Fiber Bend Radius	≥ 17 mm
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

os1100-wwww-1xx-1yy

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

xx Termination type

1xx	Fiber Lead 1, Length &
1	Connector
UT	Standard Lead Length, 1 m
FC	Unterminated
	FC/APC Connector

yy Termination type

1yy	Fiber Lead 2, Length &
1	Connector
UT	Standard Lead Length, 1 m
FC	Unterminated
	FC/APC Connector

Ordering Information Example

os1100-1560-1FC-1UT

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