Clearfield®
Non-Metallic Strain Sensing Cable

Application

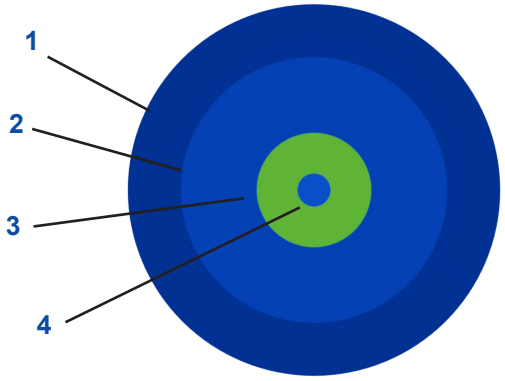
- Brillouin Distributed Strain Sensing (DSS)
- Structural Health Monitoring (SHM)
- Pipeline monitoring
- Soil movement, ground monitoring
- Precision measurement and alarm systems
- Direct burial in soil, concrete, composite structures
- Harsh environment, outdoors

Description

Light-weight Distributed Fiber-Optic Strain Sensing (DFOSS) cable, metal-free, with one optical fiber, EPR outer sheath, for strain sensing up to 1% (10000 µstrain)

Construction

1. EPR outer sheath
2. Plastic protection layer with interlocking system
3. Strain transfer layer with interlock system
4. Strain sensing single mode fiber



- One tight buffered optical fiber
- Longitudinally and laterally watertight
- All dielectric design
- High strain sensitivity
- Compact design, good flexibility, small bending radius
- Robust outer sheath
- Halogen-free cable sheath

Customization Options and Services

- Standard cable marking with meter marks, special labeling of outer sheath upon request
- Accessories such as loops, fan-outs, connectors, mounting brackets, anchors etc. available
- Splicing kit for strain sensing cable
- Custom fiber types

Technical Specifications

Non-Metallic Strain Sensing Cable	
Standard Optical Fiber	Singlemode fiber
Standards	Cable tests complying with IEC 60794-1-2
Jacket color	Blue, similar to RAL 5005
Operating temperature	-30 °C … +70 °C
Storage temperature	-30 °C … +70 °C
Installation temperature	-10 °C … +50 °C

Clearfield®

Non-Metallic Strain Sensing Cable

Technical Data at 20°C

Type	Max. nb. of fibers	Cable ø mm	Weight kg/km	Max. tensile strength - Installation N	Typical load at 1% elongation N
1F	1	2.8	5.9	5	26

Type	Min. Bending Radius With Tensile	Min. Bending Radius Without Tensile	Max. Crush Res. N/cm
1F	20xD	15xD	150

Optical Fiber Data (Cabled) at 20°C

Fiber Type	Attenuation, dB/km 850 nm	Attenuation, dB/km 1300/1310 nm	Attenuation, dB/km 1550 nm
SMF	-	-	≤ 0.5

Typical Brillouin Parameters BOTDR or BOTDA at 1550nm

	Temperature sensitivity df_B / dT	Strain sensitivity $df_B / d\varepsilon$	Central Brillouin Frequency
SMF (DSS)	~ 4.2 MHz/°C	~ 450 MHz/%	~ 10.7 GHz