

Imagine the invisible

Research & Development



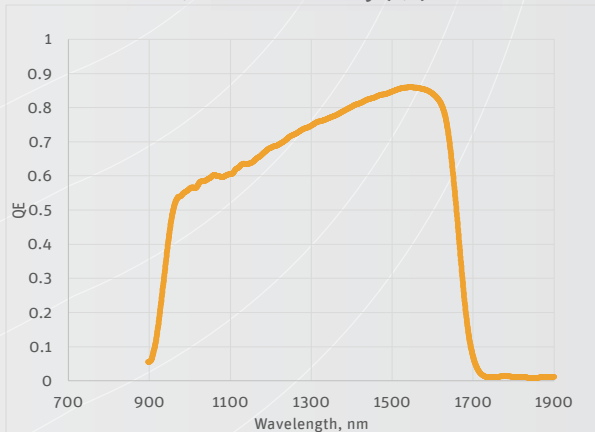
Cheetah-640-CL

New!
800 Hz version

World's fastest InGaAs camera

Ultra high speed Cheetah-640-CL for real-time motion analysis

Quantum Efficiency (QE)



*QE at 306 K sensor temperature

The Cheetah-640-CL camera is the fastest InGaAs infrared camera in the world. The camera has been designed for applications where high speed imaging matters. Whether for adaptive optics, spectral analysis in the SWIR band, tracking of fast and hot objects, electro-coalescence, etc.

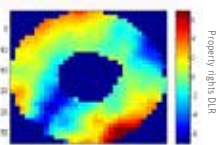
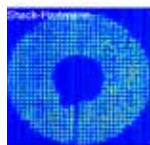
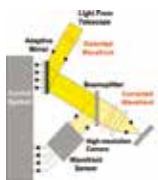
This unit is equipped with a dedicated high speed InGaAs detector array working up to 1.7 μm and comes in three speed versions: 400, 800 and 1700 Hz. It allows you to visualize the ultra high-speed features of your specific research application.

The TE1-cooling reduces dark current and improves signal to noise ratios for contrast-rich and stable imaging performance.

The camera head interfaces to your frame grabbing system via CameraLink (base, full or dual medium – depending on the version).

The Cheetah- 640-CL is delivered with a software development kit which offers direct access to various camera settings and allows easy integration with your own high speed image grabbing system.

Designed for use in



Wavefront sensing

Covert illumination with Cheetah-640-CL compared with visual imaging

Applications

- R&D (SWIR range)
- High speed tracking
- Thermal imaging of fast hot objects
- Hyperspectral imaging (signature analysis)
- Adaptive optics for astronomy or free space communication
- Oil electro-coalescence research for crude oil purification

Benefits & Features

- Crisp motion analysis
- Mounts easily to various spectrometers
- Windowing to further increase frame rate
- Reliable data transfer over dual CameraLink
- Extended coverage from SWIR into the visible range
- TE1-cooled for low dark current and contrast-rich imaging
- World's fastest InGaAs camera with unseen 400 Hz, 800 Hz or 1700 Hz version

Broad range of accessories available to simplify your research

▶ Lens & filter options

Various focal lengths available



▶ Discover our Lens Selector Guide
www.xenics.com/LSG



▶ Inputs

Power 12 V
Trigger in/out



CameraLink Port 1 Base
CameraLink Port 1 Med/Full

▶ Outputs

▶ Software



- Xeneth
- Xeneth SDK
- Xeneth LabVIEW SDK (optional)

▣ Specifications

Camera Specifications	Cheetah-640-CL 400 Hz	Cheetah-640-CL 800 Hz	Cheetah-640-CL 1700 Hz
Lens			
Focal length	Broad selection of lenses available		
Imaging performance			
Maximum frame rate	444 Hz	865 Hz	1730 Hz
Window of Interest (WoI)	Yes Minimum size 32 x 4 pixels		
Framerate in smallest window of interest	>100 kHz		
Exposure time range	min 10 µs to 40 ms (high gain mode);		
Full well (High Gain)*	6.5 x 10 ⁴ electrons		
Full well (Low Gain)*	8 x 10 ⁵ electrons		
Image Acquisition	CL base 12 bit	CL medium 12 bit	CL Dual medium 12 bit / CL full 8 bit
Read Noise (High Gain)*	138 e ⁻ rms		
Dynamic Range (High Gain)*	470:1 (>53 dB)		
Interfaces			
Camera control	CameraLink serial channel		
Trigger	3.3 V CMOS logic level triggered (input/output)		
Optical Interface	C-mount		
Power requirements			
Power consumption	< 4 W without TEC operation; Max. 25 W with TE-cooling		
Power supply	12 V		
Physical characteristics			
Camera cooling	Forced air cooling		
Ambient operating temperature	0 °C to 50°C		
Dimensions **	140 W x 135 H x 90 L mm ³		
Weight camera head **	2 kg		

* Typical value
** Without lens

Array Specifications	
Array type	InGaAs photodiode array
Resolution	640 x 512 pixels
Pixel pitch	20 µm
Array size	12.8 mm x 10.24 mm; 16.39 mm diagonal
Spectral band	0.9 to 1.7 µm Optional 0.4 to 1.7 µm (vSWIR)
Dark current (e ⁻ /s)	<2 x 10 ⁵ at 150mV reverse bias and 288K sensor temperature *
Pixel operability	> 99 %
Cooling	TE1 (optional TE3 **)

* Typical value
** For more product information please consult the Cheetah-640-CL TE3 datasheet

▣ Product selector guide

Part number	TE Cooling	Digital output interface	Frame rate (Hz)	vSWIR option
XEN-000175	TE1	CameraLink	400	No
XEN-000045				Yes
XEN-000577			800	No
XEN-000578				Yes
XEN-000176			1700	No
XEN-000046				Yes