MANUAL

3078-HDR
(1080p)

ZOOM STEREO MICROSCOPE

MANUAL

CONTENTS

SAFETY NOTES

1. Open the shipping carton carefully to prevent any accessory, i.e. objectives or eyepieces, from dropping and being damaged.

2. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments.

3. If any specimen solutions or other liquids splash onto the stage, objective or any other component, disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.

4. **LAMP REPLACEMENT -- CAUTION**: the glass housing of the lamp may be extremely hot. DO NOT attempt to change the lamp before it is completely cooled or without wearing adequate skin protection.

5. All electrical connectors (power cord) should be inserted into an electrical surge protector to prevent damage due to voltage fluctuations.

6. **FUSE REPLACEMENT** -- For safety when replacing the fuse (ONLY replace with the same size, type and rating of original fuse), be sure the main switch is in the off position, disconnect the power cord from outlet, and replace the fuse. Reconnect the power cord and turn unit on.

7. Confirm that the input voltage indicated on your microscope corresponds to your line voltage. The use of a different input voltage other than indicated will cause severe damage to the microscope. NOTE: Always plug the microscope power cord into a suitable grounded electrical outlet. A grounded 3-wire cord is provided.

CARE AND MAINTENANCE

1. Do not attempt to disassemble any component including eyepieces, objectives or the focusing assembly.

2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. Do not use organic solvents for cleansing.

3. The outer surface of the optics should be inspected and cleaned periodically using an air bulb. If dirt remains on the optical surface, use a soft, lint free cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton wound on the end of a tapered stick makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.

4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

5. ACCU-SCOPE® microscopes are precision instruments which require periodic servicing to maintain proper performance and to compensate for normal wear. A regular schedule of preventative maintenance by qualified service personnel is highly recommended. Your authorized ACCU-SCOPE® distributor can arrange for this service.
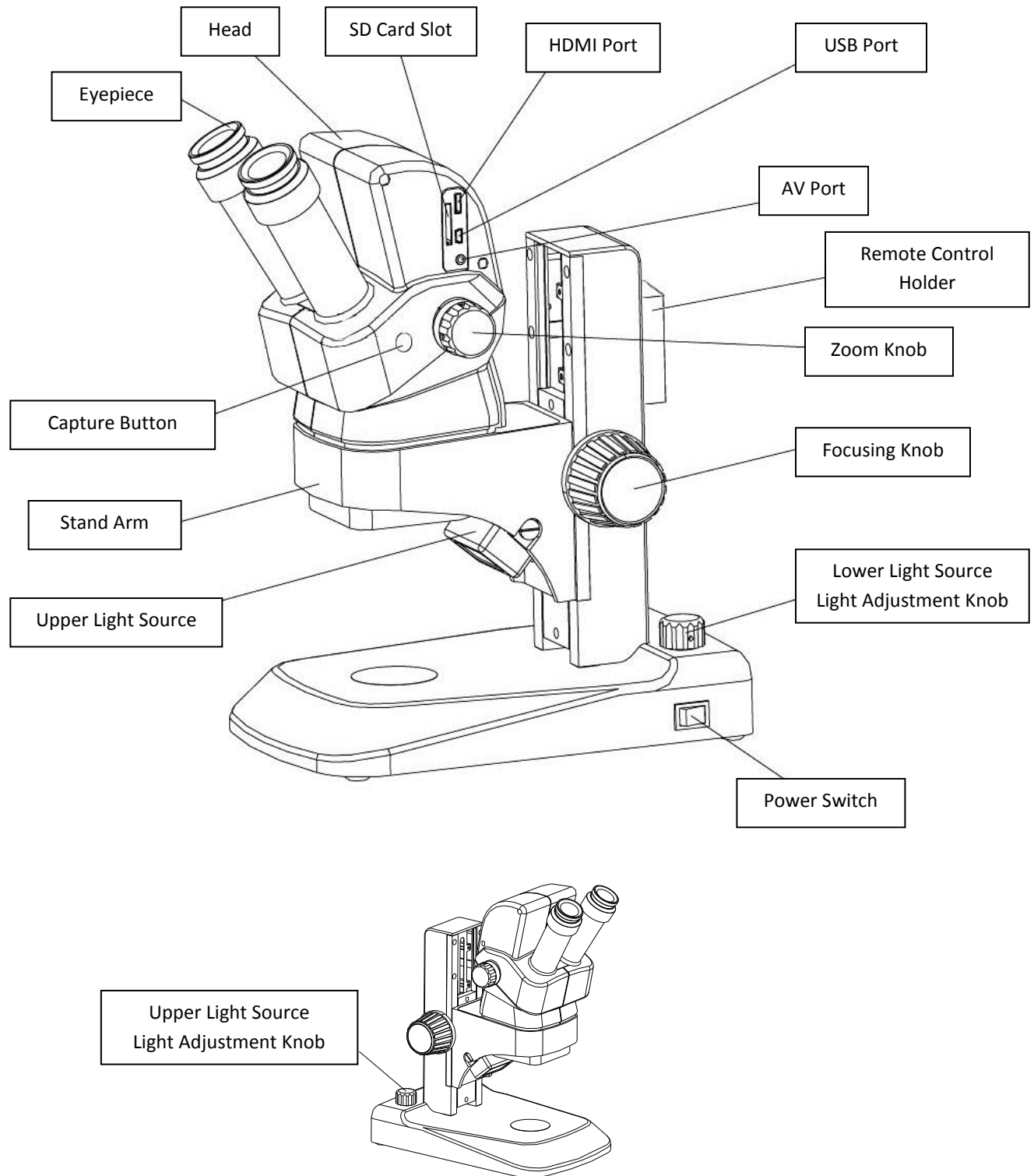
INTRODUCTION

Congratulations on the purchase of your new ACCU-SCOPE® microscope. ACCU-SCOPE® microscopes are engineered and manufactured to the highest quality standards. Your microscope will last a lifetime if used and maintained properly. ACCU-SCOPE® microscopes are carefully assembled, inspected and tested by our staff of trained technicians in our New York facility. Careful quality control procedures ensure each microscope is of the highest quality prior to shipment.

UNPACKING AND COMPONENTS

Your microscope arrived packed in a molded shipping carton. ***Do not discard the carton***: the shipping carton should be retained for reshipment of your microscope if needed. Avoid placing the microscope in dusty surroundings or in high temperature or humid areas as mold and mildew can form. Carefully remove the microscope from the shipping carton and place the microscope on a flat, vibration-free surface.
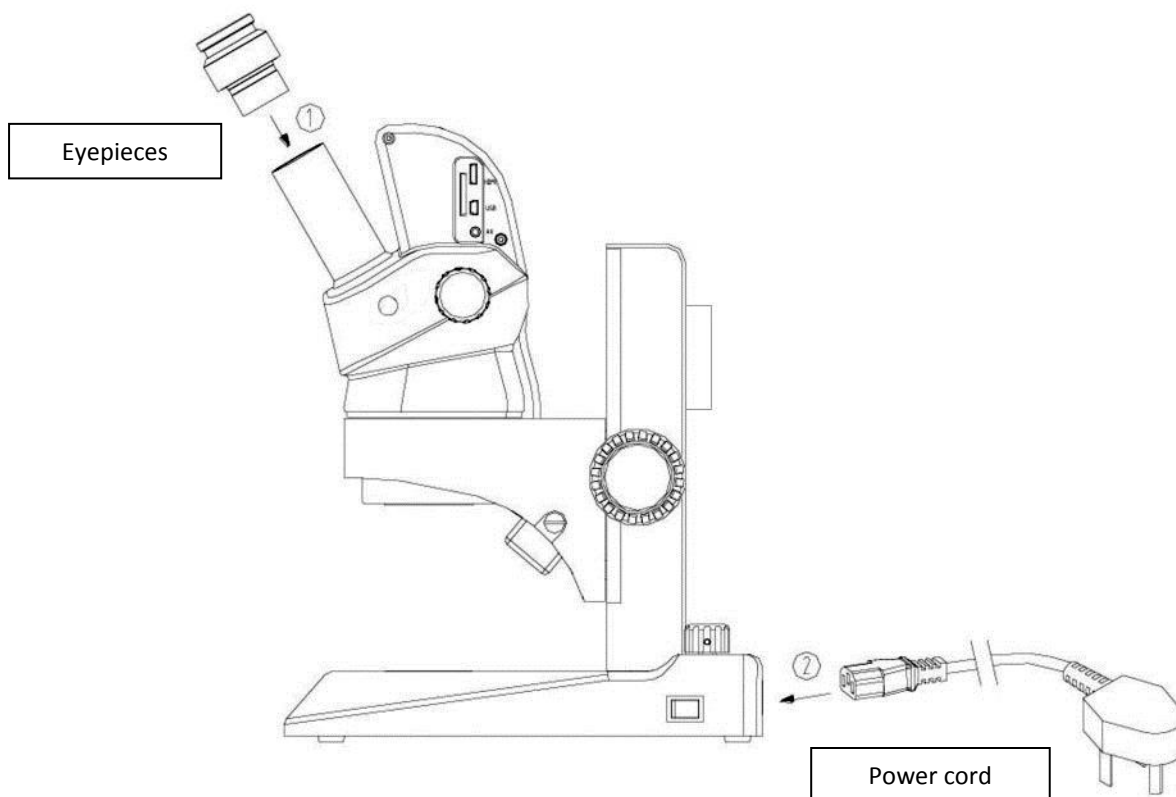
Eyepieces

USB Cable

Camera Remote

Audio Cable

HDMI Cable

SD Card

COMPONENTS DIAGRAM

Head

SD Card Slot

HDMI Port

USB Port

Eyepiece

AV Port

Remote Control Holder

Zoom Knob

Capture Button

Focusing Knob

Stand Arm

Lower Light Source Light Adjustment Knob

Upper Light Source

Power Switch

Upper Light Source Light Adjustment Knob

ASSEMBLY

The diagram below shows how to assemble the various components. The numbers indicate the order of assembly.

When assembling the microscope, make sure that all parts are free of dust and dirt, and avoid scratching any parts or touching glass surfaces.
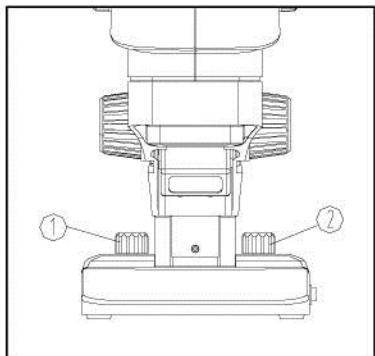
Eyepieces

Power cord

OPERATION

Fig. 3

Setting Illumination (Fig. 3)

Turn the light adjustment knobs ① and ② as shown on the base in Fig. 3: turn clockwise to increase brightness; counterclockwise to decrease brightness.
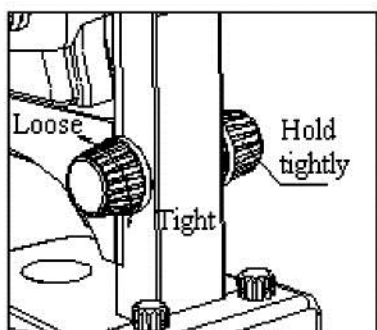
Fig. 4

Adjusting the Rotation Tension of the Focus Adjustment Knob (Fig. 4)

To adjust tension, hold both left and right focus adjustment knobs with both hands, hold the left knob (to prevent it from turning), and rotate the right knob clockwise to increase (tighten) or counterclockwise to decrease (loosen) the focus knob tension.

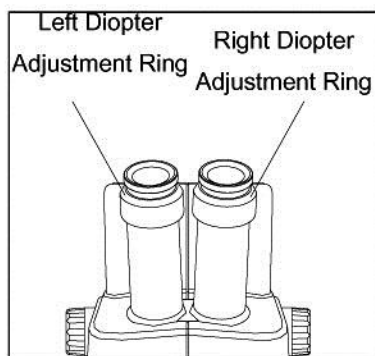After tension adjustment has been completed, always rotate both adjustment knobs in the same direction

Fig. 5

Adjusting Diopter Ring (Fig. 5)

Set the diopter rings of both eyepieces to "0" position. (Do this when users change, because different users will have different diopter settings.)

Place an easy-to-observe specimen on the gem stand.

Rotate the zoom knob to the highest magnification, then turn the focusing knob to focus the specimen.

Rotate the zoom knob to the lowest magnification, looking only into the left eyepiece, adjust the diopter ring on left eyepiece to focus the specimen. Then repeat procedure for the right eyepiece.
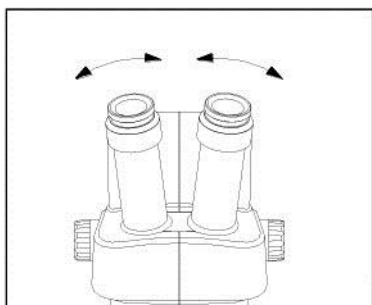
Fig. 6

Adjusting Interpupillary Distance (Fig. 6)

Different users have different interpupillary distances (this distance is between the centers of the pupils of each eye). When the operator changes, it will be necessary to adjust the interpupillary distance.

While looking through the eyepieces, hold the left and right eyetubes of the viewing head and adjust the eyetubes by opening or closing them until the left and right fields of view coincide completely and you are able to see a complete circle.
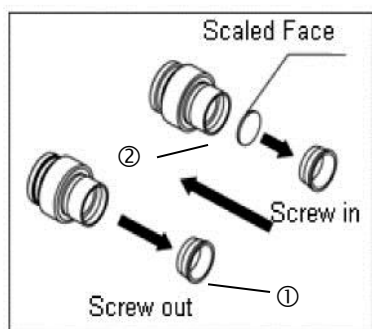

Fig. 7

Installing or Removing the Reticle (Fig. 7)

Unscrew the reticle retaining ring ① from the eyepiece (see Fig. 7).

NOTE: be sure to clean the reticle with a soft, lint free cloth or cotton swab dampened with a lens cleaning solution (available at camera stores – see p. 3, Care & Maintenance).

Insert the clean reticle into the eyepiece ②, then screw the reticle retaining ring back onto the eyepiece.

To remove the reticle, unscrew the reticle retaining ring from the eyepiece, carefully remove the reticle, and store the reticle in lint-free paper. Screw the reticle retaining ring back onto the eyepiece.
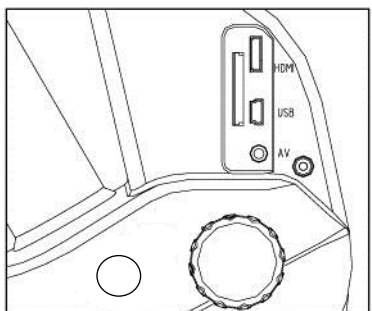

Fig. 8

Connecting the Cables - HDMI, USB, AV (Fig. 8)

HDMI: insert the HDMI cable into the HDMI port on the microscope, then connect other end into the HDMI port on an HDMI display.

USB: insert the USB cable into the USB port on the microscope, then connect other end to a USB port on a computer. You can then view, copy or delete images on the SD card (be sure SD card is inserted).

AV: Insert the AV cable into the AV port on the microscope, then connect the other end into an AV port on an AV display.

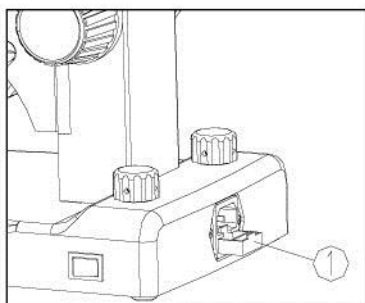**NOTE:** Live images may be viewed on any 1080p or greater monitor.

Fig. 9

Power Supply, Indicator Lamp & Capture Button (Fig. 8)

Insert the SD card into the SD slot on the microscope until a beeping sound is heard.

To capture an image, press the Capture button. The captured image is stored on the SD card.

Replacing the Fuse (Fig. 9)

Before replacing the fuse, turn the power switch to "O" (Off), and unplug the power cord from the outlet and the microscope.

Pull out the fuse base ① from the fuse socket. Remove the fuse from the fuse base and replace with a new one. Reinstall the fuse base into the fuse socket.

Plug the power cord into the base of the microscope and then into a wall outlet. Turn the power switch to "--" (On).

MICROSCOPE SPECIFICATIONS

Optical System	Greenough
Eyepieces	WF10x/20mm field of view; 50 - 75mm interpupillary distance
Viewing Angle	60⁰
Working Distance	95mm
Magnification	8x-35x
Focusing System	Large dual focusing knobs with coarse adjustment; focusing range: 90mm
Illumination	Maintenance-free, 5 watt LED transmitted and incident illuminators with intensity control; 100V – 240V; bulb life approx. 25,000 hours
Dimensions	285 (L) x 355 (H) x 186 (D) mm
Warranty	5 year limited warranty for parts, labor and electronic components; 1 year warranty on LED bulbs and camera

DIGITAL SPECIFICATIONS

Camera	5 megapixel CMOS built-in camera system with remote control
Digital Output	USB 2.0 PC Compatible
HDMI Port	1080p High Definition output for desktop or large HD display
Integrated Slot	SD (Secure Digital); 4GB SD card included
Recording	Camera record push button control for image capture

TROUBLESHOOTING

Under certain conditions, performance of this unit may be adversely affected by factors other than defects. If a problem occurs, please review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, please contact your local dealer for assistance.

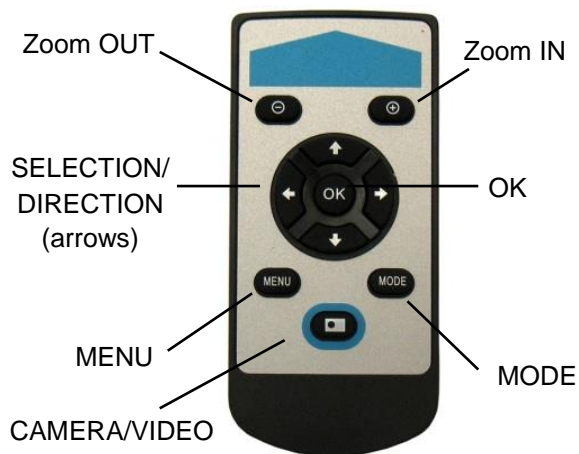| Trouble	Cause	Remedy
Double images	Interpupillary distance is not correct	Readjust it
	Diopter adjustment is not correct	Readjust it
Dirt appears in the view field	Dirt on the specimen	Clean specimen
	Dirt on the surfaces of eyepieces	Clean eyepieces
	Dirt on surface of objective	Clean objective
	Dirt on stage	Clean stage
Image is not clear	Dirt on the surface of objectives	Clear objectives
Image is not clear while focusing	Diopter adjustment is not correct	Readjust diopter
	Focusing is not correct	Readjust it
The focusing knob is not smooth	The focusing knob is too tight	Loosen it to a suitable position
The image is obscure because of the head slipping down during observation	The focusing knob is too loose	Tighten it to a suitable position
A line appears when observing through eyepiece or video device	Light path selection lever is not at the correct position	Turn it to the correct position
Lamp does not work	Wrong setting of bulb	Set the bulb correctly
	Bulb has burned out	Replace the bulb
	Fuse has burned out	Replace the fuse
	Dirt on the stage obstructed the path of light	Clean the stage
Lamp burns out frequently	Voltage from power supply is too high	Use a transformer to decrease the voltage
	The bulb is not standard	Use the recommended bulb
Fuse burns out frequently	Voltage from power supply is too high	Use a transformer to decrease the voltage
Light flickers	Bulb needs replacement	Replace bulb
	The wires are not connected correctly	Correctly connect the wires

USING THE CAMERA WITH REMOTE CONTROL

Standard Accessories:
HDMI Cable – 5m
USB Cable – 2m
SD memory card – 4GB

Zoom OUT

Zoom IN

SELECTION/
DIRECTION
(arrows)

OK

MENU

MODE

CAMERA/VIDEO

Remote Control – Buttons Overview

The camera is operated using the remote control that came with your microscope.

When using the remote, be sure to point it at the microscope head (not the monitor).

Operating Instructions

NOTE: When connected to a monitor, the camera is operated using the remote control. When using the remote, be sure to point the remote at the microscope head where the camera is located.

Power On/Off

The camera is powered on when you turn on the microscope – to power on, press the (I) button on the (I/O) toggle switch on the base of the microscope.

Navigation Bar Interface

When the microscope/camera is turned on, the first screen/interface is the real-time interface. From this interface, you can adjust the EV (Exposure Value) by using ↑ and ↓ on the remote, take photos and record video.

To **HIDE** the navigation bar along the bottom of the screen, press **OK** on the remote. To **SHOW** the navigation bar, press **OK** again.

Menu Introduction

Press the **MENU** button on the remote to enter the operating mode.

You can use the ↑ and ↓ to navigate through the choices on the screen. When a choice is selected it will appear brighter.

Select **SYSTEM SETTING** by pressing the **OK** button to enter the system setting options. You can choose and change various settings here such as Language, Contrast, EV, Auto Power Off, etc.

NOTE: Any time you want to return to the previous menu, Press the **MENU** button on the remote.

Language Setting

From the **SYSTEM SETTING** menu select **LANGUAGE**, press **OK**. Use the ↑ and ↓ to choose which language you want and press **OK** to select.

Contrast Setting

From the **SYSTEM SETTING** menu select **CONTRAST**, press **OK**. Use the ↑ and ↓ to choose required contrast and press **OK** to select.
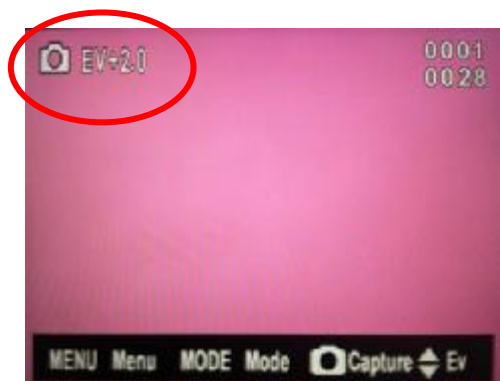
The camera supports +1.0 ~ -1.0 range of options.

Exposure Value (EV) Setting

From the **SYSTEM SETTING** menu select **EV**, press **OK**. Use the ↑ and ↓ to choose select the required background exposure compensation and press **OK** to select.

The camera supports +2.0 EV ~ -2.0 EV range of options.

The EV value displays on the upper left corner of the screen/interface.

Auto Power Off

From the **SYSTEM SETTING** menu select **AUTO POWER OFF**, press **OK**.

The Auto Power Off functions provides four options (Off, or 3, 10, or 20 minutes) with the default setting being "Off" (recommended). This feature will turn off the camera only. To turn the camera back on, you will need to turn the microscope off (O) and then on (I) again to turn the camera back on.

Using the Auto Power Off feature is helpful if you wish to only use the microscope without the camera for extended periods of time.

Camera Size

From the **SYSTEM SETTING** menu select **SIZE**, press **OK**.

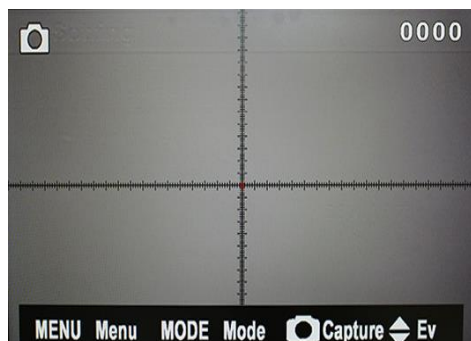The Size function provides four resolution options:

1280 x 960	1.3 megapixels
2048 x 1536	3.0 megapixels
2592 x 1944	5.0 megapixels
4048 x 3020	12.0 megapixels

Focus Crosshair (Reticle Crosshair)

From the **SYSTEM SETTING** menu select **FOCUS**, press **OK**.

The Focus (Reticle) function allows you to display (On) a focus crosshair (camera term)/reticle crosshair (microscope term) on the main interface screen.

White Balance

From the **SYSTEM SETTING** menu select **WB Setting**, press **OK**.

You can select either **MWB** (Manual White Balance) mode or **Auto WB** (Automatic White Balance) mode.

To perform a **MWB**, remove your image from the camera's field of view and click on the *White Balance (WB)* button. Or, by clicking the *Area WB* icon on a specific white area of your image

The **ZOOM OUT** button switches the color channel. You can adjust it using the ← or → arrow keys on the remote.

In Manual White Balance mode, the current channel value will be displayed in the upper left corner. The value will be hidden after about 2 seconds.

Display Ratio

From the **SYSTEM SETTING** menu select **DISPLAY SETTING**, press **OK**.

You can select from two display modes:

16:9   widescreen
4:3   standard

Video Resolution

From the **SYSTEM SETTING** menu select **VIDEO RESOLUTION**, press **OK**.

You can select from two resolutions:

1920 x 1080
640 x 480

Widescreen format

Arrow (+)

From the **SYSTEM SETTING** menu select **Arrow**, press **OK**.

The Arrow (+)(Reticle) function allows you to display (On) a focus crosshair (camera term)/reticle crosshair (microscope term) on the main interface screen.

The position of the Arrow (+) is adjusted using the arrow

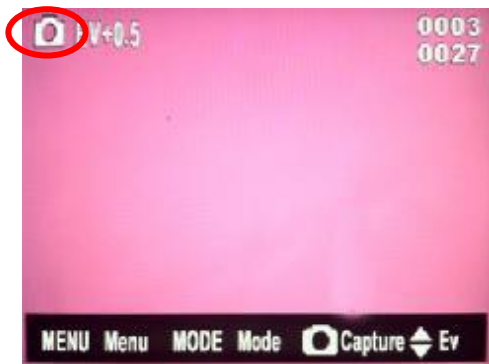buttons on the remote control .

Standard format

Camera Function

Insert the SD card into the SD slot.

The counter in the upper right corner of the screen indicates the number of photos already stored (top number) on the SD card and how many more photos can be stored (bottom number) on the SD card.

NOTE: The camera's built-in (internal) memory is about 9MB – you can store up to 8 photos in the largest pixel size. If there is not enough internal memory, a warning (Memory Full) will display. You will need to use the SD card or delete or transfer your photos/videos from the internal memory to a PC (see p. 20 on how to connect to and copy photos/videos to a PC via USB.

To Capture An Image

Make sure the camera is in **CAMERA** mode – the Camera icon will be in the upper left corner. If the **VIDEO** icon appears, press the **MODE** button on the remote to switch to **CAMERA** mode.

Press the **CAMERA/VIDEO** button on the remote to capture an image.

To Capture Video

Make sure the camera is in **VIDEO** mode – the Video icon will be in the upper left corner. If the Camera icon appears, press the **MODE** button on the remote to switch to Video mode.

Press the **CAMERA/VIDEO** button on the remote to begin recording.

The counter at the bottom of the screen indicates how long the current video has been recorded. The green indicator light (■) (to the left of the counter) will become red (●) when recording. To stop recording, press the **CAMERA/VIDEO** button on the remote.

NOTE: the cameras internal memory is not large enough to store videos so you will need to store them to the SD card.
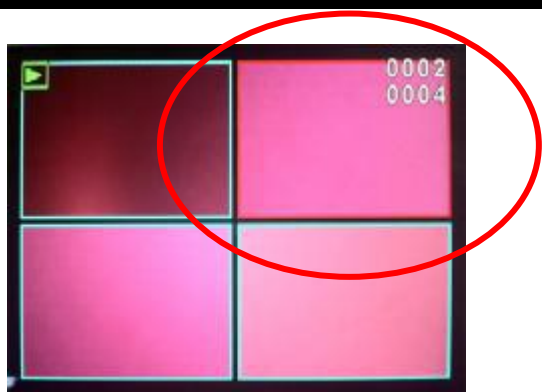
Photo Playback

Press the **MENU** button on the remote to enter the operating mode.

Use the ↓ button on remote to navigate to the **PHOTO PLAYBACK** and press the OK button on the remote.

The photos will be displayed on the screen and you can use the ↑ and ↓ to scroll through and select a photo. When a photo is selected, a red line appears around it. Press **OK** to view the selected photo.

The counter in the upper right hand corner of the screen shows which photo you are on (top number) and how many photos are stored on the SD card (bottom number).
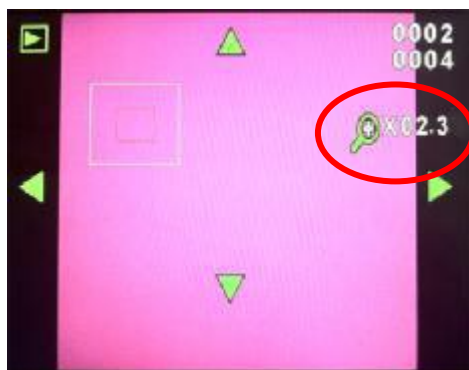
NOTE: If you have a lot of photos stored on the SD card, it may take a few moments for the card to be read and the correct numbers to appear on the screen.

Zoom Function

To Zoom in on a photo, press the **ZOOM IN** button on the remote. The magnification is displayed in the upper right hand corner of the screen.

To Zoom out, press the **ZOOM OUT** button on the remote or press the **MENU** button to return to the full size image.

Field Move

When you are Zoomed in on an image, you can use the UP/DOWN/LEFT/RIGHT arrow keys ($\uparrow, \downarrow, \leftarrow, \rightarrow$) on the remote to move the field of view horizontally or vertically.

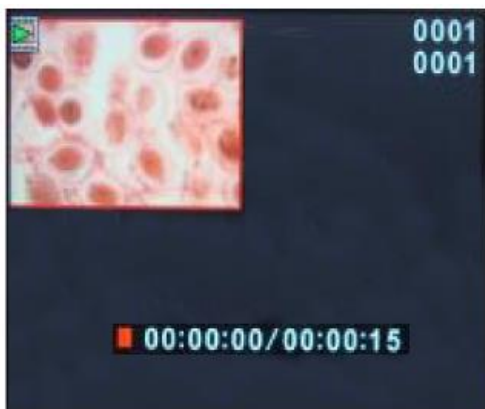To return to the photo playback menu, press the **MENU** button.

Video Playback

Press the **MENU** button on the remote to enter the operating mode.

Use the ↓ button on remote to navigate to the **VIDEO PLAYBACK** and press the **OK** button on the remote.

The videos will be displayed on the screen and you can use the ↑ and ↓ to scroll through and select a video. When a video is selected, a red line appears around it. Press **OK** to select it.

The counter in the upper right hand corner of the screen shows which video you are on (top number) and how many videos are stored on the SD card (bottom number).

NOTE: If you have a lot of videos stored on the SD card, it may take a few moments for the card to be read and the correct numbers to appear on the screen.
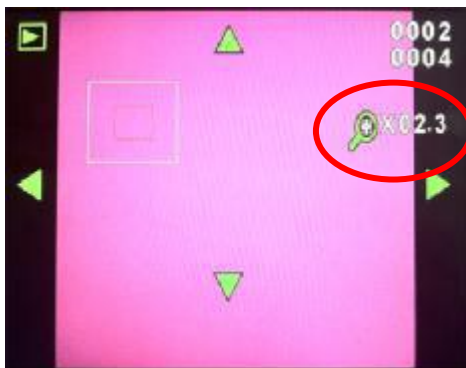
Viewing Videos

To view a video, select a video and press the **CAMERA/VIDEO** button on the remote to play (▶) the video (green arrow appears before the counter on the bottom of screen).

NOTE: to **HIDE** the bottom menu bar while viewing videos, press the **MODE** button on the remote. Press again to **SHOW** the bottom menu bar.

To **PAUSE** (**II**) **or STOP** (■) playing the video, press the **CAMERA/VIDEO** button on the remote. (Red **PAUSE** (**II**) or **STOP** (■) (appears before the counter on the bottom of the screen). Press **CAMERA/VIDEO** button again to resume playing the video.

To **STOP** and **PLAY** from the BEGINNING of the video, press the MENU button on the remote.

To return to the Videos playback menu, press the **MENU** button.

Deleting Photos or Videos

Press the **MENU** button on the remote to enter the operating mode.

Use the ↓ button on remote to navigate to the **PHOTO PLAYBACK** or **VIDEO PLAYBACK** and press the **OK** button on the remote.

The photo or videos will be displayed on the screen and you can use the ↑ and ↓ to scroll through and select the photo or video to be deleted. When it is selected, a red line appears around it.

Press the **OK** button on the remote to select, then press **OK** again to enter the **DELETION** interface.

Press the **OK** button to select **CANCEL** (it will display red when selected). Use the ↓ on the remote to select **DELETE** (it will display red when selected) and press **OK** on the remote to delete.

After deletion, the photo or video in the list before the one you deleted will appear on the screen – press the **MENU** button on the remote to return to the photo or video list.

NOTE: To cancel the delete when selected (and before deleting), press the **MENU** button on the remote to return to the photo or video list.
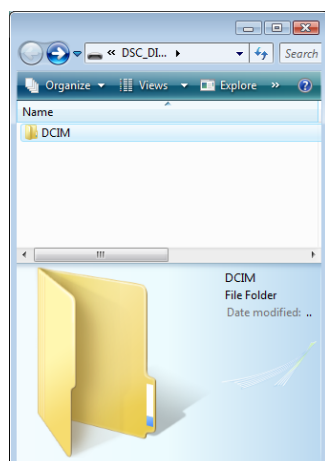
Connecting to a PC to View/Copy/Delete Photos & Videos On Built-in Memory Or SD Card

You can connect the microscope to a PC using the USB cable that came with your microscope. The microscope's built in camera and SD Card will be powered by the USB cable so it is not necessary to have the microscope's power supply connected to an outlet.

When connected, your PC should automatically recognize and open the AutoPlay window. Under General Options, click on the folder "**Open folder to view files**".

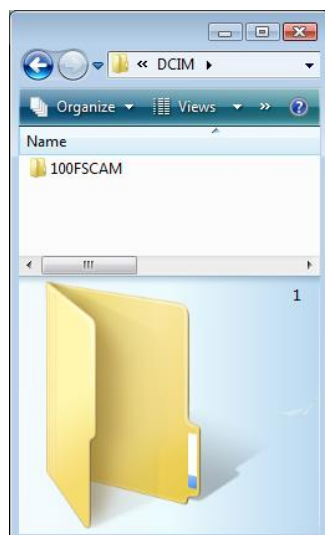Double click on the **DCIM** folder, then double click on the **100FSCAM** folder to view the photos/videos saved.

You can drag and drop photos and videos from this window to save them on your PC, as well as delete them.

INTERNAL MEMORY: To view the photos/videos saved on the camera's internal memory REMOVE THE SD CARD prior to connecting the USB cable.

SD CARD: To view the photos/videos saved on the SD CARD, be sure the SD Card is inserted prior to connecting the USB cable.

NOTE: if your PC does not automatically open the AutoPlay window, go to the **START** button on your PC, click on **COMPUTER**, locate the icon that reads Kingston (if you are using the SD Card that came with your microscope) OR DSC_DISK (the camera's internal memory) and double click it to open.

Double click on the **DCIM** folder (for internal memory), then double click on the **100FSCAM** folder (for SD Card) to view the photos/videos saved.

MAINTENANCE

Please remember to *never* leave the microscope with any of the objectives or eyepieces removed and always protect the microscope with the dust cover when not in use.

SERVICE

ACCU-SCOPE ® microscopes are precision instruments which require periodic servicing to keep them performing properly and to compensate for normal wear. A regular schedule of preventative maintenance by qualified personnel is highly recommended. Your authorized ACCU-SCOPE ® distributor can arrange for this service. Should unexpected problems be experienced with your instrument, proceed as follows:

1. Contact the ACCU-SCOPE ® distributor from whom you purchased the microscope. Some problems can be resolved simply over the telephone.

2. If it is determined that the microscope should be returned to your ACCU-SCOPE ® distributor or to ACCU-SCOPE ® for warranty repair, pack the instrument in its original Styrofoam shipping carton. If you no longer have this carton, pack the microscope in a crush-resistant carton with a minimum of three inches of a shock absorbing material surrounding it to prevent in-transit damage. The microscope should be wrapped in a plastic bag to prevent Styrofoam dust from damaging the microscope. Always ship the microscope in an upright position; *NEVER SHIP A MICROSCOPE ON ITS SIDE*. The microscope or component should be shipped prepaid and insured.

LIMITED MICROSCOPE WARRANTY

This microscope and its electronic components are warranted to be free from defects in material and workmanship for a period of five years from the date of invoice to the original (end user) purchaser. The LED bulb and the camera are warranted for a period of one year from the date of invoice to the original (end user) purchaser. This warranty does not cover damage caused in-transit, misuse, neglect, abuse or damage resulting from improper servicing or modification by other then ACCU-SCOPE approved service personnel. This warranty does not cover any routine maintenance work or any other work, which is reasonably expected to be performed by the purchaser. Normal wear is excluded from this warranty. No responsibility is assumed for unsatisfactory operating performance due to environmental conditions such as humidity, dust, corrosive chemicals, deposition of oil or other foreign matter, spillage or other conditions beyond the control of ACCU-SCOPE INC. This warranty expressly excludes any liability by ACCU-SCOPE INC. for consequential loss or damage on any grounds, such as (but not limited to) the non-availability to the End User of the product(s) under warranty or the need to repair work processes. Should any defect in material, workmanship or electronic component occur under this warranty contact your ACCU-SCOPE distributor or ACCU-SCOPE at (631) 864-1000. This warranty is limited to the continental United States of America. All items returned for warranty repair must be sent freight prepaid and insured to ACCU-SCOPE INC., 73 Mall Drive, Commack, NY 11725 – USA. All warranty repairs will be returned freight prepaid to any destination within the continental United States of America, for all foreign warranty repairs return freight charges are the responsibility of the individual/company who returned the merchandise for repair.

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