Optical Sensing Interrogator | sm225

Applications

- Full Spectrum Measurements of fiber Bragg grating (FBG), extrinsic Fabry-Perot , long period grating (LPG), and other optical sensor components.

- Continuous lifetime health monitoring of bridges, dams, buildings, tunnels, ships, aircraft, trains, and other complex structures.

- Development of fiber optic sensors and transducers.

Features

- High accuracy absolute measurements of strain, temperature, pressure and other static sensors.

- On-board NIST traceable wavelength reference.

- Wide wavelength swept laser supporting more sensors per channel.

- Up to 16 integrated measurement channels.

- Direct mounting to any standard 19" EIA/ IEC equipment rack.

Deployments

- Civil structures (bridges, dams, tunnels, mines, buildings).

- Oil & gas (well reservoir management, platform structural health, pipeline condition).

- Marine vessels (hull, mast, rudder, deck, cargo containers).

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

- Homeland security (perimeter intrusion, heat detection, security gate monitoring).

Description

The sm225 Optical Sensing Interrogator is an industrial grade, rack mounted static sensor interrogation module that facilitates up to 16 internal fiber measurement channels.

The sm225 Optical Sensing Interrogator is built upon the Micron Optics x25 optical interrogator core, featuring a high power, low noise swept wavelength laser, realized with Micron Optics patented Fiber Fabry-Perot Tunable Filter technology. The x25 interrogator core employs full spectral scanning and data acquisition, providing measurements with high absolute accuracy, flexible software post-processing, and high dynamic range performance. x25 based interrogators support continuous on-board NIST traceable wavelength reference components and are ideally suited to measure many different optical sensor types, including FBGs, long period gratings, extrinsic Fabry-Perot sensors, and many others.   Well over half of the fiber optic sensors deployed today are measured with instrumentation that uses Micron Optics technology.

The Micron Optics "sm - Sensing Module" platform responds directly to the user commands of the optical interrogator core and outputs sensor wavelength data via Ethernet port and custom protocol. All module settings, sensor calculations, data visualization, storage, and alarming tasks are run on external pc or sensor processor module. The Sensing Module platform is ideal for custom, client developed system management tools, but is equally compatible with local or remote installations of Micron Optics ENLIGHT.

sm225 Rack Mount Module

Micron Optics ENLIGHT 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 combines the useful features of traditional sensor software with the specific tools needed to optimize optical properties during the design, implementation, and operations phases of an optical sensor system. Tables, graphs, and additional data visualization features make ENLIGHT easy to use. Learn more about ENLIGHT at http://www.micronoptics.com/sensing_software.php.

Optical Sensing Interrogator | sm225

Specifications β [1]

	sm225-200	sm225-500	sm225-800
Optical Properties			
Number of Optical Channels	1	4	16
Scan Frequency	1 Hz	2 Hz	0.5 Hz
Wavelength Range	1520-1570 nm	1510-1590 nm	1510-1590 nm
Wavelength Accuracy [2]	10 pm	1 pm	1 pm
Wavelength Stability [3]	5 pm	1 pm	1 pm
Wavelength Repeatability [4]	0.5pm at 1Hz, 0.2 pm at 0.1Hz		1pm at 0.5Hz
Dynamic Range [5]	40dB	50 dB	40dB
Full Spectrum Measurement	Included		
Internal Peak Detection Mode	Included		
Optical Connectors	FC/APC (E2000 available)		
Data Processing Capabilities			
Interfaces	Ethernet - other interfaces available via an optional Internal Sensing Processor		
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 Sensing Analysis Software		
Mechanical, Environmental, Electrical Properties			
Dimensions; Weight	435 mm x 442 mm x 45 mm; 4.1 kg (9 lbs max)		
Rack Mount Hardware	Included		
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, 47~63Hz), AC/DC converter included		
Power Consumption at 12V	20 W typ, 30 max		
Options			
Scan Frequency [6]	2, 5, or 10 Hz		
Internal Sensing Processor w/ 3 Relays	Windows XP Professional or Linux OS, See sp125 datasheet for processor specs		

Notes:

1. Beta product. For details see www.micronoptics.com/product_designation.php.
2. Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.1, definition of "accuracy of measurement".
3. Captures effects of long term use over full operating temperature range of the instrument.
4. Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.2, definition of "repeatability [of results of measurements]".
5. Defined as laser launch power minus detection noise floor.
6. 10 Hz scan rate available with 40 nm (1525-1565nm) wavelength range.

MICRON OPTICS

Micron Optics, Inc.
1852 Century Place NE
Atlanta, GA 30345 USA

phone   404 325 0005
fax   404 325 4082
www.micronoptics.com