



1.25 x 1.25 x 1.20 inches  
31.8 x 31.8 x 30.6 mm

## Micro-SWIR™ 320CSX Camera

Mil-Rugged, High Sensitivity, Small SWaP InGaAs SWIR Camera

The compact 320CSX is the next generation SWIR video camera, designed for applications requiring small Size, Weight, and Power (SWaP) applications and available without ITAR restriction

The Sensors Unlimited Micro-SWIR 320CSX camera features a 320x256 pixel, high-sensitivity, stabilized InGaAs snapshot imager and utilize Sensors Unlimited's image enhancement algorithms to produce highest quality imagery in all lighting conditions.

The camera provides real-time daylight to low-light imaging in the Short Wave Infrared (SWIR) wavelength spectrum for a range of applications that include industrial process monitoring, enhanced vision, and persistent surveillance. On-board Automatic Gain Control (AGC) optimizes the camera's imagery throughout day and night imaging scenarios. Camera Link® digital output provides for plug-and-play video with 12-bit images for digital image processing or transmission.

A modular output allows for additional industry standard interfaces. The light weight, compact size, and low power is ideally suited for integration into industrial process monitoring applications.

### FEATURES

- Non ITAR
- Disruptive price
- 320 x 256 pixel format, 12.5  $\mu\text{m}$  pitch
- Low cost
- 30 or 60 frames per second full frame rate
- 1.7 W power consumption (@ 20° C)
- High sensitivity 0.9 to 1.7  $\mu\text{m}$  spectrum response imager
- Low light to day time imaging
- Compact size
- All solid-state InGaAs imager
- Snapshot exposure
- On-board, real time non-uniformity corrections
- Digital 12-bit base Camera Link® output
- Automatic Gain Control (AGC)



## MECHANICAL SPECIFICATIONS

<b>Model</b>	SU320CSX-12.5B-ENC housed series SU320CSX-12.5B-OEM
<b>Dimensions (width x height x depth) (includes connectors, excludes lens)</b>	ENC Series: 1.25"W x 1.25"H x 1.20"D 31.8 x 31.8 x 30.6 mm OEM Series: 1.25"W x 1.20"H x 1.19"D 31.8 x 30.6 x 30.2 mm includes connectors, excludes lens mm
<b>Weight</b>	<60 grams enclosed, <55 grams OEM
<b>Lens mount</b>	C-mount
<b>Camera Link Connector</b>	26 Pin SDR standard connector
<b>Power Input Connector</b>	14 Pin SDR standard connector
<b>Pixel Pitch</b>	12.5 $\mu$ m
<b>Focal Plane Array Format</b>	320 x 256 pixels
<b>Active Area</b>	4.0 mm x 3.2 mm (5.1 mm diagonal)

## ENVIRONMENTAL & POWER SPECIFICATIONS

<b>Operating Case Temperature</b>	-5°C to 60°C
<b>Storage Temperature</b>	-54°C to 85°C
<b>Humidity</b>	95% RH non-condensing
<b>Power Requirements:</b>	
<b>DC Voltage</b>	DC Voltage: +4-16 V
<b>Steady State Power</b>	Power: 1.7 W at 20°C case temperature, max <4 W
<b>Max Power</b>	
<b>Functional Shock, Random Vibration, Thermal Shock</b>	MIL-STD-810G compliant design

## ELECTRICAL SPECIFICATIONS

	30 fps	60 fps
<b>Optical Fill Factor</b>	100 %	100 %
<b>Spectral Response</b>	Standard, 0.9 $\mu$ m to 1.7 $\mu$ m	Standard, 0.9 $\mu$ m to 1.7 $\mu$ m
<b>Quantum Efficiency</b>	Standard, > 65% from 1 $\mu$ m to 1.6 $\mu$ m	Standard, > 65% from 1 $\mu$ m to 1.6 $\mu$ m
<b>Mean Detectivity, D* <sup>1</sup></b>	> 2.5 x 10 <sup>13</sup> cm <sup>2</sup> /Hz/W (typical)	> 2.8 x 10 <sup>13</sup> cm <sup>2</sup> /Hz/W (typical)
<b>Noise Equivalent Irradiance <sup>1</sup></b>	< 9.7 x 10 <sup>8</sup> photons/cm <sup>2</sup> /s (typical)	< 1.2 x 10 <sup>9</sup> photons/cm <sup>2</sup> /s (typical)
<b>Noise (RMS) <sup>1</sup></b>	< 35 electrons (typical)	< 25 electrons (typical)
<b>Dynamic Range <sup>1</sup></b>	> 2500:1 at low gain > 800:1 at high gain	> 2500:1 at low gain > 1100:1 at high gain
<b>Operability <sup>2</sup></b>	> 99 %	> 99 %
<b>Exposure Times, preconfigured</b>	200 $\mu$ s to 32 ms	200 $\mu$ s to 32 ms
<b>Image Correction</b>	2-point (offset and gain) pixel by pixel, user selectable	2-point (offset and gain) pixel by pixel, user selectable
<b>Output Format</b>	12 bit base Camera Link®	12 bit base Camera Link®
<b>Digital Output Frame Rate</b>	30 fps	60 fps
<b>Scan Mode</b>	Continuous	Continuous

<sup>1</sup> typical,  $\lambda$  = 1550 nm, exposure time = 33 ms (30FPS) / 16.67 ms (60FPS), case temperature = 20°C, highest sensitivity gain setting, no lens, corrections off, 1x digital gain, with AGC, enhancement, and correction off.

<sup>2</sup> The percentage of pixels with responsivity deviation less than 35% from the mean.

