

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, LOI-2F AND LOI-4F:

	LOI-2F	LOI-4F
MECHANICAL, ENVIRONMENTAL, ELECTRICAL PROPERTIES:		
Length	40 cm (15.5")	47cm (18.5")
Width	30 cm (11.7")	30 cm (11.7")
Height	10.5 cm (4.2")	10.5 cm (4.2")
Weight	4.7 kg (10.4 lbs)	6 kg (13.2 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	
Scan range:		
via laser temperature ¹	3.7 nm	
via laser current ^{1,2}	1.2 nm	
Scan rate:		
via laser temperature ¹	0.1 nm/s	
via laser current ¹	from 0.33 nm/s to 650 nm/s	
Scan frequency (via laser current) ³	from 0.25 Hz to 500 Hz	
Wavelength increment ¹		
at 0.25 Hz	0.8 pm	0.8 pm
at 10 Hz	0.8 pm	0.8 pm
at 100 Hz	0.7 pm	1.6 pm
at 500 Hz	2.9 pm	5.4 pm
FBG spectrum tracking repeatability ⁴		
at 0.25 Hz	0.5 pm	
at 10 Hz	0.3 pm	
at 100 Hz	0.2 pm	
at 500 Hz	0.4 pm	
Number of optical channels	2	4
Connector	Duplex LC/PC	Two Duplex LC/PC
Photodiode amplifier gain	10 ⁵ , 10 ⁶ , 10 ⁷ 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	

¹Typical, actual values vary

²At 10 Hz scan frequency

³Custom orders for frequencies above 500 Hz

⁴One sigma

Specifications are subject to change without notice