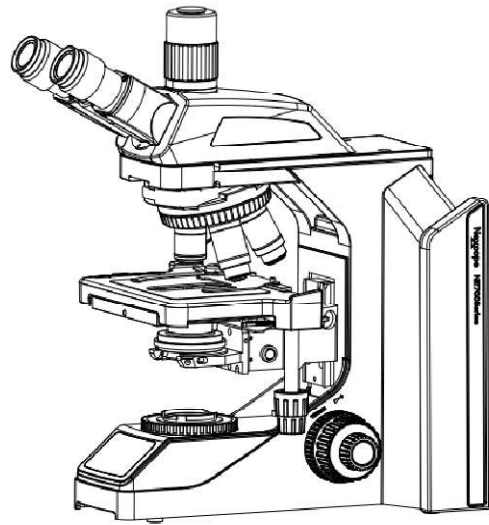


NE700 Series Microscope

User manual



This instruction manual is suitable for NE700 laboratory biological microscope. In order to ensure safety, give full play to the best performance of the instrument, and make you fully familiar with the use of this microscope, we recommend that you read this manual thoroughly and carefully before operating the microscope.

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1.Safety Precautions

1. Be careful when opening the box to prevent the lens glass from sticking to fingerprints, sweat, etc. that affect the observation, and prevent the lens and other accessories from being dropped and damaged.
2. Avoid placing the microscope in a place subject to direct sunlight, high temperature or high humidity, excessive dust, and strong vibration. Ensure that the stage is flat, level and strong enough.
3. When you need to move the microscope, hook the slot on the upper back of the rack with one hand and support the bottom of the rack with the other hand.
4. If bacterial solution or water splashes on the stage, objective lens or observation tube, you should immediately unplug the power cord and wipe off the solution or water to ensure that the microscope is dry. Otherwise, the instrument may be damaged.
5. In order to avoid blocking the natural convection air used for cooling, make sure to keep a distance of at least 10 cm between the left, right, top, and back of the microscope and the wall and other objects.
6. Ground the machine to avoid lightning strikes.
7. To ensure safety, before replacing the LED bulb, make sure that the main switch is in the "O" (disconnected) state, and cut off the power supply, while waiting for the bulb and lamp room to cool down completely. (Designated bulb: 3W LED bulb).
8. Input voltage check: The input voltage marked on the back of the microscope is consistent with the power supply voltage, otherwise it will cause serious damage to the microscope.

2. Maintenance and Storage

1. All lenses are adjusted and do not remove themselves.
2. Material lens converter and coarse micro-focus tuning mechanism, precise structure, please do not easily disassemble.
3. The instrument shall be kept clean, dust removed, and special attention to polluting the optical parts.
4. The stain of the lens such as fingerprints, grease can be gently wiped away with a clean soft cotton cloth, lens paper or gauze dipped in anhydrous (pure) alcohol (ethanol) or xylene. **(Both ether and alcohol are extremely flammable, and be careful not to close these chemicals to an open fire. Try to use these chemicals in well-ventilated rooms.)**
5. Do not use organic solvents to wipe the microscope nonoptical parts, if to clean, please use a neutral detergent.
6. When use, if the microscope is wet with liquid, cut off and dry.
7. Never remove any part of the microscope, which will affect the microscope's function or reduce its performance.
8. The instrument shall be placed in a cool, dry place with a dust cover without a microscope. After normal work, wait 15 minutes to cover the dust cover.

9. Microscope use environment requirements:
 - a) Indoor use;
 - b) The ambient temperature range: 5 °C ~30 °C;
 - c) Relative humidity range: 45%~85%.
10. Microscope storage and transportation environment requirements:
 - a) Environmental temperature range: -40 °C ~ + 55 °C
 - b) Relative humidity range: 10%~95%

3.Safety Signs

The following signs are on the microscope. Find out what these symbols mean, and always use the microscope in the safest way.

Logns	Meaning of the
	Power on
	Power off
	Direction of light intensity. When turning to the tip, the intensity decreases from strong to weak
SLEEP	Dormant State
LOCK	Light intensity is locked
 F.S. 	F.S :Field Stop,  :Expanding F.S.  :Narrowing F.S.
 / 	Incident Light/Transmission Light

Warning:

Failure to operate the microscope in the manner specified in this specification may endanger the safety of the user. Also, the microscope may also be damaged. The microscope shall always be operated in accordance with this instruction.

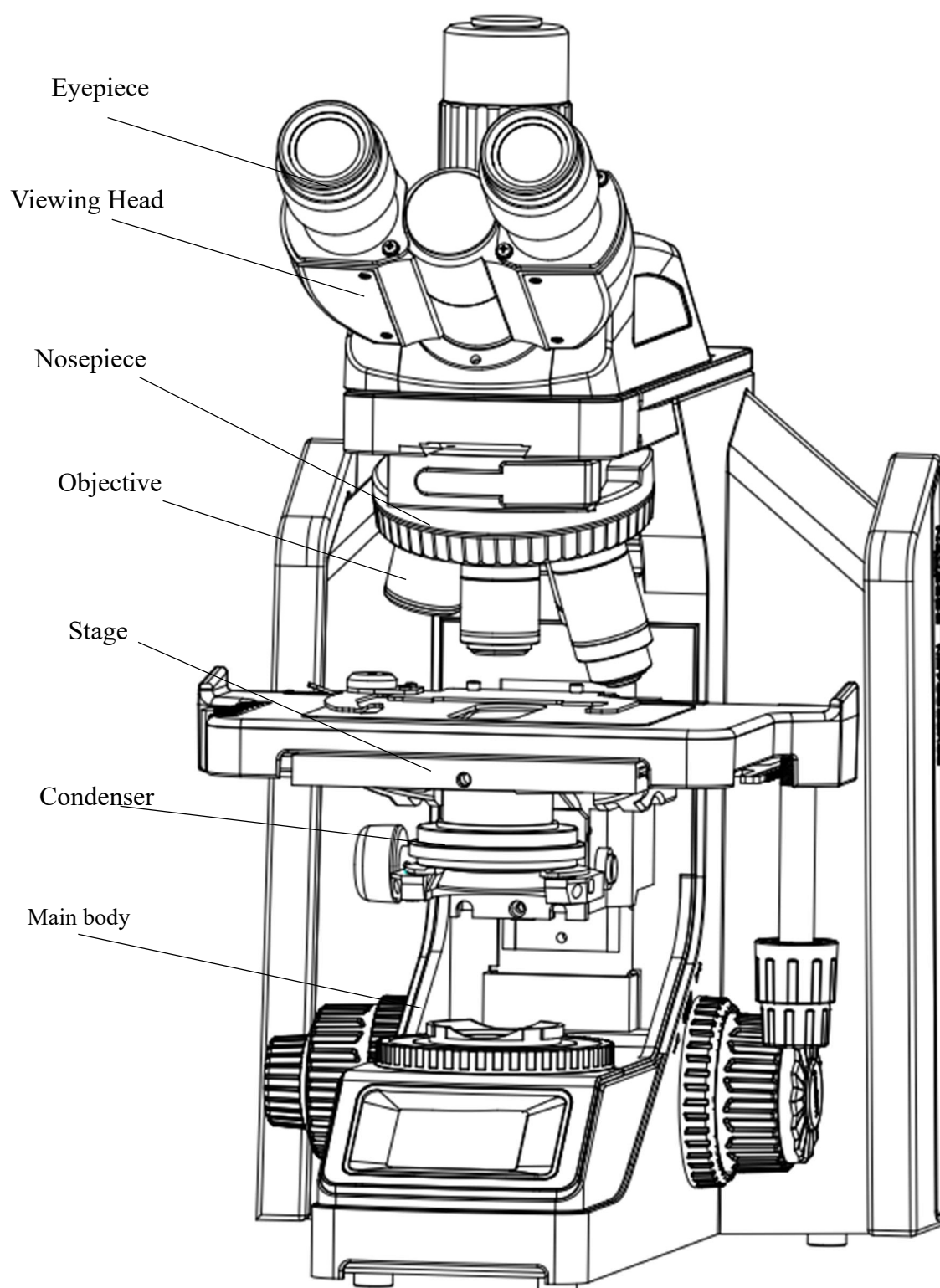
Transmission light sources (spotlight or collector mirror) may produce harmful optical radiation, and do not look directly at the transmission lighting light, which may cause eye damage.

© This microscope will not cause radiation and electromagnetic interference to the surrounding environment, and meets the EMC certification standards.

This manual shall highlight the following symbols:

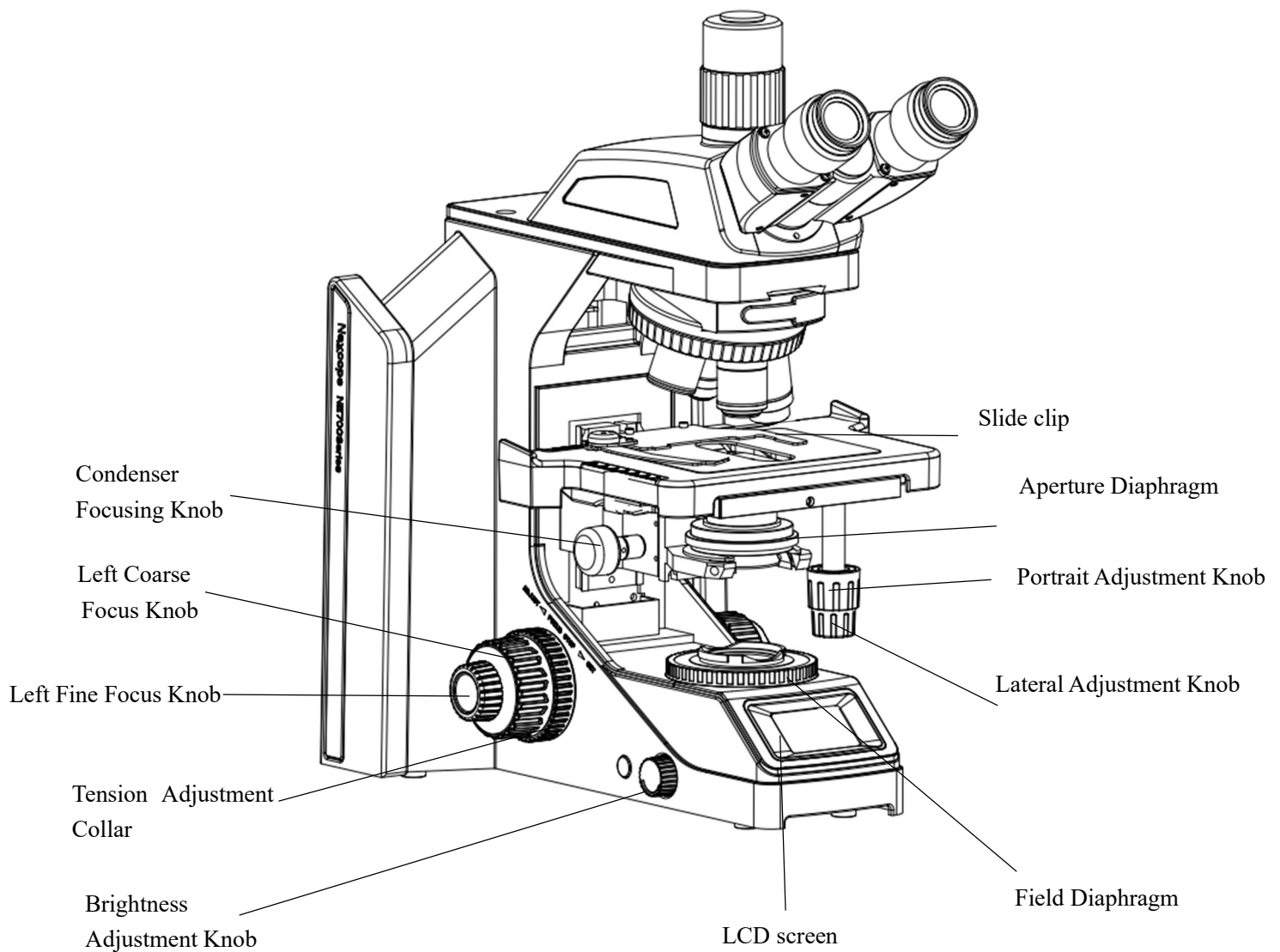
 Giving no attention to the warnings in this instruction will cause operator personal injury and / or damage to the instrument (including objects near the instrument)

★ indicates that failure to follow this instruction will cause instrument damage

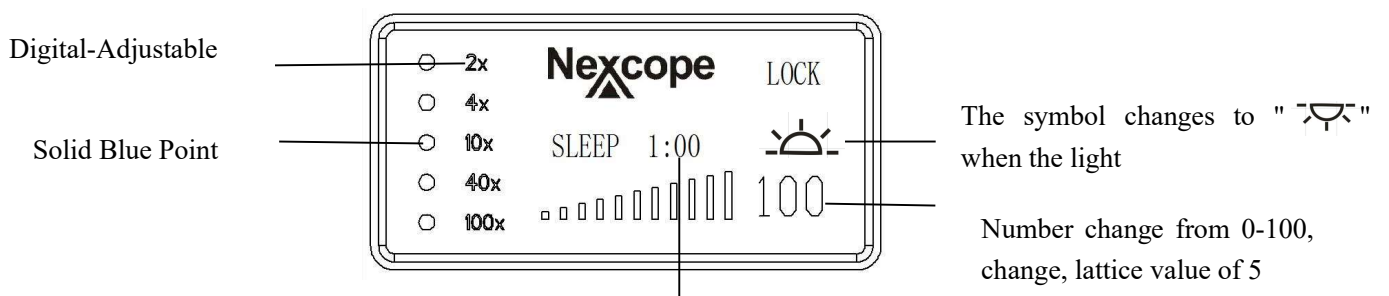


2.Overview of Each Institutions

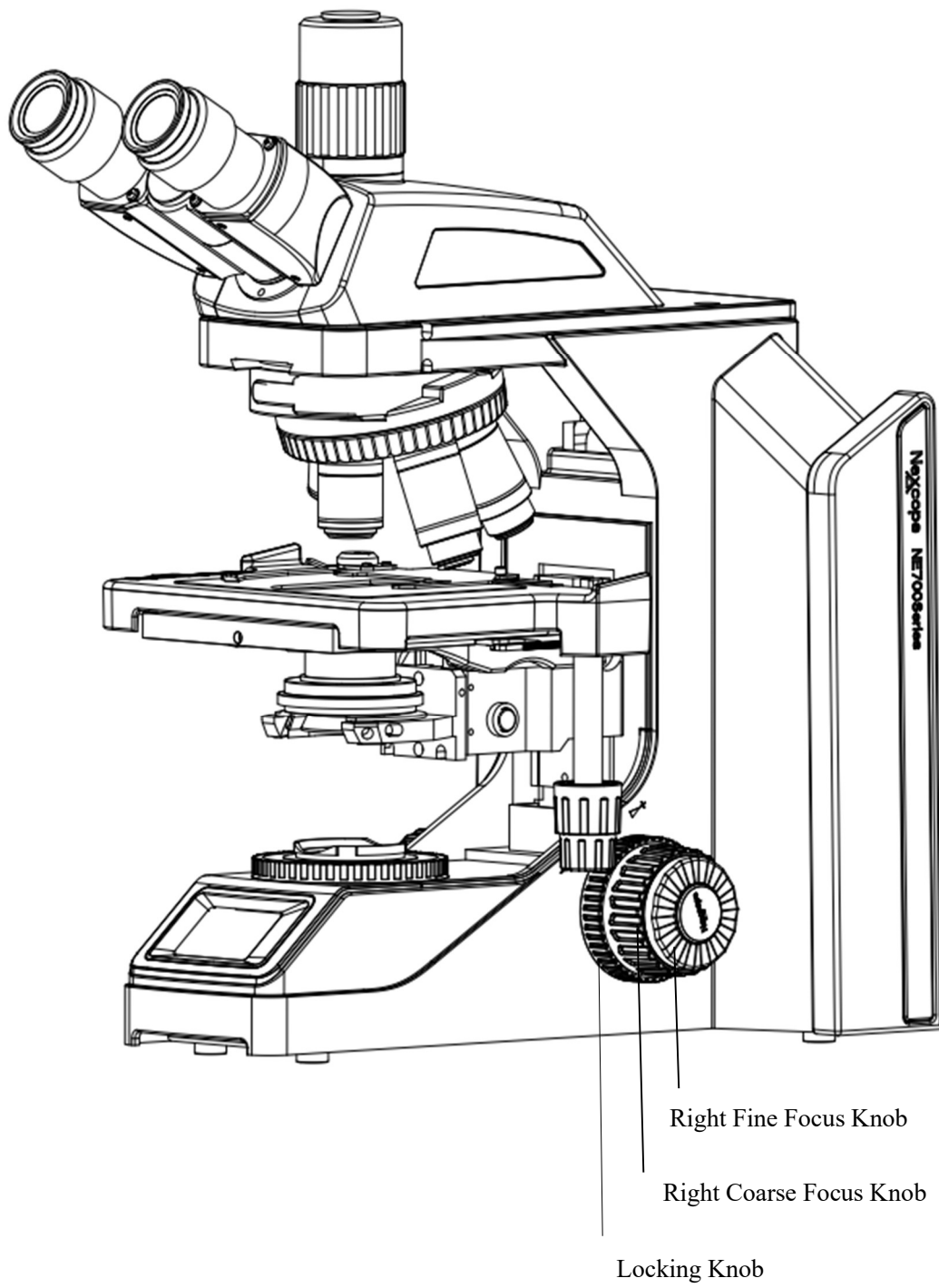
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LCD screen interface



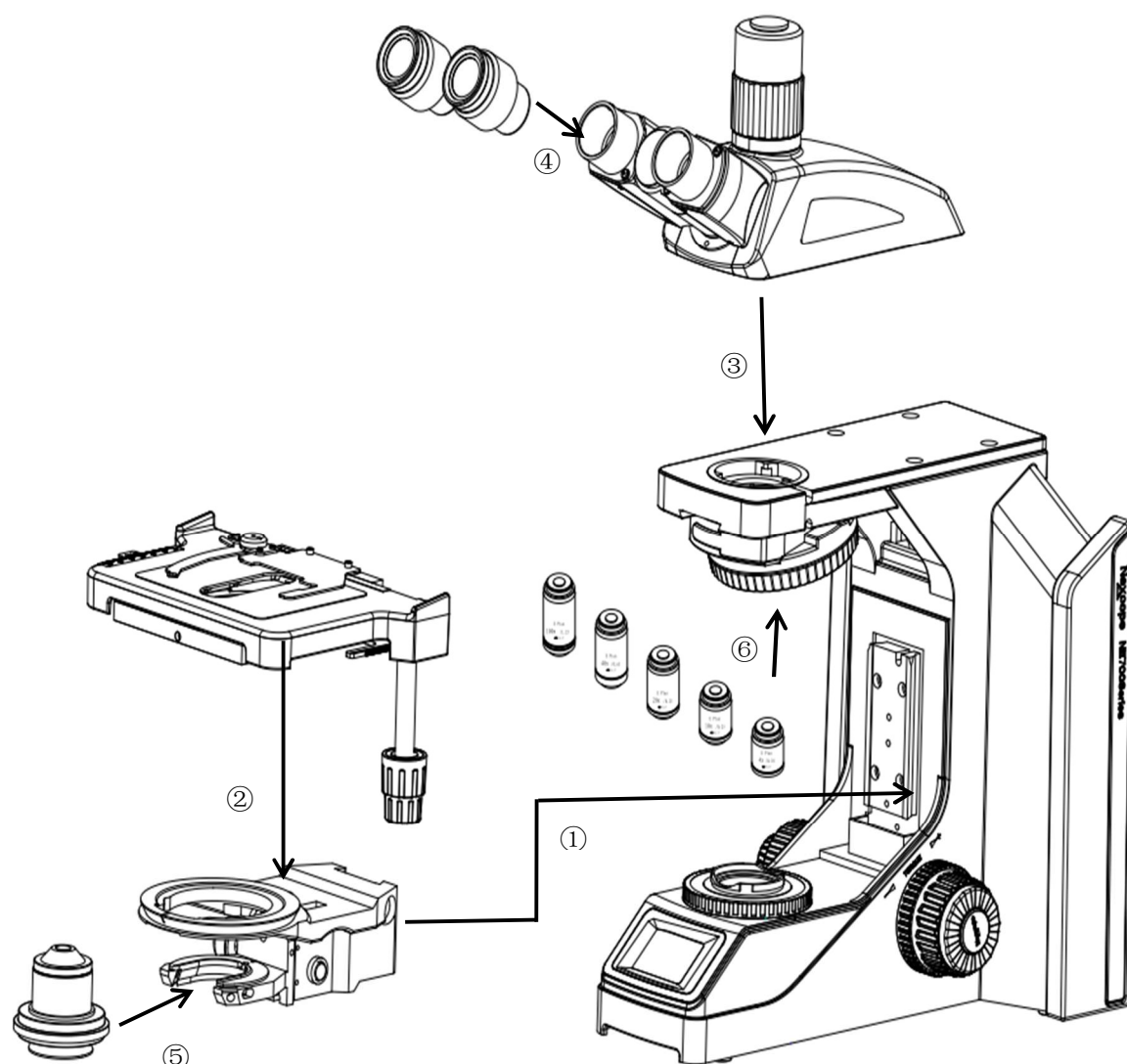
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3-1 Installation Diagram

The following Fig.shows the installation sequence of each component, and the Fig.shows the installation steps.

- ★ Before installation, verify that all parts are free of dust and dirt. Do not scratch any parts or the glass surface.
- ★ Keep the general-purpose wrench provided. You will also use the part when you replace it.



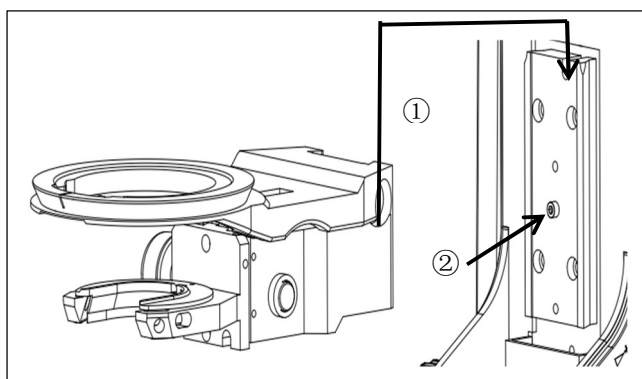


Fig.1

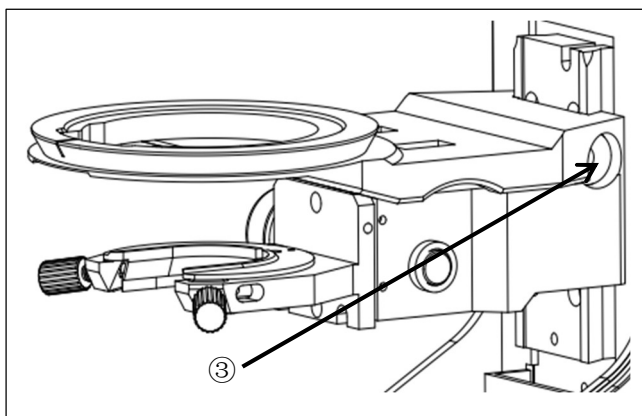


Fig.2

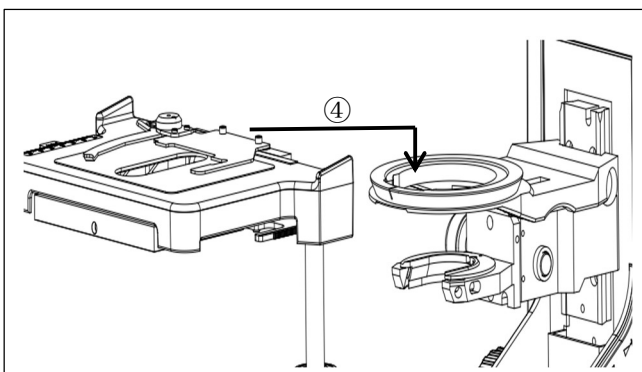


Fig.3

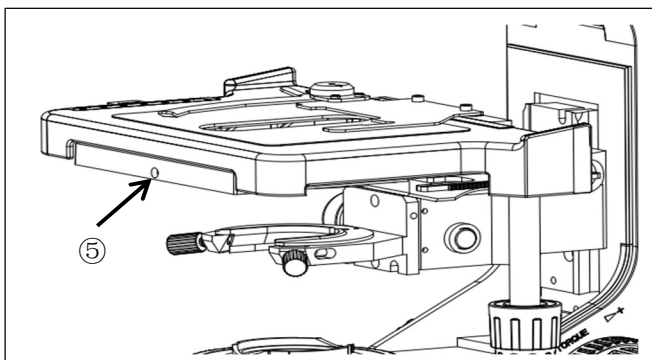


Fig.4

3-2-1 Installing the Mechanical Stage Bracket(Fig.1,2)

★ Rotate the thick operation wheel to lower the tailtail of the frame to expose the end screw as shown, then install the platform bracket according to the path of Fig.1, align the tailtail groove of the platform bracket in Fig.2 with the tailtail projection of the rack, place the platform bracket down until the limit screws in Fig.3 are tightened inward with the general wrench of the microscope belt.

3-2-2 Installation of Mechanical Stage Device(Fig.3,4)

★ The mechanical carrier platform shall be installed according to the path of Fig. 3 first roughly align the carrier hole center with the circle center of the bracket, and then cover the carrier platform down to the bracket positioning circle.

★ After the carrier table is placed smoothly, tighten the screws in Fig.4 inward with the internal general purpose wrench of the microscope band, so that the carrier table can not rotate and shake.

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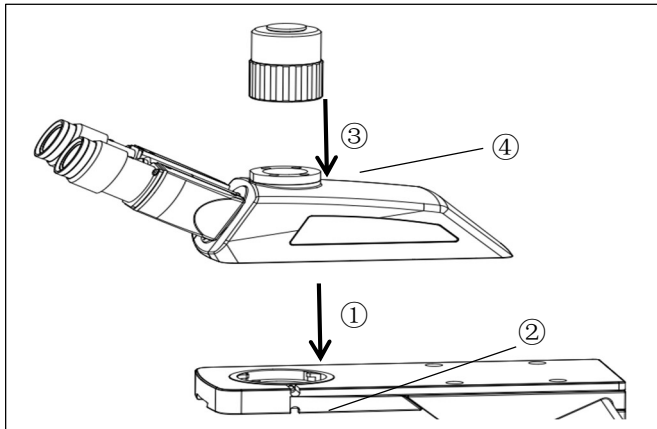


Fig.5

3-2-3 Install the Observation Head and Photography Accessories(Fig.5)

1. installation triocular observation head

Install the observation head into the microscope circular swallow tail by the path shown in Fig.5, and then the screws are tightened with the internal general wrench to secure the observation head.

2. Installation of Photography Accessories

When loading the photographic attachment, into the triocular attachment interface with the path shown in Fig.5, the screws are tightened with the internal general plate hand to secure the photographic attachment.

★In the process of installing the observation head, pay attention to one hand always holding the observation head to prevent falling and falling.

★When the triple observation head is not used and the photographic accessories are not installed, please cover the triple attachment interface and eyepiece interface with the corresponding dust cover to prevent ash from entering.

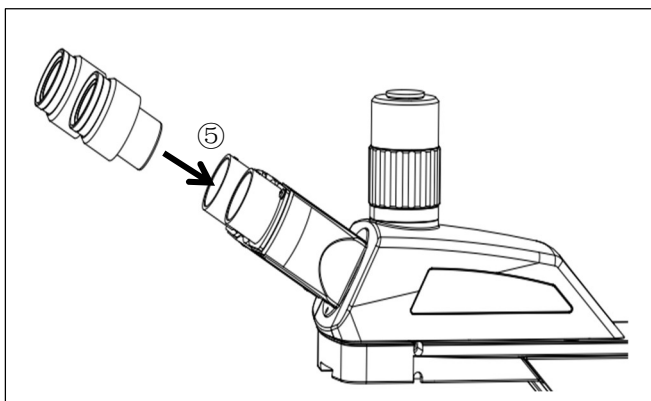


Fig.6

3-2-4 Install the Eyepiece(Fig.6)

1. Inserts the eyepiece into the watch holder by the serial number in Fig.6 to the face.

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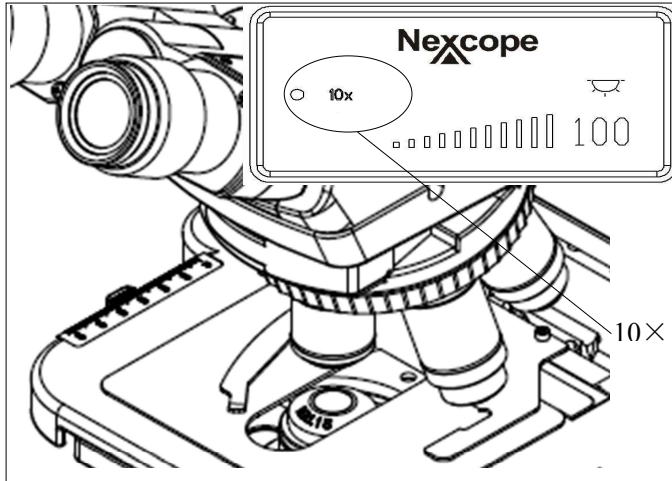


Fig.7

3-2-5 Install Objective Lens(Fig.7)

1. The adjusts the coarse focus handwheel until the mechanical carrier bracket drops to its low limit.

2. After the customer turns on the power supply, the converter turns to a certain position, and the corresponding objective lens doubling rate on the LCD screen will illuminate (as shown in Fig.7), and the corresponding objective lens is installed in that position.

★Regularly clean the objective lens, and the objective lens lens is very sensitive to dust.

★During operation, search the samples with a 10 × objective mirror and focus, and then replace other proportional objective mirrors as necessary.

★During the conversion mirror, turn the objective lens converter until a click is heard to ensure that the desired objective lens enters the center of the light path.

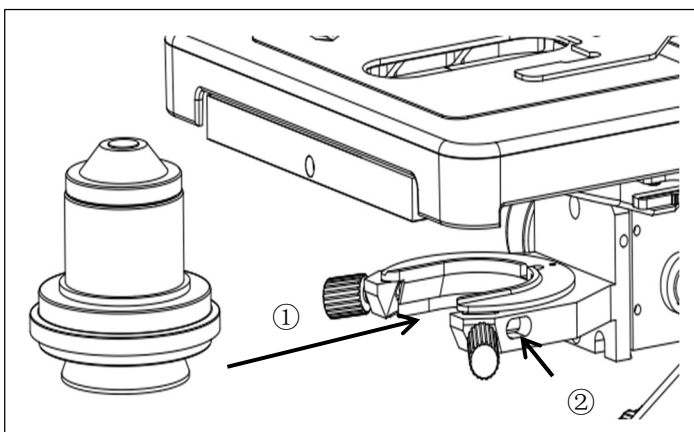


Fig.8

3-2-6 Install the Condenser(Fig.8)

Insert the spotlight into the path shown in Fig.8 and push to the maximum. Then turn the screw at the serial number in to support the spotlight mirror;

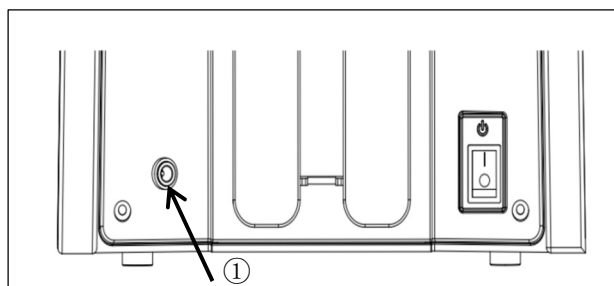


Fig.9

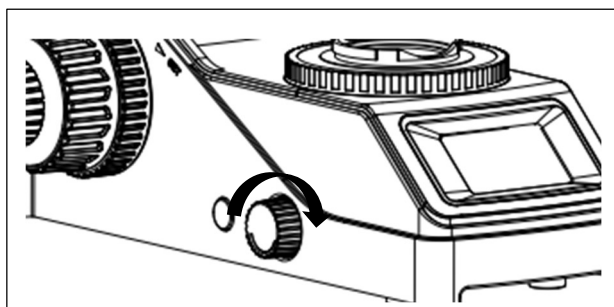


Fig.10

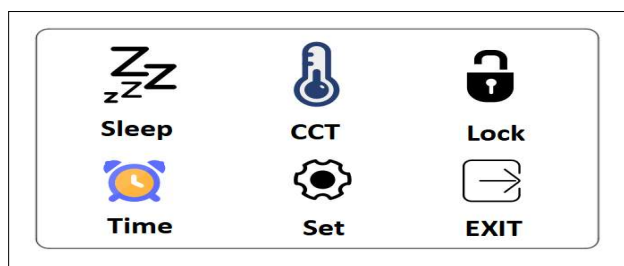


Fig.11.1

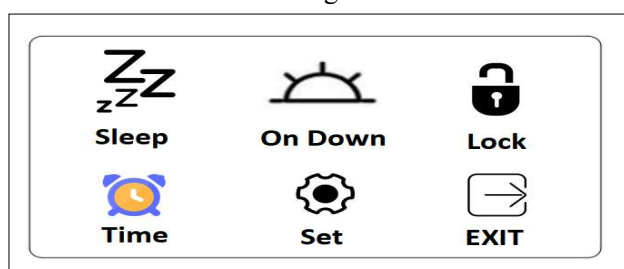


Fig.11.2



Fig.11.3

4-1 Turn On the Power(Fig.9)

Connect the adapter to the power supply and then insert the adapter plug in the position in Fig.9. Then dial the main switch on the back of the microscope body to the - state.

4-2 LCD screen function setting and adjustment(Fig.10-14)

Press and hold the knob for 3 seconds to enter the function setting interface, as shown in Figure 11.1/Figure 11.2. Switch functions by turning the knob up or down, and click the knob to select the function.

1.Sleep: Select Sleep by rotating the knob, click the knob to enter the sleep state, and "SLEEP" will be displayed on the screen, as shown in Figure 11.3. Click the knob again to release the sleep state, and the "SLEEP" on the screen disappears, displaying normal working mode.

2. Color temperature/brightness adjustment switch: Select CCT through the knob, click the knob to enter the color temperature adjustment state, as shown in Figure 12.1. When rotating in the direction indicated by the arrow on the dimming handwheel in Figure 10, the color temperature decreases, and vice versa, the color temperature increases. The color temperature adjustment range 3000K~7000K.

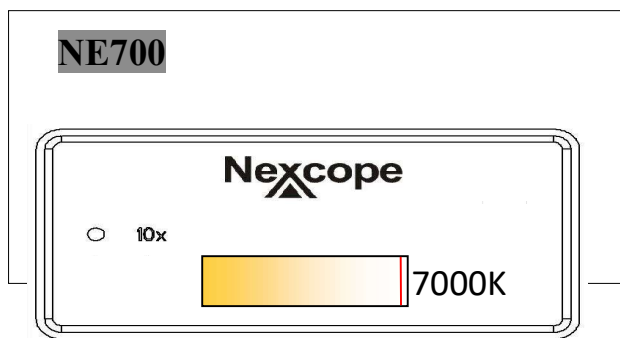


Fig.12.1

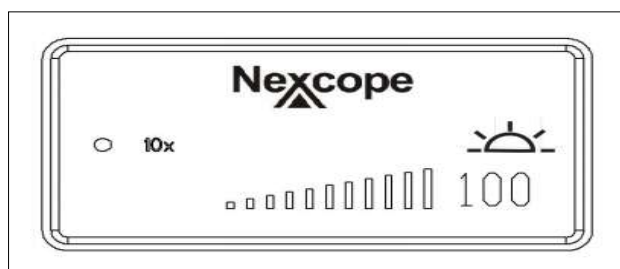


Fig.12.2

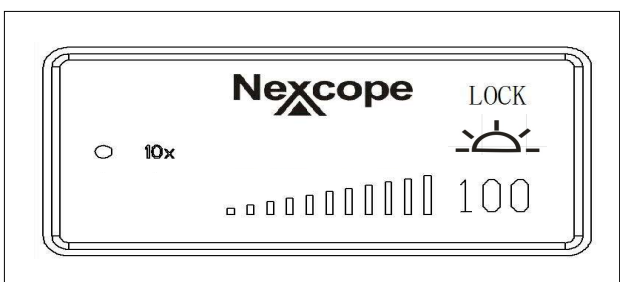


Fig.13.1

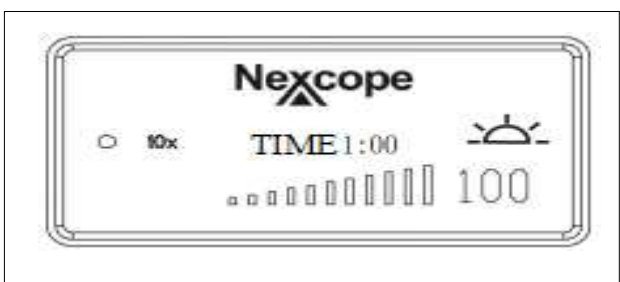


Fig.13.2

When switching back to brightness adjustment, press and hold the knob for 3 seconds to enter the function setting interface, as shown in Figure 11.2. Rotate the knob to select On Down, and click the knob to enter the brightness adjustment state, as shown in Figure 12.2. When rotating in the direction indicated by the arrow on the dimming handwheel in Figure 10, the brightness decreases, and vice versa, the brightness increases.

3. Light intensity lock: Select Lock through the knob, click the knob to enter the lock state, as shown in Figure 13.1. When locked, the dimming handwheel fails, and the LCD screen displays "LOCK"; "LOCK" refers to the user setting a specific brightness when using a certain magnification objective to avoid being changed by another user and using a locking function to fix it. In this case, when turning to another multiple, the brightness automatically changes to the corresponding multiple's brightness, but the dimming handwheel also fails. Press and hold the knob for 3 seconds to enter the function setting interface. Rotate the knob to select the Lock function and click to release the lock function. The "LOCK" on the screen disappears.

4. Time setting for pedestrian lights off: Select Time through the knob, click the knob to enter the time setting state, as shown in Figure 13.2. Turning the knob can achieve an increase or decrease in time, with a score grid value of 5 minutes; Up to 8 hours can be set. After setting to the desired time, the setting is successful when the time number jumps three times and stops jumping. Time begins to decrease by minute.

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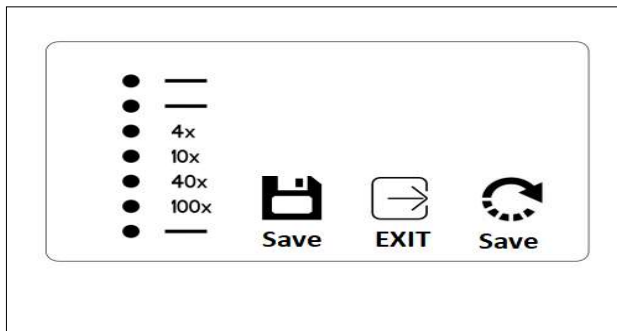


Fig.14

5. Objective turntable setting: Select Set through the knob and click the knob to enter the objective turntable setting state, as shown in Figure 14.

Note: Generally, factory settings have been made, and users do not need to set them during use.

Setting method: Turn the knob to select the desired hole position, then click to enter the setting of the hole position. At this time, select the desired objective magnification by turning the knob, and click the knob to complete the setting of the hole position; After completing the settings for other hole positions in sequence, rotate the knob to the Save position to save the settings.

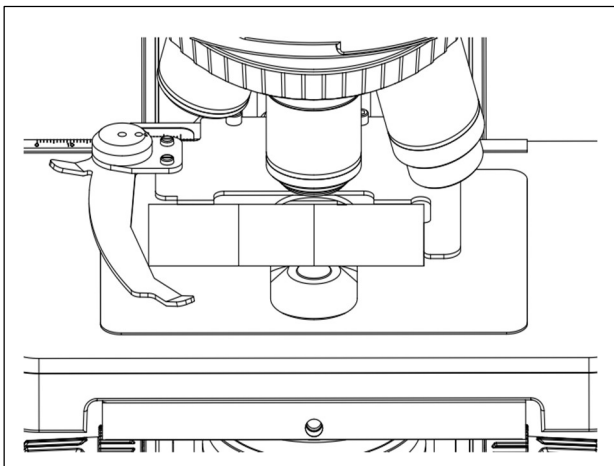


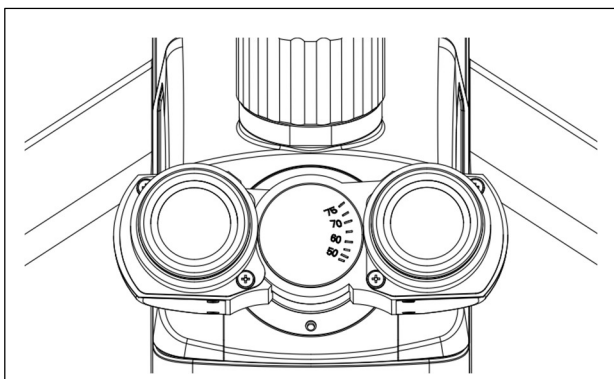
Fig.15

4-3 Mount Specimen (Fig.15)

Push the slide up slowly into the movable claw and gently clip the slide.

Rotate the horizontal and longitudinal wheels on the mechanical ruler to move the sample to the desired position.

★ **Be careful when replacing the objective. After observing the specimen with a short working distance objective lens, it may touch the specimen when it needs to be replaced.**



4-4 Adjust Interpupillary Distance(Fig.16)

Pupil Distance Range 47mm ~78mm. When observing both eyes, hold binocular tube to rotate around the axis, to adjust the pupil distance, until the left and right vision field is one, and the observation is comfortable.

Fig.16

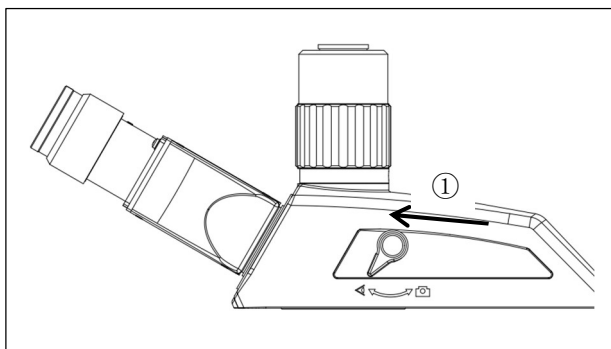


Fig.17

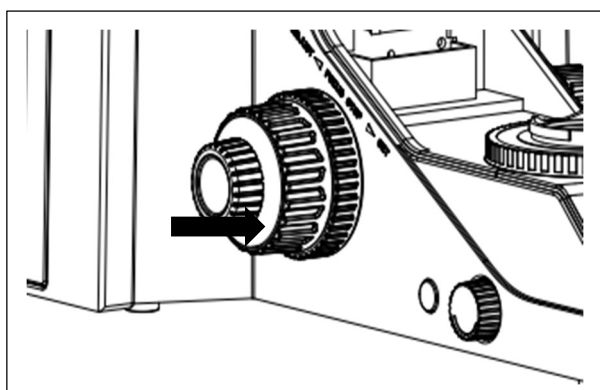


Fig.18

4-5 Light Path Switching (Fig.17)

For the binocular / triple switching observation head, turn the knob to switch the optical path, observe the camera when the knob points to the  position, and observe binocular observation when the knob points to the  position.

4-6 Focusing (Fig. 18,19,20 and 21)

1 when not using camera devices

Turn the optical path switch knob (shown in Fig.18) to the binocular observation position for binocular observation. Focus with $10\times$ object lens, to prevent the specimen and object lens, the mechanical carrier platform should first rise, make the specimen and objective lens close, and then slowly reverse the coarse hand wheel, to reduce the specimen, search the $10\times$ eyelens, and finally use the fine tuning focus hand wheel fine focus to clear. At this time to other yield mirrors, can achieve focal without broken specimens.

2 when required for using camera devices

Rotate the optical path adjustment knob to switch the optical path to the triocular observation position and observe using the camera device. Observe the display and focus the field by adjusting the adjustment device in Fig.19

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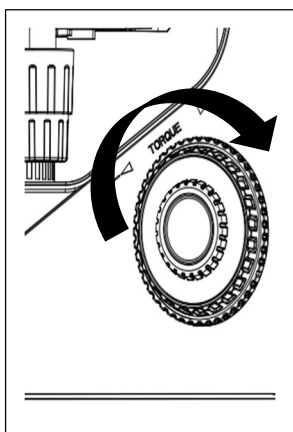


Fig.19

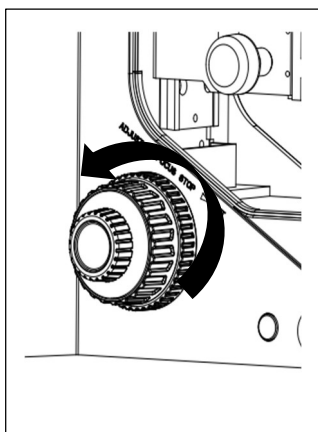


Fig.20

★Both sides of the micro-hand wheel in the convenience to dismantle, the hand wheel with a strong magnetic suction. Just as shown in the arrow, press the end of the hand wheel inside to raise the other, and then gently dial it from the raised end. Assembly can only align in the center of the hand wheel. This feature allows the two tuning wheels to easily swap the left and right to avoid contact with the platform handle.

4-7 Adjusting the tightness of focusing handwheel (Fig. 19)

The focus loose handwheel rotates in the direction shown in the arrow of Fig.19, and the more it rotates, the tighter the focus handwheel is. Conversely, the more loose.

4-8 The Limit Of Focusing (Fig.20)

In actual use, if you want to limit the platform height, that is, the upper position of the focus, according to the situation, just turn the lock hand wheel to the end of the Fig.20 arrow direction in the corresponding upper position position.

4-9 Condenser adjustment (Fig.21)

- The spotlight mirror center should be co-axial with the objective axis, the product has been adjusted when the factory, the user does not have to adjust itself.
- The highest position of the spotlight mirror has been adjusted when the factory, the user does not have to adjust itself.
- Turning the spotlight lens focus hand wheel enables the spotlight lens to move up and down. When using the high objective lens, the spotlight lens rises, and the spotlight lens can decrease when the low object lens is used.

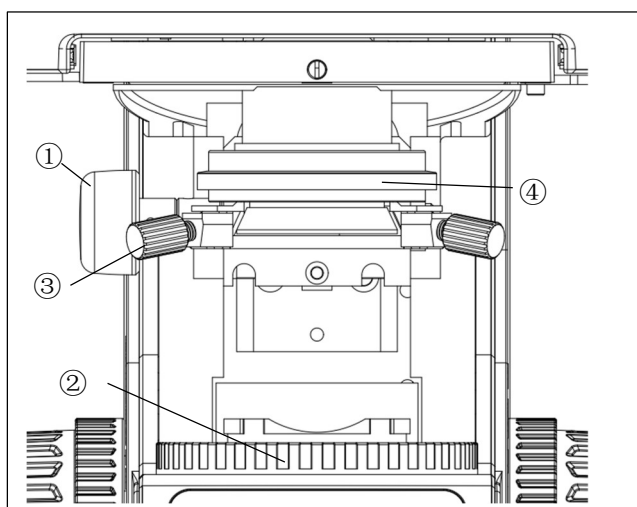
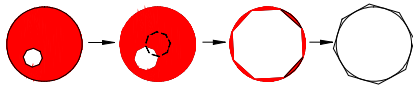


Fig.21



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Condenser centering

1. Turn the spotlight focus handwheel to raise the spotlight to the highest position.
2. Focus on the sample with a 10 × objective lens.
3. Rotate the field aperture ring and narrow the field aperture image to be visible in the field of view.
4. Turn the spotlight focus wheel to focus the field aperture image.
5. Turn the field of view appendix to the field of view center turning the two spotlight pair center screw with a universal adjusting wrench.
6. Gradually open the field aperture, and align correctly if the field aperture image is in the center and connected to the field of view.
7. In practice, the field of view appendix is slightly increased, so that its image just cuts away from the field of view.
8. Regulation of the aperture appendix

The aperture aperture is designed for the adjustment of the numerical aperture, not brightness. Typically, a good image of the sufficient contrast can be obtained when the aperture aperture opens to 70~80% of the objective lens exit pupil. To observe the aperture appendix, desirable under the lens, down from the lens out of the pupil.

9. Adjustment of the field-of-view appendix size

During operation, turn the field of view appendix rotation circle, narrow the field of view appendix, observe the field of view, if the appendix is blurred, can turn the spotlight focus hand wheel, lift the spotlight bracket clearly, and then turn the field of view appendix to adjust to the full lens field of view to reduce miscellaneous and improve the quality of the

5. Technical Specification

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I. Main technical specifications and views

Optical system	NIS60 Infinite Distance Optical System (F200)	NE700
Viewing head	Hinged triocular, 30 ° tilt, pupil distance 47-78mm (5:5)	●
	Hinged triocular (0: 100 / 100: 0)	○
Eyepiece	Large Field Adjustable Enscope 10 ×	●
Nosepiece	Coded five-hole Nosepiece	●
Objective	Infinite Far Flat Field Mirror 4 ×, 10 ×, 20 × (Optional), 40 ×, 100 ×	●
Focusing	Coaxial coarse fine tuning focusing mechanism, fine tuning grid value of 0.001mm	●
Stage	Synchronous Belt Platform, Size 235 × 150mm, Mobile Range 78 × 54mm	●
Illumination	3W color temperature adjustable LED lamp source	●
Condenser	Condenser NA0.9	●
Photo accessories	1X, 0.5X C interface, adjustable focus	○

Note: ● Standard Outfit, ○Optional

II. objective parameters

Magnification	Numerical Aperture (N.A)	Working Distance (mm)	Cover-glass thickness
4X	0.10	30	-
10X	0.25	10.2	-
20X	0.40	6.4	0.17
40X	0.65	1.5	0.17
100X (oil)	1.25	0.2	0.17

III. Electrical Appliance Parameters

- 1) Input voltage: VAC100-240V 50/60 Hz
- 2) Output voltage: 5V
- 2) Lighting: 3W LED

6. Trouble Shooting

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6.1 Optical part

Problem	Reason	The Solution
Edge darkness or uneven field of vision	Converter is not in the positioning position (the objective mirror is not in the center of the light path)	Go to the positioned position (turn the objective lens to the light path)
	Polyscope is not central	Make it center
	Dirty on lens (spotlight, objective, eyepiece, collecting mirror)	Clean
Field of in in of dirt	Dirty on lens (spotlight, objective, eyepiece, collecting mirror)	Clean
	Dirty on the glass sheet	Clean
	Polyscope position is too low	Adjust the height of the condenser
Poor quality (low split rate, poor contrast)	No covered glass sheet on the specimen	Add cover glass sheet
	Cover glass sheet is too thick or too thin	Use a cover glass with a standard thickness (0.17mm)
	Above the specimen and below the reverse	Flip it Back
	Oil immersed on dry mirror (especially 40X easy)	Clean
	Dirty on lens (spotlight, objective, eye, collector lens)	Clean
	Oil immersion mirror without oil immersion	Use of oil immersion
	Oil bbles in in bubbles	Multiple swing object lens to eliminate air bubbles
	Unspecified oil immersion was used	Using standard oil immersion
	The aperture is too large	Appropriate appropriate appropriate

	Dirty on the incident lens of the binocular cylinder	Clean
	The aperture is too small	Proper opening
	Polyscope position is too low	Correction position

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One side of the image	Polyscope not in center of view or tilt	Reinstall the spotlight and adjust carefully with the spotlight center screw
	Converter is not at the location	Turn it in place
	Specimens are in a floating shape	Reliable reinforcement
Image movement during focus	Specimens float on the carrier table surface	Be firmly placed
	Converter is not at the location	Turn it in place
Insufficient lighting brightness	Unaccurately adjusted brightness	Adjust the dimming knob
	Polyscope position is too low	Correct its position
	Polyscope is not central	In in

6.2 Mechanical part

Problem	Reason	The Solution
1. Image does not focus with high object lens	Boglass is back Cover glass sheet is too thick	Flip the glass sheet Cover glass with standard thickness (0.17 mm)
2. Contact the glass when the objective lens changes from low to high times	Boglass is back Cover glass sheet is too thick	Flip the glass sheet Cover glass with standard thickness (0.17 mm)

3. Poor specimen of not specimens	Bose clamp is not reliably fastened	Do astsure
4. Binocular image does not coincide	Pupil distance is not adjusted correctly	Readjustment
5. Excessive eye fatigue	No visual degree adjustment was performed	Correct vision of properly
	Improper lighting brightness	Adjust the positive light bulb voltage
6. Coarse focus handwheel is hard to turn	Thick se adjustment ring locked too tight	Relax relaxation
7. Defocus during the observation process	Loose coarse tightening ring too loose	Proper locking

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6.3 Electrical part

Problem	Reason	The Solution
1. Light is not on when the switch is switched on	No power supply	Check the electrical wire connection
	LED lamp connection plug not inserted in circuit board	Ininsert correctly
	The LED lamp is broken	Replacement
2. The lamp suddenly burned	Non-specified lamp was used Too high in voltage	Replace it with the specified lamp. If the condition has not changed, please contact the service department
3. Insufficient lighting brightness	Non-specified lamp was used Low voltage	Replace with the specified lamp Increase Volvoltage
4. Light flashing or unstable brightness	The lights are about to break down	Replacement
	LED lamp connection plug is not correctly inserted into circuit board	Check and firmly firmly

After-sales service commitment:

The company provides free warranty and replacement of parts of the equipment due to the product quality problems within 18 months, after leaving the factory.

The company provides lifelong maintenance of the products and long-term preferential spare parts outside the warranty period.

Production Date: