

## SZ2 Series Stereo Microscope

### Instruction Manual



Please read the Instruction Manual carefully before installation and keep it for future use.

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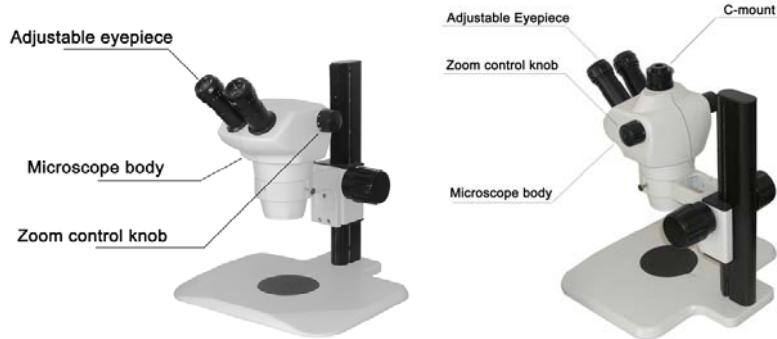
#### INSTRUCTION MANUAL

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## 1. INTRODUCTION

High-performance, high-quality features make this kind of microscope can be applied to schools, scientific institutions, as well as industrial assembly, test, measurement, quality control and test. High-definition, long depth of field and 3D images are available. Both side horizontal design of variable power hand wheel, flexibility and comfortable zoom, and high-precision. Strong 3D sense of images, high-resolution, flat image surface. Ergonomical design ensures operators a long comfortable operation



## 2. SPECIFICATIONS

Max. magnification: 4X~300X

Zoom range: 0.8X~5X

Zoom ratio: 1: 6.3

Eyepiece: 10X, 15X, 20X, 30X

Objective lens: 0.5X, 2X

Field of view: Ø0.7mm~ Ø55mm

Working distance: 43.5mm~211mm

Interpupillary adjustment: 52mm~75mm

Eyepiece diopter correction: ±5 diopter

Angle of eyepiece observation: 45°

Video system: 0.4 standard large field of view video eyepiece

Picture 1

## 3. ASSEMBLAGE

### 3.1. Installation of 0.4 X magnifier adapter and CCD camera. (picture1)

Screw off trinocular guards, screw one end (the one with screw thread) of 0.4 X magnifier into the port of CCD camera and screw it down, screw the other end of 0.4 X magnifier into trinocular port, screw down the bolt after positioning CCD camera.



### 3.2. Installation of auxiliary eyepiece (picture 2)

Screw the auxiliary eyepiece into zoom tube, turn the focusing knob, adjust the height of microscope body to get a proper angle for observation, and consult optical parameter table to adjust the height.

picture 2

## 4. OPERATION

### 4.1. Adjust pupillary distance

See picture 3

Because of the difference of people's pupillary distance, the adjustment should be taken before each observation that is taken by a new person. Tow hands hold left and right eyepiece tube respectively and turn them up to the two fields of view in your eyes become one.



Picture 3

### 4.2. Adjust of diopter

See picture 5

Because of the difference of people's eyesight, the adjustment should be taken before each observation that is taken by a new person.

- Turn the zoom knob to 5X, adjust the focusing knob and make it focus on the specimen
- Turn the zoom knob to 0.8X, gaze with left eye through left eyepiece, adjust diopter adjustment ring that's on the left eyepiece and make it focus on the specimen, then gaze with right eye through right eyepiece, adjust diopter adjustment ring that's on the right eyepiece and make it focus on the specimen.
- Repeat step a and b up to the image locates on the focus exactly, which ensures the definition of the object of observation against from being affected by the change of magnification.

### 4.3 .Focusing

#### a. Check working distance

The distance between focal plane and the underside of zoom tube is called "working distance". Because the working distance of SZ2 is 115mm, if make the distance between the underside of zoom tube and specimen be 115mm, the focusing will become easier. As for the change of distance caused by adding auxiliary objective lens, please consult optical parameter table.



Picture 4

#### b. Focus on specimen See picture 4

Rotate the focusing knob in the same direction(or the focusing knob will become loose) and make the arm move up and down(zoom tube), and finally the focus falls on the specimen.

#### c. Change magnification See picture 5

The magnification of specimen's image can be changed by rotating the zoom knobs that are on the left side and right side of zoom tube.



Picture 5

#### Total magnification:

The marks of magnification are on the right zoom knob. The magnificatin of zoom multiplies the magnification of eyepiece is the total magnification.

Note: The magnification of the auxiliary objective lens should be multiplied when you add auxiliary objective lens.

### 4.4. Record images

When you are going to shoot or take a picture, you should use 10X eyepiece (binocular) first, and turn the zoom knob to 5X, and then turn the focusing knob and make it focus on specimen. You can take image processing directly. And there is no necessity to add focuser to camera system, video camera, or camera.

If you expect clearer images, you need to adjust the focusing knob properly and turn the eyepiece diopter ring slightly to make the image is in focus. If the ray is too bright or too weak, you can adjust the brightness knob of power, then a clear, soft and perfect image will present on the screen, and you can take image observation and analysis more intuitively

**Optical parameter table**

Auxiliary objective lens	Working distance	Eyepieces							
		10×(Φ 22mm)		15×(Φ 16mm)		20×(Φ 12.5mm)		30×(Φ 7mm)	
		Mag.	viewfield range	Mag.	viewfield range	Mag.	viewfield range	Mag.	viewfield range
1×	115mm	8~50×	27.5~4.4mm	12~75×	20~3.2mm	16~100×	15.6~2.5mm	24~150×	8.8~1.4mm
0.5×	211mm	4~25×	55~8.8mm	6~37.5×	40~6.4mm	8~50×	31.2~5mm	12~75×	17.6~2.8mm
2×	43.5mm	16~100×	13.8~2.2mm	24~150×	10~1.6mm	32~200×	7.8~1.3mm	48~300×	4.4~0.7mm

## 5. TROUBLESHOOTING

If the performance of microscope doesn't show completely due to unskilled operation, the following table could offer you some solutions.

Problems	Cause	Solutions
1, Tow images don't inosculate	the pupillary distance adjustment is not accurate	adjust pupillary distance
	the diopter adjustmeng is not accurate	take the diopter adjustment again
	the magnification of left and right eyepieces is not accurate	fix same eyepieces
2, There is dirt in the field of view	there is dirt on specimen	clean the specimen
	there is dirt on the surface of eyepieces	clean eyepieces
3, The image isn't clear when focusing	the diopter adjustment is not accurate	take the diopter adjustment again
	the focusing is not accurate	adjust the focusing again
4, Focusing knob isn't flexible	the focusing knob is locked too tightly	loosen the focusing knob properly
5, The automatic fall of the body of microscope leads unclear image	the focusing knob is too loose	lock it tightly properly

## 6. Maintenance

### 6.1. Position of installation

Please note the following points when you install this stereo microscope

- a. The temperature of the position for the installation of microscope must be between 0°C~40°C, and the relative humidity <85%.
- b. The microscope should be installed at the place where will not be vibrated
- c. The microscope should be installed at a clean , dustless place

### 6.2. Protect the microscope carefully

This microscope is a precision optical instrument. Please protect it carefully and prevent it from being bumped and vibrated. The instrument will be damaged if it is bumped or treated rudely when it is being conveyed or operated.

### 6.3. Clean the lens

Do not make dust, fingerprints or something else stay on the lens. The smear on the lens will affect the observation of image seriously. Please get rid of the smear according to the following ways:

- a. Blow the dust off with dust remover. If this way cannot make the lens completely clean, you can brush the lens with a soft brush, or carefully erase the dust with a piece of gauze.
- b. Only when oil stains or fingerprints accumulate on the lens, you can erase the smear with clean soft cotton that has been appreciably moistened with absolute alcohol. Do not reuse the same part of the cotton.
- c. Because the absolute alcohol is inflammable material, you must be specially careful when using it, and prevent ignition and detonation.
- d. When disposing the absolute alcohol, you must comply manufacturer's instructions.

### 6.4. Clean lacquer surface or plastic components.

You'd better use gauze to clean lacquer surface components, plastic components or the components with printing. If these components are too dirty, you can lightly wipe off dirt with a piece of gauze that has been dipped with warm cleanser. Do not use organic solvents, (such as alcohol, aether, paint thinner and etc.) because these liquid will distort components or make prints disappear

### 6.5. Preservation

Microscope should be put at the place where with low humidity and is not easy to be moldy. It is not suitable to put at the place where can be shined directly or where with high temperature and high humidity. In the period of preservation, you should cover the whole equipment with dustproof cover to prevent accumulation of dust.

### 6.6. Periodic check

In order to keep the best state of performance of the microscope, we advise you to take period check and let us know the details of the check.