

Optical Sensing Interrogator | si920

Alpha Prototype

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 μ e for periodic vibrations
- Wide range vibration monitoring to 10,000 μ e 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 unmatched optical performance of Micron Optics 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.



What does the Micron Optics Designation of “Alpha Prototype” mean?

In addition to volume manufacturing, Micron Optics closely collaborates with researchers in many fields, pursuing new ideas and projects that often result in new instruments and components with unique capabilities. Micron Optics maintains clear distinctions between products and prototypes within our Time-to-Market development process.

An “Alpha” designation indicates prototype (not product) that has been initiated through standard product development or research channels, but is not necessarily destined to become Beta or Qualified product. Alpha prototypes are intended for experienced research customers and enable use of a new or unique measurement technology. Micron Optics values user feedback regarding an Alpha prototype which can spark a new, ground-up development of a Micron Optics product.

Specifications ^α

si920

Performance Properties

Number of Optical Channels ²	4
Acquisition Speed	500 kHz for single channel, 100 kHz on four simultaneous channels
Sensor Wavelength Range	1530 - 1560 nm
Strain Sensitivity/Range ^{3,4}	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)
Optimal FBG Specifications	0,5nm Bandwidth, >80% Reflectivity

Mechanical Properties

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

Environmental Properties

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 Properties

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

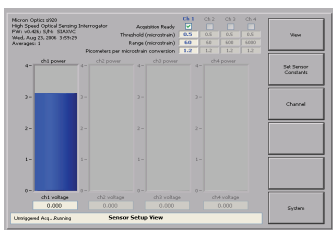
Data Management

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

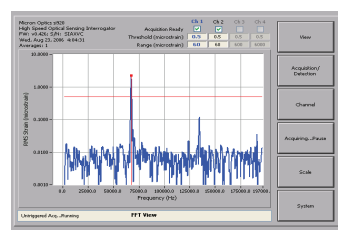
Notes:

1. Denotes Alpha Prototype. For more detailed description see www.micronoptics.com/product_designation.php
2. The si920 measures 1 FBG sensor per optical channel.
3. Optical channels 1-4 are independantly configured. Customers select the specific "Strain Sensitivity/Range"
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.
4. Strain values assume ~ 1.2 $\mu\text{m}/\mu\text{m}$.

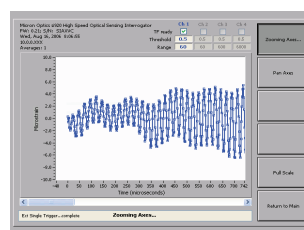
On-Board Data Analysis Tools



Sensor Set-Up View



FFT View



Time Domain View

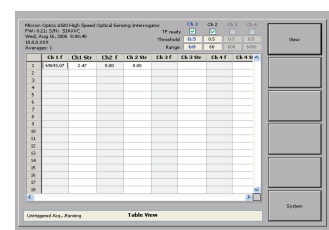


Table View