The CoolSNAP™ K4 Monochrome camera from Photometrics® delivers high-resolution imaging for low-light scientific applications that require a large field of view. This cooled CCD camera provides 12-bit digitization at 20 MHz. The large format of the CCD allows the user to image the microscope’s whole field of view, while the small pixel size is ideally matched to the resolution limit of the microscope. The 4-megapixel detector enables very fine image detail to be resolved, yet the pixels can be easily binned to improve sensitivity. Advanced interline-transfer CCD technology provides high quantum efficiency.

**Primary applications**
- Histology
- Immunofluorescence
- FISH
- Fixed-cell GFP imaging
- 3D deconvolution
- Multiple-wavelength FRET
- High-resolution time-lapse microscopy

### Features

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<th>Features</th>
<th>Benefits</th>
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<td>20-MHz readout</td>
<td>High-speed, high-sensitivity image capture</td>
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| 2048 x 2048 imaging array 7.4 x 7.4-µm pixels | Resolves fine detail  
  Ideally matched to optical microscope                                                                 |
| Interline-transfer, progressive-scan CCD | Eliminates camera vibration and facilitates fast triggering               |
| Flexible binning and readout            | Increases light sensitivity while increasing the frame rate                |
| 12-bit digitization                     | Quantifies bright and dim signals in the same image                      |
| Thermoelectric cooling                  | Long integration times for higher sensitivity                           |
| Enhanced quantum efficiency             | Provides higher sensitivity than typical interline cameras               |
| C-mount                                 | Easily attaches to microscopes, standard lenses, or optical equipment    |
| Acquisition software                    | Captures, analyzes, and saves high-resolution images                     |
| PCI interface                           | High-bandwidth, uninterrupted data transfer                              |
| PVCam® Circular buffers Device sequencing | Supported by numerous third-party software packages  
  Real-time focus  
  Precise integration with shutters, filter wheels, etc.  
  Compatible with Windows® XP/Vista 32, Mac OS X, and Linux® (kernel versions 2.4 and 2.6.8) |
Specifications

CCD image sensor
Kodak® KAI-4020M; interline-transfer, progressive-scan device with microlenses

CCD format
2048 x 2048 imaging array
7.4 x 7.4-µm pixels
15.16 x 15.16-mm imaging area (optically centered)

Linear full well
30,000 e- (single pixel)
60,000 e- (2 x 2 binned pixel)

Read noise
≤10 e- rms @ 20 MHz

Nonlinearity
<1%

Digitizer type
12 bits @ 20 MHz

CCD temperature
-25°C (regulated)

Dark current
0.1 e-/p/s @ -25°C

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

I/O
TTL (trigger/status): trigger, invert, inhibit, exposing, interline shift, frame readout
8-bit TTL (programmable)
8-bit DACs (two)

Note: Specifications are typical and subject to change.

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