

# RETIGA™ 6000

## Fluorescence Imaging with a Larger Perspective

The vast majority of fluorescence cameras used today capture only 24% of the usable Field of View (FOV) on the microscope. This small FOV significantly reduces the amount of data collected by a single frame, limiting the number of cells monitored simultaneously, increasing the number of frames required for whole slide imaging and overall slowing down the throughput of a lab. To counter this FOV challenge, many scientists resort to de-magnifying optical adapters or lower magnifications but at the cost of significantly reduced image resolution.

With the Retiga 6000 from QImaging, capturing the largest FOV is possible without compromising on resolution or sensitivity. With 6.05 million pixels and a 16mm sensor diagonal, the Retiga 6000 exploits the full microscope FOV, capturing twice the image area than most standard fluorescence cameras. Additionally, the small 4.54µm pixels maintain Nyquist sampling with lower magnifications and new high NA objectives, allowing the camera to benefit from the boost in optical resolution and image area.

In the past, smaller pixels resulted in substantially less sensitivity, consequently limiting their use in fluorescence microscopy. However, with low noise camera electronics, high quantum efficiency of 75% and low dark current, the Retiga 6000 offers superior resolution without compromising on sensitivity.

An unequivocal advance in fluorescence documentation, the Retiga 6000 allows users to see larger areas in greater detail and with higher clarity than before, helping to push forward throughput and productivity in the lab.

## Large Field of View, High Resolution Fluorescence Snapshot Camera



### features

### benefits

#### See More of What You Are Missing

- 16mm sensor diagonal

- Capture twice the image field of standard microscopy CCD cameras\*
- Simultaneously monitor twice as many cells for rare event detection, phenotyping, imaging cytometry, and cell cycle documentation
- Reduce the number of frames by half when scanning whole slides

#### Switch Between Low and High Magnifications without Compromise

- 6.05 Mega Pixels with 4.54µm pixel pitch

- Large numbers of small pixels are ideal for low magnification, large FOV work
- Small pixels take advantage of the increased optical resolution with new high NA objectives
- Use binning to combine pixels and improve sensitivity at high magnifications

#### Less Light? Not a Problem

- 75% QE combined with low noise electronics

- Reduce exposure times and the negative effects of bleaching and phototoxicity
- Achieve higher resolution imaging without compromising on sensitivity
- Image low luminescence signals over long periods

#### Easy Compatibility with Virtually Any Windows PC

- USB 2.0
- QCapture Pro™

- No cards to install, plug and play simplicity\*\*
- Included image acquisition software QCapture Pro, combines a simple work-flow with basic analysis tools

\*Based on comparison with other microscopy cameras utilizing a 2/3" sensor.

\*\*Minimum computer specifications required to ensure performance. Please see the QImaging website for more details.

# RETIGA™ 6000 Specifications

## ccd sensor

Sensor Type	Sony ICX-694 Scientific Interline CCD (Color or Monochrome)
CCD Array	2750 x 2200
Pixel Size	4.54µm x 4.54µm
Sensor Dimensions	12.5mm x 10.0mm (16mm diagonal)
Peak Quantum Efficiency	75% at 600nm*
Full Well Capacity	16,000e- single pixel (24,000e- binned 2x2)

## camera

Digital Output	14-bit
Readout Frequency	20MHz
Read Noise	6e-
Frame Rate	2.8 fps at full resolution 5.1 fps binned 2x2
Exposure Time Range	25µs - 30min
Supported Binning Modes	1x1, 2x2, 4x4, 8x8
Supported Regions of Interest	User Defined
Gain Control	Gain 1 = 0.5x (High Light: 2x single pixel full well = max bit depth) Gain 2 = 1x (Mapped: single pixel full well = max bit depth) Gain 3 = 3x (Low Light: 1/3 single pixel full well = max bit depth)
Spectral Range	400 to 700nm
Dynamic Range	>1:2500
Dark Current Rate	0.005 e/p/s at 0C
Cooling	0°C stabilized
Digital Interface	USB 2.0
Triggering I/O Signals	Trigger In, Expose Out, Trigger Ready Out, Shutter Out
Supported Triggering Modes	Trigger First, Strobe, Bulb
Optical Interface	1", C-mount optical format
Mounting Hole Thread Size	1/4"-20 thread
Camera Dimensions	98mm x 125mm x 146mm
Weight	3.10 lbs, 1.406 kg
Computer Platforms/ Operating Systems	Windows 7 (64/32 bit), Windows 8 (64/32 bit) Refer to the QImaging website for the latest list of minimum computer recommendations
Power Requirement	5V DC, 4A Maximum

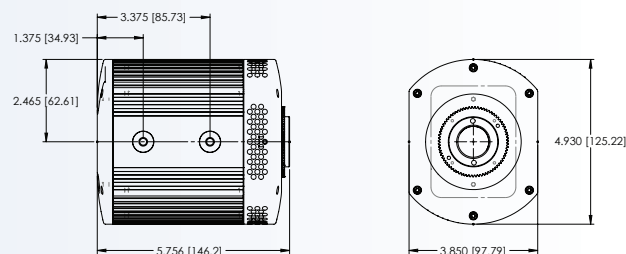
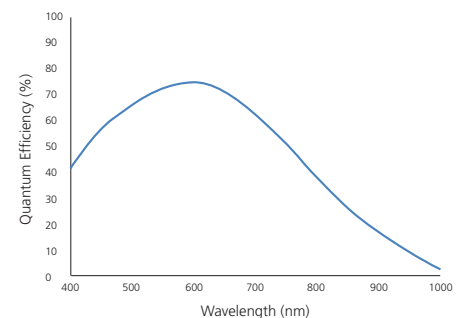
## applications

- Live Cell Time-Lapse Fluorescence
- High Content Screening
- Imaging Cytometry
- Immunofluorescence
- Whole Slide Imaging
- BioChip Analyzers and Gel Documentation

## included

- **Retiga 6000 Scientific CCD Camera**  
Model: 01-RET-6000-R-M-14-C (monochrome, 14-bit)  
Model: 01-RET-6000-R-CLR-14-C (color, 14-bit)
- Power Supply
- USB 2.0 Cable
- QCapture Software for PC
- Access to SDK
- Limited Warranty

## spectral response



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\*Measured for monochrome version of the Retiga 6000.  
Note: Specifications are typical and subject to change.  
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