



### LONG-GAUGE DEFORMATION SENSOR ROBUST AND EASY TO INSTALL

For surface mounting or embedding in concrete and mortars.  
Ideal for long-term structural deformation monitoring.  
20 year track record in field applications.

#### Description

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The MuST FBG deformation sensors are transducers that transform a static or dynamic distance variation into a change in reflected wavelength of a pre-stressed Fiber Bragg Grating that can be measured with SMARTEC Reading Units.

The sensor is composed of an active and a passive part. The active part contains the measurement fiber and measures the deformations between its two ends, transforming it into a wavelength shift of the Fiber Bragg Grating. The passive part is insensitive to deformations and is used to connect the sensor to the Reading Unit. In the passive part of the sensor, it is possible to install a loose Fiber Bragg Grating for temperature sensing and compensation.

The sensors are available in single-ended, double-ended and chained configuration. Using our Readout Units it's possible to connect up to 7 full-range temperature compensated sensors on the same channel (or up to 4 with temperature compensation + 4 without). The sensors are terminated with E2000-APC connectors or on user's specifications.

The sensors can be quickly and easily installed without affecting the construction schedule. They can be directly embedded in concrete and mortars, or surface mounted.

#### Key Features

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- High resolution
- Static and dynamic measurements
- Embeddable or surface mountable
- Temperature compensation FBG option
- Insensitive to corrosion and vibrations
- Easy to install
- Long term reliability
- Waterproof
- Static and dynamic measurements

#### Applications

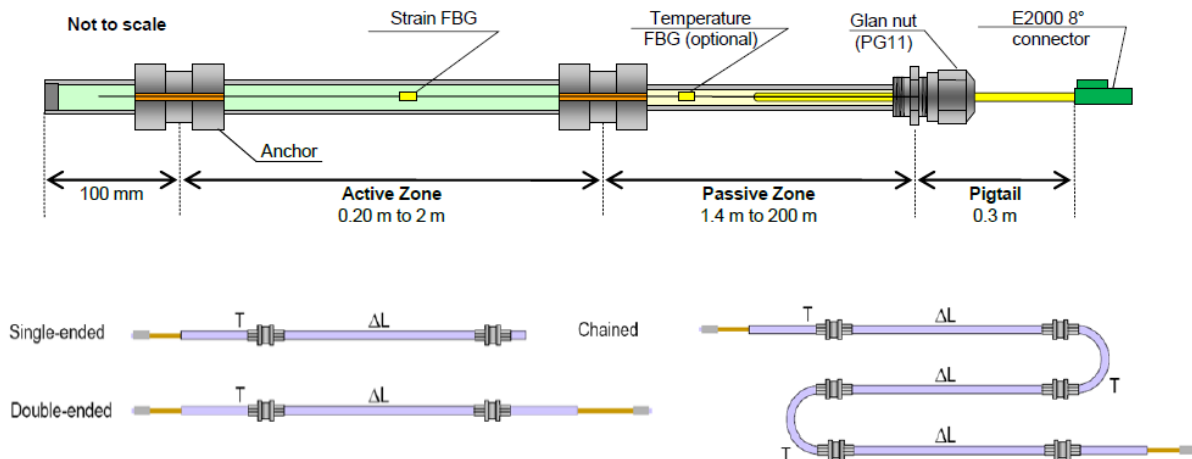
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- Bridge Structural Health Monitoring
- Building monitoring
- Dam instrumentation
- Tunnel deformation monitoring
- Pipeline local deformation analysis

### Specifications

Length of active zone (LA, measurement basis):	20 cm to 2m
Length of passive zone (connecting cable):	1 to 200 m (longer distances available on request)
Pre-tensioning of the measurement fiber:	0.5% of the length of active zone (others on special request)
Measurement range:	Strain: 0.5 % in shortening, 0.75 % in elongation Temperature: -40 °C to +80 °C
Measurement resolution/ Accuracy:	0,2 µε / 2 µε (using SMARTEC Reading Units)
Connecting cable protection options (see specific datasheet for details):	Standard cable: Gray (for embedding or surface mounting in normal conditions) Stainless steel reinforced cable: Black (recommended in harsh conditions) Simple unprotected cable: Yellow (only for laboratory conditions)
Optical connectors:	E-2000 AC (8°)
Operating temperature:	Passive zone: -40 °C to +80 °C Standard active zone: -50 °C to +110 °C Special active zone (upon request): -50 °C to +170 °C
Waterproof:	5 bars (15 bars with extra protection on anchoring points)

### Sensor Configuration



### Ordering information

- Length of active zone
- Length of passive zone
- Connecting cable type
- FBG Wavelength
- Temperature compensation (Yes/No)
- Single/Double Ended