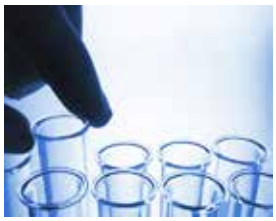
Mi5

Instruction Manual

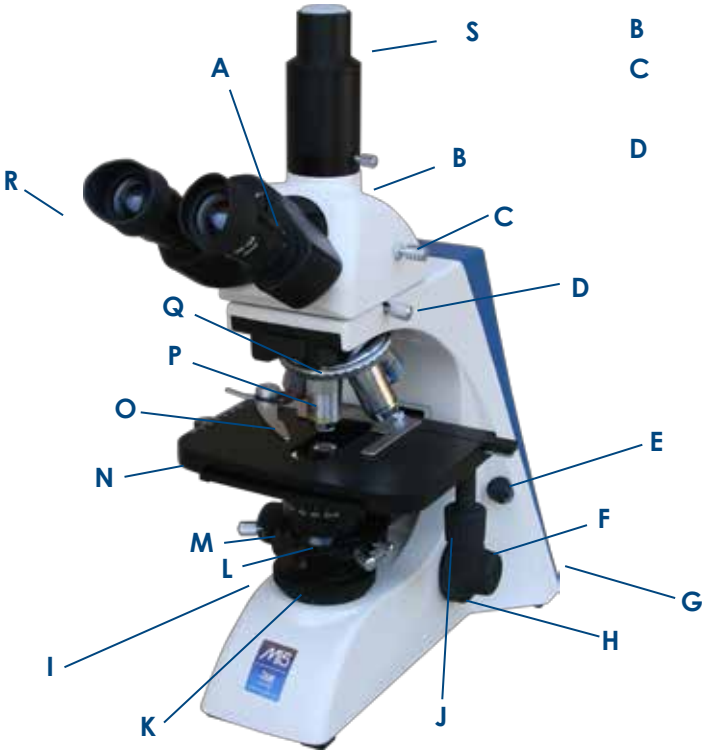




Model pictured:

Mi5

Not all features available on all models - see back page for model specifications.



A	Diopter Adjustment
B	Trinocular Head
C	Light Port Slide (trinoc only)
D	Head Retention Screw
E	Brightness Control
F	Fine Focus
G	On/Off Switch (located on rear)
H	Coarse Focus
I	Focus Friction Control
J	X/Y Axis Stage Controls
K	Base Condenser
L	Substage Abbe Condenser
M	Substage Iris Diaphragm
N	Stage
O	Slide Holder
P	Objectives
Q	Nosepiece
R	Eyepieces
S	Eyepiece tube and C-mount tube (trinoc only)

Introduction

LW Scientific is proud to present our most advanced modular microscope to date! The Mi5 microscope features exceptional optical quality with an infinity optical system. The ergonomic, narrow design allows users to rest their arms flat on the table and easily operate all controls. LED lighting produces "daylight" color, with a cool temperature and long life. Comfort, durability, dependability, superior imaging, and a multitude of additions and upgrades make the Mi5 a top-of-the line value for not only basic research and lab inspections, but also for the most discriminating lab technicians and specialists. The Mi5 microscope is intended for use as a biological microscope in a professional environment in accordance with the guidelines set forth in this operations manual.

Phase and Dark Field

Lumin Epi-Module

50x oil and 60x dry objectives


Camera Attachments

Polarizing Modules

New York Microscope Company
Microscope Experts since 1979

100 Lauman Lane, Suite A, Hicksville, NY 11801
Tel: (877) 877-7274 | Fax: (516) 801-2046
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www.microscopeinternational.com

Unpacking and Setup

LW Scientific packs each Mi5 Microscope with utmost care. Examine the outer and inner containers for any visual damage. Retain all of the packing material until you have examined and tested your new microscope. If there is damage, please contact the shipping company, as our warranty does not cover shipping damage. If you are uncertain who the shipper is, contact the distributor where you purchased the microscope. Please retain all packaging material for future use. Carefully unpack** your Mi5 Microscope using the following checklist for all the parts and accessories:

Box 1:
1 - Power cord
1 - Immersion oil
1 - Dust cover
1 - Abbe condenser
2 - Rubber eye guards
2 - Fuses (2 Amp)

Box 2:
1 - Binocular head (Seidentopf style), optional Trinocular head

Box 3:
1 - Microscope body
2 - 10x eyepieces
5 - Objectives 4X, 10X, 20X, 40XR, 100XR (oil)

Assembly

1. Remove the body of the microscope and place it on a sturdy, dust-free surface. Remove/unscrew the plastic plugs in the nosepiece. Install the objectives in such a way that when you turn the nosepiece clockwise, you are moving from the 4x, to 10x to 20x to 40x and finally to the 100x objective.

2. Remove the microscope head from the Styrofoam carton and pull off the protective covers from the eyepiece tubes and head mount. Insert the head mount into the upper arm of the body. Once the head seats, tighten the head retention screw to secure the head in place. Note: Do not over-tighten.

3. Remove plastic covers and packing material covering the stage, the condenser and lower light assembly

4. Insert the 10x eyepieces.

5. Attach the power cord.

Lamp Replacement

The LED bulb can be replaced by opening the bottom panel (large silver thumb screw). After opening the panel, unclip the red and black wires by gently squeezing on the sides of the white connecter clip. Using a small screwdriver, remove both screws on the LED bulb. Remove the bulb. Mount a replacement bulb. Replace and tighten the screws. Reconnect the electronics by attaching the white connecter clip, and close the bottom panel. Tighten the silver thumb screw to secure.

Power

If you suspect faulty electronics, call LW Scientific's technical service department at 800-726-7345.

INPUT: 90-240V / 50-60Hz automatic-switching

Operation

1. Once you have assembled all the parts and allowed your microscope to come to room temperature, plug the power cord into the appropriate AC outlet. Note: excess cold can fog lenses, cause lamp to fail, and cause all optics to "fog." Be sure to allow time for your scope to acclimate to room temperature.

2. Turn the light on using the black on/off switch on the rear of the microscope. Next, adjust the light intensity using the brightness control knob located on the right side of the microscope.

3. In order to become acquainted with the controls, choose a specimen slide with which you are familiar. For example, an old hematology slide or a commercially prepared slide. Place the slide into the slide holder by pushing back on the thumb guard to open the slide finger. The slide finger closes slowly to eliminate the possibility of chipping the corner of your slide when it closes.

4. Move the slide to the center of the stage, by turning the stage control knobs, located just below the stage. These knobs allow you to move the slide on the X-Y axis (forward/backward and left/right).

5. The sub-stage iris should then be set to match the aperture of the objective for maximum resolution under each objective power. There are numbers on the iris ring to show the correct setting for each objective power. You should begin with the 4x or 10x objective. Only use the iris wide open when under the 100x oil objective. Closing down the iris on smaller objective powers will improve resolution, contrast, and depth of field.

6. Once you are comfortably seated, look into the oculars and move the eyepiece tubes together or apart until you see only one complete circle of light. You have now adjusted your interpupillary distance.

7. Using the 4x or 10x objectives and the coarse and fine adjustment knobs, bring the specimen into focus. Now, move the 40x objective into place. You will feel a "clicking" action when the objective is seated properly. Again, adjust focus for best image. You should also adjust the iris diaphragm (as listed above) for the best contrast and resolution.

8. Diopter Adjustment: Since you are using a binocular or trinocular microscope, you need to adjust for the normal difference in vision between your two eyes. This is a simple but critical adjustment! First, make sure that the diopter adjustments on the eyetubes are set to the midpoint of travel, with the "O" mark lined up with the white line near the bottom edge of the eyetube. Close your left eye and look into the right eyepiece with your right eye. Adjust the fine focus to give you the best image. Now close your right eye and look with your left eye into the left ocular. Using the diopter adjustment ring on the ocular tube, adjust the focus until you see a clear, focused field. Now both eyes should see a perfectly focused image.

9. Friction Adjustment: With repeated use and wear, the stage may drift downward out of focus. If this happens, you need only to tighten the friction control ring (located on the left side of the microscope between the coarse adjustment and the body of the microscope). If the coarse focus is hard to turn, you may choose to loosen the friction adjustment.

10. Parfocality: All LW Scientific microscopes are manufactured to be parfocal – meaning that when you change objectives or magnification, the specimen will remain very close to being in focus, with only a fine adjustment needed. To achieve the best parfocality, make certain diopters are set at or near the "0" mark.

Warranty

The Mi5 is covered by a limited lifetime warranty on materials and workmanship, and a 1-year warranty on electronics from date of purchase. If there is any indication of a problem, contact LW Scientific. Operating the unit after noticing a problem could compound a simple problem and cause an unneccessary expense to the owner. LW Scientific support staff will troubleshoot problems over the phone, and attempt to solve problems in the most expedient manner. This may include sending parts that can easily be installed by the user, or directing the user through a simple adjustment to the unit. Making repairs to the unit without authorization from LW Scientific will void the warranty.

If the unit must be shipped in for repair, LW Scientific will issue a Return Merchandise Authorization (RMA) number. You will need to provide the serial number and have either a warranty card on file at LW Scientific or proof of purchase.

Maintenance

1. Always cover your microscope with the dust cover when not in use. When cleaning the lenses, use lens paper or a cotton swab dipped in lens cleaning solution.

2. Excess oil should be cleaned off your 100x objective and stage immediately. An alcohol pad is best for removing oil from
the stage and on the other metal parts, but is not recommended for use on the lenses. Use lens cleaning solution and lens paper to clean off your objectives.

3. Dust in the nosepiece or ocular tubes should be blown out using filtered air. Canned air dusters work well for this job.

4. Whenever you remove an objective, we recommend that you place it back into the original plastic shipping vial until ready to be placed back on the microscope. **SCREW THE OBJECTIVE SECURELY INTO THE CAP OF THE HOLDER - DO NOT DROP OBJECTIVE LOOSELY INTO CONTAINER.**

5. To keep your microscope in top condition for years, LW Scientific recommends that you have the microscope professionally serviced once a year.
Warning: The 40x and 60x objective are not sealed for oil immersion. Damage to the 40x and 60x objective due to oil immersion is not covered under warranty.

Specifications

Nosepiece
Reverse quintuple multiple ball bearing

Head
Binocular (Seidentopf), Trinoc available
Inclined 30°
Diopter adjustment +/-5
10X/20 High-Point super-wide eyepieces

Illumination
Simple Koehler Illumination
Moveable Abbe condenser, NA 1.25
Iris Diaphram
LED illumination
Variable light adjustment, 90-240V / 50-60Hz
Automatic-switching power cord

Construction
Rugged alloy

Stage
Mechanical stage (145mm X 175mm)
Coaxial drive controls, metal rack & pinion
Range of traverse: 78mm x 50mm
Slow-close hydraulic slide finger
Acid and reagent resistant finish

Objectives
Infinity Plan objectives
4X, 10X, 20X, 40XR, 100XR (oil)
50X (oil) and 60x (dry) objectives are also available
Anti-fungal, parfocal, parcentric, color-coded

Adjustment Controls
Eyepiece: Interpupillary distance adjustment 50-75 mm
Stage Controls: Knobs allow movement of slide on X-Y axis
Etched vernier scales
Coarse Adjustment: Range of 22 mm
Fine Adjustment: Graduation of 2µm
Variable Light Adjustment

Dimensions and Weight
Height: 15.6" (396 mm)
Length: 16.5" (420 mm)
Width: 8.1" (206 mm)
Weight: Trinoc: 20.5 lbs.
Binoc: 20.0 lbs.

Objectives: The following numbers are based on use with 10x/20 eyepieces.

Size	N.A.	Mag.	Field of View	Working Distance
4X	0.10	40X	5.0mm	6.73mm
10X	0.25	100X	2.0mm	4.19mm
20X	0.40	200X	1.0mm	2.14mm
40XR	0.66	400X	0.5mm	.45mm
50XR	0.95	500X	0.4mm	.29mm
60XR	0.85	600X	0.33mm	.21mm
100XR	1.25	1000X	0.2mm	.12mm

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