

Temperature Sensing Cable | os4400

Applications

- Fire, flooding, and performance monitoring for power transmission and other service tunnels and conduits.
- Fire and condition monitoring in rail and highway tunnels.
- Leak detection and flow assurance for pipelines.
- Mine safety monitoring.

Features

- Lower cost and faster response time than Raman and Brillouin systems
- Multiplexing of many sensors on a single fiber makes cabling and installation simpler than electrical solutions.
- Customizable sensor number and spacing.
- Armored fiber cable and rugged sensor package integrated into a single assembly.
- Qualified to same rigorous standards used for comparable electronic gages.
- Calibrated for high absolute accuracy.
- High tensile strength for long life in harsh environments.
- Micron Optics' patented micro-opto-mechanical technology.

Description

The os4400 Temperature Sensing Cable is a multipoint temperature sensor. Discrete points along a rugged cable are used to simultaneously measure temperature with sub degree Celsius accuracy over a wide range of temperatures.

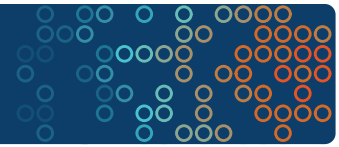
Several os4400 cables can be multiplexed to cover hundreds of sensing points over kilometers of cable runs. Unlike some other distributed optical measurement techniques, the os4400, coupled with the proper interrogation instrument, provides NIST traceable temperature measurements and fast acquisitions from one to one thousand times per second.

Because the sensing points in one cable are connected in series, installation is less expensive and less cumbersome than wiring dozens of separate electronic gage networks. In side-by-side comparisons with conventional thermocouples, the os4400 is equally accurate, while providing for faster response, with no need for calibration, and no EMI issues. The os4400 temperature sensing cable is qualified for use in harsh environments and delivers the many advantages inherent to all Fiber Bragg Grating (FBG) based sensors.

With each temperature sensing cable, Micron Optics provides the appropriate Sensor Information File listing calibration coefficients needed to convert wavelength information into engineering units. Micron Optics' ENLIGHT Sensing Analysis Software provides efficient templates for quickly importing the Sensor Information File to setup, calculate, record, display and transmit data. Installation, qualification and other sensor information is available at: http://www.micronoptics.com/support_downloads/Sensors/.



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Specifications ^β 1

os4410
Fast Response

os4420
Standard

Thermal Properties

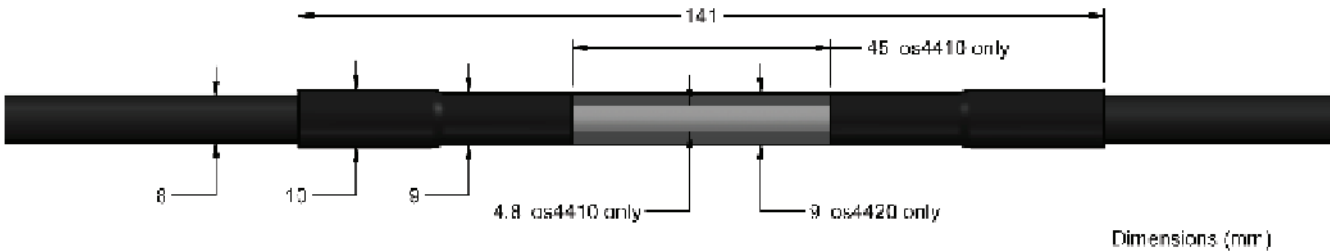
Operating Temperature Range	-40 to 100° C	
Temperature Sensitivity	~10 pm/°C (±1.7 pm/°C)	
Update Rate, Response Time ²	200 ms, 7 seconds	200 ms, 53 seconds
Accuracy ³	0.6°C Short Term ⁵ , 1.0°C Long Term ⁴	

Physical Properties

Maximum Sensors per Cable	39
Distance Between Sensors	0.5 to 10 m - uniform spacing ±0.15m
Cable Weight	54 g/m
Cable Bend Radius	≥ 380 mm
Cable Type ⁶	Rugged, sealed polymer jacket, IP69 water resistant to 50 m at 28° C
Cable Tensile Strength	150N Installed (300N Maximum straight line pull during installation)
Connectors	FC/APC optional. Also available with protection fittings.

Notes:

1. Denotes Beta product. For more details see www.micronoptics.com/product_designation.php.
2. Update rate is a function of interrogator scan frequency. Response time is 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. Maximum accuracy error ± 0.6°C with no averaging.
6. Number and spacing of stainless steel cable junctions is a function of sensor spacing and overall length.
7. See http://www.micronoptics.com/support_downloads/Sensors/ for sensor drawings and installation details.

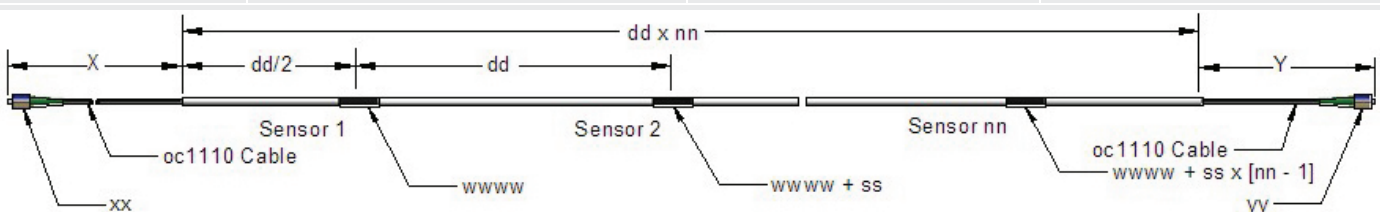


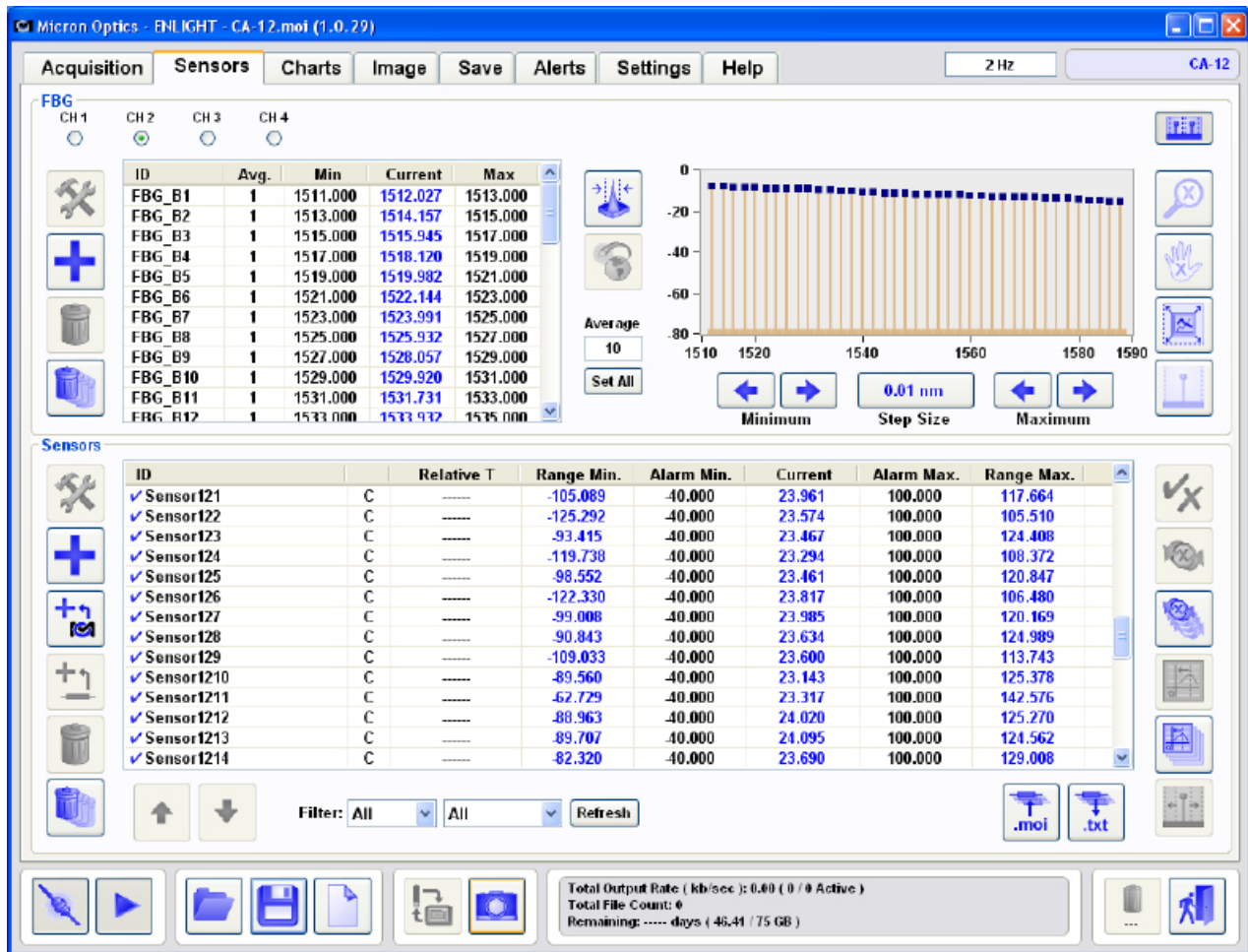
Ordering Information

os44aa-**www**-nn-ss-dd-**Xxx**-**Yyy**

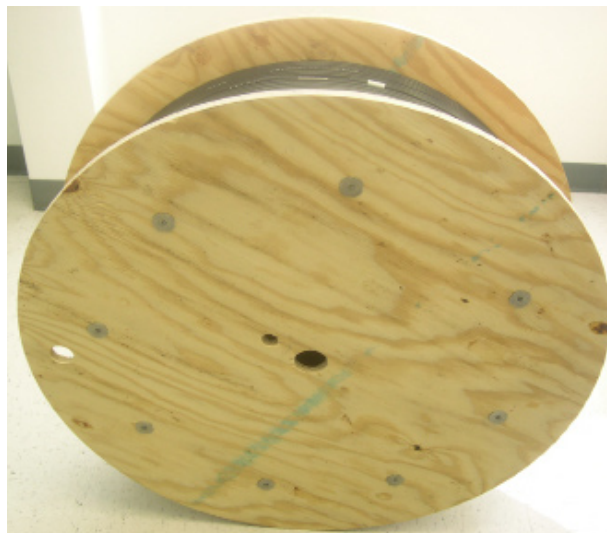
(Example: os4410-1512-39-02-6.0-5FC-000)

aa: Model 10 Fast Response 20 Standard	www: Wavelength (±1nm) of First Sensor Standard: 1512 to 1588 nm	Xxx: Cable 1, Length & Connector X 2 to 20 meters ± 0.25m UT Underterminated FC FC/APC Connector PF Protection Fitting	Yyy: Cable 2, Length & Connector Y 2 to 20 meters ± 0.25 m 00 Sealed end, no connector UT Underterminated FC FC/APC Connector PF Protection Fitting
nn: Number of Sensors 01 to 39	ss: Sensor Wavelength Spacing 01 to 99 nm (02 nm standard)	dd: Distance Between Sensors 0.5 to 10 m - uniform spacing ±0.15m	





ENLIGHT screenshot of os4420-1512-39-02-2.0-3FC-3FC temperature sensing cable.



Shipping and installation reel
Dimensions 0.92 m x 0.27 m