

User Manual

Digital Monocular Compound Microscope

Model MD810T



MicroscopeNet.com

Table of Contents

| | |
|--------------------------------|---|
| i. Caution..... | 1 |
| ii. Care and Maintenance..... | 2 |
| 1. Component Illustration..... | 3 |
| 2. Operation..... | 4 |
| 3. Specifications..... | 5 |
| 4. Troubleshooting Guide..... | 6 |

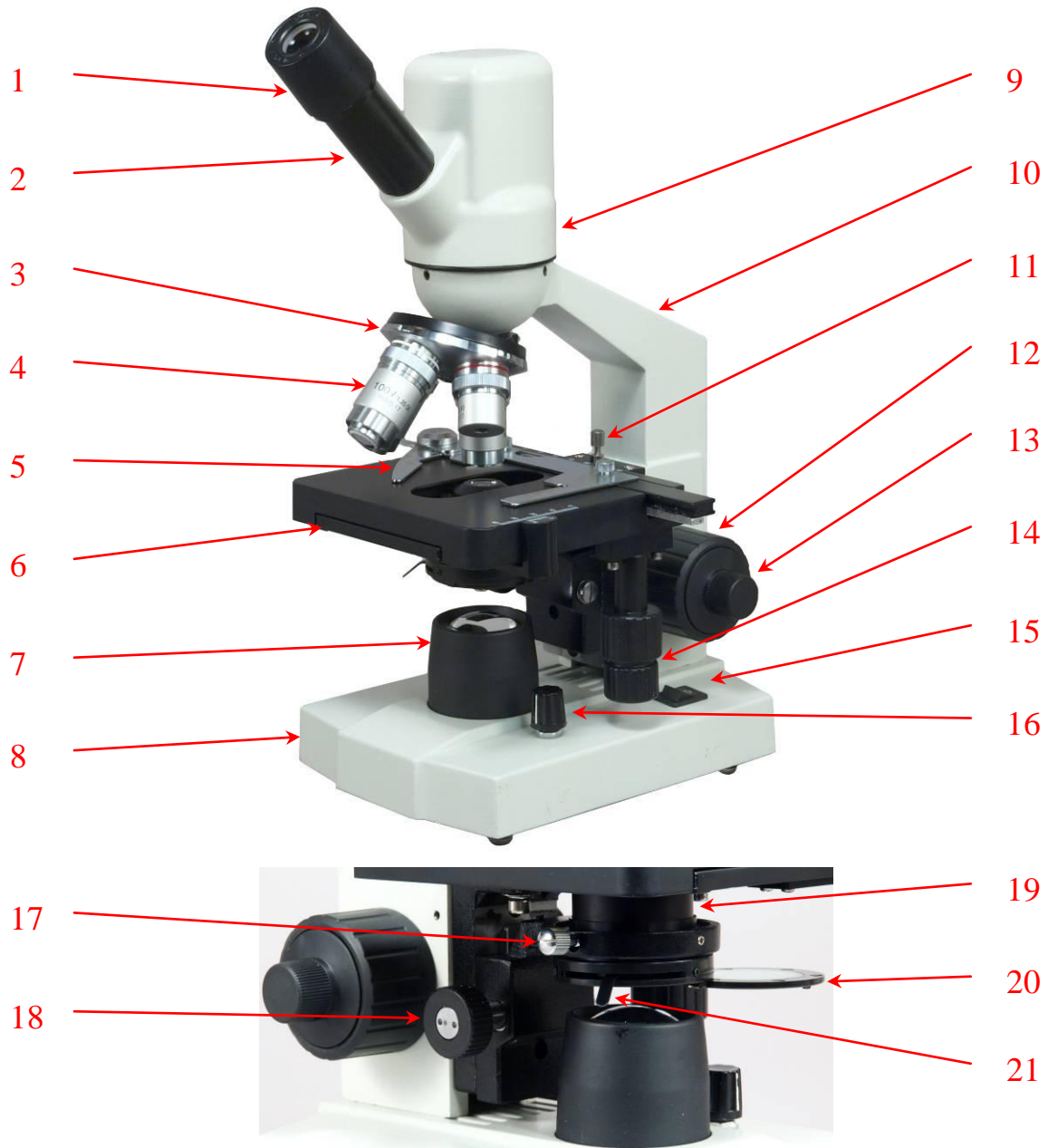
i. Caution

1. Find the “UP” sign and place the Styrofoam container on your table or bench so that the arrow is pointing upward. Open the shipping carton carefully to prevent any accessory items (i.e. objectives or eyepieces) from dropping and being damaged.
2. Do not discard the molded Styrofoam container. The container should be retained should the microscope ever requires reshipment.
3. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
4. If any specimen solutions or other liquids splash onto the stage, objective or any other component, disconnect the AC adapter immediately and wipe up the spillage. Otherwise, the instrument may be damaged.
5. All electrical connectors (AC adapter) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.
6. Confirm that the input voltage indicated on your microscope corresponds to your line voltage. The use of a different input voltage other than that indicated will cause severe damage to the microscope.
7. Don't try to remove the collector lens before the electrical wires of LED light disconnected (you can find the wires by opening the bottom cover of microscope base)

ii. Care and Maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or 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 stream from an air bulb. If dirt remains on the optical surface, use a soft 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. Oil immersion objectives should be cleaned immediately after use by removing the oil with lens tissue or a clean, soft cloth.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

1 Components Illustration



- 1. Eyepiece
- 2. Eyepiece Tube
- 3. Nosepiece
- 4. Objective
- 5. Slide Holder
- 6. Mechanical Stage
- 7. Collector Lens
- 8. Microscope Base
- 9. Viewing Head w/ Built-in Camera
- 10. Microscope Body
- 11. Focusing Rack Stop

- 12. Coarse Focus Knob
- 13. Fine Focus Knob
- 14. Stage Translational Control Knobs
- 15. Power Switch
- 16. Intensity Knob
- 17. Condenser Holder Screw
- 18. Condenser Focus Knob
- 19. Abbe Condenser
- 20. Illumination Diffusion Filter
- 21. Iris Diaphragm Adjust Lever

2 Operation

2.1 Adjusting illumination

- 1) Connect the AC adapter and turn on the main switch (15).
- 2) Turn the intensity knob (16) to increase or decrease the brightness.

Caution: A diffusion filter (20) is attached beneath the condenser to get uniform light and protect your eyes from strong LED light when low power objective applied. The diffusion filter can be swing out to make the view field brighter when observing with a 100X objective.

2.2 Placing specimen

- 1) Place the slide on the mechanical stage (6).
- 2) Use the slide holder (5) to gently secure the slide.
- 3) Turn the X and Y translational knobs (14) to position the specimen for viewing.

Caution: Be sure not to allow an objective to touch a specimen slide when changing objectives.

2.3 Focusing

- 1) With the 10X objective in position, raise the mechanical stage (6) using the coarse focus knob (12) until the specimen is close to the objective
- 2) Turn the coarse focus knob (12) until the specimen is in focus. Then use the fine focus knob (13) to obtain a sharp image. You may now switch to another magnification objective.

Note: A rack stop (11) is equipped to prevent the objective from touching the slide.

2.4 Adjusting condenser

- 1) Turn the condenser focus knob (18) to raise or lower the condenser (19).
- 2) Raise the condenser (19) when using high power objectives and lower it when using low power objectives.

Note:

- The centering of the condenser and the light axis of the objective are factory adjusted. Do not attempt re-adjustment.
- The highest position of the condenser has been factory adjusted. Do not attempt re-adjustment.

2.5 Adjusting iris diaphragm

Move the Iris Diaphragm Lever (21) left or right to adjust the aperture size.

2.6 Camera operation

Refer to the manual in the CD.

3 Specifications

| | |
|---------------------|--|
| Model | MD810T |
| Total Magnification | 40X, 64X, 100X, 160X, 400X, 640X, 1000X, 1600X |
| Viewing Head | Monocular, inclined 45°, swiveling 360° |
| Eyepieces | WF10X/18 P16X |
| Nosepiece | Revolving quadruple |
| Objectives | Achromatic DIN 4X, 10X, 40X(spring), 100X(spring, oil) |
| Condenser | Abbe, NA=1.25, w/ iris diaphragm and diffusion filter Rack and pinion adjustment |
| Focus Mechanism | Coaxial coarse and fine focusing knobs on both sides with rack stop |
| Stage | Mechanical stage Dimension: 125 mm x 115 mm Translational range: 70 mm x 22 mm |
| Illumination | Transmitted, LED, with intensity knob |
| Camera | Built-in, CMOS, 1.3M Pixel (1280x1024), USB2.0 Compatible with: Windows 2000, Windows XP, Vista32/64 and Windows 7 Image processing software included |
| Power Supply | AC/DC Adapter, 100V-240V (UL approved) |
| Dimension | 7-1/8" x 5-1/8" x 13-1/8" (18.2 cm x 13 cm x 33.3 cm) |
| Net weight | 6 lb 5.7 oz (2.89 kg) |

4 Troubleshooting Guide

OPTICAL PROBLEMS

| Problem | Cause | Solution |
|--|---|--|
| Darkness at the periphery | Revolving nosepiece not in click stop position | Revolve the nosepiece to click-stop position by swinging the objective correctly into the optical path |
| Uneven brightness in the field of view | The diffusion filter is not in the light path | Check the diffusion filter and make sure it's in the light path |
| Dirt or dust on the view | Dirt or dust on the lens eyepiece, condenser, objective, collector lens or specimen | Clean the lens with a camera cleaning kit |
| | Dirt or dust on the specimen | Clean the specimen |
| Poor image quality | No slide cover attached to the slide | Attach a 0.17mm slide cover |
| | Slide cover is too thick or thin | Use a slide cover of the appropriate thickness (0.17mm) |
| | Slide may be upside down | Turn slide over so the cover-glass faces up |
| | Immersion oil is on a dry objective (especially the 40x) | Check the objectives, clean if necessary |
| | No immersion oil used with 100x objective | Use immersion oil |
| | Air bubbles in immersion oil | Remove bubbles |
| | Condenser aperture is closed or open too much | Open or close properly |
| | Condenser is positioned too low or too high | Move condenser upper or lower |

MECHANICAL PROBLEMS

| Problem | Cause | Solution |
|---|--------------------------|---|
| Image will not focus with high power objectives | Slide upside down | Turn the slide over so the cover glass faces up |
| | Cover glass is too thick | Use a 0.17mm cover glass |
| High power objective contacts slide when changed from low power objective | Slide upside down | Turn the slide over so the cover glass faces up |
| | Cover glass is too thick | Use a 0.17mm cover glass |

ELECTRICAL PROBLEMS

| Problem | Cause | Solution |
|--------------------------------------|---------------------|-----------------------------|
| Lamp does not light when switched on | No electrical power | Check AC adapter connection |

IMAGE PROBLEMS

| Problem | Cause | Solution |
|-------------------------|---|---|
| Image is too bright | Lamp intensity is too high | Adjust the light intensity by rotating the intensity control knob |
| | Diffusion filter is not applied | Check and make sure the diffusion filter is in the light path |
| | Aperture diaphragm opened too far | Close to the proper setting |
| Insufficient brightness | Lamp intensity is too low | Adjust the light intensity by rotating the intensity control dial |
| | Aperture diaphragm closed too far | Open to the proper setting |
| | Condenser is not in the right position | Position the condenser properly |
| | Diffusion filter used when using 100X objective | Swing out the diffusion filter when using 100X objective |