Imagine the invisible

Xeva-2.35-320 TE4
Versatile SWIR T2SL camera with response up to 2.35 µm

Superior performance for reliable research

The Xeva-2.35-320 is a compact digital camera operating a T2SL detector array for imaging in the 1.0 to 2.35 µm wavelength range. The camera features a resolution of 320 x 256 pixels with a 30 µm pixel pitch. It outputs 14-bit data and comes in a 100 Hz (USB 2.0) or 350 Hz (CameraLink) version.

The camera interfaces to a PC via standard USB 2.0 and CameraLink. Each camera is delivered with a Graphical User Interface (GUI) Xeneth, which offers direct access to various camera settings such as exposure time and operating temperature. The camera allows for exposure times from 1 µs to 60 ms in high dynamic range mode (with TE4 cooling).

Through its advanced thermo-mechanical design, the Xeva-2.35-320 achieves excellent performance levels using a TE4-cooled device operating down to 203K.

Applications
- R&D (SWIR range)
- Semiconductor inspection
- Hyperspectral SWIR imaging
- Art inspection (seeing through paint)
- Laser beam profiling (1.0 - 2.35 µm)

Benefits & Features
- Spectrometer compatible
- CameraLink for high speed imaging
- Scientific image recording and analysis
- High speed SWIR imaging up to 2.35 µm
- Windowing mode for even higher frame rates
- Flexible programming in an open architecture
- Smallest TE4-cooled camera for low dark current
- Two gain modes for High Sensitivity (HS) or High Dynamic Range (HDR)

Designed for use in
- Hyperspectral imaging
- Semiconductor inspection
- Art inspection

Quantum Efficiency (normalized)

Wavelength (µm)
Specifications

**Camera specifications**

<table>
<thead>
<tr>
<th>Part number</th>
<th>Data interface</th>
<th>Cooling</th>
<th>Frame rate</th>
<th>ADC</th>
</tr>
</thead>
<tbody>
<tr>
<td>XEN-000538</td>
<td>CL/USB</td>
<td>TE4</td>
<td>100 Hz</td>
<td>14 bit</td>
</tr>
<tr>
<td>XEN-000539</td>
<td>CL</td>
<td>TE4</td>
<td>344 Hz</td>
<td>14 bit</td>
</tr>
</tbody>
</table>

**Array specifications**

- **Array type**: T2SL
- **Spectral band**: 1.0 µm to 2.35 µm
- **Resolution**: 320 x 256
- **Pixel pitch**: W: 9.6 mm, H: 7.68 mm, D: 12.29 mm or 0.48 in
- **Array dimensions**: Minimum 128 x 8 pixels
- **Dark current array per pixel**: 20 - 40 x 10^6 e-/s
- **ROIC noise**: High gain: 70 electrons; Low gain: 700 electrons
- **Integration capacitor**: High gain: 10 fF; Low gain: 210 fF
- **Full well**: High gain: 0.17 x 10^6 electrons; Low gain: 3.5 x 10^6 electrons
- **Array cooling**: TEC 4 stages (typical sensor temperature 203 K or -70 °C)
- **Pixel operability**: > 99%

**Inputs**

- **Trigger**: TTL levels
- **USB 2.0**: CameraLink

**Outputs**

- **CameraLink**: Xeneth Advanced
- **Xeneth SDK**: Xeneth LabVIEW SDK (optional)

**Software**

- **Xeneth Advanced**
- **Xeneth SDK**
- **Xeneth LabVIEW SDK (optional)**

**Specifications**

- **Focal length**: Visible lens, 16 mm f/1.4
- **Optical interface**: C-Mount with filter holder
- **Maximum frame rate**: 100 Hz
- **Window of Interest (WoI)**: No
- **Integration type**: Snapshot
- **Exposure time range**: High gain: 1 µs to > 3 ms (selectable in 1 µs steps); HDR*: 1 µs to > 60 ms (selectable in 1 µs steps)
- **Gain**: High gain: 100 electrons; HDR*: 1000 electrons
- **A to D conversion resolution**: 14 bit per pixel
- **Power consumption**: 7W without cooling; 84 Watt @ maximum cooling
- **Input voltage**: 24 V
- **cool-down time**: Approximately 2 minutes
- **Ambient operating temperature**: 0 to 40 °C
- **Dimensions**: 87 W x 115 H x 109 L mm³
- **Weight camera head**: App. 1.8 kg (without lens)

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* Typical value
** High Dynamic Range mode