

# ///MotionPro® HS Series

Redlake's *MotionPro*® HS series of high-speed CMOS cameras combine excellent resolution to frame rate performance, along with the advanced features you require for accurate high-speed motion analysis on your PC or Mac laptop or desktop computer. Whether you need the value of the *MotionPro* HS-1, delivering 650 fps at 1280 x 1024 resolution, the added performance of the *MotionPro* HS-2 at over 1200 fps at 1280 x 768, the enhanced image quality and sensitivity of the HS-3 at 1000 fps 1280 x 1024, or the blazing speed of the *MotionPro* HS-4 at over 5000 fps at 512 x 512, there is a *MotionPro* HS Series camera that is perfect for your application.

With the *MotionPro* HS camera integration could not be simpler. Just install the camera drivers and software, connect one or more HS Series cameras to USB 2.0 ports or hub, and you are ready to capture high-speed digital video. Control the camera system with the feature-rich *MotionPro* Central software or use the LabVIEW™ or MATLAB® plug-in. Or create your own control software using the detailed SDK.

Video capture with *MotionPro* HS series cameras may be initiated via software or a wide variety of external triggers including optical, acoustic, or electrical, as well as simple hand-held switches. Flexible recording options allow the user to capture pre-selected numbers of frames before and/or after receiving a trigger or to employ a double-exposure mode, which, with a 100 nanoseconds interframe 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.

## Plug-N-Play High-Speed Imaging



### SNAPSHOT

- Range of performance options from 1280 x 1024 at 650 fps to 512 x 512 at 5145 fps
- LabVIEW™ and MATLAB® plug-ins for PC platforms and Mac compatibility with MATLAB® plug-in
- USB 2.0 interface for simple integration
- 100 nanoseconds frame interval in double exposure mode for capture and analysis of high-speed events
- FlexROI™ Configurable Region of Interest for selection of precise field of view to maximize performance

### APPLICATIONS

- Research, development and test
- Production line diagnostics
- Range, aerospace and ballistics
- Mechanical component test
- Particle Image Velocimetry (PIV)

# MotionPro® HS Series

## PERFORMANCE SPECIFICATIONS

	MotionPro HS-1	MotionPro HS-2	MotionPro HS-3	MotionPro HS-4
<b>Sensor Array</b>	1280 x 1024	1280 x 1024	1280 x 1024	512 x 512
<b>Max. Frame Rate at Full Res.</b>	650	900	1000	5145
<b>Pixel Size</b>	12µ	12µ	12µ	16µ
<b>Bit Depth (sensor ADC)</b>	10-bit	10-bit	10-bit	10-bit
<b>Sensor Dynamic Range</b>	59dB	59dB	59dB	59dB
<b>Image Bit Depth</b>	8/10-bit mono, 24/30-bit color	24-bit color	8-bit mono, 24-bit color	8-bit mono, 24-bit color
<b>Maximum Memory</b>	4 GB			
<b>Configurable Binning</b>	1x1, 2x2, 3x3, 4x4			
<b>Shutter</b>	Global, 1 microsecond minimum exposure, also available 100ns*			
<b>Trigger</b>	Software or BNC: 3.3v CMOS edge high, edge low, switch closure			
<b>Synchronization</b>	BNC: 3.3v CMOS			
<b>Lens Mount</b>	C-mount, F-mount (Nikon and Canon)			
<b>Camera Size and Weight</b>	95x95x162mm, 1.9kg			
<b>Cable</b>	Standard USB 2.0 to 5m, 15m with optional repeater			
<b>Multiple Camera Control</b>	Multiple cameras may be networked via USB hub			
<b>Operating System</b>	Windows 2000, XP, Mac OS X			
<b>Gain and Offset</b>	Programmable gains (high/low/middle 8-bit selection on HS-1)			
<b>Tripod Mount</b>	Standard ¼-20 photo mounts			

Note: Specs are subject to change at any time

\* Call your local representative for details on MotionPro SI-Series cameras with 100ns exposure.

## SAMPLE FRAME RATES \*\*

Vertical Resolution	MotionPro HS-1 Max. Horiz. Resolution = 1280	MotionPro HS-2 Max. Horiz. Resolution = 1280	MotionPro HS-3 Max. Horiz. Resolution = 1280	MotionPro HS-4 Max. Horiz. Resolution = 512
<b>1024</b>	>600	900	1000	
<b>768</b>	>800	1200	>1300	
<b>512</b>	>1200	>1500	2000	>5000
<b>256</b>	>2500	>3500	4000	>10,000
<b>128</b>	>5000	>7000	8000	>20,000
<b>64</b>	>10,000	14,000	16,000	>35,000
<b>32</b>	>20,000	>25,000	32,000	>75,000
<b>16</b>	>35,000	>50,000	64,000	>140,000

\*\* Horizontal resolution does not affect frame rate performance.

All HS cameras can record at any frame rate at full horizontal resolution.

## ACCESSORIES

**HS Timing Hub** USB digital interface, integrated control software with 8 outputs, 2 inputs

**USB Repeater** For use up to 15m



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