

PixelFly

High Performance Digital CCD Camera System



Super-Compact
1360 x 1024 Pixel Resolution



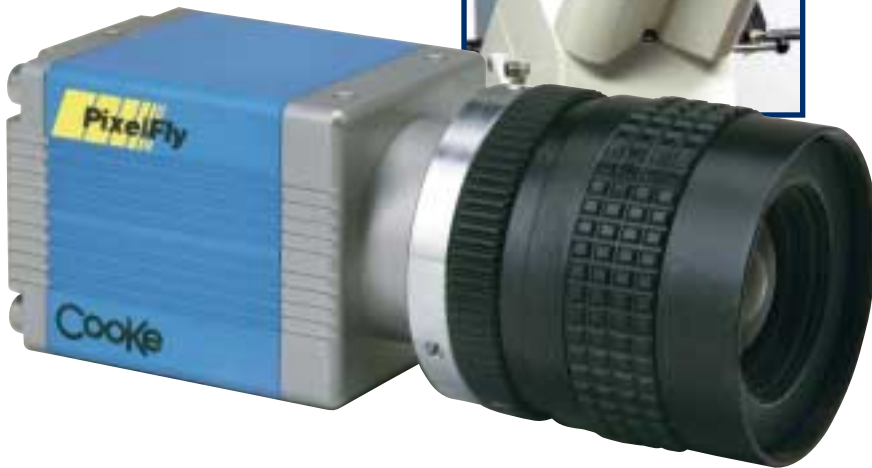
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PIXELFLY

PixelFly High Performance Digital CCD Camera shown mounted on microscope.



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.

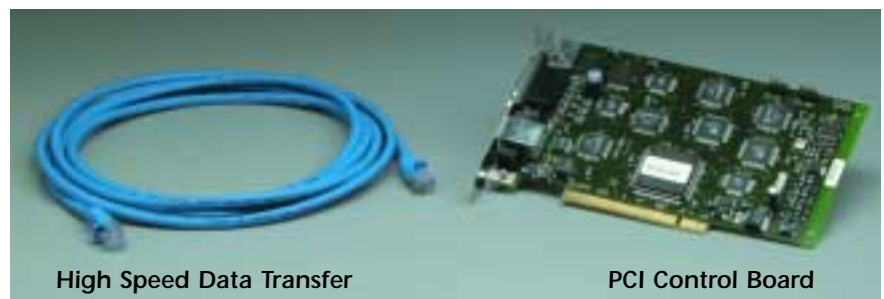
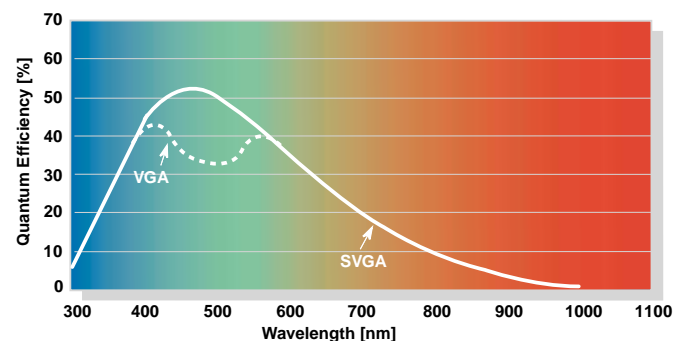
Digital Temperature Compensation enables the PixelFly to maintain the same noise performance regardless of any ambient temperature fluctuations. This is achieved by changing the gain and offset in real time, while maintaining data integrity. For integration times up to 10 seconds, the PixelFly demonstrates similar performance to cooled cameras. All camera functions are remotely controlled with imaging software.

Features

- Up to 1360 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

Spectral Response

Monochrome



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, SVGA or HiRes (see specifications).

Specifications

CCD Sensor (monochrome)	VGA	SVGA	HiRes
Number of Pixels	640 (H) x 480 (V)	1280 (H) x 1024 (V)	1360 (H) x 1024 (V)
Pixel Size	9.9 μm x 9.9 μm	6.7 μm x 6.7 μm	4.65 μm x 4.65 μm
Sensor Format	1/2"	2/3"	1/2"
Scan Area	6.3 mm x 4.8 mm	8.6 mm x 6.9 mm	6.3 mm x 4.7 mm
CCD Temperature Control	Digital temperature compensation		
Digital Offset Control	12-bit		
Full Well Capacity	32,000 electrons	20,000 electrons	12,000 electrons
Dynamic Range	12-bit		
Scan Rate	16 MHz	20 MHz	16 MHz
Readout Noise (typical)	16 electrons	12 electrons	
SNR (dB)	66 dB	68 dB	62 dB
Imaging Frequency	40 fps @ full frame	12.5 fps @ full frame	9.5 fps @ full frame
	76 fps @ vertical 2 binning mode	24 fps @ vertical 2 binning mode	18 fps @ vertical 2 binning mode
	140 fps @ vertical 4 binning mode		
A/D Conversion Factor	7.0 electrons/count	4.5 electrons/count	3 electrons/count
Spectral Range	280 to 1000 nm		
Average Dark Charge (at 20°C)	< 3 electrons/pixel-sec		
Anti-Blooming Factor	> 1000		
CCD Quality	Grade 0		
Quantum Efficiency (monochrome @ 500 nm)	35% typical	40% typical	
Non-Linearity (Differential)	< 1.5%		
Vertical Binning	Factor 1, 2, 4	Factor 1, 2	
Horizontal Binning	Factor 1, 2		

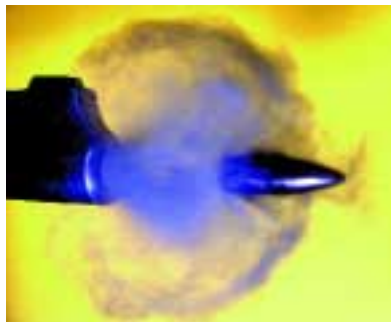
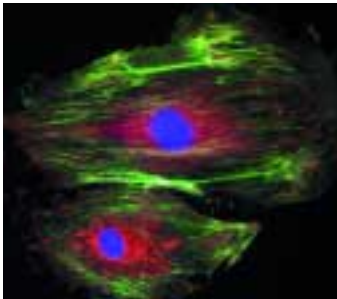
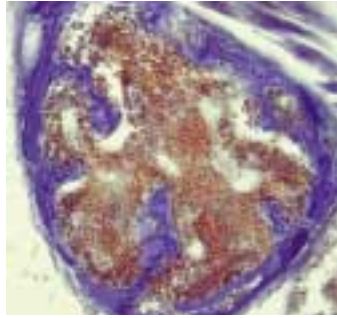
System Performance

CCD Sensors	VGA monochrome <ul style="list-style-type: none"> • 640 (H) x 480 (V) pixels • 1/2" sensor, 9.9 μm x 9.9 μm
	SVGA monochrome <ul style="list-style-type: none"> • 1280 (H) x 1024 (V) pixels • 2/3" sensor, 6.7 μm x 6.7 μm
	HiRes monochrome <ul style="list-style-type: none"> • 1360 (H) x 1024 (V) pixels • 1/2" sensor, 4.65 μm x 4.65 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 and software development kit (SDK) compatible with Windows 98/NT/2000/ME/XP, 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	5°C to 50°C
Humidity	10 to 90% non-condensing

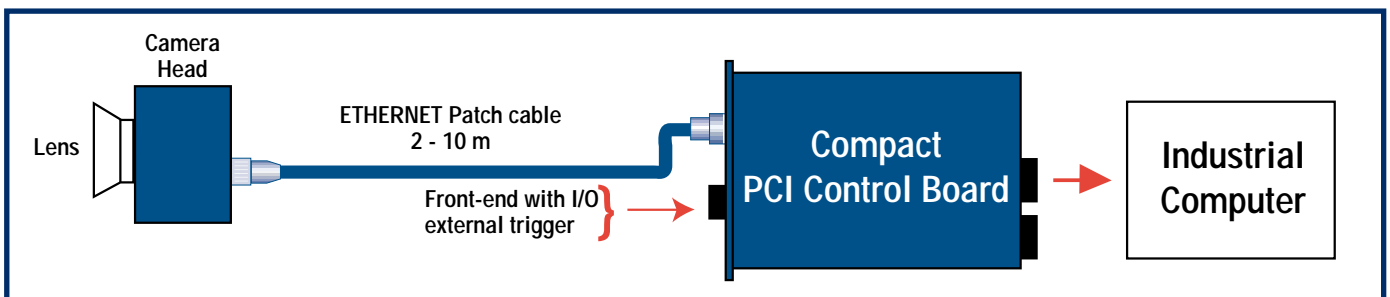
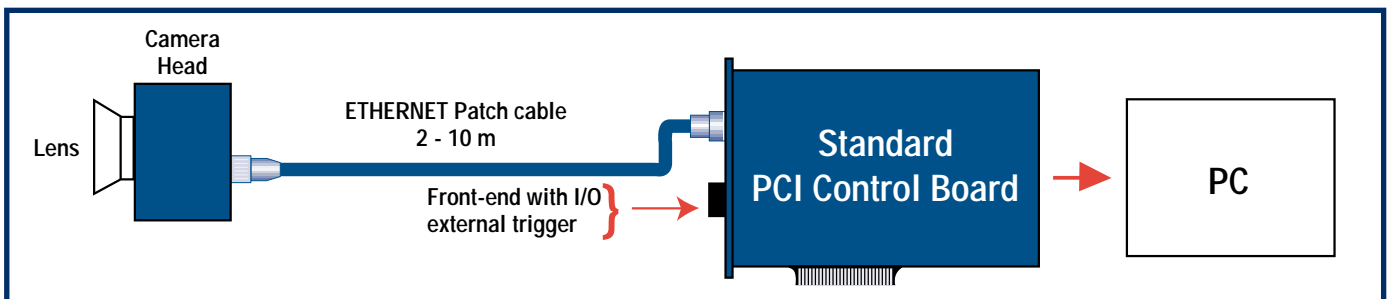
PIXELFLY

Applications

- 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



System Configurations





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Specifications subject to
change with technological
advancements.

AL01/02