



640SDV-1.7RT / 640SDV VIS-1.7RT

High Resolution InGaAs and Vis-InGaAs™ SWIR Area Camera

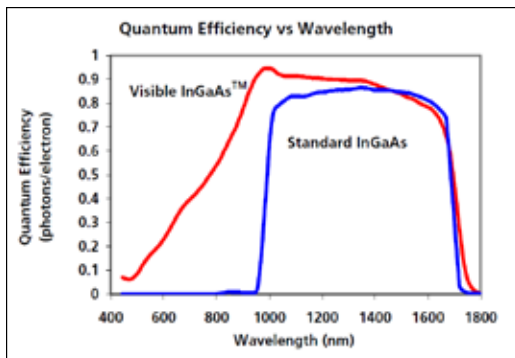
The large format 640 x 512 pixel SU640SDV-1.7RT InGaAs room temperature solid-state camera allows users to capture images in the Short Wave Infrared (SWIR) range of 0.9 to 1.7 μm and the SU640SDV Vis- 1.7RT expands the range to the visible, from 0.4 to 1.7 μm . Both provide wide field of view, high resolution 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 μm pitch
- Anti-blooming protection
- Preset exposure times from 0.26 to 33.2 ms, externally set times > 10 μs
- Choice of wavelength range: 0.4 to 1.7 μm or 0.9 to 1.7 μm
- Room temperature operation of FPA
- Extensive interactive command set enables user customization of most parameters, and start-up states
- 14-bit digital Camera Link® compatible output, base configuration
- Buffered EIA170 compatible analog output displays ROI images on standard monitors



MECHANICAL SPECIFICATIONS	
Dimensions (width x height x length)	3.00"W x 3.00"H x 6.22"L / 7.62 cm x 7.62 cm x 15.80 cm 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 μ 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 mm behind optical mount flange

INTERFACES	
Control	MDR 26-pin connector (Camera Link®)
Image Data	MDR 26-pin connector (Camera Link®)
Power	Hirose HR25-7TR-8S connector
Analog Video	75 Ω BNC, 1 V max output
Trigger	75 Ω 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

ELECTRO-OPTICAL PERFORMANCE		
Optical Fill Factor	100 %	
Spectral Response	SDV: SDV Vis:	0.9 to 1.7 μ m 0.4 to 1.7 μ m
Quantum Efficiency	> 65% from 1 μ m to 1.6 μ m	
Mean Detectivity, D* ¹	> 6 x 10 ¹² cm \sqrt /Hz/W	
Noise Equivalent Irradiance ¹	< 2.5 x 10 ⁹ photons/cm ² .s	
Noise (RMS)	< 300 electrons	
Gain	50e/count (nominal)	
Full Well	800k electrons (typical)	
True Dynamic Range ²	> 2500:1	
Operability ³	> 99 %	

¹ λ = 1.55 μ m, exposure time = 33.19 ms (no lens), corrections & AGC off
² Average pixel response in a single image at the nominal gain (50e-/count)
³ The % of pixels with responsivity deviation within 35% from the mean

ENVIRONMENTAL & POWER SPECIFICATIONS	
Operating Temperature ⁴	-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	7-28 V, < 6 W at 25°C, < 10 W at 40°C

⁴Camera Body Temperature

SYSTEM PERFORMANCE & OPERATIONAL MODES	
Scan Mode	Continuous or triggered
Exposure Mode	Snapshot (all pixels exposed simultaneously) present
Frame Rate	30 frames/s (EIA 170 frame rate)
Exposure Times	Factory preset with corrections from 260 μ s to 33.19 ms User programmable with EXP serial command or external trigger > 10 μ s
Image Correction	2-point (offset and gain) pixel by pixel; bad pixel replacement
Digital Output Format	14 bit Camera Link® base compatible (corrected and 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 μ 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 μ s to end



Model No: 640SDV-1.7RT / 640SDV VIS1.7RT Doc. 4110-0075 Rev. E April 2017

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