INFINITY*3S-1*UR

Ultra-Sensitive 1.4 Megapixel CCD USB 3.0 Camera

NEW Sony ICX825 EXview HAD II Sensor. Ideal for scientific image analysis in low light life science, clinical and material science applications.

INFINITY*3S-1*UR

Lumenera's INFINITY*3S-1UR* is a high-speed, high sensitivity research-grade camera with a 1.4 megapixel resolution. The INFINITY*3S-1UR* incorporates Sony's remarkable ICX825 CCD sensor, producing much higher dynamic range and sensitivity over the popular ICX285 sensor. Lumenera's high-speed USB 3.0 data interface provides maximum allowable throughput and offers USB 2.0 compatibility. Full resolution images can be sent to a host computer at an industry leading 60 frames per second (fps)*. The research-grade designation of the INFINITY*3S-1UR* 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. 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 Quantum Efficiency

The INFINITY*3S-1*UR has the unmatched light sensitivity needed for low light applications. The new ICX825 sensor with Sony's EXview HAD II technology is 53% more sensitive than the popular ICX285 sensor. This camera offers high QE, 6.45 x 6.45 µm pixels, high dynamic range and very low noise. The INFINITY*3S-1UR* 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 INFINITY*3S-1*UR 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 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. USB 2.0 is fully supported (with reduced performance).

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. Interoperability with powerful 3rd party applications** like MetaMorph and Micro-Manager provide the maximum flexibility for INFINITY camera users.

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.

**Frame Rate: Max frame rate of 60 fps (1392 x 1040) applies to the monochrome version of the camera. The color version can achieve 45 fps (1392 x 1040).*

***Media Cybernetics Image-Pro Premier not currently supported.*

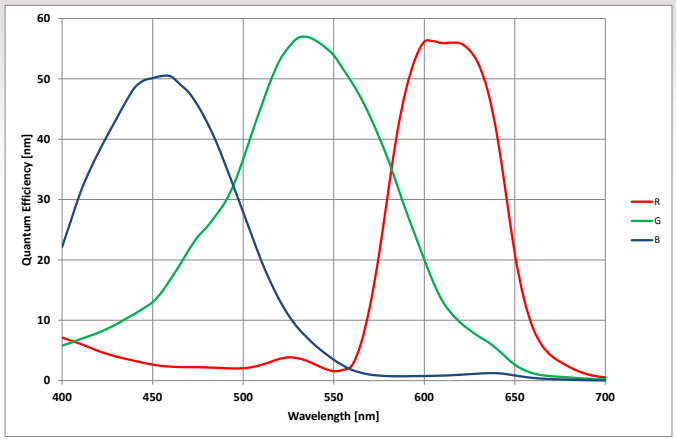
Features

- Industry leading Sony EXview HAD II sensor technology with 53% improvement in sensitivity over ICX285
- Color or monochrome ICX825 CCD Global Shutter sensor with 2/3" optical format providing a resolution of 1392 x 1040 using 6.45 x 6.45 µm pixels
- Faster frame rates vs. the ICX285 sensor. Fastest ICX825 camera with 60 fps* at full resolution and 16-bit output
- High-speed USB 3.0 interface for fastest image delivery and simplified connectivity. USB 2.0 supported.
- GPIO for control of peripherals and synchronization
- Region of Interest (ROI) option to provide higher frame rates
- Selectable 8 or 14-bit pixel data
- Selectable tap readout, matching sensor performance to your application
- Multiple frame rates supported, each optimized for lowest noise performance
- Software compatible with Windows 10, 8, 7, Vista, Mac OS X 10.7, 32 and 64-bit operating systems
- Includes TWAIN and DirectX/ Direct Show support
- Support for capture and analysis applications such as MetaMorph and Micro-Manager
- Recommended coupler: 0.67x

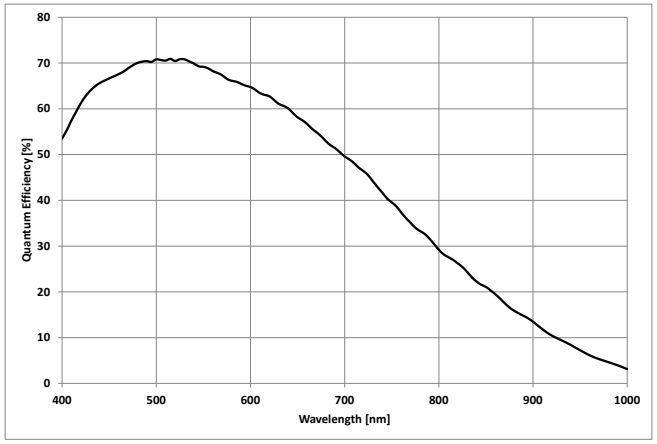
Warranty

- Four (4) Year Warranty

Color Quantum Efficiency Curves



Monochrome Quantum Efficiency Curve



Recommended Applications

- Low Light Fluorescence
- Immunofluorescence
- Brightfield, Darkfield, DIC/Phase techniques
- DNA Analysis
- Live Cell Imaging
- Whole Slide Imaging
- Near-Infrared DIC
- Histology, Pathology and Cytology
- Calcium/Ion Imaging
- Forensic Analysis
- Semiconductor Inspection
- Metallurgical Microscopy
- Gel Documentation

Sensor Specifications	
Image Sensor	SONY ICX825, CCD, color or monochrome
Optical Format	2/3"
Imager Size	Diagonal 11 mm
Pixel Size	6.45 x 6.45 µm
Resolution	1392 x 1040 pixels
Region of Interest Control	Any multiple of 16 x 16 pixels
Camera Specifications	
Max Frame Rate	60 fps at 1.4 megapixel (monochrome version) 45 fps at 1.4 megapixel (color version)
Bit Depth	8 or 14-bit
Binning Modes	2 x 2, 4 x 4, 8 x 8 (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	~0.6 to 44x
White Balance	Manual and automatic control
Trigger Modes	Hardware and software triggerable
Camera Characteristics	
Peak Sensitivity	Mono: 18 DN/(nJ/cm^2),Color: 9.5 DN/(nJ/cm^2) (Global and channel gains at unity)
Dynamic Range	~70 dB
Full Well Depth	~20,000 e- (at slowest clock, lowest gain)
Peak Quantum Efficiency	57% (color), 71 % (mono)
Read Noise	~5.8 e- (in dual-tap mode, slowest clock)
Dark Current Noise	<1 e-/s at 22 °C
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	97.8 x 69.8 x 50.8 mm 3.85 x 2.75 x 2.00 inch
Mass	375 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 10, 8, 7, Vista, Mac OS X 10.7, 32 and 64-bit
Power and Emissions	
Power Consumption	5 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	Four (4) years
Included In The Box	
INFINITY*3S-1UR*	1.4 MP digital camera with 3m USB 3.0 cable
LuINFSW-DVD	DVD with INFINITY ANALYZE and CAPTURE software, TWAIN driver and documentation
La50300	Power Supply: 5 V DC, 15 W
Ordering Information	
INFINITY*3S-1*URC	1.4 MP Uncooled CCD Color USB 3.0 Camera
INFINITY*3S-1*URM	1.4 MP Uncooled CCD Monochrome USB 3.0 Camera
LuIAP-2	INFINITY Advanced Features Pack 2: Includes USB Key for extra INFINITY ANALYZE license + Advanced Features Module, 5 year total warranty, 1 advance product replacement
La050300	Power Supply: 5 V DC, 15 W (included with camera)
LuSDKSW	Software Developer's Kit (Web Download)
La2000PAFL	GPIO cable with leads

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