



DISTRIBUTED FIBER OPTIC SENSOR FOR CIVIL AND GEOTECHNICAL STRAIN MEASUREMENT

High-accuracy distributed strain sensor in flat tape form factor.
For surface mounted installation or easy embedding in composite materials.

Description

The SMARTape strain sensors are designed for distributed deformation (average strain) monitoring over long distances, using BOTDR / BOTDA (Brillouin scattering) technologies. It is used for surface installation on smooth surfaces or embedding into composites.

The SMARTape sensor consists of a single mode optical fiber embedded in a Glass Fiber Reinforced Polymer / Epoxy tape. The tape itself provides high mechanical, chemical and temperature resistance. The small size of the tape makes the sensor easy to transport and install. The SMARTape II sensor is designed for use in harsh environments often found in civil and Oil&Gas engineering applications. It is usually glued to the structures, but can also be clamped or embedded in composite materials.

SMARTape sensors are delivered on spools and with all the necessary accessories such as gland nuts (IP65), pigtails and connectors (E-2000, FC-PC or other on request).

Key Features

- DiTeSt (BOTDA / BOTDR) compatible
- Distributed strain sensing
- Wide strain range
- Mechanically reinforced
- Chemically resistant
- Easy and rapid installation
- Light weight and small dimensions

Applications

- Civil infrastructure strain monitoring
- Steel crack detection and localization
- Distributed pipeline strain monitoring

Temperature Range

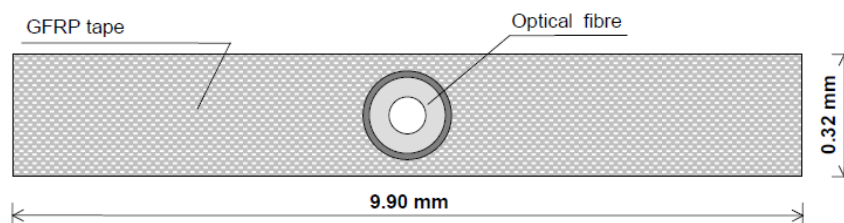
Operating temperature:	-40 °C to +120 °C operating in long term
Storage temperature:	-5 °C to +50 °C
Installation temperature:	-5 °C to +50 °C
Pigtails and connectors:	-40°C to +80°C

Technical Data

Temperature compensation:	not compensated
Calibration:	during production
Strain range:	max. -1 % compression to +1 % elongation (depending on installation manner)
Maximal length:	~ 800 m / reel , more upon request
Dimensions (W x H):	~ 9.90 mm x 0.32 mm
Weight:	~ 3.8 kg/km
Tensile strength:	≥ 400 MPa (ASTM D3916)
Elongation at break:	≥ 2.5 % (ASTM D3916)
Min bending radius:	~ 100 mm operating in long-term ~ 50 mm installation and storage
Hydrostatic pressure:	3x10 ⁷ kPa (300 bars)

Fiber Types

Fiber support (strain):	SMF 9 / 125 mm ITU-T G.652.D compliant
Fiber attenuation (cabled @ 20 °C):	≤ 1.2 dB @ 1310 nm ≤ 1 dB @ 1550 nm
Number of fibers:	1



Accessories and ordering information

11.1021 DiTeSt SMARTape Sensor

Accessories:

- Cable termination with connectors
- Junction box
- Splice box

Smartec SA

Via Pobiette 11
CH-6928 Manno, Switzerland

Phone +41 91 610 18 00
Fax. +41 91 610 18 01

Email info@smartec.ch
Web www.smartec.ch

NX NOVA
METRIX

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Smartec SA reserves the right to make any changes in the specifications without prior notice