

aisa **EAGLET** compact hyperspectral sensor

The most compact and complete airborne hyperspectral imaging system specifically designed for easy installation in UAVs or small piloted aircrafts. AisaEAGLET provides full, contiguous VNIR data with 1600 pixels across the swath.



AisaEAGLET sensor

L: 290 mm
W: 140 mm
H: 120 mm
Mass: 3,5 kg

For the first time, high performance hyperspectral imaging and exceptional compactness converge: SPECIM brings AisaEAGLET to the market, a system particularly designed to meet space and weight limitations of UAVs and small piloted aircrafts.

AisaEAGLET acquires full, contiguous VNIR hyperspectral data with a high spatial resolution of 1600 pixels and an excellent sensitivity even in low light conditions.

In addition to its high performance and compactness, AisaEAGLET's cost effectiveness makes it an exceptional and versatile remote sensing tool for environmental, forestry, agricultural, security and defence applications. The only moving part of AisaEAGLET is the shutter, used for dark image calibration between data collection sessions. Since the image data is captured without

any moving parts, there is no distortion caused by mechanical inaccuracies of the sensor itself.

MODULARITY AND COMPACTNESS

The AisaEAGLET system has a total mass of 10 kg including hyperspectral sensor, compact data acquisition computer and GPS/IMU unit. The system's modular design facilitates its installation in different payloads.

SPECIM provides support for the implementation of the sensor system control from ground through a telemetric link in the UAV.

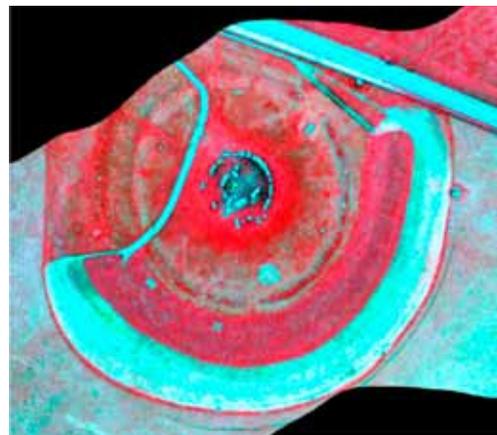
As well as other AISA sensors, AisaEAGLET can be easily used in ground based applications thanks to SPECIM's proprietary scanning devices, that allow scanning of the target from a static platform like a tripod or security monitoring facility.

AisaEAGLET Airborne Hyperspectral Imaging System

SPECIM provides AisaEAGLET as a full, ready-to-use system. The complete AisaEAGLET system consists of

- AisaEAGLET sensor
- Data Acquisition and Power Unit (DPU) with a user-friendly interface and image acquisition software (RSCube)
- High performance GPS/IMU sensor
- CaliGeoPRO pre-processing software

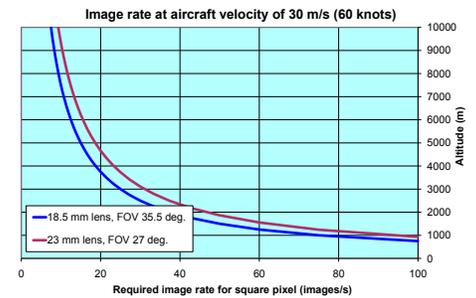
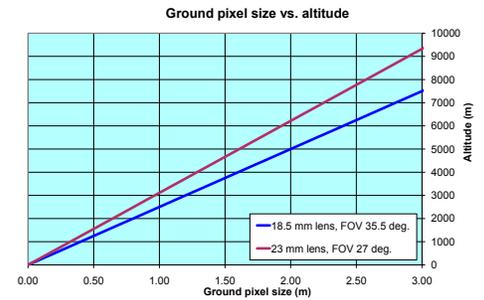
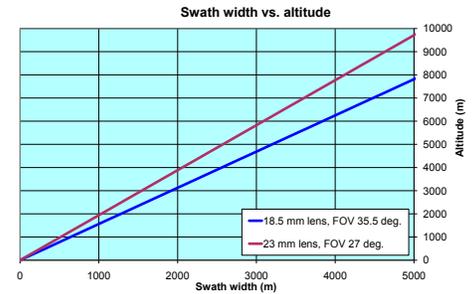
For more information about the complete system, please see the AISA Systems brochure.



AisaEAGLET collected hyperspectral data over the English prehistoric monument Stonehenge. Image courtesy of Airborne Technologies.

AisaEAGLET

OPTICAL CHARACTERISTICS		TYPICAL SPECIFICATIONS	
Spectrograph	High efficiency transmissive imaging spectrograph. Throughput practically independent of polarization. Smile and keystone < 2 microns.		
Numerical aperture	F/2.4		
Spectral range	400-1000 nm		
Spectral resolution	3.3 nm		
FODIS (optional)	Diffuse downwelling irradiance collector and fiber optic cable (5 m standard) with SMA connector		
Calibration	Sensor head comes with wavelength and radiometric calibration file.		
FORE OPTICS			
Fore optics options	OLE18,5	OLE23	Other lenses available on request, for more information contact SPECIM
FOV	35.5 degrees	27.2 degrees	
IFOV	0.022 degrees	0.017 degrees	
Swath width	0.64 x altitude	0.52 x altitude	
Ground resolution @ 1000 m altitude	0.4 m	0.33 m	
ELECTRICAL CHARACTERISTICS			
Detector	Progressive scan CCD detector		
Spectral binning options	2x	4x	8x
Number of spectral bands	410	205	102
Spectral sampling/band	1.4 nm	2.8 nm	5.6nm
Frame rate, up to (frames/s)	57	89	125
Spatial pixels	1600, of which ca. 100 FODIS pixels (optional)		
Output	12 bits digital		
SNR	130:1 - 300:1 (depending on the band configuration) More detailed SNR data in various conditions available from SPECIM.		
Integration time	Adjustable, independent of image rate		
Shutter	Electromechanical shutter for dark background registration, user controllable by software.		
Operating modes	Hyperspectral and multispectral. The operator can create application specific band configurations, and quickly change from one mode or configuration to others in flight operation		
Power consumption (complete system)	<100 W Typical, DC 10-30 V		
ENVIRONMENTAL CHARACTERISTICS			
Storage	- 20 ... +50 °C		
Operating	+ 5 ... +40 °C, non-condensing		



Disclaimer: specifications are subject to change without prior notice. Any errors or omissions are unintentional.

