The CoolSNAP\textsubscript{HQ\textsuperscript{2}} Monochrome camera from Photometrics\textsuperscript{®} is a fast, high-resolution digital imaging system designed for quantitative fluorescence microscopy applications. This cooled CCD camera system provides a large dynamic range with very low noise at both 10 MHz and 20 MHz. The fine pitch of the pixels is ideally matched to the resolution of optical microscopes. Megapixel resolution and small pixels allow imaging of very fine detail, yet the pixels can be easily binned to improve sensitivity. New interline-transfer CCD technology provides high quantum efficiency, most notably in the near-infrared (NIR) portion of the spectrum.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-MHz and 20-MHz read-out</td>
<td>Dual-mode readout for variable-speed image capture</td>
</tr>
</tbody>
</table>
| 1392 x 1040 imaging array 6.45 x 6.45-µm pixels | Resolves fine detail  
Ideally matched to optical microscope |
| Interline-transfer, progressive-scan CCD | Electronic shuttering eliminates camera vibration and facilitates fast triggering |
| Flexible binning and readout | Increases signal-to-noise while increasing the frame rate |
| IEEE-1394a or PCI interface | High-bandwidth, uninterrupted data transfer with no dropped frames |
| Digitization  
IEEE-1394a  
PCI | Quantifies bright and dim signals in the same image  
14-bit digitization  
12-bit digitization |
| Thermoelectric cooling | Special cooling package virtually eliminates dark current |
| Enhanced quantum efficiency | Provides higher sensitivity than typical interline cameras (especially in the NIR) |
| C-mount | Easily attaches to microscopes, standard lenses, or optical equipment |
| Acquisition software | Captures, analyzes, and saves high-resolution images |
| PVCAM\textsuperscript{®}  
Circular buffers  
Device sequencing | Supported by numerous third-party software packages  
Realtime focus  
Precise integration with shutters, filter wheels, etc. |
| IEEE-1394a compatibility  
PCI compatibility | Windows\textsuperscript{®} 2000/XP  
Windows 2000/XP, Mac OS X, and SUSE\textsuperscript{TM} Linux\textsuperscript{®} 9.2 (kernel version 2.6) |
### Specifications

**CCD image sensor**
Sony® ICX285; interline-transfer, progressive-scan device with microlenses

**CCD format**
- 1392 x 1040 imaging array
- 6.45 x 6.45-µm pixels
- 8.98 x 6.71-mm imaging area (optically centered)

**Grade**
Sony Grade 0

**System Gain**
1 e-/ADU

**Linear full well**
- 16,000 e- (single pixel)
- 30,000 e- (2 x 2 binned pixel)

**Read noise**
- 4.5 e- rms @ 10 MHz
- 5.5 e- rms @ 20 MHz

**Nonlinearity**
<1%

**Digitizer type**
- IEEE-1394a
- LVDS

- 14 bits @ 20 MHz or 10 MHz (software selectable)
- 12 bits @ 20 MHz or 10 MHz (software selectable)

**Frame readout**
90 ms/frame

**CCD temperature**
-30°C (regulated)

**Dark current**
0.001 e-/p/s @ -30°C

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

**Dimensions**
4.5" x 4.0" x 7.0" (6.5 lbs)

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

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**Note:** Specifications are typical and subject to change.