T240 / Rebar Embedded Strain Sensor

Description

The T240 is a Single-Mode Fiber (SM) based Long-Gauge Fiber Bragg Grating (FBG) Strain Sensor for placing in-line with rebars prior to their embedding into concrete.

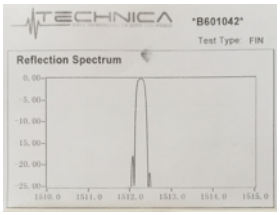
The T240 is designed for being placed truly in-line with the customers' rebars for the accurate measurement of rebar strain after embedding into concrete. Packaged to eliminate influences from the ambient environment. Excellent wavelength to temperature linearity. The accuracy and precision specifications take into account any hysteresis, non-linearities, and the repeatability of the sensor. The T240 sensor handling and installation is fast, easy and intuitive. Immune to lightning and electromagnetic interference (EMI).

T240 series Long-Gauge Strain Sensors are fabricated using licensed and proprietary state-of-the-art laser manufacturing technologies and product designs. The sensor packaging described herein represents the most popular configuration and can be customized.

Manufactured and sold by Technica under International Licenses from United Technologies Corporation, Inc and EJTECH Corporation.

Key Features

Strain and temperature linearity. One-body T240 design for both temperature and strain measurements uses precision made FBGs written into the fibers' core for producing a transducer configuration of high linearity, resolution, accuracy, and precision. SLSR & BW options.



Absolute temperature sensor included. The T240 strain sensor includes a second absolute FBG temperature sensor embedded in its construction and serving as both precise temperature compensator and as independent absolute temperature sensor.

Pre-Strain level is adjustable at the factory but it is already fixed during field installation. Factory pre-strained to the application requirements.

Inserted in-line with the customers' rebars. The T240 sensor design uniquely allows for screwing-in the ends of the sensor directly onto the customers' rebars via an inner M14 thread and, therefore, becomes a completely integrated smart rebar sensor yielding accurate strain measurements of the rebars before and after embedding into concrete.

Ready to be daisy chained. Well suited for projects that include the need to monitor strain and temperature at one or many locations. Provided as single connectorized sensors or in ready to install arrays of various lengths and flexible number of sensors.

Low cost and field proven. For demanding projects that require both low cost per sensing point and stable operation for long-term. Designed by Civil Engineers for Civil Engineering applications.

Parameter	Specifications
Wavelengths and Tolerance	1459 to 1621 nm, +/-0.5 nm; 980, 1060, 1310 nm, other
Reflection BW (FWHM)	0.3 nm; other options
Reflectivity % and SLSR	75%, 15 dB, other options
Strain Range	+/- 3,000 με, other options
Gauge Length	20 cm
Strain Accuracy	1 με
Strain Precision	0.1 με
Temperature Compensation	Integrated within the sensor
Temperature Accuracy	<1°C (for -40°C to +120°C range)
Ingress Protection Rating	IP67
Sensor Pigtail (Length, DIA)	1 m and 3mm, other options
Cable Bend Radius	25 mm
Optical Connector	FC/APC, or custom
Housing Material, Rebar Thread	Stainless Steel, M14
Length (without rebar ends), DIA	250 mm, 18.5 mm; other opt.
Weight (without rebar ends)	360 grams

Applications in Civil Engineering, Geotechnical, Buildings and Research

Technica undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.

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