

MotionPro X4



Redlake's new MotionPro® X4 high-speed motion camera combines high frame rate and resolution. Along with the advanced features you require for accurate high-speed motion analysis on your PC or Mac laptop or desktop computer. The enhanced sensitivity of the MotionPro® X4 combined with 5000 fps at 512x512 is perfect for research and development laboratory environments and airbag testing applications.

The new X4 camera features the latest Gigabit Ethernet along with USB2.0 for easy interface. It also features live video for real-time monitoring.

With the MotionPro® X4 camera integration could not be simpler. Just install the software, connect one or more HS Series cameras to USB 2.0 or Ethernet ports (or both), and you are ready to capture high-speed digital imagery. Control the camera with the feature-rich MotionPro® X software or use the LabVIEW™ or MATLAB® plug-in to integrate it into a larger experiment setup. To create your own control software, an SDK is included.

The extensive image processing algorithms include binning (2x2, 3x3, and 4x4), filtering, advanced color control, and XDR (eXtended Dynamic Range) enable you to maximize the image quality under various lighting conditions.

Flexible recording options allow the user to capture pre-selected number of frames before and/or after receiving a trigger. Double-exposure mode, with a 100 nanoseconds inter-frame time, is perfect for motion analysis on objects moving at very high speeds. Memory may be divided into multiple sessions with or without automatic download to assure no event is missed.

Applications: Airbag testing, Ballistics and Munitions testing, Biomechanical research, Fluid dynamics research (PIV), Off-board vehicle impact testing

Features	Benefits
Up to 512x512 resolution color or mono	High resolution allows fine detail to be captured even at high frame rates
Fast frame rates from 5000 fps at full resolution to over 200,000 fps at reduced resolution	Perfect for capturing movies of fast dynamics of a process or event
Gigabit Ethernet and USB2.0	Operate camera from remote locations via Gigabit Ethernet while using USB 2.0 for local monitoring
100 nanosecond inter-frame time in double exposure mode	Perform particle imaging velocimetry (PIV) measurements to study fast moving fluids
iPod and PDA compatibility	Store movies on to iPod (video) for quick review. Control the camera remotely and wirelessly via PDA interface

Sample Frame Rates

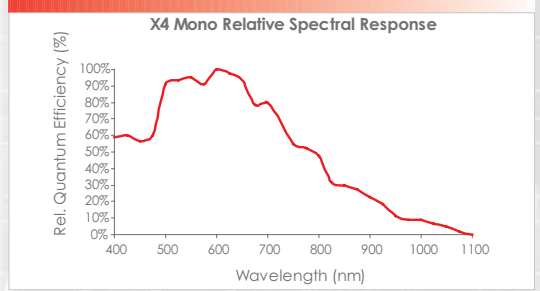
Vertical Resolution	Max. Horiz. Resolution = 512
512	>5000
256	>10,000
128	>20,000
64	>35,000
32	>75,000
16	>140,000

Note: Horizontal resolution does not affect frame rate performance. All HS cameras can record at any frame rate at full horizontal resolution.

Accessories

X Timing Hub	USB digital interface, integrated control software with 8 outputs, 2 inputs
USB Repeater	For use up to 15m

Spectral Range



MotionPro X4 Performance Specifications

CMOS Imager	
Sensor Array	Area Array with 16 μ m x 16 μ m pixels, color or monochrome
Image Resolution	Up to 512 x 512 at 5000 fps
Dynamic Range	59 dB at sensor
Memory and Record Rates	
On-board Storage	4 GB
Recording Rates	Selectable, over 140,000 fps
Playback Rates	User selectable
Camera Control	
Shutter	Global Electronic Shutter variable from 1 μ s, optional 100 nanosecond exposure*
Exposure modes	Single, Double, XDR (extended Dynamic Range)
Trigger Frame	Variable position from start to the maximum available frame capacity
Trigger/Sync Mode	CMOS level (3.3v) via BNC connectors
Time Stamp	Each frame
Software	
Control Software	MotionPro X; Windows 2000/XP, Mac OS X** (10.3 or later)
Image Processing Algorithms	Binning, filtering, advance color control, and programmable LUT
Plug-ins	LabVIEW™ for PC; MATLAB® for PC and Mac; Twain Driver for PC and Mac
File Formats	TIFF, BMP, PNG, MRF, MCF, AVI, BLD, MPEG, and MOV (Mac only)
Mechanical Description	
Camera Dimensions	3.7 in (95 mm) H x 3.7 in (95 mm) W x 6.4 in (162 mm) L
Camera Weight	4.2 lbs (1.9 kg)
Camera to PC Interface	USB 2.0, USB 2.0&Gigabit Ethernet (optional)
Camera Cable Lengths	5m (USB2.0); Longer cable lengths (not supplied) may be used with GigE
Lens Compatibility	1" C-mount
Lens Mount	C-mount, F-mount adapter (optional)
Synchronization	
Synchronization (USB Hub Optional)	All cameras are synchronized with each other using an external sync pulse on 3.3v CMOS BNC connector
Environmental	
Camera Power	+24 vdc (100-240 VAC, 50-60 Hz ac/dc convertor)
Operating Temperature	+5°C to +40°C Ambient (0°F to 122°F)
Emission/Safety	CE approved, FCC Class B compliant, UL listed
Input/Output	
Trig In (BNC) Sync In (BNC) Sync Out (BNC) USB 2.0 (LEMO) Gigabit Ethernet Live Out (BNC) RS170 (NTSC/PAL) DC Power (LEMO)	

*Enquire with factory.
 **GigE interface is not supported under Mac.
 Specifications are subject to change.

REDLAKE



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