INFINITY DIGITAL MICROSCOPY CAMERAS

Produce crystal clear, vibrant images with Lumenera’s INFINITY microscopy cameras. Our user friendly USB 3, USB 2 and HDMI cameras range in resolution from 1.4 to 32 megapixel and feature CMOS, CCD, High Definition (HD), low light CCD, large format, research-grade and pixel shifting technologies. As one of the most respected digital camera manufacturers in the scientific market, we install thousands of INFINITY cameras each year into life science, clinical and industrial applications. Lumenera provides high quality, scientific-grade cameras complete with feature rich software packages at the best price-to-performance ratio in the market and backed by an industry leading four-year warranty.

DISTRIBUTED BY
ACCU-SCOPE, Inc.
73 Mall Drive, Commack, NY 11725
631-864-1000 • 631-543-8900 (F)
info@accu-scope.com • www.accu-scope.com

Contact us today: Lumenera Corporation
7 Capella Court, Ottawa, ON K2E 8A7
T: +1 (613) 736-4077
F: +1 (613) 736-4071
E: info@lumenera.com
www.lumenera.com
Why Lumenera, Why INFINITY

EXTENSIVE PRODUCT LINE

Life science researchers, clinical pathologists and industrial technicians count on our exceptional color reproduction, high quality microscopy cameras, complete with user friendly software packages. Select from Lumenera’s cost-effective CMOS cameras, our HD camera with full 1080p60 preview, or our CCD solutions with high dynamic range and outstanding color fidelity.

<table>
<thead>
<tr>
<th>Centralized Research Development &amp; Manufacturing</th>
<th>Intuitive Software Package</th>
<th>Industry Leading Technical Assistance Center</th>
<th>Research-Grade Cameras</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research, development and manufacturing are tightly controlled in one location ensuring the highest standard of quality from design to delivery. To ensure a timely product supply, Lumenera has established close, collaborative relationships with vendors and provides its own in-house manufacturing inspection and quality controls. As a testament to our high quality standards we continue to invest in research and development in order to maintain our reputation as a leading provider of high-performance digital imaging solutions. As a Lumenera customer you will benefit from our ongoing success and solid growth for years to come.</td>
<td>Included with your camera purchase is INFINITY ANALYZE and INFINITY CAPTURE software. Together, the camera and software create a complete imaging solution for your application. Take advantage of features ranging from full camera control to advanced capabilities such as measurement, annotation and the pseudo-coloring of fluorescent images. INFINITY ANALYZE is translated into eight languages providing life science, clinical and industrial researchers native language support. A version of the INFINITY application software is available for Mac, including an ImageJ plug-in (Mac support available for most INFINITY cameras).</td>
<td>Realize your vision needs through our Technical Assistance Center (TAC). Core competencies include microscopy, software development, color algorithms, opto-electronics, laser physics, remote sensing, sensor architecture and optics. Receive timely, accurate information from our skilled team.</td>
<td>The camera research-grade designation is a result of the low noise electronics, high-grade components and Lumenera’s unique thermal management techniques implemented inside the INFINITY camera. The end result is high quality images with extremely low noise and high dynamic range. Research-grade cameras are denoted with an R in the ordering part number.</td>
</tr>
</tbody>
</table>

3rd Party Software Integration

Lumenera is integrated with leading software technology partners such as Media Cybernetics (Image Pro Premier), Molecular Devices (Metamorph), and National Instruments (MicroManager) to name a few. For a full list of our microscopy software technology partners please visit the Lumenera website or contact us regarding additional software packages.

SAMPLE APPLICATIONS

<table>
<thead>
<tr>
<th>Life Science &amp; Clinical Applications</th>
<th>Material Science—Quality Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics/Biology/Pathology</td>
<td>Metrology/Mineralogy/Metallurgy</td>
</tr>
</tbody>
</table>

Stained Samples

To ensure proper identification and diagnosis of stained samples, precise color is required. Lumenera’s advanced Color Correction Matrices (CCMs) compensate for sensor response to the color output of various light sources. To provide true-to-life color in a consistent and repeatable manner, Lumenera has designed proprietary CCMs. As a result, Lumenera is better able to define and contrast colors that are difficult to reproduce including hues of oranges, reds, pinks and yellows. These advanced techniques ensure that the camera reproduces the colors as they appear in the oculars.

Live Imaging

Combine INFINITY software with our high-speed USB 2 and USB 3 cameras for smooth, responsive live video preview, or to record brief video clips. Integration with popular 3rd party software is available.

Material Science—Quality Control

Metrology/Mineralogy/Metallurgy

Defect Analysis

Measurement and annotation are an important part of any quality control process. Obtain precise reproducible results through a variety of features found in INFINITY software such as simple calibration as well as extensive measurement options.

Stereo and Macro Imaging

Samples with reflection, shadowing and low-light conditions commonly found in the QC environment can be quite difficult to image. Effectively deal with washed out or dark areas, bright spots or poorly lit samples with our high dynamic range INFINITY CCD cameras, whose high sensitivity allows for proper imaging. Perform depth of focus and spherical aberration correction with the Advanced Features Module (available as an accessory).
### INFINITY Camera Selection

#### High to Moderate Illumination

10-bit Quantitative Analysis

- Brightfield/Darkfield
- DIC
- Live Cell Imaging
- Histology/Pathology/Cytology
- Semiconductor Inspection
- Metrology
- Documentation and Archiving
- Tumor Review Boards
- Education

#### Moderate to Low Illumination

12 and 14-bit Quantitative Analysis

- Brightfield/Darkfield
- DIC
- Live Cell Imaging
- Histology/Pathology/Cytology
- Semiconductor Inspection
- Metrology
- Documentation and Archiving
- Moderate Light Fluorescence
- Gel Documentation

#### High Sensitivity

12 and 14-bit Quantitative Analysis

- Brightfield/Darkfield
- DIC
- Live Cell Imaging
- Histology/Pathology/Cytology
- Semiconductor Inspection
- Metrology
- Documentation and Archiving
- Gel Documentation
- Low Light Fluorescence
- Chemiluminescence
- Bioluminescence
- Flow Analysis
- GFP, FISH, NIR, FRET

---

### PRODUCT FEATURE: INFINITY3-6UR

**A high resolution, large field of view, USB 3 CCD microscopy camera**

The INFINITY3-6UR is the ideal general purpose camera for most microscopy applications due to its 6MP resolution, excellent color reproduction, speed and light sensitivity needed for low-light applications. Built on Sony’s EXview HAD II sensor technology, this camera offers extremely high dynamic range, 4.54 x 4.54 μm pixels and very low noise.

The INFINITY3-6UR 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.

### PRODUCT HIGHLIGHTS

- 6.0 megapixel resolution (2752 x 2192) for outstanding image quality
- Industry leading Sony ICX694 CCD sensor with 1” optical format and high QE
- 27 fps, lagless at full resolution
- High-speed USB 3 interface for fast image delivery and connectivity
- Excellent color reproduction capabilities
- High dynamic range and sensitivity for low light applications such as fluorescence and NIR imaging

### INFINITY3-6UR’s Large Field of View

To maximize the sensitivity of the INFINITY3-6UR, Lumenera uses a 1” format Sony ICX694 sensor.

---

Contact us today: Lumenera Corporation
7 Capella Court, Ottawa, ON K2E 8A7
T: +1 (613) 736-4077  F: +1 (613) 736-4071  E: info@lumenera.com

www.lumenera.com  info@digital-usb-microscopes.com
CMOS Cameras for Photo Documentation and High-Speed Imaging

Highlighted:
- 1, 2, 3 and 5 megapixel resolutions
- High quality, cost-effective solution
- 8 or 10-bit output

The INFINITY1 series of CMOS USB 2 digital microscopy cameras, with resolutions as high as 5 megapixel, is specifically designed to be a cost-effective, versatile solution for a wide variety of microscopy photo documentation applications including life science, pathology, industrial inspection and geology.

Benefit from outstanding color, clarity and image detail. Easy-to-use and fast frame rates are achieved through the plug-and-play, low noise USB 2 data interface to maximize your workflow.

CCD Cameras for Challenging Lighting and Color Conditions, and Quantitative Analysis

Highlighted:
- 1, 2, 3 and 5 megapixel resolutions
- Excellent light sensitivity
- Superior color reproduction
- 8, 12 or 14-bit output

Effortlessly capture challenging images of samples in complex lighting situations with the INFINITY2 CCD series. If precise color reproduction is critical, the exceptional quality of the INFINITY2’s Sony sensor meets the requirements of the most demanding applications. The INFINITY2 series of cameras offer consistent results with resolutions as high as 5 megapixel.

CCD Cameras for Low Light Conditions and Quantitative Analysis

Highlighted:
- Ultra-sensitive Sony CCD 1.4, 2.8 and 6.0 megapixel sensor-based cameras
- Thermoelectric cooled and uncooled camera models
- GPI/O provided standard on the INFINITY3-1, INFINITY3-3UR and INFINITY3-6UR models
- Research-grade camera with high dynamic range

Camera models available in the INFINITY3 series:

The ultra-sensitive INFINITY3S-1UR incorporates Sony’s ICX825 CCD sensor, producing unmatched light sensitivity needed for challenging low light applications such as fluorescence and NIR imaging. Highlights include high QE, 6.45 x 6.45 µm pixels, high dynamic range, and low noise.

Built on Sony’s 6.0 megapixel EXview HAD II CCD sensor, the INFINITY3-6UR offers extremely high dynamic range as well as high frames rates of 27 fps via a high-speed USB 3 interface. With 2x2 binning, there is a fourfold increase in sensitivity while providing a 1.5 megapixel (1376x1096) resolution.

The INFINITY3-3UR camera features a Sony ICX674 CCD sensor, offers 53 fps at full 2.8 megapixel resolution via a high-speed USB 3 interface. Designed for use in scientific and industrial applications requiring optimal color reproduction, extreme sensitivity, increased resolution and high speed.

The INFINITY3-1 is thermoelectrically cooled to 25 °C below ambient and features a high signal to noise ratio, positioning it as an ideal solution for applications with extremely long integration times where reducing dark noise is a requirement.

Low Cost CMOS Camera for Academic and Entry-Level Documentation

Highlighted:
- 1.5 megapixel resolution
- Excellent color reproduction
- Live video preview and focus

The INFINITYlite is a low cost CMOS camera for archiving and documentation. With 1.5 megapixel resolution and excellent color reproduction, this entry-level camera is specifically designed for the education market as well as entry level microscopy applications. It is a compact, affordable scientific camera that delivers outstanding image quality and excellent value. Operates with INFINITY CAPTURE Software.

Extremely High Resolution Pixel Shifting Camera

Highlighted:
- 2 megapixel live preview
- 32 megapixel resolution for capturing fine detail
- 12-bit output for quantitative applications

The INFINITYX-32 digital camera’s sub-pixel shifting technology provides variable resolution capture at 2, 8, 18 and 32 megapixel. High resolution, combined with the excellent sensitivity of a CCD, make this an excellent general camera for virtually any application. In addition to high resolution, pixel-shifting cameras have the added advantage of acquiring all three color channels for each pixel, ensuring the highest possible quality of color reproduction.
Lumenera’s INFINITY cameras include INFINITY ANALYZE software at no extra charge, allowing complete camera control and advanced image acquisition and analysis.

INFINITY Software

Lumenera’s INFINITY cameras include INFINITY ANALYZE software at no extra charge, allowing complete camera control and advanced image acquisition and analysis.

INFINITY ANALYZE Features Include:

- Real time video preview
- Calibration measurement and annotation
- Archiving with search for date, author, description
- Fluorescent image composition including RGB Look-Up Tables (LUT)
- Single capture and time lapse
- Image stitching
- Automatic/manual exposure and white balance
- Hue, saturation, gain, contrast, brightness and gamma controls
- Advanced image processing
- Customize interface for specific applications
- Thumbnail worksheet
- Drag and drop measurement data to Microsoft Excel for analysis
- Save and restore camera settings
- Context sensitive help for all functions
- Optional focus enhancement
- Interactive color composition
- Available in 9 languages: English, Latin Spanish, Castilian Spanish, Italian, Russian, Japanese, Chinese, Korean and French
- Software compatible with Windows and Mac OS*
### INFINITY Camera Specifications

- **Auto/Manual Exposure**
- **Manual White Balance**
- **1 to 10x (or higher) Programmable Gain** (varies by model)
- **USB 2.0 High-Speed Interface (480 MB/s)**
- **USB 3.1 Gen 1 High-Speed Interface (5 Gbits/s)**
- **Power:**
  - INFINITYlite, 1, 2, 3-1UR, EP: USB 2.0 Bus
  - INFINITY3-1UR, INFINITY3-3UR, INFINITY3-6UR: External 5 V DC – 2 A
  - INFINITY3 Cooled/INFINITYX: External 5 V DC – 1 A
- **Operating Temperature:** 0 to 50 °C
- **Operating Humidity:** 5 to 95 %, Non condensing
- **Operating System:** Windows and Mac OS

### INFINITY Advantage Packs

The INFINITY ADVANTAGE PACK (IAP) allows you to access software from any PC, unleashes additional software features, and provides peace of mind with advanced hardware replacement and a 5-year warranty for INFINITY cameras. For more details visit our website.

### USB 3.1 Gen 1 and USB 2.0 Interface

Lumenera’s INFINITY cameras feature either a USB 2.0 or USB 3.1 Gen 1 interface, offering an easy plug-and-play installation with computers, while providing more than enough throughput for its selected image sensors.

### OEM Custom Camera Design

Lumenera’s INFINITY camera hardware design and software features can be customized to meet your specific requirements, including OEM variations, to offer the following advantages:

- **Improved Time-to-Market**
- **Reduce Internal Development Costs**
- **Differentiate from the Competition**

### INFINITY Mac Software

Lumenera offers support for INFINITY camera users operating on a Mac platform. A Mac camera driver, ImageJ plug-in and the INFINITY ANALYZE and CAPTURE for Mac application package are available.*

---

*See the camera data sheet for specific software compatibility details.

---

© 2018 LUMENERA CORPORATION, ALL RIGHTS RESERVED. DESIGN, FEATURES, AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. 06062018

www.digital-usb-microscopes.com  info@digital-usb-microscopes.com