

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: 31.5fps**

Ideal for fast repetition rates

- **Deep cooled to -70°C**

For minimal background events

Resolution	1024 × 1024
Digital output	16 bit
Non linearity	< 1%
Weight	< 2.5Kg

PRELIMINARY

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	35ke-
Shift Register Well Depth	200ke-
Non-Linearity	<1%
Readout Noise (RMS) ¹	EM Gain ON: <1e- EM Gain OFF: <50e-
Full Resolution Frame Rate	31Hz
Exposure Time ²	31.62ms to 3.8hrs
Dark Current (e/p/s)	0.001 @ -70°C
Digital Output Format	16 bit Camera Link (base configuration)
Peak Quantum Efficiency	>90%
Spectral Response	12keV - 20keV
Cooling ³	-40°C with fan / -70°C with 20°C liquid & fan
Binning	1x1 up to 32x32
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)	129mm x 112mm x 94mm
Weight	<2.5kg

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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
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
Camera Link Cable (2m) ⁴	RPL-CL-CBL-2M
Thermoelectric Water Chiller Unit	RPL-CHILLER
Chiller Tubing	RPL-WTUBE-NINOX
Water Feedthrough	RPL-WTC
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.

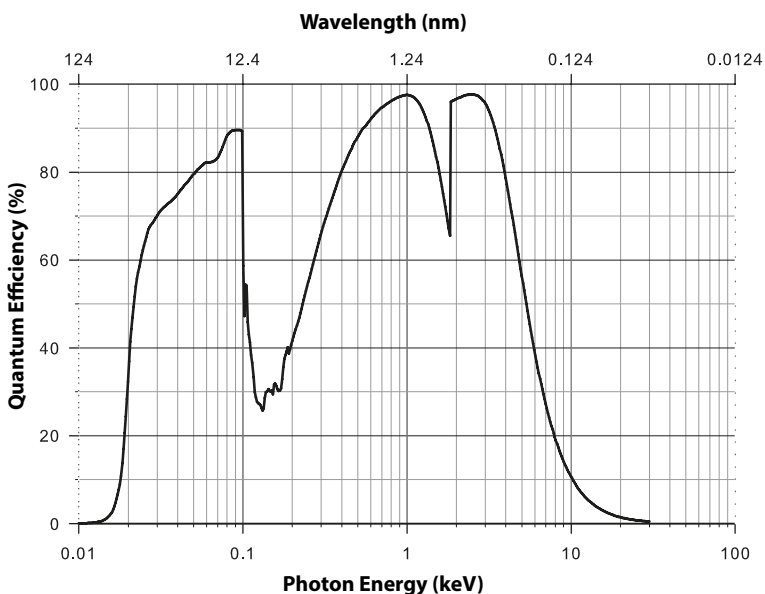
Note 3: For important information about the vacuum pressure requirement before using the TEC, please refer to the user manual.

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

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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