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aisa OWL hyperspectral sensor

PRISM AWARDS FINALIST

SPECIM's high performance thermal airborne hyperspectral sensor AisaOWL covers the full spectral range 7.6 to 12.5 µm and acquires full, contiguous hyperspectral data with 100 spectral channels and 384 swath pixels.

AisaOWL sensor

AisaOWL is designed to provide the remote sensing market with the first LWIR hyperspectral imager which is compact for installation in the smallest aircrafts, even in UAVs, and can be operated and maintained without special technical expertise.

AisaOWL's performance meets the most demanding remote sensing applications in the thermal spectral region from 7.6 to 12.5 µm. The AisaOWL push-broom type sensor integrates SPECIM's proprietary temperature stabilized imaging spectrograph with the highest sensitivity cooled MCT camera. This state-of-the-art technology together with the sensor's advanced internal background monitoring and calibration solution provide high and stable performance during flight lines. The only moving part of AisaOWL 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.

Like all SPECIM's hyperspectral imaging sensors, AisaOWL is an off-the-shelf product. It makes AisaOWL a cost-efficient deployment not only for defense users, but also for commercial remote sensing companies and academic clients.

AisaOWL Airborne Hyperspectral Imaging System

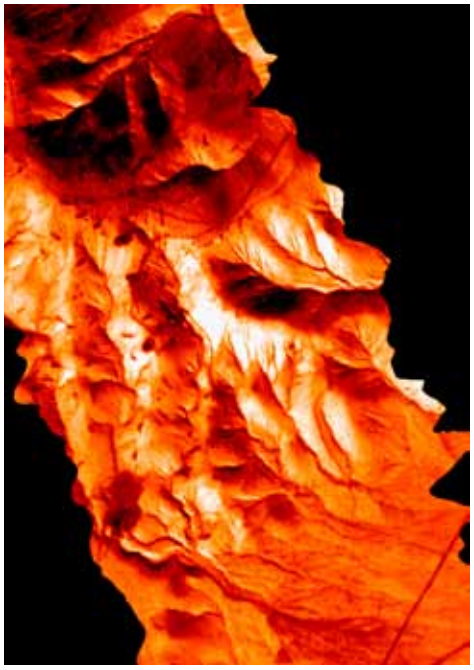
SPECIM provides AisaOWL as a full, ready to use system. The complete AisaOWL system consists of:

- The AisaOWL 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.

Key benefits

- Sensor size without fore lens ca. 175 x 285 x 200 mm, 13.1 kg
- No special maintenance requirements
- High sensitivity
- Superb spectral and spatial imaging performance
- Covers full LWIR 7.6 to 12.5 µm with 100 spectral bands



Part of a flight line mosaic over Cuprite, Nevada

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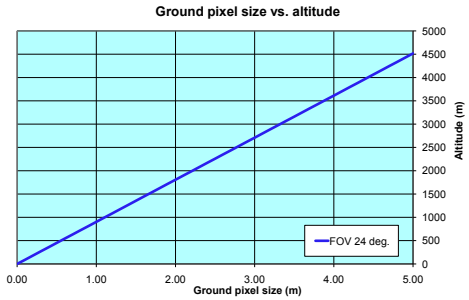
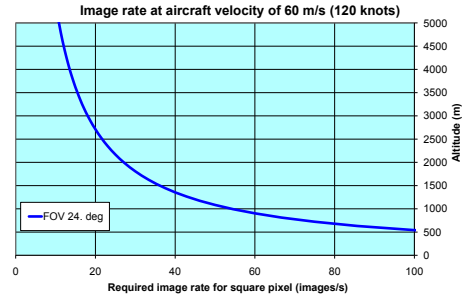
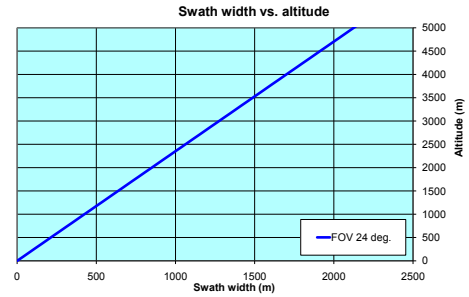
AisaOWL

OPTICAL CHARACTERISTICS	TYPICAL SPECIFICATIONS		
Spectrograph	High efficiency imaging spectrograph. Smile and keystone < 0.1 pixels		
Numerical aperture	F/2.0		
Spectral range	7.6 - 12.5 µm		
Spectral resolution	100 nm**		
Calibration	Sensor provided with wavelength and radiometric calibration file		
FORE OPTICS			
FOV	24 °		
IFOV (nominal)	0.063 °		
Swath width	0.425 x altitude		
Ground resolution at 1000 m altitude	1.1 m		
ELECTRICAL CHARACTERISTICS			
Detector	MCT with stirling-cycle cooler		
Number of spectral bands	100		
Spectral sampling/band	48 nm		
Frame rate	Up to 100 frames/s		
Spatial pixels	384 pixels		
Output	14-bit LVDS		
	At 8 µm	At 10 µm	At 12 µm
SNR (target 300 K)*	450	580	230
NESR (mW/m2srµm)*	21	18	40
Integration time	Adjustable, independent of image rate		
Shutter/internal calibration	Yes		
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.		
Optics temperature	Stabilized		
Power consumption	< 200 W		
Mechanical characteristics			
Size	ca. 175 x 285 x 200 mm		
Weight	13.1 kg		
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.

* x 2 software binning
** Diffraction limited