Product Information
Version 1.1

ZEISS Axiocam 702 mono

Your 2.3 Megapixel Microscope Camera for Fast Low Light and Live Cell Imaging

Technical Specifications

› Technology and Details
› Service

ZEISS Axiocam 702 mono	
Sensor Model	Sony IMX174 Exmor Pregius
	Global Shutter
	Active Pixel CMOS
	Selected sensor quality
Sensor Pixel Count	2.3 MP: 1920 (H) x 1216 (V)
Pixel Size	5.86 µm x 5.86 µm
Sensor Size	Effective sensor size: 11.3 mm x 7.1mm; image diagonal 11.3mm, equivalent to 1/1.2" sensor format
Spectral Sensitivity Range	Approx. 350 nm – 1000 nm, coated BK 7 protective glass
Max Full Well Capacity (typical)	32000 e
Digitization	14 bit (by data processing, native 12 bit by ADC)
Readout Speed	594 Mbit/s over 8 channels
Readout Noise (typical)	min 3.75e at gain 16×
Dynamic Range (typical)	Typical > 5000:1 at gain 1×, HDR Mode 25.000:1
Dark Current (typical)	<1.1e/p/s at 15° C sensor temperature
Cooling	Regulated thermoelectric cooling (power supplied through USB 2.0 ports)
	Delta-T 23 °C, sensor temperature 15 °C
Dark Current Compensation	Dark current compensation for best low light performance at long exposure times
Exposure Time Range	0.1ms – 60 s

Technical Specifications

› **Technology and Details**
› Service

Frame Rates	Pixel Count (H x V)	FPS @ Exposure Time <1 ms
	1920 x 1216	128
	1920 x 720	210
	1920 x 512	288
	1920 x 256	534
	1920 x 128	881
	1024 x 112	1003
Color Interpolation Modes	n.a.	

Live Frame Rates	Max. Frame Rate	Mode	Resolution / Pixel
Max. Ratings at optimum settings	>100 fps	1/slow	1920 x 1216
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 Bandwith Optimization for maximum image transmission speed		
	Adjustable intensity of status LED		
Special Preset Modes	Eight pre-loadable sets of imaging parameters for speed optimized multi modal image acquisition (internally used by ZEN)		
	Overlapping exposure and readout for fast time lapse imaging		
High Dynamic Range	Dynamic Range 1:25.000 at 5e read noise (equivalent full well 160.000e)		
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, 5 V auxiliary voltage, GND		
Status LED	Top LED: camera status (acquisition, power, cooling, speed)		
	Back LED: trigger status		

Technical Specifications

Interface	USB 3.0 SuperSpeed (5 Gbit/s)
	Bandwidth max. 300 MB/s
	USB 2.0 optional, with lower speed
Optical Interface	C-Mount (17.5 mm)
Max. File Size per Image	Approx. 4,7 MB per image with 1920 x 1216 Pixels at 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 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
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

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.

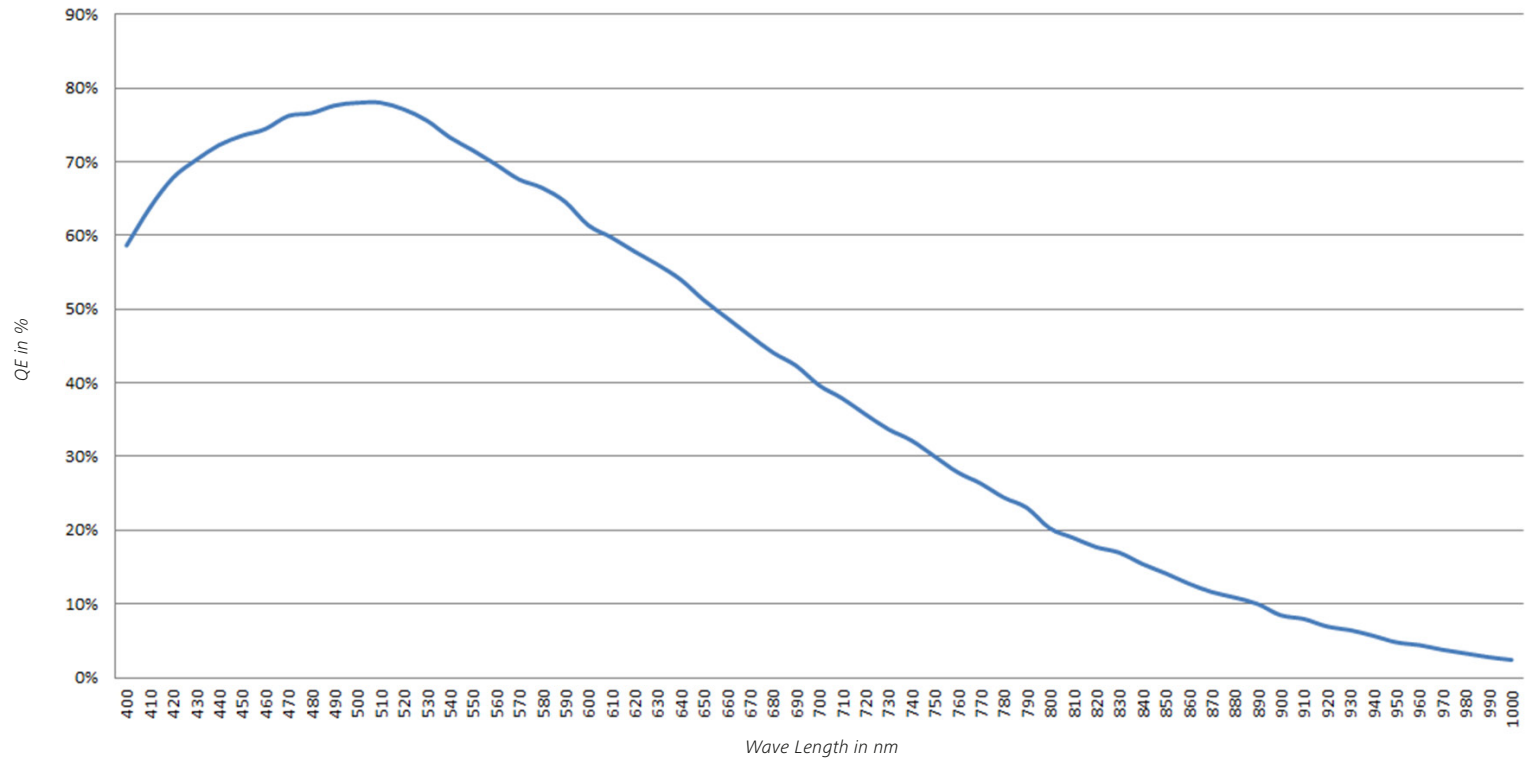
Technical Specifications

› **Technology and Details**

› Service

Quantum Efficiency Axiocam 702 mono

IMX174 without cover glass*



** Peak QE may be reduced by appr. 6% due to cover glass*

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 them – 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.

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

>> www.zeiss.com/microservice

Carl Zeiss Microscopy GmbH
07745 Jena, Germany
microscopy@zeiss.com
www.zeiss.com/axiocam