

AmScope B120C

AmScope B120C Series Binocular Compound Microscope User Manual

Model: B120C | Brand: AmScope

1. PRODUCT OVERVIEW

The AmScope B120C compound binocular microscope is designed for both student and professional use, offering a wide magnification range from 40X to 2500X. It features a comfortable Siedentopf head, precise 3D mechanical stage, and bright LED illumination, making it suitable for detailed examination of various specimens.



Figure 1.1: The AmScope B120C Binocular Compound Microscope, showcasing its main components including the binocular head, objective lenses, mechanical stage, and included eyepieces and immersion oil.

- **Magnification Excellence:** Offers a broad magnification range from 40X to 2500X for detailed specimen examination.
- **Advanced LED Illumination:** Provides bright, daylight-balanced illumination with a specialized fly-eye lens for optimal viewing.
- **Ergonomic Design:** Features a 360-degree rotatable Siedentopf head with adjustable interpupillary distance for comfortable and flexible viewing.
- **Precision Stage Control:** A 3D mechanical stage and coaxial coarse and fine focus knobs allow for smooth and precise adjustments.

2. WHAT'S IN THE BOX

Upon unboxing, please verify that all the following components are present:

- AmScope B120C microscope with double-layer mechanical stage
- (4) DIN Standard Objectives: 4x, 10x, 40xS, and 100xS (oil)
- 10x widefield eyepieces, one pair
- 25x widefield eyepieces, one pair
- Color filter, blue
- Immersion oil, one bottle
- Dust cover
- Instructions (this manual)

3. SETUP GUIDE

Follow these steps to set up your AmScope B120C microscope:

1. **Unpacking:** Carefully remove all components from the packaging. Retain the original packaging for future storage or transport.
2. **Placement:** Place the microscope on a stable, level surface away from direct sunlight, excessive heat, or vibrations.
3. **Install Eyepieces:** Insert the desired pair of eyepieces (10x or 25x) into the ocular tubes of the Siedentopf head.
4. **Connect Power:** Plug the power cord into the microscope's power input and then into a standard electrical outlet (100 to 240VAC 50/60Hz).
5. **Dust Cover:** Keep the dust cover on the microscope when not in use to protect it from dust and debris.



Video 3.1: An overview of the AmScope B120C Siedentopf Binocular Compound Microscope, demonstrating its features and basic setup. This video is provided by United Scope LLC, the manufacturer.

4. OPERATING INSTRUCTIONS

4.1. Magnification Adjustment

The microscope offers a wide range of magnification by combining different eyepieces and objective lenses. The total magnification is calculated by multiplying the eyepiece magnification by the objective lens magnification.

- **Eyepieces:** Use either the 10x widefield or 25x widefield eyepieces.
- **Objective Lenses:** Rotate the forward-facing nosepiece to select from 4x, 10x, 40xS (spring-loaded), and 100xS (spring-loaded, oil immersion) DIN achromatic objectives.

- The 40xS and 100xS objectives are spring-loaded to prevent damage to slides when focusing.



Figure 4.1: Detail of the objective lenses (4x, 10x, 40x, 100x) and the additional WF25X eyepieces, illustrating the microscope's magnification capabilities.

4.2. Illumination Control

The microscope uses lower (diascopic) Brightfield LED illumination to transmit light through the specimen.

- **LED Light Source:** Turn on the LED illumination using the power switch. Adjust the brightness using the rheostat control knob.
- **Abbe Condenser (1.25 NA):** Adjust the condenser to control the distance of the light from the stage.
- **Iris Diaphragm:** Use the iris diaphragm lever to optimize the amount of light illuminating the specimen, enhancing contrast and resolution.



LED TRANSMITTED ILLUMINATION

THE LED SUB-STAGE LIGHTING PROVIDES COOL,
ENERGY-EFFICIENT ILLUMINATION



THE LIGHT-SOURCE IS DAYLIGHT BALANCED
TO PRODUCE NATURAL COLORS FOR IMAGING
AT MAXIMUM BRIGHTNESS TO IMPROVE
CONTRAST AND RESOLUTION



Figure 4.2: The LED transmitted illumination system, providing bright and cool light for viewing specimens from below the stage.

4.3. Focusing

Achieve clear focus using the coaxial coarse and fine focus knobs:

- **Coarse Focus Knob:** Use for large adjustments to bring the specimen into approximate focus, especially with lower magnification objectives.
- **Fine Focus Knob:** Use for small, precise adjustments to achieve sharp focus, particularly with higher magnification objectives.



Figure 4.3: The mechanical stage and coaxial coarse and fine focus knobs, designed for smooth and accurate specimen positioning and focusing.

4.4. Mechanical Stage Operation

The double-layer mechanical stage allows for precise movement of the slide.

- **Slide Holder:** Secure the microscope slide using the slide clips on the mechanical stage.
- **X-Y Axis Control:** Use the X-Y axis knobs located below the stage to move the slide horizontally and vertically, allowing you to scan the specimen area.

4.5. Siedentopf Head Adjustment

The Siedentopf binocular head is designed for comfortable viewing and sharing.

- **Inter-pupillary Adjustment:** Adjust the distance between the two ocular tubes (53 to 77mm) to match your eye spacing for comfortable viewing.
- **Dioptric Adjustment:** Use the diopter ring on one of the ocular tubes to compensate for differences in eye strength between your left and right eyes.
- **Rotation:** The head can rotate 360 degrees, which is useful for sharing the view with others without moving

the entire microscope.



Figure 4.4: The 360-degree rotatable Siedentopf binocular head, angled at 30 degrees for ergonomic viewing and easy sharing.

5. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your microscope:

- **Cleaning Lenses:** Use only specialized lens cleaning paper and solution to clean objective lenses and eyepieces. Avoid touching optical surfaces with bare hands.
- **Cleaning Body:** Wipe the microscope body with a soft, damp cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Dust Protection:** Always use the provided dust cover when the microscope is not in use to prevent dust accumulation.
- **Storage:** Store the microscope in a cool, dry place, away from direct sunlight and extreme temperatures.

- **Immersion Oil:** After using the 100x oil immersion objective, clean the oil from the lens immediately using lens paper and cleaning solution.

6. TROUBLESHOOTING

This section addresses common issues you might encounter:

Problem	Possible Cause	Solution
No illumination	Power cord not connected, power switch off, bulb failure, fuse blown.	Check power connection. Turn on power switch. Replace LED bulb (contact support if needed). Check/replace fuse.
Image is blurry or out of focus	Incorrect focus adjustment, dirty lenses, objective not fully clicked into place.	Adjust coarse and fine focus. Clean objective and eyepiece lenses. Rotate objective until it clicks into position.
Dark spots in the field of view	Dust on eyepiece, objective, or condenser.	Clean eyepieces and objectives. Check for dust on the condenser and stage.
Double image when using binocular head	Inter-pupillary distance not correctly adjusted.	Adjust the inter-pupillary distance until a single circular field of view is observed.

7. SPECIFICATIONS

Feature	Detail
Head	Compound binocular, Siedentopf, 30-degree inclination, 360-degree rotatable
Eyepieces	WF 10x, WF 25x
Objectives	4X, 10x, 40xS, 100xS (oil) DIN achromatic
Magnification Range	40X-2500X
Stage	Double-layer Mechanical Stage with 1mm divisions
Focus	Coaxial coarse and fine focus knobs
Lighting Configuration	Transmitted (bottom) Brightfield
Condenser	1.25 NA Abbe with iris diaphragm
Light Source	LED
Power	100 to 240VAC 50/60Hz

Feature	Detail
Product Dimensions	18 x 12 x 10 inches
Item Weight	3.25 pounds
Material	Enamel-coated cast-steel body

8. WARRANTY AND SUPPORT

AmScope products are manufactured by United Scope LLC, a company founded in 1996 and headquartered in Irvine, CA. For technical support, warranty information, or service inquiries, please contact AmScope customer service directly. Refer to the official AmScope website for the most current contact details and warranty policies.

Online Resources:

- Official AmScope Website: www.amscope.com
- Product Support Page: Check the AmScope website for specific support pages related to the B120C model.