

5G WiFi Digital Microscope Interactive System Installation and Use Manual

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1.1 Cautions and notes

- (1) To avoid danger or damage incurred to the lens, do not touch the lens or sensor directly with your fingers.
- (2) To avoid failure or electric shock hazard and so on, do not disassemble or modify the internal structure of the device.
- (3) Do not plug in or unplug the USB port or the HDMI port when hands are wet.
- (4) Do not use alcohol and other organic solvents to clean.
- (5) 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.
- (6) 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.
- (7) Please use and store in the following environment:
Operating temperature : 0°C~ 40°C;
Storage temperature: -10°C~ 60°C;
Operating Humidity : 30~60%RH;
Storage Humidity: 10~80%RH.
- (8) If any foreign matter, water or liquid enter into the device by accident, disconnect the USB cable immediately. Please send it to the maintenance center and do not use the hair dryer to dry it by yourself.
- (9) To prevent microscope from being tripped over or dropped, please put away the device's USB cables in use or standby.
- (10) To avoid electric shock by accident, please power off microscope before you move your Windows PC or laptop.
- (11) 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.
- (12) Registered trademark and copyright information: this product is copyrighted by GUANGZHOU OSTEC ELECTRONIC TECHNOLOGY CO.,LTD.Without written authorization of the company, any organization or individual shall not copy, print or translate any part of this article into another language.

2.1 Requirements for Windows systems running KoPa software

Windows System Requirements

- Microsoft Windows 10 (64 bit) or later version operating systems.
- CPU: i5 8th generation or later version.
- Hard drive: 512GB or more.
- Memory: 16GB or more.
- Graphics card: Core graphics.
- Network card: 10/100/1000M adaptive. Wireless NIC supports 5G WiFi IEEE802.11ac.

2.2 KoPa APP running requirements for Android and iOS systems







Android System Requirements






- Android System 7.0 or later version.
- CPU dual-core 1.7Ghz or later version.
- Memory RAM 3GB or more.
- Storage ROM 32GB or more.
- Support wireless protocol 5G WiFi IEEE802.11ac.








iOS System Requirements






- IOS System 11.0 or later version.
- CPU dual-core 1.8Ghz or later version.
- Memory RAM 2GB or more.
- Storage ROM 32GB or more.
- Support wireless protocol 5G WiFi IEEE802.11ac.

Chapter 3 Package List

Produce Name			Note
Student station	①Smart embedded display camera		Choose 1 of 6
	②Smart embedded camera		
	③WiFi embedded camera		
	④Smart display camera		
	⑤Smart camera		
	⑥WiFi camera		

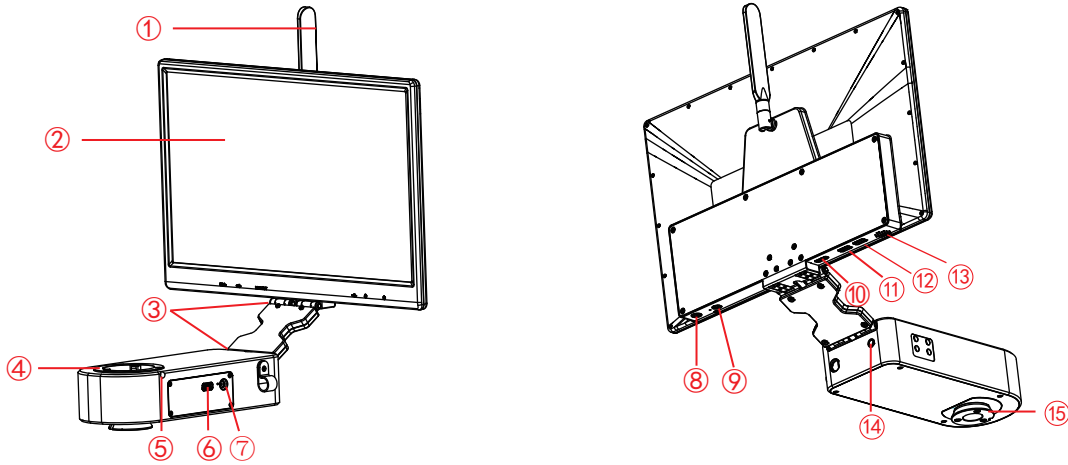
Student station accessories	①Wired mouse and keyboard (Solution①, ②)		
	②Allen key (3mm)		
	③Power adapter and power cord (Optional Chinese, American, European, Australian, Korean, British standard, etc.)		
	④Dust cover 40cm width (opening) * 59cm height * 40cm side; Material: Oxford		
	⑤Gigabit Ethernet cable (2m) (Solution③)		
	⑥USB to DC5.0 power cable (70cm) (Solution ①、②、③)		
Tutor station solution 1	①WiFi camera		2选1
	②WiFi embedded camera		

	③ViMatrix		
Tutor station solution 1 accessories	①Allen key (3mm)		
	②Power adapter and power cord (Optional Chinese, American, European, Australian, Korean, British standard, etc.)		
	③Dust cover 40cm width (opening) * 59cm height * 40cm side; Material: Oxford		
	④Gigabit Ethernet cable (15m)		
	⑤Triangle bracket		
	⑥Network extension adapter cable		

	⑦Power socket		
Tutor station solution 2	Interactive workstation		
Tutor station solution 2 accessories	①Allen key (3mm)		
	②Power adapter and power cord (Optional Chinese, American, European,Australian, Korean,British standard,etc.)		
	③Dust cover 40cm width (opening) * 59cm height * 40cm side; Material: Oxford		
	④Gigabit Ethernet cable (2m)		

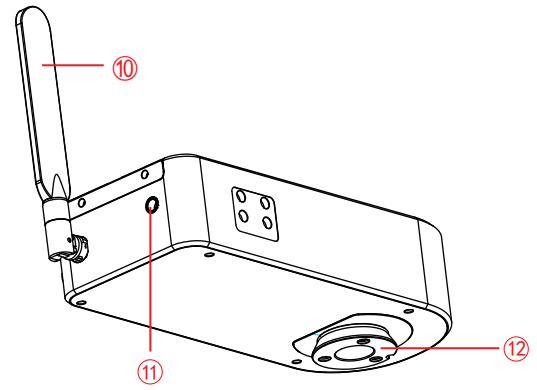
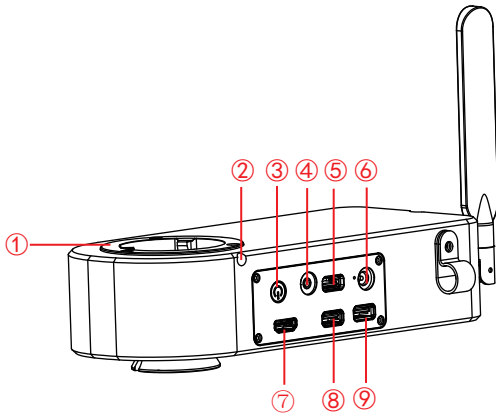
4.1 Camera parts introduction

4.1.1 Smart embedded display camera



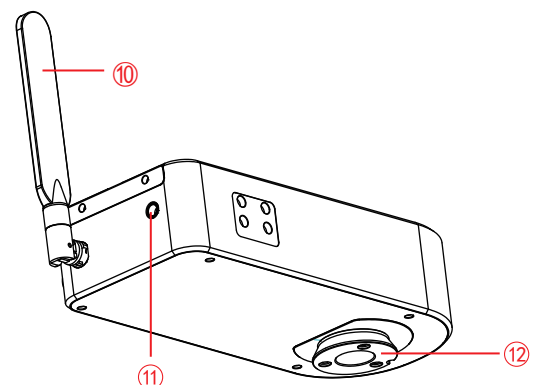
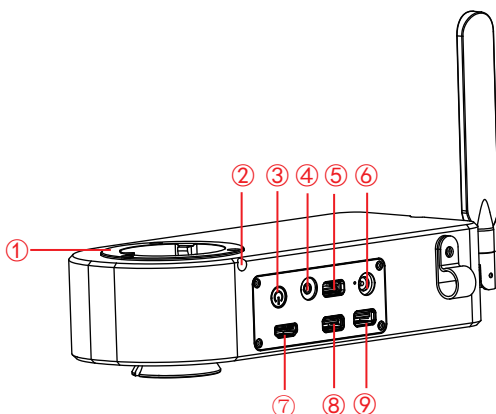
①	5G WiFi antenna	Enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
②	Display	IPS 1080P 15.6" high color gamut display.
③	Rotary shaft	Meet the display front and back, up and down flip.
④	Female interface	Connects to the eyepiece end of the binocular microscope.
⑤	Tighten the screws	Use the accessory Allen key to tighten the screws and fix the eyepiece of the microscope.
⑥	USB 2.0 interface	Output voltage is 5V, the maximum output current is 2A, can be connected to a mouse keyboard, U disk or for microscope (Olympus CX23 and Nikon Ei only) power supply.
⑦	Power input interface (DC 12V 5A)	Connect with the adapter in the accessories to achieve power supply to the camera.
⑧	Power switch	Switch on and off. Keep press for 4 seconds to power on / off.
⑨	Headphone and microphone interface	Connect with headset cable to achieve transmission of audio signals.
⑩	HDMI output interface	Through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
⑪	USB 3.0 interface	Can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑫	USB 2.0 interface	Can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑬	Speaker hole	Volume channel hole.
⑭	Easy focus hole	Internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑮	Male interface	Connected to the objective end of the binocular microscope.

4.1.2 Smart embedded camera



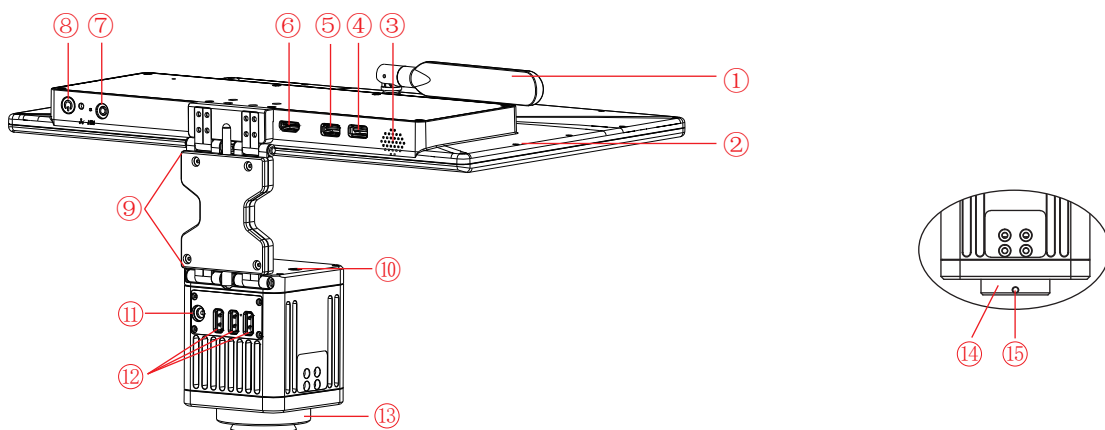
①	Female interface	connects to the eyepiece end of the binocular microscope.
②	Tighten the screws	use the accessory Allen key to tighten the screws and fix the eyepiece of the microscope.
③	Power switch	switch on and off. Keep press for 4 seconds to power on / off.
④	Headphone and microphone interface	connect with headset cable to achieve transmission of audio signals.
⑤	USB 2.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑥	Power input interface (DC 12V 5A)	connect with the adapter in the accessories to achieve power supply to the camera.
⑦	HDMI output interface	through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
⑧	USB 2.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑨	USB 3.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑩	5G WiFi antenna	enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
⑪	Easy focus hole	internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑫	Male interface	connected to the objective end of the binocular microscope.

4.1.3 WiFi embedded camera



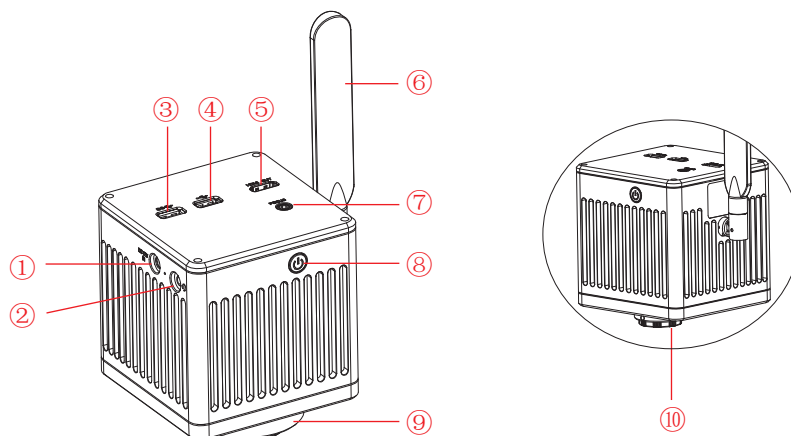
①	Female interface	connects to the eyepiece end of the binocular microscope.
②	Tighten the screws	use the accessory Allen key to tighten the screws and fix the eyepiece of the microscope.
③	Male interface	connected to the objective end of the binocular microscope.
④	ACT indicator	turn to WiFi, the indicator light is blue. turn to other gears, the indicator light does not light up.
⑤	USB / OFF / WiFi working mode switching	USB: when the USB cable connected to the computer, it can image acquisition through the computer software. OFF: turn off the power, the camera stops working on this time. WiFi: the wireless devices connect to the camera WiFi to image acquisition.
⑥	PWR (Power indicator)	turn to OFF, the indicator light is red. turn to USB or WiFi, the indicator light is green.
⑦	HDMI output interface (only for 12.0MP camera)	through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
⑧	5G WiFi antenna	enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
⑨	Easy focus hole	internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑩	USB output / power supply	turn to USB: connects to Windows PC for data transfer, and the Windows PC side can image acquisition through software. turn to WiFi: connects to adapter to enable powering the camera, and wireless devices can connect to the camera WiFi to image acquisition.
⑪	WAN network interface	WAN network interface: turn to WiFi: It can be connected to the router and access to the local area network, so that Windows PC, smartphones and tablets in the local area network can share the microscopic screen; it can also be directly connected to the Internet.

4.1.4 Smart display camera (C-mount or dovetail mount)



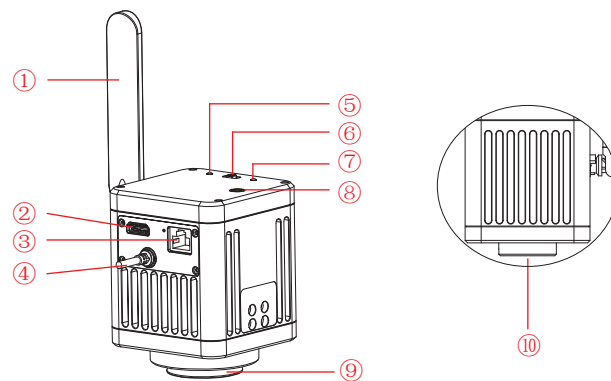
①	5G WiFi antenna	enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
②	Display	IPS 1080P 15.6" high color gamut display.
③	Speaker hole	volume channel hole.
④	USB 3.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑤	USB 2.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑥	HDMI output interface	through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
⑦	Headphone and microphone interface	connect with headset cable to achieve transmission of audio signals.
⑧	Power switch	switch on and off. Keep press for 4 seconds to power on / off.
⑨	Rotary shaft	meet the display front and back, up and down flip.
⑩	Easy focus hole (only for dovetail mount model)	internal filament focus structure is used to adjust the focal length of the camera imaging module to achieve synchronization between electronic imaging and observation under eyepiece.
⑪	Power input interface (DC 12V 5A)	output voltage is 5V, the maximum output current is 2A, can be connected to a mouse keyboard, U disk or for microscope (Olympus CX23 and Nikon Ei only) power supply.
⑫	USB 2.0 interface	connect with the adapter in the accessories to achieve power supply to the camera.
⑬	Dovetail mount	connect with the dovetail slot on the trinocular microscope.
⑭	Standard C -mount	connect with trinocular microscope which has C-mount.
⑮	Tightening screw hole	tighten it with a screw to fix the camera on a trinocular microscope.

4.1.5 Smart camera (C-mount or dovetail mount)



①	Power input interface (DC 12V 5A)	connect with the adapter in the accessories to achieve power supply to the camera.
②	Headphone and microphone interface	connect with headset cable to achieve transmission of audio signals.
③	USB 3.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
④	USB 2.0 interface	can be connected to a mouse, keyboard, U disk, convenient for the use of software.
⑤	HDMI output interface	through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
⑥	5G WiFi antenna	enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
⑦	Easy focus hole (only for dovetail mount model)	internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑧	Power switch	switch on and off. Keep press for 4 seconds to power on / off.
⑨	Dovetail mount	connect with the dovetail slot on the trinocular microscope.
⑩	Standard C -mount	connect with trinocular microscope which has C-mount.

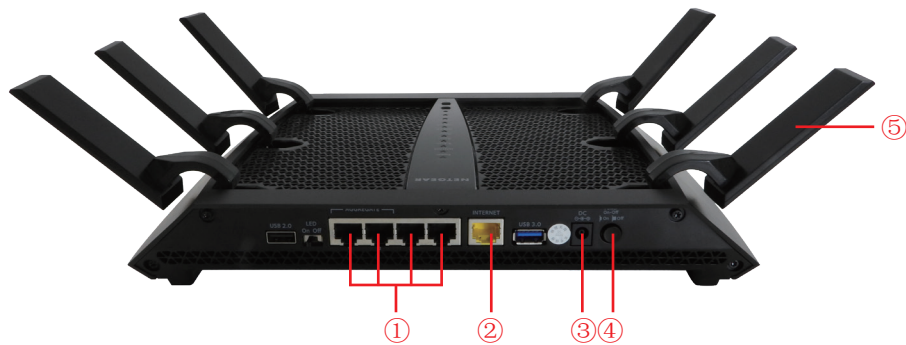
4.1.6 WiFi camera (C-mount or dovetail mount)



①	5G WiFi antenna	enhance the 5G WiFi signal transmission, to achieve wireless connection to the camera for image acquisition.
②	WAN network interface	turn to WiFi: It can be connected to the router and access to the local area network, so that Windows PC, smartphones and tablets in the local area network can share the microscopic screen; it can also be directly connected to the Internet.
③	HDMI output interface (only for 12.0MP camera)	through HDMI cable, connect with external monitor with HDMI interface to realize video, signal transmission, etc.
④	USB output / power supply	turn to USB: connects to Windows PC for data transfer, and the Windows PC side can image acquisition through software. turn to WiFi: connects to adapter to enable powering the camera, and wireless devices can connect to the camera WiFi to image acquisition.
⑤	PWR (Power indicator)	turn to OFF, the indicator light is red. turn to USB or WiFi, the indicator light is green.

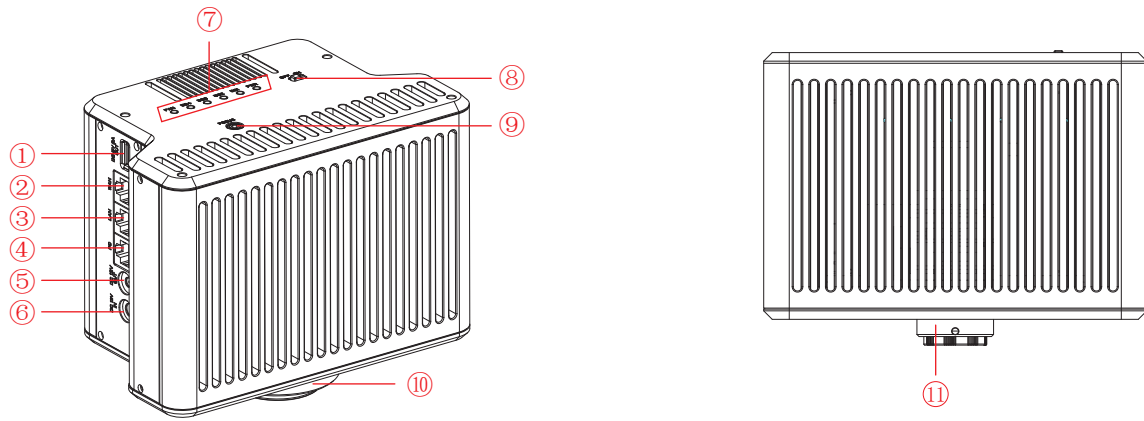
⑥	USB / OFF / WiFi working mode switching	USB: when the USB cable connected to the computer, it can image acquisition through the computer software. OFF: turn off the power, the camera stops working on this time. WiFi: the wireless devices connect to the camera WiFi to image acquisition.
⑦	ACT indicator:	turn to WiFi, the indicator light is blue. turn to other gears, the indicator light does not light up.
⑧	Easy focus hole (only for dovetail mount model)	internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑨	Dovetail mount	connect with the dovetail slot on the trinocular microscope.
⑩	Standard C -mount	connect with trinocular microscope which has C-mount.

4.2 ViMatrix parts introduction



①	Network interface side: LAN.
②	Network interface side: WAN.
③	Power interface: for power supply.
④	Switch button: switch on/off.
⑤	5G WiFi antenna: enhance 5G WiFi signal transmission to realize wireless network connection to the camera for image acquisition

4.3 Interactive workstation parts introduction



①	Power output interface (DC 5V 2A)	can power microscope (output voltage is 5V, maximum output current is 2A)
②	WAN network interface	it can be connected to the router and access to the local area network via network cable, so that Windows PC, smartphones and tablets in the local area network can share the microscopic screen; it can also be directly connected to the Internet.
③	LAN network interface	it can be connected to the Windows PC via network cable for data transfer, and the Windows PC side can image acquisition through software.
④	PC interface	it can be connected to the Windows PC via network cable for data transfer, and the Windows PC side can image acquisition through software.
⑤	Power output interface (DC 12V 1A)	can power microscope (output voltage is 12V, maximum output current is 1A).
⑥	Power input interface (DC 12V 5A)	connect with the adapter in the accessories to achieve power supply to the camera.
⑦	FAN / 5G4 / 5G3 / 5G2 / 5G1 / PWR indicator	FAN: when the indicator light is on, it means the cooling fan is faulty. 5G4 / 5G3 / 5G2 / 5G1: when the indicator light is on, it means the corresponding 5G channel of the product is running; when the indicator light is blinking, it means there is a device accessing the corresponding 5G channel or there is data transmission in the channel. PWR: it is in standby mode when the red light is on, and in on mode when the green light is on.
⑧	Power switch (OFF / ON)	dial to ON for power on, need to wait about 30 seconds; dial to OFF for power off, need to wait about 5 seconds.
⑨	Easy focus hole (only for dovetail mount model)	internal filament focus structure is used to adjust the 0.43X field lens of the camera to achieve par-focal with electronic imaging and observation under eyepiece.
⑩	Dovetail mount	connect with the dovetail slot on the trinocular microscope.
⑪	Standard C -mount	connect with trinocular microscope which has C-mount.

5.1 Smart embedded display camera install to a binocular microscope

(1) Separate the objective end of the binocular microscope from the eyepiece end, as shown in Figure 1:

- 1) Loosening the fixation screws of the binocular microscope;
- 2) Remove the eyepiece end of the microscope.

(2) Installation for smart embedded display camera:

- 1) Snap the smart embedded display camera to the objective end of the microscope, oriented as in Figure 2;
- 2) Tighten the fastening screws on the objective end of the microscope, fix the smart embedded display camera on the microscope.

(3) Installation for the objective end of the microscope, as shown in Figure 3:

- 1) Snap the eyepiece end of the microscope to the female interface end of the smart embedded display camera;
- 2) Tighten the fastening screws of the smart embedded display camera and fix the eyepiece end of the microscope on the smart embedded display camera.

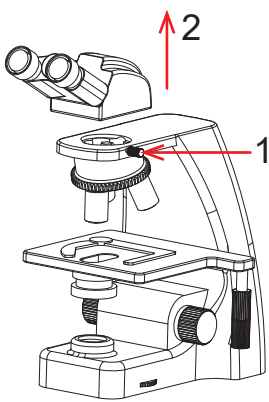


Figure 1

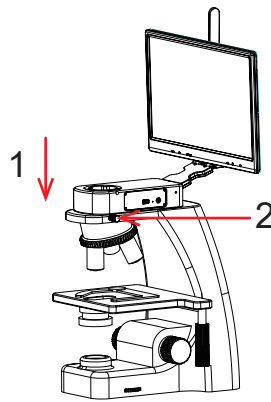


Figure 2

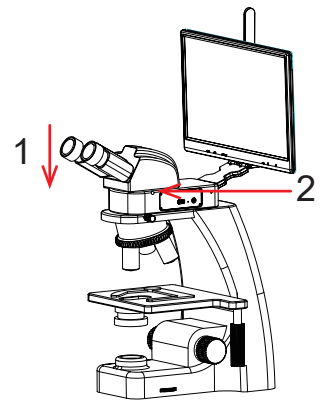


Figure 3

(4) The adapter interface is inserted into the power hole of the display screen, and then the adapter is connected to 110-240V AC power, as shown in Figure 4:

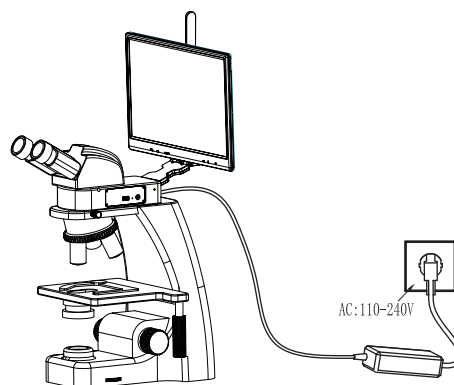


Figure 4

5.2 Smart embedded camera install to a binocular microscope

(1) Separate the objective end of the binocular microscope from the eyepiece end, as shown in Figure 5:

- 1) Loosening the fixation screws of the binocular microscope;
- 2) Remove the eyepiece end of the microscope.

(2) Installation for smart embedded camera:

- 1) Snap the smart embedded camera to the objective end of the microscope, oriented as in Figure 6;
- 2) Tighten the fastening screws on the objective end of the microscope, fix the smart embedded camera on the microscope.

(3) Installation for the objective end of the microscope, as shown in Figure 7:

- 1) Snap the eyepiece end of the microscope to the female interface end of the smart embedded camera;
- 2) Tighten the fastening screws of the smart embedded camera and fix the eyepiece end of the microscope on the smart embedded camera.

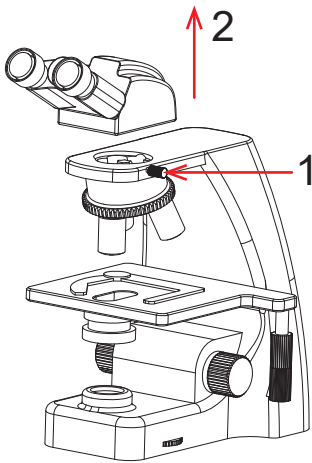


Figure 5

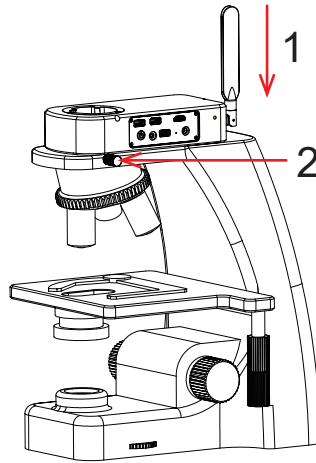


Figure 6

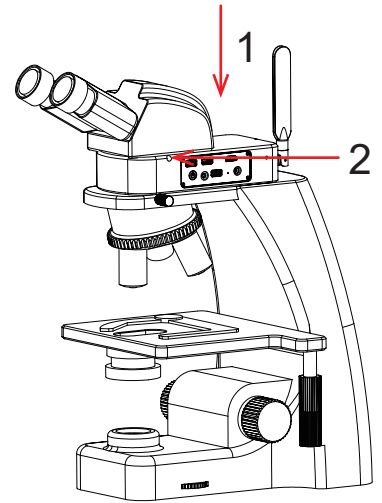


Figure 7

5.3 WiFi embedded camera install to a binocular microscope

(1) Separate the objective end of the binocular microscope from the eyepiece end, as shown in Figure 8:

- 1) Loosening the fixation screws of the binocular microscope;
- 2) Remove the eyepiece end of the microscope.

(2) Installation for WiFi embedded camera:

- 1) Snap the WiFi embedded camera to the objective end of the microscope, oriented as in Figure 9;
- 2) Tighten the fastening screws on the objective end of the microscope, fix the WiFi embedded camera on the microscope.

(3) Installation for the objective end of the microscope, as shown in Figure 10:

- 1) Snap the eyepiece end of the microscope to the female interface end of the WiFi embedded camera;
- 2) Tighten the fastening screws of the WiFi embedded camera and fix the eyepiece end of the microscope on the WiFi embedded camera.

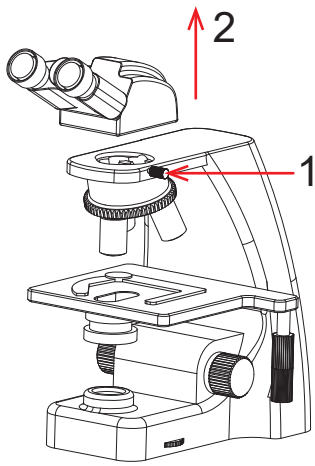


Figure 8

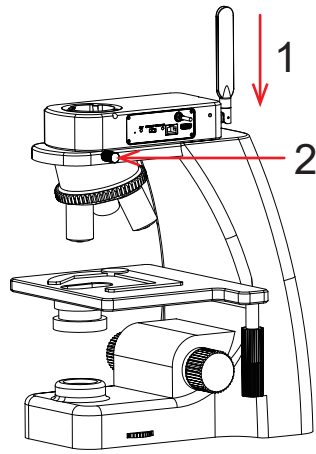


Figure 9

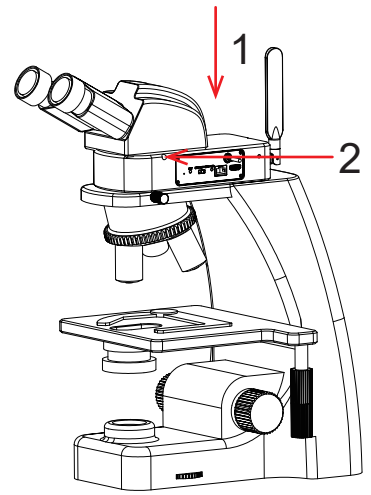


Figure 10

5.4 Smart display camera install to a trinocular microscope

- (1) Remove the dust cover of microscope dovetail slot or standard C -mount, as shown in Figure 11.
- (2) Snap the camera onto the dovetail slot or screw it onto the standard C -mount of the microscope, oriented as in Figure 12; tighten the fastening screws on the dovetail slot of the microscope, fix the camera on the microscope.

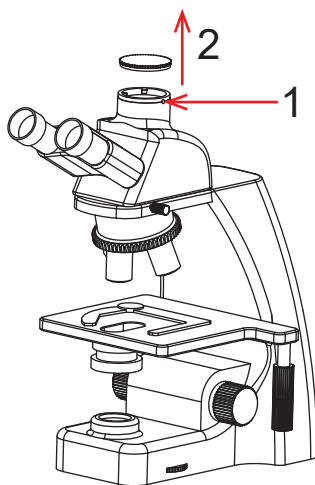


Figure 11

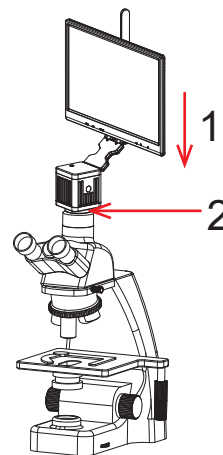


Figure 12

5.5 Smart camera install to a trinocular microscope

- (1) Remove the dust cover of microscope dovetail slot or standard C -mount, as shown in Figure 13.
- (2) Snap the camera onto the dovetail slot or screw it onto the standard C -mount of the microscope, oriented as in Figure 14; tighten the fastening screws on the dovetail slot of the microscope, fix the camera on the microscope.

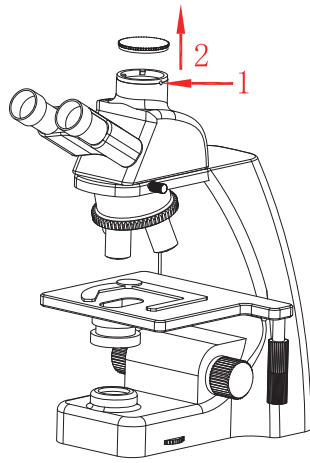


Figure 13

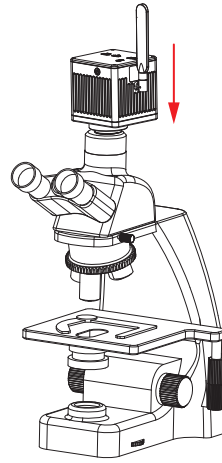


Figure 14

5.6 WiFi camera install to a trinocular microscope

- (1) Remove the dust cover of microscope dovetail slot or standard C -mount, as shown in Figure 15.
- (2) Snap the camera onto the dovetail slot or screw it onto the standard C -mount of the microscope, oriented as in Figure 16; tighten the fastening screws on the dovetail slot of the microscope, fix the camera on the microscope.

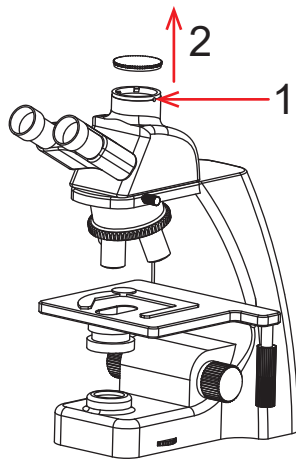


Figure 15

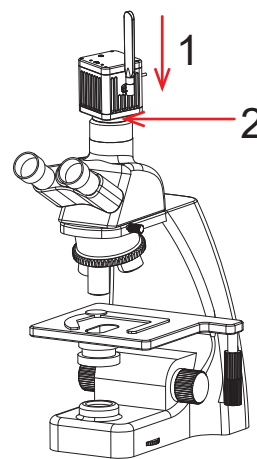


Figure 16

6.1 Student station connection

After mounting the student station camera on the microscope, connect the Windows PC with the camera's USB cable as shown in Figure 1 below:

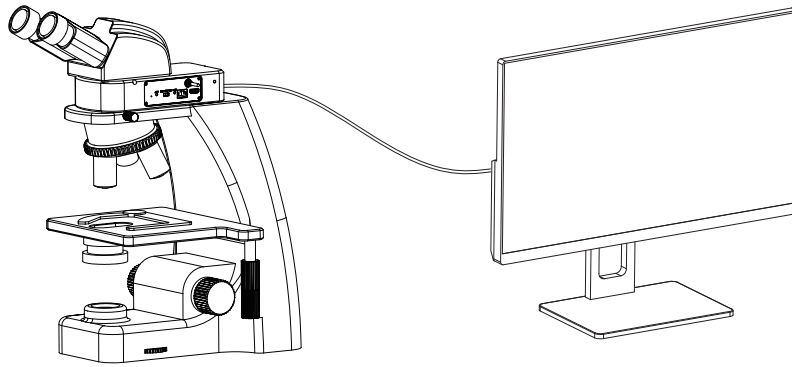


Figure 1

6.2 Connect tutor camera to the ViMatrix and computer

- (1) After mounting the tutor camera on the microscope, connect the Windows PC with the camera's USB cable.
- (2) Connect the Windows PC to the ViMatrix LAN port with a long network cable, as shown in Figure 2 below.

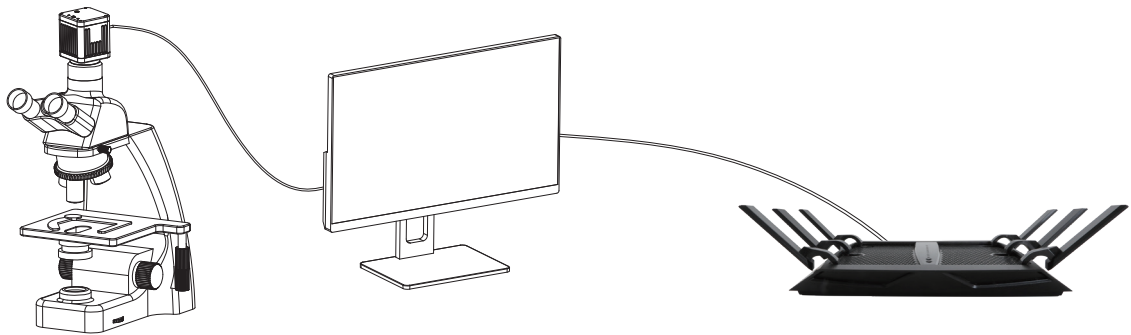


Figure 2

- (3) Power the ViMatrix to a 110-240V AC socket, as shown in Figure 3 below:



Figure 3

(4) If needed , connect the WAN port of ViMatrix with a network cable to the Internet, as shown in Figure 4 below.

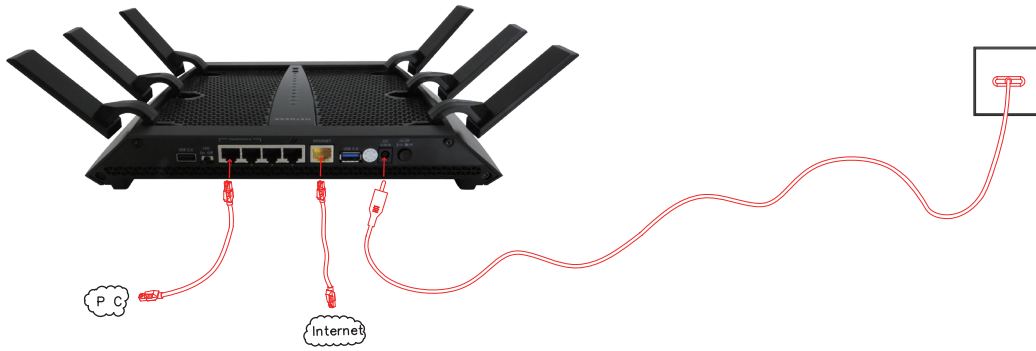


Figure 4

6.3 Connect interactive workstation to computer

(1) After mounting the tutor station interactive workstation on the microscope, connect the camera's PC LAN port to the Windows computer using a network cable, as shown in Figure 5 below:

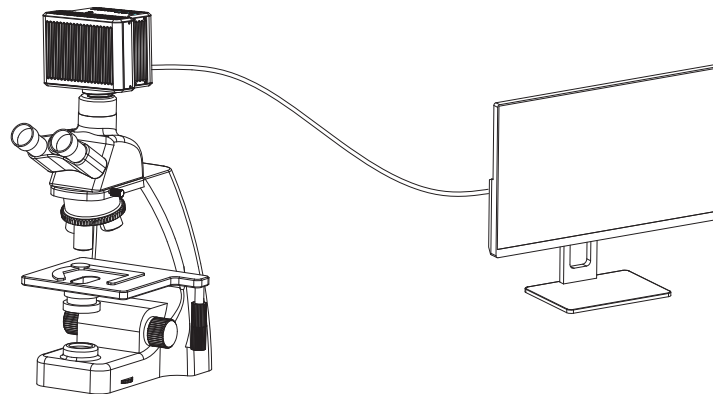


Figure 5

(2) Power the interactive workstation to a 110-240V AC socket, as shown in Figure 6 below.

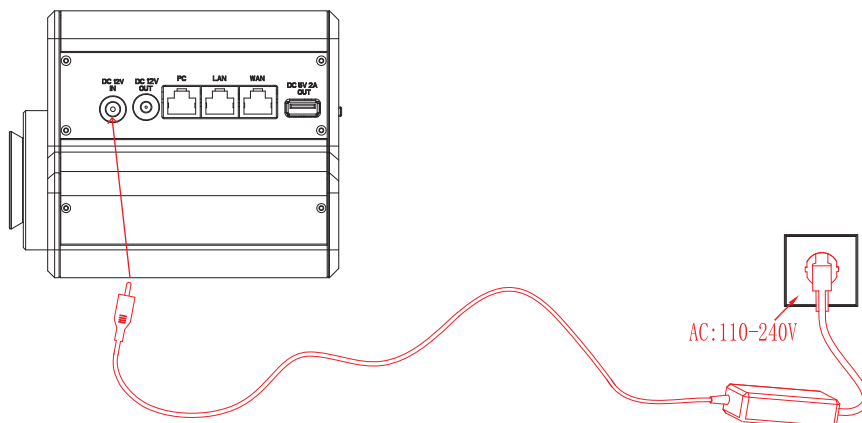


Figure 6

(3) If needed, connect the WAN port of the interactive workstation with a network cable to the Internet, as shown in Figure 7 below.

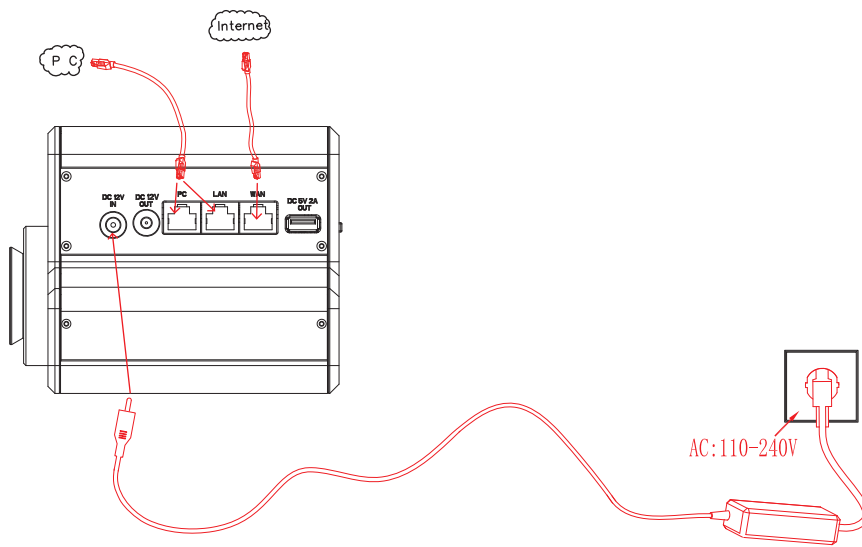


Figure 7

Note the power-on sequence requirements:

The first step: first the ViMatrix / interactive workstation power on, wait for about 1 minute. (Allow the ViMatrix / interactive workstation to be in the power-on state for a long time)

Step 2: Wait for the signal indicator to stabilize before starting the power supply of all the cameras on the student station and the tutor station.

If the above power-on sequence is not followed, it is possible that the Windows PC on the tutor station will not be able to capture all of the camera images. At this point, simply turn off all power and start in the correct sequence.

Chapter 7 Disclaimer

(1) In order to protect the legitimate rights and interests of users, please carefully read the instructions, disclaimers and safety instructions provided with this product before using it. The company reserves the right to update the above documents. Please operate the product according to the instructions and safety instructions.

(2) Once you begin to use the product, you shall be deemed to have read, understood, recognized and accepted all terms and contents of the product's instructions, disclaimers and safety instructions. Users undertake to be responsible for their actions and all consequences. User undertakes to use the product only for legitimate purposes and agrees to these terms and any relevant policies or guidelines that the company may establish.

(3) In the process of using this product, please strictly abide by and execute the requirements including but not limited to the instructions and safety instructions. All personal injuries, accidents, property losses, legal disputes and other adverse events that cause conflicts of interest caused by violation of the safety instructions or irresistible factors shall be borne by users themselves, and the company shall not assume any responsibility.

(4) Safety instructions:

- 1) Please do not use wet hands to plug and unplug the power supply of the equipment.
- 2) Please be sure to use a regular brand power socket, and make sure the grounding is well grounded to prevent electric shock.
- 3) Please be sure to make regular safety checks on sockets and plugs to avoid potential electrical safety hazards caused by aging and short circuit.
- 4) Please be sure not to use the product in a humid or hot environment to ensure the safety of the product.
- 5) Please be sure to loosen bundle cords of the power cable before using, to avoid electromagnetic induction and heating, thus increasing the heat dissipation speed.
- 6) Please be sure not to use the product equipment or socket or other places in high or easy to fall, so as to avoid damage.
- 7) Before opening the socket power supply, please be sure to turn off the load power switch of the product equipment.
- 8) The company reserves the rights to improve product, upgrade technology and change parameters without prior notice.

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