DIGITAL IMAGING MADE EASY

PRODUCT DATASHEET

Bioluminescence Imaging: Extreme low light performance

Great instruments don't create great science, but they are essential to telling the story. QImaging offers the right tool with the Retiga LUMO when that story involves bioluminescence. With the Retiga LUMO from QImaging, you get a 6.0 MP camera tuned to excel at the unique challenges of bioluminescence imaging.

The Retiga LUMO is packed with advanced technical features that enable detection and quantification of ultra-low light luminescence signals. This is accomplished by coupling deep cooling with FPGA-based intelligent features that correct defective pixels and remove accumulated dark current. The result is a camera that outperforms bioluminescence cameras more than twice the price.

Inside the LUMO camera, QImaging relies on Intelligent Quantification™ - on camera intelligence features that correct for defective pixels. Fast 50 MHz pixel digitization increases camera frame rate to give you the speed you need to find focus, then uses a 650kHz readout mode for ultra-low noise data collection.

A great camera deserves great software for acquisition - it's the way you interface with your data. Ocular™ is the all new imaging platform that's ready to become the go-to capture program in your lab. Built around controls you are already familiar with, it will be love at first click.

Scientific cameras are the cornerstone of the highest performing imaging instruments in a lab. Through careful selection of image sensors and components, the LUMO will redefine your expectations for bioluminescence imaging, as well as more routine fluorescence applications. You will not find a more capable bioluminescence camera on the market for this price… Call us to demo one today.

The Retiga LUMO™: When every photon counts

LUMO™ RETIGA

imaging needs	solutions
Extreme Low Light Imaging	■ 75% peak QE combined with low noise electronics reveals the weak signals missed by industrial cameras ■ Ultra low noise readout mode enables exposure times of up to 60 minutes. ■ Deep sensor cooling and Dynamic Dark Frame Correction (DDFC) deliver amazing data over those long exposures.
Rapid Find and Focus	■ 50MHz two port readout delivers frame rate for finding, focusing and imaging samples ■ Reduce photobleaching and phototoxicity on samples.
Flawless Images	■ Intelligent Quantification provides advanced real-time FPGA algorithms to deliver better image quality ■ Defective Pixel Correction (DPC) and Dynamic Dark Frame Correction (DDFC) correct hot pixels and remove background for high quality images over difficult long exposures.

RETIGA LUMO™ Specifications

ccd sensor

Sensor Type	Sony ICX-695 Scientific Interline CCD (Monochrome or Color)
CCD Array	2688 x 2200
Pixel Size	4.54µm x 4.54µm
Sensor Dimensions	12.5mm x 10mm (16mm diagonal)
Peak Quantum Efficiency	75% at 600nm
Full Well Capacity	>9,000e⁻ single pixel (>20,000e⁻ with on-chip binning)

camera

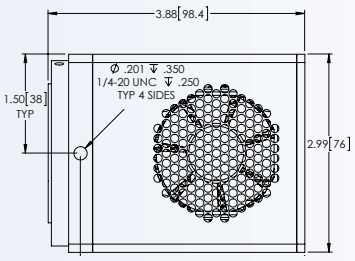
Digital Output	16-bit with 650kHz readout; 14-bit with 50MHz readout
Digitization Rate	50MHz high frame rate, 650KHz low noise digitization
Read Noise (typical)	<4.5e- RMS with 650KHz readout
Frame Rate	7.1 fps (full resolution) 12.8 fps (binned 2x2)
Exposure Time Range	25µs - 60min
Supported Binning Modes	1x1, 2x2, 4x4, 6x6, 8x8, 12x12, 16x16
Dark Current Rate (typical)	0.0004 e-/p/s at -20°C regulated 0.0001 e-/p/s at -20°C with DPC and DDFC on
Sensor Cooling	-20°C stabilized at 22°C ambient Thermoelectric cooling with forced air
Intelligent Quantification Features	DPC- Defect Correction DDFC- Dynamic Dark Frame Correction

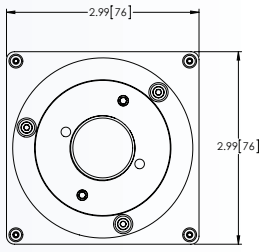
interfacing

Computer Platforms/ Operating Systems	Windows 7 (64 bit), Windows 8 (64 bit), Windows 10 (64 bit) Refer to the QImaging website for the latest list of minimum computer recommendations
Digital Interface	USB3.0
Triggering I/O Signals	Trigger In, Expose Out, End-of-Frame, Shutter Out
Supported Triggering Modes	Trigger First, Strobe, Bulb

mechanical

Optical Interface	1", C-mount optical format
Mounting Hole Thread Size	1/4" - 20 thread, 4 sides
Camera Dimensions	98.4mm x 76mm x 76mm (length x width x height)
Weight	1.55lb, 0.72kg
Power Requirement	7.5V DC, 2.5A





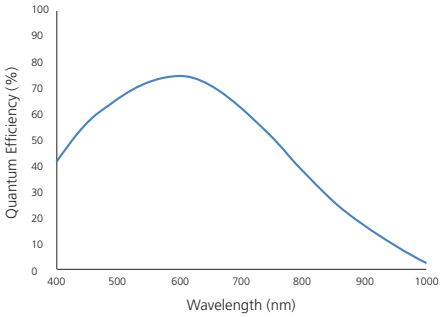
WHY RETIGA LUMO?

- **6.0MP - incredible field of view**
- **Built for bioluminescence imaging- long exposures, deep cooling, and active image correction**
- **Proven technology - built on Sony ICX695 sensor**
- **Ocular - powerful and intuitive capture software**
- **Service - unparalleled sales and support personnel**
- **Accelerate discovery - fit more into each frame**

included

- **Retiga LUMO Scientific CCD Camera**
  Model: 01-RET-LUMO-R-M-16-C (monochrome)
- *Power Supply*
- *USB 3.0 Cable*
- *Trigger Cable*
- *Ocular™ Imaging Software*
- *Access to SDK*
- *Two Year Limited Warranty*

spectral response



Note: Specifications are typical and subject to change.

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