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AmScope PZ200BA

AmScope PZ200BA Polarizing Binocular Microscope User Manual

Model: PZ200BA

Introduction

The AmScope PZ200BA is a sophisticated polarizing binocular microscope designed for advanced scientific and industrial applications. It features a Siedentopf binocular head, interchangeable widefield eyepieces, and strain-free plan achromatic objectives, making it ideal for viewing and measuring birefringence of anisotropic materials. This manual provides comprehensive instructions for the setup, operation, maintenance, and troubleshooting of your AmScope PZ200BA microscope.

Figure 1: The AmScope PZ200BA Polarizing Binocular Microscope, showcasing its main components including the binocular head, objectives, and rotating stage.

Product Features

- Polarizing compound microscope with a built-in focusable Bertrand lens on a rotatable disc, suitable for geology, petrology, mineralogy, toxicology, pharmacology, forensics, and industrial inspection.
- Siedentopf binocular mount with WF10x and WF16x widefield eyepieces, offering 55 to 75mm interpupillary adjustment and a fixed 45-degree vertical inclination for ergonomic viewing. The 360-degree rotation capability facilitates sharing.
- Forward-facing triple nosepiece equipped with 4x, 10x, and 40xS DIN strain-free plan achromatic objectives, precision-ground and optimized for polarized light applications.
- Dual illumination system: polarizing illumination with a focusable Bertrand lens on a rotating disc, and Brightfield illumination with rheostat-controlled 20W halogen light.
- Round stage with 360-degree rotation, featuring a nested coaxial coarse and fine focusing system. Tension-adjustable coarse focusing and a lock ring stopper protect slides and objectives from damage.

What's in the Box?

Upon unpacking, verify that all components listed below are present and in good condition:

- AmScope PZ200BA microscope body
- WF10x eyepieces, 23mm (one pair)
- WF16x eyepieces, 23mm (one pair)
- 4x DIN strain-free plan achromatic objective, 20mm
- 10x DIN strain-free plan achromatic objective, 20mm
- 40xS DIN strain-free plan achromatic objective, 20mm
- Polarizer
- Color filters: blue and green (2 total)
- Spare halogen bulbs (2)
- Spare fuses (2)
- Power cord
- Dust cover
- Instructions (this manual)

Figure 2: Various components included with the AmScope PZ200BA microscope, such as eyepieces, objectives, filters, and spare parts.

Setup

1. **Unpacking:** Carefully remove all components from the packaging. Retain the original packaging for future transport or

storage.

2. **Placement:** Place the microscope on a stable, level surface away from direct sunlight, excessive dust, and vibrations. Ensure adequate ventilation around the unit.
3. **Head Assembly:** Loosen the head locking screw on the microscope body. Gently insert the Siedentopf binocular head into the top opening, ensuring it is fully seated. Tighten the locking screw to secure the head.
4. **Eyepiece Installation:** Insert the desired pair of eyepieces (WF10x or WF16x) into the eyepiece tubes of the binocular head.
5. **Objective Installation:** Rotate the nosepiece until the lowest power objective (4x) is positioned over the stage. Carefully screw the objectives into the nosepiece threads in ascending order of magnification (4x, 10x, 40xS).
6. **Power Connection:** Connect the power cord to the microscope's power input and then to a standard 110V AC outlet.

Operating Instructions

Basic Operation (Brightfield)

1. **Power On:** Turn on the microscope's power switch. Adjust the rheostat to a low illumination setting.
2. **Stage Adjustment:** Lower the stage using the coarse focus knob to create enough space to place a slide.
3. **Slide Placement:** Place your specimen slide on the round graduated stage, securing it with the stage clips.
4. **Objective Selection:** Rotate the nosepiece to select the 4x objective.
5. **Focusing:** While looking through the eyepieces, slowly raise the stage using the coarse focus knob until the specimen comes into view. Use the fine focus knob for precise focusing.
6. **Interpupillary Distance:** Adjust the distance between the eyepiece tubes to match your interpupillary distance for comfortable viewing.
7. **Diopter Adjustment:** If one eye is clearer than the other, adjust the diopter ring on one eyepiece until both eyes see a sharp image.
8. **Illumination Adjustment:** Adjust the rheostat for optimal brightness. Use the iris diaphragm on the Abbe condenser to control contrast and resolution.
9. **Changing Magnification:** Rotate the nosepiece to switch to higher power objectives (10x, 40xS). Make minor adjustments with the fine focus knob. The 40xS objective is spring-loaded to prevent damage to slides.

Figure 3: Close-up view of the objective lenses mounted on the nosepiece and the round graduated stage, highlighting the precision components.

Polarizing Operation

The AmScope PZ200BA is specifically designed for polarizing microscopy. Ensure the polarizer and analyzer are engaged for polarized light observations.

1. **Engage Polarizer:** Insert the polarizer into its designated slot below the condenser.
2. **Engage Analyzer:** Insert the analyzer into the slot above the objectives, typically within the midist head.
3. **Bertrand Lens:** For conoscopic observation (interference figures), engage the built-in Bertrand lens by rotating its disc. Use the centering controls for precise alignment.
4. **Stage Rotation:** The round graduated stage can be rotated 360 degrees. Use the vernier scale for precise angular measurements, crucial for determining optical properties of anisotropic materials.
5. **Removing Polarizing Components:** The polarizer, analyzer, and Bertrand lens can be removed from the optical path to revert to standard Brightfield microscopy.

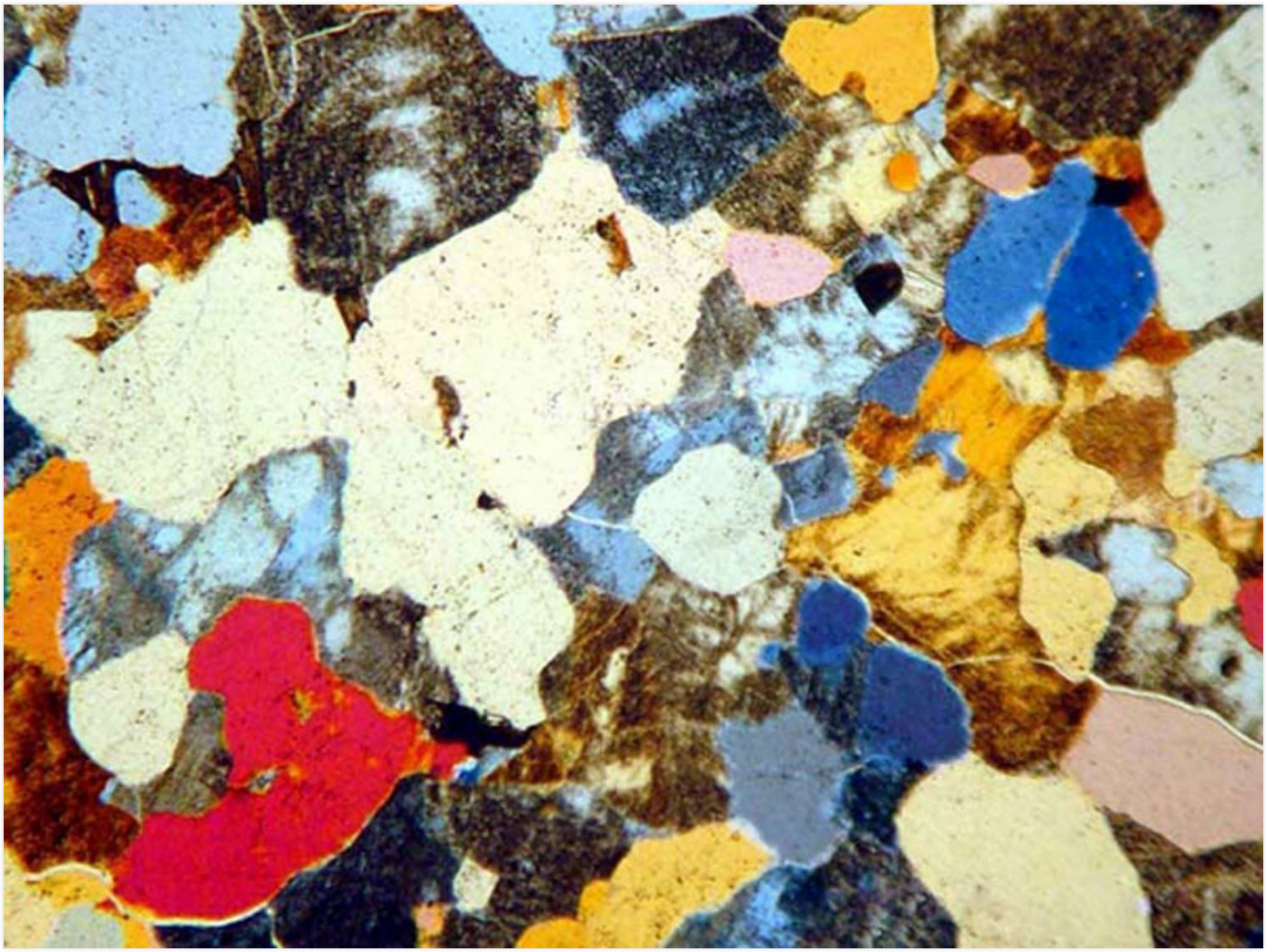

Figure 4: Example of a microscopic view of anisotropic materials under polarized light, demonstrating color interference patterns.

Maintenance

- **Cleaning Optics:** Use a soft, lint-free cloth or lens paper specifically designed for optics. For stubborn smudges, use a small amount of lens cleaning solution. Never touch optical surfaces with bare fingers.
- **Cleaning Body:** Wipe the microscope body with a soft, damp cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Dust Cover:** Always use the provided dust cover when the microscope is not in use to protect it from dust and debris.
- **Bulb Replacement:** If the halogen bulb burns out, ensure the microscope is unplugged and cool. Refer to the diagram in the full manual (if available) for specific instructions on accessing and replacing the bulb. Use only the specified replacement bulbs (6V/20W).
- **Fuse Replacement:** If the microscope does not power on, check the fuse. Ensure the microscope is unplugged. Replace with a fuse of the same rating.

- **Storage:** Store the microscope in a cool, dry place. If storing for extended periods, remove eyepieces and objectives and store them in sealed containers to prevent dust and fungal growth.

Troubleshooting

Problem	Possible Cause	Solution
No illumination	Power cord disconnected, bulb burnt out, fuse blown, rheostat set to minimum.	Check power connection, replace bulb, replace fuse, increase rheostat setting.
Image blurry/out of focus	Incorrect focus, objective not fully engaged, slide upside down, dirty optics.	Adjust coarse/fine focus, rotate objective until it clicks, reorient slide, clean lenses.
Uneven illumination/dark field	Iris diaphragm closed too much, condenser not centered, light source misaligned.	Open iris diaphragm, center condenser, check light source alignment.
Dust/spots in view	Dust on eyepieces, objectives, or slide.	Clean eyepieces, objectives, and slide. Rotate eyepieces to determine if dust is on them.
No polarized light effect	Polarizer or analyzer not engaged/aligned.	Ensure polarizer and analyzer are inserted and correctly oriented (crossed polars).

Specifications

Feature	Detail
Head	Siedentopf binocular
Magnification Range	40x-640x
Eyepieces (23mm)	WF10x, WF16x
Objectives (20mm)	Strain-free 4X, 10x, 40xS DIN plan achromatic polarizing
Stage	Round mechanical, with 1-degree increments and 6' (minutes of arc) vernier graduations
Condenser	1.25 NA Abbe, with swing-out lens
Midist Head	160mm diameter, built-in removable analyzer, 90-degree rotation with 6' (minutes of arc) vernier
Light Source	Halogen with rheostat, 6V/20W
Illumination Type	Polarizing/Brightfield
Power	110V
Product Dimensions	12.88 x 10.76 x 16.75 inches
Item Weight	3.25 pounds

Feature	Detail
Material	Steel
Manufacturer	United Scope LLC.

Warranty and Support

For warranty information, technical support, or service inquiries regarding your AmScope PZ200BA microscope, please contact United Scope LLC., the manufacturer of AmScope products. Refer to the contact information provided with your purchase documentation or visit the official AmScope website for the most current support details.
Manufacturer: **United Scope LLC.**
Model: **PZ200BA**

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Related Documents - PZ200BA

	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 120 Series Microscope User Manual Comprehensive user manual for the AmScope 120 Series microscopes (B120 and T120), covering setup, operation, specifications, and troubleshooting.
	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.

	[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.
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