DIGITAL IMAGING
made easy

RETIGA-EXL

Lightwire 800

Rapid-Speed, High-Resolution IEEE-1394b FireWire® Digital CCD Camera

The **QImaging® Retiga-EXL** utilizes a cooled interline CCD and the remarkable speed of Lightwire™ 800 (an optimized version of the IEEE-1394b protocol). This low-noise camera's 1.4-million-pixel spatial resolution and 14-bit digitization are ideally suited for bio-imaging applications such as live-cell microscopy. The **Retiga-EXL** provides QImaging's hallmark combination of high performance and ease of use, enabling researchers to acquire quantitative results from their samples in a matter of seconds.

camera models

Includes: IEEE-1394b cable (9-pin to 9-pin), IEEE-1394b PCI card, power supply, QCapture Suite software, and access to SDK

- **Monochrome Retiga-EXL**
  Model: RET-EXL-L-M-14-C

camera options

- Extended Warranty
- RGB Filter

"the first 30MHz, 14-bit, cooled ccd camera for bio-imaging"

Note: Lens shown for illustration only and is not included.

features	benefits
High-Speed Readout	▪ Previewing & focusing in real-time ▪ 15fps full resolution @ 14 bits ▪ Ideal for automated imaging applications
Extended Quantum Efficiency	▪ Provides higher sensitivity than competitive interline cameras (especially in the near-infrared region)
IEEE-1394b FireWire Connection	▪ 800 Mb/s bandwidth capacity ▪ Enhanced low-noise performance ▪ Simple connectivity ▪ Ease of use & installation ▪ Portability with laptop computer
Low-Noise Electronics	▪ Quantitation & imaging of low-light-level signals
Peltier Cooling	▪ Reduces thermal noise for low-light long exposures while providing temperature stability
Flexible Exposure & Gain Control	▪ Optimal integration over a wide range of light levels
External Sync & Trigger	▪ Tight synchronization with flashlamps, automated filters, shutters, & microscope stages
Binning	▪ Increases sensitivity for quantitation & imaging of ultra-low-light signals ▪ Increases frame rate
Extensive Application Software Support	▪ Choose from a large selection of life science & industrial software for microscopy, machine vision, & video-streaming functions

a.e.s
adept electronic solutions
The Machine Vision and Imaging Speciaists
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RETIGA-EXL Lightwire 800 Specifications

ccd sensor	
Light-Sensitive Pixels	1392 x 1040
Binning Modes	2, 4, 8
ROI (Region of Interest)	From 1x1 pixels up to full resolution, continuously variable in single-pixel increments
Exposure/Integration Control	10µs to 17.9min
Sensor Type	Sony® ICX285 front-illuminated interline CCD
Pixel Size	6.45µm x 6.45µm
Linear Full Well (1x1 Binning)	16,000e- (30MHz); 18,000e- (20MHz); 18,000e- (10MHz)
Read Noise	6.5e- (10MHz)
Dark Current	0.15 e-/pix/s
Cooling @ 25˚C Ambient	0˚C (regulated)
Digital Output	8 bits/14 bits
Readout Frequency	30, 20, 10MHz
Frame Rate	15fps full resolution @ 14 bits (30MHz)

camera	
Black-Out Mode	Turns off all LEDs on camera to reduce reflection during low-light applications; software controlled
Computer Platforms/ Operating Systems*	Windows® XP and Vista (32 bits/64 bits) Mac OS 10.4
Digital Interface	IEEE-1394b FireWire (two ports with simultaneous camera control)
External Trigger	TTL Input
Trigger Types	Internal, Software, External (Edge-Hi/Edge-Low/Pulse-Hi/Pulse-Low/ Strobe-Hi/Strobe-Low)
External Sync	TTL Output
External RGB Filter Control	Support for RGB filter
Analog Gain Control	0.8 to 34.7x
Optical Interface	2/3", C-mount optical format
Threadmount	1/4" – 20 mount
Power Requirements	36W; 12V
Weight	800g (1.75lbs)
Warranty	2 years
Operating Environment	0 to 27˚C, 80% relative humidity non-condensing
Storage Temperature	-10 to 60˚C

RoHS

**Refer to QImaging website for detailed listing of supported operating systems.*
Note: Specifications are typical and subject to change.

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Windows is a registered trademark of Microsoft Corporation in the United States and other countries.
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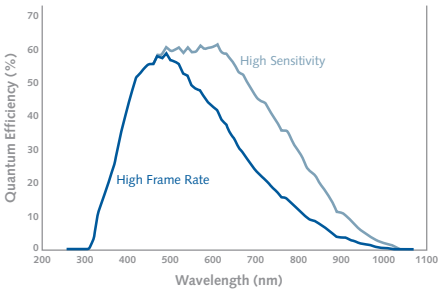
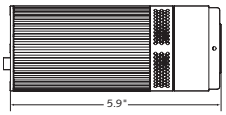
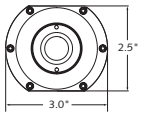
applications

- High-resolution, high-speed imaging
- Live-cell fluorescence imaging
- Cell-trafficking studies
- Cell-motility studies

spectral response







Digitizer Speed	10MHz				20MHz				30MHz			
Binning (Pixels)	1x1	2x2	4x4	8x8	1x1	2x2	4x4	8x8	1x1	2x2	4x4	8x8
Frame Rate (Full Field)	5.9fps	10.3fps	18.7fps	29.2fps	10.9fps	18.7fps	29.3fps	40.9fps	15.1fps	24.6fps	36.1fps	47.2fps
Full Well Capacity	18,000e-	27,000e-			18,000e-	27,000e-			16,000e-	27,000e-		
Read Noise	6.5e-				8e-				16e-			
Dynamic Range	2769:1	4154:1			2250:1	3375:1			889:1	1688:1		

Results are typical and may vary from camera to camera.

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