Raytheon
An RTX Business

Sensors Unlimited: 1280JSX -10µm VIS/SWIR digital video camera

High definition, low noise and high sensitivity

High Definition VIS/SWIR digital video camera with a 10um pitch delivers enhanced performance for covert surveillance in low-light imaging applications.

BENEFITS

- 30 or 60 frames per second full frame rate
- High Dynamic Range
- 1280 x 1024 pixel format, 10µm pitch
- 100% duty cycle at 17°C and 45°C.
- High Sensitivity in VIS/SWIR from 0.5 to 1.7 um
- Low power, <3.0 W at 20° C
- Partial moonlight to daytime imaging
- All solid-state InGaAs imager with snapshot exposure capability
- On-board, real-time non-uniformity corrections
- Digital 12-bit base Camera Link output
- Automatic Gain Control (AGC)
- Windowing, binning and in-field offset corrections
- Operation from -40° C to 70° C
- Tested to MIL-STD-810G for functional shock, vibration, thermal shock, storage temperature, altitude, humidity

The compact J-Series 1280JSX-10um VIS/SWIR digital video camera from Sensors Unlimited features a 1.3MP high-resolution, high-sensitivity indium gallium arsenide (InGaAs) imager. The next-generation HD 10um design leverages our patented GMOD pixel architecture to provide enhanced performance in low light and daylight imaging applications. The camera provides real-time imaging in the 0.5-1.7um extended wavelength spectrum for persistent surveillance, laser detection and penetration through dust and smoke.

Employing onboard automatic gain control (AGC) and built-in nonuniformity corrections (NUCs), the camera addresses the challenges of high-dynamic range urban night imaging without blooming. Camera Link® digital output provides plug-and-play video with 12-bit images for digital image processing or transmission. The light weight and compact size enable easy integration into small gimbals, unmannned aircraft systems, hand-held and robotic systems.

Applications

- Low-light level imaging.
- Covert surveillance with 24/7 operation.
- Multi-laser spotting and tracking.
- Imaging through atmospheric obscurants.
- Easy integration into small gimbals, unmanned aircraft systems, hand-held and robotic systems.
- Driver Vision Enhancement (DVE).

Sensors Unlimited: 1280JSX-10µm VIS/SWIR digital video camera

Mechanical specifications

	Enclosed	OEM
Module dimensions width x height x depth	2 x 2 x 2.43 in (50.8 x 50.8 x 61.7 mm) (with I/O connectors, no lens or mount)	1.65 x 1.6 x 1.6 in (41.9 x 40.6 x 40.6 mm) (no optional output panel and lens mount)
Weight (no lens)	≤235 g	≤120 g
Lens mount	M42x1 mount	Optional M42x1 mount bracket
Included lens	f/1.4, 50 mm, 18° 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	10.0 µm	10.0 µm
Focal plane array format	1280 x 1024 pixels	1280 x 1024 pixels
Active area	12.8 mm x 10.24 mm x 16.39 mm diagonal	12.8 mm x 10.24 mm x 16.39 mm diagonal

Environmental and power specifications

Operating case temperature	-40° C to +70° C
Storage temperature	-54° C to +85° C, MIL-STD-810G Method 501.5 and 502.5
Humidity	95% relative humidity, MIL-STD-810G Method 507.5 Procedure II
Power requirements: **AC adapter supplied** **DC voltage power**	 100-240 VAC, 47-63 Hz +8-16 V ≤3.0 W at +20° C (case temperature), ≤10.0 W maximum
Functional shock, random vibration, thermal shock, temperature/altitude/ humidity combined and acceleration	MIL-STD-810G compliant

Electrical specifications

Full FOV frame rate	30 fps	60 fps
Optical fill factor	100%	100%
Spectral response	VIS/SWIR, 0.5 µm to 1.7 µm	VIS/SWIR, 0.5 µm to 1.7 µm
Quantum efficiency	VIS/SWIR, ≥65% from 0.7 µm to 1.6 µm	VIS/SWIR, ≥65% from 0.7 µm to 1.6 µm
Mean detectivity, D [1]	4.02 x 10^{13} cm√Hz/W (typical)	2.82 x 10^{13} cm√Hz/W (typical)
Noise equivalent irradiance [1]	7.51 x 10^{8} photons/ cm^2×s	1.53 x 10^{9} photons/ cm^2×s
Noise (RMS) [1]	20 electrons (typical)	20 electrons (typical)
Dynamic range [2]	1700 : 1	1850 : 1
Operability [1]	≥99%	≥99%
Exposure times [3]	30 µs to 33 ms	30 µs to 16.5 ms
Image correction	Two point (offset and gain), pixel by pixel, user selectable	Two point (offset and gain), pixel by pixel, user selectable
Output format	12-bit base Camera Link®	12-bit base Camera Link®
Scan mode	Continuous or three user selectable, externally triggered modes	Continuous or three user selectable, externally triggered modes

[1] λ= 1.55 µm, exposure time = 16.5 ms, 17° C TEC setpoint, high gain, no lens, x1 digital gain with enhancement, AGC and correction off.
[2] In high-dynamic range OPR settings, 17° C. Able to achieve 750:1 in highest sensitivity OPR setting.
[3] Standard configuration exposure time = 200 µs in lowest sensitivity OPR setting.

Contact
Raytheon
Advanced Products & Solutions
Sensors Unlimited Inc.
330 Carter Road
Princeton, New Jersey
08540 USA
(609) 333-8000
sensorsinc.com

Specifications subject to change without notice.

Raytheon
An RTX Business

www.RTX.com