

MF23 Series

Fluorescence Microscope

User Manual



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Thank you for buying our product!

This unit is a precision optical instrument. Our product has been design to provide the highest level of safety, however, improper operation or negligence in following the instructions in this manual may cause personal injuries and property losses. In order to ensure your safety, prolong the life of this unit and maintain it properly, please read this manual carefully before operating this unit.

Caution!

This manual uses the following symbols for safety reminders. Be sure to observe these warnings in order to operate this unit properly and safely.



Warning!

Negligence in heeding the warning of this symbol may cause personal injury or damage to this unit!

Caution!

Negligence in heeding the caution of this symbol may affect the viewing performance of this unit.

Reminder!

Provide instructions and skills in operating this unit.



Pay attention to environmental protection.

Safety Reminder



Warning!

1. Be sure to turn off the power switch and remove the power cord before installing this unit, replacing the bulb or fuse, plugging and unplugging the power supply.
To prevent electric shock or fire, be sure to turn off the power switch and remove the power cord before installing this unit, replacing the bulb or fuse, plugging and unplugging the power supply.



Warning!

2. Do not disassemble

Except the removable parts mentioned herein, no part of this unit shall be removed, otherwise the performance of this unit may be reduced, or may cause an electric shock, injury or damage to this unit. Please contact the supplier if any fault occurs.



Warning!

3. Input voltage

Check if the input voltage is consistent with your local voltage supply. If not, do not operate this unit and contact the supplier. Improper input voltage may cause a short circuit or fire thereby causes damage to this unit.



Warning!

4. Use specific bulb, fuse and power cord

Use of an improper bulb, fuse or power cord may cause damage or fire to this unit. Any extended power cord used must be grounded (PE).



Warning!

5. Protect this unit from high temperatures, dampness and foreign objects

To prevent short circuit or any other fault, do not expose this unit to any high temperatures or dampness environment for a prolonged period of time. A suitable operating environment is designated at a temperature of 5°C-35°C, and relative humidity of 20%-80% (at 25°C). If water splashes on this unit, turn off the power switch and remove the power cord immediately, and then wipe the water off with dry cloth. When any foreign object enters or drips onto this unit, please stop operating the unit and contact the supplier.



Warning!

6. Heat of light source

The lighting bulb generates high temperatures during operation. Do not touch the collector lens or lamp box when the lamp is illuminated, and do not touch the bulb within 10 minutes after the lamp goes out due to high temperatures arising from operation. When replacing the bulb, make sure it has cooled down properly (the lamp should be off for at least 10min).

★ To prevent burn, do not touch the bulb when the lamp is illuminated or within 10min after it goes out.

★ To prevent fire, do not place any fibrous product, paper, flammable or explosive material (e.g., gasoline, petroleum ether, alcohol) near the halogen lamp housing or mercury lamp housing.



Warning!

7. Coarse/fine focusing knobs

This unit employs a coarse/fine coaxial focusing mechanism. Do not turn the left/right coarse/fine focusing knob in the opposite direction. When the objectives lifting device reaches the limit of motion, do not continue to turn the coarse focusing knob, otherwise the focusing mechanism may be damaged.

Caution!

8. Storage place

This unit is a precision optical instrument, and improper operation or storage may cause damage or its precision may be adversely affected. Consider the following when selecting a storage place:

※ Avoid placing the unit under direct sunlight, directly under interior lighting or any other bright place.

※ A suitable operating environment is designated at a temperature of 5°C-35°C, and relative humidity of 20%-80% (at 25°C). Do not expose this unit to high temperatures, dampness or dust for a prolonged period of time, otherwise mist or mold may develop or dust may deposit on the lens, thus cause damage to this unit and shortening its life.

Caution!**9. Installation of bulb**

Do not touch the glass surface of the bulb directly with bare hands. When mounting the bulb, wear gloves or wrap it with cotton material.

- ※ Wipe off any dirt on the surface of the bulb with a clean cotton fabric dipped in alcohol. If the dirt is not thoroughly removed, it would etch the surface of the bulb weakening its brightness and shortening its life.
- ※ Mount the bulb with care to avoid slipping off or injuries to your fingers.
- ※ When replacing the bulb, make sure its contact is intact. If its contact is damaged, the bulb may be disabled or short circuited.
- ※ When replacing the bulb, the feet should be inserted into the holder as deeply as possible. If the feet are not tightly inserted, the bulb may go out or short circuit.

Caution!**10. Instrument handling**

This precision optical instrument is heavy and should be handled with care. Strong impact and rough handling are strictly prohibited, it may cause damage to this unit.

**11. Environmental protection**

Please dispose the wastes from the packaging and operation of this unit by category such as cartoon, foam, plastic, bulb and etc. Do not discard the damaged mercury lamp carelessly in order to avoid creating environmental poll

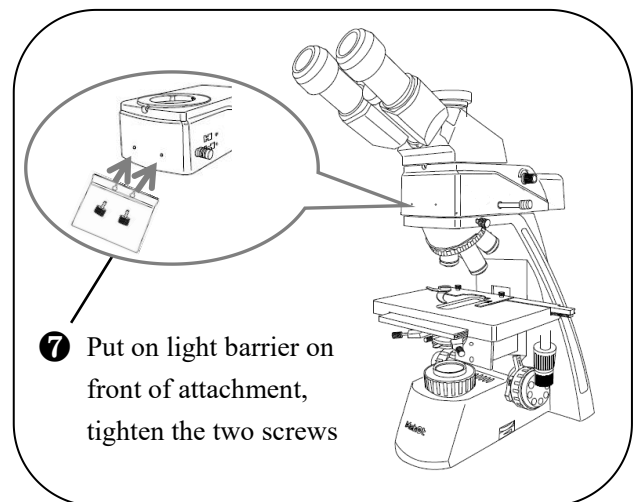
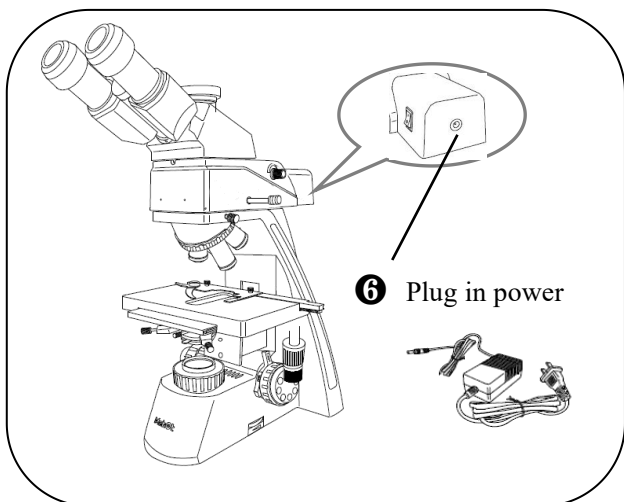
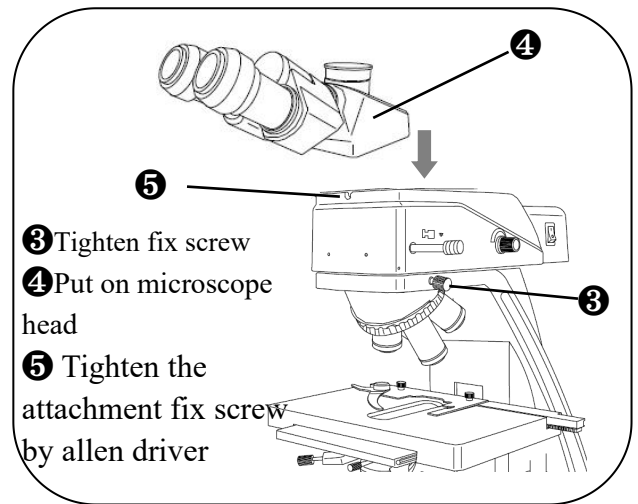
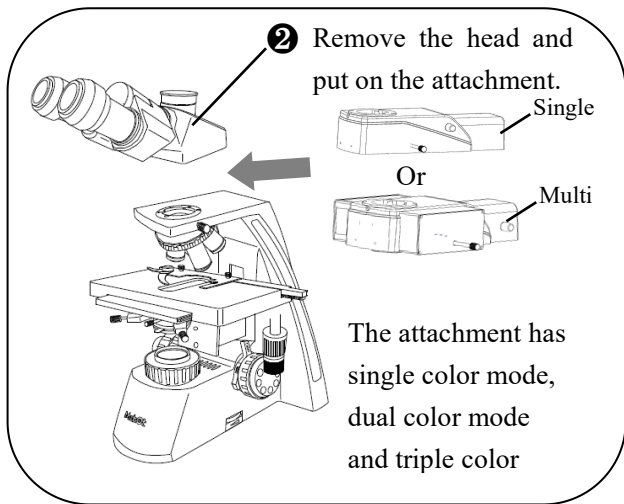
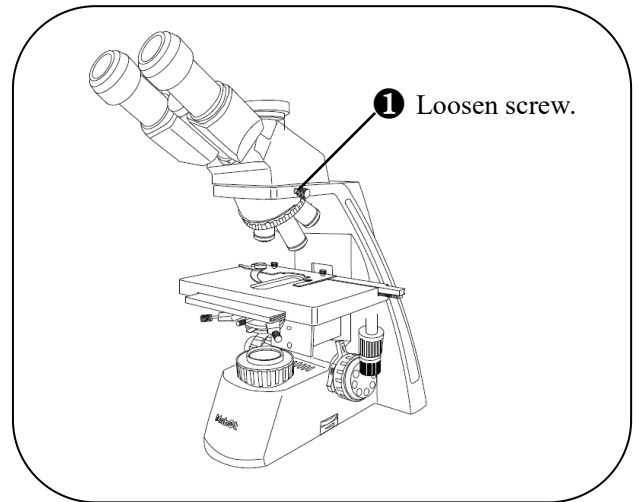
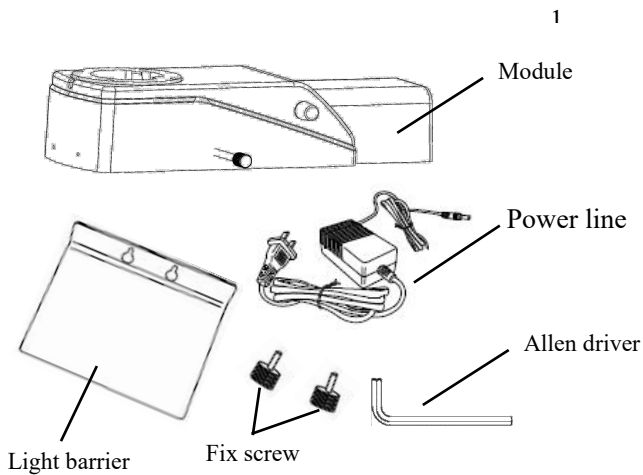
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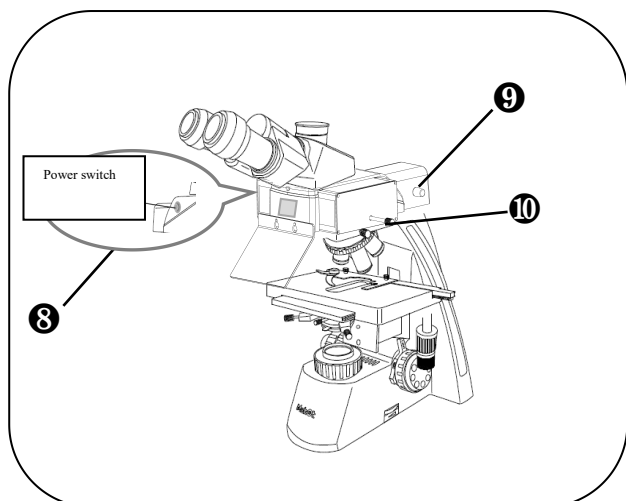
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I. Characteristics and applications of this unit

Fluorescence biological microscope MF23 takes use of Olympus CX23 biological microscope as main body, and MSHOT self designed LED fluorescence attachment come into being a favorable epi-fluorescence microscope for lab working. Working with trinocular head the microscope is ideal for both of eyepiece view and photography on PC. The microscope is popular sued at clinical centers and university labs, used to observe cells, tissues, bacteria of bright field and immunofluorescence observation methods.

II.Components and installation





⑧ Press on the power switch, screen will light on and show 'OFF'.

⑨ Press the brightness adjustment knob once, and the light source has been turned on when you hear a click. It defaults in the neutral "O" state at the first time open, the digital display screen will display 'O'.

⑩ Push and pull the switch lever to switch different fluorescent channels (O/B/G/U) according to needs, and the current fluorescent channel name will be displayed on the digital display screen in real time

Note: O is for bright field

When observing bright field please set light channel to O/UV

III. Technical specifications

Item	Specification
Optical system	Infinity optical system
Eyepiece	Wide field WF10X/FN:20mm (anti-fungus)
Observation head	Trinocular head with triple light split 0 / 50% /100%
Objective	Infinity plan achromat 4X/0.10, working distance 27.8mm
	Infinity plan achromat 10X/0.25,working distance 8.0mm
	Infinity plan achromat 40X/0.65,working distance 0.60mm
	Infinity plan achromat 100X/1.25(spring), working distance 0.13mm
Focusing system	Fine and coarse adjustment with tension and limited stopper, minimum adjustment gradations:2.5um,coarse movement stroke:15mm
Nosepiece	Quadruple fixed nosepiece
Stage	Wire movement mechanical fixed stage, size 120mmx132mm, travelling range 76mmx30mm
	Single specimen holder
Condenser	Abbe condenser, NA 1.25 (with immersion oil), inter set aperture diaphragm
Fluorescence illumination	LED fluorescence illuminator
	3W LED
	Blue excitation: EX460~490nm, DM>500nm, EM>510nm
Transmitted illumination	Built-in transmitted illumination system, LED power Consumption 0.5W(nominal values)
	Optional: 6V 20W halogen lamp
Power source	AC, 100-240V, 50~60Hz

IV. Using remind

1. When moving instrument, please hold the microscope by both hands.
2. Keep all optical components tiny and clear, it is very important.
3. Cover the microscope with dust cover when do not using the microscope.
4. Before wiping dust or dirt, please blow off with air blower.
5. Avoid excessive using solvent lint free cloth, please soak lens paper and cotton swab with solvent before using.
6. It is easy to overstock dirt, dust and oily material on the front side of objective lens. Please use magnifying glass to check if there is not reference substance or under dark and confused surroundings.
7. If need to take off microscope lens body, please notice do not touch lens outside face to avoid impression. On it will reduce image definition.
8. This instrument belongs to I type normal standard electrical equipment safety.
9. This instrument does not belongs to AP type or APG type equipment.
10. This instrument is equipment with protection against electromagnetic interference, surge voltage and surge current.
11. High pressure inside, non-professional people please does not open bottom base.
12. The epi fluorescence illumination is only fit to 12V, 2A power adapter.

Fault	Cause	Disposition
Electric system		
No light shown in the field of view using halogen lamp	The power switch is not turned on.	Turn on the power switch.
	The halogen lamp is damaged.	Replace the halogen lamp.
	The fuse is damaged.	Replace the fuse.
	The connector of the electric chassis is in bad contact.	Check and have professional repair it.
	The halogen lamp mounted is nonconforming.	Use a conforming halogen lamp.
Optical system and imaging		
There is a black shadow on the edge of the field of view or unevenly illuminated, making it impossible to observe the whole field of view.	The nosepiece has not been turned to the fixed position.	Turn the nosepiece to the fixed position.
	The filament image deviates from the center of the collector.	Reposition the lighting bulb.
	There is dirt or oil on the surface of the objective, eyepiece or condenser	Wipe the lens surface or replace the lens.
Oil or dust is found in the field of view.	There is oil or dust on the eyepiece lens.	Wipe the eyepiece.
Defocusing or low resolution	The objective is damaged.	Repair the objective (by a professional).
	There is oil or dust on the surface of the lens of the objective or eyepiece.	Wipe the objective or the eyepiece.
	The aperture of the aperture diaphragm is too small.	Adjust the aperture of the aperture diaphragm based on the objective magnification (or numerical aperture) used.
	The objective deviates from the light path.	Turn the nosepiece to the fixed position.
The focal plane of the image is inclined (brighter on one side and darker on the other)	The lighting bulb is seriously inclined.	Reposition the lighting bulb.
	The specimen is not laid flatly.	Lay the specimen flatly on the object stage and hold it stably.
Mechanical system		
The image cannot remain clear during observation.	The focusing mechanism flows (slides down) automatically.	Adjust the coarse adjusting hand wheel.
	The fine focusing mechanism fails	Check and have professional repair it.
	The stage loosens or is inclined.	Check and have professional repair it.