

Eagle

Deep Cooled Vacuum CCD • High Resolution Scientific Imaging •
2048 x 2048 and 1024 x 1024 • 75kHz and 2MHz Readout Speeds •



Key Features and Benefits

The BEST CCD on the market today!

- **7 year vacuum guarantee**
Protection and integrity of the sensor
- **Extremely low dark current**
Deep cooled with a 110°C delta which enables long exposure times
- **Back illuminated 4MP sensor from e2v**
Enables large field of view imaging
- **High QE: >90% @ 525nm and 50% @ 380nm & 720nm**
Optimum photon collection

Resolution	2048 x 2048 1024 x 1024
Dark Current	0.0001 e/p/s
Full Well Capacity	100ke-
Readout Noise	2.3e-rms
Camera Link	16 bit

Specification for Eagle

Sensor	E2V CCD42-40	E2V CCD47-10
	Front and Back Illuminated	
Active Pixel	2048 × 2048	1024 × 1024
Pixel Size	13.5µm × 13.5µm	13µm × 13µm
Active Area	27.65mm × 27.65mm (39.10mm diagonal)	13.3 × 13.3mm (18.81mm diagonal)
Binning	Programmable, up to 64×64 pixels	
Full Well Capacity	Minimum: 80ke- Typical: 100ke-	
Shift Register Well Depth	150ke-	
Non-Linearity	< 1%	
Readout Noise (RMS)	<3.5e- @ 75kHz (2.3e-typical) <12e- @ 2MHz (9.0e-typical)	
Binned Readout Noise	@75kHz pixel readout rate, 16×16 binning < 5.0 e- rms	
Peak Quantum Efficiency (QE)	> 90% @ 550nm	
Spectral Response ¹	300 - 1100nm	
Dark Current (e/p/s) ²	<0.001 @ -90°C (0.0001 typical)	
Shutter	Mechanical, aperture φ = 45mm	
Cooling	Active, ΔT > 110°C	
Cooling Method	TEC with liquid (utilizing PentaVac™ Technology)	
Lens Mount	Nikon F mount (others on request)	
Synchronization	Trigger IN and OUT – TTL compatible	
Digital Output Format	16-bit Camera Link (base)	
Power Supply	12V DC ±10%	
Total Power Consumption ³	<100W (TEC ON, Steady State)	
Operating Temperature Range	0°C to +55°C	
Storage Temperature Range	-30°C to +60°C	
Dimensions (L*W*H) ⁴	155.08mm x 140.89mm x 110.00mm	
Weight (excluding lens)	3.0kg [6.6lb]	

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Ordering Information

Camera

Eagle CCD 4MP Deep cooled digital camera Back thinned visible	EA4240V-BV-CL
Eagle CCD 4MP Deep cooled digital camera Enhanced UV	EA4240V-UV-CL
Eagle CCD 1MP Deep cooled digital camera Back thinned visible	EA4710V-BV-CL
Eagle PSU	EA4240V-PSU
Eagle Power Brick	EA-BRK-150W

Optional Accessories

Mini PC with XCAP Std and frame grabber	RPL-PC-EL1
EPIX® EB1 frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
Camera Link Cable (2m) ⁵	RPL-CL-CBL-2M
Thermoelectric Water Chiller Unit ⁶	RPL-CHILLER
Water tubing (3m) ⁷	RPL-WTUBE-EAGLE
Optical lenses ⁸	RPL-xx-xxxx

Note 1: UV window available on request.

Note 2: Values not valid for EA4240V-UV-CL model.

Note 3: For more detailed power consumption values, please refer to the user manual.

Note 4: Dimensions include all connector parts on the camera interface.

Note 5: Longer Camera Link cable available.

Note 6: Recommended coolant flow rate >0.5l/min & cooling capacity >100W @ 20°C.

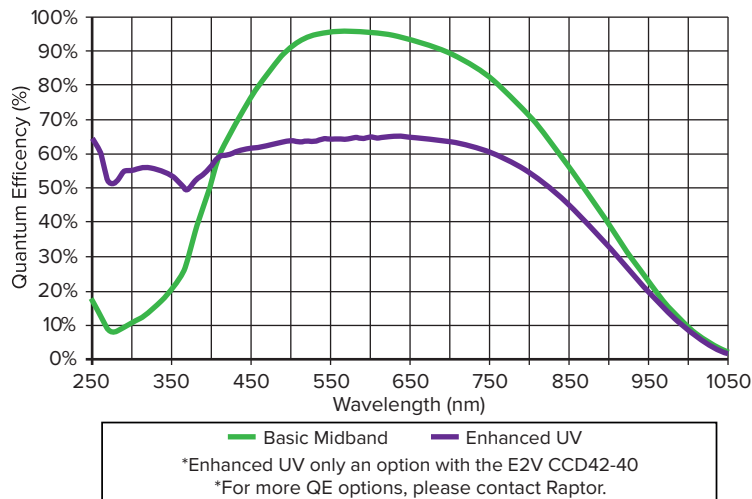
Note 7: Includes tubing and connectors.

Note 8: Please consult us to check our range of lenses.

Demo is available on request.
Pricing AOR subject to volumes.

Detailed technical drawings
can be downloaded at
www.raptorphotonics.com

Quantum Efficiency



Applications

Scientific

- Astronomy
- Calcium signaling
- Fluorescence imaging / spectroscopy
- Luminescence
- X-ray

Document #: USEA4240-CL 0120R1