



User Manual of Software
KoPa WiFi EDU for Windows

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1.1 Software installation

1.1.1 System requirements:

CPU type: i5 10th Generation or later version;

Memory capacity \geq 16GB or more;

Hard drive capacity \geq 512GB or more;

System: Genuine Microsoft Windows 10 (64 bit) or later version;

Graphics card: Core display or discrete graphics card.

Note: Some functions in the software require the computer with

Microsoft Word 2003 or later version (for output measurement results to Microsoft Word function)

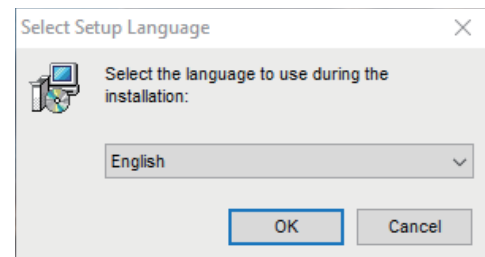
Microsoft Excel 2003 or later version (for output measurement results to Microsoft Excel function)

Microsoft Outlook 2003 or later version (for sending pictures via email function)

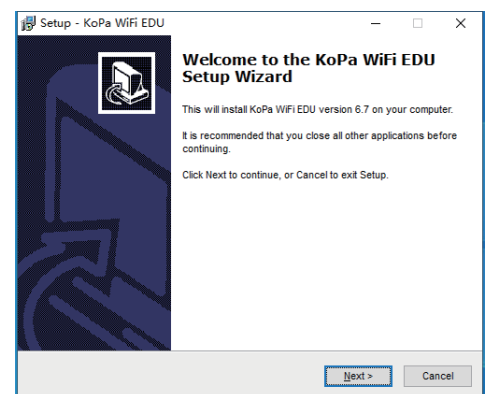
1.1.2 Installation steps

Step 1. Run the file "KoPa WiFi EDU Install", When the following window appears, select the required installation wizard language and press the "OK" button.

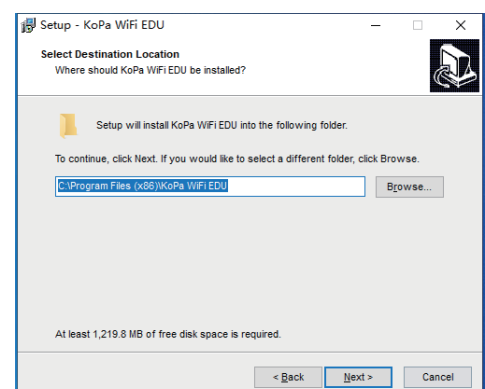
Note: The language of the installation wizard is independent of the language used in the software interface. If you need to change the software interface language, please select the "Language" function in the "Settings" menu to modify.



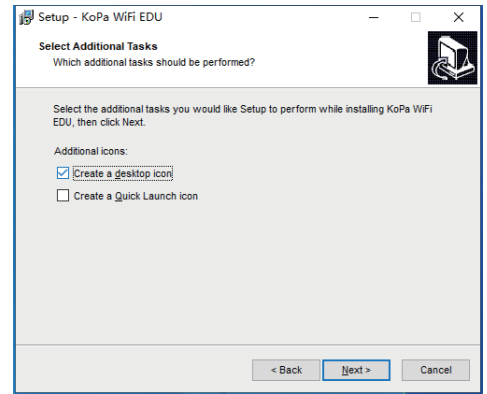
Step 2. Please click the "Next" button when the "Welcome to KoPa WiFi EDU" installation wizard appears.



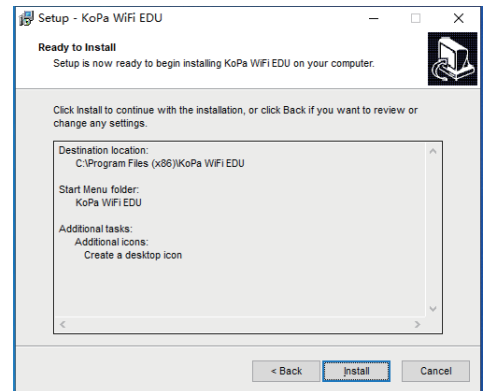
Step 3. When the "Select Destination Location" window appears, click "Browse" to choose the file path for installation (usually default), and then click "Next" to continue.



Step 4. When the screen as shown below appears, select the shortcut you need and click the "Next" button.

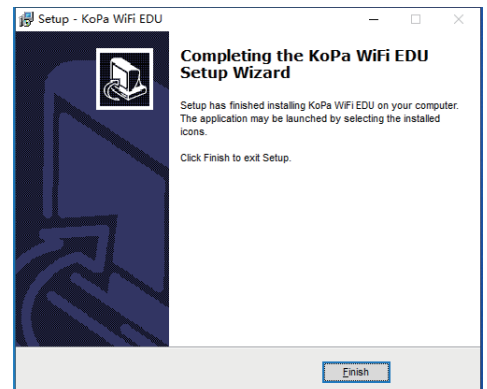


Step 5. Confirm information such as "Destination location" of the software installation. After confirmation, please click the "Install" button.



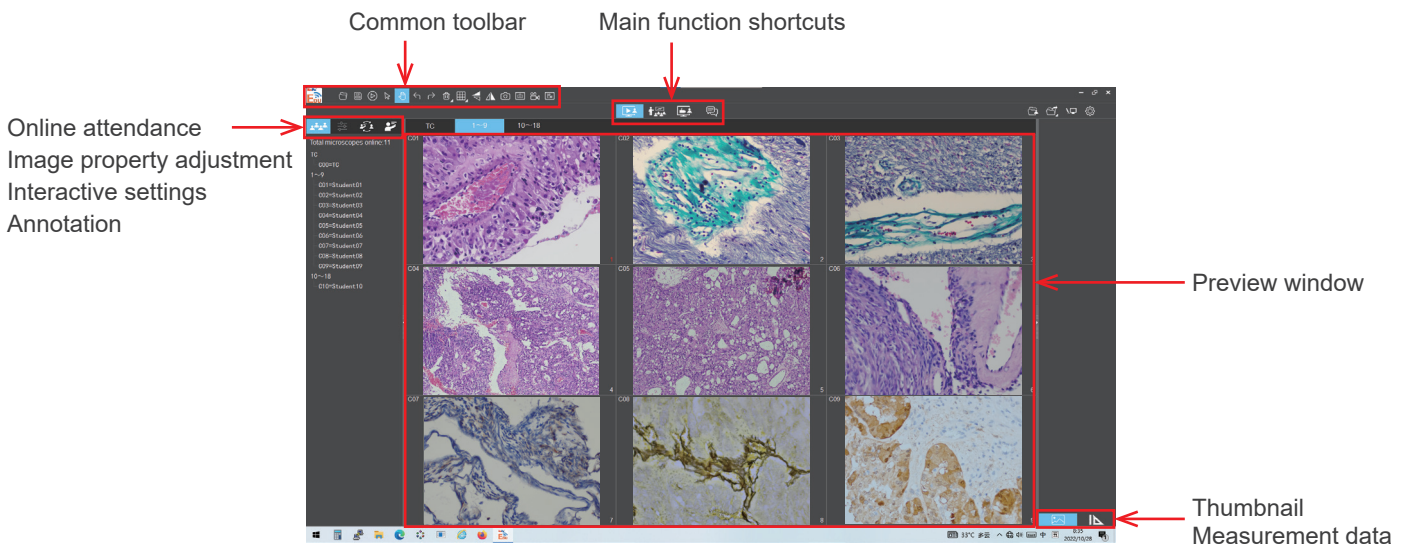
Step 6. The installation progress bar will appear during the installation process. During the installation process of the software, some necessary library files need to be registered. If it may be blocked by some anti-virus software, such as the pop-up prompt whether to allow installation, it must be allowed and continue to run.

Step 7. The installation progress bar will appear during the installation process. When the following window appears, the software has been installed successfully. Click "Finish" button to complete the installation. After the window closes, check the buttons "KoPa WiFi EDU" on your computer desktop. If you fail to find it, please find it from the path "Start" → "All programs".



1.2 Use of software

1.2.1 Operation interface



1.2.2 Shortcut tools



	Open	Retrieve images from the local disk to the software.
	Save	After annotating the picture, adding text, etc., click the "Save" button to save the current annotation, text, etc
	Preview	If a still image is retrieved from the window, clicking this button will return the window to the preview dynamic picture.
	Select object	Select "objects" such as annotations, text, measurements, etc. for the next step, such as moving, deleting, etc. Support single selection or select them by drawing a big box around them.
	Drag	Use the mouse to drag the still image.
	Undo	Undoing the last operation on an "object".
	Redo	Redoing the last operation on an "object".
	Delete	Delete or erase the selected "object" with a single click.
	Compare with multiple windows	 <p>Options of Full screen / Home screen / Dual screen comparison / Four screen comparison.</p>
	Flip	Flip the image on the currently selected screen.
	Mirror	Mirror the image on the currently selected screen.
	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.
	Combined channel	Assign fluorescence channels to selected images.
	Combined color images	Composite overlay of selected color fluorescence images.
	Depth of field fusion	The clearest areas are extracted from the two images taken and fused into a new image.
	Image stitching	The overlapping areas are extracted from the two images taken and stitched into a new image.

1.2.3 Main Functions

(1) Online attendance function



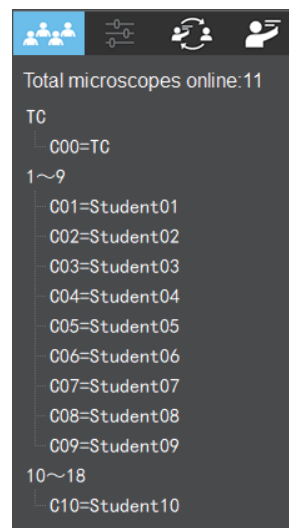
Function description:

Quickly check the boot status and login status of the student terminal to look into electronic attendance.

Function details:

The "Total microscope online" module on the left side of KoPa WiFi EDU of the tutor side can be viewed. The total number of attendance (the figure on the below is 11), TC represents teacher's camera C00; Starting from 1 is the student camera number, C01 represents the student camera number of 01, the "=" is followed by the user name to log in and use the student camera. Help the tutor quickly check the boot status and login status of students.

The system automatically refreshes the number of attendance on line, if students leave and return halfway, can be real-time view, easy to achieve electronic roll call.



(2) Monitor live-image under microscope function

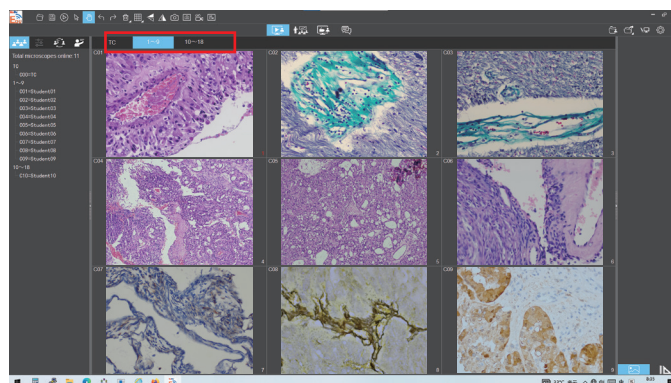


Function description:

All student images are automatically displayed on the PC software of the tutor. Tutor can confirm whether the students correctly understand the experimental intentions through the images.

As shown in the figure below, TC is the tutor side screen window. By default, each label is numbered in the order of the student camera. A total of 9 student side screens can be viewed at one time, with paging tabs toggle through the student screens. Double-click in a single student screen to display a single screen. Double-click again to exit the single-screen display to return to the default 9-screen view.

The tutor can control the attributes of the student side image when the student side image is displayed in a single screen to guide students correctly, and even take pictures and videos of the instruction process. Take picture, record, screenshot and screen record for single and multiple student side screens.



(3) Lecturing function

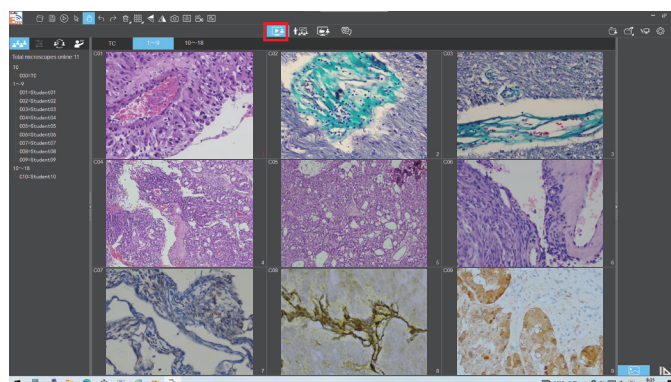


Function description:


The tutor PC screen or the selected student screen is streamed to all student smart devices synchronously. The student smart devices can dynamically display the tutor microscope and computer operation screen in real time.

Lecture materials (support WORD \ EXCEL \ PPT and other formats) are displayed on the smart device of students in real time to enrich the teaching content.

The operation process of the tutor PC or the selected student smart device is displayed to all student smart devices synchronously.



Function details:

Click "  " button to pop up a list below, and select "All Students" to synchronize the computer operation interface on the tutor's side to all students' smart devices. You can also conduct individual instruction through manual selection or multiple selection. Students who are not selected will not receive the operation interface on the tutor's side.

Voice broadcast: When checked, the tutor's voice synchronization is pushed to the selected students' smart devices. If not checked, the voice is not pushed.

Desktop broadcast: When checked, the tutor's entire computer operation interface, including software interface and computer desktop, will be pushed synchronously.

This function is often used for tutor to display courseware, PPT, video and other teaching material to students.

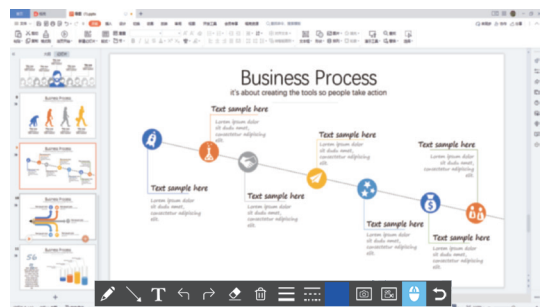
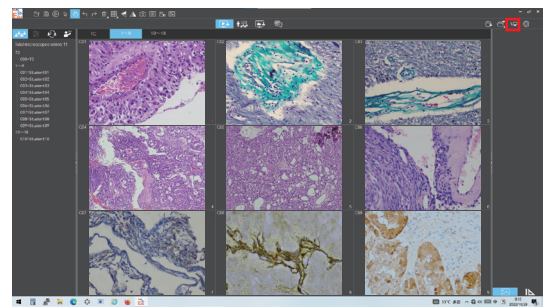
Image broadcast: After checking, the image captured by KoPa WiFi EDU (the PC software on the teacher side), is pushed to the student's side synchronously but hide the software interface and computer desktop operation, make the push screen more concise. This is often used by teachers who only need to show students real-time dynamic microscopic images.



(4) Electronic white board function

In the lecturing mode, click the "  " button in the upper right corner of the software to display the tutor's computer desktop to the students smart devices and make annotations on the computer desktop and other courseware.

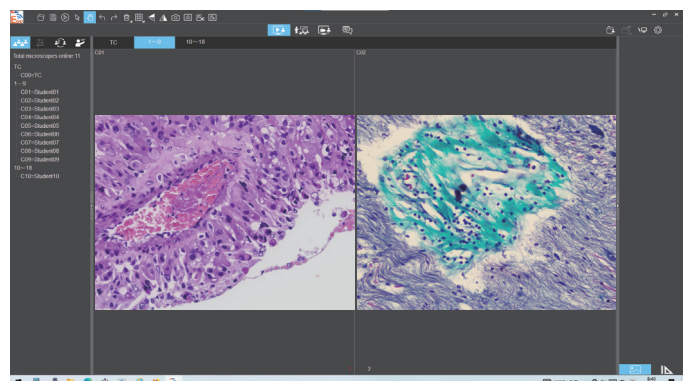
"Electronic white board" tools, from left to right are: pen, arrow, enter text, undo and redo, eraser, delete the object, line width, line, color, screenshot, screen record, mouse penetrate (allows to retrieve file from computer disk), and return to the interface of the software. It is helpful for tutor to annotate courseware or video displayed on the desktop and display them to all students in real time.




(5) Demonstrate student's work and multiple screen comparison


Demonstrate student's work function: The teacher side can display the selected real-time screen of the student smart device to all students, playing a demonstration teaching role.

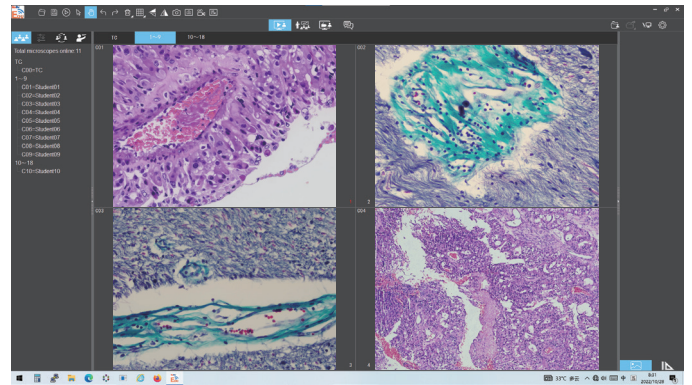
Multiple screen comparison function: The tutor's screen can display any two or four student images for analysis and comparison, supporting static picture comparison, dynamic image comparison, static and dynamic mixed comparison, supporting tutor side and selected student side comparison.



Steps: Click the square button "  " at the top of the software and select "Dual screen comparison" or "Four screen comparison" (the comparison function only supports dual screen or four screen comparison).

In the state of "Dual screen comparison" or "Four screen comparison" , drag TC or a student name from the list of "Total online microscopes" to the screen window you want to display and get the object you want to compare.To realize the contrast between the tutor end screen and the student end screen, or between the student end screens.


Click in the screen with the mouse, and the screen number turns red when selected, you can select the static picture from the "  " button on the top of the software, or double click on the image thumbnail on the right of the software to transfer the picture to the screen window to realize the mixed contrast between the static picture and the dynamic picture, and the contrast between the static picture.



(6)Monitoring students' screen function

Function description:

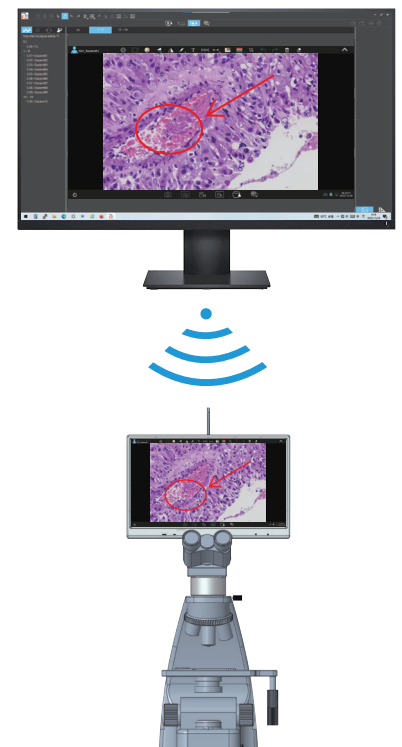
Real-time monitoring of all student smart devices desktop to ensure that all students participate in learning. Students' experimental processes, annotations, measurements and other operations made in the smart devices are pushed to the teacher's end in reverse, and the learning progress can be checked at any time. Without the tutor's permission, the student smart devices cannot install any APP, nor can it exit the current teaching APP.

Steps: Click the button "  " , If the student end use the interactive solution ① and ②, the tutor end software will automatically obtain the real-time operation interface of the student smart devices.

If the student end use the interactive solution ③ and ④, Then the student smart device receives the pop-up window asking for consent, and only when the student clicks on the consent, the teacher end software can capture the operation interface of the student end.

The tutor can double click any student window to carry out remote control of the student smart device.

Click on the flip tab outside the current window to exit the remote control.












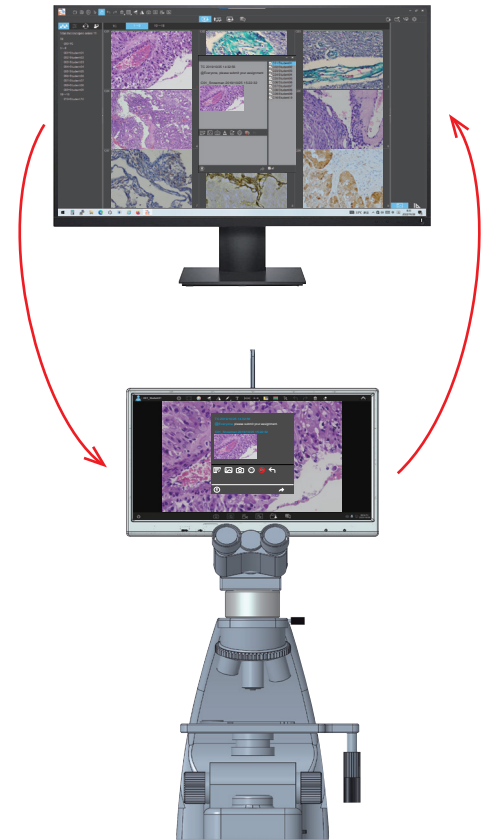
(7) Messenger function

Support the real-time communication of documents, texts, pictures and expressions between tutor and students.



Select digital examination paper (homework) within the local disk a key automatically distributed to all or selected students smart devices, after students complete the examination paper (homework), they can upload to the specified path automatically that saved to the tutor's folder. Student login user name will be used as folder's name automatically without teachers operation, convenient for teacher at any time to view, remove, share, delete, etc;

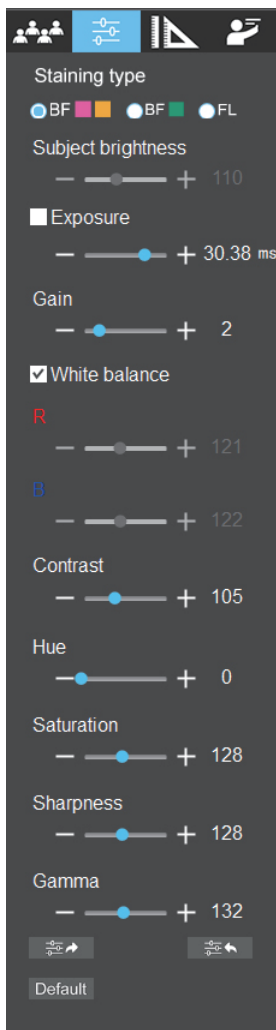
	Select an image in the local disk to be automatically sent to all or selected student's Messenger window in the APP with one click;
	Take a real-time picture under the tutor's microscope and send it to all or selected student's Messenger window in the APP with one click;
	Font and font size settings;
	Support to export and save Messenger records (you can set the record of the day to be saved, or close the software to delete);
	Select emoji icon to send to all or selected student's Messenger window in the APP ;
	Silence all or selected student smart devices to help maintain class order; Click again and uncheck "√" to remove the "Silence" function;
	Retract the latest missive;
	Tutor can input text click to send to all or selected student's Messenger Windows;
	Real-time voice communication with a selected student to achieve one-to-one guidance.






1.2.4 Image property adjustment tool



The image properties tool is activated when the software displays only dynamic images of a single window.



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.
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.
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.
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.
Hue	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.
Saturation	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.

Sharpness	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.	
Gamma	Manually drag the adjustment bar to adjust the image gamma. Support for entering values directly in the box. Click on "Gamma" will restore the default value of gamma alone.	
Export image properties		Exporting image properties to local disk.
Import image properties		Import image properties from local disk.
Restore default values		Restore all image property parameters to their default values.

1.2.5 Interactive settings

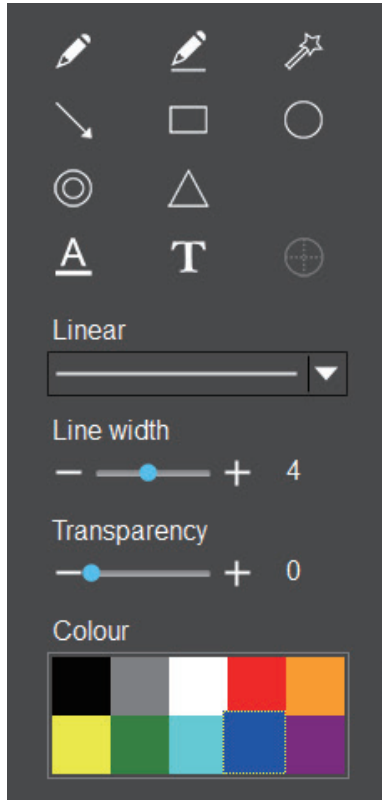


When the software is in the nine screen dynamic screen, the interactive settings tools will be activated to help the teaching tutor and laboratory management tutors improve the teaching efficiency.

When the function button of each item is selected, it will change from black to blue. After clicking the function button again, it will cancel the function and the color of the button will change from blue to black.

	Restore student camera parameters	One click to restore the default image parameters of all student cameras to prevent students from mistakenly operating, convenient for other users in the next class.
	Share image attributes with one click	One click to batch set the image attributes of all the student cameras. It is suitable for batch sharing of different parameters set by different microscopes. Tutor do not have to operate them one by one to improve work efficiency.
	Lock student camera parameters adjustment	Lock the adjustment bar of all student image attributes to maintain classroom order. Click again to unlock the adjustment bar for students to operate freely.
	One click to send assignment template	After an assignment template is created by the tutor-side computer, click this button to batch send it to the student camera, and the previous assignment template will be deleted.
	Shutdown student cameras	One click to remotely turn off the power of all student cameras and some Android tablets with "auto shutdown" enabled.
	Restart student cameras	One click to restart all student cameras.
	Reset student cameras	One click to reset the factory default properties of all student cameras.
	Clear all student smart cameras users	One click to delete all student end login users, convenient for teacher to maintain.
	Student cameras installation of APP	One click to install applications for all student cameras, tutor do not have to operate them one by one to improve work efficiency.
	Allows student cameras access to the system	One click to allow all student cameras access the local operating system desktop.
	Allows student cameras access to the Internet	Allow all students to connect their cameras to the Internet to access network.(This function requires that the teacher end has been connected to the network cable of the external network, and the computer on the tutor end has been able to access the Internet normally)
	Attention	All student cameras enter blank screen and display "Attention" to remind students to pay attention to the tutor's speech.
	Export user list	One click to export the user list of all student cameras.
	Collect QR codes	One click to collect the QR codes of all student cameras for students to scan. This function is used for students' smart phones or tablets that need to scan the QR code to connect the screen when there is no display screen on their cameras.
	Collecting all student images	One click to captured all student cameras real-time dynamic images under microscopes, tutor end software will automatically be established by date in the name of the student login name folder, student image and the folder will be automatically archived under the selected save path to the tutor end software. Click on the software in the top right corner of the file manager can check all the images captured.

Annotate on student's work function: It can annotate and edit images and documents, and push the operation process to all students' smart devices in real time.
 Steps: Click the "👤" button to bring up annotation tools. It supports setting the line style, line width, transparency and the color of the annotation tool.

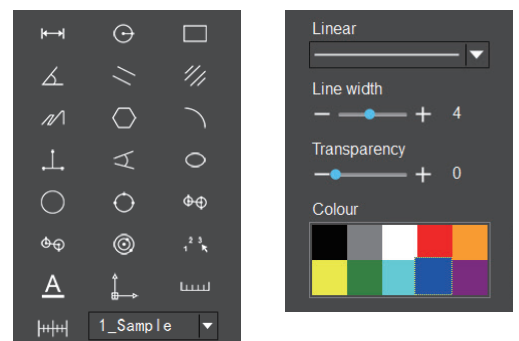


	Pencil
	Straight line
	Highlighter
	Single arrow straight line
	Rectangle
	Oval
	Concentric circle
	Isosceles triangle
	Set font
	Insert text
	Add crosshair
	Linear
	Line width
	set transparency
	color

1.2.6 Measurement

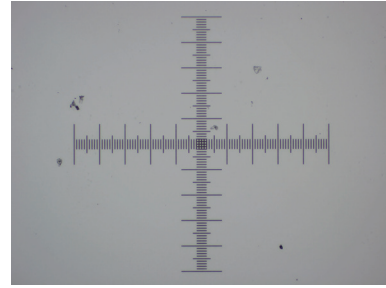
(1) Calibration and measurement

Provides calibration functions as well as measurement functions for dynamic video or still image in the preview window.

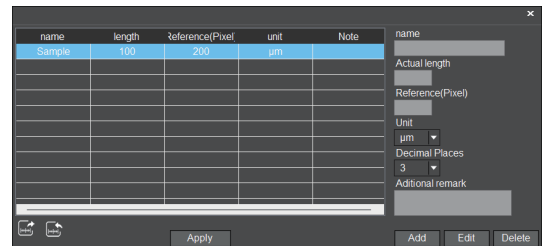


(1) Calibration

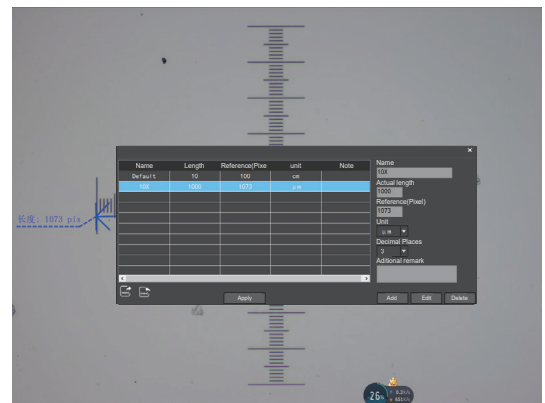
Step 1: Please place the micrometer under the microscope, the example below uses a micrometer with 1DV= 0.01mm.



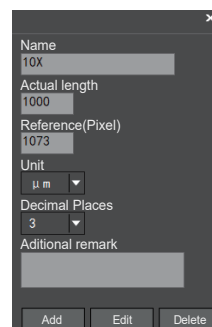
Step 2: Click on " |++| " to bring up the calibration table as shown below.



Step 3: 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 4: 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 1000µm, 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.

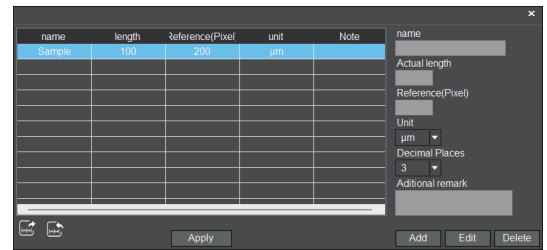


Notes:

- ① "Add": The information in the right box will be added to the list on the left.
- ② "Edit": The calibration value selected in the left list will be modified.
- ③ "Delete": The calibration value selected in the left list will be deleted.
- ④ "Apply": The calibration value selected in the left list will be called.

(2) Select measurement tool for measurement

Firstly, select the calibration value according to the actual objective used in the calibration table and click on "Apply". as shown in the following figure:



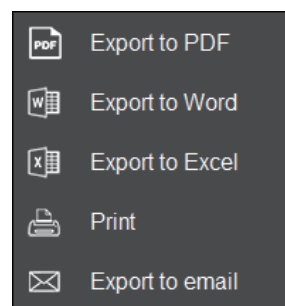
Then select the measurement tools to measurement as follows:

	Straight line measurement		Concentric circle measurement
	Circular measurement		Concentric radius circle distance drawing circle measurement
	Rectangular measurement		Circle measurement
	Angle measurement		Manual calculation
	Parallel line distance		Set the font
	Double parallel line center distance		Scale lines
	Folding line measurement		Scale bar
	Polygon measurement		Select line type
	Curvature measurement		
	Three-point vertical line measurement		
	Four-point angle measurement		Set the measurement tool line width
	Ellipse measurement		Set the transparency of the measurement tool
	Drawing a circle with radius		Set the measurement tool color
	Three point drawing circle measurement		

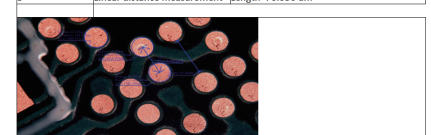
The results of each measurement will be displayed on the right side of the software. The user can export the measurement results.

Click the export tool " " in the upper right display bar to export data and images to PDF, Word, Excel, printer and mail (Outlook only). Export to PDF, printer and mail functions are only available for still images.

Select Export to Word, as shown: Enter file name, select path, and click "Save". The exported documents are as follows:



Serial No.	Measure item	Measured value
1	Circular measurement	Radius=21.175 um Perimeter=133.046 um Area=1408.611 um ²
2	Concentric circle measurement	Radius1=19.674 um Perimeter1=123.616 um Area1=1216.025 um ² Length=60.056 um Radius2=19.507 um Perimeter2=122.569 um Area2=1195.504 um ²
3	Linear distance measurement	Length=76.050 um



(3) Scale bar tool



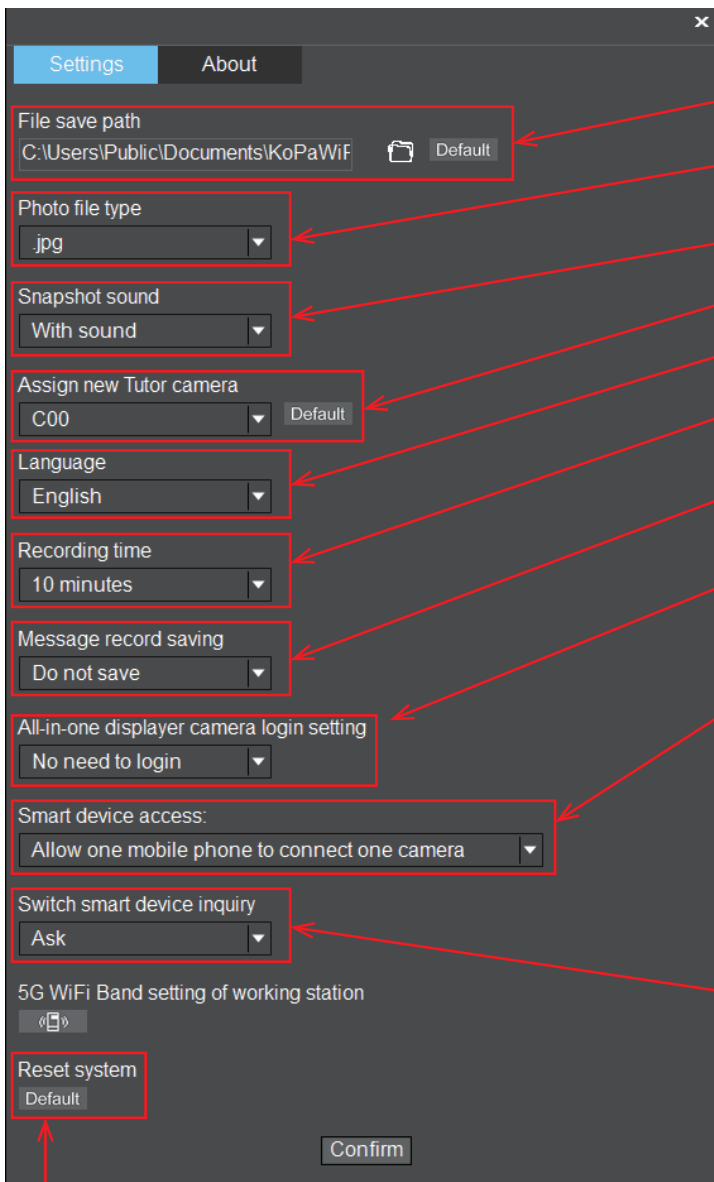
The default length is 100 μ m, width is 3 pixels, you can customize the setting and restore the default value with one click.



1.2.7 System settings



Click the Settings button in the upper right corner of the software to enter the system settings.



Modify the save path of pictures, videos and assignments uploaded by students.

Restore the default save path for pictures, videos and assignments uploaded by students.

Modify the default photo format, JPG,PNG,TIF,PDF format options are available.

Switch between sound and silent snapshot.

Designate any student camera as tutor camera.

Switch software interface language.

Modify the default recording time limit, there are 10 minutes, 30 minutes, 60 minutes options.

Modify Messenger record save settings, there are two options: Not saving, keep record of the day.

Tutor can set the student end as "No need to login" (automatic login) or manual login, default is "No need to login".

When the student end adopts interactive solutions ① or ②, the tutor software can set whether to allow students to use mobile phones or tablets to access the system, which is not allowed by default; if students need mobile phones or tablets to access the system, please select "Allow ". In this way, the student side connection function will be activated and connection QR code can be displayed. If "Don't allow" is selected, the connection function and connection QR code will be hidden. This setting is saved after shutdown.

If you select "Ask", when the same student camera is connected by multiple phones/tablets, the latter phone/tablet connection requires the previous phone/tablet to click "Yes" in the pop-up window.

If "Do not ask" is selected, when the same student camera is connected by multiple mobile phones/tablets, the mobile phone/tablet can be connected after scanning QR code, and the previous mobile phone will automatically exit APP.

Reset the default state of all tutor camera, student cameras, tutor software and student APP. Click "OK" to delete all images, videos, assignments and other files. A system reset takes about five minutes, eliminating the need to manually re-install the software.