

# Photometrics **CoolSNAP<sup>TM</sup><sub>cf<sup>2</sup></sub>**

**1392 x 1040 imaging array**  
**4.65 x 4.65- $\mu$ m pixels**

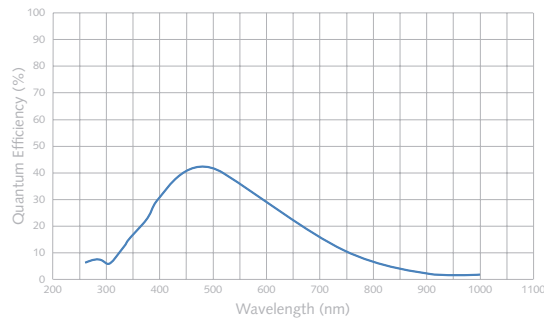
The CoolSNAP<sub>cf<sup>2</sup></sub> Monochrome camera from Photometrics® incorporates low-noise electronics and moderate CCD cooling to achieve good low-light sensitivity. A megapixel sensor with small, square elements ensures that each image shows extraordinary detail. This feature, along with a high-speed digitizer, shutterless operation, and an interline-transfer CCD, makes the CoolSNAP<sub>cf<sup>2</sup></sub> Monochrome camera ideal for high-resolution life science imaging applications.



**Primary applications**

- Fixed-cell fluorescence
- Pathology
- Histology
- DIC phase-contrast imaging
- Darkfield imaging

Features	Benefits
20-MHz readout	Fast image readout for high-speed focus and image capture
1392 x 1040 imaging array 4.65 x 4.65- $\mu$ m pixels	Resolves fine detail
Interline-transfer, progressive-scan CCD	Full resolution in every frame
Flexible binning and readout	Increases signal-to-noise performance while increasing the frame rate
IEEE-1394a or PCI interface	High-bandwidth, uninterrupted data transfer with no dropped frames
12-bit digitization	Quantifies bright and dim signals in the same image
Thermoelectric cooling	Low dark current allows longer integration times
C-mount	Easily attaches to microscopes, standard lenses, or optical equipment
Subcompact, fanless design	Low profile allows easy integration
Acquisition software	Captures, analyzes, and saves high-resolution images
PVCAM® Circular buffers Device sequencing IEEE-1394a compatibility PCI compatibility	Supported by numerous third-party software packages Real-time focus Precise integration with shutters, filter wheels, etc. Windows® XP/Vista 32 and Mac OS X Windows XP/Vista 32, Mac OS X, and Linux® (kernel versions 2.4 and 2.6.8)



	Region		
	1392 x 1040	512 x 512	256 x 256
<b>1 x 1</b>	10	20	38
<b>2 x 2</b>	20	37	62
<b>3 x 3</b>	28	49	77
<b>4 x 4</b>	35	59	90
<b>8 x 8</b>	55	86	114

(Frames per second)

Note: Frame rates are measured at 20 MHz with 0-millisecond exposure times.

Specifications	
CCD image sensor	Sony® ICX205AL; interline-transfer, progressive-scan device with microlenses
CCD format	1392 x 1040 imaging array 4.65 x 4.65- $\mu$ m pixels 6.5 x 4.8-mm imaging area (optically centered) 1/2" format
Grade	Sony Grade 0
System gain	3 e-/ADU
Linear full well	10,200 e-
Read noise	10 e- rms @ 20 MHz
Nonlinearity	<4%
Digitizer type	12 bits @ 20 MHz
Frame readout	96 ms/frame
CCD temperature	5°C below ambient
Dark current	<1 e-/p/s
Operating environment	15 to 30°C ambient, 0 to 80% relative humidity noncondensing
Dimensions	4.5" x 5.0" x 2.5" (1.9 lbs)
I/O	TTL output while exposing (BNC connector)

Note: Specifications are typical and subject to change.

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