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## OMAX M83EZ-C50U

# OMAX M83EZ-C50U Trinocular Digital Compound Microscope User Manual

Model: M83EZ-C50U

## 1. INTRODUCTION

This manual provides detailed instructions for the proper setup, operation, and maintenance of your OMAX M83EZ-C50U Trinocular Digital Compound Microscope. This instrument is designed for advanced observation and digital imaging, offering magnification from 40X to 2500X. Please read this manual thoroughly before using the microscope to ensure safe and effective operation.

## 2. SAFETY INSTRUCTIONS

- **Handle with Care:** The microscope contains delicate optical and mechanical components. Always handle the instrument with care to prevent damage.
- **Electrical Safety:** Ensure the power supply is connected to a grounded outlet. Do not operate the microscope with wet hands or in wet conditions. Disconnect power before cleaning or servicing.
- **Placement:** Place the microscope on a stable, level surface away from direct sunlight, high temperatures, dust, and corrosive chemicals.
- **Cleaning:** Use only approved cleaning methods and materials for optical components. Refer to the maintenance section for details.
- **Ventilation:** Ensure adequate ventilation around the microscope to prevent overheating.

## 3. PACKAGE CONTENTS

Carefully unpack all components and verify against the list below. If any items are missing or damaged, contact OMAX support immediately.

- Microscope Body with Trinocular Head
- WF10X Eyepieces (pair)
- WF25X Eyepieces (pair)
- Achromatic DIN Objectives: 4X, 10X, 40X(S), 100X(S, Oil)

- 5 MP Digital Camera (2592x1944 pixels)
- 0.5X Reduction Lens for Digital Camera
- 0.01 mm Calibration Slide
- USB Cable for Digital Camera
- Software CD (Windows XP/Vista/7/8/10, Mac OS, Linux compatible)
- AC/DC Power Adapter (7.5V/7.5W)
- Immersion Oil
- Dust Cover



Image: Various accessories included with the OMAX M83EZ-C50U microscope, including eyepieces, objectives, power adapter, immersion oil, and a dust cover.

## 4. COMPONENT IDENTIFICATION

Familiarize yourself with the main parts of your microscope:

1. **Trinocular Head:** Allows for simultaneous observation through eyepieces and connection of a digital camera.
2. **Eyepieces:** WF10X and WF25X for different magnifications.
3. **Revolving Nosepiece:** Holds the objective lenses and allows for easy switching between them.
4. **Objective Lenses:** 4X, 10X, 40X(S), 100X(S, Oil) for primary magnification.
5. **Mechanical Stage:** Double-layer stage with X-Y movement controls for precise specimen positioning.
6. **Stage Clips:** Secure the specimen slide on the mechanical stage.
7. **Coaxial Coarse and Fine Focus Knobs:** Used for adjusting the focus of the specimen.
8. **Condenser with Iris Diaphragm:** Located beneath the stage, it focuses light onto the specimen and controls contrast.

9. **LED Illuminator:** Transmitted light source located at the base.
10. **Illumination Intensity Control:** Adjusts the brightness of the LED light.
11. **Power Switch:** Turns the microscope on and off.
12. **Digital Camera Port:** Located on the trinocular head for camera attachment.

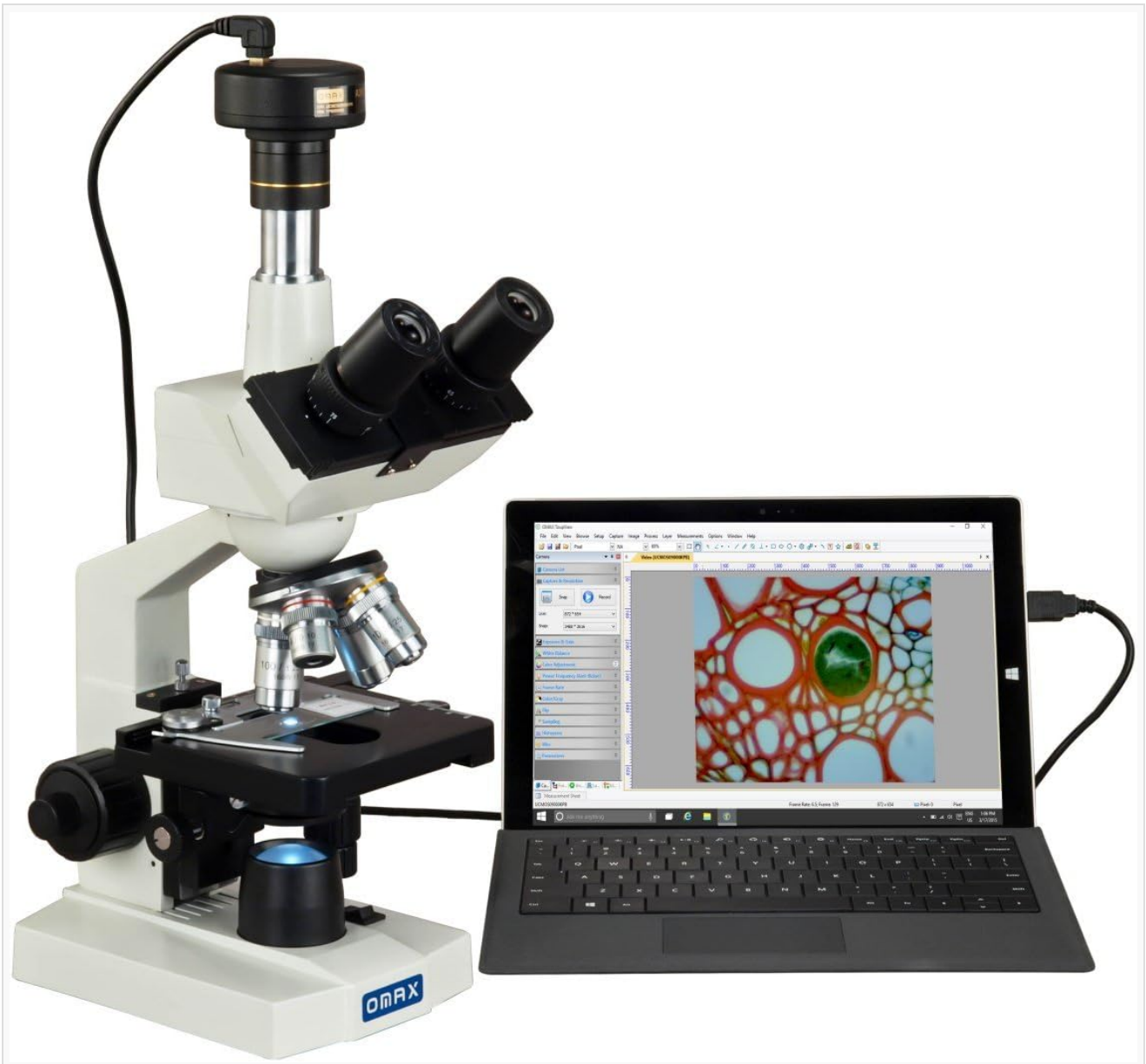


Image: The OMAX M83EZ-C50U Trinocular Digital Compound Microscope connected to a laptop displaying a magnified specimen, illustrating the overall setup and key components.



Image: A side view of the OMAX M83EZ-C50U Trinocular Digital Compound Microscope, highlighting the optical path and mechanical stage.

## 5. SETUP

### 5.1 Initial Assembly

1. **Unpacking:** Carefully remove all components from the packaging. Retain the packaging for future transport or storage.
2. **Trinocular Head Installation:** Loosen the head locking screw on the top of the microscope body. Gently

insert the trinocular head into the opening, ensuring it is seated firmly. Tighten the locking screw.

3. **Eyepiece Installation:** Insert the WF10X eyepieces into the two ocular tubes of the trinocular head. For higher magnification, the WF25X eyepieces can be used.
4. **Objective Installation:** Screw each objective lens (4X, 10X, 40X, 100X) into the revolving nosepiece in increasing order of magnification, starting from the shortest (4X) to the longest (100X).
5. **Power Connection:** Connect the AC/DC power adapter to the microscope's power input jack and then plug it into a standard electrical outlet.

## 5.2 Digital Camera Setup

1. **Software Installation:** Insert the provided software CD into your computer's CD/DVD drive. Follow the on-screen instructions to install the digital camera software. The software is compatible with Windows XP/Vista/7/8/10, Mac OS, and Linux operating systems.
2. **Camera Attachment:** Remove the dust cap from the trinocular port. Attach the 0.5X reduction lens to the 5 MP digital camera, then insert the camera assembly into the trinocular port.
3. **USB Connection:** Connect the digital camera to your computer using the provided USB cable.
4. **Calibration:** Use the included 0.01 mm calibration slide with the software to calibrate measurements for accurate analysis.



Image: The OMAX 5 MP digital camera and the accompanying software disk, essential for digital imaging and analysis with the microscope.

## 6. OPERATING INSTRUCTIONS

## 6.1 Basic Observation

1. **Power On:** Flip the power switch to turn on the LED illuminator. Adjust the illumination intensity to a comfortable level.
2. **Place Specimen:** Open the stage clips and place a prepared specimen slide on the mechanical stage. Center the specimen over the light aperture.
3. **Select Objective:** Rotate the revolving nosepiece to select the lowest power objective (e.g., 4X). Ensure it clicks into place.
4. **Adjust Stage:** Use the coarse focus knob to raise the stage until the objective is just above the specimen slide.
5. **Focusing:** While looking through the eyepieces, slowly lower the stage using the coarse focus knob until the specimen comes into view. Use the fine focus knob for sharp clarity.
6. **Interpupillary Distance:** Adjust the distance between the two ocular tubes until you see a single, circular field of view.
7. **Diopter Adjustment:** If one eye is clearer than the other, adjust the diopter ring on the left ocular tube until both eyes see a sharp image.
8. **Adjusting Illumination and Diaphragm:** Use the illumination intensity control and the iris diaphragm on the Abbe condenser to optimize brightness and contrast for your specimen.
9. **Changing Magnification:** Rotate the nosepiece to a higher power objective (e.g., 10X, 40X). The microscope is parfocal, meaning minimal fine focus adjustment should be needed.
10. **Using 100X Oil Immersion Objective:**
  - Rotate the nosepiece halfway between the 40X and 100X objectives.
  - Place a small drop of immersion oil directly onto the center of the specimen slide.
  - Rotate the 100X objective into the oil drop. Ensure there are no air bubbles.
  - Use only the fine focus knob for precise focusing.
  - After use, clean the 100X objective and the slide immediately with lens paper and lens cleaning solution to remove all oil residue.

## 6.2 Digital Imaging with 5 MP Camera

Once the digital camera software is installed and the camera is connected, launch the application on your computer.

- **Live View:** The software will display a live feed from the microscope. Adjust focus and illumination on the microscope for optimal image quality on screen.
- **Capturing Images:** Use the software interface to capture still images (2592x1944 pixels).
- **Recording Video:** The software allows recording live video at various frame rates (e.g., 5fps at 2592x1944, 18fps at 1280x960, 60fps at 640x480).
- **Measurements and Editing:** The software includes tools for measuring lengths, angles, areas, and basic image editing.

## 7. MAINTENANCE

- **Cleaning Lenses:** Use a soft brush to remove dust, then gently wipe with lens paper moistened with lens cleaning solution. Never touch optical surfaces with bare fingers.
- **Cleaning Body:** Wipe the microscope body with a soft, damp cloth. Avoid using harsh chemicals or solvents.
- **Storage:** When not in use, cover the microscope with the provided dust cover and store it in a cool, dry place. Remove immersion oil from objectives and slides before storage.

- **LED Illuminator:** The LED illuminator is designed for long life. If it fails, it is not user-replaceable and requires professional servicing.

## 8. TROUBLESHOOTING

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- **No Illumination:**

- Check if the power cord is securely connected.
- Ensure the power switch is ON.
- Adjust the illumination intensity control.
- If the LED light has failed, contact OMAX support for service.

- **Image is Dark or Unclear:**

- Adjust the illumination intensity.
- Open the iris diaphragm on the condenser.
- Ensure the objective lens is fully clicked into position.
- Clean objective and eyepiece lenses if dirty.
- Verify the specimen is properly centered and focused.

- **Digital Camera Software Errors or Low Frame Rate:**

- Ensure the USB cable is securely connected.
- Try restarting the software and reconnecting the camera.
- Lower the video resolution setting in the software to improve frame rate and stability.
- Ensure your computer meets the minimum system requirements for the software.

- **Cannot Achieve Sharp Focus:**

- Ensure the specimen slide is placed correctly on the stage.
- Check that the objective lens is not touching the slide when using coarse focus.
- For 100X objective, ensure immersion oil is applied correctly and the lens is clean.

## 9. SPECIFICATIONS

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Feature	Specification
Total Magnification	40X-100X-250X-400X-1000X-2500X
Eyepieces	Wide field WF10X and WF25X
Objectives	Achromatic DIN 4X, 10X, 40X(S), 100X(S, Oil)
Viewing Head	45 degrees inclined, 360 degrees swiveling trinocular
Interpupillary Distance	Adjustable 55-75mm (2-3/16inch to 2-15/16inch)
Nosepiece	Revolving quadruple
Stage	Mechanical double layer, 115mm x 125mm (4-1/2inch x 4-15/16inch)
Stage X-Y Stroke	70mm x 30mm (2-13/16inch x 1-3/16inch)
Condenser	NA1.25 Abbe condenser with iris diaphragm
Illuminator	Transmitted LED light, intensity adjustable
Focus Adjustment	Coaxial coarse and fine knobs on both sides
Power Supply	AC/DC adapter, 7.5V/7.5W (Input: 100-240V)
Digital Camera	5 MP (2592x1944 pixels) true color
Camera Reduction Lens	0.5X
Calibration Slide	0.01 mm (1mm/100 division)
Camera Frame Rate	5fps at 2592x1944, 18fps at 1280x960, 60fps at 640x480
Software Compatibility	Windows XP/Vista/7/8/10, Mac OS, Linux
Product Dimensions	9.06 x 7.09 x 14.17 inches
Item Weight	9.15 pounds
Material	All metal mechanical components

## 10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the documentation provided with your purchase or visit the official OMAX website. Ensure you have your model number (M83EZ-C50U) and purchase details available when contacting support.