

1280SCICAM

1280x1024x12 μm
InGaAs Science Camera

Model # 1280SC-12-A1-InGaAs-1.7

The SciCam SWIR camera allows for the longest integration times for ultra low light level sensitivity at megapixel resolution in the SWIR!



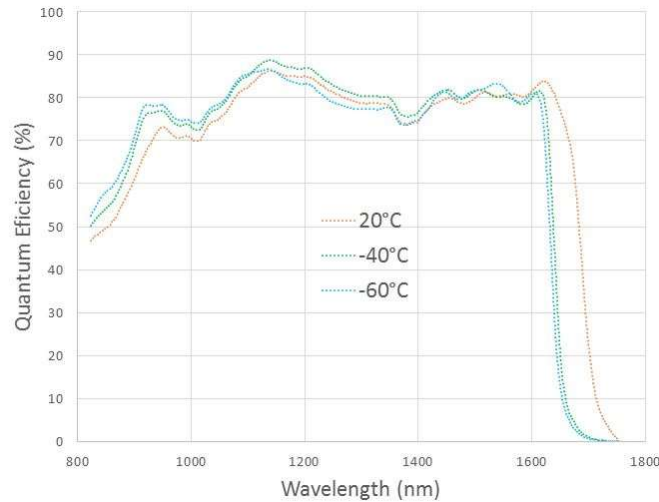
This lattice matched InGaAs camera allows for high resolution SWIR imaging at 1280x1024 with high frame rates >93 frames per second (fps) at full frame size. This small pitch array, 12 μm , combined with the high quantum efficiency of lattice matched InGaAs arrays enables impressive imaging in the SWIR and visible band. The camera has the capability of four setpoints, 20°C (no cooling), 0°C (fan cooling), -40°C, or -60°C (water cooled) using a 4 stage TEC integrated in a vacuum-sealed package.

This advanced digital focal plane array (PIRT1280A1-12) offers 14-bit digital output with a low read noise of <90e- with no image lag. This combined with low dark current InGaAs and 4 stage TEC will enable high sensitivity imaging with very long integration times >2 minutes. The camera utilizes a medium based Camera Link™ to allow for fast, full frame rate imaging >93 frames per second at 1280x1024 at 14 bits. The InGaAs detector provides high quantum efficiency response in the shortwave infrared as well as in the visible wavelength range, from 0.4 μm to 1.7 μm . This powerful camera system integrates to most frame grabber cards and delivers excellent performance in high-speed machine vision applications as well as microscopy where the small pitch long integration time is advantageous.

Features

- 1280x1024 resolution
- Small 12 μm pitch
- Multiple Temperature Setpoints: 20, 0, -40, and -60°C
- Snapshot exposure
- High frame rate
- >93 fps at 1280x1024
- Response from 0.4-1.7 μm
- QE \geq 75% from 1.0-1.6 μm
- 14-bit A/D on chip
- Read noise <90e-
- Integration times from 50 μs to >2 minutes
- >1000:1 dynamic range
- F- and C-mount lenses available

Quantum Efficiency Curve



Parameter	Unit	Min	Typical	Max	Comments
Full resolution	pixels		1280x1024		
Pixel pitch	μm		12		
Full well	ke-	64	75		at -60°C
Frame rate 1280x1024 512x512	frames/second		93 385		
Data output	bits			14	*medium Camera Link™
Quantum efficiency	electron/photon		0.75		using 1.5 μm light see full QE curve above
Fill factor	%			100	
Responsivity	μm	0.40		1.68	at 20°C
Integration time	s				max integration time for 2/3 the full well at max dark signal at the given temperature
At 20°C At -60°C		50x10 ⁻⁶ 50x10 ⁻⁶	0.270 120		
Dark signal rate	ke-/s		28 0.30	125 0.50	at 20°C at -60°C
Read noise	e- (RMS)		75	90	at -60°C
D*	cm-√Hz/W		2.9x10 ¹³		at -60°C, with 1.5 μm light at 128ms integration time
Inoperable pixels	%			0.5	at 20°C
Non-linearity	%			1	across 98% of dynamic range
Size	cm		26.7x14x16.5		
Weight	g		5000		
Power	W			<30	at -50°C with water cooling

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*Princeton Infrared Technologies recommends use of Camera Link™ cables shorter than 5m for reliable camera operation.