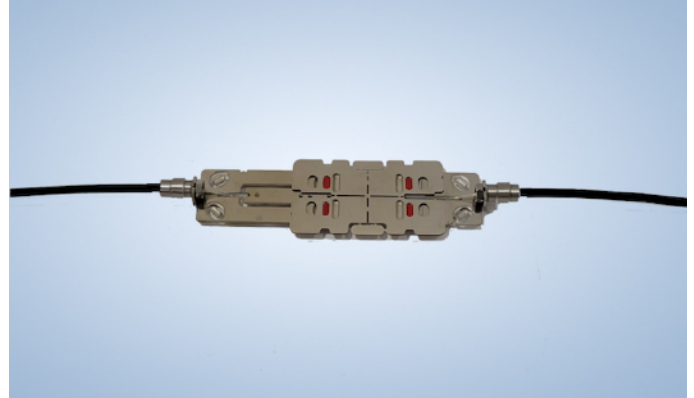


Description

The T217 is a Single-Mode Fiber (SM) based Fiber Bragg Grating (FBG) Surface Strain Sensor with Self-Temperature Compensation for use in environments from -20°C to +120°C with rugged 3mm OD optical cable pigtailed.

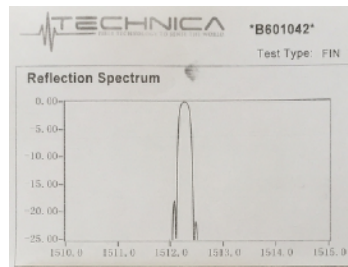
Ready for direct mounting steel construction exhibiting excellent wavelength to strain linearity. Temperature compensated. Calibration service available upon request. The full-scale (FS) accuracy and precision specifications take into account any hysteresis, non-linearities, and the repeatability of the sensor. The T217 sensor handling and installation is fast, easy and intuitive. Delivers the advantages inherent to FBG based sensors. Immune to lightning and electromagnetic interference (EMI). T217 series Surface Strain Sensors are fabricated using licensed and proprietary state-of-the-art laser manufacturing technologies.



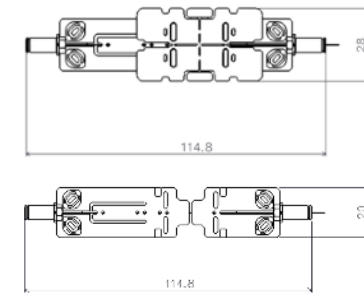
Manufactured and sold by Technica under International Licenses from Raytheon Technologies

Key Features

Strain and temperature linearity. The T217 strain sensor design uses two precision made FBGs written into the fibers' core for producing a transducer configuration of high linearity, resolution, accuracy, and precision. Multiple Reflectivity, SLSR, & BW options available.



Rugged packaging format. The T217 sensor is well suited for precisely measuring strains in outdoor applications and can be manufactured with ultra-low bend radius fiber for meeting the needs of even the most demanding fiber routing applications.



Pre-Strain level is set at the factory. The T217 pre-strain level can be factory set to accommodate any strain range within the strain limits of -2000 $\mu\epsilon$ to +7,000 $\mu\epsilon$.

Spot-welded. The T217 is designed to be surface mounted by spot-welding. Epoxy installation or securing with screws is also possible. Installation video available upon request.

Ready to be daisy chained and field proven. Well suited for projects that include the need to monitor strain at one or many locations. Provided as single connectorized sensors or in ready to install arrays of various lengths and with a flexible number of sensors. For projects requiring stable operation for the long-term.

Parameter	Specifications
Wavelengths and Tolerance	1460 to 1620 nm, +/-0.5 nm
Reflection BW (FWHM)	0.6 nm to 2.0 nm; other opt.
Reflectivity %	>70%, other options
SLSR	10 dB, 12 dB, 15 dB; other
Strain Range	- 2000 $\mu\epsilon$ to +7000 $\mu\epsilon$
Strain Sensitivity	1.2 $\mu\text{m}/\mu\epsilon$
Strain Precision	<0.05% FS (<0.02% FS typical)
Strain Accuracy	<0.25% FS (<0.1% FS typical)
Gage Length, Gage Factor	20mm, 0.8455
Temperature Compensation	Integrated within the sensor
Temperature Accuracy	<1°C (for -20°C to +60°C range)
Sensor Pigtail (Length, DIA)	1 m, 3mm OD rugged cable
Cable Bend Radius	24 mm std; 10mm option
Optical Connector	FC/APC std, LC/APC option
Housing Material	Stainless Steel SUS304
In-Shell Dimensions (LxWxH) Sensor Dimensions (LxWxH)	114.8x28x7.35 mm 114.4x20x7.35 mm
Weight	25 grams
Mounting Methods	Spot Welding, Screws, Glue

Applications in Civil Engineering, Energy, Industrial, Medical, and Research Laboratories

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.

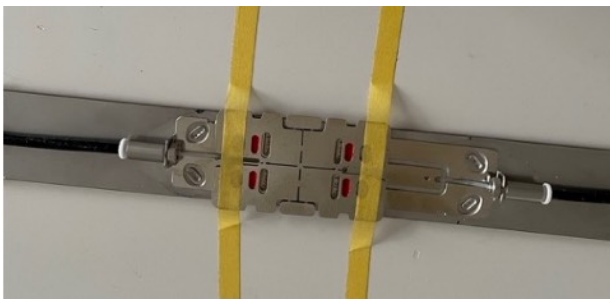
Spot-welding is the primary recommended method for achieving a long term stable bond between the monitored structure and the T217 sensor. It takes 10 minutes.

Tools: (1) TS900 or equivalent spot welder for 0.2mm steel plates, (2) FBG interrogator

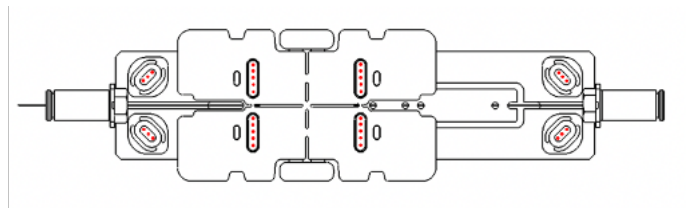
T217 Top View before Installation



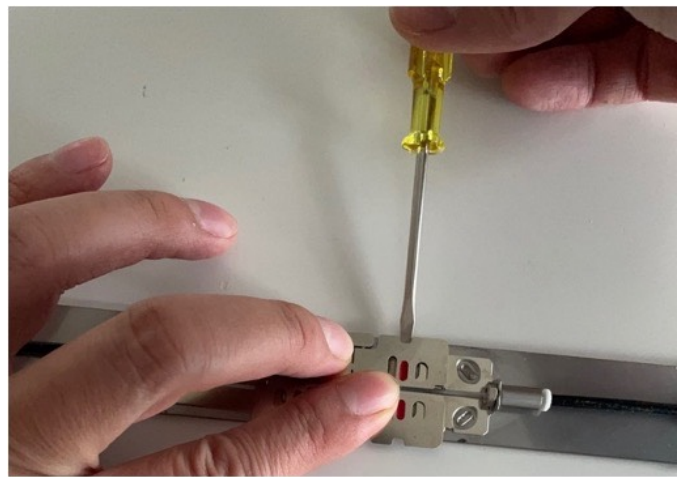
T217 is secured with tape to the clean surface”



Spot welding of the sensor to the surface: The T217 is surrounded by an SS304 shell which enables spot-welding the sensor to the monitored structure. There are 8 spot-welds that need to be done in order to properly secure the T217 strain sensor sensor to the target surface.



Pull-up / snap-off the shells from the T217 Sensor:



Spot Welder Note: We recommend using our TS900 Spot Welder, which has been optimized for Optical Sensing Applications. Other spot-welders may be compatible as well.

Installed T217 Strain Sensor:



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