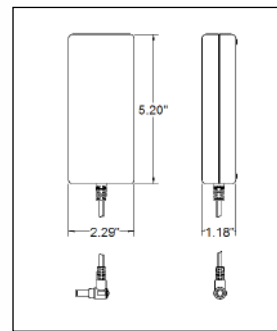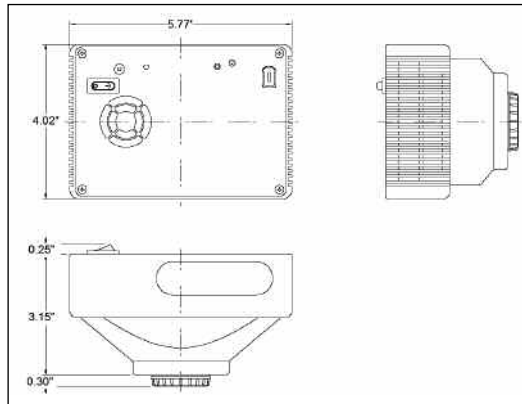# Data Sheet

Application

This camera combines acquisition flexibility with category leading specifications to set the new benchmark for high-resolution brightfield and fluorescence documentation applications, as well as excellence in inspection applications.

Flex™ — Monochrome

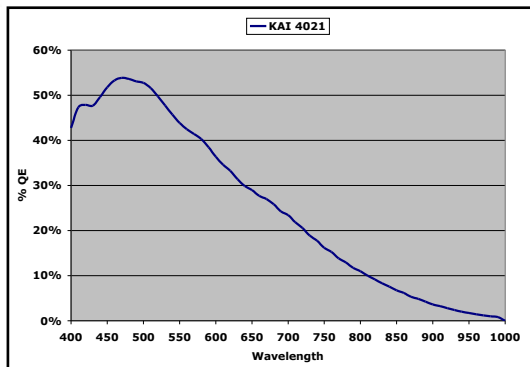| Features	Benefits
40 MHz live mode (dual channel 20 MHz)....	High speed imaging for real time viewing
Selectable resolution via Pixel-shifting technology	Multiple resolution options provide the ability to capture a wide range of samples effectively: From 4-megapixel capture for live specimens, through 64-megapixel for extreme resolution of fixed specimens.
-20º C differential cooling......................	Reduces thermal noise for low light level imaging including bright and medium florescence applications
14 bit x 20 MHz capture	Extra bit depth is ideal for image enhancement
15.2 mm x 15.2 mm imaging area	Large field of view to closely match the field of view in the microscope eyepiece
IR filter or non-filtered versions	Enhanced flexibility based upon your application needs
FireWire® interface	Allows for effortless installation, hot-swapping, and laptop connectivity for greater ease of use
SPOT™ Software.................................. Mac® & Windows® operating systems Basic & Advanced Applications Twain & Third Party Interface DLL w/ SDK and Tutorial manual 3rd Party Driver support	Provides essential tools for modern microscopy and is widely supported by 3rd party software companies for high end applications as well as providing DLL with SDK for OEM driver development

Data Sheet

Flex™ – Monochrome

KAI 4021

% QE vs Wavelength

	REGION OF INTEREST			
Binning	2048 X 2048	1024 X 1024	512 X 512	256 X 256
1 x 1	3.5	6.3	10.7	16.3
2 x 2 (monochrome)	6.2	10.6	16.1	21.7
3 x 3 (monochrome)	8.5	13.5	19.0	23.9
4 x 4 (monochrome)	10.2	15.3	20.4	24.5

*1ms exposure with post-processing deferred, taken with 2.6 Ghz Xeon processor running Windows XP.
Capture rates on other computers OS platforms may vary.

CCD information:
Kodak KAI-4021-M with cover glass
Progressive scan interline CCD
2048 x 2048, 7.4 µm square pixels
15.16mm x 15.16mm active area, >1" optical format
300x anti-blooming

Cooling: -20°C differential from ambient via thermoelectric cooler with fan cooled heat sink

Digitization information:
Digitized pixel by pixel at CCD sensor
Live mode: 8 bit x 40 MHz (Dual channel 8 bit x 20MHz)
Live image frame rate: 14 fps
Capture mode: 14 bit x 20 MHz (see chart for frame rate)
A/D Converter full scale set to 33,333 e (Gain=1)
Saved bit depths: 8, 12 or 16 bit BW

Noise specifications:
Read noise: 15 electrons
Dark current: 0.103 e/p/s mean value

Exposure:
1 ms to 536 seconds
Captured and live mode automatic exposure
Captured and live mode manual exposure

Lens mount: C-mount (F-mount available)

Sealing window: IR Filter w/ anti-reflection coating

External device control: TTL level output with programmable delay

External trigger input: TTL level input

Mechanical:
Tripod mount: 1/4 - 20 UNC
Camera head: 5.77" (147 mm) x 4.02" (102 mm) x 3.15" (80 mm), 2.4 lbs. (1.09 kg)
Power supply: 2.29" (58 mm) x 5.20" (132 mm) x 1.18" (30 mm), 0.70 lbs. (0.32 kg)
Operating environment: 0 to 30°C ambient, 0-80% relative humidity noncondensing
Power requirements: 100-240 VAC, 1.5A

Certifications: CE, FCC Class A, EN60950

SPOT software features:
Color live mode viewing window & controls, auto-exposure live and capture modes, image capture window, predefined and custom image setups, auto white balance, flat field correction, image enhancement tools in three color spaces (RGB, HSL, HSV), pan and zoom windows, multiple customizable floating taskbars, spot metering, non-destructive annotations, non-destructive calibration marks, measurement tools, sequential image capture and playback, exportable image archiving database (PC only), report generator, macro scripting, interactive print dialog, online help menu, and Correct Color Technology™.

File formats:
Bitmap, TIFF, TIFF-JPEG, JPEG-2000, PICT, AVI (PC, export only), Quicktime (Mac, export only)

Drivers included:
Twain for supported Windows® operating systems. Third Party Interface for supported Mac® operating systems

Native drivers for 3rd party software:
Call or visit our website (www.diaginc.com)

Minimum system requirements:
PC: Pentium 400 Mhz or greater with Windows 98 SE, 2000, ME, or XP, 512 MB of RAM, Firewire/IEEE 1394a interface*
Mac: Power PC 400 Mhz G3 or greater with OS 10.2.8 or higher, 512 MB of RAM, Firewire/IEEE 1394a interface
Video card: 24 bit RGB @ desired resolution

Items included:
Camera head, FireWire® data cable (6-pin), power supply cable, power supply, power cord, SPOT software install CD (includes drivers), electronic software user guide and hardware user guide. Includes a 2 year warranty.

*Desktop computers may require IEEE 1394a to PCI bus interface card, laptop computers may require IEEE 1394a to PCMCIA interface card
Firewire® and Mac® are registered trademarks of Apple Computers, Inc.
Windows® is a registered trademark of Microsoft.
Specifications are typical and subject to change.

Catalog Number: FX 1500/1510