**Camera Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Resolution</th>
<th>Sensor</th>
<th>FPS</th>
<th>Bit Depth</th>
<th>Read Noise</th>
<th>Binning/Region of Interest</th>
<th>Cat # (Color/Mono)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFINITY 1 1.3</td>
<td>1280x1024</td>
<td>1/2&quot; CMOS</td>
<td>15</td>
<td>8 or 10</td>
<td>20 e-</td>
<td>N/Y</td>
<td>Y INFINITY1-1 or M</td>
</tr>
<tr>
<td>INFINITY 2 3.1</td>
<td>2048x1536</td>
<td>1/2&quot; CMOS</td>
<td>12</td>
<td>8 or 10</td>
<td>20 e-</td>
<td>N/Y</td>
<td>Y INFINITY2-1 or M</td>
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<tr>
<td>INFINITY 3 5.0</td>
<td>2592x1944</td>
<td>1/2.5&quot; CMOS</td>
<td>5</td>
<td>8 or 10</td>
<td>20 e-</td>
<td>N/Y</td>
<td>Y INFINITY3-1 or M</td>
</tr>
<tr>
<td>INFINITY 4 1.4</td>
<td>1392x1040</td>
<td>1/2&quot; CCD</td>
<td>15</td>
<td>8 or 12</td>
<td>12 e-</td>
<td>Y/Y</td>
<td>Y INFINITY4-1 or M</td>
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<tr>
<td>INFINITY 5 2.0</td>
<td>1616x1216</td>
<td>1/1.8&quot; CCD</td>
<td>12</td>
<td>8 or 12</td>
<td>12 e-</td>
<td>Y/Y</td>
<td>Y INFINITY5-2 or M</td>
</tr>
<tr>
<td>INFINITY 6 3.3</td>
<td>2080x1536</td>
<td>1/1.8&quot; CCD</td>
<td>5</td>
<td>8 or 12</td>
<td>12 e-</td>
<td>Y/Y</td>
<td>Y INFINITY6-3 or M</td>
</tr>
<tr>
<td>INFINITY 7 1.4</td>
<td>1392x1040</td>
<td>2/3&quot; Cooled CCD</td>
<td>15</td>
<td>8 or 12</td>
<td>12 e-</td>
<td>Y/Y</td>
<td>Y INFINITY7-1 or M</td>
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<tr>
<td>INFINITY 8 10.7</td>
<td>4008x2672</td>
<td>35mm Format CCD (43.3mm)</td>
<td>3</td>
<td>8 or 12</td>
<td>12 e-</td>
<td>Y/Y</td>
<td>Y INFINITY8-1 or M</td>
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<tr>
<td>INFINITY X 1.3,5</td>
<td>1280x1024</td>
<td>10,21 to 5120X4096</td>
<td>Pixel Shifting</td>
<td>1/2&quot; CMOS</td>
<td>(SXGA) 15</td>
<td>(8 or 10)</td>
<td>20 e-</td>
</tr>
</tbody>
</table>

**INFINITY Camera Specifications**

- Auto/Manual Exposure
- Auto/Manual White Balance
- Programmable Gain, 1 to 10X Optimizable
- INFINITY 1, 2, 3, X—C-Mount Lens Adapter, INFINITY 4—F-Mount Lens Adapter
- USB 2.0 High-Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)
- Power: INFINITY 1 & 2—USB Bus Power
- INFINITY 3—External 5VDC – 500mA
- INFINITY 4—External 12VDC –1A
- INFINITY X—External 6VDC – 500mA
- Operating Temperature: 0ºC to +50ºC
- Operating Humidity: 5% to 95%, Non-condensing

**OEM Custom Camera Design**

As a Lumenera OEM customer, you can leverage the success of the INFINITY camera line through our custom camera development.

Our unique options for OEM custom software features and hardware camera design offer the following advantages:

- Improve Time to Market
- Reduce Development Costs
- Differentiate from the Competition

For more information, e-mail scientificsales@lumenera.com.

**Mac Plug-In for INFINITY Cameras**

- A Mac Plug-in for all INFINITY cameras is now available.
- Compatible with Mac OS X 10.4 or later (requires QuickTime 7)
- Visit Lumenera’s web site to download the latest version.
**INFINITY CMOS Cameras**

**Highlights**
- 1-3 Megapixel resolution
- Perfect for documentation and archiving applications
- Fast frame rates

The INFINITY CMOS USB 2.0 cameras are designed to be a cost-effective, versatile solution for a variety of microscopy imaging applications. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. An excellent fit for documentation and archiving applications.

**Models**
- INFINITY-CC: 1.3 Megapixel CMOS Color Camera
- INFINITY-1M: 1.3 Megapixel CMOS Monochrome Camera
- INFINITY-2C: 5.0 Megapixel CMOS Color Camera

**Applications**
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology

**INFINITY2 CMOS Cameras**

**Highlights**
- 1-3 and 5 Megapixel resolution
- Higher dynamic range for quantitative analysis
- Fast frame rates
- Low noise electronics

Equipped with a high-quality, Sony CCD sensor, INFINITY2 CMOS USB 2.0 cameras offer excellent sensitivity, high dynamic range and a 12-bit digital output. Features include auto white balance, auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. Ideal for high-end scientific, medical, educational professionals where high resolution, image acquisition and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Models**
- INFINITY-2C: 1.4 Megapixel CMOS Color Camera
- INFINITY-3M: 1.4 Megapixel CMOS Color Camera
- INFINITY-2C: 2.0 Megapixel CMOS Color Camera
- INFINITY-2M: 2.0 Megapixel Monochrome Camera
- INFINITY-3C: 3.3 Megapixel CMOS Color Camera

**Applications**
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Moderate Light Fluorescence

**INFINITY3 Cooled CCD Cameras**

**Highlights**
- 1 Megapixel resolution
- Cooling to 25°C below ambient
- High signal to noise ratio for live light, long exposure applications
- Fast frame rates
- Low noise electronics

For live light fluorescence applications, the INFINITY3 cooled USB 2.0 cameras offer cooling to 25°C below ambient. The Sony ICX285 ExView HAD sensor has a very high dynamic range, excellent sensitivity and a 12-bit digital output. Features include binning, auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. Ideal for high-end scientific, medical, educational professionals where high resolution, image acquisition and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Models**
- INFINITY-4C: 10.7 Megapixel CMOS Color Camera
- INFINITY-4M: 10.7 Megapixel CMOS Monochrome Camera

**Applications**
- High Resolution, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Low Light Fluorescence

**INFINITY4 Large Format CCD Cameras**

**Highlights**
- 15 Megapixel resolution
- Large format sensor
- Superior light sensitivity with high fidelity color reproduction
- Low noise electronics
- 4× mount lens adapter

The INFINITY4 camera series offers large format megapixel Kodak sensors for a wide field of view. The perfect tool for demanding high resolution imaging requiring excellent color rendition. Features include a 12-bit digital output, binning, progressive scan electronic shutter, full exposure control, auto white balance, programmable gain, sub-windowing and region of interest. Ideal for high-end scientific, medical, educational professionals where high resolution, image acquisition and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Models**
- INFINITY-4F: 21 Megapixel CMOS Color Camera
- INFINITY-4FM: 21 Megapixel Monochrome Camera

**Applications**
- High Resolution, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Moderate Light Fluorescence

**INFINITY5 High Resolution CMOS Cameras**

**Highlights**
- 1, 5, 10 and 21 Megapixel resolution
- Ideal for archiving and documentation
- Fast frame rates

Sub-pixel shifting technology provides variable resolution capture at 1, 5, 10 and 21 megapixel resolution with precision color and great sensitivity. The INFINITY5 USB 2.0 camera is an essential tool for clinical, life science and educational professionals where high resolution, image acquisition and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Models**
- INFINITY-5F: 21 Megapixel CMOS Color Camera
- INFINITY-5FM: 21 Megapixel Monochrome Camera

**Applications**
- High Resolution, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Low Light Fluorescence

**Comparing USB 2.0 to FireWire**

Video performance in digital cameras is defined by the maximum frame rate at a given resolution and is measured in frames per second (fps). Both FireWire and high-speed USB 2.0 digital cameras achieve excellent frame rates at high resolution. The frame rates are usually limited by the sensor read-out rate — not the physical interface. As an example, a 1 Megapixel CCD sensor using a FireWire or a USB 2.0 interface is limited to 15 or 30 fps depending on the camera model. As resolution increases, frame rates decrease.

**USB 2.0 vs. FireWire**

<table>
<thead>
<tr>
<th>Bit Depth</th>
<th>Video Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-bit</td>
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</tr>
<tr>
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</table>

USB 2.0 is an ideal interface for scientific cameras, offering plug-and-play with all computers, while providing more than enough throughput for most industrial video applications.

**INFINITY Camera Selection**

**High to Moderate Illumination**
- 10-bit Quantitative Analysis
- 12-bit Digital Output
- High sensitivity
- Image Capture
- Low Noise Electronics
- Gel Documentation

**INFINITY**
- 1M
- 2M
- 3M
- 4M
- 5M

**Moderate to Low Illumination**
- 10-bit Quantitative Analysis
- 12-bit Digital Output
- Low noise electronics
- Gel Documentation

**INFINITY**
- 1C
- 2C
- 3C
- 4C

**High Sensitivity**
- Live Light Fluorescence
- Low Noise Electronics
- Gel Documentation

**INFINITY**
- 3M
- 4M
- 5M

**INFINITY CMOS Cameras**

**Applications**
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Moderate Light Fluorescence

**INFINITY2 CMOS Cameras**

**Applications**
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Moderate Light Fluorescence

**INFINITY3 Cooled CCD Cameras**

**Applications**
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Low Light Fluorescence

**INFINITY4 Large Format CCD Cameras**

**Applications**
- High Resolution, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Moderate Light Fluorescence

**INFINITY5 High Resolution CMOS Cameras**

**Applications**
- High Resolution, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Deflect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Low Light Fluorescence

**Comparing USB 2.0 to FireWire**

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USB 2.0 is an ideal interface for scientific cameras, offering plug-and-play with all computers, while providing more than enough throughput for most industrial video applications.
**INFINITY Camera Models**

**INFINITY 1 CMOS Cameras**

- **Highlights**
  - 1, 2 and 3 megapixel resolution
  - 12-bit digital output
  - Auto white balance
  - Full exposure control, programmable gain, sub-windowing and region of interest
  - Full electronic sensitivity.

- **Applications**
  - High/medium resolution with good color and good resolution.

**INFINITY 2 CCD Cameras**

- **Highlights**
  - 1, 2 and 3 megapixel resolution
  - High dynamic range for quantitative analysis
  - Full frame rates
  - Low noise electronics

- **Applications**
  - High/medium resolution with good color and good resolution.

**INFINITY 3 Cooled CCD Cameras**

- **Highlights**
  - 1 megapixel resolution
  - Cooling to 25°C below ambient
  - High signal-to-noise ratio for low light, long exposure applications
  - Fast frame rates
  - Low noise electronics

- **Applications**
  - Low light fluorescence applications.

**INFINITY 4 Large Format CCD Cameras**

- **Highlights**
  - 11 megapixel resolution
  - Low noise electronics
  - Superior light sensitivity with high fidelity color reproduction
  - Wide field of view.

- **Applications**
  - Large format scanning.

**INFINITY 5 High Resolution CMOS Cameras**

- **Highlights**
  - 1, 5, 10 and 21 megapixel resolution
  - Ideal for demanding high resolution applications
  - Fast frame rates

Subpixel shifting technology provides variable resolution capture at 1.5, 5, 10 and 21 megapixel resolution with precise color and great sensitivity. The INFINITY USB 2.0 camera is an essential tool for clinical, life science and educational professionals where high resolution image acquisition and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

- **Applications**
  - High resolution applications.

**Comparing USB 2.0 to FireWire**

Video performance in digital cameras is defined by the maximum frame rate at a given resolution and measured in frames per second (fps). Both FireWire and high-speed USB 2.0 digital cameras deliver consistent frame rates at resolutions.

- FireWire cameras are limited to a 15 fps frame rate.
- USB 2.0 cameras can support 30 fps.

**INFINITY USB 2.0 Cámara**

- **Highlights**
  - USB 2.0 interface
  - Large field of view.

- **Applications**
  - Scientific imaging.

USB 2.0 is an ideal interface for scientific cameras, offering plug-and-play with all computers, providing more than enough throughput for high-sensitivity image sensors.

---

**INFINITY Camera Selection**

**High to Moderate Illumination**

- **1 MP devices:**
  - Academy
  - Epic
  - Monochrome
  - American Type Color

- **2 MP devices:**
  - Academy
  - Epic
  - Monochrome

**Low Light and Low Luminescence**

- **1 MP devices:**
  - Monochrome
  - Fluorescence
  - Filtered

- **2 MP devices:**
  - Monochrome
  - Fluorescence
  - Filtered

---

**Quantitative Analysis, Cooled CCD**

**Quantitative Analysis (CCD) Demands a High Grayscale Level:**

- **CCD (12-bit):**
  - 4096 Grayscale Levels

**Cooled CCD (12-bit):**

- **4096 Grayscale Levels**

---

**Low Light and Low Luminescence (Cooled CCD)**

**INFINITY Cooled CCD**

- **INFINITY Cooled**
  - 2.0 MP devices:
    - 400MBIT/S (40 MBPS)

**INFINITY High Resolution CMOS Cameras**

- **Highlights**
  - 1, 5, 10 and 21 megapixel resolution
  - Ideal for demanding high resolution applications
  - Fast frame rates

---

**INFINITY USB 2.0 Camera**

- **Highlights**
  - USB 2.0 interface
  - Large field of view.

- **Applications**
  - Scientific imaging.

USB 2.0 is an ideal interface for scientific cameras, offering plug-and-play with all computers, providing more than enough throughput for high-sensitivity image sensors.
**INFINITY Camera Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Resolution</th>
<th>Sensor</th>
<th>FPS</th>
<th>Bit Depth</th>
<th>Read Noise</th>
<th>Binning/Region of Interest</th>
<th>Cat # (Color/Mono)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFINITY 1</td>
<td>1.3 MP</td>
<td>1280x1024</td>
<td>1/2&quot; CMOS</td>
<td>15 FPS</td>
<td>8 or 10 bit</td>
<td>20 e-</td>
<td>N/Y</td>
</tr>
<tr>
<td>INFINITY 2</td>
<td>2.0 MP</td>
<td>2048x1536</td>
<td>1/2&quot; CMOS</td>
<td>6 FPS</td>
<td>8 or 10 bit</td>
<td>20 e-</td>
<td>N/Y</td>
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<tr>
<td>INFINITY 3</td>
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<td>2592x1944</td>
<td>1/2.5&quot; CMOS</td>
<td>5 FPS</td>
<td>8 or 10 bit</td>
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<td>N/Y</td>
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<tr>
<td>INFINITY 4</td>
<td>3.3 MP</td>
<td>1392x1040</td>
<td>1/2&quot; CCD</td>
<td>15 FPS</td>
<td>8 bit</td>
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<td>INFINITY X</td>
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<td>12 bit</td>
<td>12 e-</td>
<td>N/Y</td>
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<tr>
<td>INFINITY X</td>
<td>5.0 MP</td>
<td>2080x1536</td>
<td>1/1.8&quot; CMOS</td>
<td>5 FPS</td>
<td>8 or 12 bit</td>
<td>20 e-</td>
<td>N/Y</td>
</tr>
</tbody>
</table>

**Camera Control**

- Auto/Manual Exposure
- Auto/Manual White Balance
- Programmable Gain, 1 to 10X Optimizable
- INFINITY 1, 2, 3 — C-Mount Lens Adapter, INFINITY 4 — F-Mount Lens Adapter
- USB 2.0 High-Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)
- Power: INFINITY 1 & 2 — USB Bus Power
- INFINITY 3 — External 5VDC – 500mA
- INFINITY 4 — External 12VDC – 1A
- INFINITY X — External 6VDC – 500mA
- Operating Temperature: 0ºC to +50ºC
- Operating Humidity: 5% to 95%, Non-condensing

**INFINITY ANALYZE Software**

All Lumenera INFINITY cameras include INFINITY ANALYZE software, allowing complete camera control and advanced image acquisition and analysis. Features include:

- Real-time image preview
- Measurement and annotation
- Importing and linking for easy, author description
- Image processing capabilities including ROI, Look-Up Tables (LUT), and more
- Image stitching
- Auto-real-time exposure and white balance
- Image orientation, gain, contrast, brightness and gamma controls
- Advanced image processing
- Customer interface for specific applications
- Platform independent
- Drop and temp measurement data to excel for analysis
- Data with optional data sheets
- Contentedudes helps for all functions
- Optical focus enhancement

Also included in INFINITY CAPTURE, an intuitive user interface that contains all of the tools needed to control the camera and capture images.

Easily integrate your INFINITY camera with 3rd party software applications through our TWAIN and WDM drivers (included).

**INFINITY Camera Specifications**

- Auto/Manual Exposure
- Auto/Manual White Balance
- Programmable Gain, 1 to 10X Optimizable
- INFINITY 1, 2, 3 — C-Mount Lens Adapter, INFINITY 4 — F-Mount Lens Adapter
- USB 2.0 High-Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)
- Power: INFINITY 1 — USB Bus Power
- INFINITY 2 — External 5VDC – 100mA
- INFINITY 3 — External 5VDC – 100mA
- INFINITY 4 — External 12VDC – 1A
- Operating Temperature: 0°C to +50°C
- Operating Humidity: 95% to 56%, Non-condensing

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