

# 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

Teledyne 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 x 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. 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.

### Superior Technical Assistance Center (TAC)

All Teledyne Lumenera cameras are supported by an experienced team of technical support and imaging experts widely acclaimed in the industry. As a Teledyne 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 x 2192 using 4.54 x 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 x 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 10, 8, 7, Vista, Mac OS X 10.7, 32 and 64-bit operating systems
- Includes TWAIN support for Windows

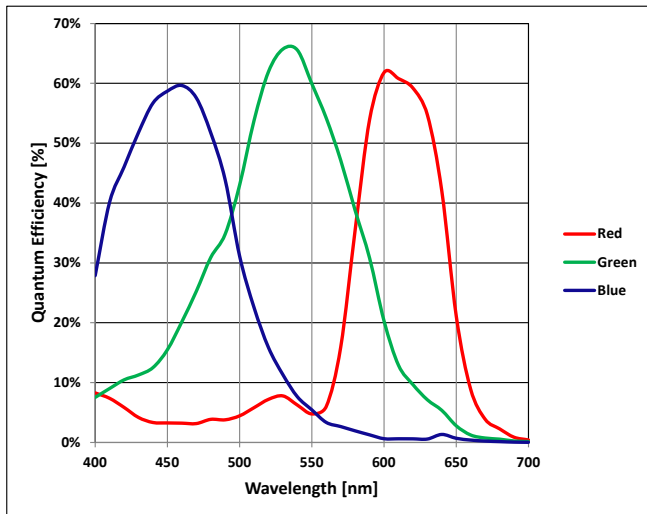
## Warranty

- Three (3) year warranty

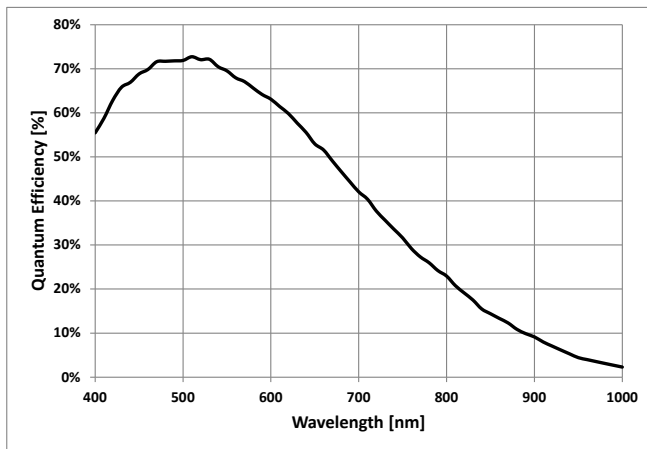
## Recommended Applications

- Brightfield / Darkfield
- Low Light Fluorescence
- Live Cell Imaging
- Histology, Pathology, Cytology
- Semiconductor Inspection

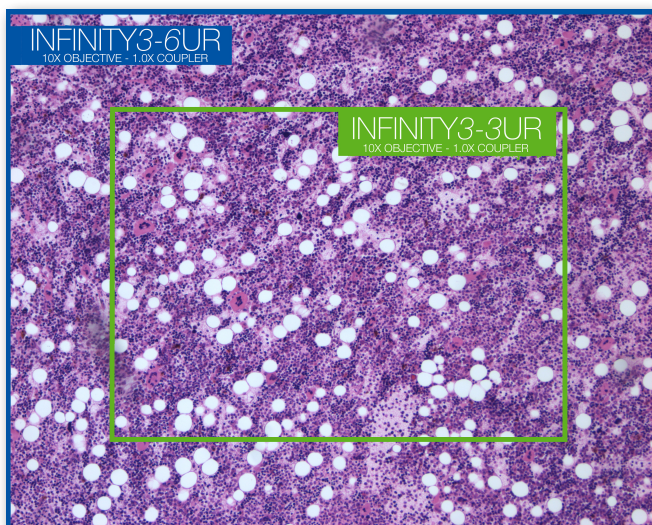
Color Quantum Efficiency Curves - With IR Filter



Monochrome Quantum Efficiency Curve



Field of View Comparison



| Sensor Specifications      |   |
|----------------------------|---|
| Image Sensor               | SONY ICX694, CCD, color or monochrome   |
| Optical Format             | 1"  |
| Imager Size                | Diagonal 15.99 mm   |
| Pixel Size                 | 4.54 x 4.54 μm  |
| 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 μs to 71 min (snapshot)<br>23 μs 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           | Color: 4.3 DN/(nJ/cm <sup>2</sup> ), Mono: 7.7 DN/(nJ/cm <sup>2</sup> )<br>(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- (Color), 11,300 e- (Mono)   |
| Peak Quantum Efficiency    | 66%* (Color), 73%* (Mono)   |
| Read Noise                 | 6.5 e- (Quad-Tap Mode)  |
| Dark Current Noise         | <1 e-/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                 | 97.8 x 69.8 x 50.8 mm<br>3.85 x 2.75 x 2.00 inch  |
| 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  |
| Onboard Memory             | Camera has onboard non-volatile memory storage  |
| Camera Software            |   |
| Operating Systems          | Windows 10, 8, 7, Vista, 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                   | Three (3) year  |
| Included In The Box        |   |
| INFINITY3-6UR              | 6.0 MP digital camera + 3m USB 3.0 cable  |
| La050315                   | 5 V DC, 3.0 A, 15 W Power Supply  |
| Ordering Information       |   |
| INFINITY3-6JRC             | 6.0 MP Uncooled CCD Color USB 3.0 Camera  |
| INFINITY3-6JRM             | 6.0 MP Uncooled CCD Monochrome USB 3.0 Camera   |
| La050315                   | 5 V DC, 3.0 A, 15 W Power Supply (included with camera)   |
| LuSDKSW                    | Software Developer's Kit (Web Download)   |
| La2000PAFL                 | GPIO Breakout Cable   |

\* Estimate - not measured

