

# 11.1030 DITEST SMARTPROFILE SENSOR

*Fiber optic combined temperature & strain sensing cable*



## GENERAL DESCRIPTION

The DiTeSt SMARTprofile combined strain and temperature sensors are designed for distributed deformation (average strain) and temperature monitoring over long distances.

## TECHNICAL DESCRIPTION

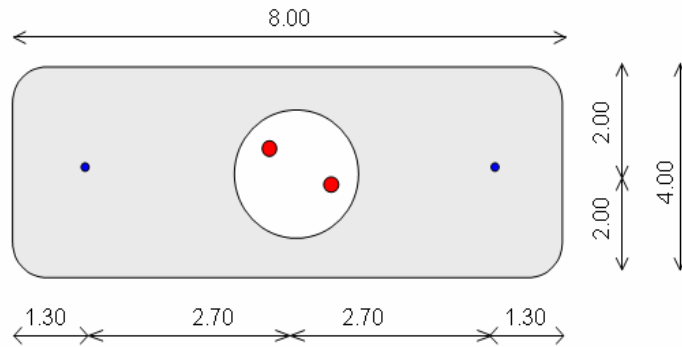
The DiTeSt SMARTprofile sensor consist of one or two bonded and two free single mode optical fibres embedded in a polyethylene thermoplastic profile. The bonded fibers are used for strain monitoring, while the free fibers are used for temperature measurements (quantitative if sensor deformation  $<0.2\%$ , qualitative if sensor deformation  $>0.2\%$ ) and to compensate temperature effects on the bonded fibers. For redundancy, two fibers are included for both strain and temperature monitoring. The profile itself provides good mechanical, chemical and temperature resistance. The size of the profile makes the sensor easy to transport and install by fusing, gluing or clamping. The SMARTProfile sensor is designed for use in environments often found in civil, geotechnical and oil & gas applications. However, this sensor cannot be used in extreme temperature environments, nor in environments with high chemical pollution. It is not recommended for installation under permanent UV radiation (e.g. sunshine).

The SMARTprofile sensor is fully compatible with DiTeSt<sup>®</sup> system. It is delivered on spools and with all the necessary accessories such termination and connectors (E2000, FC-PC or other).



## FEATURES

- Distributed temperature & strain sensing
- Multi functional
- Single cable design
- DiTeSt compatible
- Mechanically reinforced
- Chemically resistant
- Easy and rapid installation
- Light weight and small dimensions



Dimensions in mm. Strain sensing fibers depicted in blue, temperature sensing fibers depicted in red.

## TECHNICAL CHARACTERISTIC AND PERFORMANCES

<b>Strain monitoring fibers</b>	2 or 1 on request
<b>Temperature monitoring fibers</b>	2 or 1 on request
<b>Maximal length</b>	3 km
<b>Strain range</b>	-1.5% compression to +1.5% elongation
<b>Temperature range</b>	-40°C up to +60°C in long term operation
<b>Calibration</b>	only during production
<b>Temperature compensation</b>	compensated trough temperature sensing fibers (strain < 0.5%)
<b>Stability</b>	> 20 years
<b>Dimensions</b>	3.5 x 8 mm
<b>Sensor weight</b>	22 kg / km
<b>Minimal bending radius</b>	400 mm
<b>Max tensile strain</b>	1.5%
<b>Max hydrostatic pressure</b>	$3 \times 10^7$ Pa (300 bars)
<b>Chemical resistance</b>	good to fair
<b>Optical connectors</b>	E2000 APC with protected pigtails (other on request)