



This booklet is designed to guide you through some of the features and tools contained in the **Motic Live Imaging Module** of your new Digital Microscopy system.

Whether you are using an attachable Moticam or a built-in digital microscope, following a few simple steps will help you get a good match between what you see through your eyepieces and what you see on your screen.

In order to arrive at an image that is representative of what you see through the eyepieces, you need to take into account that there are several interpretations of information that the computer and the camera is doing. The analog colour that you see with your eyes is “seen” and interpreted by the pixels of the camera into Red, Green and Blue channel digital information. Your computer then will decode this information and display a facsimile of the colour through the RGB pixels on the computer screen.

As there are differences in illumination of the microscope as well as differences in the computer screen’s colour temperature, contrast, brightness and resolution, as a user, you must be able to have full control over the colour inputs and the processes in the computer.

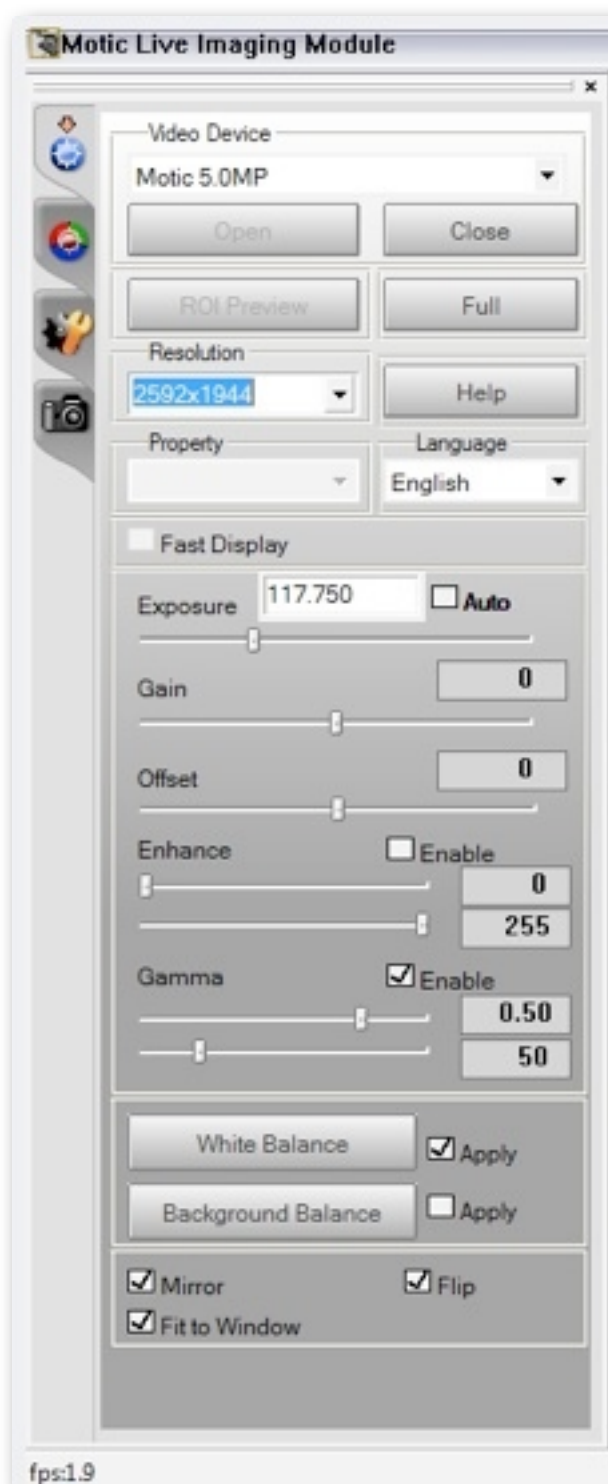
As with any digital imaging device, there are certain easy automatic steps that will allow the user to get very close to a good image. For the more demanding applications, there are also manual controls that allow you to customize the images even more.

## The Automatic Steps

There are three basic automatic steps in order to get from an initial default image to a true-colour representation of what you see through your eyepieces.

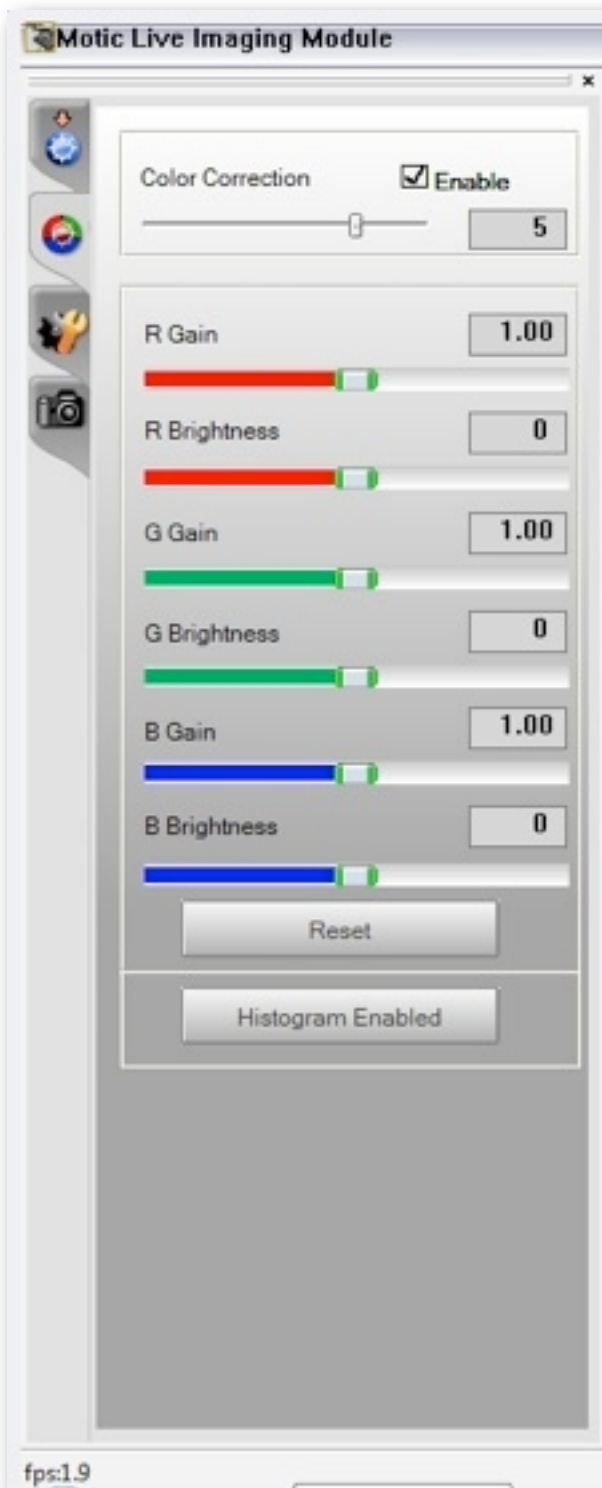
### Auto Exposure

By clicking on auto exposure, you are allowing the computer to adjust the exposure timing of the camera in order to get a good image. The higher the exposure, the brighter the image. However, as with any camera device, an increase in the exposure timing leads to a decrease in the Frames Per Second (FPS) transmission from the camera to the computer. For example, if your exposure is close to 0.5 seconds for one frame, then your FPS will remain at around 2. In order to increase your exposure without sacrificing your FPS, the camera interface contains a Gain control.



## White Balance

The camera chip is set to a default initial image mode. As there are many different illumination techniques for different specimens, the software provides a white balance mode to allow the system to take into account the colour differences that come with different illuminations. For example a new LED illumination will have a higher colour temperature than a halogen or tungsten illumination. In order to use the White Balance, simply drag a Region of Interest (ROI) on the live image section that is supposed to be white. Then click on white balance.



## Colour Correction

Designed especially for H&E stained slides, the Colour Correction feature will apply a proprietary calculation to the live image allowing the image sensor to differentiate more between the dark red, blue and purple parts of the image. As a user, you can select the intensity of this correction by sliding the controller to the proper position.

These Automatic Functions will apply pre-programmed image alterations to your live stream so that you can get as close as possible to a true-colour representation. More specific and detailed manipulations can then be done with dedicated RGB Gain and Brightness Controls.

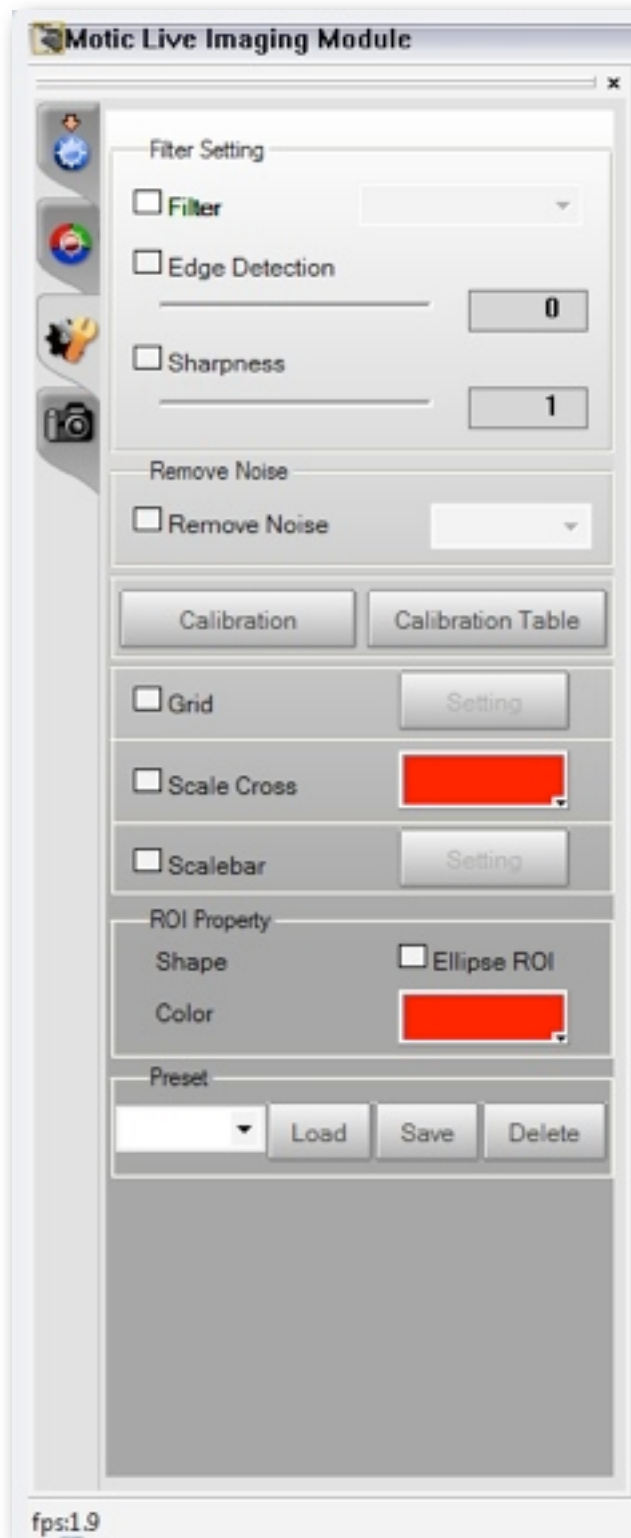
## Advanced Features

By clicking on the Advanced Features Tab, you have access to more valuable, user-inspired tools.

Click and drag an **ROI** (Region Of Interest) in your live preview and then select your **Filter** to observe different features or highlight a certain area. You can also call out the edges and increase the sharpness. Should you encounter a lot of **Image Noise** the system includes a built-in noise reduction feature, which compares 2, 3 or 4 frames and removes discrepancies before presenting it on the screen. This reduces the display rate but enhances image quality when you are ready to capture the image.

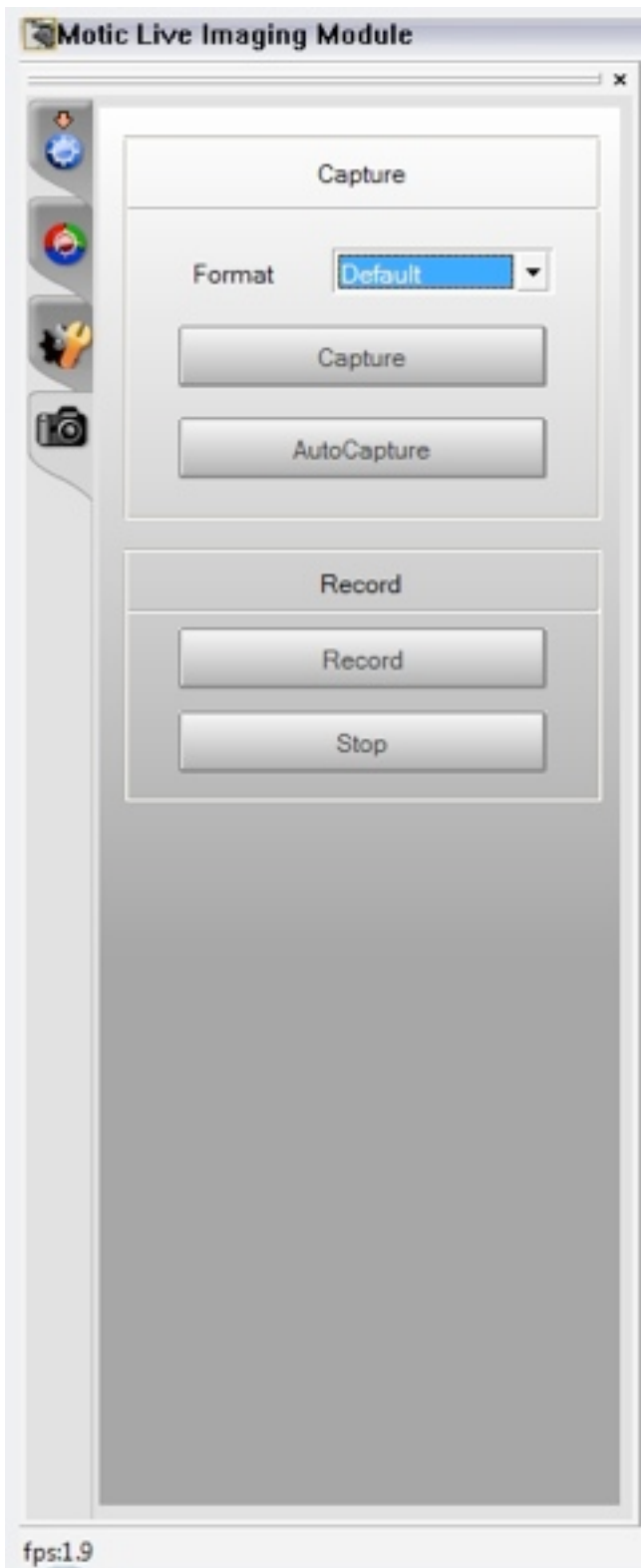
With a calibration slide under the microscope, you can also calibrate the live imaging module directly - something that comes in handy when you are using **DS** or **TWAIN** interface application software.

Calibration can be done through the live imaging interface, however if you already have a calibration done through the main software interface, such as Motic Images Plus 2.0 or Motic Images Advanced 3.2, simply select the Objective magnification from the interface's measurement settings bar. The Imaging Interface will then take those calibration settings. Once calibrated, you can overlay an accurate **Grid** or a set of **Scale Bars** creating an instant spacial reference on your live image stream. A **Scale Cross** with pixel coordinates can also be shown and moved to any place on the image. If you are sharing the digital microscopy solution with your colleagues or are moving a Moticom from different microscopes, you can save your parameter settings, which can be loaded any time.



## Capturing your Image

When you are happy with your image settings and are ready to capture and document your findings, you can use the **Motic Live Imaging Module** to capture Still, Time-Lapse or Video Images.



### NEW!!

Capturing still images can now be done in three different ways. You can

1. click on **Capture** on the Capture Tab
2. click on the **Camera Icon** on the top right hand corner of the Live Imaging Module.
3. use your mouse's **Right Click** button, which will instantly transfer your image to the main application program.

If you would like to capture time-lapse images, you can set the frequency of capture in the main application interface and then click on **Auto Capture**.

Due to the high resolution of the Motic devices, recording Video will take up a lot of your computer's memory. By clicking on **Record**, you will be asked to download a compression program (XVid) in order to keep your hard-disk from running out of space. By clicking on no, you can still continue to record the original uncompressed data stream.

The Capture **Format** is not to be confused with resolution. A the capture format simply defines the size of the image to be captured, not its resolution. For example, a resolution set at 1280x1024 pixels but a format of 800x600 pixels will deliver a better result than a live resolution set at 640x480 but the capture format set to 800x600. By default, it is set to capture at the same size as the live resolution.

## **A Note about Compatibility**

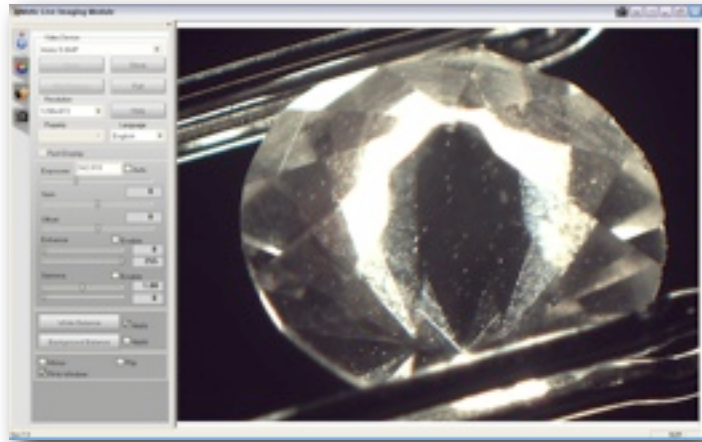
At Motic, we realize that you or your customers may already be used to a certain type of **Image Analysis** software. This is why we have made it our goal to be as transparent and flexible as possible. While **Motic Software** will mostly only work with **Motic Hardware**, the reverse is not true.

Motic Hardware can be made to work with other systems or software through the following ways.

1. **TWAIN** compatibility means that you can use our imaging hardware with TWAIN compatible software. Even software such as IRFanView can be used with TWAIN devices. By using this TWAIN interface, you can still control your image parameters with our **Motic Live Imaging Module** therefore giving you ultimate control and flexibility
2. **Direct Show** compatible devices work like webcams. If you turn your imaging hardware into a DS compatible system, you can get **Instant Remote Digital Consultation** through other networking software such as **SKYPE®**.
3. **SDK** is available for free download from the support tab of our website.

# The MI Devices Interface

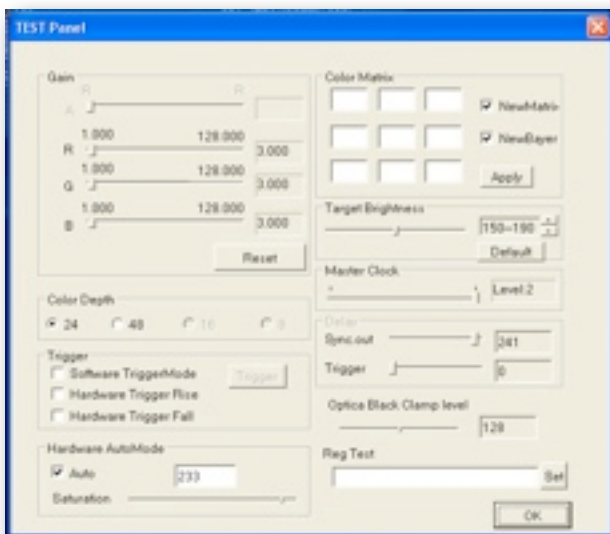
The Motic Imaging Devices Interface can be called up to adjust the image quality and perform live calibration no matter if you are working with Motic application software or with third party application software through TWAIN or Direct Show interfaces. This allows you direct access to all camera controls including information on the Moticam Pro's Sensor and Ambient Temperature as well as the Relative Humidity within the camera's case.



## Shortcuts

As a user, you can call-up certain short cuts, which are useful especially for the Moticam Pro.

**CTRL-ALT-F7** will allow you to switch the Moticam Pro image stream to full 12-bit imaging. This only works with the Moticam Pro range of cameras.



**CTRL-ALT-SHIFT-F10** turns on the cooling monitor of the Moticam Pro cooled versions. Please ensure that you have the power supply connected to the Moticam Pro in order to power the Peltier Device.

