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Safety Precautions and Usage Warnings

⚠️ To ensure the safety of the user and the equipment, please read the following content carefully before operating this microscope:

- Use only the provided power adapter. Do not replace or use non-standard power sources.
- Do not mix new and old batteries or batteries from different brands. When not used for a long time, please remove the batteries to prevent leakage and corrosion of the device
- Keep the device away from high temperatures, high humidity, dust, or direct sunlight.
- Do not touch the heating areas or optical surfaces during operation.
- Do not disassemble any optical or electrical components. Unauthorized disassembly may cause device damage, performance degradation, or potential injury.

Unpacking List



Pad × 1



Microscope Body × 1



0.5X Reducing Lens × 1



Trinocular Tube × 1



Eyepiece (10X) × 2



Cedar Oil × 1



Power Cables × 2



Power Adapter × 1
(DC5V/1A)



Power Adapter × 1
(DC12V/2A)



User Guide × 1

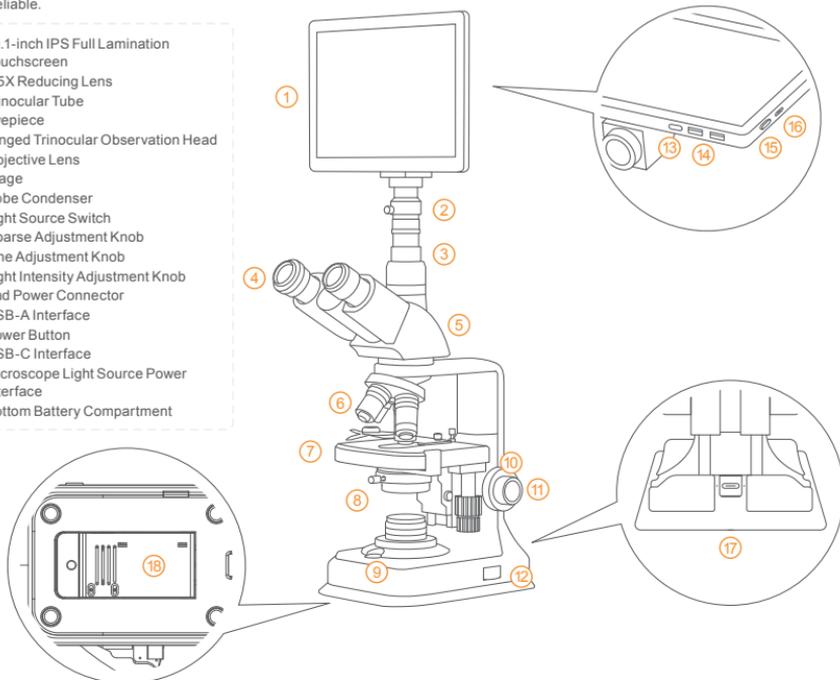


Color filter × 1

Product Introduction and Applications

The MX5 Digital Microscope is designed for use in medical and health institutions, schools, and other organizations for applications in biology, pathology, bacteriology observation, teaching, specialized research, clinical experiments, and routine medical examinations. This product features a modern design and incorporates multiple advanced structures and technologies, making it easy to use, safe, and reliable.

- 10.1-inch IPS Full Lamination Touchscreen
- 0.5X Reducing Lens
- Trinocular Tube
- Eyepiece
- Hinged Trinocular Observation Head
- Objective Lens
- Stage
- Abbe Condenser
- Light Source Switch
- Coarse Adjustment Knob
- Fine Adjustment Knob
- Light Intensity Adjustment Knob
- Pad Power Connector
- USB-A Interface
- Power Button
- USB-C Interface
- Microscope Light Source Power Interface
- Bottom Battery Compartment



Optical Components

Objective Lens Focal Length	195mm
Stage Size	125mm × 115mm (Dual-layer mechanical stage with XY verniers)
Focusing Method	Coaxial coarse/fine focus, focusing range 10mm
Condenser	Abbe condenser, NA=1.25, with built-in adjustable iris diaphragm
Filter diameter	φ32mm
Light Source	LED, brightness adjustable, supports external power supply of DC5V/1A or 3 AA (size 5) batteries (batteries need to be purchased and installed by user)
Eyepiece	WF10X-18mm, wide field of view, magnification 10X
Objective Lens	4X / 10X / 40X / 1000X (oil immersion)

Total Optical Magnification

Eyepiece	Objective Lens	Total Magnification
10X	4X	40X
10X	10X	100X
10X	40X	400X
10X	100X	1000X

Pad Configuration

Image Sensor	1/2.7-inch CMOS
Pixel Resolution	2592(H) × 1944(V), 5MP
Pixel Size	2μm × 2μm
Frame Rate	Up to 30fps
Shutter Type	Electronic Rolling Shutter
Digital Image Magnification	
Objective Lens	Digital Magnification Range
4X	80X - 850X
10X	180X - 1820X
40X	730X - 7400X
100X	1800X - 18180X
Digital Imaging System	
Operating System	Android 14
Storage	32GB
Display	10.1-inch IPS touchscreen, resolution 1800×1280, multi-point capacitive touch
Output Port	2 × USB3.0, 1 × Type-C
Wireless Communication	Wi-Fi 6 (2.4GHz/5GHz dual-band), Bluetooth 5.0
Power Input	DC12V/2A
Dimensions	260 × 200 × 400 mm
Weight	Approx. 4.5 kg
Multi-language Support	

Installation Steps

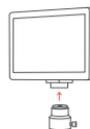
Please follow the steps below to correctly install the MX5 Digital Microscope:

1. Image Sensor Preparation



- Remove the dust cover from the image sensor side of the pad.
- Peel off the protective film from the surface of the sensor lens.

2. Install the Reducing Lens



Screw the 0.5X reducing lens tightly onto the image interface of the pad.

3. Install the Trinocular Tube

- Remove the dust cover from the trinocular observation head of the microscope.



- Insert the trinocular eyepiece tube and tighten the locking ring clockwise to ensure a secure connection.

4. Connect the Pad Module

- Remove the protective cap from the top end of the trinocular tube.



- Insert the pad module (with the reducing lens already installed) into the trinocular eyepiece tube. Adjust the orientation so that the screen faces the observer, then tighten the locking screw on the reducing lens.

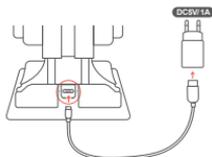
5. Install the Eyepieces



Remove the dust covers from both eyepiece tubes and insert the 10X plan eyepieces.

6. Power Connection

- Connect the microscope body light source power interface using the DC5V1A power adapter.



- Connect the tablet power interface using the DC12V2A power adapter.



- After powering on, the pad system will automatically start.

⚠ Note: Please avoid overexertion during connection, and make sure that the interfaces are aligned before tightening.

Operating Instructions

This section describes the daily operation methods of the MX5 microscope, including optical observation, digital imaging, image measurement, and saving functions.

Microscopic Observation Operation

1. Start the Microscope System

- Ensure that both the pad and microscope are properly connected to power.
- After the system automatically starts, the camera preview interface will open by default.

2. Adjust Brightness

- Use the brightness adjustment knob located at the bottom of the microscope to adjust the LED light source to a suitable intensity.

3. Place the Sample

- Gently place the slide in the center of the stage.
- Use the XY adjustment knobs on the stage to move the sample directly under the optical axis.

4. Select the Objective Lens

- Rotate the objective turret to select the appropriate magnification.
- It is recommended to initially use the 4X or 10X objective lens for preliminary positioning.

5. Focusing Operation

- Use the coarse adjustment knob to quickly locate the approximate clear image position.
- Then use the fine adjustment knob for precise focusing.

6. Using Oil Immersion Objective (100X)

- Place a drop of cedar oil on the cover slip of the sample.
- Slowly rotate the 100X oil immersion objective into position, ensuring the front lens of the objective contacts the oil droplet.
- After use, immediately clean the oil from the front lens of the objective to maintain cleanliness.

Digital Image Observation and Measurement

1. Image Preview

- The system automatically opens the image acquisition interface, displaying the field of view in real time.

2. Capture Images or Record Videos

- Tap the capture button at the bottom of the screen to save the current image.
- Switch to video mode to start recording.

3. Image Zoom In/Out

- Use a two-finger pinch gesture or the on-screen zoom buttons to magnify or reduce the image.

4. Image Measurement

- Tap the measurement tool icon to enter measurement mode.
- Various measurement options are available, including distance, area, and angle.
- Before first use, please perform calibration. Select a standard object (e.g., a calibration slide), and input its actual dimensions to complete system calibration.

5. Image Saving and Exporting

- Captured images are automatically saved to the local gallery folder.
- Files can be exported to other devices via USB or Wi-Fi for further processing or sharing.

Software Guide

The MX5 microscope is equipped with pre-installed imaging and measurement software, featuring an intuitive interface that supports real-time image preview, capture, measurement, file management, and wireless sharing.

To provide more detailed and up-to-date software tutorials and answers to frequently asked questions, we have organized relevant content into the Help Center within the measurement software.

Before using the software for precise measurement and data analysis, we recommend visiting the Help Center to review the latest software operation guides, detailed function explanations, advanced application tips, and frequently asked questions and answers.

Troubleshooting Guide

Below are potential issues you may encounter while using the MX5 digital microscope, along with corresponding solutions:

Optical and Imaging Problems

Troubleshooting	Possible Causes	Solutions
Darkened edges/ non-uniform brightness in FOV	The nosepiece is not in the correct position (objective lens is not in the center of the optical path)	Rotate the nosepiece to the correct position (turn the objective lens to properly align it with the optical path)
	The light source is not in the center	Center the light source
	Dirt or debris on the lenses (condenser, objective lens, eyepiece, or collector lens)	Wipe it off

Troubleshooting	Possible Causes	Solutions
Visible dirt or debris in FOV	Dirt or debris on the lenses (condenser, objective lens, eyepiece, or collector lens)	Wipe it off
	Dirt or debris on the slide	Wipe it off
Poor image quality (low resolution, poor contrast)	The condenser is positioned too low	Calibration position
	No cover slip is placed on the specimen	Add a cover slip to the specimen
	The cover slip is too thick or too thin	Use a cover slip of standard thickness (0.17 mm)
	The specimen is mounted upside down	Turn it upside down
	There is oil immersion on the dry objective lens (especially the 40X objective).	Wipe it off
	Dirt or debris on the lenses (condenser, objective lens, eyepiece, or collector lens)	Wipe it off
	The oil immersion objective lens is not immersed in oil	Use immersion oil as required
	Air bubbles are in the immersion oil	Remove air bubbles from the immersion oil
	Non-specified immersion oil is used	Use only the specified immersion oil
	The aperture diaphragm is opened too wide	Close it down appropriately
	Dirt or debris is present on the incident lens of the tube	Wipe it off
	The aperture diaphragm is closed too much	Open it up appropriately
One side of the image appears darker	The condenser is not in the center of the FOV or is tilted	Re-install the condenser
	The nosepiece is not correctly positioned	Rotate until it clicks into place
	The specimen is floating or not securely fixed	Secure the specimen firmly
Image drift during focusing	The specimen is floating on the surface of the stage	Place the specimen stably on the stage
	The nosepiece is not correctly positioned	Rotate until it clicks into place
The image shows a slight yellowish tint	Blue filter not used	Use the blue filter

Mechanical issue

Troubleshooting	Possible Causes	Solutions
Unable to focus the image when using high-power objective lenses	The slide is placed upside down, or the cover slip is too thick	Flip the slide and use a cover slip of standard thickness (0.17 mm)
Objective lens touches the slide when switching from low to high magnification	The slide is placed upside down, or the cover slip is too thick	Flip the slide and use a cover slip of standard thickness (0.17 mm)
Specimen movement is not smooth	The slide holder is not securely fastened	Ensure the specimen is securely clamped
Eye fatigue	Diopter adjustment has not been performed, or the illumination brightness is inappropriate	Adjust the diopter properly and correct the lamp voltage

Digital Function Issues

Troubleshooting	Possible Causes	Solutions
Unable to take photos or record videos	Insufficient storage space or permission restrictions	Clear storage space or enable relevant permissions
Abnormal measurement results	Calibration not performed or incorrect measurement steps	Recalibrate using the standard calibration slide following the correct steps
Wi-Fi connection failure	Weak network signal or incorrect configuration	Restart the system and check network settings and permissions

Power Supply and Startup Issues

Troubleshooting	Possible Causes	Solutions
The pad cannot power on or fails to start up normally	The power adapter is not connected or the power supply is abnormal	Check the power connection and try replacing the adapter, ensuring it meets the specified DC12V/2A requirement
The light source does not illuminate	The LED bulb is damaged or the power supply is not connected	Replace the LED bulb and confirm that the DC5V/4A power supply is properly connected

If the above methods do not resolve the issue, please contact our after-sales technical support for further assistance.

Maintenance and Care

⚠ To maintain stable performance and extend the service life of the MX5 microscope, users are advised to perform the following maintenance and care procedures regularly:

Cleaning Optical Components

- Use lint-free lens tissue or an optical cloth to wipe the surfaces of the eyepiece and objective lenses to avoid scratches.
- If there are oil stains or fingerprints, lightly moisten a cotton swab with a small amount of anhydrous alcohol or lens cleaning solution and gently wipe the affected area.
- After using the oil immersion objective (100X), clean it immediately with lens tissue to prevent oil residue from remaining on the lens surface.

Pad and Interface Maintenance

- When cleaning the screen, use a slightly damp, soft cloth. Do not use chemical solvents.
- Regularly check the reducing lens and trinocular interface for dust or looseness. If necessary, use a blower to clean these parts.
- Avoid connecting or disconnecting interface components while the device is powered on to prevent damage.

Light Source Maintenance

- If the brightness is significantly reduced or flickering, consider replacing the LED light source component.
- Before replacement, ensure the device is powered off and contact authorized service personnel for assistance.
- ⚠ Note: If using batteries to power the microscope's light source, do not mix new and old batteries or batteries from different brands. When not used for a long time, please remove the batteries to prevent leakage and corrosion of the device.

Storage and Transportation

- When the microscope is not in use for a long period, disconnect all power connections and store the device in a dry, cool place.
- It is recommended to transport the microscope in its original packaging to avoid damage from impact.
- ⚠ Warning: Do not attempt to disassemble the internal circuitry or optical system of the microscope by yourself. If maintenance or repair is required, please contact qualified professionals or our service center.

Technical Support and Warranty Information

Thank you for choosing the MX5 Digital Microscope. If you have any problems during use, please feel free to contact us through the following channels for professional support and after-sales service:

Contact Information

- Customer Service Email: support@matatastudio.com
- Official Website: <http://www.matatastudio.com>

Warranty Policy

- This product comes with a 1-year limited warranty from the date of purchase, covering manufacturing defects and non-human-caused malfunctions.
- Consumable parts such as the light source, lenses, and power adapter are covered by a 6-month warranty.
- The following situations are not covered under warranty:
 - Damage caused by human error, misuse, water ingress, or drops.
 - Issues resulting from unauthorized disassembly or modification.
 - Devices that have exceeded the warranty period.

Compliance and Environmental Standards

Safety Symbols Explanation

The following symbols are used in this manual to remind users of important safety information:

Symbol	Meaning	Explanation
	CAUTION	This symbol indicates a potential hazard. Please operate with care.
	ELECTRICAL SHOCK	This symbol indicates a risk of electric shock.
	Waste Electrical and Electronic Equipment (WEEE)	Indicates that the product should be collected separately after disposal and must not be mixed with household waste.
	RoHS Compliance	Indicates that the product complies with the Restriction of Hazardous Substances (RoHS) directive.

Recommended Operating Environment

To ensure proper operation and extend the service life of the device, please operate the microscope under the following conditions:

- Operating Temperature Range: 10°C to 40°C
- Relative Humidity: <80%, non-condensing
- Storage Temperature Range: -10°C to 50°C
- Recommended Environment: The operating area should be free from strong vibrations, dust, electromagnetic interference, and corrosive gases.

Electrical Safety Precautions



Prevent Electric Shock Hazards

- Before plugging in the power, ensure that the local supply voltage matches the device's rated operating voltage and that the power switch is in the "OFF" position.
- Users must comply with all applicable safety regulations in their region.
- This device has been certified with the CE safety mark and complies with relevant electrical safety standards. However, users are fully responsible for the safe operation of the equipment. Please follow all safety guidelines and read this manual thoroughly to ensure safe use.

CE and RoHS Compliance Declaration



This product complies with the following EU directives and regulations:

- **CE**: Meets the essential requirements of Directive 2014/30/EU (EMC) and Directive 2014/35/EU (LVD).
- RoHS Directive (2011/65/EU):

The device does not contain hazardous substances such as lead, mercury, cadmium, or hexavalent chromium above the specified limits.

The CE and RoHS compliance marks are affixed to the device housing or nameplate.

WEEE Environmental Recycling Statement



This product complies with the Waste Electrical and Electronic Equipment Directive (WEEE, 2012/19/EU):

- Do not dispose of this device as household waste.
 - When the device reaches the end of its life, please hand it over to a certified electronic waste recycling facility.
 - The crossed-out wheeled bin symbol indicates that the product must be recycled separately.
- Thank you for joining us in taking environmental responsibility and building a sustainable future together.

This manual contains important information about the product. Please keep it for future reference.