

**Application Note: XEVA 1.7 320 VISNIR**

*XEVA 1.7 320 VISNIR: Key performance indicators*

- *InGaAs sensor 320x256 format with 30µm pixel pitch*
- *Extending the InGaAs SWIR range into the visible (400 to 1700nm)*
- *Excellent efficiency for 850nm, 1064nm and 1550nm lasers*
- *Peltier cooler for reduced dark current and temperature stability*
- *USB 2.0 or CameraLink*
- *Also available in uncooled XS camera*

***Adaptive optics***

InGaAs SWIR cameras are used for wavefront sensing or adaptive optics in free space satellite communication applications. The advantage of using a VISNIR camera is the excellent sensitivity for both 1064nm Nd:YAG lasers as well as for 850nm lasers.

Another application field of adaptive optics for SWIR InGaAs cameras is astronomy. Also here, a VISNIR camera covers a very large spectrum going from visible to SWIR up to 1700nm.

High speed versions of the standard XEVA camera output up to 350fps at a resolution of 320x256 pixels.

***Target designation laser detection***

The most common battlefield lasers operate around 850nm, 1064nm, or 1550nm. Only the first two types are visible to night vision goggles; the third one, 1550nm, is therefore considered covert. A VISNIR camera is able to see all three at the same time.

***Nightvision***

Thermal imaging cameras, such as LWIR uncooled microbolometers, have excellent detection abilities at night. However SWIR InGaAs cameras are a good complement to thermal imaging cameras. While thermal imaging can detect the presence of a warm object against a cool background, a SWIR camera can actually identify what that object is. SWIR nightvision is based on reflection of infrared rays from atmospheric glow rather than on thermal radiation; moreover SWIR InGaAs cameras have a much better dynamic range than thermal imagers. Obviously, a VISNIR InGaAs camera benefits from its ability to see more wavelengths when there is some visible light present.

Additionally, by using SWIR illumination for example 1550nm LEDs or lasers, a scene can be covertly illuminated, i.e., viewing is only possible with a SWIR camera.

**Hyperspectral imaging in Visible, NIR and SWIR**

A VISNIR InGaAs camera is the ideal instrument for hyperspectral imaging in the visible, NIR and SWIR band up to 1700nm. State-of-the-art diffractive optics (spectrographs) cover the range from visible up to 1700nm, especially interesting for process inspection in semiconductor manufacturing, pharmaceutical industry, food safety and food quality.

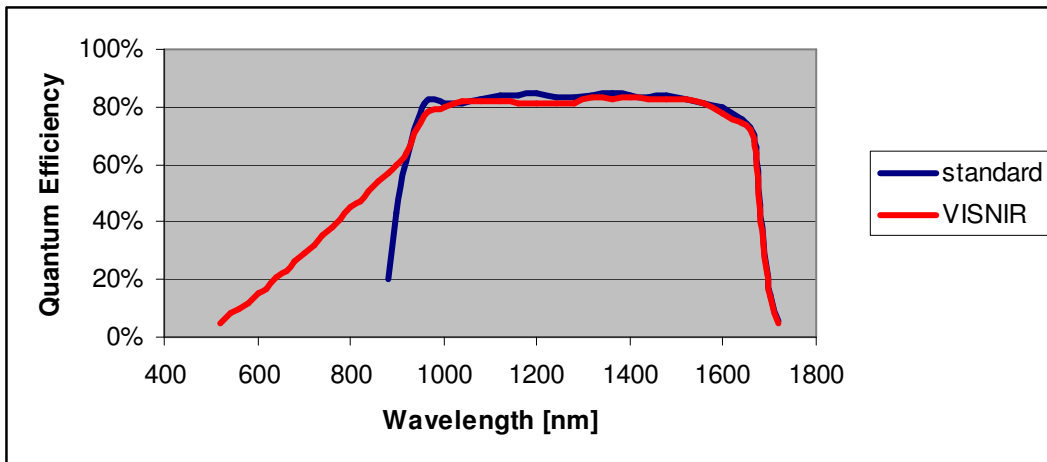


Fig.1: Spectral response of XEVA standard InGaAs and VISNIR InGaAs camera



Fig.2 :Night vision with SWIR InGaAs camera XEVA 1.7 320 TE1 VISNIR