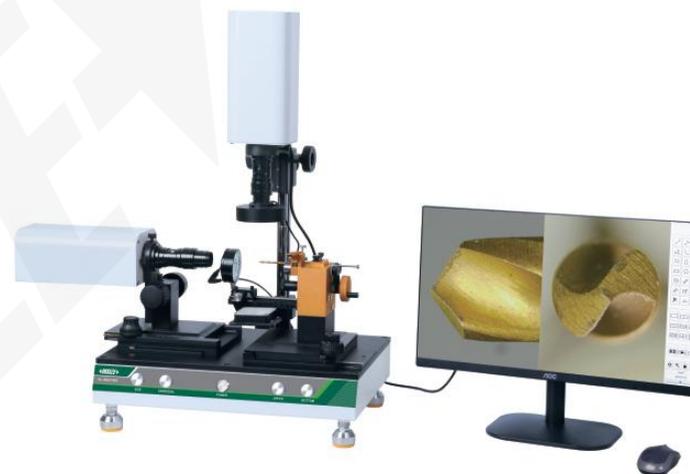




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**ISM-CT820
CUTTING TOOLS MICROSCOPE
OPERATION MANUAL**

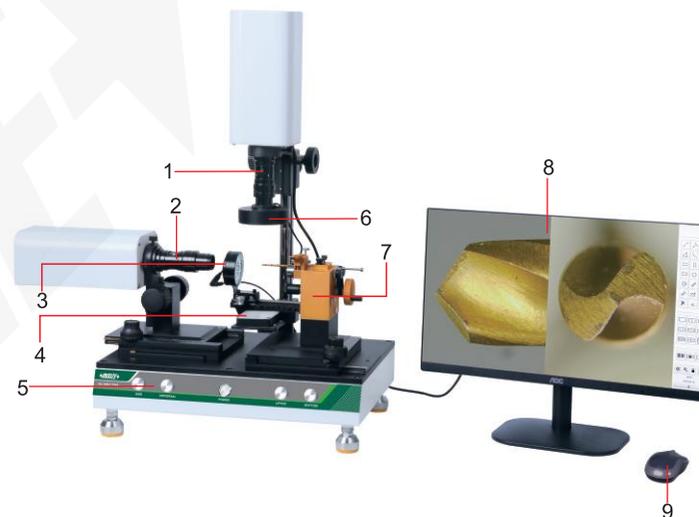


Attention

- ◆ To avoid danger or damage incurred to the lens, do not touch the lens sensor directly with your fingers.
- ◆ To avoid failure or electric shock hazard and so on, do not disassemble or modify the internal structure of the device.
- ◆ Do not plug in or unplug the anything port when hands are wet.
- ◆ If the lens or sensor is dirty or damp, you should better use dry and non-linen fabric or professional lens tissue to wipe them. To avoid scratches on the surface, do not touch the lens with your fingers. Wipe the lens or sensor lightly.
- ◆ The products are not specifically designed for an outdoor use. Do not expose it to outdoor environment without any protection. Excessive temperature and humidity will damage the lens. Please avoid using the product under the following environment: high temperature or high humidity environment, places with direct sunlight, dirt or vibration and places near heat source.
- ◆ Please use and store in the following environment:
 Operating temperature :0°C~ 40°C
 Storage temperature :-20°C~60°C
 Operating Humidity :30~80%RH
 Storage Humidity :10~60%RH
- ◆ The cleanliness of the device lens will directly affect clarity degree of contents from the computer screen during preview. Problems like various circles or spots on the screen may mostly be incurred by dirt on the lens. When cleaning, please use professional lens tissue or other professional detergent to clear the dirt on the lens.

Structure

1 Name:

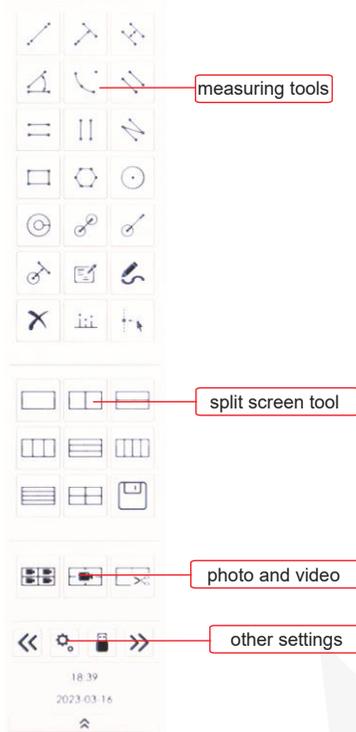


- 1.Upper zoom lens;
- 2.Side zoom lens;
- 3.Side illumination;
- 4.Bottom illumination;
- 5.Illumination control panel;
- 6.Upper illumination;
- 7.Clamping device;
- 8.21.5"LCD;
- 9.Mouse;

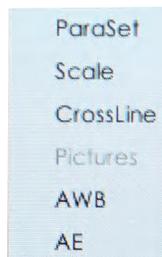
Microscope Software

1 Introduction to Software Functions:

SOFTWARE(INCLUDED)

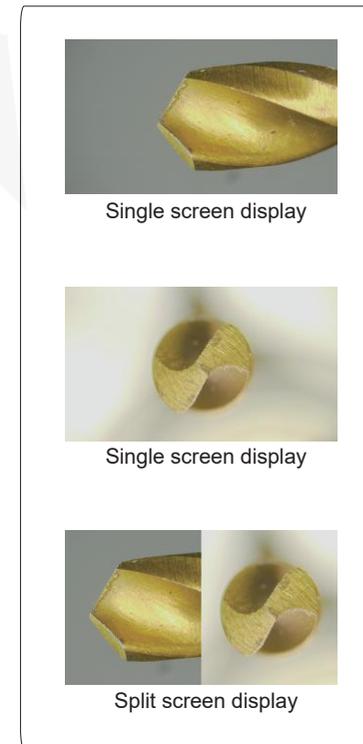


◆ Right-click to select other setting options.

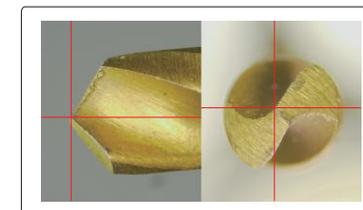


2 Screen cutting function:

◆ The display screen can display the upper or side lens images separately, or it can also display two lens images simultaneously.

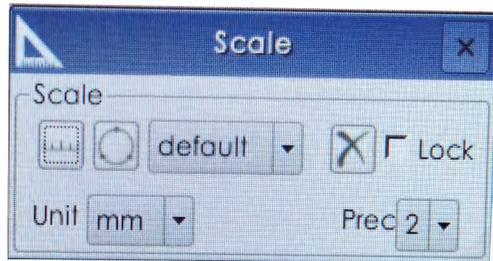


3 Other function:



Display cross hairs separately(movable)

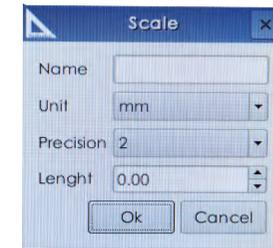
- 4 Preview function:
In video preview: mode, the icon displays as . Clicking this icon stops the preview, whilst the icon changes to , indicating the video is in a frozen state.
- 5 Take photo:
Pressing Button initiates the photo capture function, whilst simultaneously displaying a icon in the top-right corner of the screen.
- 6 Image parameters:
Detailed settings for parameters, including horizontal flipping, vertical flipping, colour-to-black-and-white conversion, white balance adjustment, and purple fringing reduction.
- 7 Calibration:



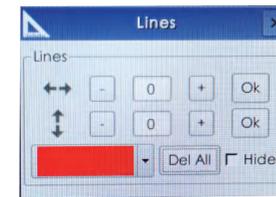
New construction

Users may select either "Line Calibration" or "Circle Calibration" as required. Clicking the corresponding button enters calibration creation mode. Pressing the middle mouse button activates snap functionality, enabling freehand, horizontal, or vertical calibration. Within the video area, determine the calibration line length by left-clicking the mouse. An information window will then appear as shown below. Input calibration details and click "OK" to complete the calibration.

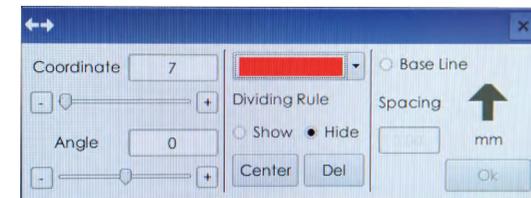
- 8 Crosshairs:



Setting



- (1) Use the "+" and "-" buttons to adjust the number of horizontal and vertical scale lines to be added respectively. Click the "OK" button for each adjustment, and the corresponding number of scale lines will appear within the video frame.
- (2) If the current number of scale lines is fixed, only the "+" function is available. It is not possible to reduce the number of scale lines displayed on the screen using the "-" button while the crosshair is active. However, you may edit, delete, or use the "Delete All" function by right-clicking the crosshair to enter the editing box.
- (3) Selecting the "Hide" button will conceal the scale lines.
- (4) Right-click and double-click a grid line to open its edit box, where you may delete the line or adjust its position, angle, colour, visibility, and baseline settings. As shown in Figure



- (5) Upon completing adjustments, click the “X” in the top-right corner of the edit box to close it.
- (6) Right-click any scale line to highlight it in yellow, enabling its repositioning.
- (7) When the number of scale lines is fixed and displayed within the video frame, adding more requires clicking the “+” button to increase the quantity, then click “Confirm”. The added scale line will appear in the video frame.
- (8) The colour displayed in the current colour display box is the colour of the newly added scale line.
- (9) Click “Delete All” to remove all current scale lines.
- (10) Select the “Hide” button to conceal the current scale line; deselecting it will display it.

9 Auto White balance (AWB)

When the video is active, pressing the “AWB” button activates automatic white balance.
 A  icon will appear in the top-right corner, and the process will cease once an appropriate value is achieved.
 Note: AWB must be performed against a white surface.

10 Auto Exposure (AE)

In video mode, clicking the “AE” button activates real-time automatic exposure. A double exclamation mark “” will appear in the top-right corner. The camera will continuously adjust exposure settings in response to ambient light changes to maintain the optimal brightness level.
 The optimal brightness value can be adjusted within “Image Parameters”. Clicking the button again deactivates auto exposure mode.

11 Note:

Click the “” icon, then left-click and drag the mouse at the desired annotation location on the screen. An arrow will appear; click a second time to confirm its position and bring up the annotation window (the colours of both the arrow and annotation text follow the settings under Advanced Settings → Measurement Settings → Font Colour). Users may input content via the on-screen keyboard or physical keyboard within the annotation window. Upon completion, click the “OK” button.

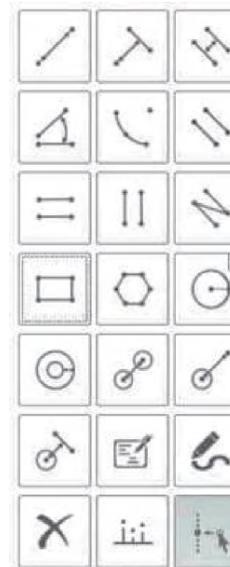
12 Automatic Edge Detection:

Press the “” button to activate the depressed state. Based on the selected measurement range, it automatically identifies boundaries such as lines, circles, and arcs, selecting the nearest boundary as the measurement point. The automatic edge detection range can be viewed and adjusted within the “Advanced Settings” interface. This feature significantly enhances measurement accuracy, with a range of 15-25.

13 Video recording and screen capture:

1. Camera Recording 
 Tap Camera Recording to control the currently active camera and simultaneously initiate a separate recording.
2. Full-screen recording 
 Capture the entire screen display
3. Screenshot 
 Only full-screen captures are permitted; crosshairs and graphic elements cannot be captured.

14 Measuring tools:



- ◆ Measuring tools can be used to draw graphic elements.
 - (1) After selecting an element, the mouse cursor changes to a crosshair within the video area, indicating drawing mode. Left-click to commence drawing.
 - (2) Upon completing a drawing operation, the mouse remains in measurement or drawing mode. Right-click to exit this state.
 - (3) During measurement element drawing, right-clicking cancels the current drawing operation.

In non-drawing mode, right-click to select an element (excluding keypoints). The cursor changes to a  shape. Dragging the mouse causes the element to turn yellow and follow the movement. Right-click to select an element's keypoint, changing the cursor to a  shape. Dragging the mouse turns the element yellow and allows positional adjustment.
 - (4) Right-clicking and double-clicking an element will prompt a “Delete Element” dialogue box, asking whether to delete the current element. Clicking the “Delete” button will remove it, while clicking “Cancel” will abandon the operation.

◆ Paintbrush

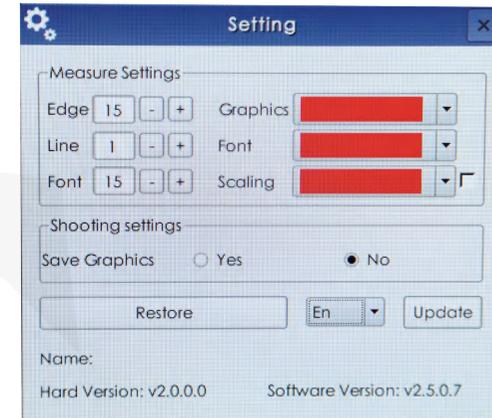
Click the “” icon in the measurement tool, then left-click and drag to draw a freeform shape. This shape cannot be dragged or modified, but can be quickly deleted by double-clicking the right mouse button.

◆ Circle

Clicking the top-right corner of the  icon in the measurement tool allows you to switch between methods for drawing circles (two points to form a circle, three points to form a circle).

15 Settings:

Click  to access advanced settings



16 Test setup:

Edge detection range: Associated with “Auto edge detection”, this value defines the distance within which measurement points will move towards the object's edge when automatic edge detection is enabled during measurement.

Measurement Line Width: Adjustable width of measurement element lines.

Measurement Font: Adjustable font size for measurement element information.

Element Colour: After adjusting element colour, close the Advanced Settings interface and complete redrawing; measurement elements will adopt the current colour.

Font Colour: After adjusting font colour, close the Advanced Settings interface and complete redrawing elements; measurement data will adopt the current colour.

Calibration Colour: After adjusting the calibration colour, close the Advanced Settings interface. The axis and scale colours will change to the currently selected colour. Within Advanced Settings, selecting this option sets the axis and scale to display status ; deselecting hides them.

17 Language:

This product supports switching between three languages: Simplified Chinese, English, and Traditional Chinese. Users may switch between them in the advanced settings.

Specification

Cutting tools range	Ø3~10mm, length 30-75mm
Lens	step-zoom lens
Output	HDMI
Resolution	1920×1080
Frame rate	60fps
Focus distance	85mm
View field	0.9×1.5~5.5×10mm
Magnification	45-290X
Power supply	AC 100-240V
Dimension(LxWxH)	450×300×700mm
Weight	20kg

Standard Delivery

Main unit	1 pc
Display	1 pc
32G USB flash disk	1 pc
Mouse	1 pc
HDMI cable	1 pc
Glass calibration plate	1 pc
Anti-dust cover	1 pc