



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

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For more information, visit our website:  
[www.corning.com/advanced-optics](http://www.corning.com/advanced-optics)

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