

- 1 Always cover your microscope with the dust cover when not in use.
- 2 When cleaning the lenses, use lens paper or a cotton swab dipped in lens cleaning solution.
- 3 Excess oil should be cleaned off your 100x objective and stage at once. 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.
- 4 Dust in the nosepiece or ocular tubes should be blown out using filtered air. Canned air dusters work well for this job.
- 5 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.**
- 6 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 objective is not sealed for oil immersion. Damage to the 40x objective due to oil immersion is not covered under warranty.



Model pictured:
M1 Microscope (M1M-B04A-DAH3)
Not all features available on all models - see back page for model specifications.



- Bearing Mounted Binocular Head
- Coaxial Coarse and Fine Focus
- Built-in Mechanical Stage

Specifications

Nosepiece
Reverse Nosepiece
Quadruple hole multiple ball bearing (M2)

Head
Binocular (Seidentopf), Monocular, Teaching Head
Binocular Inclined 30°
Rotates 360°
Diopter adjustment (Binocular or Teaching versions)
10X/18 widefield eyepieces

Illumination
Moveable Abbe Condenser (NA 1.25)
Iris Diaphragm
Filter holder in base with blue, green and yellow filters
20 watt quartz halogen light (12v 20w JC-G4 bulb)
Input 90-240V auto-switching / 50-60Hz

Construction
Rugged alloy; acid and reagent resistant finish

Stage
Mechanical stage (125mm x 130mm)
– coaxial drive controls
Range of traverse is 77mm x 50mm

Objectives
DIN Achromatic
4X NA .10
10X NA .25
40XR NA .65
100XR NA 1.25 (oil immersion)
Other magnifications available

Adjustment Controls
Eyepiece: Interpupillary distance adjustment 55-75mm
Stage Controls: Lateral and forward/reverse positioning;
Etched vernier scales
Coarse Adjustment: Range of 15mm
Fine Adjustment: Graduation of 2µm
Variable Light Adjustment

Dimensions and Weight
Weight: 8.8 lbs/3.99kg
Height: 15"/380mm
Length: 9"/230mm
Width: 6.63"/170mm

Objectives: The following numbers are based on use with 10x/18 eyepieces.

| Size | N.A. | Mag. | Field of View |
|-------|------|-------|---------------|
| 4X | 0.10 | 40X | 4.5mm |
| 10X | 0.25 | 100X | 1.8mm |
| 40XR | 0.65 | 400X | 0.45mm |
| 100XR | 1.25 | 1000X | 0.18mm |

Introduction

The LW Scientific M1 Microscope is our premium educational compound microscope. The M1 is a full-sized microscope with a number of student-proof features. This scope is equally at home in a classroom or a busy medical office.



Bearing Mounted Binocular Head



Coaxial C&F Focus



Reverse Nosepiece

Recommended Upgrades:

Ask your authorized LWS dealer about additional accessories

Unpacking and Setup

LW Scientific fully inspects and packages every M1 Microscope with utmost care before it is shipped out. Please examine the outer and inner containers for any visual damage that may have occurred during shipping. 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. We recommend that you retain all packaging material for future use. Carefully unpack** your M1 Microscope using the following checklist for all the parts and accessories:

- | | |
|--|--|
| 1 - Microscope body (head and eyepiece(s) installed) | 1 - Warranty card |
| 3 - Filters (blue, yellow & green) | 1 - Immersion oil |
| 4 - Objectives 4X, 10XR, 40XR, 100XR (oil) | 1 - Dust cover |
| 2 - 2 amp fuses | |
| 1 - Spare 12v/20w Halogen Bulb (type G4-JC) | **Note - Some parts may be packed in the outer recesses of the Styrofoam packaging |

Assembly

- 1 The M1 Microscope is packaged in one box, secured in Styrofoam. There is very little assembly required with this microscope so you will have it installed and working in no time.
- 2 Remove the body of the microscope and place it on a sturdy, dust-free surface.
- 3 Remove the plastic bags and protective covers from microscope including the eyepieces, stage and condenser.
- 4 Your microscope is now ready to use!

Lamp Replacement

Caution: Unplug the microscope and let it cool down if recently in use before opening the base of the microscope. When handling a new quartz lamp, be careful not to touch the new lamp with your fingers. Oil and sweat on the bulb may cause it to explode or shatter as it heats up.

Turn the scope on its side. (We recommend that you place a cushion or soft cloth under the microscope to protect against damage.) Locate the lamp compartment door; you will notice a black plastic knob near the front. Turn the knob to open the door. The lamp compartment door may now be swung open to reveal the lamp plugged into its base. Gently pull the old bulb out and discard.

Using a lint-free tissue or piece of cloth to hold the new lamp, install the bulb. Close and lock the bulb door, and plug the microscope in to the appropriate AC outlet. Ensure that the new bulb and reflector mirror are perfectly centered below the lens assembly by turning the light on to the dimmest setting and looking upward through the vent holes in the bulb door.

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 and cause lamp to fail.
- 2 Turn the light on using the black rocker switch on the back of the base. Next adjust the light intensity using the adjustment knob located on the right side of the scope. Note: Rapid, repeated changes in light intensity will dramatically shorten the life of the quartz halogen lamp.
- 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 and slide 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 Set the iris beneath the stage to the far left where the iris is open as far as it will go. When focusing on different specimens and at different powers you will want to decrease the opening to provide more contrast.
- 6 Insert the filter of your choice on the slide out filter holder beneath the iris. Note that many customers prefer to use the blue filter for routine use.
- 7 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. There is an internal friction adjustment to tighten the binocular head, which is accessed by removing the center cap and tightening the metal ring.
- 8 Using the 4x or 10x objectives and the coarse and fine adjustment knobs, bring the field of view 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 will now be in the middle of the focus range. You may have to adjust the iris diaphragm (on the condenser) for the best contrast.
- 9 Diopter Adjustment: Since you are using a binocular microscope, you need to adjust for the normal difference in vision between your two eyes. This is a simple but critical adjustment! Close your left eye and look into the right ocular with your right eye. Adjust the fine focus to give you the best image. Now look at the ocular tube on the left. You will see that the left ocular tube has a built-in adjustment ring. Now close your right eye and look with your left eye into the left ocular. Using the diopter adjustment ring on the left ocular tube, adjust the focus until you see a clear, focused field.
- 10 Stage Stop: To help prevent the stage from hitting the objectives, this M1 Microscope is equipped with an adjustable stage stop. It is preset to prevent the objectives from bumping a slide although it can be adjusted. To adjust the stage stop, twist the vertical thumb screw located behind the stage. Twisting clockwise lowers the stop and vice versa.
- 11 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. The M1 is "preset" for parfocality.

Power

The circuit board, in the base of the unit, contains all the electrical functions. There are no user repairable parts on the circuit board. If you suspect a faulty board, call LW Scientific's technical service department.

INPUT: AC90-240/50-60 HZ

OUTPUT: 12v output supports from 20w quartz halogen G-4 bulb (LWS replacement parts M2-12V20W)

FUSE: One 2-amp fuse protects the circuit board from electrical overload. The fuse is located in the snap-out fuse panel next to the on/off switch. There is also a spare fuse located inside the same panel. When replacing the fuse, always install a new one of the same size and amperage.

