Data Sheet

Integrated Hyperspec®
Imaging Solution

Headwall provides a complete and fully integrated airborne solution comprising GPS/INS, data-processing, and applications software.

For airborne remote sensing applications, Headwall brings together a completely integrated package designed to work with your choice of Hyperspec® sensor. The package includes GPS/INS functionality (LiDAR optional), integrated data-processing hardware, and Headwall's Hyperspec III airborne applications software that manages the operation of the sensor throughout flight. The entire package has been optimized for small size and light weight, and all elements are fully integrated.

Headwall offers both multi-rotor and fixed-wing UAV solutions to meet a very broad range of application needs.

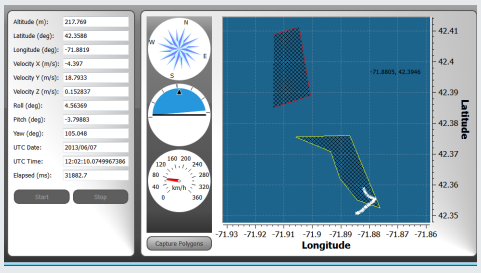
Headwall's Micro-Hyperspec® sensors address the need for very small, lightweight, and robust hyperspectral imaging instruments capable of being deployed in harsh environments. The sensors are particularly well suited for applications where high spectral/spatial resolution and high dynamic range are key performance parameters. Micro-Hyperspec® G-Series covers the 400-1000nm VNIR spectral range; other versions are also available for the NIR (900-1700nm), Extended VNIR (550-1700nm) and SWIR (950-2500nm) ranges. Headwall's patented aberration-corrected optics assure best resolution, high signal to noise and flight-path efficiency thanks to a very wide field-of-view.

Headwall also provides complete hyperspectral data-processing as part of the overall airborne package. This includes the advanced Hyperspec III software, which manages sensor control and all incoming hyperspectral data. Headwall also has an on-line map-based 'Polygon Tool' that allows users to select the parameters for sensor operation while aloft.

Application-Specific Solutions For Critical Environments

Micro Hyperspec® Sensor

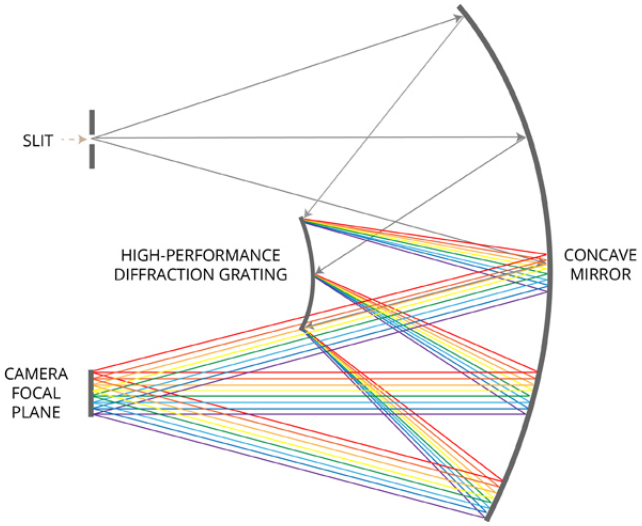
Integrated GPS/INS & optional LiDAR

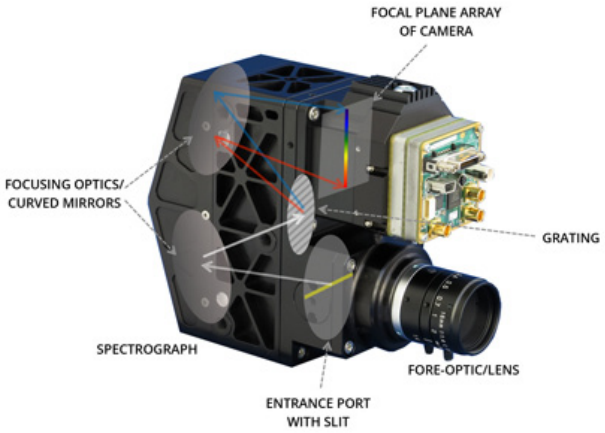


Airborne Application Software

Specifications	G-Series
Spectral Region (nm)	400 - 1000
F-Number	F/2.5
Array Size	640 x 480
Dispersion / Pixel	1.9
Pixel size (µm)	7.4 x 7.4
Spectral Bands	324
Spatial Bands	640
Slit Width (µm) (interchangeable)	20
Stray Light	< 0.5%
Keystone (µm)	3
Smile (µm)	3
Lens Mount	C-Mount
Ruggedized	Industrial
Read A/D	12-bit
Frame Rate (full frame)	> 205 fps
Camera Control	Ext. Control (Ethernet)
Image Acquisition	External
Cooling	N/A
Temperature (operation)	0° C to 50° C
Weight (without lens)	1.47 lb. (0.67 kg)

Diffractive Optics





SENSOR & RELATED

- Headwall's Micro-Hyperspec® sensor for airborne applications covers the VNIR spectral range (400-1000nm).
- Inertial Measurement Unit (IMU) with embedded GPS.
- Integrated data system

HYPERSPEC III SOFTWARE

- Pre-installed synchronization & acquisition routines within CHDPU.
- Complete post-processing software suite to obtain hyperspectral cubes and mosaics from the raw binary data.

SERVICES

- Integration services (sensor, UAV, GPS/LiDAR)
- Calibration (spectral; radiometric optional)
- Pre- and post-flight technical support
- Training

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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