# Falcon III – XV

In-Vacuum • Scientific Frame Transfer EMCCD •
• 1024 x 1024 • 10µm x 10µm Pixel Pitch • Cooled to -70˚C • 31Hz Full Frame •

PRELIMINARY

## 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** |

Raptor photonics

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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 | 35ke- |
| Shift Register Well Depth | 200ke- |
| Non-Linearity | <1% |
| Readout Noise (RMS) | EM Gain ON: <1e-<br>EM Gain OFF: <50e- |
| Full Resolution Frame Rate | 31Hz |
| Exposure Time[1] | 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[2] | -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

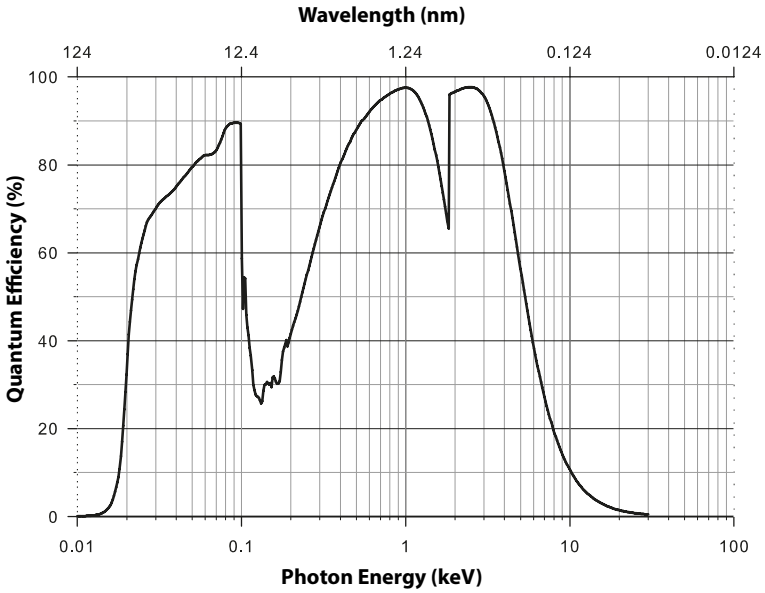
| | |
|---|---|
| Mini PC with XCAP Std and frame grabber | RPL-MINI-EL1 |
| EPIX® EB1 frame grabber | RPL-EPIX-EB1 |
| EPIX® XCAP Std software | RPL-XCAP-STD |
| Camera Link Cable (2m)[3] | RPL-CL-CBL-2M |
| Thermoelectric Water Chiller Unit | RPL-CHILLER |
| Chiller Tubing | RPL-WTUBE-NINOX |
| Water Feedthrough | RPL-WTC |
| Trigger Feedthrough | RPL-TFC |

Note 1: In practice, the maximum exposure time will be dark current limited.
Note 2: For important information about the vacuum pressure requirement before using the TEC, please refer to the user manual.
Note 3: 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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