

# User Manual

## Trinocular Stereo Microscope

Model    V331A    Series  
          XV331A



[MicroscopeNet.com](http://MicroscopeNet.com)

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***Important: please read caution before you open the box.***

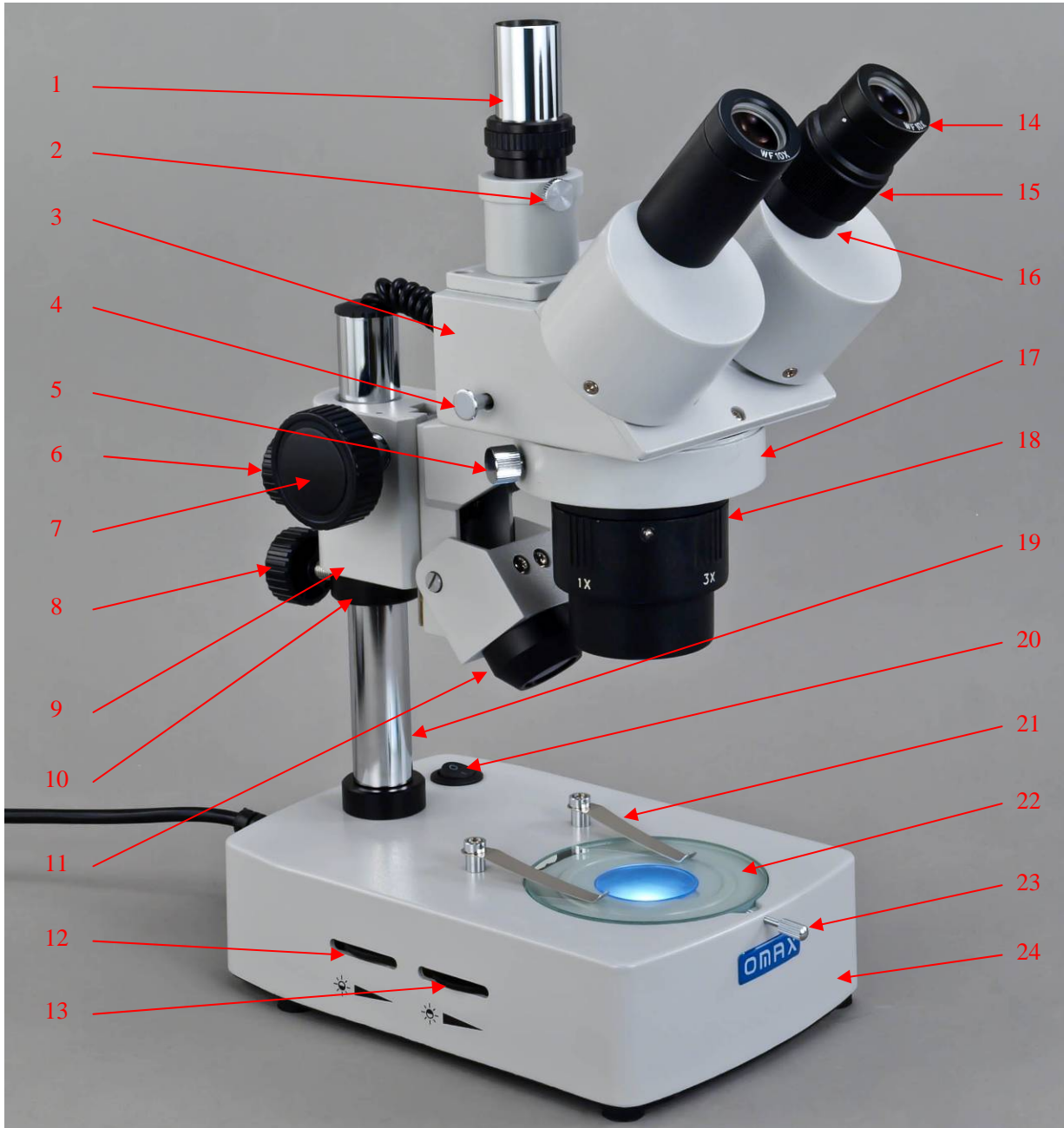
## i. Caution

1. Open the carton carefully with a knife or paper cutter. Find the “UP” sign and place the Styrofoam container on the side that makes the arrow upward. If the “UP” sign is missing, please open the Styrofoam container gently to prevent any accessory, i.e. objectives or eyepieces, from dropping and being damaged.
2. Do not discard the molded Styrofoam container. The container should be retained should the microscope ever requires reshipment.
3. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
4. If any specimen solutions or other liquids splash onto the stage, objective or any other component, disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.
5. Important: the lamp, lamp housing and adjacent parts will become very hot. Do not touch these parts until they have completely cooled. Never attempt to handle a hot halogen bulb.
6. All electrical connectors (power cord) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.
7. For safety when replacing the halogen lamp or fuse, be sure the main switch is off, unplug the power cord, and only replace the halogen bulb after the bulb and the lamp house has completely cooled.

## ii. Care and Maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing mechanism.
2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. **Do not use organic solvents for cleansing.**
3. The outer surface of the optics should be inspected and cleaned periodically using an air stream from an air bulb. If dirt remains on the optical surface, use a soft cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton wound on the end of a tapered stick makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

# 1 Components Illustration

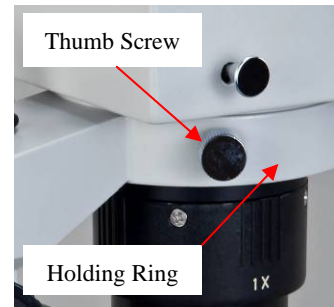


- |   |                             |    |                                  |    |                              |
|---|-----------------------------|----|----------------------------------|----|------------------------------|
| 1 | Photo Tube                  | 9  | Focusing Block                   | 17 | Holding Ring                 |
| 2 | Photo Tube Lock Thumb Screw | 10 | Post Collar                      | 18 | Objective Housing            |
| 3 | Microscope Body             | 11 | Incident Light                   | 19 | Stand Post                   |
| 4 | Switch Bar                  | 12 | Incident Light Intensity Dial    | 20 | Power Switch                 |
| 5 | Head Lock Thumb Screw       | 13 | Transmitted Light Intensity Dial | 21 | Stage Clip                   |
| 6 | Focusing Assembly Lock Knob | 14 | Eyepiece                         | 22 | Stage Plate                  |
| 7 | Focus Knob                  | 15 | Diopter Ring                     | 23 | Stage Plate Lock Thumb Screw |
| 8 | Tighten Knob                | 16 | Eyepiece Tube                    | 24 | Microscope Base              |

## 2 Installation

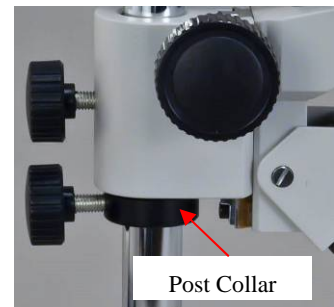
### 2.1 Install the microscope body

- 1) Loosen the thumb screw on the body holding ring.
- 2) Sit the body into the holding ring firmly.
- 3) Tighten the thumb screw.



### 2.2 Adjust the focusing block

- 1) Loosen the focusing assembly lock knob on the focusing block.
- 2) Slide the focusing block up or down on the stand post so that the distance between the bottom of the objective housing and the stage plate is about 102mm. And then tighten the knob.
- 3) Slide the post collar to against the focusing block as showed in the figure, and then tighten its knob.



### 2.3 Replacing the eyepieces

- 1) Loosen the eyepiece lock screw (a small screw on the side of the eyepiece tube) on one of the eyepiece tubes.
- 2) Remove the original eyepiece from the eyepiece tube.
- 3) Insert the desired eyepiece into the eyepiece tube.
- 4) Tighten the eyepiece tube screw.
- 5) Do the same steps for another eyepiece.



### 2.4 Replace the incident light bulb

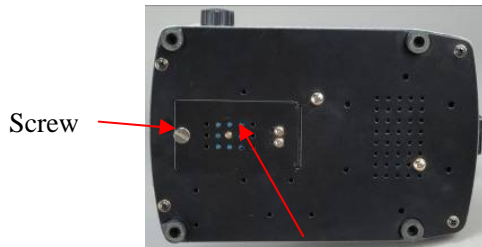
- 1) Turn the power off and disconnect the power cord.
- 2) Allow some time to cool down the lamp.
- 3) Take off the black light housing by turning it counterclockwise.
- 4) Pull the bulb (with reflector) out gently.
- 5) Align the two pins of the new bulb with the sockets then press the light bulb gently in.
- 6) Put the light housing on and tighten by turning it clockwise.



### 2.5 Replace the transmitted light bulb

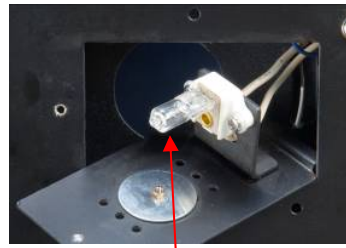
- 1) Turn the power off and disconnect the power cord.
- 2) Allow some time to cool down the lamp.
- 3) Turn over the microscope on its side; find the light compartment at the bottom.
- 4) Open the cover of the compartment by loosening the screw.
- 5) Take out the dead bulb and insert the new bulb. Be sure the pins on the bulb are completely inserted into the lamp socket.

6) Put the cover back and tighten the screw.



Screw

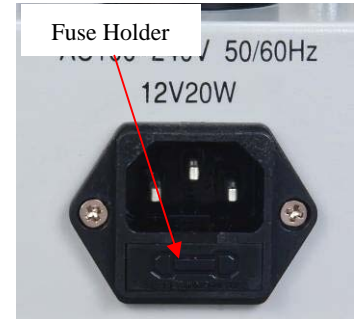
Light Compartment



Light Bulb

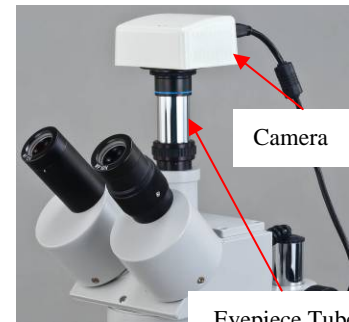
### 2.6 Replace the fuse

- 1) Pry out the fuse holder with a screw driver.
- 2) Install or replace the fuse.
- 3) Insert the fuse holder back to its place.



### 2.7 Install the camera (optional)

- 1) Take off the plastic cover on the photo tube.
- 2) Insert the camera into the photo tube, and then connect the camera to a computer by a USB cable.
- 3) Refer to the manual in the camera CD to installation the driver and software on to the computer.
- 4) The camera is optional and may have different color and shape from the one in the figure, depends on the model purchased.

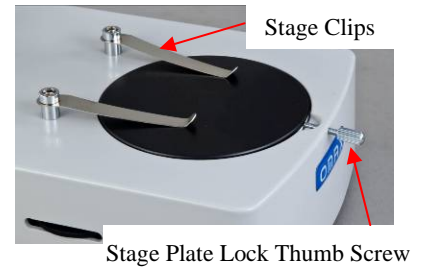


Eyepiece Tube

### 3 Operation

#### 3.1 Change the stage plate

- 1) Move the stage clips off the plate.
- 2) Loosen the stage plate lock thumb screw at the front of base.
- 3) Take off the white/black plate and put on the glass plate (or vice versa).
- 4) Tighten the thumb screw.
- 5) Move the stage clips back on.



#### 3.2 Place the specimen

- 1) Put the specimen in the center of the stage plate.
- 2) Hold the specimen with the stage clips if necessary.

#### 3.3 Focusing

- 1) Turn the rotating objectives to put the desired the objectives (1X or 3X) in the light path.
- 2) Turn the focus knob until the specimen is in focus. If you couldn't get the specimen focused, you may need to adjust the height of viewing head by loosening the focusing assembly lock knob. The distance between the objectives and surface of specimen is about 102 mm.

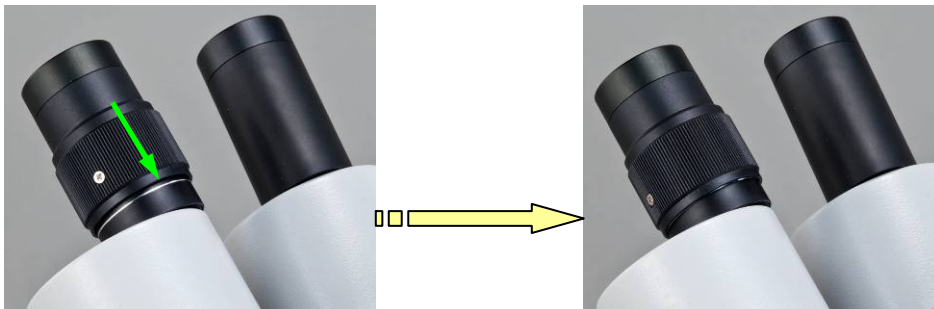
#### 3.4 Adjusting interpupillary distance

While observing with both eyes, hold the left and right eyepiece tubes and swing inwards or outwards. The interpupillary distance is correct when the left and right fields of view converge completely into one image.



#### 3.5 Adjusting eyepiece diopter

- 1) Set the lower edge of right eyepiece diopter adjustment ring to its original position as shown in figure.



- 2) Using your left eye only, observe your specimen through the left eyepiece and bring it into focus by adjusting the focus knob.
- 3) Then observe the specimen with your right eye only through the right eyepiece. If the specimen is not in focus, rotate the right eyepiece diopter adjusting ring until a sharp image is obtained.



### 3.6 Adjust the light

- 1) Plug in the power cord to a power outlet.
- 2) Turn on the power.
- 3) Turn the incident light intensity dial to turn the incident light on and adjust the intensity.
- 4) Turn the transmitted light intensity dial to turn the transmitted light on and adjust the intensity.



Power Switch

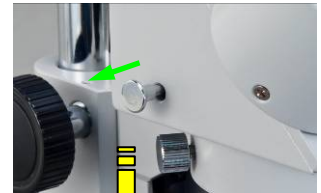


Incident Light Intensity Dial

Transmitted Light Intensity Dial

### 3.7 Camera (optional)

- 1) Install the camera following the procedures in 2.7.
- 2) Focus the microscope following the procedures in 3.3.
- 3) Pull the switch bar out as shown in **Fig. a**).
- 4) Open image observing software to examine.
- 5) If the live view image is not in focus, adjust the focus knob slightly till the image displayed on the screen is in focus.
- 6) If the image is still not clear, loosen the photo tube lock thumb screw (as shown in **Fig. b**) on the photo tube, turn the upper half part to lower down or raise up the camera mounted on the top, till the image is clear.
- 7) You also can capture images or record live videos through the software, depending on the functions provided by the software.



a

Photo Tube Lock Thumb Screw

#### Note:

- Please refer to the manuals in the camera's CD for the details of installation and operation of the camera.
- After switch to the photo viewing mode, you still can observe through the right eyepiece tube



b



## 4 Specifications

Model	V331A/XV331A Series
Microscope body	Trinocular, 45° inclined, 360° swiveling. Adjustable Interpupillary distance 55 ~ 75mm (2-3/16" ~ 2-15/16") Adjustable diopter on right eyepiece tube
Eyepieces	1 pair of WF10X, 1 pair of WF20X
Objectives	1X, 3X
Focusing Mechanism	Rack and pinion, focusing knobs on both sides Focus stroke 60mm (2-3/8")
Working Distance	102 mm (4")
Stage Plate	Frosted glass plate: 95mm (3-3/4") in diameter White/black plastic plate: 95mm (3-3/4") in diameter
Illumination	Incident (upper): 12V/10W halogen light Transmitted (lower): 12V/10W halogen light Intensity dials separately
Cameras ( <i>optional</i> )	Refer to the cameras specifications
Power Supply	Microscope: AC 110V – 240V, 50/60Hz
Dimension	30 cm x 16 cm x 45 cm (11-3/4" x 6-1/4" x 17-3/4")
Net weight	4.2 kg (9.3 lbs)

## 5 Optional Parts

(The optional parts may be included in some models or sold separately.)

### Cameras

	Model	Resolution	Operating System	Software
	A1510	1280 x 1024 (1.3MP)	MS Windows (32/64-bit)	Included
	A1520C	1600 x 1200 (2.0MP)	MS Windows (32/64-bit) Mac OS	

## 6 Troubleshooting Guide

Symptom	Cause	Remedy
Totally dark in the view field	The cover of objectives is still on	Take off the cover of objectives
Stains or dust on the field of view	Stains or dust on the eyepieces or objectives	Clean the lens with a camera cleaning kit
	Stains or dust on the specimen	Clean the specimen
Can not focus	The focus block/objectives is too far away or too close to the specimen and out of the range of focus stroke	Adjust the height of the focusing mechanism so that the distance between the objectives and specimen is about 102mm
Image moves while focusing	Specimen rises from stage surface	Secure the specimen
Lamp does not light when switched on	No electrical power	Check power cord connection
	Lamp bulb burnt out	Replace bulb
	Fuse blown out	Replace fuse