

MegaPlus II EC11000

Actively Cooled, High Resolution and Extraordinary Performance



Features

- Resolution 4008 x 2672 (color or mono)
- Actively Cooled Camera to 5 below ambient, 15 below ambient with optional fan
- Up to 4.63 frames per second (fps) with CameraLink
- Up to 3 fps with Firewire (IEEE-1394a)
- True 12-bits per pixel
- Binning (2x2, 3x3, 4x4)

Applications

- Flat Panel Display Inspection
- Scientific Imaging
- Document Imaging
- Particle Image Velocimetry (PIV)



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 mega-pixels. 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 EC11000

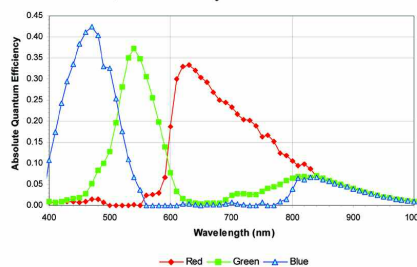
The *MegaPlus II EC11000* is an actively cooled high resolution 11 mega-pixel digital camera. It is uniquely designed to separate and isolate the camera's primary electronics from the sensor cooling path resulting in true 12-bits per pixel at virtually any operating temperature.

Using Peltier cooling, both dark noise and thermal drift are significantly reduced, making the camera the perfect solution for the most demanding scientific and industrial applications.

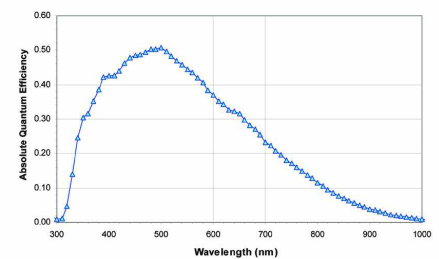
The EC11000 is designed to cool the sensor to 5 °C below ambient temperature without a fan - opening up new opportunities for customers who would not have previously considered a cooled camera due to fan vibration. For applications requiring even greater cooling, an optional fan is available providing cooling capability to 15 °C below ambient.

Spectral Range

Color with Microlens Quantum Efficiency



Monochrome with Microlens Quantum Efficiency



Performance Specifications

CCD Imager

Imaging Device

Sensor Readout

Pixel Size

Resolution

Imager Size (diagonal)

Active Area

Peak Quantum Efficiency

Well Capacity

KAI-11000CM, CCD

Color and Mono

Interline, progressive scan

9.0 μm x 9.0 μm

4008 x 2672, 11 mega-pixels

42.52 mm

36 mm (h) x 24 mm (v)

42%, 37%, 34% (RGB) 50% (MONO)

60,000

Image Quality

Output Bit Depth

Dynamic Range

Readout Noise

8-, 10-, and 12-bits per pixel

66 db

30 electrons

Camera Exposure and Control

Camera (Head) Output Ports

Controller Interface to Head

CameraLink Output Ports

Max. Frame Rate (CameraLink)

Max. Frame Rate (IEEE1394a)

Max. Data Rate

Sensor Clock Rate

Controller Clock Rate

Min. Integration Time in Continuous Mode

Min. Integration Time in Triggered Mode

Max. Integration Time

Sensitivity

Shuttering

Anti-blooming

Max. Frame Rate w/ 2x2 Binning

Max. Frame Rate w/ 3x3 Binning

Max. Frame Rate w/ 4x4 Binning

Single port to controller

Digital, proprietary

2 - base, medium, dual base

4.63 fps @ 30 Mhz

3 fps (monochrome)

60 Mhz (over clocked 76 Mhz)

30 Mhz (over clocked 38 Mhz)

60 Mhz (over clocked 76 Mhz)

192 $\mu\text{seconds}$

19 $\mu\text{seconds}$

60 seconds

13 $\mu\text{V/electron}$

Electronic

Yes

8 fps @ 30 Mhz, 10 fps @ 38 Mhz

11 fps @ 30 Mhz, 14 fps @ 38 Mhz

13 fps @ 30 Mhz, 17 fps @ 38 Mhz

Exposure Settings

Gain Settings

Binning

0-36 db

Yes

Cooling Performance

Cooling Method

Standard Cooling

Cooling With Fan Option

Dark Current Doubling Temperature

Peltier cooling

$\sim 5^\circ\text{C}$ Below Ambient (0 - 40 $^\circ\text{C}$)

$\sim 15^\circ\text{C}$ Below Ambient (0 - 40 $^\circ\text{C}$)

7 $^\circ\text{C}$ Incremental

Mechanical Description

Lens Mount

Camera Head Cable

Camera Head Dimensions (F-mount) in mm

Controller Dimensions

Camera Head Weight

Controller Weight

F-mount

2M, 5M, 7M

123.82 mm x 90.09 mm x 98.42 mm (LxDxH)

157 mm x 157 mm x 50.8 mm (LxDxH)

920 grams

1140 grams

Environmental

Maximum Head Cable Length

Operating Temperature

Vibration

Shock

Power Consumption (Single Head with Controller)

Certification

7 meters

0 - 40 $^\circ\text{C}$

3G, sinusoidal from 10 to 500 Hz

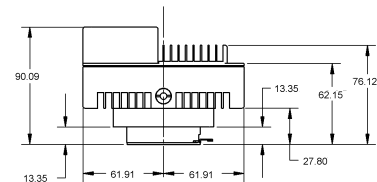
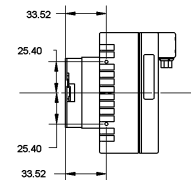
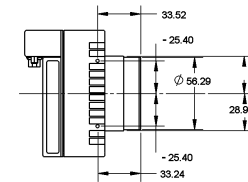
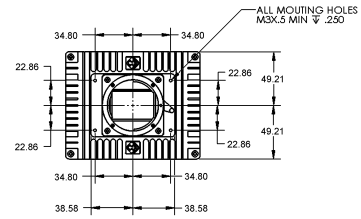
5G

15 watts

FCC Part 15, Class A and CE

Note: Specifications are subject to change without notice

Diagrams



Note: all dimensions are in millimeters (mm)

Controller Back



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