DIGITAL-MICROSCOPY CAMERA SOLUTIONS USB 3.0

PixeLINK®
A NAVITAR COMPANY

PixeLINK for Microscopy Applications

PixeLINK® will work with you to choose and integrate the optimal USB 3.0 camera for your microscopy project. Ideal for use in any laboratory setting, PixeLINK cameras let you capture high-quality images with existing microscope equipment. Our microscopy cameras and software are designed to offer consistent, high-quality image acquisition and performance.

PixeLINK µScope software offers professional image analyses and features the latest in acquisition, analysis and reporting functionality. Some of these features include: Auto & Semi-Auto Calibration, Line Profiling, Image Processing, Image Stitching to create a mosaic of the "Big Picture", 3D Visualization, Auto Trace, Reflected Light Subtraction and Measurement and Annotation.

Our drivers and software for your host computer enable advanced camera functionality.

Camera Features

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» Exposure Time	» Gamma	» Adjustable ROI
» Gain	» Saturation	» Capture Full Resolution
» Frame Rate	» Color Temperature	» Pixel Format
» Spot White Balance	» Time Lapse Capture	» Manual, Auto & Continuous Auto Exp.
» Manual & Auto White Balance (Color Only)	» Image Flip	» Saturation (Color Only)
» Pixel Addressing	» Image Rotate	» Frame Rate Control

CMOS USB 3.0 - M SERIES

The all new PixeLINK M-Series USB 3.0 CMOS cameras have been designed to provide quality and versatility with its smaller form factor. The M-Series cameras are available in full color at 1.3 MP to 15.0 MP resolutions and are ideal for use in any laboratory setting. Our microscopy cameras are designed to offer consistent, high-quality image acquisiton and performance.

Camera Model	Resolution	Mega Pixels	F/R (fps)	Lens Format	Pixel Pitch	Sensor Diagonal	Bit Depth	Dynamic Range	Shutter Type
M1	1280 X 1024	1.3 MP	150	1/2"	4.8 µm	7.87 mm	8 or 10	53 dB	Global
M2	2048 X 1088	2.2 MP	170	2/3"	5.5 µm	12.75 mm	8 or 10	60 -90 dB	Global
M4	2048 X 2048	4.2 MP	90	1"	5.5 µm	15.93 mm	8 or 10	60 -90 dB	Global
M5	2592 X 2048	5.3 MP	75	1"	4.8 µm	15.86 mm	8 or 10	53 dB	Global
M5D	2448 X 2018	5.0 MP	75	2/3"	3.45 µm	11.10 mm	8 or 12	69.5 dB	Global
M9	4096 X 2160	9.0 MP	45	1"	3.45 µm	16.10 mm	8 or 12	69.5 dB	Global
M12	4096 X 3000	12.3 MP	35	1.1"	3.45 µm	17.60 mm	8 or 12	69.5 dB	Global
M15	4608 X 3288	15 MP	13	1/2.3"	1.4 µm	7.87 mm	8 or 12	65.3 dB	Rolling

Common Microscopy Applications

We will successfully integrate a PixeLINK® camera into your microscopy project - no matter the application.

» Brightfield
» D.I.C
» Phase
» PCB & Semicon
» Petrology
» Pathology
» Histology
» Live Cell Imaging
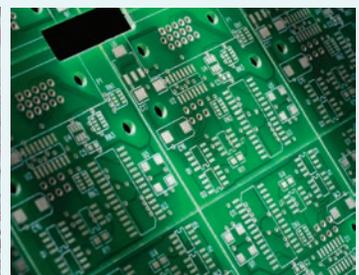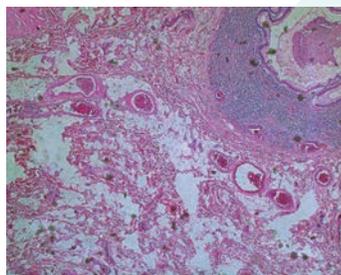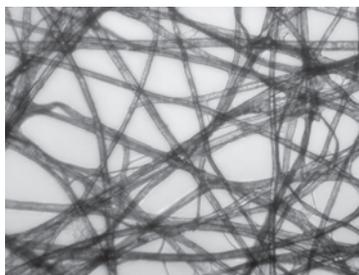
MICROSCOPY SOFTWARE FEATURES

PixeLINK µScope Standard Software offers a highly productive, professional image capture tool for microscopy.

PixeLINK µScope Pro Software is available for users requiring a more advanced toolset for their microscopy application. This feature rich application includes tools such as z-axis extended focus imaging, shading correction and reflected light subtraction.

Software Features	µScope ES	µScope SE	µScope Pro
PixeLINK API control	✓	✓	✓
Time lapse capture and movie file production - crosshair on live preview	✓	✓	✓
Save in multiple image file formats - jpg, jpeg, tif, tiff, bmp, gif, pcx, tga, mpg, mpeg, avi, mov, img, rpt, txt...	✓	✓	✓
Overlay - crosshair, grid mask, image, marker, time stamp	✓	✓	✓
Image- mode change, clone, crop, resize, rotate	✓	✓	✓
Multiple ROI. shapes & copy, paste, crop ROI	✓	✓	✓
Grayscale, RGB, HSB, YUV	✓	✓	✓
Image sequence control	✓	✓	✓
Zoom control - 100% to 1600% and fit to window options	✓	✓	✓
Annotation - line, arrow, polyline, spline, rectangle, ellipse, text	✓	✓	✓
Image editing: undo, redo, copy, paste, paste new, delete, delete all, annotate image information	✓	✓	✓
Image processing - manual brightness, contrast, gamma, background subtraction, histogram, clone, crop, roi, resize, rotate, split, image mode change, grayscale, rgb, hsb, yuv pseudo color view		✓	✓
Multiple window configuration options	✓	✓	✓
Manual measurement tools - 3-point circle functionality, n-point circle measurement functionality, parallel line distance measurement, perpendicular distance measurement and object distance measurement. In addition, zoom-in window	✓	✓	✓
Export to Microsoft® Excel - images with measurement, calibration, annotations, measurement data, statistics and chart	✓	✓	✓
Report generator - create, insert images and OLE objects		✓	✓
Auto and semi auto calibration		✓	✓
Manual calibration	✓	✓	✓
Measurement parameteres- area, max length, line length center x and y angle	✓	✓	✓
Measurement data	✓	✓	✓
Profile - straight line, polyline, parallel line, select and change		✓	✓
Line profiling - single, multiple, parallel and polyline commands provide gray/red/green/blue intensity values for specific lines within an image. The profile data of each pixel on the line can be exported to Microsoft® Excel		✓	✓
Calibration marker (scale bar) can be placed on the live preview image, and burned in automatically	✓	✓	✓
Live Measurement and Overlay Settings: perform measurements on the live preview image, using the crosshair or grid masks to center and count. The grid masks include calibration data	✓	✓	✓
Dynamic user interface	✓	✓	✓
Image stitching			✓
Z-axis extended focus imaging with displacement compensation			✓
3d visualization to clearly view complex structures			✓
Auto trace using automatic edge detection			✓
Fluorescent image composition			✓
Fast and perfect focus enhancement			✓
Shading correction			✓
Reflected light subtraction			✓
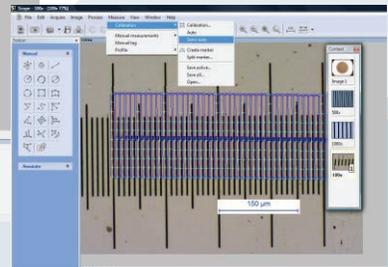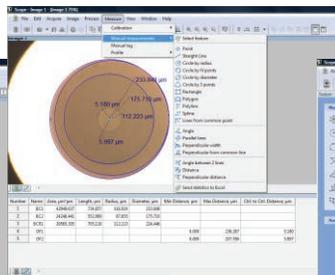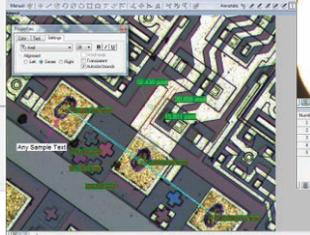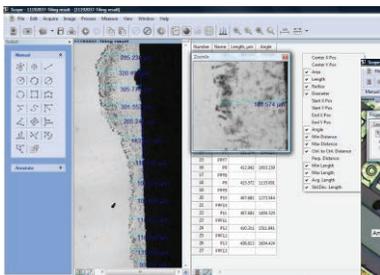
PixeLINK µScope Features
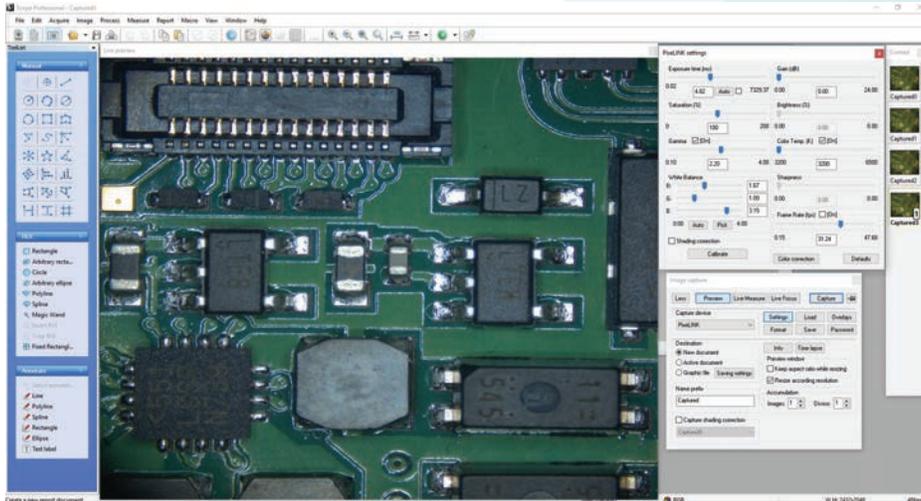
Live Measurement and Overlay Settings - Users can perform measurements on the live preview image, using the crosshair or grid masks to center and count. The grid masks include calibration data. Calibration marker (scale bar) can be placed on the live preview image. The marker (scale bar) can also be burned on each captured image automatically. Any standard file format image can be chosen to see it above live preview image.

Calibration (Auto, Manual) - All measurements start with an accurate calibration. Auto, Semi-Auto calibration functions allow the software to calculate the pixels-per-unit value automatically. Only setting the unit for the calibration scale and the distance between the scale marks is needed. This feature greatly improves the accuracy and repetition of measurements. Manual calibrations are easily added and saved for recall from a drop down menu. All calibrations can be saved as files, which let the calibration be retrieved by simply opening the saved files later. Calibration can be protected by password option. Two password options, one in calibration menu itself and the other in camera resolution option, protect calibration by unexpected change. A scale bar can be permanently added to each image. Scale bar properties for color, size and text are simple to optimize for any image background.

Time Lapse Capture and Movie File Production & Import into Power Point - Software features a Time Lapse Capture function that supports TIF, BMP and JPG file formats. The Time Lapse Capture function also includes an Auto Save feature by yyyy/mm/dd/hour/minute/second. You can save video movie recordings in AVI, MPG, MPEG, and MOV formats.

Export Into Excel® - with one mouse click - A single mouse click exports the original image with measurement, calibration, annotation overlay, measurement data, statistics, and chart.

Manual Measurement Tools - Including Various Perpendicular Distance - Software's versatile manual measurement features include tools for measuring lengths, areas, and angles and can even auto detect an object's outline and then make specified measurements. The software is equipped with a wide choice of powerful measurement tools including 3-point circle functionality, Npoint circle measurement functionality, parallel line distance measurement, perpendicular distance measurement and object distance measurement. In addition, a zoom-in window can be used to determine the accurate measuring point of an object. Once you've measured a specimen you can easily export the images, measurement data and statistics to an Excel® file. With PixeLINK µScope, comprehensive statistics and data are just one mouse click away.

Line Profiling - Single, multiple, parallel and polyline commands provide Gray/Red/Green/Blue intensity values for specific lines within an image. The profile data of each pixel on the line can be exported to Microsoft® Excel.

Image Processing - Manual Brightness, Contrast, Gamma, Background Subtraction, Histogram, Clone, Crop, ROI, Resize, Rotate, Split, Image Mode Change, Grayscale, RGB, HSB, YUV Pseudo Color view, Full range of enhancement and morphology filters 8bit and 16bit per channel.

Manual Measurements - Point Count, Straight Line, Circle by radius, Circle by N points, Circle by diameter, Circle by 3 points,rectangle, polygon, polyline, splice lines from a common point, auto trace, angle parallel lines, perpendicular width, perpendicular from common line, angle between 2 lines, distance, perpendicular distance.

Annotation - Line, arrow, polyline, spline, rectangle, ellipse, text.

PixeLINK µScope Features

Region of Interest - ROI with unique add/subtract capability - Rectangle, arbitrary rectangle, circle, arbitrary ellipse, polyline, spline, magic wand ROI itself can be saved to work with other images. The saved ROI can be placed on the exact same location of other images.

View and Zoom Image - Manual zoom In-Out, User Defined, Fit to Window, 1600% Zoom in Window for Accurate Edge Detect, sizeable context Window to view all open Images.

Image Editing - Undo, Redo, Copy, Paste, Paste New, Delete, Delete All, Annotate, Image Information.

Save Options & Supported Image File Formats - TXT File Format, image and measurement data together in Proprietary .img File, Format for future editing and data collection. - jpg, jpeg, tif, tiff, bmp, gif, pcx, tga, mpg, mpeg, avi, mov, img, rpt, txt etc.

Window View - Split Horizontal, Split Vertical, Cascade, Tile Horizontal, Tile Vertical, Arrange icons, Dynamic User Interface (UI), Classic, Modern.

Time Lapse Sequence Control - Play Forward, Backward, Making Movie File (mpg, avi, mov) with Still Images, Split Single Image from Sequence File.

Z-Axis Extended Focus Imaging (EFI), with displacement compensation for stereo Microscopes - Samples with curves or of varying heights are difficult to bring into focus under highly magnified conditions. And more a stereomicroscope takes images with tilting due to its own structural characteristics. Thus, each image is out of its supposed position when you move microscope to the Z-axis getting the right focus. Our displacement compensation function allows you to rearrange these images automatically and manually. Software can combine a stack of images sequentially captured at different levels of focus and combine them into a single in-focus image. You can count on our software not to leave any trace of the composites.

3D Visualization - Clearly view complex structures: A three-dimensional picture can be created from any image. The 3-D presentation is based upon intensity values of the image and can be displayed as a normal or wire frame image. Z axis information can easily be adjusted to optimize the 3-D effect. To better visualize an image in 3-D, software offers full 360 degrees of rotation on X-Y-Z axis. A 3D image can then saved in JPG, TIF or BMP format.

Image Stitching - Create a mosaic of the "Big Picture": With our software, you can create auto and manual composites of continuously captured images in order to minimize the reduction in the field-of-view that typically comes with increased magnification. Combined images are automatically corrected for brightness without leaving any stitching mark.

Live Image Comparison - For fast inspection and size verification: For QA testing or quick go/no-go inspections any stored image can be used as a reference image onto which the live preview image is projected.

Combine Image Planes - Fluorescence Imaging: Merge and pseudo color monochrome images into a single RGB composite.

Auto Trace - Using an automatic edge detection algorithm, our software will perform an auto trace measurement function around a closed object. This function greatly increases accuracy and saves time when making measurements of complex shapes.

Shading Correction - The edge parts of captured image by low magnification have background shading frequently, which can be removed by the shading correction function. The color of the original image remains the same though. A standard image is acquired from a blank space on the slide glass, or from an out of focus image in a metallurgical specimen. Such a standard image is used to correct the background shading of all other captured images.

Report Generator - Create Report, Insert Image, Data and other OLE Objects.

Perfect Focus Enhancement - µScope Professional implements a perfect function of focus compensation irrespective of the status of lights and specimen.

Live Focus Enhancement (Live extending focal depth) - By Live focus enhancement (Live extending focal depth), users can do Focus enhancement (Extending focal depth) on live preview window without capturing any image. So user can move stage on many different target locations while doing Focus enhancement on Live Image. Live measurement can be done on the same preview window also.

Perfect Focus Enhancement - µScope Professional implements a perfect function of focus compensation irrespective of the status of lights and specimen.

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