



6G WiFi Digital Microscope Interaction System Solution(TBD)

Compatible with
Olympus Microscopes

www.ostec.com.cn



01. Why Choose This Interaction System?

- Addressing Pain Points in Traditional Teaching
- Enhancing Classroom Interaction and Learning Efficiency
- Meeting Diverse Teaching Needs

02. How to Choose the Right Solution for Your Microscope?

- Compatible with Upright Binocular Microscopes,

Binocular Solutions

① Compact & Efficient Solution

Highly integrated, space-saving, portable, foldable

② Comfort & Expandable Solution

Balances ergonomics and flexibility with monitor size

- Compatible with Trinocular Stereoscopic, Metallurgical, and Polarizing Microscopes

Trinocular Solutions

① Compact & Efficient Solution

Lightweight, foldable design, minimal footprint

② Comfort & Expandable Solution

User-friendly interface, adaptable screens, scalable hardware

Solution Selection Logic

① Space Priority → ② Experience Priority

Supports hybrid solutions in the same classroom.

03. What Are the Core Features of the Interaction System?

- Tutor-Side Wireless Control Software
- Student-Side Embedded Smart APP
- Student-Side Mobile Smart APP

04. Installation References

05. Special application references

- Cloud-based interactive system
- Demonstrative teaching

01 Why Choose This Interaction System?

✓ Elevate Teaching Quality

Build smart wireless microscope classrooms and labs to enhance pedagogy, reduce administrative burdens, and enable efficient interactive teaching.

✓ Digitization & Sharing

Digitize microscopy classrooms, enabling real-time image sharing over wireless networks

✓ Smooth Multi-Station Sharing

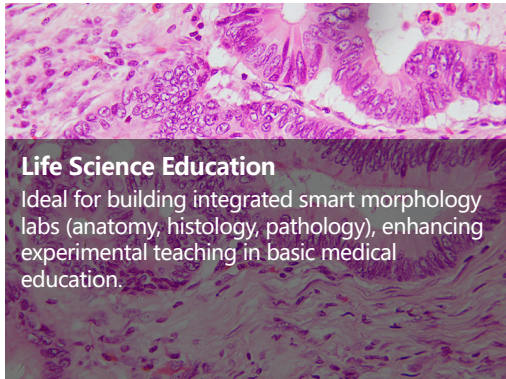
Auto-create distributed WiFi LANs supporting up to 120 stations for seamless HD real-time image sharing.

✓ Precision Color Reproduction

Optimized imaging optics with dedicated camera parameters for biological, industrial, and fluorescence applications, achieving true-to-eye color accuracy.

✓ Powerful compatibility

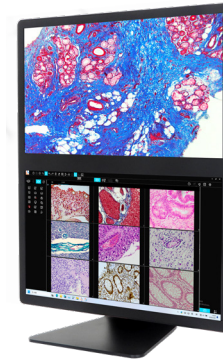
Seamless integration with third-party virtual teaching platforms (e.g., CS&BS architecture, Android APP) and AI pathology databases.



2.1 Components of the teacher's side

Microscope Compatibility:

Supports all types of microscopes (upright, stereo, metallurgical, polarized), and needs to be equipped with a trinocular viewing tube to install the interactive workstation on the teacher's end. The workstation has a simple design and powerful functions to meet the needs of efficient teaching.



1

Trinocular Microscope

2

interactive workstation

3

4K dual screen monitor for the tutor

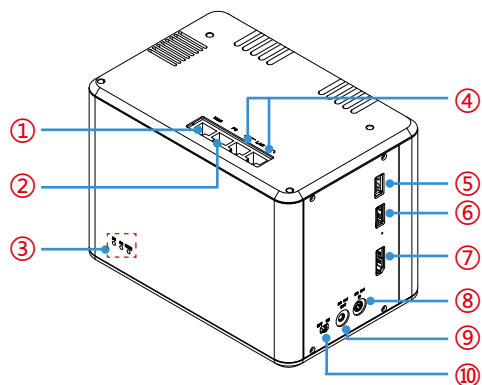
4

Optional: Teacher's large screen
(recommended by dealer)

- ◆ Create a self-built WiFi 7 LAN covering 500m², plug-and-play, no extra routers or servers needed, ideal for lab or classroom relocation.
- ◆ Integrated camera , connects to teacher's PC via Ethernet and wirelessly to students' cameras or phones.
- ◆ Simple setup, stable performance, smooth operation.
- ◆ Utilizes WiFi with 802.11be protocol, up to 3464Mbps for high-speed, stable transmission.
- ◆ Supports up to 120 stations wireless connections per classroom, allow connect to Internet without WiFi SSID switching . Teacher-to-student end transmission delay under 0.4 seconds.

Tutor's computer requirements

System	Win10 or later versions
CPU	Intel Core i7 12th generation or later versions
Hard Drive	512GB or more
Memory	16GB or more
Graphics card	nuclear graphics or Nvidia graphics card (Nvidia RTX3060 or later versions)
Wired Network Card	10/100/1000 adaptive



①	WAN network output	Supports to connect to Internet by a network cable
②	PC network output	It is connected to a computer through a network cable, and the computer side can capture images through software
③	Indicator light	Indicates fan operation, WiFi module operation status, and power status
④	LAN network output	Connect to the Internet, so that the teacher's computer and the student's camera can get the permission to connect to the Internet.
⑤	USB 2.0 interface	Can connect to a mouse, keyboard, USB flash drive (for copying videos and images), or power a microscope (output voltage: 12V, maximum output current: 1A).
⑥	USB 3.0 interface	
⑦	DP output interface	Transmission via DP cable, connected to a display device
⑧	Power input	DC 12V 5A
⑨	Power output	Can power microscope (output voltage 12V, output current max. 1A)
⑩	Power switch	Switch on/off

Interactive workstation specifications

Physical resolution	50.3MP
Models	CG48
C-mount category	IW7-C-50
Image sensor	SONY IMX06A CMOS
Exposure mode	Rolling Shutter
Maximum resolution	8192×6144 (50,331,648Pixels)
ISO sensitivity	Equivalent to 100-6400
Sensor size	1/0.98"
Pixel size	1.6μm×1.6μm
Spectral response	380-650nm
Exposure capability	Real-time auto and manual adjustment
Exposure time	100us-333ms
White balance	Real-time auto and manual RB adjustment
Preview resolution	8128×6144@16fps, 4096×3072@60fps
Photo resolution	8192×6144, 8128×6144, 8128×4608, 4096×3072, 4096×2304
Power supply	DC 12V 5A
A/D conversion bit depth	10bit
WiFi Version	WiFi 7 (IEEE802.11be)
WiFi coverage	Approx. 15 m (radius)
WAN type	Dynamic IP
Record format	Picture:JPG,BMP,PNG,TIFF;video:MP4
Software and App	KoPa WiFi EDU for Windows

Accessories

Power adapter and power cord
(Optional Chinese, American, European, Australian, Korean, British standard etc.)

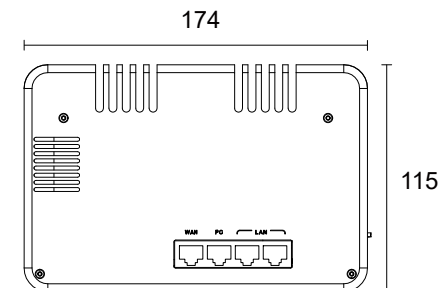
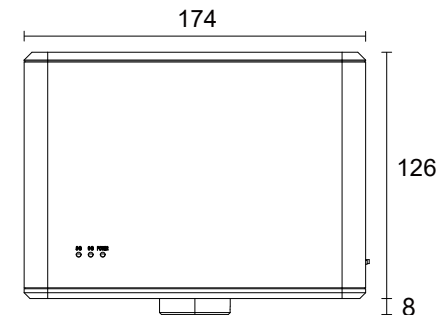


Gigabit Ethernet cable



Dimensions(Unit:mm)

Net weight ≈2kg



2.2 For upright microscope (binocular)



Applicable Models:
primo star

Solution ①

Smart Embedded Display Camera



Solution ②

Smart Embedded Camera



Desktop Monitor (without operating system, optional accessory)



Function Comparison

● Standard ○ Optional – N/A

	Solution①	Solution②
Built-in Android OS	●	●
Pre-installed Office suits	●	●
15.6"high color gamut monitor	●	—
Built-in 50:50 spectroscopic prisms	●	●
Built-in 0.43X tube lens	●	●
Allows connection of mobile phones or tablets	●	●
Image output methods		
WiFi	●	●
USB	—	—
DP	●	●
Network	—	—

Display Specifications

15.6" high brightness, wide color gamut and blue light filtered ISP display

Number of pixels	3840(horizontal) x 2160 (vertical)
Pixels arrangement	RGB vertical stripe
Colour gamut	100% Adobe RGB(135%sRGB)
Display number of colors	16.7M(8Bit)
Surface treatment	Anti-glare
Surface hardness	3H
Viewing angel range	170 horizontal, 170 vertical
Contrast	1500 : 1
Brightness	1000cd/m ² (average of 5 points)



①	DP output interface	Transmission via DP cable, connected to a display device
②	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).
③	USB 3.0 interface	
④	Power switch	Switch on/off
⑤	Power input	DC 12V 3A
⑥	WiFi antenna	WiFi signal transmission to connect the camera to capture images or control the camera
⑦	Easy focus with allen key	Simple and precise focus adjustment for synchronization between eyepiece and monitor
⑧	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).

Model

Name	Smart embedded display camera
Physical resolution	48.0MP
Models	TC1200
With 0.43X tube lens	ED6E-Z-48-H

Accessories

Power adapter and power cord
(Optional Chinese, American, European, Australian, Korean, British standard etc.)

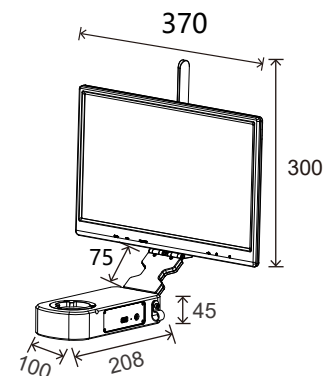


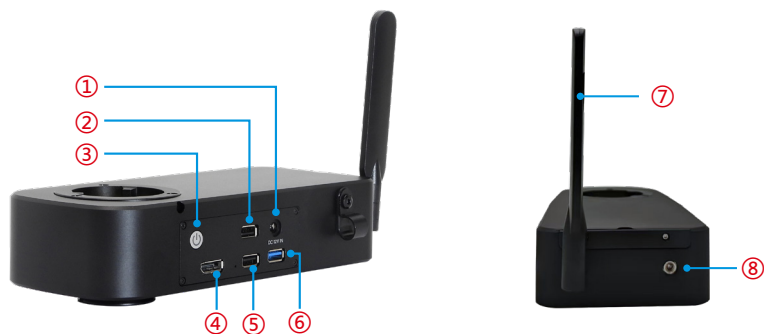
USB mouse and keyboard



Dimensions(Unit:mm)

Net weight ≈2.6kg





①	DP output interface	Transmission via DP cable, connected to a display device
②	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).
③	USB 3.0 interface	
④	Power switch	Switch on/off
⑤	Power input	DC 12V 3A
⑥	WiFi antenna	WiFi signal transmission to connect the camera to capture images or control the camera
⑦	Easy focus with allen key	Simple and precise focus adjustment for synchronization between eyepiece and monitor
⑧	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).

Model

Name	Smart embedded camera
Physical resolution	48.0MP
Models	HW800Z
With 0.43X tube lens	EC6E-Z-48-H

Accessories

Power adapter and power cord
(Optional Chinese, American, European, Australian, Korean, British standard etc.)



USB mouse and keyboard

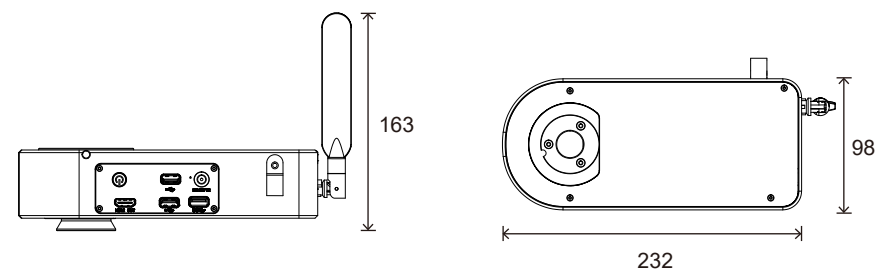


DP cable



Dimensions(Unit:mm)

Net weight ≈1.3kg



2.3 For stereo , metallurgical trinocular microscopes



Applicable Models:
Stemi 508, Axioscope 5,
Axiolab 5

Solution ①

Smart Display Camera



The built-in high-speed motor shifts the CMOS to capture multi-focal images and merge them into a fully focused frame, eliminating depth fusion artifacts from Z-axis variations in stereoscopy.

Solution ②

Smart Camera



Desktop Monitor (without operating system, optional accessory)



Function Comparison

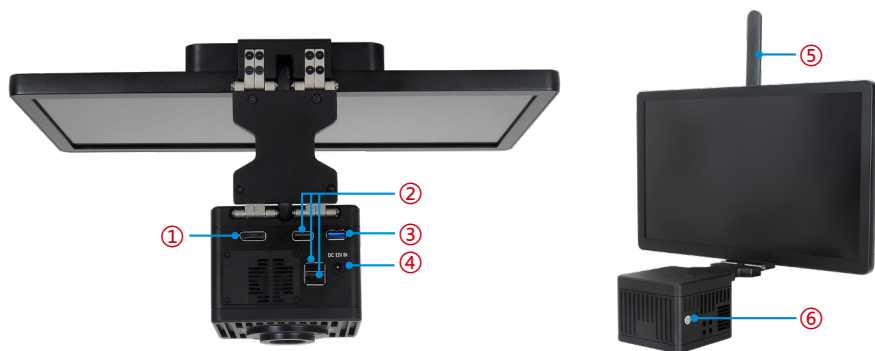
● Standard ○ Optional – N/A

	Solution①	Solution②
Built-in Android OS	●	●
Pre-installed Office suits	●	●
15.6"high color gamut monitor	●	—
Allows connection of mobile phones or tablets	●	●
Image output methods		
WiFi	●	●
USB	—	—
DP	●	●
Network	—	—

Display Specifications

15.6" high brightness, wide color gamut and blue light filtered ISP display

Number of pixels	3840(horizontal) x 2160 (vertical)
Pixels arrangement	RGB vertical stripe
Colour gamut	100% Adobe RGB(135%sRGB)
Display number of colors	16.7M(8Bit)
Surface treatment	Anti-glare
Surface hardness	3H
Viewing angel range	170 horizontal, 170 vertical
Contrast	1500 : 1
Brightness	1000cd/m ² (average of 5 points)



①	DP output interface	Transmission via DP cable, connected to a display device
②	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).
③	USB 3.0 interface	
④	Power input	DC 12V 3A
⑤	WiFi antenna	WiFi signal transmission to connect the camera to capture images or control the camera
⑥	Power switch	Switch on/off

Model

Name	Smart display camera
Physical resolution	50.3MP
Models	JX200
C-mount category	DJ6E-C-50-H

Accessories

Power adapter and power cord
(Optional Chinese, American, European, Australian, Korean, British standard etc.)

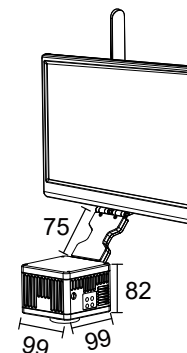


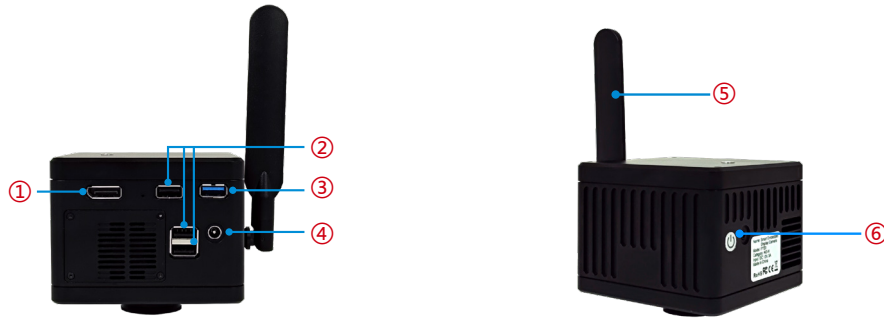
USB mouse and keyboard



Dimensions(Unit:mm)

Net weight ≈2kg





①	DP output interface	Transmission via DP cable, connected to a display device
②	USB 2.0 interface	Can be connected to a mouse, keyboard, USB flash drive (for copying videos and images).
③	USB 3.0 interface	
④	Power input	DC 12V 3A
⑤	WiFi antenna	WiFi signal transmission to connect the camera to capture images or control the camera
⑥	Power switch	Switch on/off

Model

Name	Smart camera
Physical resolution	50.3MP
Models	TE2000
C-mount category	CJ6E-C-50-H

Accessories

Power adapter and power cord
(Optional Chinese, American, European, Australian, Korean, British standard etc.)



USB mouse and keyboard

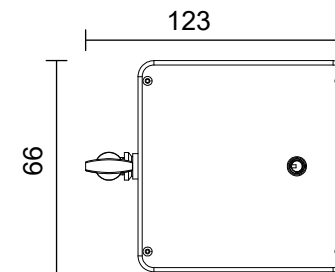


DP cable

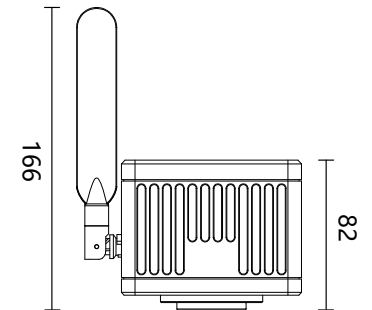


Dimensions(Unit:mm)

Net weight $\approx 1.3\text{kg}$



Camera with C-mount





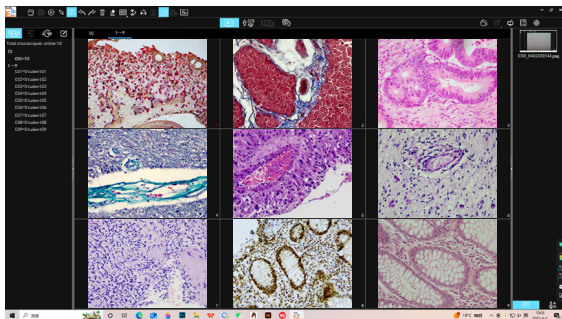
Physical resolution	48.0MP	50.3MP
Image sensor	SONY IMX586 CMOS	SONY IMX06A CMOS
Exposure mode	Roll-up Exposure	Rolling Shutter
Maximum resolution	8000×6000 (48,000,000 pixels)	8192×6144 (50,331,648 Pixels)
ISO sensitivity	Equivalent to 100-6400	Equivalent to 100-6400
Sensor size	1/2"	1/0.98"
Pixel size	0.8μm×0.8μm	1.6μm×1.6μm
Spectral response	400-650nm	380-650nm
Exposure capability	Real-time auto and manual adjustment	Real-time auto and manual RB adjustment
Exposure time	100us-333ms	100us-333ms
White balance	Real-time auto and manual RB adjustment	Real-time auto and manual RB adjustment
Preview resolution	8000×6000@14fps , 4000×3000@50fps	8128×6144@16fps , 4096×3072@60fps
Photo resolution	8000×6000, 4000×3000	8192×6144, 8128×6144, 8128×4608, 4096×3072, 4096×2304
Power supply	DC 12V 3A	DC 12V 3A
A/D conversion bit depth	10bit	10bit
WiFi Version	WiFi 6E (IEEE802.11ax)	WiFi 6E (IEEE802.11ax)
WAN type	Dynamic IP	Dynamic IP
Record format	Image: JPG, BMP, PNG, TIFF; Video: MP4	Picture:JPG,BMP,PNG,TIFF;video:MP4
Software and App	Built-in camera App: KoPa WiFi EDU AO ; App for mobiles: KoPa WiFi EDU	

3.1 Tutor-Side Wireless Control Software: KoPa WiFi EDU for Windows



Monitoring

- ◆ Student images automatically sync to the tutor's software for real-time confirmation of students' understanding of experiments.
- ◆ The tutor's interface defaults to displaying nine student screens (arranged by number) and supports pagination to browse more student screens.
- ◆ View up to nine student images at a time, with the ability to switch between more student images using tabs.



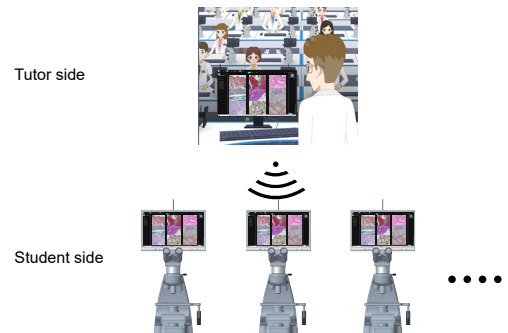
In App Messaging

- ◆ Real-time tutor-student chat (text/images).
- ◆ Send assignments to individuals/class with Word, Excel, PPT, image files.



Lecturing Mode

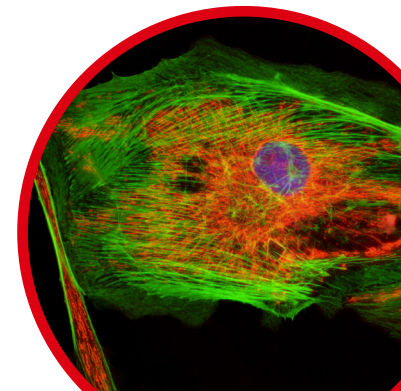
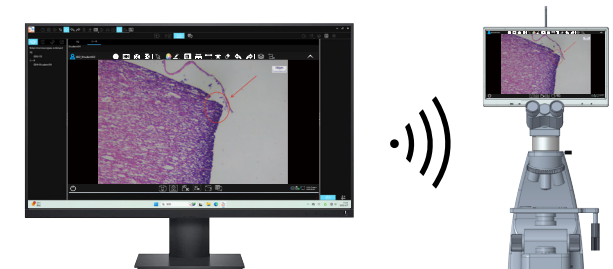
- ◆ Real-time screen sharing from instructor/selected student to all devices.
- ◆ Effortlessly sync instructor's microscope feed, PC interface, and lecture content (videos/PPT) to student devices.



Remote Desktop Control for Student Devices

Real-time Monitoring & Guidance

- ◆ Track all student software activity to ensure engagement.
- ◆ Instructors remotely operate student software via mouse-through functionality, offering instant assistance and personalized guidance.





Interactive Settings

Boost teaching/lab management efficiency.

One-Click Image Control

- ◆ Reset All: Restore default settings for next class.
- ◆ Sync Parameters: Apply image settings to all devices.
- ◆ Lock Mode: Prevent accidental edits by locking student image control functionalities.
- ◆ Capture & Archive: Auto-save all student images to tutor's computer by date/user.

One-Click Power Management

- ◆ Remote Shutdown: Turn off cameras, including Ei microscope lights and Android tablets that enable auto turn off.
- ◆ Restart cameras: Reboot all the student cameras.
- ◆ Reset Cameras: Factory-reset student devices in 25s. (All images, videos, user list will be deleted).

One-Click Background Control

- ◆ Batch Install: Deploy/upgrade apps (KoPa WiFi EDU AO & third-party Android apps).
- ◆ Desktop access: one click allows students to access their desktops.
- ◆ Desktop/Web Access: Enable student desktop or browser use (requires teacher-side internet connected).



E-Roll Call

Auto-detects online users with names (updates every 10s).



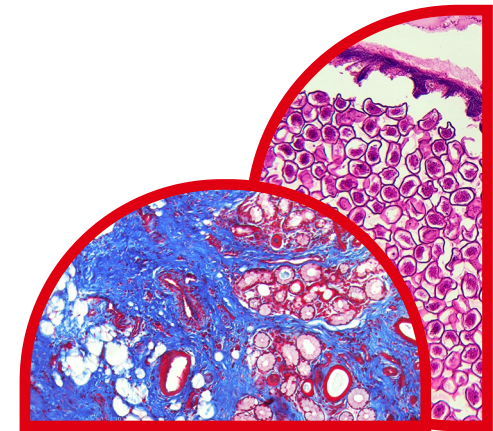
Batch Calibration

Sync teacher-set calibration values to all devices, eliminating manual student input.



Digital Whiteboard

Tools: Pen, arrows, text, undo/redo, eraser, delete, object edit, micro imaging/video, mouse-through. Supports live annotations and synchronized content sharing.





Compare Mode

- ◆ Display 2/4 student screens for static/dynamic/mixed comparisons.
- ◆ Compare teacher view with selected student feeds.

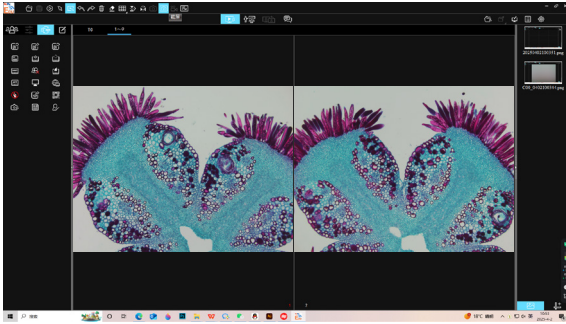
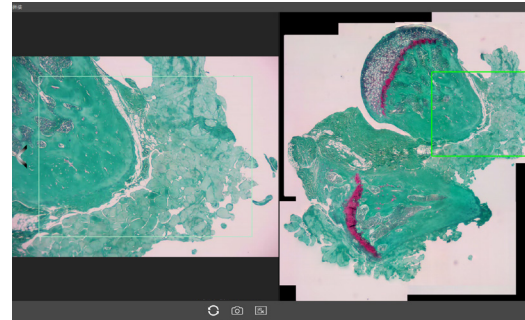


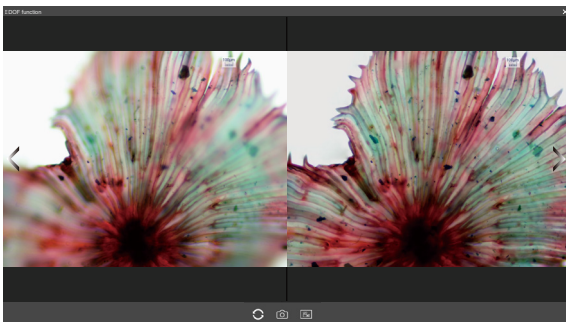
Image Stitching

Auto-stitches images in real-time while moving XY stage, generating full-sample panoramas.



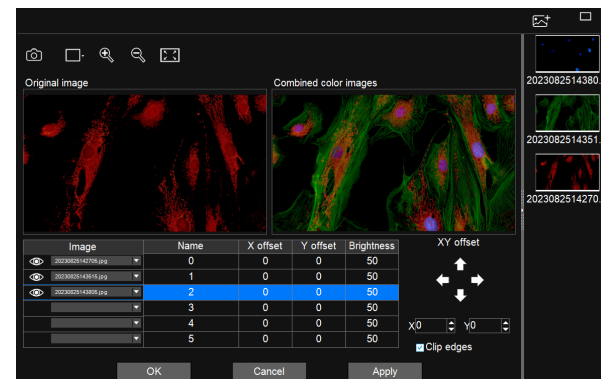
Focus Stacking

- ◆ AI-enhanced algorithm overcomes high-magnification depth limits.
- ◆ Achieve clearer multi-plane images via focal adjustments (no motorized stage required).



Composite Color Imaging

Overlay fluorescent images instantly.



3.2 Student-Side Embedded Smart APP: KoPa WiFi EDU AO for Android

A pre-installed Android app for Solutions ① & ②, auto-launching on startup. Mandatory for teaching (uninstall disabled), updatable via teacher-side.



Custom Boot Animation

Displays school logo/motto for student engagement.



User Login

Optional (teacher-controlled). Supports multi-user switching for shared devices; auto-creates dedicated folders per user.

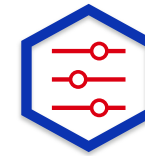
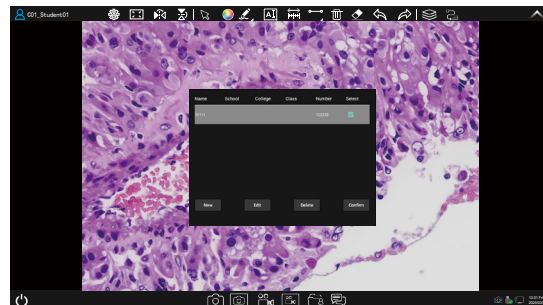
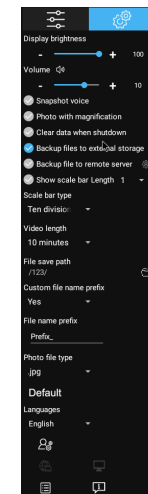
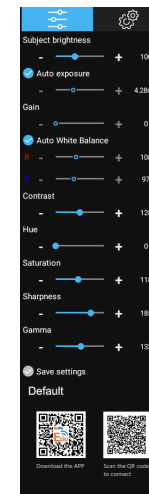


Image Adjustment



Preferences

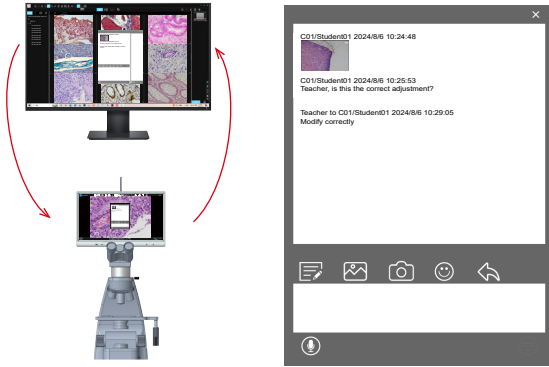
- ◆ Retains settings post-reboot. Adjusts brightness/exposure/white balance. Dual QR codes for mobile pairing.
- ◆ Set language/brightness/scale, backup to USB. Internet/system desktop access (admin-authorized).





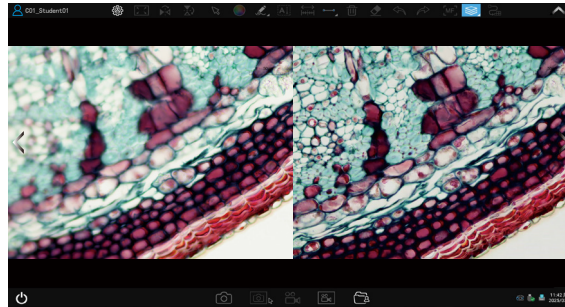
In-App Messaging

Text/image/voice communication with teacher. Files auto-archive to teacher-side; no peer to peer chat.



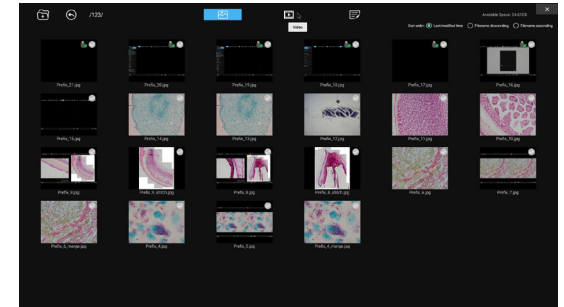
Focus Stacking

Advanced algorithm resolves high-mag depth limitations.



File Management

Browse, rename, send to teacher, or copy to USB drive.



Manual Cell Counting

Nuclear statistics with one-click report export.

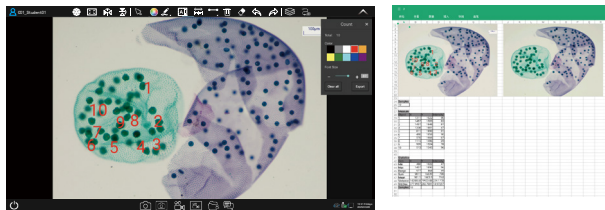
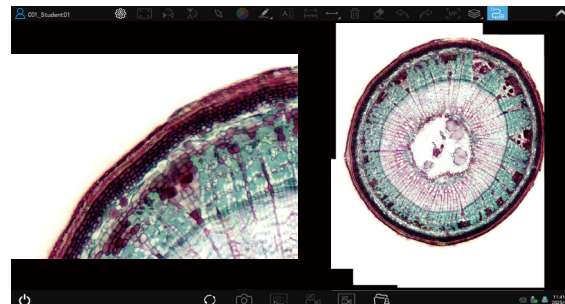


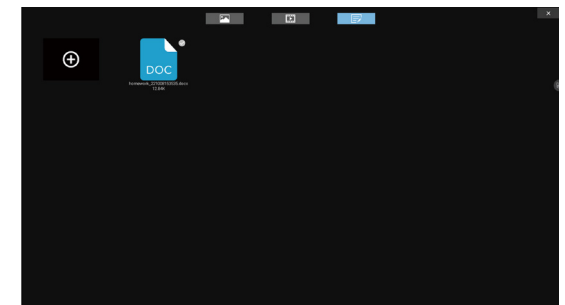
Image Stitching

Real-time XY-stage panorama stitching.



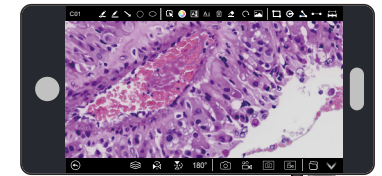
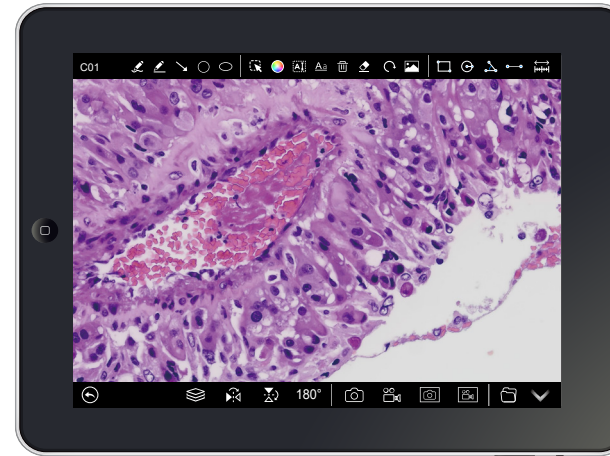
Lab Report Module

Built-in Office suite (Word/Excel/PPT) for report creation. Teachers share custom templates/-feedback.



3.3 Student Mobile App: KoPa WiFi EDU

Compatible with iOS and Android devices. Scan the QR code to access the microscope live image without manual password entry.



User Login

Login is determined by the teacher software settings. If required, students must enter a username. Supports multi-user switching and new user creation for shared device use. The system automatically generates a corresponding folder on the teacher's end.

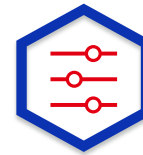
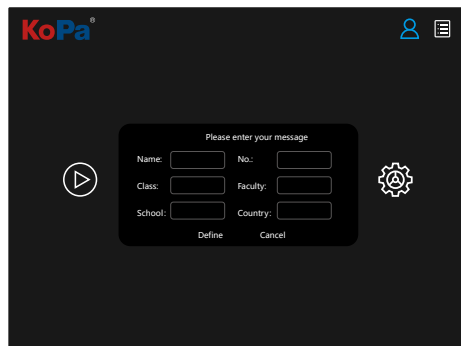
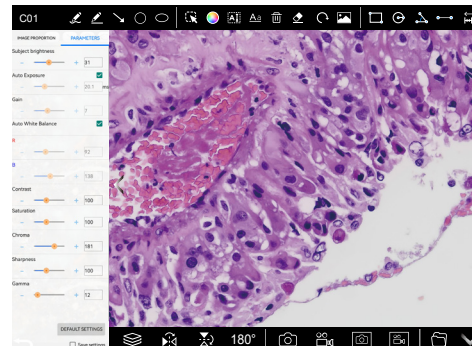


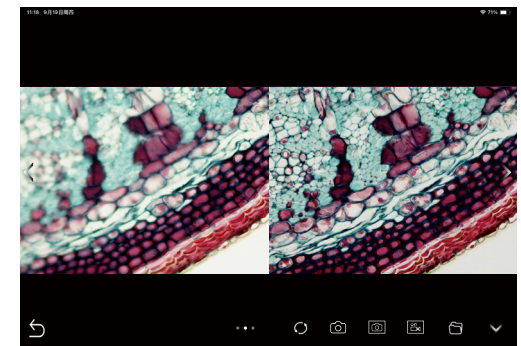
Image Adjustment

Features image property memory, restoring previous settings upon reboot. Adjustable parameters include brightness, exposure, gain, white balance, contrast, hue, saturation, sharpness, and gamma. Includes a one-click default reset.



Depth Fusion

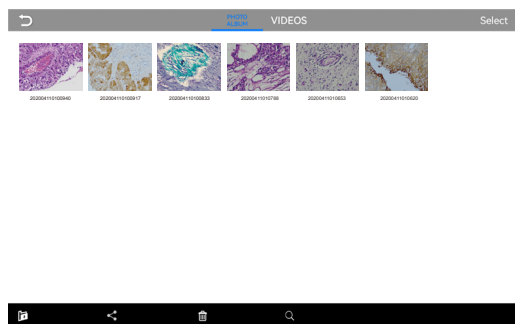
Utilizes advanced image processing and real-time fusion technology to address depth-of-field issues at high magnifications, delivering clearer images than single-frame captures.





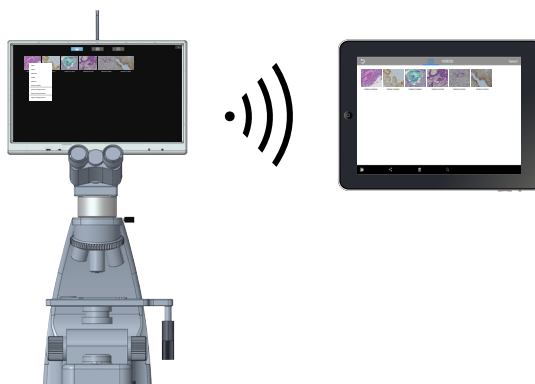
File Management

Supports browsing images and videos, renaming files, exporting to local albums, sharing on social networks, one-click deletion, and searching by file name.



Wireless USB-drive Function

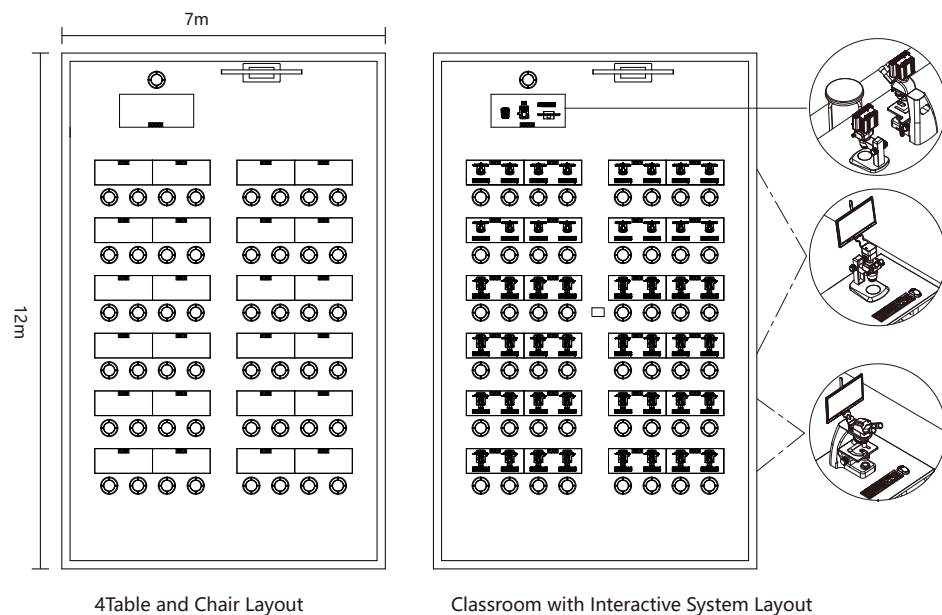
Supports wireless transfer of files/images from the student-side camera to tablets or smartphones, enabling easy data storage while eliminating virus risks associated with traditional USB drives.



4.2 Tailor-made layout of a new interactive classroom

When setting up a new interactive classroom, if you're unsure about the layout, simply provide the room's length, width, student or stations number. We'll design a custom layout for you at no cost.

Example: A 12m by 7m classroom layout for 48 students and 1 teacher station.

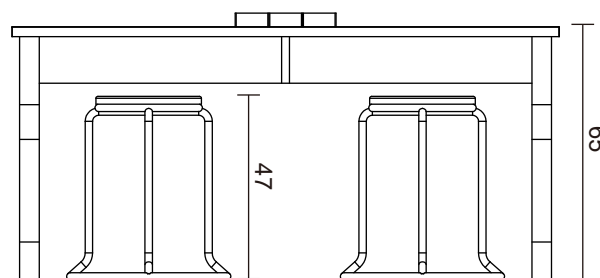


1. 86-inch smart TV: 880W
 2. Tutor's computer: 800W
 3. Interactive Workstation: 60W
 4. Student camera: 60W x 48=2880W
- Total power needed: 4680W

Note: The above is only the electric power required by the interactive system, and does not include other equipment (such as air conditioner, lighting, etc.)

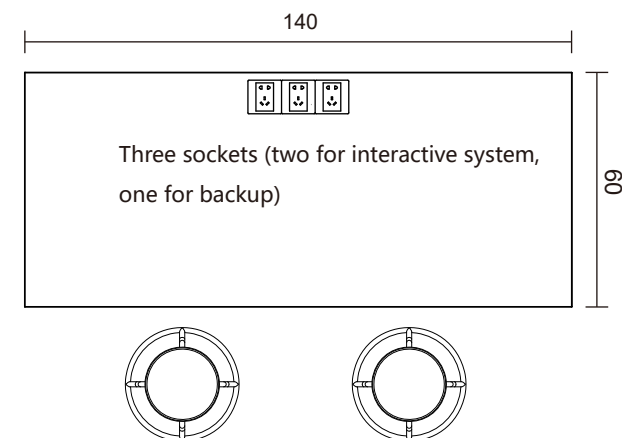
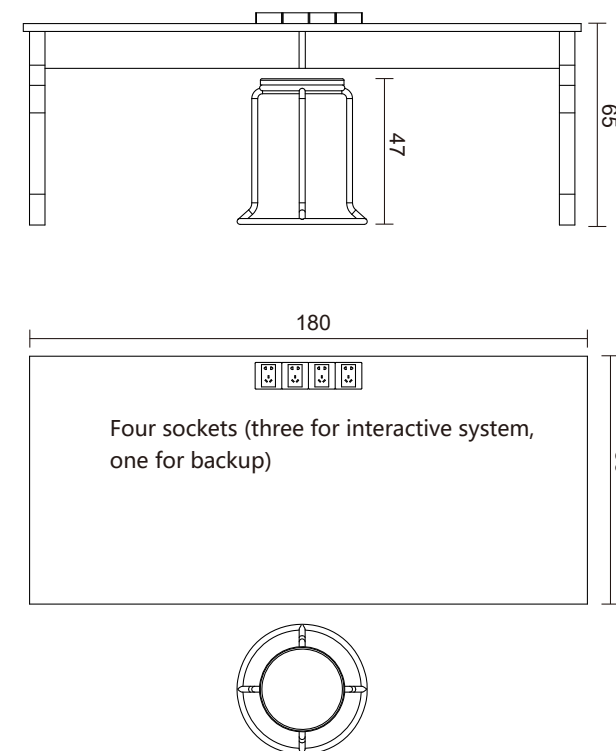
Student's desk and chair

Unit: cm



Tutor's desk and chair

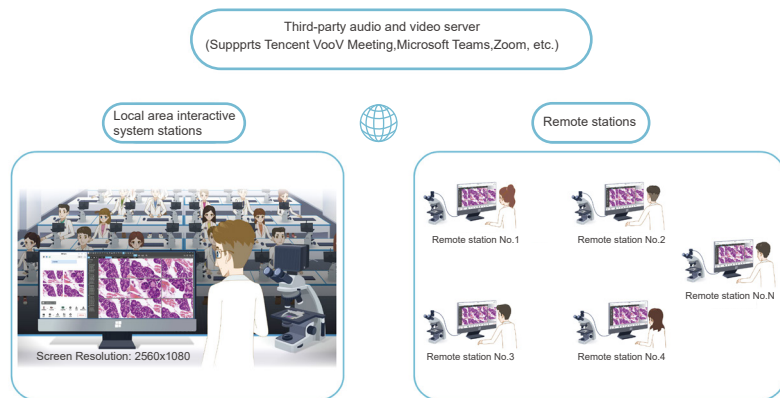
Unit: cm



5.1 Cloud-based Interactive System

Using a third-party audio and video server, such as commercial version of Tencent VooV Meeting, the remote and local area interactive systems can be carried out simultaneously.

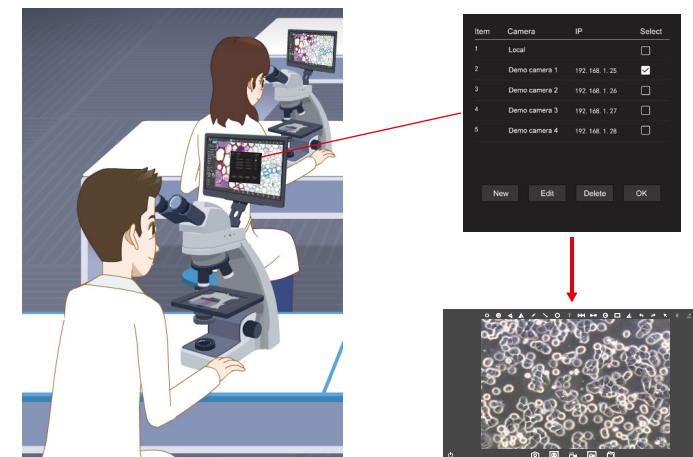
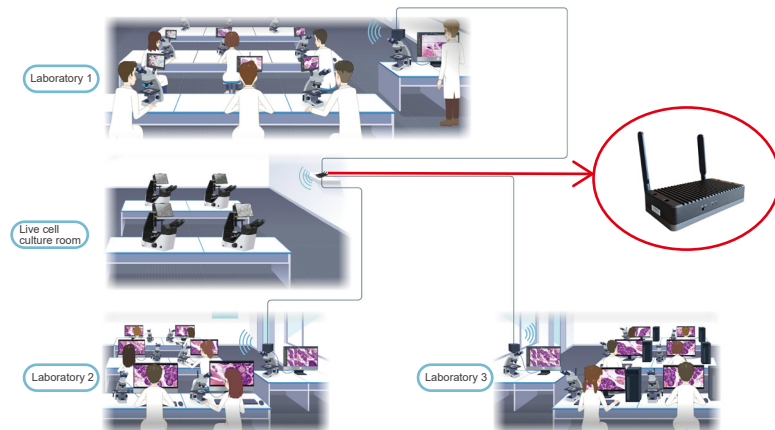
Cameras that want to join the interactive system through remote conferences need to support the standard UVC protocol and free of driver, so it is recommended to use the student solution ③ cameras. In this way, efficient sharing and collaboration with the 5G WiFi digital interactive system in the local area network can be realized.



5.2 Demostration Classroom

Independent 5G WiFi microscope digital interactive systems are installed in different classrooms. When you need to live stream image under microscopes in other classrooms, our "Demostration" function can easily help you achieve this goal, by using a ViMmatrix to connect the tutor interactive workstations in each classroom through network cables.

For example as follows, the student stations in the laboratory only need to select camera from list to call the real-time image of live cell culture under the inverted microscope, or switch back to the local real-time image of biological microscope.



KoPa[®] GuangZhou Ostec Electronic Technology Co.,Limited

Manufacturer: No.8 West Lane, Jiangcheng Road, Bangjiang East Village,Dalong street, Panyu District, Guangzhou, China.



High-Tech Enterprise certificate number:
GR202344009665



ISO9001 Verification No:00223Q26818R3S

The content of this leaflet has been reviewed by our company at the time of its release. Due to technological development, the actual product is subject to change without notice.

The names of other companies, product names, and trademarks recorded on this leaflet are owned by their companies

