



### Applications

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

### Description

The **os4300 Temperature Probe** is a revolutionary product based on patented **Micron Optics'** micro, opto-mechanical technology. The **os4300** 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 **os4300** 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 **os4300** 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 **os4300's** size makes it possible to locate close to the temperature of interest.

The **os4300** 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.

### Some Advantages of the os4300 Sensor Design

- **Totally Nonmetallic Design:** Small in size, uses lightwaves not visible to the naked eye, no electromagnetic field generation by the sensor
- **Remote Sensing Ability:** Ideal for applications with long distances between sensors or between sensors and instrument
- **Double-ended sensors can be concatenated together for many sensors on a single channel.** Also available in single-ended design.
- **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



PRELIMINARY

Specifications

Preliminary

Un-Calibrated **os4300** Calibrated

Environmental & Mechanical

Gage Type	Temperature Sensor	
Operating Temperature Range	-40 to +120°C	
Temperature Coefficient	9.9 pm/°C (+/-1.7 pm/°C)	See Footnote 1
Short Term Accuracy - Typical <sup>2</sup>		+/-0.2°C
Short-Term Repeatability	+/-1°C (+/-10 pm)	
Response Time <sup>3</sup>	0.7 seconds	
Long Term Accuracy <sup>4</sup>		±0.5°C
Long Term Repeatability <sup>4</sup>	±1°C	
Dimensions	3.18 mm Ø x 44.2 mm length	
Weight	2.6 gm	
Housing Material	Alumina	
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)

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Connectorization Options

Option 1: Fusion-Spliced FC/APC	Includes dielectric splice sleeve and loose buffer (adds ~0.5m to pigtail length)
Option 2: Splice-Free FC/APC	Includes loose buffer (adds no length to pigtail)
Option 3: Fusion-Spliced E2000	Includes dielectric splice sleeve and loose buffer (adds ~1m to pigtail length)
Option 4: Other	Contact MOI

<sup>1</sup> Polynomial coefficients provided with serial numbered calibration certificate.  
<sup>2</sup> Four (4) thermal cycles from min to max temperature. Max. accuracy error ±0.4°C without data averaging  
<sup>3</sup> Time to reach 63% of total temperature drop (100°C)  
<sup>4</sup> Based on 120°C soak for 1,000 hours.

