



Zoom Stereo Microscope

LB-21ZSM

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1. Safety Measures

- A microscope is a precision instrument handled carefully, avoiding impact or abrupt movement during transportation.
- Microscope ought to be placed in a dry and clean place. Do not expose the microscope to the sun directly. Avoid high temperatures and violent vibrations. Usually, the following environment is required: Indoor temperature:0°C~40°C; Max. Relative humidity:85%.
- To keep the image clear, do not leave fingerprints or stains on the surfaces of the lens.
- Before use, check the power supply in compliance with the microscope power required.
- Never turn the left and right focusing knob in the adverse direction at the same time, otherwise the microscope will be damaged.
- When using a photo set, to ensure the microscope's stability, ensure the main body is inclined less than 3°.
- When using C type camera, the camera to receive the target surface should be less than 2/3", and weigh not more than 2.5kg.

2. Introduction

Zoom Stereo Microscope LB-21ZSM is a dissecting microscope featuring a low magnification range. This bench-top unit provides a high quality 3-D image throughout the zoom range. Magnification range and working distances can be expanded using optional eyepieces and auxiliary objectives.

3. Features

1. Optical system : Greenough
2. Wide viewing field shows high quality sharp images
3. Ergonomic design increases productivity

4. Specifications

Model No.	LB-21ZSM
Viewing head	Trinocular
Zoom ratio	1 : 6.7
Eyepiece (Wide field eyepiece)	WF 10X/ Φ22 mm
Inclination	45°
Rotation	360°
Inter-pupillary distance	54 mm ~ 76 mm
Zoom objective	0.67X ~ 4.5X
Magnification	6.7X ~ 45X
Working distance	110 mm
Video attachment	0.5X C-mount
Dimensions	510 × 360 × 300 mm
Weight	4 kgs

5. Applications

Used in academics, medical and industrial field. Used for circuit board repair, circuit board inspection, surface mount technology work, electronics inspection, coin collecting, gemstone setting, engraving, repair and inspection of small parts.

6. Instrument Introduction

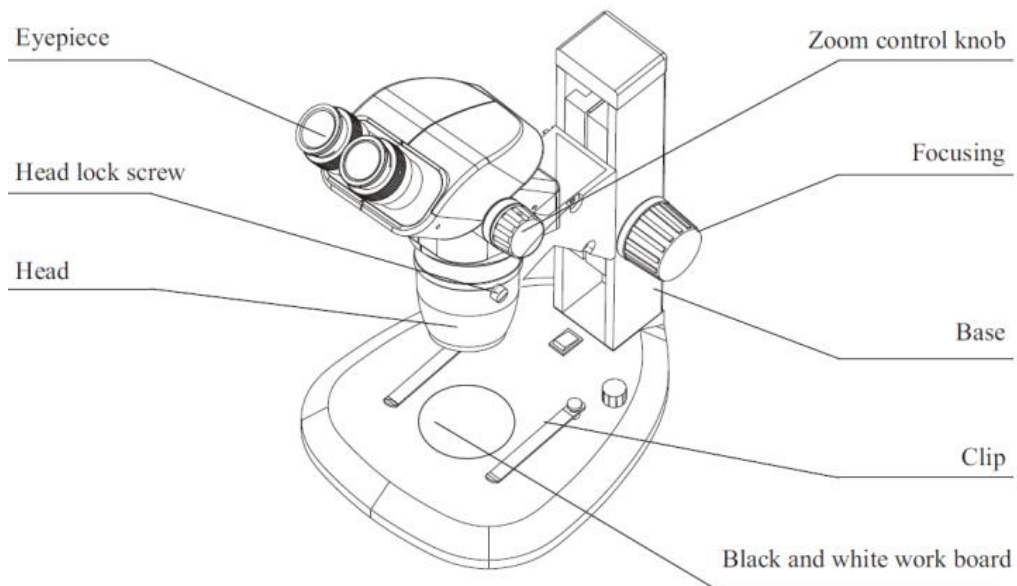


Figure-1

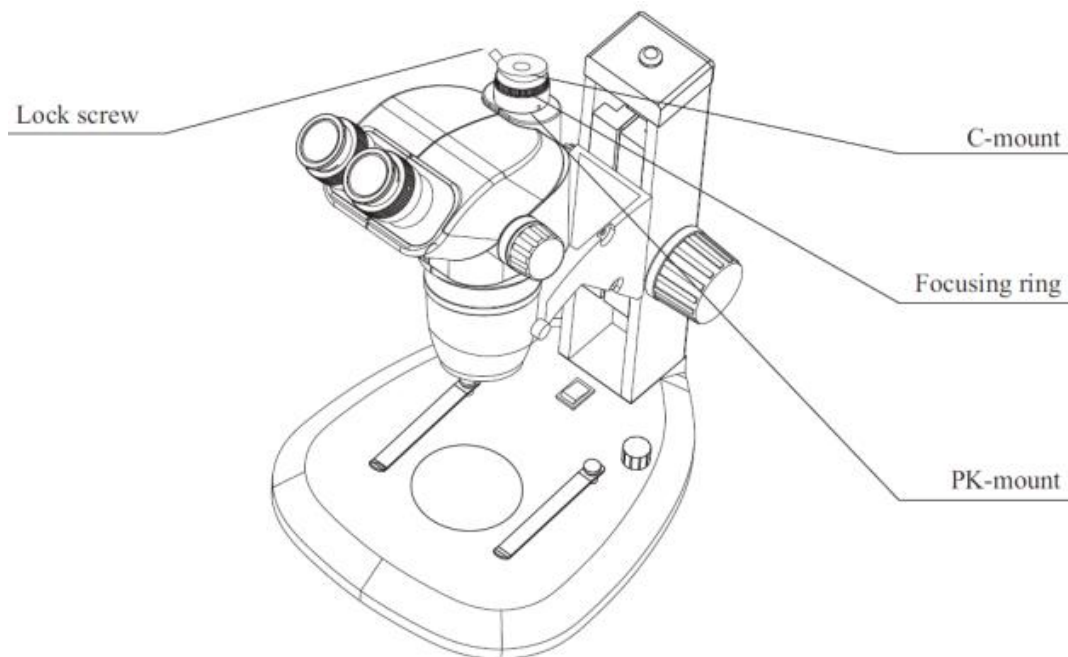


Figure-2

7. Installation

Assembly:

The following diagram for the installation, the number of representatives in the order. Before installing, it should ensure that all tie in with the clean surface, the installation should be taken to avoid the surface of the lens being dirty or scratched.

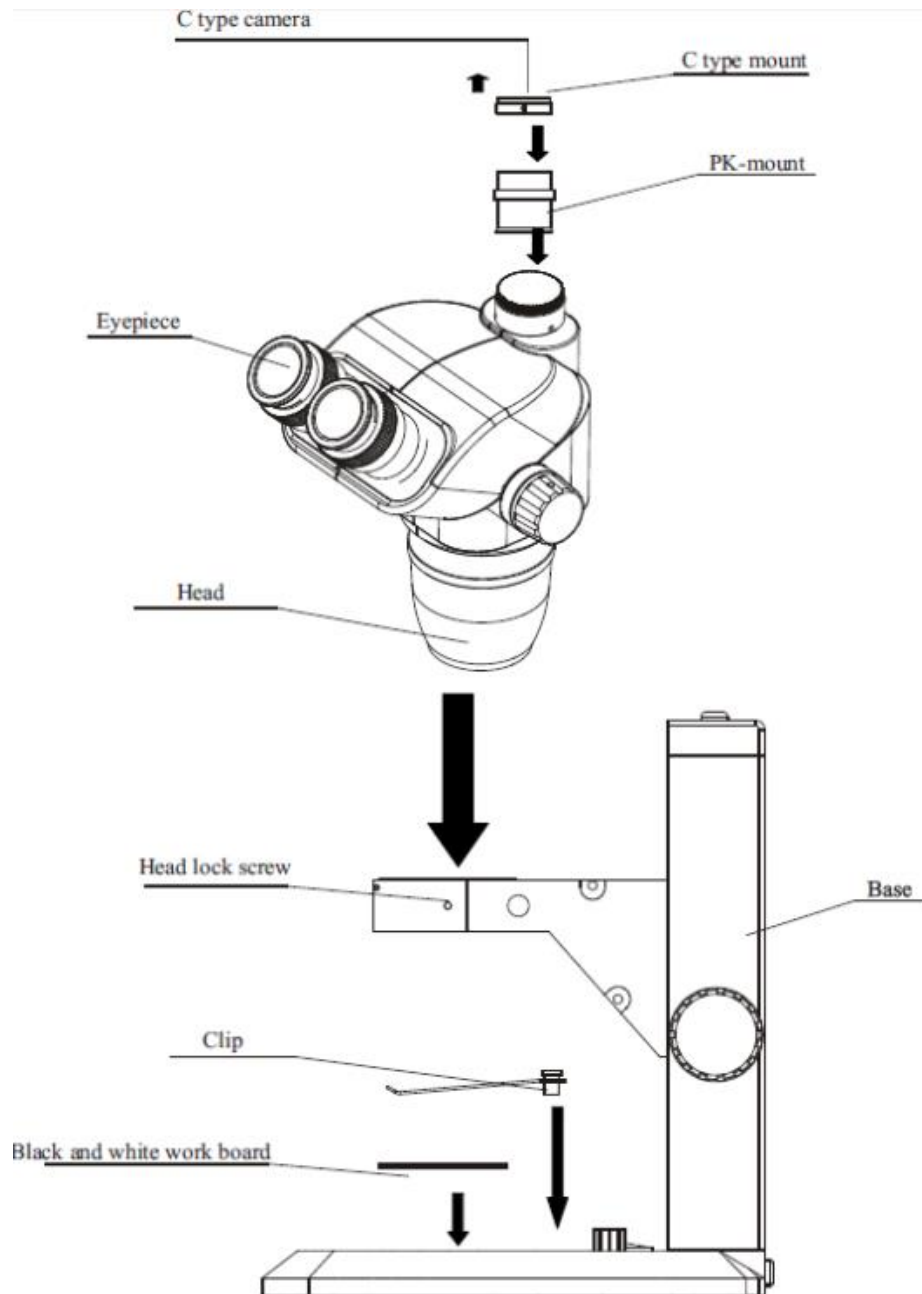


Figure-3

Note: Connect the C mount to the camera, then connect the camera to the PK-Mount.

8. Operations

8.1 Instrument Operation

8.1.1 Use black and white workboard

- 1) Make the white up, if the specimen is white or transparent, make the black one as background, to enhance the contrast.
- 2) Take off or change the work board, move the work board **(Figure 4)** make one side down, then the other side will be up. **(Figure 4)**

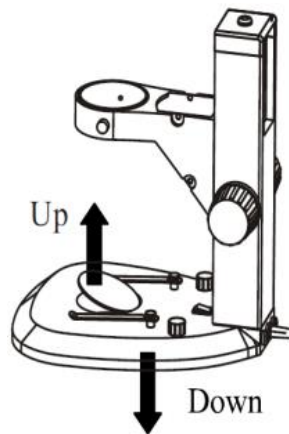


Figure-4

8.1.2 Adjust the degree of tightness of the focusing arm

- 1) If user wants to adjust the degree of tightness of the focusing arm, you can hold one of the focusing knobs and turn another one to attain a suitable position. The degree of the tightness relies on the direction to be turned. The clockwise direction is tight, otherwise, is loose.
- 2) The suitable position of tightness can make the adjustment more comfortable and prevent the focusing bracket from slipping down by its weight during the observation. **(Figure 5)**

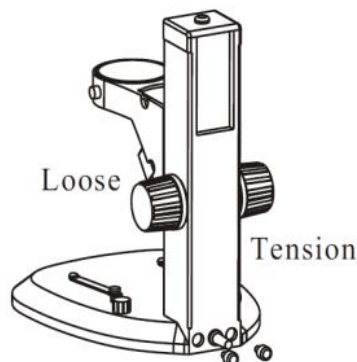


Figure-5

8.1.3 Set the specimen slide

- 1) Set the specimen on the center of the stage plate. If necessary, calm the slide with the clips.
- 2) Turn on the light.

8.1.4 Adjust the specimen slide

- 1) Turn the zoom control knob to the maximum magnification.
- 2) Turn the diopter adjusting rings to zero.
- 3) Observe the specimen through the right eyepiece and make the image clear by turning the focusing knob.
- 4) Rotate the zoom control knob to the minimum magnification.
- 5) Observe the specimen through the right eyepiece and make the image clear by turning the right diopter and adjusting the ring. **(Figure 6)**
- 6) Redo step (3) and (5) till the right adjusting ring is more precise.
- 7) Do step (4) and make the image clear which is observed through the left eyepiece by turning the left diopter adjusting ring. **(Figure 6)**

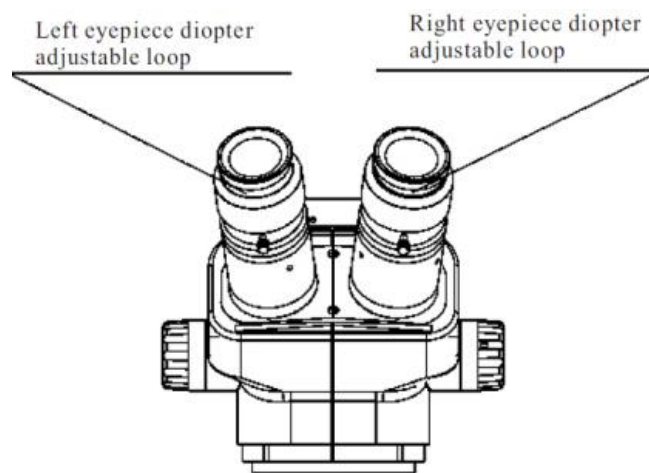


Figure-6

8.1.5 Adjust the interpupillary distance

- 1) Adjust the prism housing along the direction of the arrowhead of **Figure 7** till the observation is comfortable.

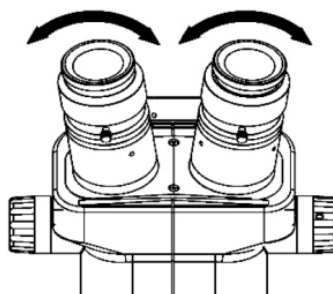


Figure-7

8.1.6 Mount and remove the optical eyepiece micrometer

- 1) Turn and remove the mounting ring from the eyepiece. **(Figure 8)**
- 2) Clean the eyepiece micrometer and mount it to the mounting with the inscription side downward.
- 3) Gently twist the mounting ring with the eyepiece micrometer into the eyepiece till tightening securely.
- 4) To remove the eyepiece micrometer, take down the mounting ring by twisting and take out of the micrometer, and then wrap it.

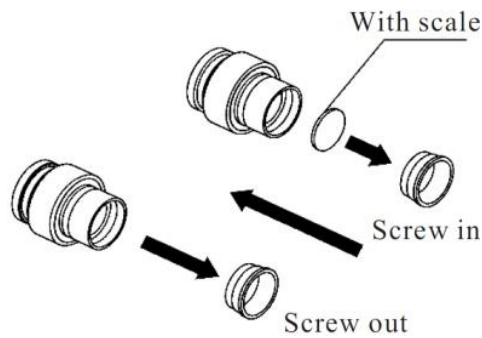


Figure-8

8.1.7 Use auxiliary objective

- 1) Connect the auxiliary objective to the thread at the bottom of the head.
- 2) 0.5X auxiliary objective with long working distance. When using 0.5X auxiliary objective, release the lock screw on the arm by a six-spanner, and use it after moving a bit hole. **(Figure 9)**

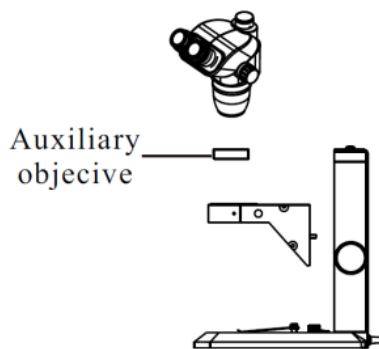


Figure-9

8.1.8 Mount PK-mount and photo set

- 1) Screw the PK-mount in the head, M28 screw, and tighten the mount. **(Figure 10)**
- 2) Loosen the screw on the PK-mount and take out the mount of the C-type camera.
- 3) Screw the C-type mount in the TV photo set.
- 4) Install the TV photo set into the PK-mount and lock the screw.

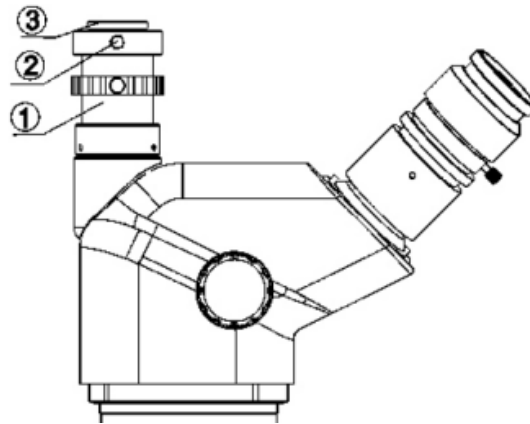


Figure-10

8.1.9 Focusing the TV photo set

- 1) Turn the zoom control knob to the maximum magnification, meanwhile, observe the TV set, and adjust until the image is clear.
- 2) Rotate the zoom control knob to the minimum magnification. If the image is not clear enough, adjust the part (until the image is clear).
- 3) Redo step (1) and turn the zoom control knob to the maximum magnification to check whether the image is clear or not. If it is not clear, then redo steps (1) and (2), until the image is clear in all the zoom range.

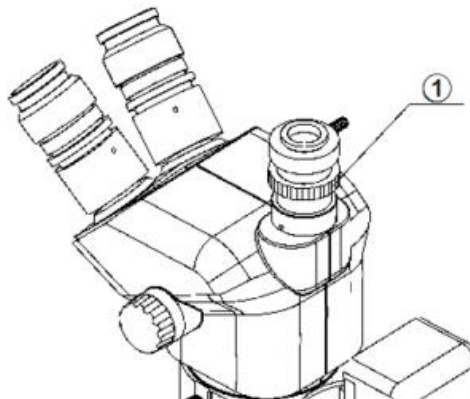


Figure-11

8.2 Use J3L base

Note:

- 1) Ensure the power is cut off when replacing the fuse.
- 2) Ensure the earth wire is okay, and the equipment properly grounding.
- 3) Black and white stage, glass stage, diameter Ø95mm.

8.2.1 Nomenclature

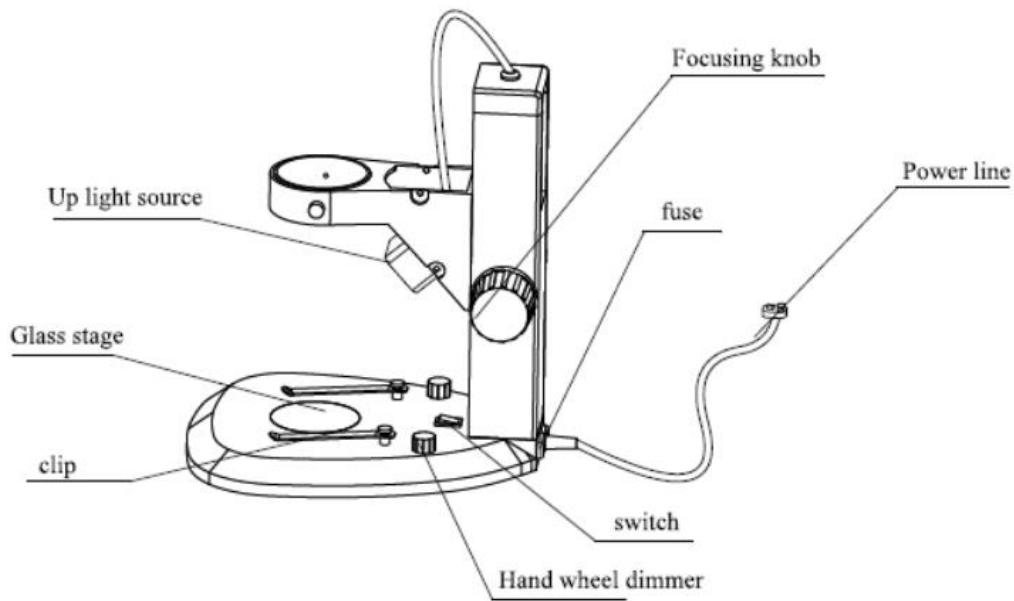


Figure-12

8.2.2 Operation

1) Adjust the brightness of the bottom light or top light

Turn the adjustable light knob (1)(2) according to the sign market on the base, knob (1) controls the top light, and knob (2) controls the bottom light, alone clockwise the brightness will be added, otherwise it will be weakened. **(Figure 13)**

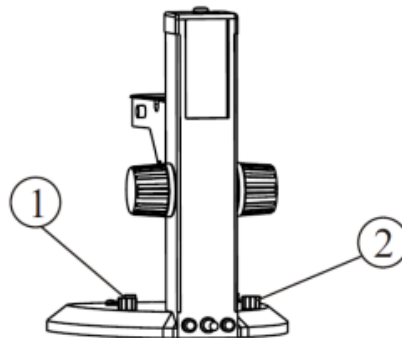


Figure-13

2) Replace the fuse

- Screw the fuse tube out with a screwdriver.
- And then pull the fuse out of the tube (1), pull the fuse out of the tube (1).
- Renew the fuse and mount it adversely.

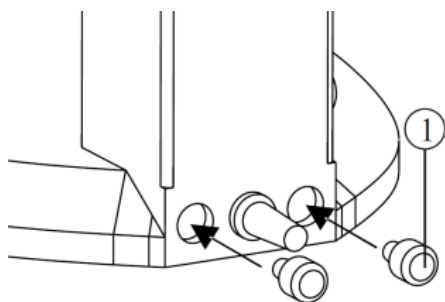


Figure-14

9. Maintenance

- 1) All lenses must be kept clean. Fine dust on the surface of the lens should be blown off with a hand blower or wiped off gently with a soft lens tissue; Fingerprints or oil market on it should be wiped off with a tissue moistened with a small amount of xylene or a 3:7 mixture of alcohol and ether.
- 2) Never use the organic solution to clean the other surface (especially the plastic surface). If necessary, choose the neutral detergent.
- 3) Do not take the microscope apart fearing that it is damaged.
- 4) After using, cover the microscope with the dust cover provided and store it in a dry and clean place free from moisture to prevent rust.

10. Accessories

Optional Accessories

Accessory No	Accessory	Accessory Specification
21ZSMA1	Eyepiece	WF15X/ Φ 16 mm
21ZSMA2	Eyepiece	WF20X/ Φ 12 mm
21ZSMA3	Eyepiece	WF10X/ Φ 22mm Eyepiece with cross line
21ZSMA4	Objective	Auxiliary objective 0.5X, W.D 177mm
21ZSMA5	Objective	Auxiliary objective 2X, W.D 26mm
21ZSMA6	Photo adapter	For Nikon, Canon, Olympus, Sony DSLR Cameras



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