PHOTOMETRICS®
a division of Roper Scientific, Inc.

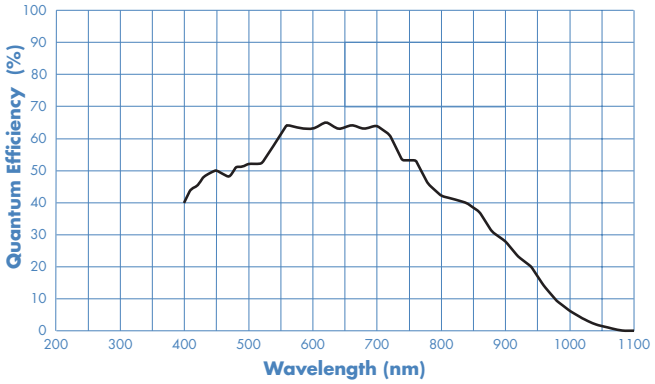
Cascade:1K

1004 x 1002 imaging array | 8 x 8-µm pixels

The Cascade:1K digital imaging system from Photometrics® offers very high sensitivity through the use of *on-chip multiplication gain*. The CCD camera's 16-bit digitization at 10 MHz provides good dynamic range at video frame rates and higher, while the fine pitch of the detector's pixels, 8 x 8 microns, is ideally matched to the resolution of optical microscopes. The thermoelectrically cooled system represents an excellent solution for many low-light, high-resolution applications (e.g., spinning-disc confocal microscopy, high-resolution FRET, and live-cell, time-lapse imaging).

Features	Benefits
On-chip multiplication gain	Very high sensitivity Low-noise, impact-ionization process
1004 x 1002 imaging array 8 x 8-µm pixels	Resolves fine detail Ideally matched to optical microscope
16-bit digitization	Wide dynamic range allows detection of bright and dim signals in the same image
Frame-transfer CCD	100% duty cycle to collect continuous data No mechanical shutter required
Thermoelectric cooling	Reduces background for high sensitivity
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® 2000/XP, Mac OS X, and Red Hat® Linux® 9.0 (kernel version 2.4)*

Cascade® Photometrics



Region

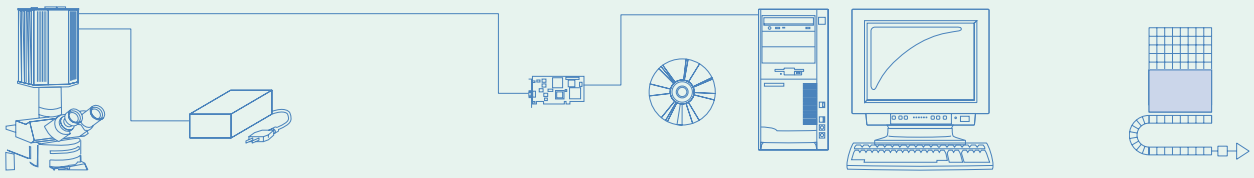
Binning	1004 x 1002	502 x 501	251 x 250
1 x 1	9	18	33
2 x 2	18	33	61
3 x 3	26	48	83
4 x 4	33	61	103

(Frames per second)

Note: Frame rates are measured at 10 MHz with 0-second exposure times.

Specifications

CCD image sensor	Texas Instruments TC285; front-illuminated, frame-transfer CCD with on-chip multiplication gain
CCD format	1004 x 1002 imaging pixels; 8 x 8-µm pixels; 8.0 x 8.0-mm imaging area (optically centered)
Linear full well single pixel	30,000 e-
Digitizer type	16 bits @ 10 MHz
On-chip multiplication gain	Software selectable; minimum achievable gain: 200x
Read noise	~15 e- rms @ 10 MHz (without on-chip multiplication gain enabled) *Read noise effectively reduced to <1 e- rms with on-chip multiplication gain enabled*
Frame readout	110 ms/frame; 1 ms (image-to-storage shift time)
CCD temperature	-30°C (regulated)
Dark current	0.5 e-/p/s @ -30°C
Binning	Full binning capabilities in parallel direction; 1, 2, 3, 4, and 8 binning in serial direction
Operating environment	0 to 30°C ambient, 0 to 80% relative humidity noncondensing



Note: Specifications are preliminary and subject to change.

ISO 9001:2000 Registered

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Cascade:1K Rev A0