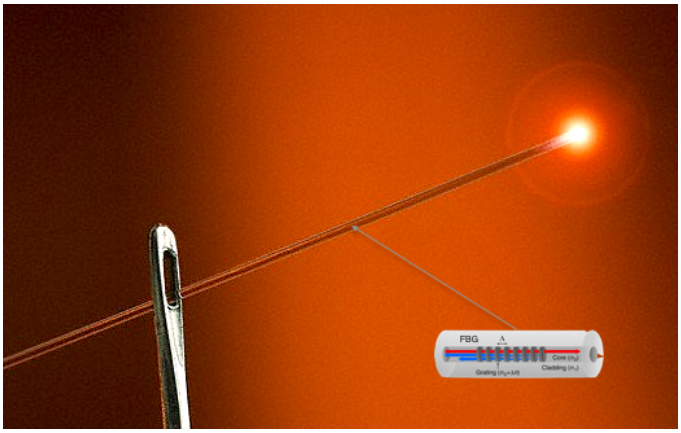
Description

The T80 is a radiation resistant Fiber Bragg Grating (FBG) available in a wide range of optical specifications. Naturally packaged directly in bare fiber, these sensors are ultra-small and are designed for use in tight spaces and with minimal intrusion.

The T80 optical sensor consists of a Fiber Bragg Grating (FBG) sensing element embedded in single mode polyimide coated fiber. The sensor yields excellent wavelength to temperature and wavelength to strain linearity. Its sub-millisecond response time also makes it useful for industrial process control in nuclear energy plants, medical applications, and other radiation environments.

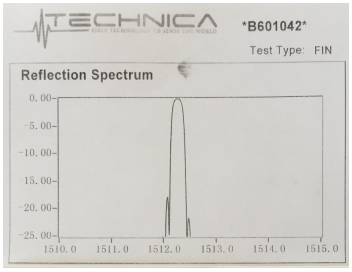
The T80 FBG is designed to make handling and installation fast, easy and intuitive. It delivers the many advantages inherent to all FBG based sensors. Equally sensitive to most traditional strain and temperature sensors but immune to EMI.

The FBG specifications listed herein represent the most popular configuration. Many optical and physical variations are available. Optional packaging into calibrated strain and temperature sensors.



FBGs manufactured and sold by Technica under International License from United Technologies Corporation, Inc.

Key Features



Temperature and Strain Linearity. The precision made FBG structure and polyimide coated fiber employed in producing the T80 yield a simple transducer configuration of high resolution, linearity, and measurement repeatability.

Easy to daisy-chain. Well suited for projects that include the need to monitor many points as the T80 can be provided as singe FBGs or in FBG Arrays of various lengths and with a flexible number of FBGs, as defined by the customer's application.

Easy installation. The original design makes handling and installation a breeze. Fastening methods include simple fiber bonding, laying, or embedding.

Low cost and long lifetime. The T80 was designed for projects in radiation environments that require both the availability of rugged low-cost FBGs and stable operation for highly accurate measurements over the long-term.

Proven field performance. The T80 sensor has been in production for several years and continues to receive excellent customer feedback. Currently installed in applications worldwide with practically no returns since its initial release.

Parameter	Specifications
Wavelengths / Tolerance	1460 to 1620 nm, +/-0.5; 980, 1060, 1310nm, other
Reflection BW (FWHM)	0.2nm to 0.3nm; other opt.
Reflectivity %	>70%; other options
FBG Length	1-24 mm
SLSR	15 dB
Response Time	0.1 milli-seconds
Temperature Range / Sensitivity	-40 to 300°C; ~10 pm/°C
Strain Range / Sensitivity	10,000 microstrain; 1.2pm / microstrain
Fiber Type	Radiation Resistant with Polyimide Coating
Fiber Pigtail Diameter	0.25 mm, other options
Cable Bend Radius	>17mm
Optical Connector	FC/APC, or custom

Applications in Nuclear Energy, Medical Radiation, and other Radiation Environments.

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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