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## AmScope T490

# AmScope T490 Compound Trinocular Microscope

User Instruction Manual

## INTRODUCTION

This manual provides detailed instructions for the setup, operation, and maintenance of your AmScope T490 Compound Trinocular Microscope. Please read this manual thoroughly before using the instrument to ensure proper function and longevity.

## SAFETY INFORMATION

- Always handle the microscope with care. Avoid sudden impacts or vibrations.
- Do not disassemble the microscope. Refer servicing to qualified personnel.
- Ensure the power cord is securely connected and the voltage matches your local supply.
- Unplug the microscope before cleaning or performing any maintenance.
- Avoid direct exposure of the eyes to the light source.
- Keep the microscope away from direct sunlight, high temperatures, dust, and corrosive chemicals.

## WHAT'S IN THE BOX?

Verify that all components listed below are present in your package:

- AmScope T490 microscope with double-layer mechanical stage
- WF10x eyepieces, 23mm, one pair
- 4x DIN achromatic objective, 20mm
- 10x DIN achromatic objective, 20mm
- 40xS DIN achromatic objective, 20mm
- 100xS (oil) DIN achromatic objective, 20mm
- Immersion oil, one bottle
- (3) Color filters; blue, green, and yellow
- Spare halogen bulb
- Spare fuse
- Dust cover

- Power cord
- Instructions (this manual)

## SETUP

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Follow these steps to set up your AmScope T490 microscope:

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 and heat sources.
3. **Head Installation:** Loosen the head locking screw on the microscope body. Gently slide the trinocular head onto the top of the microscope body. Ensure it is fully seated and then tighten the locking screw.
4. **Eyepiece Installation:** Insert the WF10x eyepieces into the eyepiece tubes of the trinocular head.
5. **Objective Installation:** Rotate the revolving nosepiece until the lowest power objective (4x) is positioned over the stage. Carefully screw each objective into the nosepiece in increasing order of magnification (4x, 10x, 40xS, 100xS).
6. **Power Connection:** Connect the power cord to the microscope's power input and then to a suitable electrical outlet (110V).



Figure 1: AmScope T490 Microscope with included accessories, showing the main unit, eyepieces, objectives, and various filters.

## 1. Powering On and Illumination Adjustment

- Turn on the power switch located on the base of the microscope.
- Adjust the light intensity using the rheostat knob.
- The 1.25 NA Abbe condenser can be adjusted using its rack-and-pinion control system to optimize the distance of light from the stage.
- The iris diaphragm on the condenser controls the amount of light illuminating the specimen. Adjust it for optimal contrast and resolution.

## 2. Placing a Specimen

- Place the specimen slide on the double-layer mechanical stage.
- Secure the slide using the stage clips.
- Use the X-Y coaxial controls to move the slide and position the desired area of the specimen directly under the objective lens. The stage has 1mm divisions for precise positioning.



Figure 2: Side view of the AmScope T490, highlighting the mechanical stage and focus knobs.

### 3. Focusing

- Begin with the lowest power objective (4x) rotated into position.
- Use the **coarse focus knob** to bring the specimen into approximate focus. Rotate the knob to move the stage up or

down.

- Once roughly focused, use the **fine focus knob** for precise focusing. The fine focus divisions are 0.002mm.
- The focus knob tension control prevents the stage from drifting out of focus.
- A stage stop is present to prevent the stage from contacting the objectives and damaging slides.

#### 4. Changing Magnification

- Once focused at a lower power, rotate the revolving nosepiece to select a higher power objective (10x, 40xS, 100xS).
- The 40xS (spring) and 100xS (spring, oil) objectives are spring-loaded to prevent damage to the slide or objective.
- Only minor adjustments with the fine focus knob should be needed when switching between objectives due to the parfocal design.

#### 5. Adjusting Eyepieces (Siedentopf Head)

- **Interpupillary Distance:** Adjust the sliding head to match the distance between your eyes (interpupillary range of 55 to 75mm). Look through both eyepieces and adjust until you see a single, clear circular field of view.
- **Diopter Adjustment:** If one eye is stronger than the other, use the diopter adjustment ring on one of the eyepiece tubes to compensate. Focus with your dominant eye first, then adjust the diopter for the other eye without re-focusing the main coarse/fine knobs.
- The head has a fixed 30-degree vertical inclination for comfortable viewing and can rotate 360 degrees for shared viewing.



Figure 3: Close-up view of the trinocular head with WF10x eyepieces and the vertical camera mount.

## 6. Using the 100x Oil Immersion Objective

- When using the 100x objective, a drop of immersion oil must be placed on the specimen slide directly over the area to be viewed.
- Carefully lower the 100x objective into the oil drop until it makes contact.
- Use only the fine focus knob for focusing with the 100x objective.
- After use, always clean the 100x objective and the slide immediately with lens paper and a suitable cleaning solution to remove all oil residue.

## 7. Using the Trinocular Port

- The vertical trinocular port accepts a camera with a 23mm or C-Mount adapter (camera sold separately).
- Refer to your camera's manual for specific installation and operation instructions.





Figure 4: Front view of the AmScope T490, showing the objective turret and stage from a direct perspective.

## MAINTENANCE

### 1. Cleaning

- **Optical Components:** Use only specialized lens cleaning solutions and lens paper for cleaning objectives and eyepieces. Gently wipe in a circular motion from the center outwards. Never use abrasive materials.
- **Body:** Clean the microscope body with a soft, damp cloth. Avoid using organic solvents.
- Always clean the 100x oil immersion objective immediately after use to prevent oil from drying on the lens.

### 2. Storage

- When not in use, cover the microscope with the provided dust cover to protect it from dust and debris.
- Store the microscope in a cool, dry place, away from direct sunlight and extreme temperatures.

### 3. Bulb and Fuse Replacement

- Always unplug the microscope before attempting to replace the halogen bulb or fuse.
- Refer to the diagrams in the original product packaging for specific locations of the bulb and fuse compartments.
- Use only the specified replacement parts (6V/20W halogen bulb, spare fuse).

## TROUBLESHOOTING

Problem	Possible Cause	Solution
No illumination	Power cord not connected; Power switch off; Bulb burnt out; Fuse blown.	Check power connection; Turn on power switch; Replace bulb; Replace fuse.
Image unclear/blurry	Improper focusing; Objective lens dirty; Eyepieces dirty; Condenser/diaphragm not adjusted correctly; Immersion oil not used with 100x objective.	Adjust coarse/fine focus; Clean lenses; Adjust condenser and iris diaphragm; Apply immersion oil for 100x objective.
Dark spots in field of view	Dust on eyepieces, objectives, or slide.	Clean eyepieces, objectives, and slide.
Stage drifts out of focus	Focus knob tension too loose.	Adjust focus knob tension control.

## SPECIFICATIONS

Head	Compound Trinocular, Siedentopf
Magnification	40x-1000x

<b>Trinocular Port</b>	23mm or C-Mount
<b>Eyepieces</b>	WF10x
<b>Objectives</b>	4x, 10x, 40xS, 100xS (oil) DIN Achromatic
<b>Stage</b>	Double-layer Mechanical, 5-1/2 x 5-1/2 inches (140 x 140mm)
<b>Lighting Configuration</b>	Transmitted (lower)
<b>Condenser</b>	1.25 NA Abbe
<b>Diaphragm</b>	Iris
<b>Light Source</b>	Halogen with rheostat, 6V/20W
<b>Illumination Type</b>	Brightfield
<b>Power</b>	110V
<b>Interpupillary Range</b>	55 to 75mm
<b>Focusing Range</b>	1-3/16" (30mm)
<b>Fine Focus Divisions</b>	0.002mm (0.0000787")
<b>Product Dimensions</b>	17.45 x 9.77 x 20.33 inches
<b>Item Weight</b>	17 pounds

## WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided with your purchase or visit the official AmScope website. United Scope manufactures microscopy equipment and accessories under the brand name AmScope. The company, founded in 1996, is headquartered in Irvine, CA.

If you encounter issues not covered in the troubleshooting section, please contact AmScope customer service for assistance.







## OFFICIAL PRODUCT VIDEOS

No official product videos from the seller were found for this model at this time.



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## Related Documents - T490

 <p>120 Series</p> <p>AmScope</p> <p>User's Manual</p>	<p><a href="#">AmScope 120 Series Microscope User Manual</a></p> <p>Comprehensive user manual for the AmScope 120 Series microscopes (B120 and T120), covering setup, operation, specifications, and troubleshooting.</p>
 <p>PM240 Series</p> <p>AmScope</p> <p>User's Manual</p>	<p><a href="#">AmScope PM240 Series Stereo Microscope User Manual</a></p> <p>User manual for the AmScope PM240 Series stereo microscopes, covering setup, operation, specifications, and troubleshooting for binocular and trinocular models.</p>
 <p>120 Series</p> <p>AmScope</p> <p>User's Manual</p>	<p><a href="#">AmScope 120 Series Microscope User Manual</a></p> <p>Comprehensive user manual for the AmScope 120 Series microscopes, covering setup, operation, specifications, and troubleshooting for models like B120 and T120.</p>
 <p>M150 Series</p> <p>AmScope</p> <p>User's Manual</p>	<p><a href="#">AmScope M150 Series Microscope User Manual</a></p> <p>User manual for the AmScope M150 Series microscopes, covering setup, operation, maintenance, specifications, and troubleshooting.</p>
 <p>AmScope DM Series</p> <p>DM150-W</p> <p>AmScope</p> <p>User Manual</p>	<p><a href="#">AmScope DM150-W Full HD Digital Compound Microscope User Manual</a></p> <p>Comprehensive user manual for the AmScope DM150-W Full HD Digital Compound Microscope, covering setup, operation, safety, and maintenance for optimal use.</p>
 <p>150 Series</p> <p>AmScope</p> <p>User's Manual</p>	<p><a href="#">AmScope 150 Series Microscope User Manual</a></p> <p>Comprehensive user manual for the AmScope 150 Series microscope, detailing setup, operation, specifications, parts, and troubleshooting for optimal use.</p>