



Apro 5
Digital Slide Scanner
Operation Manual

AMOS SCIENTIFIC PTY.LTD. ABN37 159 778 1

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1. Safety Precautions

※ **Important Statement: The following safety instructions are presented to protect the device and prevent the user from physical, mental and financial losses. Please read carefully and do after the instructions. It will be all the user's duty if there is any problem caused by operations against the instructions and we the manufacturer will not responsible for it.**

- Do not disassemble this product without authorization. If the device fails or its components are damaged, please contact the manufacturer in time. The machine should be maintained by professional technicians.
- The device should have a stable voltage input to avoid direct damage to the device caused by high voltage and high current.
- Ensure that the connected power supply is well-grounded.
- Do not use a power supply other than 220V. If the wrong power supply is used, it may cause fire, electric shock or equipment failure.
- Do not connect the plug to the power strip to avoid using multiple electrical devices on the same power plug, because it is possible to make the power strip overheat or cause a fire.
- Do not place the device in a humid environment to avoid leakage due to moisture. The ambient humidity should not be over than 80%.
- Do not place the device in a high or low temperature environment. The ambient temperature should be controlled at 5°C-40°C.
- Do not place the device in a dusty environment. Please keep the surroundings clean.
- Do not place the device in a vibrating environment. When it is used, there should be a stable worktable, which is away from the vibration sources.
- Please don't modify, develop, improve the device or add any software to it.
- Do not use the machine without the training of the manufacturer.

2. Use Precautions

2.1. Before Using

Before using the machine, please read the instruction carefully and check whether all the accessories are provided. The professional technicians of the manufacturer will install and test the device before using. After the machine runs normally, the software and hardware are matched correctly, and the debugging is qualified, it can be used.

2.2. In Use

If the following abnormal conditions occur during use, please stop using immediately! Turn off the power, pull out the power plug, and consult the company's after-sales service center. Do not try to disassemble the product and repair it by yourself.

- (1) The plug of the scanner host and the power socket are emitting heat.
- (2) There is black smoke, peculiar smell or other abnormal situation.
- (3) There is a strange noise appearing or the indicator light is off.
- (4) There is fluid or foreign matter entering the product and making damage to the device.

(5) The normal operation is affected by an earthquake, thunderstorm, lightning, or power failure occurs.

2.3. Other Precautions

(1) Only personnel who is well-trained can operate the machine. People without training please don't operate the machine arbitrarily.

(2) When the machine fails, please don't disassemble or repair by personnel untrained.

(3) Do not place heavy objects above the instrument to avoid extrusion deformation.

(4) Do not block or cover the section loading port to avoid damage to the hatch door.

(5) If the slice accidentally drops onto the stage, stop scanning and exit the software. Because keep moving the worktable may crush the slice and destroy the moving parts. Just shut down the power and contact the after-sales service. Our professional technicians will tell you how to get the slice out in a right way. Remove the glass chippings produced by slice dropping with a clean and soft cloth after getting out the slice. Then restart the machine and the software. After system initialization, the slice carrier will automatically move to the original position.

3. Handling Precautions

- This product is a precision instrument, please handle with care. Do not overturn it, place it upside down, strike it, vibrate it, etc.
- Do not move the product after delivery and installation. If necessary, please handle the product under the guidance of the manufacturer.
- Before handling, ensure that the product is completely powered off to prevent electric shock accidents.
- Before handling, the internal components of the product should be fixed to prevent damage due to transportation impact.
- Please have at least two adults in good physical condition carry the machine.
- Keep the machine vertically upward and moved horizontally when it is handled. It is highly recommended to use a forklift or a cart.
- If it is strongly impacted or dropped, this will cause product failure or affect the service life.

4. Brief Introduction of the Product

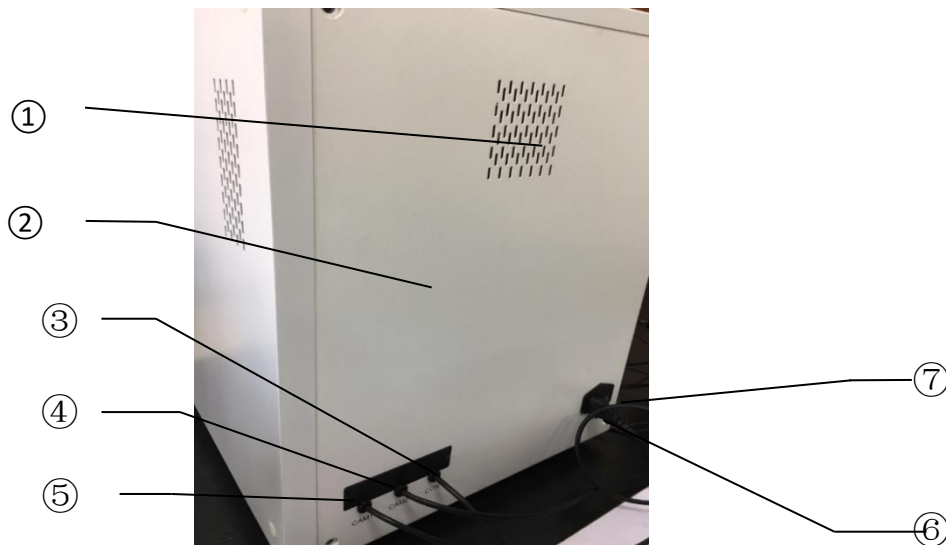
4.1. Product Characteristics

The product is used for scanning pathological sections in medical institutions, laboratories and other places. It is able to make rapid and uninterrupted digital scanning of 5 pathological sections one time and generate a full-vision and high-definition digital pathological image. The user can view, mark and measure the image through image-viewing software.

4.2. Product Appearance



① Heat Emission Holes ② Left Panel ③ Front Panel ④ Front Cover ⑤ Section Entry
⑥ Safety Door ⑦ Status Light ⑧ Status Light ⑨ Upper Cover



① Heat Emission Holes ② Back Cover ③ Control Card Power Cord
④ Assistant Camera Power Cord ⑤ Main Camera Power Cord
⑥ Power Port ⑦ Power Switch

4.3. Product Formation

Apro 5 Digital Pathological Section Scanner consists of mechanical system, imaging system, software system and computer system. Details are as follows:

Items		Remarks
Mechanical System	High-precision Moving Platform	Three-axis (X/Y/Z) Automatic Control
	Automatic Loading	
	Magnification Switch	20X/40X
Imaging System	Light Source	LED
	Lens Cone	One port is for microscope objective and the other is for camera.
	Condenser	
	Objective Lens	APO 20X, NA0.75
	Camera	Previewing Camera, Imaging Camera
Software System	RetinaR2012 Scanning Software	
	D-Metrix Digital Section Administrator	
Computer System	Computer	
Optional Accessories	Monitor	Recommend to use monitors of 1920*1080 resolution radio.
	Mouse and Keyboard	
	Driver	
	Wireless Network Adapter	

4.4. Usage

The digital section scanning system can be used in clinical pathology, scientific research institutes, medical colleges, criminal forensic medicine and other fields. Digital slices are easier to be viewed and stored than traditional glass slices, and also have more extended uses, such as establishing pathological section database to facilitate the search and storage of difficult cases and important data, using for remote pathological consultation, scientific research and analysis, morphology teaching and hospital information construction, etc.

4.5. Working Environment

- ① Ambient Temperature: 5°C~40°C
- ② Relative Humidity: 30%~80%
- ③ Barometric Pressure: 500hPa~1060hPa
- ④ Power Supply: 220V, 50Hz/60Hz

⑤ Operating System: Windows 10 (x64) Pro

4.6. Product Identification

Product Name: Digital Slide Scanner

Model: Apro 5

Transport and Storage: Store at a dry, well-ventilated and clean room. The transportation should be smooth and avoid flipping and vibration.

4.7. Copyright Information

The copyright is owned by AMOS SCIENTIFIC PTY. LTD. It may not be reproduced or disclosed to third parties without the written permission of the Company. AMOS has the Ownership and the Power of Interpretation for this instruction.

5. Operation

5.1. Installation of the Product

The equipment has been debugged and installed by professional technical engineers before leaving the factory, and also has passed strict inspection and testing.

Our professional technical engineers or the trained agents will provide on-site debugging after the device delivered to the destination. They will also provide comprehensive and basic operation training for customers.

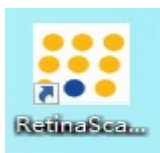
5.2. Turn on the Machine

After the installation, connect the power. First, open the power switch at the back panel of the device. Then press the start button at the front panel to start the device and the power light is on.



5.3. Section Scanning

1.1.1 Open the Software



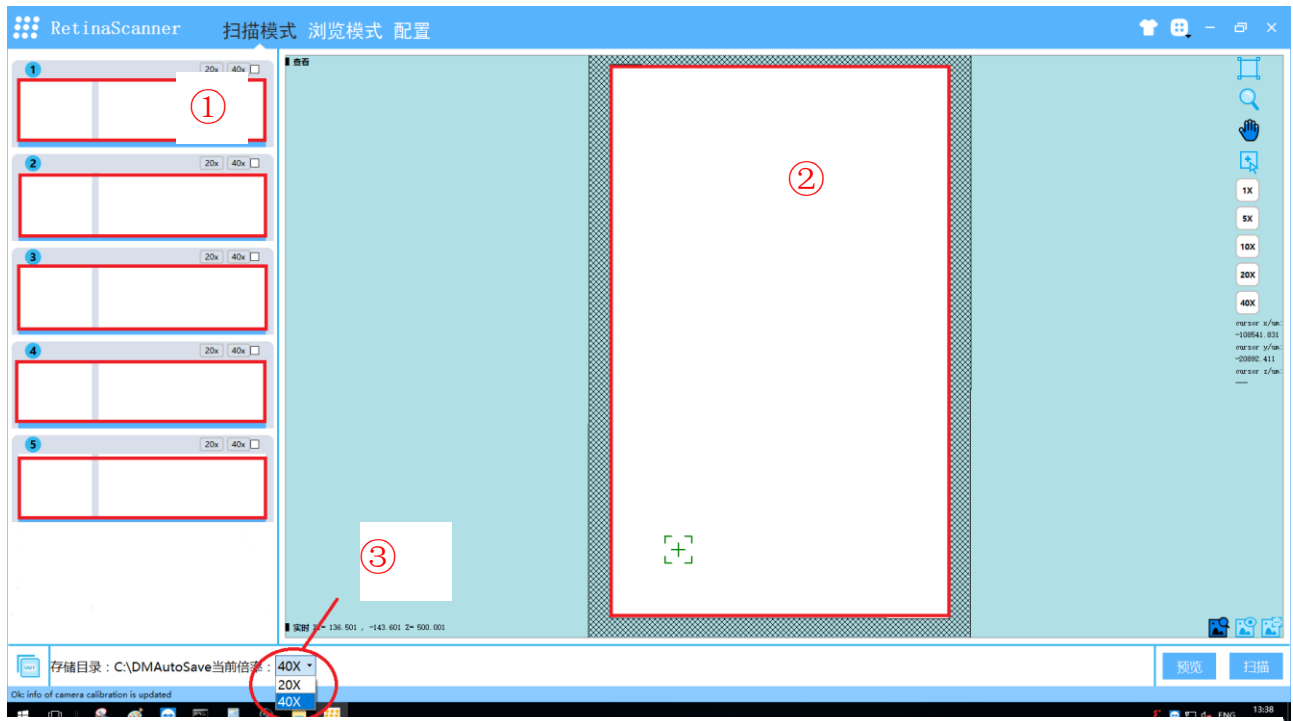
Double-click to open the scanning software on your desktop.



When the software is started, the READY light on the device is on.

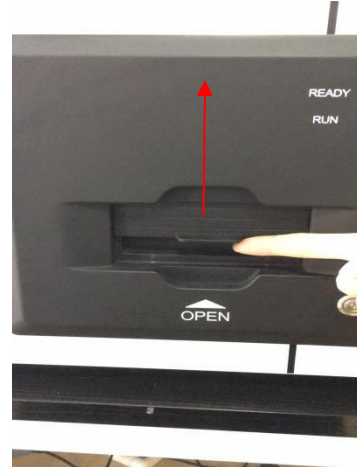
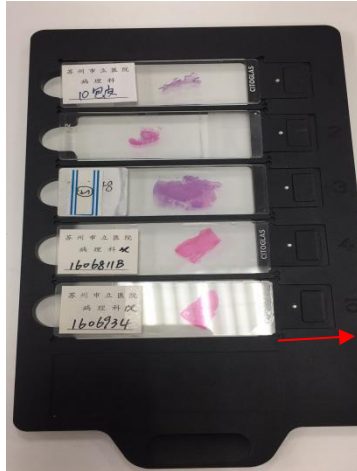


When the scanning software is started, the system automatically initializes it.



Scanning Software Interface: ①Multi-section Area②Scanning Area③Lens (20x or 40x)

1.1.2 Load the Slices



① Take out the tray and load the slices. Place the side of the bar code on the left side, so that the device can automatically identify the code. Gently pull the slider on the right side of the tray, accurately place the slices into the cutting slot, and then reset the latch. Gently press the slices with your hand to ensure that the slices are placed smoothly and avoid falling off.

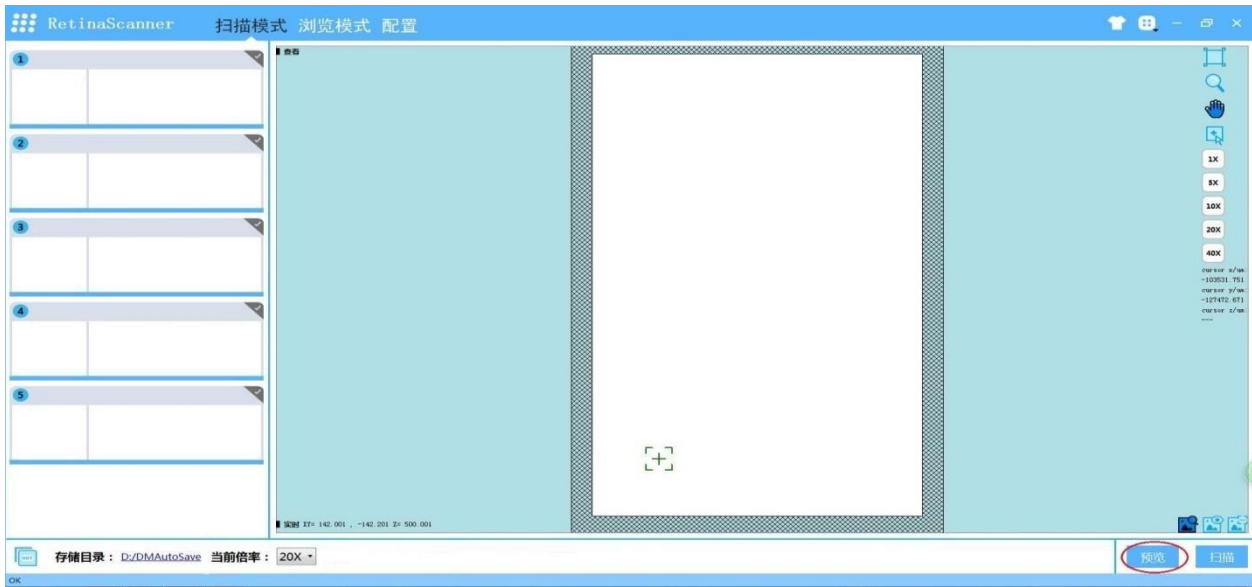
② Lift the hatch up.



③Put the tray back on the platform and push in. Then close the hatch door.

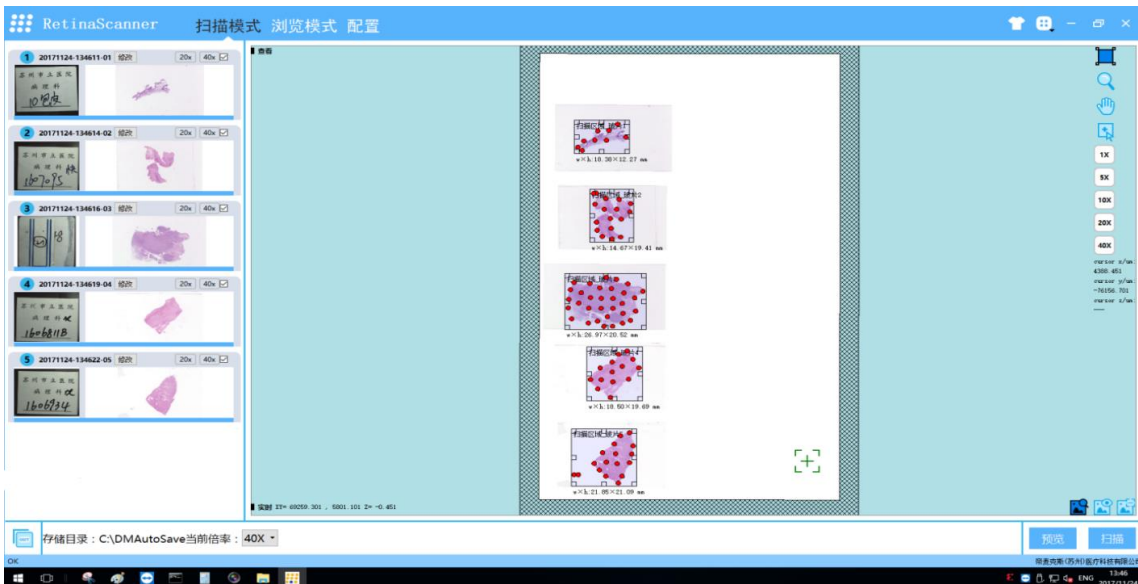
1.1.5 Image Previewing

At the beginning of scanning, click the previewing button and the software will automatically identify the slices to be scanned and display the tissue shape, size, position and label information on the scanning interface. When previewing, the label 1D/2D bar code can be automatically identified and marked with graphic label. If there is no bar code, the system will name the section after the year, month, day, hour, minute and second by default. The file name can be changed.



Press [Preview] to preview the image.

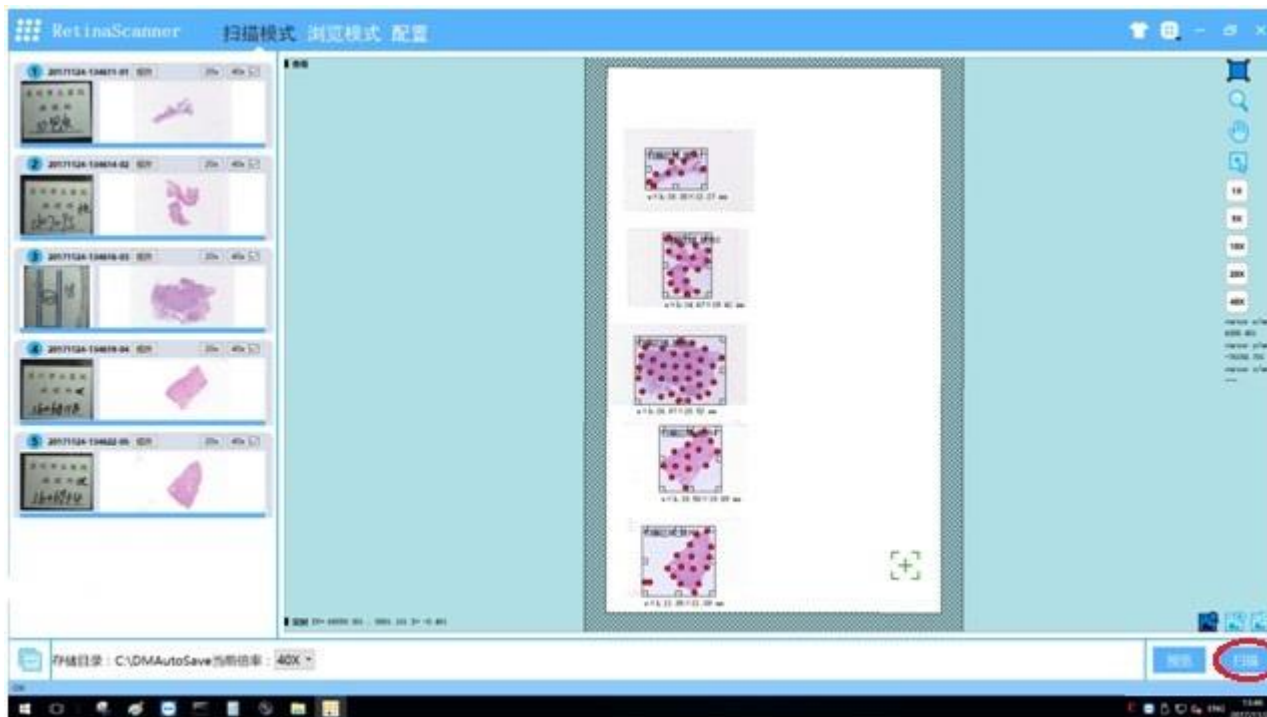
Automatic and accurate recognition of tissue shape and tissue area. Automatically skip the blank area, and add pre-focus to the recognized tissue shape. It can identify each tissue intelligently and scan separately when there are many pieces of tissue on the same slide. You can select the scanning area and size arbitrarily. Display the scanning area and size in real time.



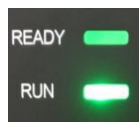
The left is multi-section area, and the right is 5pcs of slice previewing image.

1.1.4 Start Scanning

Make sure the scanning area and click [Scan] to start scanning. At the moment, the READY light is off and the RUN light is on.

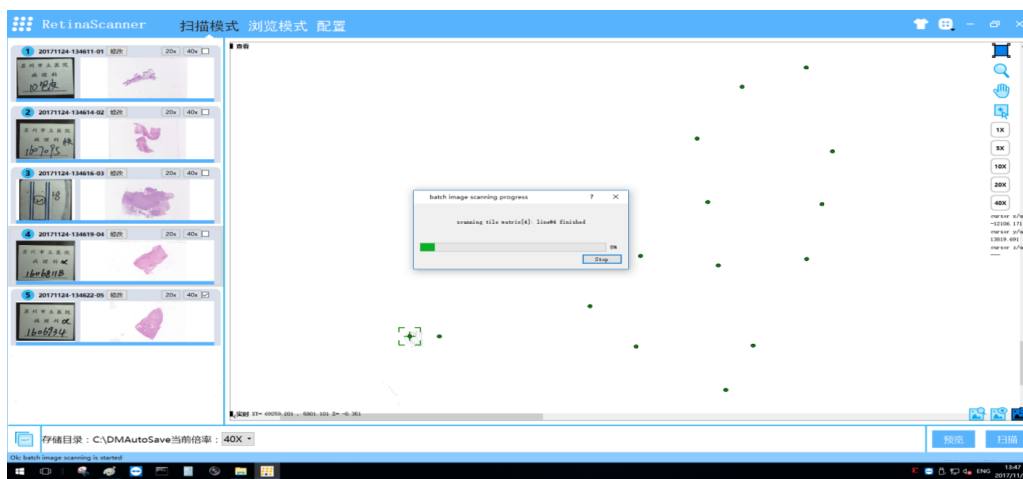


click [Scan] to start scanning



READY light off, RUN light on

A green progress bar displays in the scanning progress. When the progress bar reaches 100%, the scanning is completed.



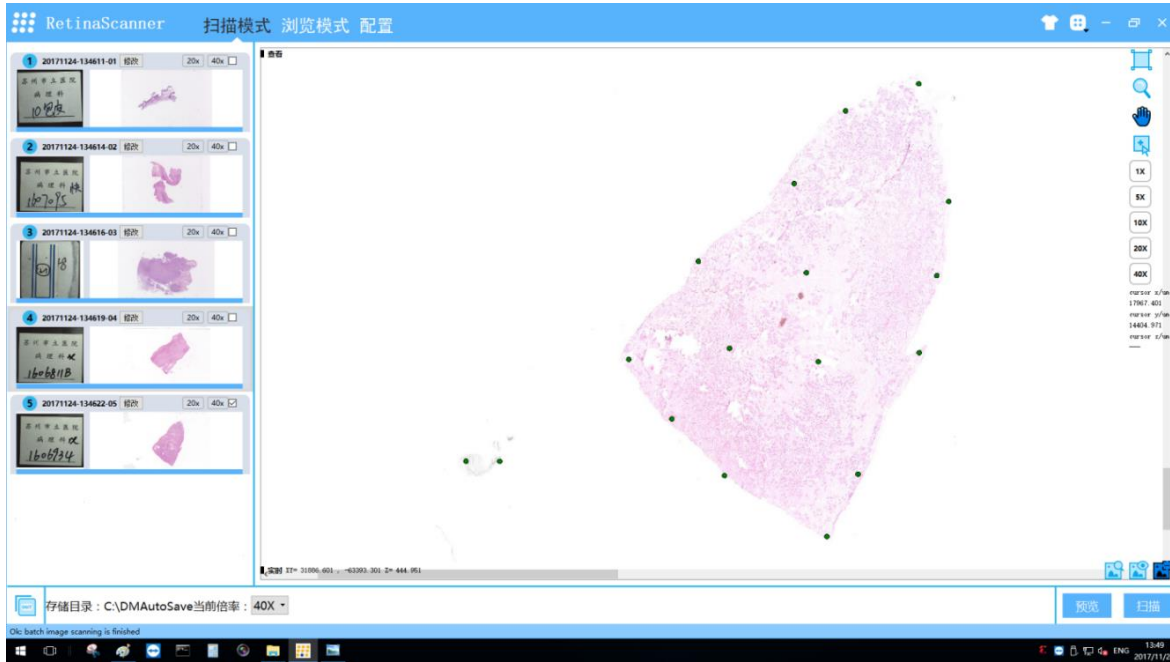
1.1.5 Scanning Co

Scanning

When the progress bar reaches 100%, the scanning is completed. At the moment, the RUN light is off and the READY light is on.



The scanning is completed. the RUN light is off and the READY light is on.



Scanning Completed

After the scanning is completed, the loading platform will automatically move the tray to the place where the tray is placed. Then you can just unload the slices according to 5.3.2.

1.1.6 Close the Software

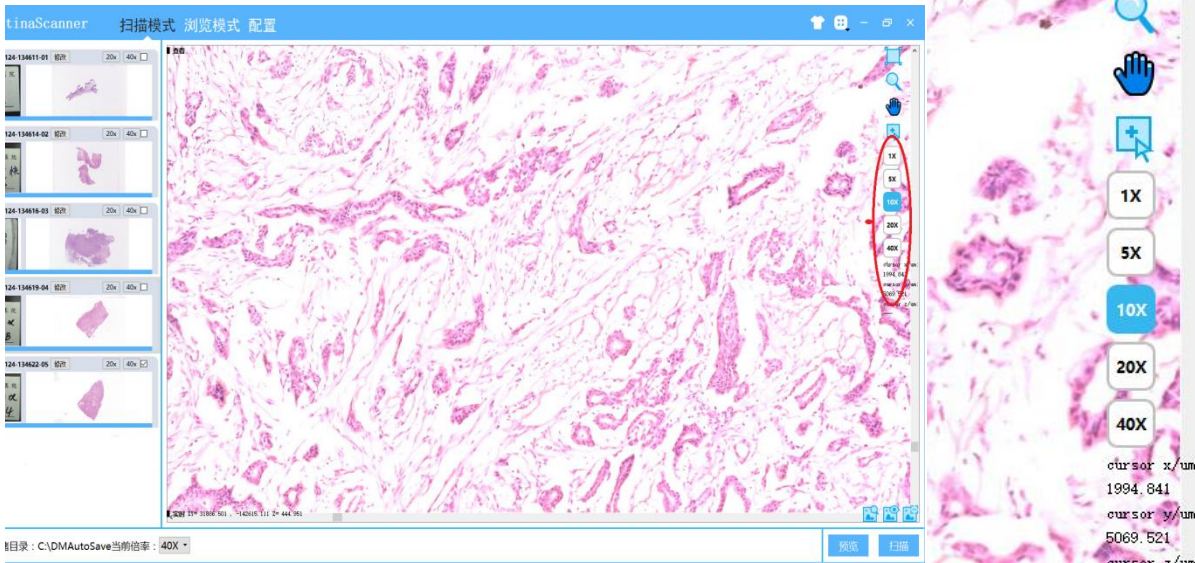


After the scanning is completed, close the software by clicking the [x] button at the upper right corner.

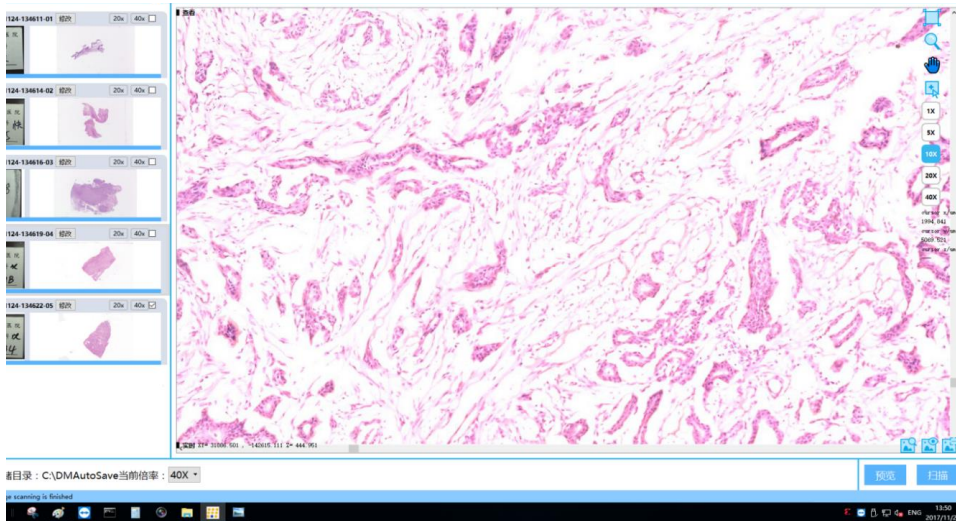
5.4. Image Viewing



The [Mode] in the lower right corner of the software can switch among browsing mode, preview mode and



Support full-vision magnification up to 40× no pole zoom or fixed magnification zoom, seamless image, fast and smooth browsing, no stalling or delay.



Double-click the slice preview image on the left to open the slice. The mouse wheel can control the image scaling. After the image is enlarged, hold down the left mouse button and drag to view the image.

6. Product Management

6.1. Storage

1.1.7 Please place the instrument away from the wall and the ground. Pay attention to moisture, dust, ventilation and fire to ensure product quality.

1.1.8 When not in use, remove the power cable from the power supply and also remove the power cable from the device.

1.1.9 Attached packages should be stored in a dry and well-ventilated place with room temperature.

1.1.10 Do not store with chemicals, acid and alkali substances and other harmful substances.

6.2. Common Problems and Solutions

If the scanner fails, analyze the cause and take appropriate measures based on the following common faults list and the solutions. If the problem still can not be solved, please contact the manufacturer directly. Do not disassemble and repair on your own.

Common Fault	Solution
Close the software and it shows “ThreadCommRun()Err:...”.	Click OK to close the dialog box.
Automatically closes when the software is opened.	<ol style="list-style-type: none">1. Check whether the power plug is connected correctly or not.2. Make sure that the power plug is connected to the computer.3. Make sure that the main power switch is pressed.
Open RetinaR2012 and the camera’s initialization failed.	<ol style="list-style-type: none">1. Check the camera cord and make sure that it is not loose.2. Check the camera drive in the device administrator and make sure that it is installed correctly.3. Check the connection between the instrument and the computer and make sure it is right and stable.
There is a strange noise coming from the inside of the machine.	<ol style="list-style-type: none">1. Check if the slices are falling off from the slice holder.2. Check if there are strange matters inside the machine.
It cannot focus correctly when doing the scanning.	<ol style="list-style-type: none">1. Check whether the small green cross is in the red box and on the tissue when the slice is identified.
The scanning image is unclear.	<ol style="list-style-type: none">1. Make sure the slice is clean and standard.2. Check whether the small green cross is on the tissue when the slice is identified.3. Scan with precision or fusion method.

6.3. Maintenance

Please keep the working surroundings clean and operate the instrument according to the manual.

6.3.1 Do not use chemicals, acid and alkali substances and other harmful substances to wipe the instrument, so as not to cause shape deterioration or fading of the instrument.

6.3.2 If the cover of the device is stained, gently wipe it with a soft cloth. If the stain is serious, using a soft cloth soaked in neutral detergent, squeezed dry and gently wipe the machine. Then dry the machine with a dry cloth.

6.3.3 If there is liquid coming into the instrument, stop using immediately, turn off the instrument and contact the manufacturer.

6.3.4 Protect the optical components. The working principle of the scanner is to convert the analog signal to the digital signal and send to the PC through the photoelectric converter. Any small difference of any component will affect the scanning result, so do not change the ports arbitrarily and avoid vibration or tilting of the scanner.

6.4. After-sales Service

This product has undergone strict product quality testing. If a fault occurs, please make a preliminary judgment according to the *Chapter 6.2 Common Problems and Solutions*. If it is determined that the instrument is failed, please turn off the power supply of the instrument immediately and consult the manufacturer's after-sales service center in time. During the warranty period, the manufacturer will provide free after-sales service. If the warranty period is exceeded, the manufacturer will provide paid service.

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AMOS SCIENTIFIC PTY.LTD

Factory 24, 632-642 Clayton Road, Clayton South VIC3169, Melbourne, Australia

Tel: +61-410190188

ABN 37 159 778 140

www.amos-scientific.com