

# aisa OWL hyperspectral sensor

SPECIM will soon launch a high performance thermal airborne hyperspectral sensor. Covering the spectral range 8 to 12  $\mu\text{m}$ , AisaOWL system acquires full, contiguous hyperspectral data with 84 spectral channels and 384 swath pixels.

AisaOWL is designed to meet the most demanding remote sensing applications in the thermal spectral region from 8 to 12  $\mu\text{m}$ . AisaOWL sensor integrates SPECIM's proprietary temperature stabilized imaging spectrograph with highest sensitivity cooled MCT camera. This state-of-the-art technology together with sensor's advanced internal background monitoring and calibration solution provide high and stable performance during flight missions. The compact size and low weight of the AisaOWL sensor make it possible to install and operate it even in the smallest aircrafts.

## AisaOWL Airborne Hyperspectral Imaging System

SPECIM provides AisaOWL as a full, turnkey system. The complete AisaOWL system consists of:

- The AisaOWL sensor
- Image acquisition computer with a user-friendly interface and image acquisition software (RSCube)
- High performance GPS/INS sensor
- Power supply
- CaliGeo pre-processing software

## Performance Specifications (PRELIMINARY)

Optical characteristics			
Spectral range	8 - 12 $\mu\text{m}$		
Spectral bands	84		
Spectral resolution	100 nm**		
Spectral sampling/band	48		
Spatial pixels	384 pixels		
Field of view	24 °		
Spatial sampling	0.063 °		
Aberrations	Insignificant astigmatism, smile or keystone < 0.1 pixels		
Swath width	0.425 x altitude		
Ground resolution at 1000 m altitude	1.1 m		
Optics temperature	Stabilized		
Electrical characteristics			
Detector	MCT with stirling-cycle cooler		
Numerical aperture	F/2.0		
Pixel size	24 x 24 $\mu\text{m}$		
Camera output	14-bit LVDS		
Frame grabber	NI-PCI 1422 or 1424 National Instruments		
Frame rate	up to 100 fps		
Shutter/internal calibration	Yes		
Power consumption	< 200 W		
SNR (target 300 K)*	At 8 $\mu\text{m}$ : 450	At 10 $\mu\text{m}$ : 580	At 12 $\mu\text{m}$ : 230
NESR (mW/m <sup>2</sup> sr $\mu\text{m}$ )*	21	18	40
Mechanical characteristics			
Size	ca. 220 x 200 x 220 mm		
Weight	8.5 kg		
Environmental characteristics			
Storage	- 20 ... +50 °C		
Operating	+ 5 ... +40 °C, non-condensing		

Specifications subject to modifications without prior notice.

\* x 2 software binning

\*\* Diffraction limited