TVN-600II

Digital Microscope

User Manual

TVN-600II Integrated Video Microscope

Intelligent·Accurate·Simple·Efficient

Contents

Chapter 1 Function introduction and features

With the development of the times, people's functional requirements for microscopes have become increasingly rich. Compared with traditional optical microscopes, the all-in-one video machine has the advantages of automatic magnification recognition, digital magnification, easy observation, easy data storage, and intelligent operation, which can significantly reduce the fatigue of long-term operations; high-definition video images can be achieved with one click of the power-on button. Observation provides users with a fast and comfortable experience.

It integrates a continuously zooming optical lens and a high-definition digital camera. The display, camera, and ring light are all powered by the mirror body, saving work space, making work more arbitrary , and solving the wiring harness problem that has long troubled you.

TVN-600II video microscope , this model is improved on the basis of the first generation TVN-600II machine and has a variety of special functions. As we all know, in microscope observation, we often encounter insufficient depth of field, which prevents the upper and lower surfaces from being observed at the same time, let alone operations such as measuring the upper and lower surfaces. Now this model solves this problem very well. The depth-of-field synthesis function can completely synthesize images from different focal planes into a

clear picture, which can be measured directly on the image after depth-of-field synthesis. The size measurement is more accurate and direct.

1. It has 8-zone light source control. Light source control is very important in microscope observation. The machine can independently control the light in 8 zones and can achieve a variety of different lighting combinations to solve the problem of images that are difficult to solve or cannot be observed by the video microscope ring light source. For example, when observing FPC products, due to the strong reflective characteristics of the product, a large range of strong light reflection areas will appear on the screen. By controlling the light source to produce combined light, this thorny problem can be solved well.
2. Shooting with full lighting. Omnidirectional illumination uses different lighting methods from up, down, left, and right to re-synthesize images illuminated separately from four aspects, allowing observers to see phenomena that are impossible to observe at ordinary times. For example, when observing silk screen printing, defects, and scratches on the surface of some products, it is difficult to express a sense of three-dimensionality and layering. Our unique technology achieves a surprising experience.
3. Self-recognition of magnification, this technology can automatically identify the different magnifications of the lens and give the magnification ratio, so that the observer can clearly know at what magnification he is observing, and at the same time, there is no need to estimate the magnification selection

when making measurements. It avoids the need to adjust the software magnification when measuring under a conventional microscope when changing the microscope magnification, thus avoiding the occurrence of erroneous measurement data.

4. Transmission of videos, images, and data through the network. The design of HDMI and network dual interfaces can save data to the computer, avoiding the risk of data leakage caused by USB flash drive storage, and avoiding the embarrassing situation that many companies cannot use USB flash drive storage. At the same time, it can also meet the requirements of enterprise MES system management and can trace products.
5. This model is ergonomically designed and places the screen directly in front of the observer. At the same time, the angle of the display can also be adjusted, which avoids the situation where the conventional microscope screen is to the side of the observer and reduces the strain on the observer's neck muscles during long-term observation. damage in.

1.1 Features

- Integrated structural design and ergonomic structure make working for a long time not tiring.
- High-definition display, real-time video, no smear or delay.
- Automatic magnification adjustment, no need for calibration
- Network video transmission, enable dual-window remote working mode
- Online picture storage, scan the QR code to capture pictures. Product production process traceability.
- Depth of field synthesis function, no need to focus or adjust, you can see the whole product with one click.
- and remove highlights with ease.
- Full-range exposure image, easily see defects, dust, and metal surfaces .

1. 2 Product pictures

(1) Magnification adjustment knob: According to the size of the product, rotate the magnification adjustment knob to make the image a suitable size on the display screen.

(2) Light source: ring light source

(3) Up and down adjustment knob: According to the height of the product, adjust to make the product clearly imaged

(4) Light source adjustment knob: adjust the brightness of the light source

(5) USB port: can be connected to a USB mouse for operation, and a U disk can be inserted to save pictures

1.3 Technical parameters

Video microscope (HT8068)		
Camera parameters	Chip structure	FPGA+ARM
	operating system	LINUX 3.10
	Kernel structure	Dual-core Cortex-A9
	Clock speed	1Ghz
	Optical size	1/2 ”
	point distinguish Rate	1920×1080
	frame Rate	60fps
Machine parameters	Display	11.6 inches
	light source	LED white light
	Measurement	Between two points, point to line, three-point circle, circle center distance,

	function	concentric circles, point to circle, line to circle, parallel lines, rectangle, angle, radian, polygon	
	Data saving	Save with measurement result images or excel data	
	measurement method	Mouse operation, intelligent point selection/manual point selection	
	Network Interface	1000Mbps	
	interface	2 USB interfaces, can connect U disk and wireless mouse	
	magnification	Optical magnification: 0.7-4.5	Magnification: 12-80 times
	Operating Voltage	DC 12 V2A	
	Operating temperature	-10 degrees-70 degrees	
	Dimensions	260 * 320 * 480mm	Outer packaging: 450*415*370 mm
	weight	Net weight 4.1KG	Gross weight

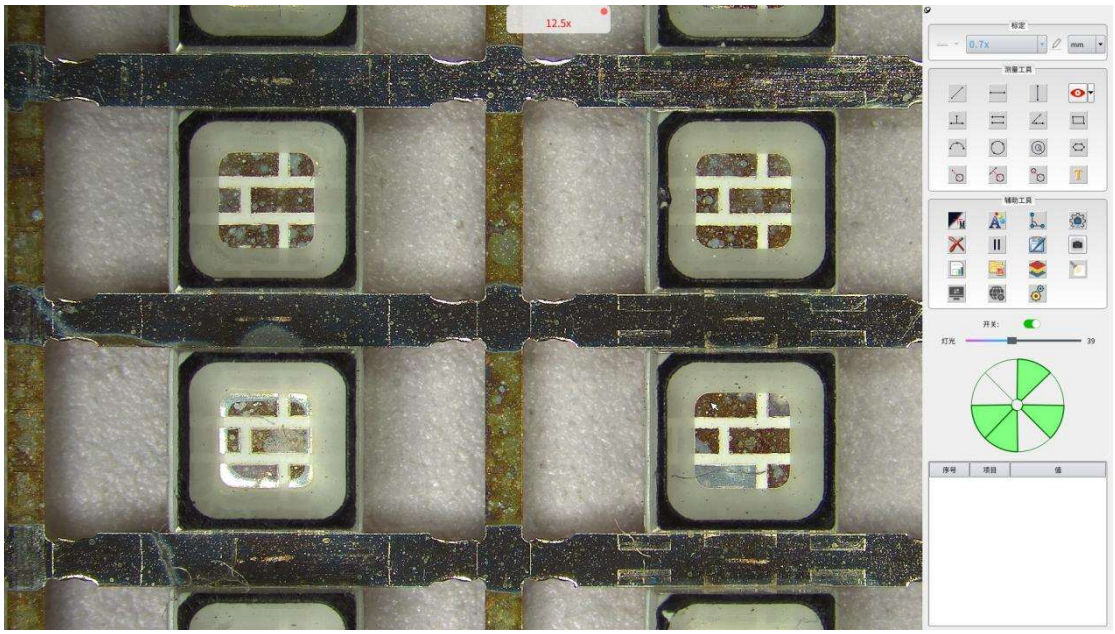
			5.2Kg
	Viewable range	1mm-25mm	
	working distance	60mm-180mm	
	light source	Eight-area light source	

Chapter 2 Camera function description

2.1 Boot interface

After confirming that the power interface of the microscope is connected correctly , power on (12V 2 A power supply). The microscope will start and display the startup interface. After completion , enter the main interface, as shown in the figure:

2.2 Main interface



2.3 Main menu

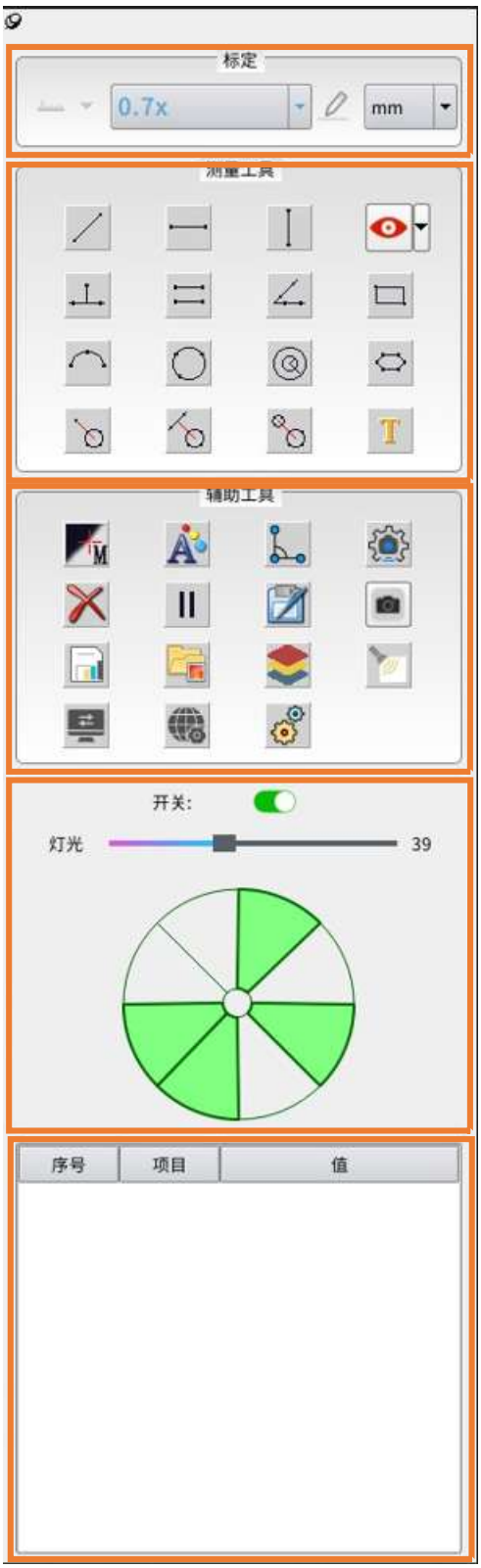
Dimensioning Calibration and selection

Measuring tools

Functions Window

Light source adjustment window

Measurement results window

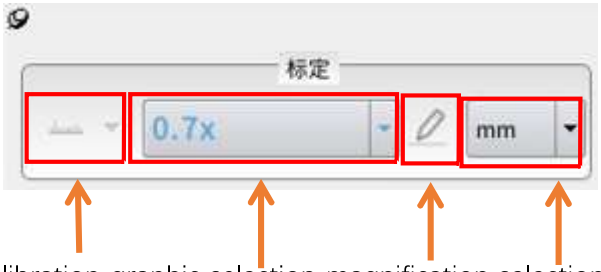


Chapter 3 Detailed function introduction

3. 1 Menu open and close

Menu bar hiding icon --- Click this icon and the menu bar will be hidden in the corner of the screen (lower right corner or lower left corner). Click the icon again to open the menu bar .

3.2 Calibration



Calibration graphic selection magnification selection box Calibration edit button unit selection box

As shown in the picture above, the toolbar above is the size calibration window. The microscope needs to be calibrated correctly to accurately measure the size.

3.2.1New calibration

Before calibration, you need to log in to the system administrator first, and then you can edit and calibrate dimensions. If you are an

ordinary user, you are not allowed to change the calibration parameters to avoid errors in the measurement results.

Select the [System Settings] button  to enter the settings window, then select the [Login] button 

, and select "System Administrator" to log in in the pop-up dialog box. The default password is blank. After logging in, exit the system setting window, and  then click the [Calibration button] to enter the calibration form.

The system has been calibrated before leaving the factory. If there is an error in the measurement size, it can be recalibrated. The calibration method is as follows.

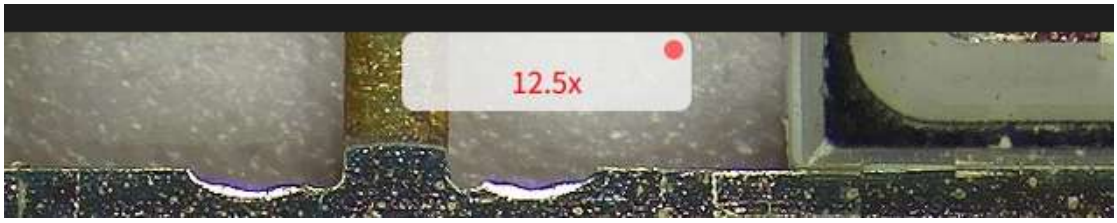
Calibration Method ″ as needed , click the drop-down button, select ″Line Calibration″ or ″Circle Calibration″ to enter the calibration creation state. For example, select the three-point circle calibration method and place the circular calibration plate under the lens. After the image is adjusted clearly, you can draw a circle by randomly selecting three points on the outer edge of the circle. Check the coincidence between the drawn circle and the calibration plate. If you are not satisfied, you can redraw the circle until you are satisfied. Then enter the current lens magnification, actual size of the calibration circle and other information in the dialog box. At this time, the current calibration information will appear in the menu ″Calibration″ dialog box. After calibration, if the lens is a zoom lens, you can switch to another magnification to continue calibration.

Repeat the previous operation on the software to calibrate another magnification. Repeat the above calibration in sequence to complete the calibration between different magnifications of the lens.

3.2.2Switch magnification

After the calibration is completed, when the user rotates the magnification handle, the system magnification will automatically switch, and the current magnification will be automatically displayed at the top of the window. At the same time, the magnification calibration column will also automatically switch to the currently used magnification.

The magnification is displayed at the top of the window, as shown below:



The current optical magnification is displayed as follows:

3. 2. 3 Edit Calibration

After the system administrator logs in, calibration data can be edited.

Select the [Edit Calibration] button , and the management calibration dialog box will pop up. You can delete/clear the corresponding magnification calibration, as shown in the following figure:

3.3 Measurement function

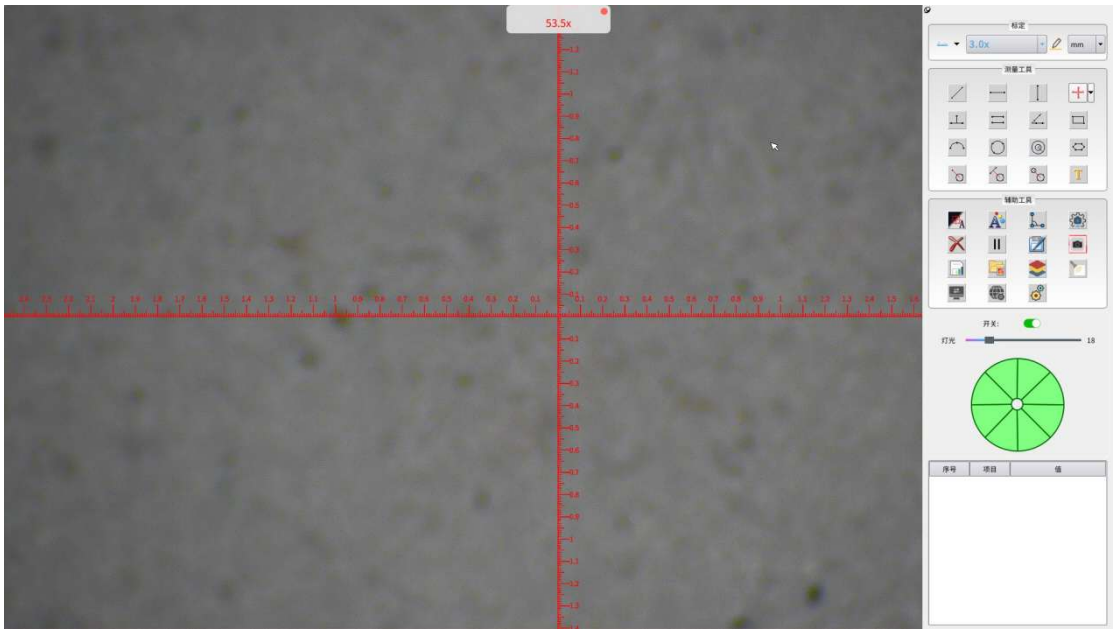
3.3.1Measurement tool description

(1)  Two-point line--pick two points to draw a line segment.

(2)  Horizontal line --take two horizontal points and draw a line segment.

(3)  Vertical line ----Click two vertical points to draw a line segment.

(4)  Crosshair display/hide ---- Click the drop-down icon to choose to display or hide the crosshairs/tick marks .



(5)  Parallel lines --first draw a line through two points, and then find another line with a point on the line. The second line will be automatically drawn, and the system will automatically measure the distance between the two lines.

(6)  Point to line----line point a point and then draw a line by selecting two points. Measure the distance from the first point to this line.

(7)  Angle-----First draw a line through two points, and then draw another line through the two points. The system will automatically calculate the angle between the two lines.

(8)  Rectangle ---- You can select two points, and the system will draw a rectangular block based on these two points.

(9)  Radians ---- An arc can be drawn through three points.

(10)  Circle ---- You can draw a circle by taking three points .

(11)  Concentric circles - you can draw a circle by taking three points to draw the first circle, and then drag the mouse to select a point on the edge of the second circle to draw the second circle.

(12)  Polygon ----You can click to take points according to the position of the polygon, and the system will automatically connect the points. When selecting the last point, you can right-click the mouse, and the system will automatically connect the last point after the first point to form a closed figure. Note that a maximum of 10 points can be selected for a polygon.

(13)  Point to circle ---- First select a point, and then draw a circle through three points. The system will automatically measure the distance from the first point to the center line of the circle and the center of the circle.

(14)  Line to circle----- First draw a line through two points, then find a circle and draw a circle by taking three points and measure the distance from the center of the line to the center of the circle .

（ 15 ）  Circle center distance —— Draw two circles by taking a circle at three points. The system automatically measures the distance between the two circle centers.

（ 16 ）  Text annotation – text information can be annotated at a specified location on the screen.

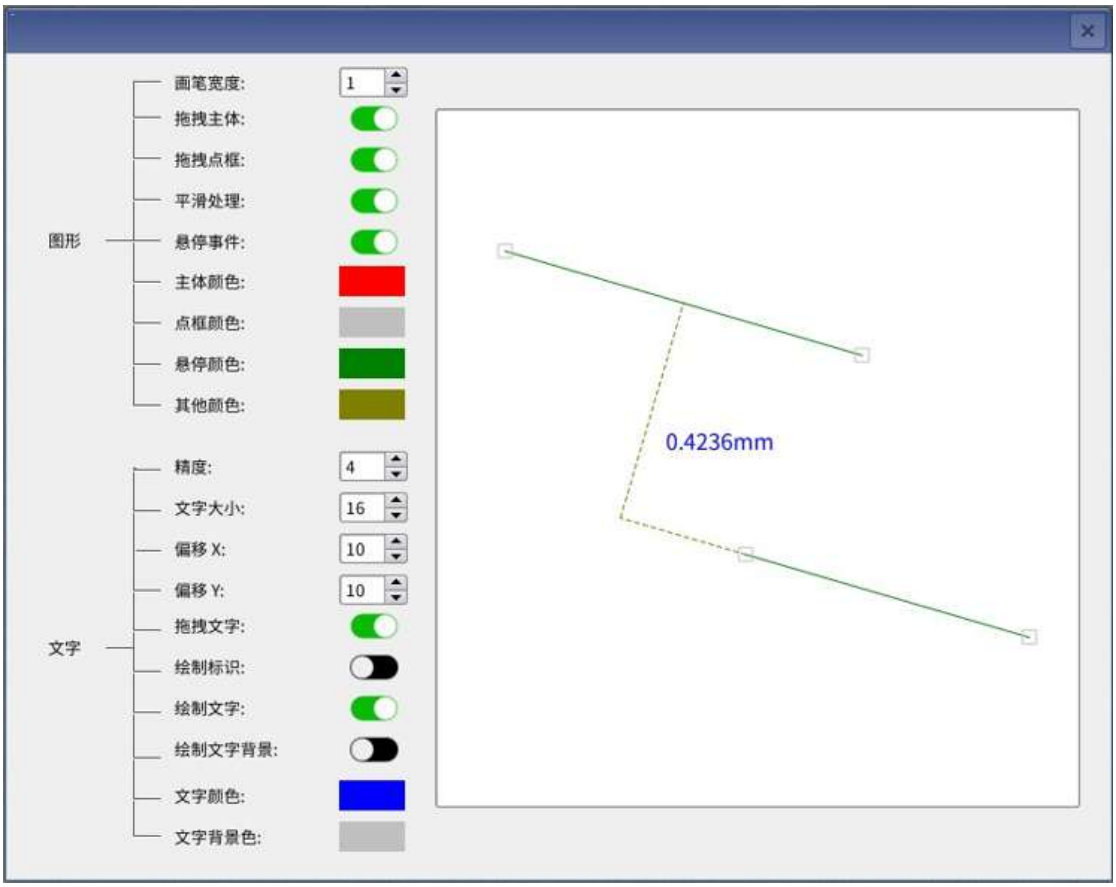
3.4 Auxiliary tools

3.4.1Edge detection 

Draw the selected point on the screen. If you choose to select the point manually (M), the point will be selected wherever the mouse clicks. If you choose automatic intelligent (A) point selection, the system will automatically find the edge based on the 20 pixels around the mouse point wherever you click. This method can reduce human errors in point selection. But there cannot be more than 2 edges around the selection point, otherwise the wrong selection may be made.

3.4.2Graphic information

After clicking, a dialog box will appear on the screen. Users can set the line width and color of the drawn image, the font size of the label after measurement, color and whether the label is closed, the length and other settings.



3.4.2.1 Graphic parameter settings:

Brush Width: Set the thickness of the line.

Drag body: Whether the drawn graphics can be dragged.

Drag point box: Whether the drag rectangular box is visible.

Smoothing: Whether to smooth graphics.

Hover event: Whether to display prompt information when the mouse hovers over the

graph.

Body color: graphic color.

Point frame color: draw the graphic wireframe color.

Hover color: Hover prompt information color.

Other colors: Other default colors.

3.4.2.2 Text parameter setting:

Precision: Set the number of digits after the decimal place of the measurement data. A maximum of 4 decimal places can be retained.

Text size: Set the font size.

Offset X: X coordinate accuracy.

Offset Y: Y coordinate accuracy.

Drag text: Shows whether the text can be dragged.

Draw flag: Whether to draw the measurement data flag.

Draw text: whether to draw text.

Draw text background: whether to draw text background color.

Text color: Set the text color.

Text background color: Set the text background color.

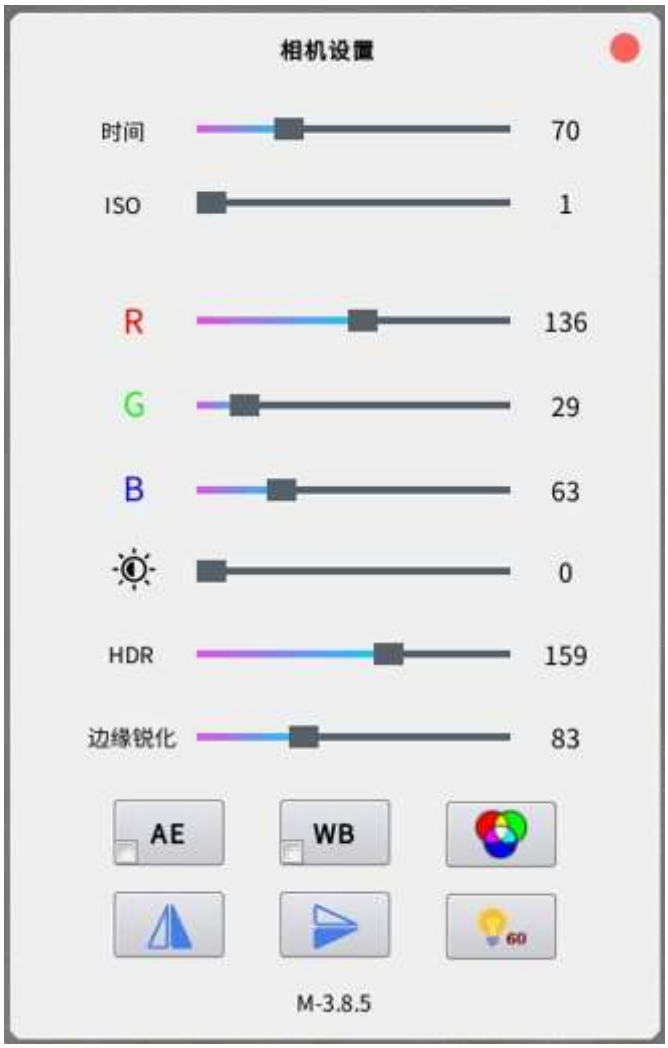
3.4.3 Graphic output parameter settings 

Set the parameters for each graphical tool to display output:

Wire	parallel lines	angle	rectangle	Polygon	Arc	round	ring	Circle&Round
length	center line	supplementary angle	width	perimeter	radius	radius	Radius 1	Circular distance
angle		Bisector	high	area	diameter	diameter	Radius 2	X difference
tangent			perimeter		arc length	perimeter	radius difference	Y difference

			area		angle	area	area	
					center of circle	center of circle	center of circle	

3. 4. 4 Camera settings 



(1) Time: refers to the exposure time. The longer the exposure time, the brighter the image, but if the time is too long, the screen refresh will be slower.

(2) ISO: sensitivity. The larger the ISO, the stronger the ability to detect low light. If there is good light, the smaller the ISO, the better. If the light is very weak, you can increase the ISO value, but the higher the ISO, the higher the noise introduced. Therefore, it is generally better to set a smaller ISO setting.

(3) R: Red channel value adjustment.

(4) G: Green channel value adjustment.

(5) B: Blue channel value adjustment.

(6)  Image contrast adjustment

Drag the position bar with the mouse to change the image contrast.

(7) Image wide dynamic adjustment HDR

Wide dynamic range adjusts the image brightness range. The larger the wide dynamic range, the greater the brightness of the image can be effectively improved, suppressing the highlights, making the contrast of the picture look more coordinated, and avoiding highlights or too dark.

(2) Edge sharpening

Drag the mouse position bar to reduce or increase edge sharpening to improve the edge effect of the image. Make the image outline clearer.

(6) AE automatic exposure

Click the AE icon, and the camera will automatically adjust the exposure value in real time according to changes in ambient brightness to achieve the best brightness for the picture. If you check the box in the lower left corner, the exposure value will be

automatically adjusted as the light changes.

(7) WB automatic white balance

Place a piece of white paper at the bottom of the lens, focus clearly, and after automatic exposure, click the WB icon, the camera will automatically adjust the white balance, and the colors will be restored to true colors. If the color adjustment is distorted, you can use the white balance function to restore the color.

(8) Refresh frequency adjustment 

The frequency adjustment icon can change the screen refresh frequency. This button can be adjusted when the picture has low-frequency horizontal stripes.

(9) Horizontal mirroring 

Click the horizontal mirror icon to mirror the image horizontally.

(10) Vertical mirroring 

Click the vertical mirror icon to flip the image vertically.

(11) Color turns gray 

Click the color to gray icon to switch the color image to

black and white.

3.4.4 Measurement result clear button 

Click the delete icon to clear all images currently drawn on the screen, but the information in the measurement data column on the right will not be cleared.

3.4.3 Image freezing 

If the device vibrates and shakes unstablely while watching the screen, you can select the Freeze Current button to freeze the current screen. Press the button again to unfreeze the condition.

3.4.4 Saving measurement results 

Click the measurement data save icon to save all previously measured data. The saved format can be opened and browsed in Excel on your computer.

3.4.5 Image saving

Click the photo icon to save the images and data currently on the screen as pictures. The format is BMP or JPEG.

The saving format and saving method can be selected according to the options in the system settings. Allow customers to choose to save pictures, save data, and save windows. You can also choose the format and file size to save. In addition, you can choose to save to a USB flash drive or save to the network. At the same time, the machine supports functions such as scanning QR codes to save pictures and external triggering to save pictures. Please refer to

[System Settings] for details.

3.4.6 Saving reference graphics

This function allows customers to draw some graphics and save them, and the graphics will be automatically loaded the next time the computer is turned on. This function can help customers create a reference graphic to facilitate employees to test products .

3.4.7 Open pictures

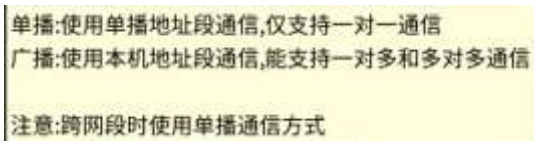
This function opens pictures saved locally and can be viewed and browsed.

3.7 File upload

The file upload function is used to transfer local pictures and

files to the MES server. You need to first connect to the MES server through network settings, and then select the files and pictures to be uploaded. The system will automatically upload these files to the server.

3.8 Network settings



In the network setting function, it is used to set the camera to connect to the remote computer or MES server.

First set the IP address of the camera. There are two ways to obtain the IP address. One is to automatically obtain the IP address. In a network with a router, you can set it to automatically obtain an IP address. The router will automatically assign an unused IP address to the terminal in the network. IP address.

If you are directly connected to the computer using a network cable, or if the IP address cannot be assigned automatically, you can manually set an IP address. The default IP address is 192.168.0.XXX. The subnet mask is 255.255.255.0 and the default gateway is 192.168.0.1. Customers can set the corresponding IP address according to their own network segment. But you need to ensure that the computer IP address and the camera are in the same logical network.

Port settings, the camera's default file transfer port is 8888, and the video transfer port is 7777. Note that the receiving port on the computer needs to be set the same.

After setting the IP address and port, click the [Set] button, the camera will automatically find the server, and the found servers will be listed in the "Online Host List" box. At this time, you can select the server to connect to and click the [Connect] button to connect to the server. After the server is successfully connected, it will prompt that the connection is successful. At this point the camera has established a network connection.

If you need to store pictures on the server, you also need to set the picture saving method to "Network". Only then can you save the picture to a network computer.

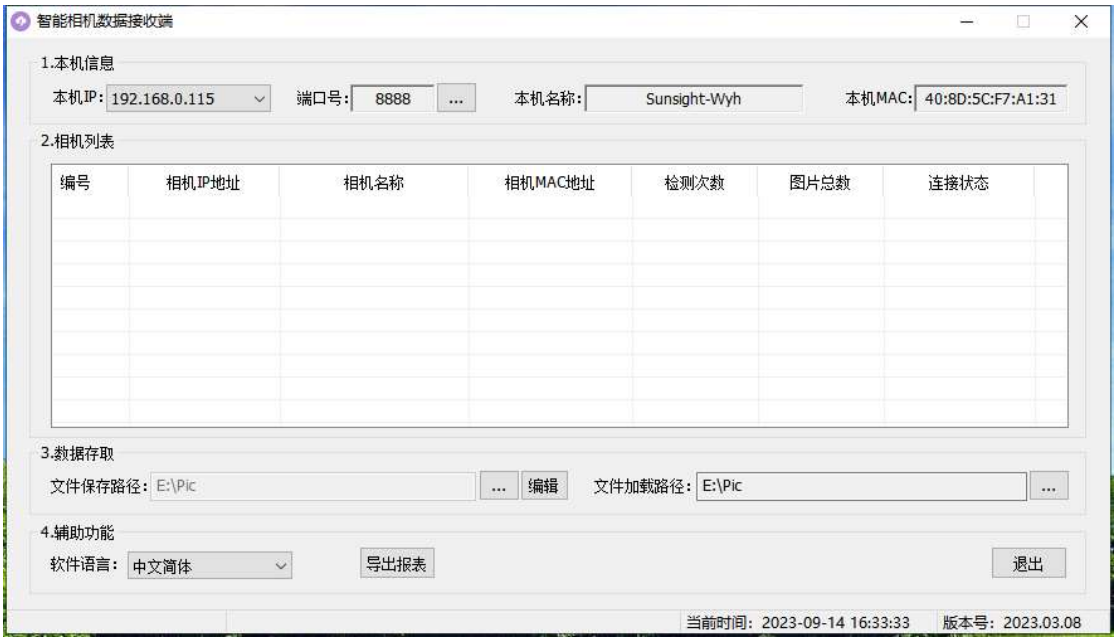
For detailed picture saving settings, please check the [System Settings] function.

Select [Disconnect], the communication with the server will be disconnected, and images cannot be saved to the remote computer at this time.

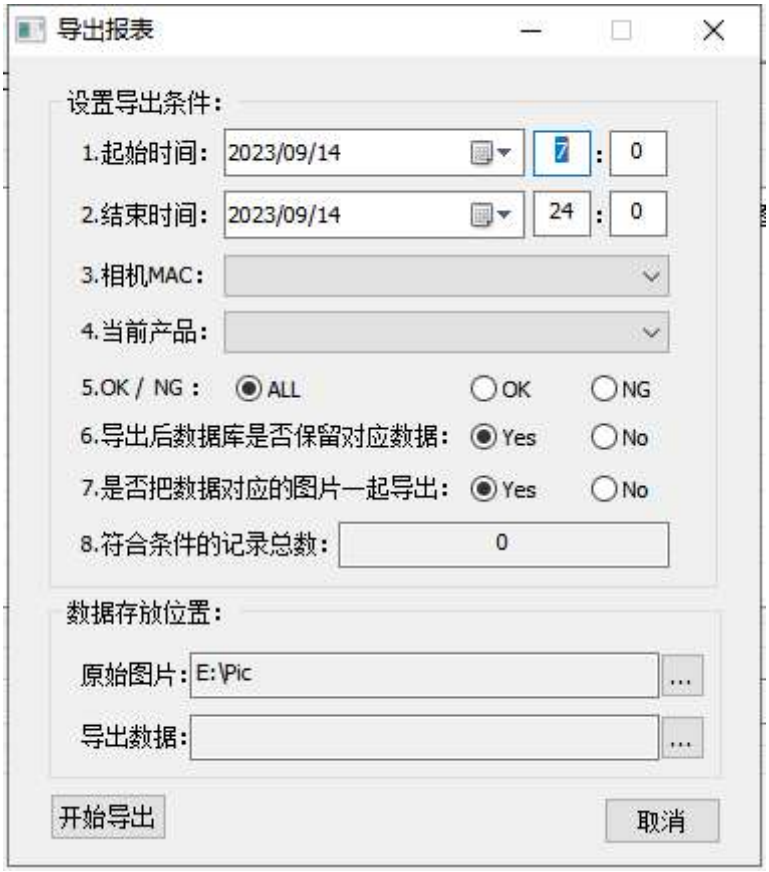
"Unicast" and "broadcast", if the receiving server and the camera are in the same network segment, the computer and camera will automatically find each other in "broadcast" mode. At this time, just select the server. The camera and computer will automatically search for each other when they are started. Convenient for users to operate. Some computers and cameras are not in the same network segment, but are in the same logical network, such as camera 192.168.2.XXX and computer 192,168.5.XXX. At this time, broadcast packets will be isolated in different network segments, so computers and cameras cannot be searched. Only the service IP address of the specified address can establish a connection. At this time, select unicast mode, specify the server IP address, and then connect.

Receiving software: The receiving software that comes with the system is the

SmartRxdCCD.exe file, and the interface is as shown below.



When the camera is connected to the software, the computer software will list the camera information. And it will automatically count the number of uploaded pictures. The software allows you to set the path where images are stored. Reports on uploaded images can also be exported. As shown below:



For detailed computer receiving software SmartRxdCCD operation, please check the "

SmartRxdCCD Operation Manual".

Chapter 4 System Settings

4.1 System Settings--Image Saving 

4.1.1 Image data source:

Video: Select video to save the video image you see in real time.
Graphics: Select the graphic and save the graphic image drawn in the window.
Window: Select the window and the operation window will be brought when saving.

4.1.2 Image naming method:

Manual naming: The system will pop up an image saving window, which will be automatically numbered by default, allowing the user to change the file name before saving. The manual naming method is limited to use when saving to USB disk.

Automatic naming method: The system will automatically generate a file name based on the settings and save it directly. It can be saved to a local USB flash drive, or to a network server or MES server.

4.1.3 Image saving format

Images can be saved in JPG, BMP and PNG formats.

4.1.4 Image saving quality

When the JPG image format is selected, the image will be compressed. The default image quality is 90%. The larger the value, the better the image quality. The larger the file, the smaller the value, the smaller the file size and the worse the image quality.

4.1.5 Image naming length

Image file naming length. When automatically generating file names, the name will be generated based on this size. Such as 00001.jpg.

4.1.5 Image naming format

The "1%" file is named according to the serial number. The system will automatically search for the file name in the current directory and name it according to the maximum serial number plus one.

"2%" is named according to date and time. The date naming format can be based on " yyyyMMddhhmmss ". Represents year, month, day, hour, minute and second respectively. This format is optional. For example, only use the log " yyyyMMdd ".

"3%" Scan the QR code or barcode to name.

The above file naming methods can be freely combined, and letter prefixes or suffixes can be added before or after the serial number. like:

"img1%" generates the file name: img00001.jpg.

4.1 System Settings--File Saving

File saving is used to set information related to measurement data file saving.

4.2.1 File naming method

Manual naming: The system will pop up an image saving window, which will be automatically numbered by default, allowing the user to change the file name before saving. The manual naming method is limited to use when saving to USB disk.

Automatic naming method: The system will automatically generate a file name based on the settings and save it directly. It can be saved to a local USB flash drive, or to a network server or MES server.

4.2.2 File naming length

File naming length. When automatically generating file names, the name will be generated based on this size. Such as 00001.CSV.

4.2.3 Data naming format

The "1%" file is named according to the serial number. The system will automatically search for the file name in the current directory and name it according to the maximum serial number plus one.

"2%" is named according to date and time. The date naming format can be based on " yyyyMMddhhmmss ". Represents year, month, day, hour, minute and second respectively. This format is optional. For example, only use the log " yyyyMMdd ".

"3%" Scan the QR code or barcode to name.

The above file naming methods can be freely combined, and letter prefixes or suffixes can be added before or after the serial number. like:

"FILE1%" generates the file name: FILE00001.csv.

4.3 System settings--folders

Set information related to folder creation

4.3.1 Folder naming length

Folder naming length, the name will be generated based on this size when creating the

folder. Such as "00001". The length will be automatically intercepted based on the generated method.

4.3.2 Folder naming format

The "1%" folder is named according to the serial number. The system will automatically search for the folder name in the current directory and name it according to the maximum serial number plus one.

"2%" is named according to date and time. The date naming format can be based on " yyyyMMddhhmmss ". Represents year, month, day, hour, minute and second respectively. This format is optional. For example, only use the log " yyyyMMdd ".

"3%" Scan the QR code or barcode to name the folder.

The above folder naming methods can be freely combined, and letter prefixes or suffixes can be added before or after the serial number. like:

"DOC2%" generates the file name: DOC20230809.

4.4 System Settings--Trigger

4.4.1 Capturing data

Capture measurement data when triggered externally and upload and save it.

4.4.2 Capturing images

Capture images when triggered externally and upload and save them.

4.4.3 Open the scale

Turn on the proportional scale and display it on the screen.

4.4.4 Capture images after the device is in place

After the external triggering device runs to the specified location, it executes the image capture action.

4.4.5 Automatically update values after switching calibration

The value is automatically calculated and updated after switching calibration.

4.4.6 Automatically scale graphics after switching calibration

Automatically calculate the scale and redraw the graph after switching calibration.

4.5 System Settings--Network

4.5.1 Resume download

If "Yes" is selected, if the system is disconnected and then restored, the system will upload the locally saved image data to the service. If there is a network interruption, the system will automatically upload the original failed files and pictures after the

network is restored.

4.5.2 File saving method

Saving files "locally" means saving them on a local external USB flash drive. Selecting "Receive Software" will save it to a server that is already connected to the Internet. The server can be specified in the camera network settings.

4.5.3 Image saving method

The image saved "locally" means saved on the local external USB flash drive. Selecting "Receive Software" will save it to a server that is already connected to the Internet. The server can be specified in the camera network settings.

4.6 System Settings--Others

4.6.1 Magnification setting

Set the parameters of the monitor, eyepiece and objective lens, and the system will automatically calculate the magnification and display it on the screen. The magnification we see is based on the screen size, objective lens magnification, and eyepiece magnification to calculate the actual magnification. If the data is selected accurately, it can truly reflect the magnification.

4.6.2 I/O settings

This model does not have an IO interface and this function is not available.

4.63 magnification display:

Select the lens magnification, and the optical lens magnification will be displayed on the main interface.

Optical magnification range: 0.7x, 1.0x, 1.5x, 2.0x, 2.5x, 3.0x, 3.5x, 4.0x, 4.5x .

Select the imaging magnification, and the actual physical magnification magnification will be displayed on the main interface.

The minimum physical imaging magnification is 20 times and the maximum is 80 times. If you use a lens and monitor with different configurations, the magnification range will change.

4.7 System Settings--Upgrade

4.7.1 Cursor type:

Allows the user to set the cursor to a cross or arrow. The default mouse cursor is an arrow.

4.7.2 Menu location:

You can set the menu position to the left or right of the window. Default is right.

4.7.3 Switch users

User login management. By default, the system logs in as an ordinary user. At this time, system settings cannot be modified. You need to log in as a system administrator to perform size calibration and other work. The default password for the system administrator is blank.

4.7.4 Restore factory settings

Restore shipyard settings and restore all system parameters to their original factory state. Use with caution.

4.7.5 Application upgrade

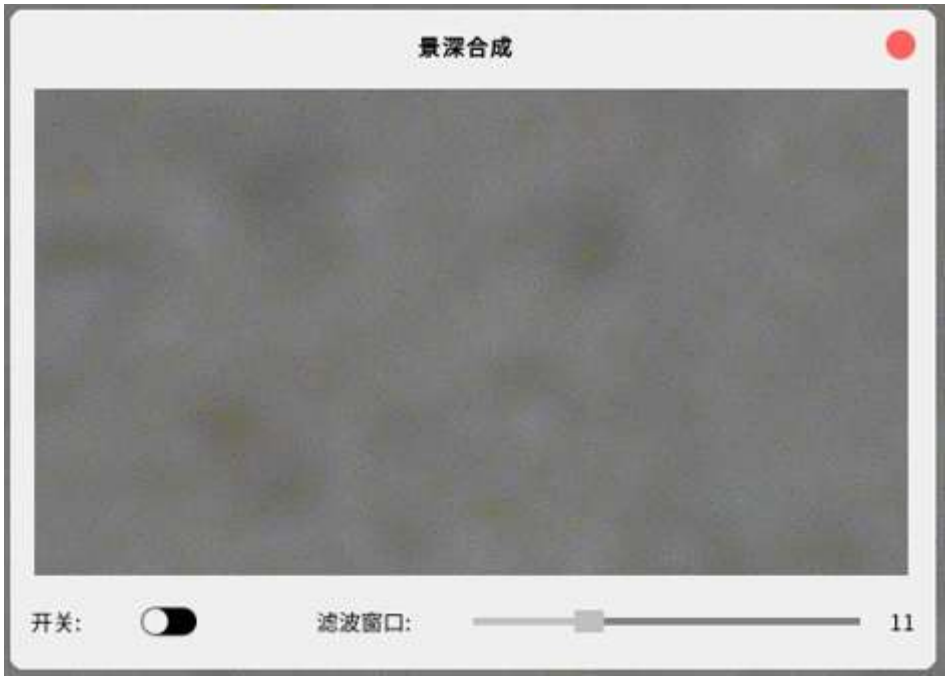
Upgrades include software upgrades, hardware upgrades and startup screen upgrades.

Software upgrade mainly upgrades operating software.

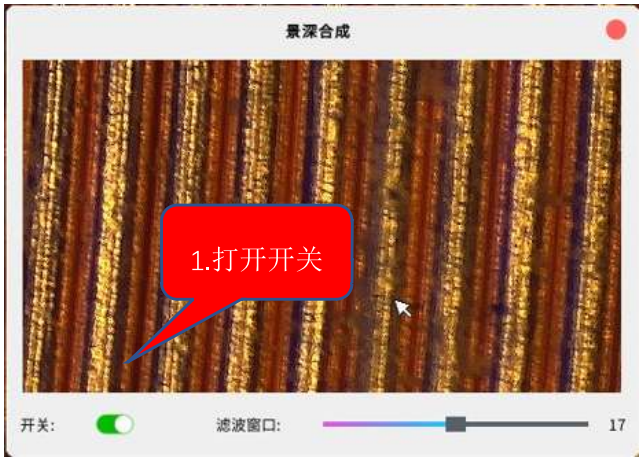
Hardware upgrade is only performed when the hardware interface has changed. It is rarely used and should be used with caution.

Language selection: The system supports Simplified Chinese, Traditional Chinese and English. Can be switched freely.

Chapter 5 Depth of Field Synthesis



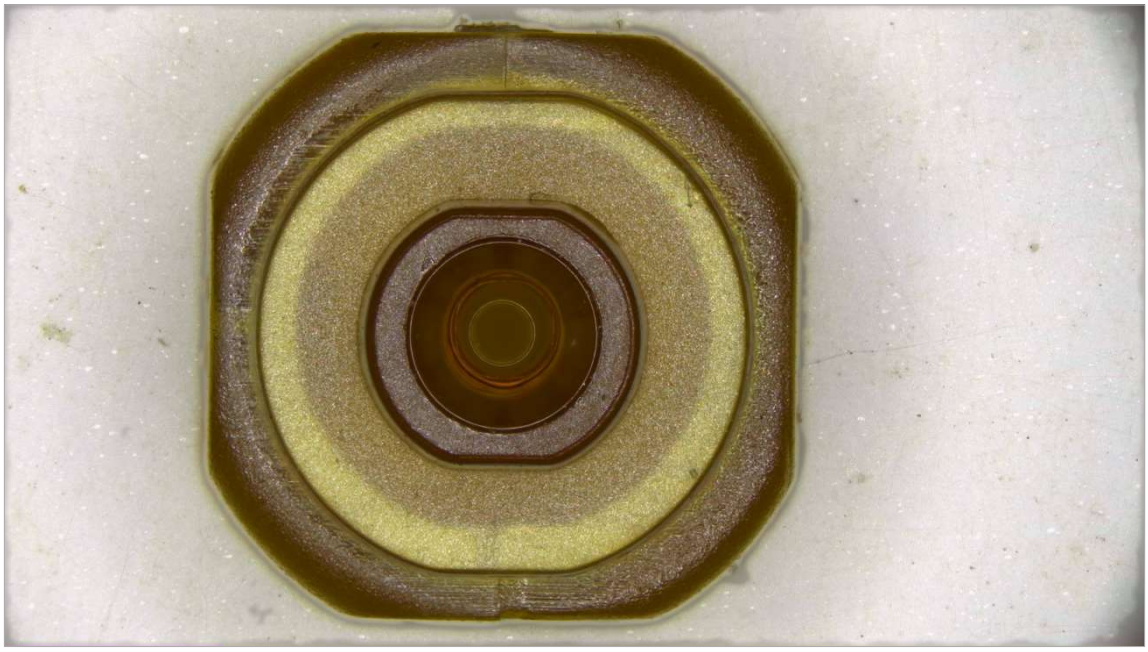
After turning on the depth-of-field synthesis function, select the [Switch] on the form and switch it to the green state. At this time, adjust the focus knob of the microscope from bottom to top, and the system will automatically capture the image and extract clear pixels on each focal plane. blocks, combined into a completely clear and complete picture.

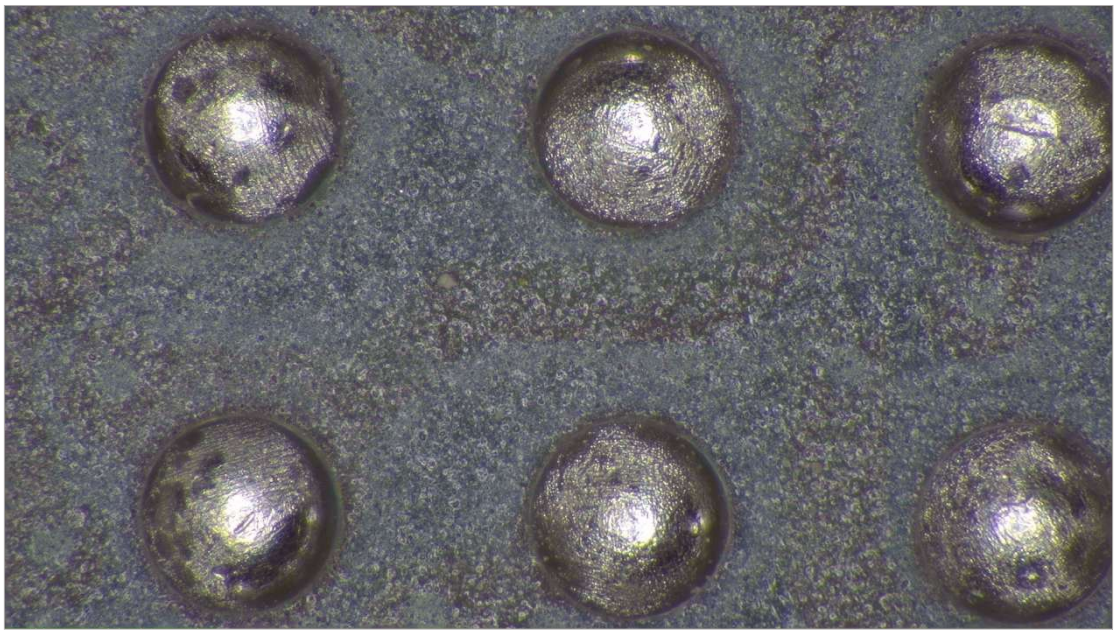


Closing the depth of field synthesis window will automatically turn off the depth of field synthesis function.

Filter window: used to adjust the size of filtered out interference pixels. The larger the value, some larger color blocks will be ignored.

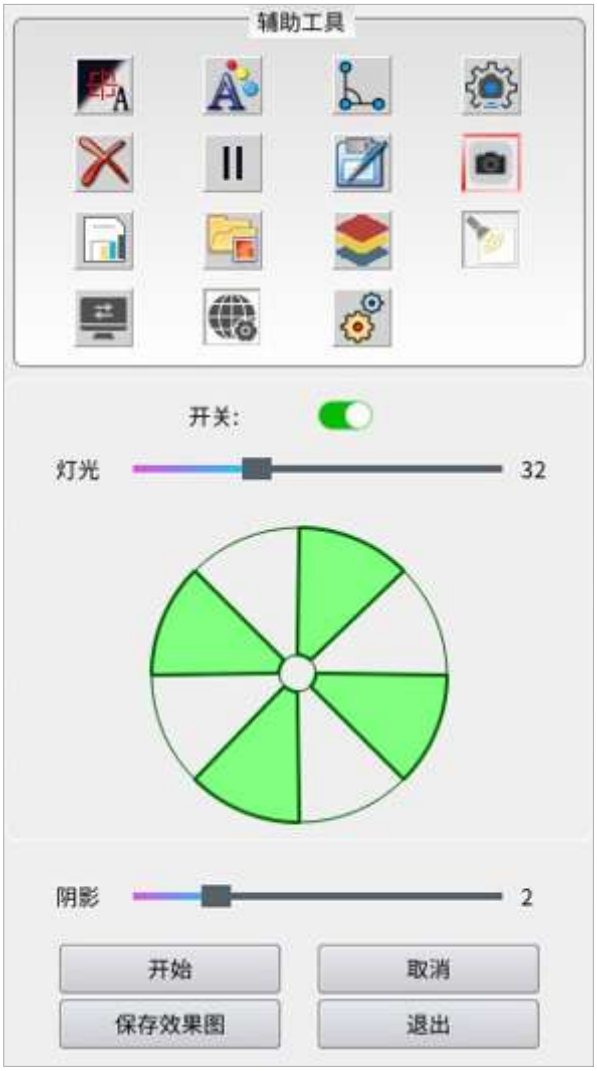
Effect picture after depth of field synthesis:





Chapter 6 Multi-angle and all-round pictures

Comprehensive pictures



After clicking the all-round picture function, the menu bar will be as shown below, and the picture synthesis buttons will be expanded, [Start], [Cancel], [Save rendering], [Exit].

Click the [Start] button, the system will automatically turn off and on the light sources of the eight partitions in sequence, and then save the picture. The saved picture will then be combined into one picture. The combined picture will clearly show flaws, scratches, and bumps. wait. This function effectively solves the problem that some product details cannot be seen.

Select [Save Effect Image] to save the image to a USB flash drive or network.

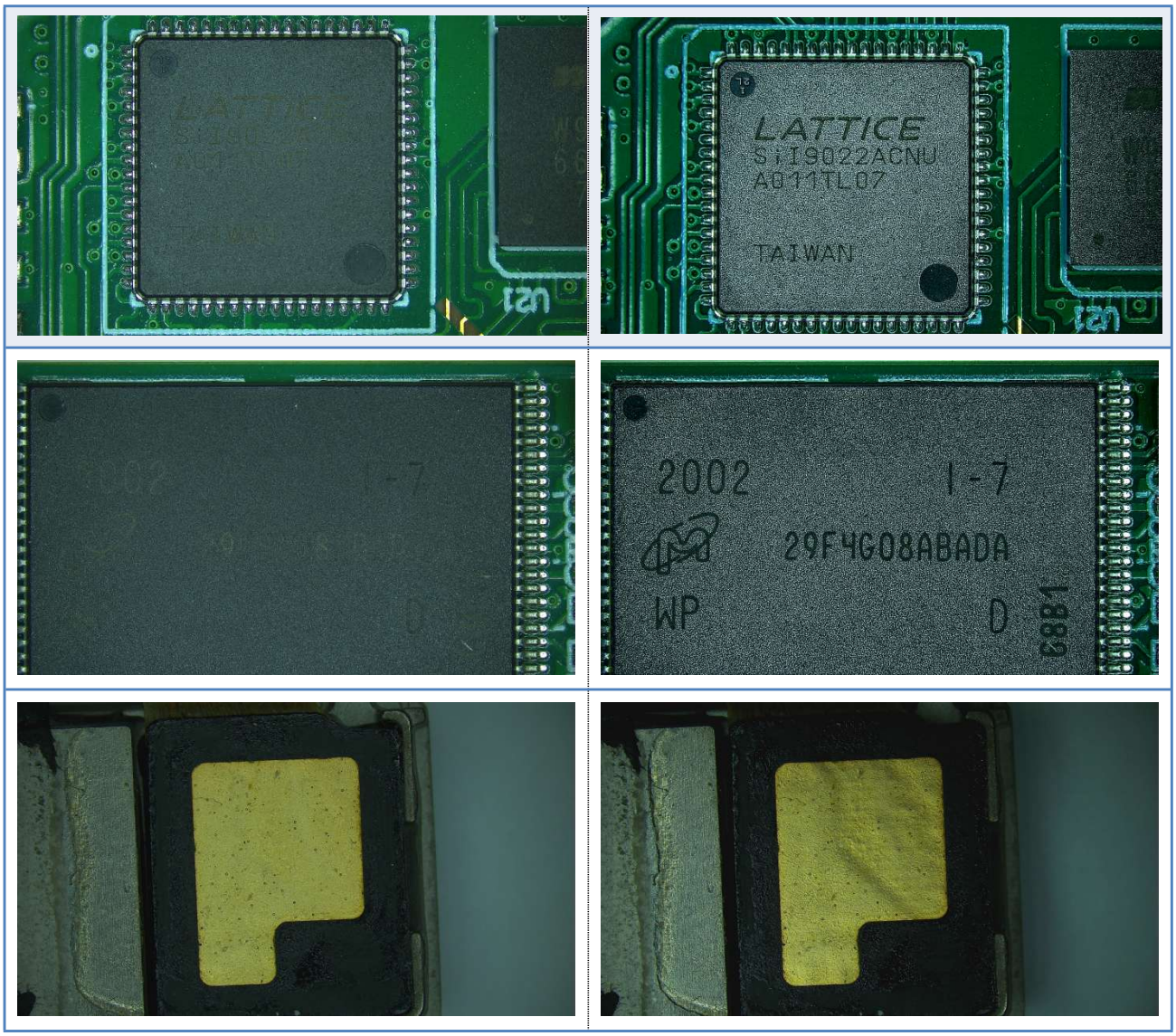
During the synthesis process, select [Cancel] to stop the synthesis process.

Select the [Exit] button to close the all-round image creation function.

The renderings are as follows:

Comprehensive image synthesis, handwriting cleaning, while the handwriting and dents cannot be seen clearly in pictures under ordinary lenses.

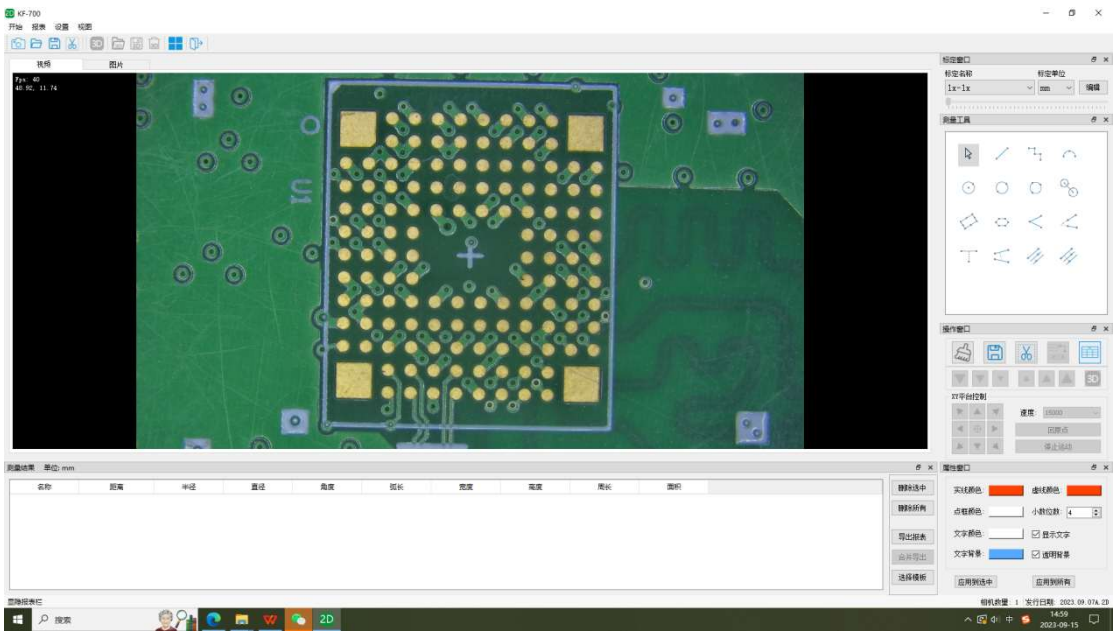
Photos under ordinary light source	Comprehensive image synthesis



第七章 Internet video

In the previous network setting window, set the IP address of the camera, install the Smart2D.EXE software on the computer, and set the computer IP address and the camera IP address to be in the same network segment. After the network communication connection is successful, you can use the Smart2D software Watch online videos in real time.

The computer network software has functions such as measurement and image saving. For detailed operation methods, please refer to the "Smart2D User Manual".



The eighth network picture storage

After setting the camera's network address and the computer's network address, we can store the pictures on the computer server. This can save a large number of pictures to facilitate tracking of the product production process. The detailed setting method is as follows:

① First set the camera IP address, such as 192.168.0.56, and the default image saving port is 8888.

② Then set the computer IP address to 192.168.0.XX X. XXX can be any number between 1 and 254, but it cannot be the same as the camera IP address.

③ Then connect the computer and camera with a network cable.

④ Install SmartRxdCCD .EXE software on your computer.

⑤ Open the SmartRxdCCD software.

⑥ Open the camera network settings window, select the computer server found by the camera and select "Connect".

⑦ Set "System Settings - Network", set the image saving method to "Receiving Software", and select the "Resume" method to "Yes".

⑧ At this point, the motor image is saved and the image can be uploaded to the

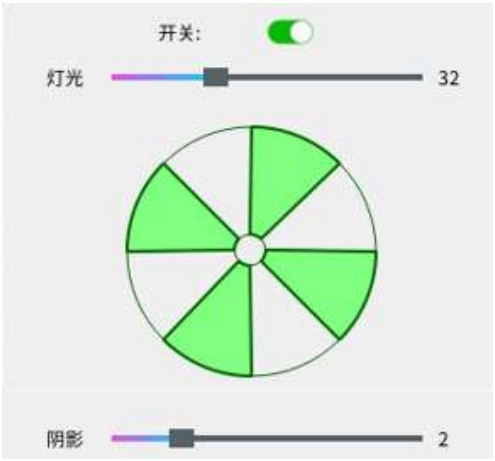
computer.

Note: The picture name saving method can be viewed in "System Settings--Image Saving", and the folder naming method can be viewed in "System Settings--Folder".

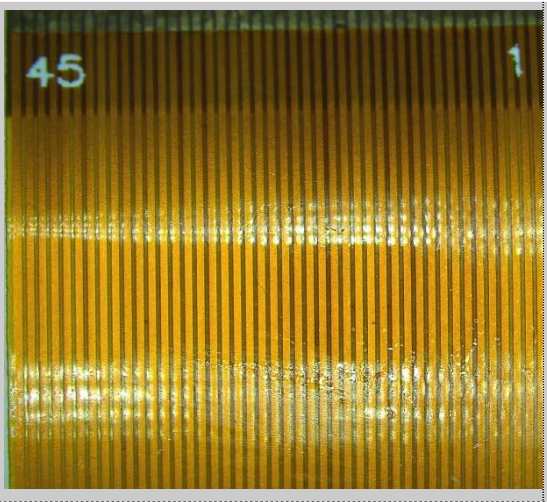
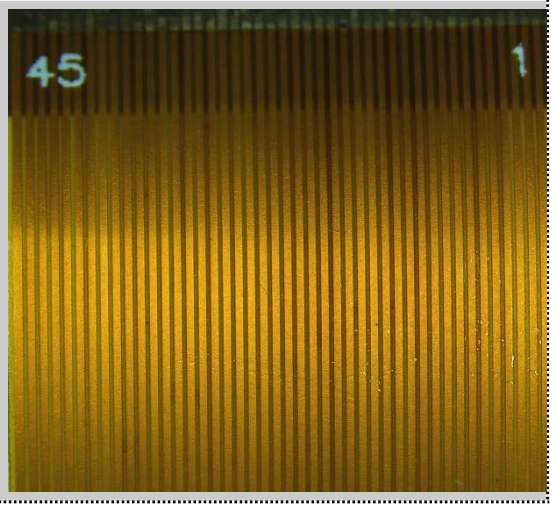
The ninth magnification automatically switches

Magnification adaptation is a unique function of this machine. After adjusting the magnification knob, the current magnification will automatically switch. The calibration record will automatically switch during system measurement and ensure that the measurement ratio is correct.

Chapter 10 Eight-area light source

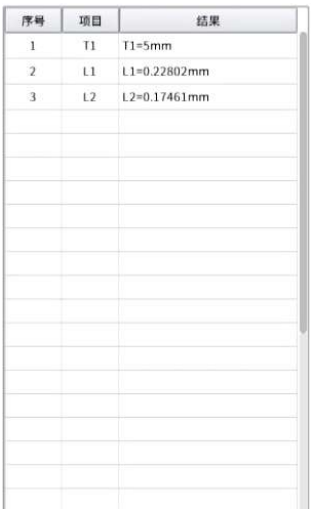


The microscope is equipped with 8 zones of independently controlled light sources. As shown in the picture above, each zone can be turned on and off independently. Adjusting light sources at different angles can effectively remove product reflections. Can view product images more clearly.

Normal lighting effect	Eight-zone light source to remove reflective effects
	

Chapter 11 Data Display Column

Data display column



The data display bar displays all the data currently measured. Select a piece of data and right-click to delete the data. You can also select "Delete All" and the system will delete all data after confirmation