

# Eagle XV

e2v In-Vacuum Direct Detection Cooled CCD • High Resolution Soft X-ray Scientific Imaging  
2048 x 2048 and 1024 x 1024 • 13.5µm × 13.5µm and 13µm × 13µm Pixel Pitch •



## Key Features and Benefits

- **Choice of sensors, BN-DD and BN**  
Select the best QE for your application
- **Active / Passive cooling down to -80°C**  
Minimizing noise with Raptor cooling technology
- **Compact platform for In-Vacuum operation**  
Ideal for OEM integration with vacuum pressure  $\leq 10^{-5}$  mbar
- **Full range of Accessories**  
Including vacuum feedthroughs, cables, tubing etc

|                |  |
|----------------|--|
| Resolution     | <b>2048 × 2048</b><br><b>1024 × 1024</b> |
| Digital output | <b>16 bit</b>                            |
| Non linearity  | <b>&lt; 1%</b>                           |
| Weight         | <b>&lt;1.5kg</b>                         |

# Specification for Eagle XV

| Sensor <sup>1</sup>                  | E2V 4240<br>Back Illuminated, AIMO                          | E2V 4710<br>Back Illuminated, AIMO |
|--------------------------------------|---|------------------------------------|
| Active Pixel                         | 2048 × 2048   | 1024 × 1024                        |
| Pixel Size                           | 13.5µm × 13.5µm   | 13µm × 13µm                        |
| Active Area                          | 27.6mm × 27.6mm   | 13.3mm × 13.3mm                    |
| Spectral Response                    | 12eV - 20keV  |                                    |
| Image Pixel Well Depth               | >80ke- (100ke- typical)                                     |                                    |
| Non Linearity                        | < 1%  |                                    |
| Typical Dark Current<br>@ -80°C      | <b>BN-DD</b>  | <b>BN</b>                          |
|                                      | ~ 0.016 e/p/s   | ~ 0.0005 e/p/s                     |
| Readout Noise (RMS)                  | 10e- @ 2MHz<br><3.5e- @ 75kHz                               |                                    |
| Integration Times                    | Up to 60 mins   |                                    |
| Pixel Readout Rate                   | 2MHz / 75kHz  |                                    |
| Readout Modes                        | Full 2D Image, Flexible Programmable Binning, ROI Selection |                                    |
| Trigger Mode                         | Internal / External   |                                    |
| Digital Output Format                | 16 bit base Camera Link                                     |                                    |
| Cooling <sup>2</sup>                 | -80°C with 10°C coolant                                     |                                    |
| Synchronisation                      | Trigger IN and OUT – TTL compatible                         |                                    |
| Power Supply                         | 12V DC ±10%   |                                    |
| Total Power Consumption <sup>3</sup> | ≤ 65W (TEC ON, Steady State)                                |                                    |
| Operating Temperature                | -20°C to +55°C  |                                    |
| Storage Temperature                  | -40°C to +70°C  |                                    |
| Dimensions (L*W*H) <sup>4</sup>      | 132.67mm x 110.00mm x 110.00mm                              |                                    |
| Weight                               | <1.5Kg  |                                    |

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

# Ordering Information

## Camera

|                                |                     |
|--------------------------------|---------------------|
| Eagle 42-40 X-ray BN sensor    | EA4240XV-BN-CL -II  |
| Eagle 42-40 X-ray BN-DD sensor | EA4240XV-BNDD-CL-II |
| Eagle 47-10 X-ray BN sensor    | EA4710XV-BN-CL-II   |
| Eagle 47-10 X-ray BN-DD sensor | EA4710XV-BNDD-CL-II |
| Eagle XV Power Supply Unit     | EAXV-PSU            |
| Eagle XV Power Brick           | EA-BRK-85W          |

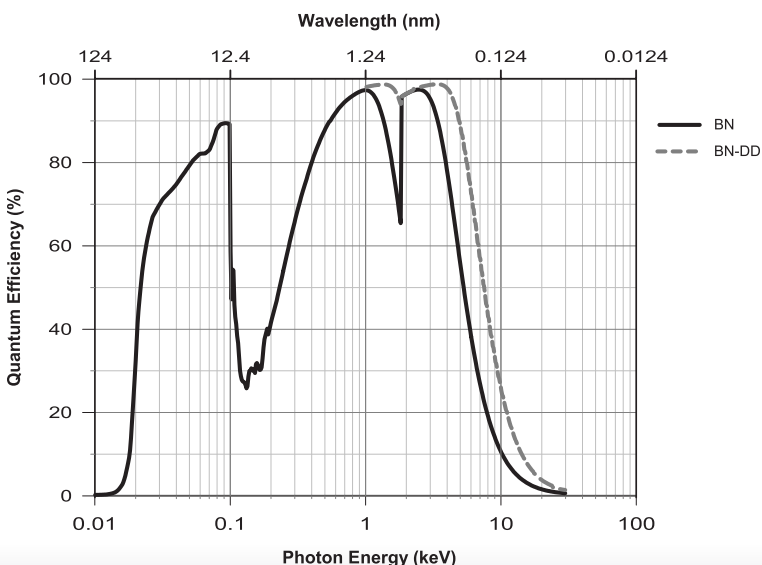
## Optional Accessories

|  |                |
|--|----------------|
| Power Feedthrough                              | RPL-PFC        |
| Camera Link Feedthrough                        | RPL-CLFC       |
| KF40 Liquid Feedthrough                        | RPL-DN40KF-WFC |
| 2.75" CF Liquid Feedthrough                    | RPL-DN40CF-WFC |
| KF40 Trigger Feedthrough 2 SMA5                | RPL-DN40KF-TFC |
| 2.75" CF Trigger Feedthrough 2 SMA5            | RPL-DN40CF-TFC |
| Air Side Water Tubing <sup>5</sup>             | RPL-WTUBE-XV   |
| Thunderbolt frame grabber                      | RPL-mf2280     |
| EPIX® EB1 frame grabber                        | RPL-EPIX-EB1   |
| EPIX® XCAP Std software                        | RPL-XCAP-STD   |
| Camera Link Cable (2m) <sup>6</sup>            | RPL-CL-CBL-2M  |
| Mini PC with XCAP Std and frame grabber        | RPL-PC-mf2280  |
| Thermoelectric Water Chiller Unit <sup>7</sup> | RPL-CHILLER    |

- Note 1: Other sensor format available.
- Note 2: For important information about the vacuum pressure requirement before using the TEC, please refer to the user manual.
- 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 except for the coolant pipes. Please see the mechanical drawing for all measurements.
- Note 5: Includes tubing and connectors.
- Note 6: Longer Camera Link cable available.
- Note 7: Recommended coolant flow rate >0.5l/min & cooling capacity >100W @ 20°C.

Detailed technical drawings  
can be downloaded at  
[www.raptorphotronics.com](http://www.raptorphotronics.com)

# Quantum Efficiency



\*Data supplied by sensor manufacturer

# Applications

## Scientific

- EUV X-Ray Spectroscopy
- Soft X-Ray Microscopy
- VUV/EUV/XUV Imaging and Lithography Crystallography
- X-Ray Diffraction (XRD) and X-Ray Fluorescence (XRF)
- X-Ray Imaging
- X-Ray Phase Contrast Imaging
- X-Ray Plasma Imaging and Diagnostics
- X-Ray source characterization
- X-Ray Tomography



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