

PixelFly

High Performance Digital CCD Camera System



Super-Compact/Enhanced QE
1390 x 1024 Pixel Resolution

the
cooke
corporation

PIXELFLY

PixelFly High Performance Digital CCD Camera shown mounted on microscope.

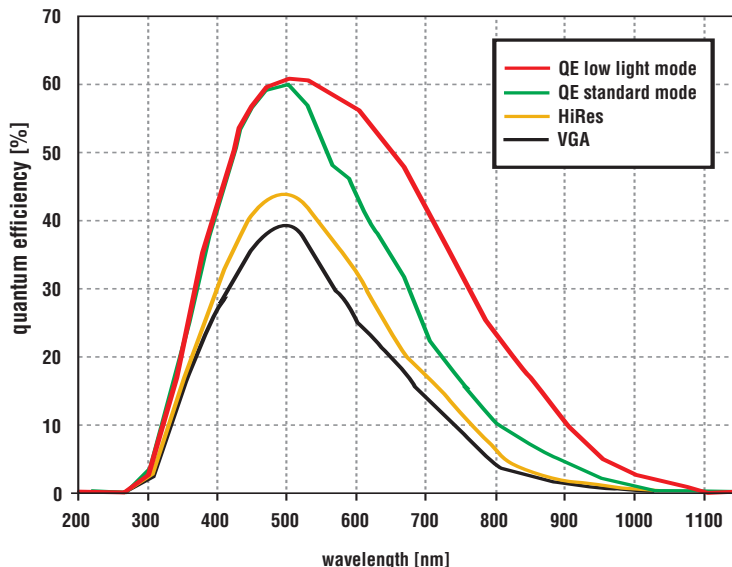


High Speed Data Transfer

PCI Control Board

The PixelFly High Performance Digital CCD Camera system comes complete with High Speed Data Transfer Cable, PCI Control Board, CamWare Software and Manual. When ordering, specify CCD Sensor type VGA, HiRes or QE. (see specifications).

Spectral Response Monochrome



PixelFly is a High Performance Digital CCD Camera System, featuring the latest in CCD and electronics technology. The system features an ultra-compact camera head which connects to either a standard or compact PCI board via a high speed data link. An on-board processor with a total of eight configurable, isolated inputs/outputs is used for triggering and control functions.

Digital Temperature Compensation enables the PixelFly to maintain the same noise performance regardless of any ambient temperature fluctuations. Its compact design eliminates the need for a space-consuming thermal electric cooling unit. All camera functions are remotely controlled with imaging software.

Features

- Up to 1390 x 1024 pixel resolution
- 12-bit dynamic range
- Low light sensitivity
- Monochrome or color
- Digital temperature compensation
- Smooth color/smooth contrast
- Readout noise 12 electrons (typical)
- Exposure time 1/100,000 to 10 seconds
- Captures 2 images with short interframing time
- Super-compact robust design
- High speed data transfer up to 10 m
- Standard or compact PCI control board included
- Integrated front-end processor with optocoupler input and high-side driver

Specifications

CCD Sensor (monochrome)	VGA	HiRes	QE
Number of Pixels	640 (H) x 480 (V)	1360 (H) x 1024 (V)	1390 (H) x 1024 (V)
Pixel Size	9.9 μm x 9.9 μm	4.65 μm x 4.65 μm	6.45 μm x 6.45 μm
Sensor Format	1/2"	1/2"	2/3"
Scan Area	6.3 mm x 4.8 mm	6.3 mm x 4.7 mm	8.9 mm x 6.7 mm
CCD Temperature Control	Digital Temperature Compensation		
Full Well Capacity (electrons)	30,000	12,000	18,000
CCD Sensor	ICX414AL	ICX205AL	ICX285AL
Dynamic Range A/D	12-bit		
Dynamic Range (CCD Sensor and Camera)	65.5 dB	61dB	65.1 dB
Scan Rate	20 MHz	16 MHz	20 MHz
Readout Noise (typical)	12 electrons		
Imaging Frequency	50 fps @ full frame	9.5 fps @ full frame	12 fps @ full frame
	95 fps @ vertical 2 binning mode	18 fps @ vertical 2 binning mode	23 fps @ vertical 2 binning mode
	177 fps @ vertical 4 binning mode		
A/D Conversion Factor	7.0 electrons/count	3 electrons/count	3.8 electrons/count
Spectral Range	290 to 1100 nm		290 to 1100 nm
Average Dark Charge (at 20°C)	< 3 electrons/pixel-sec		
Anti-Blooming Factor	> 1000		>400
CCD Quality	Grade 0		
Quantum Efficiency (typical) (monochrome @ 500 nm)	40%	40%	62%
Non-Linearity (Differential)	< 1.5%		<2%
Vertical Binning	Factor 1, 2, 4	Factor 1, 2	
Horizontal Binning	Factor 1, 2		

System Performance

CCD Sensors	VGA monochrome/color <ul style="list-style-type: none"> • 640 (H) x 480 (V) pixels • 1/2" sensor, 9.9 μm x 9.9 μm
	HiRes monochrome/color <ul style="list-style-type: none"> • 1360 (H) x 1024 (V) pixels • 1/2" sensor, 4.65 μm x 4.65 μm
	QE monochrome/color <ul style="list-style-type: none"> • 1390 (H) x 1024 (V) pixels • 2/3" sensor, 6.45 μm x 6.45 μm
Optical Input	C-mount
Data Transmission	<ul style="list-style-type: none"> • High speed LVDS • Shielded Ethernet patch cable cat. 5, 2-10 m • RJ45 connector
PCI Control Board	Standard or compact PCI
Front-End Processor	Type: ATMEL AT90S8515 Speed: 8 Mips Download: via PCI bus Interface: <ul style="list-style-type: none"> • 6 optocoupler input • 4 high-side driver 12V/24V • TTL I/O
Connector	High density DSUB 26 pin
Power Consumption	<ul style="list-style-type: none"> • 5V (\pm 5%) 1.5A • 12V (\pm 5%) 0.3A
Software	<ul style="list-style-type: none"> • CamWare software under Windows 98/NT/2000/ME/XP, and software development kit (SDK) compatible with MAC OS X, and Linux for camera control, image acquisition/enhancement, and archiving in various file formats • TWAIN Driver • Custom software development capabilities available
Options	<ul style="list-style-type: none"> • Integrated with liquid crystal filter • Double Shot with short interframing time of 15 μsec • Hardened against magnetic fields • OEM versions available • Power supply for CPCI: 24V input • Integrated photometer
Dimensions	Head: 1.5 (H) x 1.5 (W) x 2.5 (L) inches
Weight	1/2 lb
Operating Temperature	10°C to 40°C
Storage Temperature	-20°C to +70°C
Humidity	10 to 90% non-condensing

PIXELFLY

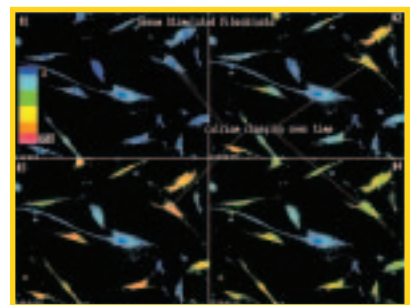
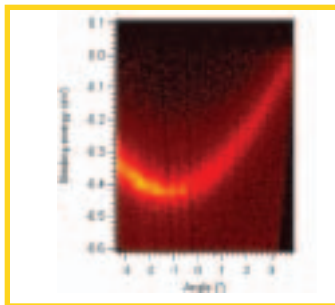
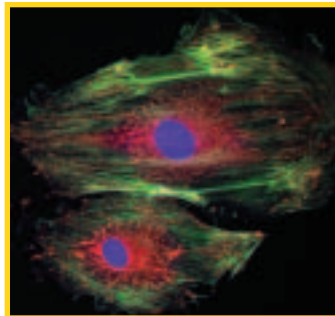
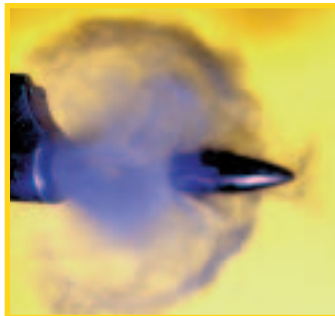
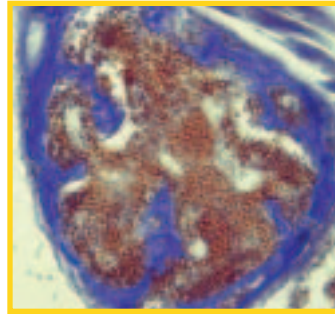
Applications

General

- Brightfield/DIC
- Fluorescence Microscopy
- Gel Documentation
- Machine Vision/Industrial
- Spray Imaging
- Live Cell Imaging (GFP/BFP)
- Spectroscopy
- Ballistics
- Particle Image Velocimetry
- FLIM
- Medical X-Ray Imaging
- Low Light Level Imaging
- Particle Tracking
- Forensics-Latent Fingerprint Inspection
- Lithography
- UV Metrology

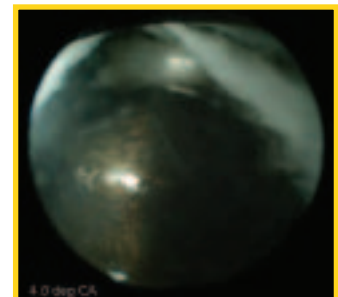
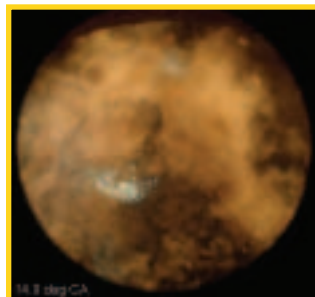
QE

- Combustion Analysis
- High Resolution Microscopy
- Bioluminescence/Chemiluminescence
- Luminescence Spectroscopy
- Red & NIR Fluorescence
- Live Cell Imaging (GFP/BFP)



Surface State Dispersion
Courtesy of Specs GmbH, Germany

An endoscopic view in the combustion chamber of a diesel engine.
Courtesy of AVL List GmbH,
Optical Technologies -
Instrument and Test Systems, Graz, Austria,
www.avl.com/visiolution.



the
cooke
corporation

1091 Centre Road, Suite 100
Auburn Hills, MI 48326-2670
Tel (248) 276-8820 Fax (248) 276-8825
info@cookecorp.com www.cookecorp.com

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