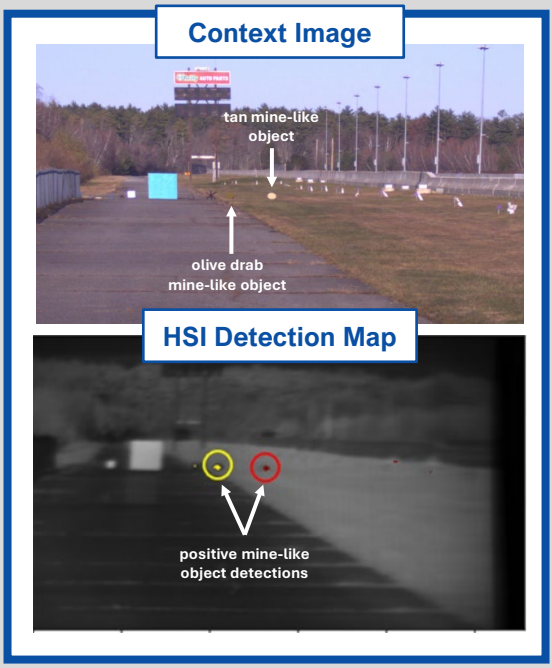
PHYSICAL SCIENCES INC.

High Speed VNIR/SWIR HSI for Mine and Obstacle Detection

Product Details

- Compact, high-speed, dual channel hyperspectral imager (HSI) covering 400-850 nm (VNIR) and 900-1700 nm (SWIR) compatible with small unmanned aerial system (UAS) operation enabling broadband, wide field of view, high quality hyperspectral imagery
- **System Benefits Include:**
  - Staring mode operation supporting high image quality and spatial resolution with minimal motion induced artifacts and noise,
  - Parallel scanning slits enabling rapid data acquisition (>896,000 spatial samples/s, 4.6 Hz data cube rate),
  - No macro-moving parts,
  - >45-minute run time with included 6600 mAh battery, and
  - Compact and lightweight packaging compatible with gimbaled pointing and stabilization systems, and small UASs
- Product is a 380×512 (spatial) × 86 (spectral) hyperspectral data cube calibrated for spectral radiance units at the entrance aperture acquired at 4.6 Hz
- Digital micromirror device (DMD)-based dynamic parallel spectrometer slits breaks interdependency between HSI and UAS supporting flexible revisit or foveation without cooperation by the UAS
- Sensor spectral resolution, spatial resolution, and field of view can be tailored for specific applications including mine and obstacle detection, vegetation trait mapping, and battlefield awareness
- **Prototype ROM Cost:** $350k (Single Unit)
- **Leadtime:** 8 months



Parameter	Value
Size	9”×9”×8.5”
Weight	18 lbs.
Power	45 W
Operating Temperature	-20 to 40 °C
HSI Spectral Resolution	27 nm (VNIR), 45 nm (SWIR)
HSI Spectral Range	400 – 1700 nm
HSI FOV	6 degrees x 8 degrees
HSI IFOV	270 µrad
No. of Spatial Samples	194,560
No. of Spectral Samples	86
HSI Cube Format	380 × 512 × 86
HSI Calibration	Spectral radiance at the aperture
HSI Cube Acquisition Rate	217 ms per cube
Entrance Slit Width	27.36 µm (2×2 DMD mirror binning; 13.68 µm pitch)
Diffraction Spectrometer f/#	f/3

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