Princeton Infrared Technologies

WONWOO SYSTEMS CO.,LTD

LineCam12

12.5mm long InGaAs Linear Array

Model #

LineCam12-12.5-1.7-T
LineCam12-12.5-1.7-M

The Princeton Infrared Technologies, InGaAs line scan camera is optimized for machine vision and spectroscopy in the SWIR band!

The LineCam12 is a digital linescan camera for imaging in the SWIR and visible bands (0.4-1.7μm). It has two digital output formats USB3 Vision and Camera link. The device can even be powered by USB3 in most applications. The LineCam12 utilize a 1024x1 state of the art InGaAs linear array imager on 12.5μm pitch that was built for both machine vision and spectroscopy applications.

The LineCam12 is an advanced linescan camera with 14 bit digital data at 37klines/s on Camera Link output or <20klines/s with USB3. The camera currently comes in two varieties 250μm tall pixels for spectroscopy and 12.5μm square pixels for machine vision applications. The camera has incredible versatility enabling full wells from 75ke- to 100Me- with 128 steps of variation as well as integration times from 10μs to >150s. On chip optical pixel binning (where every other detector is disconnected from the ROIC thus signal is captured by neighboring pixels) is available by command to trade spectral resolution for increased signal level. Pixel skipping or binning is also available allowing for 48klines/s at 512 resolution in the same camera platform, activated by a simple command structure. The TEC stabilized camera has 31 non-uniformity correction (NUC) tables with 15 factory set and 16 user defined tables to enable flexibility for the given environment.

This lattice matched InGaAs array is backside illuminated enabling detection from 0.4 to 1.7um with no bond pads or wires in the way of your signal and minimize stray reflections found in front side illuminated arrays with many wire bonds near the active imaging area. The array can be customized to allow optical filters to be placed on the active detector area something that is nearly impossible in front side illuminated devices.

Features

- **1024x1 resolution**
- **Small 12.5μm pitch**
- **<75e- read noise**
- **75ke- to 100Me- full well**
- **10us-150s integration time**
- **31 NUC tables (16 user defined)**
- **USB3.0 & Camera Link Outputs**
- **250um or 12.5um tall pixel**
- **F-, C-, and M42 lens mounts**
- **14 bit A/D >6000:1 dynamic range**
- **Trigger control**
- **Response from 0.4-1.7μm (Backside Illuminated)**

USB3™ VISION

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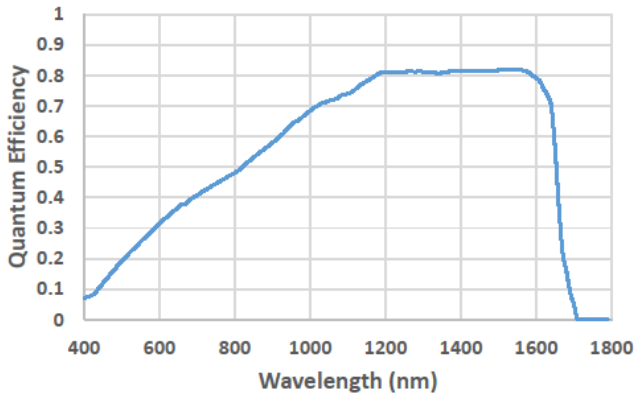
Quantum Efficiency Curve at 25C



Parameter	Unit	Min	Typical	Max	Comments
Resolution	pixels	512x1	1024x1		Pixel skipping/Optical Binning
Pixel Pitch	mm		12.5	25	Pixel skipping/Optical Binning
Pixel Height	mm	12.5	250		Custom sizes available
Full Well	e-	75k		100Me-	Adjustable by 128 steps
Line Rate					Using Camera Link
1024x1	klines/s			37	
512x1				48	
Data output	Bits	14			
Quantum efficiency	e-/photon		0.75		Using 1.5µm light Full QE chart Above
Fill Factor	%	99	100		
Responsivity	mm	0.4		1.68	At 20C
Integration time	s	10e-5			At 20C max dependent on full well
Dark Signal Rate	ke-/s		25	100	Square At 20C
			500	2400	Tall At 20C
Read Noise					At 20C
75ke- full well	e-/(scan)$^{1/2}$		<75	110	Square pixel is lower value
100Me- full well			14800		
Inoperable Pixels	%		0	<1	
Photoresponse Non-Uniformity	%		3	6	At 20C
Operating Range	◦C	-20		60	External power needed
Weight	g	60		80	Lens not included/mount dependent
Power	W		<3		USB3 power only

Mechanical Package (Available with Optional F-mount, C-mount or M42 lens mount)