# T120 / High Sensitivity Strain & Temperature Ribbon Sensor

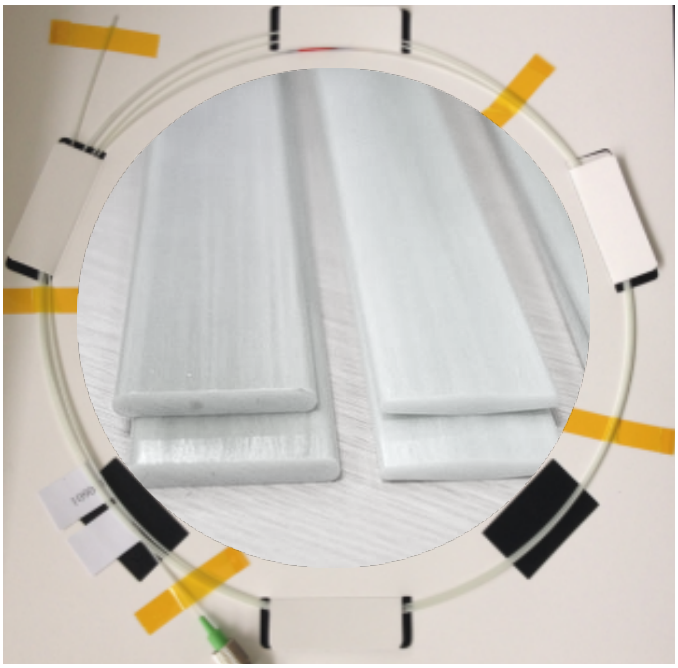
## Description

**The T120 is a small dimension high sensitivity ribbon sensor designed for monitoring strain and temperature in surface mounted or embedded applications.**

At its core, the T120 optical ribbon consists of an array of Fiber Bragg Grating (FBG) sensors. The outer layer of the ribbon is the Glass Fiber Reinforced Polymer (GFRP) coat which protects the FBG sensors and ruggedizes the construction of the ribbon.

The T120 Optical GFRP Strain and Temperature Ribbon 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 ribbon specifications listed herein represent the most popular configuration. The manufacturing process for the T120 allows for significant variations in ribbon 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 ribbon.** 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.

**Increased bonding strength.** The ribbon's geometry increases the sensor's surface area of contact.

**Embeddable ribbon sensor.** GFRP ribbons are typically embedded in composite structures and concrete.

**Surface mount ribbon sensor.** GFRP ribbons are also well suited for surface mount applications where high sensitivity, high bonding strength, and sensor bending, are a must including pipelines, boilers, storage tanks, and vessels.

**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 T120 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 Ribbon Width | 10 mm, +/-1 mm |
| GFRP Ribbon Height | 0.5 to 1 mm, 0.1mm steps |
| 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 Energy, Civil Engineering, Geotechnical, Transportation, Industrial

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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