

The **OCI™-UAV** hyperspectral cameras (OCI is a phonetic spelling of "All Seeing Eye") are designed specifically for use on unmanned aerial vehicles/systems (UAV/UAS), or remotely operated vehicles (ROV). Packed with a high-performance, miniature single-board-computer, they acquire VIS-NIR hyperspectral data with continuous spectral and spatial coverage. Operating of the OCI-UAV is automatic and requires minimal human intervention. The OCI-UAV and powerful package features significant reduction in size (camera head only 8 cm x 6 cm x 6 cm with a computer as compact as 10 cm x 7.5 cm x 3 cm) and weight (up to 320 g total), and faster data transfer rate (up to 120 fps) with automatic data capturing and processing. Unlike conventional hyperspectral imagers which rely on intensive software effort on hyperspectral image cube construction, the innovative design of the OCI-UAV-1000 features "True Push-broom" – imagers can move to scan at random speeds. OCI-UAV-2000 as a snapshot hyperspectral imager fundamentally eliminates artifacts caused motions in flight. These innovations significantly reduce the requirements on UAV system, so that integration is almost effortless for many UAV/ROVs. BaySpec also provides ready-to-fly hyperspectral total solutions. Extreme compactness with uncompromised performance, automatic operation and data processing make the OCI-UAV a straightforward system for applications such as precision agriculture and remote sensing.

Applications:

- ↗ Precision Agriculture
- ↗ Airborne Mini UAV/ROV
- ↗ Remote Sensing
- ↗ Ground Survey
- ↗ Forest Survey
- ↗ Environmental Studies
- ↗ Law Enforcements
- ↗ Forensics
- ↗ Security and Defense
- ↗ Mining and Geology
- ↗ Oil and Gas Exploration
- ↗ Ocean Monitoring



OCI-UAV-1000 hyperspectral camera with an enclosure for gimbal mounting. ~ 180 g.

OCI-UAV system on a gimbal during flight

KEY FEATURES:

- ✓ Extremely compact and flexible
- ✓ Fast data rate up to 120 frame per second
- ✓ Innovative non-slit design significantly reduces system complexity
- ✓ No GPS/IMU needed for ground image reconstruction
- ✓ Real-time ground image preview
- ✓ Ready-to-fly system with automatic control software available

About BaySpec, Inc.

BaySpec, Inc., founded in 1999 with 100% manufacturing in the USA (San Jose, California), is a vertically integrated spectral sensing company. The company designs, manufactures and markets advanced spectral instruments, from UV-VIS spectrometers, bench-top and portable NIR and Raman analyzers, Hyperspectral imagers to confocal Raman microscopes, for the biomedical, pharmaceuticals, chemical, food, semiconductor, homeland security, and the optical telecommunications industries.

	Specifications	
Model	OCI™-UAV-1000	OCI™-UAV-2000
Operation Mode	True Push-broom	Snapshot
Spectral Range	Approx. 600-1000 nm	Approx. 600-1000 nm
Number of Spectral Bands	Approx. 100	Approx. 20-25
Spectral Resolution	< 5 nm FWHM	12-15 nm FWHM
Spatial Pixels	Up to 2048 X scan-length	Up to 400 X 200
Lens (Standard)	35 mm (18° FOV) ¹	
Objective Lens Interface	C-mount	
Exposure Time	1 – 300 ms	
Wavelength Calibration	Factory calibrated	
Frame Rate	Up to 120 frames/sec	
Operation	Automatic; frame rate control; delayed start	
Data Storage	Up to 500G (~ 2-4 hour non-stop, high-speed, high-resolution imaging)	
Data Format	ENVI-BSQ for hyper-cube, BMP band images, ROI spectra, and RAW (pixel data)	
Operating Temperature	-20°C to +60°C	
Power Consumption	< 4 W (powered by USB 3.0)	
Size	Camera with lens: 8 cm x 6 cm x 6 cm (3.2 in x 2.3 in. x 2.3 in.) Onboard computer: 10 cm x 7.5 cm x 3 cm (4.0 in x 3.0 in. x 1.2 in.)	
Weight	Camera and lens: 0.40 lb. (180 g) Onboard computer: 1.0 lb. (450 g)	
Onboard OS*	Windows 7 PRO	
Data Transfer Interface	USB 3.0 SuperSpeed	
Remote Control	WiFi (when in range)	
Ready-to-fly UAV System		
Frame	700 mm Multi-rotor, shock-resistant light polymer frame	
Flight Control	Automatic control via Mission Planner	
Accessories	Autopilot, Gimbal for OCI imager	
UAV Battery	2 x 4500 mAh LiPo	
Flight Time	Up to 20 min	

¹ Choice of other lenses available.

