



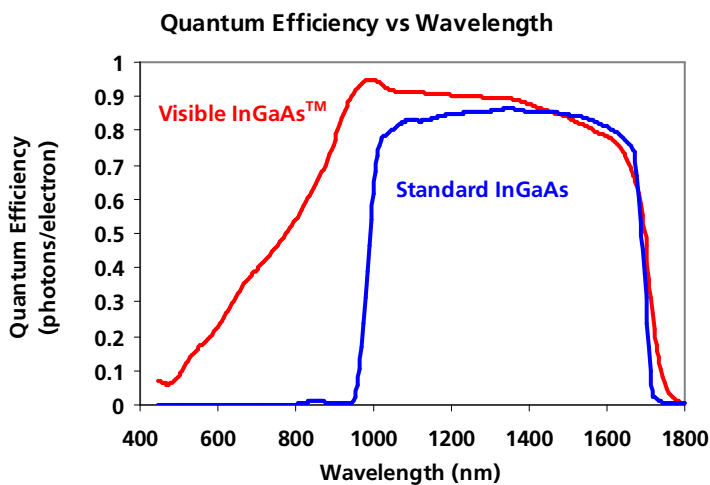
# SU640SDV-1.7RT SU640SDV Vis-1.7RT High Resolution InGaAs and Vis-InGaAs™ SWIR Area Cameras

The *large format* 640 x 512 pixel **SU640SDV-1.7RT** InGaAs room temperature solid-state camera allows users to capture images in the Short Wave Infrared (SWIR) range of 0.9 to 1.7  $\mu\text{m}$  and the **SU640SDV Vis-1.7RT** expands the range to the visible, from 0.4 to 1.7  $\mu\text{m}$ . Both provide wide field of view, high resolution and high sensitivity. Their snapshot CMOS readout captures pulsed or continuous illumination sources at 30 frames per second with 14-bit resolution.



## APPLICATIONS

- Pulsed or CW laser beam profiling
- Semiconductor inspection
- Inspection of fiber-optic components
- Assembly & monitoring of optical switches
- Hyperspectral imaging
- Machine vision



## FEATURES

- High sensitivity solid-state InGaAs or Vis-InGaAs image sensor with 100% fill factor
- 640 x 512 pixel resolution on 25  $\mu\text{m}$  pitch
- Anti-blooming protection
- Preset exposure times from 0.26 to 33.2 ms, externally set times > 10  $\mu\text{s}$
- Choice of wavelength range: 0.4-1.7  $\mu\text{m}$  or 0.9-1.7  $\mu\text{m}$
- Room temperature FPA operation
- 14-bit digital Camera Link® compatible output, base configuration
- Buffered EIA170 compatible analog output
- Extensive interactive command set enables user customization of most parameters, and start-up states

**SUI knows IR™**

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## ELECTRO-OPTICAL PERFORMANCE

Optical Fill Factor	100%	
Spectral Response	SDV:	0.9 to 1.7 $\mu\text{m}$
	SDV Vis:	0.4 to 1.7 $\mu\text{m}$
Quantum Efficiency	> 65% from 1 $\mu\text{m}$ to 1.6 $\mu\text{m}$	
Mean Detectivity, $D^* \text{ }^1$	> $6 \times 10^{12} \text{ cm } \sqrt{\text{Hz/W}}$	
Noise Equivalent Irradiance <sup>1</sup>	< $2.5 \times 10^9 \text{ photons/cm}^2\cdot\text{s}$	
Noise (rms)	< 300 electrons	
Gain	50e <sup>-</sup> /count (nominal)	
Full Well	800k electrons (Typical)	
True Dynamic Range <sup>2</sup>	> 2500:1	
Operability <sup>3</sup>	> 99.2%	
<sup>1</sup> $\lambda = 1.55 \mu\text{m}$ , exposure time = 33.19 ms, no lens, no corrections, AGC off		
<sup>2</sup> Average pixel response in a single image at the nominal gain (50e <sup>-</sup> /count)		
<sup>3</sup> The % of pixels with responsivity deviation within 35% of the mean		

## ENVIRONMENTAL & POWER

Operating Temperature <sup>4</sup>	-10°C to 40°C
Storage Temperature	-10°C to 60°C
Humidity	Non-condensing
Power Requirements	
AC Adapter Supplied	100-240 VAC, 47-63 Hz, < 1.0 A
DC (Voltage/Power) <sup>4</sup>	7-28 V, < 6 W at 25°C, < 10 W at 40°C
<sup>4</sup> Camera Body Temperature	

## MECHANICAL

Length x Width x Height:	15.80 cm x 7.62 cm x 7.62 cm 6.22 in x 3.00 in x 3.00 in Length includes mounting flange and I/O connectors
Weight:	< 1.1 kg (no lens)
Focal Plane Array Format:	640 x 512 pixels
Pixel Pitch:	25 $\mu\text{m}$
Active Area:	16 x 12.8 mm, 20.5 mm diagonal
Lens Mount:	M42x1 thread, optional F-mount and FD-mount adaptors available
Sensor focal plane	17.3 mm +/-1 behind optical mount flange

## INTERFACES

Control:	MDR 26-pin connector (Camera Link <sup>®</sup> )
Image Data:	MDR 26-pin connector (Camera Link <sup>®</sup> )
Power	Hirose HR25-7TR-8S connector
Analog Video:	75 $\Omega$ BNC, 1 V max output
Trigger:	75 $\Omega$ BNC, 5 V TTL max input
Camera Body Mount:	¼-20 and M6 tapped holes (bottom) M42 x 1 threaded hole (front) 4 x 8-32 holes on 2 inch centers (front) 4 x M4 x 0.7 holes spaced 50 mm wide x 40 mm high (front)
Status LED:	Power indicator, imager temperature control status

## SYSTEM PERFORMANCE & OPERATIONAL MODES

Frame Rate (full resolution, maximum)	30 frames/s (EIA170 frame rate)
Scan Mode	Continuous or triggered
Exposure Mode	Snapshot (all pixels exposed simultaneously) preset
Exposure Times	Factory preset with corrections from 260 $\mu\text{s}$ to 33.19 ms User programmable with EXP serial command or with external trigger > 10 $\mu\text{s}$
Image Non-uniformity Corrections	2-point (offset and gain) pixel by pixel; bad pixel replacement
Digital Output Format	14-bit Camera Link <sup>®</sup> base compatible (corrected, uncorrected, gamma modified and test pattern data choices are user selectable)
Analog Output Format	EIA170 compatible
External Trigger Modes	Pre-set exposure (set by integration time), Variable exposure (integrates while trigger high, min. of 10 $\mu\text{s}$ ), Burst with pre-set exposure (standby while trigger low, free-run while high)
External Trigger Delay (typical)	with preset exposure: 550 ns, with external set exposure: 370 ns to start of exposure, 2.7 $\mu\text{s}$ to end

Contact Goodrich to discuss lens and data acquisition options available for these cameras