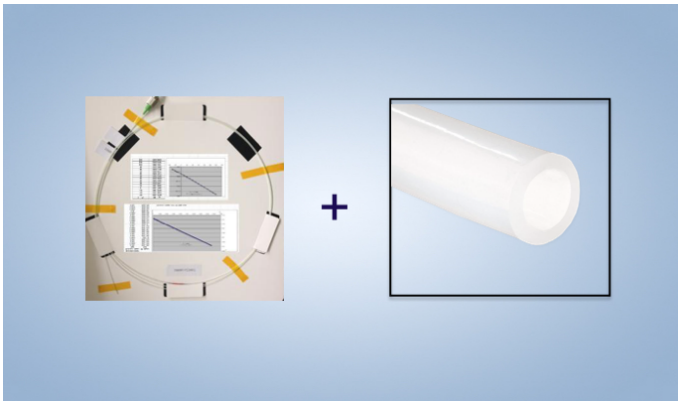
T135 / Teflon & GFRP FBG Temperature Sensing Cable

Description

The T135 is a rugged high sensitivity Fiber Bragg Gratings based sensing cable designed for monitoring temperature in surface mounted or embedded applications.

At its core, the T135 optical cable consists of an array of Fiber Bragg Grating (FBG) sensors. The second layer of the tight buffer cable is a Glass Fiber Reinforced Polymer (GFRP) coating which protects the FBG sensors and ruggedizes the overall construction of the cable. The final outmost Teflon layer is a transparent, virtually frictionless, loose tube isolating the sensors from strain.

The T135 Optical Teflon & GFRP Temperature Sensing Cable is primarily used as a temperature compensation cable running in parallel with a T130 GFRP FBG Strain & Temperature Sensing Cable and offers temperature compensation measurements at individual FBG points spaced at customer defined lengths. It delivers the many advantages inherent to all FBG based sensors while elevating the degree of ruggedness to be consistent with, or exceeding, industry expectations.



T135 Teflon & GFRP FBG Temperature Sensing Cables use Zeus technology. Produced by Technica under International License from UTC.

Key Features

Ideal Temperature Compensator for T130 Strain Sensing Cables. The internal structure and materials of the T135 are exactly the same as for the T130. The added T135s outer Teflon layer protects the sensing cable from strain while allowing it to sense temperature the same way a T130 Sensing Cable does. Ideally suited for applications where there is a need for the temperature effects on T130 Strain Sensing Cables to be “filtered-out” for accurate strain measurements in environments where there are significant temperature variations.

Embeddable cable sensor. These rugged Teflon & GFRP cables are used in applications where cable integrity must be maintained despite installation challenges such as the need to embed them in composite structures, roads, aircraft runways, and concrete.

Surface mount cable sensor. These very same T135 Teflon & GFRP sensing cables are also well suited for surface mount applications where temperature compensation is a must such as in various civil and geotechnical applications. The location of each FBG sensor within the T135 sensing cable is defined by the customer and can be matched to be paired with corresponding T130 Strain Sensing Cable. Optional mounting brackets available.

Field proven reliability, long lifetime, easy handling, low cost. The original design of this cable eliminates the fragility typically associated with single coated fibers and enables significant field installation productivity improvements. The T135 cable construction focuses on demanding projects that require both low cost per sensing point and stable operation over the long term.

Parameter	Specifications
Operating Temperature	-20 to 120°C
Primary Fiber Coating	Acrylate of 255um OD
Secondary Fiber Coating	GFRP of 1 +/- 0.05mm OD, 2mm & 3mm options
External Teflon Cable Outer Diameter	2 mm, options to 9.4mm
Temperature Calibration Constant for -20C to 120C	~17 pm/°C
FBG Wavelengths / Tolerance	980, 1310, 1460 to 1620 nm, +/-0.5nm, other options
FBG Reflectivity %	>75% std, other options
FBG Reflection BW (FWHM)	0.15nm, 0.3nm std, other options
FBG Side Lobes Suppression Ratio	>15 dB, other options
GFRP Cable Tensile Strength	>1100 MPa for 1mm OD
GFRP Cable Tensile Modulus	>50 Gpa for 1mm OD
GFRP Sensing Cable Pigtails and Optical Connectors	3mm Armored Cable with FC/APCs, other options

Applications in Civil Engineering, Geotechnical, Mining, Security, Energy 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.

Technica Optical Components / 3657 Peachtree Rd, Suite 10A, Atlanta, 30319, USA, info@technicasa.com, www.technicasa.com