

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: <55e-
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)
Peak Quantum Efficiency	95% @ 575nm
Spectral Response	200 - 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 ⁴	<75W (TEC ON, Steady State)
Operating Case Temperature	-20°C to +55°C
Storage Temperature	-30°C to +60°C
Dimensions (L*W*H) ⁵	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

Camera Link Cable (2m)⁶ RPL-MCL-CBL-2M

Thermoelectric Water Chiller Unit⁷ RPL-CHILLER

Chiller Tubing⁸ RPL-WTUBE-NINOX

Optical Lenses⁹ 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: For more detailed power consumption values, please refer to the user manual.

Note 5: Dimensions include all connector parts on the camera interface.

Note 6: Longer Camera Link cable available.

Note 7: Recommended coolant flow rate >0.5l/min & cooling capacity >100W @ 20°C.

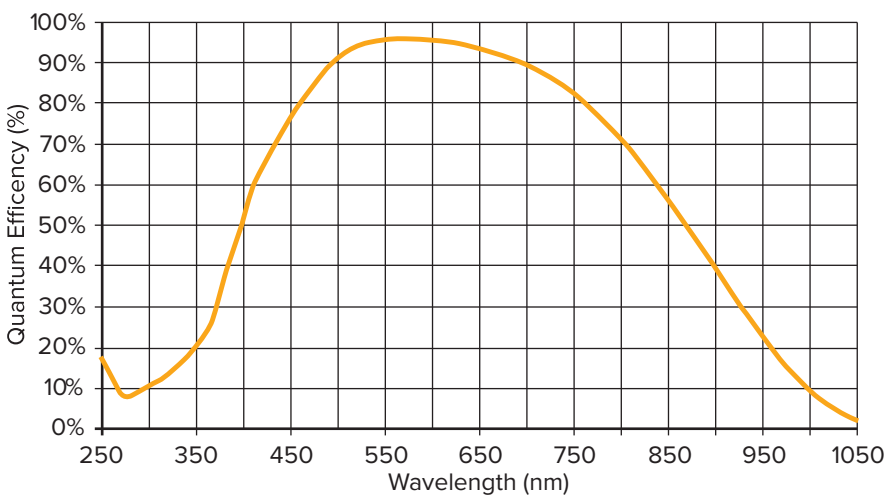
Note 8: Includes tubing & connectors.

Note 9: 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



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

Document #: USFA351V-BV-CL 0920



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

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

