



Smart Patch

Features

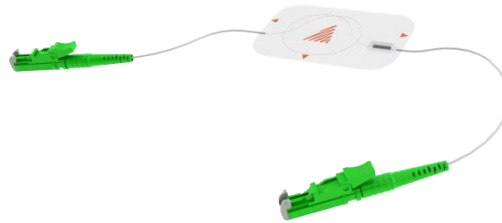
- Ultra High speed performance
- Rugged, permanent or temporarily weldable package
- Cable integrated with sensor package for fibre protection and strain relief
- Easy to install, relocate or replace
- Easy to daisy chain to other sensors

Applications

- Continuous lifetime health monitoring of bridges, dams, buildings, tunnels, ships, aircraft, trains, and other complex structures
- Measurement of 3-dimensional strain on a structure's surface
- Load, torsion and vibration monitoring

Specifications

- Strain range $\pm 3000 \mu\text{strain}$
- Connectors E2000/APC or DMI/APC
- Operating temperature $-40 \dots +80 \text{ }^\circ\text{C}$
- Max tensile load tubing 5 N
- Min bend radius tubing 10 mm

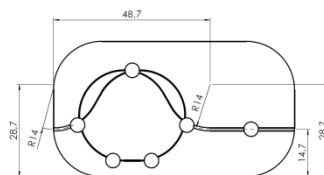


The Smart Patch consists of four sensors (three strain sensors and one temperature sensor) integrated in one fibre. The strain sensors are configured at a 60-degree angle to each other.

This rosette configuration gives the patch a wide range of applicability. The fibre with the sensors is embedded in a thin layer of glass reinforced epoxy, protecting the delicate fibre and giving it better handling qualities.

Outside the patch, the fibre is protected by tubing. At the end of each fibre, a reliable connector is attached for easy connection to the interrogator or other sensors. Last but not least, the patch is designed as a sticker, making it easy to install, relocate or replace on a wide variety of surfaces.

Dimensions



(dimensions in mm)

Models

- FBG-RT-FS-x** - 4 FBG sensors, full scale, 1 temperature compensator
- FBG-RT-HS-x** - 4 FBG sensors, half scale, 1 temperature compensator
- FBG-R-FS-x** - 3 FBG sensors, full scale
- FBG-R-FS-x** - 3 FBG sensors, half scale

(x is the number of connectors)



Smart Tape

Features

- Ultra High speed performance
- Rugged, permanent or temporarily weldable package
- Cable integrated with sensor package for fibre protection and strain relief
- Easy to install, relocate or replace
- Double ended design supports multiplexing of many sensors on one fibre

Applications

- Continuous lifetime health monitoring of bridges, dams, buildings, tunnels, ships, aircraft, trains, and other complex structures
- Measurement of strain on a structure's surface

Specifications

- Strain range $\pm 3000 \mu\text{strain}$
- Connectors E2000/APC or DMI/APC
- Operating temperature $-40 \dots +80 \text{ }^\circ\text{C}$
- Max tensile load tubing 5 N
- Min bend radius tubing 10 mm



Smart tape shows the same design solutions as the patch due to similar requirements.

It consists of two integrated strain sensors in one fibre and has a connector at each side of the tape. It is packed in glass reinforced epoxy, which again makes it easy to handle, install and daisy-chain to other sensors.

Outside the patch, the fibre is protected by tubing. At the end of each fibre, a reliable connector is attached for easy connection to the interrogator or other sensors. Last but not least, the patch is designed as a sticker, making it easy to install, relocate or replace on a wide variety of surfaces.

Models

- FBG-TT-QS1-x-y**- 2 FBG sensors, quarter scale 1
- FBG-TT-QS2-x-y**- 2 FBG sensors, quarter scale 2
- FBG-TT-QS3-x-y**- 2 FBG sensors, quarter scale 3
- FBG-TT-QS4-x-y**- 2 FBG sensors, quarter scale 4

*(x is the distance between FBG's)
(y is the number of connectors)*



Custom made fibre

FBG fibre assemblies

Features

- Ultra High speed performance
- Fast, simple, repeatable installation
- Supports multiplexing of many sensors on one fibre

Applications

- Continuous lifetime health monitoring of bridges, dams, buildings, tunnels, ships, aircraft, trains, and other complex structures
- Core building block for fibre optic transducers for strain, temperature, displacement, pressure and acceleration

Specifications

- Strain range $\pm 3000 \mu\text{strain}$
- Connectors E2000/APC or DMI/APC
- Operating temperature $-40 \dots +80 \text{ }^\circ\text{C}$
- Max tensile load tubing 5 N
- Min bend radius tubing 10 mm



Custom made fibres consists of one or more (up to 8) integrated strain sensors in one fibre and has a connector at each side of the fibre. Any packaging is possible.

A versatility of possible sensor configurations exist. Aside from intrinsic sensing of direct strain any type of extrinsic sensor is thinkable for where it is possible to convert an environmental parameter to strain. These sensors can be developed for temperature, humidity, pressure, chemical detection, and many more.

By default the fibre is protected by tubing. At the end of each fibre, a reliable connector is attached for easy connection to the interrogator or other sensors.

Development

Technobis Fibre Technology is currently developing extrinsic sensors for applications concerning impact analysis for localization and identification, shape sensing for modal analysis, ultra-high speed structure health monitoring, etc.

Contact Technobis Fibre Technologies for more information on these sensor developments.