

# MZ.5000

software system



## Introduction

This instruction manual is for the software system to MZ.5000 series video integrated microscope. Please study this manual thoroughly before operating, and keep it with the instrument. The manufacturer reserves the rights to the modifications by technology development. On the basis of operation ensured, technical specifications may be subject to changes without notice

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## 1 System Introduction and Features

The MZ.5000's software is powerful, easy to use, built-in personalized interface editing function, template application, DXF import and application, automatic edge finding and absorbing function, horizontal vertical flip function, line/circle calibration and other functions, and provide a variety of measurement tools such as "parallel line", "multi-point to line", "concentric circle" and so on

This operating manual is intended for users who use this series of cameras, and takes the MZ.5000 as an example

## 2 System Functions Introduction

### 2.1 Boot interface

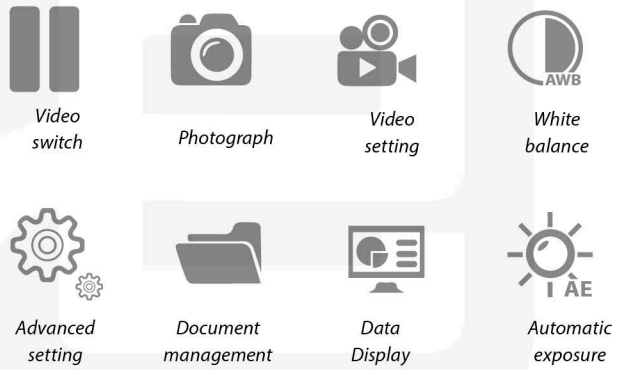
After the camera is connected to all interfaces, power it on (12V 1A power supply), the camera starts up and displays the boot interface. After the progress bar is completed, the main interface is displayed

### 2.2 Main interface

The user can edit the main interface layout according to the habit in "2.3.5 Advanced Settings - Interface Editing" (the auxiliary tools are not editable).



## 2.3 Auxiliary tool



### 2.3.1 Video switch

▶ Start the preview, || Suspend the preview.

### 2.3.2 Photograph

In video mode click the video image will be saved to the external storage device in jpg format. Users can set their own naming rules, storage paths, and whether to save the image elements. Storage and naming settings refer to

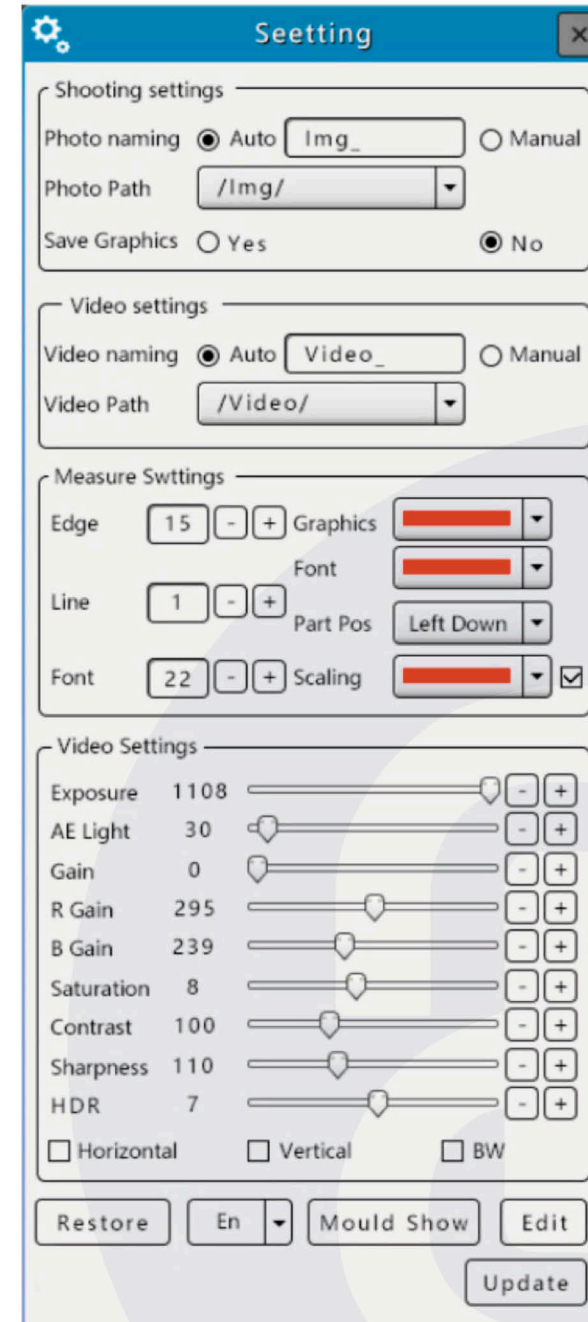
### 2.3.3 White balance

White balance is required after determining the light source. In video mode click icon, the camera will automatically adjust the white balance and stop automatically when the appropriate value is reached

### 2.3.4 Automatic exposure

In video mode, click icon, the camera will enter the real-time automatic exposure status, and the camera will automatically adjust the exposure value in real time according to the ambient brightness change to match the optimal brightness value setting. The optimal brightness value can be adjusted in "2.3.5 Advanced Settings - Video Settings", and click the icon again to turn off the automatic exposure status

## 2.3.5 Advanced Settings



### 2.3.5.1 Photo setting:

1. Camera photo automatic naming rule is `Img_N`, the current total number of pictures taken by the camera minus 1 is "N", which is saved in the "img" folder in the U disk camera folder. External storage is recommended to use USB3.0 U disk, only supports FAT32 format, after the " " icon below the main interface appears, set in "Advanced Settings"
2. Select the "Manual" naming rule, then take a picture first, then name it. After the picture is taken, the naming dialog box will pop up, and the user can name it by himself
3. "Save the picture element" function, select "Save", save the current measurement element on the picture when taking a picture, select "Do not save", then it will not save the current measurement element

### 2.3.5.2 Measurement setup

- **Edge finding range:** The value of the range in which the measuring point moves to the edge of the object in the measurement state after automatic edge finding
- **Measuring line width:** Adjust the width of the measuring element line
- **Measure font:** Adjust the font size of the measurement element information
- **Color of the element:** After adjusting the color of the element, close the "Advanced Settings" interface, re-complete the drawing, and measured element is the current color
- **Font color:** After adjusting the font color, close the "Advanced Settings" interface, re-complete the drawing of element, and the measured data is the current color
- **Calibration color:** After adjusting the calibration color, close the "Advanced Settings" interface, the axis and scale color will change to the currently selected color. In the "Advanced Settings", the selected axis and scale will be displayed. If it is not selected, it will be hidden

### 2.3.5.3 Video settings

Used for detailed settings of parameters. Image horizontal flip, vertical flip, color and black white conversion

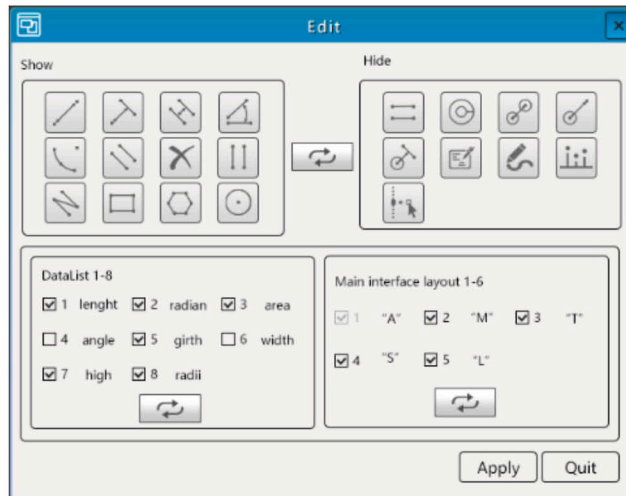
### 2.3.5.4 Restore factory settings

Click Restore factory settings to restore the parameters to their original state

### 2.3.5.5 Language switching

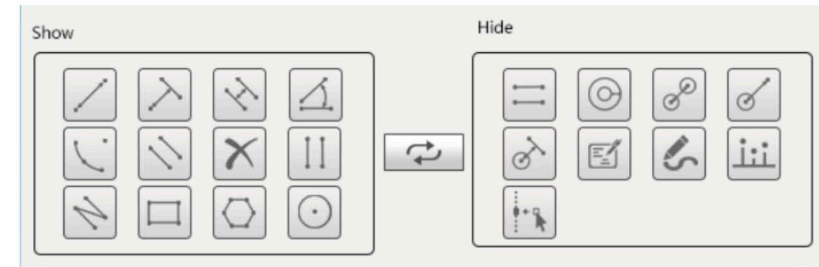
This product supports three languages switching: Chinese (simplified), Chinese (traditional), and English

### 2.3.5.6 Interface Editing

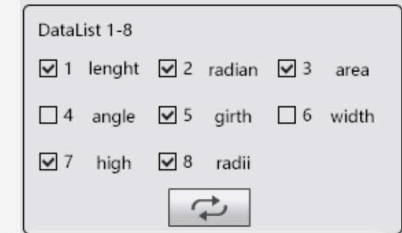


1. This function can change the main menu layout according to the user's usage habits.

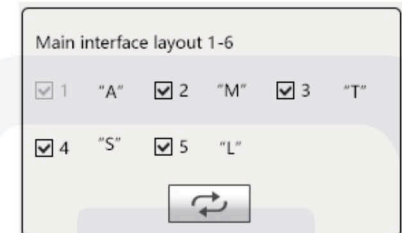
Measurement tool display: The left side is for the display icon of the main page, the right side is for the hidden icon, select any one icon from the left side and another from the right side, and then click the middle exchange button. Click "Apply--Confirm" after completion




2. Data window display: Check to display, uncheck to hide, select two at any point and click to exchange the order. Click "Apply--Confirm" after completion

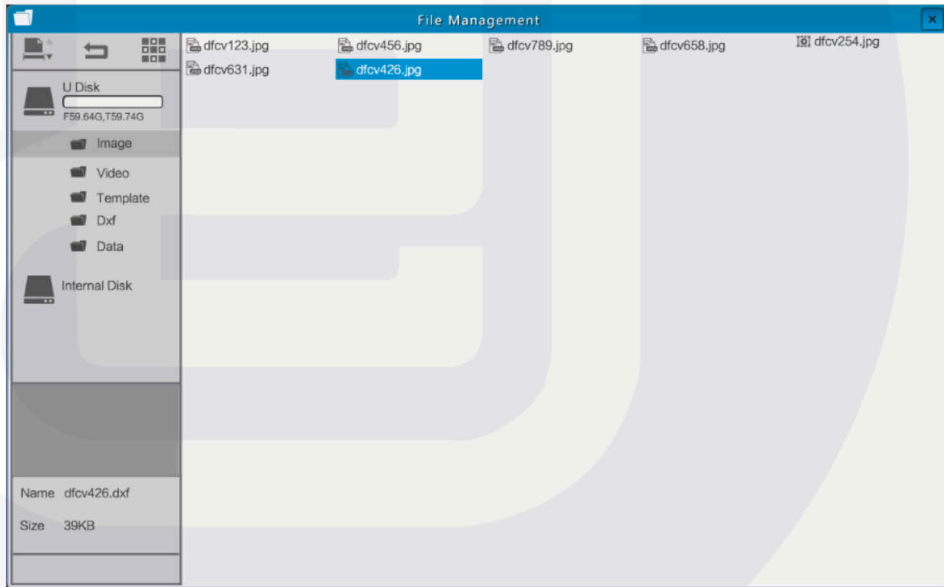


3. Main interface display: Check to display, unchecked to hide, select two at any point and then click to exchange the order (the auxiliary tools are not allowed to hide or change). Click "Apply--Confirm" after completion



### 2.3.6 Document management

Click the  icon to open File Management to view saved images, DXF, templates, and other files



Right-click on any file name to delete, comparison of dynamic and static properties, copy, cut, rename, and so on.  
Right-click on a blank space to create a new folder



### 2.3.7 Data Display

	Name	Lenght	Radian	Area	Angle	Girth	Width	High	Radii
1	L1	0.00	0.00	52.45	0.00	0.00	0.00	0.00	52.45
2	A1	0.00	0.00	0.00	0.00	86.26	0.00	0.00	0.00
3	A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4		0.00	0.00	22.89	0.00	22.89	0.00	0.00	22.89
5		0.00	0.00	77.01	0.00	77.01	0.00	0.00	77.01
6		0.00	0.00	141.55	0.00	141.55	0.00	0.00	141.55
7		311.95	774.03	190.14	311.95	190.14	774.03	311.95	190.14
8		592.00	2170	22.89	592.00	22.89	2170	592.00	22.89
9		0.00	0.00	190.14	0.00	190.14	0.00	0.00	190.14
10	R1	454.26	0.00	107.90	454.26	107.90	0.00	454.26	107.90
11	P1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Export Data mm

This table shows the details of the drawn elements. Click on any set of data in the information bar, the corresponding element in the video area is yellow, and the data in the information bar can be modified by double-clicking with the mouse

- Right click on the element in the video area, and its element information will automatically pop up in the lower information bar
- Click "Export Data" to import the current element information into an Excel file and import it into a U disk
- The measurement data display content can be adjusted through " 2.3.5 Advanced Settings - Interface Edit". For the adjustment method, see " 2.3.5.6 interface editing".



**Note:** Angles, broken lines, and polygons cannot be modified.

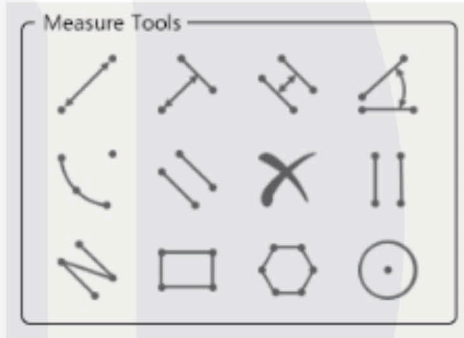
### 2.3.8 Automatic edge finding

Click the "Automatic edge finding" button to make it sink. You can automatically identify the boundary of lines, circles, arcs, etc. according to the range of points, and select the nearest boundary as the measuring point. You can view and adjust the automatic edge-finding range in the "Advanced Settings" interface, which range can be customized in 5-25 pixel, this function can greatly improve the measurement accuracy

## 2.4 Measurement function

### 2.4.1 Measurement instructions


1. After selecting the element, the mouse changes to the cross cursor in the video area to enter the drawing state, and click the left mouse button to draw
2. During the process of drawing the measurement element, after the completion of one measurement or drawing, the mouse does not exit the working state of the current measurement or drawing. Click the right mouse button to exit the state
3. During the process of drawing the measurement element, click the right mouse button to cancel the current drawing operation. In the non-drawn state, the right mouse button selects the element (except the key point), becomes the  shape, drags the mouse, and the element will turn yellow and follows the movement. Right click the mouse button to select the key point, turn it into a  shape, drag the mouse, the element will turn yellow and follow the position modification
4. Right click on the mouse to quickly double-click the element to prompt whether to delete the element



### 2.4.2 Paint

Click the  icon and click the left mouse button to drag, can draw any element. The element cannot be dragged or modified

### 2.4.3 Comment

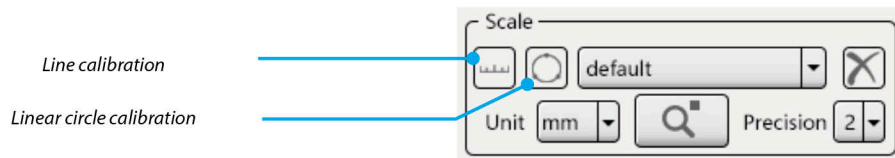
Click the  icon, click the left button on the screen where you want to comment and drag the mouse. Click the second point to pop up the comment window. The user can input the content in the comment window using the soft keyboard or the physical keyboard. Click the "OK" button when finished

### 2.4.4 Adsorption function

Click the measurement tool to enter the measurement state, press the middle mouse button to open the adsorption function, automatically adsorb the key points of the existing element or adsorb the horizontal and vertical directions of the current key points, and the measurement is more accurate

When the drawing of each element finished, the auto adsorption function will be automatically turned off. To continue drawing, you need to restart the "middle button"

## 2.5 Calibration



### 2.5.1 New calibration

The user can select "Line Calibration or Linear Circle Calibration" according to the need; click its button to enter the creation calibration state, press the middle button to open the adsorption function to scale freely, horizontally or vertically in the video area. After determining the length of the calibration line by clicking the left button with the mouse, the information window of the following figure will pop up, enter the calibration information, and click OK to complete the calibration



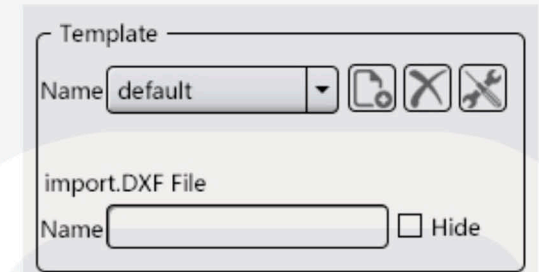
### 2.5.2 Calibration setting

Users can create, delete, and set current units and precision as required

## 2.6 Custom template

### 2.6.1 New template

1. When there is no measurement element in video mode, click the "New" button to enter the template mode, draw the picture element as needed, and input template name to save when the drawing is finished
2. In the video mode, to measure and draw, click "New", convert the measurement element into a template, enter the template mode, adjust or draw the element according to the need, and input template name to save when the drawing is finished
3. Import the Dxf file, click "New", convert the graphic in dxf into a template, enter the template mode, adjust or draw the element according to the need, and input template name to save when the drawing is finished
4. Templates are automatically saved in "internal storage", and users can copy and paste them according to their needs



### 2.6.2 Template adjustment method

The template can be adjusted when it is newly created, or click "Modify" to enter the template state to adjust. After the adjustment is finished, click Save. The adjustment method is as follows:

1. Click the element with the left mouse button to select it, and the right mouse button can drag and move it
2. Left click on the element to edit it, adjust its position and related parameters
3. Right-click the element to delete it

### 2.6.3 Import DXF files

Support for importing dxf files, users need to put the dxf file into a file named "dxf" in the camera folder of the U disk

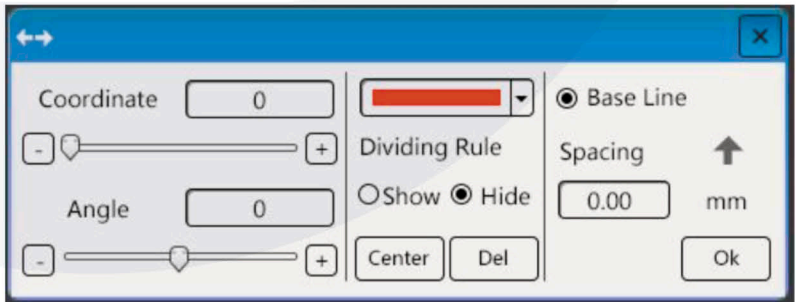
After the camera recognizes the U disk, open "File Management - External Storage - Dxf" and double-click the corresponding Dxf file

### 2.7 Scale

The scale is divided into horizontal 100 and vertical 100 scales

Scale adjustment method:

1. Enter the horizontal and vertical scale numbers by "+, -" respectively, and click the "OK" button respectively. The current corresponding number of scales is displayed in the video frame
2. If the current number of scales is certain, it can only be "+". It is not supported to reduce the scale line on the screen by "-" in the current cross state. You can delete it by right-clicking the edit delete or "delete all" function
3. Double click the right button on the scale and pop up the edit box to delete the current scale or adjust its position, angle, color, scale display and baseline settings. As shown in the figure below:



4. After the adjustment is completed, click the "X" in the upper right corner of the edit box to close it
5. Right-click the any scale, the scale will turn yellow, and the mouse changes to the state and the scale position can be moved
6. When the number of scales has been set and displayed in the video frame, if you add a scale, just click the "+" button to increase the quantity, and click "OK", the added scale will be displayed in the video frame
7. The color displayed in the current color display box is the new scale color
8. Click "Delete all" to delete all the current scales
9. Select the "Hide" button to hide the current scale, or uncheck it to display