AmScope D120A-MS

AmScope D120A-MS Dual-View Compound Monocular Microscope Instruction Manual

Model: D120A-MS

1. Introduction

The AmScope D120A-MS is a dual-view compound monocular microscope designed for high magnification observation in biological and educational applications. It features a versatile viewing head, multiple objective lenses, Brightfield illumination, and a mechanical stage for precise specimen manipulation. This manual provides essential information for the proper setup, operation, and maintenance of your microscope.

2. Safety Guidelines

- Always handle the microscope with care. Avoid sudden movements or impacts.
- Ensure the microscope is placed on a stable, level surface to prevent tipping.
- Connect the power cord to a grounded electrical outlet of the correct voltage (110V).
- Do not touch optical surfaces with bare hands. Use lens paper or a soft, lint-free cloth for cleaning.
- Unplug the microscope from the power source before cleaning or performing any maintenance.
- Keep the microscope away from direct sunlight, high temperatures, dust, and corrosive chemicals.
- Supervise children or inexperienced users to ensure safe operation.

3. Package Contents

Carefully unpack all components and verify that the following items are included:

- AmScope D120A-MS microscope with mechanical stage
- WF10x eyepiece
- WF16x eyepiece
- 4x DIN achromatic objective
- 10x DIN achromatic objective
- 40xS DIN achromatic objective (spring-loaded)
- 100xS (oil) DIN achromatic objective (spring-loaded)
- (2) Color filters

- Spare bulb
- Dust cover
- Instruction manual (this document)

4. Component Identification

Familiarize yourself with the main parts of your AmScope D120A-MS microscope:

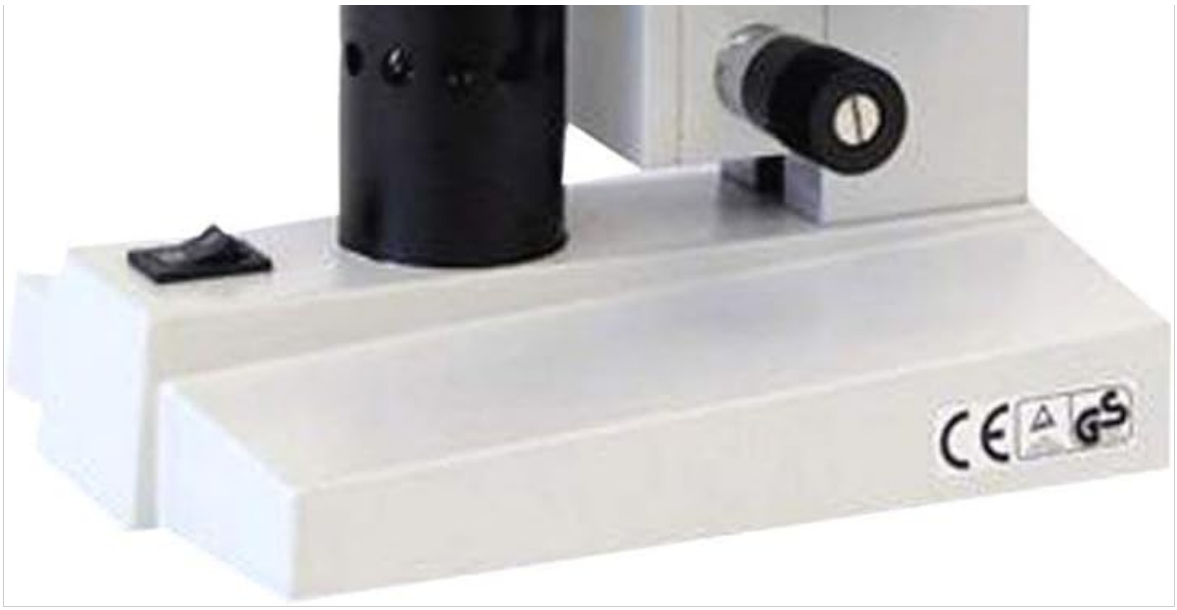

Figure 4.1: Overview of the AmScope D120A-MS microscope. This image displays the complete microscope assembly, including the base, stage, objective lenses, and dual-view monocular head.

- **Eyepiece (Ocular):** Where you look to view the specimen. The D120A-MS includes WF10x and WF16x eyepieces.
- **Monocular Viewing Head:** The upper part of the microscope containing the eyepiece tube. This model features a dual-view head with a fixed 45-degree inclined tube and a vertical port.
- **Revolving Nosepiece:** Holds the objective lenses and allows for easy switching between magnifications.
- **Objective Lenses:** The primary magnification components (4x, 10x, 40xS, 100xS oil).
- **Mechanical Stage:** A platform where the specimen slide is placed, with controls for precise X-Y movement.
- **Stage Clips:** Secure the specimen slide on the mechanical stage.
- **Coarse Focus Knob:** Large knob for rapid focusing adjustments.
- **Fine Focus Knob:** Small knob for precise focusing adjustments.
- **Illuminator (Light Source):** Located beneath the stage, provides light for viewing. This model uses variable-intensity tungsten illumination.
- **Abbe Condenser:** Located below the stage, focuses light onto the specimen. Features a 1.25 NA and an iris diaphragm.
- **Iris Diaphragm:** Controls the amount of light passing through the specimen.
- **Base:** The stable bottom support of the microscope.

5. Assembly and Setup

Follow these steps to set up your microscope for initial use:

1. **Unpacking:** Carefully remove the microscope and all accessories from the packaging. Retain the original packaging for future transport or storage.
2. **Placement:** Place the microscope on a sturdy, level surface, away from vibrations and direct sunlight.
3. **Eyepiece Installation:** Insert the desired eyepiece (WF10x or WF16x) into the inclined eyepiece tube of the monocular head. Gently twist to secure it.
4. **Objective Installation:** The objective lenses are typically pre-installed. If not, carefully screw each objective into the revolving nosepiece in increasing order of magnification (4x, 10x, 40xS, 100xS). Ensure they are finger-tight.


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Figure 5.1: Close-up view of the objective lenses mounted on the revolving nosepiece. This image shows the 4x, 10x, 40xS, and 100xS (oil) objectives in position.

5. **Power Connection:** Connect the power cord to the microscope's power input and then to a standard 110V electrical outlet.
6. **Dust Cover:** When not in use, cover the microscope with the provided dust cover to protect it from dust and debris.

6. Basic Operation

This section outlines the fundamental steps for observing specimens with your microscope.

1. **Power On:** Flip the power switch located on the base of the microscope. The illuminator should light up.
2. **Adjust Illumination:** Use the variable intensity control knob to set the desired brightness. Adjust the iris diaphragm on the Abbe condenser to optimize contrast and resolution for your specimen.
3. **Place Specimen:** Rotate the revolving nosepiece to select the lowest power objective (4x). Lower the mechanical stage using the coarse focus knob. Place a prepared specimen slide onto the mechanical stage and secure it with the stage clips.
4. **Position Specimen:** Use the X-Y stage control knobs to move the slide until the area of interest is centered under the objective lens.
5. **Focusing:**
    - While looking through the eyepiece, slowly raise the stage using the **coarse focus knob** until the specimen comes into rough focus.
    - Use the **fine focus knob** to achieve a sharp, clear image.
6. **Change Magnification:** Once focused at low power, rotate the revolving nosepiece to switch to a higher power objective (e.g., 10x, 40xS). Due to the parfocal design, only minor adjustments with the fine focus knob should be needed to bring the image back into sharp focus.
7. **Using the 100xS Oil Immersion Objective:**
    - After focusing with the 40xS objective, rotate the nosepiece halfway between the 40xS and 100xS objectives.
    - Place a small drop of immersion oil directly onto the center of the specimen slide where the light passes through.
    - Carefully rotate the 100xS objective into the oil drop until it clicks into place. The objective should be immersed in the oil.
    - Use only the **fine focus knob** to bring the image into sharp focus. Do not use the coarse focus knob with the 100xS objective.
    - After use, clean the 100xS objective and the slide immediately with lens paper moistened with lens cleaning solution to remove all immersion oil.
8. **Dual-View Functionality:** The vertical port on the monocular head can accept a second eyepiece for simultaneous viewing by another person or a camera mount for digital image capture (eyepiece and camera sold separately). Dioptric adjustment on the upright tube accommodates individual eye-strength differences.

Figure 6.1: The AmScope D120A-MS microscope demonstrating its digital image capture capability by connecting to a laptop. This setup utilizes the vertical port for a camera attachment.

7. Maintenance and Care

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

- **Cleaning Lenses:** Use only specialized lens paper and lens cleaning solution for optical surfaces. Gently wipe in a circular motion. Never use abrasive cloths or harsh chemicals.
- **General Cleaning:** Wipe the microscope body with a soft, damp cloth. Avoid getting moisture into electrical components.
- **Storage:** Always cover the microscope with the dust cover when not in use. Store it in a dry, dust-free environment.
- **Bulb Replacement:** If the illuminator bulb burns out, unplug the microscope. Refer to the base of the microscope for access to the bulb compartment. Carefully replace the old bulb with the provided spare bulb, ensuring not to touch the glass part of the new bulb with bare hands.
- **Mechanical Parts:** Do not attempt to lubricate or disassemble any mechanical parts. If issues arise, contact customer support.

8. Troubleshooting

This section addresses common issues you might encounter.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No illumination	Power cord disconnected, power switch off, bulb burnt out	Check power connection, turn on switch, replace bulb
Image is blurry or out of focus	Incorrect focus adjustment, objective not fully engaged, dirty lens	Adjust coarse/fine focus, rotate nosepiece until objective clicks, clean lenses
Dark field of view	Iris diaphragm closed, illuminator too dim, condenser too low	Open iris diaphragm, increase illuminator brightness, adjust condenser height
Dust or spots in view	Dust on eyepiece, objective, or slide	Clean eyepiece, objective, or slide with lens paper
Cannot focus at 100x	No immersion oil, air bubbles in oil, coarse focus used	Apply immersion oil, remove air bubbles, use only fine focus

9. Technical Specifications

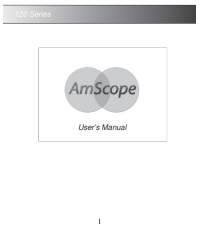
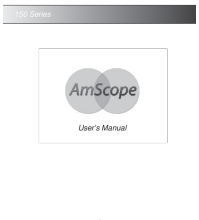
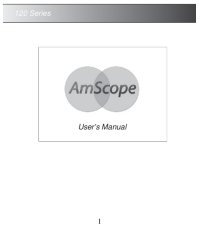
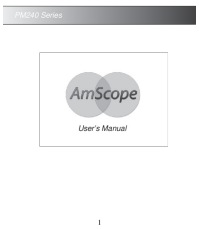
Detailed specifications for the AmScope D120A-MS microscope:

- **Head:** Compound dual-view monocular, 45-degree inclined, 360-degree rotatable
- **Eyepieces:** WF10x, WF16x (with pointer)
- **Objectives:** 4X, 10x, 40xS (spring), 100xS (oil, spring) DIN achromatic
- **Magnification Range:** 40X - 1600X
- **Stage:** Mechanical stage with X-Y axis movement, stage stop
- **Lighting Configuration:** Transmitted (lower)
- **Condenser:** Abbe, 1.25 NA
- **Diaphragm:** Iris diaphragm
- **Light Source:** Tungsten (incandescent), variable intensity
- **Illumination Type:** Brightfield
- **Power:** 110V
- **Material:** Metal, tungsten
- **Dimensions (H x W x D):** 15 x 7.5 x 5.125 inches (approximate)
- **Weight:** 10 pounds

10. Warranty and Customer Support

For warranty information, technical assistance, or to purchase replacement parts, please contact AmScope customer support. Refer to the AmScope website or your purchase documentation for current contact details.

Related Documents - D120A-MS

	[AmScope 120 Series Microscope User Manual] Comprehensive user manual for the AmScope 120 Series microscopes (B120 and T120), covering setup, operation, specifications, and troubleshooting.
	[AmScope M150 Series Microscope User Manual] User manual for the AmScope M150 Series microscopes, covering setup, operation, maintenance, specifications, and troubleshooting.
	[AmScope 120 Series Microscope User Manual] Comprehensive user manual for the AmScope 120 Series microscopes, covering setup, operation, specifications, and troubleshooting for models like B120 and T120.
	[AmScope DM150-W Full HD Digital Compound Microscope User Manual] Comprehensive user manual for the AmScope DM150-W Full HD Digital Compound Microscope, covering setup, operation, safety, and maintenance for optimal use.
	[AmScope PM240 Series Stereo Microscope User Manual] User manual for the AmScope PM240 Series stereo microscopes, covering setup, operation, specifications, and troubleshooting for binocular and trinocular models.
	[AmScope 150 Series Microscope User Manual] Comprehensive user manual for the AmScope 150 Series microscope, detailing setup, operation, specifications, parts, and troubleshooting for optimal use.