

# SPECIM



SPECTRAL IMAGING

## AISAOWL

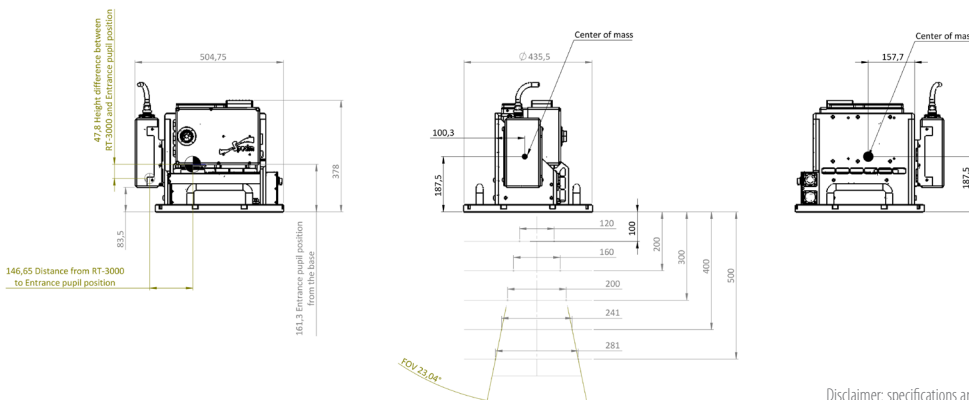


THE FIRST COMPACT  
HYPERSPPECTRAL IMAGER  
FOR LWIR

Camera specifications			
Spectrograph	High efficiency push-broom imaging spectrograph		
Spectral range	7.7 - 12.3 $\mu\text{m}$		
Spectral resolution	100 nm **		
F/#	F/2.0		
Calibration	Sensor provided with spectral, radiometric and geometric calibration file		
Signal-to-noise ratio (peak)	600 - 1 000:1 *		
Spatial resolution	384 pixels		
Frame rate	Up to 100 Hz		
Integration time	Adjustable, within frame time		
FOV	24° or 32.3°		
IFOV	0.063° or 0.084°		
Swath width	0.425 or 0.58 x altitude		
Ground resolution at 1 000 m altitude	1.1 or 1.5 m		
Electro mechanical shutter	Yes, Dual blackbody calibrator		
Optics temperature stabilization	Yes		
Detector	Stirling cooled MCT		
Number of spectral bands	96		
Spectral sampling / band	48 nm		
Output	14-bit LVDS		
SNR (target 300K)*	At 8 $\mu\text{m}$	At 10 $\mu\text{m}$	At 12 $\mu\text{m}$
NESR (mW/m <sup>2</sup> sr $\mu\text{m}$ )	360	500	200
	25	20	40
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	Sensor < 200 W Calibrator < 50 W (typ.) < 400 W (max)		
Mechanical characteristics			
Size	Sensor 255 x 285 x 223 mm	Calibrator 365 x 194 x 110 mm	
Weight	Sensor ca. 13.1 kg	Calibrator 4.5 kg	
Environmental characteristics			
Storage temperature	- 20 ... +50 °C		
Operating temperature	+ 5 ... +40 °C, non-condensing		

\* x 2 software binning

\*\* Diffraction limited



## BENEFITS OF AISAOWL

- Compact sensor
- Onboard calibrator
- No special maintenance requirements
- High sensitivity
- Excellent spectral and spatial imaging performance
- Covers full LWIR from 7.7 to 12.3  $\mu\text{m}$  with 96 spectral bands

AisaOWL is designed to provide the remote sensing market with the first LWIR hyperspectral imager which is compact for installation in the smallest aircraft, 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 7.7 to 12.3  $\mu\text{m}$ . 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 integrated 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.