DATA SHEET

QUANTIX SYSTEM

Quantix:1401E

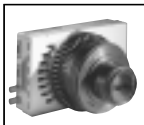
Photometrics

1317 x 1035 imaging array
6.8 x 6.8-µm pixels

The Quantix:1401E is a fast, high-resolution digital camera system designed for low-light scientific and industrial applications. This cooled CCD camera system provides 12-bit digitization at 5 MHz. The fine pitch of the pixels, 6.8 x 6.8 microns, 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. The CCD uses indium tin oxide (ITO) technology to raise quantum efficiency, particularly in the blue/green.

FEATURES	BENEFITS
5-MHz digitization 0.3 seconds to read out full frame	Fast image readout for high-speed focus and image capture
1317 x 1035 imaging array 6.8 x 6.8-µm pixels	Resolves fine detail Ideally matched to optical microscope
Scientific-grade CCD	Few defects and hot pixels
Single-window imaging path	Minimizes reflections and distortion
ITO transparent gates	Higher QE performance throughout visible spectrum
Three detection modes	Optimized for high sensitivity, high dynamic range, and high SNR
Flexible binning and readout	Increases light sensitivity while increasing the frame rate
12-bit digitization	Quantifies both bright and dim signals in the same image
Thermoelectric cooling	Long integration times for higher sensitivity
C-mount or F-mount with shutter	Selectable for the best optical path Easily attaches to standard lenses or optical equipment
Compact camera head	Easily fits your instrument
PCI or SCSI interface	Works with PC, Macintosh, Linux®, Sun™ or SGI®
Detailed calibration report	Proven performance characteristics

Photometrics Quantix



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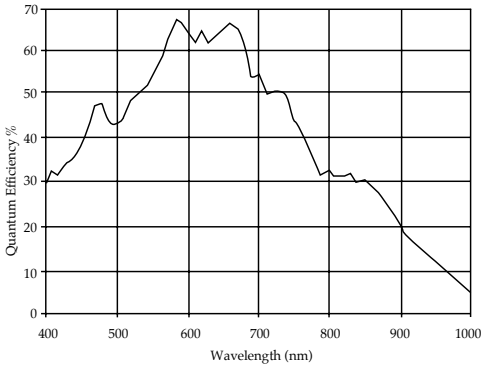

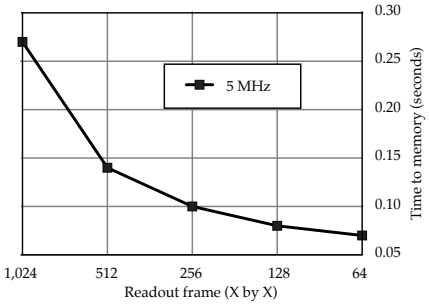

To calculate total frame read time, add exposure time and shutter open and close delays to "time to memory."

SPECIFICATIONS

CCD image sensor	Kodak KAF1401E; scientific grade; MPP; Metachrome® II UV enhancement (optional)
CCD format	1317 x 1035 imaging pixels plus 26/5 serial pre/postscan pixels; 1/1 parallel pre/postscan rows; 6.8 x 6.8-µm pixels; 100% fill factor; 9.0 x 7.0-mm imaging area (optically centered)
Grades	Grade 1: ≤5 point defects, 0 cluster defects, 0 column defects; Grade 2: ≤10 point defects, ≤4 cluster defects, ≤2 column defects; Grade 3: ≤20 point defects, ≤8 cluster defects, ≤4 column defects
User gains	Three detection modes or gains; software selectable; high sensitivity, high dynamic range, high SNR
Linear full well	80,000 e^- @ 0.5x; 40,000 e^- @ 1x; 10,000 e^- @ 4x
Read noise (1/5 MHz)	High signal-to-noise ratio – 24/28 e^- rms @ 0.5x; High dynamic range – 18/23 e^- rms @ 1x; High sensitivity – 16/20 e^- rms @ 4x
Nonlinearity	≤0.5%
Readout bits/speed	12 bits @ 5 MHz or 1 MHz; software selectable
Parallel shift rate	14.7 µsec/row
Serial discard rate	0.1 µsec/pixel
Frame readout	0.3 seconds for full frame at 5 MHz; 2.5 frames/sec with 50 ms for shutter and exposure
Dark current	0.06 e^-/p/s with forced-air cooling (-25˚C); 0.03 e^-/p/s with liquid cooling (-35˚C)
Operating environment	0 to 30˚C ambient, 5 to 70% relative humidity noncondensing (5 to 80% RH for F-mount)

Note: Specifications are typical and subject to change.

ROPER SCIENTIFIC™ PHOTOMETRICS

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