



optiMOS™

sCMOS CAMERA



Scientific CMOS is Built for Speed

As high throughput automation continues to take hold, traditionally difficult low-light measurements have often been left behind, due to the challenge of combining speed with sensitivity. “Real time” scientific grade CCD cameras have long been the gold standard, but always forced a severe compromise between frame rate, resolution, field-of-view and sensitivity. Due to the inherent architecture of CCDs, achieving high frame rates in combination with low noise and high resolution is simply outside the realm of their intended use.

optiMOS from QImaging uses column parallel Analog-to-Digital Converters (ADCs) that achieve a full 100 Frames per Second (fps) at full resolution, while delivering $< 2e^-$ of read noise, eliminating the compromise. By using a 2 Million pixel, sCMOS sensor, the optiMOS is designed to optically match a microscope field-of-view, while avoiding severe intensity fall-off and distortion. In addition, while still providing temporal resolution, the 2MP sensor avoids the need for costly and complex data management, and expensive CameraLink™ cards in the PC, or comprising frame rate like USB3 solutions.

Offered as the affordable sCMOS solution, optiMOS brings the advantages of low noise and high speed imaging to a broader range of low light imaging situations.

APPLICATIONS

- Cell Biology
- Spinning Disk Confocal
- High Content Screening
- Intrinsic Imaging
- High Speed Multicolor Fluorescence

OEM NEEDS

Track high speed events with exquisite sensitivity

- sCMOS column ADC's allow for capturing fast events while maintaining extremely low noise
- 100fps at full resolution

See more, faster

- 2.1 megapixels with 6.5µm pixels
- 14.3mm diagonal

Eliminate the tradeoffs between speed and sensitivity

- $2e^-$ read noise

High Speed Imaging without Complexity

- Proprietary High Speed Data Interface
- 420MB/s data rate

SOLUTIONS

- Enables smooth real-time imaging of fluorescence or other low-level light signals
- Enables automated scanning instruments to quickly find, focus, and tile images of tissues and cells
- Stream 100fps with a 45% larger FOV than standard 1.4MP fluorescence CCD cameras
- Capture more events in a single image – increase throughput
- Enables high frame rates without compromising on sensitivity
- Capture high speed details and maintain your SNR
- Preserve cell vitality with shorter exposures
- Stream 100fps to a single PCIe Solid State Drive
- Does not require complex and expensive RAID 0 configurations with multiple SSD drives

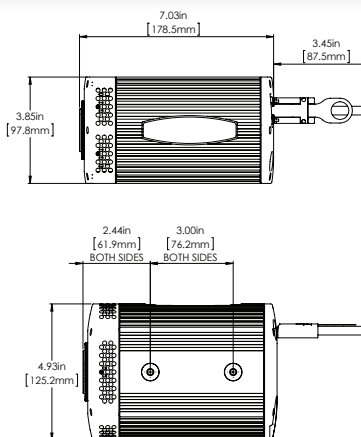
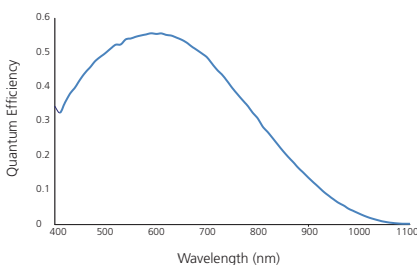
CAMERA

Digital Output	16 bit
Readout Frequency	283MHz and 78MHz
Read Noise	1.9e- (rms); 1.5e- (median)
Frame Rate	100fps at full resolution
Exposure Time Range	25µs - 30s
Regions of Interest	Arbitrary, user defined
Digital Binning	2x2, 4x4, 8x8
Dark Current Rate	0.5 e/p/s at 0°C
Cooling	0°C stabilized at +20°C ambient
Digital Interface	SerialLite PCIe
Triggering I/O Signals	Trigger In, Expose Out, Trigger Ready Out
Supported Triggering Modes	Internal Timed, Trigger First, Edge High, Edge All Rows
Optical Interface	1", C-mount optical format
Mounting Hole Thread Size	1/4"- 20 thread
Camera Dimensions	98mm x 125mm x 178mm
Weight	1.72kg
Computer Platforms/ Operating Systems	Windows 7 (32/64 bit), Windows 8 (32/64 bit) Must have available PCIe x4 slot (Refer to the QImaging website for the latest list of minimum computer requirements)
Power Requirement	25 watts at 9 volts

CMOS SENSOR

Sensor Type	BAE CIS1910F Scientific CMOS
Sensor Array	1920 x 1080
Pixel Size	6.5µm x 6.5µm
Sensor Dimensions	12.48mm x 7.02mm (14.32mm diagonal)
Peak Quantum Efficiency	55% at 600nm
Single Pixel Full Well	30,000e-

SPECTRAL RESPONSE



- Cameras optimized for application needs
- Flexible and customizable branding options
- Unique part number/Bill of Materials (BOM)
- Single driver platform supports a wide range of product offerings
- Strategically located global service centers
- Dedicated support from a focused OEM team



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Results are typical and may vary from camera to camera.

*For more information, visit the OEMImaging website at www.oemimaging.com

Note: Specifications are typical and subject to change.