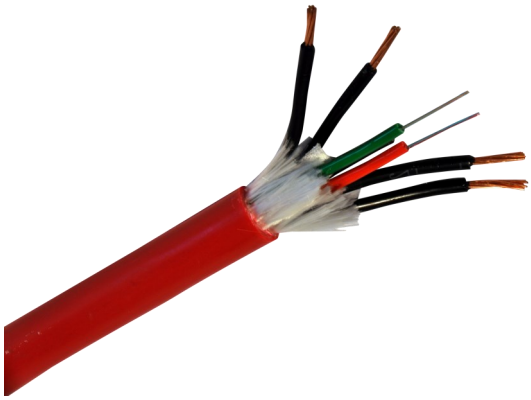
Self-Heating Cable

DiTemp



DISTRIBUTED FIBER OPTIC TEMPERATURE SENSOR WITH SELF-HEATING CAPABILITY FOR CIVIL, GEO-TECHNICAL MONITORING AND LEAK DETECTION

Reliable and versatile cable for easy installation.
Copper conductor for implementing heat-pulse method.

Description

The Self Heating cable is a unique sensor for the evaluation of distributed temperature over distances up to 1 km.

The Self Heating Cable is used in a range of hydro & geo-technical applications that require distributed temperature sensing, where the temperature contrast between the ground and the fluid to be monitored is not sufficient to provide a reliable detection. The Self Heating cable is particularly used in the seepage monitoring of dams, dikes, embankment and levees just to name a few.

The Self Heating Cable is a small fiber optic cable, armored with stainless steel loose tube gel filled, stainless steel strength members and HDPE outer sheath. The central loose tube is hermetically sealed and contains 4 bend insensitive fibers with a dual layer acrylate coating for increased micro bending performance. The additional wiring, made of copper wires, permits to heat the cable thanks to the low resistivity.

This sensor is particularly suitable for outdoors and harsh environment applications with different methodology of installation: direct burial in the ground or concrete.

Thanks to the special package design the Self Heating Cable offers high tensile strength, crush resistance, lateral water tightness, chemical and abrasion resistance and excellent rodent protection.

The Self Heating Cable is fully compatible with the DiTemp system and all its accessories.

Key Features

- DiTemp compatible
- Self-heating
- Fast temperature response
- High tensile strength
- High crush resistance
- Excellent rodent protection
- High chemical resistance
- Robust abrasion resistant cable sheath
- Laterally watertight
- Compact and flexible
- Halogen free

Applications

- Dam, dykes and Levee seepage monitoring
- Heat-pulse method
- Water flow detection
- Distributed temperature sensing

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Temperature range

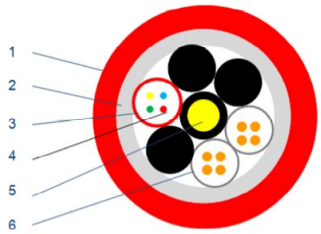
Operating temperature:	-40 °C to +70 °C
Storage temperature:	-40 °C to +70 °C
Installation temperature:	-10 °C to +50 °C

Technical Data

Outer diameter:	13.4 mm
Weight:	160 kg/km
Max crush resistance:	300 N/cm
Max tensile strength:	6000 N (installation)
Max tensile strength:	3500 N (operation)
Min bending radius:	270 mm (with tensile)
Min bending radius:	210 mm (without tensile)
Hydrostatic pressure:	300 bar
Electrical technical data*:	2x 4 Cu, 0.5 mm^2 conductors (outer diameter 0.8 mm) Electrical resistance: 37 Ω / km, per conductor (* variants on request)

Fiber Types

Fiber support:	4 MMF 50 / 125 µm ITU-T G.651 compliant
Fiber attenuation (cabled @ 20 °C):	≤ 3.0 dB @ 850 nm ≤ 1.0 dB @ 1300 nm
Number of fiber:	4



1 HDPE outer sheath
2 Glass fibers with water-blocking tape
3 Gel filled high strength 3.0 mm dual layer plastic tube
4 Bend insensitive optical fibers
5 FRP central strength member
6 Copper wires

Certification and compliance

Cable tests complying with IEC 60794-1-2

Accessories and ordering information

14.1422 DiTemp Self Heating Cable

Accessories:

- Cable termination with optical and electrical connectors
- Heating module
- Junction box
- Splice box

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