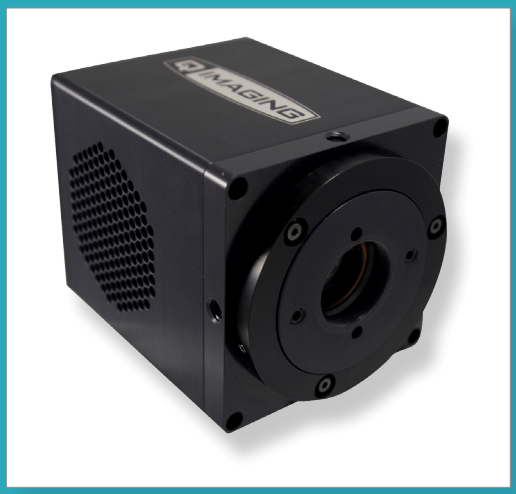
PRODUCT DATASHEET

QI695

6 MP CAMERA



APPLICATIONS

- **Gel Electrophoresis**
- **Biochip Measurements**
- **Chemiluminescence**
- **High Content Screening**
- **Biomedical Analyzers**
- **Cell Screening**
- **Precision Photometry**
- **Clinical Diagnostics**
- **Tissue and Cellular Imaging**

The Analytical Instrumentation Designer's *Answer* to Faster Better

Instrument designers challenged to improve sensitivity and throughput have kept a close watch on scientific cameras to provide multiplexed and high throughput assays with superior sensitivity, linearity, dynamic range, and data quality. Unfortunately, the desire for a better instrument often ran counter to meeting instrument cost targets. The QImaging QI695 answers that challenge.

Unlike commodity machine vision hardware, the QImaging QI695 has all the features of a true scientific camera that will improve limits of detection and quantification: State of the art, highly efficient CCD sensor technology, full flexibility over image readout patterns and signal binning, and deep cooling to virtually eliminate dark current noise.

With the QI OEM series cameras, QImaging introduces Intelligent Quantification™ — on camera intelligence features that correct for defective pixels, removes accumulated dark current, and greatly extend dynamic range beyond 16 bits. A high speed 50 MHz pixel digitization rate increases camera FPS when focusing and spot finding, and an ultra-low noise 725 KHz pixel rate is used to extend limits of detection to extremely low concentrations.

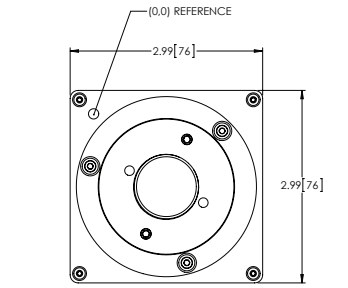
The QI695 uses the latest USB3.0 computer interface for efficient, reliable data transfer, tested at over 1 Million frames. For embedded hardware, the QI695 provides USB2 compatibility at reduced frame rates. Software integration is straightforward with QImaging's PVCAM API, allowing the instrument designer to easily implement many QImaging and Photometrics brand camera models in future designs.

Traditionally, the use of scientific cameras was only possible in the most expensive, highest performing instruments. Through careful selection of image sensors and components the QI695 is an affordable OEM solution, even for routine, bench top instruments. Customers rely on the combined expertise of QImaging and Photometrics to provide a robust ISO9001 manufacturing process and responsive global network of customer service and repair centers.

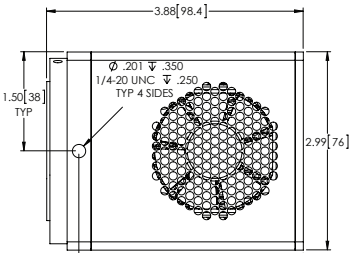
INCLUDED

- **QI695 Scientific CCD Camera**
  Model: 01-QI695-M-16-C
- **Power Supply**
- **USB 3.0 Cable**
- **Access to SDK**
- **Two Year Warranty**

DIMENSIONS

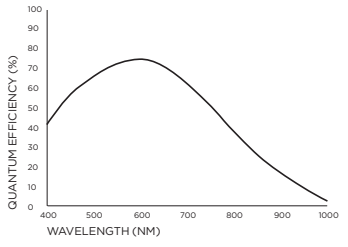


Front



Side

SPECTRAL RESPONSE



OEM NEEDS SOLUTIONS

Extreme Low Light Imaging	• 75% peak QE combined with low noise electronics reveals the weak signals missed by industrial cameras • Increased exposure time and binning enables detection of the faintest signals with deep sensor cooling to < 2 e-/pixel/hour
Rapid Find and Focus	• 50 MHz two port readout simplifies finding and focusing on samples, while the ultra-low noise 725 KHz readout reduces electronic noise to neglible levels
Perfect Image Capture	• Advanced anti-blooming and two-shot EDR and HDR modes extend dynamic range using separate exposures to capture the brightest and weakest signals present in the sample
Flawless Images	• Intelligent Quantification provides advanced real-time FPGA algorithms to deliver better image quality • Intelligent Quantificaion enables Pixel Defect Correction — EDR — HDR — Dynamic Dark Frame Subtraction
Flexibility to Grow with Your Business	• OEM customization of mechanicals, sensors, algorithms and testing ensures that investment in the QI platform pays for decades
Faster Time to Market	• USB3.0 and PVCAM SDK makes integrating the QI695 easy and painless • USB2 mode for backward compatibility particularly with embedded computing hardware

CCD SENSOR

Sensor Type	Sony ICX-695 Scientific Interline CCD (Monochrome)
CCD Array	2688 x 2200
Pixel Size	4.54µm x 4.54µm
Active Area	12.5mm x 10mm (16mm diagonal)
Peak Quantum Efficiency	75% at 600nm*
Full Well Capacity	16,000e- single pixel 24,000e- with on-chip binning

CAMERA

Digital Output	16 bit
Digitization Rate	USB3: 50MHz high frame rate, 725 KHz low noise mode USB2: 17.5MHz high frame rate, 725 KHz low noise mode
Read Noise (typical)	50 MHz: < 8 e- RMS typical 725 KHz: < 5 e- RMS typical
Frame Rate	6.9 fps at full resolution, 50 MHz 12.1 fps binned 2x2
Exposure Time Range	25µs - 60min
Supported Binning Modes	1x1, 2x2, 4x4, 6x6, 8x8, 12x12, 16x16, 24x24
Dark Current Rate (typical)	0.0005 e/p/s at -20C regulated
Sensor Cooling	-20° C stabilized at 22° C ambient Thermoelectric cooling with forced air
Intelligent Quantification (iQ) Features	Defect correction (nearest neighbor) Dynamic Dark Frame subtraction* Extended and High Dynamic Range*

** These options are available as add on features and not included with standard product.*

CAMERA INTERFACING

Computer Platforms/ Operating Systems	Windows 7 (64 bit), Windows 8 (64 bit) Refer to the QImaging website for the latest list of minimum computer recommendations
Digital Interface	USB3.0 (USB2 compatible at reduced max fps)
Triggering I/O Signals	Trigger In, Expose Out, End-of-Frame, Shutter Out
Supported Triggering Modes	Trigger First, Strobe, Bulb

MECHANICAL/POWER

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	12V DC, 5A

QX OEM

- Cameras optimized for application needs
- Flexible and customizable branding options
- Unique part number/Bill of Materials (BOM)
- Single driver platform supports a wide range of product offerings
- Strategically located global service centers
- Dedicated support from a focused OEM team

PHOTOMETRICS

QIMAGING

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Toll Free: +1 800.874.9789

Results are typical and may vary from camera to camera.

*For more information, visit the OEMImaging website at www.oemimaging.com

Note: Specifications are typical and subject to change.

Rev A0