OMAX M82E

OMAX M82E 40X-1000X Lab LED Binocular Compound Microscope

User Manual

Introduction

This manual provides comprehensive instructions for the setup, operation, maintenance, and troubleshooting of your OMAX M82E 40X-1000X Lab LED Binocular Compound Microscope. Please read this manual carefully before using the microscope to ensure proper function and longevity of the instrument.

Figure 1: OMAX M82E Binocular Compound Microscope. This image displays the complete microscope unit alongside a laptop showing a magnified sample, illustrating its application in detailed observation.

Product Features and Components

The OMAX M82E microscope is designed for laboratory and educational use, featuring robust construction and precise optical components. Key features include:

- **Total Magnification:** 40X-100X-400X-1000X
- **Eyepieces:** Wide field WF10X
- **Objectives:** Achromatic DIN 4X, 10X, 40X(S), 100X(S, Oil)
- **Viewing Head:** 45 degrees inclined, 360 degrees swiveling binocular
- **Stage:** Double layer X-Y mechanical stage with scales
- **Illumination:** Transmitted (lower) LED light, intensity adjustable
- **Focus:** Coaxial coarse and fine knobs

Figure 2: Key features of the OMAX M82E microscope. This diagram points out the mechanical stage, adjustable binocular viewing head, 4 DIN achromatic objectives, coaxial coarse and fine focus, and low-heat LED light source.

Setup Instructions

1. **Unpacking:** Carefully remove all components from the packaging. Retain the original packaging for future transport or storage.
2. **Placement:** Place the microscope on a stable, level surface away from direct sunlight, excessive heat, dust, and vibrations.
3. **Head Installation:** Gently place the binocular viewing head onto the top of the microscope body. Secure it by tightening the set screw, if present.
4. **Eyepiece Insertion:** Insert the WF10X wide field eyepieces into the ocular tubes of the binocular head.
5. **Objective Installation:** Rotate the revolving quadruple nosepiece to expose the empty objective ports. Screw in the achromatic DIN objectives (4X, 10X, 40X, 100X) in increasing order of magnification.
6. **Power Connection:** Connect the AC/DC adapter to the microscope's power input and then plug it into a standard

electrical outlet (100-240V).

Operating the Microscope

1. **Power On:** Flip the power switch to turn on the LED illumination. Adjust the intensity using the rheostat knob.
2. **Prepare Specimen:** Place your prepared slide onto the mechanical stage. Use the stage clips to hold it securely.
3. **Position Specimen:** Use the X-Y mechanical stage knobs to center the area of interest directly under the objective lens.

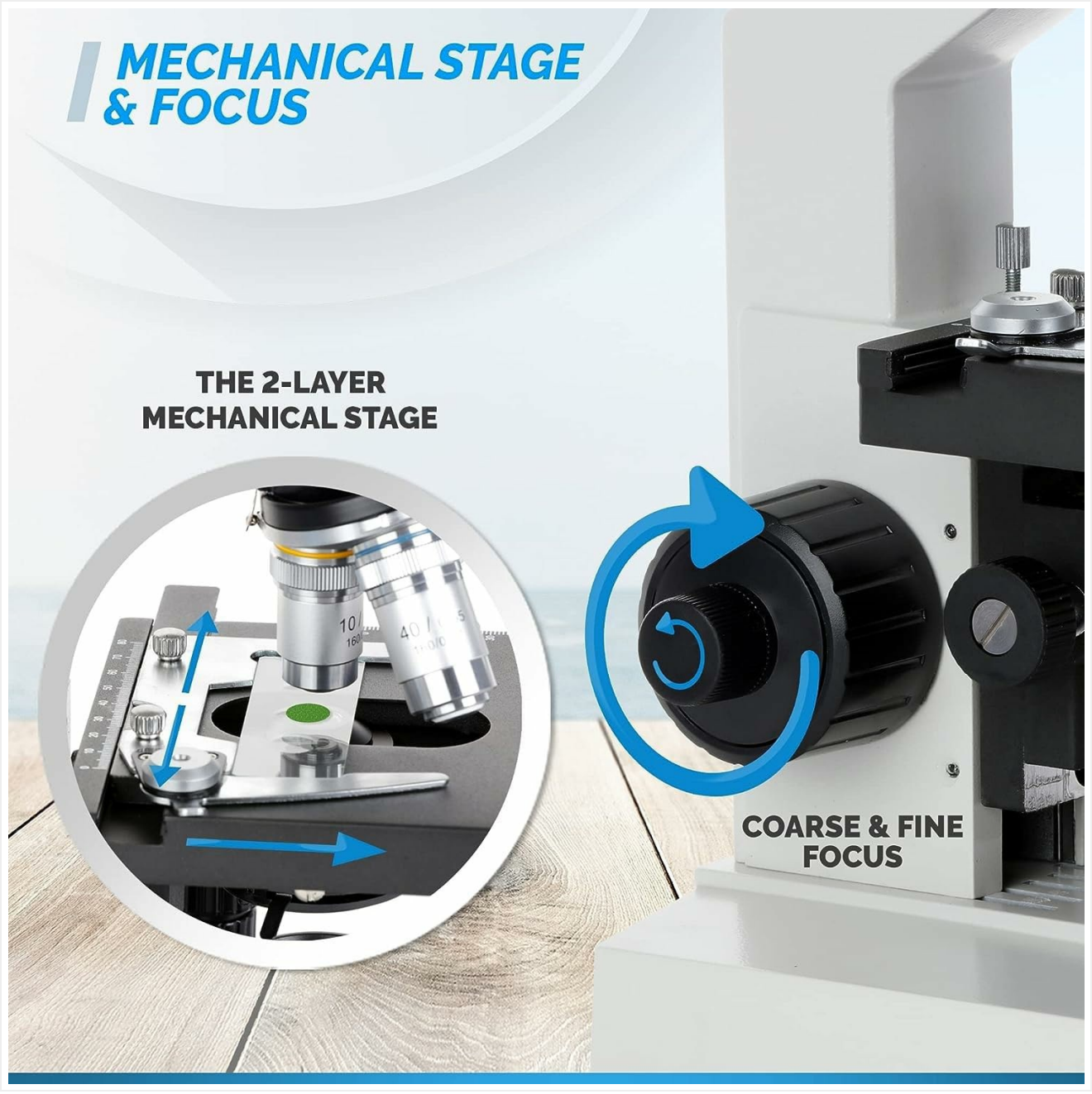

Figure 3: Mechanical stage and coaxial focus. This image illustrates the 2-layer mechanical stage with X-Y translation controls and the coarse and fine focus knobs for precise adjustments.

4. **Select Objective:** Rotate the nosepiece to select the lowest power objective (e.g., 4X) first. This provides the widest field of view and makes initial focusing easier.
5. **Focusing:**
    - While looking through the eyepieces, slowly turn the **coarse focus knob** to bring the specimen into approximate focus.

- Once roughly focused, use the **fine focus knob** for sharp, detailed focusing.

6. **Adjusting Illumination:** Adjust the LED light intensity and the iris diaphragm on the NA1.25 Abbe condenser to achieve optimal contrast and brightness for your specimen.

Figure 4: LED Illumination. This image highlights the transmitted LED light source located beneath the mechanical stage, which provides adjustable intensity for viewing specimens.

7. **Changing Magnification:** To increase magnification, rotate the nosepiece to the next higher power objective (e.g., 10X, 40X, 100X). The microscope is parfocal, meaning only minor adjustments with the fine focus knob should be needed when switching objectives.

Figure 5: Magnification capabilities. This image demonstrates the various magnification levels (40X, 100X, 1000X, and 2000X with optional WF20X eyepieces) achievable with the different objective lenses.

8. **Using 100X Oil Immersion Objective:** For the 100X objective, a drop of immersion oil must be placed on the slide directly over the light path before lowering the objective into the oil. After use, clean the oil immersion objective and slide thoroughly with lens paper and appropriate cleaning solution.
9. **Adjusting Interpupillary Distance and Diopter:** Adjust the interpupillary distance by moving the binocular tubes until a single circular field of view is observed. Use the diopter adjustment on one ocular tube to compensate for differences in vision between your eyes.

Maintenance

- **Cleaning Optics:** Use only specialized lens cleaning solution and lens paper for cleaning objective lenses and eyepieces. Never use abrasive materials or harsh chemicals.
- **Cleaning Body:** Wipe the microscope body with a soft, damp cloth. Avoid getting moisture into electrical components.
- **Storage:** When not in use, cover the microscope with a dust cover to protect it from dust and debris. Store in a cool, dry place.

- **Lubrication:** Moving parts are factory lubricated. Do not attempt to lubricate them yourself unless specifically instructed by a qualified technician.

Troubleshooting

Problem	Possible Cause	Solution
No illumination	Power cord disconnected, power switch off, LED bulb failure.	Check power connection, turn on switch, contact support for bulb replacement.
Image unclear/blurry	Incorrect focus, dirty objective/eyepiece, slide upside down, condenser not adjusted.	Adjust fine focus, clean optics, reorient slide, adjust condenser and iris diaphragm.
Dark spots in field of view	Dust on eyepiece, objective, or condenser.	Clean eyepieces and objectives. Rotate eyepiece to confirm dust location.
Stage not moving smoothly	Dust or debris on stage mechanism.	Clean stage area. Do not force movement.

Specifications

- **Model Name:** M82E
- **Total Magnification:** 40X-100X-400X-1000X
- **Eyepieces:** Wide field WF10X
- **Objectives:** Achromatic DIN 4X, 10X, 40X(S), 100X(S, Oil)
- **Viewing Head:** 45 degrees inclined, 360 degrees swiveling binocular
- **Interpupillary Distance:** Sliding adjustable 2-3/16inch ~ 2-15/16inch (55~75mm)
- **Diopter Adjustment:** On both ocular eye tubes
- **Nosepiece:** Revolving quadruple
- **Stage:** Double layer X-Y mechanical stage with scales, size: 4-1/2inch x 4-15/16inch (115mm x 125mm)
- **Stage Translation Range:** 2-13/16inch x 1-3/16inch (70mm x 30mm)
- **Condenser:** NA1.25 Abbe condenser with iris diaphragm
- **Illumination:** Transmitted (lower) LED light, intensity adjustable
- **Focus:** Coaxial coarse and fine knobs on both sides
- **Construction:** Full solid metal frame with stain resistant enamel finish
- **Power Supply:** AC/DC adapter, 7.5V/7.5W (UL approved) - Input: 100-240V
- **Product Dimensions:** 11.69 x 8.35 x 16.54 inches
- **Item Weight:** 7.72 Pounds
- **Manufacturer:** OMAX

Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact OMAX customer service directly. Protection plans may also be available for extended coverage.
Manufacturer: OMAX
For further assistance, visit the official OMAX website or contact their support channels.