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Applications

- Directly useable as Strain Gages for Automotive, Aircraft/Aerospace, Structural, Geotechnical, Energy and Medical Equipment Monitoring Applications
- Core OEM building block for higher level sensors such as Accelerometers, Inclino-meters, Displacement, Pressure, Load Sensors and many other transducers

Description

The **os3200 Non-Metallic Optical Strain Gage** is a revolutionary product based on patented **Micron Optics'** micro, opto-mechanical technology. To ensure long-term stability by design, this patch type sensor fuses materials science with Micron Optics' core optical technology in high-performance, tunable components which allows it to be branded "**Micron Optics Tuned**".

The **os3200** provides an ideal alternative to electrical strain sensors, featuring advantages such as ease and speed of installation, high accuracy, long-term stability, premium performance, and record resistance to mechanical fatigue. Installation is easy as the **os3200** can be mounted to most materials using conventional techniques.

This sensor can be used alone or in series as part of an FBG sensor array. The **os3200** is an industrial grade design targeting Energy, Civil, Transportation, Aerospace and Military applications.

The **os3200** sensor 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 FBG-Based Sensors

- **Multi-Sensor Arrays:** Easily facilitates many sensors on a single optical connection
- **Remote Sensing:** Long distances between sensors or between sensors and instrument
- **Easy to Install:** In most cases, can be mounted directly to steel, aluminum, composites and many other structures
- **Simple, Low Cost Installation:** Due to multi-sensor array feature
- **Non-Electrical Sensor Design:** Eliminates ESD and spark hazard, and immune to electromagnetic interference
- **Small in size,** made of glass fiber, uses lightwaves not visible to the naked eye, no electromagnetic field generation by the sensor
- **Variety of Sensors Available:** Strain, temperature, displacement, pressure, etc...



PRELIMINARY

Specifications

os3200

Beta Prototype Specs¹

Environmental & Mechanical

| | |
|-----------------------------|---|
| Gage Type | Surface-Mount Non-Metallic Strain Gage |
| Strain Sensitivity | ~ 1.2 $\mu\text{m}/\mu\epsilon$ |
| Active Gage Length | 10 mm |
| Operating Temperature Range | -40 to 60° C (80°C Max) ² |
| Strain Limits | $\pm 2,500 \mu\text{m}/\text{m}$ (Optional $\pm 5,000 \mu\text{m}/\text{m}$) |
| Maximum Drift ³ | < 50 $\mu\text{m}/\text{m}$ |
| Dimensions | 25 mm x 6 mm x 1 mm |
| Pigtail Length | 1 m ($\pm 10 \text{ cm}$) |
| Weight | 1.0 g |
| Fiber Type | SMF28-C |
| Fiber Coating | Polyimide |
| Buffer Tube | Fiberglass Braid |
| Connectorization | None (FC/APC available at an additional fee) |

Optical

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

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Connectorization Options Available at an additional fee

| | |
|---------------------------------|--|
| 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 Specifications validated through design level testing.
² Prolonged exposure to maximum temperature may increase the likelihood of reduced performance.
³ 40 temperature cycles -40 to 60° C



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