Miniature NIR Spectrometers: Designed for Harsh Environments

BaySpec, Inc.

Analytical chemists, along with other instrumentation professionals have long recognized great potential for NIR spectroscopic analyzers in many application areas ranging from lab analysis to product line monitors. Until now, however, NIR process analytical instrumentation was too big, too expensive, too fragile, and so sophisticated they required highly trained operators for "real-world" applications use.

BaySpec's SuperGamut™ Series NIR Spectral Engines solve today's challenges through the application of proprietary Volume Phase Grating (VPG™) technology offering for the first time instrumentation manufacturers the features they need:

- Excellent spectral resolution and measurement accuracy
- Fast data acquisition speed
- Compact, handheld size saving space and weight
- High reliability through hermetically-sealed, no moving parts designs
- Ultra-low power consumption for portability and enhanced reliability
- Volume production experience for lot-lot consistency and lower cost
- Lifetime calibration

The SuperGamut™ Series was born out the telecommunication market's "boom and bust," which produced an array of components and technologies, such as revolutionary Volume Phase Gratings (VPG®), high speed electronic chips, reliable low cost light source, and high speed NIR photo-detectors. Collectively, they enable the dream of a low-cost, yet highly accurate spectral device. Out of the ashes comes new growth.

SuperGamut™ Series instruments yield high spectral resolution and high optical throughputs under harsh environmental conditions over a broad NIR 800-2500 nm range at attractive total costs of ownership. Both reflectance and transmission modes of spectroscopic measurements and process applications are supported.

Customers in NIR spectroscopy and biomedical industries are now benefiting and building systems to meet the world's current optical system challenges.

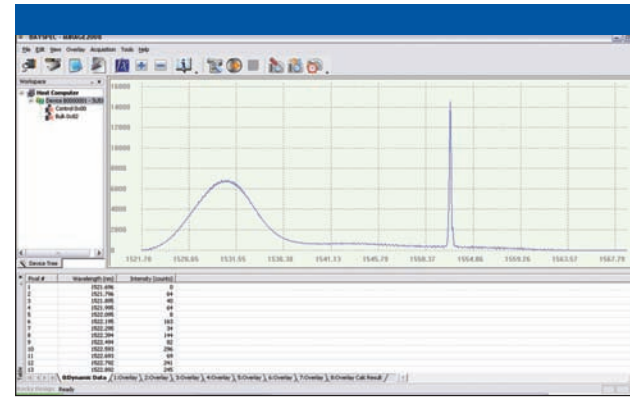
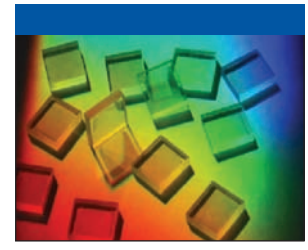


Figure 1: High wavelength stability is achieved through hermetic, no moving parts package design.



Volume Phase Gratings®

SuperGamut™ NIR Spectral Engine

References

(1) W. Yang, Compact Optical Performance Monitor, U.S. Patent #6704509, Nov. 17, 2000.

(2) "Multiwavelength Simultaneous Monitoring Circuit Employing Wavelength Crossover Properties Of Arrayed-Waveguide Grating", By M. Teshima, M. Koga and K.Sato; Electronics Letters, vol. 31, No. 18, Aug. 31, 95, pp. 1595-1597.

BaySpec, Inc.

101 Hammond Avenue
Fremont, CA 94539
Tel. (510) 661-2008, Fax (510) 661-2009
info@bayspec.com, www.bayspec.com