

CORNING

# microHSI™ 410 SHARK

*Integrated, Coherent Airborne Hyperspectral Imaging System*

The Corning® microHSI™ 410 SHARK (Selectable Hyperspectral Airborne Remote Sensing Kit) is an integrated coherent hyperspectral imaging (HSI) sensor system designed specifically for integration with highly compact unmanned aerial vehicles (UAVs), including low-cost multi-rotor copters. At 1.6 lbs., which includes a data acquisition and storage and inertial navigation subsystem, the microHSI™ 410 SHARK enables HSI technology to be applied to a new world of applications using low-cost compact drones.



The microHSI™ 410 SHARK delivers exceptional hyperspectral imaging performance in a compact, lightweight package. The microHSI™ 410 SHARK system includes Corning's 0.4 - 1.0  $\mu\text{m}$  hyperspectral sensor that employs state-of-the-art high quantum efficiency (QE) CMOS focal plane array (FPA) technology and a patented solid optical block Offner relay spectrometer. The microHSI™ 410 spectrometer features a high-efficiency reflective and optimally blazed diffraction grating that is precision manufactured using Corning's proprietary diamond-machining processes. The result is optimized throughput and signal to noise ratio (SNR) performance combined with exceptional spectral fidelity and spatial resolution.

The Corning microHSI™ 410 SHARK is a complete turn-key sensor system solution including the 0.4-1.0  $\mu\text{m}$  HSI sensor, a high-efficiency microprocessor control and data-acquisition subsystem with solid-state data storage, a precision MEMS-based close-coupled GPS/Inertial Navigation System (INS) generating navigational data for accurate geo-referencing of the HSI data. The standard microHSI™ 410 SHARK is designed for a minimum of 30-minute mission durations. Extended mission-duration options are available.

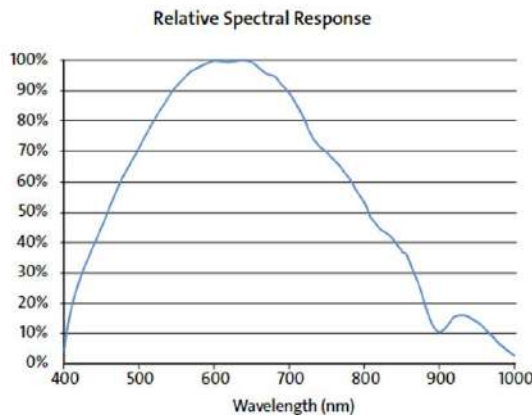
Corning's focus on the design of the microHSI™ 410 SHARK has produced a product optimized for commercial remote sensing applications. This includes precision agriculture, environmental terrain/vegetation assessment and management, and mineral exploration. Here the sensor and system is designed for enhanced performance in the NIR region of the spectrum. Corning achieves this performance with judicious high QE FPA selection combined with its proprietary grating technology

# microHSI™ 410 Sensor and microHSI™ 410 SHARK

## Technical and Performance Characteristics

Sensor Type	Fully Coherent Line Imaging Spectrograph
Spectrograph	Monolithic Spectrometer
Grating	Diamond turned and Ruled High Efficient Reflective Blazed
FPA Detector	CMOS
FPA Format	1936 X 1216 pixels with 5.86 $\mu$ pitch (1364 X 308 utilized)
Spatial Resolution	1364 pixels (1x spatial bin)
Focal length F/#	16mm, f/1.4 standard (other options available)
Full FOV	28.6 degrees (500 mrad) standard (other options available)
IFOV	366 $\mu$ rad standard
Spectral Range	400-1000nm
Spectral Bin size (per pixel)	2 nm
Typical Spectral readout	8.0 nm (4x spectral pixel bin) (higher resolution possible)
Keystone	4.6 $\mu$ m (over 1364 X 308 pixels)
Smile	1.5 $\mu$ m (over 1364 X 308 pixels)
Maximum Frame Rate	>400 Hz (profile dependent)
Data Readout	12-bit
INS	GPS + Mems IMU+Kalman filtered solution
Size (standard lens, processor, data storage, INS)	5.37" X 3.44" X 2.77" with lens (3.77" X 3.44" X 2.77" without lens)
Weight (standard lens, data storage, INS)	1.6 lbs (0.68 kg)
Power Consumption (complete system)	<19 W@12 VDC
Standard Mission Duration	>30 minutes (extended duration options available)
Temperature range	5 deg. C to 40 deg. C

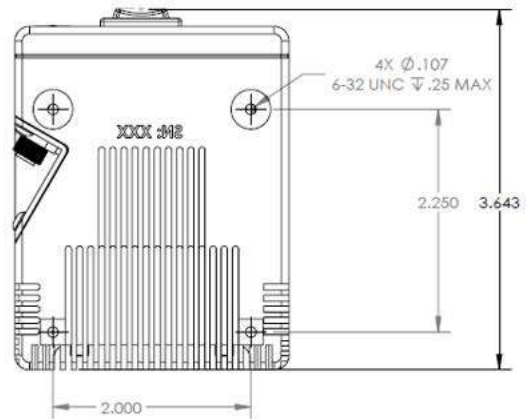
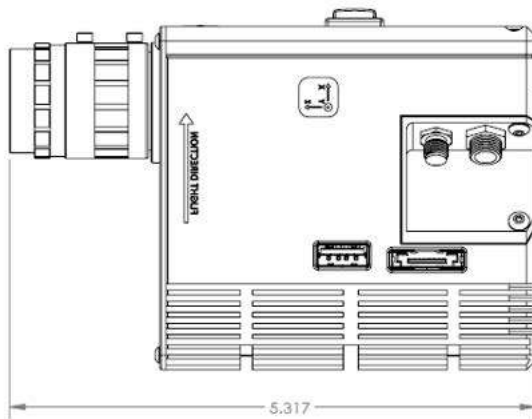
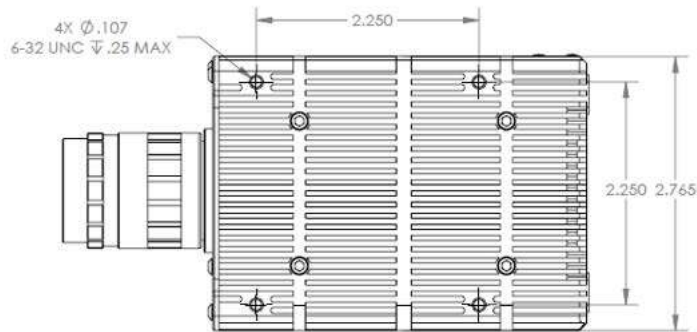
## Relative Spectral Performance



# microHSI™ 410 SHARK

## Dimensions

### External Interfaces



This product may be subject to export control.

To learn more, contact us at:  
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