

User Manual

Binocular Stereo  
LED Microscope

Model G223E Series



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

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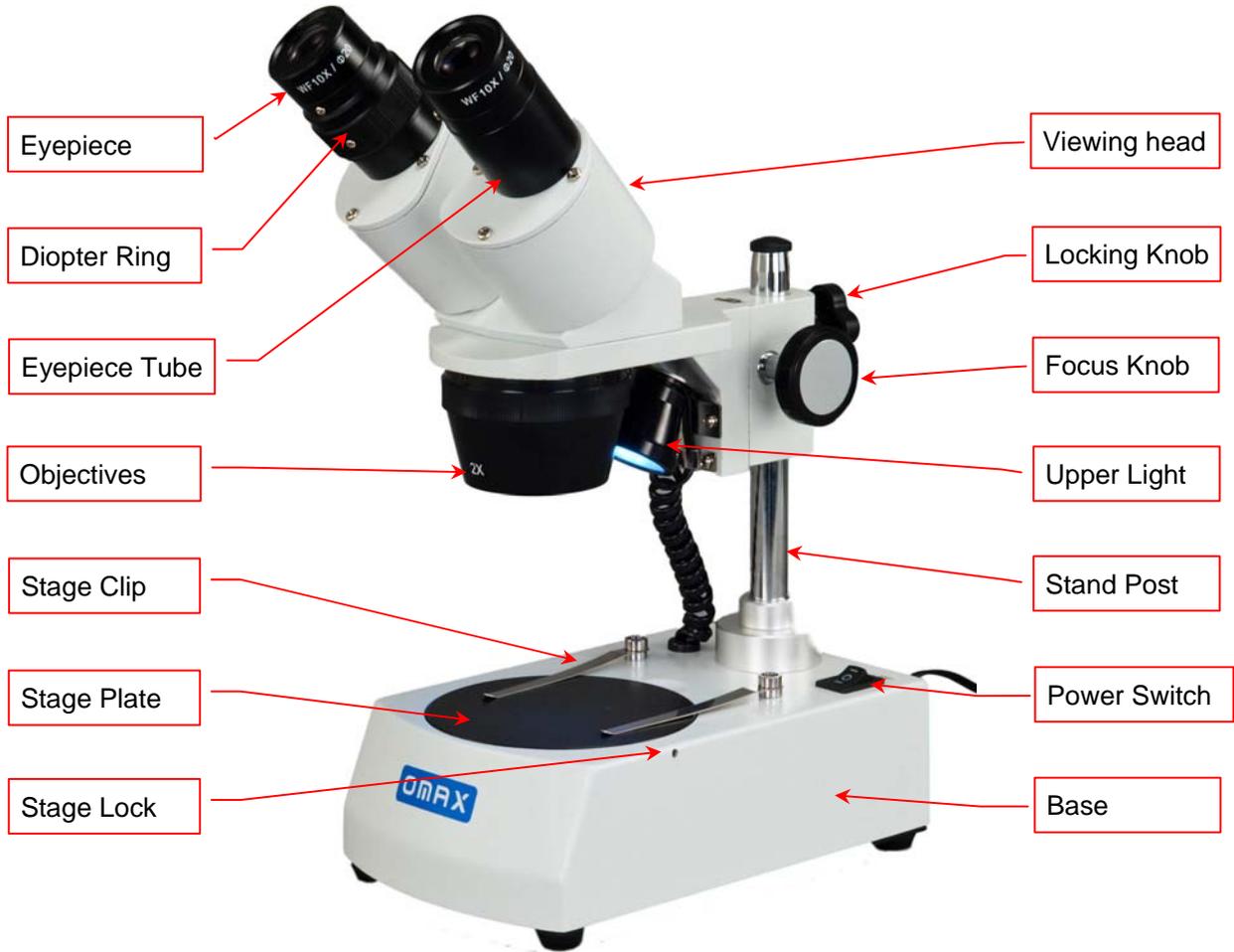
## i. Caution

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.

## ii. CARE AND MAINTENANCE

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.
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.

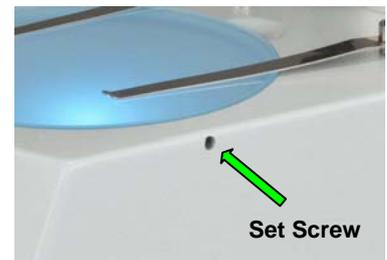
# 1 Components Illustration



# 2 Operation

## 2.1 Change the stage plate

- 1) Loosen the set screw at the right side of stage plate (see **Fig.1**) using the Allen key provided.
- 2) Take off the glass plate and put in the white/black plate (or vice versa).
- 3) Tighten the set screw.



**Fig.1**

## 2.2 Choose the light

- 1) Plug in the AC adapter to a power outlet and to the power jack at the back of the microscope.
- 2) Or install 3 AA batteries into the battery housing at the bottom of microscope.
- 3) Press the switch button at the side as shown in **Fig.2** to turn on the upper light or bottom light.
- 4) Press the switch button at the middle position to turn off the light.



**Fig.2**

### 2.3 Tension Adjustment of Focusing Knobs

- 1) Apply the wrench supplied to adjust the tension as shown in **Fig. 3**.
- 2) You can tighten the tension in either direction as shown in **Fig.4**; turning in one direction will tighten the tension; turning back will loosen the tension. If you continue turning, you will tighten the tension again.
- 3) Set the knob tension at the level that ensure no unintentional movement and easy to operate.



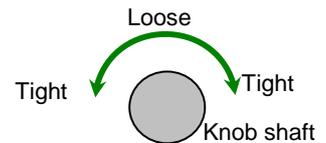
**Fig.3**

### 2.4 Place the specimen

- 1) Put the specimen in the center of the stage plate, and hold the specimen with the stage clips if necessary.
- 2) Turn on the upper or bottom light.

### 2.5 Focusing

- 1) Turn the rotating objectives to put the desired the objectives (2X or 4X) in the light path.
- 2) Loosen the locking knob to adjust the height of viewing head so that the distance between the objectives and specimen is about 60 mm. Then tighten up the locking knob.
- 3) Turn the focus knob until the specimen is in focus.



**Fig.4**

### 2.6 Adjusting Interpupillary Distance

While observing with both eyes, hold the left and right eyepiece tubes, swing inwards or outwards. The interpupillary distance is correct when the left and right fields of view converge completely into one image. (See **Fig.5**)



**Fig.5**

### 2.7 Adjusting Eyepiece Diopter

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

### 2.8 Installation of the camera (optional, may not included in your package)

- 1) Loosen the screw using the screw driver.
- 2) Take off the eyepiece from the eyepiece tube.
- 3) Insert the camera into the eyepiece tube, and then connect the camera to a computer via USB2.0 cable. See **Fig. 6**.
- 4) Bring the microscope into focus by following the procedures in **2.5**.
- 5) Install the camera by following the manual on a CD (or mini CD).
- 6) Open image observing software to examine.
- 7) You also can capture images or record live videos through the software, depending on the functions provided by the software



**Fig. 6**

**Note:** The camera is optional and may have different color and shape from the one in the figure, depending on the model purchased.

### 3 Specifications

<b>General</b>	
Model	G223E series
Viewing Head	Binocular, inclined 45°
Eyepieces	A pair of WF10X/20 A pair of WF20X ( <i>optional</i> )
Objectives	Rotating 2X and 4X
Diopter Adjustment	On left eyepiece tube, ± 5dp
Interpupillary Distance	Adjustable, 2-3/16" ~ 2-15/16" ( 55mm – 75mm)
Working distance	2-1/4" (57mm)
Illumination	Dual LED lights: incident (upper) and transmitted (bottom) light
Stage Plate	Frosted glass plate, 3-3/4" (95mm) in diameter White/black plastic plate, 3-3/4" (95mm) in diameter
Focusing	Adjusting knobs on both sides, tension adjustable Focusing stroke: 1-5/8" (42mm) Moving range along the stand post: 2-3/4" (70mm)
Power Supply	AC adapter: input 120V, 50/60Hz; output 5V 200mA Battery: 3 AA batteries
Cameras ( <i>optional</i> )	Refer to the cameras specifications
Dimension	7-1/2" x 4-1/2" x 14-1/4" (19cm x11.5cmx36cm)
Net Weight	5 lb 4 oz (2.36 kg)

<b>Eyepieces</b>		
Designation	Magnification	Field of View
Wide Field	10X	20mm
Wide Field	20X ( <i>optional</i> )	10mm

<b>Magnifications</b>				
Eyepiece	10X		20X ( <i>optional</i> )	
Objective	2X	4X	2X	4X
Magnification	20X	40X	40X	80X

## 4 Optional Parts

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

### Cameras

	Model	Resolution	Operating System	Software
	A1502	640 x 480 (0.3MP)	MS Windows (32/64-bit) Mac OS	Included

## 5 Troubleshooting Guide

Symptom	Cause	Remedy
Lamp does not light when switched on	No electrical power or batteries	Check power adapter connection or change batteries
	LED or power unit dead	Contact seller for service
Totally dark in the view field	The cover of objectives is still on	Take off the cover of objectives
Darkness at the periphery or uneven brightness in the field of view	Rotating objectives are not in click stop position	Turn the objectives to click-stop position
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 viewing head so that the distance between the objectives and specimen is about 60 mm.
Image moves while focusing	Specimen rises from stage surface	Secure the specimen
	Rotating objectives are not in the click-stop position	Turn the objectives to the click-stop position
Slippage of focus when using the focusing knob	The focusing knob tension is too loose	Tighten appropriately