

# ///MegaPlus II ES 4020 / ES 4011

## MegaPlus II Family

The *MegaPlus II* family of cameras features a unique design consisting of our *MegaPlus II* controller and up to four camera heads. The camera controller allows for easy camera configuration, and provides the intelligence for each camera head such as color space conversion, gamma control, and flat field correction. This family of digital CCD cameras includes both color and monochrome cameras with resolutions up to 11 megapixels.

By making it possible to use multiple camera heads on a single controller, the *MegaPlus II* system easily supports applications requiring large horizontal resolution or acquiring images from multiple angles. The *MegaPlus II* system also lets you mix and match camera heads on a single controller.

## MegaPlus II ES 4020 / ES 4011

The ES 4020/4011 consists of a 4-megapixel interline-transfer camera head and controller, offering both CameraLink and Firewire interfaces selectable via our control software - *MegaPlus Central*. The camera supports up to 12-bit monochrome images or 36-bit color images at 15 fps for full resolution, and over 46 fps with 4 x 4 binning.

With outstanding image quality and flexibility, the ES 4020/4011 and controller are ideal for most machine vision, semiconductor, medical, and scientific imaging applications.



**MegaPlus II ES 4020 with controller**



**MegaPlus II controller (back)**

## APPLICATIONS

- Medical Imaging
- Flat Panel Inspection
- Wafer Inspection



# MegaPlus II ES 4020 / ES 4011

## PERFORMANCE SPECIFICATIONS

### CCD Imager

Imaging Device	Kodak KAI-4021M /KAI-4011M with microlens, solid-state, interline CCD
Sensor Readout	Interline, progressive scan
Pixel Size	7.4 $\mu\text{m}^2$
Resolution	2048 x 2048 pixels (4.19 Mpixel)
Imager Size (diagonal)	21.5 mm
Active Area	15.2 mm horizontal x 15.2 mm vertical
Spectral	RGB Bayer Color or Monochrome
Bit Depth	8, 10 or 12 bits per color
Dynamic Range	60 dB full resolution
Frame Rate	CameraLink: 15 fps Firewire: 7.5 fps monochrome

### Camera Control and Features

Gain Control	0-36 dB
Binning Frame Rates	2 x 2 at 27.4 fps, 3 x 3 at 37.82 fps, and 4 x 4 at 46.6 fps
Pixel Clock Rate	Up to 38 MHz per channel
Minimum Integration Time	104 $\mu\text{s}$ in continuous mode; 75 $\mu\text{s}$ in triggered mode
Sensitivity	31 $\mu\text{V}$ /electron (ES 4020), 16 $\mu\text{V}$ /electron (ES 4011)

### Controller Features

Input Voltage	12VDC
Power Consumption	15W (DVI off)

### Mechanical Description

Lens Mount	F mount, C mount
Camera Head Dimensions	F-mount: 52.1 x 75.0 x 52.1 mm (L x D x H); C-mount: 52.1 x 46.0 x 52.1 mm (L x D x H)
Controller Dimensions	157 x 157 x 50.8 mm (L x D x H)

Camera Head Weight	258g
Controller Weight	1140g
Tether Cable Length	2m, 5m

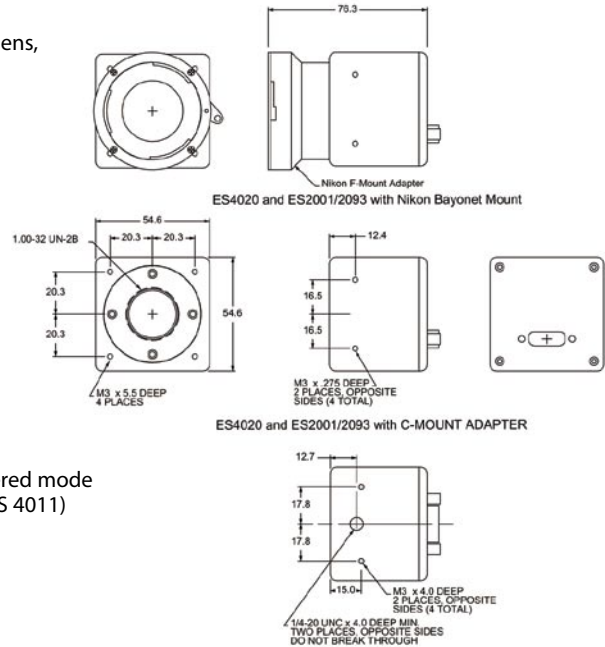
### Environmental Requirements

Operating Temperature	0 - 40° C, non-condensing
Vibration	10-500 Hz, 3G, sinusoidal
Shock	5G

### Safety

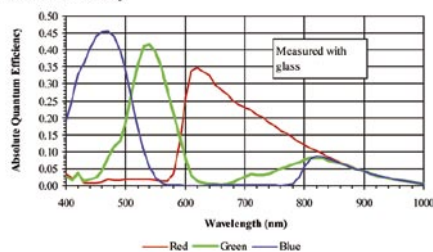
Certifications	CE
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Note: Specifications are subject to change

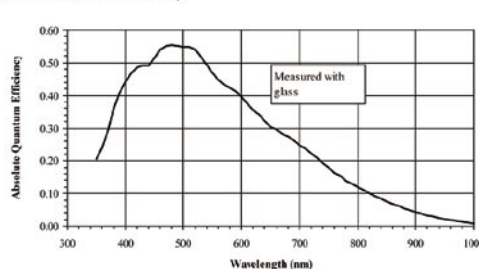


## SPECTRAL RANGE

Color Quantum Efficiency



Monochrome Quantum Efficiency



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