

## Dual VNIR-SWIR sensor package with co-aligned pixels for superb imaging performance from 400-2500nm.

Headwall's VNIR-SWIR imaging sensor leverages a patented aberration-corrected design that provides very high spectral and spatial resolution with stable measurement accuracy. With diffractive optics specifically designed and manufactured by Headwall, the dual hyperspectral sensors do not exhibit image aberrations such as stray light, optical distortions, or thermal instabilities. Along with aberration-corrected imaging, the Hyperspec VNIR-SWIR sensor package offers a wide field of view and high signal-to-noise (SNR) performance. Pixels from both sensors are co-aligned through software.

Headwall's Hyperspec® VNIR-SWIR sensor provides image data across the broadband range of 400-2500nm, reducing processing times and yielding superior imaging performance. A CMOS FPA is used for the VNIR sensor while a cooled MCT array is used for the SWIR sensor. Inside the enclosure is a high-accuracy GPS/IMU plus the data storage and processing computer.

Headwall's VNIR-SWIR airborne sensor package measures approximately 10.7" x 8.2" x 6.5" in size (272mm x 208mm x 165mm) and weighs approximately 6.25 lb. (2.83 kg), making it suitable for aircraft and certain UAVs.



### Applications:

- Airborne remote sensing
- Precision agriculture
- Minerals & mining exploration
- Environmental monitoring
- Petroleum & pipeline monitoring

### Key Benefits:

- Superb imaging performance
- Wideband coverage
- Pixel co-alignment through software
- Small form-factor, lightweight
- Robust and environmentally rugged
- Aberration-corrected
- High spatial and spectral resolution
- Wide field-of-view

Application-Specific Solutions For Critical Environments

## Dual-Sensor VNIR-SWIR Package

Spectral Range	VNIR (400-1000nm)	SWIR (900-2500nm)
Spectrograph Design	High throughput aberration-corrected concentric imager	
Spectral pixels	271	267
Detector Pixel Pitch (microns)	7.4	15
Dispersion per pixel (nm/pixel)	2.2	6
FWHM Slit Image (nm)	6	8
Spatial pixels	640	
f/#	2.5	
Slit length (mm)	6	10.4
Slit width (microns)	20	
Camera Technology	CMOS	Stirling-cooled MCT
Max Frame Rate (Hz)	330	>100
Bit Depth	12	14
Size	approx. 10.7" x 8.2" x 6.5" (272mm x 208mm x 165mm)	
Weight (lb / kg)	6.25 / 2.83	

**About Headwall Photonics:** Headwall 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 advanced, patented optics technology, Headwall enjoys a market-leading position through the design and manufacture of spectral instrumentation that is customized for application-specific performance.

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