# T130 / High Sensitivity Strain & Temperature Cable Sensor

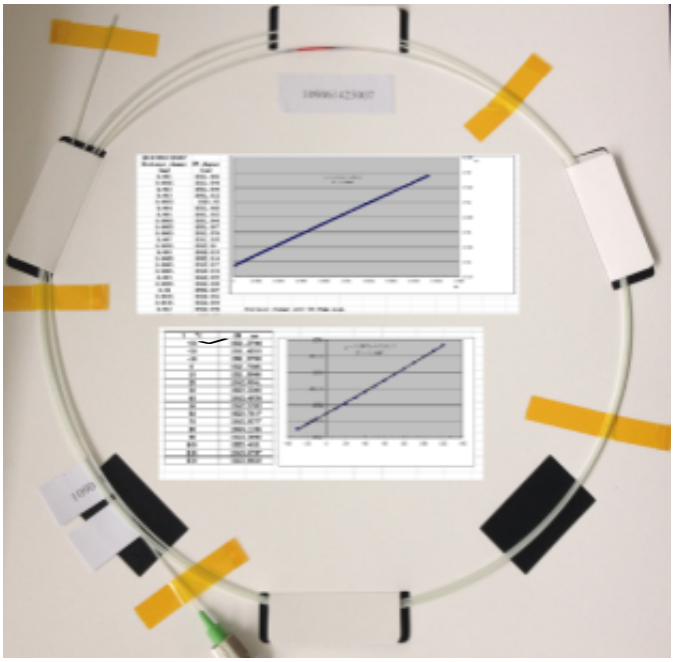
## Description

**The T130 is a small dimension high sensitivity cable sensor designed for monitoring strain and temperature in surface mounted or embedded applications.**

At its core, the T130 optical cable consists of an array of Fiber Bragg Grating (FBG) sensors. The outer layer of the cable is the Glass Fiber Reinforced Polymer (GFRP) coat which protects the FBG sensors and ruggedizes the overall construction of the cable.

The T130 Optical GFRP Strain and Temperature Cable is designed to make handling and installation fast, easy and intuitive. It delivers the many advantages inherent to all FBG based sensors while elevating the degree of ruggedness to be consistent with, if not exceeding, industry expectations.

The cable specifications listed herein represent the most popular configuration. The manufacturing process for the T130 allows for significant variations in cable construction including 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.



## Key Features

**High sensitivity cable.** Ideally suited for applications where there is concern that using cables with multiple construction layers may decrease the sensors' required sensitivity and response time and where using an unprotected fiber merely coated with acrylate, polyimide, ormocer, or other "first layer" materials is not enough physical protection for survivability.

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

**Surface mount cable sensor.** These very same GFRP cables are also well suited for surface mount applications where high sensitivity is a must including security intrusion detection systems, tunnels, power cables, and various geotechnical applications.

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

**Low cost and long lifetime.** The T130 cable construction focuses on demanding projects that require both low cost per sensing point and stable operation over the long term.

| Parameter | Specifications |
|---|---|
| Wavelength / Tolerance | 1460 to 1620 nm, +/-0.5 |
| Strain Sensing Sensitivity | ~1.2 pm/με |
| Reflectivity % | >70% |
| Reflection FWHM | 0.2 to 0.3 nm |
| FBG Length | 5 to 10 mm |
| Each FBG Sidelobe Suppression Ratio | Minimum 15 dB |
| GFRP Cable Diameter | 0.5 - 3 mm, 0.2 mm steps |
| GFRP Diameter Tolerance | +/- 0.05 mm |
| Cable Tensile Strength | >1100 MPa |
| Cable Tensile Modulus | >50 Gpa |
| Temperature Calibration Constant for -20C to 120C | ~17 pm/°C |
| Optical Connector | FC/APC, FC/UPC |

## Applications in Civil Engineering, Security, Fire Monitoring, Geotechnical, Mining, Energy

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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