

# A23.1501 Series Stereo Zoom Microscope Instruction



**To ensure safety and obtain optimum performance and familiarize yourself with the use of this microscope, we recommend you read this manual before operating the microscope. Retain this instruction in an**

easily accessible place near the microscope for further reference

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**This instruction is for A23.1501 Series Zoom Stereo Microscope**

**Please read the instruction carefully before using**

**☐ Proper modification can be made without notice**

**●☐ Please contact manufacturer if something unclear or incorrect is found**

**●☐ The product you purchase may not include all the things mentioned in the manual**

**●☐ Please operate the instrument as the instruction**

**Safety problems have been fully considered when design, users may get hurt or instrument can get damaged if improper operations are taken. For your safety, please read the instructions carefully before using.**

**Warning**

**1. Specified use**

**The instrument can be used for micro observation only**

**2. Do not take the microscope apart**

**As it will be damaged. Please contact manufacturer if the microscope does not work**

**3. Make sure the input voltage**

**The correct input voltage is marked on the power supply of the illumination.**

**Make sure the voltage in your position is right. Improper input voltage may cause short circuit and fire. Please contact manufacturer if you have any questions**

**4. Power supply cord**

**Please turn off the power supply and pull out the cord when replacing the bulbs**

**5. Temperature for illumination**

**The temperature will be high if the bulb is lightened. Do not put fiber, papers and inflammable things (eg. Gasoline, aether, methanol and ethanol) close to the bulb**

**Attention**

**1. Be careful when replacing the bulbs**

**The bulb will be heated after using. Replace the bulb when it has been cooling enough to avoid scald.**

**2. Check the illumination**

**Specific bulbs can be used. Bulbs with different specifications may cause damage to the instrument. Refer to the manual for more information**

# I、Structure

## 1) . Structure Chart of the A23.1501 Stereo Zoom Microscope





## 2. Characteristic

1) Destaticization: stand, zoom tube, 10×eyepiece and auxiliary objective are all equipped with destaticization. It is very helpful for users to observe the specimen with static( such as semiconductor chip).When use this function,please connect the microscope to the ground through the joggle on the back of the stand.

2) Airproof Function: zoom tube and 10×eyepiece are both equipped with airproof function, and this ensures the instrument work properly when the humidity around is high.

3) Ergonomics design can make users feel comfortable after long-time operation.

4) High definition, broad wide field of view, long-distance work. Various of attachments can be added on this instrument. It can be widely used in such fields:

- a. Can be used for training and education in school and research institute
  - b. Can be used for routine inspection in medical institution.
  - c. Can be used for assemblage, testing, measuring and quality control in industry, especially in IT.
- 5) Kinds of optional attachments ( such as illumination, stand, eyepiece, objectives and etc.)

## II 、 Technology Parameter

### 1. Technology Parameter

Zoom Ratio: 1:6.3

Magnification Range: 0.8x-5x (ST-6/ST-6S ),

Interpupillary distance: 52mm-75mm

Technology of ST-6/ST-6S

Auxiliary Objective	WD (mm)	Eyepiece							
		10X		15X		20X		30X	
		Magnification	View Field	Magnification	View Field	Magnification	View Field	Magnification	View Field
/	115	8-50X	Φ27.5- Φ4.4	12-75X	Φ20- Φ3.2	16-100X	Φ15.6 -Φ2.5	24-150x	Φ8.8- Φ1.4
0.5X	211	4-25X	Φ55- Φ8.8	6-37.5X	Φ40- Φ6.4	8-50X	Φ31.2 -Φ5.0	12-75x	Φ17.6- Φ2.8
2X	43.5	16-100X	Φ13.8- Φ2.2	24-150X	Φ10- Φ1.6	32-200X	Φ7.8- Φ1.3	48-300x	Φ4.4- Φ0.7

### III、 Configuration

A23.1501 Zoom Stereo Microscope Configuration ( Seeing the following table)

A23.1501 Zoom Stereo Microscope		B1	T1	B2	T2	B3	T3	B4	T4
Head	Binocular Head, 45° Inclined, 360° Rotatable, Interpupillary Range 52mm~75mm	o		o		o		o	
	Trinocular Head, 45° Inclined, 360° Rotatable, Interpupillary Range 52mm~75mm, Light Spilt Ratio E30:P70, With 1.0x C-Mount		o		o		o		o
Magnification	8x~50x, Up To 4x~200x With Optional Eyepieces & Auxiliary Objective								
Eyepiece	WF10x/22mm, Diopter Adjustment -8~+5°								
Zoom Lens	0.8~5.0x								
Zoom Ratio	1:6.5								
Zoom Knob	Zoom Knob With <b>Click Stop</b> At 1x,2x,3x,4x								
Working Distance	115mm, Up To 45~211mm With Auxiliary Objective								
Focusing	Coarse Focusing Knob With Tension Adjustable, Focusing Range 100mm								
Working Stage	Glass Plate Dia.125mm								
Base & Light Source	Big <b>Fan</b> Base Track Stand, No Light	o	o						
	Big <b>Fan</b> Base Track Stand, With Up/Bottom LED			o	o				
	Big <b>Square</b> Base Track Stand, No Light					o	o		
	Big <b>Square</b> Base Track Stand, With Up/Bottom LED							o	o
A23.1501 Zoom Stereo Microscope Optional Accessories							Item No.		
Eyepiece	WF10x/22mm, Diopter Adjustment -8~+5°						A51.1522-10		
	WF15x/16mm, Diopter Adjustment -8~+5°						A51.1522-15		
	WF20x/12.5mm, Diopter Adjustment -8~+5°						A51.1522-20		
Auxiliary Objective	0.5x/220mm						A52.1522-05		
	0.7x/137mm						A52.1522-07		
	2.0x/45mm						A52.1522-20		
Light Source	LED Ring Light 60 LEDs					A56.1522			

## IV、 Assemblage

### 1. Assemblage

#### 1) Assemblage of the Stage

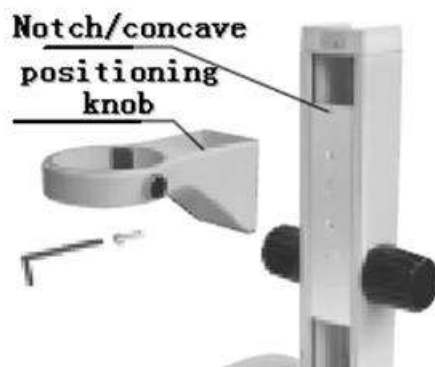
Place the stand on a stable plane, insert the stage into the base, and tighten the fixing screw with wrench (small) attached at the back of the stand.



Note: The stage must be placed plane

#### 2) Lifting of the FocusArm

The focus arm can be adjusted according to your special demands. Loosen the screw with the wrench ( big ), and the arm will 55mm lower than before after re-mounting the focus arm.



Note: Before tightening the screw, make sure that the 2 pins on the arm fit into the grooves on the vertical slider.



### 3) Mount the ZoomTube

Tighten the fixing screw of the zoom tube slightly to fix the zoom tube on the stand.



Warning: Do not tighten the screw too tight as this will make damage to the instrument.

### 4) Mount the Eyepiece

Rotate the eyepiece to 0, and insert the eyepiece into the tube completely till it touches the end of the tube.

Note: when inserting the 10x eyepiece, make sure to touch the end of tube. When inserting or extracting the eyepiece, please hold the cap instead of the diopter ring.

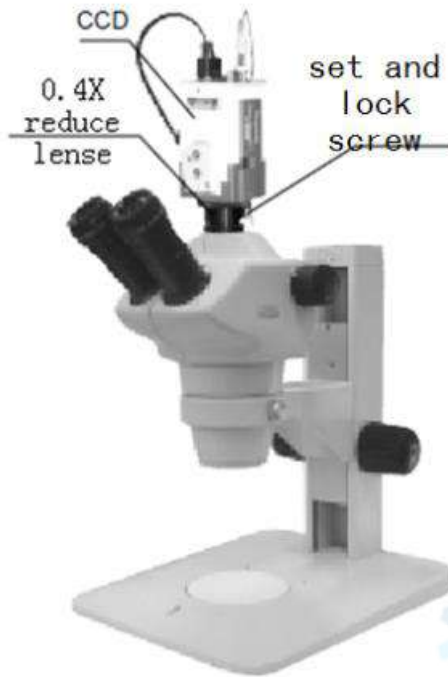


### 5) Wrenches are put at the Back of the Stand

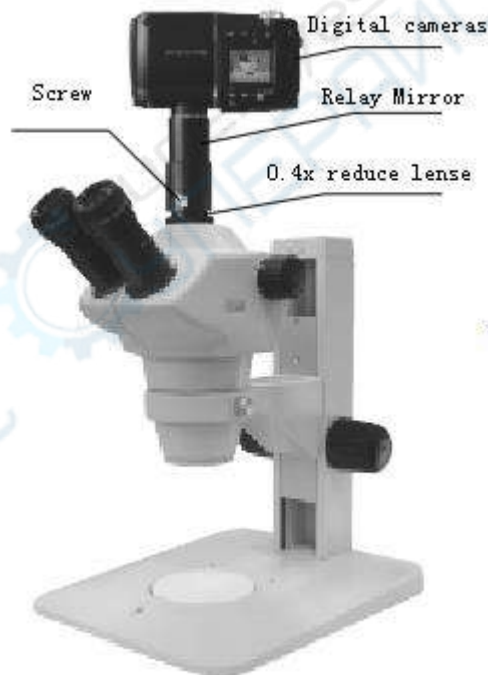
6) Image Recording Instrument includes: digital camera, digital photography head, etc. To satisfy your special requirements, kinds of interface are supplied for your choosing, and this will make your operation and observation more convenient.

#### a. Assemblage of 0.4x reduce lens and the CCD

Take away the dust-cover of the trinocular, insert one end of the 0.4x reduce lens into the CCD and tighten it. Insert the other end into the trinocular port, Adjust the CCD, and tighten it.



b. Assemblage of the CameraAdapter and Digital Camera



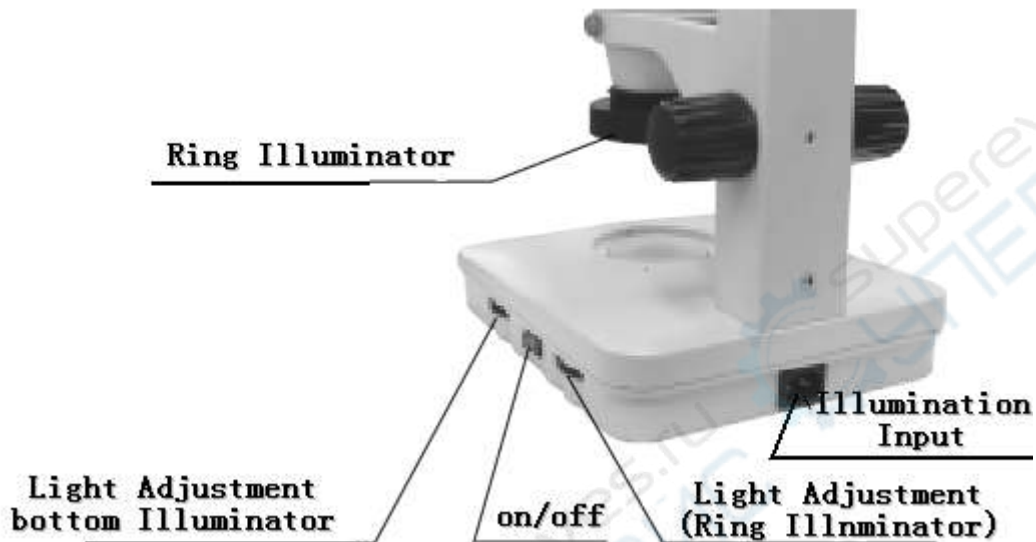
Take away the dust-cover, insert the camera adapter into one end of the intermediate lens. Insert 0.4x reduce lens into the other end of the intermediate lens, and tighten it. Adjust the camera, and tighten it.

## V. Operation

### 1. Preparation

#### 1) Illumination

Insert the power source into the socket of the transmitted base, connect the power source and turn on the switch. Adjust the brightness. It is not necessary to adjust the brightness to the strongest as this will reduce the life of the bulb.



#### 2) Adjust the torque of focusing knob

Adjust the torque of the focus knob so that the zoom body will not fall down because of its own weight.



**(Turn opposite direction To reduce the torque)**

#### 3) Interpupillary Distance Adjusting

This adjustment should be performed every time if the observer changes since the interpupillary distance is different between individuals. Adjust the interpupillary distance so that the view field for each eye is merged into one. Move while holding each tube with both hands.



#### 4) Diopter Adjusting

- a. Set the zooming knob to the highest magnification (5x), focus on the sample using the focus knob
- b. Set the zooming knob to the lowest magnification (0.8x), look into the left eyepiece with your left eye, focus on the sample using the diopter ring on the left eyepiece. Then look into the right eyepiece with your right eye, and focus on the sample using the diopter ring on the right eyepiece.
- c. Repeat Step a & b until the image is projected on the focus.

#### 2. Focusing

##### 1) Check the Working Distance

Working Distance is the distance between focus plane and zoom tube. The W.D For ST-6 series zoom stereo microscope is 115mm. Set the distance between the bottom of the zoom tube and specimen at 115mm, and this will be helpful to focus.

##### 2) Focus on the Specimen

Turn the focusing knob both at the same direction to make the zoom tube move up and down. So that the focus will fall on the specimen.

##### 3) Magnification

Turn the zoom knob on both sides of the zoom tube to change the magnification of the specimen.

##### Total Magnification

Zoom knob on right has the indication of the zooming magnification. Total magnification can be calculated by multiplying the eyepiece magnification by the zooming body magnification.

Note: When auxiliary objective is attached, multiply its magnification as well.

## VI. Assemblage and usage of the attachments

### 1. Auxiliary Objective

Twist the auxiliary objective into the zoom body. Adjust the focus knob to a certain height.



### 2. Illumination

Three kinds of illumination are available for your special needs: Transmitted light, Sideling light and LED Circuit light

### Power Supply

<b>Input Voltage</b>	<b>200V-240V, 50/60Hz, 0.4A</b>
<b>Output Voltage</b>	<b>6V20WMax/6V3WMax(LED)</b>
<b>Power Cord</b>	<b>Protective Earth 250V 7A</b>
<b>Environment Condition</b>	<b>Temperature: 0-40°C</b>
	<b>Humidity: &lt;85%</b>
	<b>Pollution Degree: II</b>
	<b>Installation Type: II</b>
<b>Protective Level</b>	<b>I</b>

### 3. Installation of Illumination

#### 1) Install the sideling illumination

Set the protrusion on the lamp house align with the inside of the screw hole on the focus arm as shown. Secure it in place using mounting screw from outside.



2) Install LED circuit illumination

Insert the fixing screw into the groove of the zoom body and tighten it.



## VII、 Troubleshooting

<b>Phenomena</b>	<b>Cause</b>	<b>Solution</b>
<b>Double Image</b>	<b>Interpupillary distance is not correctly adjusted</b>	<b>Adjust it correctly</b>
	<b>Diopter adjustment is incomplete</b>	<b>Complete the diopter adjustment</b>
	<b>Different magnification of the 2 eyepieces</b>	<b>Exchange the eyepiece with same magnification</b>
<b>Dirt is visible in field of view</b>	<b>Dirt on specimen</b>	<b>Clean Specimen</b>
	<b>Dirt on Eyepiece</b>	<b>Clean Eyepiece</b>
<b>Specimen image blurs when zoom magnification changes</b>	<b>Diopter ring is not adjusted correctly</b>	<b>Adjust it correctly</b>
	<b>Incorrect focus on specimen</b>	<b>Focus specimen correctly</b>
<b>Inflexible coarse focusing knob</b>	<b>Tension adjustment is too tight</b>	<b>Loosen it properly</b>
<b>Zoom microscope body drops automatically</b>	<b>Tension adjustment is too loose</b>	<b>Tighten it properly</b>

## VIII、 Maintenance

### 1. Working Environment

- Temperature range is 0°C-40°C and the max. Humidity is 85%. Avoid high temperature and humidification.
- Do not expose the microscope in the sun directly.
- Place microscope on a stable plane and keep it in balance. Avoid violent vibration.
- Keep the environment breezy and cover the microscope with the dust-cover.

### 2. Protect the microscope well

As microscope is a precision instrument, please avoid violent vibration. Improper using will make it unworkable.

### 3. Lens cleaning

Avoid dust and fingerprint on the lens as these will reduce its precision. Please clean as the following

- 1) Blow the dust with soot blower. Soft brush or gauze can also be used to remove the dust
- 2) More persistent dirt, such as fingerprints and oil, may be removed with soft cotton or lens tissue lightly moistened with absolute alcohol. As absolute alcohol are quite flammable, please take great care when using.

### 4. Cleaning of the painted or plastic parts

Avoid using organic solvents ( such as alcohol, ether, etc) to clean the painted or plastic parts of the instrument. We recommend the use of gauze. More persistent dirt may be cleaned with mild detergent solution

### 5. Storage

When the microscope is not in use, cover it up with dust cover, and store in a dry place not subject to mold. Do not expose the microscope in the sun directly, avoid high temperature and humidification

### 6. Periodical inspection

To maintain the performance of the microscope, periodical inspection is recommended.



## IX、Configuration diagram

