

## USB 2.0 CAMERAS

### WIDEST PORTFOLIO OF USB 2.0 CAMERAS IN THE INDUSTRY

Lumenera's USB 2.0 cameras leverage the simple plug-and-play interface that is available on almost every computer. Below is a selection of our most popular USB 2.0 cameras.

#### VGA 1/3" CMOS

- 640 x 480 resolution
- 60 fps at full resolution

Model # Lu070 & Lu075



#### 3.1 MP 1/2" CMOS

- 2048 x 1536 resolution
- 12 fps at full resolution
- Color only

Model # Lu370 & Lu371 & Lu375

#### 1.3 MP 1/3" CMOS

- 1280 x 1024 resolution
- 30 fps at full resolution
- Color only

Model # Lw110 & Lw115

#### 1.4 MP 2/3" CCD

- 1392 x 1040 resolution
- 30 fps at full resolution

Model # Lw160R & Lw165R

#### 5.0 MP 1/2.5" CMOS

- 2592 x 1944 resolution
- 7 fps at full resolution

Model # Lw570 & 575

#### 1.3 MP 1/2" CMOS

- 1280 x 1024 resolution
- 30 fps at full resolution

Model # Lu170 & Lu171 & Lu175

#### 1.4 MP 1/2" CCD

- 1392 x 1040 resolution
- 30 fps at full resolution

Model # Lw130R & Lw135R

#### 5.0 MP 2/3" CCD

- 2448 x 2048 resolution
- 9 fps at full resolution

Model # Lw560 & Lw565

#### 1.4 MP 2/3" Cooled CCD

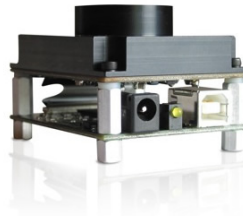
- 1390 x 1040 resolution
- 15 fps at full resolution
- Low dark current noise

Model # Lw1160P-SCI

#### 2.0 MP 1/1.8" CCD

- 1616 x 1216 resolution
- 12 fps at full resolution

Model # Lw230 & 235



#### 2.0 MP 1/2" CMOS

- 1600 x 1200 resolution
- 10 fps at full resolution
- Color only

Model # Lu200 & Lu205



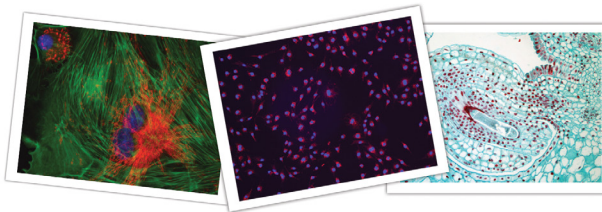
MORE CAMERAS ARE AVAILABLE ON OUR WEBSITE

[WWW.LUMENERA.COM](http://WWW.LUMENERA.COM)

## SCIENTIFIC CAMERAS

Lumenera has extensive knowledge in manufacturing sophisticated scientific cameras that are used in microscopy and life sciences applications. Our unique knowledge and skills include; assembly procedures, calibration techniques, testing and quality control, all geared towards achieving exceptional performance and consistency.

Lumenera's scientific cameras are manufactured with a stringent quality control process that ensures **camera-to-camera consistency**. Our cameras deliver the high quality and **reproducible** image results that are critical to your application.



Lumenera cameras meet stringent FCC Class B and CE EMI certification requirements which are critical to obtaining FDA and other type approvals.

Most industrial cameras are available to order with a scientific option (-SCI), which includes microscopy-grade glass, ideal for collimated light source applications.

## BUDGET VS. PERFORMANCE

Lumenera's **Lu** cameras are an extremely economical imaging system.

Lumenera's **Lw series** cameras provide more powerful image processing, faster throughput and increased on board FPGA and RAM:

- Lower power consumption and heat generation
- More power efficient with no need for external power supply (with the exception of the Lw1105X and Lw16059)
- Increased RAM – 32 MB vs 8 MB standard
- Larger FPGA for implementing all auto features/functions across all cameras

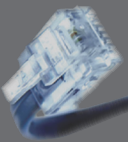
## SAMPLE APPLICATIONS

Lumenera's cameras are used in thousands of industrial and scientific applications worldwide, including:

- Traffic Management
- UAV
- Optical Inspection
- Barcode
- Metrology
- Semiconductor
- Packaging
- Flat Panel Inspection
- Photo ID
- Biomechanics
- Robotics
- Pharmaceutical
- 3-D Imaging
- Automotive
- Material Handling
- Astro Imaging
- Food and Beverage
- Military
- Aerospace
- Document Reading
- Biometrics
- Ophthalmology
- OEM Microscopy
- Life Sciences
- Cell Counting
- Microplate Readers
- Gel Documentation
- Solar Panel Inspection

## GIGABIT ETHERNET

GOING THE DISTANCE



Lumenera's GigE cameras allow for fast transfer of data (1000 MB/s), using low cost standard cables over very long distances.

- Transfer images and control the cameras at distances beyond 100m
- Reduce system cost by using inexpensive, standard cables
- GigE is a widely adopted interface around the world, with Ethernet ports available on most computing and network devices

## USB 3.1 GEN 1 CAMERAS

Model Number	Sensor Type	Resolution	Frame Rate*	Bit Depth	Pixel Pitch	Sensor	Shutter	Color/Mono	Lens Mount
Lt225	2/3" CMOS	2.2 MP (2048 x 1088)	170	8 or 12	5.5 µm	CMOSIS CMV2000 Rev3	Global	Color/Mono/NIR	C
Lt425	1" CMOS	4.0 MP (2048 x 2048)	90	8 or 12	5.5 µm	CMOSIS CMV4000 Rev3	Global	Color/Mono/NIR	C
Lt365R	2/3" CCD	2.8 MP (1936 x 1456)	53	8 or 14	4.54 µm	SONY ICX674	Global	Color or Mono	C
Lt665R	1" CCD	6.0 MP (2752 x 2192)	27	8 or 14	4.54 µm	SONY ICX694	Global	Color or Mono	C
Lt965R	1" CCD	9.1 MP (3376 x 2704)	19	8 or 14	3.69 µm	SONY ICX814	Global	Color or Mono	C
Lt1265R	1" CCD	12 MP (4250 x 2838)	15	8 or 14	3.1 µm	SONY ICX834	Global	Color or Mono	C
Lt16059H	35 mm CCD	16 MP (4864 x 3232)	12	8 or 14	7.4 µm	ON Semiconductor KAI-16070	Global	Color or Mono	Canon EF
Lt29059	35 mm CCD	29 MP (6576 x 4384)	6	8 or 14	5.5 µm	ON Semiconductor KAI-29050	Global	Color or Mono	Canon EF

## USB 2.0 CAMERAS

Model Number	Sensor Type	Resolution	Frame Rate*	Bit Depth	Pixel Pitch	Sensor	Shutter	Color/Mono	Lens Mount
Lu070 & Lu075	1/3" CCD	VGA (640 x 480)	60	8 or 12	7.4 µm	Sony ICX424	Global	Color or Mono	C or CS
Lm075	1/3" CCD	VGA (640 x 480)	60	8 or 12	7.4 µm	Sony ICX424	Global	Color or Mono	C or CS
Lm085	1/3" CMOS	VGA 752 x 480	60	8 or 10	6.0 µm	Micron MT9V032	Global	Color or Mono	C or CS
Lu100 & Lu101 & Lu105	1/2" CMOS	1.3 MP (1280 x 1024)	15	8 or 10	5.2 µm	Omnivision OV9620 (c)/OV9121(m)	Rolling & Half Global	Mono	C, CS or M12
Lw110 & Lw115	1/3" CMOS	1.3 MP (1280 x 1024)	30	8 or 10	3.6 µm	Sony IMX035	Rolling	Color	C or CS
Lu130 & Lu135	1/2" CCD	1.4 MP (1392 x 1040)	15	8 or 12	4.65 µm	Sony ICX205	Global	Color or Mono	C or CS
Lm135	1/3" CMOS	1.4 MP (1392 x 1040)	15	8 or 12	4.65 µm	Sony ICX205	Global	Color or Mono	C or CS
Lw130R & Lw135R	1/2" CCD	1.4 MP (1392 x 1040)	30	8 or 14	4.65 µm	Sony HAD ICX205	Global	Color or Mono	C
Lw160R & Lw165R	2/3" CCD	1.4 MP (1392 x 1040)	30	8 or 14	6.45 µm	Sony ICX285	Global	Color or Mono	C or CS
Lw160P-SCI	2/3" Cooled CCD	1.4 MP (1390 x 1040)	15	8 or 12	6.45 µm	Sony ICX285	Global	Color and Mono	C
Lu160 & Lu165	2/3" CCD	1.4 MP (1392 x 1040)	15	8 or 12	6.45 µm	Sony ICX285	Global	Color or Mono	C or CS
Lm165	2/3" CCD	1.4 MP (1392 x 1040)	15	8 or 12	6.45 µm	Sony ICX285	Global	Color or Mono	C or CS
Lu170 & Lu171 & Lu175	1/2" CMOS	1.3 MP (1280 x 1024)	30	8 or 10	5.2 µm	Micron MT9M001	Rolling	Mono	C, CS or M12
Lu200B & Lu205B	1/2" CMOS	2.0 MP (1600 x 1200)	10	8 or 10	4.2 µm	SOI 268	Rolling & Half Global	Color	C or CS
Lw230 & Lw235	1/1.8" CCD	2.0 MP (1616 x 1216)	12	8 or 12	4.4 µm	Sony ICX274	Global	Color or Mono	C or CS
Lu370 & Lu371 & Lu375	1.2" CMOS	3.1 MP (2048 x 1536)	12	8 or 10	3.2 µm	Micron MT9T001	Rolling	Color	C, CS or M12
Lw560 & Lw565	2/3" CCD	5.0 MP (2448 x 2048)	9	8 or 14	3.5 µm	Sony ICX655	Global	Color or Mono	C or CS
Lw570 & Lw575	1/2.5" CMOS	5.0 MP (2592 x 1944)	7	8 or 12	2.2 µm	Micron MT9P031	Rolling & Half Global	Color or Mono	C or CS
Lm11059	35 mm CCD	11 MP (4008 x 2672)	4.3	8 or 14	9.0 µm	ON Semiconductor KAI-11002	Global	Color or Mono	Canon EF

## GIGE CAMERAS

Model Number	Sensor Type	Resolution	Frame Rate*	Bit Depth	Pixel Pitch	Sensor	Shutter	Color/Mono	Lens Mount
Lg11059	35mm CCD	11 MP (4006 X 2672)	5	8 or 14	9.0 µm	Truesense KAI-11002	Global	Color or Mono	Canon EF

Ask us about GigE camera ordering options

\*Frame rate at full resolution.

## 3RD PARTY PARTNERS

Lumenera cameras are quickly integrated with support from partners, including but not limited to:

- Cognex
- MVTec – Halcon, ActiveTools
- National Instruments – LabVIEW, Vision Builder AI
- NorPix – StreamPix
- The MathWorks – MATLAB
- VISIONx Inc. – VisionGauge

For a full list of our software technology partners please visit our website:

[www.lumenera.com/partners/technology\\_partners.php](http://www.lumenera.com/partners/technology_partners.php)

Contact us regarding additional software packages.

## CAMERA FEATURE SET

- Stable device drivers
- Interface options
  - Fast USB 3.1 Gen 1 (5 Gb/s),
  - Robust USB 2.0 (480 Mb/s),
  - Long reach GigE (1000 Mb/s)
- GPIOs - control of peripherals/synchronization of lighting
- Selectable 8, 10, 12 or 14-bit pixel data
- Color and monochrome options
- Universal SDK available
- Linux support for select platforms and cameras
- Software compatible with Windows10, 8, 7, XP at 32- and 64-bit
- DirectShow/DirectX compatible
- Adjustable lens mount
- FCC Class B, CE (enclosed cameras)
- Operate multiple cameras on one computer

## ORDERING OPTIONS

### -SCI

Scientific cameras which are manufactured with a higher grade glass and tested on a collimated light source.

### WOCG

Without any cover glass on the camera sensor.

### WOG

Without any glass within lens mount.

### WOIR

For USB 3.1 Gen 1 Cameras:  
AR/AR glass within lens mount.  
For USB 2.0 & GigE Cameras:  
Plain glass within lens mount.



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