

SU-LDV Digital Line Scan Cameras For High Resolution InGaAs Spectroscopy and Machine Vision



The SUI SU-LDV Digital Line Scan Camera provides users and OEMs with the highest performance linear array camera available in the NIR for machine vision and spectroscopy. This is a low-noise, high-resolution, and high-line-rate platform for using any of the SUI™ linear arrays with standard or extended wavelength ranges. It is ideal for diverse applications such as machine vision inspection of wood, glass and metals, optical coherence tomography of living tissue, on-line material identification or agricultural product inspection.



FEATURES

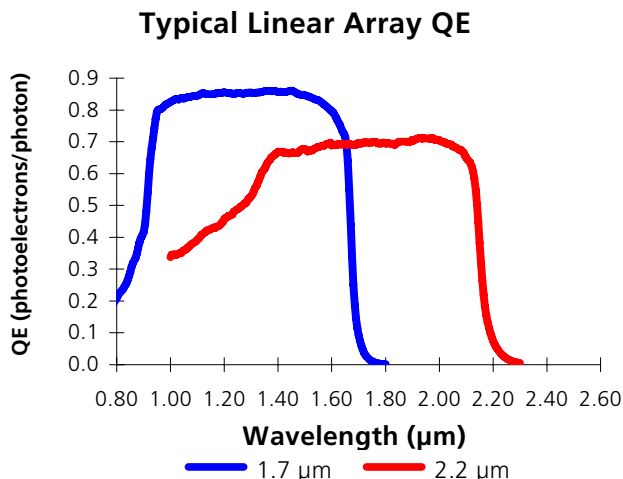
- 25 μm or 50 μm pixel pitch
- 256, 512, or 1024 pixel arrays
- Wavelength response over 0.8 μm to 1.7 μm or 1.1 μm to 2.2 μm
- Asynchronous operation
- 14-bit Camera Link® compatible output and control

BENEFITS

- High dynamic range
- High quantum efficiency
- Rugged and low maintenance
- Easy interface to optics and electronics
- Room temperature operation
- Compact and light

APPLICATIONS

- Spectroscopy
- Agricultural and food product inspection
- Machine vision for inspection
- Optical channel monitors
- Telecommunications fiber and waveguide alignment and production control
- Optical Coherence Tomography (OCT)
- Materials classification and sorting
- Remote ground sensing



SUI knows IR™

SUI™

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MECHANICAL

Length x Width x Height:	14.5 cm x 7.62 cm x 7.62 cm 5.7 in x 3.00 in x 3.00 in Length includes I/O connectors, excludes lens adapter
Weight:	< 1 kg (no lens)
Threaded Lens Mount and optional lens mount adapters ¹	M42x1-6H with 6 mm focal distance Fixed distance C-Mount adapter Adjustable distance FD-Mount adapter Adjustable distance F-Mount adapter
Spectrometer mount	4 tapped 8-32 holes in 2 inch square pattern 4 tapped M4-6H holes spaced 4 cm x 5 cm O-Ring light seal, 1.9 inch diameter, 1/16 th thickness
Camera mount (bottom)	3 tapped ¼-20 holes 2 tapped M6-6H holes

¹ LDV accessory kits are available that consist of the user-specified lens adapter, power supply, case, manual, o-ring and cables.

INTERFACES

Control:	MDR 26-pin connector (Camera Link [®])
Image Data:	MDR 26-pin connector (Camera Link [®])
Power	Hirose HR25-7TR-8S connector
Sync Output:	BNC: 5 V, 50 Ω series terminated, active high: integration active
Trigger: Input	BNC, Low < 0.5, 3 V > high < 5 V
Status LED:	Power indicator, imager temperature-control status

ENVIRONMENTAL & POWER

Operating Temperature:	-10°C to 40°C
Storage Temperature:	-10°C to 60°C
Humidity:	Non-condensing
Power Requirements: AC Adapter Supplied DC (Voltage/Power)	100-240 VAC, 47-63 Hz, < 1.0 A 7-28 V, < 7 W at 25°C, <11 W at 40°C

ELECTRO-OPTICAL PERFORMANCE

Sensor Format ¹	512 pixels on 50 μm pitch with >19 Klines/s (512LX) 512 pixels on 25 μm pitch with >7.5 Klines/s (512LDB) 512 pixels on 50 μm pitch with > 4.2 Klines/s (512LSE) 1024 pixels on 25 μm pitch with >4.2 Klines/s (1024LE)
Optical Aperture ¹	1.7 μm cutoff arrays: 25, 50 or 500 μm 2.2 μm cutoff arrays: 50 or 250 μm
Peak Quantum Efficiency ¹	1.7 μm cutoff arrays: > 70% 2.2 μm cutoff arrays: > 60%
Full Well Capacity ²	High dynamic range mode: 100 x 10 ⁶ electrons High sensitivity mode: 4 x 10 ⁶ electrons
Dynamic Range ¹	> 3000:1
Digital Output Format	14-bit Camera Link [®] compatible
Exposure Time ²	Internal trigger: 0.0240 ms to 838.9 ms External variable ET: user set by the duration of trigger signal (minimum ET: 20.4 μs)
Scan Mode ²	Free run, preset exposure, variable, or pause/burst
Sync Output	Digital signal, high during integration
External Trigger ²	Three modes: 1) Edge triggered for start of integration; 2) Trigger pulse width sets exposure time, trigger period set line time; 3) Gated free-run set by trigger width. Applied via camera BNC or Camera Link [®] CC1 signal line. Programmable polarity (Active High or Active Low)
External Trigger Jitter	< 800ns

¹ Actual formats and performance governed by user selected SUI linear array product purchased with camera

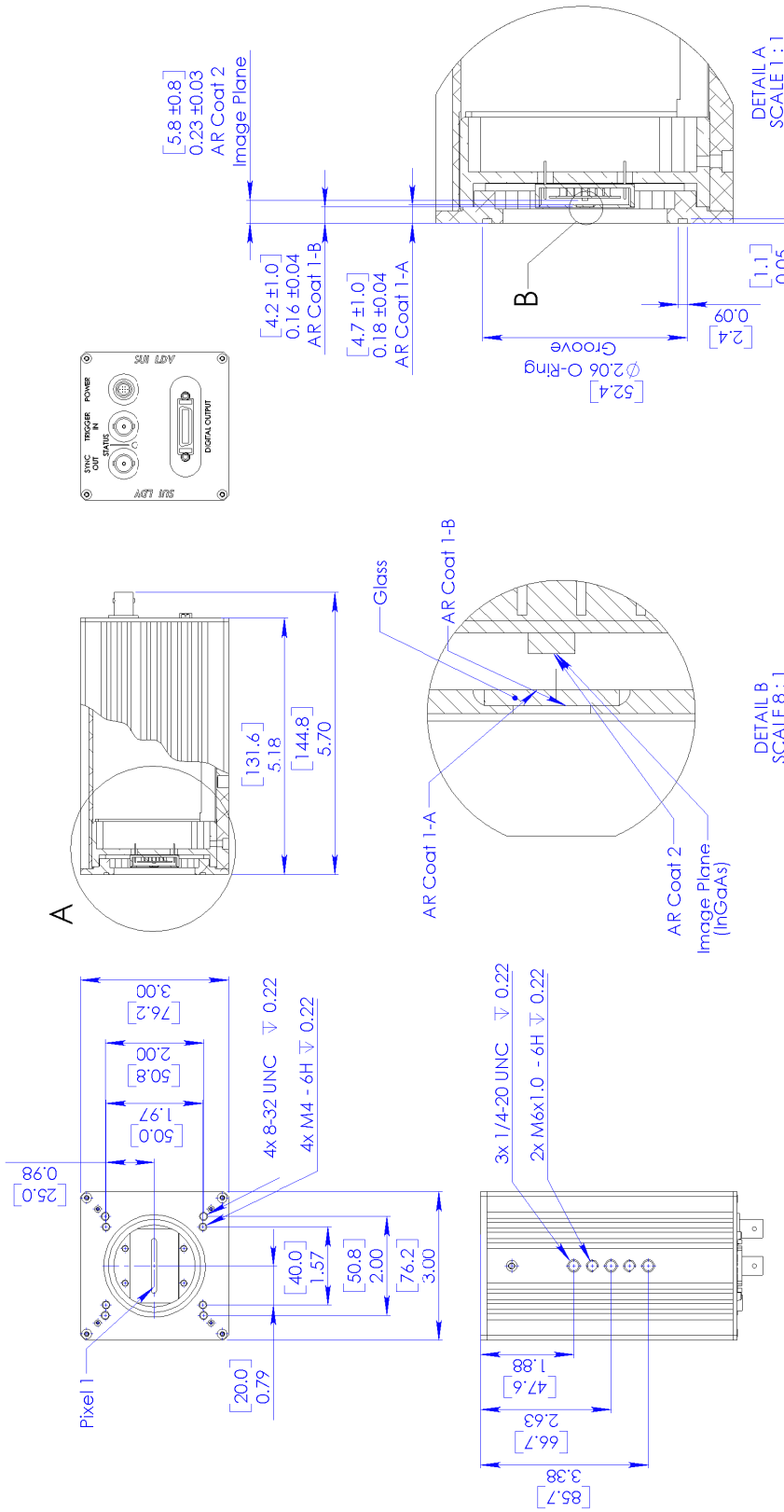
² User selectable by command over Camera Link[®] serial lines

ORDERING INFORMATION

Camera Model ¹	Ports	Max. Line rate ²	Pitch	Pixels	FPA length	1.7 μm ³	2.2 μm ³
SU512LDV-Y.YRT-XXXX/LX	4	19,083 fps	50 μm	512	25.6 mm	0050 0500	0050 0250
SU512LDV-Y.YRT-XXXX/LDB	2	7,575 fps	25 μm	512	12.8 mm	0500	0250
SU1024LDV-Y.YRT-XXXX/LE	2	4,266 fps	25 μm	1024	25.6 mm	0025 0500	0250
SU512LDV-Y.YRT-XXXX/LSE	1	4,266 fps	50 μm	512	25.6 mm	0500	-

¹ Cameras include the photodiode array – substitute the desired cutoff wavelength of 1.7 or 2.2 in place of the Y.Y in the part number shown in table ² Based on minimum exposure time of 24.0 μs, clock rate and # of pixels per output port ³ Currently available pixel height codes to substitute for XXXX in the part number for each type of wavelength cutoff – contact SUI for other combinations

DRAWINGS



- Notes:
- 1) All dimensions are in inches (MM in brackets).
 - 2) AR Coat 1 is vendor proprietary multi-layer hard oxide coating. Transmission is better than 98% per surface between 900nm and 1700nm.
 - 3) AR Coat 2 is SUI single layer quarter wave nitride coating centered at 1300 nm.
 - 4) Index of Glass is 1.5.
 - 5) Index of InP is 3.17 at 1550nm.
 - 6) Flange focal distance (optical) is 5.6 mm.