



Scientific



Cheetah-640

World's fastest InGaAs camera

Imagine the invisible

www.xenics.com



Ultra high-speed Cheetah-640 captures the fastest processes

Cheetah-640 is a full format high-speed infrared camera fitted with an on-board memory and image processing capabilities for unique high-speed image processing.

High quality, high flexibility

The Cheetah-640 camera is the fastest InGaAs infrared camera in the world. This unit is equipped with a dedicated high-speed InGaAs detector array working up to 1.7 μm and comes in a 400 and 1700 Hz speed version. It allows you to visualize the ultra high-speed features of your specific research application. The camera records images into 16 GByte of internal memory, which allows for up to 8 seconds of recording at full speed. Interfacing with the PC is done via GigE or CameraLink. The camera is delivered with a graphical user interface Xeneth, which offers direct access to various camera settings. The software tools also features two-point uniformity correction and bad pixel replacement.

Advantages

- World's fastest InGaAs camera
- Windowing to further increase frame rate
- Crisp motion analysis
- Flexible and easy-to-use
- Reliable data transfer

Designed for use in

- R&D (SWIR range)
- Thermal imaging of hot objects (300°C to 800°C range)
- High-speed imaging
- Medical (OCT)

Benefits & Features

High definition images at ultra high speed

640 x 512 pixels for high image quality at up to 1700 frames per second full resolution.

On-board memory

Record images into 16 GByte of internal memory. This allows for up to 8 seconds of recording at full speed

GigabitEthernet Interface

Export on-board data over GigE onto a local PC. Using the TCP/IP protocol you can put the Cheetah-640 into a LAN or WAN network for remote control.

Scientific image recording and analysis

You can easily grab still or dynamic images under optimal performance conditions with Xeneth. This offers flexibility in setting control parameters such as integration time, operating temperature, frame rate, saving images in various formats and executing initial image analysis. Transfer of data to mainstream text or data processing tools is straight forward, giving you a wide variety in data treatment capabilities.

Exchange of lenses

A variety of wide angle or narrow FOV lenses are available.

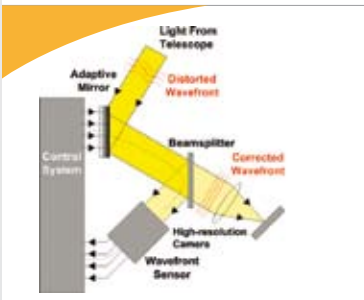
Windows of Interest

Increase frame rate and reduce overhead for high-speed process monitoring. Tracking moving objects becomes feasible. Four regions of interest can be defined in parallel.





High-speed imaging



Wavefront sensing



Top: covert illumination
Bottom: visual

Array Specifications

| | |
|-------------------|--------------------|
| Array Type | InGaAs |
| Spectral band | 0.9 to 1.7 μ m |
| # Pixels | 640 x 512 |
| Pixel Pitch | 20 micron |
| Array Cooling | TE1-cooled |
| Pixel operability | > 99% |

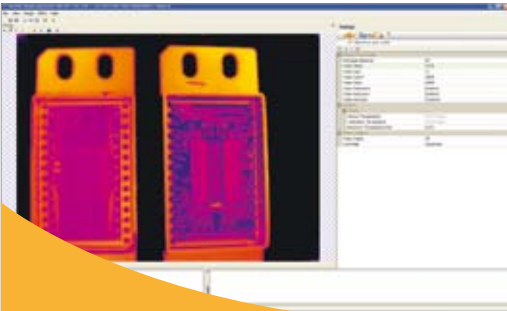
Camera Specifications

| | Cheetah 400 Hz | Cheetah 1700 Hz |
|--|---|---|
| Lens (included) | | |
| Focal length | 25 mm f/0.95 | |
| Optical interface | C-Mount | |
| Imaging performance | | |
| Frame rate (full frame; recorded in on-board memory) | 400 Hz | 1700 Hz |
| On-board memory | 8 GB @ 400 Hz version 16 GB @ 1700 Hz version | |
| Integration type | Snapshot | |
| Regions of interest | 4 parallel windows of interest, minimum size 32 x 4 pixels. 290 kHz max. frame rate if one window selected. | 4 parallel windows of interest, minimum size 32 x 4 pixels. 360 kHz max. frame rate if one window selected. |
| Exposure time range | 1 μ sec up to 100 msec (cooled) | |
| A to D conversion resolution | 14 bit | |
| Interfaces | | |
| Camera control | Gigabit Ethernet | |
| Image acquisition | Gigabit Ethernet & CameraLink | |
| Trigger interface | 3.3 V CMOS levels (trigger in & out) | |
| Graphical User Interface (GUI) | Xeneth Advanced | |
| Power requirements | | |
| Power consumption | Max. 60 W | |
| Power supply | 12 V | |
| Physical characteristics | | |
| Camera cooling | Forced convection cooling | |
| Ambient operating temperature | 0 to 50 $^{\circ}$ C | |
| Dimensions | 130 L x 310 W x 130 H mm | |
| Weight camera head | App. 5 kg | |

Applicable OS: Windows 2000 (SP4) & XP Pro (SP2)

Xeneth Advanced

The Xeneth graphical user interface is used to set camera control parameters and to display camera images over the GigE interface.



| Control | Image acquisition |
|--|---|
| Integration time control over the full range | Save video as *.avi; *.xvi |
| Detector temperature control Selection of 2 gain modes Subframe dimension and position | Save 8-bit images as *.jpg; *.bmp; *.tif; *.png; *.csv; *.bin Save 14-bit images as *.tif; *.png; *.csv; *.bin |
| Inverting output signal Reverting X axis and/or Y-axis | Line profiles; histogram, 3D view |
| On-board temperature control with TE cooler option | Dynamic link to Microsoft Office |
| | 2 point NUC & bad pixel replacement |

The Xenics software driver is fully compatible with the above Microsoft operating systems. A dynamic link library (DLL) to communicate with the driver has been designed for flexible software development. A well-documented API with sample code in C is supplied upon request.

Product Selector Guide

| Cheetah-640 Part number | Digital output Interface | Frame Rate | On-board data storage | ADC |
|-------------------------|--------------------------|------------|-----------------------|--------|
| CH4 | GigE + CameraLink | 400 Hz | 8 GB | 14 bit |
| CH16 | GigE + CameraLink | 1700 Hz | 16 GB | 14 bit |

Inputs



Accessories

| Part number | Type | Description | Available on following cameras |
|-------------|------------|-----------------------|--------------------------------|
| XC602-307 | Trigger | Lemo | All |
| XC606-301 | CameraLink | SDR | All |
| XC615-301 | GigE | MIL 38999 Category 5E | All |

Outputs

Information furnished by Xenics is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. This information supersedes all previously supplied information.



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▣ About Xenics

Xenics is a leading developer of innovative infrared detection solutions. We design, manufacture and sell infrared detectors and cameras, both linescan and 2-D, covering the infrared wavelength ranges from 0.4 to 14 micrometers. In addition, Xenics delivers tailor-made solutions produced according to customer-agreed specifications and planning. As a European vendor with a worldwide service and distributor network, we are strategically placed to serve global markets with highly innovative products drawing on a strong science and technology background.

Xenics Headquarters

Sales department
Ambachtenlaan 44
BE-3001 Leuven
Belgium
T +32 16 38 99 00
sales@xenics.com

sInfraRed

Asian sales, manufacturing
and custom solutions office
221 Queensway #12-10
Viz Holland
Singapore 276750
T +65 6 47 666 48
sales@sinfrared.com

Xenics North America

130 Grove Street
Lexington · MA 02420
USA
T +1 781 274 98 93
luc.debrouckere@xenics.com

Xenics South America

Rua Alvaro Rodrigues 182 SL 44
Cep: 04582-000
São Paulo · SP, Brasil
T +55 11 5561 0778
paul.verminnen@xenics.com

