

OPTIKA

M I C R O S C O P E S

I T A L Y



**DIGITAL,
PHOTO AND VIDEO
SOLUTIONS
FOR MICROSCOPY**

Enjoy the digital experience

COMPANY



Italian headquarters

Optika Microscopes is the optical microscopy division of M.A.D. Apparecchiature Scientifiche, a Company established over 30 years ago as a key actor in the field of scientific instrumentation.

A team of 60 people in 4 European locations works on the development of new models, on production, on quality control, on supply and aftersales services. A network of local distributors extends to the end users the Optika excellence in quality, innovation, competitive prices and assistance.

To the present day, Optika Microscopes offers more than 80 different microscope models, with full accessories, for the most diverse fields of optical microscopy. A challenging market, that Optika Microscopes approaches with professionalism and commitment.

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Index



DIGITAL VIDEO CAMERAS pag. 4

DIGITAL STILL-IMAGE CAMERA KITS pag. 8

EDUCAM® ANALOG VIDEO CAMERAS pag. 10

VC SERIES ANALOG VIDEO CAMERAS pag. 11

OPTIKA VISION® SOFTWARE pag. 12

OPTIKAM® 2/3

MID-RESOLUTION DIGITAL VIDEO CAMERAS

For PC-USE

OPTIKAM® 2



OPTIKAM® 3



Universal system for video and still-image capturing through eyepieces at MIDDLE resolution.

It can be used both with biological and stereo microscopes.

An optional adapter (depending on the microscope model) can be used to connect it to trinocular microscopes.



Technical Features

OPTIKAM® 2

OPTIKAM® 3

Resolution	640 x 480 pixels (350 k pixels)	1280 x 1024 pixels (1.3 M pixels)
Sensor	CMOS 1/4"	CMOS 1/2"
Pixel Size	5.6 µm x 5.6 µm	5.2 µm x 5.2 µm
Imaging Area	3.59 mm x 2.69 mm	6.67 mm x 5.33 mm
Frame Rate at Full Resolution	30 frames/sec	7.5 frames/sec
Frame Rate at Half Resolution	40 frames/sec	15 frames/sec
Optical Format	1/4"	1/2"
Aspect Ratio	4:3	5:4
S/N Ratio	max 45 dB	max 45 dB
Dynamic Range	60 dB	68.2 dB
ADC	10 bit	10 bit
Data Output (Uncompressed Video)	24 bit	3x8 bit
Exposure Range	0-70 msec	24 bit
Sensitivity	2.0 V/Lux-second	0-70 msec
C-Mount Lens Adapter	No	no
System Requirements	Windows 2000 / XP SP2 , USB 2.0 port	Windows 2000 / XP SP2, USB 2.0 port
Software	Optika Vision Lite, TWAIN interface, several freeware for image elaboration	
Capture Features	Continuous auto white balance, continuous auto exposure	
Included with the camera	Optika Vision® software package, 1.5 m USB cable, adapters for stereomicroscopes (Ø 30 mm and 30.5 mm), lens mount cap, box	

OPTIKAM® 3C**MID-RESOLUTION DIGITAL VIDEO CAMERA**

For PC-USE

OPTIKAM® 3C

C-mount system for video and still-image capturing at MIDDLE resolution. An optical adapter (included) can be used to connect it to the eyepiece tube of monocular and binocular microscopes.

**OPTIKAM® 3C****Technical Features**

Resolution	1280 x 1024 pixels (1.3 M pixels)
Sensor	CMOS 1/2"
Pixel Size	5.2 µm x 5.2 µm
Imaging Area	6.67 mm x 5.33 mm
Frame Rate at Full Resolution	7.5 frames/sec
Frame Rate at Half Resolution	15 frames/sec
Optical Format	1/2"
Aspect Ratio	5:4
S/N Ratio	ma x 45 dB
Dynamic Range	68.2 dB
ADC	10 bit
Data Output (Uncompressed Video)	3x8 bit
Exposure Range	24 bit
Sensitivity	0-70 msec
C-Mount Lens Adapter	Yes for Optikam 3C, no for Optikam 3
System Requirements	Windows 2000 / XP SP2, USB 2.0 port
Software	Optika Vision Lite, TWAIN interface, several freeware for image elaboration
Capture Features	Continuous auto white balance, continuous auto exposure
Included with the camera	1.5 m USB cable, C-mount lens adaptor, adapter for stereomicroscope, 76x24mm micrometric calibration slide, C-mount cap, box

OPTIKAM® PRO 3**HIGH RESOLUTION DIGITAL VIDEO CAMERA****For PC-USE**

C-mount system for video and still-image capturing at HIGH resolution.

An optical adapter (included) can be used to connect it to the eyepiece tube of monocular and binocular microscopes.

**Technical Features****OPTIKAM® PRO 3**

Resolution	2048 x 1536 pixels (3.2 Mpixel)
Sensor	CMOS 1/2"
Pixel Size	3.2 µm x 3.2 µm
Imaging Area	6.55 mm x 4.92 mm
Frame Rate at Full Resolution	6 frames/sec
Frame Rate at Half Resolution	21 frames/sec
Optical Format	1/2"
Aspect Ratio	4:3
S/N Ratio	43 dB max
Dynamic Range	61 dB
ADC	10 bit
Data Output (Uncompressed Video)	3x8 bit
Exposure Range	0.2 -231 msec
Sensitivity	1.0 V/Lux-second
System Requirements	Windows XP SP2 or later, USB 2.0 port
Software	Optika Vision® software package, TWAIN interface
Capture Features	Continuous auto white balance, continuous auto exposure, averaging, subsampling (decimation)
Included with the camera	3 m USB cable, C-mount lens adaptor, adaptor for stereomicroscope, 76x24mm micrometric calibration slide, C-mount cap, box

OPTIKAM® PRO 5**HIGH RESOLUTION DIGITAL VIDEO CAMERA**

For PC-USE



C-mount system for video and still-image capturing at HIGH resolution.

An optical adapter (included) can be used to connect it to the eyepiece tube of monocular and binocular microscopes.

**Technical Features****OPTIKAM® PRO 5**

Resolution	2560 x 1920 (5.0 Mpixel)
Sensor	CMOS 1/1.8"
Pixel Size	2.77 μm x 2.77 μm
Imaging Area	7.33 mm x 5.44 mm
Frame Rate at Full Resolution	4 frames/sec
Frame Rate at Half Resolution	15 frames/sec
Optical Format	1/1.8"
Aspect Ratio	4:3
S/N Ratio	42 dB max
Dynamic Range	61 dB
ADC	10 bit
Data Output (Uncompressed Video)	3x8 bit
Exposure Range	0.125-249.7 msec
Sensitivity	1.2 V/Lux-second
System Requirements	Windows XP SP2 or later, USB 2.0 port
Software	Optika Vision® software package, TWAIN interface
Capture Features	Continuous auto white balance, continuous auto exposure, averaging, subsampling (decimation)
Included with the camera	3 m USB cable, C-mount lens adaptor, adaptor for stereomicroscope, 76x24mm micrometric calibration slide, C-mount cap, box

DIGI 6

6 Megapixels DIGITAL STILL CAMERA KIT



Universal digital camera-based system for image-capturing through eyepieces.

It can be used both with biological and stereo microscopes.

An optional adapter (depending on the microscope model) can be used to connect it to trinocular microscopes.

The DIGI 6 kit includes:

- 6Mpix Digital camera
- Eyepiece tube adapter
- Connecting cable
- SD memory card
- Original camera software and drivers
- Optika Vision® software package



Camera features

Effective pixels: 6.0M

CCD sensor

4x optical 35-140mm f/2.6-5.5 zoom, 4x digital zoom

2.5" color LCD with up to 10x playback zoom

Advanced TTL AiAF 9-point autofocus system

Program AE, Shutter-speed priority, Aperture priority and Manual modes

Exposure compensation: +/-2EV in 1/3-step increments

White Balance: Auto, 5 presets or Custom

Orientation sensor that automatically detects vertical or horizontal shooting

Selectable ISO settings from 80 to 800

Powered by two standard AA type batteries

USB 2.0 high speed connectivity for PC and Mac

Secure Digital memory cards, 16MB supplied



DIGI 8

8 Megapixels DIGITAL STILL CAMERA KIT



Universal digital camera-based system for image-capturing through eyepieces.

It can be used both with biological and stereo microscopes.

An optional adapter (depending on the microscope model) can be used to connect it to trinocular microscopes.

The DIGI 8 kit includes:

- 8Mpix Digital camera
- Eyepiece tube adapter
- Connecting cable
- SD memory card
- Original camera software and drivers
- Optika Vision® software package



Camera features

Effective pixels: 8.0M

CCD sensor

4x optical 35-140mm f/2.8-4.1 zoom, 4x digital zoom

2.5" vari-angle color LCD with up to 10x playback zoom

Advanced TTL AiAF 9-point autofocus system

Program AE, Shutter-speed priority, Aperture priority and Manual modes

Exposure compensation: +/-2EV in 1/3-step increments

White Balance: Auto, 6 presets or Custom

Orientation sensor that automatically detects vertical or horizontal shooting

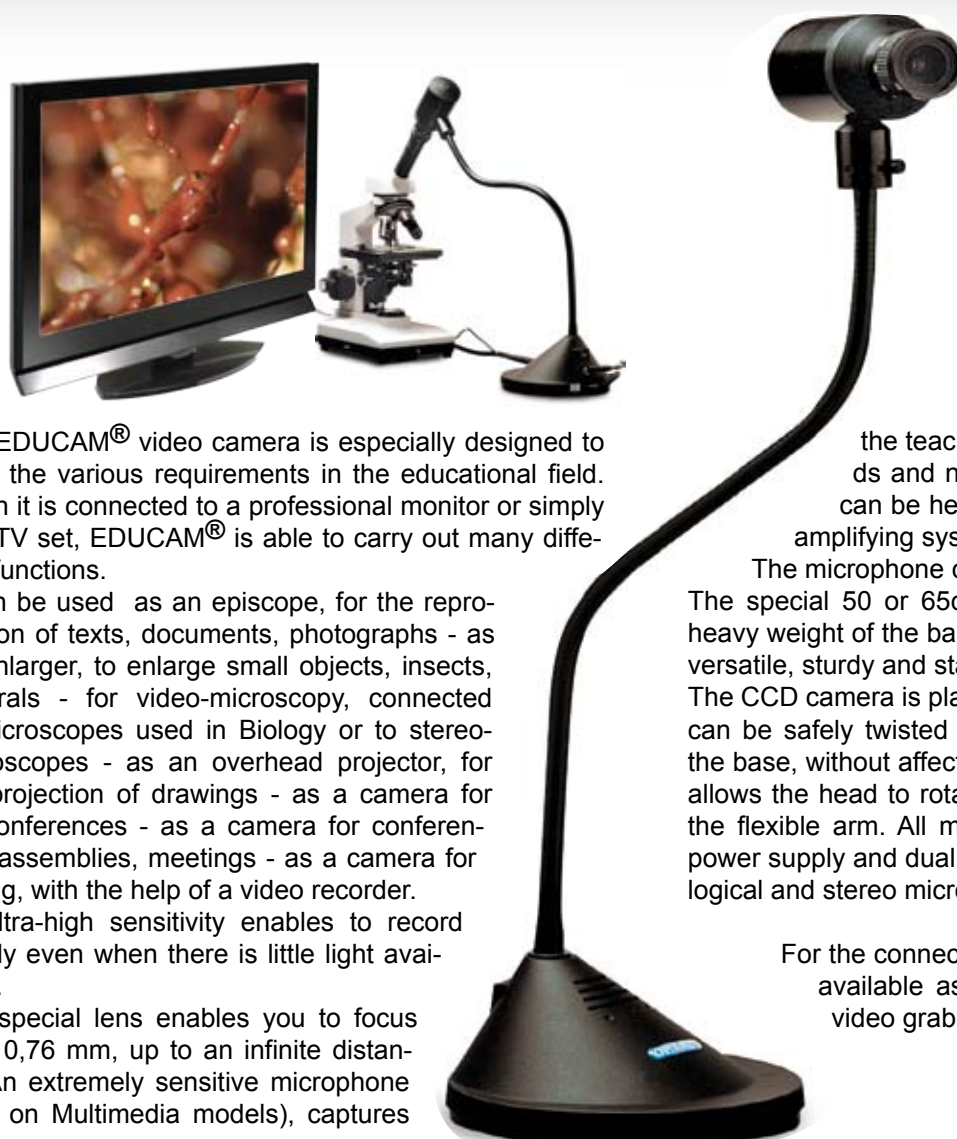
Selectable ISO settings from 80 to 800

Powered by four standard AA type batteries

USB 2.0 high-speed connectivity for PC and Mac

Secure Digital/MMC memory cards, 16MB supplied





The EDUCAM® video camera is especially designed to meet the various requirements in the educational field. When it is connected to a professional monitor or simply to a TV set, EDUCAM® is able to carry out many different functions.

It can be used as an episcopes, for the reproduction of texts, documents, photographs - as an enlarger, to enlarge small objects, insects, minerals - for video-microscopy, connected to microscopes used in Biology or to stereo-microscopes - as an overhead projector, for the projection of drawings - as a camera for teleconferences - as a camera for conferences, assemblies, meetings - as a camera for filming, with the help of a video recorder. Its ultra-high sensitivity enables to record clearly even when there is little light available.

The special lens enables you to focus from 0,76 mm, up to an infinite distance. An extremely sensitive microphone (only on Multimedia models), captures

the teacher's voice during the lesson, or sounds and noises from the surrounding area, that can be heard via the TV itself, or via a separate amplifying system.

The microphone can be switched off if required.

The special 50 or 65cm flexible arm (12mm dia.) and the heavy weight of the base (approx. 2.7 Kg), make EDUCAM® versatile, sturdy and stable at the same time.

The CCD camera is placed on the end of the flexible arm that can be safely twisted in any position, even projecting from the base, without affecting the system stability. A special joint allows the head to rotate without damaging the wires inside the flexible arm. All models are equipped with an external power supply and dual adapter for video-microscopy (for biological and stereo microscopes).

For the connection to a PC, an USB video grabber is available as option (see next page, CONV-USB video grabber).

Technical Features	MULTIMEDIA 4083	MULTIMEDIA PRO 4083.1	STUDENT 4083.2	STUDENT PRO 4083.3	MIC 4083.5
CCD element	1/3"	1/3"	1/4"	1/4"	1/4"
Resolution (TV lines)	380	380	330	330	330
Total pixels	290.000	290.000	270.000	270.000	270.000
Signal/noise ratio	>48 dB	>48dB	>48dB	>48dB	>48 dB
Sensitivity (lux/F:1.2)	1 lux	1 lux	1,5	1,5	1,5
Electronic shutter	yes	yes	yes	yes	yes
Automatic gain control	yes	yes	yes	yes	yes
White balance (auto)	yes	yes	yes	yes	yes
Video signal	PAL (NTSC opt.)	PAL (NTSC opt.)	PAL (NTSC opt.)	PAL (NTSC opt.)	PAL (NTSC opt.)
Working distance	>0,76 mm	>0,76 mm	>0,76 mm	>0,76 mm	>0,76 mm
Objective	8 mm	8 mm	8 mm	8 mm	8 mm
Magnifications	> 90x	> 90x	> 90x	> 90x	> 90x
Microphone	yes	yes	none	none	none
Audio signal	analogic	analogic	-----	-----	-----
Voltage	12Vdc	12Vdc	12Vdc	12Vdc	12Vdc
Power adapter 220/12Vdc	included	included	included	included	included
Flexible arm lenght	50 cm	65 cm	50 cm	65 cm	-----
Base diameter	17 cm	17 cm	17 cm	17 cm	-----
Weight	3,4 Kg	3,5 Kg	3,3 Kg	3,4 Kg	0,4 Kg
Microscope adapters	included	included	included	included	included

VC SERIES

ANALOG VIDEO CAMERAS



Technical Features

VC-01 VIDEOMICROSCOPY SYSTEM

Videomicroscopy system composed by a colour CCD TV camera [VC02], complete with Bio & Stereo Microscope adapter tube, integrated power supply unit, cables and manuals.

VC-02 CCD CAMERA

Mid-resolution colour CCD TV camera complete with cables, SCART adapter & manual. Technical data: 1/3" CCD SONY sensor - picture elements 500[H]x582[V] - Horizontal resolution 340 TV lines (PAL) - Sensitivity 0.34lux/F=1.2 - Video output BNC VBS 1.0Vp-p, 75 Ohm - Audio output microphone 500m mV/47 KOhm - S/N ratio > 48 dB - Gamma correction > 0,45 - Auto white balance - Back light compensation on/off switch - Auto gain control - Auto line lock with external phase adjustment - Wide range automatic electronic shutter 1/60[1/50]~1/100,000 - Anti flick function user selectable - Auto IRIS VD/DD user selectable - Lens mount C/CS with back focus adjustment - Power source 12VDC/24VAC;90-265VAC - Operating temperature 0° to + 40° - Dimension 57 (L) x 51 (W) x 140 (h) mm - Weight 600g

VC-03 HIGH-RESOLUTION CCD CAMERA

High-resolution colour CCD TV camera. Complete with cables, manual & integrated power supply. See VC02 for technical data except for : Picture elements 752[H]x582[V] - Horizontal resolution 480 TV lines (PAL)

VC-04 HIGH-RESOLUTION VIDEOMICROSCOPY SYSTEM

Videomicroscopy system composed by an high-resolution colour CCD TV camera [VC03], complete with Bio & Stereo Microscope adapter tube, integrated power supply unit, cables and manuals.

CONV-USB VIDEO GRABBER

Analogic to Digital signal converter for PC. Real time video capture from camcorder, VCR or camera. User friendly software easily stores and manages images & videos. real time/full size Video capture window. Video capture resolution 352x288 pixels ; image capture resolution 1600x1200. Video conference software enclosed. The CONV-USB video grabber comes with a CD with drivers for Windows 98, SE, ME, 2000 and XP operative systems. It also includes the following software: Win TV-32; Win TV2000; Microsoft NetMeeting; DVD MovieFactory.



OPTIKA VISION® SOFTWARE PACKAGE

Optika Vision is a software family included with our Optikam series.

There are two versions: Lite and Pro, designed to satisfy the needs for both the beginner and the advanced user.

Optika Vision Lite is provided for all the Optikams and especially recommended to use with the cameras Optikam 2, 3 and 3C. It can be used for reporting and linear measurements.

Optika Vision Pro is included exclusively with the Optikam Pro series for professional image acquisition and analysis.

A freeware bundle is supplied as bonus for additional user experience.

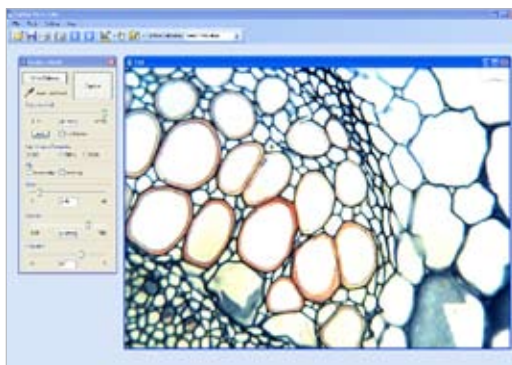


OPTIKA VISION® SOFTWARE PACKAGE



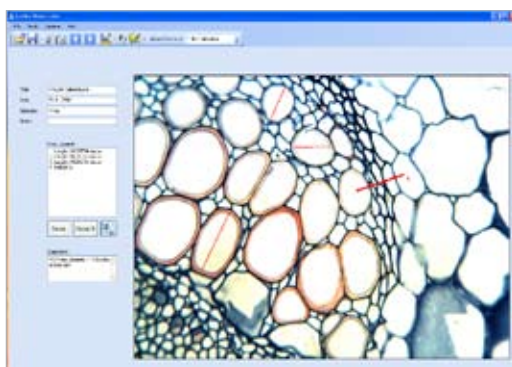
OPTIKA VISION® LITE is a software developed by Optika Microscopes with the main purpose to be a handy and simple tool for our costumers using our Optikams and other digital microscope cameras. It has a simple user interface and can be used for image acquisition, line measurements and documentation. It is available in seven languages: **English, Italian, French, Spanish, German and Swedish.**

IMAGE ACQUISITION



You can capture still images using a live preview that makes it possible to precisely focus your image and change image parameters in order to have a perfect final result. The image can be saved separately in BMP, JPG or TIFF formats. It is also possible to import saved images from other sources.

MEASUREMENTS



Linear in-scale measurements can be made in any unit you like, using a simple calibration and measurement tool. The data can be exported to a spreadsheet document for further elaboration. There is also the possibility to indicate special objects in the image and to make comments.

DOCUMENTATION



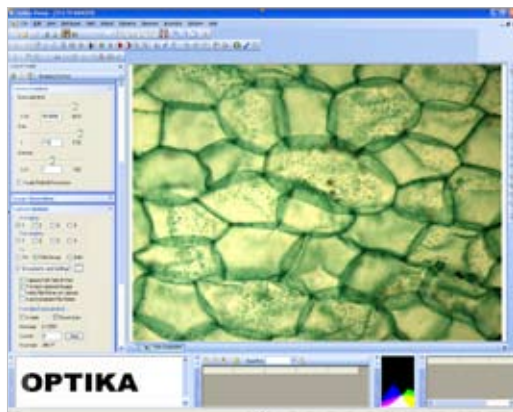
A report can be generated simply by printing the document on a normal printer or to a PDF. The document can be personalized with your own logo.

OPTIKA VISION® SOFTWARE PACKAGE



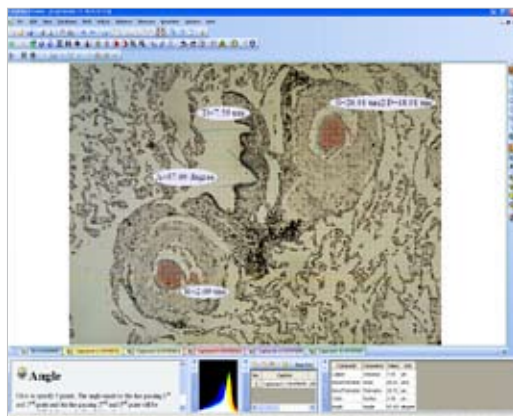
OPTIKA VISION® PRO is a new generation of microscope image analysis instruments, especially developed for our Optikam Pro series, which contains various tools for processing and analysis of digital microscope images. It includes powerful tools for image capturing, adjusting, operating and measuring. You have also the possibility to create your own database for easy organisation and storage of your images.

IMAGE ACQUISITION



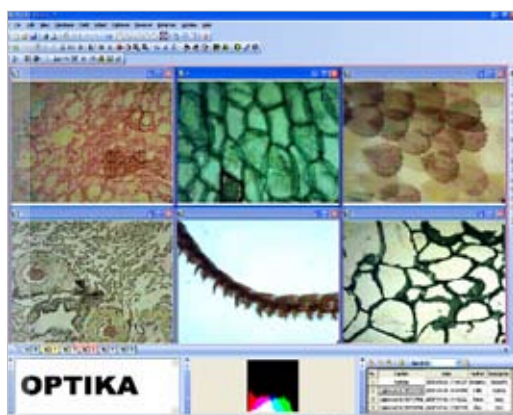
Optika Vision® Pro makes video and still image acquisition with vast possibilities to control the image output according to your needs. There are functions such as white balance, automatic exposure, frame average, sub-sampling, hue, saturation and intensity controls, to mention a few.

POST ELABORATION AND MEASUREMENTS



Optika Vision® Pro also offers the possibility to make various types of enhancements and adjustments of the captured image and calibrated measurements of lines, angles and areas. You can also perform manual counting and measure the light density of your acquired image.

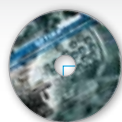
ORGANIZE YOUR WORK



For easy storage and fast upload you can organize your images into a database where it is possible to search for the images using keywords. In Optika Vision® Pro you can also arrange images into groups in order to combine, calculate the average or create a multi-focus composition of the images.

DATABASE STORAGE

OPTIKA VISION® SOFTWARE PACKAGE



FREWARE

The Optika Vision® software package also contains a bundle of imaging, video and image analysis software that are freely available from the Internet. They are provided free of charge, as provided for in the original license, as an aid in the use of your Optika product

AMCap

AMCap is a small yet fully functional video capture and preview application compatible with Microsoft™ DirectShow (formerly ActiveMovie, hence the name). It is based on the sample AMCap source code from the Microsoft DirectX 9 SDK.

GIMP

GIMP is the GNU Image Manipulation Program. It is a freely distributed advanced software for tasks such as photo retouching, image composition and image authoring. It works on many operating systems, in many languages.

Combine Z

This small software combines pictures to increase depth of focus.

Image Tool

ImageTool is an advanced image processing and analysis program for Windows. It can acquire, display, edit, analyze, process, compress, save and print greyscale and colour images. It can read and write over 22 common file image formats.

Image analysis functions include dimensional (distance, angle, perimeter, area), automatic (or manual) object/cell counting and full analysis functions, and greyscale measurements (point, line and area histogram with statistics). ImageTool supports standard image processing functions such as contrast manipulation, sharpening, smoothing, edge detection, median filtering and spatial convolutions with user-defined convolution masks.

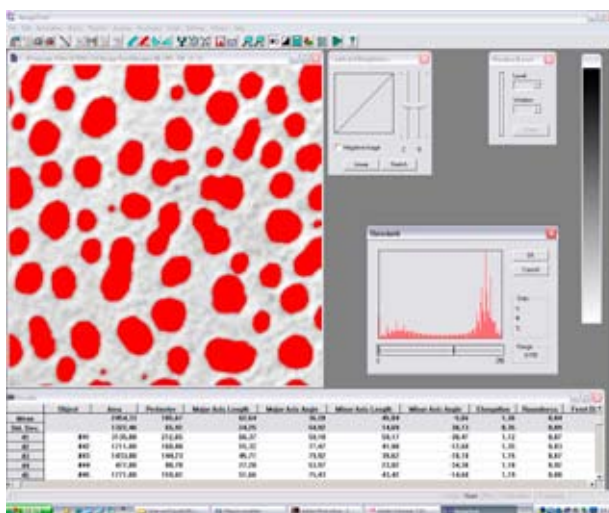
ImageTool also has built-in scripting capabilities that allow the user to record repetitive tasks and playback saved scripts to automate image analysis. ImageTool was designed with an open architecture that provides extensibility via a variety of plug-ins for example image acquisition using either Adobe Photoshop plug-ins or Twain scanners is built-in.

ImageTool provides for geometric transformations and magnification up to four levels. All analysis and processing functions are available at any magnification factor. ImageTool also provides for image annotation with text, arrows, rectangle, ellipses and polygon.

MBF ImageJ

ImageJ is a public domain Java image processing program that runs on any computer with a Java 1.4 or later virtual machine.

It can display, edit, analyze, process, save and print 8-bit, 16-bit and 32-bit images of various image formats. It supports "stacks", a series of images that share a single window. It is multi-threaded, so time-consuming operations such as image file reading can be performed in parallel with other operations.



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