

The Micro-Hyperspec® family of hyperspectral sensors provides superb spectral/spatial imaging and high sensitivity in a small, lightweight, power-efficient package. Versions covering VNIR, Extended VNIR, NIR and SWIR are available.

Headwall's Micro-Hyperspec® sensors address the need for very small, lightweight, and robust hyperspectral imaging instruments capable of being deployed in harsh airborne environments and where payload restrictions are critical. The sensors are particularly well suited for applications where high spectral/spatial resolution, high dynamic range, and measurement stability over wide temperature ranges are key performance parameters.

Micro-Hyperspec® is built on a totally reflective concentric f/2.5 optical design optimized for imaging in harsh environments. It can weigh as little as 1.6 lb. (without lens) depending on configuration. Headwall's imaging sensors minimize stray light and aberrations by eliminating transmissive optical components such as prisms. In addition to airborne deployment, these sensors are also suited for a wide range of other imaging applications. Headwall's 'airborne package' comprises GPS/IMU, optional LiDAR, control software, and data processing and storage. Designed and optimized for airborne deployment, it can be added to any of Headwall's hyperspectral sensors.


## Application-Specific Solutions For Critical Environments



## FEATURES

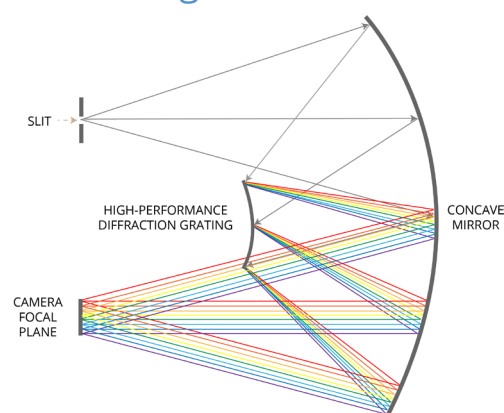
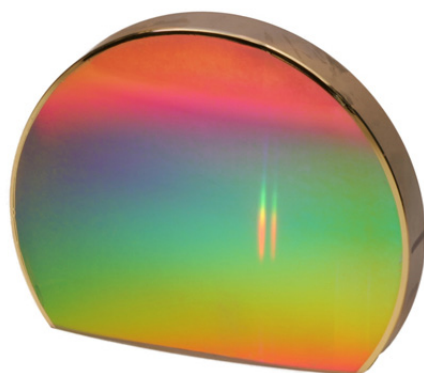
- **VNIR:** 1004/325 Spatial/Spectral bands (Base CameraLink) or 1600/370 Spatial/Spectral bands (Full CameraLink)
- **Extended VNIR:** 640 Spatial bands/267 Spectral bands with CameraLink; or 320/92 with USB.
- **NIR:** 640 Spatial bands/134 Spectral bands with CameraLink; or 320/67 with USB
- **SWIR:** 384 Spatial bands, 166 Spectral bands, base CameraLink & RS232.
- SWaP optimized for small UAVs
- High SNR
- Wide field of view

## SPECIFICATIONS (ALL VERSIONS)

Spectral Range 	VNIR		NIR		Extended VNIR		SWIR
Configuration	A-Series	E-Series	R-Series	X-Series	R-Series	X-Series	M-Series
Wavelength Range (nm)	400 - 1000		900 - 1700		600 - 1700		900-2500
Focal Plane Array	Silicon CCD	Scientific CMOS	InGaAs				MCT
Pixel Pitch (microns)	7.4	6.5	15	30	15	30	24
Aperture	F/2.5						
Slit Length (mm)	10.5						
Dispersion/Pixel (nm)	1.9	1.6	6	12	4.1	12	9.6
Entrance Slit Width (μm)	20		25		20		25
FWHM Slit Image (nm)	5		10	10	5.5	10	10
Spectral Bands	324	369	134	67	267	92	166
Spatial Bands	1004	1600	640	320	640	320	384
Aberration-Corrected	Yes						
Max. Frame Rate (Hz)	90	250	120	100	120	100	450
ADC Bit Depth	12	16	14				16
Cooling	No		TE Cooled	No	TE Cooled	No	Stirling Cooled
Digital Output Format	Base CameraLink	Full CameraLink, 80-bit	Base CameraLink	USB	Base CameraLink	USB	RS232/Base CameraLink
Weight without lens (lb / kg)	1.6 / 0.7	2.4 / 1.1	1.9 / 0.9	1.7/0.8	1.9 / 0.9	1.7/0.8	4.4 / 2.0
Max Power (W)	6.6	13.2	2.5	4	2.5	4	14.4

## All-Reflective Concentric Optical Design

*Headwall's hyperspectral sensors deliver aberration-corrected imaging characterized by high spatial and spectral resolution, a wide field of view, and very high signal throughput. Headwall's own application-specific diffraction gratings are fundamental to these key specifications, which are crucial for airborne hyperspectral sensors. Headwall's all-reflective, concentric sensor design is robust and thermally stable.*



**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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