Product Information
Version 1.0

ZEISS Axiocam 503 color

Your 3 Megapixel Microscope Camera for Fast Image Acquisition
Fast, in True Color and Regular Field of View

We make it visible.

Technical Specifications

ZEISS Axiocam 503 color	
Sensor Model	Sony ICX 674, EXview HAD CCD II ™
	Progressive Scan
	Quad-Port Readout
	Selected sensor quality
Sensor Pixel Count	2.83 Megapixel: 1936 (H) x 1460 (V)
Pixel Size	4.54 µm x 4.54 µm
Sensor Size	Image diagonal 11 mm, equivalent to ⅔" sensor format
Spectral Sensitivity	Approx. 400 nm – 720 nm, coated BG 40 IR Cut Filter,
	RGB Bayer color filter mask
Max Full Well Capacity (typical)	15.000 e- per pixel
Signal Amplification	Adjustable analog amplification 1x, 2x, 3x
Digitization	14 Bit / Pixel
Read Out Speed	39 Mhz, 13 Mhz, switchable readout clock speed
Readout Noise (typical)	6.5 e- at 39 Mhz
	6.0 e- at 13 Mhz
Dynamic Range (typical)	1:2500 (68 dB)
Dark Current (typical)	< 0,06 e-/p/s at 18 °C sensor temperature
Cooling	Regulated thermoelectric cooling (power supplied through USB 3.0 and USB 2.0 ports)
	Delta-T 20 °C, sensor temperature 18 °C
Dark Current Compensation	Digital Dark Current Compensation for optimum low light performance at long exposure times
	Automatic Hot Pixel Correction
Exposure Time Range	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	Color/Mono	38
	2x2	968 x 728	Mono	61
	3x3	640 x 484	Color/Mono	76
	4x4	480 x 364	Mono	87
	5x5	384 x 292	Color/Mono	93
	ROI	1936 x 1080	Color/Mono	45
	ROI	1936 x 512	Color/Mono	69
	(exposure time < readout time)			
Color Interpolation Modes	High Speed: optimum speed color interpolation			
	High Quality: optimum quality color interpolation			

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 Enhancements Off	76 frames/s	3/medium	640 x 484
	93 frames/s	5/fast	384 x 292
Data-Post Processing (optional)	Lens specific shading correction		
	Sharpening, noise filter, color enhancement		
	Black reference, dark current compensation		
Special Features	Time stamp from camera for precise acquisition timing		
	Auto Switch Mode fur 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		

Technical Specifications

Switchable Sensor Output Amplifier	Single Port Readout mode for long exposure times for maximum signal quality
	Dual Port and Quad Port Readout Mode for improved readout speed at full resolution
	Automatic port activation mode or full manual mode
Region of Interest (ROI)	User defined imaging sub area for improvement of readout speed and reduction of amount of data
Hardware Trigger	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
Status LED	Top LED: camera status (acquisition, power, cooling, speed)
	Back LED: trigger status
Interface	USB 3.0 SuperSpeed (5 Gbit/s)
	Bandwidth max. 240 MB/s
	USB 2.0 optional, with lower speed
Optical Interface	C-Mount (17.5 mm)
Max. File Size per Image	Approx. 17 MB per image with 1936 x 1460 Pixels at 3 x 14 Bit/Pixel
Operating Systems	Microsoft® Windows 7 Ultimate, Enterprise and higher
Size (W x H x D) / Weight	10.8 cm x 4.3 cm x 7.8 cm / 500 g
Housing	Blue anodized aluminum
	¼" standard camera mount screw thread
	Zero Vibration by convection-cooling, optimized cooling fins
	Teflon coated C-mount thread
Certificates	CE
Power Supply	Max. 7 W power consumption, powered by USB 2.0 and USB 3.0-Bus from PC
	For maximum performance connection to both USB 3.0 and USB 2.0 required (dual connection cabling provided with camera)

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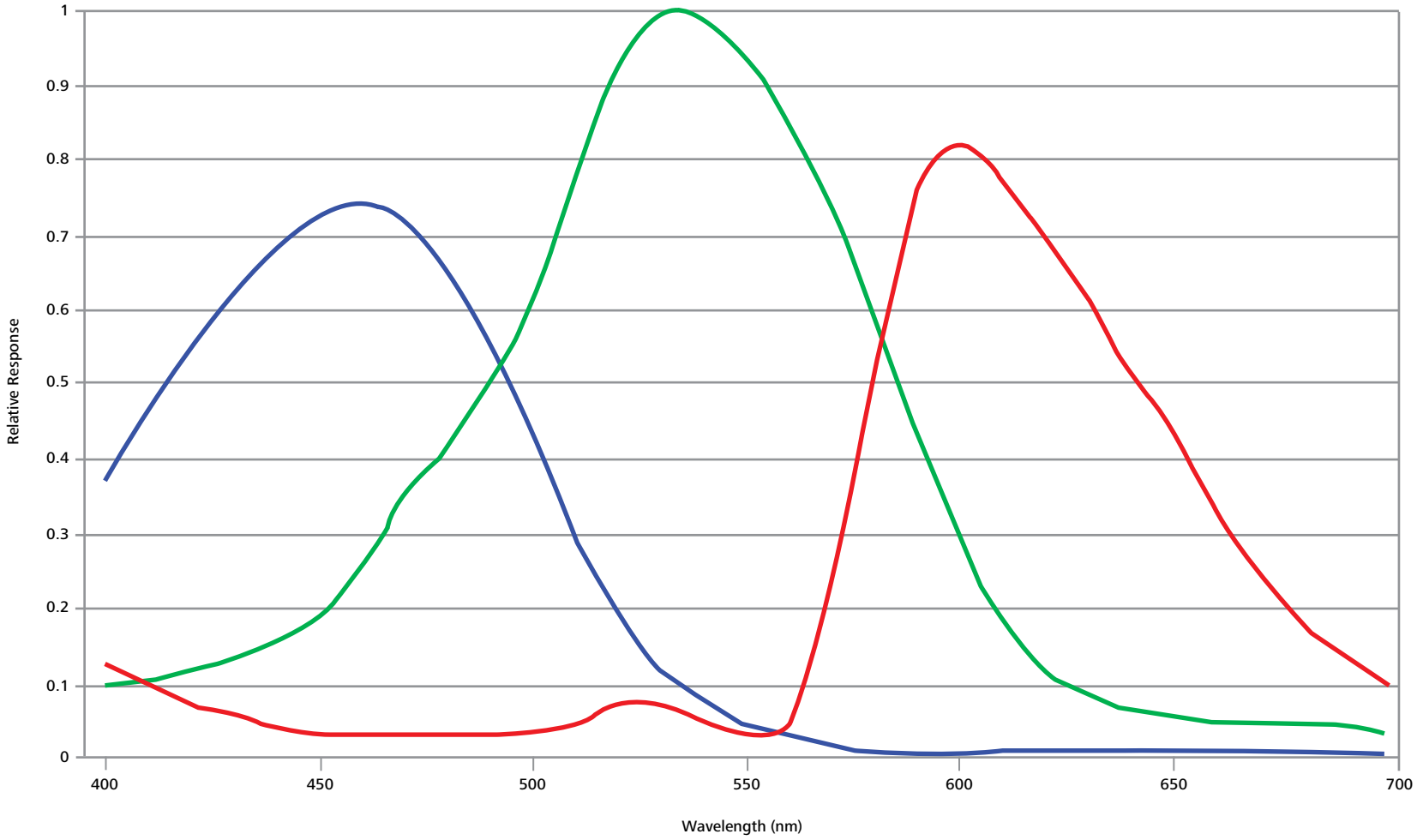
Ambient Conditions (Operation)	+5 °C ... +35 °C
	Max. 80 % relative humidity, non-condensing
	Free air circulation required
Ambient Conditions (Storage)	−15 °C ... +60 °C
	90 % relative humidity at +40 °C, 80 % relative humidity at +20 °C, non-condensing
Order Number	426558-0000-000

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.

Technical Specifications

› **Technology and Details**

› Service



Count on Service in the True Sense of the Word

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.

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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.

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