Non-Metallic Temperature Sensor | os4300

Description

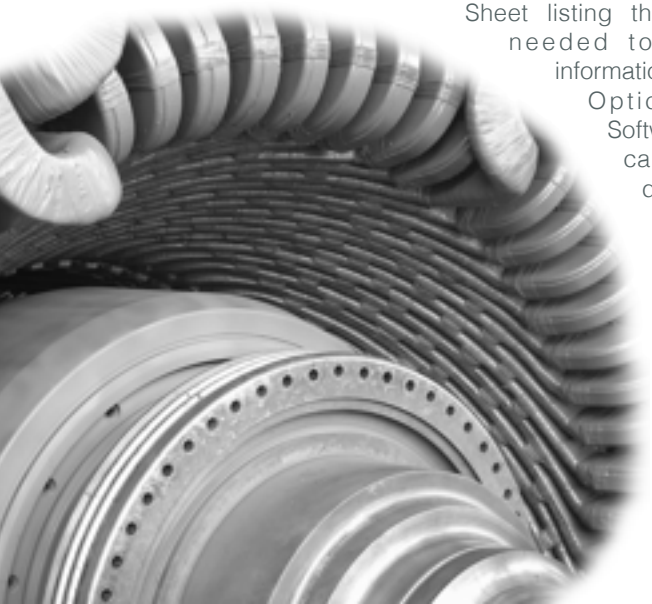
The os4300s are three versions of a temperature sensor based on fiber Bragg grating (FBG) technology housed within a non-metallic tube.

The os4300 Non-metallic Temperature Sensors are housed within a sealed, alumina ceramic tube that are designed to make handling easy and sensor installation fast and repeatable. It is based on fiber Bragg grating (FBG) technology and since there are no epoxies holding the fiber to the tube, long term stability is ensured by design.

In side by side comparisons with conventional thermocouples, the os4300 is equally sensitive and accurate, while providing sub-second response time, wider operating range, no calibration, and no EMI noise. The os4300 temperature sensor is qualified for use in harsh environments and delivers the many advantages inherent to all FBG based sensors.

Three packaging options provide for installation that mimics that of conventional thermocouples with armored cables and protected connectors, and small sensors that provide the user with both installation flexibility and sub second thermal response.

This sensor can be used alone or in series as part of an FBG sensor array. Installation and cabling for such arrays is much less expensive and cumbersome than comparable electronic gage networks. With each sensor, Micron Optics provides a Sensor Information Sheet listing the calibration coefficients needed to convert wavelength information into temperature. Micron Optics' ENLIGHT Sensing Software provides a utility to calculate and then record, display, and transmit data for large networks of sensors. Installation, qualification and other sensor information is available at: http://www.micronoptics.com/support_downloads/Sensors/.



Key Features

Fast response time

Qualified to same rigorous standards used for comparable electronic gages.

Non-metallic construction

Fast, simple, repeatable installation.

Armored fiber cable weldable package and rugged sensor package.

Connector protection fittings available for harsh environments.

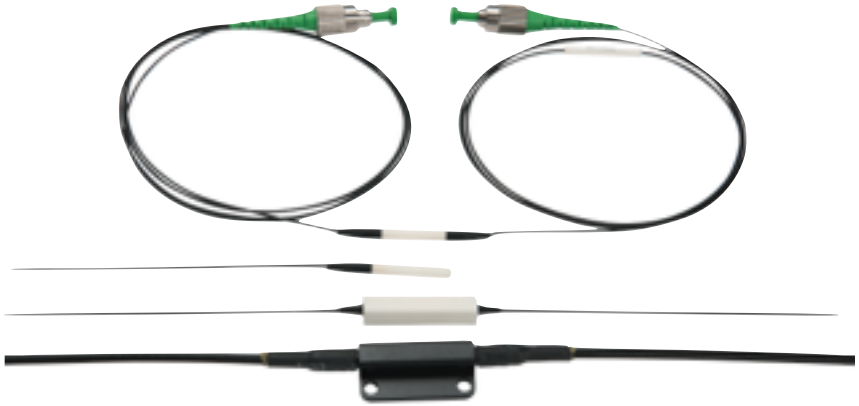
Several package options for field applications.

Calibrated for high absolute accuracy.

Double ended design supports multiplexing of many sensors on one fiber

Micron Optics' patented micro opto-mechanical technology.

Included in ENLIGHT's sensor templates - allows for quick and easy optical to mechanical conversions.



Deployments

Structures (bridges, dams, tunnels, mines, buildings, oil platforms)

Energy (wind turbines, oil wells, pipelines, nuclear reactors, generators)

Transportation (railways, trains, roadways, specialty vehicles, cranes)

Marine vessels (hull, deck, cargo containers)

Aerospace (airframes, composite structures, wind tunnels, static and dynamic tests).

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Thermal Properties[1]	os4310 Non-metallic	os4330 Non-metallic Epoxy Mount	os4350 Armored Cable, Flange Mount
Operating Temperature Range	-40 to 120°C, -70 to 275°C available		
Temperature Sensitivity	~10pm/°C (±1.7pm/ °C)		
Cable Temperature Range	-40 to 250° C (FC/APC Connectors: -40 to 80°C)		
Response Time[2]	0.7 seconds	4.6 seconds	4.2 seconds
Standard Calibration[3] (Included)	1.0°C Long Term Accuracy[4] 0.6°C Short-Term Accuracy, Typical[5]		
Premium Calibration[3] (Optional)	0.5°C Long Term Accuracy[4] 0.2°C Short-Term Accuracy, Typical[5]		
Physical Properties			
Dimensions (L x W x H)[6]	18.8 x 3.2 x 3.2 mm	31.8 x 7.6 x 7.6 mm	31.5 x 15.0 x 7.6 mm
Weight (including cable)	2.6 g	4.3 g	38 g
Housing Material	Alumina	Alumina	Anodized Aluminum
Cable Length	1 m (± 10 cm)		
Fiber Type	SMF28-Compatible		
Cable Bend Radius	≥ 17 mm		
Cable Type	1 mm Fiberglass Braid	1 mm Fiberglass Braid	3mm Armored Cable
FC/APC Connector	Optional	Optional	Both Connector and Protection Fittings optional
Fastening Methods[6]	Bond Strain Reliefs only	Epoxy type	#6 Self Drilling Screws or Epoxy
Optical Properties			
Peak Reflectivity (Rmax)	> 70%		
FWHM (- 3 dB point)	0.25 nm (± .05 nm)		
Isolation	> 15 dB (@ ± 0.4 nm around center wavelength)		

Ordering Information

os43aa-wwww-1xx-1yy-z

aa Model
- 10 Non-metallic
- 30 Non-metallic, Epoxy Mount
- 50 Armored Cable, Flange Mount (only with FC option)

wwww Wavelengths (+/- 1nm)
Standard - 1512 to 1588 nm in 4 nm intervals
Extended - 1460 to 1620 nm

xx Termination type
- 1xx Cable 1, Length & Connector
- 1 1 m Standard, Cable Length
- UT Unterminated
- FC FC/APC Connector
- PF FC/APC Connector with Protection Fitting

yy Termination type
- 1yy Cable 2, Length & Connector
- 1 1 m Standard, Cable Length
- 00 Single Ended Sensor (Available only for os4310)
- UT Unterminated
- FC FC/APC Connector
- PF FC/APC Connector with Protection Fitting

z Calibration Method
- S Standard calibration
- P Premium calibration

Ordering Information Example

os4330-1560-1FC-1FC-S

Notes

1. Beta product. For more details see http://www.micronoptics.com/products/product_designations/.
2. Time to reach 63% of total temperature drop in water (100°C).
3. Absolute accuracy of sensor is dependent on capability of interrogation instrument.
4. Based on 120°C soak for 1,000 hours.
5. Four (4) thermal cycles from min to max temperature. Max. accuracy error ±0.4°C without data averaging.
6. See http://www.micronoptics.com/support_downloads/Sensors/ for sensor drawings and installation details.

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