FIBER OPTIC STRAIN SENSORS – FBG

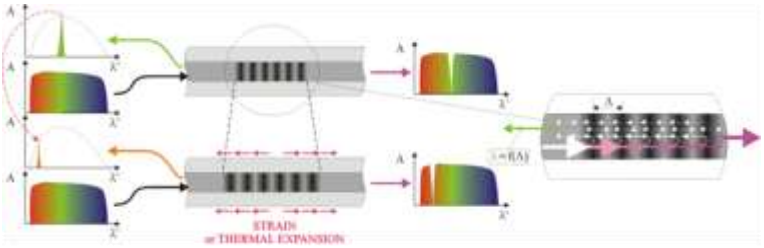
Fiber Bragg Grating (*FBG*) optical sensors offer an effective alternative compared to traditional vibrating wire instruments. FBG strain sensors provide advantages particularly in applications that are exposed to harsh environments and require high accuracy measurements and long-term deployments.

Strain sensors are suitable for measuring stresses in concrete and steel structures.

The main feature of fiber optic sensors is the FBG (Fiber Bragg Grating) a series of localized changes created in the refractive index of the glass fiber. The optical fiber is connected to a light source and when the light encounters the FBG sensor, a specific wavelength is reflected based on the properties (wavelength and thickness) of the gratings. As the FBG expands or contracts due to the environmental conditions (temperature, pressure, strain) the reflected wavelength will change accordingly.

APPLICATIONS

- Monitoring strain in steel arch tunnel supports or tunnel linings
- Stress measurements on steel and concrete structures
- Monitoring beams on retaining walls
- Monitoring piles and foundations



TECHNICAL SPECIFICATIONS

	Strain sensor "embedment type"	Strain sensor "weldable type"	Temperature sensor
			
Product code	***FOSG0CLS0000***	***FOSG0WLD0000***	***FOTMP0000000***
Wavelenght range		*1520 ÷1570 nm*	
Range		*± 1700 με*	*-20 °C to +80 °C*
Accuracy		*0.1%*	*1 °C*
Resolution			*0.15 °C*
Operating temperature range		*-10 °C to +80 °C*	
Temperature sensor		*Integrated inside*	
Drift temperature sensor		*≤ 2.1 με/K*	
Connector		*FC/APC on armored cable, 3 mm diameter*	

ACCESSORIES

FOUAD0SMF000

Optical sensors interrogator

Optical properties:

Channels: 8-16 (10-12 sensors per channel),
Wavelenght range: 1525÷1565,
Accuracy: ± 4 pm,
Stability: 2 pm,
Repeatability: 0.5 pm,
Max sample rate 100 samples/second.

Sensing processor module:

Processor: ARM@1GHz
Storage media: 4 GB compact flash
Ports: USB, Ethernet, RS232
Input voltage: 13.8 V 4A
Battery backed: 12 V 7.2 Ah

FOYEC0000000

Armored fiber cable, with kevlar yarn and stainless steel braiding. Available in single-mode or multi-mode, outer diameter: 5, 3 and 2 mm.

The optical sensors interrogator allows the simultaneous measurements of the channels because the system features a high output power and wide wavelength swept laser that supports more sensors per channel.

The system can be controlled and monitored remotely through dedicated web pages in our web site www.iecitalia.it.

Product specifications described herein are subject to change without notification.

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