

## Description

The T150 is a ruggedized high temperature non-metallic cable sensor designed for monitoring distributed temperatures and strains in environments to 260 Degrees Celsius with sub-millisecond response time.

At its core, the T150 optical cable consists of an array of Fiber Bragg Grating (FBG) sensors. The outer layer of the cable is a tight buffer, chemically inert, abrasion resistant PEEK polymer coat which protects the FBG sensors and ruggedizes the cable.

The T150 Temperature and/or Strain Sensing Cable offers measurements at individual FBG points spaced at customer defined lengths. The cable is designed to make handling and installation fast, easy and intuitive.

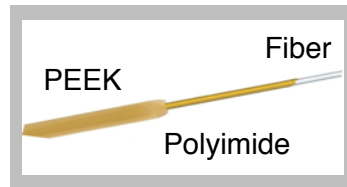
The cable specifications listed herein represent the most popular configuration. The manufacturing process for the T150 allows for significant variations in cable construction including level of PEEK coating ruggedization (cable outer diameter), sensors at other wavelengths, termination by other types of optical connectors, as well as cable availability in custom lengths and with customer defined spacing between sensing points.



T150 High Temperature Zeus PEEK FBG cable sensor for operation in environments up to 260°C

## Key Features

**High temperature resistant non-metallic sensor.** Ideally suited for applications where there is concern that the high temperature or chemical composition of the surrounding environment will cause damage to the sensors.



**Rugged and reliable.** In side-by-side comparison with other protection materials, the chemically inert PEEK material offers superior protection. Polyether Ether Ketone (PEEK) is an advanced material used for motor windings with one of the highest strength to weight ratios of any engineered polymer. Often a good alternative for aluminum, steel, and glass. A detailed list of technical specifications and environmental ratings for the PEEK overcoating material is available upon request.

**Lower cost and faster response time.** When compared with Raman and Brillouin systems, the original T150 design cables lead to a lower system cost for most applications.

**Easy handling and deployment.** The original design of this cable eliminates the fragility typically associated with single layer coated fibers and enables significant field installation productivity improvements.

**Long lifetime.** The T150 cable construction focuses on demanding projects that require stable operation over the long term. The cable is qualified to the same rigorous standards used for comparable shielded electronic systems.

Parameter	Specifications
Operating Temperature	-40 to 260°C
Cable Outer Diameter	405, 508, 900 microns, other options
PEEK Resistivity	$10^{16}$ to $10^{12}$ Ohm-in (depending on T).
Temperature Sensitivity	~10 pm/°C (+/-1.7pm/°C)
Strain Sensitivity	< 1 microstrain
Response time	< 1 ms
Maximum Sensors / Cable	100
Distance Between Sensors	1 mm to 100 m, uniform or custom spacing
Cable Weight	< 20 g / m
Cable Bend Radius	> 25 mm std, lower bending radius options
Cable Tensile Strength	>100 kpsi
Cable Type	PEEK Ruggedized
Optical Connectors	FC/APC, other options

## Applications in Energy, Aerospace, Fire Monitoring, and Industrial Applications

Technica undertakes rigorous manufacturing process development before releasing licensed products. The company also adopts improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.

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