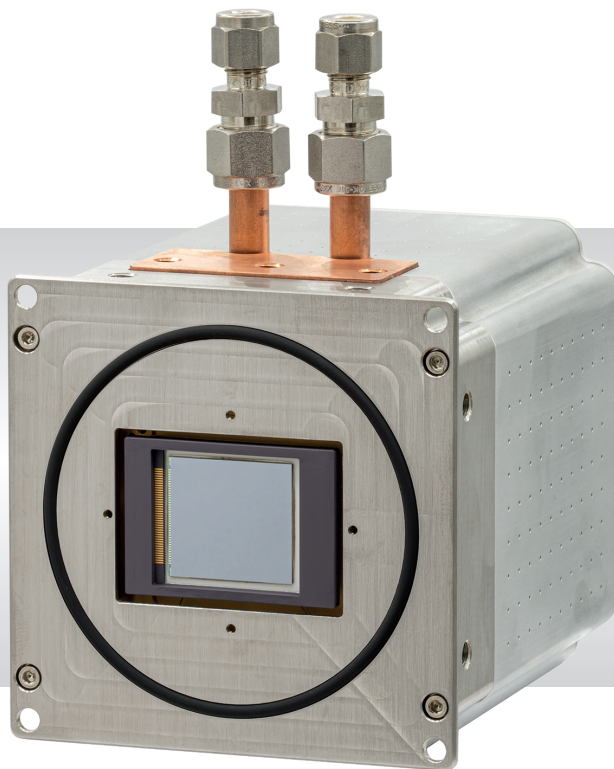


# Falcon III – XV

In-Vacuum • Scientific Frame Transfer EMCCD •

• 1024 x 1024 • 10µm x 10µm Pixel Pitch • Cooled to -70°C • 31Hz Full Frame •



## Key Features and Benefits

*Fastest scientific x-ray camera on the market*

- **Back illuminated uncoated sensor**  
Optimises sensitivity and large field of view imaging from 12eV to 20keV
- **Active / Passive cooling down to -70°C**  
Minimizing noise with Raptor cooling technology
- **Fast frame rate in full frame resolution: 31Hz**  
Ideal for fast repetition rates
- **Full range of Accessories**  
Including vacuum feedthroughs, cables, tubing etc

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Resolution	<b>1024 × 1024</b>
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Pixel Size	<b>10µm x 10µm</b>
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Readout Noise	<b>&lt;1e-</b>
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Frame Rate	<b>31Hz</b>
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Camera Link	<b>16bit</b>
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## Specification for Falcon III – XV

Sensor Type	1" Back Thinned Frame Transfer EMCCD
Active Pixel	1024 x 1024
Pixel Size	10µm x 10µm
Active Area	10.2mm x 10.2mm
Full Well Capacity	>29ke-
Shift Register Well Depth	200ke-
Non-Linearity	<1%
Readout Noise (RMS) <sup>1</sup>	EM Gain ON: <1e- EM Gain OFF: <60e-
Full Resolution Frame Rate	31Hz
Exposure Time <sup>2</sup>	1ms to >1hr
Dark Current (e/p/s)	0.001 @ -70°C
Digital Output Format	16 bit Camera Link (Base configuration / SDR)
Peak Quantum Efficiency	>95%
Spectral Response	12eV - 20keV
Cooling <sup>3</sup>	-70°C with 20°C liquid
Binning	1x1 up to 8x8
Synchronisation	Trigger IN and OUT - TTL compatible
Power Supply	12V DC ±10%
Total Power Consumption	<75W (TEC ON, Steady State)
Operating Case Temperature	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) <sup>4</sup>	168.7mm x 120.0mm x 118.6mm
Weight	<1.5kg

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

## Ordering Information

### Camera

Falcon III –XV EMCCD 1MP	FA351XV-BN-CL
Power Supply Unit	FA-PSU

### 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 SMA	RPL-DN40KF-TFC
2.75" CF Trigger Feedthrough 2 SMA	RPL-DN40CF-TFC
Air Side Water Tubing <sup>5</sup>	RPL-WTUBE-XV
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-EL1
Thermoelectric Water Chiller Unit <sup>7</sup>	RPL-CHILLER

Note 1: Measured at 10MHz pixel readout speed.

Note 2: In practice, the maximum exposure time will be dark current limited.

Note 3: For important information about the vacuum pressure requirement before using the TEC, 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.

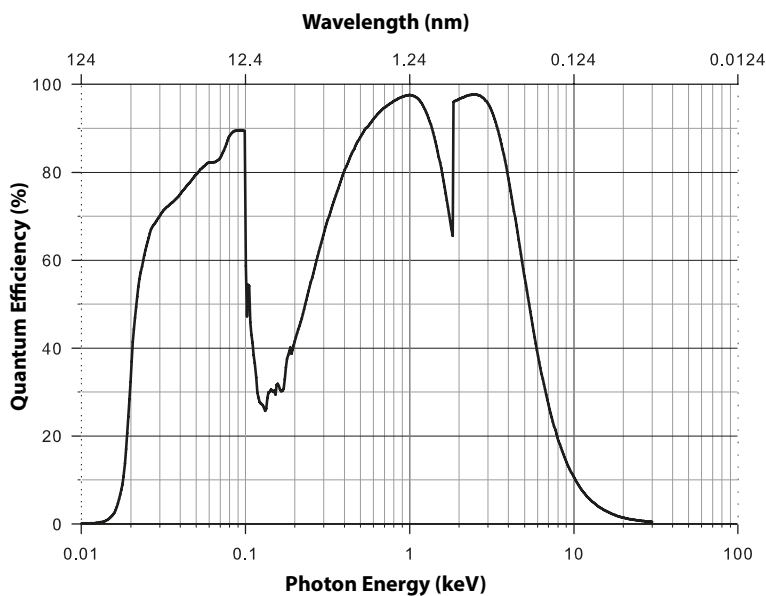
Note 5: Includes tubing and connectors.

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.raptorphotonics.com](http://www.raptorphotonics.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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Willowbank Business Park  
Larne, Co Antrim  
BT40 2SF,  
Northern Ireland

Raptor Photonics Ltd. (UK)  
T: +44(0)2828 270 141  
E: sales@raptorphotonics.com  
[www.raptorphotonics.com](http://www.raptorphotonics.com)

Raptor Photonics Inc. (USA)  
T: +1 (877) 230-4836  
E: sales@raptorphotonics.com  
[www.raptorphotonics.com](http://www.raptorphotonics.com)

