MOTICAM

MOTICAMPRO

PROFESSIONAL CCD MICROSCOPY CAMERAS


MoticamPro
TENSION

MOTICAMPRO

The Moticam PRO series contains **12 models** with different **SONY ICX** sensor resolutions and technical characteristics, providing users with a wide variety of options to choose from.

It includes **Colour CCD** imaging sensors for conventional microscopy techniques, **Monochrome CCD** imaging sensors for low luminosity microscopy and **Peltier cooled CCD Colour and Monochrome** imaging sensors for fluorescence microscopy. The cameras are assembled and tested to the highest standards in the clean room at our factory.

All Moticam PRO cameras come with the universal c-mount thread and are connected to the PC via a USB 2.0 port. The Moticam PRO Series comes with the well known and user-friendly Motic Images Plus 2.0 analyzing software (multilanguage). Additionally with any Moticam PRO, the sophisticated **Motic Images Advanced 3.2** is supplied free of charge. Furthermore the Motic TWAIN drivers, Direct Show drivers (via our website) and the SDK are included with the software package of the Moticam PRO.

Peltier Cooling device

When using a camera for a long time, the sensor gets warmer and warmer. When using long exposure times, it becomes more sensitive to noise and this can be seen in the captured image. With our Peltier mechanism, the sensor is cooled down up to 10°C below ambient temperature (ambient = the temperature inside the camera case). **Peltier Cooled cameras** are therefore recommended for fluorescence applications.

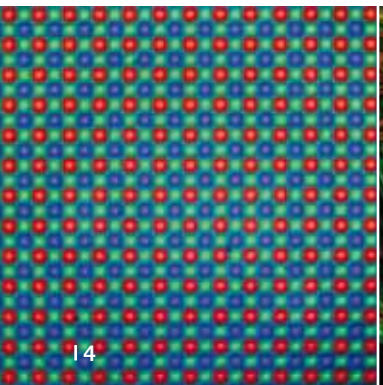
Live readout

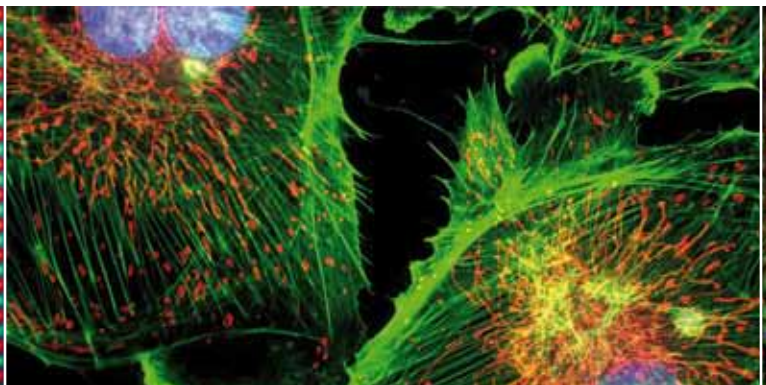
The cooled version of the Moticam PRO features a **built-in sensor** arrays that allows the user to see **live updated information** on the Sensor and Ambient Temperature, as well as the Relative Humidity inside the casing. Thus eliminating the possibility of condensation brought on by rapid cooling. Additionally the user can set a "Target Temperature".

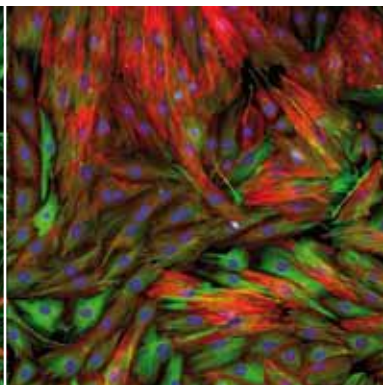
Colour and Monochrome

Colour cameras use a RGB primary colour mosaic filter on the chip. The distribution is standard; 25% Red, 50% Green and 25% Blue. Most of the time when working in fluorescence only one colour is revealed; therefore not allowing all available pixels to receive information. Just imagine seeing a blue image through the eyepieces, this means that only 25% of the total pixels are receiving and distributing information.

The **Monochrome** cameras do not have any colour filter and therefore each pixel records the amount of light it sees. It does not transmit any information on the colour of the sample to the computer. For these reasons monochrome cameras can definitely be considered when working with **fluorescence**. You will have better chances of capturing low light samples when using the full capacity of the pixels in the chip. Of course colour is important in fluorescence, but this can be added at a later stage with software.



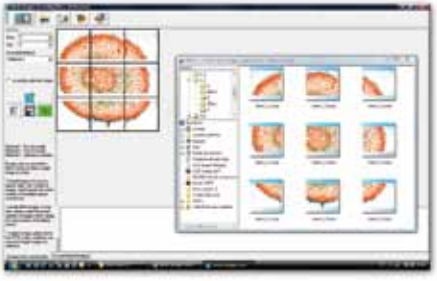




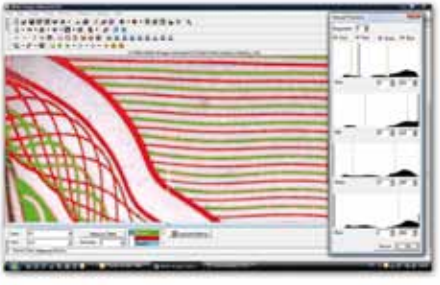
MODEL		SONY SENSOR	SENSOR SIZE	PIXEL SIZE	RESOLUTION				
MOTICAMPRO 205	A	ICX205AK	1/2”	4,65 x 4,65	1360 x 1024		●		
	B						●	●	
	C	ICX205AL				●			
	D					●		●	
MOTICAMPRO 252	A	ICX252AQ	1/1.8”	3,45 x 3,45	2080 x 1542		●		
	B						●	●	
MOTICAMPRO 282	A	ICX282AQ	2/3”	3,40 x 3,40	2580 x 1944		●		
	B						●	●	
MOTICAMPRO 285	A	ICX285AQ	2/3”	6,45 x 6,45	1360 x 1024		●		●
	B						●	●	●
	C	ICX285AL				●			●
	D					●		●	●

NOMENCLATURE Monochrome Colour Peltier cooled High speed

Motic Images Advanced 3.2 - Counting



Motic Images Advanced 3.2 - Assembly



Motic Images Advanced 3.2 - Segmentation

Motic Images Advanced 3.2 - Selection

Motic Images Plus 3.2

This software contains all functions of our well-known Motic Images Plus 2.0 software plus much more. Its main features are:

Capture	Automated counting
Auto Capture	Creating reports
Video recording	Image comparison
Measurements	Amalgamation

What makes **Motic Images Advanced 3.2** software a more sophisticated version are the following features: segmentation, multi-focus and assembly.

Segmentation

The superior counting module allows you to perform **manual segmentations** by using a histogram (colour), grey scale or by selecting the size. You can create in one sample different groups, which will be highlighted in different colours. After the segmentation has been performed, you will have information about the area in square µm, perimeter, width, height and much more details. The results of the segmentation can be exported in an excel file for further analysis.

Assembly

This module can be used for **creating a single overview image out of multiple separate images**. The software recognizes any overlapping and corrects this automatically. This software is specially designed for users who wish to have an overview of the complete sample, while working at a higher magnification.

Multi Focus

The multi-focus module can be used to capture up to **100 images taken at different focusing levels.** The software will automatically recognize the parts that are in focus in each image and assemble them into a new file. The result is **a single image that is completely in focus.**

** Motic Images Advanced 3.2 is available in English language and is only compatible with PC.*

Hardware

- Sony ICX CCD imaging sensor
- Motic control, processing & imaging boards
- Built-in 4 frame buffer*
- Built-in FPGA processor*
- TTL trigger port*
- Schott BG-40 filter
- CS/C mount (c-ring provided)
- USB2.0 data mini port (usb cable provided)
- Universal power supply (for cooled cameras only)
- Peltier cooling device (for cooled cameras only)
- Cooling up to 10 degrees below ambient with temperature readout

** Unlockable with SDK integration*

Software

- Motic Images Plus application software
- Motic Images Advanced application software for Windows computer only*
- Twain drivers
- Motic SDK
- Motic Direct Show drivers
- Motic MI Devices live imaging module with live calibration grid, scale cross and scale bars

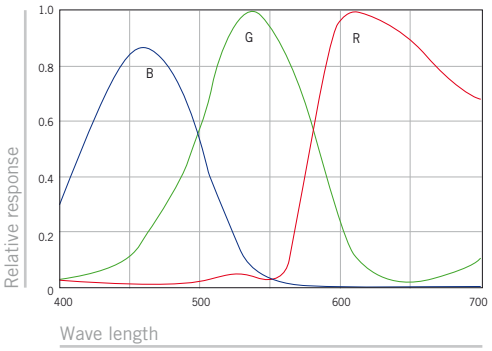
** Available through free download*

Minimum computer specifications

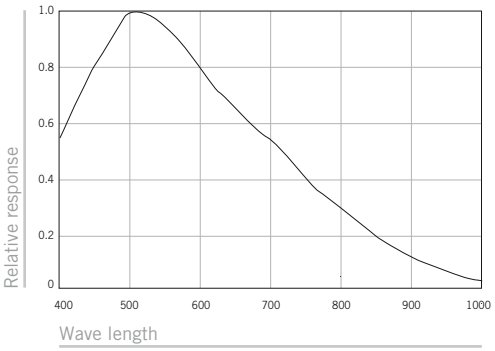
- Intel 1GHZ
- 1GB RAM
- USB 2.0
- Windows XP (SP3)
- Macintosh OSX

Quantum Efficiency Diagrams

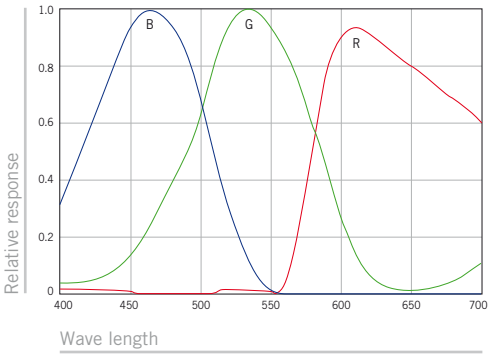
Moticam Pro 205A & 205B



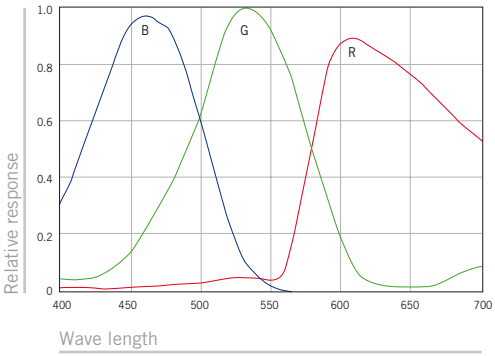
Moticam Pro 205C &205D



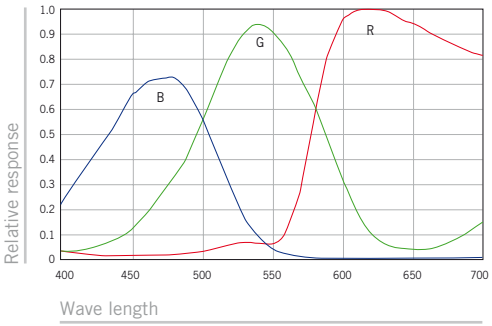
Moticam Pro 252A & 252B



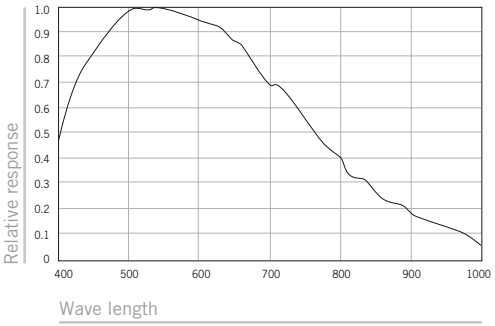
Moticam Pro 282A & 282B



Moticam Pro 285A & 285B



Moticam Pro 285C & 285D



Available options

Video Device	Connection of multiple devices at the same time (Selection of the active device)
ROI function	Region Object Interest (manual selection)
Exposure time	Manual / Automatic
Full screen	Automatic
White Balace	Set Method, color balance ajustment
Image adjustments	Gain / Offset / Enhance / Gamma
Storage Format	SFC / JPG / BMP / TIFF / DCM (Available on Motic Advanced 3.2)
Background Balance	Manual
Color correction	+/- 10 (RGB)
Histogram	Live window in real time
Filters Live Image	Invert / Gray / Emboss / Red / Green / Blue / Red reverse / Green reverse / Blue reverse
Edge detection	0 /10
Sharpness	+/- 10
Remove Noise	4 Levels
Scale	Live Images, Horizontal and Vertical (user configurable)
Grid	User configurable
Scale Cross	X e Y distances (select position)
Record parameters	Single capture / Auto capture / Video Capture
Cooled Enable	Only avalaible with cooled cameras
Cooled Cameras	Internal Sensor with target window (Sensor temp / Ambient temp / Ambient humidity / Dow point)

Moticam Pro	205A	252A	282A	285A	205B	252B
CCD Sony ICX	1/2"	1/1.8"	2/3"	2/3"	1/2"	1/1.8"
Features	Colour				Colour	
Resolution	1.4 Mp	3.2 Mp	5.0 Mp	1.4 Mp	1.4 Mp	3.2 Mp
Total pixels	1392x1040	2088x1550	2588x1960	1392x1040	1392x1040	2088x1550
Number of active pixels	1360x1024	2080x1542 (4:3)	2580x1944	1360x1024 (4:3)	1360x1024	2080x1542 (4:3)
Pixel Size (microns)	4.65x4.65	3.45x3.45	3.40x3.40	6.45x6.45	4.65x4.65	3.45x3.45
Live display mode and capture size	1360x1024 680x512 320x256 Select Size (ROI)	2048x1536 1024x768 512x384 Select Size (ROI)	2560x1920 1280x960 640x480 Select Size (ROI)	1360x1024 680x512 340x256 Select Size (ROI)	1360x1024 680x512 320x256 Select Size (ROI)	2048x1536 1024x768 512x384 Select Size (ROI)
Scan	Progressive	Frame Readout		Progressive		Frame
Maximun Frame Rate*	10 frames/S	8.5 frames/S	7 frames/S	15 frames/S	10 frames/S	8.5 frames/S
Buffer	4 Frames					
Integrated Filter	Schott BG 40 Bandpass					
Bit Depth	8 bits / 12 Bits (Switchable through MI Device, usable with application software that supports 12 Bit)					
Shutter	Continuous Variable-Speed					
Lens mount	C-Mount					
Exposure Time	1/1000 to 6 sec					
Data Transfer	Mini USB2.0 connection					
Power Supply	5V (USB)				Universal Power Supply (5V)	
Peltier Device					Up to 10° Celsius below ambient	
Operating Temperature	0 ~ 60° C					
Operating Humidity	40% - 80% (35°)					
Camera Data Readout	Sensor Temperature, Ambient Temperature, Relative Humidity, Dew Point					
Dimensions	117mm (L) x 65mm (W) x 62mm (H)					
Weight	406 gr				546 gr	
Support Device	Driver USB2 Device / TWAIN / SDK / Direct Show Driver / Trigger Port (TTL)					
OS Compatibility	Windows XP / Vista / Seven and MAC OSX					
Software Suite	Motic Images Plus 2.0 (PC & MAC), Motic Images Advanced 3.2 (PC), TWAIN, SDK, Motic Direct Show Drivers					

**under optimal illumination conditions*

282B	285B	205C	285C	205D	285D	Moticam Pro
2/3"	2/3"	1/2"	2/3"	1/2"	2/3"	CCD Sony ICX
Peltier		Monochrome		Monochrome Peltier		Features
5.0Mp	1.4 Mp	1.4Mp	1.4 Mp	1.4Mp	1.4 Mp	Resolution
2588X1960	1392x1040	1392x1040	1392x1040	1392x1040	1392x1040	Total pixels
2580x1944	1360x1024 (4:3)	1360x1024	1360x1024 (4:3)	1360x1024	1360x1024 (4:3)	Number of active pixels
3.40x3.40	6.45x6.45	4.65x4.65	6.45x6.45	4.65x4.65	6.45x6.45	Pixel Size (microns)
2560x1920 1280x960 640x480 Select Size (ROI)	1360x1024 680x512 340x256 Select Size (ROI)	1360x1024 680x512 320x256 Select Size (ROI)	1360x1024 680x512 340x256 Select Size (ROI)	1360x1024 680x512 320x256 Select Size (ROI)	1360x1024 680x512 340x256 Select Size (ROI)	Live display mode and capture size
Readout	Progressive					Scan
7 frames/S	15 frames/S	10 frames/S	15 frames/S	10 frames/S	15 frames/S	Maximun Frame Rate
4 Frames						Buffer
Schott BG 40 Bandpass						Integrated Filter
8 bits / 12 Bits (Switchable through MI Device, usable with application software that supports 12 Bit)						Bit Depth
Continuous Variable-Speed						Shutter
C-Mount						Lens mount
1/1000 to 6 sec						Exposure Time
mini USB2.0 connection						Data Transfer
Universal Power Supply (5V)		5V (USB)		Universal Power Supply (5V)		Power Supply
Up to 10° Celsius below ambient				Up to 10° Celsius below ambient		Peltier Device
0 ~ 60° C						Operating Temperature
40% - 80% (35°)						Operating Humidity
Sensor Temperature, Ambient Temperature, Relative Humidity, Dew Point						Camera Data Readout
117mm (L) x 65mm (W) x 62mm (H)						Dimensions
546 gr		406 gr		546 gr		Weight
Driver USB2 Device / TWAIN / SDK / Direct Show Driver / Trigger Port (TTL)						Support Device
Windows XP / Vista / Seven and MAC OSX						OS Compatibility
Motic Images Plus 2.0 (PC & MAC), Motic Images Advanced 3.2 (PC), TWAIN, SDK, Motic Direct Show Drivers						Software Suite

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