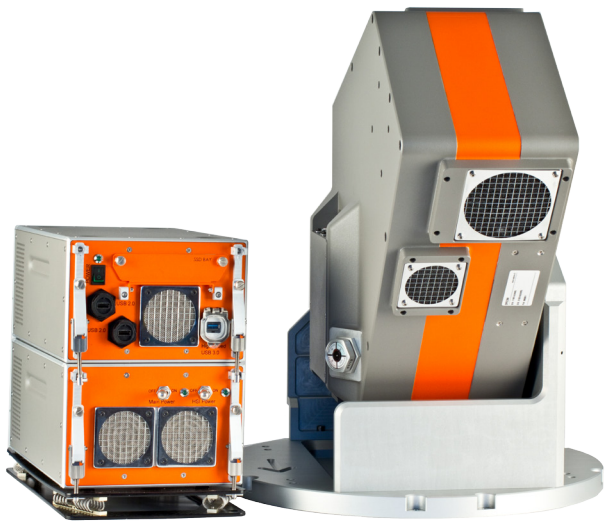
SPECIM
SPECTRAL IMAGING

# *aisa* FENIX 1K *hyperspectral sensor*


AisaFENIX 1K, the top-of-the-range full spectrum sensor with 1024 spatial pixels takes the productivity of hyperspectral imaging to an entirely new level. It produces the same top quality full spectrum hyperspectral data as does its forerunner, AisaFENIX and, at the same time, reduces the flight costs by 60 %, because less flight lines are required.



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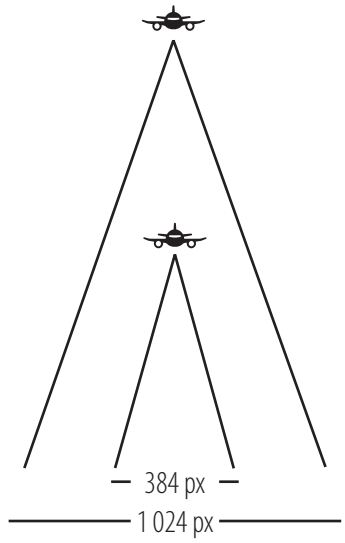
# AisaFENIX 1K

| OPTICAL CHARACTERISTICS | TYPICAL SPECIFICATIONS | | | |
|---|---|---|---|---|
| | VNIR | | | SWIR |
| Spectrograph | High efficiency transmissive imaging spectrograph. Throughput practically independent of polarization. Smile and keystone < ± 0.35 pixels. | | | |
| Numerical aperture | F/2.4 | | | |
| Spectral range | 380 - 970 nm | | | 970 - 2 500 nm |
| Spectral resolution | 4.5 nm | | | 14 nm |
| Calibration | Sensor provided with wavelength and radiometric calibration file. | | | |
| **FORE OPTICS** | | | | |
| FOV | 40 degrees | | | |
| IFOV | 0.039 degrees | | | |
| Swath width | 0.73 x altitude | | | |
| Altitude for 1 m pixel size | 1 400 m | | | |
| **ELECTRICAL CHARACTERISTICS** | | | | |
| Detector | CMOS | | | Stirling cooled MCT |
| Spectral binning options | 2x | 4x | 8x | - |
| Number of spectral bands | 348 | 174 | 87 | 256 |
| Spectral sampling/band | 1.7 nm | 3.4 nm | 6.8 nm | 6.3 nm |
| Frame rate, up to (frames/s) | 100 | | | |
| Spatial pixels | 1 024 | | | |
| Output | 12 bits CL | | | 16 bits CL |
| SNR | 600 - 1 000:1 (peak) * | | | 1 250:1(peak) |
| | More detailed SNR data in various conditions available from SPECIM. | | | |
| Integration time | Adjustable, within frame time | | | |
| Shutter | Electromechanical shutter for dark background registration, user-controllable by software. | | | |
| Optics temperature stabilization | Yes | | | |
| Operating modes | Hyperspectral and multispectral<br>The operator can create application specific band configurations, and quickly change from one mode or configuration to others in flight operation. | | | |
| Typical power consumption ** | 150 W | | | |
| Max. power consumption ** | 500 W | | | |
| **MECHANICAL CHARACTERISTICS** | | | | |
| Size | Sensor | | | DPU |
| | 530 x 530 x 210 mm | | | 300 x 260 x 195 mm |
| Weight | 22.5 kg | | | 9.5 kg |
| **ENVIRONMENTAL CHARACTERISTICS** | | | | |
| Storage | - 20 ... +50 ºC | | | |
| Operating | + 5 ... +40 ºC, non-condensing | | | |

* ) Depends on spectral binning
**) Complete system with DPU




## KEY BENEFITS

- Flying costs reduced by 60%
- Survey area covered 2.5 times faster
- Detection of targets occupying only a fraction of a pixel

## FEATURES

- VNIR and SWIR wavelengths from 400 nm to 2 500 nm
- A common fore optic eliminates the need to co-register the data
- Fully temperature stabilized sensor head
- Excellent signal-to-noise ratio

## APPLICATIONS

- Vegetation mapping: species classification, forest damages, fire science
- Environment: pollution control, environmental impact assesment
- Geology; mineral mapping, oil and gas exploration
- Law enforcement and defence; camouflaged targets, illicit farming



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AFE1K-B-1-15