Sensors Unlimited 1280JSX
High Resolution, Mil-Rugged, Extended High-Sensitivity InGaAs SWIR Camera with Snapshot

The compact J-Series is Sensors Unlimited’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 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 Sensors Unlimited cameras down to 0.7 µm, offering the advantage of both Near Infrared (NIR) and SWIR wavelength response.

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

FEATURES
- 60 frames per second full frame rate
- 1280 x 1024 pixel format, 12.5 µm pitch
- Capability for 100% duty cycle across entire illumination intensity range
- High sensitivity in 0.9 to 1.7 µm spectrum; NIR/SWIR, from 0.7 to 1.7 µm; VIS from 0.5 to 1.7 µm (option)
- Low power, < 3.0 W at 20°C
- Partial moonlight to day time imaging
- Compact OEM module size, < 4.5 in³
- All solid-state InGaAs imager with snapshot exposure capability
- On-board, real time non-uniformity corrections
- Digital 12-bit base CameraLink® output
- Automatic Gain Control (AGC)
- Windowing, Binning and in-Field Offset Corrections
- Operation from -40 to +70°C
- Tested to MIL-STD-810G for functional shock, vibration, thermal shock, storage temperature, altitude, humidity
**ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Module dimensions</th>
<th>Enclosed</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width x Height x Depth</td>
<td>2.00 x 2.00 x 2.43 inches (50.8 x 50.8 x 61.7 mm)</td>
<td>1.65 x 1.60 x 1.80 inches (41.9 x 40.6 x 40.6 mm)</td>
</tr>
<tr>
<td>(with I/O connectors, no lens or mount)</td>
<td>(no optional output panel and lens mount)</td>
<td></td>
</tr>
<tr>
<td>Weight (no lens)</td>
<td>≤ 235 g</td>
<td>≤ 120 g</td>
</tr>
<tr>
<td>Lens Mount</td>
<td>M42x1</td>
<td>Optional M42x1 mount bracket</td>
</tr>
<tr>
<td>Included Lens</td>
<td>f/1.4, 50 mm, 18° FOV width, M42x1-mount</td>
<td>none</td>
</tr>
<tr>
<td>Camera Link Connector</td>
<td>3M SDR26 Connector</td>
<td>Samtec LSHM-130-030-L-DV-A-N</td>
</tr>
<tr>
<td>Interface Connector</td>
<td>Not applicable</td>
<td>none</td>
</tr>
<tr>
<td>Pixel Pitch</td>
<td>12.5 µm</td>
<td>12.5 µm</td>
</tr>
<tr>
<td>Focal Plane Array Format</td>
<td>1280 x 1024 pixels</td>
<td>1280 x 1024 pixels</td>
</tr>
<tr>
<td>Active Area</td>
<td>16.0 mm x 12.8 mm x 20.5 mm diagonal</td>
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**Spectral Response**

- Standard, 0.9 µm to 1.7 µm
- NIR/SWIR, 0.7 µm to 1.7 µm
- VIS/SWIR, 0.5 µm to 1.7 µm

**Quantum Efficiency**

- Standard, ≥ 65% from 1 µm to 1.6 µm
- NIR/SWIR, ≥ 65% from 0.9 µm to 1.6 µm
- VIS/SWIR, ≥ 65% from 0.7 µm to 1.6 µm

**Mean Detectivity, D* (Typical)**

2.8 x 10^13 cm/Hz/W

**Noise Equivalent Irradiance (Typical)**

1.2 x 10^4 photons/cm²-s

**Noise (RMS, Typical)**

25 electrons

**Capacity**

6 x 10^6 electrons

**Dynamic Range (Typical)**

1850:1

**Non-Uniformity Corrections**

23 pre-configured operational settings (OPRs)

**Operability**

≥ 99 %

**Exposure Times**

30 µs to 16.5 ms

**Image Correction**

pixel by pixel, user selectable

**Digital Output Format**

12 bit base Camera Link®

**Digital Output Frame Rate**

60 fps

**Scan Mode**

Continuous or 3 externally triggered modes

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1. A= 1.55 µm, exposure time = 16.5 ms, 17°C TEC setpoint, high gain, no lens, x1 digital gain with enhancement, AGC, and correct 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.

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**ENVIRONMENTAL & 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
  - 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**

MIL-STD-810G compliant

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**MECHANICAL SPECIFICATIONS**

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