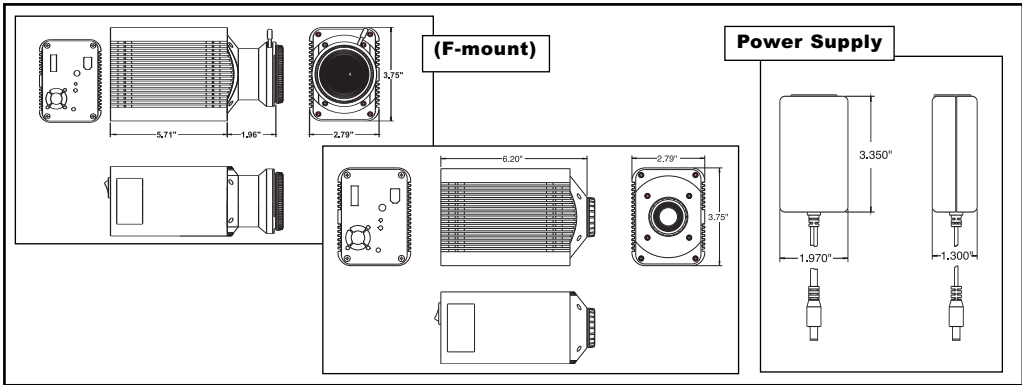




## Application

This camera is designed for high-resolution capture of brightfield and moderately bright fluorescence images. This camera is excellent for use in machine vision, metrology, metallurgical, and other industrial applications, such as defect analysis.



Feature	Benefit
---------	---------

40 MHz live mode (dual channel 18MHz) ....	High-speed imaging for real time viewing
2048 x 2048 4 Megasample image capture ..	Resolves fine detail
Programmable gain (1-20x) .....	Facilitates live mode previews of low light specimens
14 bit x 20 MHz capture .....	Extra bit depth is ideal for image enhancement
15.2mm x 15.2mm imaging area .....	Increases the field of view to closely match the field of view in the microscope eyepiece
Interline progressive scan CCD .....	Electronic shuttering eliminates mechanical shutter shortcomings related to speed, wear, and vibration
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 & 3rd 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 providing DLL with SDK for OEM Driver development

**Insight™ – FireWire® 4 Megasample Monochrome**

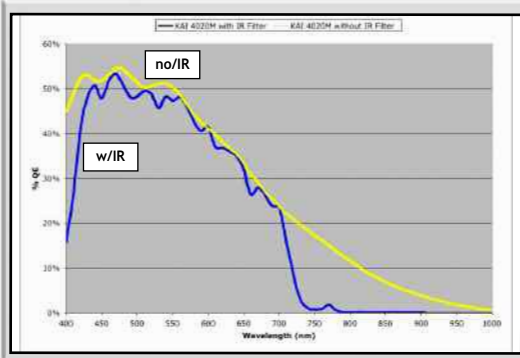




# Data Sheet

DIAGNOSTIC  
instruments, inc.  
SOURCE  
solution

Insight™ — FireWire® 4 Megasample Monochrome



Captured Frames per Second\*

Binning	REGION OF INTEREST			
	2048 X 2048	1024 X 1024	512 X 512	256 X 256
1 x 1	3.6	6.8	12.0	19.5
2 x 2	6.7	11.8	19.0	27.5
3 x 3	9.4	15.8	23.9	32.8
4 x 4	11.5	18.4	26.6	34.2

\*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  
Monochrome progressive scan interline CCD  
2048 x 2048, 7.4 µm square pixels  
15.16mm x 15.16mm active area, >1 optical  
format, 100x minimum anti-blooming

**Cooling:** Convective 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 frames per second  
Capture mode: 14 bit x 20MHz (see chart for  
frame rate)  
A/D Converter full scale set to 27,300 e (Gain=1)  
Saved bit depths: 8, 12 or 16 bit BW

### Noise specifications:

Read noise: 17 e- rms  
Dark noise: 5.0 e/p/s mean value

### Exposure:

1 millisecond to 536 seconds  
Captured and live mode automatic exposure  
Captured and live mode manual exposure

**Lens mount:** C-mount or F-mount

### Sealing window:

UBK 7 w/anti-reflection coating (IN1400, IN1401)  
IR Filter w/anti-reflection coating (IN1410, IN1411)

**External shutter control:** Plug on camera back  
with TTL level

**External Trigger Input:** Plug on camera  
back w/TTL level

### Mechanical:

Tripod mount: 1/4 - 20 UNC  
Camera head: F-mount) -2.79" (71 mm) x 3.75"  
(95 mm) x 7.67" (195 mm), 1.6 lbs (0.72 kg),  
(C-mount) - 2.79" (71mm) x 3.75"  
(95 mm) x 6.2" (142 mm), 1.4 lbs (0.62kg)  
Power supply: 1.3" (33mm) x 1.97" (50mm) x 3.35"  
(85mm), 0.34 lbs. (0.16 kg)

**Operating environment:** 0 to 30° C ambient, 0-80%  
relative humidity noncondensing

**Power requirements:** 100-240 VAC, 47-63 Hz

**Certifications:** CE, FCC Class A, EN60950

### SPOT software features:

Live mode viewing window & controls, auto-exposure  
live and capture modes, image capture window,  
predefined and custom image setups, flat field  
correction, pan and zoom windows, multiple  
customizable floating taskbars, spot metering,  
non-destructive annotations, non-destructive calibra-  
tion marks, measurement tools, sequential image  
capture and playback, exportable image archiving  
database (PC only), report generator, macro scripting,  
interactive print dialog, online help menu

### File formats:

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

### TIFF File sizes:

8 bit BW / 4 MB  
12 bit BW / 6 MB  
16 bit BW / 8 MB

### 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](http://www.diaginc.com))

### Minimum system requirements:

PC: Pentium 400 Mhz or greater with Windows 98SE,  
2000, ME, or XP, 128 MB of RAM, Firewire/IEEE 1394a  
interface\* Mac: Power PC 400 Mhz G3 or greater with  
OS 10.2.8 or higher, 256 MB of RAM,  
Firewire/IEEE 1394a interface  
Video card: 24 bit RGB @ desired resolution

### Items included:

Camera head, FireWire® data cable, power supply  
cable, power supply, power cord, SPOT software  
install CD (includes drivers), software user guide,  
hardware user guide, 2 year warranty

\*Desktop computers may require IEEE 1394a to PCI bus interface card,  
laptop computers may require IEEE 1394a to PCMCIA interface card

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Firewire® and Mac® are registered trademarks of Apple Computers, Inc.  
Windows ® is a registered trademark of Microsoft.

Specifications are typical and subject to change without notice.

Insight™ FireWire® Monochrome: Catalog Number:  
IN1400 (C-mount), IN1401 (F-mount)  
Insight™ FireWire® Monochrome w/IR Filter: Catalog Number:  
IN1410 (C-mount), IN1411 (F-mount)

