



Applications

- Characterization of high speed strain or crack propagation
- Ballistics testing and blast analysis
- Acoustic emissions monitoring
- High speed vibration mode analysis

Features

- Up to 500kHz for a single channel or 100kHz sampling on four simultaneous channels
- Ultra-high sensitivity of $0.02\mu\epsilon$ for periodic vibrations
- Wide range vibration monitoring to $10,000\mu\epsilon$ events
- Intuitive, easy to use graphical interface

Description

The **si920** is a high sensitivity, high speed optical sensing interrogator, capable of monitoring and analyzing vibration modes on FBG sensors on up to four simultaneous channels with acquisition rates as fast as 500kHz on a single channel or 100kHz on four parallel channels. The **si920** is built with a revolutionary, patent-pending architecture, using four parallel high performance Fiber Fabry-Perot tunable filters, one on each of four parallel channels.

The unmatched optical performance of MOI tunable filters ensures the **si920** high speed, high sensitivity sensor vibration measurements that are unparalleled in the industry.

High speed optical sensor and vibration measurements using the **si920** can be used in applications such as ballistics testing and blast analysis, acoustic emissions monitoring, and other high speed vibration mode analysis applications.



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.)
- **Research** (medical devices, military armor, chemical sensing, etc.)



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si920 | Optical Sensing Interrogator

PRELIMINARY

Specifications

si920

Optical

Number of Optical Channels ^a	4
Acquisition Speed	500 kHz for single channel, 100 kHz on four simultaneous channels
Sensor Wavelength Range	1530 - 1560 nm
Wavelength Sensitivity/Range ^{b, c}	0.02 $\mu\epsilon$ / 100 $\mu\epsilon$ OR 0.2 $\mu\epsilon$ / 1,000 $\mu\epsilon$ OR 2 $\mu\epsilon$ / 10,000 $\mu\epsilon$
Optical Connectors	FC/APC (E2000 available)

Mechanical

Dimensions	134 mm x 432 mm x 451 mm
Weight	15.5 kg (34 lbs)
Color LCD Display	162 mm (Diagonal)

Environmental

Operating Temperature	10° to 30°C
Operating Humidity	0 to 80%, non-condensing
Storage Temperature	-20° to 70°C
Storage Humidity	0 to 95%, non-condensing

Electrical

Input Voltage	100 VAC to 240 VAC, 50/60 Hz input (24 VDC available)
Power Consumption	80 W typ, 150 W Max
Local Data Storage	80GB Internal hard drive
Interfaces	Ethernet

Data Management

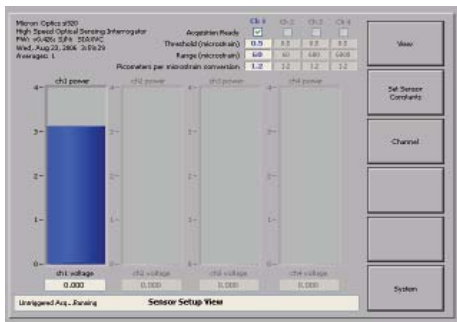
On-Board Firmware	4 spectral domain views (for FFT analysis) or time varying signal. Triggered acquisition.
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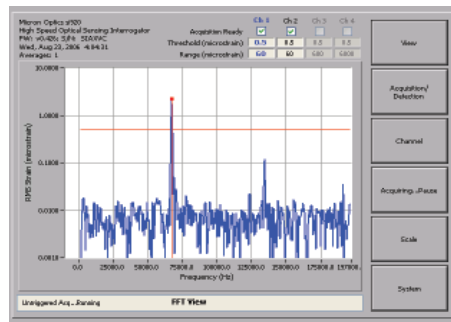
Notes:

- a The si920 measures 1 FBG sensor per optical channel.
- b Optical channels 1-4 are independently configured. Customers select the specific "Wavelength Sensitivity/Range" combination they want for each channel.
Example: Customer could select CH-1 (0.02 $\mu\epsilon$ / 100 $\mu\epsilon$ option), CH-2&3 (0.2 $\mu\epsilon$ / 1,000 $\mu\epsilon$ option) and CH-4 (2 $\mu\epsilon$ / 10,000 $\mu\epsilon$ option) or other combinations
- c Strain values assume ~ 1.2 pm/ $\mu\epsilon$.

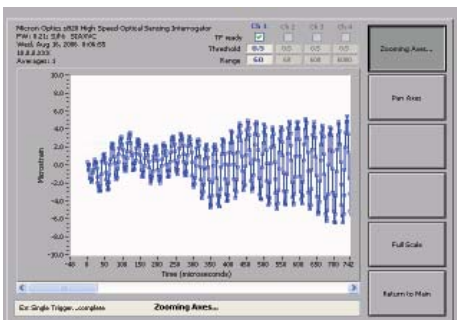
On-Board Data Analysis Tools



Sensor Set-Up View



FFT View



Time Domain View

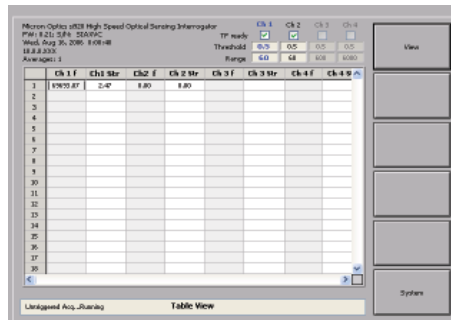


Table View

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optical sensing



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