

OMAX M83EZ-C02

OMAX M83EZ-C02 Trinocular LED Microscope User Manual

Model: M83EZ-C02

1. INTRODUCTION

This manual provides detailed instructions for the proper setup, operation, and maintenance of your OMAX M83EZ-C02 Trinocular LED Microscope. This advanced compound microscope offers a total magnification range of 40X to 2500X, featuring a trinocular viewing head, a double-layer mechanical stage, and an integrated USB digital camera for image capture and analysis. Please read this manual thoroughly before using the microscope to ensure safe and effective operation.

2. SAFETY INSTRUCTIONS

- Always handle the microscope with care. Avoid sudden movements or impacts.
- Place the microscope on a stable, level surface to prevent tipping.
- Ensure the power cord is securely connected and routed to avoid tripping hazards.
- Disconnect the power supply before cleaning or performing any maintenance.
- Do not expose the microscope to direct sunlight, high temperatures, or excessive humidity.
- Keep all optical components clean and free from dust. Use only approved cleaning methods.
- Do not attempt to disassemble or repair the microscope yourself. Contact qualified service personnel if issues arise.

3. PACKAGE CONTENTS

Upon unpacking, verify that all components are present and undamaged:

- OMAX M83EZ-C02 Microscope Body
- Trinocular Viewing Head
- Wide Field WF10X Eyepieces (pair)
- Wide Field WF25X Eyepieces (pair)

- DIN Achromatic Objectives: 4X, 10X, 40X(S), 100X (S, Oil)
- USB Digital Camera (640x480 pixels)
- 0.45X Reduction Lens for Camera
- USB Cable
- Microscope Software CD
- Power Adapter (AC/DC, UL approved)
- Immersion Oil (for 100X objective)
- Dust Cover

4. COMPONENT IDENTIFICATION

Familiarize yourself with the main parts of your microscope:

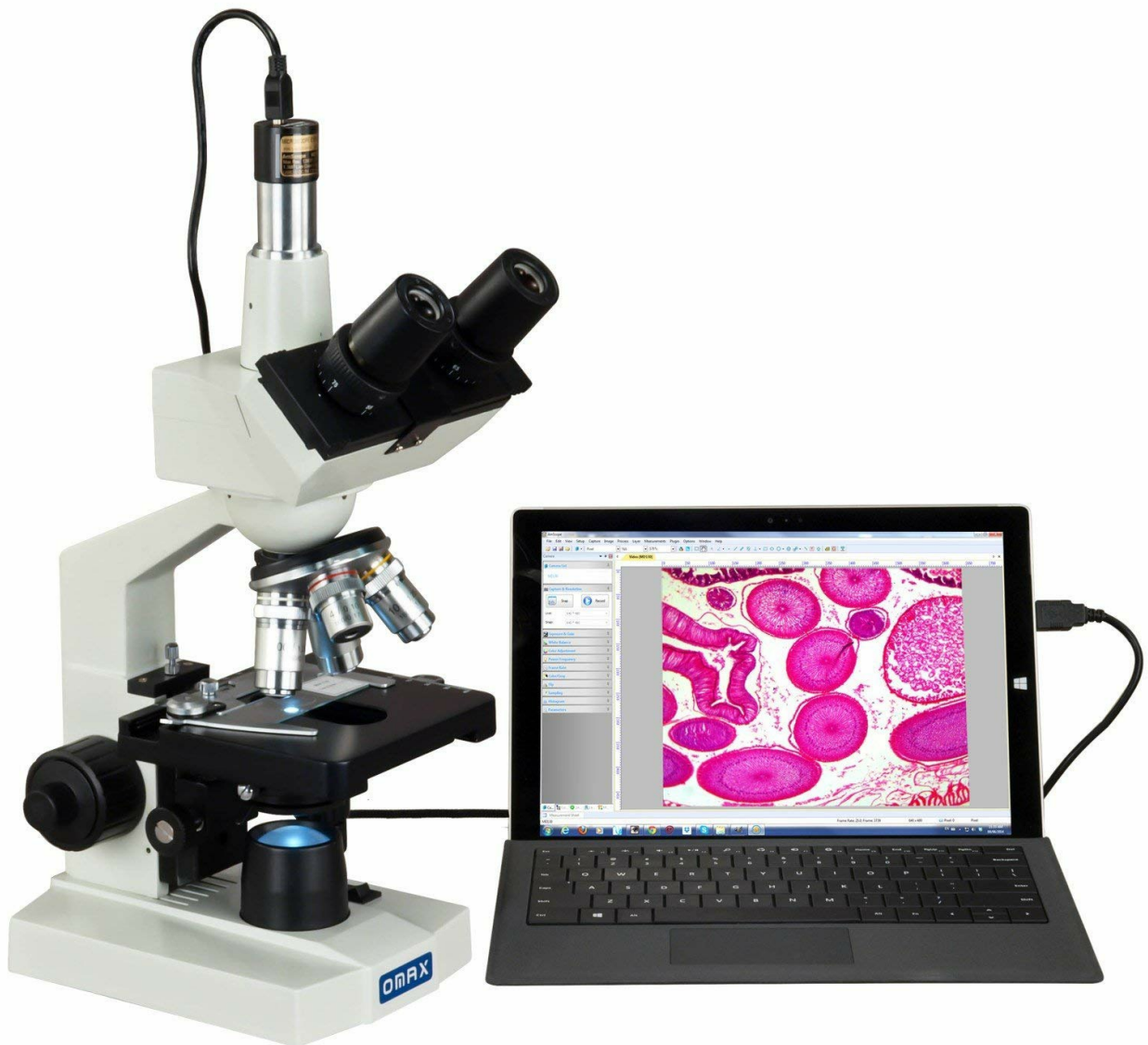


Figure 1: OMAX M83EZ-C02 Trinocular LED Microscope. This image displays the complete microscope assembly, including the trinocular head, eyepieces, revolving nosepiece with objectives, mechanical stage, focus knobs, and LED illuminator.

- **Eyepieces:** Where you look to view the specimen.

- **Trinocular Head:** Connects the eyepieces and the camera port.
- **Revolving Nosepiece:** Holds the objective lenses and allows for easy switching between magnifications.
- **Objective Lenses:** Provide primary magnification (4X, 10X, 40X, 100X).
- **Mechanical Stage:** Platform for holding and moving the specimen slide.
- **Stage Clips:** Secure the specimen slide on the mechanical stage.
- **Coaxial Coarse and Fine Focus Knobs:** Used to bring the specimen into sharp focus.
- **Condenser:** Focuses light onto the specimen.
- **Iris Diaphragm:** Adjusts the amount of light passing through the specimen.
- **LED Illuminator:** Provides the light source from below the stage.
- **Illumination Intensity Control:** Adjusts the brightness of the LED light.
- **Power Switch:** Turns the microscope's illumination on or off.
- **Camera Port:** Top port for attaching the digital camera.

5. SETUP

5.1 Unpacking and Assembly

1. Carefully remove all components from the packaging. Retain the original packaging for future transport or storage.
2. Place the microscope body on a sturdy, level workbench.
3. Loosen the head locking screw on the top of the microscope body.
4. Gently insert the trinocular viewing head into the head mount, ensuring it is fully seated. Tighten the head locking screw to secure it.
5. Insert the WF10X eyepieces into the ocular tubes of the viewing head.
6. Screw the objective lenses into the revolving nosepiece in increasing order of magnification (4X, 10X, 40X, 100X).
7. Connect the power adapter to the microscope's power input jack and then plug it into a standard electrical outlet (100-240V).

5.2 Digital Camera Installation

1. Remove the dust cap from the camera port on the trinocular head.
2. Attach the 0.45X reduction lens to the digital camera.
3. Insert the camera with the reduction lens into the camera port.
4. Connect the USB cable from the camera to your computer.
5. Install the provided software from the CD or download the latest version from the OMAX website. Follow the on-screen instructions for installation.

6. OPERATING INSTRUCTIONS

6.1 Powering On and Illumination Adjustment

1. Flip the power switch to the 'ON' position. The LED illuminator will light up.
2. Adjust the illumination intensity control knob to achieve a comfortable brightness level.
3. Rotate the iris diaphragm lever on the condenser to control the contrast and resolution of the image. Start with a partially open diaphragm and adjust as needed.

6.2 Placing a Specimen

1. Rotate the revolving nosepiece to select the lowest power objective (4X). Ensure it clicks into place.
2. Lower the mechanical stage using the coarse focus knob to create enough space to place the slide.
3. Open the stage clips and place your specimen slide onto the mechanical stage, securing it with the clips.
4. Use the X-Y stage control knobs to position the desired area of the specimen directly under the objective lens.

6.3 Focusing and Magnification Adjustment



Figure 2: Close-up view of the revolving nosepiece with objective lenses and the mechanical stage with stage clips. This illustrates the components involved in selecting magnification and positioning the specimen.

1. While looking through the eyepieces, slowly raise the mechanical stage using the coarse focus knob until the specimen comes into rough focus.
2. Use the fine focus knob to achieve a sharp, clear image.
3. To increase magnification, rotate the revolving nosepiece to the next objective (e.g., 10X). The microscope is parfocal, meaning only minor fine focus adjustments should be needed.
4. For the 100X oil immersion objective, place a small drop of immersion oil directly onto the specimen slide in the area to be viewed. Carefully lower the 100X objective into the oil drop until it makes contact. Focus using only the fine focus knob.

6.4 Interpupillary Distance and Diopter Adjustment

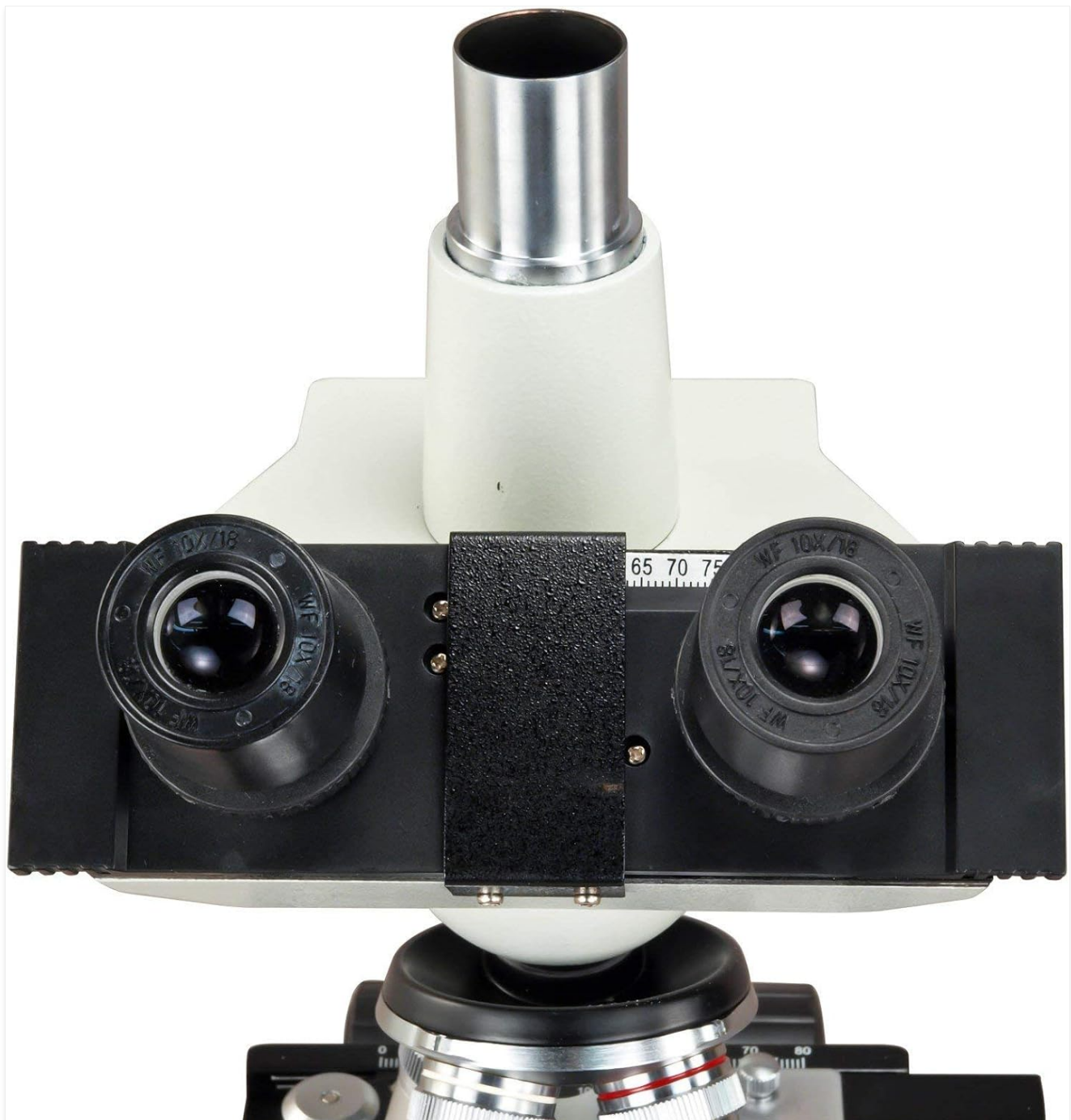


Figure 3: Top view of the microscope eyepieces, showing the interpupillary distance scale. This image highlights the adjustable eyepieces for comfortable viewing.

- **Interpupillary Distance:** While looking through both eyepieces, adjust the distance between them by gently pulling them apart or pushing them together until you see a single, circular field of view.
- **Diopter Adjustment:** Close your left eye and focus the image with your right eye using the fine focus knob. Then, close your right eye and adjust the diopter ring on the left eyepiece until the image is sharp for your left eye. This compensates for differences in vision between your eyes.

6.5 Using the Digital Camera

- Once the camera software is installed and the camera is connected, launch the software on your computer.
- A live view of the microscope's image should appear on your computer screen.
- Use the software's controls to capture still images, record live video, and perform measurements (lengths, angles, areas).
- The software also allows for basic image editing. Refer to the software's help documentation for detailed features.

7. MAINTENANCE

7.1 Cleaning

- **Optical Components:** Use a soft, lint-free cloth or lens paper specifically designed for optics. For stubborn smudges, use a small amount of lens cleaning solution. Never touch optical surfaces with your fingers.
- **Body:** Wipe the microscope body with a soft, damp cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Immersion Oil:** After using the 100X objective, always clean the objective lens and the specimen slide immediately with lens paper and a small amount of lens cleaning solution to prevent oil from hardening.

7.2 Storage

- When not in use, cover the microscope with the provided dust cover to protect it from dust and debris.
- Store the microscope in a cool, dry place, away from direct sunlight and extreme temperatures.
- Remove any specimen slides from the stage before storage.
- Rotate the nosepiece so the 4X objective is in the viewing position and lower the stage to its lowest point to protect the objectives.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
No illumination	Power switch off, power cord disconnected, LED bulb failure.	Check power switch, ensure power cord is connected, contact support if LED is faulty.
Image is blurry/out of focus	Incorrect focus adjustment, objective not clicked into place, dirty lens, slide upside down.	Adjust coarse/fine focus, rotate nosepiece until objective clicks, clean lenses, ensure slide cover slip is up.
Dark field of view	Iris diaphragm closed, illumination too low, objective not fully engaged.	Open iris diaphragm, increase illumination intensity, ensure objective is clicked into position.
Dust or spots in view	Dust on eyepiece, objective, or specimen.	Clean eyepieces and objectives with lens paper. Check specimen slide for debris.
No image on computer screen	Camera not connected, software not installed/running, camera port cap still on.	Ensure USB cable is connected, launch camera software, remove camera port cap.

9. SPECIFICATIONS

Feature	Specification
Model	M83EZ-C02
Total Magnification	40X-100X-250X-400X-1000X-2500X
Eyepieces	Wide Field WF10X and WF25X
Objectives	DIN Achromatic 4X, 10X, 40X(S), 100X (S, Oil)

Feature	Specification
Viewing Head	45-degree inclined, 360-degree swiveling trinocular
Interpupillary Distance	Adjustable 55-75mm
Nosepiece	Revolving Quadruple
Stage	Double-layer mechanical, 115mm x 125mm
Stage X-Y Travel	70mm x 30mm
Condenser	NA1.25 Abbe with Iris Diaphragm
Illumination	Transmitted LED, adjustable intensity
Focus Adjustment	Coaxial Coarse and Fine Knobs
Construction Material	All Metal Mechanical Components
Power Supply	AC/DC Adapter, 7.5V/7.5W, Input: 100-240V
Digital Camera	True Color 640 x 480 pixels
Camera Reduction Lens	0.45X
Software Compatibility	Windows 2000/XP/Vista/7/8/10 and Mac OS
Dimensions (L x W x H)	23 x 18 x 36 cm (approx. 9 x 7 x 14 inches)
Item Weight	4.08 kg (approx. 9 lbs)
UPC	670541482230

10. WARRANTY AND SUPPORT

10.1 Warranty Information

The OMAX M83EZ-C02 Trinocular LED Microscope comes with a **5-year warranty** against manufacturing defects. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

10.2 Customer Support

For technical assistance, warranty service, or inquiries regarding your OMAX microscope, please contact OMAX customer support. Refer to the OMAX official website for the most current contact information and support resources.