# INFINITY*3-1*UR

## Research-Grade 1.4 Megapixel CCD USB 2.0 Camera

Uncooled Scientific Digital Camera for Documentation and Image Analysis in Low Light Life Science, Clinical and Material Science Applications

### INFINITY*3-1*UR

The newly engineered INFINITY*3-1*UR scientific camera offers a significant performance increase over its predecessor and was designed specifically for low light applications including fluorescence and gel documentation. The excellent color reproduction of the INFINITY*3-1*URC CCD camera ensures simple, high quality image capture. A high dynamic range easily manages difficult samples without increasing exposure levels that reduce the quality of preview and captured images. This camera is ideal for challenging lighting conditions found in life science, clinical and industrial applications. The INFINITY*3-1*UR provides live video up to 30 frames per second (fps) at full 1392 x 1040 resolution, with optional binning and ROI producing speeds as high as 54 fps.

### Superior Sensitivity and Color Reproduction

Equipped with a high quality Sony ICX285 CCD sensor, the INFINITY*3-1*UR has the unmatched light sensitivity needed for low light applications. Superior performance is achieved through low noise electronics, high grade components and Lumenera's unique thermal management techniques. With an extremely high dynamic range and large 6.45 µm square pixels, this camera is an excellent choice for light-challenged applications.

### Full Image Analysis Software Included

INFINITY CAPTURE, an intuitive image capture program, and INFINITY ANALYZE, a full image analysis package offering; camera control, measurement, annotations, tiling and post capture enhancement, are both included. Camera and software combine to create a complete microscopy imaging solution for your application.

### USB 2.0 Plug-and-Play Interface

Sharing and installation of one or more cameras on a single computer is quick and simple through a high-speed USB 2.0 interface.

### Third-Party Software Integration

INFINITY cameras are integrated into a variety of third-party software packages through direct drivers or with TWAIN/DirectX support.

### Mac Camera Software

Lumenera offers support for INFINITY camera users operating on a Mac platform. A Mac camera driver, ImageJ plug-in and the INFINITY ANALYZE for Mac application package are available for the INFINITY3-1UR. Please refer to the Lumenera web page www.lumenera.com for up-to-date details.

### Superior Technical Assistance Center (TAC)

As a Lumenera customer you gain access to the TAC group and knowledge base which provide full support for cameras, software and microscopy applications.

### Features

- Low noise progressive scan 2/3" 1.4 megapixel Sony ICX285 CCD sensor
- Full color sub-windowing allows for rapid focus and scanning of samples; up to 54 fps at 640 x 480 resolution
- 8 or 14-bit pixel data modes
- 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

### Recommended Applications

- Fluorescent Microscopy
- Green Fluorescent Protein
- Fluorescent In Situ Hybridization
- DNA Analysis
- Live Cell Imaging
- Brightfield, Darkfield, DIC/Phase Techniques
- Near IR Imaging
- Histology, Pathology and Cytology
- Forensic Analysis
- Gel Documentation
- Semiconductor Inspection
- Material Sciences and Nanotechnology
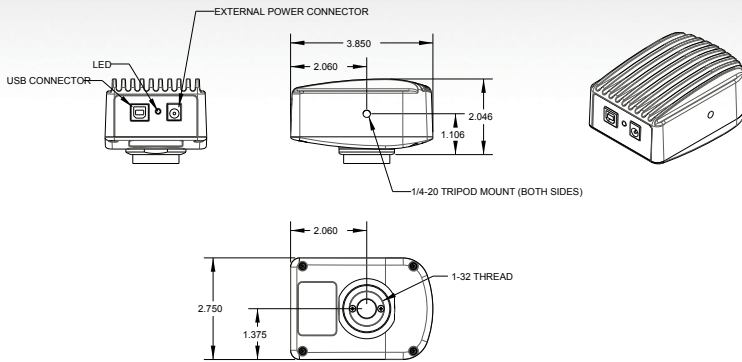- Quantitative Analysis
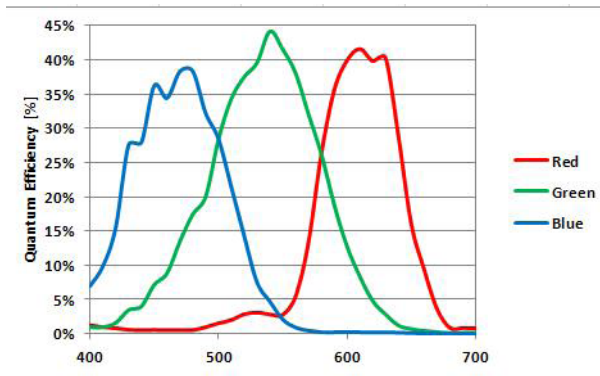
### Warranty

- Four (4) year warranty

### Microscope Coupler

- Requires 0.67 x C-Mount coupler

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## Mechanical Drawing



EXTERNAL POWER CONNECTOR
LED
USB CONNECTOR
3.850
2.060
2.046
1.106
1/4-20 TRIPOD MOUNT (BOTH SIDES)
2.060
2.750
1.375
1-32 THREAD

## Color Quantum Efficiency Curves



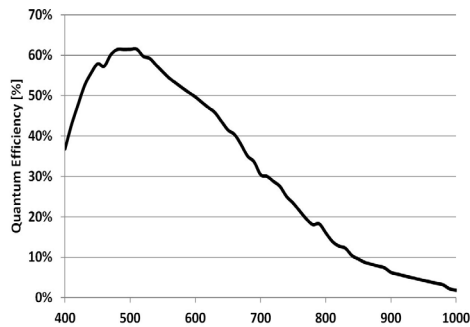## Monochrome Quantum Efficiency Curve



| | |
|---|---|
| Image Sensor | SONY ICX285, CCD, color or mono, progressive scan |
| Optical Format | 2/3 " |
| Active Area | 9.0 x 6.7 mm |
| Pixel Size | 6.45 x 6.45 µm |
| Resolution | 1392 x 1040 pixels |
| Region of Interest Control | Any multiple of 8 x 8 pixels (8 x 8 pixels minimum) |
| **Camera Specifications** | |
| Frame Rate | 30 fps at full resolution, 54 fps at 640 x 480 (ROI) |
| Bit Depth | 8 or 14-bit |
| Binning Modes | 2 x 2, 4 x 4 |
| Exposure Control | Manual and automatic control |
| Exposure Range | 3 µs to 211 ms (video), 2 µs to 10 min (snapshot) |
| Gain Control | Manual and automatic control |
| Gain Range | 0.5 to 35 x |
| White Balance | Manual and automatic control |
| **Camera Characteristics  (at 4.7 fps)** | |
| Sensitivity | Mono: 6.6 DN/(nJ/cm²), Color: 5.3 DN/(nJ/cm²) (Global and channel gains at unity) |
| Dynamic Range | 70 dB |
| Full Well Depth | 18,500 e- |
| Quantum Efficiency | 44 % (color peak), 62 % (mono peak) |
| Read Noise | 6 e- |
| Dark Current Noise | <1 e-/s at 22 ℃ |
| **Mechanical Specifications** | |
| Data Interface | USB 2.0 |
| Lens Mount | Adjustable C-Mount standard |
| Dimensions | 95.25 x 50.8 x 69.85 mm 3.85 x 2.00 x 2.75 inch |
| Mass | 340 g |
| Operating Temperature | 0 to 50 ℃ |
| Storage Temperature | -30 to 70 ℃ |
| Operating Humidity | 5 to 95%, non-condensing |
| Shock / Vibration | 50 G shock, 5 G (2 to 200 Hz) vibration |
| **Camera Software** | |
| Operating Systems | Windows 8, 7, XP, Vista, Mac OS X 10.7, 32 and 64-bit |
| **Power and Emissions** | |
| Power Consumption | ~2.5 W (5 V DC, 2.5 A, 12.5 W power supply optional) |
| Power Requirement | USB bus power (optional external power supply recommended for optimal performance at 30 fps) |
| Emissions Compliances | FCC Class B, CE Certified |
| Hazardous Materials | RoHS, WEEE Compliant |
| Warranty | Four (4) year |
| **System Requirements** | |
| Recommended PC Specs: | • Pentium 4, 1.3 GHz or higher<br>• 512 MB RAM<br>• 60 MB hard drive free space or more<br>• USB 2.0 Port<br>• Windows 8, 7, XP, Mac OS X 10.7 |
| **Included In The Box** | |
| INFINITY3-1UR | 1.4 MP digital camera + 3m USB 2.0 cable |
| LuINFSW-DVD | DVD with INFINITY user application software, TWAIN driver and documentation |
| **Ordering Information** | |
| INFINITY3-1URC | 1.4 MP Uncooled CCD Color Camera |
| INFINITY3-1URM | 1.4 MP Uncooled CCD Monochrome Camera |
| INFINITY ANALYZE MODULE | INFINITY ANALYZE Advanced Features Module (Multi-Focus Composition and Spherical Aberration Correction Features) |
| LuSDKSW | Software Developer's Kit (Web Download) |
| La20515 | 5 V DC, 2.5 A, 12.5 W Power Supply |



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