



Product Information  
Version 1.0

## **ZEISS Axiocam 503 mono**

Your 3 Megapixel Microscope Camera for Fast Live Cell Imaging  
Fast, Flexible and Sensitive



We make it visible.

# Technical Specifications

› **Technology and Details**

› Service

**ZEISS Axiocam 503 mono**

<b>Sensor Model</b>	Sony ICX 674, EXview HAD CCD II™ Progressive Scan Quad-Port Readout Selected sensor quality
<b>Sensor Pixel Count</b>	2.83 Megapixel: 1936 (H) x 1460 (V)
<b>Pixel Size</b>	4.54 µm x 4.54 µm
<b>Sensor Size</b>	Image diagonal 11 mm, equivalent to 2/3" sensor format
<b>Spectral Sensitivity</b>	Approx. 400 nm – 1000 nm, annealed BK 7 protective glass
<b>Max Full Well Capacity (typical)</b>	15.000 e- per pixel
<b>Signal Amplification</b>	Adjustable analog amplification: 1x, 2x, 3x
<b>Digitization</b>	14 Bit / Pixel
<b>Readout Speed</b>	39 Mhz, 13 Mhz, switchable readout clock speed
<b>Readout Noise (typical)</b>	6.5 e- at 39 Mhz 6.0 e- at 13 Mhz
<b>Dynamic Range (typical)</b>	1:2500 (68 dB)
<b>Dark Current (typical)</b>	<0,06 e-/p/s at 18 °C sensor temperature
<b>Cooling</b>	Regulated thermoelectric cooling (power supplied through USB 3.0 and USB 2.0 ports) Delta-T 20 °C, sensor temperature 18 °C
<b>Dark Current Compensation</b>	Digital Dark Current Compensation for optimum low light performance at long exposure times Automatic Hot Pixel Correction
<b>Exposure Time Range</b>	250 µs to 60 s

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Binning Modes and Frame Rates	Binning	Pixel Count (H x V)	Mode	FPS @ 1 ms
	1x1	1936 x 1460	Mono	38
	2x2	968 x 728	Mono	61
	3x3	640 x 484	Mono	76
	4x4	480 x 364	Mono	87
	5x5	384 x 292	Mono	93
	ROI	1936 x 1080	Mono/Center	45
	ROI	1936 x 512	Mono/Center	69
(exposure time < readout time)				
Color Interpolation Modes	n.a.			
Live Frame Rates	Max. Frame Rate	Binning factor / Mode	Resolution / Pixel	
Max. Ratings at optimum settings	38 frames/s	1/slow	1936 x 1460	
Hardware and Color Enhancement Off	61 frames/s	2/medium	968 x 728	
	76 frames/s	3/fast	640 x 484	
Data-Post Processing (optional)	Lens specific shading correction			
	Sharpening			
	Black reference, dark current compensation			
	Noise filter			
Special Features	Timing from camera for precise acquisition timing			
	Auto Switch Mode for Single Port / Dual Port / Quad Port Readout			
	Adjustable intensity of status LED			
Special Preset Modes	Eight pre-loadable sets of imaging parameters for speed optimized multi modal image acquisition			
	Overlapping exposure and readout for fast time lapse imaging			
Switchable Sensor Output Amplifier	Single Port Readout for long exposure times for maximum signal quality			
	Dual Port or Quad Port Readout for improved readout speed at full resolution			
	Automatic port activation mode or full manual mode			

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<b>Region of Interest (ROI)</b>	User defined imaging sub area for improvement of readout speed and reduction of amount of data
<b>Hardware Trigger</b>	Galvanically isolated I/O-signals Three output signals: exposure time, readout time, trigger ready, i.e. for controlling external mechanical shutters One trigger input for exposure control, 5V auxiliary voltage, GND
<b>Status LED</b>	Top LED: camera status (acquisition, power, cooling, speed) Back LED: trigger status
<b>Interface</b>	USB 3.0 SuperSpeed (5 Gbit/s) Bandwidth max. 240 MB/s USB 2.0 optional, with lower speed
<b>Optical Interface</b>	C-Mount (17.5 mm)
<b>Max. File Size per Image</b>	Approx. 5.6 MB per image with 1936 x 1460 Pixels at 14 Bit/Pixel
<b>Operating Systems</b>	Microsoft® Windows 7 Ultimate, Enterprise and higher
<b>Size (W x H x D) / Weight</b>	10.8 cm x 4.3 cm x 7.8 cm / 500 g
<b>Housing</b>	Blue anodized aluminum ¼" standard camera mount screw thread Zero vibration by convection-cooling, optimized cooling fins Teflon coated C-Mount thread
<b>Certificates</b>	CE
<b>Power Supply</b>	Max. 7W power consumption power by USB 2.0 and USB 3.0-Bus from PC For maximum performance connection to USB 3.0 and USB 2.0 required, dual connection cabling provided with camera

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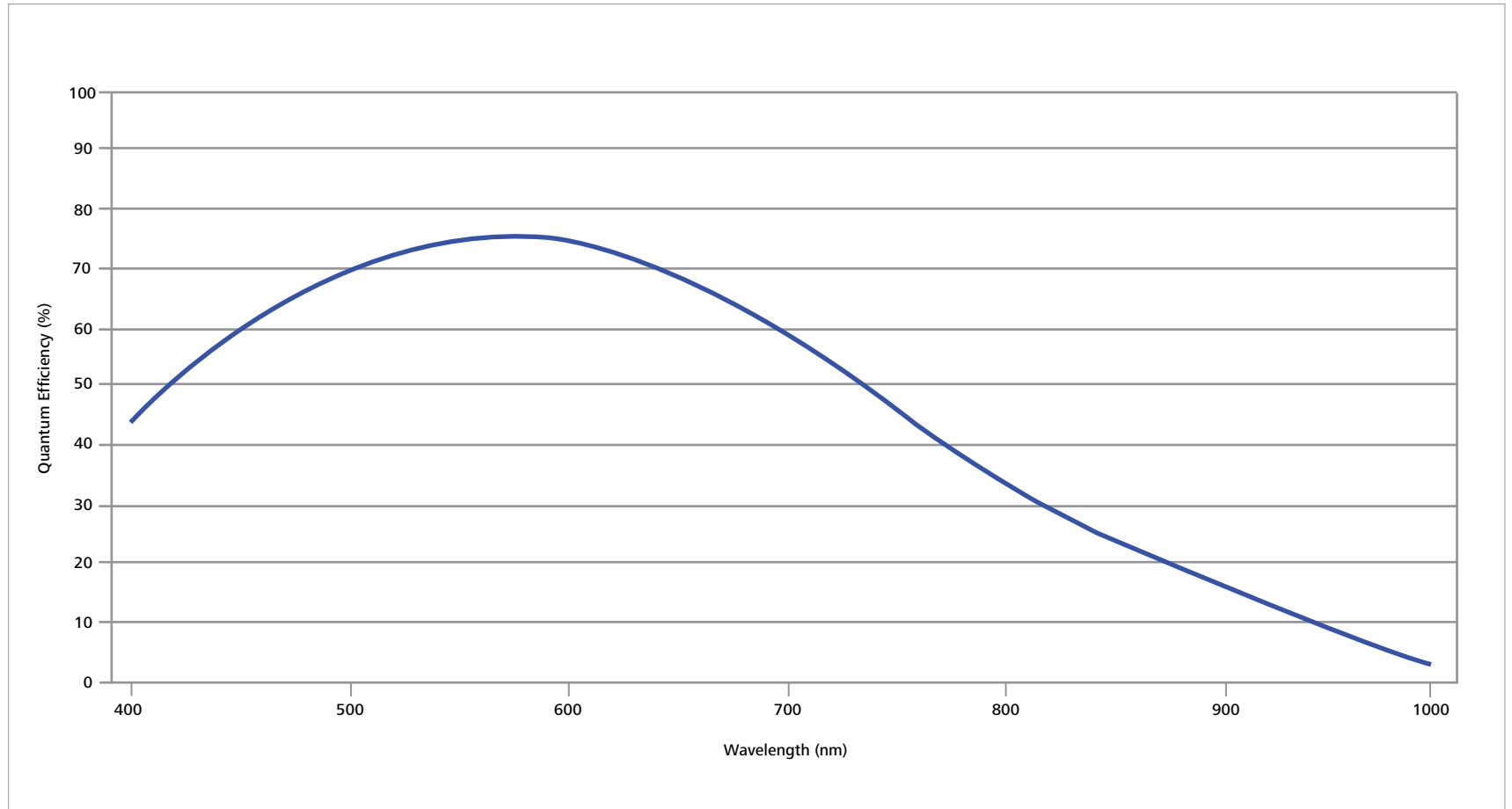
Ambient Conditions (Operation)	+5 °C ... +35 °C
	Max. 80% relative humidity, non-condensing
	Free air circulation required
Ambient Conditions (Storage)	-15 °C ... +60 °C
	90% relative humidity at +40 °C, 80% relative humidity at +20 °C, non-condensing
Order Number	426559-0000-000

*All frame rates are maximum values at short exposure times below readout time of the sensor. Exposure time, computer hardware operating system and software can reduce the maximum achievable frame rates. By using binning or sensor sub regions (ROI), the frame rates can be further increased. Technical data is subject to changes due to technical progress.*

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## Count on Service in the True Sense of the Word

› Technology and Details

› **Service**

Because the ZEISS microscope system is one of your most important tools, we make sure it is always ready to perform. What's more, we'll see to it that you are employing all the options that get the best from your microscope. You can choose from a range of service products, each delivered by highly qualified ZEISS specialists who will support you long beyond the purchase of your system. Our aim is to enable you to experience those special moments that inspire your work.

### **Repair. Maintain. Optimize.**

Attain maximum uptime with your microscope. A ZEISS Protect Service Agreement lets you budget for operating costs, all the while reducing costly downtime and achieving the best results through the improved performance of your system. Choose from service agreements designed to give you a range of options and control levels. We'll work with you to select the service program that addresses your system needs and usage requirements, in line with your organization's standard practices.

Our service on-demand also brings you distinct advantages. ZEISS service staff will analyze issues at hand and resolve it – whether using remote maintenance software or working on site.

### **Enhance Your Microscope System.**

Your ZEISS microscope system is designed for a variety of updates: open interfaces allow you to maintain a high technological level at all times. As a result you'll work more efficiently now, while extending the productive lifetime of your microscope as new update possibilities come on stream.

Please note that our service products are always being adjusted to meet market needs and maybe be subject to change.



*Profit from the optimized performance of your microscope system with services from ZEISS – now and for years to come.*

>> [www.zeiss.com/microservice](http://www.zeiss.com/microservice)



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We make it visible.