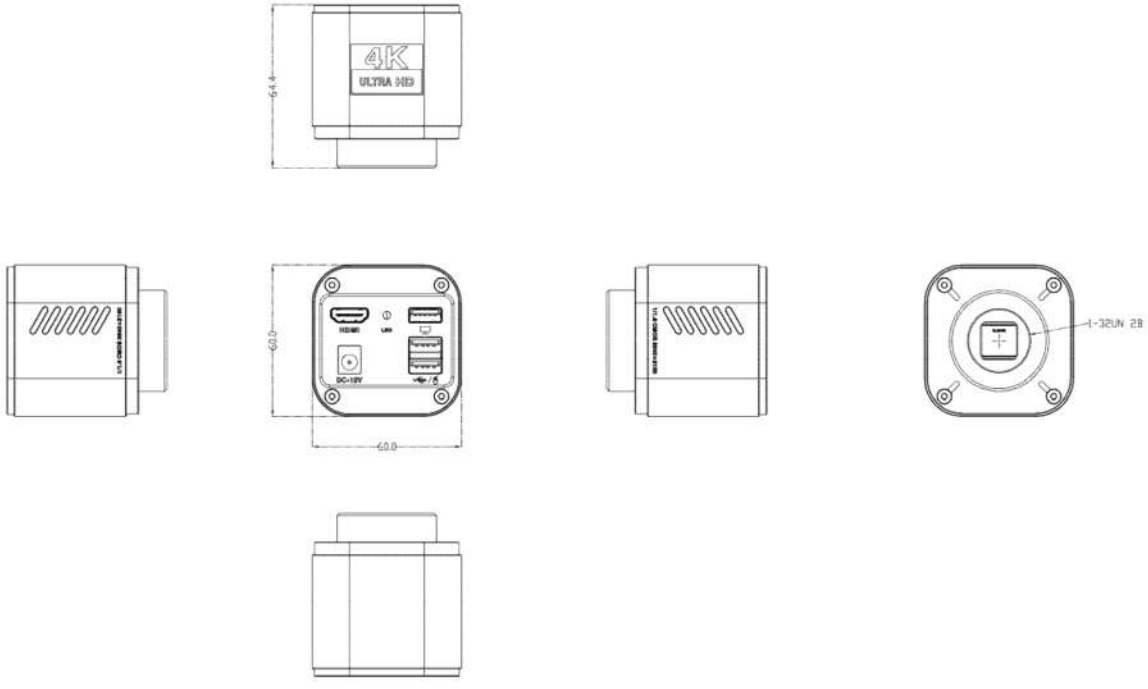
4K ultraHD PRO

Feature

4K HDPROis a multi-functional and multi-interface camera. It supports functions of a regular HDMI interface camera (mouse operation to take photos, videos, measurements, etc.) and also has a 4K USB camera function, which can be used to meet the different needs of multiple fields.

1.1 Structure

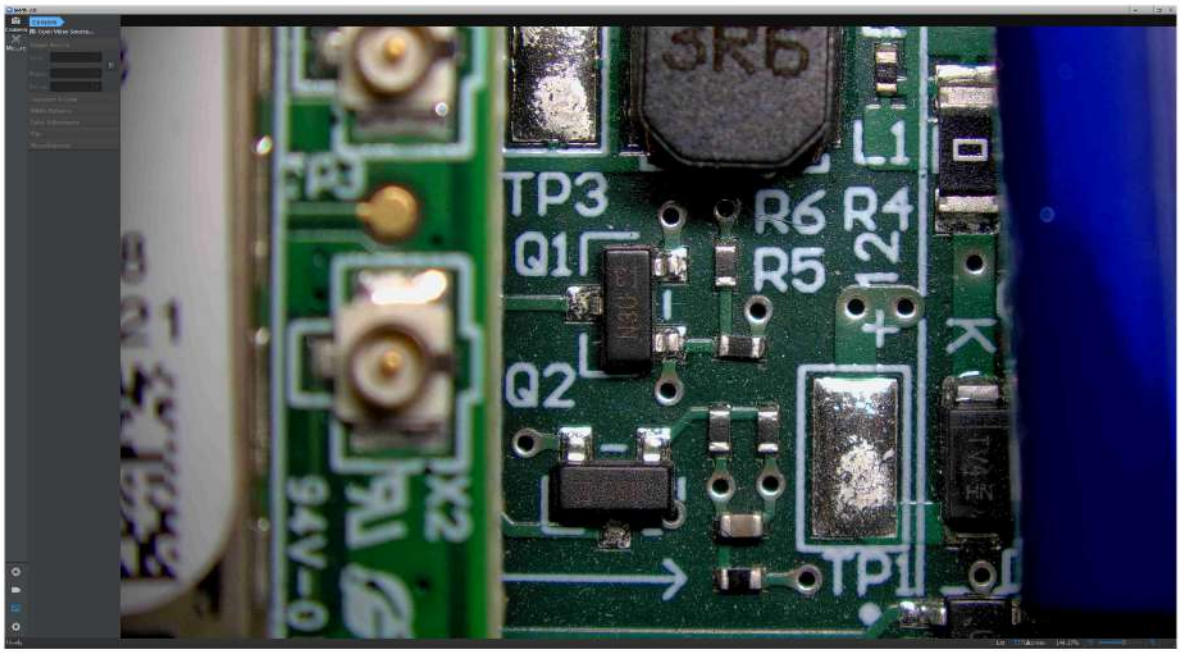


1.2 Specification

4K UltraHDPRO			
Chips	ARM dual core	**Sensor size**	1/1.8”
System	LINUX	**Pixel size**	2.0um*2.0um
Structure	Dual core ARM Cortex-A7	**Resolution**	3840*2160
Master speed	1.5GHz	**Frame rate**	30fps
Working temperature	0-70 degree	**Video output**	HDMI、uvc
Size	60*60*64.42mm	**Lens mount**	C mount
Weight	0.2kg	**Power**	DC 12V

Function

2.1 Installation



2.1.1 Remove the dust cover and protective film underneath the camera and attach it to the corresponding connector.

2.1.2 Insert a mouse into the USB2.0 port. If you need to insert devices with multiple USB ports, you can insert a USB HUB device into the USB port, and then insert a mouse and other storage devices into the splitter.

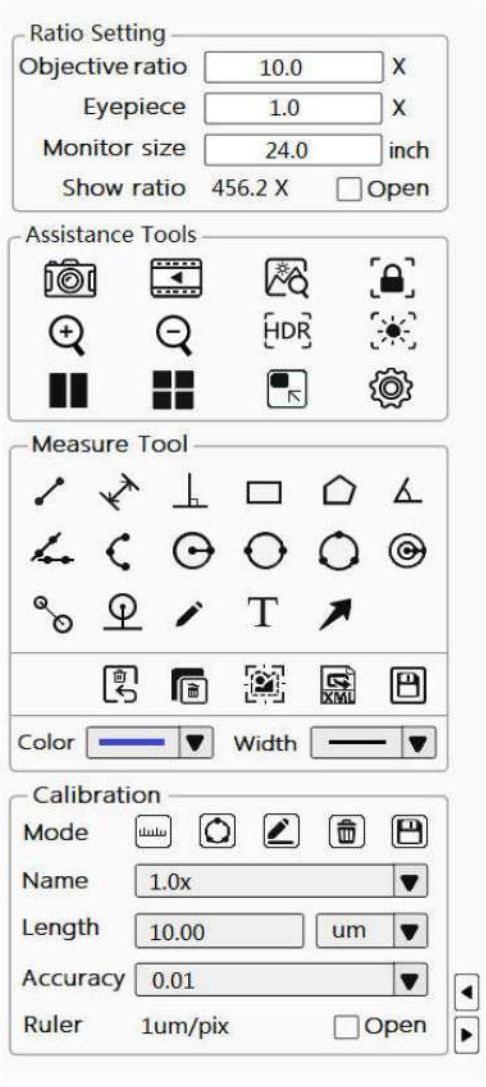
2.1.3 Connect the camera's HDMI port and monitor with an HDMI cable

2.1.4 Insert the power cord into the DC-12V power socket. After connecting the DC-12V power supply, the product will automatically power on, the LED will light up red first and then blue, the camera will run and wait for the monitor to display the screen

2.1.5 USB3.0 port is UVC interface (connect to computer with USB cable, USB2.0 interface is invalid in this state)

2.2 Homepage

The user moves the mouse directly to the left side of the screen to pop up the main interface after the screen is displayed (as shown in the figure)



2.2.1 From left to right: photo, video, preview, freeze; click each button to realize their own functions.

2.2.2 From left to right: Zoom In, Zoom Out, Wide Dynamic, Auto Exposure; click each button to realize their own functions.

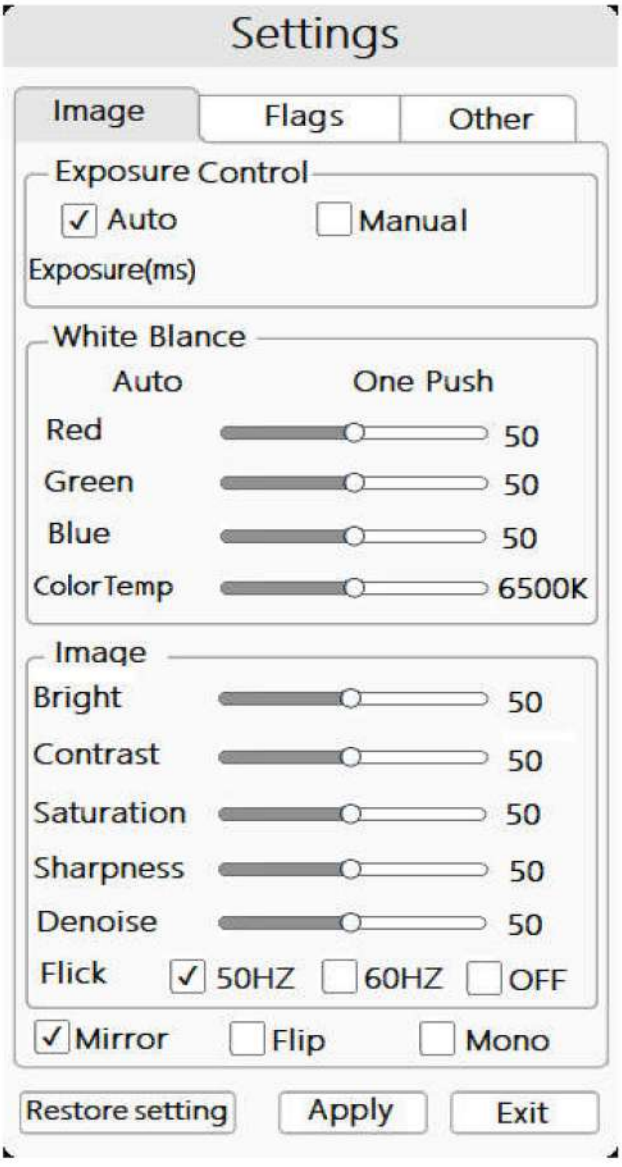
2.2.3 From left to right, the following are in order: Contrast, Quad Screen, Local Zoom, and Settings; click each button to realize their respective functions.

Two-screen comparison: This function is to compare the picture from the external storage device with the real-time preview video.

Four-screen comparison: When you enter the 4-screen comparison, double-click any 1/4 preview box to realize the image freezing function, and double-click again to release the freezing function.

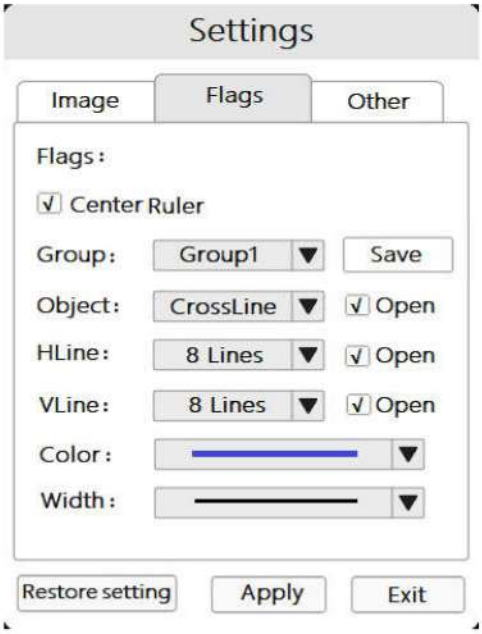
2.2.4：Click to enter setting menu：

2.2.4.1：Video setting



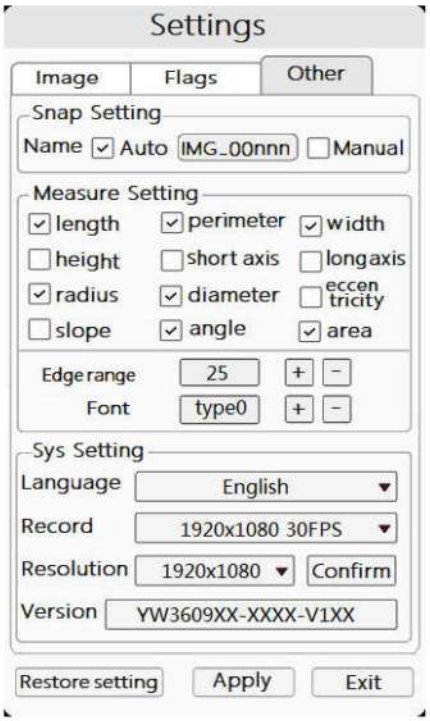
Under this menu, you can adjust the image parameters by dragging the corresponding progress bar. You can manually set the image brightness, and tap one-touch icon to achieve an image white balance calibration action when the light source is stable (this function must be aligned with the white standard to make calibration), and the camera will no longer make auto white balance after calibration.

2.2.4.2：Grid line setting



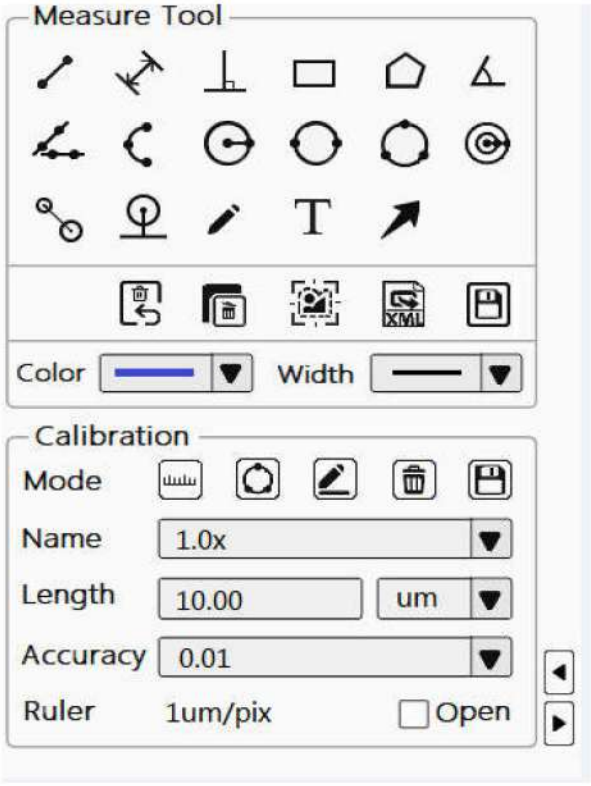
Click the box in front of the center scale line to open the center scale line. Under the object column, you can turn on or off any one of them according to your needs, and you can also set the color (8 colors are optional) and line width (4 line widths are optional) of each one, and you can save 8 groups of grid lines under the mode option, which is convenient for testing different products and quickly opening the grid lines that have already been set up without having to set them up several times again. After setting, click Apply to save the current settings; click the Restore Factory Settings button to restore to the factory settings.

2.2.4.3：Other setting



In the menu, you can manually or automatically name the name of the photographed picture; you can set the items that you want to measure (you can manually check the box in front of the measurement settings); you can set the size of the range of the search edge and the measurement font according to the actual need.
In this menu, you can set the resolution of video recording (4K 30FPS; 1080P 30FPS/; 1920*1080/3840*2160).
Language: Simplified Chinese, Traditional Chinese and English are available.
Version: you can view the current version information.

2.2.5 Measurement Tools Introduction:



：Straight line: click the button, then click any point in the interface to determine the starting point, the second click to determine the distance between the starting point and the end point, and measure the length of the straight line

：Lines distance: after clicking the button, click any point in the interface to determine the starting point, the second click to determine the straight line, the third click to determine the position of the parallel straight line. Measure the distance between the two parallel lines (after drawing the line, drag the length that the cursor shows to the appropriate position)

：Vertical line distance: after the mouse clicking the button, click any point on the interface to determine the starting point, the second click to determine the straight line, the third click to determine the vertical distance from the line, measuring the length of the vertical line (after confirming the vertical line segment, drag the length shown by the cursor to the appropriate location)

 : Rectangle: After clicking the button with the mouse, click any point on the interface to determine the right angle position, click second time to determine the perimeter of the rectangle, measure the perimeter and area of the rectangle (after confirming the perimeter, drag the perimeter and area shown by the cursor to the appropriate location)

 : Polygon: after clicking the button with the mouse, click any point on the interface to determine a corner. Each click increases a corner, and the last click should overlap with the first clicked point, measure the perimeter and area occupied by the polygon (after confirming OK, drag the perimeter and area shown by the cursor to the appropriate location)

 : Angle measurement: after the mouse clicking the button, click any point on the interface to determine the starting point, the second click to determine the straight line, the third click to determine the straight line between the second point and measure the angle between the two straight lines

 : Measurement of cross lines: After clicking the button, click any point in the interface to determine the starting point, the second click to determine the straight line, the third click to determine the starting point of the second straight line, the fourth click to determine the second straight line, and measure the angle angle between the two straight lines.

 : Arc: after the mouse clicking the button, click any point on the interface to determine the starting point, the second click to determine the straight line, the third point to determine the straight line with the second point. measure the length of the arc by three points of arc

 : Radius fixing circle: after the mouse clicking the button, click any point on the interface to determine the center of the circle, the second click to determine the distance from the center of the circle. The measurement is displayed as the radius, area and circumference of the circle

 : Drawing a circle by diameter: click the button, click any point in the interface to determine the point on the circumference of the circle, click again to determine the circle, the measurement is displayed as the radius, diameter, circumference and area of the circle

 : Drawing a circle by three points: after clicking the button, click any three points in the interface to measure and display the radius, diameter, circumference and area of the circle

 : Circles distance: click the button, click any point in the interface to determine the center of the circle, the second click to determine the first circle, the third click to determine the second circle, the measurement is displayed as the distance between the two circles

 : Circle center distance: click the button, click any point in the interface to determine the center of the circle, the second click to determine the first circle, the third click to confirm the

center of the second circle, the fourth click to confirm the second circle, the measurement is displayed as the distance between the centers of the two circles.

 : Point-circle distance: click the button, click any point in the interface to determine the center of the circle, the second click to determine the circle, the third click to determine the distance between the line and the center of the circle, the measurement is displayed as a point to the center of the circle distance

 : Arbitrary line: After clicking the button, click any point in the interface to determine the starting point, the mouse passes through the path for the length. Click a second time to determine the end point and measure the length of the drawn line

 : Text annotation: click the button to bring up the selection box for character annotation

 : Feature point: After clicking the button, click any point in the interface to determine the starting point, and click a second time to confirm the direction and position of the arrow

 : Click this button to undo the previous step.

 : Empty: When clicking this button, all items on the screen will be deleted.

 : Edge detection: automatic edge finding to ensure measurement accuracy

 : Export: Click this button to save the file to the storage space

 : Screenshot: Click this button to take a screenshot of the interface and save it to your storage space.

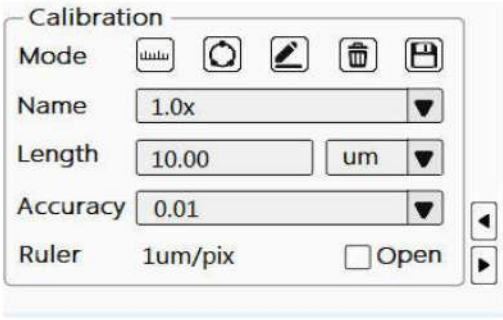
 : Color: Click this button to select the color of the line, a total of 8 colors available

 : Line width: click this button to select the thickness of the line, a total of 4 sizes available

2.3 Calibration Edit:

Before measuring, the image needs to be calibrated for the current microscope magnification and image preview resolution so that the measurement tool can measure accurately.
Note: Each magnification needs to be calibrated separately before measurement.
Press the micrometer into place on the carrier stage and adjust the image. It is recommended to use a micrometer with 10 μm per cell, 100 cells in total, and a full length of 1000 μm.
Note: The micrometer is not standard accessory and need to be purchased separately.

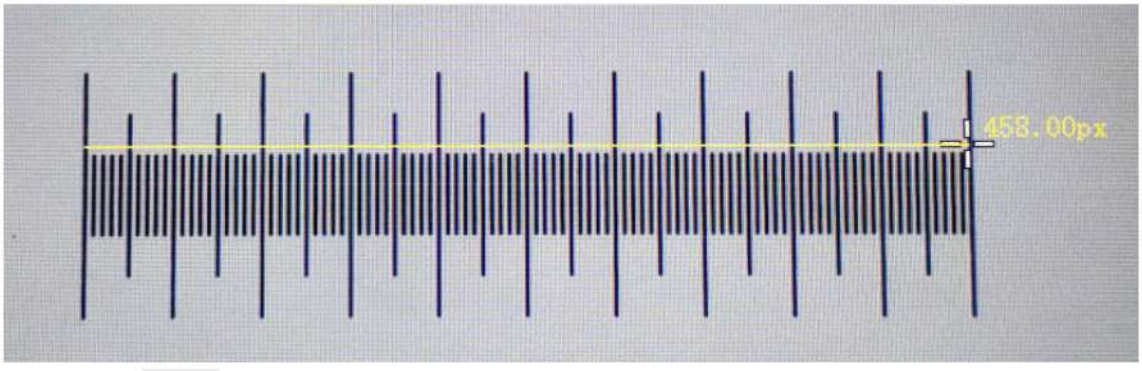
2. 3. 1 Click  or  to enter calibration edit menu:



Click one point to confirm the starting point, and click again to confirm the end of calibration.

2.3.2 After selecting, enter the preview window to draw a line or circle corresponding to the scale, fill in the calibration name, length, unit, etc. according to the actual size of the scale, and then finalize the calibration.

The following figure shows the calibration line selected for 4X objective lens observation. Click one point to confirm the starting point, and click again to confirm the end. Fill in the actual size of the scale according to the actual length of the corresponding position (note that the scale unit should be the same)



2.3.3 Click  to save the current calibration.

2.3.4 Click  to edit the current calibration.

2.3.4 Click  to delete the current calibration.