

Hyperspec SWIR® imaging sensor for the 1000nm to 2500nm spectral range

Headwall's Hyperspec® SWIR imaging spectrometer provides unparalleled spectral and spatial performance in the short wave infrared spectral region of 1000 to 2500 nm. Being the industry's smallest SWIR hyperspectral sensor, a range of new applications are enabled in areas such as mining & exploration, remote sensing, and process manufacturing.

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® SWIR 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® SWIR sensor 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:

- Airborne environmental monitoring
- LCD/display quality control
- Process monitoring
- Pharmaceutical manufacturing
- Mining & mineral exploration
- Semiconductor inspection
- Remote sensing & analysis
- Waste recycling & sorting

Key Benefits:

- Broad spectral range
- 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™ SWIR

Wavelength Range (nm)	1000-2500
Aperture	F/2.0
Dispersion per Pixel	7.5 nm
Slit Width (Interchangeable) Optional - 12, 16, 40, 60, 100	25 µm
Slit Length	18 mm
Spectral Resolution (25µ slit)	8-12 nm
Spectral Bands	200
Spatial Bands	320
Aberration-corrected (smile)	Yes
Aberration-corrected (keystone)	Yes
Stray Light	< 0.02%

Detector & Electronics

Detector	MCT
Dynamic Range	69 db
Frame Rates (Full Frame)	60 or 100
Pixel Pitch (microns)	30
Read A/D	14 bit
Binning	No
Region of Interest	Yes
Camera Control Interface	USB 2.0 / CameraLink™

Environmental & Mechanical

Operational Temperature	0° C - 50° C
Storage	-10° C - 70° C
Relative Humidity	Non-Condensing
Weight	~8.8 lbs/4.1 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.



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