

GA1280J-15

High Resolution, Mil-Rugged, High Sensitivity InGaAs SWIR Camera



The compact **J-Series** is Goodrich's next generation SWIR digital video camera featuring a 1.3MP high-resolution, high-sensitivity InGaAs imager. It provides real-time daylight to low-light imaging in the Short Wave Infrared (SWIR) wavelength spectrum for persistent surveillance, laser detection, and penetration through fog, dust, and smoke. In addition, the camera employs on-board Automatic Gain Control (AGC) and built-in non-uniformity corrections (NUCs), allowing it to address the challenges of high-dynamic-range urban night imaging without blooming. Camera Link® digital output provides for plug-and-play video with 12-bit images for digital image processing or transmission. The light-weight and compact size enables easy integration into aerial, mobile and hand-held surveillance systems. Optional **NIR/SWIR technology** is available to extend the sensitivity of Goodrich cameras down to 0.7 μm , offering the advantage of both Near Infrared (NIR) and Short Wave Infrared wavelength response.



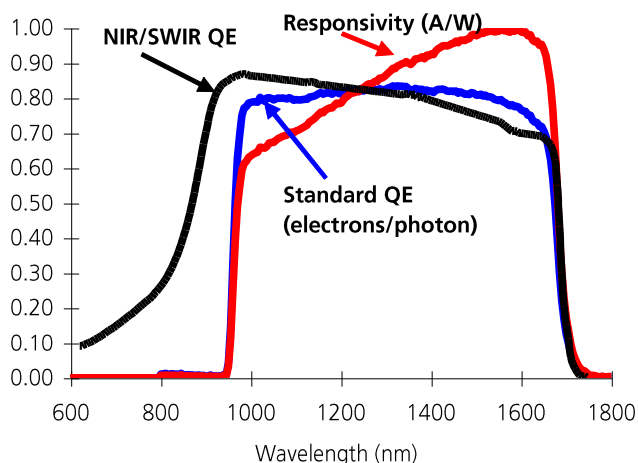
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APPLICATIONS

- Low-light level imaging
- Covert surveillance with passive 24 hr/7 day operation
- Multi-laser spotting and tracking
- Imaging through atmospheric obscurants
- OEM version for easy integration into UASs, handheld, or robotic systems
- Driver Vision Enhancement (DVE)

FEATURES

- 1280 x 1024 pixel format, 15 μm pitch
- 30Hz full frame rate
- Highest sensitivity available in 0.9 to 1.7 μm spectrum; NIR/SWIR, from 0.7 to 1.7 μm
- Partial moonlight to day time imaging
- Compact OEM module size < 4.5 in³
- All solid-state InGaAs imager
- On-board, real time non-uniformity corrections
- Digital 12-bit base CameraLink® output
- Automatic Gain Control (AGC)
- Improved Dynamic Range Enhancements (Local Area Processing)
- Tested to MIL-STD-810G for shock, vibration, altitude, humidity, and acceleration



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MECHANICAL SPECIFICATIONS

Model:	Enclosed	OEM
Module dimensions Width x Height x Depth	2.0 x 2.0 x 2.44 inches 50.8 x 50.8 x 62.1 mm (with I/O connectors, no lens or mount)	1.65 x 1.60 x 1.60 inches 41.9 x 40.6 x 40.6 mm (excludes optional output panel)
Weight (no lens)	<235g	<120 g
Lens Mount	M42x1 mount	M42x1 mount bracket
Included Lens	f/1.4, 50 mm, 21.7° FOV width, M42x1-mount	none
Camera Link Connector	3M SDR26 Connector	none
Interface Connector	Not applicable	Samtec LSHM-130-030-L-DV-A-N
Pixel Pitch	15 μ m	
Focal Plane Array Format	1280 x 1024 pixels	
Active Area	19.2 mm x 15.4 mm x 24.6 mm diagonal	

ENVIRONMENTAL & POWER SPECIFICATIONS

Operating Case Temperature	-20 °C to 45 °C
Storage Temperature	-54 °C to 85 °C
Humidity	95% relative humidity
Power Requirements:	
AC Adapter Supplied	100-240 VAC, 47-63 Hz
DC Voltage	+9-16 V
Power	<4.5 W at 20 °C (case temperature), <8 W at 45 °C
Functional Shock, Random Vibration, Altitude, Humidity, Acceleration	MIL-STD-810G compliant
Conducted and Radiated Emissions	CE FCC Part 15 MIL-STD-461F RE102 and CE102

ELECTRICAL SPECIFICATIONS

Optical Fill Factor	100 %
Spectral Response	Standard, 0.9 μ m to 1.7 μ m NIR/SWIR, 0.7 μ m to 1.7 μ m
Quantum Efficiency	Standard, > 65 % from 1 μ m to 1.6 μ m NIR/SWIR, > 65 % from 0.9 μ m to 1.6 μ m
Mean Detectivity, D^* ¹	1.4×10^{13} cm $\sqrt{\text{Hz/W}}$ (minimum)
Noise Equivalent Irradiance ¹	1.4×10^9 photons/cm ² -s (maximum)
Noise (RMS) ¹	85 electrons (maximum)
Dynamic Range	300:1 (high gain), 900:1 (low gain) (minimum)
Non-Uniformity Corrections	23 pre-configured operational settings (OPRs)
Operability ²	> 99 %
Exposure Times	32 μ s to 33.2 ms
Image Correction	2-point (offset and gain) pixel by pixel, user selectable
Digital Output Format	12 bit base Camera Link [®]
Digital Output Frame Rate	30 fps
Scan Mode	Continuous or 3 externally triggered modes

¹ $\lambda = 1.55 \mu\text{m}$, exposure time = 33.2 ms, highest sensitivity OPR setting, no lens, x1 digital gain with enhancement, AGC, and correction off.

² The fraction of pixels with responsivity deviation between +/- 35 % from the mean

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