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FOT Temperature Sensor

Industrial, Laboratories, Process, R&D

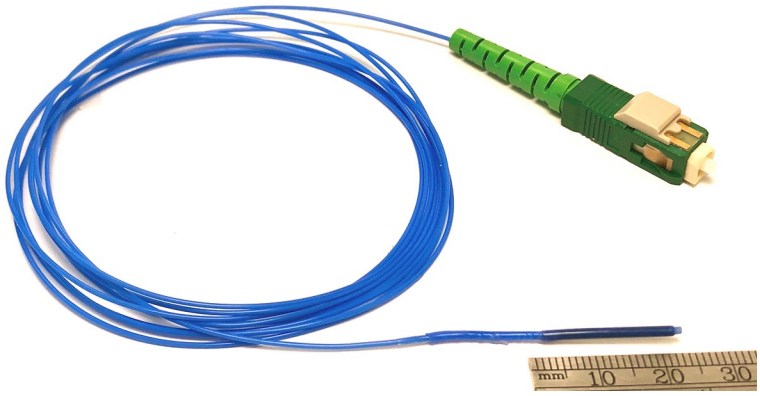
Description

FISO's Fiber Optic Temperature (FOT) sensors are perfectly suited for harsh environmental conditions such as in cryogenics, nuclear and strong RF applications. They are not electronically active and do not emit nor are they affected by any type of EM radiation, whether it is microwave, RF or MRI.

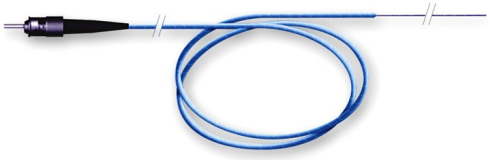
Those are built-in safety for hazardous environments, extreme temperature resistance, high precision, and resistance to corrosive environments.

An important advantage of optical fibers is the capability it provides to produce miniature components without compromising the physical characteristics of the bulk material. It may feature tip diameters as small as 0.8 mm.

FISO's fiber optic temperature sensors provide accurate, stable, and repeatable measurements. These measurements are based on variations of the reflected light — when compared to the emitted light — due to thermal expansion of the highly stable glass used within the sensor.



Fiber Optic Temperature Sensor



Key Features

- Intrinsically safe / Explosion proof
- Miniature size
- Immune to EMI / RFI / MW
- Up to 300°C
- High accuracy
- No interference due to cable bending
- No corrosion
- Long distance interrogation

Applications

- Microwave
- High EMI / RFI environments
- Nuclear environments (call FISO for details)
- Battery testing
- Aerospace
- Metallurgy & Defense
- Industrial *in-situ* process monitoring
- HV cable teting
- Harsh and hazardous environments
- Wood drying in microwave
- Food packaging development

Specification

Temperature Range	R1: -40°C to 250°C	R1: -40°C to 300°C	R2: 20°C to 85°C	R4: 25°C to 45°C	R5: -10°C to 120°C
Model	FOT-L-BA-…-R1	FOT-L-SD-...R1	FOT-L-BA.-…-R2 FOT-L-SD-…-R2	FOT-L-BA-…-R4 FOT-L-SD-…-R4	FOT-L-BA-…-R5 FOT-L-SD-…-R5
Performance with EVOLUTION conditioners (FPI-HR and FPI-HS)					
Accuracy [1] (°C)	N/A	N/A	N/A	±0.25	±0.40
Resolution [2] (°C)				0.01	0.01
Performance with CLASSIC conditioners (FTI, UMI)					
Accuracy [1] (°C)	±1.0	±1.0	±0.5	N/A	N/A
Resolution [2] (°C)	0.1	0.1	0.1		

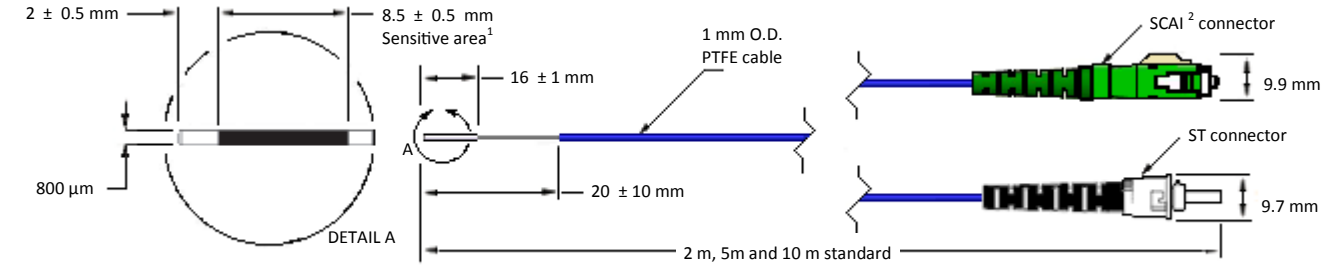
Response time (s)	Model FOT-L-SD ≤ 1.5 s, Model FOT-L-BA ≤ 0.5 s , Model FOT-L-M ≤ 0.75 s
Storage temperature	−30ºC to 80ºC

Note 1. Accuracy of the system (conditioner and sensor together)
Note 2. Signal conditioner dependent

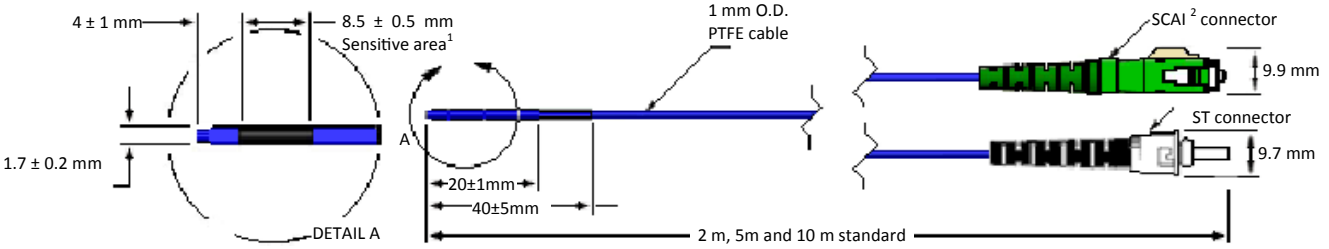
NOVA METRIX

Description

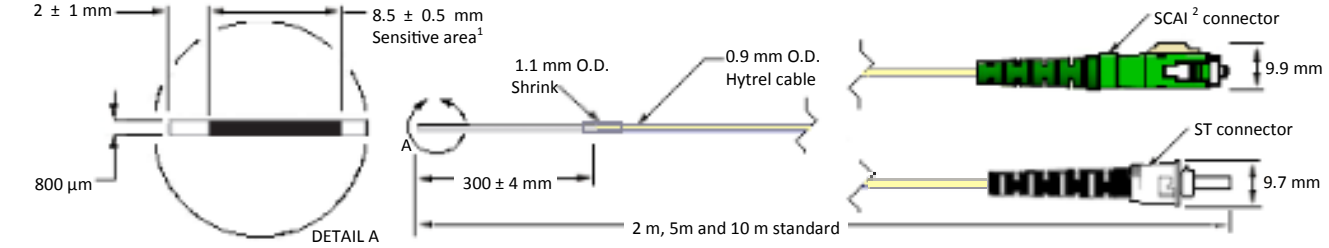
FOT-L-BA Model



FOT-L-SD Model



FOT-M-SD Model



Ordering information

Example: FOT- L - BA - C1 - F1 - M2 - R1 - ST

Distal tip packaging
FOT-L-BA– 20mm of section of 0.8 mm O.D.
FOT-L-SD– Packaged 1.7 mm O.D. PTFE tube
FOT-M-SD– 0.8mm O.D., 30 cm long tip

Cable
FOT-L-BA or SD-C1– 1 mm O.D. PTFE cable
FOT-L-BA or SD-C2– 1.7 mm O.D. PTFE cable
FOT-M-SD-C4– 1 mm O.D. Hytrel cable

Sensor overall length
F1– 50µm CLASSIC (FTI, UMI, DMI, DMI-LR)
F2– 62.5µm, EVOLUTION (FPI-HR, FPI-HS)

Sensor overall length
M2– 2 meters total length
M5– 5 meters total length
M10– 10 meters total length

Range
FOT-L-BA-… -R1-ST: -40°C to 250°C
FOT-L-SD-… -R1-ST: -40°C to 300°C
FOT-L or M - BA or SD -…. -R2-SCAI: 20°C to 85°C
FOT-L or M - BA or SD -…. -R4-SCAI: 25°C to 45°C
FOT-L or M - BA or SD -…. -R5-SCAI: -10°C to 120°C

Connector
ST– for CLASSIC (FTI, UMI)
SCAI [2] – for EVOLUTION (FPI-HR, FPI-HS)

Other configurations may be possible. Call FISO for availability.

Note 1. The sensitive area of the sensor should not be bent
Note 2. SCAI is a SCA connector with smart chip communicating calibration data to the signal conditioner module

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