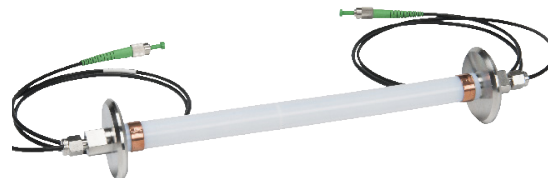


## os3600

### Embeddable Strain Sensor



The **os3600** is based on fiber Bragg grating (FBG) technology and is available two gage lengths of 25 or 100 cm. It is intended exclusively for embedding in concrete structures. Disk ends form a solid bond to surrounding concrete or grout.

A rugged, Teflon and steel-shielded body, armored cables, and optional connector protection fittings make the os3600 suitable for harsh environments. Two FBGs are well protected inside the os3600 body. One FBG measures strain, and the other provides for integrated temperature compensation. Since there are no epoxies holding the fiber to the carrier, long-term stability is ensured by design.

In side-by-side comparisons with vibrating wire and foil strain gages, the os3600 is equally sensitive and accurate, while providing 100 times more fatigue life. The os3600 strain gage is qualified for use in harsh environments and delivers the many advantages inherent to all FBG based sensors.

This sensor can be used alone or in series as a part of an FBG sensor array. Installation and cabling for such arrays is much less expensive and less cumbersome than comparable electronic gage networks.

The os3600 **Embeddable Strain Sensor** measures **average strain** over the length of the gage while providing **integrated temperature compensation**.

### Key Features

**Temperature compensation sensor** integrated inside. Measurement of relative temperature for compensation of strain measurements.

**Two standard gage lengths** of 25 and 100 cm  
Fast, simple, repeatable installation

**Qualified** to same rigorous standards used for comparable electronic gages.

**Double ended design** supports multiplexing of many sensors on one fiber

**Cable integrated with sensor package** for fiber protection and strain relief

**Connector protection fittings** available for harsh environment

**Micron Optics'** patented micro opto-mechanical technology.

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

**IP67 rated** for protection from dust and water ingress

### Applications

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

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

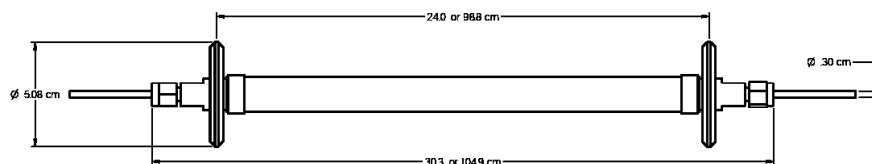
**Transportation** (railways, trains, roadways, specialty vehicles, cranes)

**Marine vessels** (hull, deck, cargo containers)

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

## Properties

| Performance Properties                       | os3600                                               |
|----------------------------------------------|------------------------------------------------------|
| Strain; Temperature Sensitivity <sup>1</sup> | ~ 1.2 pm/ $\mu\epsilon$ ; 23.8pm/ $^{\circ}\text{C}$ |
| Temperature Compensation                     | Integrated into each gage                            |
| Gage Length                                  | 25 or 100cm                                          |
| Operating Temperature Range                  | -40 to 80 $^{\circ}\text{C}$                         |
| Strain Limits                                | $\pm 2500 \mu\epsilon$                               |
| Water Reistant                               | Suitable for wet, high humidity environments (IP67)  |
| Fatigue Life                                 | $>1 \times 10^8$ cycles @ $\pm 2,000 \mu\epsilon$    |
| Physical Properties                          |                                                      |
| Dimensions (mm)                              | See Diagram Below                                    |
| Weight                                       | 416 g (25 cm, disk); 740 g (100 cm, disk)            |
| Material                                     | Stainless Steel/teflon construction                  |
| Cable Type                                   | 3 mm armored cable                                   |
| Cable Bend Radius                            | $\geq 17$ mm                                         |
| Anchoring Methods <sup>2</sup>               | Embeddable only                                      |
| Optical Properties                           |                                                      |
| Peak Reflectivity (Rmax)                     | $> 70\%$                                             |
| FWHM (- 3 dB point)                          | 0.25 nm ( $\pm .05$ nm)                              |
| Isolation                                    | $> 15$ dB (@ $\pm 0.4$ nm around center wavelength)  |



## Ordering Information

### os3600-ggg-tttt/ssss-1xx-1yy

|           |                                                                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ggg       | Gage Length                                                                                                                                                                               |
| 025       | 25cm                                                                                                                                                                                      |
| 100       | 100cm                                                                                                                                                                                     |
| tttt/ssss | Strain/Temp Wavelengths (+/- 1nm)                                                                                                                                                         |
|           | Standard - 1462/1466, 1472/1476, 1482/1486, 1492/1496, 1502/1506, 1512/1516, 1522/1526, 1532/1536, 1542/1546, 1552/1556, 1562/1566, 1572/1576, 1582/1588, 1592/1596, 1602/1606, 1612/1616 |
| xx        | Termination type                                                                                                                                                                          |
| 1xx       | Cable 1, Length & Connector                                                                                                                                                               |
| 1         | 1 m Standard, Cable Length                                                                                                                                                                |
| UT        | Unterminated                                                                                                                                                                              |
| FC        | FC/APC Connector                                                                                                                                                                          |
| yy        | Termination type                                                                                                                                                                          |
| 1yy       | Cable 2, Length & Connector                                                                                                                                                               |
| 1         | 1 m Standard, Cable Length                                                                                                                                                                |
| UT        | Unterminated                                                                                                                                                                              |
| FC        | FC/APC Connector                                                                                                                                                                          |

## Ordering Information Example

o3600-025-1512/1516-1FC-1FC

## Notes

1 Actual gage factor provided with gage.



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