



CORNING

Corning® SWIR microHSI™ Sensors

Corning offers a complete line of SWIR microHSI™ hyperspectral imaging sensors for a wide variety of airborne or ground-based applications. Whether your application is driven by high frame rates, high spectral and/or spatial resolution, wide area coverage, or an extended SWIR spectral range, there is a SWIR microHSI™ that will meet your requirements.

The SWIR microHSI™ series HSI sensors include dispersive spectrographs that exploit our patented monolithic offner relay design, providing a combination of high spectral and spatial resolution and wide area coverage in a low SWaP (Size, Weight and Power) form factor.

The alpha-SWIR microHSI™ was specifically configured to meet the sophisticated performance requirement demands and turret integration needs.

Corning adapted its standard microHSI™ spectrograph technology and integrated it with a customized InGaAs detector array to achieve a unique combination of spatial pixel swath, frame rate, and spectral performance.

The Extended-SWIR or extra-SWIR microHSI™ covers the spectral range from 964 nm-2500 nm in a single, ultra-compact, high-performance unit. The extra-SWIR microHSI™ supports high frame rates, relatively small Ground Sampling Distance (GSD) and 320 spatial pixels x 256 bands of spectral resolution. The Extra-SWIR microHSI™ utilizes a state-of-the-art HgCdTe (MCT) focal plane detector array that is efficiently cooled via a compact four-stage solid state thermo-electric (TE4) module. The result is the first ultra-compact extended spectrum SWIR HSI sensor.

Thanks to the extremely low SWaP of all of the Corning microHSI™ sensors, for applications requiring multiple spectral ranges (i.e. vis and SWIR), or a wider area coverage, synchronized units can be paired in a single payload. Corning Nova-Sol has extensive experience in combining multiple sensors for single payloads. See our SHARK data sheet for further information.



SWIR 640C microHSI™ Sensor

NOVASOL
MICRO HSI™

Hyperspectral Sensor Performance Characteristics

Specification	640 microHSI™	640C microHSI™	alpha-SWIR microHSI™	extra-SWIR microHSI™
Sensor Type	Line Imager	Line Imager	Line Imager	Line Imager
Spectrograph	Solid Block Offner Relay	Solid Block Offner Relay	Solid Block Offner Relay	Solid Block Offner Relay
Grating	Blazed High-Efficiency Reflective	Blazed High-Efficiency Reflective	Blazed High-Efficiency Reflective	Blazed High-Efficiency Reflective
FPA Format	640 x 512, 25 μm pitch InGaAs	640 x 512, 25 μm pitch InGaAs	640 x 512, 25 μm pitch InGaAs	320 x 256, 30 μm pitch MCT, with 4 stage TE cooling
Spatial Swath	640 pixels	640 pixels	640 pixels (448-NVESD)	320 pixels
Focal Length, f/#	61 mm, f/2.8	61 mm, f/2.8	100 mm, f/2.8	61 mm, f/2.8
Standard Full FOV	15° (others available)	15° (others available)	9.2° (others available)	9° (others available)
Standard IFOV	409 μrad	409 μrad	250 μrad	492 μrad
Standard GSD	82 cm @ 2000 AGL	82 cm @ 2000 AGL	50 cm @ 2000 AGL	98 cm @ 2000 AGL
Spectral Range	850 - 1700 nm or 600 - 1700 nm	850 - 1700 nm or 600 - 1700 nm	900 - 1700 nm	964 - 2500 nm
Spectral Resolution	5 nm, 170 or 200 bands	5 nm, 170 or 200 bands	5 nm, 160 bands	6 nm, 256 bands
Typical Spectral Readout	10 nm, (2x bin): 85 or 100 bands	10 nm, (2x bin): 85 or 100 bands	10 nm, (2x bin): 80 bands	12 nm, (2x bin): 128 bands
Keystone	<5 μm (est.) (over 640x170 pixels)	<5 μm (est.) (over 640x170 pixels)	<1 μm (est.) (over 640x160 pixels)	<4 μm (est.) (over 320x250 pixels)
Smile	<2 μm (est.) (over 640x170 pixels)	<2 μm (est.) (over 640x170 pixels)	<2 μm (est.) (over 640x170 pixels)	<3 μm (est.) (over 320x256 pixels)
Frame Rate	> 320 Hz or > 220 Hz	95 Hz or > 73 Hz	> 100 Hz	> 100 Hz
Max SNR (85 or 100 bands)	- 880	- 880	- 880	---
Data Readout	14 bit Cameralink	12 bit Cameralink	12 bit Cameralink	14 bit Cameralink
Size	9.4 x 8.0 x 4.4" w/ standard lens	5.0 x 6.5 x 3.0" w/ standard lens	6.6 x 3.7 x 2.4" w/ standard lens	6.5 x 5.0 x 3.0" w/ standard lens
Weight	7.7 lb (3.5 kg) w/ standard lens	< 2 lb (< 0.9 kg) w/ standard lens	3.1 lb (1.2 kg) w/ standard lens	5.7 lb (2.6 kg) w/ standard lens
Power	< 11.0 W @ 12VDC	< 4.5 W @ 12VDC	7 W @ 12VDC	64 W @ 12VDC
Alternative Focal Lengths (mm)	100, 150, 250, other	100, 150, 250, other	other	other
Alternative IFOVs (mrad)	250, 167, 100, other	250, 167, 100, other	other	other

CORNING

For more information, visit our website:
www.corning.com/advanced-optics

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