

A12.1502

Laboratory Microscope

Instruction Manual



To ensure the safety and obtain satisfactory performance, please study this instruction manual thoroughly before start to use your instrument.

I. Introduction

Thank you for choosing Opto-Edu A12.1502 Biological Microscope. To ensure safety and obtain optimum performance and familiarize yourself with the use of this microscope, we recommend that you read this manual thoroughly before operating the microscope. Retain this instruction manual in an easily accessible place near the microscope for further reference.

II. Caution

● Attention

A12.1502 Biological Microscope can only be used inside the room. Place microscope on a stable plane and keep it in balance. Power line must be retained in an easily accessible place to prevent any unnecessary accident.

● Working Environment

As microscope is a precision instrument, improper using will make it unworkable or reduce its precision.

1. Do not expose the microscope in the sun directly
2. Temperature range is $+10^{\circ}\text{C}$ - $+40^{\circ}\text{C}$, and the max. humidity is 85%
3. Avoid high temperature and humidification. Otherwise there will be fog or mold on the lens.
4. Avoid violent vibration as the vibration will reduce the images quality.
5. Do not place microscope in moist room to avoid short circuit. Please turn off the power supply as soon as water drop in the microscope. If there are other things unsafe come into the microscope which may cause short circuit too, please stop using and contact with manufacturer

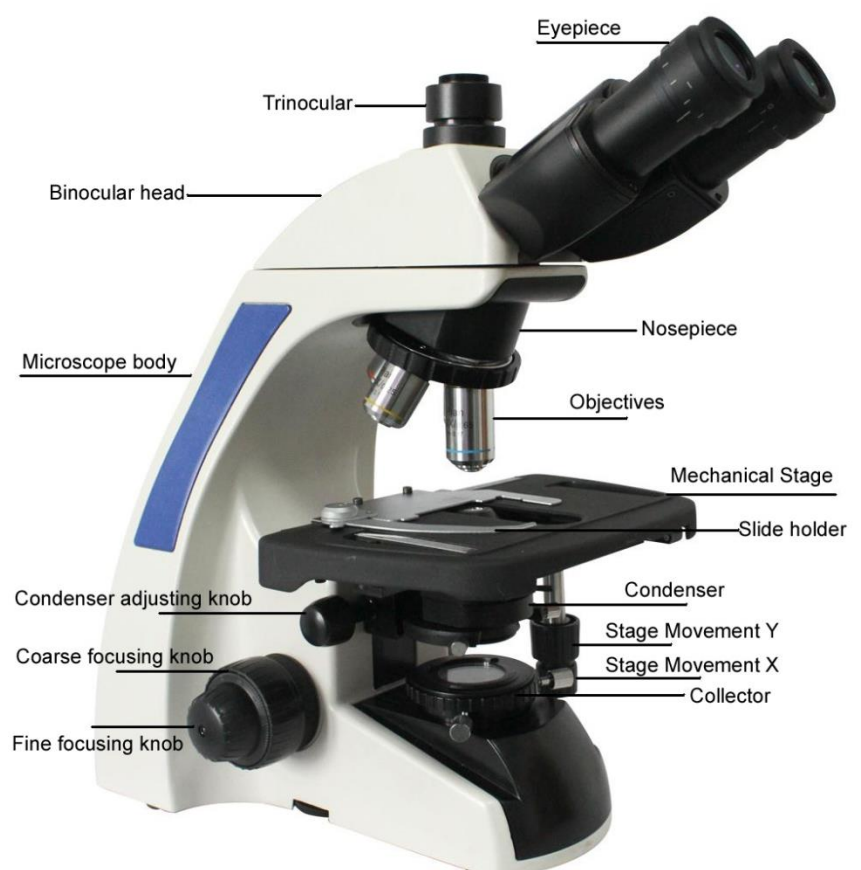
● Non-designated Application

1. Improper operation & usage may cause damage to both instrument & users. Please read instruction manual carefully before using the instrument.
2. Pay attention to the voltage. Do not use other kinds of power line unless there is specific description. Do not take the microscope apart.

Instrument & accessories described in this manual have passed the safety & potential risk test.

III. Structure

See Picture



IV. Technical Parameter

A12.1502 Laboratory Biological Microscope	
Head	Trinocular Head, 30° Inclined, Interpupillary Distance 48-75mm, Both Eyepiece Tube Diopter Adjustable
Eyepiece	WF10x/20mm, Diopter Adjustable, Dia. 30mm
Objective	High Contrast Chromatic Free 4x, 10x, 40x(S), 100x(Oil, S)
Focus Knob	Coaxial Coarse & Fine Focusing, Fine Division 0.002mm, Coarse Stroke 37.7mm/Rotation, Focusing Range 24mm
Nosepiece	Quadruple, Backward With Click Stops
Stage	Double Layer Mechanical Stage 142x132mm, Graphite Surface, Moving Range 75x50mm
Condenser	Abbe Condenser N.A.1.25, Center Adjustable
Light Source	3W LED Brightness Adjustable
Adapter	C-Mount 1.0x
Package	53*32.5*53.5cm/11.5Kg, 1 Set/Carton

V. Preparation Before Use

● Assemble the Binocular Head

1. Loosen the fixing screw on the top of the microscope body.
2. Put the binocular head on the body properly, then tighten the fixing screw.

● Insert the Eyepiece

1. Standard gemel binocular head. Special-processed ring is fixed in the observation tube to tighten the eyepiece.
2. Insert the eyepiece properly.

● Assemble the objectives

1. Assemble the objectives clockwise. Make the magnification become bigger when assembling in clockwise direction.
2. Condenser has been mounted, focused & pre-centered well in the microscope before shipment. There is no need to do any adjustment.

VI. Usage of the Microscope

● Illumination

1. Connect the power line to the microscope.
2. Turn on the power supply, then the light will be on. Brightness can be adjusted by turning the adjusting knob.

● Iris diaphragm is designed & configured on condenser. Adjusting the iris diaphragm to match the different N.A of different objectives.

1. Open/Close the iris diaphragm by adjusting knob.
2. When the knob is on the right, that means the iris diaphragm is fully opened.

● Placing the Specimen

1. Put the specimen in the stage and make the cover glass on it. Make the clips clamp them entirely. Two slides can be put in the stage in the same time.
2. Make the specimen under the objective by adjusting X & Y axis.

● Focusing

1. Turn the nosepiece to observe through the lowest magnification.
2. Adjust the stage to the top by turning the coarse focusing knob.
3. Observe through the eyepiece and turn the coarse focusing knob slowly to let the stage down and down till there is a image
4. Turn the fine focusing knob to get sharp image.

● Adjusting of the Binocular Observation Head

1. Adjust the observation tube to make sure that view field in the right & left eyepiece is consistent.
2. Adjust the diopter of the eyepiece to "0" first. Then adjust the eyepiece according to users' own situation to get sharp image.

● Oil Immersion

1. When observing through 100X objective, oil immersion is required. Low down the stage to the bottom. Drop the oil supplied by the manufacturer on the observation area.
2. Turn the 100X objective on its working position.
3. Raise the stage by turning the coarse focusing knob till the front of the objective can touch the oil.
4. Swing back and forth of the nosepiece to get rid of the air bubble in the oil. Then fix the objective. Make sure that oil should be filled between objective and specimen.

VII. Maintenance of Microscope

● When not in Use

1. Handle the microscope with two hands stably, and put the instrument on a stable plane. Cover it up with dust cover. Store the instrument in a dry place.
2. It is highly recommended that objectives & eyepiece should be kept in a separate container.

● Cleaning

1. Keep all the optics clean. It is very important to maintain optical performance of the instrument.
2. If dust, or dirt is covered on the surface of the lens. Have a try of air blower before cleaning the lens.
3. It is recommended that gauze, or lens tissue moistened with methyl alcohol should be used to clean the lens. Ethyl alcohol is forbidden.
4. When cleaning the low magnification objective, lense tissue or cotton moistened with methyl alcohol can be used. Pay much more attention when cleaning the high magnification objective. Dry the methyl alcohol first. Do not clean so hard. Do not use ethyl alcohol.
5. When microscope body has to be taken apart, make sure that do not touch the lense of the objective, or else it will reduce the image quality.
6. Periodical inspection

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