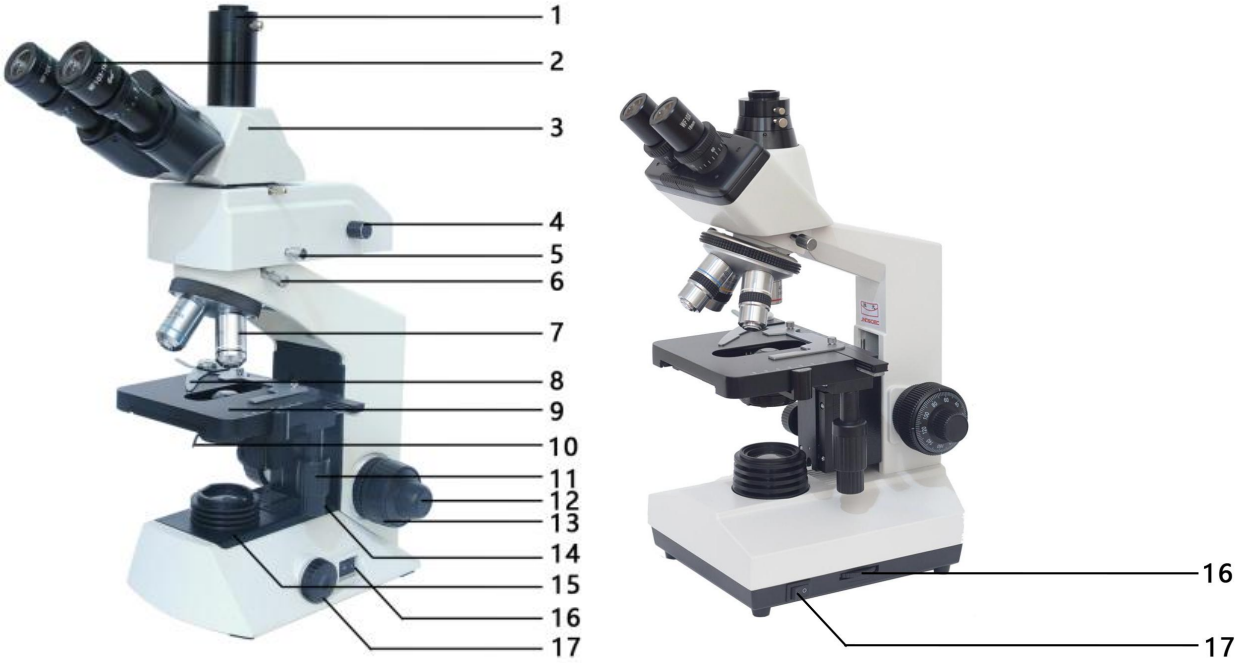
sisco

OPERATION MANUAL

Fluorescence Microscope

MSC-F107B



1 C Mount

2 Eyepiece

3 Viewing head

4 Fluorescence intensity regulation

5 Fluorescent cut out

6 Tighten the screws

7 Objective

8 Clip ,Move ruler

9 Stage

10 Aperture diaphragm

11 Objective table vertical movement the handwheel(Y)

12 Fine adujstment

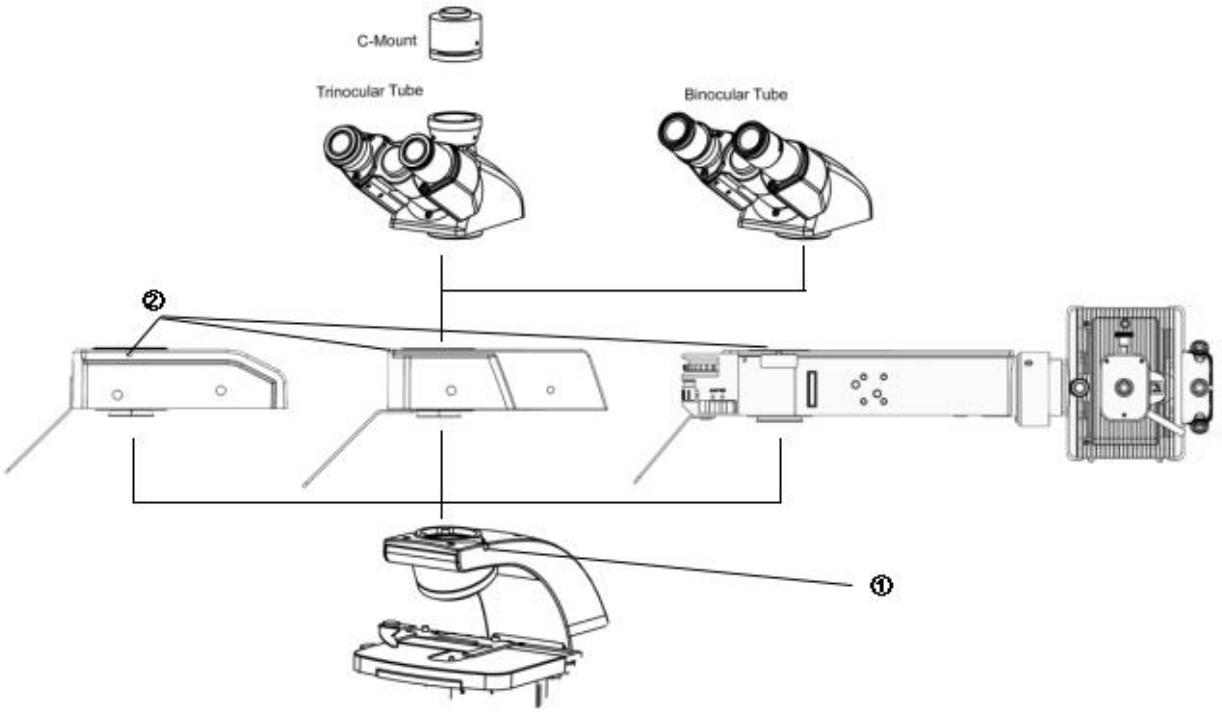
13 Coarse adjustment

14 Objective table lateral movement the handwheel (X)

15 Fine-tuning focal handwheel

16 Microscope intensity regulation

17 Microscope switch



Assembly of Fluorescent Microscope:

1. Loosen the setscrew ① and take the Trinocular Viewing Head from the body of biological microscope.

2. Insert the epi-fluorescent attachment into the biological microscope correctly and tighten the setscrew ① until it is installed firmly.

3. Insert the Trinocular Viewing Head into the epi-fluorescent attachment correctly and tighten the setscrew ② until it is installed firmly.

Select Fluorescent Filter Combination:

Select fluorescent filters combination according to the fluorescent dye you use.

Excitation	Applications	Excitation	Applications
U	• Auto-fluorescence observation • DAPI: DNA • Hoechest 332528, 33342: Chromosome	B	• FITC: Fluorescent antibody method • Acidine orange: DNA, RNA • Auramine: Tubercle bacillus • EGFP，S65T，RSGFP
V	• Catecholamines • 5-hydroxy tryptamine • Tetracycline: Skeleton， Teeth	G	•Rhodamine，TRITC: Fluorescent antibody method • Propidium iodide: DNA。 • RFP
Please consult the manufacturer for the other combinations！			

Specifications

1.optical system: 160mm or ∞

2.illumination: 3WLED or 6V 20W halogen bulb (option)

voltage fluctuation: ±10%

fuse: F1AL250V，5X20 micro Fuses

3.focusing adjustment : Coaxial coarse

focusing range: 36mm scale value 0.002mm

4.Objective table area: 142mmX132mm

Longitudinal movement range: 50mm

Lateral movement range: 75mm

5.revolving nosepiece: quadruple nosepiece interpupillary distance settings

6.Objective: 195 achromatic objective or Infinite plan Achromatic Objective or Flour objective

7.condenser: abbe condenser with iris diaphragm NA=1.25

8.Binocular viewing head: 55~75mm interpupillary distance settings

9.operating environment: temperature: 0℃~40℃

overvoltage category : Ⅱclass

The operation method of microscope

1. Lighting

When open the power switch, the light bulb will be bright. Rotating brightness knob to adjust the brightness of the field.

2. Adjust the interpupillary distance settings

Through the eyepiece, adjust the binocular barrel till around view is perfect.

3. Place specimen slides

Put glass slide on the stage, put the cover glass upward, part the specimen holder shrapnel with fingers,and hold the glass slide.

4. Use 10X objective to focus

Rotate the converter, move the 10 x object lens to optical lattice (when rotated, the converter will automatically locate object lens, focus the image on specimen by turning the coarse and the fine focal handwheel. Selecting the appropriate position,when the movement

direction of the object stage and the focusing handwheel is matched. Coarse fine-tuning hand wheel adjust the stage lifting, and fine-tuning hand wheel is used to adjust the sharpness of the measured object imaging.

5. Eyepiece diopter adjustment

According the left and right eyes' diopter to adjust diopter adjustment ring. Users can make full use of the advantages of the objectives and use the function of parfocality.

1) Move the 40 x object lens to optical path, turn the coarse and fine focal handwheel to focus the specimen.

2)Move the 10 x object lens (or 4 x object lens) to the optical path.

3)Left eye through the left eyepiece, by turning the left eyepiece apparent circle, fine-tuning coke handwheel,to focus on specimen. Repeat the above steps to see images by left and right eyes at the same time.

6. Condenser vertical position adjustment

Using the condenser lifting handle to transfer it to the upper limit, then lower it down a little bit. If you find scattering field background images, you can adjust the condenser slightly up and down,to make it disappeared.

7. Selection of the objectives

Rotate lens converter, select the desired objective magnification, adjust the according to the selected object lens.

8. Aperture diaphragm adjustment

Put the regulating rod dial of condenser aperture diaphragm to the optical path to make the ratio of the objective same number.

Aperture diaphragm adjustment

① The regulating rod dial of aperture diaphragm changes its scale. If a narrow aperture, brightness and resolution will be lower, and the contrast and depth of field will increase. On the contrary, if a large aperture, brightness and resolution will be increased, while the contrast and the depth of field will be reduced.

② In order to obtain ideal and appropriate contrast image, you can make the aperture diaphragm adjustment transferred to the numerical aperture of the objective of 70% to 80%. Aperture diaphragm controls the numerical aperture of the condenser. Don't use it to adjust

the brightness,you can use brightness control knob to adjust the brightness instead.When observing the aperture diaphragm,please move the eyepiece, use the binocular tube to observe directly.

③ Numerical aperture of the condenser is said in the corresponding objective multiple,40 x / 0.65 tag is refers to the magnification of 40 x, numerical aperture of 0.65, the position of the aperture adjustment lever.

9. Oiled observation

Labeled "oil" font object lens for oil immersion objective. When using the oil objectives,they should be oiled by special microscope liquid between the lens and cover glass. Make sure that the cap is tight after using the oil.The cap may be a little loose after long-term use.So you should inspect the cap regularly to protect the oil from spilling. Don't extrude container excessively, it may be the cause of oil overflowing suddenly from the container. In the using process,please wipe the oil on the container.

10. Adjust the torque of coarse focusing handwheel

The coarse focusing handwheel looseness is adjustable.If you want to increase the torque, you can twist the torque adjustable ring of the coarse focusing handwheel counterclockwise.On the contrary,twist it clockwise.Don't tune it too loose, or the stage will be dropped automatically.

Fluorescent Attachment

excitation	applications
U	• Auto-fluorescence observation • DAPI: DNA • Hoechest 332528, 33342: Chromosome；dermatophyte
V	• Catecholamines • 5-hydroxy tryptamine • Tetracycline: Skeleton，Teeth
B	• FITC: Fluorescent antibody method • Acidine orange: DNA, RNA • Auramine: Tubercle bacillus • EGFP，S65T，RSGFP
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For fluorescence observation, the microscope light source should be turned off!

12. TROUBLESHOOTING GUIDE

Problem	Causes	Remedy
1) The bulb does not light.	Power cord of the power supply unit is unplugged.	Plug in the power cord into a power outlet.
	Main switch of the power supply unit is not ON.	Set the main switch to “I” (ON).
	The fuse is burnt out	Replace the fuse.
	The bulb is burnt out.	Replace the bulb.
2) The bulb lights but the field of view is dark.	The voltage is too low	Increase light intensity to an optimum voltage.
	Condenser is not well positioned.	Adjust the condenser height until the field iris diaphragm image is formed in the specimen plane.
	Condenser is not centered.	Center the condenser so that the field iris diaphragm image is centered in the field of view.
	Revolving nosepiece is not in a click position.	Make sure that the revolving nosepiece clicks properly into place.
	Field iris diaphragm is not opened wide enough.	Open the field iris diaphragm sufficiently.
	Too many filters are used.	Reduce the number of filters to the minimum required.
3) Field of view is obscured or not evenly illuminated.	The objective that falls outside the condenser's illumination range is used.	Use a condenser that matches the objective.
	Field iris diaphragm is not properly centered.	Center the field iris diaphragm correctly.
	Field iris diaphragm is stopped down too far.	Open the field iris diaphragm sufficiently.
	Revolving nosepiece is in an intermediate position	Engage the revolving nosepiece at a click stop.
	A filter is stopped in an intermediate position.	Set the filter at the appropriate position.
	The frost filter is not engaged.	Engage the frost filter.
4) Dirt or dust is visible in the field of view.	Dirt/dust on the specimen.	Clean thoroughly.
	Dirt/dust on the eyepieces.	
	Dirt/dust on a mirror unit.	
	Dirt/dust on the optical element.	
	Condenser is not correctly positioned and the frosted filter or filter is focused.	Adjust the condenser height until the field iris diaphragm image is formed in the specimen plane.
5)Image glares	Condenser is raised too high.	Lower to the proper position.

	Aperture iris diaphragm is stopped down too far.	Open the aperture iris diaphragm.
6)Visibility of observe image is poor, Image is not sharp Contrast is poor,Details are poorly visible.	Objective in use is not designed for DIS series.	Replace with an objective designed for DIS optics.
	Front lens of the objective is dirty	Clean the objective.
	Immersion oil is not being used with an oil immersion objective.	Use immersion oil.
	Inappropriate slide or cover glass thickness.	Replace with glass of appropriate thickness.
	Dirt/dust on glass components (condenser, objective, eyepieces,)	Clean thoroughly.
	Phase plate are not centered.	Center it.
7) Image is blurred.	Objective is engaged incorrectly in the light path.	Make sure that revolving nosepiece clicks intoplace correctly.
	Specimen is tilted with respect to the stage.	Place the specimen correctly on the stage.
8) Field of view of one eye does not match that of the other.	The interpupillary distance is incorrect.	Adjust the interpupillary distance.
	Incorrect diopter adjustment.	Adjust the diopter.
	You are not accustomed to parallel optical axis.	When looking into eyepieces, do not stare at image from the beginning but see the overall field of view. It is sometimes recommended to turn your eyes away from the eyepieces, look far off and look in to the eyepieces again.
9) The coarse/fine adjustment knobs will not rotate easily or at all.	The rotation tension adjustment ring is too tight.	Loosen the ring optimally.
10) The stage lowers by its own weight.	The rotation tension adjustment ring is too loose.	Tighten the ring optimally.

IMPORTAT

1 Safety Symbols On The Microscope

The following symbols are found on the microscope. Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Explanation
⚠	High temperature warning! Indicates that the surface becomes hot, and should not be touched with bare hands. This symbol is on the bottom cover of microscope.
⚠	Beside the fuse and power connector. Do not touch! Electric shock may happen when the power cord is connected.
I	Indicates that the main switch is on.
O	Indicates that the main switch is OFF.

2 Caution Symbols in this Manual

If the microscope is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the equipment may also be damaged. Always use the equipment as outlined in this instruction manual.

The following symbols are used to set off text in this instruction manual.

Symbol	Explanation
⚠	Indicates that failure to follow the instructions in the warning could result in bodily harm to the user and /or damage to equipment (including objects in the vicinity of the equipment).
★	Indicates that failure to follow the instructions could result in damage to equipment.
◎	Indicates commentary (for ease of operation and proper maintenance).

3 Safety Precautions

3.1 After the equipment has been used in an observation of a specimen that is accompanied with a potential of infection, clean the parts coming in contact with the specimen to prevent infection.

Moving this product is accompanied with the risk of dropping the specimen. Be sure to remove the specimen before moving this product.

In case the specimen is damaged by erroneous, promptly take the infection prevention measures.

3.2 The microscope is provided with a simplified waterproof mechanism. Therefore, if culture liquid or water is split on the stage, revolving nosepiece or microscope frame, damage to the equipment or an electrical shock may result. Immediately wipe the liquid or water off if it is spilt on them.

3.3 The microscope is not covered by warranty in terms of laser safety. The user should assume liabilities for any consequence of user modification,

3.4 The surfaces of the lamp housing will become extremely hot during long-time operation. Be sure to keep the flammable stuffs such as paper, alcohol, oil away from the lamp house to avoider.

3.5 When using the microscope, route the power cord away from the lamp housing. Should the power cord come in contact with the hot lamp housing, the power cord could melt and cause electric shock.

3.6 To avoid potential shock hazards and burns when replacing the light bulb, set the main switch to “O” (OFF) then disconnect the power cord from the wall outlet in advance. Whenever you replace the bulb during use or right after use, allow the lamp housing and bulb to cool before touching.

3.7 Electric shock warning:

Remove of the bottom cover of the microscope makes the dangerous electric parts inside exposed. Any contact with these parts may cause shock or death. In event of maintenance, please apply to qualified professionals for help.

3.8 The G4 bulb socket is designed specially for 6V/20W halogen bulb. Damage will occur if bulb of different description is replaced.

3.9 Always be sure the power cord provided by the supplier. If the proper power cord is not used, product safety performance cannot be warranted.

3.10 To avoid potential shock hazards when replacing the fuse, set the main switch to “O” (OFF) then disconnect the power cord from the wall outlet in advance.

3.11 Always ensure that the grounding terminal of the microscope and that of the wall outlet are properly connected. If the equipment is not grounded, the supplier can no longer warrant the electrical safety performance of the equipment.

3.12 Never insert metallic objects into the air vents of the microscope frame as this could result in electrical shock, personal injury and equipment damage.

3.13 A microscope is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact

4 Moving the Microscope

4.1 When moving the microscope, remove the observation tube, then carefully carry the microscope frame by the base (front edge) and the grasping part in the upper rear.

4.2 Also be sure to remove the specimen since it may fall.

4.3 When moving the microscope for a long distance, it is also recommended to disconnect all cables from the equipment.

4.4 When transporting it, also engage the adhesive tape lock mechanisms and package it sufficiently.

4.5 Also be careful against slipping of hands during carrying.

★ Damage to the microscope will occur if you grasp it by other parts including the stage, coarse/fine adjustment knobs, the nosepieces, etc.

5◎Working environment

5.1 Indoor use.

5.2 Ambient Temperature: 5℃to 40℃ (41℉to 104℉)

5.3 Maximum relative humidity: 80% for temperatures up to 31℃ (93℉), 60% at 37℃ (99℉), to 50% relative humidity at 40℃ (104℉).

5.4 Supply voltage luctuations: ±10%

5.5 Pollution degree: 2 (In accordance with IEC60664)

6 Electric Power Specifications

Input: 100-240V～0.5A, 47-63Hz

Output: 4.3V 0.75A(LED) or 6V 3.4A(halogen bulb)

Fuse: 1A, 250V, F φ5×20mm

LED base 20mm ; Halogen Bulb Socket: G4

7 Maintenance and Storage

7.1 Clean all glass components by wiping gently with gauze. To remove fingerprints of oil smudges, wipe with gauze slightly moistened with a mixture of ether (70%) and alcohol (30%).

Since solvents such as ether and alcohol are highly flammable, they must be handled carefully. Be sure to keep these chemicals always from open lames, or potential sources of

electrical sparks—for example, electrical equipment that is being switched on or off. Also remember to always use these chemicals only in a well-ventilated room.

7.2 Be sure to clean the oil immersion objective after use. Leaving immersion oil on it will degrade its performance.

7.3 Do not attempt to use organic solvents to clean the non-optical components of microscope. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.

7.4 Never attempt to disassemble any part of the microscope.

7.5 When not using the microscope, make sure to set the main switch to “O” (OFF), conirm that the lamp housing is cool enough and cover the microscope with the provided dust cover.

7.6 Do not use the microscope where it is subjected to direct sunlight, high temperature and humidity, dust or vibrations.

8 UNPACKING THE MICROSCOPE

8.1 Please check all the components according to the packing list in the package as you unpacking the microscope. Contact us or our distributor as soon as possible if any component is missed in the package.

8.2 Before transporting the microscope, we have fixed the flexible parts of the stage with pieces of adhesive tape, please remove the adhesive tapes before use.