Headwall PHOTONICS

Data Sheet

Hyperspec™ VNIR
Hyperspectral Imaging Spectrometer

Hyperspec® VNIR imaging sensor for the 400nm to 1000 nm spectral range

Headwall's Hyperspec® VNIR family of integrated hyperspectral imaging sensors provides the foundation for utilizing hyperspectral imaging to achieve superior spectral sensing and chemical imaging results for mission-critical applications ranging from process monitoring to moving webs of product across conveyor lines to non-invasive medical imaging where precise color measurement is critical to the application.

The award-winning, Hyperspec® imaging spectrometer family is built on a totally reflective concentric, f/2.0 optical design and optimized for imaging in harsh environments. All Hyperspec® instruments are based on Headwall's patented aberration-corrected, imaging design which feature the company's "original", high efficiency holographic diffraction gratings.

In order to minimize stray light and aberrations, transmissive optical components are not used within the imaging spectrometer. This platform is further enhanced by a telecentric optical input design which enables superior spectral and spatial imaging.

The Hyperspec® VNIR imaging spectrometer is available in two configurations - as a lens-based imager or as a multi-channel/multi-point spectrometer; each model providing different capabilities to support application requirements such as frame rates, dynamic range, region of interest binning, price, and more.

The Hyperspec® VNIR sensors are also available with the Hyperspec® Starter Kit, the Hyperspec® Reflectance/Fluorescence System, and in pan/tilt configurations for stationary deployment.

Application-Specific Solutions For Critical Environments

Applications:

- Machine vision
- Moving webs of product
- Color measurement
- Pulp & paper
- Textile production
- Food safety & quality
- LCD/display quality control
- Microscopy & health sciences
- Multi-channel/multi-point spectroscopy
- Process control of biomass/biofuels
- Remote sensing & analysis
- Military, defense & homeland security
- Waste recycling & sorting

Key Benefits:

- Superb imaging performance
- Exceptional spectral & spatial resolution
- Ideal for low light, low signal applications
- Accurate, consistent spectral measurement
- Compact with very wide field of view
- Extremely high signal-to-noise
- Low scatter or stray light
- Rugged design for durability & stability
- Cost effective deployment

Hyperspec™ VNIR	C-Series	N-Series
Wavelength Range (nm)	400-1000	400-1000
Aperture	F/2.0	F/2.0
Dispersion per pixel	0.72nm	0.89nm
Slit Width (Interchangeable) Optional - 12, 16, 40, 60, 100	25µm	25µm
Slit Length	18mm	18mm
Spectral Resolution (25µ slit)	2-3 nm	2-3 nm
Spectral Bands	837	675
Spatial Bands	1392	1004
Smile - Aberration-corrected	Yes	Yes
Keystone - Aberration-corrected	Yes	Yes
Stray Light	< 0.02%	< 0.02%

Image Acquistion	C-Series	N-Series
Detector	Silicon	Silicon
Dynamic Range	68 db	64 db
Frame Rates (fps)	12-23	12-236
Pixel Pitch (microns)	6.45	8.0
Read A/D	12 bits	14 bits
Binning	Yes	Yes
Region of Interest	No	Yes
Camera Control Interface	PCI Compact PCI	USB 2.0

Environmental & Mechanical	C-Series	N-Series
Operational Temperature	10°C - 40°C	0°C - 30°C
Storage Temperature	-20°C - 70°C	-25°C - 55°C
Relative Humidity (Non-Condensing)	10-90%	< 70%
Weight	6.7 lbs/3.0 kg	7.5 lbs/3.4 kg

Optimized for every application, Hyperspec® imaging spectrometers offer industry leading spectral imaging performance.

Headwall Photonics is the leading designer and manufacturer of imaging spectrometers.

Hyperspectral Sensors	Spectral Range
Hyperspec® VIS	380 - 825 nm
Hyperspec® VNIR	400 - 1000 nm
Hyperspec® Extended VNIR	600 - 1600 nm
Hyperspec® NIR	900 - 1700 nm
Hyperspec® SWIR	1000 - 2500 nm
High Efficiency Hyperspec® NIR	900 - 1700 nm
High Efficiency Hyperspec® SWIR	1000 - 2500 nm

Information on UV, MWIR, and LWIR Hyperspec® sensors are available upon request.

Raman Imaging Instruments

Raman Explorer™ 266 nm
Raman Explorer™ 532 nm
Raman Explorer™ 642 nm
Raman Explorer™ 785nm
Raman Explorer™ 830 nm
Raman Explorer™ 1064 nm

Visit www.HeadwallPhotonics.com for more information on end-user and OEM spectral imaging solutions.

About Headwall Photonics:

Headwall Photonics is the leading designer and manufacturer of imaging spectrometers and spectral instrumentation for industrial, commercial, and government markets. Headwall's high performance spectrometers, spectral engines, and holographic diffraction gratings have been selected by OEM and end-user customers around the world for use in critical application environments. As a pioneer in the development of innovative spectrographs and imaging spectrometers based on optical technologies, Headwall enjoys a market leadership position through the design and manufacture of patented spectral instrumentation that is customized for application-specific performance. Headwall Photonics was formed in 2003 as the result of a management buy-out from Agilent Technologies. **For more information please call 978.353.4100 or email us at Information@HeadwallPhotonics.com.**

Headwall Photonics • 601 River Street • Fitchburg, MA 01420 • 978.353.4100 tel • www.HeadwallPhotonics.com