

# MultiBlue™ High Performance, Low Cost CCD Camera USB 2.0 or IEEE-1394b (FireWire)



## Overview

The MultiBlue™ CCD Camera by PerkinElmer integrates scientific-grade CCD technology with the latest in camera electronics to offer users an unparalleled solution for advanced industrial imaging applications. Featuring the Eastman Kodak KAI-0340SM imager, the MultiBlue provides pixel resolutions of 640 x 480 (7.4µm x 7.4µm pixel size). The modular design allows customization of the camera system with different imagers in minimum design time.

The MultiBlue camera series offers a 12-bit, 66 dB dynamic range. This high resolution output is achieved without

imager cooling. By concentrating on thermal handling while designing the MultiBlue camera, PerkinElmer eliminated any need for expensive cooling at moderate exposure times.

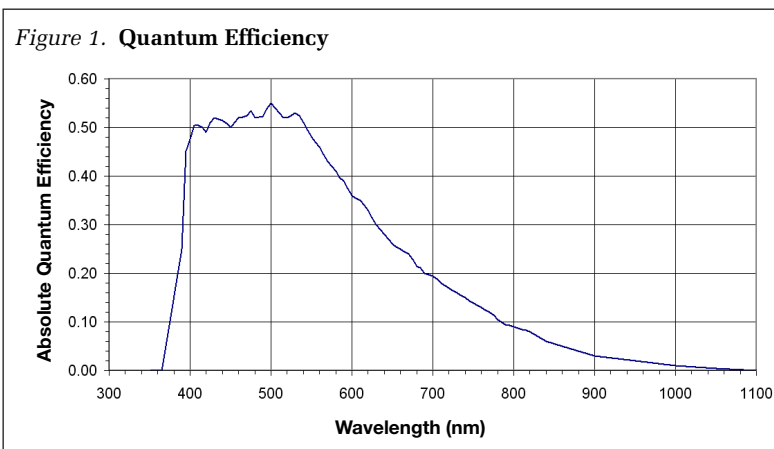
The MultiBlue CCD Camera is shipped with an installation disk containing Windows® XP compatible demonstration software. Control over exposure, pixel binning, gain and offset adjustment is provided via the demonstration software. The MultiBlue also offers an external trigger input (for synchronization to peripheral equipment such as a strobe light), internal exposure control, and an output synchronization signal.

## Key Features and Benefits

- ▶ **High Resolution 12-bit output depth with a 66 dB dynamic range.** Designed for a wide range of industrial applications.
- ▶ **Low noise of 20 electrons (typical).** Enables lower Photon flux detection.
- ▶ **USB 2.0 or IEEE-1394b (FireWire) interfaces.** Provides easy integration and plug-and-play operation.
- ▶ **Precision readout of up to 40 frames per second for the USB 2.0 and 50 frames per second for the IEEE-1394b.** Allows capture of high-speed processes.
- ▶ **Temperature-stabilized design.** Eliminates need for cooling, thus reducing system power consumption.
- ▶ **Binning and programmable sub-array selection.** Increases signal strength and focus on desired ROI.
- ▶ **Easy system integration using Win32.dll software.** Drivers compatible with Windows XP® for quick development of industrial applications.
- ▶ **Integrated camera head and control box.** Offers compact size and flexible integration.

## Sample Applications

- ▶ Semiconductor inspection
- ▶ Pharmaceutical quality control
- ▶ Food and beverage inspection
- ▶ Traffic control
- ▶ Document sorting
- ▶ Lumber inspection
- ▶ Recycling sorting



**Table 1. Preliminary Specifications**

|                         |  |
|-------------------------|--|
| Imager                  | Eastman Kodak KAI-0340SM                       |
| Pixel count             | 640 x 480                                      |
| Pixel size              | 7.4 $\mu\text{m}$ x 7.4 $\mu\text{m}$          |
| Imager type             | Interline                                      |
| Full well capacity      | 40,000 e <sup>-</sup>                          |
| Antiblooming protection | Yes (> 300X)                                   |
| Spectral range          | 380 - 800 nm                                   |
| Peak quantum efficiency | 55% at 460 nm                                  |
| Dark current            | < 0.5nA/cm <sup>2</sup>                        |
| Digitization depth      | 14-bit   |
| Dynamic range           | 66 dB  |
| Read noise              | ~20 e <sup>-</sup>                             |
| Max pixel data rate     | 20 MHz   |
| Max full frame readout  | 40 FPS (USB 2.0), 50 FPS (IEEE-1394b)          |
| Lens mount              | C-Mount  |
| Adjustments             | Offset and gain                                |
| Capabilities            | External trigger, exposure control             |
| Pixel Bining            | Yes, to 2 x 2                                  |
| Area of interest        | Yes  |
| Data output format      | USB 2.0 or IEEE-1394b (FireWire)               |
| Total power consumption | < 7 W  |
| Dimensions              | 68 mm x 114 mm x 114 mm (including lens mount) |
| Weight                  | 32 oz.   |

**Table 2. Stock Part Numbers**

|   |  |
|---|--|
| FD0604KNU-011                             | Camera, USB 2.0 interface                |
| FD0604KNF-011                             | Camera, IEEE-1394b (FireWire) interface* |
| * MAC drivers are available upon request. |  |

