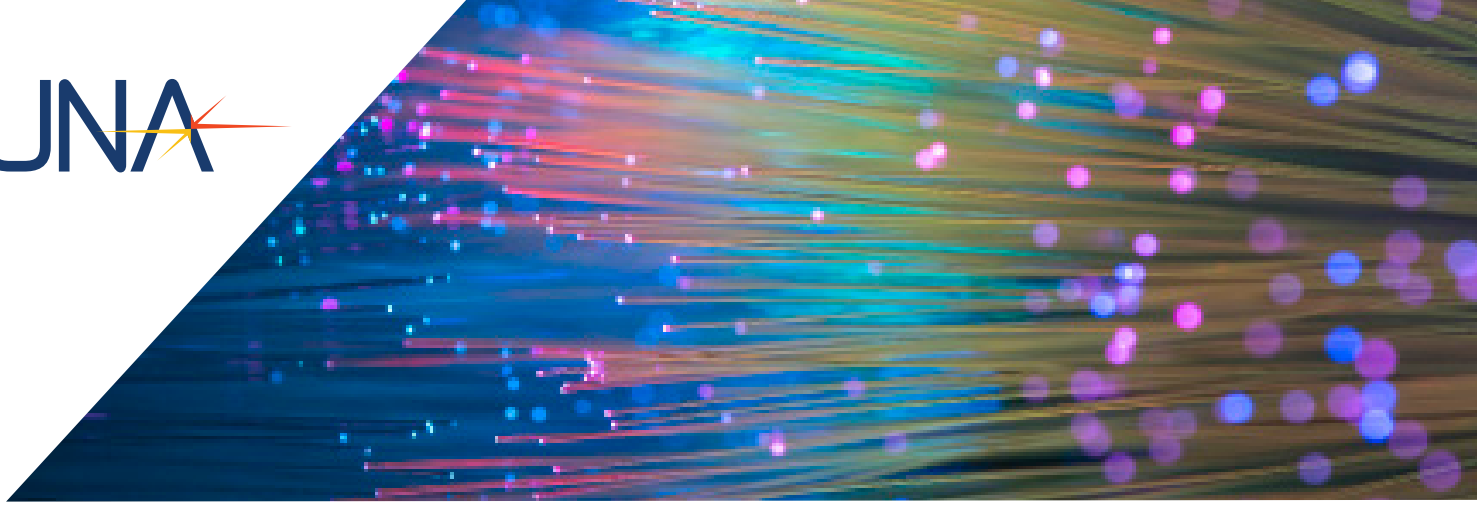
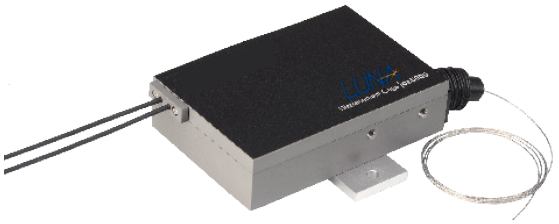


os5000

Displacement Gage



The os5000 is an FBG based displacement gage designed for measuring small changes of less 12 mm in civil and geotechnical structures.

Based on fiber Bragg grating (FBG) technology, the os5000 is specifically designed to measure displacement between two gage points on a specimen surface. The gage design is flexible enough to allow for easy attachment to various substrates, making measurements on metal, concrete and other surfaces straightforward. The FBG sensors that comprise the os5000 gage are located within the rugged hard-coat anodized aluminum enclosure which shields them from the elements and allows for installations in harsh environments.

This gage can be used alone or in series as a part of an FBG sensor array (which may include strain and temperature gages, accelerometers and other displacement gages). Cabling for such arrays is much less expensive and cumbersome than comparable electronic gage networks. Cables can be joined directly inside the enclosure, eliminating the need for separate junction boxes. The os5000 delivers the many advantages inherent to all FBG based sensors, including EMI immunity - something vibrating wire gages cannot offer.

With each gage, Micron Optics provides a Sensor Information Sheet listing the gage factor and calibration coefficients needed to convert wavelength information into engineering units. Micron Optics' ENLIGHT Sensing Software provides a utility to calculate and then record, display and transmit data for large networks of sensors.

Key Features

Up to 12 mm measurement range using a 1 mm stainless steel cable

Rugged aluminum enclosure suitable for outdoor installations, IP67 rating

Qualified to same rigorous standards used for comparable electronic gages

Internal protection of connectors/splices

Supports multiplexing of multiple gages on one fiber

Fully temperature compensated over entire operating range

Fast response time, stable measurements, high resolution

Designed for simple installation in a variety of applications

Applications

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

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

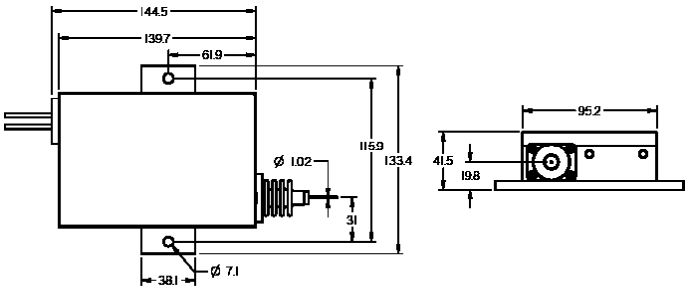
Transportation (railways, trains, roadways, specialty vehicles, cranes)

Marine vessels (hull, deck, cargo containers)

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

Properties

Performance Properties	
Measurement Range	0 - 12 mm
Resolution[1]	0.02% F.S.
Linearity[2]	0.026 mm (.22% F.S.) steady-state
Operating Temperature Range	-40 to 80°C
Environmental Ingress	Suitable for wet, high humidity environments (IP67)
Fatigue Life	>50x106 cycles @ 30% F.S.
Physical Properties	
Dimensions	See Diagram Below, m
Weight	954 g
Construction	Anodized Aluminum
Lead Cable Length	Customer Specified
Lead Cable Type	oc1110, 3 mm Tactical Buffered Cable
Mounting[3]	Supplied Mounting Plate (see drawing)
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

os5000-wwww/wwww-1xx

wwww Wavelengths (+/- 1.5 nm)
Standard -
1471/1476, 1482/1487, 1493/1498,
1504/1509, 1515/1520, 1526/1531,
1537/1542, 1548/1533, 1559/1564,
1570/1575, 1581/1586, 1592/1597,
1603/1608, 1614/1619
Bandwidth allocation requires an additional +/- 3nm

1xx Length and Termination
1 Standard length is 1 m
FC FC/APC Connector
FS Fusion Splice

Ordering Information Example

os5000-1548/1553-1FC

Notes

1. Full scale, room temperature, measured on calibrated displacement stage using Micron Optics sm130
2. Drift pass criteria < 0.8% FS

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