

Falcon III

Digital Scientific Frame Transfer EMCCD

1024 x 1024 • 10µm x 10µm Pixel Pitch • Cooled to -70°C •



Key Features and Benefits

NEXT GENERATION photon counting sensitivity

- **Lower read noise of <1e-**
Best sensitivity of any camera technology
- **Faster readout in full resolution**
x 3 times faster than previous generations
- **Higher EM gain of x 5000**
See single photon events
- **Up to 95% QE from back-illuminated sensor**
Optimum Photon collection
- **Strong UV and NIR reponse and ultrawide bandwidth**
From 200nm through to 1100nm
- **Deep cooled to -70°C**
For minimal background events

EMCCD - GEN III
A NEW GENERATION

The Photon Harvester!

Resolution	1024 x 1024
Pixel Size	10µm x 10µm
Readout Noise	<1e-
Frame Rate	31Hz
Camera Link	16bit

Specification for Falcon III

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 ¹	>29ke-
Shift Register Well Depth	200ke-
Non-Linearity	<1%
Readout Noise (RMS) ¹	EM Gain ON: <1e- EM Gain OFF: <60e-
Frame Rate ²	31Hz
Exposure Time ³	1ms to >1hr
Dark Current (e/p/s) ¹	<0.001 @ -70°C
Digital Output Format	16 bit Camera Link (base configuration / SDR)
Peak Quantum Efficiency	95% @ 575nm
Spectral Response ⁴	300 - 1100nm
Dynamic Range	EM Gain ON: 89dB EM Gain OFF: 54dB
Cooling	-40°C with fan / -70°C with 20°C liquid & fan
Binning	1x1 up to 8x8
Lens Mount	C-Mount
Synchronisation	Trigger IN and OUT - TTL compatible
Power Supply	12V DC ±10%
Total Power Consumption ⁵	<75W (TEC ON, Steady State)
Operating Case Temperature	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) ⁶	120.9mm x 140.2mm x 113.1mm
Weight (no lens)	<1.5Kg

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Ordering Information

Camera

Falcon III EMCCD 1MP digital camera FA351V-BV-CL

Power Supply Unit FA-PSU-III

Optional Accessories

Mini PC with XCAP Std and frame grabber RPL-PC-EL1

EPIX® EB1 frame grabber RPL-EPIX-EB1

EPIX® XCAP Std software RPL-XCAP-STD

MDR-SDR Camera Link Cable⁷ RPL-MCL-CBL-2M

Thermoelectric Water Chiller Unit⁸ RPL-CHILLER

Chiller Tubing⁹ RPL-WTUBE-NINOX

Optical Lenses¹⁰ RPL-xx-xxxx

Note 1: Measured at 10MHz pixel readout speed.

Note 2: For more detailed maximum frame rates with binning and ROI applied, please refer to the user manual.

Note 3: In practice, the maximum exposure will be dark current limited.

Note 4: Standard BV sensor cuts at 300nm, for UV options please contact Raptor for more details.

Note 5: For more detailed power consumption values, please refer to the user manual.

Note 6: Dimensions include all connector parts on the camera interface.

Note 7: Longer Camera Link cable available.

Note 8: Recommended coolant flow rate >0.5l/min & cooling capacity >100W @ 20°C.

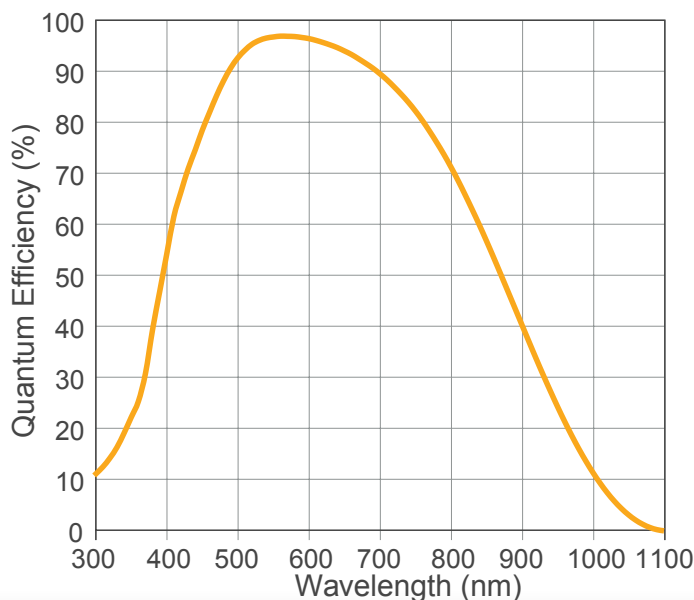
Note 9: Includes tubing & connectors.

Note 10: Please consult us to check our range of lenses.

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

Detailed technical drawings
can be downloaded at
www.raptorphotonics.com

Quantum Efficiency



*Data supplied by sensor manufacturer

Applications

Scientific

- Adaptive Optics and Astronomy
- Calcium signaling
- Fluorescence imaging / spectroscopy
- Flow cytometry
- FRET / FRAP / TIRF
- Genome sequencing
- High content screening
- High resolution fluorescence imaging
- Hyperspectral imaging
- Live cell imaging
- Photon counting
- Single molecule detection
- Solar cell inspection
- X-ray & High energy

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