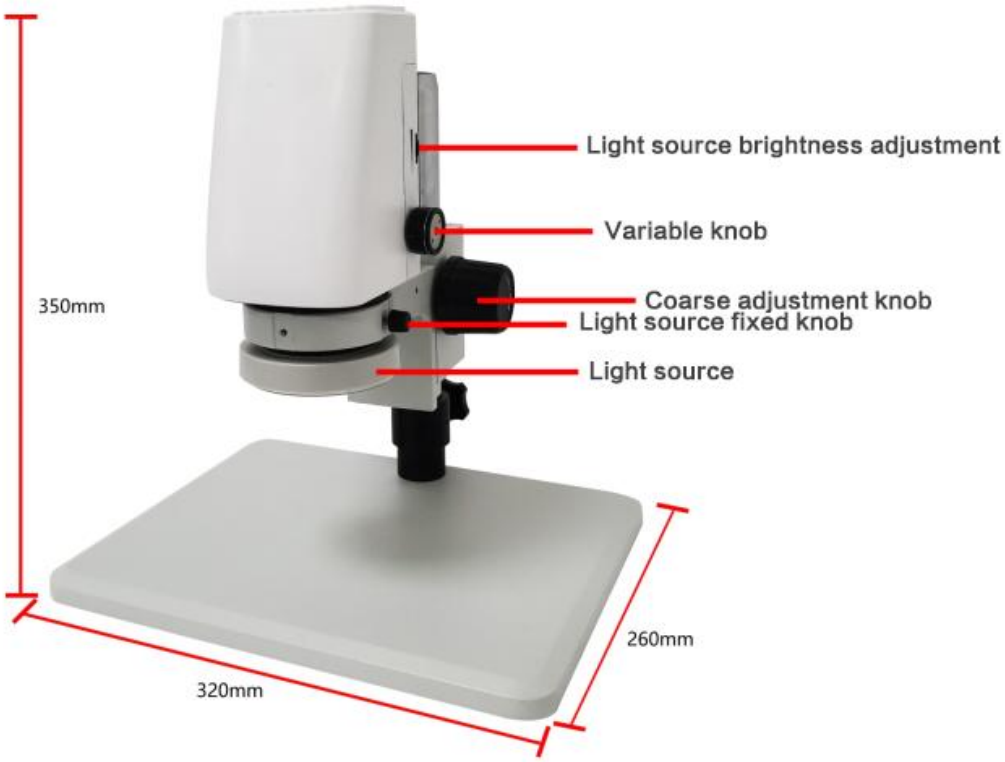
TVN-800+P13 All-in-One Product Description

Contents

Chapter 1 Introduction to functions and features

The MC-8026 HD measuring all-in-one machine is easy to use, neat and tidy in appearance, with integrated lens light source and all-in-one. Built-in personalised interface editing, template application, mouse operation, U disk storage, automatic edge finding, automatic contouring, horizontal/vertical flip, line/circle calibration, data export, playback view etc. Parallel lines", "point to line", "concentric circles", angles, radians ..... A wide range of measurement tools are available.

1.1 Camera construction diagram



1.2 Technical specifications

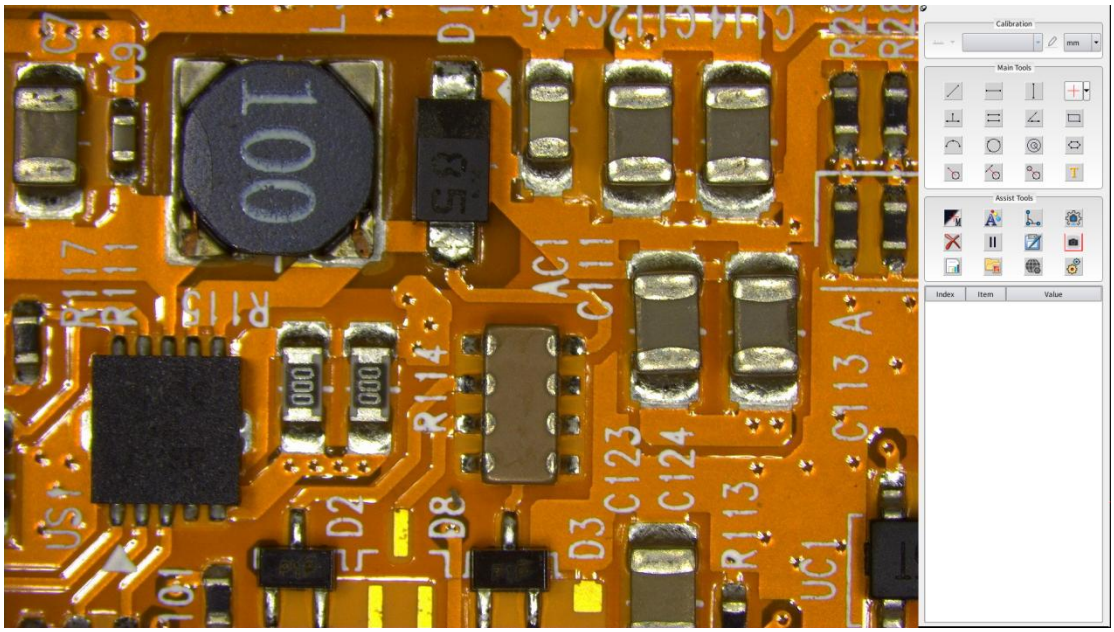
TVN-800 All-in-One		
Chip structure	FPGA+ARM	
Operating systems	LINUX 3.10	
Kernel structure	Dual Core Cortex-A9	
Main frequency speed	1Ghz	
Optical size	1/2″	
Resolution	1920×1080	
Frame Rate	60fps	
Measurement functions	Between two points, point to line, three point circle, circle centroid, concentric circle, point to circle, line to circle, parallel lines, rectangle, angle, radian, polygon	
Data storage	With image of measurement results or excel data saving	
Measurement methods	Mouse operation, intelligent point selection/manual point selection	
Access	2 USB ports for connecting a USB stick, wireless mouse or keyboard	
Operating voltage	12v	
Operating temperature	-10 degrees to 70 degrees	
Dimensions	320*260*350mm	Outer packaging: 500*310*200 mm
Weight	Net weight 4.1KG	Gross weight 5.2Kg
Field of view	1mm-25mm 或 3mm-40mm	
Working distance	60mm-180mm	

Chapter 2 Description of camera functions

2.1 Power on screen

After confirming that the HD measurement camera interface is correctly wired and powered up (12V 2A power supply), the camera starts up and displays the power-on interface, and upon completion enters the main interface as shown in the figure:

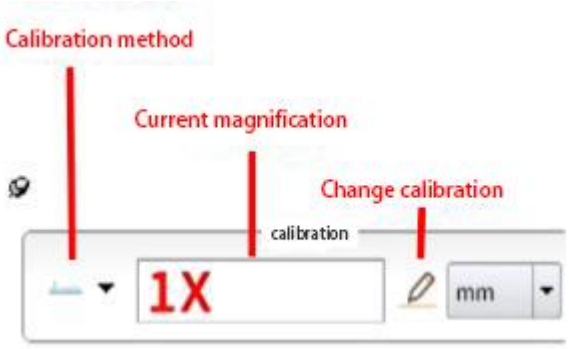
2.2 Main screen



2.3 Showing and hiding the menu bar

Click on this icon in the top left hand corner to hide the menu bar in the bottom right hand corner of the screen, to show the hidden menu bar, click on this icon in the bottom right hand corner of the screen to show the menu bar

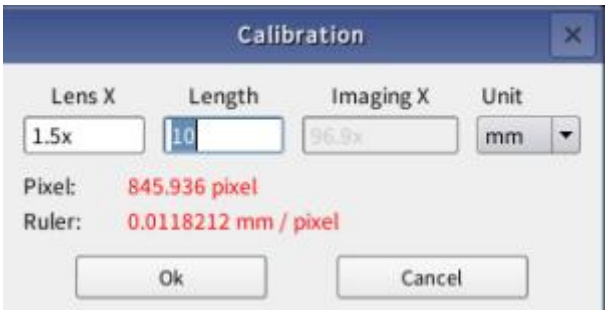
2.4 Calibration



2.4.1 New build calibrations

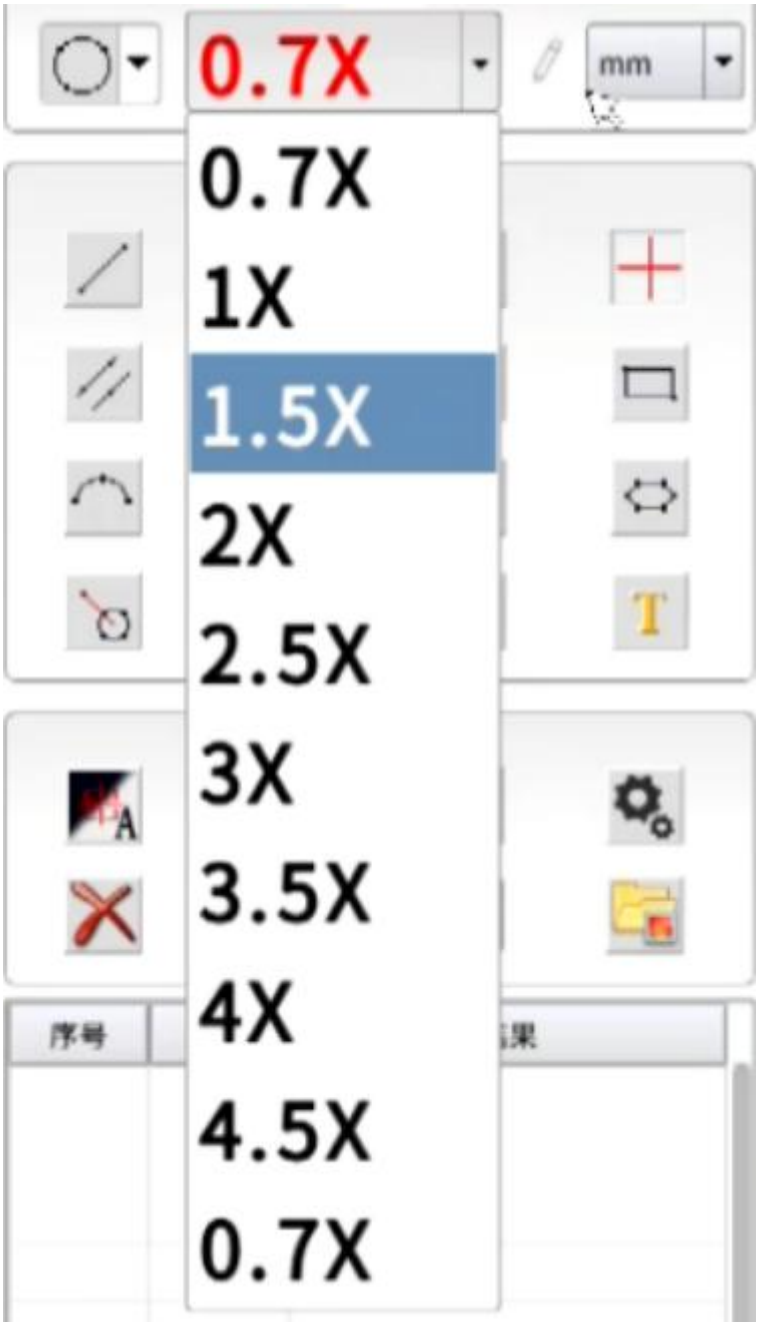
The user can select the "calibration method" as required, click the drop down button and select "line calibration" or "circle calibration" to enter the creation of the calibration state, for example, select the three-point circle calibration method. Place the circular calibration plate below the lens, after the image is adjusted clearly, select any three points on the outer edge of the circle, you can draw a circle, check how well the circle drawn and the circle of the calibration plate overlap, if not satisfied, you can redraw the circle until

satisfied. Then enter the magnification of the current lens, the actual size of the calibration circle and other information in the dialog box. At this point in the menu "Calibrate" dialog box will appear the current calibrated information. After calibration, if the lens is a zoom lens, you can switch to another magnification to continue the calibration, repeat the operation on the software can be another magnification of the calibration. Repeat the above calibration in order to complete the calibration between the different magnifications of the lens.



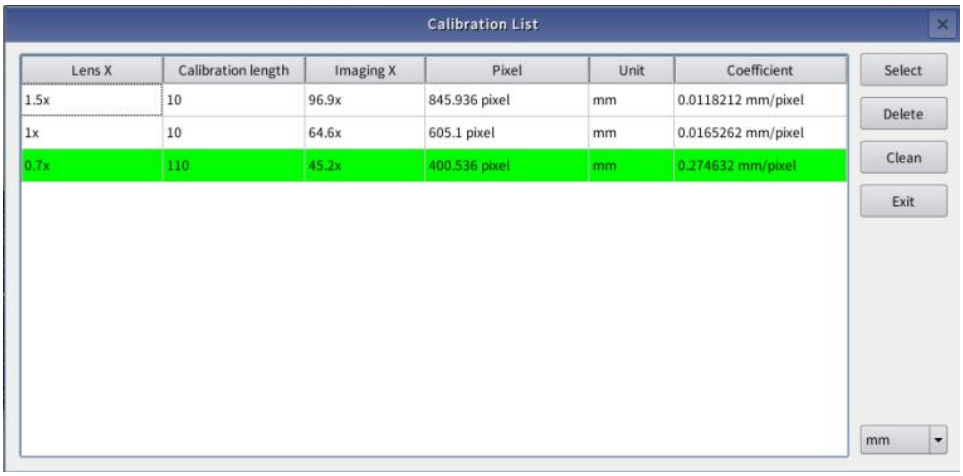
2.4.2 Switching multiplier

Once the calibration is complete, if the magnification is switched during the measurement, the software should also be switched to the corresponding magnification calibration, as shown below:

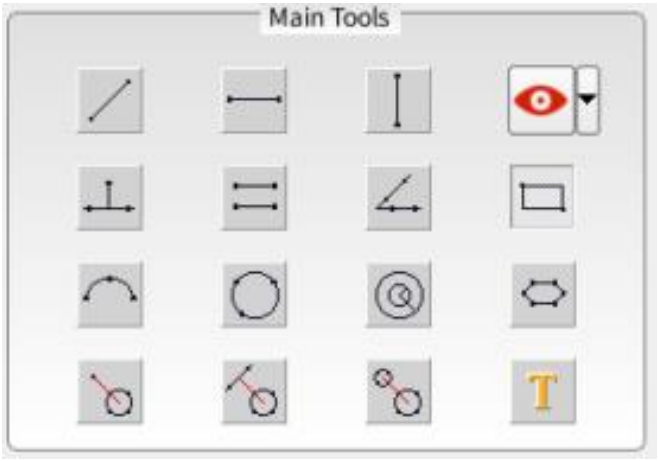


2.4.3 Change of calibration

Clicking on the Change Calibration icon will bring up the Manage Calibrations dialog box, where the corresponding multiplier calibration can be deleted/cleared, etc., as shown below:



2.5 Measurement functions



2.5.1 Description of the measuring tool

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

 (2) Horizontal line- - - -points Two horizontal points to draw a line segment.

 (3) Vertical straight line- - - -point Take two vertical points to draw a line segment.

 (4) Crossover display / hide- - - -Click the drop-down diagram, can choose the cross line display, or hide.

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

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

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

 (8) Rectangular- - -Two points can be selected, and the system will draw a rectangular square according to these two points.

 (9) Arc- - -An arc can be drawn at three points.

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

 (11) Concentric circles- - - -You can draw the first circle by taking it at three points and then drag the mouse to select

a point at the edge of the second circle to draw the second circle.

 (12) Polygon- - - -You can click the point according to the position of the polygon, and the system will automatically connect each point. When selecting the last point, you can press the right mouse button, so that the system will automatically connect the last point after the first point to form a closed graph. Note that the polygon can only select a maximum of 10 points.

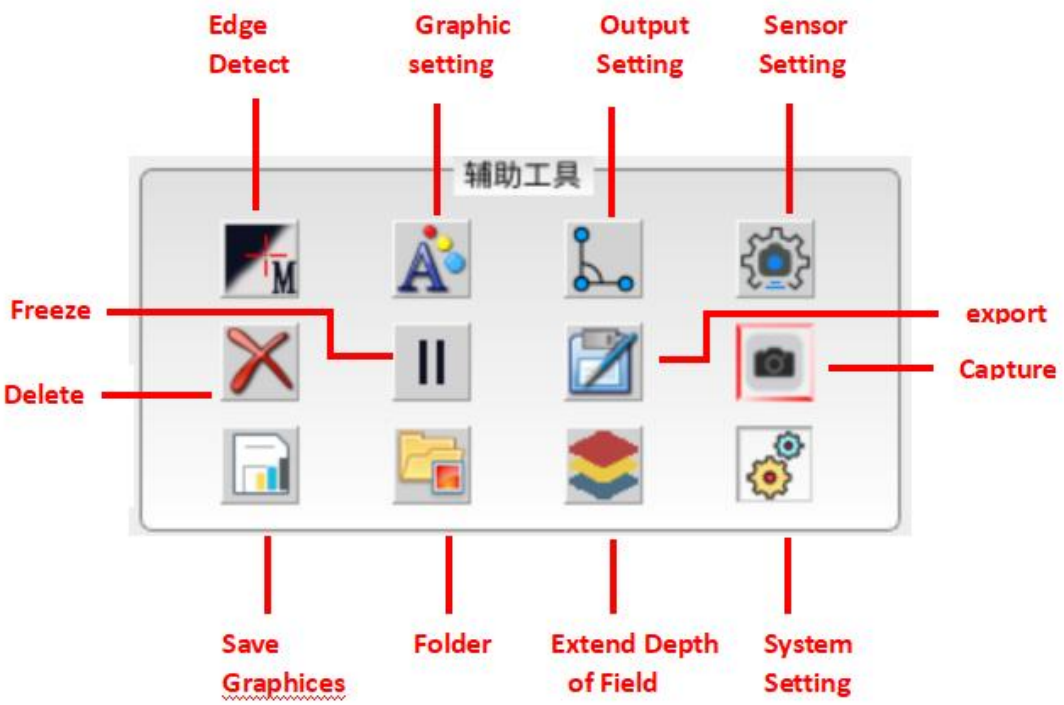
 (13) Point to the circle- - - -first select a point, and then draw a circle through the three points, the system will automatically measure the distance between the first point to the center of the circle line and the center of the circle.

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

 (15) Center distance- - -Draw two circles through three circles. The system automatically measures the distance between the two centers.

 (16) Text marking- - - -Text information can be marked in a designated position on the screen.

2.6 Auxiliary tools



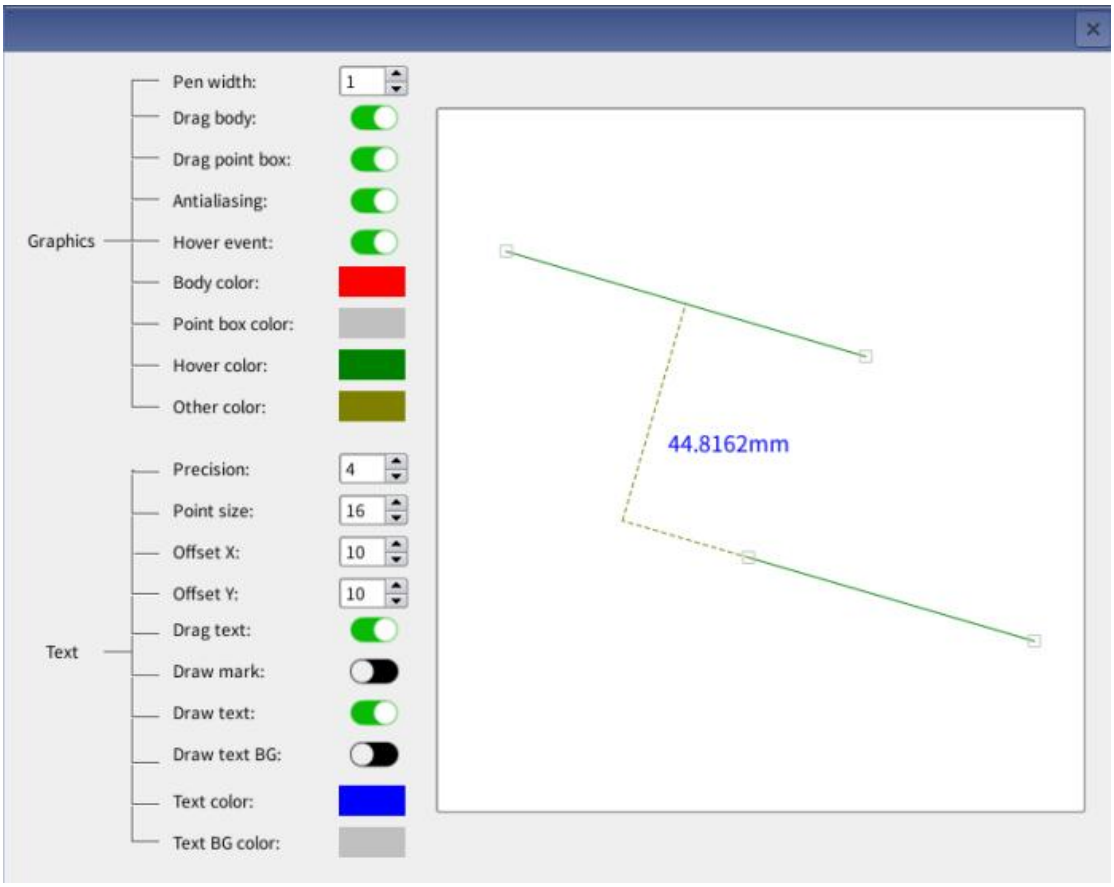
2.6.1 Edge detection

Draw the selected point on the screen, if you choose manual (M) point, the point where the mouse point is there. If you select the automatic intelligence (A) point, the system will automatically find the edge according to the 20 pixels around the mouse point. This way can reduce the error of human site selection. However, there cannot be more than 2 edges around the selection point, otherwise the selection may be wrong.

2.6.2 Graphic Setting

A dialog box will appear on the screen after clicking. The user can set the line width of the drawn image, the color, the font size of the measured label, whether the color and label

are closed, and the length, etc.



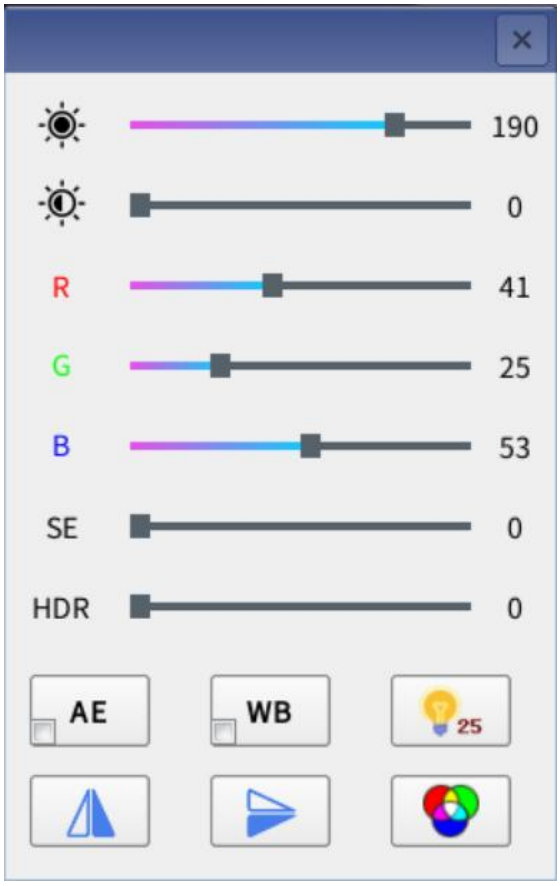
(1) Graphics- - - -can set the Pen width, color, open or close etc.

(2) Text- - - -Set Precision,Point size,Offset x/y,Drag text.....

2.6.3 Freeze

If the machine produces unstable shaking in the drawing, you can choose to freeze the current button to freeze the current screen. Pressing the button again to remove the freeze condition.

2.6.4 Sensor settings



（1）brightness gain

Mouse drag the brightness gain position bar to change the brightness.

(2) Contrast

Drag the mouse position bar to change the image contrast.

(3) R / G / B gain

Drag the mouse brightness gain position bar to change the image R / G / B ratio and change the color.

(4) The SE edge enhancement mode

Move the mouse position bar to reduce or increase the edge sharpening to enhance the edge effect of the image.

(5) The HDR suppresses the strong-light mode

Mouse drag position bar to reduce or increase control over light.

(6) AE automatic exposure

Click the AE diagram, the camera will automatically adjust the exposure value in real time according to the ambient brightness change, so that it meets the optimal brightness value setting, if the square in the lower left corner of the AE icon is checked, the phase will be exposed, the image brightness will change according to the shading degree of the product surface, it is not recommended to check.

(7) WB automatic white balance

Put a piece of white paper at the bottom of the lens, focus clearly. After automatic exposure, click the WB diagram to automatically adjust the white balance and automatically stop after reaching the appropriate value. Click the WB diagram, the camera will automatically adjust the exposure value in real time according to the luminance change of the environment, so that it meets the best brightness value setting. If the square icon in the lower left corner of the icon is checked, the system

will always make white balance, causing the color of the picture to change with the product color in the field of vision, it is not recommended to check.

(8), and the electric frequency 

Click the electric frequency diagram, can change the electric frequency parameter, the smaller the frequency, the longer the exposure time, the higher the brightness, if the screen flicker stripes, the frequency can be changed so that the camera frame rate does not conflict with the ambient light, to eliminate the flicker stripes.

(9) Horizontal mirror image 

Click the horizontal image.

(10), which is a vertical mirror image 

Click the vertical image image to flip the image vertically.

(11), color turn gray 

Click the color gray diagram to turn the color image to black and white.

2.6.5 Delete

Click the delete diagram to clear all the images drawn on the current screen, but the information in the measurement data

bar on the right will not be cleared.

2.6.6 Export

Click on the measurement data export diagram to export all of the previously measured data. The export format can be opened in the Excel in the computer.

2.6.7 Capture

Click the measurement picture photo representation to save the images and data in the current screen in the form of pictures. Format as a BMP or as a JPEG.

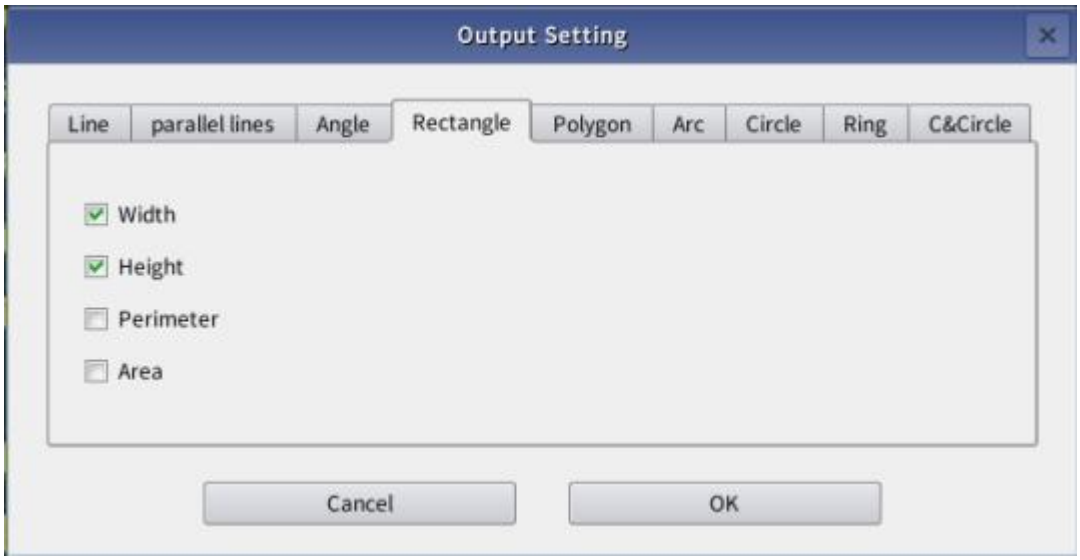
2.6.8 Folder

Click on the folder icon to open the image preview. A replay preview of previously saved images.

2.6.9 Output settings

Set the data of all measurement characteristics, such as circle to display radius / diameter / circumference / area / center of circle, angle or complement.....

As shown in the figure below:



2.6.10 System Settings

Click the system setting diagram and pop up the system setting dialog box

2.6.10.1 Image

(1) Images

/ Image data source: Video- -store the image when taking photos; scene- -save the drawing graphics when taking pictures; window- - -intercept the menu bar when taking photos

/ Image naming method: manually- -pop up to change the box and set the file location and name; automatically- - -when taking photos, the picture is automatically stored to the set

folder according to the set file path, format and naming method

/ Image preservation format: JPG / BMP / PNG, it is recommended to choose JPG first

/ Image preservation quality: 0-100%, the higher the value, the better the image effect, the larger the file, the longer the time

/ Image naming length: default 5 bits, such as XXXXX.JPG

/ Image naming format: serial number%1, date time%2, bar code%3, can also be combined to set, such as:%1-%2 is 00001-2022031211305901.JPG

2.6.10.2 File

/ File naming method: manually- -pop-up box when saving, and set the file location and name; automatically- --automatically store the file to the set folder according to the set file path, format and naming method

/ File naming length: default 5 bits, such as xxxxx

/ File naming format: serial number%1, date time%2, bar code%3, can also be combined to set, such as:%1-%2 is 00001-2022031211305901

2.6.10.3 Folder

/ Folder naming length: default 5 bits, such as xxxxx

/ Folder naming format: serial number%1, date time%2, bar

code%3, can also be combined to set, such as:%1-%2 is 00001-2022031211305901

2.6.10.4 Trigger (some features are available)

/ Grab data: Grab data when trigger

/ Grab the image: Grab the image when triggering

/ Open the scale ruler: open the standard width or length or circle, and drag on the interface for size comparison

/ Grab images after the mobile platform is in place: use them with the mobile platform of the company, and automatically save the images after it is in place

/ Automatic update of value after switching calibration: the software triggers, after switching calibration, the previously measured data will automatically switch to the value of the current multiplier calibration

2.6.10.5 network

This function is not provided by default. If necessary, please contact the manufacturer for the PC software and use guidance

/ Continuous transmission: If the network is disconnected during the network transmission, continue to transfer the unfinished file transfer after reconnection

/ File save method: local- - -save to U disk or camera; receiving software- - -file transfer to computer end receiving

software

/ Image preservation method: local- -save to U disk or camera; receiving software- - -image transmission to the computer end receiving software

2.6.10.6 Other

/ Display size: default 21 inches, can be changed according to the actual. Here the display size is related to the total magnification of the calibration

/ Objective: Choose according to the ratio of the lens

/ Objective mirror: Select according to the ratio of the lens

/ Rate display: select the ratio displayed in the interface, select the lens ratio or imaging ratio, and the imaging ratio is the total magnification

2.6.10.7 Type of Cursor

Select a cross line or an arrow.

2.6.10.8 Menu location

You can choose the position of the display menu bar, either left or right.

2.6.10.9 System time

Year / month / day / minute / second, click to the position, scroll to change the corresponding value, after change, click set; conventional camera does not install batteries by default, and will not record the time after power failure

2.6.10.10 Language

Simplified Chinese / Traditional Chinese / English.

2.6.10.11 Switch between users

You can select the administrator or user mode, and you must first switch to the administrator mode when changing the calibration

2.6.10.12 Return to the factory

factory data reset

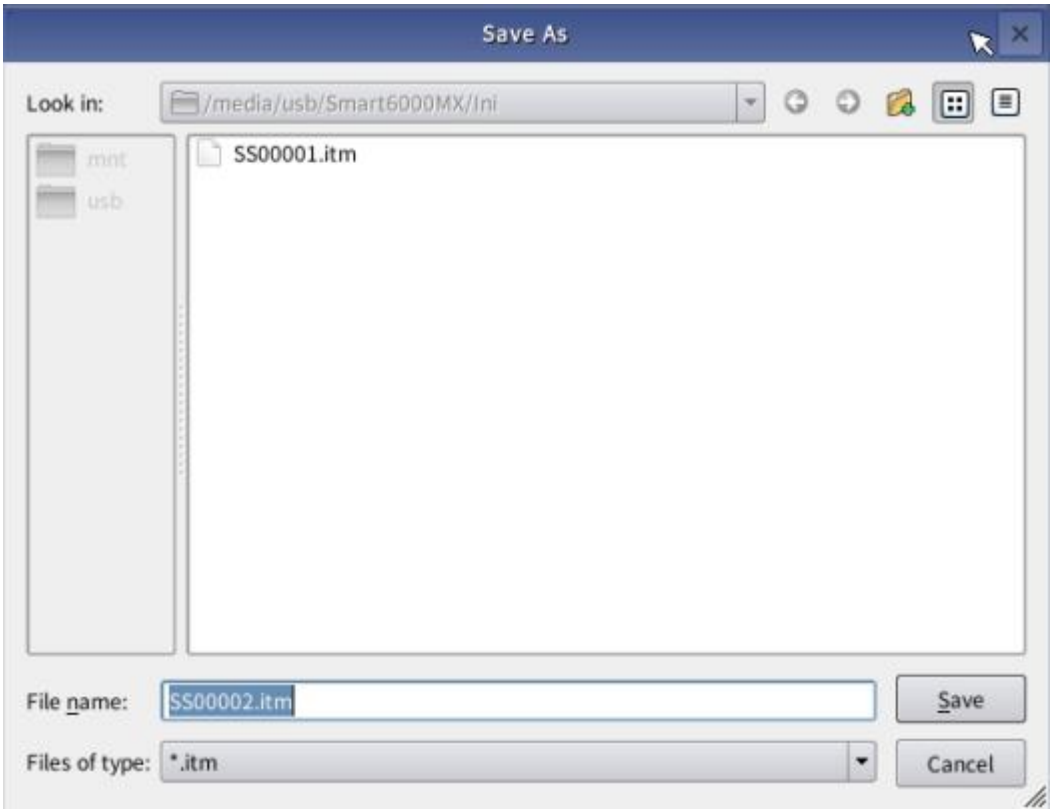
2.6.10.13 Application upgrade

Put the upgrade file into the U disk root directory, insert the camera, click upgrade to upgrade the program (optional upgrade the boot screen or software version)

2.6.11 Save Graphics

Users can draw some graphic features in the window, click on the save graphic icon, pop up the save graphics dialog box, and save Itm files. This tool is suitable for quickly finding features, or making feature comparison, and start the machine

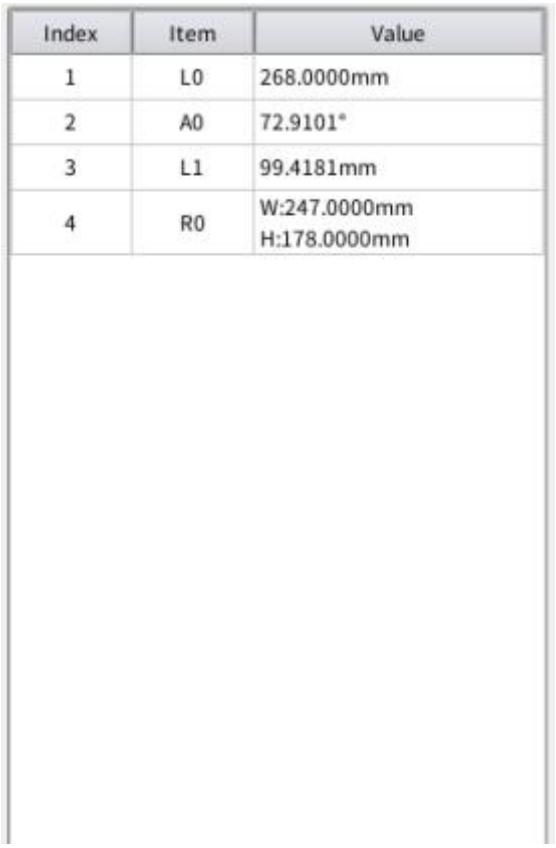
to display the drawn features in the window interface



Open the Save Drawing Settings file: Click the folder icon and select the path to open the corresponding save drawing settings file

* There must be a feature in the window interface, such as line, circle....., Can only save the graphic file

2.7 Data display bar



Index	Item	Value
1	L0	268.0000mm
2	A0	72.9101°
3	L1	99.4181mm
4	R0	W:247.0000mm H:178.0000mm

The data display bar displays all the data currently measured. Select a right-click data to delete the data.