

Optical Sensing Interrogator | sm125

Applications

- Measurements of fiber bragg grating (FBG) strain, temperature and other static measurements.
- Extrinsic Fabry-Perot (EFP), and long period Grating (LPG) for strain, temperature and pressure measurements.
- Development of fiber optic sensor packages and transducers.
- Full Spectrum Measurement capability for analysis of FBG, EFP and LPG sensor behavior and shape.
- On-board NIST traceable wavelength reference.

Where are Micron Optics Instruments Deployed?

- Civil structures/civionics (bridges, dams, tunnels, buildings, etc.)
- Energy (wind turbines, pipelines, nuclear reactors, etc.)
- Aerospace vehicles (composite structures, wind tunnels, dynamic tests, etc.)
- Oil & gas (well reservoir management, platform structural health monitoring, etc.)
- Marine vessels (hull, mast, rudder, submarine pressure tests, etc.)
- Transportation (railways, roadways, etc.)
- Homeland security (perimeter intrusion, shipping container integrity, etc.)
- And others such as medical devices, military armor, chemical sensing, etc.

Description

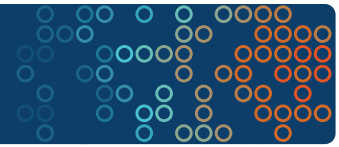
The sm125 Optical Sensing Interrogator meets the growing demand for measuring static strain, pressure, and temperature in civil, downhole oil, and pipeline applications where both high accuracy and low cost are required. Most of these applications require the durability and versatility of the fiber Bragg grating based strain, temperature and pressure sensors for which the sm125 is well suited.

The small, accurate, powerful, and economical sm125 combines an industrial PC with Micron Optics' robust, high-power, low-noise swept laser source. Micron Optics interrogators are installed in hundreds of applications in harsh environments around the world from oil platforms in Brunei to marine vessels in the North Sea to tunnels in Japan.



sm125 Field Module

ENLIGHT^{Pro} Sensing Analysis Software is included with Micron Optics sensing interrogator systems and provides a single suite of tools for data acquisition, computation, and analysis of optical sensor networks. ENLIGHT^{Pro} combines the useful features of traditional sensor software with the specific needs of the optical sensor system, making it easy to optimize optical properties during the design and implementation phase of an optical sensor system. Intuitive data display and additional graphing and data visualization features make ENLIGHT^{Pro} easy to use. Learn more about ENLIGHT^{Pro} at: http://www.micronoptics.com/sensing_software.php.



Specifications	sm125-200	sm125-500	sm125-700
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Optical Properties

Number of Optical Channels ¹	1 (up to 16)	4 (up to 16)	4 (up to 16)
Scan Frequency	1 Hz	2 Hz	5 Hz
Wavelength Range	1520-1570 nm	1510-1590 nm	1510-1590 nm
Wavelength Accuracy ²	10 pm	1 pm	2.5 pm
Wavelength Stability ³	5pm	1 pm	2.5 pm
Wavelength Repeatability ⁴	0.5 pm at 1 Hz, 0.2 pm at 0.1 Hz		
Dynamic Range ⁵	40 dB	50 dB	30 dB
Full Spectrum Measurement	Included		
Internal Peak Detection Mode	Included		
Optical Connectors	FC/APC		

Data Processing Capabilities

Interfaces	Ethernet - other interfaces available via an sp1xx Sensing Processor Module
Protocols	Custom Micron Optics protocol via Ethernet (others available)
Remote Software	Spectral analysis, peak detection, data logger, peak tracking, and instrument control
LabVIEW™ Source Code	Allows for customization of remote software
Enhanced Data Management	ENLIGHT ^{Pro} Sensing Analysis Software

Mechanical, Environmental, Electrical Properties

Dimensions; Weight	117 mm x 234 mm x 135 mm; 2 kg (4.5 lbs)
Operating Temperature; Humidity	0° to 50° C; 0 to 80%, non-condensing
Storage Temperature; Humidity	-20° to 70° C; 0 to 95%, non-condensing
Input Voltage	7-36 VDC (100~240 VAC, 47~63 Hz), AC/DC converter included
Power Consumption at 12V	20 W typ, 30 Max

Options

8 or 16 Channel Expansion	Please see our 8 or 16 channel sm041 multiplexers
Increased Scan Frequency ⁶	2, 5, or 10 Hz

Notes:

- sm125 accommodates up to 4 integrated optical channels. Max of 16 ch possible when combined with sm041 multiplexer.
- Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.1, definition of "accuracy of measurement"
- Captures effects of long term use over full operating temperature range of the instrument.
- Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.2, definition of "repeatability [of results of measurements]"
- Defined as laser launch power minus detection noise floor.
- 10 Hz scan rate available with 40 nm (1525-1565nm) wavelength range.