



Fully integrated multi-rotor UAV with VNIR hyperspectral, LiDAR and software control, brought to you by Headwall Photonics!

This completely integrated package combines Headwall’s Nano-Hyperspec® VNIR hyperspectral sensor aboard the G4 Skycrane V2 UAV, with Velodyne LiDAR and advanced GPS technology.

Headwall’s Nano-Hyperspec sensor covers the crucial Visible-Near-Infrared (VNIR) range of 400-1000nm with aberration-corrected imaging performance, very high spatial and spectral resolution, and a wide field of view. The stability of the G4 Skycrane from Service Drone delivers exceptional safety and performance across a wide range of deployment scenarios. The Nano-Hyperspec sensor attaches easily to the stabilized gimbal on the G4, assuring stable imaging performance while aloft. By precisely managing parameters such as flight altitude, speed, direction and position of the sensor, the G4 Skycrane is perfectly suited for the collection of superb hyperspectral and LiDAR data. The Nano-Hyperspec contains on-board high-speed data-collection capabilities, which makes the integrated package lighter and more stable for increased flight duration. In addition, Headwall’s airborne Hyperspec® III software manages key tasks such as post-processing and orthorectification.



Nano-Hyperspec® VNIR Sensor Specifications						
Wavelength range (nm)	400-1000					
Spatial bands	640					
Spectral bands	270					
Dispersion/Pixel (nm/pixel)	2.2					
FWHM Slit Image	6nm					
Integrated 2 nd order filter	Yes					
f/#	2.5					
Layout	Aberration-corrected concentric					
Slit width (µm)	20					
Lens F/L (mm)	4.8	8	12	17	23	35
Angular FOV (degrees)	51°	33°	22°	16°	12°	7.7°
Per-pixel IFOV (mrad) spatial resolution	1.48	0.91	0.58	0.42	0.33	0.21
weight of lens (g)	90	90	99	85	94	92
Camera technology	Silicon CMOS					
Bit depth	12-bit					
Maximum Framerate (Hz)	300					
Detector pixel pitch (µm)	7.4					
Focal plane array format (pixels)	640 x 480					
Max Power (W)	13					
Storage capacity	480GB (~ 130 minutes at 100 fps)					
Weight without lens, GPS (lb / g)	1.15 / 522					

A complete, mission-ready airborne package combining hyperspectral and other necessary instrumentation aboard a high-performance multi-rotor UAS

