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AmScope SM-1TS-144S-10M

AmScope SM-1TS-144S-10M Digital Professional Trinocular Stereo Zoom Microscope Instruction Manual

Model: SM-1TS-144S-10M

1. Introduction

This manual provides detailed instructions for the setup, operation, and maintenance of your AmScope SM-1TS-144S-10M Digital Professional Trinocular Stereo Zoom Microscope. This instrument is designed for inspecting large-scale specimens, such as circuit boards and dental appliances, and features a 10MP camera for capturing and displaying images.

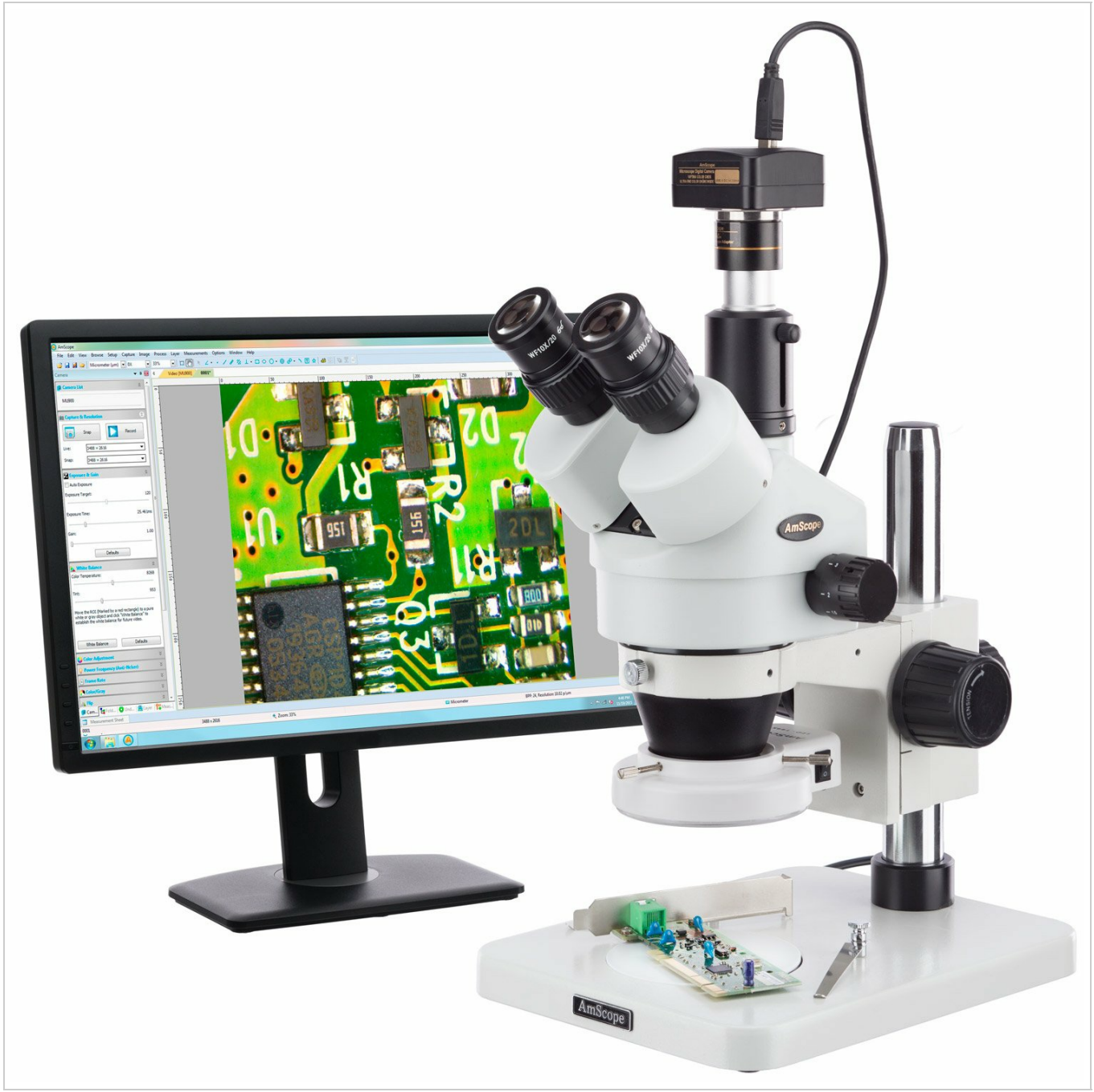


Figure 1: AmScope SM-1TS-144S-10M Digital Professional Trinocular Stereo Zoom Microscope with 10MP camera and LED ring light.

2. Safety Information

- Always handle the microscope with care to prevent damage to optical and mechanical components.
- Ensure the microscope is placed on a stable, level surface to prevent tipping.
- Disconnect the power cord before cleaning or performing any maintenance.
- Avoid direct exposure of eyes to the LED light source.
- Do not attempt to disassemble or repair the microscope yourself. Contact qualified service personnel.
- Use only the provided power adapter and accessories.

3. Setup and Assembly

Follow these steps to assemble your AmScope SM-1TS-144S-10M microscope:

1. **Assemble the Pillar Stand:** Securely attach the vertical pillar to the base of the stand. Ensure all screws are tightened.
2. **Mount the Boom Arm:** Attach the boom arm to the vertical pillar. Adjust the height and position as needed, then tighten the locking knob.
3. **Attach the Focusing Rack:** Slide the focusing rack onto the horizontal bar of the boom arm. Secure it with the provided screws.
4. **Install the Trinocular Head:** Carefully place the trinocular viewing head into the focusing rack. Tighten the set screw to hold it in place.
5. **Insert Eyepieces:** Remove the dust caps from the eyepiece tubes and insert the WH10x super-widefield high-eyepoint eyepieces.
6. **Attach the 10MP Camera:** Remove the dust cap from the vertical trinocular port. Insert the 10MP camera with its reduction lens into this port. Secure it if necessary.
7. **Install the LED Ring Light:** Attach the 144-bulb LED ring light to the bottom of the microscope's objective housing. Connect its power cable to the microscope or a separate power source.
8. **Connect Power:** Plug the microscope's power adapter into a 110V-240V power outlet.



Figure 2: Assembled AmScope Trinocular Stereo Zoom Microscope on a pillar stand.

[redacted]

Video 1: General assembly guide for an AmScope boom stand microscope. While the model may vary, the assembly principles for the stand and head attachment are similar.

4. Operating Instructions

4.1. Specimen Placement

Place your specimen on the stage plate. Use the large stage clips to secure it if necessary. The reversible black and white stage plate provides contrast for light- and dark-colored specimens.

4.2. Illumination Adjustment

Turn on the 144-bulb LED ring light. Use the rheostat control to adjust the light intensity. This provides bright, cool illumination suitable for temperature-sensitive or live specimens.



Figure 3: Microscope with the 144-bulb LED ring light providing illumination for a specimen.



Figure 4: Close-up of the 144-bulb LED ring light with rheostat control.

4.3. Magnification and Focusing

- **Zoom Objective:** The 0.7x-4.5x zoom objective provides continuous zoom magnification, allowing for a total magnification range of 7x-45x with the 10x eyepieces. Rotate the zoom knob to change magnification.
- **Focusing:** Use the coarse and fine focus knobs on the focusing rack to bring the specimen into sharp focus.
- **Interpupillary Distance:** Adjust the distance between the two eyepieces to match your eye spacing for comfortable viewing.
- **Diopter Adjustment:** If you wear glasses or have different vision in each eye, use the diopter adjustment on one of the eyepieces to achieve sharp focus for both eyes.

4.4. Using the 10MP Camera

The 10MP digital camera features a CMOS color sensor and a 0.5x reduction lens. It connects via USB 2.0 to a computer or projector for image capture and live video streaming. The included image capture and editing software provides functions such as still image and live video capture, editing, and measurement. It supports JPG, TIF, GIF, PSD, WMF, and BMP file formats and is compatible with Windows XP, Vista, 7, and 8; Mac OS X.



Figure 5: AmScope microscope with the 10MP camera connected to a laptop for digital viewing and capture.



Figure 6: The 10MP digital camera, reduction lens, and software CD included with the microscope.

The camera ensures that the displayed image has a similar field of view as the microscope eyepiece.



Figure 7: Example of a circuit board viewed through the AmScope microscope.

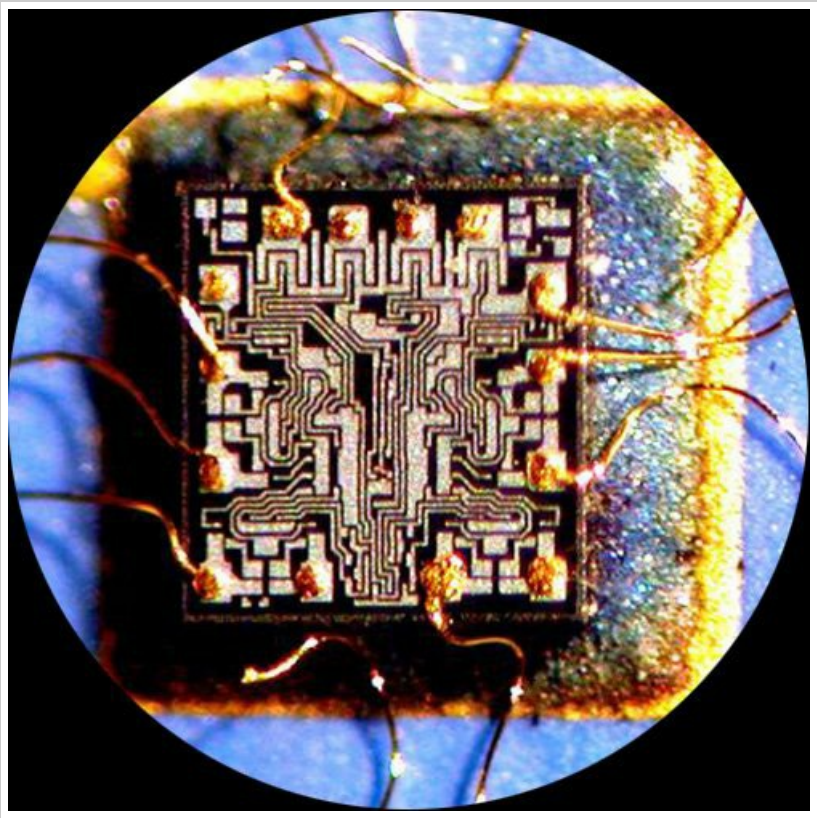


Figure 8: Example of a microchip viewed through the AmScope microscope.

5. Maintenance

- **Cleaning Lenses:** Use a soft, lint-free cloth and a specialized lens cleaning solution to clean optical surfaces. Avoid touching lenses with bare hands.
- **General Cleaning:** Wipe the microscope body with a soft, damp cloth. Do not use harsh chemicals or abrasive cleaners.
- **Storage:** When not in use, cover the microscope with a dust cover and store it in a dry, dust-free environment.
- **Bulb Replacement:** The LED ring light bulbs are long-lasting. If replacement is needed, contact AmScope support for compatible parts.

6. Troubleshooting

Problem	Possible Cause	Solution
No image visible	Dust caps on eyepieces/objective; light source off; specimen not in focus.	Remove dust caps; turn on light; adjust focus knobs.
Image blurry or unclear	Improper focus; dirty lenses; incorrect diopter adjustment.	Adjust focus; clean lenses; adjust diopter for individual eyes.
No illumination	Light source off; power cable disconnected; bulb failure.	Turn on light; check power connections; contact support if bulbs are faulty.
Camera not detected by computer	USB cable disconnected; driver not installed; software issue.	Check USB connection; install camera drivers/software; restart computer.

7. Specifications

- **Model:** SM-1TS-144S-10M
- **Viewing Head:** Trinocular, 45-degree inclined, 360-degree rotatable
- **Eyepieces:** WH10x20mm Super-Widefield High-Eyepoint
- **Objective:** 0.7x-4.5x Zoom Objective
- **Magnification Range:** 7x-45x (Optical)
- **Interpupillary Distance:** 55-75mm (Adjustable)
- **Illumination:** 144-Bulb LED Ring Light with Rheostat Control
- **Stand:** Pillar-style Table Stand with Reversible Black/White Stage Plate
- **Camera:** 10MP Digital Camera with CMOS Color Sensor, 0.5x Reduction Lens, USB 2.0 Output
- **Software:** Image Capture and Editing Software (Windows XP/Vista/7/8, Mac OS X compatible)
- **Power:** 110V-240V
- **Material:** Metal
- **Color:** White
- **Item Weight:** 3.25 Pounds

8. Warranty Information

Please refer to the product packaging or the manufacturer's official website for specific warranty details. Generally, AmScope products come with a limited warranty covering defects in materials and workmanship.

9. Customer Support

For technical assistance, troubleshooting, or inquiries about replacement parts, please contact AmScope customer support. Visit the AmScope Store on Amazon or their official website for contact information.

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