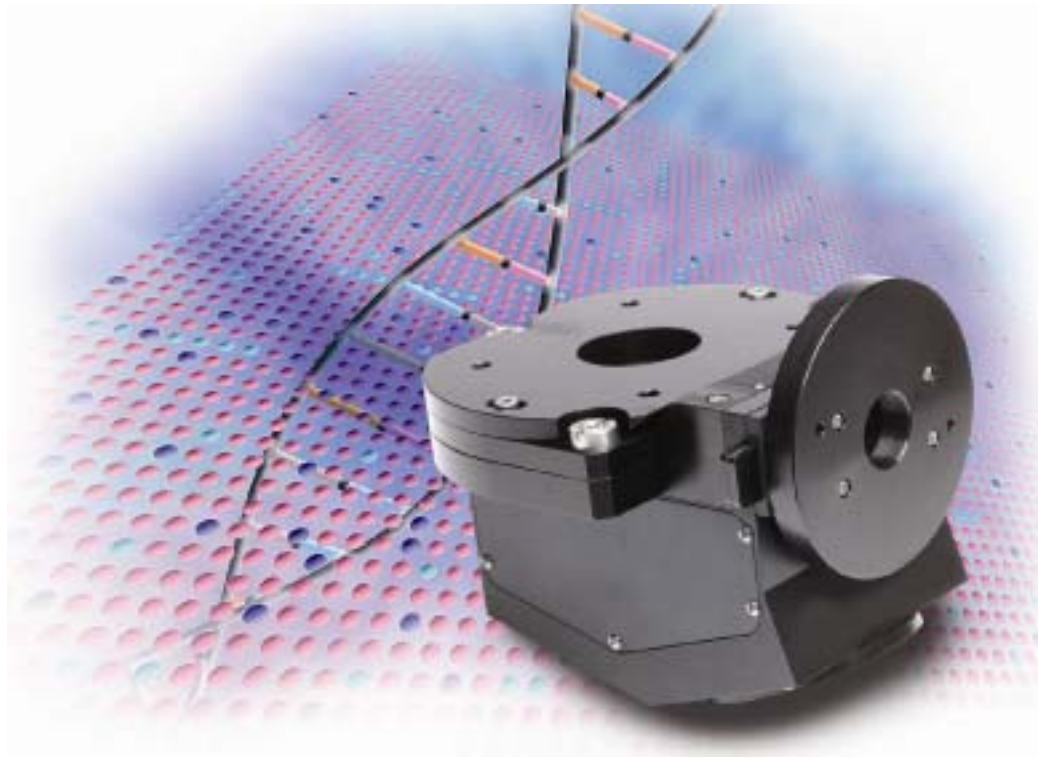




2004 R&D Award for
Engineering Excellence



2005 ASAE Award for
Technology Innovation



Hyperspec™ VS Imaging Spectrographs

**Superb f/2.0, f/2.3 & f/2.5
designs for high optical
throughput**

**Aberration-corrected imaging
for harsh environments**

**Up to 18 mm x 6 mm focal plane
with very low distortion**

**Extremely low stray light &
high signal to noise ratios**

Headwall Photonics' Hyperspec™ VS family of imaging spectrographs are very compact, high-throughput imaging spectrographs for use with the latest large-format focal plane array detectors. With an exceptionally large and distortion-free image plane, these concentric design spectrographs are intended for hyperspectral imaging applications where very high spectral-spatial resolution is required.

Employing our world-renowned original holographic diffraction gratings to dramatically reduce stray light, the Hyperspec™ VS family employs Headwall's patented, aberration-corrected convex grating designs which eliminate focal plane distortions such as keystone and smile. High throughput optics (f/2.0 VNIR, f/2.3 NIR, f/2.5 SWIR) ensure high signal to noise ratios. The concentric spectrograph design enables exceptional imaging over the full extent of an 18 mm tall slit, providing the highest spatial resolution available. The entrance slit is 12 μm wide resulting in superb spectral resolution, which permits "binning" for enhanced sensitivity.

Expanding on the Hyperspec™ VS-15 product, Headwall offers these proven, fourth generation sensors. The Hyperspec™ VS-25 imaging spectrograph covers 400-1000 nm over a 6 mm dispersion with extremely high optical efficiency and resolution. For applications in the NIR region, from 900nm to 1700nm, Headwall offers the Hyperspec™ VS-50 spectrograph and the Hyperspec™ VS-75 for the SWIR region of 1000nm to 2500nm. All of these products are designed for imaging in harsh environments and are available as a spectrograph or as complete, integrated hyperspectral imaging instruments.



Hyperspec™ VS Imaging Spectrographs

Available Slits

Width (μm)		Height (mm)
12	x	18
25	x	18
40	x	18

Dimensions

Length	5.0"
Width	6.0"
Height	4.0"
Weight	7 lbs (3.1 kg)
Body Material	Anodized Aluminum

General Specifications

Patented design	Concentric imaging spectrograph with original aberration-corrected convex diffraction gratings	
Max Image Plane Area	18mm spatial x 6/6.4mm spectral	
Image Distortion	< 0.1% keystone < 0.1% smile	
	<u>Spectral Range</u>	<u>Spectral Resolution</u>
VS-25	400-1000nm	~ 1-2 nm
VS-50	900-1700nm	~ 6-8 nm
VS-75	1000-2500nm	~ 15-18 nm

HyperSpec™ VS platform is customizable for additional spectral ranges (UV, MWIR, LWIR)

Detector Mounts

Mounted in an enclosure only 5.0" x 6.0" x 4.0" in size, the Hyperspec™ VS family offers very simple and robust construction and has no moving parts to fail. A large detector flange permits sturdy mounting for a variety of detectors operating in a wide range of harsh application environments (airborne, space platform, and industrial).

Fore-optic Mount
Detector Mounts

C-Mount thread for fore-optics
Mounting flanges available for standard or custom CCD cameras



Push Broom Scanning

Visual image in field of view (FOV)

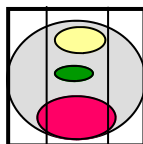
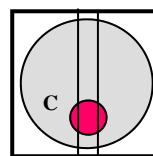
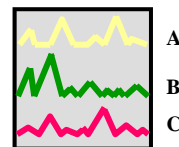


Image at target wavelength λ



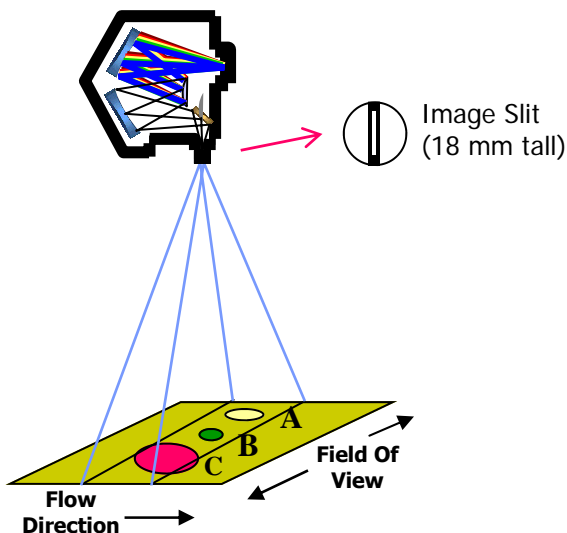
Spectra for points A, B, C in visual image



Applications

Airborne Hyperspectral Imaging
Space Platform Remote Sensing
Battlespace Assessment
Search & Rescue
Process Monitoring of Moving Webs
Medical Imaging & Diagnosis

The Hyperspec™ starter kit is available with Hyperspec™ products



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