

# ROLERA-MGi PLUS *FAST1394*

## High-Speed, Extremely Sensitive IEEE-1394 FireWire® Digital EMCCD Camera

The **QImaging® Rolera-MGi Plus** back-illuminated EMCCD camera combines >90% QE with the convenience of FireWire IEEE-1394. The Rolera-MGi Plus features the 512 x 512 L3Vision frame-transfer EMCCD from e2v Technologies, enabling charge to be multiplied before readout in order to provide fast detection for low-light-level applications. Capable of capturing 300+ frames per second with binning and ROI, the Rolera-MGi Plus allows single-photon detection for applications such as live-cell confocal microscopy.

### camera models

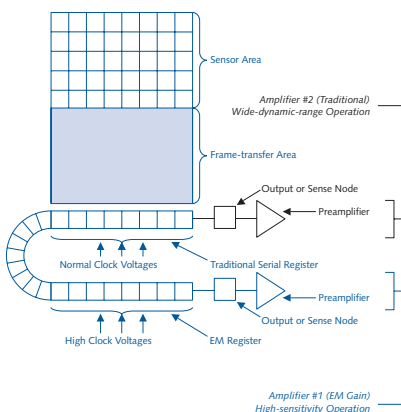
Includes: IEEE-1394 FireWire cable, IEEE-1394 PCI card, power supply, QCapture Suite software, and access to SDK

- **Monochrome Rolera-MGi Plus**  
Model: ROL-MGi-PLUS-F-M-14-C

### camera options

- Extended Warranty

### emccd architecture



Note: Lens shown for illustration only and is not included.



### features

High Quantum Efficiency

High-Speed Readout

Low-Noise Electronics

Flexible Exposure Control

External Sync & Trigger

Three-Stage Peltier Cooling

Binning

IEEE-1394 FireWire Connection

PVCAM®  
Circular buffers  
Device sequencing

### benefits

- Extremely high sensitivity for demanding low-light & fluorescence imaging; up to 90%+ between 500–650nm
- Previewing & focusing in real time
- 300+fps with 6x6 binning and ROI
- 30fps full resolution @ 14 bits
- Ideal for automated imaging applications
- Quantitation & imaging of low light levels
- Optimal integration over a wide range of light levels
- Tight synchronization with flashlamps, automated filters, shutters, & microscope stages
- Reduces thermal noise for low-light long exposures while providing temperature stability
- Increases sensitivity for quantitation & imaging of very low light levels
- Increases frame rate
- Simple connectivity
- Better noise performance
- Ease of use & installation
- Portability with laptop computer
- Simultaneous use of multiple cameras through a single port
- Supported by numerous third-party software packages
  - Real-time focus
  - Precise integration with shutters, filter wheels, etc.

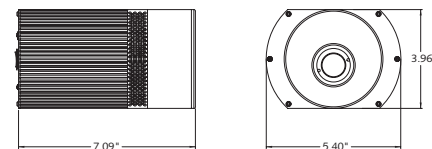
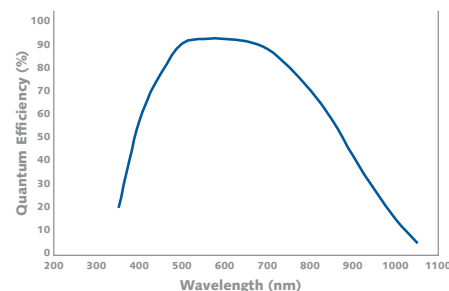
# ROLERA-MGi PLUS FAST1394 Specifications

emccd sensor									
Light-Sensitive Pixels	512 x 512								
Binning Modes	1, 2, 3, 4, 5, 6 horizontally, arbitrary vertically								
ROI (Region of Interest)	From 1x1 pixels up to full resolution, continuously variable in single-pixel increments								
Sensor Type	e2v L3Vision CCD97, back-illuminated device								
Pixel Size	16µm x 16µm								
Linear Full Well	800,000e- (EM mode); 200,000e- (conventional)								
Read Noise	<table border="1"> <thead> <tr> <th>"EM gain" amplifier</th> <th>"Traditional" amplifier</th> </tr> </thead> <tbody> <tr> <td>40 e- rms @ 5MHz</td> <td>&lt;8 e- rms @ 1.25MHz</td> </tr> <tr> <td>55 e- rms @ 10MHz</td> <td>15 e- rms @ 5MHz</td> </tr> <tr> <td colspan="2"><i>Read noise effectively reduced to &lt;1 e- rms with EM gain enabled</i></td> </tr> </tbody> </table>	"EM gain" amplifier	"Traditional" amplifier	40 e- rms @ 5MHz	<8 e- rms @ 1.25MHz	55 e- rms @ 10MHz	15 e- rms @ 5MHz	<i>Read noise effectively reduced to &lt;1 e- rms with EM gain enabled</i>	
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Dark Current	0.5 e-/pix/s								
Cooling Technology	Three-stage Peltier cooling, chamber back-filled with nitrogen at atmosphere, assembled in a cleanroom environment								
Cooling Type	Down to -25°C, regulated, with software control in 1°C increments								
Digital Output	14 bits								
Readout Frequency	10, 5MHz (EM mode); 5, 1.25MHz (normal mode)								
Frame Rate	30fps full resolution @ 14 bits (300+ maximum with binning and ROI functions)								
camera									
Computer Platforms/ Operating Systems*	Windows® 2000/XP and Vista (32 bits) Mac OS X								
Digital Interface	IEEE-1394 FireWire								
External Trigger	TTL Input								
Trigger Types	Internal, Software, External								
External Sync	TTL Output								
EM Gain Control	1 to 1000 times (0–4095 DAC control)								
Optical Interface	2/3", C-mount optical format								
Threadmount	1/4" – 20 mount								
Weight	3.18kg (7lbs)								
Warranty	2 years								
Operating Environment	0 to 30°C, 0 to 80% relative humidity non-condensing								
Storage Temperature	-20 to 60°C								

## applications

- Spinning-Disk Confocal Microscopy
- Dynamic Ratio Imaging (e.g., pH, Low-Concentration Flux)
- FRAP (Fluorescence Recovery After Photobleaching)
- Live-Cell Fluorescent Protein Imaging

## spectral response



RoHS



\*Refer to QImaging website for detailed listing of supported operating systems.  
Note: Specifications are nominal and subject to change.

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