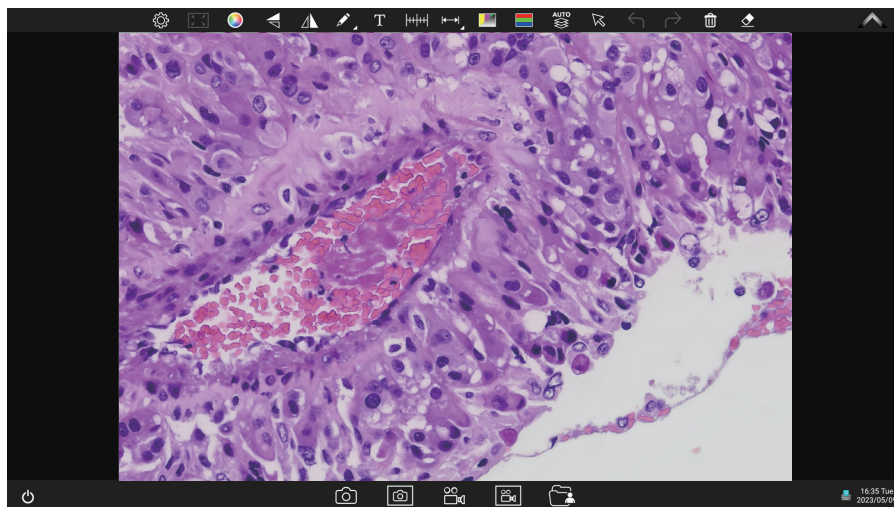


Embedded Intelligent Software KoPa WiFi Lab AO App User Manual



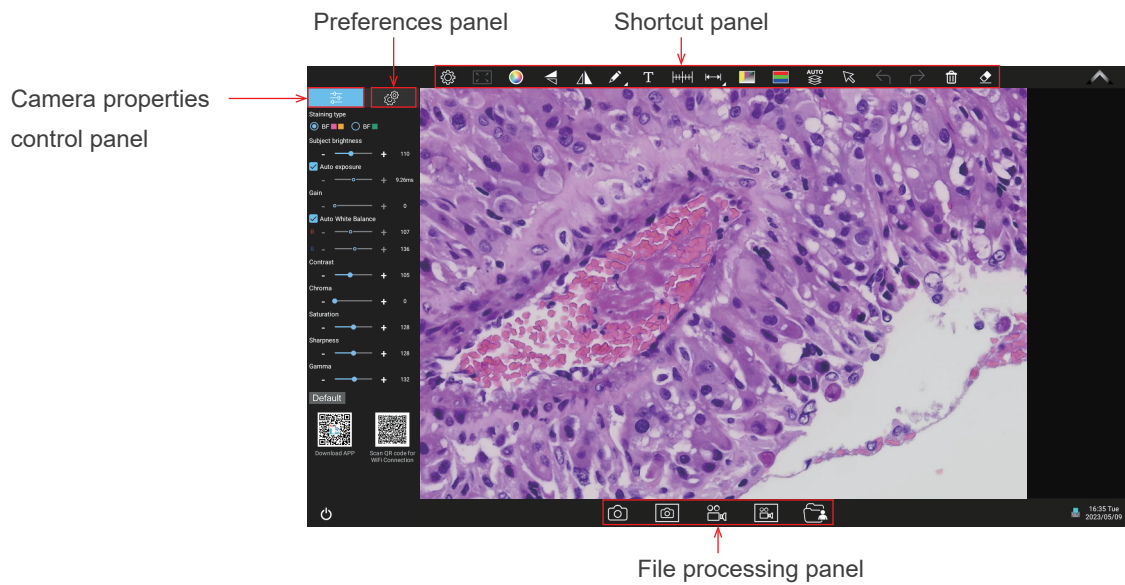
Introduction:

KoPa WiFi Lab AO is an Android version of the APP that is pre-installed in the KoPa Smart display camera or Smart camera at the factory, without the need for the user to install it. Once the camera hardware starts up, it automatically enters the main operating interface of the APP. This APP can not be uninstalled by the user, but can be updated and upgraded via USB flash drive.

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1.1 Main operation interface














1.2 Shortcut toolbar

1.2.1 Shortcut tools

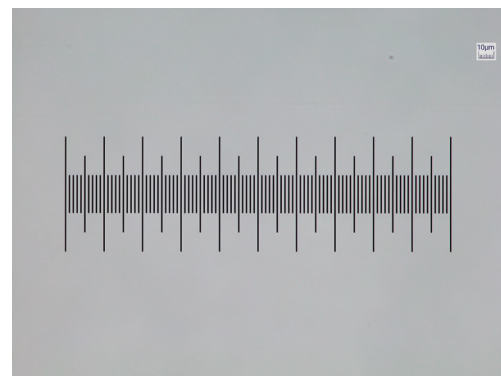



	Settings	Click on Settings to bring up the Camera Properties panel or the Preferences panel
	Adapt screen	Preview screen quickly adapts to the screen
	Color settings	Bring up the palette to set the color of drawing tools and text. Font size, line type and line width can be set.
	Flip	Flip the current screen
	Mirror	Mirror the current screen
	Annotation tools	Annotate the current screen
	Add text	Add text to the current screen
	Calibration	Calibrate the preview window
	Measuring Tools	Measurement of the preview window
	Combine channels	Quickly assign fluorescent channels
	Combine color images	Quickly combine color fluorescent images

	Automatic depth-of-field fusion function for high content images	Automatic extraction of the clearest areas of the captured image for fusion, take one picture, two archives.
	Select	Select objects such as annotations, text, measurements, etc., support single selection or box selection.
	Undo	Undo the last operation on "Object".
	Redo	Restore the last operation on "Object".
	Delete	Delete the selected "object".
	Erase	Erase "object".
	Snapshot	Snapshot the image on the currently selected screen.
	Screen capture	Screen capture on the entire computer desktop.
	Record	Record on the currently selected screen.
	Screen record	Screen record on the entire computer desktop.
	File management	File management

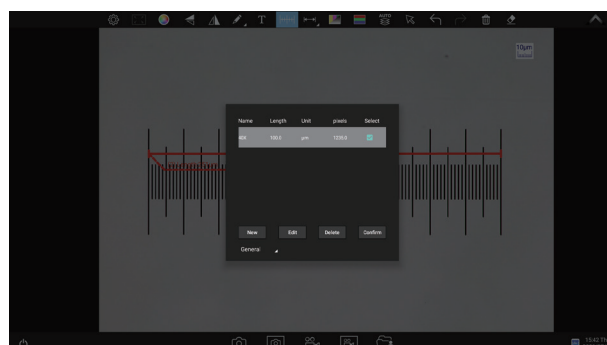
1.2.2 Methods of calibration and measurement

Step 1: Please place the micrometer under the microscope, the example below uses a micrometer with 1DV= 0.01mm.

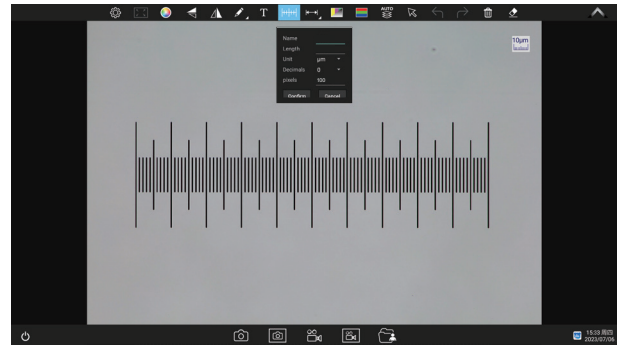


Step 2: Click on "  " to bring up the calibration table as shown below.

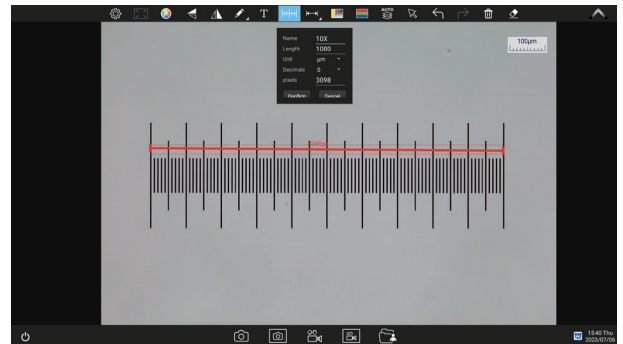
Step 3: Click to select "New".



Step 4: When using the mouse to draw a straight line on the micrometer image and setting the scale length, selecting a longer scale length will give more accurate results. For example, selecting 10 small scale lengths will give you more accuracy than selecting only 1 scale length. After releasing the mouse, the image value of the line drawn with the mouse will be automatically updated in the "Benchmark" of the calibration table, as shown in the following figure.




Step 5: Enter a name in the calibration table, such as 10X: In the calibration table, enter the actual length that just drawn on the micrometer, for example, the sample figure is drawn 100 DV, that is, 1mm, or 1000 μm , then enter the "actual length" box to fill in the specified 1000, "unit" select " μm ". Then click "Add" to add this calibration value to the calibration table to be used. Add the calibration value for other objectives of different magnifications in this way.

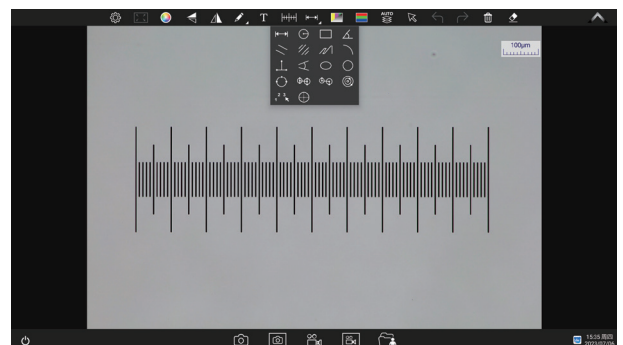


Step 6: Select measurement tool for measurement Firstly, select the calibration value according to the actual objective used in the calibration table. The following figure shows.

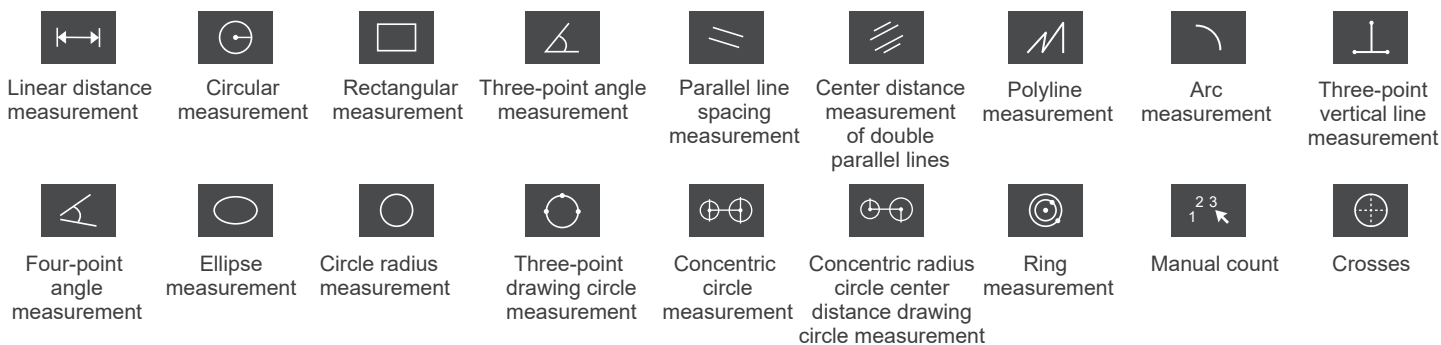


Click "Exit" after the selection, and then use the measurement tools to measure the image.

Step 7: Click "  " to bring up the measurement tools table, as shown in the figure.



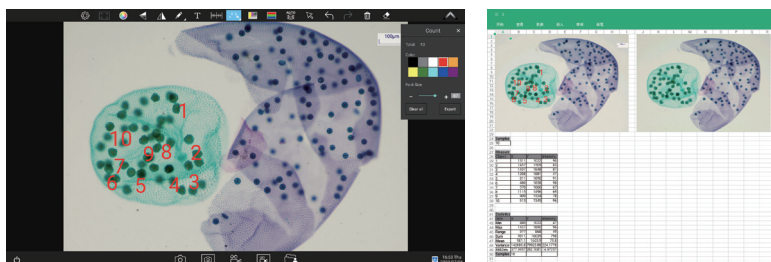
1.2.3 Measuring tools



1.2.4 Manual calculation function

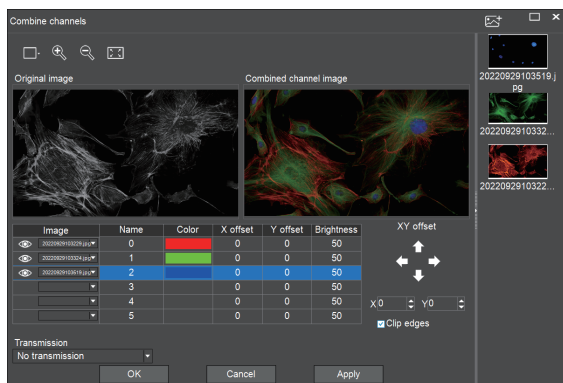
Click on "  " to access the table of measuring tools.







Select the manual calculation tool "  ".



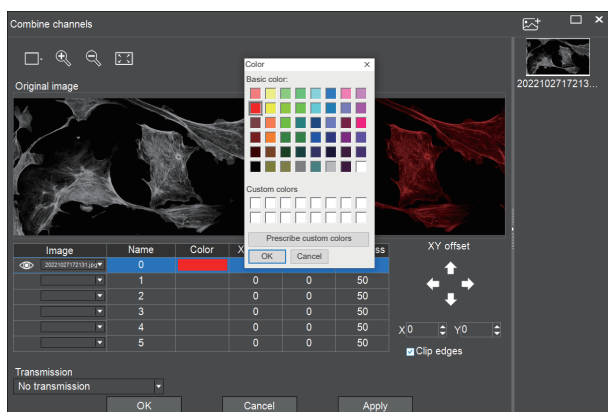
1.2.5 Combined channel

Fluorescent channels can be assigned quickly

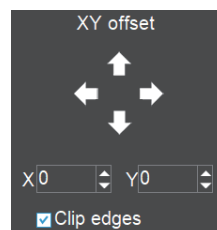


	Live image taking
	Preview window setting: double window to display original image and combined channel image separately, single window to display combined channels image only
	Image Zoom
	Image reduction
	Adapts to screen size
	Import images

Fluorescence channels can be specified for imported images (as shown in the figure below)



Allows direct input of X, Y, and brightness values for fine adjustment.

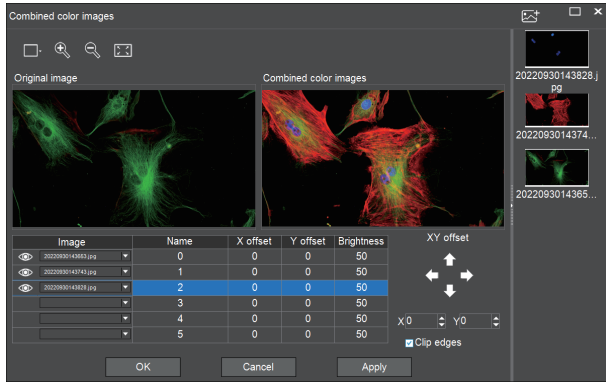


Note: Please import images with the same resolution, otherwise the image import will fail.

1.2.6 Combined color images



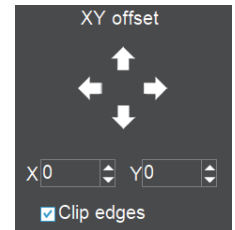
Color fluorescent images can be quickly combined.



Note: Please import images with the same resolution, otherwise the image import will fail.

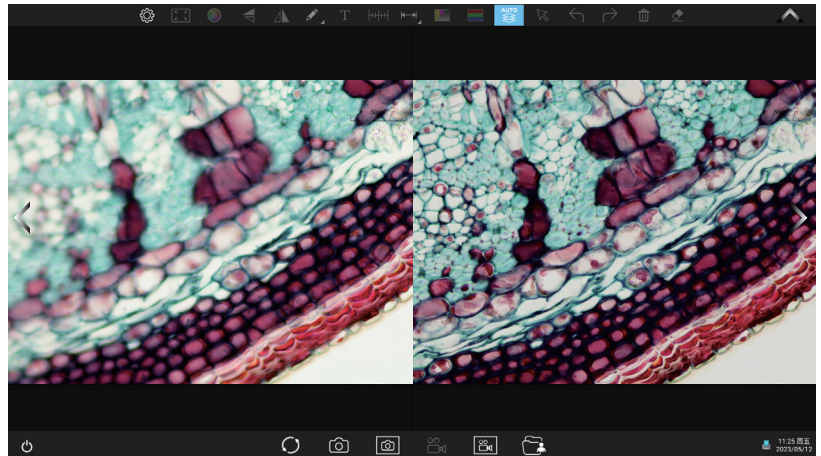
	Live image taking
	Preview window setting: double window to display original image and combined channel image separately, single window to display combined channels image only
	Image Zoom
	Image reduction
	Adapts to screen size
	Import images

Allows direct input of X, Y, and brightness values for fine adjustment.



1.2.7 Automatic depth-of-field fusion function for high content images

Automatic depth-of-field fusion function for high content images works with USB or WiFi connection. Break through the limitation of insufficient depth-of-field in high magnification objective lenses, and to adjust the focal length can obtain a greater depth of field, thus obtaining a sharper image than a real-time single-frame image, support taking one picture, two archives.



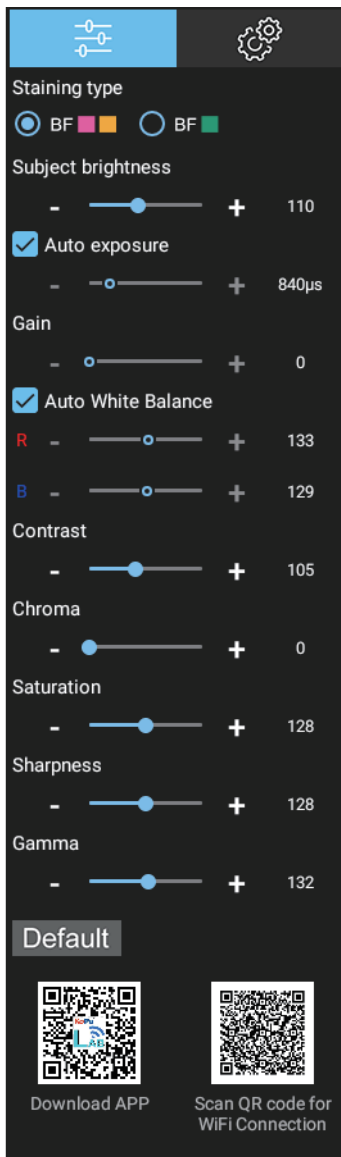
Operation steps:

- Step 1. Click " " button, a dual screen appears, the left screen is in line with the focal plane under the eyepiece, and the right screen is the result of high content fusion.
- Step 2. Adjust the microscope coarse/fine focus knob, the depth-of-field fusion in real time on the right screen. If you switch the field of view midway, you can click " " button to refresh.
- Step 3. Click " " button to automatically save two pictures on the left and right screen, close the current window to exit, click " " button to enter the file manager and export pictures.

1.3 Setting panel


1.3.1 Camera properties control panel

Clicking the Settings button in the upper left corner of the main operation interface will bring up the Image properties adjustment panel.

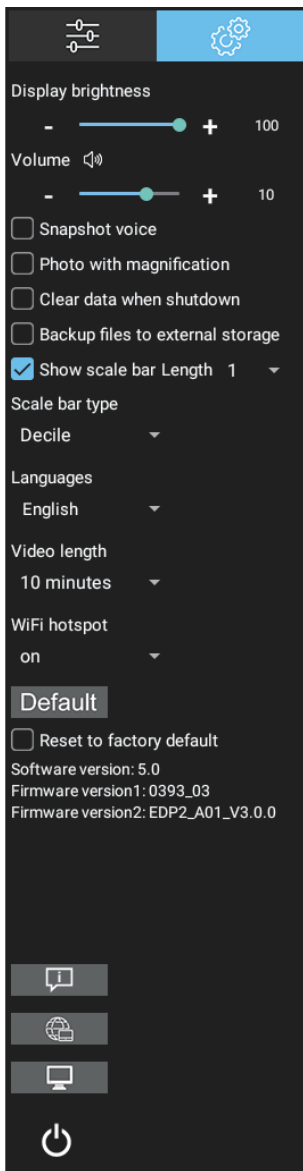


Staining type	Users can select different exclusive types of stained pathology sections to obtain matching image effects and more accurate color reproduction. BF type 1: for bright-field, red or gold-based sections; BF type 2: for bright-field, cyan-dominated sections; FL type: for fluorescence observation.
Brightness	Manually drag the adjustment bar to adjust the image brightness.
Exposure	When checked, the camera will automatically expose according to the environment used. When unchecked, manual exposure can be performed through the adjustment bar, supporting direct input of values in the box.
Gain	Manually drag the adjustment bar to adjust the image gain. Support for entering values directly in the box. Click on "Gain" will restore the default value of gain alone.
White Balance	Manual white balance adjustment can be made through the adjustment bar, supporting direct input of values in the box. Click on "R" will restore the default value of the R channel alone. Click on "B" will restore the default value of the B channel alone.
Contrast	Manually drag the adjustment bar to adjust the image contrast. Support for entering values directly in the box. Click on "Contrast" will restore the default value of contrast alone.
Chroma	Manually drag the adjustment bar to adjust the image hue. Support for entering values directly in the box. Click on "Hue" will restore the default value of hue alone.
Hue	Manually drag the adjustment bar to adjust the image saturation. Support for entering values directly in the box. Click on "Saturation" will restore the default value of saturation alone.
Saturation	Manually drag the adjustment bar to adjust the image sharpness. Support for entering values directly in the box. Click on "Sharpness" will restore the default value of sharpness alone.
Sharpness	Manually drag the adjustment bar to adjust the image gamma. Support for entering values directly in the box.
Gamma	Default Click on "Gamma" will restore the default value of gamma alone.
Restore Default values	Restore all image property values to default at once.
Download smart terminal APP and realize the same screen view	Once "WiFi hotspot" is activated in the "Preferences" panel, a dual QR code will be displayed, allowing smart terminal (cell phones or tablets) to share the same screen. Scan the QR code on the left with your smart terminal's browser and follow the instructions to download and install the APP: KoPa WiFi Lab. After installation, scan the QR code on the right with the scanner in KoPa WiFi Lab to start automatic connection to the microscopic image.

1.3.2 Preferences panel

Click "  " to bring up the Preferences panel.

Brightness	Manually drag the adjustment bar to adjust the overall brightness of the screen. (this function is only available for the smart display camera).
Voice	Adjust the volume of audio playback on the display (this function is only available for the smart display camera).
Snapshot voice	When checked, click to take a photo, there will be a prompt sound; When unchecked, clicking to take a photo will not prompt the sound (this function is only available for the smart display camera).
Photo with magnification	When checked, the multiplier is displayed. When unchecked, it is not displayed.

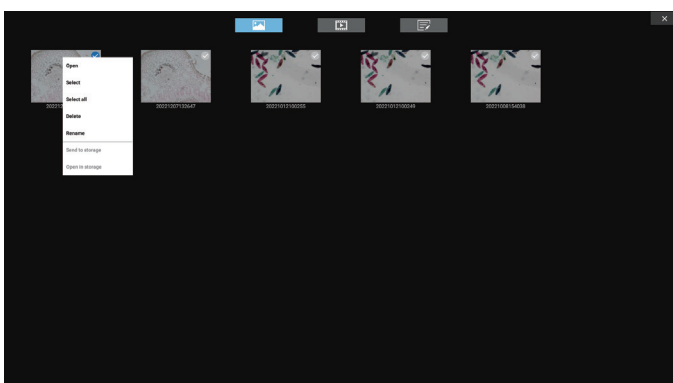


Clear data when shutdown	When checked, it will clear the images, videos and other data from the application after shutdown. When unchecked, the data such as images and videos will be saved locally after shutdown.
Backup files to external storage	When checked, images and videos taken will be saved synchronously to the external USB flash drive inserted. When unchecked, the images and videos taken will not be saved synchronously to the external USB flash drive inserted and need to be copied manually. Note: If there is no access to the external USB flash drive, this function is not valid until the external USB flash drive is accessed.
Show scale bar	When checked, the scale bar of the currently selected length is displayed in the upper right corner of the preview window. The scale will be hidden when unchecked.
Length	Three fixed scale lengths are available.
Languages	APP interface language switch.
Video length	There are three options for setting a time limit :10 minutes, 30 minutes, and 60 minutes. Note: avoid excessive memory capacity due to too long recording time. Default is 10 minutes.
WiFi hotspot	WiFi hotspot on and off settings. It is turned off by default. After turning off the "WiFi hotspot", users cannot scan the code to preview the image.
Default	When checked, the system will restore the factory settings. Note: it takes about 4 minutes to restore the factory settings. Do not power off during the recovery process, otherwise the system will fail to start due to abnormal conditions.
Surf the internet	Connect to the wireless Internet (only 5G wireless Internet signal is supported), enter the current connected 5G network password, and click "browser" to directly open the browser to surf the Internet.
System desktop	Access to the operating system desktop.

1.4 Folder management

After entering folder management, the top of the interface can switch to images and videos gallery.

Right - click on a single image or single video to display the following menu :



Open : Enlarge currently selected image / video to show / play .

Select : Select currently image / video.

Select all : Select all images / videos in the folder.

Delete : Delete the currently selected image / video.

Rename : Rename the currently selected image / video.

Send to storage : Sends the currently selected image / video to the external storage device.

Open in Storage : Open the currently selected image / video in the location of the external storage device.