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Applications

- **Calibrated Sensor Can Be Used For Absolute Temperature Measurements In Harsh and High EMF Environments**
- **Relative Temperature Sensor for Automotive, Aircraft/Aerospace, Rolling Stock, Vessels, Structural, Geotechnical, Energy and Medical Equipment Monitoring**

The **os4200** is an industrial grade design targeting the harsh environments found in Energy, Civil, Transportation, Aerospace and Military applications and demonstrates excellent compatibility with **Micron Optics'** sensing instruments.

Please feel free to contact **Micron Optics** or one of our Authorized Value-Added Resellers about your particular optical sensing application.

Description

The **os4200 Temperature Probe** is a revolutionary product based on patented **Micron Optics'** micro, opto-mechanical technology. The **os4200** leverages materials technology and know-how from other **Micron Optics** strain and temperature sensors to create this small and reliable package. To ensure long-term stability by design, the **os4200** tube type sensor uses neither epoxies nor other glues as part of its structure and fuses materials science with **Micron Optics'** core optical technology in high-performance, tunable components which allows it to be branded "**Micron Optics Tuned**".

The **os4200** provides an ideal alternative to electrical temperature sensors, featuring advantages such as fast response time, high accuracy, long-term stability, premium performance under harsh environmental conditions. Installation is easy as the **os4200's** size makes it possible to locate close to the temperature of interest.

Some Advantages of the os4200 Sensor Design

- **Remote Sensing Ability:** Ideal for applications with long distances between sensors or between sensors and instrument
- **Fast Response:** Materials used and inherent measurement technique makes for very fast transients
- **Non-Electrical Sensor Design:** Eliminates ESD and spark hazard, and immune to electromagnetic interference
- **Ideal for Harsh Environments:** Small in size, uses lightwaves not visible to the naked eye, no electromagnetic field generation by the sensor



PRELIMINARY



optical sensing

Specifications

os4200

Preliminary

Un-Calibrated

Calibrated

Environmental & Mechanical

Gage Type	Temperature Probe	
Operating Temperature Range	-40 to +120°C	
Temperature Coefficient	9.9 pm/°C (+/-1.7 pm/°C)	See Footnote 1
Short Term Accuracy - Typical ²		+/-0.2°C
Short-Term Repeatability	+/-1°C (+/-10 pm)	
Response Time ³	0.3 seconds	
Long Term Accuracy ⁴		±0.5°C
Long Term Repeatability ⁴	±1°C	
Dimensions	1.07 mm Ø x 32 mm length	
Weight	1.0 g	
Housing Material	316 Stainless Steel	
Fiber Type	SMF28-C	
Fiber Coating	Polyimide	
Buffer Tube	Fiberglass Braid	
Pigtail Length	1 m (± 10 cm)	
Connectorization	None (FC/APC available)	
Pigtail Temperature Range	-40 to 150° C (Connectors: -40 to 80°C)	
Pigtail Minimum Bend Radius	12 mm	

Optical

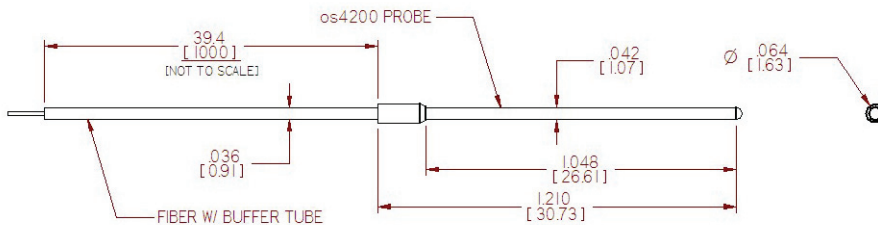
Center Wavelength (±1 nm)	From 1462nm to 1618nm in 4nm Intervals	
Peak Reflectivity (Rmax)	> 70%	
FWHM (-3 dB point)	0.25 nm (± .05 nm; apodized grating)	
Isolation	> 12 dB (@ ± 0.4 nm around center wavelength)	

080314sv

Connectorization Options

Option 1: Fusion-Spliced FC/APC	Includes metal splice sleeve and loose buffer (adds ~1m to pigtail length)
Option 2: Splice-Free FC/APC	Includes loose buffer (adds no length to pigtail)
Option 3: Fusion-Spliced E2000	Includes metal splice sleeve and loose buffer (adds ~1m to pigtail length)
Option 4: Other	Contact MOI

¹ Polynomial coefficients provided with serial numbered calibration certificate.
² Four (4) thermal cycles from min to max temperature. Max. accuracy error ±0.4°C without data averaging
³ Time to reach 63% of total temperature drop.
⁴ Based on 120°C soak for 1,000 hours.



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