Falcon III

Digital Scientific Frame Transfer EMCCD
1024 x 1024 • 10µm x 10µm Pixel Pitch • Cooled to -70˚C •

PentaVac

CAMERA Link

EMCCD - GEN III
A NEW GENERATION

The Photon Harvester!

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

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

Raptor photonics

www.raptorphotonics.com

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	35ke-
Shift Register Well Depth	200ke-
Non-Linearity	<1%
Readout Noise (RMS)[1]	EM Gain ON: <1e- EM Gain OFF: <50e-
Frame Rate[2]	31Hz
Exposure Time[3]	1ms to >1hr
Dark Current (e/p/s)	0.001 @ -70°C
Digital Output Format	16 bit Camera Link (base configuration)
Peak Quantum Efficiency	95% @ 575nm
Spectral Response	300 - 1100nm
Dynamic Range	EM Gain ON: 91dB EM Gain OFF: 57dB
Cooling	-40°C with fan / -70°C with 20°C liquid & fan
Binning	1x1 up to 32x32
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

Ordering Information

Camera

Falcon III EMCCD 1MP digital camera	FA351V-BV-CL
Power Supply Unit	FA-PSU-III

Optional Accessories

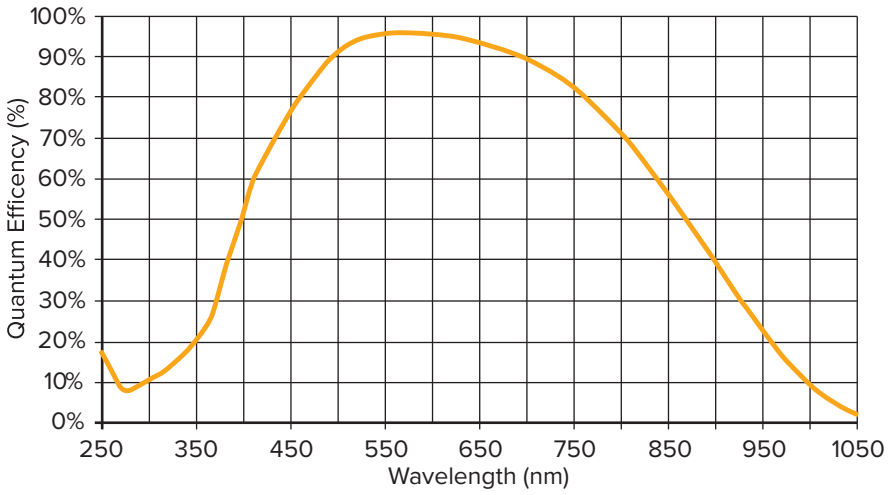
Mini PC with XCAP Std and frame grabber	RPL-PC-EL1
EPIX® EB1 frame grabber	RPL-EPIX-EB1
EPIX® XCAP Std software	RPL-XCAP-STD
Camera Link Cable (2m)[6]	RPL-MCL-CBL-2M
Thermoelectric Water Chiller Unit[7]	RPL-CHILLER
Chiller Tubing[8]	RPL-WTUBE-NINOX
Optical Lenses[9]	RPL-xx-xxxx

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

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