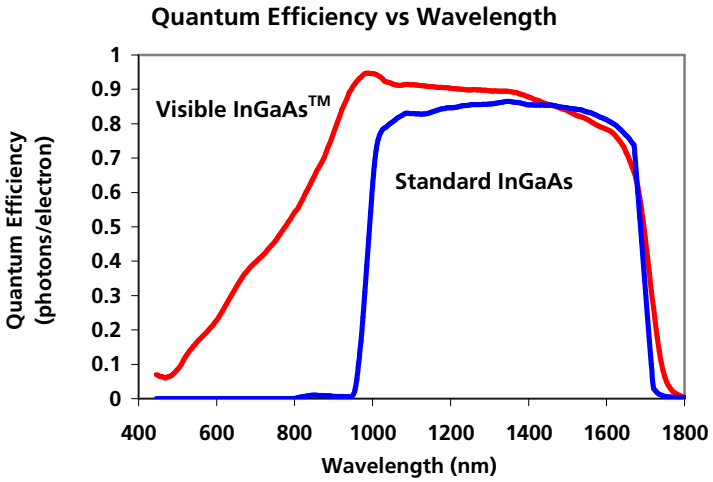
SU320KTSW-1.7RT
SU320KTSWVis-1.7RT
InGaAs SWIR Windowing Cameras

These compact InGaAs snapshot video cameras feature high frame rate Region of Interest (ROI) windowing capture of images. This enables tight tracking of free-space communications lasers or fast moving targets, with >10,000 frames per second for a 16 x 16 pixel window. The camera configurations include 8 corrected modes with variable integration time and 8 convenient preset ROI windows. User serial commands over the 12-bit Camera Link® interface are used to create ROI windows anywhere on the FPA. The **SU320KTSW-1.7RT** provides high response from 0.9 to 1.7 µm and the **SU320KTSWVis-1.7RT** extends the response into the visible wavelengths, running from 0.4 to 1.7 µm.

APPLICATIONS

- Real-time tracking and aligning
- Free-space communications control systems
- Adaptive optics feedback systems
- Pulsed laser beam profiling
- SWIR Machine vision of moving objects
- Hyperspectral imaging
  (>5 KHz for 4 x 320 pixel window)



FEATURES

- High frame rates with user programmable and Regions of Interest (ROI)
- All solid state InGaAs or Visible-InGaAs FPA with snapshot exposure ROIC
- Standard InGaAs: 0.9 to 1.7 µm
- Visible-InGaAs™: 0.4 to 1.7 µm
- 320 x 256 pixel format, 25 µm pitch
- External trigger of ROI acquisition
- Enclosed body size < 9.5 in^3
- Low power, < 2.5 W at 20°C
- On-board non-uniformity corrections
- Simultaneous Camera Link® digital & EIA-170 analog outputs
- Improved AGC and contrast enhancement algorithms with adjustable thresholds
- User programmable startup configuration
- Includes 25 mm F/1.4 C-mount lens for 23 degree diagonal field of view

SUI *knows* IR™

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MECHANICAL SPECIFICATIONS

Module (no lens) Width x Height x Depth	2.1 x 2.1 x 2.55 inches 53 x 53 x 65 mm
Weight (no lens)	< 270 g
Lens Mount	C-mount adapter in M42x1 mount
Included Lens	f/1.4, 25 mm, 18° HFOV width, C-mount
Camera Link Connector	3M SDR26 Connector
I/O Connector	3M SDR14 Connector
Interface Connector	Not applicable
Pixel Pitch	25 µm
Focal Plane Array Format	320 x 256 pixels
Active Area	8 mm x 6.4 mm x 10.2 mm diagonal

ENVIRONMENTAL & POWER

Operating Case Temperature	-10°C to 40°C
Storage Temperature	-10°C to 60°C
Humidity	Non-condensing
Power Requirements: AC Adapter Supplied DC Voltage Typical Power	 100-240 VAC, 47-63 Hz +9-16 V 2.2 W at 20°C ambient, < 4.5 W @ 40°C

ELECTRICAL SPECIFICATIONS (typical, 25°C ambient)

FPA type:	**Standard InGaAs**		**Visible InGaAs™**
Spectral Response	0.9 to 1.7 µm		0.4 to 1.7 µm
Quantum Efficiency	> 65% from 1 µm to 1.6 µm		>5% @ 0.4 µm, >45% @ 0.8 µm; > 70% from 1 to 1.6 µm
Optical Fill Factor	100%		
Mean Detectivity, D* [1]	> 5 x 10^{12} cm √Hz/W		
Noise Equivalent Irradiance [1]	< 3.5 x 10^{9} photons/cm^2·s		
Noise (RMS)	< 300 electrons		
Full Well (typical)	700k electrons		
True Dynamic Range	> 2500:1		
Operability [2]	> 99%		
Full-frame Exposure Times	User selectable from 0.13 ms to 16.6 ms (EIA170)		
Image Correction	2-point (offset and gain) pixel by pixel at 8 integration settings, user selectable		
Digital Output Format	12-bit Camera Link® via SDR connector		
Analog Output Format	Buffered EIA170 compatible video, 60 fields/s, independent 320 x 256 frame readout per field		
Full-frame Rate	119.6 Hz		
Acquisition Modes	Full-frame window, preset ROI window, variable ROI window		
Preset Window Modes (region centered in array)	Window size in pixels	Integration Time	Frame Rate
	16 x 16	78 µs	11,730 fps
	64 x 64	585 µs	1,700 fps
	128 x 128	1.91 ms	515.4 fps
	160 x 128	2.29 ms	431.2 fps
	256 x 256	6.8 ms	145.9 fps
Variable Window Mode (Arbitrary location)	Min. of 8 col. x 4 rows in 8 col and 4 row increments	8 c x 4 r: ~16.1 µs 320 c x 4 r ~ 132 µs 320 c x 100 r: ~3.30 ms	41,300 fps 5,100 fps 302 fps
External Trigger Modes	Pre-set exposure (set by integration time), delay < 550 ns, Variable exposure (integrates while trigger high, min. of 9 µs), Burst with pre-set exposure (standby while trigger low, free-run while high)		

[1] λ =1.55 µm, exposure time = 16.6 ms (no lens), corrections off, digital gain 1x , smallest available FPA electrons/count setting
[2] The fraction of pixels with responsivity deviation less than +/-35% from the mean.

