



Motic Live Imaging Module

Windows OS User Manual

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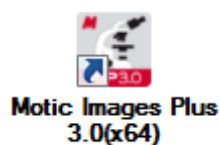
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This software module is meant to improve a live image before capturing a final picture. Several parameters to adjust the live image like resolution, white balance, color correction etc. can be varied simply and optimized interactively. Exposure time can be set according to the illumination situation of the microscope. The default capture folder for still images and videos can be defined. Further processing and image analysis is possible in a separate software module, an integral part of the complete software package Motic Images Plus 3.0.

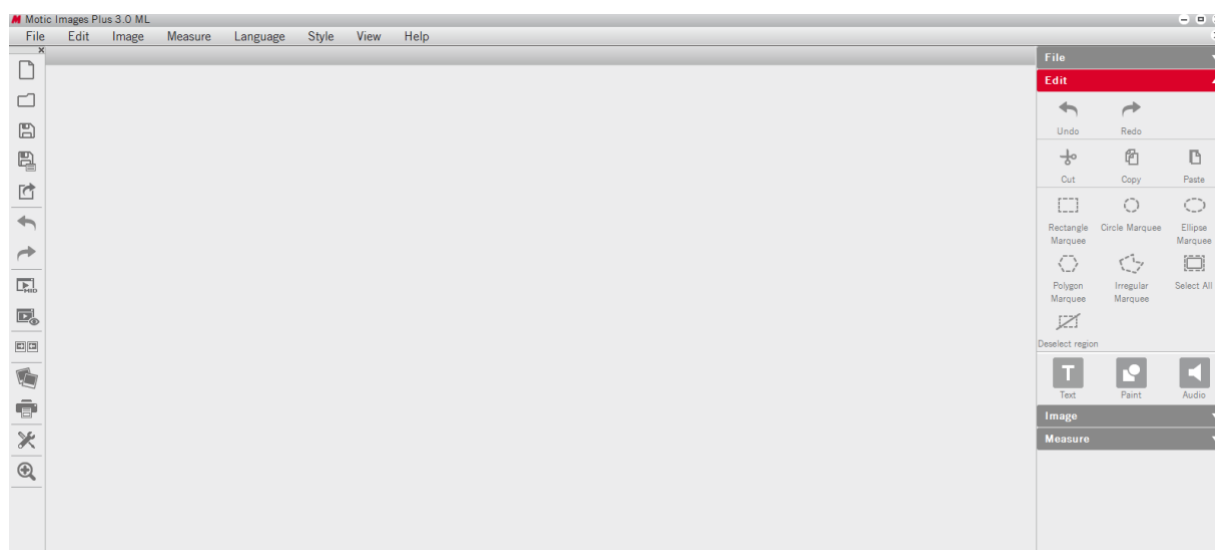
Double click with left mouse button on



opens the program. Please note before installation that the new software version MI Plus 3.0 is available in separate versions for 32- and 64 Bit computers. This is in contradiction to the previous Motic Images Plus 2.0 software version.



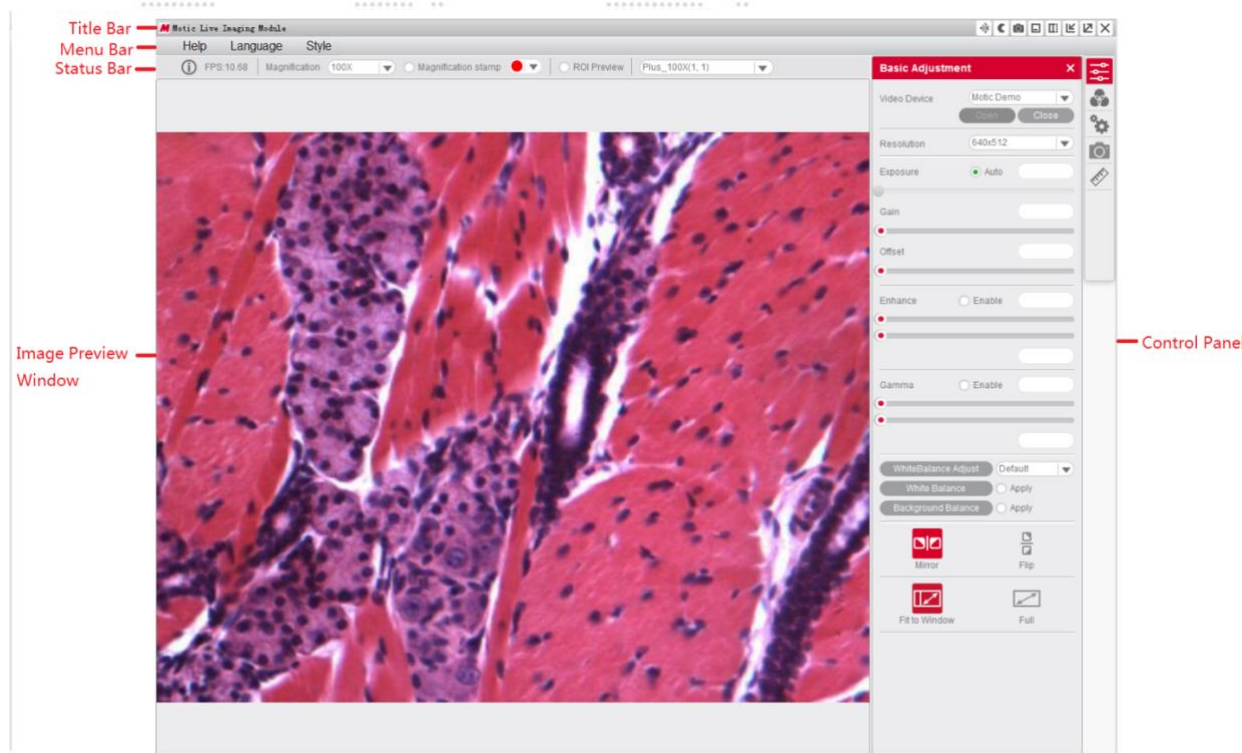
To open the Live Image Module, click on “Motic Imaging Device” in the left column.



The Live Imaging Module opens.

Menus, bars and tools

The new interface consists of the **Title Bar**, **Menu Bar**, **Status Bar**, **Image Preview Window** and **Control Panel**.



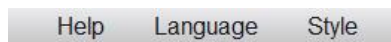
Menus, bars and tools / Title bar



Displays the module name and shortcut menu.

Note: The shortcut menu is available under Windows OS only.

Menus, bars and tools / Menu Bar



Displays the basic menu:

Help

Click the button to open the Help dialogue.

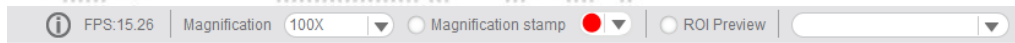
Language

Change the interface language from the dropdown menu. This can be done without shutdown of the software.

Style

Change the interface style.

Menus, bars and tools / Status Bar



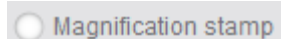
FPS

Frames per second = Frame rate.

Magnification

Select the current objective you are using on the microscope. After calibration the scale bar will show the correct value.

Magnification Stamp



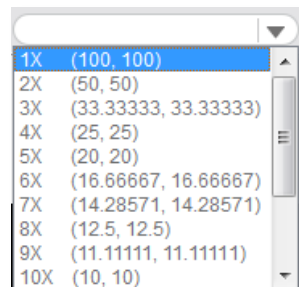
Click to display/hide the selected objective displayed on the uppermost right side of the image.

ROI Preview

To view only a selected part of the image in full resolution, click and drag a Region Of Interest on the live image with your left mouse button, then click the "ROI Preview" button. Click the button again to restore the original image. The shape and border color of the ROI can be set in the Advanced Setting Panel.

Calibration Value



Select a calibration value from the "calibration value" dropdown list and the currently measured value will be changed.



Menus, bars and tools / Image Preview Window

Displays the real-time live image coming from your MotiCam or Digital Microscope. Click the button on the title bar to hide this window, re-click to display it again.

Menus, bars and tools / Control Panel

Click one of the following icons to display the corresponding control panel. Click the button  on the title bar to hide the control panel, click on  to display it again.



Basic Adjustments



Color Adjustments



Advanced Settings




Image/Video Capture



Measurements

Menus, bars and tools / Control Panel / Basic Adjustment

The button  opens the Basic Adjustment Panel to perform basic device settings and image adjustments.

Video Device

Displays the connected imaging device.

Note: If several Motic devices have been connected and the auto-opened device is not what you want, please click "Close", select the desired device from the dropdown list and click "Open". MoticamX and Motic Demo are named per default.

Resolution

You can switch between different resolution settings. The setting changes the amount of data that are transmitted to the computer by the imaging device. The higher the resolution the lower the frame rate (FPS).

Exposure Time

Setup your microscope properly and focus on your slide. With "Auto" you will get a first image. If necessary, deactivate "Auto" and correct the exposure time by moving the respective slider. Especially with high contrast samples, this manual adjustment is recommended.

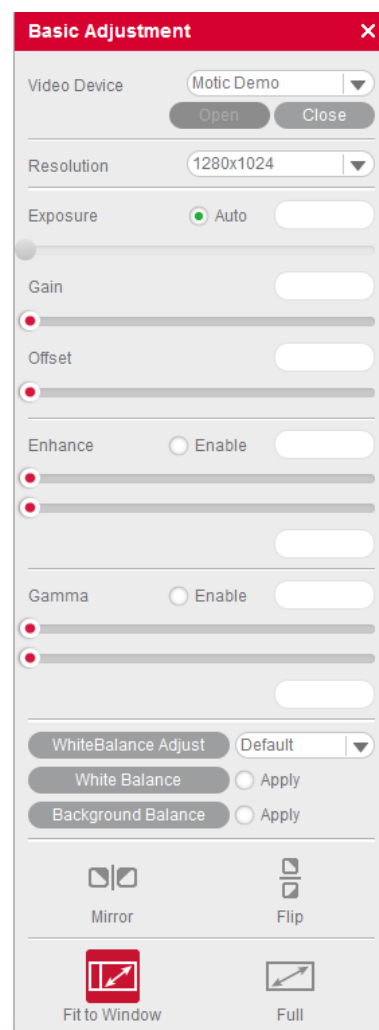
Note: Some camera chips have built-in auto-exposure controls. If you wish to override, use the slider to adjust the settings manually.

Gain

This function is an electronic amplification of the sensor signal ("brightness"). It increases also the electronic noise. Should only be used if the image brightness cannot be adjusted properly by exposure time (e.g. moving = living samples).

Offset

Sets the "zero" brightness value. Recommended to be used for POL, dark field or Fluorescence. Move the slider to minus values.



Enhance

With two sliders, the minimum and maximum gray level value can be set independently. The image data will be re-mapped according to the settings in order to enhance contrast.

Gamma

"Gamma" translates the electronic image signal from the camera sensor into image brightness on the respective monitor. Depending on screen technology and screen setup (LCD, LED, etc.) the brightness/color impression can be set individually.

White Balance 1

"White Balance" will help to get the best possible color similarity to what you see through the eyepieces. Setup your microscope properly and focus on your slide. You may remove the slide from the microscope and click on the "White Balance" button. Or you may keep the slide on the stage and look for an "empty" area within your sample. With left mouse button pressed please define a "background" area without color; activate "White balance". Once defined, this setup can be overwritten arbitrarily.

Note: Some imaging chips have an automatic hardware white balance. You will see the white balance being adjusted automatically as close to the real color as possible. In order to adjust the color even closer, please use the tools in the Color Adjustment Panel.

White Balance 2

Several types of microscope illumination (Halogen, LED 3000K, LED 5000K) can be chosen from the list. Further, the background color may be selected by clicking into the color field. The chosen setup can be saved.



Background Balance

The "Background Balance" function reduces the effects of uneven illumination, mostly caused by the camera adaption. Please setup your microscope properly, focus on your slide and adjust the microscope's illumination. Take the slide away from the stage and activate "Background Balance". The screen now displays a background calculated as even. Place the slide back onto the stage. The power of "Background Balance" is limited: it does not work with an extreme uneven/incorrect illumination.

Note: If necessary, please perform the above steps again when changing the objective.

Mirror

To mirror the live image horizontally.

Flip

To rotate the live image by 180°.


Fit To Window

The live image will be resized to fit into the display window, allowing to show the camera's full Field of View. The width-to-height ratio will be kept.

Full

To view the live image in full screen mode. Press "Esc" to exit the full screen mode.

Menus, bars and tools / Control Panel / Color Adjustment

The button  opens the Color Adjustment Panel.

Color Correction

Click "Enable" to activate this function. Positive values amplify the colors, especially in the blue/red range (H&E stainings). Negative values reduce the color impression down to a black/white image. We recommend a +7 setting.

Red Gain

Electronic amplification of the RED channel.

Red Brightness

Adjust the red channel brightness value by dragging the slider.

Green Gain

Electronic amplification of the GREEN channel.

Green Brightness

Adjust the green channel brightness value by dragging the slider.

Blue Gain

Electronic amplification of the BLUE channel.

Blue Brightness

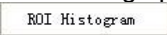
Adjust the blue channel brightness value by dragging the slider.

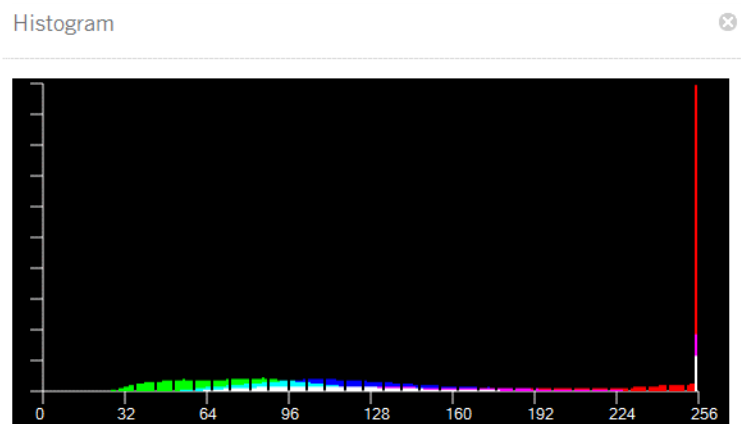
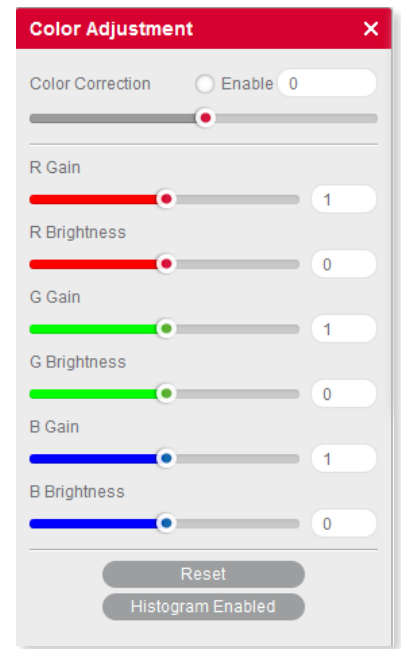
Reset

Click the "Reset" button to restore the factory settings.


Histogram Enabled

The histogram shows the gray value distribution within the entire image or a user defined ROI. The horizontal coordinate represents the gray scale 0-255, while the vertical coordinate represents the gray value frequency per color channel.

By default, the histogram function is applied on the entire image. To display the histogram of a user defined ROI, first drag the mouse in the image preview window to define an ROI, then activate the histogram window and select the  command, click the command again to cancel it.



Menus, bars and tools / Control Panel / Advanced Settings

Click the button  to open the Advanced Setting Panel for further adjustments and measurements.

Filter

First drag the mouse in the Image Preview Window to define an ROI, then select a filter from the drop down list.

Invert

Inverts the color/brightness information of the original.

Grayscale

Creates a B/W image.

Emboss

Creates an embossed image.

Red

Only the red color channel is displayed.

Green

Only the green color channel is displayed.

Blue

Only the blue color channel is displayed.

Red inverted

Combines **Red** and **Invert**.

Green inverted

Combines **Green** and **Invert**.

Blue inverted

Combines **Blue** and **Invert**.

Edge Detection

Drag the mouse in the Image Preview Window to define an ROI, then check the Edge Detection box and drag the slider bar to adjust the sensitivity for enhancing the edges of objects within the defined ROI.

Sharpness

Activates the Sharpness function. Set the sharpness value by adjusting the slider bar.


Note: This function only works on the whole image.

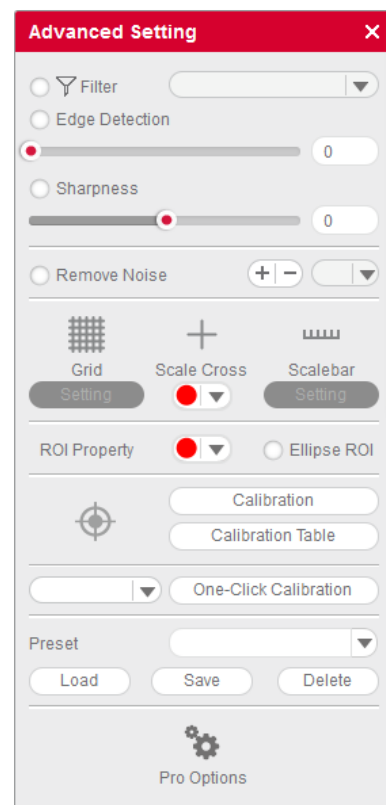
Remove Noise

Activate this function and select a value from 1-4. The larger the value, the greater the effect and the slower the live image will be.

Note: This function only works on the whole image.

Grid

Click  to display the grid lines in the Image Preview Window.




Grid Setting

Setting

allows to set the width, height and color of the grid.

Width μm
Height μm
Color ☐ ☐

Scale Cross

The Scale Cross function is used for an identical positioning of multiple samples.  activates the Cross Line; per default first in the middle of the preview window. The coordinates displayed are pixel coordinates. In order to move the Scale Cross to a different position, please use the right mouse button.

Color

The color of the Scale Cross can be selected.

Scale Bar



activates a horizontal and/or vertical scale bar. To move the individual scale bar, use the left mouse button to drag and drop it to the desired position.

Setting Scale Bar

To edit the Scale Bar, please use the following menu:

Horizontal μm Vertical μm
Thickness pixel Font Size
Line Color ☐ Setting ☐ Horizontal
Unit

ROI Properties

Ellipse ROI

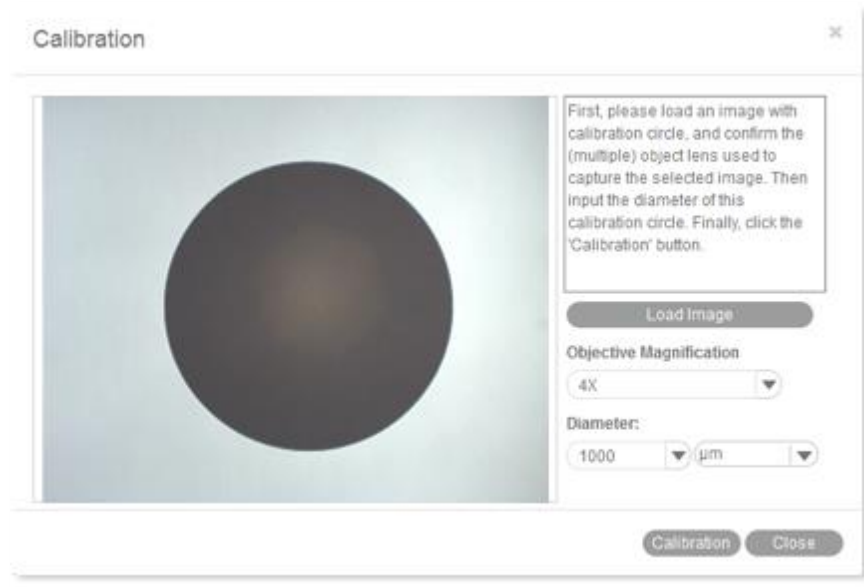
The default rectangle ROI shape will be converted to an elliptic ROI.

Color

Click the color bar to set the ROI's border color from the displayed color palette.

Calibration

Any kind of measurement, scale bar or grid needs a precise calibration for a correct quantification. Place the calibration slide (within the delivery package of your Moticam) into the raypath of the microscope and focus one a calibration circle (in fact it's a dot). Depending on the objective/camera adapter/camera sensor combination, the correct dot has to be chosen. As all dots on the calibration slide are placed in one line, it is easy just to use the x-drive of the microscope stage to move from one dot to another. Before taking a picture, note that the selected dot should be grabbed completely, at the same time being as large as possible in the image field. This will improve the precision of all measurements. Open the calibration dialogue and load the picture taken:



Select the magnification of the objective used for taking this picture, enter the diameter of the calibration dot (vacuum-metallized on the calibration slide) in the corresponding box. With "Calibration" the following interface opens:



Select a unique sign name which can easily be found again in the calibration table. "Zoom" should be activated by default. If not, please do activate. This setting ensures that all quantification data (scale bars, grids, measurements) are automatically adjusted to the active display mode on the screen (varying resolution, full screen, etc.), thus being active also when saving the image. Please check the x/y-axis values: they should be as identical as possible (one decimal place difference should be maximum). Click "Save".

Calibration Table

The Calibration Table saves all new calibrations. In the initial state, the default data displayed in this table are "factory data" and are marked with "false" in the "Zoom" column.

To apply your individual calibration results, select the necessary calibration from the list, which should be marked as "true" in the "Zoom" column (if you had activated "Zoom" during the calibration process).

With the selection of a calibration, all data for scale bar, grid width and measurements will be updated automatically.

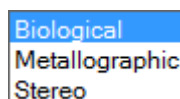
Sign Name:	µm/pixel-X axis	µm/pixel-Y axis	Objective	Zoom	Sign image width	Sign image height
100X	1	1	100	false	320	240
10X	10	10	10	false	320	240
1X	100	100	1	false	320	240
20X	5	5	20	false	320	240
2X	50	50	2	false	320	240
3X	33.33333	33.33333	3	false	320	240
40X	2.5	2.5	40	false	320	240

Sign Name: 10X
☐ Zoom
 Ok Delete

To delete calibration results from the table, select a desired item and click "Delete".

One-Click Calibration

This kind of "calibration" does not refer to quantification, but to predefined camera settings for three types of microscope samples (Biological, Metallographic, Stereo):



Preset

With this function, you may save and load the parameters you have set with "Basic Adjustments", "Color Adjustments" and "Advanced Settings".

Load

The next time you wish to return to these settings, select from the dropdown list, click "Load" and the settings in the corresponding panel will change accordingly.

Save

Adjust the parameters in the corresponding panel until the image quality meets your requirements; enter a name in the blank and click the "Save" button to save these settings.

Delete

Click "Delete" to remove the current item from the list.

Cooler Enabled

Check "Cooler Enabled" to enable the cooler of a Moticam Pro camera with Peltier cooling.

Pro Options

Click  to display the following options:

- Histogram
- Capture a highest resolution image
- Capture a high quality image by average several frames of images
- Capture a high quality image by adjust gain value to 1X gain
- Enable topmost window
- Enable Motic Hub
- Version information

Histogram

Opens the histogram window.

Capture a highest resolution image

Captures an image with maximum resolution, no matter what resolution is used at the moment.

Capture a high quality image by averaging several frames of images

Captures continuous 4 images at the current resolution to merge a high quality image (with reduced noise).

Capture a high quality image by gain value to 1X gain

Adjusts the gain value to 1X and captures a high quality image (graph camera signal/monitor brightness with gradient 1X).

Enable topmost image

Bring the live image into the foreground.

Enable Motic Hub

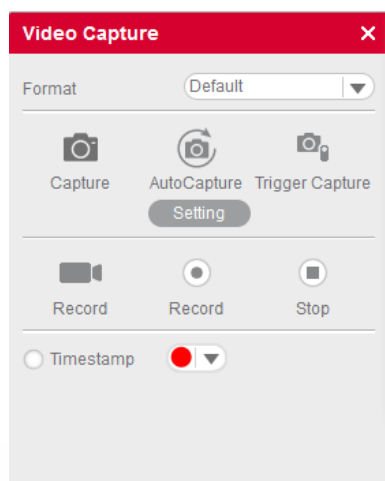
Activates the Motic Hub function; your computer will be able to transmit the live image as a WiFi signal.

Version

Software version

Menus, bars and tools / Control Panel / Video Capture

The button  opens the Video Capture Panel for image capturing and video recording.



Format

From the dropdown list "Format" select an image size to capture an image. If "Default" is selected, the size will be the current display resolution. If you choose a higher resolution, the image will be extrapolated.

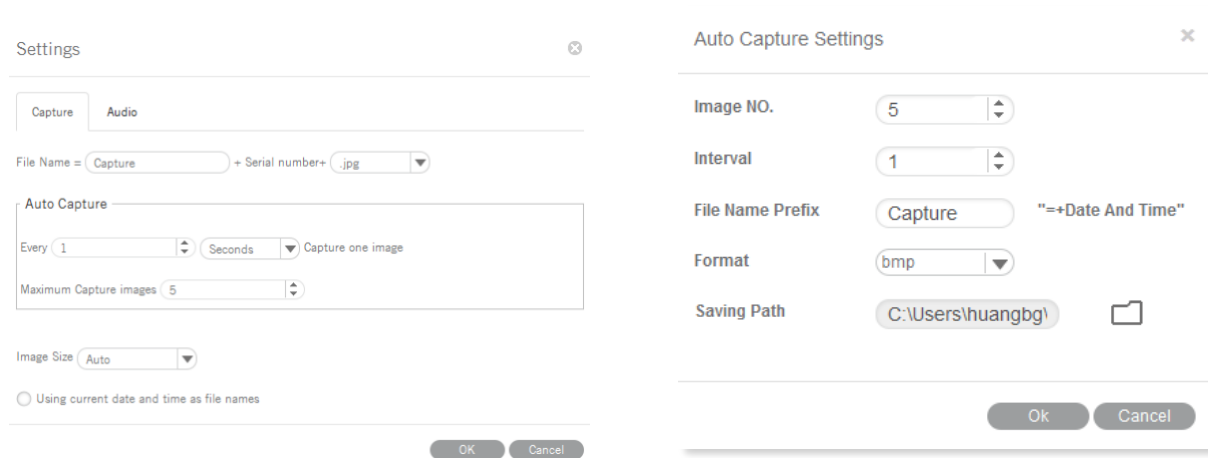
Capture

Captures a complete Still Image or only a defined ROI. Selection of an ROI allows to individually define the region you like to document.

Auto Capture

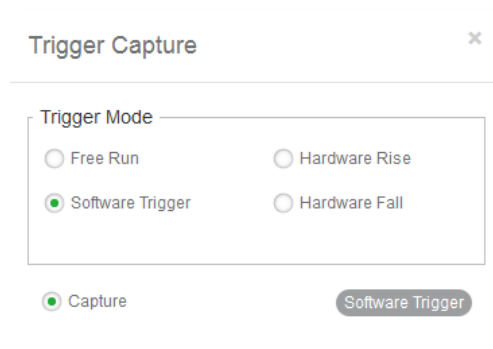
The definition of a sequence of Still Images is per default done through "Settings" in the main software: Number of images, chronological distance, format and name.

If you open this module directly without opening the main software, a slightly different dialogue will appear:



Trigger Capture

Only possible with Moticam Pro models. Freezes and captures the current image.



Note: "Hardware Rise" and "Hardware Fall" are available with a camera having a hardware trigger feature.

Record

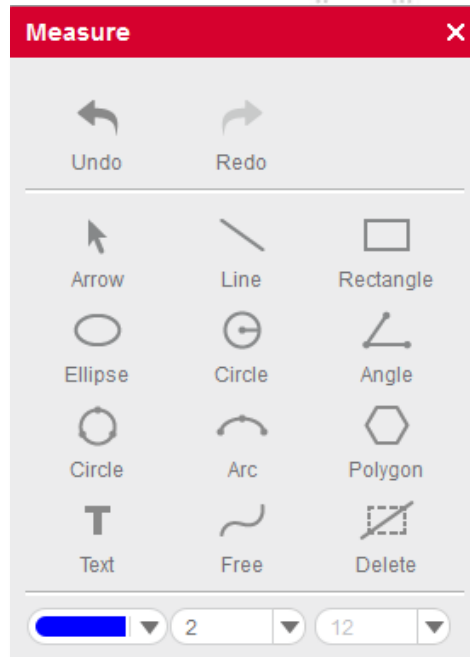
Specify a path to save a video. A time stamp for Still Images and videos can be applied.

Menus, bars and tools / Control Panel / Measure

The MDevice live measurement module greatly simplifies the workflow and improves the efficiency as the user does not need to capture an image before performing measurements.



The button opens the Live Measurement Panel for interactive measurements.



Arrow

The length of the arrow will be displayed.



Line

The length of the straight line will be displayed.



Rectangle

Height, width and area of the rectangle will be displayed.



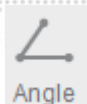
Ellipse

Width, height, perimeter and area of the ellipse will be displayed.



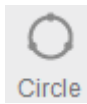
Circle

Radius, perimeter and area of the circle will be displayed.



Angle

Depending on the drawing direction, the measurement of an internal or external angle is possible.



Circle (3 Points)

Draw a circle with three points and radius, perimeter and area are displayed.



Arc (3 Points)

Draw an arc with three points and radius, length and angle are displayed.



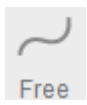
Polygon

Draw a polygon and measure perimeter and area.



Text

Draw a rectangular text field for comments.



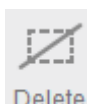
Freehand Line

Displays the length of a freehand line.



Parallel Line

Draw parallel lines in the image and measure their distance.



Delete

Select one figure to delete; double click to delete all figures from the image.



Settings

Allows to edit the measuring data.

Line color		Line Width	2
Font	Microsoft Sar	Size	12
Font Style	Regular	Unit	µm

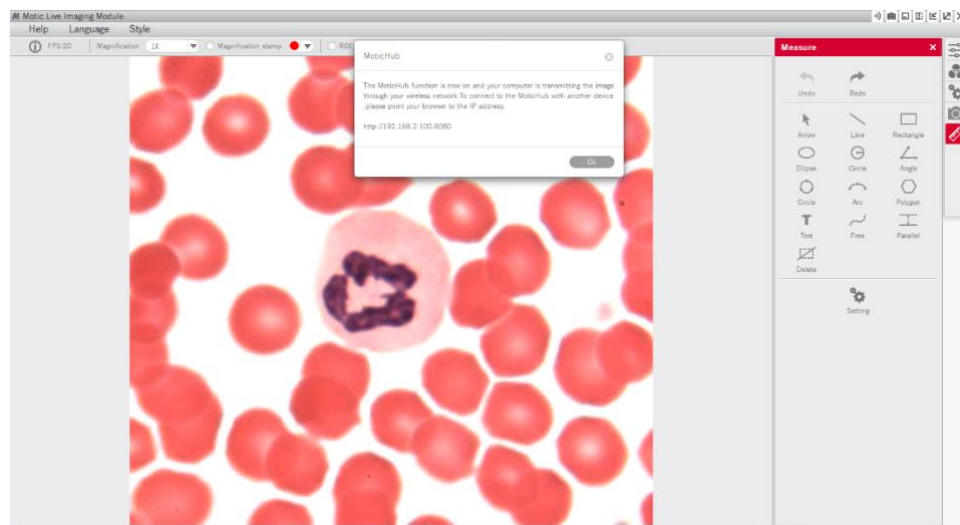
Note: To ensure correct measurements, please perform calibration before doing a live measurement.

MoticHub

MoticHub can transmit the live image from an MDevice source via WiFi to a variety of recipients (PC, laptop, tablet, smart phone). A variety of browser (Google Chrome, Moticonnect App) display the live image with an interactive parameter setting.

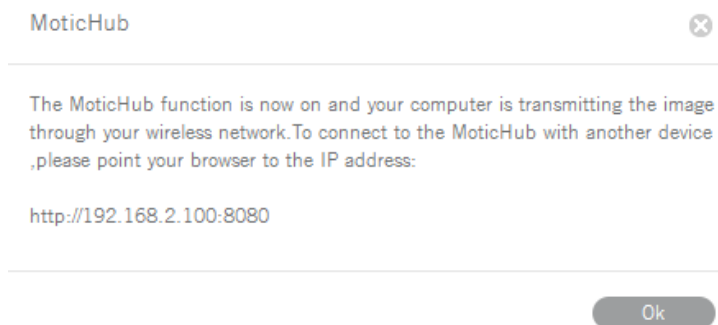
Enable the MoticHub function

1. Please connect your computer to a wireless network (router).
2. Connect your Motic camera to a computer.
3. Please click the “Wi-Fi” button in the title bar to enable the MoticHub function.



Access MoticHub

The WiFi signal can be handled by PC browser or Motic APP (free of charge) on an external device. Please connect the mobile device or computer to the MoticHub network (wireless router or Wi-Fi hotspot), then launch browser and enter [http:// IP address /port number](http://192.168.2.100:8080).



Compatible Browser: FireFox, Chrome, Safari.

Compatible Operation System: Windows, Mac OSX, Linux, IOS and Android 4.0 or higher OS.

Through GooglePlay the relevant MotiConnect App (free of charge) is available.

System Configuration

Minimum configuration requirements

CPU: Intel(R) Pentium(R) 4; 2.8GHz or higher

Memory: 512MB or more

Display: Standard VGA 32MB color, no less than 1024x768, supporting DirectX 8.0

HD space: 500MB or more

Sound card: Common full duplex sound card

Recommended configuration

CPU: 2 x Intel(R) Pentium(R) D; 2.8GHz or higher

Memory: 1G or more

Display: Standard VGA 32MB color, no less than 1024x768, supporting DirectX 8.0

HD space: 10GB or more

Sound card: Common full duplex sound card