

# INFINITY3-3URF

High-Speed, High Dynamic Range and Sensitivity,  
2.8 Megapixel CCD USB 3.0 Camera

Cooled performance from an uncooled camera. Ideal for scientific image analysis in low light life science, clinical and material science applications



## INFINITY Fluorescence Series Bundle Includes

- INFINITY3-3URF camera
- INFINITY ANALYZE and INFINITY CAPTURE Software
- INFINITY Advantage Pack LulAP-2
- Free 9-month trial of Media Cybernetics Image-Pro Premier
- Extended 5-year warranty



## INFINITY3-3URF

Lumenera's INFINITY3-3URF is a high-speed, high-sensitivity research-grade camera with a 2.8 megapixel resolution. The INFINITY3-3URF incorporates Sony's remarkable ICX674 CCD sensor, unleashing the high frame rate capability via a high-speed USB 3.0 data interface. Full resolution images are sent to a host computer at up to 53 frames per second (fps). The research-grade designation of the INFINITY3-3URF is a testament to the low noise electronics, high-grade components and unique thermal management techniques. The result is an industry-leading, high-performance, low noise digital camera, alone in its class.

## Superior Sensitivity and Color Reproduction

The INFINITY3-3URF has the unmatched light sensitivity needed for low light applications. Relying on Sony's EXview HAD II technology, this camera offers extremely high dynamic range, 4.54 x 4.54  $\mu\text{m}$  pixels and very low noise. The INFINITY3-3URF 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 INFINITY3-3URF uses the latest USB 3.0 technology at 5 Gbits/sec to deliver the fastest image transfer - even at its highest resolution. 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 installation easy. Simplified I/O cabling is provided through a locking Hirose connector supporting 1 optically isolated output, 1 optically isolated input and 2 configurable I/O ports.

## Full Image Analysis Software Included

INFINITY CAPTURE, an intuitive image capture program, and INFINITY ANALYZE, a full image analysis package offering camera control, 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.

## Free 9-Month Trial of Media Cybernetics Image-Pro Premier

Image-Pro Premier offers intuitive tools that make it easy to capture, process, measure, analyze and share your images and valuable data.

## 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

- Color or monochrome ICX674 CCD sensor with 2/3" optical format providing a resolution of 1936 x 1456 using 4.54 x 4.54  $\mu\text{m}$  pixels
- Fastest frame rates possible for the ICX674 sensor. Up to 53 fps at full resolution, 60 fps (1920 x 1080), 109 fps at VGA (640 x 480)
- High-speed USB 3.0 interface for fastest image delivery and simplified connectivity. USB 2.0 supported.
- GPI/O for control of peripherals and synchronization
- Selectable tap readout, matching sensor performance to your application
- Multiple frame rates supported, each optimized for lowest noise performance
- Software compatible with Windows 8, 7, XP, Vista, Mac OS X 10.7, 32 and 64-bit operating systems.
- Includes TWAIN and DirectX/ Direct Show support

## Image-Pro Premier Software Features

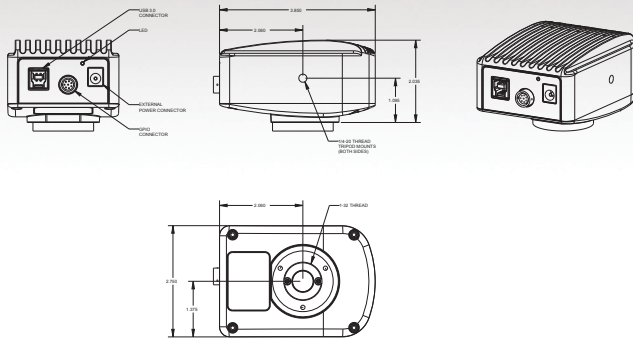
- 64-bit single capture and streaming to disk
- Quick access to intensity and morphology over-time studies
- Extensive microscopy file format support and simple color compositing
- Industry-leading co-localization analysis on whole images or user-defined regions
- Analysis tools to identify, count, measure, and classify whole cells, nuclei, membranes, cytoplasmic structures, and more
- Perform population studies using thousands of images with intuitive batch processing
- Image-Pro Premier is compatible with Windows XP SP 3 and later (32 bit), and Windows 7 Professional and Ultimate (32 and 64 bit)
- Discount offer for purchase of software

## Warranty

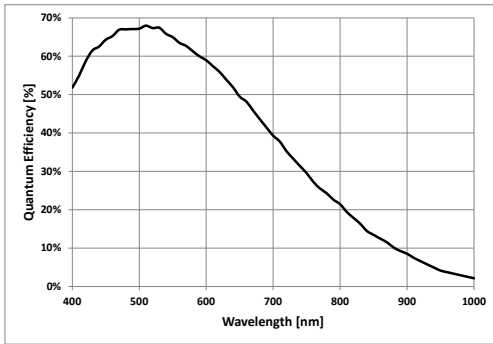
- Five (5) years parts and labor



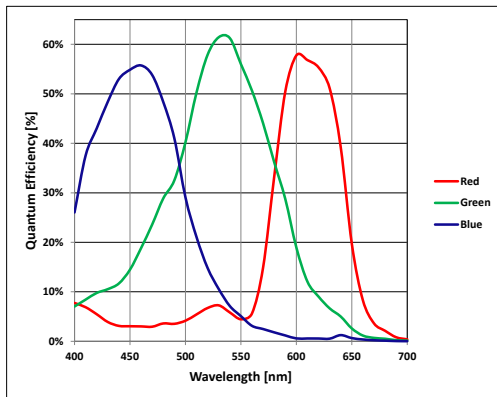
Mechanical Drawing



Monochrome Quantum Efficiency

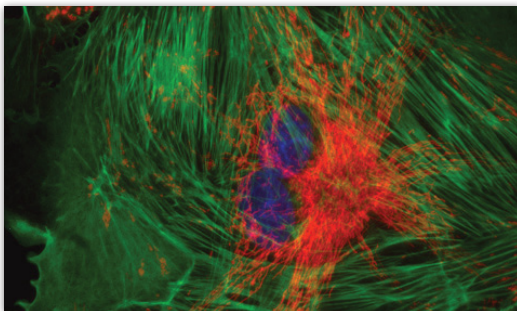


Color Quantum Efficiency



Sample Images

For sample images please visit our online gallery at: [www.lumenera.com/microscopyimages/](http://www.lumenera.com/microscopyimages/)



Sensor Specifications	
Image Sensor	SONY ICX674, CCD, color or monochrome
Optical Format	2/3"
Active Area	Diagonal 10.972 mm
Pixel Size	4.54 x 4.54 μm
Resolution	1936 x 1456 pixels
Region of Interest Control	Any multiple of 16 x 16 pixels (quad tap mode)
Camera Specifications	
Frame Rate	53 fps (1936 x 1456), 60 fps (1920 x 1080), 109 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 μs to 71 min (snapshot) 23 μs to 1.3 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 (at slowest clock rate)	
Peak Sensitivity	Mono: 7.3 DN/(nJ/cm <sup>2</sup> ), Color: 4.2 DN/(nJ/cm <sup>2</sup> ) (Global and channel gains at unity)
Dynamic Range	68.8 dB (Color), 65.3 dB (Mono)
Full Well Depth	~17,000 e <sup>-</sup> (Color), ~11,400 e <sup>-</sup> (Mono)
Quantum Efficiency	68 % (Mono), 61% (Color)
Read Noise	6.2 e <sup>-</sup> (4 taps, 16 fps, 25 °C ambient, 41 °C internal)
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	340 g
Operating Temperature	0 to 50 °C
Storage Temperature	-30 to 70 °C
Operating Humidity	5 to 95 %, non-condensing
Camera Software	
Operating Systems	Windows XP, Vista, 7, 8, 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	Five (5) years
Included In The Box	
INFINITY3-3UR	2.8 MP Digital Camera and 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	
INFINITY3-3JRFC	2.8 MP Uncooled CCD Color USB 3.0 Camera
INFINITY3-3JRFM	2.8 MP Uncooled CCD Monochrome USB 3.0 Camera
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	GPI/O Breakout Cable

