

Maintenance

- 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.**

Specifications

Construction
Rugged alloy; acid and reagent resistant finish

Nosepiece
Quadruple hole multiple ball bearing

Head
Binocular (Seidentopf)
Inclined 30°, rotates 360°
Dual diopter adjustment
(Binocular or trinocular versions)
10X/18 wide-field eyepieces
Monocular or Trinocular

Illumination
Moveable Abbe Condenser (NA 1.25)
Iris Diaphragm
Swing-out filter holder with blue and green filters
20 watt quartz halogen light (12v 20w JC-G4 bulb)
Input 110 and 220V manual switching / 50-60Hz

Stage
Mechanical stage
(140 mm x 140 mm) – coaxial drive controls
Range of traverse is 73 mm x 43 mm

Dimensions and Weight
Weight: 14 lbs / 6.4 kg
Height: 15" / 380 mm
Length: 9" / 230 mm
Width: 7" / 178 mm
Shipping weight: 17 lbs/ 8kg

Objectives
DIN Achromatic,
DIN Semi-Plan or DIN Plan
4X N.A. 0.10
10X N.A. 0.25
40XR N.A. 0.65
100XR N.A. 1.25 (oil immersion)
20X, 50X oil Plan, and 60XR available

Adjustment Controls
Eyepiece: Interpupillary distance adjustment 55-75 mm
Stage Controls: Lateral and forward/reverse positioning;
Etched vernier scales
Coarse Adjustment: Range of 30 mm
Fine Adjustment: Graduation of 2µm
Variable Light Adjustment

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

| Size | N.A. | Mag. | Field of View |
|-------|------|-------|---------------|
| 4X | 0.10 | 40X | 4.5 mm |
| 10X | 0.25 | 100X | 1.8 mm |
| 20X | 0.40 | 200X | 0.9 mm |
| 40XR | 0.65 | 400X | 0.45 mm |
| 50XR | 0.95 | 500X | 0.36 mm |
| 60XR | 0.85 | 600X | 0.3 mm |
| 100XR | 1.25 | 1000X | 0.18 mm |



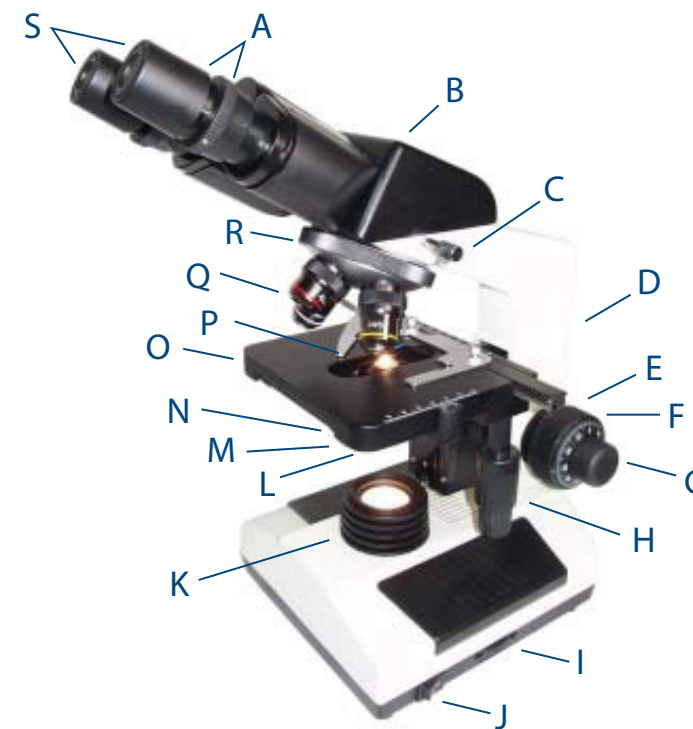
Revelation III

Instruction Manual



Model pictured:
Revelation III

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



- A Dual Diopter Adjustments
- B Binocular Head
- C Head Retention Screw
- D Stage Stop Lever (located on left side)
- E Friction Adjustment
- F Coarse Focus
- G Fine Focus
- H X/Y Axis Stage Controls
- I Brightness Control
- J On/Off Switch
- K Base Condenser
- L Flip-out Filter Holder
- M Substage Iris Diaphragm
- N Substage Abbe Condenser
- O Stage
- P Slide Holder
- Q Objectives
- R Nose Piece
- S Eyepieces

Introduction

The LW Scientific Revelation III microscope is our best-selling medical-grade compound microscope, popular in physician and veterinary offices as well as universities and medical schools. Its crisp optics, sturdy design and proven track record makes the Revelation III the best choice for superior performance at an economical price.



Phase and Dark Field



Four Head Choices



Carry Cases



Camera Attachments

Recommended
Upgrades:

Ask your authorized LWS dealer about additional accessories

Unpacking and Setup

LW Scientific packs each Revelation III 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 Revelation III Microscope using the following checklist for all the parts and accessories:

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|--|--|
| 1 - Microscope body with Abbe condenser | 2 - 0.5 amp replacement fuses |
| 2 - 10x eyepieces | 1 - Spare 12v/20w Halogen Bulb (type G4-JC) |
| 1 - Binocular head (Seidentopf style) | 1 - Warranty Card |
| 1 - Mirror and attachment device for field use | 1 - Immersion oil |
| 2 - Filters (blue & green) | 1 - Dust cover |
| 4 - Objectives 4X, 10XR, 40XR, 100XR (oil) | **Note: Some parts may be packed in the outer recesses of the Styrofoam blocks |

Assembly

- 1 Remove the body of the microscope and place it on a sturdy, dust-free surface. Remove the plastic plugs in the nose piece. Install the objectives in such a way that when you turn the nosepiece clockwise, you are moving from the 4x, to 10x to 40x and finally 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. Using the head retention screw, secure the head in place. Note: Do not over-tighten.
- 3 Insert the 10x eyepieces.
- 4 Attach the power cord.

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.) Loosen the silver thumb screw located on the lamp compartment door until the door swings open. 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 is 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.

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 at 800-726-7345.

INPUT: AC 110 or 220 / 50-60 HZ. There is a switch on the bottom of the standard base to switch from 110 to 220.

OUTPUT: 12v output supports from 20w quartz halogen G-4 bulb (LWS replacement part R3-12V20W)

FUSE: One 0.5-amp fuse protects the circuit board from electrical overload. The fuse is located on the bottom of the scope. Spare fuses were included with your scope. When replacing the fuse, always install a new one of the same size and amperage.

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 on/off switch on the right side of the base. Next adjust the light intensity using the brightness control wheel located on the right side just behind the on/off switch. 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 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. You should begin with the 4x or 10x objective.

| | |
|---|--|
| 4x objective - 1.0 N.A. (nearly closed) | 40x objective - 0.65 N.A. (halfway closed) |
| 10x objective - 0.25 N.A. (1/4 closed) | 100x objective - 1.25 N.A. (wide open) |



- 6
- 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.
- 8 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.
- 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! First, make sure that both diopter adjustments are set to the midpoint of travel, with the "O" mark lined up with the white dash line. When both are adjusted to the outermost or innermost settings, your scope will not be parfocal. 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 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 Friction Adjustment: With repeated use and wear, the stage may drift out of focus. If this happens, you need only to tighten the tension control ring (located on the right 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.
- 11 Stage Stop Lever: To help prevent the stage from hitting the objectives, the Revelation III Microscope is equipped with an adjustable stage stop. Rotate the 100X oil objective into place, and put a slide into the slide holder. Slowly raise the stage, stopping when the slide makes contact with the objective. Now, turn the stage stop lever in a clockwise direction toward you. The stage stop lever is located on the left side of the microscope between the coarse adjustment and the body of the microscope.
- 12 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 Revelation III Microscope will be parfocal when the diopter adjustments are both set to center (see 9 above).

