

NEW
SensiCam^{QE}

SensiCam

High Performance Digital CCD Camera System



Commercial Technology
Achievement Award
Winner
**Laser Focus
World**

High Resolution/Enhanced QE
1376 X 1040



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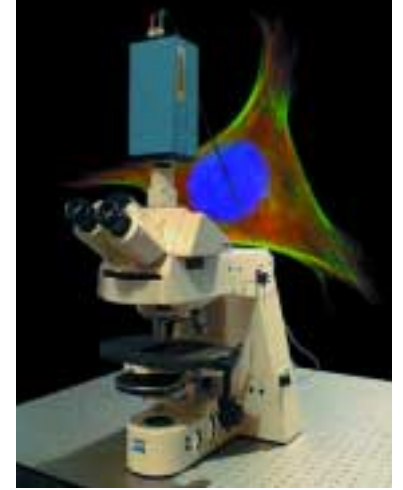
The
Cooke
Corporation
IMAGING

*Award-Winning Camera

The SensiCam is a true 12-bit cooled "Digital Imaging System" that utilizes the latest in CCD and digitization technology, making it the most flexible High Performance CCD camera on the market. The new SensiCamQE features enhanced visible and NIR quantum efficiency.

*A Laser Focus World Commercial Technology Achievement Award Winner in the imaging systems/vision systems category.

SensiCam High Performance CCD Camera shown mounted on microscope.



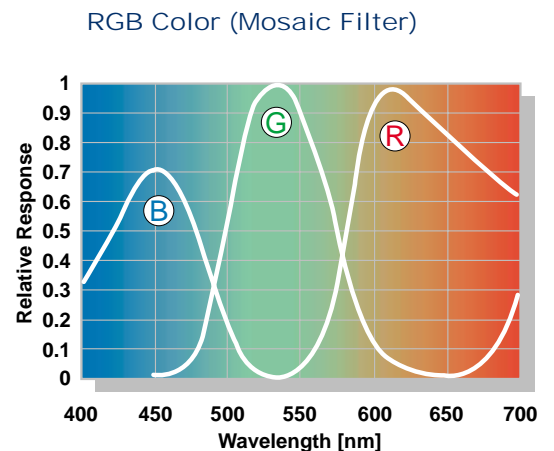
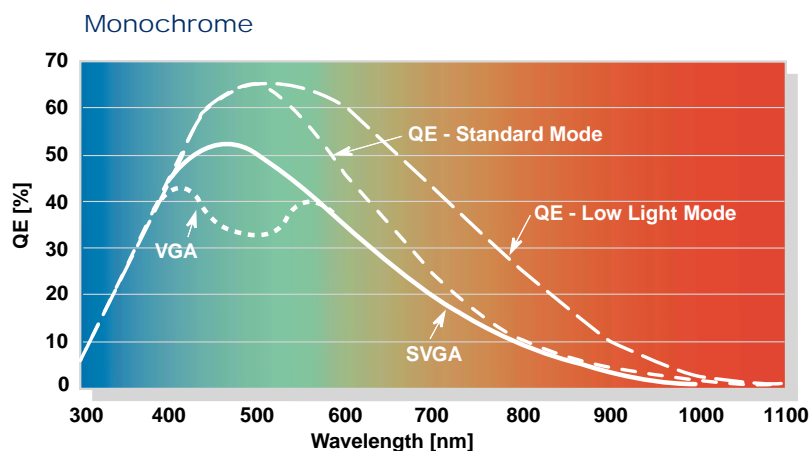
Features	Benefits
True 12-bit digitization	4096 grey levels for high contrast images Distinguishes both bright and dim signals in the same image
12.5 MHz readout rate with QCDS* 16 MHz readout rate (QE)	Full frame digital imaging at video rates up to 30 fps
Low light mode (QE)	Enhanced sensitivity for extremely low light applications requiring short exposure times
Cooled scientific grade CCD	Higher sensitivity with the ability to perform quantitative imaging
640 x 480 (VGA) 1280 x 1024 (SVGA) 1376 x 1040 (QE)	High spatial resolution and standard monitor size formats Enhanced Visible and NIR Quantum Efficiency
Color or monochrome	True RGB imaging
Uses PCI local bus	Transfer rates of up to 132 MBytes/s
Variable binning	Increase frame rates to greater than 200 fps Increase sensitivity
Variable region of interest (ROI)	Reduces memory requirements, increases throughput
C-mount with electronic shutter	Easy interfacing to microscopes and lenses No mechanical shutter limitations
Win 98/NT/2000/ME/XP and MAC OS9.x, OS X	Compatible with all major operating systems

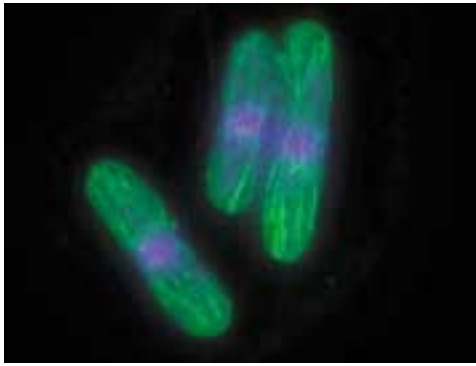
*Quiet Correlated Double Sampling

Configurations

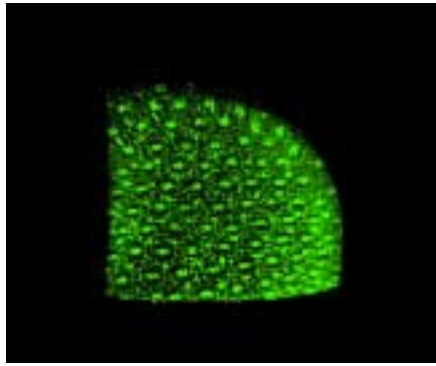
- 12-bit monochrome
- 36-bit color using an RGB color CCD or optimized Micro Color™ LC (liquid crystal) filter
- Intensified for very low light imaging using a removable lens coupled intensifier
- Customized OEM versions

Spectral Response

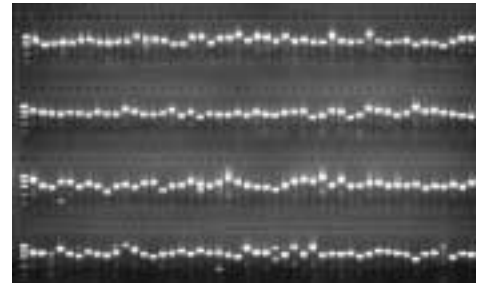




Live cell Imaging
Courtesy of Queens University



Live cell Imaging
Courtesy of 3I



Northern Blot

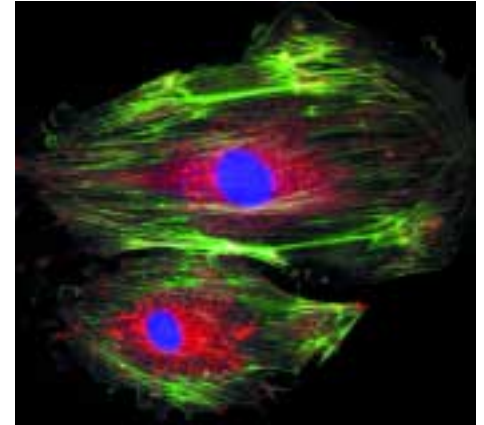
Applications

Biological Imaging

- Live Cell/GFP
- FRET
- Neurobiological
- Fluorescence Microscopy
- Digital Deconvolution
- Ion Imaging
- Gel Imaging
- Fluorescence in Situ Hybridization (FISH)
- Voltage Sensitive Dyes
- Cerebral
- Capillary Electrophoresis



Differential Interference Contrast (DIC) Image.
Courtesy of Cornell Integrated Microscopy Center (CIMC)



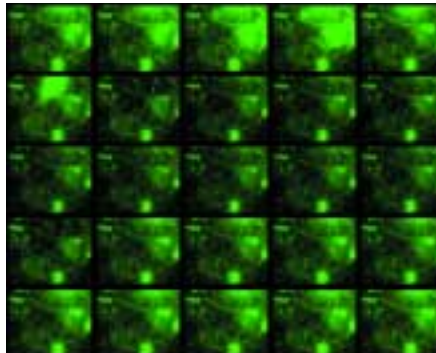
Fluorescence

Spectroscopy

- Chemiluminescence
- Imaging Spectroscopy
- Bioluminescence
- Laser Induced Fluorescence
- Raman
- Hyperspectral Imaging

General

- X-Ray Imaging
- Wind Tunnel Fluorescence
- Electron Microscopy
- High Resolution Morphology
- Motion Analysis
- High Resolution Digital Imaging
- Astronomy
- Low Light Level Imaging
- Brightfield/Darkfield Imaging



Ion Imaging
Courtesy of 3I



Chemiluminescence

Software

The system includes CamWare software compatible with Windows 98/NT/2000/ME/XP for camera control, image acquisition and archiving of images in various file formats. A 32-bit dynamic link library (DLL) is available for user customization and integration on both the PC and MAC platforms. Drivers for popular 3rd party software packages also available. Custom software development capabilities available.

Options

- Fast framing software (FFR) for increase frame rates in excess of 500 fps
- Remote fan option available for minimal vibration
- Hardened camera for magnetic field environments
- Fiber Optic Link (FOL) for camera control and image transmission over 300 m

Application Specific Systems

- Ion Imaging
- Fluorescence Imaging
- PIV
- Multi-Dimensional Imaging
- Time-Lapse Imaging
- LIF

Specifications

<i>SensiCam High Performance Digital CCD Camera</i>				
Sensor Type	CCD-Interline Progressive Scan with "lens-on-chip"			
Number of Pixels (Resolution)	VGA 640(H) x 480(V)	SVGA 1280(H) x 1024(V)	QE 1376(H) x 1040(V)	
Pixel Size	9.9µm x 9.9µm	6.7µm x 6.7µm	6.45µm x 6.45µm	
Sensor Format	1/2"	2/3"	2/3"	
CCD Temperature	-15°C	-12°C	-12°C	
Full Well Capacity	35,000 electrons	25,000 electrons	18,000 electrons	
Scan Area	6.3mm x 4.8mm	8.6mm x 6.9mm	8.9mm x 6.7mm	
Full Frame Rate	30 fps	8 fps	10 fps	
2x2 Binning Frame Rate	60 fps	16 fps	20 fps	
Readout Noise	13 - 14 electrons @ 12.5 MHz	7 - 8 electrons @ 12.5 MHz	Standard & Low Light Mode High Gain: 4 - 5 electrons @ 16 MHz	Standard Mode Low Gain: 5-6 electrons @ 16 MHz
A/D Conversion Factor	7.5 electrons/count	5 electrons/count	Standard & Low Light Mode High Gain: 2 electrons/count	Standard Mode Low Gain: 4 electrons/count
Quantum Efficiency @ 550nm	42%	42%	65%	
Dynamic Range	12 bit at 12.5 MHz	12 bit at 12.5 MHz	12 bit at 16 MHz	
SNR (dB)	69 dB	71 dB	73 dB	
Spectral Response (monochrome)	290 to 1000 nm	290 to 1000 nm	280 to 1100 nm	
Spectral Response (color)	RGB primary colors	RGB primary colors	N/A	
	VGA/SVGA/QE			
Dark Current	<0.1 electrons/pixel/sec.			
Anti-Blooming	Standard Light Mode: >1000 Low Light Mode: >4 (QE Version)			
Exposure/Delay Time Setting	1ms to 1000 sec			
CCD Quality	Grade 0			
Non-Linearity	<1%			
Binning Horizontal	1 to 8			
Binning Vertical	1 to 32			
Cooling Type	2 stage peltier cooler with forced air			
Lens Mount	C-Mount with adjustable focus			
Blemishes				
Point Defects	0			
Cluster Defects	0			
Column Defects	0			
Dimension	Head: 93(W) x 78(H) x 210(L) mm			
Weight	1.6kg			
Operating Temperature	0 to 40°C			
Storage Temperature	-20 to + 70°C			
Humidity	10 to 90% non-condensing			
<i>High Speed Serial Link</i>				
Standard	coax cable to 5 m with BNC connectors			
Optional	fiber optic link 10m to 1000m			
<i>PCI Interface Board</i>				
Board	PCI Local bus compatible, revision 2.1, Burst rate 132 Mbytes/s			
Trigger Input	Internal by software, external by TTL level (rising/falling edge); BNC connector			
<i>Power Supply</i>				
Power Supply	110/220 VAC, 50/60 Hz external power supply			
<i>Ordering Information</i>				
The SensiCam High Performance Digital CCD Camera Imaging System comes complete with PCI Interface Board, Standard Coax Cable, Software, Power Supply and Manual				
To order, specify sensor type	VGA Monochrome or Color	SVGA Monochrome or Color	QE Monochrome	

