

1.9 megapixels | Interline CCD | High Frame Rate

NOW with
GigE Vision



The MegaPlus ES2020 is a 1.9 megapixel CCD 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. By keeping the sensor temperature low, both dark noise and thermal drift are significantly reduced, making the camera the perfect solution for the most demanding scientific and industrial applications. The ES2020 offers 30 fps at full resolution and up to 83 fps at 4x4 binning. It is ideal for application requiring real time image acquisition and processing such as semi-conductor inspection. **The camera supports the latest GigE Vision interface along with Firewire and CameraLink interfaces to make it one of the most versatile imaging platforms on the market.**



Applications: High Speed Machine Inspection & Calibration, Scientific Imaging, Aerial Imaging

Features

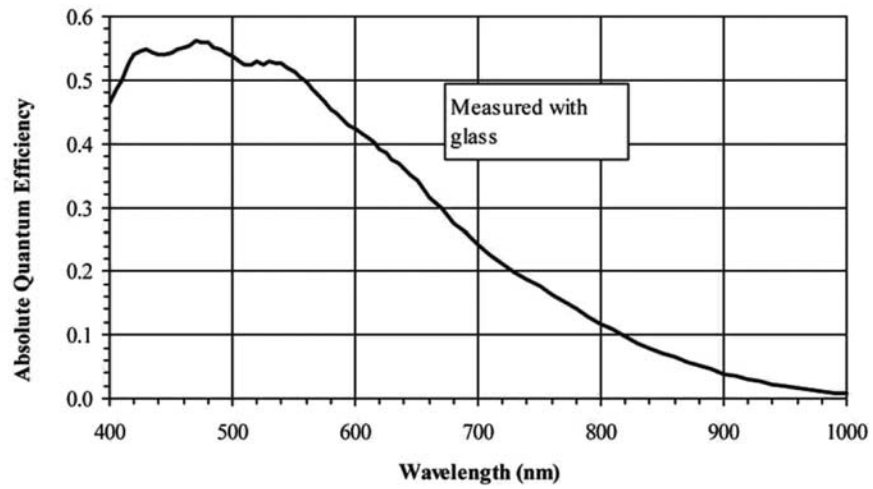
Benefits

1.9 megapixel Resolution (1600 x 1200 pixels)	Resolves fine detail
Two piece camera design	Provides the best imaging performance with lower noise and larger dynamic range by lowering the sensor operating temperature.
Interline Transfer Progressive Scan CCD	Eliminates camera vibration, facilitates fast triggering
CameraLink Interface	High frame rate for real time imaging
New GigE Vision Interface	Ideal for plug-n-play operation over extended distances. No need for expensive frame grabbers.
Firewire (IEEE-1394a) Interface	Seamless, plug-n-play connection to PC notebooks and desktops. No need to install PCI cards
Available in color or monochrome	Allows same camera architecture to be seamlessly integrated across many applications
12-bits per pixel	Quantifies full range of light levels in a single image
Compact design	Small footprint design optimized for integration into applications where space is at a premium

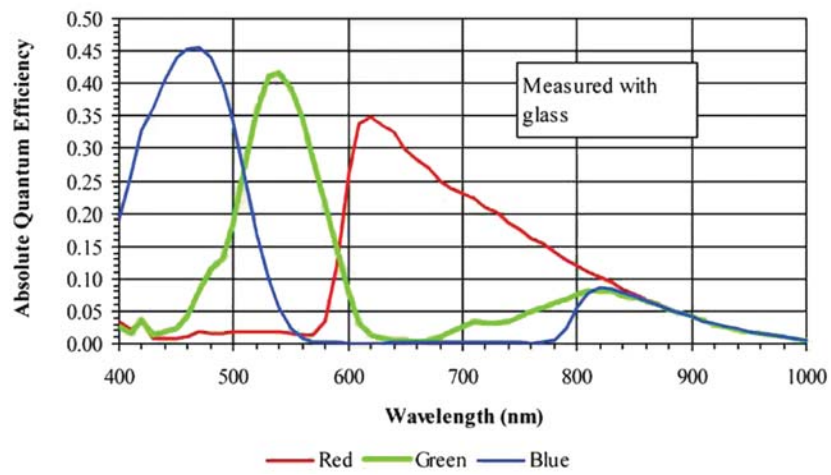
CCD Imager	
Imaging Device	KAI-2020, CCD, Color and Mono
Sensor Readout	Interline, progressive scan
Pixel Size	7.4 μm x 7.4 μm
Resolution	1600 x 1200, 1.9 megapixels
Imager Size (diagonal)	14.78 mm
Active Area	11.8 mm (h) x 8.9 mm (v)
Aspect Ratio	4:3
Sensor dynamic range	65 dB
Shuttering	Electronic
Imaging Performance	
Output Bit Depth	8-, 10-, or 12-bits per pixel
Sensor Clock Rate	Up to 38 MHz per channel
Minimum Integration Time	90 μsec in continuous mode; 60 μsec in triggered mode
Max. Frame Rate (CameraLink)	30 fps @ 30 MHz
Max. Frame Rate (IEEE1394a)	15.5 fps (monochrome)
Max. Frame Rate w/ 2x2 Binning	52.95 fps
Max. Frame Rate w/ 3x3 Binning	69.73 fps
Max. Frame Rate w/ 4x4 Binning	82.85 fps
Exposure Settings	
Gain Settings	0-36 dB
Binning	Yes
Anti-blooming	Yes
Trigger Modes	Edge, Level, Double exposure, Periodic interval (self), Overlap trigger modes
Mechanical Description	
Lens Mount	F-mount, C-Mount (Other mounts available upon request)
Camera Head Cable	0.5m, 2m, 5m, 7m
Camera Head Dimensions	54.6 mm x 76.8 mm x 54.6 mm (LxDxH) F-mount 54.6 mm x 47.8 mm x 54.6 mm (LxDxH) C-mount
Controller Dimensions	160.7 mm x 158.3 mm x 50.8 mm (LxDxH) multi-head controller (CameraLink & Firewire) 158.8 mm x 152 mm x 38.1 mm (LxDxH) single-head controller (CameraLink) 158.8 mm x 152 mm x 54.4 mm (LxDxH) single-head controller (GigE Vision)160.7 mm x 158.3
Camera Head Weight	258 grams
Controller Weight	1140 grams multi-head controller 992 grams single-head controller (CameraLink) 1124 grams single-head controller (GigE Vision)
Environmental	
Operating Temperature	0 - 40 $^{\circ}\text{C}$, non-condensing
Vibration	3G, sinusoidal from 10 to 500 Hz
Shock	5G
Power Consumption (Single Head with Controller)	15 watts
Certification	CE
Input/Output	
GigE Vision	Base, Medium, Dual Base
CameraLink	1394a
Firewire	RS232
Serial	BNC, TTL
Trigger In	BNC, TTL
Trigger Out	10/100/1000 Base-T
Diagnostics	

Note: Specifications are subject to change.

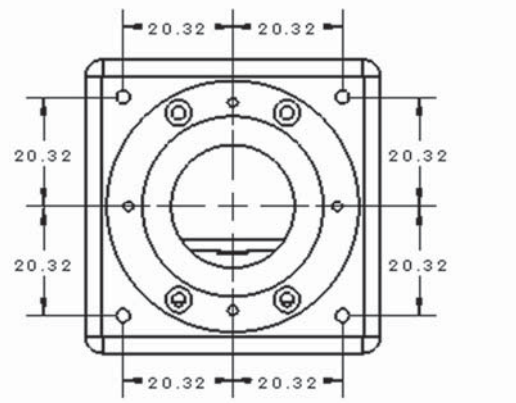
Monochrome Quantum Efficiency



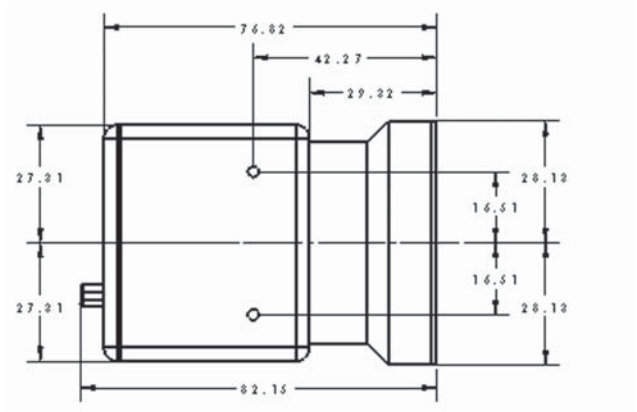
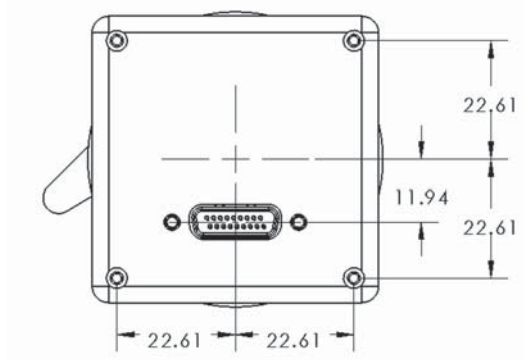
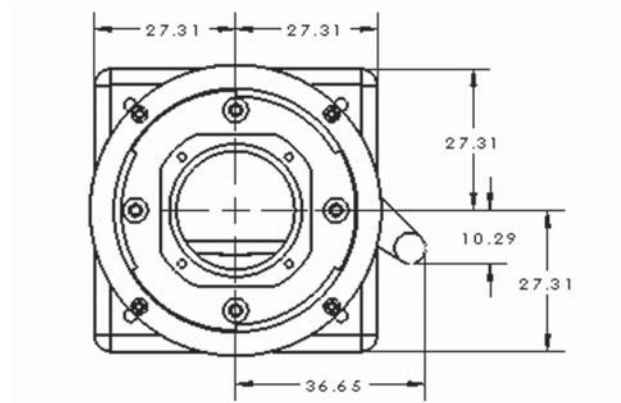
Color Quantum Efficiency



C-mount



F-mount



Note: all dimensions are in millimeters (mm)



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