

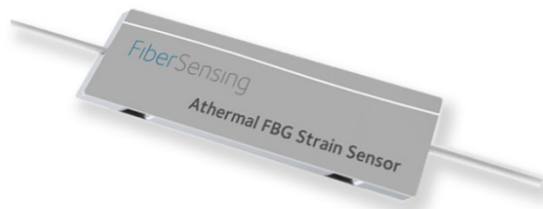
FiberSensing

bringing light to measurement

FS6200 – ATHERMAL STRAIN SENSORS
THERMALLY IMMUNE FBG STRAIN SENSORS

STRAIN

- : no temperature cross-sensitivity
- : self-referenced
- : long-term reliability
- : large scale integration
- : immunity to EMI/RFI
- : compatible with most FBG measurement units



The FS6200 Athermal Strain Sensor is a Fiber Bragg Grating based sensor with an innovative proprietary design that ensures athermal operation of the strain gage by cancelling the intrinsic fiber optic thermal sensitivity. The typical measurement of temperature for compensation of cross-sensitivity is therefore not necessary, which benefits large scale system design and overall performance. The passive athermal design can also be adjusted to further compensate for the thermal expansion of a given structure, thus enabling stress and load-induced strain-components to be measured. The FS6200 Athermal Strain Sensor is designed to be bonded onto different structures or components of different materials (composite, metallic, etc).

SENSOR

FiberSensing strain gages feature high accuracy and resolution, and immunity to electric sparks and EMI/RFI. They are compatible with most common FBG measurement units and suitable for remote sensing being possible to install them kilometers away from the measurement unit and connect a large number of sensors in a single optical fiber.

INTEGRATION

Each FiberSensing sensor is provided with a complete calibration sheet, allowing its configuration to be easily and accurately set into FiberSensing Measurement Units.

APPLICATIONS

FiberSensing strain sensors can be used in a large range of monitoring applications, such as:

- : Civil structures
- : Chemical and Petrochemical Industry
- : Oil and Gas Industry
- : Laboratories & Universities

ACCESSORIES

The implementation of complex sensing networks in large structures is made simpler with FiberSensing accessories. These include metallically protected jumpers especially designed to resist the harsh civil engineering environments, not only during the construction of the structures, but also during its lifetime (humidity, corrosion, etc.).

For installation of FiberSensing FS6200 Athermal Strain Sensors in severe environments, an optional metallic protection cover is available that can be used in combination with 3 mm armor protection cables.

ORDERING INFORMATION

FS6200 – Athermal Strain Sensor

Laboratory • Ø 0.9 mm cable • for cold rolled steel

p/n	WL
006 215 110 101	X
	A - 1528.9 nm
	B - 1535.1 nm
	C - 1541.5 nm
	D - 1547.9 nm
	E - 1554.3 nm
	F - 1560.8 nm
	G - 1567.2 nm
	H - 1573.8 nm
	I - 1580.2 nm
	J - 1586.6 nm
	K - 1516.1 nm
	L - 1522.5 nm
	W - xxxx.x nm (custom)

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SPECIFICATIONS

Sensor	
sensitivity	3.9 pm/ $\mu\epsilon$
measurement range ¹	4 000 $\mu\epsilon$
accuracy	$\pm 2 \mu\epsilon$
resolution ²	1 $\mu\epsilon$
Optical	
central wavelength	1510 to 1590 nm
spectral width (FWHM)	< 0.2 nm
reflectivity	> 75%
insertion loss	< 0.1 dB
side lobe suppression	> 10 dB
Inputs / Outputs	
cable type	\varnothing 0.9 mm
cable length	1 m each side
connectors	FC/APC

¹ measurement range may be customized upon request

² for 1 pm resolution in wavelength measurement

Environmental	
operation temperature	-20 to 80° C
relative humidity	< 90% at 40° C
cross sensitivity ³	< 2 $\mu\epsilon/^\circ\text{C}$
design material CTE	$11.7 \times 10^{-6} / ^\circ\text{C}$
Mechanical	
materials	aluminum, polycarbonate and vinyl
dimensions	52 x 15 x 1 mm
weight	1 g

³ exact value depends on the particular characteristics of the cold rolled steel where the sensor is applied

Specifications may change without notice

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