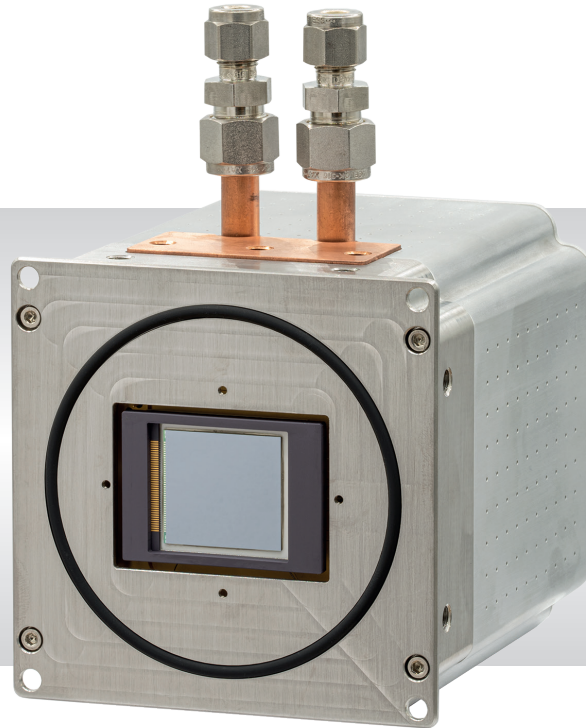


# Falcon III – XV

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*

- **In-Vacuum**  
High energy in-vacuum direct detection
- **Back illuminated with no coating**  
Optimises sensitivity and large field of view imaging from 12eV to 20keV
- **Fast frame rate in full frame resolution: 31Hz**  
Ideal for fast repetition rates
- **Deep cooled to -70°C**  
For minimal background events

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

## 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)	132.08mm x 110.00mm x 110.00mm
Weight	<1.5kg

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## Ordering Information

### Camera

Falcon III –XV EMCCD 1MP	FA351XV-BN-CL
Power Supply Unit	FA-PSU-III
Falcon III-XV Power Feedthrough	RPL-PFC-F3
Falcon III-XV Camera Link Feedthrough	RPL-CLFC

### Optional Accessories

Mini PC with XCAP Std and frame grabber	RPL-MINI-EL1
EPIX® EB1 frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
MDR-SDR Camera Link Cable <sup>4</sup>	RPL-MCL-CBL-2M
Thermoelectric Water Chiller Unit	RPL-CHILLER
Water Feedthrough	RPL-WFC
Trigger Feedthrough	RPL-TFC

Note 1: Measured at 10MHz pixel readout speed.

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

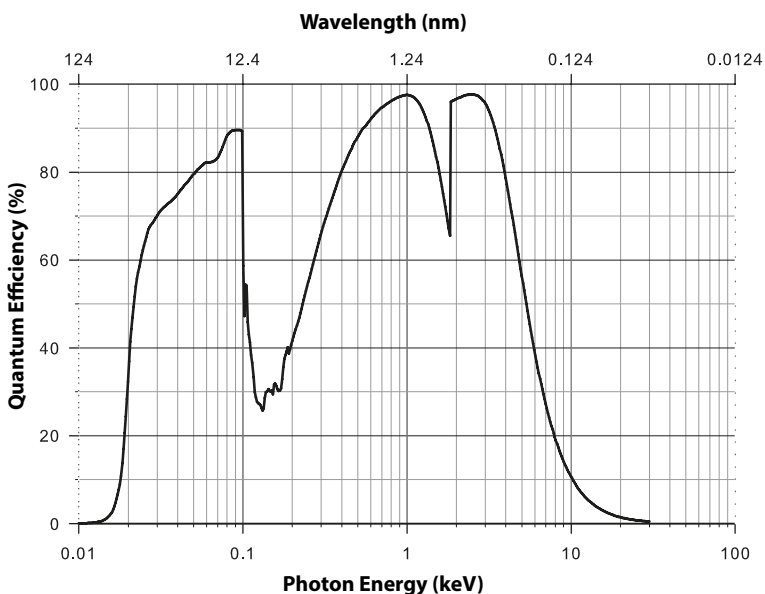
Note 3: For important information about the vacuum pressure requirement before using the TEC, please refer to the user manual.

Note 4: Longer Camera Link cable available.

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

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

## Quantum Efficiency



## Applications

### Scientific

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

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