Data Sheet

SPOT

Application

The Xplorer™ Slider camera is a low noise, deep cooled digital camera designed for quantitative scientific applications that require selectable color and monochrome imaging. This 14-bit camera provides multiple readout modes, selectable gain levels and a wide field of view that closely matches the view in the microscope eyepieces. Example applications include chemiluminescence, SMF, particle tracking, FRET, FRAP, and TIRF.

Xplorer™ Slider

Features	Benefits
Mode changing slide	Quantitative and qualitative modes in a single camera
-42°C regulated cooling via three-stage Peltier thermoelectric cooler	Reduces dark noise and increases repeatability for long exposure image capture
4 Mpixel CCD with 21.4 mm diagonal	Provides field of view that closely matches that in the microscope eyepieces without the need for expensive optical couplers
Multiple readout speeds	Allows the user to select between high speed and low noise image captures
Programmable gain	Facilitates live mode previews of low light specimens
40 MHz live mode (dual channel 20 MHz) ..	High-speed imaging for real time viewing
14 bit image capture	Extra bit depth is ideal for image enhancement
Interline progressive scan CCD	Electronic shuttering eliminates mechanical shutter shortcomings related to speed, wear, and vibration
Exposure while downloading	Allows user to overlap exposure with previous image download to improve speed
SPOT™ Software .... Mac® & Windows® operating systems	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

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SPOT

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Xplorer™ Slider

Captured Frames per Second*

Binning	REGION OF INTEREST			
	2048 X 2048	1600 X 1600	512 X 512	256 X 256
1 x 1	3.8	6.2	10.7	14.5
2 x 2	6.9	9.7	14.5	17.7
3 x 3	8.9	11.9	16.5	18.3
4 x 4	10.4	13.6	17.6	19.9
8 x 8	13.9	16.9	19.7	21.2

*1 ms exposure, 20 Mhz readout with post-processing deferred, taken with 1 Ghz PIII processor running Windows XP
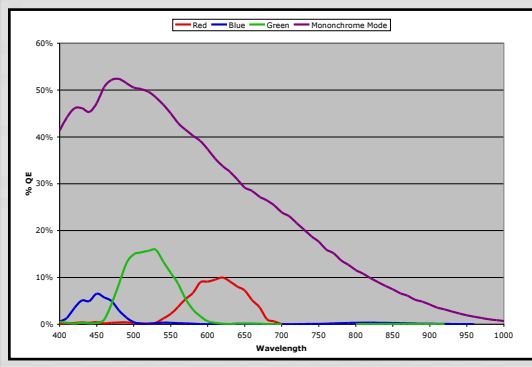
CCD information:

Kodak KAI-4021-M with cover glass
Monochrome progressive scan interline CCD
2048 x 2048, 7.4 µm square pixels
15.16 x 15.16 mm active area, >1" optical format
300x anti-blooming
LCD electronic RGB color changing filter with IR filter

Cooling:

-42° regulated cooling via three-stage Peltier thermoelectric cooler; -71° C maximum differential from ambient

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: 11 f/s without binning; up to 17 f/s with binning
Capture mode: 14 bit (10 and 20 Mhz selectable)
A/D Converter full scale set to 30,000 e (no binning); 60,000 e (with binning)
Nonlinearity: <1% (gain 1)
Saved bit depths: 8, 12 or 16 bit BW, 24, 36 or 48 bit RGB

Noise specifications:

Read noise: 9 e at 10 Mhz, 12 e at 20 Mhz
Dark current: 0.0002 e/p/s

Exposure:

No maximum exposure; 1 ms minimum exposure
Captured and live mode automatic exposure
Captured and live mode manual exposure

Lens mount: Nikon F-mount

Sealing window: Multilayer anti-reflection coating

Computer interface: PCI bus card

External device control: TTL level output with programmable delay

External trigger input: TTL level input with programmable delay

Mechanical:

Tripod mount: 1/4 - 20 UNC
Camera head: 5.00" (127 mm) x 4.40" (112 mm) x 7.13" (181 mm), 4.55 lbs. (2.1 kg)
Power supply: 3.61" (92 mm) x 3.90" (99 mm) x 8.13" (207 mm), 3.2 lbs. (1.5kg)
Operating environment: 0 to 30°C ambient, 0-80% relative humidity noncondensing

Power requirements: 100-240 VAC, 3 A

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, Correct Color Technology™.

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   24 bit RGB / 12 MB
12 bit BW / 6 MB   36 bit RGB / 18 MB
16 bit BW / 8 MB   48 bit RGB / 24 MB

Drivers included:

Twain for supported Windows® operating systems
AppleEvent for supported Mac® operating systems

Native drivers for 3rd party software:

Call or visit our website (www.diaginc.com)

Minimum system requirements:

Full height, half length PCI bus slot or PCI-MCA CardBus slot*
*-Requires Magma™ Adapter (sold separately)
PC: Pentium 400 or greater w/ Windows 98, 98SE, 2000, ME, or XP
Mac: 400 Mhz G3 - OS 10.2.8 or higher
RAM: 256 MB
Video card: 24 bit RGB @ desired resolution

Items included: Camera head, PCI plug-in board, data cable, power supply cable, power supply, power cord, SPOT software install CD (includes drivers), software user guide, hardware user guide, and 2 year warranty

Mac® is a registered trademark of Apple Computers, Inc.
Windows ® is a registered trademark of Microsoft.
Specifications are typical and subject to change without notice.
Ambient temperature is defined as 20°C.

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