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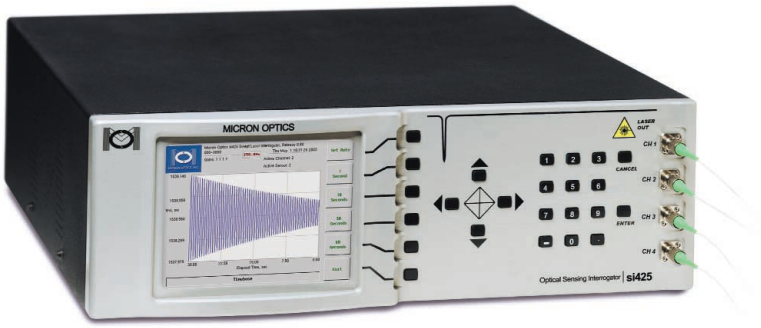
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Optical Sensing Interrogator | si425

SENSING INSTRUMENTS

	NUMBER OF CHANNELS	FBGs/ CHANNEL	SPEED (Hz)	RESOLUTION (pm)
si425	1-16	128	250	1
si720	2	full spectrum	5	0.25



Applications

- Strain measurement for civil structures including bridges, roads and dams
- Continuous monitoring of structural health of ships and aircraft
- Deep-hole oil pressure and temperature sensing
- Deep-sea oil platform riser monitoring

Features

- Stand-alone instrument that can simultaneously monitor up to 512 sensors
- Resolution 1 pm, fast scanning at 250 Hz, repeatability of 2 pm
- Standard Ethernet port provides easy data access and TCP/IP remote control
- Built-in, single-board computer with color display
- Rack mountable
- Three standard configurations with customizable, modular feature sets

Description

The Micron Optics si425 is a complete, stand-alone, multi-sensor measurement system that provides a high optical power, rapid measurement rate of up to 512 FBGs on four fibers. The si425 has been designed with an advanced laser capable of a maximum scan rate of 250 Hz and is expandable from 1 to 4 DUT channels. The user can choose scan frequencies from 1 to 250 Hz at fixed increments.

Four standard screen views are available either through the built-in LCD or via Ethernet on a remote PC.

1.) Sensor Wavelength View: shows λ vs. Time for selected sensors.

2.) Table View: simultaneously displays λ for all sensors on all channels.

3.) Channel Power View: sets gain level for each channel.

4.) FFT View: Cleanly and accurately identifies the fundamental frequency of oscillations.

An optional 16 channel expansion unit adds to the flexibility and sensor capacity of the si425 line of instruments. The expansion unit allows a four-channel si425 to expand to a 16 channel unit accommodating 16 fibers and up to a total of 2048 sensors. The expansion unit is fully integrated with the si425 and can be accessed either remotely via Ethernet or through the si425 front panel controls.

MICRON OPTICS

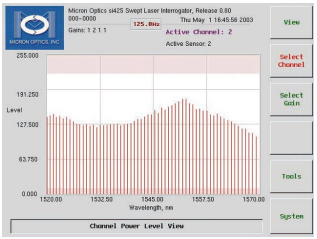
si425 | Optical Sensing Interrogator

Specifications	500	300	200
Optical			
Number of Optical Channels	4 (8 or 16 optional)	2	1
Maximum Number of FBG Sensors/Channel	128	64	32
Wavelength Range	1520 to 1570 nm (1510 to 1590 nm optional)		
Resolution[1]	1 pm	1 pm	1 pm
Repeatability	2 pm (~1.7 με typ, 5 pm max)		
Typical Grating Configuration	Apodized, reflectivity > 90%, BW < 0.25nm		
Dynamic Range	25 dB	15 dB	15 dB
Scan Frequency	250 Hz[2]	100 Hz	50 Hz
Optical Connectors	FC/APC	FC/APC	FC/APC
Electrical			
Power Supply	24 VDC or 100 to 240 VAC		
External Data Access Interface	Ethernet	Ethernet	Ethernet
Mechanical			
Color LCD Display	Yes	Yes	No
Operating Temperature	10˚ to 40˚ C	10˚ to 40˚ C	10˚ to 40˚ C
Dimensions	133x432x451 mm	133x432x451 mm	133x432x451 mm

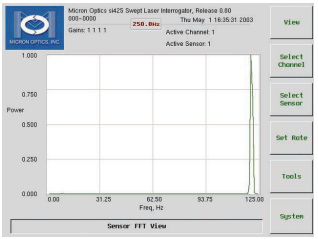
Notes:

(1.) 1 pm resolution achieved via averaging

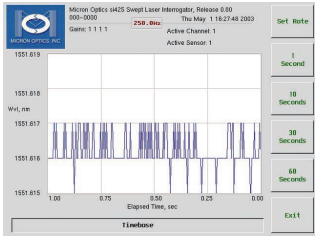
(2.) 125 Hz for > 100 sensors



Channel Power View



FFT View



Sensor Wavelength View

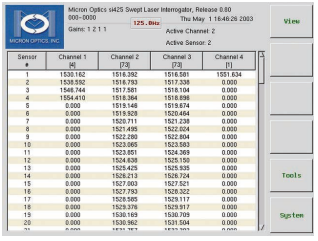


Table View

si425 Series Options

sm040-416 (16-ch. Switch Extension): 1U box converting four optical channel I/O from si425-500 instrument to 16 optical channel I/O for sensor arrays. Product pricing includes all necessary jumpers, standard 100V/220V operation, control software and Ethernet command set providing access through LabVIEW™.

sm040-408 (8-ch. Switch Extension): 1U box converting four optical channel I/O from si425-500 instrument to 8 optical channel I/O for sensor arrays. Product pricing includes all necessary jumpers, standard 100V/220V operation, control software and Ethernet command set providing access through LabVIEW™.

sm040-016 (16-ch. Coupler Extension): This 1U chassis contains four 1x4 couplers to accommodate connection of up to four fibers per channel. All fibers are scanned simultaneously. This provides no net gain of wavelength range or sensor capacity; it is solely intended to provide more fiber connection options.

sm040-008 (8-ch. Coupler Extension): This 1U chassis contains four 1x2 couplers to accommodate connection of up to two fibers per channel. All fibers are scanned simultaneously. This provides no net gain of wavelength range or sensor capacity; it is solely intended to provide more fiber connection options.

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