► Xenics NV

Xenics is Europe's leading developer and manufacturer of innovative infrared detectors, customer specific image sensors and flexible IR cameras.The cameras are based on years of experience gained in detector and read-out chip production. Using the new compact camera platform, Xenics has recently introduced some of the world's smallest and best performing products.

The Xenics range of InGaAs based devices has revolutionised shortwave infrared spectroscopy, imaging and non-contact temperature measurement, and their uncooled bolometer based products look set to do the same for thermal imaging and thermography. Xenics also produces advanced cooled products for applications that require ultimate performance or special features.

The Xenics range of industrial infrared cameras and detectors offer high accuracy, repeatability and reliability. They can be used to control and steer mechanical and computerized manufacturing equipment such as conveyor belts, machine tools and robot arms. Easy integration into existing process control systems is guaranteed by offering a range of data transfer interfaces including Ethernet, CameraLink, and CoaXPress.

Xenics' products cover most IR wavelengths, from 1 to 14µm and provide solutions for line scan applications in addition to area array devices. Xenics can also deliver custom detectors, cameras and electro-optical instrumentation solutions, depending on the customers' specifications and project criteria.

Camera manufacturing taking place in Europe and using European sourced components means that sales are possible internationally with few or no licensing restrictions.

► Xenics IR camera range overview

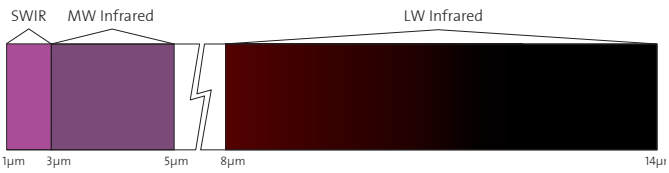
With extensive interface versions available, Xenics opens new possibilities for applications in many fields of imaging and machine vision, such as inspection tasks, identification, measurement tasks, assembly, high speed sorting, defect analysis, hot spot detection, traffic surveillance as well as medical applications.

Xenics infrared cameras are specifically designed to cover the full infrared spectrum, from shortwave to longwave infrared. The cameras are based on sensors sensitive in the typical range between 0.9µm and 14µm and even extended into the visual.

Whether the application is scientific, industrial or security oriented, Xenics cameras offer the best infrared camera solution with higher resolutions, higher speed, and better heat and light sensitivity. In addition, Xenics cameras offer the highest flexibility in terms of setting control parameters, frame rate, and user interface.

The Xenics range includes:

- **Shortwave Infrared (SWIR):** InGaAs (Indium Gallium Arsenide) or MCT (Mercury Cadmium Telluride) cameras operating from 0.9 to 2.5µm or extended into the visible
- **Midwave Infrared (MWIR):** InSb (Indium Antimoid) or MCT (Mercury Cadmium Telluride) cameras operating from 3.0 to 5.0µm
- **Longwave Infrared (LWIR):** Bolometer, MCT (Mercury Cadmium Telluride) and QWIP (Quantum Well Infrared Photodector) operating from 8 to 14µm



► The Xenics Gobi series

The Gobi cameras are smart, affordable, uncooled micro bolometer (LWIR) systems for thermal imaging in a very compact housing. The cameras offer a high degree of flexibility in terms of frame rate, integration time, user interface and temperature range, enabling the user to adapt it to various industrial environments and applications. All camera functions can be optimised according to user applications context, including four different display modes. Each camera offers frame rates of 50 Hz and can be supplied with the optional thermography calibration.

- Uncooled micro bolometer (a-Si)
- 8 to 14µm sensitivity
- Resolution 640 x 480 pixels
- Frame rate 50 Hz (full frame)
- Ethernet and CameraLink interface
- Non-uniformity correction via DSP, shutterless as option
- Trigger: in or out
- Gain modes: manual / auto gain / level
- Array operability >99.9%

Gobi 384 and 640 25µm pixels

Gobi 640 17µm pixels

Applications

- Quality control
- Process control and monitoring
- Non-destructive testing
- Research and development
- Temperature measurement

MODEL	RESOLUTION	FRAME RATE	PIXEL PITCH	NETD	INTERFACES	SPECTRUM
GOBI-384	384 x 288	50 Hz	25 µm	50 mK	PAL, NTSC, CameraLink, Ethernet	8 - 14 µm
GOBI-640	640 x 480	50 Hz	25 µm	50 mK	PAL, NTSC, CameraLink, Ethernet	8 - 14 µm
GOBI-640-CL	640 x 480	50 Hz	17 µm	50 mK	CameraLink	8 - 14 µm
GOBI-640-GigE	640 x 480	50 Hz	17 µm	50 mK	GigE Vision	8 - 14 µm

► MICRO BOLOMETER

Longwave infrared detectors, also called micro bolometers, detect heat radiation by measuring changes in capacitance or resistance within the structure of the pixels. Commonly based on Amorphous Silicon (ASi) or Vanadium Oxide (VO), these sensors can detect wavelength of 8 to 14µm where the measured values relate to the temperature of an object. This enables LWIR cameras to work where there is no infrared source and with objects at much lower temperatures compared to short and midwave infrared.

► The Xenics Bobcat camera

The InGaAs (Indium Gallium Arsenide) cameras of the Bobcat series provide exceptional performance when working in the SWIR part of the spectrum. A pixel size of 20µm enables a large selection of lenses with C-mount connection. In addition to those highly specialised lenses especially tuned for SWIR are available, further enhancing image quality. Different triggering options and the ability to adjust integration time complete the product.

The Bobcat 640 is the smallest, high performance SWIR camera in the world. The thermoelectric cooler ensures that the product has excellent low noise and low dark current characteristics. The camera offers 100 Hz with CameraLink or GigE outputs. An option for VisNIR is available extending the response down to 400nm.

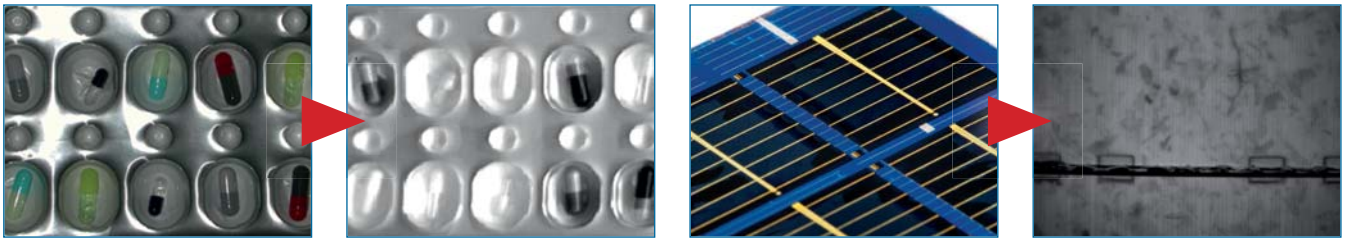
The uncooled Bobcat 320 camera is an affordable option for SWIR imaging. Output options range from analogue through to GigE. A gated model exists which offers an integration time down to 80ns making this an ideal option for imaging of very hot or fast moving objects.

- Small form factor 58 x 62 x 72mm (55 W x 55 H x 85 L for the Bobcat-640 version)
- InGaAs detector; >99% pixel operability
- 0.9 to 1.7µm sensitivity (0.4µm option)
- 320 x 256 or 640 x 512 pixels
- Ethernet, CameraLink
- Frame rate up to 100 Hz
- Analogue out or trigger input available

Applications

- Industrial machine vision
- Thermal imaging of hot objects (300 °C to 800 °C range)
- Non-destructive testing
- Agricultural monitoring
- Moisture measurement
- Semiconductor process monitoring
- Hyper-spectral imaging

MODEL	RESOLUTION	FRAME RATE	PIXEL PITCH	INTERFACES	SPECTRUM	COMMENTS
BOBCAT 320	320 x 256	60 Hz	20 µm	GigE Vision, CameraLink, Analogue	0.9 - 1.7 µm	
BOBCAT 320 GATED	320 x 256	28 Hz	20 µm	Ethernet, CameraLink	0.9 - 1.7 µm	to 80 ns
BOBCAT 640	640 x 512	100 Hz	20 µm	GigE Vision, CameraLink	0.9 - 1.7 µm	0.4- 1.7µm option



► The Xenics Lynx - line scan SWIR

The Lynx range of high sensitivity uncooled InGaAs line scan cameras utilises Xenics' latest technology to offer high performance SWIR imaging in a highly compact package. The products are ideal for a wide range of quality assurance applications.

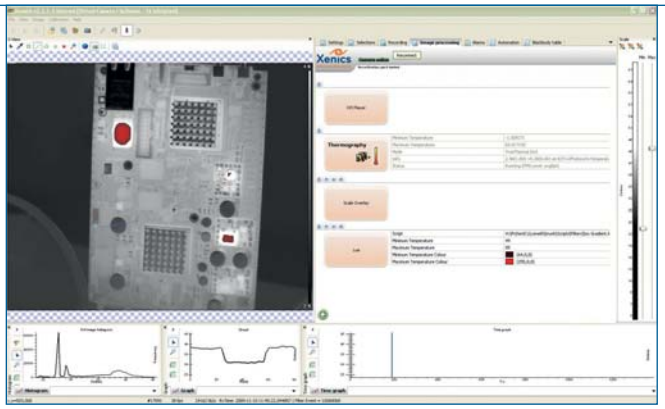
The Lynx cameras are perfectly suited to high-speed scanning with line rates to 40 kHz and 14-bit A to D conversion. The compact housing and the sensor size allow high precision imaging and optimisation of compact systems.

- Optical Coherence Tomography (OCT)
- Food inspection
- On-line process control
- Web processing
- Non-destructive testing
- Agricultural monitoring
- Moisture measurement
- Biomedical and chemical applications
- Pollution and environment monitoring
- Semiconductor process monitoring

MODEL	RESOLUTION	LINE RATE	PIXEL PITCH	INTERFACE	SPECTRUM
LYNX 512-GigE	512	40 kHz	25 µm	GigE Vision	0.9 - 1.7 µm
LYNX 1024-GigE	1024	40 kHz	12.5 µm	GigE Vision	0.9 - 1.7 µm
LYNX 2048-GigE	2048	10 kHz	12.5 µm	GigE Vision	0.9 - 1.7 µm
LYNX 512-CL	512	40 kHz	25 µm	CameraLink	0.9 - 1.7 µm
LYNX 1024-CL	1024	40 kHz	12.5 µm	CameraLink	0.9 - 1.7 µm
LYNX 2048-CL	2048	10 kHz	12.5 µm	CameraLink	0.9 - 1.7 µm

► Xenics software for infrared cameras

Xeneth is a graphical user interface that allows for easy control of infrared cameras and acquisition of images. All IR camera control settings such as integration time, A/D settings, detector temperature and gain can be optimised by the user. Xeneth has support for Windows 7, Windows 2000 SP4, XP Pro SP2 and Vista operating systems.



Xeneth is also available as an SDK and as a radiometric package.

GERMANY
AUSTRIA
Phone: +49 89 80902-0
info@stemmer-imaging.de

UNITED KINGDOM
IRELAND
Phone: +44 1252 780000
info@stemmer-imaging.co.uk

FRANCE
Phone: +33 1 45069560
info@stemmer-imaging.fr

SWITZERLAND
LIECHTENSTEIN
Phone: +41 55 415 90 90
info@stemmer-imaging.ch

THE NETHERLANDS
BELGIUM · LUXEMBOURG
Phone: +31 575 495159
info@stemmer-imaging.nl

STEMMER IMAGING