Falcon III EMCCD - NEW

Digital Monochrome Scientific Frame Transfer EMCCD $1024 \times 1024 \cdot 10 \mu m \times 10 \mu m$ pixels • Cooled to -100° C • 1MP Scientific •





Key Features and Benefits

NEXT GENERATION photon counting sensitivity

- Lower read noise of <0.01e-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 -100°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	<0.01e-
Frame Rate	34fps
Cameralink	16bit



Specification for Falcon III EMCCD

Sensor Type 1" Back Thinned Frame Transfer EMCCD Active Pixel 1024 × 1024 Pixel Size 10μm × 10μm Active Area 10.2mm × 10.2mm Full Well Capacity 35,000 electrons Shift Register Well Depth 200,000 electrons Non-Linearity 4"% Readout Noise <0.01 electrons with EM gain ON, <60 electrons with EM gain OFF Full Resolution Frame Rate 34fps Exposure Time 1ms to >1hr Dark Current (@ ·100°C) Digital Output Format 16 bit CameraLink (base configuration) Peak Quantum Efficiency 95% Spectral Response 200 - 1100nm Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm × 112mm × 94mm Weight (no lens)		
Pixel Size 10μm x 10μm Active Area 10.2mm x 10.2mm Full Well Capacity 35,000 electrons Shift Register Well Depth 200,000 electrons Non-Linearity <1% Readout Noise <0.01 electrons with EM gain ON, Full Resolution Frame Rate 34fps Exposure Time 1ms to >1hr Dark Current (@ -100°C) 0.0002 e/p/s Digital Output Format 16 bit CameraLink (base configuration) Peak Quantum Efficiency 95% Spectral Response 200 - 1100nm Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Sensor Type	1" Back Thinned Frame Transfer EMCCD
Active Area 10.2mm x 10.2mm Full Well Capacity 35,000 electrons Shift Register Well Depth 200,000 electrons Non-Linearity <1% Readout Noise <0.01 electrons with EM gain ON, <60 electrons with EM gain OFF Full Resolution Frame Rate 34fps Exposure Time 1ms to >1hr Dark Current (@-100°C) 0.0002 e/p/s Digital Output Format 16 bit CameraLink (base configuration) Peak Quantum Efficiency 95% Spectral Response 200 - 1100nm Cooling 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature 129mm x 112mm x 94mm	Active Pixel	1024 x 1024
Full Well Capacity Shift Register Well Depth 200,000 electrons Non-Linearity Readout Noise <pre></pre>	Pixel Size	10µm x 10µm
Shift Register Well Depth Non-Linearity Readout Noise <pre> <0.01 electrons with EM gain ON,</pre>	Active Area	10.2mm x 10.2mm
Non-Linearity Readout Noise <0.01 electrons with EM gain ON, <60 electrons with EM gain OFF Full Resolution Frame Rate Exposure Time Dark Current (@ -100°C) Digital Output Format Peak Quantum Efficiency Spectral Response Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply Total power consumption Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129 mm x 112mm x 94mm	Full Well Capacity	35,000 electrons
Readout Noise < 0.01 electrons with EM gain ON, < 60 electrons with EM gain OFF Full Resolution Frame Rate Exposure Time Ims to >1hr Dark Current (@ -100°C) Digital Output Format Peak Quantum Efficiency Spectral Response Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply Total power consumption Operating case temperature -20°C to +55°C Storage Temperature 129mm x 112mm x 94mm	Shift Register Well Depth	200,000 electrons
Full Resolution Frame Rate Synchronisation Synchronisation Power Supply Total power consumption Operating case temperature Storage Temperature 100°C electrons with EM gain OFF 100°C with EM gain OFF 100°C with EM gain OFF 100°C with H0°C coolant 100°C with H0°C	Non-Linearity	<1%
Full Resolution Frame Rate Exposure Time Ims to >1hr Dark Current (@ -100°C) Digital Output Format Peak Quantum Efficiency Spectral Response Cooling -100°C with +10°C coolant Binning Ix1 up to 32x32 Lens Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply Total power consumption Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions	Readout Noise	<0.01 electrons with EM gain ON,
Exposure Time Dark Current (@ -100°C) Digital Output Format Peak Quantum Efficiency Spectral Response Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply Total power consumption Operating case temperature Storage Temperature Dimensions 1ms to >1hr 0.0002 e/p/s 0.0002 e/p/s 16 bit CameraLink (base configuration) 95% Spoctral Response -100°C with +10°C coolant 1x1 up to 32x32 C-Mount Trigger IN and OUT - TTL compatible 12V DC ±10% -100W -100W		<60 electrons with EM gain OFF
Dark Current (@ -100°C) Digital Output Format 16 bit CameraLink (base configuration) Peak Quantum Efficiency 95% Spectral Response 200 - 1100nm Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions	Full Resolution Frame Rate	34fps
Digital Output Format Peak Quantum Efficiency Spectral Response Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions	Exposure Time	1ms to >1hr
Peak Quantum Efficiency 95% Spectral Response 200 - 1100nm Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Dark Current (@ -100°C)	0.0002 e/p/s
Spectral Response 200 - 1100nm Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Digital Output Format	16 bit CameraLink (base configuration)
Cooling -100°C with +10°C coolant Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Peak Quantum Efficiency	95%
Binning 1x1 up to 32x32 Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Spectral Response	200 - 1100nm
Lens Mount C-Mount Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Cooling	-100°C with +10°C coolant
Synchronisation Trigger IN and OUT - TTL compatible Power Supply 12V DC ±10% <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Binning	1x1 up to 32x32
Power Supply 12V DC ±10% Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Lens Mount	C-Mount
Total power consumption <100W Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Synchronisation	Trigger IN and OUT - TTL compatible
Operating case temperature -20°C to +55°C Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Power Supply	12V DC ±10%
Storage Temperature -30°C to +85°C Dimensions 129mm x 112mm x 94mm	Total power consumption	<100W
Dimensions 129mm x 112mm x 94mm	Operating case temperature	-20°C to +55°C
	Storage Temperature	-30°C to +85°C
Weight (no lens) <1.5Kg	Dimensions	129mm x 112mm x 94mm
	Weight (no lens)	<1.5Kg

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Ordering Information

Camera

Falcon EM351 digital B/W camera RPL-FA351V-BV-CL Falcon Power Supply Cable RPL-KY-CBL

Optional Accessories

EPIX(R) EB1 base CL card RPL-EPIX-EB1

EPIX(R) base Notebook CL card RPL-EPIX-ECB1-34

EPIX(R) base Notebook CL card RPL-EPIX-ECB1-54

EPIX(R) XCAP STD software RPL-XCAP-STD

CameraLink Cable, 2m² RPL-CL-CBL-2M

Optical Visible lenses³ RPL-xx-xxxx

Note 1: Extended operating temperature range on request.

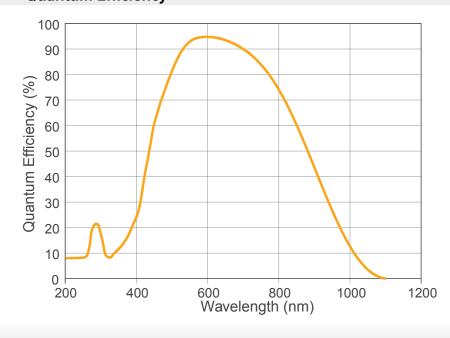
Note 2: Longer CL cable available up to 25M

Note 3: 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

- 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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