

Swift M3 Series Micro/Macro Microscope

Use and Care Manual

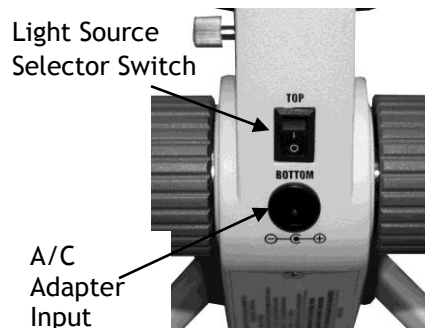
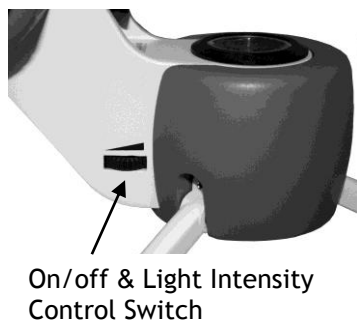
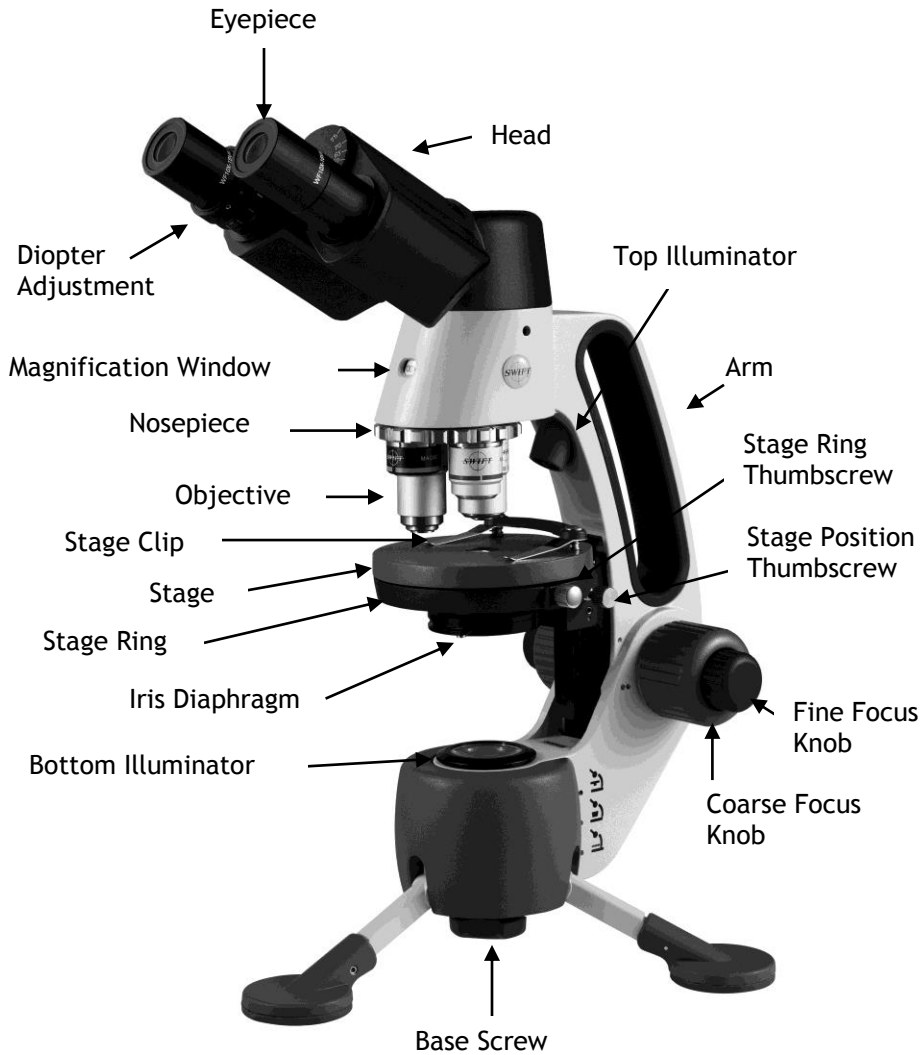


Swift M3 Series Micro/Macro Microscope

M3-M / M3-B

The Swift M3 is a versatile microscope designed for both microscopic (high magnification, small field of view) and macroscopic (low magnification, large field of view) applications. Micro/macro optical capability combined with an innovative modular stage design produce a sophisticated instrument designed to perform for many years in numerous applications.

The M3 is equipped with an adjustable stage that allows the viewing mode to be changed. The microscope stage can be placed in the uppermost position, the "micro" mode, or by lowering the stage to its middle or lowest position in can be placed in the "macro" mode. The M3 is equipped with multiple stage inserts for observation of specimens which include a stage plate with an integrated 0.65 N.A. condenser for microscopic use and an optically clear specimen cup or a black/white contrast plate for macroscopic use. The M3 features top and bottom rechargeable LED illumination for cordless operation both indoors and out.



Components of the Microscope

ARM – the frame that connects the head and the base of the microscopes. It also houses the illumination switch, carrying handle, stage ring, coaxial focus controls, and the incident (top) light.

BASE – attaches to the bottom of the M3 with a thumb screw located underneath the tripod base. The tripod legs extend out to ensure stable footing or fold in for storage. *

* The M3 can also be mounted on a standard camera tripod for use in the field.

COAXIAL CONTROLS – the coaxial focusing system combines both the coarse and fine focus into one focusing mechanism located on both sides of the microscope. The large gray knob is the coarse focus control and the smaller blue knob is the fine focus control.

COARSE FOCUS – the larger, outer knob of the focus control which facilitates rapid and heavy movement of the focusing mechanism. In order to prevent gear damage, the focus control is equipped with an upper limit stop that protects the high magnification objectives and slides.

DIOPTER ADJUSTMENT (M3-B & M3-F only) – located on the left eyepiece of the binocular head, this adjustment compensates for the differences between the users' eyes.

EYEPIECE(S) – the upper optical element that further magnifies the primary image of the specimen and brings the light rays into focus at the eye point. The M3 has widefield 10X magnification eyepiece(s) with an 18mm field of view.

FINE FOCUS – the smaller, inner knobs of the coaxial control which allow for slow and subtle focusing movement to bring the specimen into sharp focus.

HEAD – the upper portion of the microscope which contains the refracting prisms and the eyepiece tubes which hold the eyepieces.

Note that the head rotates, allowing operation from the front or back.

ILLUMINATION – the Swift M3 uses a low voltage Light Emitting Diode (LED) for both transmitted (bottom) and incident (top) light.

(The illumination system may be used while the M3 is charging.)

IRIS DIAPHRAGM – The iris diaphragm is a round device that is mounted below the stage. It has multiple leaves similar to a camera shutter. Moving the control lever from side-to-side causes the opening in the diaphragm increases or decreases, allowing the user to control the contrast of the specimen. If the image is “washed out” the iris diaphragm is opened too wide. If the image is too dark the iris is not open wide enough.

NOSEPIECE – the revolving turret that holds the objective lenses. Changes in magnification are accomplished by rotating different powered objective lenses into the optical path. The nosepiece must “click” into place for the objectives to be in proper alignment.

OBJECTIVES – the optical systems which magnify the primary image of the instrument. Microscopic magnifications are 4X, 10X, 40X. The macroscopic magnification is 1X. The magnification of the objective combined with the magnification of the eyepiece gives a total 10X macroscopic magnification of the subject, and allows for total microscopic magnifications of 40X, 100X and 400X.

SIEDENTOPF (M3-B & M3-F only) – a binocular head design where the interpupillary adjustment (increasing or decreasing the distance between the eyepieces) is achieved by pivoting the eyepiece tubes in an up and down arc motion similar to binoculars.

STAGE RING – the circular ring located in the center of the microscope that supports the stage plate, black/white contrast plate, or specimen cup. These components are held onto the stage ring with a thumbscrew.

Other Important Terminology

“COATED” LENS – in attempting to transmit light through glass, much of the light is lost through reflection. Coating a lens increases the light transmission by reducing or eliminating reflection, thus allowing more light to pass through.

COVER SLIP – thin glass cut in circles, rectangles or squares usually a thickness of 0.15 to 0.17mm, for covering the slide specimen. The majority of specimens should be protected by a cover glass, and must be covered when using 40XRD objective.

DEPTH OF FOCUS – the ability of a lens to furnish a distinct image above and below the focal plane. Depth of focus decreases with the increase of numerical aperture or with the increase of magnification.

DIN – (Deutsche Industrie Normen) A German standard for the manufacturing of microscope lenses. DIN is not a quality standard, but one of commonality.

EYE POINT or EYE RELIEF – the distance from the eyepiece lens to your eye where a full field of view can be seen. A higher eye point accommodates users who wear eyeglasses

FIELD OF VIEW – the area of the object that is seen when the image is observed. It may range in diameter from several millimeters to less than 0.1mm, depending on the level of magnification.

FOCAL LENGTH – parallel rays of light after refraction through a lens will be brought to a focus at the focal point. The distance from the optical center of the lens to the focal point is the focal length.

NUMERICAL APERTURE (NA) – a measure of an objective’s light gathering capabilities. The concept may be compared to the F-value in photographic lenses. Generally speaking, N.A. values of less than 1.00 are "Dry" objectives. Values of 1.00 or greater require oil as a medium.

Please note that condensers are part of the optical system and are also assigned an N.A. value. That value must be at least as high as that of the highest objective used.

PARFOCAL – a term applied to objectives and eyepieces when practically no change in focus is needed when changing objectives. The objectives on your Swift M3 microscope are parfocalled at the factory so that only a slight adjustment of the fine focus knob is needed to maintain focus when switching magnification.

RESOLUTION or RESOLVING POWER – the ability of a lens to define the details of the specimen at a maximum magnification. This is governed by the N.A. (Numerical Aperture) of the lens. For example, a 40X objective with a N.A. of 0.65 has a maximum resolving power of 650X, equal to 1000 times the N.A.. This rule of N.A. x 1000 is true of all achromatic objectives.

WORKING DISTANCE – the distance from the lens of the objective to the cover slip on the slide, when the specimen is in focus.

Using Your Swift M3

CORDLESS OPERATION – The rechargeable battery should be fully charged for approximately 8 hours before the initial use. It can be charged by using the 4.5 volt A/C adapter included with the microscope. An LED indicator light on the A/C adapter will be red while the battery is charging and will turn green when the battery is fully charged. The battery can be used to power the illumination system for approximately 40 hours. If the microscope is used in the same location, the A/C adapter can remain plugged-in without damage to the battery or recharging system.

MAGNIFICATION – The M3 comes with silver 4X, 10X and 40X objectives (for microscopic use only) and a black 1X objective (for macroscopic use only). The objective magnifications shown in the magnification window are color coded to correspond to the stage position icons on the side of the arm. Micro magnifications are written in blue to coordinate with the blue micro mode stage icons. The 1X macro magnification is written in red to coordinate with the two macro mode stage positions.

STAGE SELECTIONS

SPECIMEN CUP – a container used for collecting and viewing specimens at a macroscopic level. This container has adequate depth and has a ventilated optically clear lid for use with a variety of specimens.

CONTRAST PLATE – offers a black or white viewing background

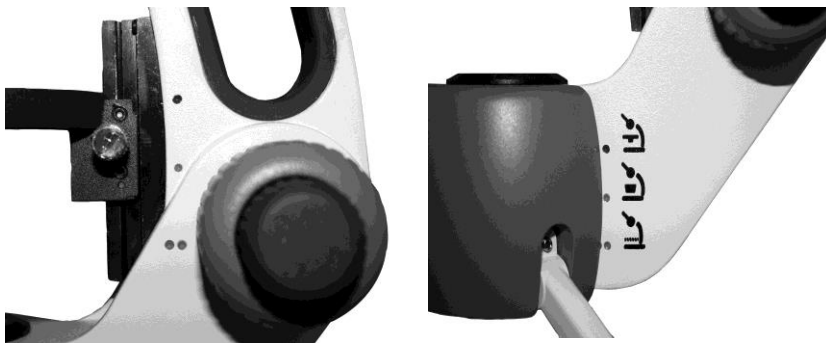
STAGE PLATE – the microscopic stage with a built-in 0.65 N.A. condenser, iris diaphragm, stage clips and swing out white filter.

STAGE POSITION ADJUSTMENT – proper stage height is critical for achieving the correct focusing distance for viewing micro or macro specimens. The stage can be set at 3 levels:

MICROSCOPIC – uppermost stage position. (Stage plate must be placed in the stage ring).

MACROSCOPIC – middle stage position. (Specimen cup must be placed in the stage ring).

MACROSCOPIC – lowermost stage position. (Black/white contrast plate must be placed in the stage ring).



For proper stage ring adjustment, loosen the stage position thumbscrew to raise or lower the stage ring housing to line up with the desired stage position indicator marks. Tighten the thumbscrew to secure the stage assembly in place. The macro indicator marks are the *suggested* positions for viewing most macro specimens. The macro stage ring positions may have to be adjusted slightly to find the best working distance for unusual sized specimens.

Microscope Operation

Step 1: Loosen the stage ring thumbscrew on the right side of the stage ring. Insert the stage plate into the stage ring and secure it in place by tightening the thumbscrew.

Step 2: Loosen the stage position thumbscrew on the right side of the stage to move the stage assembly to its uppermost position. The red dot underneath the stage position thumbscrew should be lined up with the blue dot on the right side of the microscope arm near the coarse focus knob.

Step 3: Select the bottom (transmitted) illuminator by pressing the light source selector switch on the back of the microscope's arm to the bottom position.

Step 4: Turn on the illumination by rotating the light on/off & intensity control dial towards the bottom illuminator. (Note: Please notice that that the dial will "click" when turning on the light. When turning the unit off, please ensure that the dial is rotated all the way back until it "clicks" off to save power and prolong LED lifespan.)



Step 5: Place the slide on the stage, securing it with the stage clips. Center the specimen in the optical path.

Step 6: After securing and moving the slide into position, rotate the nosepiece to place the lowest power 4XD objective into position over the specimen. Be sure the objective "clicks" into position. The iris diaphragm should be adjusted at this time to about a ¼ inch (5 mm) open.

Step 7: (M3-B & M3-F only) Adjust the Siedentopf binocular head (by moving the eyepiece tubes up and down in an arc-like motion, similar to adjusting binoculars) until one perfect circle is seen in the field of view

Step 8: While viewing through the eyepiece(s), rotate the coarse focus knob slowly and carefully to bring the specimen into focus. The specimen may require some centering in the field of view at this time. By using the fine focusing knob, slowly and carefully refine the focus to clearly observe the fine details of the specimen. Now you can turn the nosepiece to the higher magnification micro objectives. The objectives are parfocalled so that once the 4x objective is focused; only a slight turn of the fine focus is required to refine the focus when changing to higher power objectives.

Step 9: (M3-B & M3-F only) Set the diopter adjustment which is designed to help compensate for the difference between the user's eyes. To adjust, first bring the specimen into perfect focus by using the coaxial focusing knobs while looking through the eyepiece with the right eye only (close your left eye). Now, using your left eye only (close the right eye) turn the left eye diopter only (don't touch the focus controls) to obtain a crisply focused image. The diopter adjustment is now set and no further adjustment will be needed until a new operator uses the scope.

Please note: A smaller diaphragm aperture (opening) increases the contrast in the image while a larger aperture decreases the contrast. (The diaphragm is not intended for controlling the brightness of the illumination). A good procedure to follow in selecting the proper opening is to start with a large aperture and reducing it until the fine detail of the specimen is in exact focus. Using an inappropriate aperture results in a "washing out" of the image. Care must be exercised not to reduce the aperture too much to gain high contrast, as then the fine structure in the image of the specimen will be destroyed. Reducing the aperture *does* increase contrast and depth of focus, but it also reduces resolution and causes diffraction. The aperture for the 10X objective will not be the same as for the 40XRD objective, since the angle of the required light is determined by the numerical aperture (N.A.) of the objective. The proper aperture of the diaphragm can be easily achieved after minimal experience with the microscope.

Macroscopic Operation

Step 1: Loosen the stage ring thumbscrew on the right side of the stage ring. Insert the specimen cup or the black/white contrast plate into the stage ring. The specimen cup is designed to be rotated while viewing a specimen so the thumbscrew does not need to be tightened. If the contrast plate is being used, tighten the thumbscrew to secure it in place.

Step 2: Loosen the stage position thumbscrew on the right side of the stage to move the stage assembly to the suggested middle position for specimen cup use (indicated by 1 red dot) or the lowest position for contrast plate use (indicated by 2 red dots). The red dot below the stage position thumbscrew should be lined up with the red dot(s) on the right side of the microscope arm near the coarse focus knob. If odd-sized specimens are being viewed, the stage assembly may have to adjust slightly off of the indicator marks to achieve the proper working distance in order to bring the specimen into focus.

Step 3: Select the top (incident) illuminator by pressing the light source selector switch on the back of the microscope's arm to the top position.

Step 4: Turn on the illumination by rotating the on/off & light intensity control dial towards the bottom illuminator.



Step 5: Place the specimen in the specimen cup or on the contrast plate and center it in the optical path.

Step 6: Rotate the nosepiece to place the 1X macro objective into position over the specimen. Be sure the objective "clicks" into position. (The 1X macro objective is the only objective that can be used in macro mode.)

Step 7: (M3-B & M3-F only) Adjust the Seidentopf binocular head until one perfect circle is seen in the field of view. This is accomplished by moving the eyepiece tubes up and down in an arc-like motion, similar to adjusting binoculars.

Step 8: While viewing through the eyepiece(s), rotate the coarse focus knob slowly and carefully to bring the specimen into focus. The specimen may require some centering in the field of view at this time. By using the fine focusing knob, slowly and carefully refine the focus to clearly observe the fine details of the specimen.

Step 9: (M3-B only) Set the diopter adjustment, which is designed to help compensate the difference between the user's eyes. To adjust, first bring specimen into perfect focus by using the coaxial focusing knobs while using your right eye only (close your left eye). Now, using your left eye only (close your right eye), adjust the left eye diopter only (do not adjust the focus control knobs) until the specimen is in sharp focus. The diopter is now set and no further adjustment to the diopter is needed until a new operator uses the scope.

Care of Your Swift M3 Microscope

The M3 Series microscope is designed to function with minimal maintenance, but certain components should be cleaned frequently to ensure ease of viewing. The microscope's illumination should be turned off when the microscope is not in use to prolong electrical component life.

CAUTION - Objectives should never be disassembled by the user. If repairs or internal cleaning should be necessary, this should only be done by qualified, authorized microscope technician. The finish of the microscope is hard epoxy and is resistant to acids and reagents. Clean this surface with a damp cloth and mild detergent.

CLEANING - The front lens of the objectives should be cleaned periodically. First brush with a soft, camel hair brush or blown off with clean, oil-free air to remove dust particles. Then wipe gently with a soft lens tissue, moistened with optical cleaner (eyeglass or camera lens) or clean water. Immediately dry with a clean lens paper. The eyepiece(s) may be cleaned in the same manner as the objectives, except in most cases optical cleaner will not be required. In most instances breathing on the eyepiece to moisten the lens and wiping dry with a clean lens tissue is sufficient to clean the surface. Lenses should never be wiped while dry as this will scratch or otherwise mar the surface of the glass.

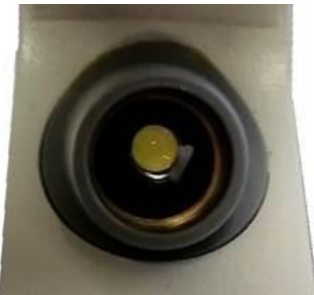
Periodically, the microscope should be disassembled, cleaned and lubricated. This should only be done by a qualified, authorized microscope technician.

DUST COVER AND STORAGE - All microscopes should be protected from dust by a dust cover when in storage or not in use. A dust cover is the most cost-effective microscope insurance you can buy. Ensure that the storage space is tall enough to allow the microscope to be placed into the cabinet or onto a shelf without making undue contact with the eyepieces. Never store microscopes in cabinets containing chemicals which may corrode your microscope. Also, be sure that the objectives are placed in the lowest possible position and the rotating head is turned inward and not protruding from the base. Microscopes with mechanical stages should be adjusted toward the center of the stage to prevent the moveable arms of the mechanical stage from being damaged during storage in the cabinet.

CHANGING BULBS TOP/BOTTOM –

Replacement of the top LED bulb M3 series:

1. This bulb is a simple plug and pull. Just pull out the old LED bulb and replace with new bulb.



Replacement of the bottom LED bulb M3 series:

1. First remove the tripod foot assembly from the bottom of lower arm of your M3 microscope.
2. Next loosen all six each allen set screws with the 2mm L-Wrench (same wrench you used to assemble your microscope)
3. Then slide out the lamp housing assembly



4. Then from under the arm (under the lamp house assembly) pull out the screw plate.

5. Afterwards tilt the LED Lamp assembly to replace.



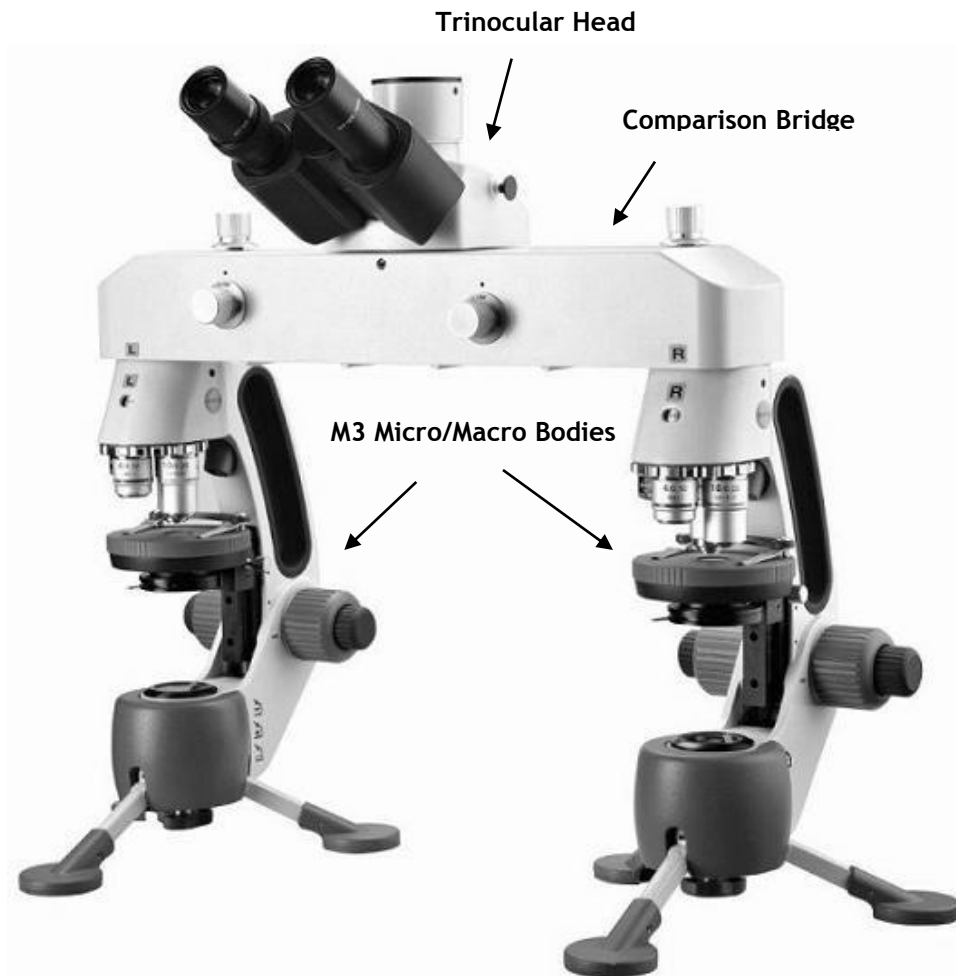
Assemble in the reverse order.

SERVICE – If your microscope needs to be serviced or if parts need to be replaced, please contact Swift customer service for more information at (877) 967-9438.

M3-F Comparison Microscope

M3-F

Use the M3-F's revolutionary technology to compare images in both micro and macro environments. The M3's dedicated macro lens, with a large working distance, allows you to view larger more bulky, "evidence" items. Swift's powerful optical system allows for images to be seen either 100% from the left microscope, 100% from the right, side-by-side, or overlapping. With the optional C-mount adapter, you can easily attach any C-mount ready imaging device. The M3-F will allow you to observe both micro (prepared slides) and macro (bullets, minerals, insects ...) and compare them in one microscope.



M3-F Elements

Two M3 micro/macro bodies: These two units consist of 4x, 10x, and 40x micro objectives and a dedicated 1x macro objective. The macro objective can be easily identified by its black color. The illumination is switched on by turning the illumination wheel on the bottom left of the scope. This also adjusts the intensity. Top or bottom light can be chosen by a switch on the back arm of each scope.

One M3-F comparison bridge: The bridge acts as a director of image paths from the two M3 bodies.

One trinocular head: The head consists of two WF10X/18mm eyepieces with a diopter on the left eye tube. The trinocular head has a beam-splitter built-in which will redirect the light path up into the trinocular port. The trinocular port allows the use of an optional c-mount camera adapter (MA15602).

Two floating stage plates with stage clips: These stages are used to carry prepared slides and have a sub-stage condenser already built in. These stages are easy to use as they feature the "one-touch" stage clip release and a "floating" stage movement mechanism. These stages can be removed and replaced with the other stage inserts mentioned below.

Two sets of black/white stage plates: These stage plates are useful when looking at 3D objects when either a white or a black background is needed for better contrast.

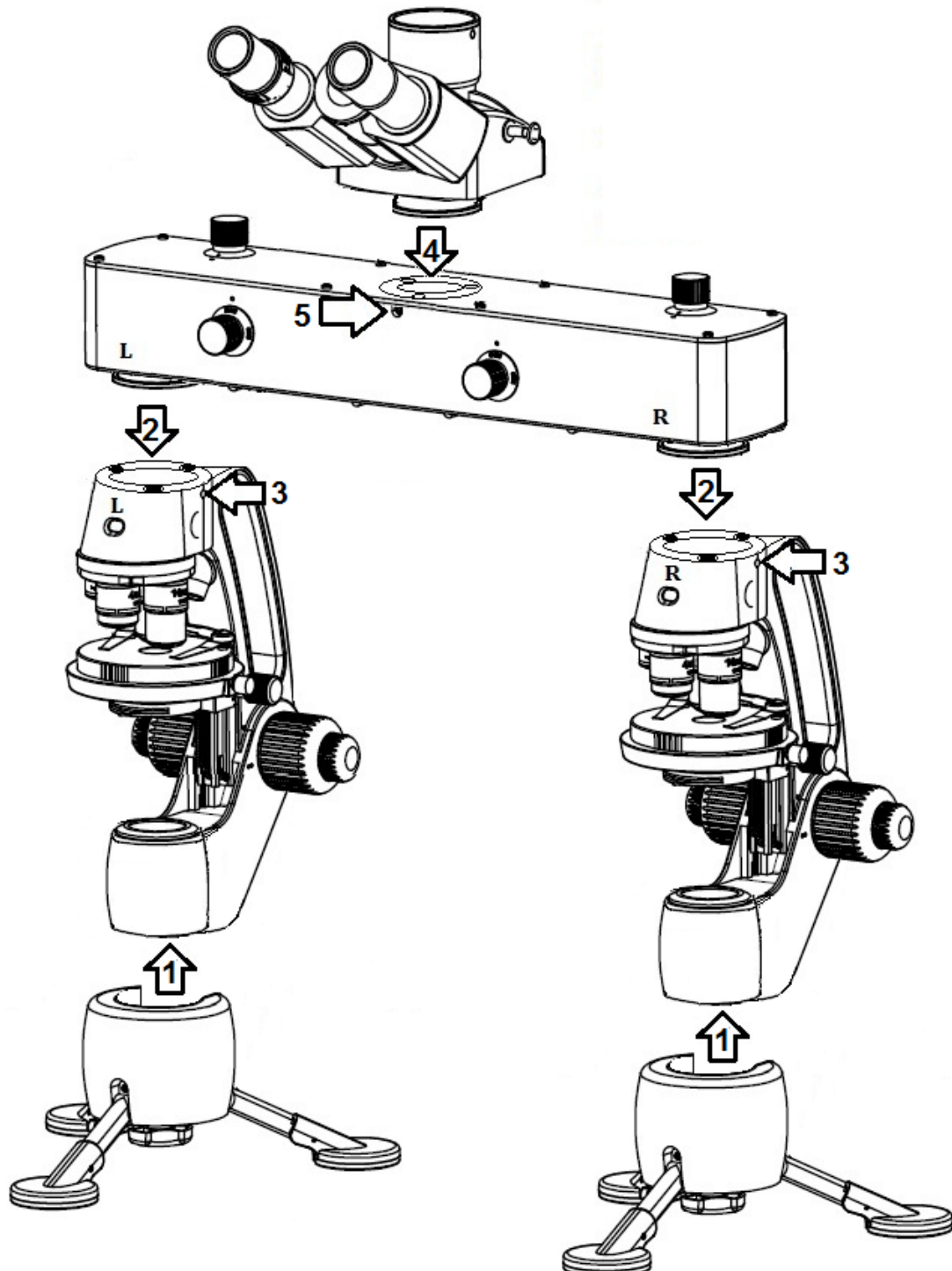
Two sets of well-cups with lids: These can be used to house even larger objects such as rocks or live specimens.

Using the Comparison Bridge

SETUP

The Bridge attaches to the top of the two M3 scope bodies. Please ensure that you align the stickers on the front of the scope with the stickers on the front of the bridge so that you have the left and right body in the proper place.

1. Using the included hex key wrench, tighten the bridge onto the two microscope bodies at the locking set screws located on the top right side of each M3. **Please do not, under any circumstance, pickup the unit by the forensic bridge.** If you need to move the unit from place to place, use the blue hand grips on the back of each M3 body.
2. Next, mount the trinocular head onto the top middle of the comparison bridge and tighten the corresponding locking set screw located on the center front of the bridge with the included hex key wrench.





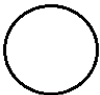

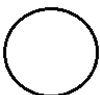



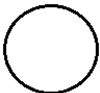



Operation

On the front of the microscope, you will see two knobs marked "OPEN" and "CLOSE". These two knobs will regulate the light flow from the left and the right microscope. For example, if you wish to only look at the image of the left microscope, then turn the left knob to OPEN and the right knob to CLOSE. For viewing only the image of the right microscope, turn the left knob to CLOSE and the right knob to OPEN.

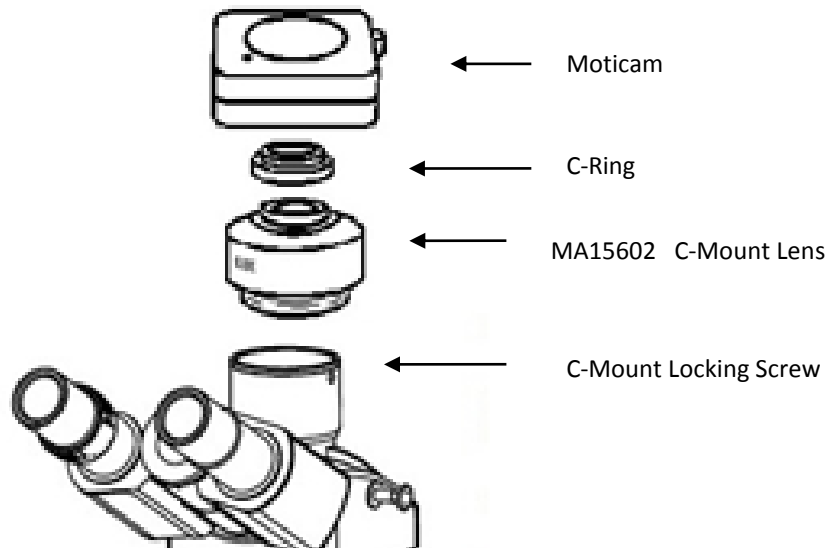
On the top of the microscope you will find two more knobs marked with an empty circle and a circle that is half dark. These knobs will allow you to regulate whether you wish to look at a side-by-side comparison (half dark circle) or an optical overlay comparison (empty circle).

The following is a quick setting guide. This will show you the variety of combinations you can use.

I want to see:	Front Left Knob	Front Right Knob	Top Left Knob	Top Right Knob
				
Only the image from the right microscope	CLOSE	OPEN		
Only the image from the left microscope	OPEN	CLOSE		
The images from the left and the right microscopes in a side-by-side comparison	OPEN	OPEN		
The images from the left and the right microscopes in an optical overlay comparison	OPEN	OPEN		

Attaching D-Moticam Series Camera

Please note: Purchase of C-Mount Lens is necessary for camera attachment*



*C-Mount: Swift Part Number MA15602

Instruction for camera operation covered in separately.

Camera Port Slide Bar

1. When the Slide Bar is pushed all the way in, 100% of the image is directed through the eyepieces.
2. When the Slide Bar is pulled out all until it stops, image is directed both through the eyepiece and camera port.



M3F-BTW SERIES



CONNECTING THE CAMERA TO BTW8 AND BTW10 TABLET

1. Connect the tablet to the camera: *Image of BTW camera may differ, but connection is the same*

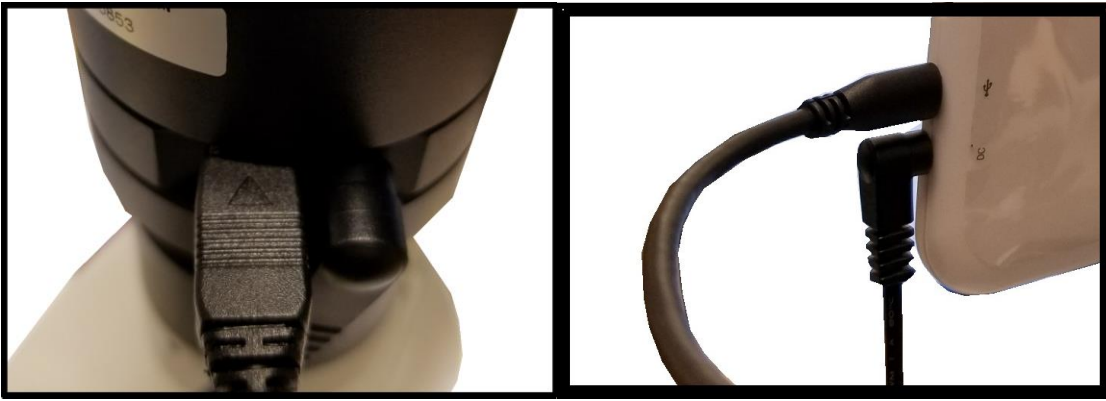
BTW8 and BTW10



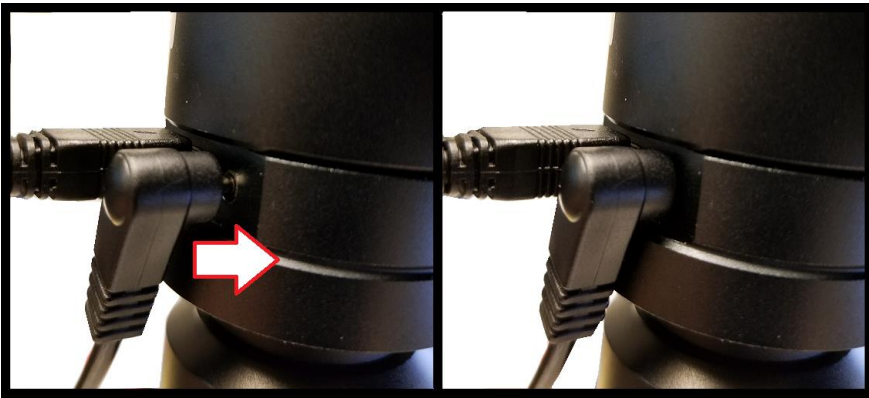
2. Plug the charger in and insert the power DIN cable. Power charger appearance may differ slightly from model to model.



3. Plug the power DIN into the back of the camera – The power plug is very snug, make sure it is properly inserted



NOTE: This connection cannot be loose – insert completely: BTW8 Connection Shown Below

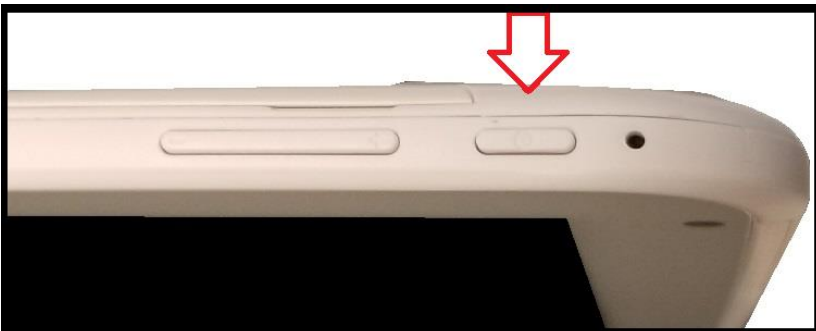


4. Wait 2 minutes and press the power button once –

BTW8

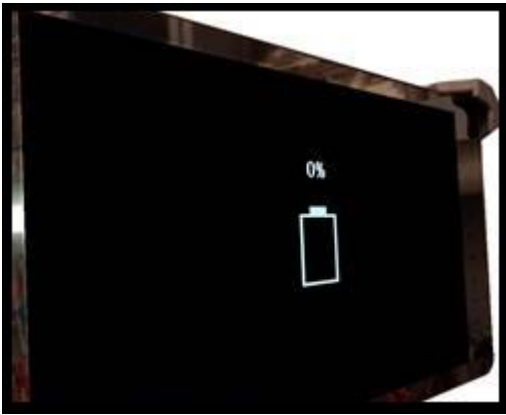


BTW10

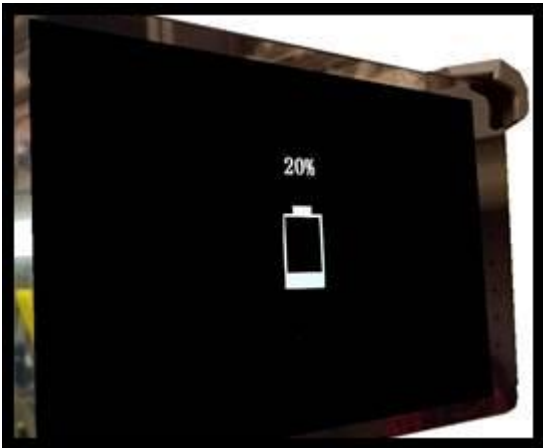


5. You should see this 0% (if the battery is completely discharged)

Note: if you never see this image after pressing the power button: Connect the power pack and micro-USB into the tablet directly. Wait 2 minutes and try again.



6. After about 30 to 45 minutes, press the power button one time and wait for battery indicator to appear. It should show the battery beginning to take charge.



7. With the battery indicator on the screen, hold down the power button until it disappears. Let go of the power button and wait a couple of seconds until the Motic Logo appears.

8. The Motic Logo screen will appear first, then the main tablet screen will appear.

9. As long as the power cable is plugged into the back of the camera, the tablet will trickle charge, and continue to function.

10. If you choose to unplug the camera from the charger, the camera will be running on the tablet battery.

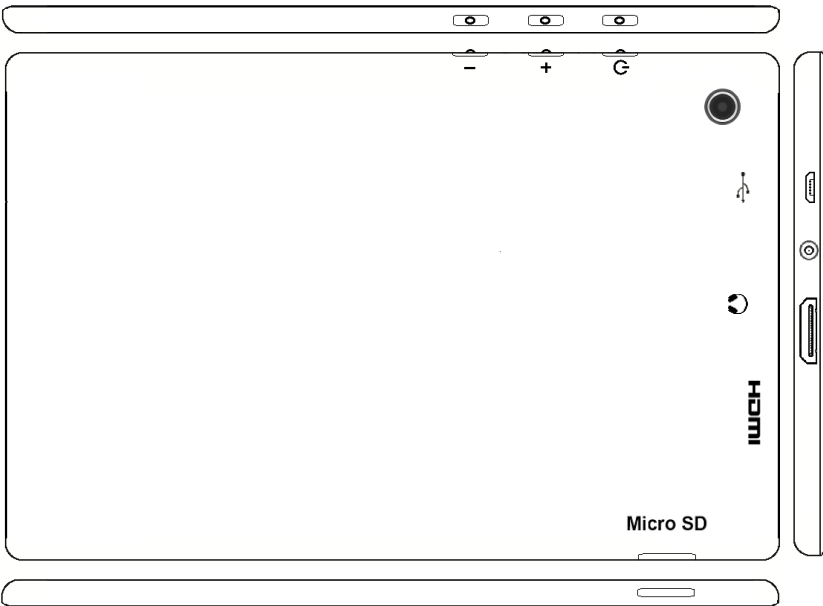
11. On a fully charged tablet battery, both camera and tablet will run for approximately 2hrs only.

TABLET ACCESSORIES

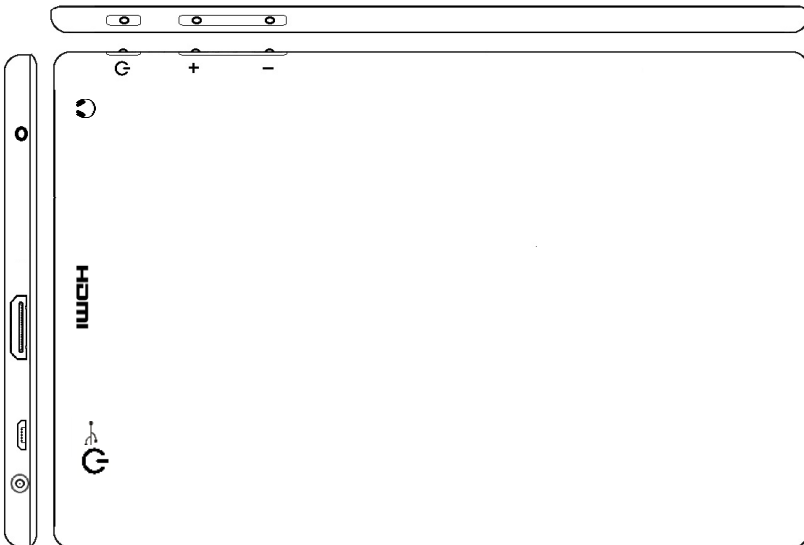


HDMI Cable	This cable will enable you to connect to an HDMI ready device, to view your tablet on a larger format. The displayed image will replicate the displayed image of the tablet.
Power Adapter	This 5V DC power adapter is for charging your tablet's battery. It is also used to power the camera in WiFi mode.
Calibration Slide	This slide will enable you to calibrate your tablet to your microscope, for accurate measurements. You do not need to calibrate your microscope in order to begin using your table/microscope.
C-Ring	This ring is used between the camera and c-mount to achieve par-focus. Pre-installed on MA15602 – C-Mount.
4GB Micro-SD	This storage card can be used with your tablet to store images and then transfer them to your computer. This card is provided as a courtesy and cannot be replaced. *32GB Max Supported*
Mini USB to Micro USB	Provides power and feed connection between the tablet and camera. To operate the camera, move the switch to the camera position.
USB to Micro USB	This cable when used in conjunction with the power adapter is used to charge the tablet.
USB to Mini Power Din	This cable is used to power the camera, in WiFi mode. This cable can also be used to charge both the tablet and camera at the same time. Keep plugged into camera at all times, if possible.
L-Wrench	Optional Wrench for mounting bracket to Motic branded trinocular microscopes

TABLET OPERATION - BTW8 (top) – BTW10 (bottom)



-	Volume adjustment - decrease
+	Volume adjustment - increase
⏻	Hold for a few seconds to turn unit on
🔌	Micro USB Port for charging tablet and connecting to bracket camera
🎧	Provides sound via earphone/speaker
HDMI	Connects to HD ready device via HDMI cable
Micro SD	Micro SD Card Slot for storing images on Micro SD Card (4GB included)



POWER MANAGEMENT BTW 8 and BTW 10

Power to the BTW camera is supplied via the coiled USB cable provided with this product. Since the tablet batteries must supply power for both the tablet and camera simultaneously, approximately 2hrs of continued use can be expected. 8hrs of recharging is required to replenish the tablet battery. So allowing it to charge overnight is highly recommended.

1. Camera connected to tablet, supplying power via USB:



If more than two hours of continuous use is required, use the supplied wall charger and power cable included with your tablet. Leaving the power charger connected to the camera will trickle charge the tablet. This will be a much slower rate, but should allow time beyond 2hrs.

2. Camera connected to both tablet and wall charger: Trickle charging tablet via USB.

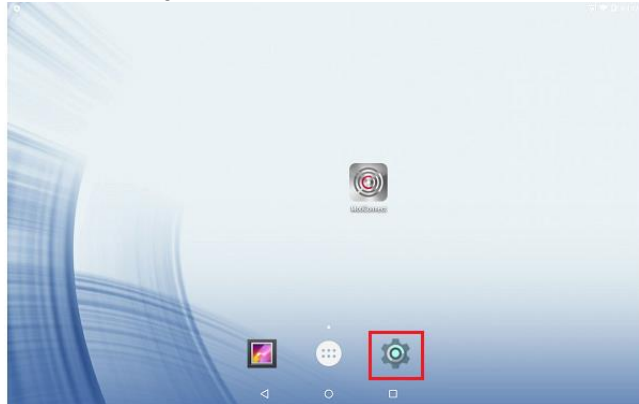


CONNECTING THE BTW TABLET TO EXISTING WIRELESS NETWORK

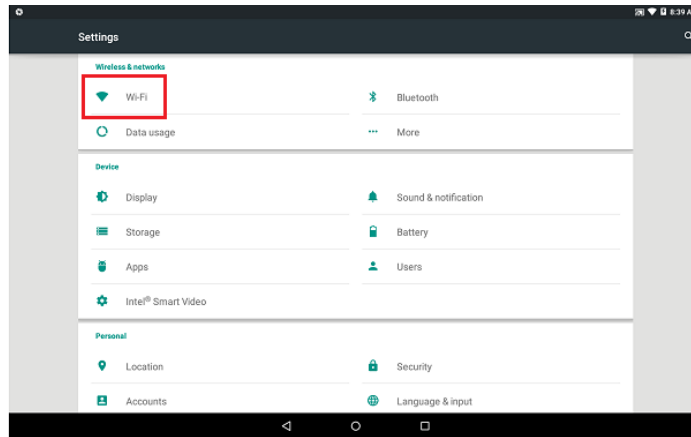
The BTW camera has the unique ability to connect to your existing network system using the Motichub feature.



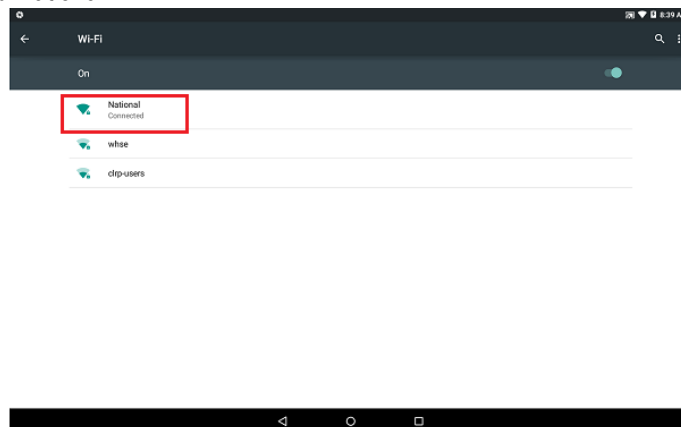
1. On the home screen of the tablet select the Settings icon.



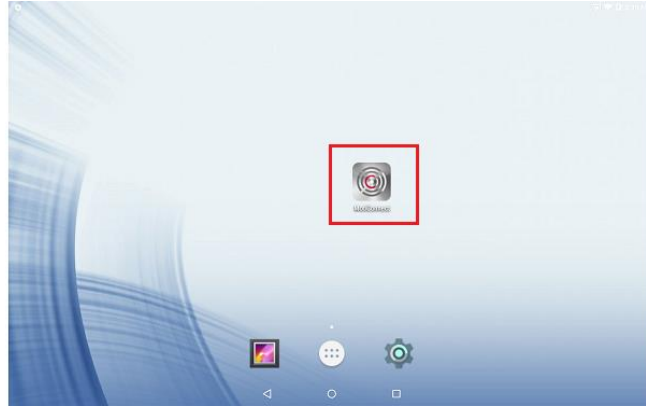
2. Select WiFi within the Settings window.



3. Find your Work/Home WiFi SSID and connect. *turn WiFi on if turned off*
Note: In this case I have selected National.



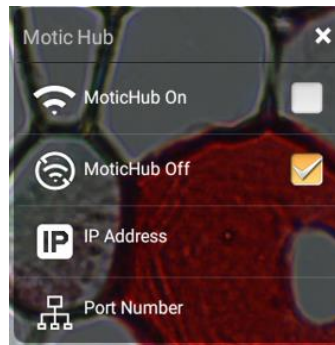
- Now you have added the tablet to your WiFi network
- On the home screen of the tablet select the MotiConnect app.



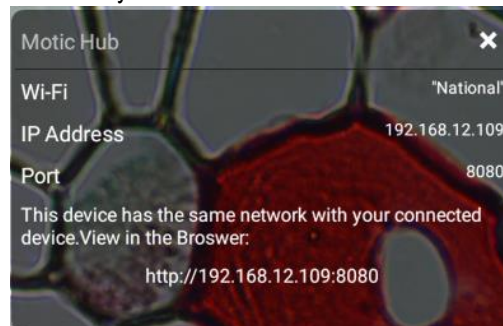
- Then select the MotiHub icon and MotiConnect will launch.



- Turn MotiHub On.



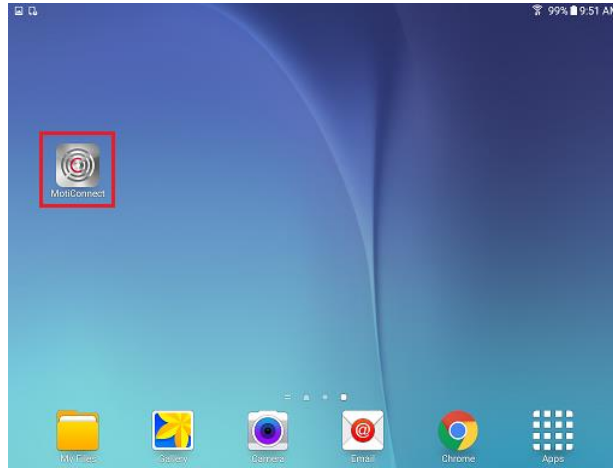
- MotiHub will create an IP address for the tablet on your network.



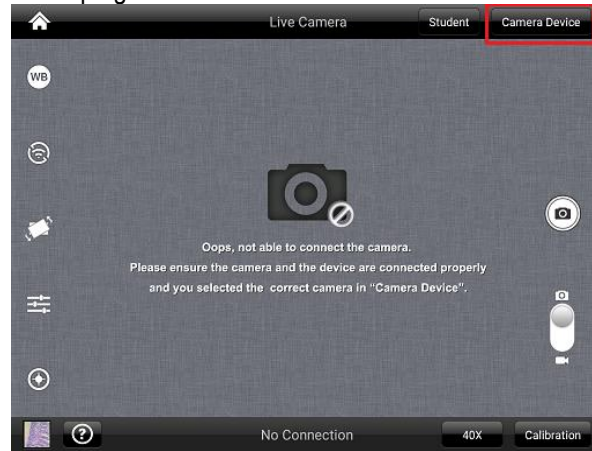
- Write down the generated IP address, you will need this to connect your WiFi enabled device/tablet/phone/computer/laptop.
- Now any tablet or computer/laptop connected to your network will have access to your live image.

Connecting your WiFi enabled device to the BTW tablet

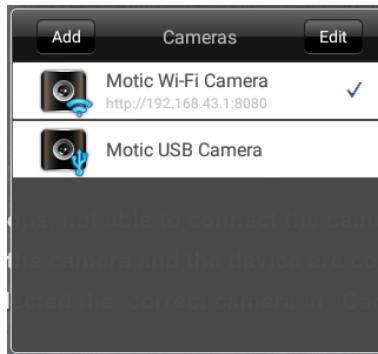
1. Make sure you are first connected to your office/home WiFi network.
2. Download the MotiConnect app from the App Store, Google Play, or Chrome Store, to your android or apple device/tablet/phone.
3. Start the MotiConnect application.



4. Click on the Camera Device button at the top right hand of the screen.



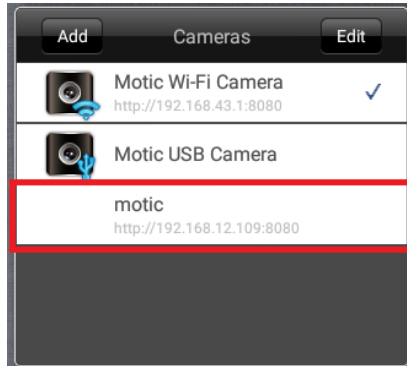
5. Click on the Add button on the pop up window



6. You may give your New Device any name, however the IP Address must be same as the IP generated by MoticHub.

Device Name	<input type="text" value="motic"/>
IP Address	<input type="text" value="192.168.X.X"/>
Port Number	<input type="text" value="8080"/>
	<input type="button" value="OK"/> <input type="button" value="Cancel"/>

7. Now select your New Camera

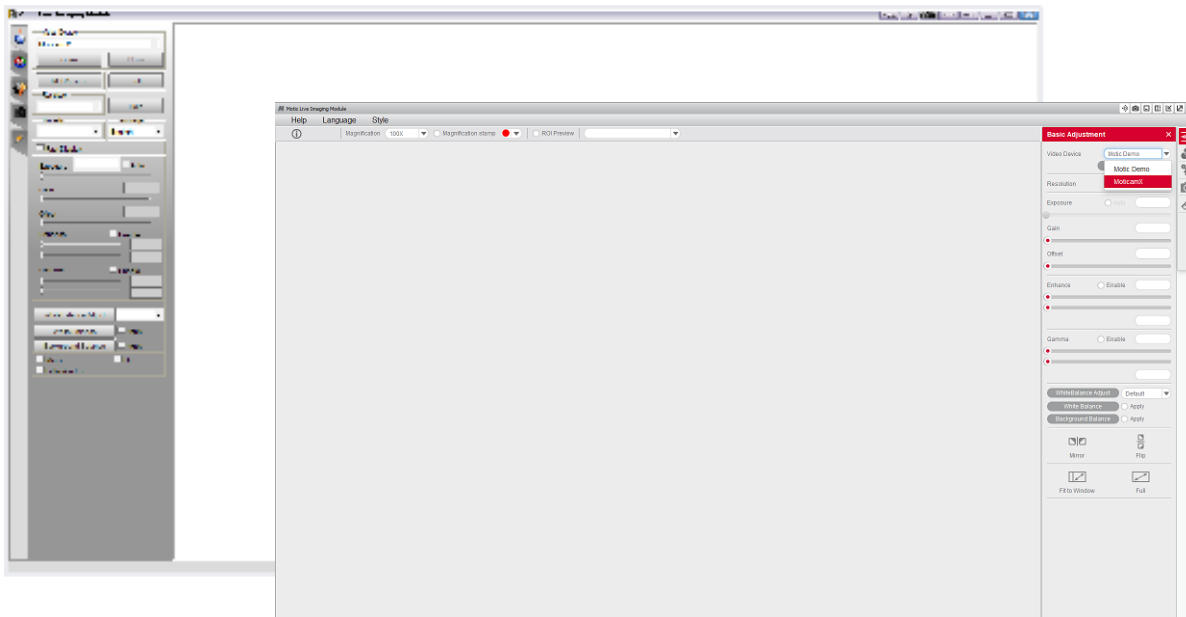


8. You can now view the image live on the MotiConnect app as well as capture, measure and annotate the image using the tools provided.

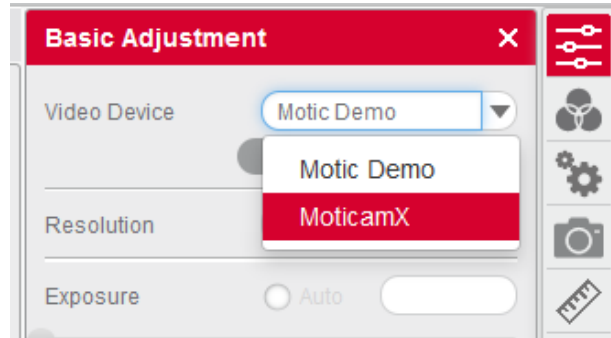
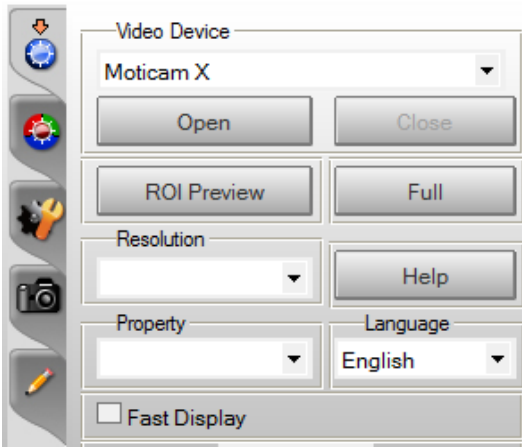


Connecting your WiFi enabled computer/laptop to the BTW camera connected to your local network

1. Install the Motic Images software into your computer or laptop.
2. Start the Motic Images application – Click File – Click Capture
3. The Motic Live Imaging window will open.

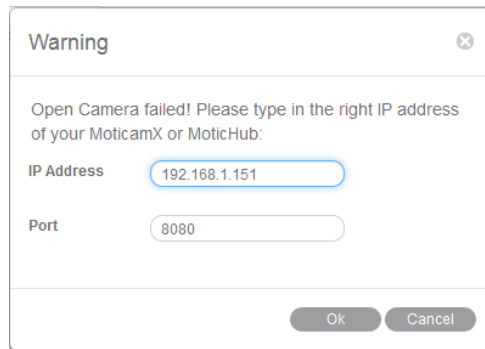
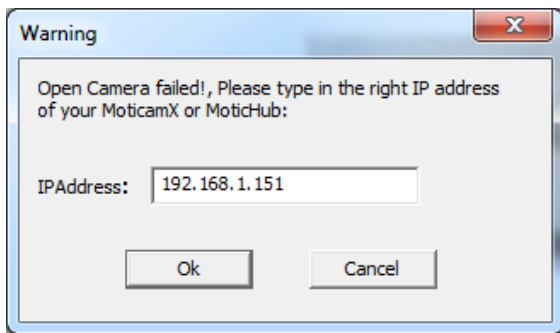


4. The Video Device box should have the Moticam X selected.

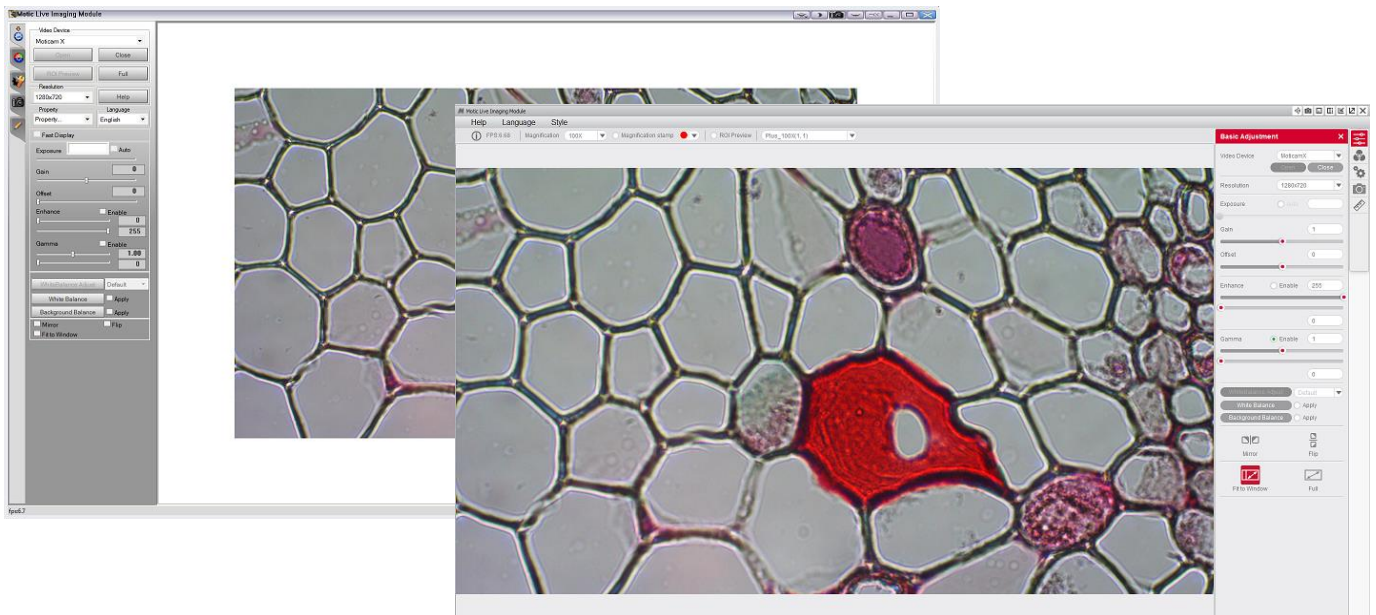


5. Click on Open to open the Moticam X IP address box.

6. In the open Moticam X IP address box type in the IP address generated by the MoticHub feature of the BTW tablet.



7. Once you click OK, the image produced by your BTW tablet should appear.

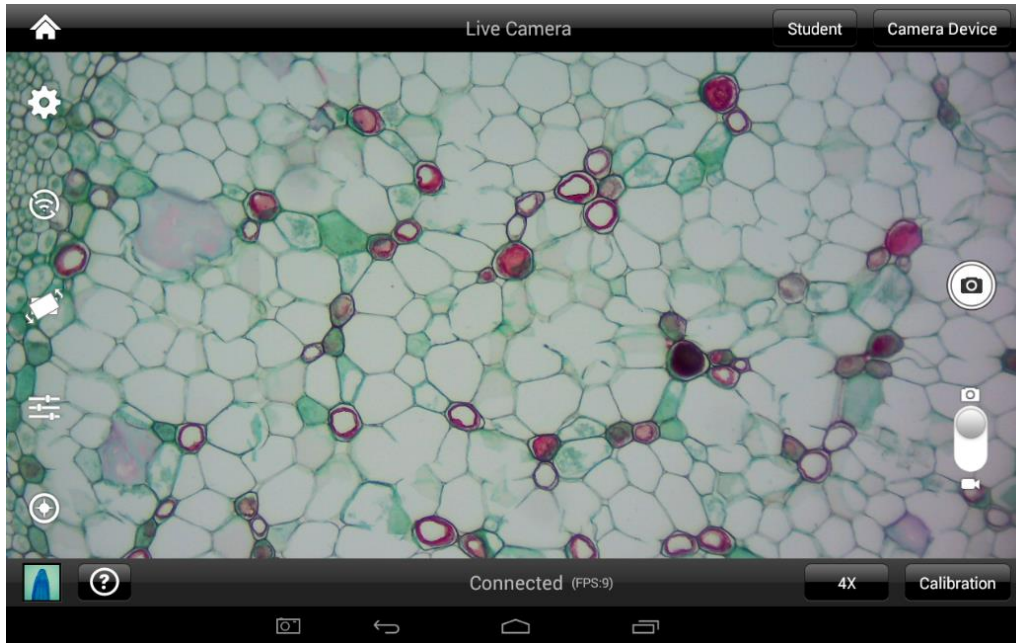


TABLET SOFTWARE

This android tablet comes equipped with all the necessary software needed to start using your equipment out of the box. Since it is an android tablet, you will be able to connect to your office/school Wi-Fi network to access the internet and download additional applications. The primary application for accessing your camera is MotiConnect T.

MOTICONNECT-T OVERVIEW – HELP MENU

MotiConnect is a dedicated image processing Android app for Motic cameras, which includes image preview, capture, recording, editing and measuring functions. Please refer to the Application Help guide for a complete description of the MotiConnect Application.



HELP BUTTON

	Help Menu - Opens a new window which provides a complete description of all the features available with the MotiConnect Application
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Main

Calibration

MotiHub

Record

Gallery

Measurement

MotiConnect is a dedicated image software for microscope used on mobile tablet platform; Software includes the image preview, capture, recording, editing and measuring function.

Buttons Description

- Image size Setting: Changing preview image aspect ratio , imaging resolution and image pixel size selection.
- MotiHub Setting: Turn on and off MotiHub. When this feature is turned on, user can make use other web browsing devices to view the microscope real time image by logging into the provided IP address.
- Transform button: Mirror and Flip the preview image.

CALIBRATION – (*Optional – not necessary to use your microscope*)

To prepare for the calibration process, please make sure you have the calibration slide. The calibration slide has four individual dark round circles. Each dark round circle corresponds with each objective on your microscope.

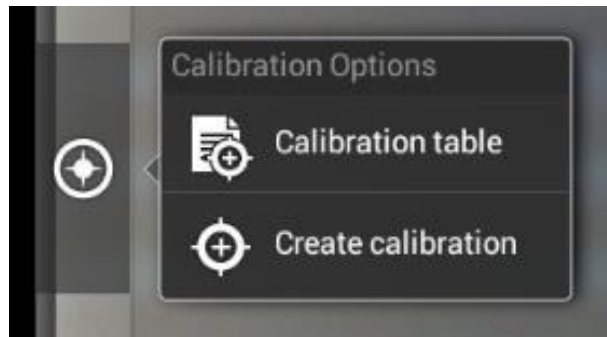
- The 1.5mm dot (150um – microns) with the 4X objective.
- The 0.6mm (600um – microns) with the 10X objective.
- The 0.15mm (150um – microns) with the 40x objective.
- The 0.07mm (70um – microns) with the 100X objective.

To begin the calibration process, place the calibration on the stage.

1. First place your calibration slide on the stage, switch to the 4X objective, and move the slide over to the 1.5mm dot.
2. With the dot centered on the tablet screen, select the calibration button, located on the bottom right hand side of the screen.
3. You should have a bright green circle on the screen.
4. Click the calibration button a second time.
5. This time the calibration settings window will open.
6. In the objective magnification window select the objective you captured the dot with. In this case the 4X objective.
7. In the diameter window select the diameter of the dot you captured. In this case the 150um. Then click OK.
8. The last window that will open is the Save Sign window. Since you capture this image with the 4X objective, it is best to enter this on this line.
9. The objective line should default to the objective you are calibrating. In this case it should say 4X.
10. The X and Y numbers on the next two lines should be near identical. Look at the first three numbers. As long as they are the same within one or two digits, you have a good calibration.
11. Click Ok and you are done.

Calibration

To begin click on Create Calibration. Get out your Calibration Slide.



The software will capture the image from the preview mode and input the image into calibration mode.



Now put the Calibration slide on the stage of the microscope and focus the dot in the center of the screen. For 4x Objective, use the 1.5mm dot. For 10x Objective, use the 0.6mm dot. For the 40x Objective, use the 0.15mm dot. For the 100x Objective, use the 0.07mm dot.

After your dot is in focus, select "Create Calibration" then "Calibration" to add a new set of calibration parameters into the calibration table. You should have a bright green circle (shown below). If you don't have a bright green circle, the calibration failed. Make sure the slide is clean and the image has sufficient lighting.

If the calibration is successful, choose what objective you're using on the microscope under "Objective Magnification" then select the length of the diameter of the dot, then tap OK. A calibration is needed for each objective that will be used in measuring, so repeat the process if necessary.

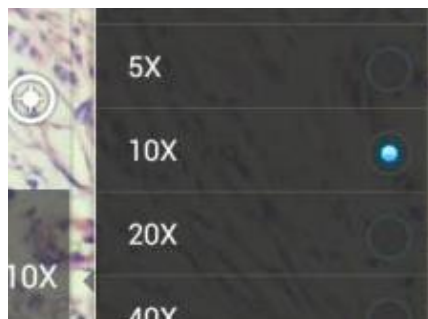


Software will provide the um/Pixel X and um/Pixel Y based on the previous users provided information.



Users can save those parameters with user assigned own Sign Name. This new Sign Name will be saved in the calibration table for the future use.

Objective Magnification: If users change the objective magnification number, please ensure same magnification number is selected on the software. There is no need to re-calibrate the system.



TRANSFERING IMAGES TO YOUR COMPUTER

By default all your images are saved to the Micro SD card included with your M29TZ-SM99CL-BTW1 series microscope. This card is provided as a courtesy. If it is missing or lost, you will need to purchase a replacement. It is highly recommend that you purchase a Micro SD to Standard SD card adapter.



This is simplest and easiest way to transfer images to your computer. Images are automatically captured as Jpeg images. If your computer/laptop does not come with an SD card slot, a SD card reader will need to be purchased as well. *Please note: 32GB Max*

MOTIC IMAGES 2.0 SOFTWARE

You can use your transfer images with the Motic Images 2.0 software included with microscope to annotate, save and file your images.

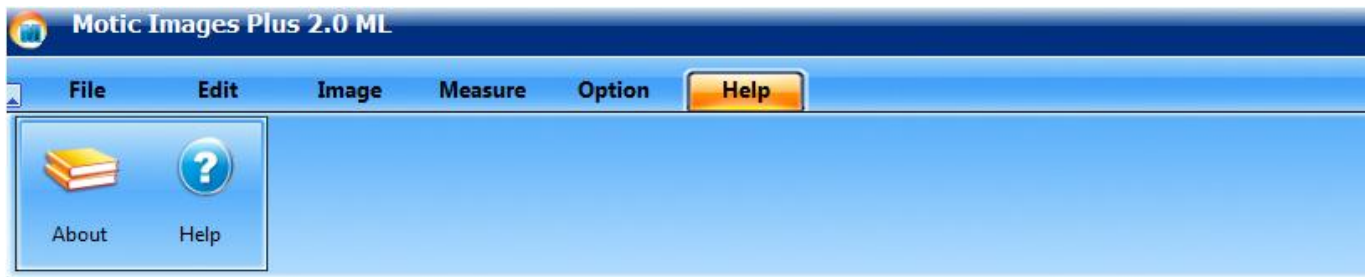
Full Help Menu

The full software manual for Motic Images is accessible within the software's main page.

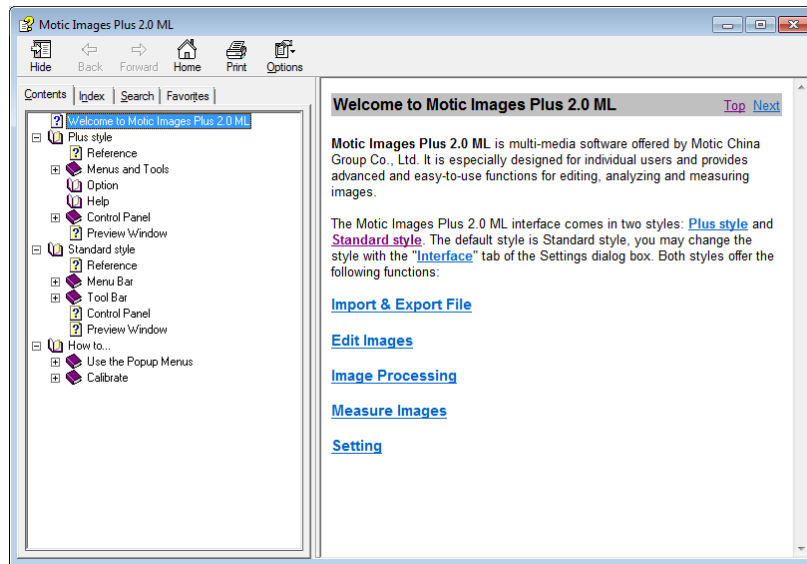
- To begin, open the Motic Images Software.
- At the top of main screen find the menu tab labeled Help:



- Click on Help and then select the help option:



- This will open the Motic Images help file contents, containing the full help menu:



Motic Live 2.0 Live Imaging Module

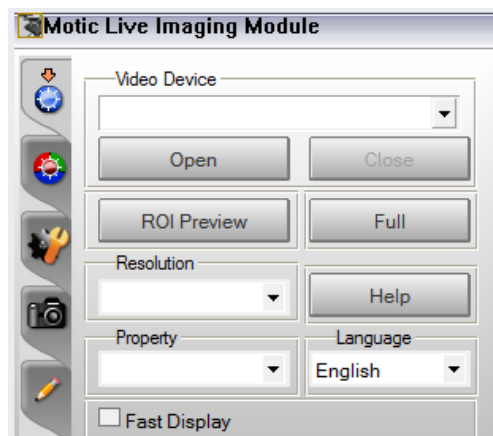
If you are connecting your camera via WiFi to your laptop of WiFi enabled computer, you can use the Motic Images 2.0 software to view and capture your images.

Full Help Menu

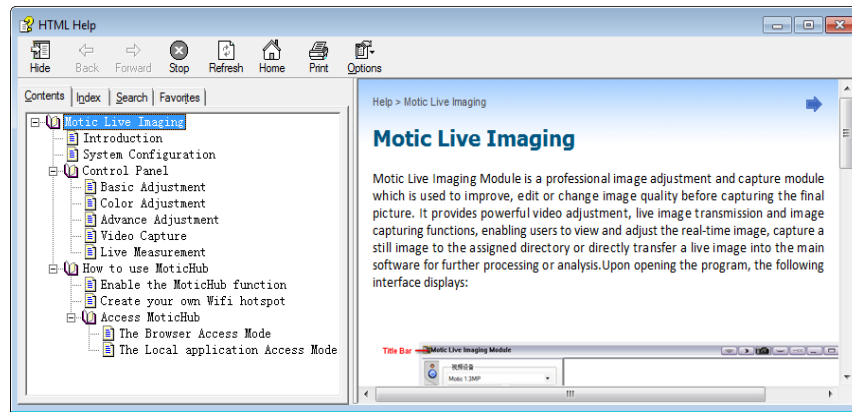
- The full Live Imaging Module manual is accessible within the live Imaging main page.
- To begin, open the Motic Images Software.
- At the top of main screen find the menu tab labeled File and click on Capture:



- Once the Motic Live Imaging Module has opened, click on Help:



- This will open the Motic Live Imaging Module help file, containing the full help menu:



USING MOTIC IMAGES 3.0 SOFTWARE WITH THE BTW CAMERA

To connect the BTW camera (USB Mode) to a computer or laptop, you will need to download and install Motic Images 3.0, and purchase separately, an optional A-Male to Mini-B USB 2.0 cable (Available from any electronics website or retail store).

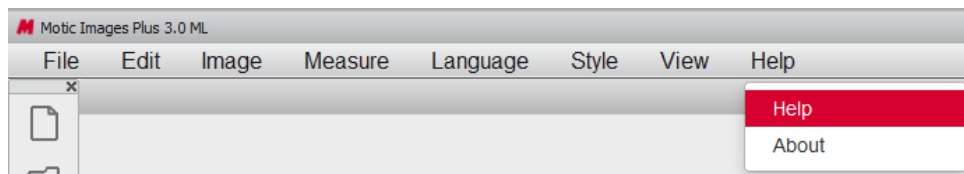
1. Download and install Motic Images 3.0 from the Motic website.
2. The Motic Images 3.0 is constantly updating, so please check the Motic Website for updates. Registration is necessary. Use the DM number located on the sticker, on the software sleeve.
3. Switch your camera to USB mode.
4. Plug the Mini-B end of your USB cable into the camera.
5. Plug the flat A-Male end of your USB cable in the computer.
6. The drivers for the camera should load automatically.
7. Once the drivers have installed, open the Motic Image 3.0 Software.
8. Click File, then scroll down to Capture.
9. This will open the Motic Live Imaging Module.
10. Your image should automatically display on the screen.
11. By default your live image is 3MP or 2048 x 1536 resolution.
- 12.

MOTIC IMAGES 3.0 SOFTWARE

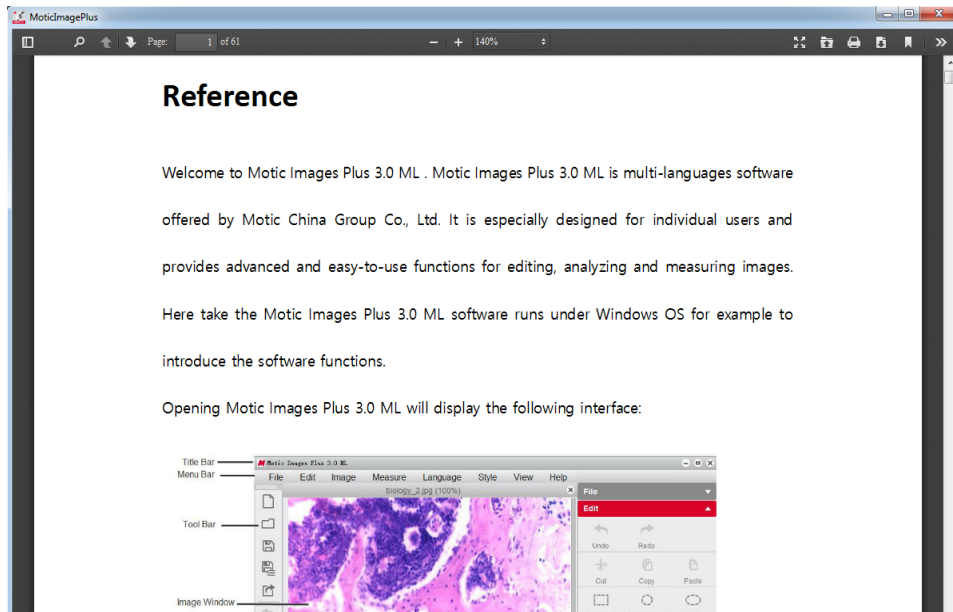
The Motic Images 3.0 software, like the Motic Images 2.0 software will allow you to view, capture, annotate and save your images. For further assistance in using the Motic Images 3.0 software please refer to the Motic Help files. These files will help explain the functions of software. There are help files for both the main Motic Images software window, as well as the Motic Images Live Imaging window.

MOTIC IMAGES 3.0 HELP GUIDE

To access the Motic Images 3.0 help menu, click on Help, located at the top of the Motic Images software screen.

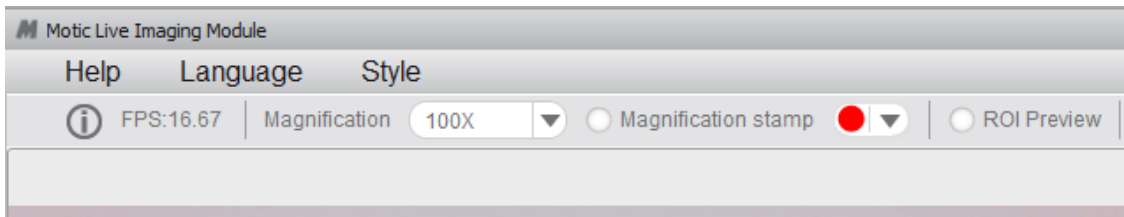


Once the Help window open you will find the help guide within.

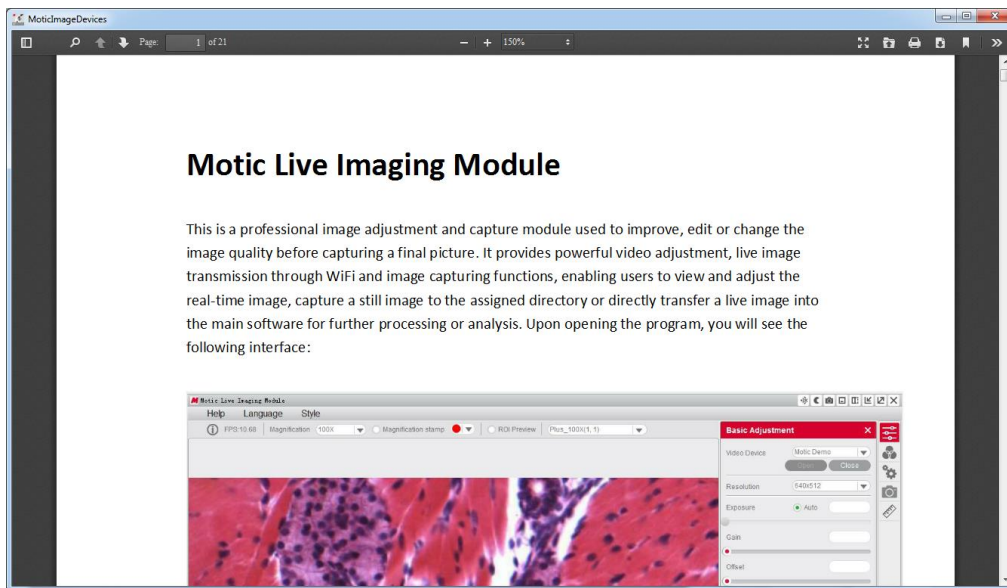


Motic Live Imaging Module Help

To access the Motic Images Live Imaging help menu, click on Help located at the top left hand side of the screen.



Once the Help window open you will find the help guide within.



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