



MEGAPLUS ER11000

The MEGAPLUS ER11000 is a unique CCD camera capable of capturing images at variable resolutions from 11 megapixels to an unprecedented 96 megapixels. The ER11000 is based on Princeton Instruments' proprietary "eRes" technology that delivers hyper-fine details in a rugged package - ideal for 24/7 inspection applications, such as flat panel display, solar panel and electronic PCB inspection, and high resolution scientific microscopy applications. **The ER11000 is the first such ultra-high resolution camera to combine active sensor cooling and low noise 12-bit electronics to reduce thermal noise and pixel defects.**

FEATURES	BENEFITS
eRes Extended Resolution Technology	Capture up to 96.38 megapixel resolution images; Resolve fine details - only limited by the lens
Full 35mm image sensor (36 x 24mm)	Enables large scanning areas optimized for standard optics
Actively cooled	Enables long integraton times while minimizing noise and number of hot pixels; Consistent imaging performance over long periods
Interline Transfer Progressive Scan CCD	Provides electronic shuttering, progressive scan readout, anti-blooming suppression and high speed readout
Overlap Exposure-Readout	100% duty cycle imaging for high throughput
CameraLink interface	High bandwidth for continuous data interface
12-bits per pixel	Quantifies full range of light levels in a single image
Compact design	A small footprint and design is optimal for integration into applications where space is at a premium

Applications:

Flat Panel Display Imaging, Scientific Imaging, Machine Vision Inspection



SPECIFICATIONS

CCD Imager	
Imaging Device	KAI-11002 Mono
Sensor Readout	Interline, Progressive Scan
Pixel Size	9µm x 9µm
Resolution	4008 x 2672, 10.7 megapixels (standard) 8016 x 5314, 42.8 megapixels, (eRes mode) 12024 x 8016, 96.4 megapixels (eRes mode)
Active Area	36mm (h) x 24mm (w); 42.52mm
Aspect Ratio	3:2
Shuttering	Electronic-Global
Imaging Performance	
Output Bit Depth	8-, 10- or 12 bits/pixel
Sensor Clock Rate	Max. 38MHz per port (1- or 2-port readout)
Camera Link Pixel Clock Rate	Max. 76MHz
Max. Frame Rate (full res.)	11 megapixel mode: 6.09 fps 43 megapixel mode: 1.52 fps 96 megapixel mode: 0.68 fps
Partial Scanning (a/k/a AOI)	YES (fast-line-dump)
Exposure Settings	
Max. Integration Time	10 seconds (edge trigger); Unlimited (pulse width, level trigger)
Gain Settings	0 - 36 dB
Binning	YES
Anti-Blooming	YES
Trigger Modes	Edge, Level, Overlap Trigger (edge only)
Cooling Performance	
Cooling Method	Peltier (TE), w/fan 12°C below ambient
Thermostating Precision	± 1°C

SPECIFICATIONS

eRes Mode Image Shifting	
Shift Step Increments	3, 4.5 or 9µm
Repeatability	< 50nm
Shift Speed	< 40ms
Shifts per Day	> 56,000
Environmental	
Operating Temperature	0 - 40°C, non-condensing
Vibration	3G, sinusoidal from 10-500 Hz
Shock	5G
Power Used (single head controller)	15 watts
Mechanical Description	
Lens Mount	Rodenstock lens mount (contact factory for other lens mount options)
Camera Head Cable	.5m, 2m, 5m and 7m
Camera Head Dimensions (including lens mount)	161.9mm x 89.34mm x 139.7mm (L x D x H)
Controller Dimensions	160.7mm x 158.3mm x 50.8mm (LxDxH), multi-head controller (CameraLink) 158.8mm x 152mm x 38.1mm (LxDxH), single-head controller (CameraLink)
Camera Head Weight	1004 grams
Controller Weight	1140 grams, multi-head controller 992 grams, single-head controller (CameraLink)
Input/Output	
CameraLink	Base
Serial	RS232
Trigger In	BNC, TTL
Trigger Out	BNC, TTL

ER11000 CCD Quantum Efficiency Curve

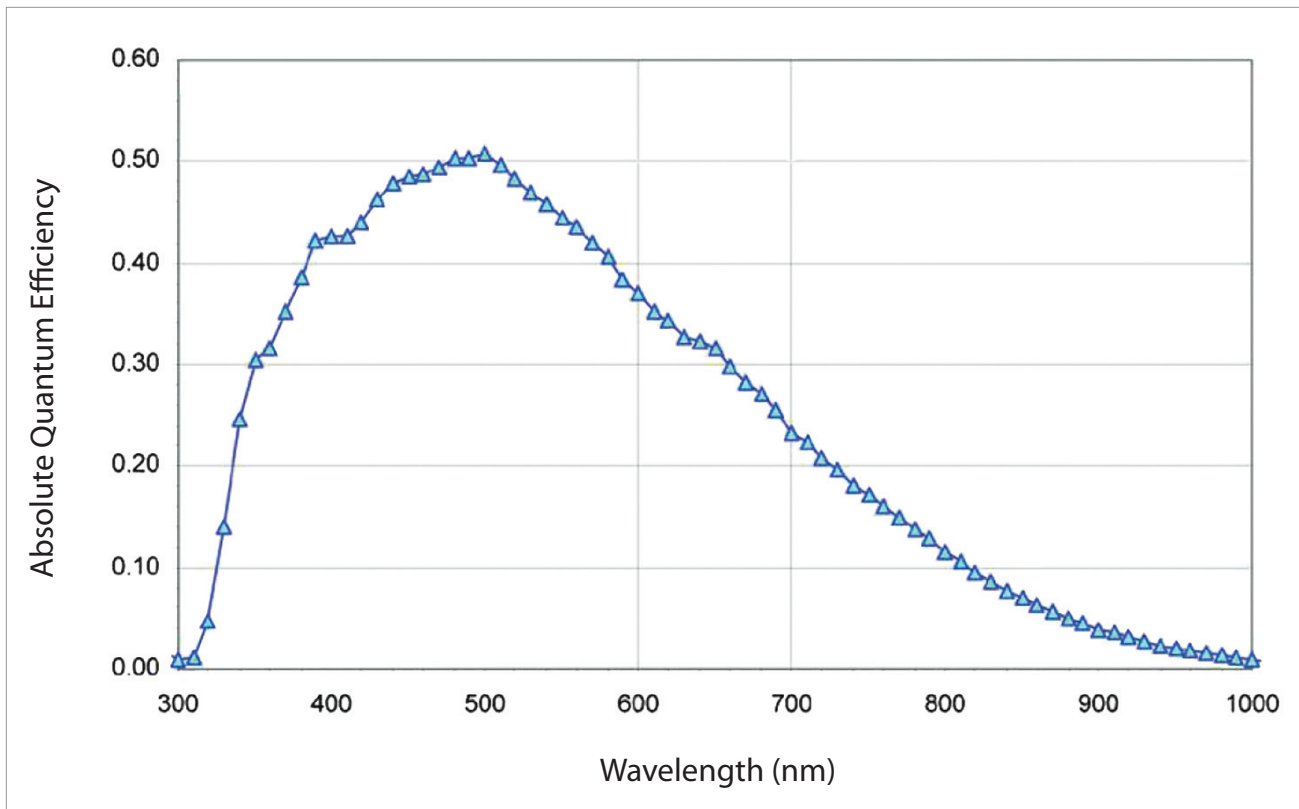
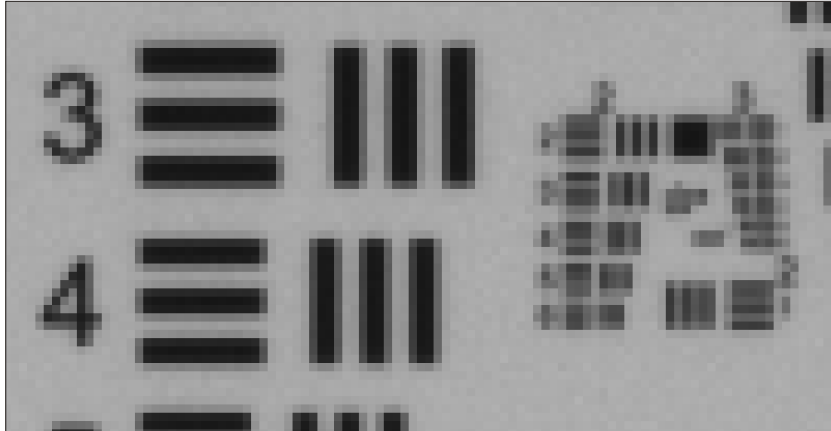
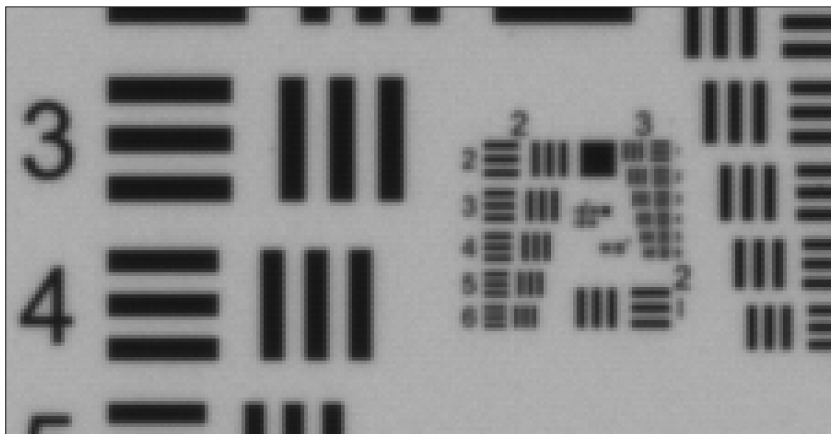


Image Comparisons



A. Standard Resolution

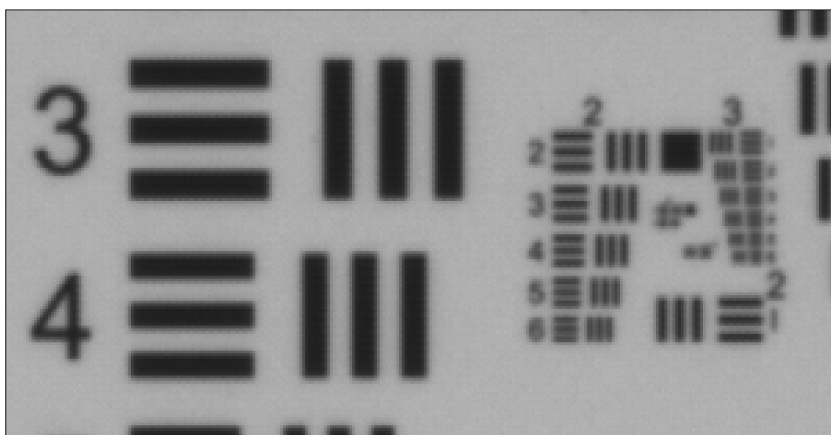
A portion of a US Air Force target image captured with the ER11000 camera at the standard 11 megapixel resolution



B. eRes Mode

@ 4.5µm Resolution

The same target image as in Image A, captured with the ER11000 camera in eRes mode with 4.5µm image shifts



C. eRes Mode

@ 3µm Resolution

The same target image as in Image A, captured with the ER11000 camera in eRes mode with 3µm image shifts.

ER1 1000 Drawing

