AmScope SM-4TPZ

AmScope SM-4TPZ Professional Trinocular Stereo Zoom Microscope User Manual

Model: SM-4TPZ

1. Introduction

This manual provides detailed instructions for the assembly, operation, and maintenance of your AmScope SM-4TPZ Professional Trinocular Stereo Zoom Microscope. This instrument is designed for professional use, offering a wide magnification range and a long working distance, making it suitable for inspecting large-scale specimens, circuit boards, and dental appliances.

The SM-4TPZ features a trinocular viewing head for simultaneous viewing through eyepieces and a dedicated camera port, 10x super-widefield high-eyepoint eyepieces, a 0.7x-4.5x zoom objective, and includes 0.5x and 2.0x Barlow lenses to extend the magnification range. It is mounted on a robust double-arm boom stand for flexible positioning.

Figure 1.1: AmScope SM-4TPZ Professional Trinocular Stereo Zoom Microscope with Double-Arm Boom Stand. This image displays the complete microscope assembly, highlighting the trinocular head, zoom objective, and the flexible boom stand.

2. What's in the Box

Carefully unpack all components and verify against the list below. If any items are missing or damaged, please contact AmScope customer support.

- AmScope SM-4TPZ Stereo Zoom Microscope Head (Trinocular)
- Double-Arm Boom Stand (Base, Pillar, Double Arms)
- WH10x20mm High-Eyepoint Eyepieces (one pair, 30mm diameter)
- 0.5x Barlow Lens
- 2.0x Barlow Lens
- 0.7x-4.5x Zoom Objective (integrated into microscope head)
- Focus Rack
- Eye Guards (one pair)
- Instruction Manual (this document)

3. Setup and Assembly

Follow these steps to assemble your microscope. It is recommended to perform assembly on a stable, flat surface.

3.1. Boom Stand Assembly

1. Place the solid cast-steel base on a stable workbench.
2. Insert the 17-inch pillar into the designated hole on the base and secure it firmly using the provided fasteners.
3. Attach the double-arm assembly to the pillar. Ensure all locking mechanisms are tightened to prevent movement. The

stand features 20-inch double arms, allowing for extensive horizontal reach.

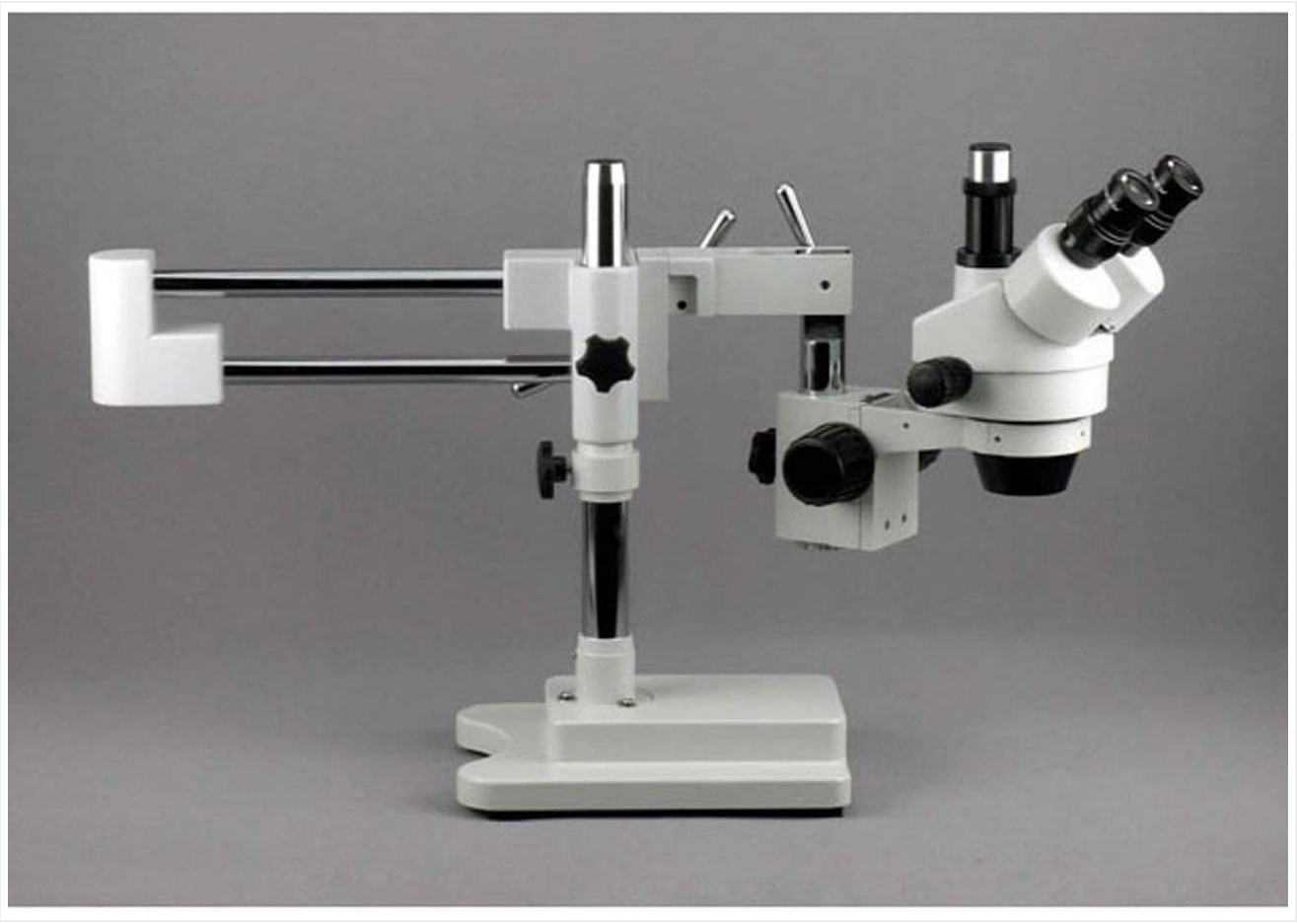


Figure 3.1: Side view of the AmScope SM-4TPZ microscope on its double-arm boom stand. This image illustrates the extended reach and stability of the stand, crucial for positioning the microscope head over various work areas.

3.2. Microscope Head and Eyepiece Installation

4. Mount the microscope head onto the focus rack, which then attaches to the boom stand's arm. Secure the head firmly.
5. Carefully insert the two WH10x20mm high-eyepoint eyepieces into the eyepiece tubes of the trinocular head.
6. Place the eye guards onto the eyepieces for comfortable viewing and to block ambient light.

Figure 3.2: Assembled AmScope SM-4TPZ microscope, showing the trinocular head attached to the focus rack and boom stand. This view emphasizes the connection points and the overall compact yet flexible design.

3.3. Barlow Lens Installation (Optional)

The microscope comes with 0.5x and 2.0x Barlow lenses. These can be threaded onto the bottom of the 0.7x-4.5x zoom objective to modify the magnification range and working distance.

- **0.5x Barlow Lens:** Reduces overall magnification and increases the working distance.
- **2.0x Barlow Lens:** Increases overall magnification and reduces the working distance.

To install, carefully screw the desired Barlow lens onto the objective lens at the bottom of the microscope head.

4. Operating Instructions

4.1. Positioning the Microscope

The double-arm boom stand allows for flexible positioning of the microscope head along the X, Y, and Z axes. Loosen the locking knobs on the arms and pillar to adjust the position, then tighten them securely once the desired position over the specimen is achieved.

4.2. Adjusting Magnification

The microscope offers a continuous zoom magnification range from 3.5x to 90x (with included Barlow lenses). Rotate the zoom knob on the microscope head to adjust the magnification. The 0.7x-4.5x zoom objective provides the primary magnification range, which is then multiplied by the eyepieces and any installed Barlow lenses.

4.3. Focusing

Use the bilateral focus knobs on the focus rack to bring your specimen into sharp focus. Rotate the knobs slowly for fine adjustments. The long working distance of this stereo microscope allows for manipulation of objects under observation.

4.4. Eyepiece Adjustments

- **Interpupillary Distance:** Adjust the distance between the two eyepiece tubes to match the distance between your eyes. This ensures a comfortable, single, circular field of view. The range is 55mm to 75mm.
- **Dioptric Adjustment:** If you wear glasses or have different vision strengths in each eye, use the diopter adjustment ring on one of the eyepieces to compensate. Look through the eyepiece without the diopter adjustment first, focus the image, then look through the other eyepiece and adjust its diopter ring until the image is sharp.
- **45-Degree Inclination:** The viewing head is inclined at 45 degrees to reduce eye and neck strain during prolonged use.
- **360-Degree Rotation:** The head can be rotated 360 degrees, allowing for easy sharing of the microscope with others without repositioning the entire unit.

4.5. Trinocular Port Usage

The vertical trinocular port allows for simultaneous viewing through the eyepieces and connection of a camera (sold separately). This port can be used as a C-Mount or 23mm photo port. Ensure the camera is properly mounted and secured to capture images or video.

Figure 4.1: AmScope SM-4TPZ microscope connected to a laptop via the trinocular port for digital viewing. This setup demonstrates the capability to capture and display magnified images on an external screen, useful for documentation or collaborative viewing.

5. Maintenance and Care

- **Cleaning Optics:** Use a soft, lint-free cloth specifically designed for optical lenses to clean eyepieces and objective lenses. For stubborn smudges, a small amount of lens cleaning solution can be applied to the cloth, not directly to the lens.
- **Cleaning Body:** Wipe the microscope body and stand with a soft, damp cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Storage:** When not in use, cover the microscope with the provided dust cover to protect it from dust and debris. Store in a dry, stable environment.

- **Moving the Microscope:** Always lift the microscope by its main stand or base, not by the head or arms, to prevent misalignment or damage.

6. Troubleshooting

- **Image is blurry or out of focus:**
  - Adjust the focus knobs slowly.
  - Ensure the specimen is within the working distance of the objective lens.
  - Check dioptric adjustment for individual eye focus.
- **Dark or uneven field of view:**
  - Ensure eyepieces are fully inserted and clean.
  - Verify that the interpupillary distance is correctly set for your eyes.
  - As this model uses ambient lighting, ensure sufficient external light is illuminating the specimen. An external light source (e.g., ring light) may be necessary for optimal viewing.
- **Microscope head is unstable:**
  - Tighten all locking knobs on the boom stand arms and pillar.
  - Ensure the base is on a flat, stable surface.
- **Cannot achieve desired magnification:**
  - Rotate the zoom knob to its full range.
  - Ensure the correct Barlow lens (if any) is installed for the desired magnification range.

7. Specifications

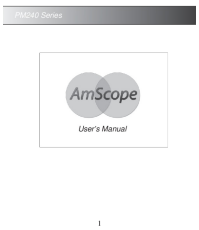
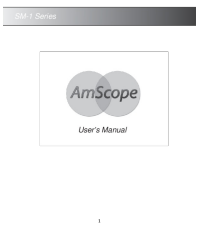
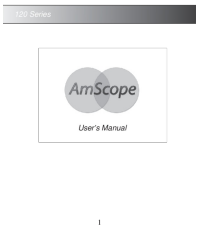
Feature	Detail
Head	Trinocular
Magnification Range	3.5x-90x (with included Barlow lenses)
Zoom Objective Power	0.7x-4.5x
Eyepieces	WH10x20mm high-eyepoint (DIN, 30mm)
Trinocular Port	C-Mount or 23mm
Field of View	2-1/2 inches
Optical Working Distance	Up to 8 inches
Microscope Stand	Double-arm boom stand
Head Movement	X-, Y-, and Z-axes
Illumination Type	Ambient (no integrated light source)
Product Dimensions	21.65 x 19.88 x 15.55 inches

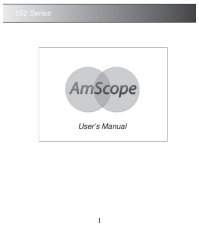
Feature	Detail
Item Weight	0.01 ounces (Note: This appears to be a data entry error; actual shipping weight is significantly higher.)
Material	Metal
Color	Black, Silver, White
Manufacturer	United Scope LLC.

8. Warranty and Support

For information regarding warranty coverage, technical support, or replacement parts, please contact AmScope directly. Refer to the official AmScope website or your purchase documentation for current contact details.
Manufacturer: United Scope LLC.

Related Documents - SM-4TPZ

	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 SM-1 Series Stereo Microscope User Manual Comprehensive user manual for the AmScope SM-1 Series stereo microscopes, covering setup, operation, specifications, and troubleshooting for models like SM-1B/T, SM-1TS/BS, and SM-1(B/T)-PL.
	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.
	[AmScope M150 Series Microscope User Manual] User manual for the AmScope M150 Series microscopes, covering setup, operation, maintenance, specifications, and troubleshooting.