



Product Information
Version 1.1

ZEISS Axiocam 512 color

Your 12 Megapixel Microscope Camera for Imaging
of Large Sample Areas – Fast, in True Color, and High Resolution



Technical Specifications

› **Technology and Details**

› Service

ZEISS Axiocam 512 color

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|----------------------------------|--|
| Sensor Model | Sony ICX 834, EXview HAD CCD II™ Progressive Scan Quad-Port Readout Selected sensor quality |
| Sensor Pixel Count | 12 Megapixel: 4250 (H) × 2838 (V) |
| Pixel Size | 3,1 µm x 3,1 µm |
| Sensor Size | Effective sensor size: 13,2 mm x 8,8 mm; image diagonal 16 mm, equivalent to 1" sensor format |
| Spectral Sensitivity | Approx. 400 nm - 720 nm, coated Hoya C5000 IR Cut Filter RGB Bayer color filter mask |
| Max Full Well Capacity (typical) | 9.000 e- |
| Signal Amplification | analog amplification: 1x, 2x, 3x |
| Readout Speed | 39 MHz, 13 Mhz |
| Readout Noise (typical) | 6,8 e- at 39 Mhz 6,5 e- at 13 Mhz |
| Dynamic Range (typical) | 1:1380 (63 dB) |
| Digitization | 14 Bit / Pixel |
| Dark Current (typical) | <0,1 e-/p/s at 23 °C sensor temperature |
| Cooling | Regulated Peltier-cooling (power supply via USB 3.0 and USB 2.0) Sensor temperature 23 °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 | 4248 x 2832 | Color/Mono | 10 |
| | 2x2 | 2120 x 1416 | Mono | 19 |
| | 3x3 | 1416 x 944 | Color/Mono | 26 |
| | 4x4 | 1056 x 708 | Mono | 31 |
| | 5x5 | 848 x 564 | Color/Mono | 35 |
| | ROI | 1936 x 1080 | Color/Mono | 22 |
| | ROI | 1936 x 512 | Color/Mono | 36 |
| (exposure time = 1 ms) | | | | |
| 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 | |
| Maximum ratings at optimum hardware settings | 10 frames/s | 1 / slow | 4248 x 2832 | |
| | 26 frames/s | 2 / medium | 1416 x 944 | |
| | 35 frames/s | 3 / fast | 848 x 564 | |
| Data-Post Processing (optional) | Objective specific shading correction | | | |
| | Sharpening | | | |
| | Black reference, dark current compensation | | | |
| | Color enhancement | | | |
| Special Features | Time stamp from camera for precise acquisition time point | | | |
| | Auto Switch Mode for Single Port / Dual Port / Quad Port Readout | | | |
| | Adjustable intensity of status LED | | | |
| | Dual Port / Quad Port Readout | | | |
| 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 | | | |

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|---|---|
| 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 |
| Region of Interest (ROI) | User defined imaging sub area for improvement of readout speed and reduction of amount of data |
| Hardware Trigger | Galvanic 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 Mbytes/s |
| | USB 2.0 optional, with lower speed |
| Optical Interface | C-Mount |
| Max. File Size per Image | Approx. 72,4 MB per image with 4248 x 2208 Pixel at 3 x 14 Bit/Pixel |
| 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" thread for camera equipment |
| | Zero vibration by convection-cooling, optimized cooling fins |
| | Teflon coated C-Mount thread |
| | Coated IR filter |
| Certificates | CE |
| Power Supply | 7 W power consumption, power supply camera: USB 3.0, power supply Peltier-cooling: USB 2.0 |
| | For maximum performance connection to USB 3.0 and USB 2.0 required |
| | Dual connection cabling provided with delivery |

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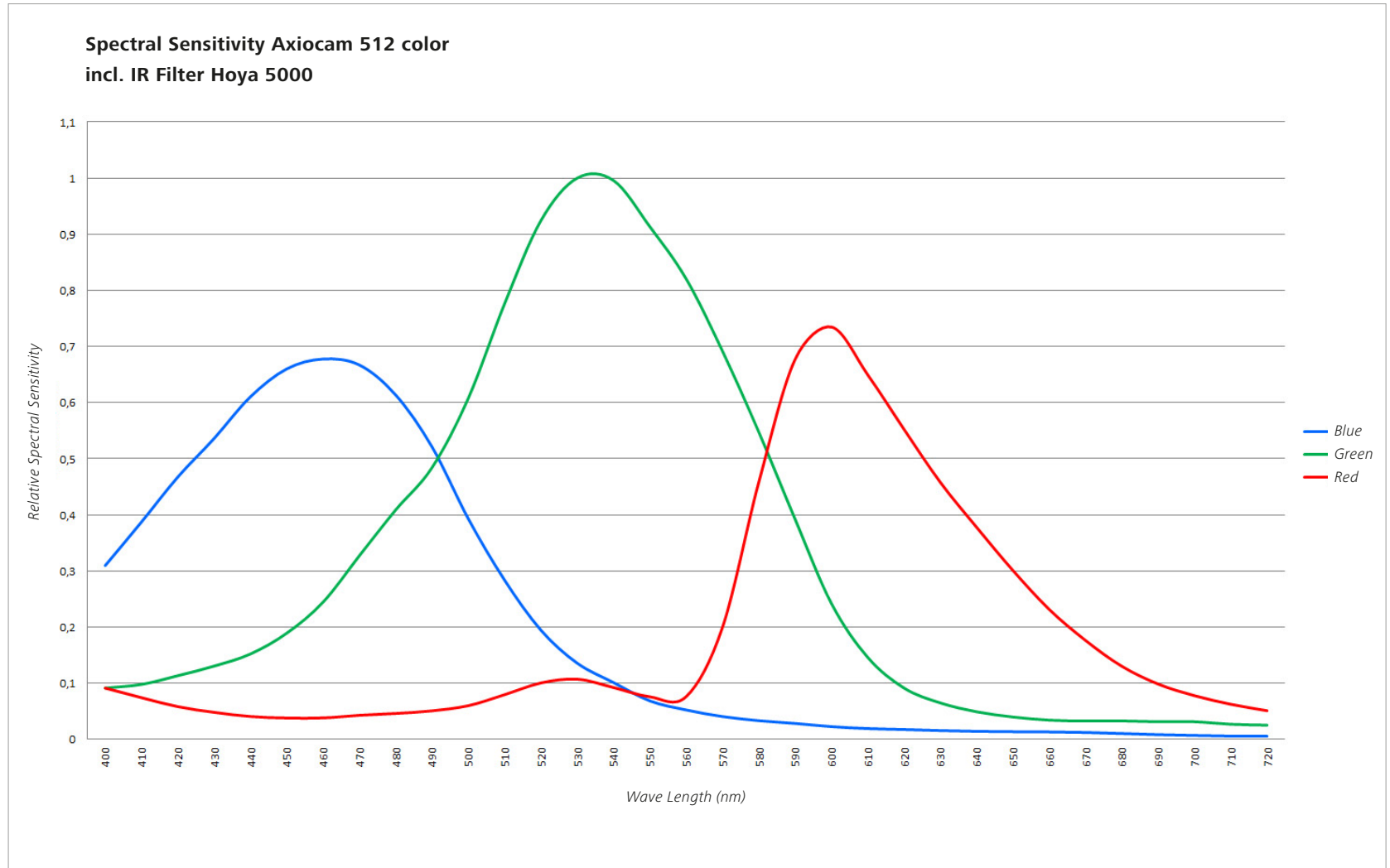
| | |
|---------------------------------------|--|
| Ambient Conditions (Operation) | +5 °C ... +35 °C |
| | Max. 80% relative humidity, non-condensing |
| | Free air circulation required |
| Ambient Conditions (Storage) | -15 °C ... +60 °C |
| | 90% relative humidity at +40 °C, 80% relative humidity at +20 °C, non-condensing |
| Operating System | Windows 7 x64 Ultimate/Professional |
| Software | ZEN 2 starter/lite/core/pro/system, AxioVision SE64 4.9.1 SP2 or higher |

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 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.

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