

## Lenterra Optical Sensor Interrogator

Lenterra Optical Sensor Interrogator (LOI) is a compact, robust, fast measurement unit designed for the high resolution interrogation of optical sensors (Fiber Bragg Grating or Whispering Gallery Mode sensors) in laboratory or industrial environments.



LOI utilizes fast, low noise Distributed Feedback diode laser with narrow linewidth for full spectrum scanning. Adjustable photodiode gains allow for measurement of returned light intensity in a wide dynamic range. LOI is controlled by any standard PC through USB interface. The unit can be used with third party FBG or WGM sensors as well as with Lenterra's RealShear™ and DFF sensors for measurements of such parameters as wall shear stress, drag force, temperature, strain, viscosity and others.

### Specifications:

#### Mechanical, Environmental, Electrical Properties:

Length	33 cm (13")
Width	29 cm (11.3")
Height	9 cm (3.5")
Weight	4.5 kg (10 lbs)
Voltage requirements	100-240 VAC @ 47-63 Hz
Operating temperature	From 0°C to 40 °C
Storage temperature	From -10 °C to 50 °C

#### Optical properties:

Light source	DFB diode laser
Central wavelength	1300-1320 nm, 1540-1560 nm
Linewidth, FWHM	10 MHz
<b>Scan range:</b>	
via laser temperature <sup>1</sup>	5.3 nm
via laser current <sup>1</sup>	0.6 nm
<b>Scan rate:</b>	
via laser temperature <sup>1</sup>	0.14 nm/s
via laser current <sup>1</sup>	from 0.14 nm/s to 270 nm/s
Scan frequency (via laser current) <sup>2</sup>	from 0.25 Hz to 500 Hz
Wavelength increment <sup>1</sup>	0.5 pm (at 0.25 Hz), 0.5 pm (at 10 Hz), 0.4 pm (at 100 Hz), 2 pm (at 500 Hz)
FBG spectrum tracking repeatability <sup>3</sup>	0.12 pm (at 0.25 Hz), 0.12 pm (at 10 Hz), 0.11 pm (at 100 Hz), 0.29 pm (at 500 Hz)
Number of optical channels	2 or 4
Connector	Duplex LC/PC or two FC/APC
Photodiode amplifier gain	10 <sup>5</sup> , 10 <sup>6</sup> , 10 <sup>7</sup> V/A

#### Data processing capabilities:

Interface	USB
Software type	LabVIEW based data acquisition and control software
Software capabilities	Spectra recording, spectra averaging, spectra tracking, differential spectrum (between channels 1 and 2) tracking, data logger, instrument control

<sup>1</sup>Typical, actual values vary

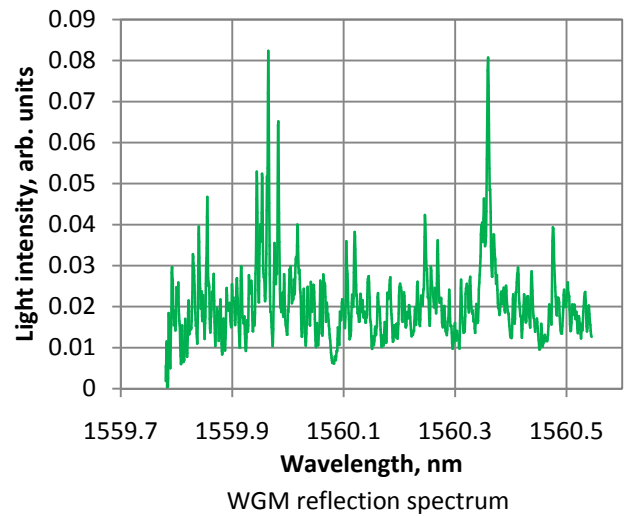
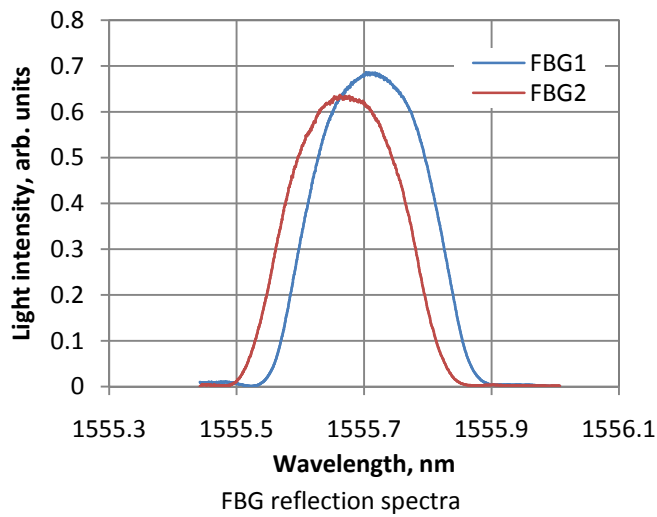
<sup>2</sup>Custom orders for frequencies above 500 Hz

<sup>3</sup>One sigma

Specifications are subject to change without notice

## Typical results:

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## Ordering information:

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### LOI-XX

- 1W – 2 FC/APC connectors
- 2W – 4 FC/APC connectors
- 2F – 1 Duplex LC/PC connector
- 4F – 2 Duplex LC/PC connectors

*Example:* LOI-2F corresponds to LOI unit with one duplex LC/PC connector.