QIMAGING®

DIGITAL IMAGING MADE EASY

RETIGA-2000R

FAST 1394

Monochrome or Color

The **QImaging® Retiga-2000R** digital camera features enhanced visible-range quantum efficiency resulting in high sensitivity that is ideal for brightfield, machine vision, metrology, and metallurgical imaging applications. A progressive-scan interline CCD sensor gives a resolution of 1.92 million pixels in a 12-bit digital output. High-speed, low-noise electronics provide linear digital data for rapid image capture. The IEEE 1394 FireWire® digital interface allows ease of use and installation with a single wire. No framegrabber or external power supply is required. The Retiga 2000R includes QCapture software (Windows® and Mac OS) for real-time image preview and capture. A **Software Development Kit (SDK)** is available upon request for interfacing with custom software.

camera models

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

- **Monochrome Retiga 2000R:**
  Model: RET-2000R-F-M-12-C

- **Color Retiga 2000R:**
  Model: RET-2000R-F-CLR-12-C

camera options

- RGB Color Filter for monochrome cameras (F-mount interface required), refer to data sheet for more details

- Extended Warranty

High Sensitivity IEEE 1394 FireWire® Digital CCD Camera

RETIGA™ Series

features	benefits
High-Resolution, 1.92-Million-Pixel Sensor	■ Highly detailed, sharp images
Large Pixels (7.4μm x 7.4μm)	■ High sensitivity, high dynamic range, large well capacity
High-Speed Readout	■ Previewing & focusing in real time ■ 190fps maximum frame rate ■ 7.5fps full resolution @ 12 bits ■ Ideal for automated imaging applications
Low-Noise Electronics	■ Quantitation & imaging of low light levels
12-Bit Digitization/ 36-Bit Color Digitization (with Optional RGB Filter)	■ 4096 grey levels for precise light-intensity discrimination ■ 4096 levels per channel for superior color images
External Sync & Trigger	■ Tight synchronization with flashlamps, automated filters, shutters, & microscope stages
Peltier Cooling	■ Minimizes thermal noise during low-light, long-exposure imaging
Binning	■ Increases sensitivity for quantitation & imaging of very low light levels ■ Increases frame rate
IEEE 1394 FireWire Connection	■ Simple connectivity ■ Ease of use & installation ■ Portability with laptop computer ■ Simultaneous use of multiple cameras through a single port ■ Single-cable operation (no external power supply or control unit)
Extensive Application Software Support	■ Choose from a large selection of life science & industrial software for microscopy, machine vision, & video-streaming functions

RETIGA-2000R FAST*1394* Specifications

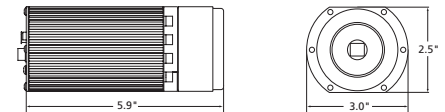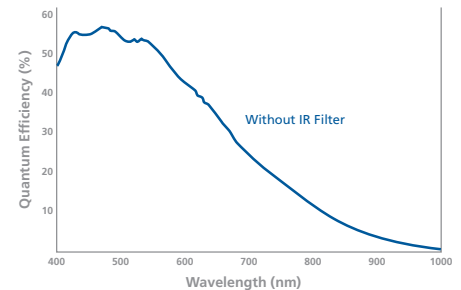| ccd sensor	
Light-Sensitive Pixels	1.92 million; 1600 x 1200
Binning Modes	2x2, 4x4, 8x8
ROI (Region of Interest)	From 1x1 pixels up to full resolution, continuously variable in single-pixel increments
Exposure/Integration Control	10μs to 17.9min in 1μs increments
Sensor Type	Kodak® KAI-2020 progressive-scan interline CCD (monochrome or color)
Pixel Size	7.4μm x 7.4μm
Linear Full Well	40,000e- (1x1); 80,000e- (2x2)
Read Noise	16e-
Dark Current	0.5e-/pix/s (non-cooled)
Cooling	Peltier thermoelectric cooling to 25°C below ambient
Digital Output	12 bits
Readout Frequency	20, 10, 5MHz
Frame Rate	7.5fps full resolution @ 12 bits (190fps maximum with binning and ROI functions)

camera	
Computer Platforms/ Operating Systems	Windows® 7, Vista and XP (32/64 bit)
Digital Interface	IEEE 1394 FireWire
Sustained Image Data Rate	40MB/s
Shutter Control	Electronic shutter, no moving parts
External Trigger	TTL Input
Trigger Types	Internal, Software, External
External Sync	TTL Output
Gain Control	0.451 to 21.5x
Offset Control	-2048 to 2047
Optical Interface	1", C-mount optical format
Threadmount	1/4" — 20 mount
Power Requirements	17W (cooled), 11W (non-cooled)
Weight	845g
Warranty	2 years
Operating Environment	0 to 50°C (32 to 122°F)
Storage Temperature	-10 to 60°C
Humidity	Less than 80% non-condensing at 35°C (95 °F)

applications

- **Brightfield, Phase-Contrast, & Darkfield Microscopy**
- **Live-Cell Imaging**
- **Pathology, Histology, & Cytology**
- **FISH**
- **Ca++ Ratio Analysis**
- **Motility & Motion Analysis**
- **DNA Analysis**
- **Metallurgical Microscopy**
- **Semiconductor Inspection**
- **Manufacturing Quality Control**
- **Failure Analysis**
- **Forensic Analysis**

spectral response

QIMAGING

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