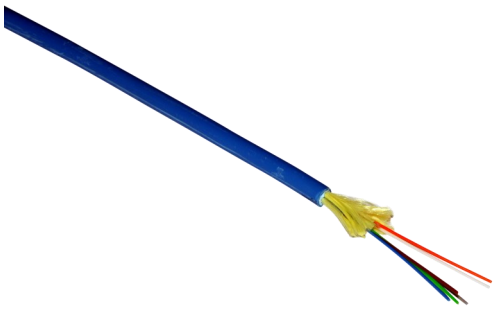
Hydro & Geo Sensing Cable

DiTeSt / DiTemp



DISTRIBUTED FIBER OPTIC SENSOR FOR CIVIL AND GEOTECHNICAL INTEGRITY MONITORING

Reliable and versatile distributed strain and temperature sensing.
Fully redundant configuration. For embedded or surface mounted installation.

Description

The Hydro & Geo Sensing cable is a unique fiber optic sensor for the evaluation of distributed strain and temperature over several kilometers, using BOTDR / BOTDA (Brillouin scattering) and DTS (Raman scattering) technologies.

The Hydro & Geo Sensing cable is used in a wide range of applications that require distributed strain and temperature sensing, such as temperature monitoring of concrete in massive structures, waste disposal sites, dams, hydro-structures, geotechnical areas and structures, mines, just to name a few.

The Hydro & Geo Sensing cable is a small fiber optic cable, with a symmetric circular section protected by a dense member of aramid and an outer Low Smoke Zero Halogen – Non Corrosive jacket. The optical fibers are protected by means of Acrylate coating and an outer hard elastomeric tight buffer. The Hydro & Geo Sensing cable contains 4 Single Mode and 2 Multi Mode optical fibers, allowing the sensor to be used both with DiTeSt reading unit for distributed strain and with DiTemp reading unit for temperature monitoring.

This sensor is particularly suitable for outdoors geotechnical applications with different methodology of installation: direct burial in the ground or concrete, integration into geo-textile fabric or surface installation in grooves.

Thanks to the special package design the Hydro & Geo Sensing cable offers high tensile strength, crush resistance, water tightness, chemical and abrasion resistance.

Key Features

- DiTeSt (BOTDA / BOTDR) compatible
- DiTemp (DTS) compatible
- High tensile strength
- High crush resistance
- High chemical resistance
- Low Smoke Zero Halogen outer jacket
- Watertight
- Compact and flexible
- Fast temperature response
- Good strain sensitivity

Applications

- Geotechnical applications
- Dam and levees deformation monitoring
- Sinkhole detection and localization
- Settlement detection
- Landslide monitoring
- Tunnel monitoring
- Underground mine safety

Hydro & Geo Sensing cable

DiTeSt / DiTemp

Temperature range

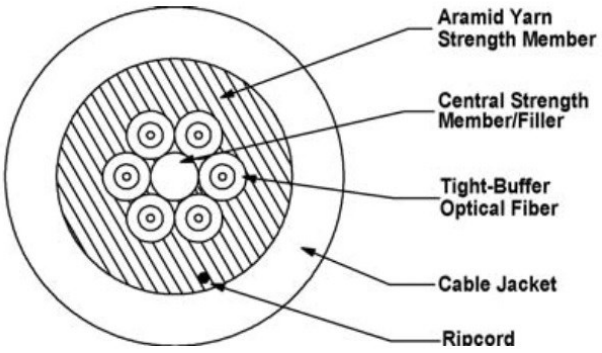
Operating temperature:	-55 °C to +85 °C
Storage temperature:	-70 °C to +85 °C

Technical Data

Outer diameter:	6.0 mm
Weight:	32 kg/km
Outer jacket:	Polyurethane, Blue
Max crush resistance:	1800 N/cm
Max flex resistance:	2000 cycles
Max tensile strength (installation):	1800 N
Max tensile strength (operation):	600 N
Min bending radius (installation):	60 mm
Min bending radius (operation):	30 mm

Fiber Types

Fiber support (strain):	4 SMF 9 / 125 µm ITU-T G.652.D compliant
Fiber support (temperature):	2 MMF 50 / 125 µm OM2 ISO/IEC 11801 compliant
Fiber attenuation (cabled @ 20 °C):	≤ 0.5 dB @ 1550 nm SMF ≤ 3.5 dB @ 850 nm MMF ≤ 1.5 dB @ 1300 nm MMF



Accessories and ordering information

14.1420 Hydro & Geo Sensing cable

Accessories:

- Cable termination with connectors
- Junction box
- Splice box

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