

# INFINITY3-6UR

Research-Grade 6.0 Megapixel CCD USB 3.0 Camera

High Sensitivity, Large Field of View with Sony's ICX694 EXview HAD II Sensor. Flexible, High Resolution Camera for Life Science, Clinical and Material Science Applications.



## INFINITY3-6UR

Lumenera's INFINITY3-6UR is a high-speed, high sensitivity research-grade camera with a six megapixel resolution. The INFINITY3-6UR incorporates Sony's remarkable ICX694 CCD sensor, that provides high dynamic range and speed. Full resolution 6.0 MP images are sent to a host computer at up to 27 frames per second (fps). The research-grade designation of the INFINITY3-6UR is a testament to the low noise electronics, high-grade components and unique thermal management techniques used in the camera. The result is an industry-leading, high-performance, low noise digital camera, alone in its class. This microscopy camera is designed for use in a wide variety of scientific, life science, clinical and industrial applications requiring optimal color reproduction, extreme sensitivity, increased resolution and high speed.

## Superior Sensitivity and Color Reproduction

The INFINITY3-6UR has the unmatched sensitivity needed for low light applications. Relying on Sony's EXview HAD II technology, this camera offers extremely high dynamic range,  $4.54 \times 4.54 \mu\text{m}$  pixels and very low noise. With 2x2 binning, there is a fourfold increase in sensitivity while providing a 1.5 MP (1376x1096) resolution. The INFINITY3-6UR delivers outstanding image quality and value for challenging low light applications such as fluorescence and NIR imaging.

## USB 3.0 High-Speed Plug-and-Play Interface

The INFINITY3-6UR uses the latest USB 3.0 technology at 5 Gbits/sec to deliver the fastest image transfer - even at its highest resolution. Image captures can be synchronized using either a hardware or software trigger. 128 MB of onboard memory for frame buffering ensures dependable and reliable image delivery at full frame rate and highest resolution even in the most demanding systems. USB 3.0 is the ideal choice for microscopy as it is readily available on today's computers, while plug-and-play connectivity makes for easy installation.

## Full Image Analysis Software Included

INFINITY CAPTURE, an intuitive image capture program, and INFINITY ANALYZE, a full image analysis package offering camera control, multi-spectral capture and composition, measurement, annotation, tiling and post capture enhancement, are included with the camera. Camera and software combine to create a complete microscopy imaging solution for your application.

## Superior Technical Assistance Center (TAC)

All Lumenera cameras are supported by an experienced team of technical support and imaging experts widely acclaimed in the industry. As a Lumenera customer you gain access to the TAC group and knowledge base, providing full support for cameras, software and microscopy applications.

## Features

- Industry leading Sony EXview HAD II sensor technology
- Color or monochrome ICX694 CCD sensor with 1" optical format providing a resolution of  $2752 \times 2192$  using  $4.54 \times 4.54 \mu\text{m}$  pixels
- Fastest frame rates possible for the ICX694 sensor. Up to 27 fps at full resolution, 46 fps (binned 2x2), 75 fps at VGA ( $640 \times 480$ )
- High-speed USB 3.0 interface for fastest image delivery and simplified connectivity. USB 2.0 supported
- GPIO for control of peripherals and synchronization. 1 optically isolated output, 1 optically isolated input and 2 configurable I/O ports.
- Region of Interest (ROI) option to provide higher frame rates
- Selectable 8 or 14-bit pixel data
- Tap readout automatically set between video preview and capture to optimize performance
- Multiple frame rates supported, each optimized for lowest noise performance
- Software compatible with Windows XP, Vista, 7, 8, 32 and 64-bit operating systems (Mac OS X 10.7 coming soon)
- Includes TWAIN support for Windows

## Warranty

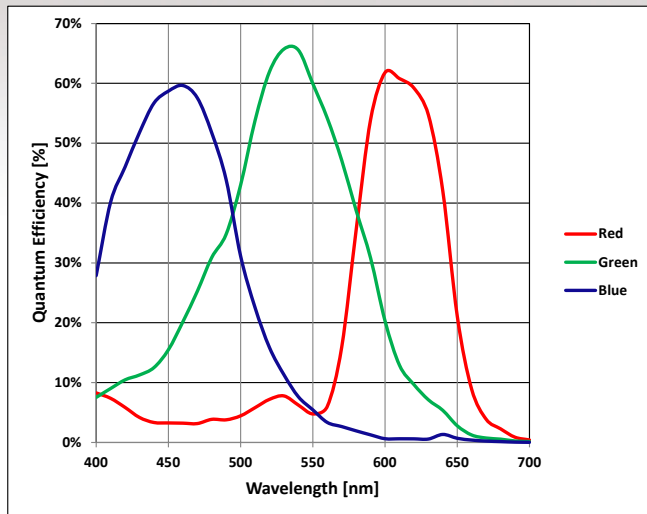
- Two (2) year parts and labor

## Recommended Applications

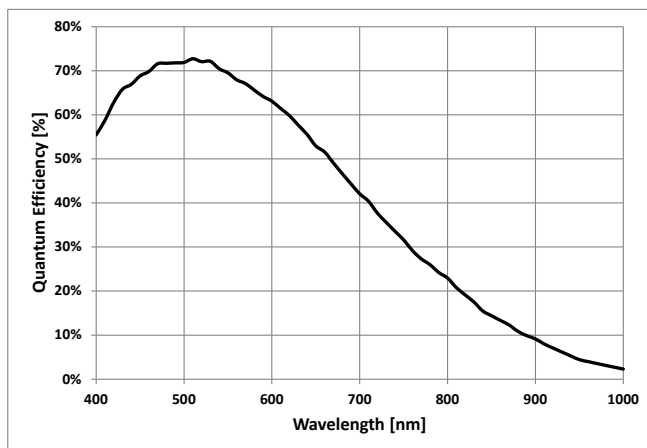
- Brightfield / Darkfield
- Low Light Fluorescence
- Live Cell Imaging
- Histology, Pathology, Cytology
- Semiconductor Inspection, Metrology
- Gel Documentation
- Whole Slide Imaging
- Quantitative Analysis



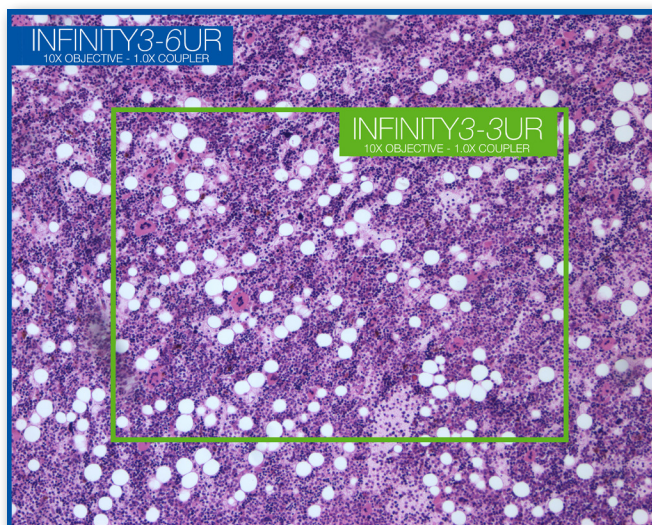
Color Quantum Efficiency Curves - With IR Filter



Monochrome Quantum Efficiency Curve



Field of View Comparison



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Design, features, and specifications are subject to change without notice  
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Sensor Specifications	
Image Sensor	SONY ICX694, CCD, color or monochrome
Optical Format	1"
Active Area	Diagonal 15.99 mm
Pixel Size	4.54 x 4.54 $\mu\text{m}$
Resolution	2752 x 2192 pixels
Region of Interest Control	Any multiple of 16 x 16 pixels (quad tap mode)
Camera Specifications	
Frame Rate	27 fps (2752 x 2192), 46 fps (2 x 2 binned), 75 fps (640 x 480)
Bit Depth	8 or 14-bit
Binning Modes	2 x 2, 4 x 4, 8 x 8 (3 x 3 mono only)
Exposure Control	Manual and automatic control
Exposure Range	3 $\mu\text{s}$ to 71 min (snapshot) 23 $\mu\text{s}$ to 1.79 s (video)
Gain Control	Manual and automatic control
Gain Range	0.8 to 58x (color), 0.8 to 33x (mono)
White Balance	Manual and automatic control
Trigger Modes	Hardware and software triggerable
Camera Characteristics	
Peak Sensitivity	Mono: 7.7 DN/(nJ/cm <sup>2</sup> ), Color: 4.3 DN/(nJ/cm <sup>2</sup> ) (Global and channel gains at unity, 8-bit mode)
Dynamic Range	68.6 dB (Color), 64.8 dB (Mono)
Full Well Depth	17,500 e <sup>-</sup> (Color), 11,300 e <sup>-</sup> (Mono)
Peak Quantum Efficiency	73%* (Mono), 66%* (Color)
Read Noise	6.5 e <sup>-</sup> (Quad-Tap Mode)
Dark Current Noise	<1 e <sup>-</sup> /s (at 22 °C ambient, 41 °C internal)
Mechanical Specifications	
Data Interface	USB 3.0 (USB 2.0 support for lower frame rates)
General Purpose I/O	Locking Hirose MXR-8R-8SA(71)
Lens Mount	Adjustable C-mount standard
Dimensions	57.15 x 97.79 x 39.62 mm (2.75 x 3.85 x 1.56 inches)
Mass	395 g
Operating Temperature	0 to 50 °C
Storage Temperature	-30 to 70 °C
Operating Humidity	5 to 95 %, non-condensing
Shock / Vibration	50 G shock, 5 G (2-200 Hz) vibration
Camera Software	
Operating Systems	Windows 8, 7, XP, Vista (32 and 64-bit) Mac OS X 10.7 (32 and 64-bit)
Power and Emissions	
Power Consumption	6 W max in full frame rate mode
Power Requirement	External 5 V DC, 1.2 A, power supply (included)
Emissions Compliances	FCC Class B, CE Certified
Hazardous Materials	RoHS, WEEE Compliant
Warranty	Two (2) years
Included In The Box	
INFINITY3-6UR	6.0 MP digital camera and 3M USB 3.0 cable
LuINFSW-DVD	DVD with INFINITY ANALYZE and CAPTURE software, TWAIN driver and documentation
La20515	Power Supply: 5 V DC, 12.5 W
Ordering Information	
INFINITY3-6URC	6.0 MP Uncooled CCD Color USB 3.0 Camera
INFINITY3-6URM	6.0 MP Uncooled CCD Monochrome USB 3.0 Camera
LuAP-2	INFINITY Advanced Features Pack 2: Includes USB Key for extra INFINITY ANALYZE license + Advanced Features Module, additional 3 year warranty, 1 advance product replacement.
La20515	Power Supply: 5 V DC, 12.5 W (included with camera)
LuSDKSW	Software Developer's Kit (Web Download)
LuSDKSW-DVD	Software Developer's Kit (DVD)
La2000PAFL	GPIO Breakout Cable

\* Estimate - not measured