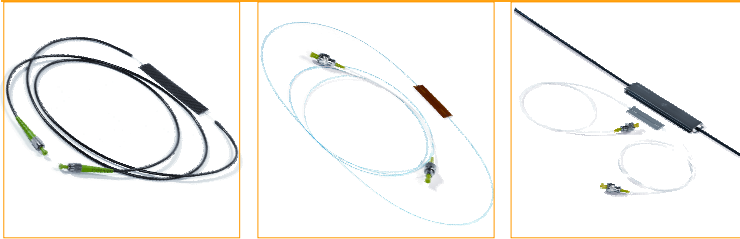


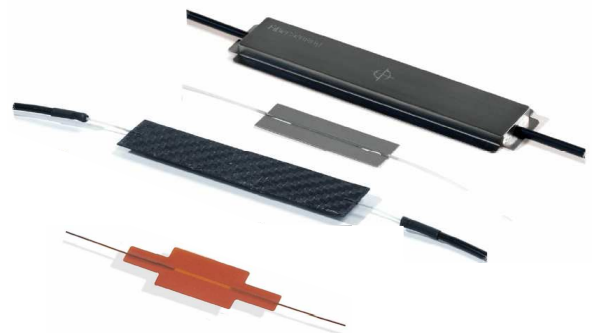
12.1020 MUST STRAIN SENSOR

Fiber Bragg Grating (FBG)



GENERAL DESCRIPTION

The FBG deformation strain are transducers that transform a static or dynamic distance variation into a change in reflected wavelength of a pre-stressed Fiber Bragg Grating that can be measured with SMARTTEC's FBG reading units.



TECHNICAL DESCRIPTION

The strain sensors are designed to be bonded or spot welded to structures and components (metallic, concrete, etc.). These sensors are fiber optic versions of the conventional resistance strain gages but completely passive, offering inherent insensitivity to environmental induced drift.

The **polyimide** strain sensor is the equivalent to the electrical strain gage and can be installed using the same supplies.

The **weldable** strain gage is designed to be spot welded to metallic surfaces, offering a significant increase of productivity in the installation process. This sensor has an optional metallic protection for installation in severe environments.

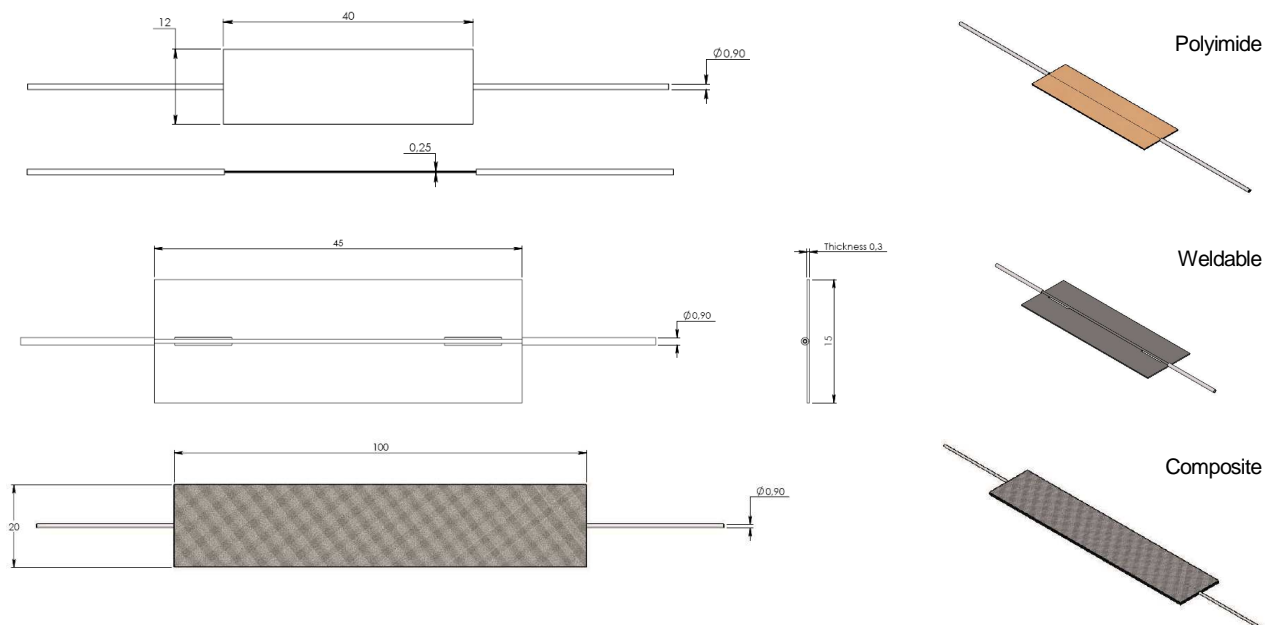
The **composite** strain gage is a light weight and rugged sensor for application in both steel and concrete structures, due to the ability to embed the optical fiber FBG in CFRP material.

These sensors 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.

FEATURES

- High sensitivity
- Self-referenced
- Polyimide, stainless steel and composite housing
- Long-term reliability
- Large scale integration
- Intrinsically safe design
- Immunity to EMI/RFI
- Compatible with most FBG measurement units

SENSOR DRAWINGS



TECHNICAL CHARACTERISTICS

Central Wavelengths	1510 to 1590 nm. Max. 12 sensors on same chain.
Measurement range ⁽¹⁾	4'000 $\mu\epsilon$
Accuracy	$\pm 2 \mu\epsilon$
Resolution	$\pm 1 \mu\epsilon$
Sensitivity	1.2 pm/ $\mu\epsilon$
Spectral width (FWHM)	< 0.2 nm
Reflectivity	> 75%
Insertion loss	< 0.1 dB
Relative humidity	< 90% at 80° C
Operating temperature	-20 to 80° C
Cross sensitivity	10 pm/°C
Packaging	Polyimide film Stainless steel Composite material
Dimensions ⁽²⁾	Polyimide 40 x 12 x 0.25 mm Weldable 45 x 15 x 0.3 mm Composite 100 x 20 x 0.9 mm
Cable types	Ø 0.9 mm Ø 3 mm Indoor Ø 3 mm Outdoor
Weight	Polyimide 5 g Weldable 5 g Composite 25 g

⁽¹⁾ Measurement range may be customized upon request.

⁽²⁾ Dimensions may be customized upon request.

ORDERING INFORMATION