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## XCAMTOP4K Series Camera Help Manual



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## 1 XCAMTOP4K Series Camera Application



Figure 1 The XCAMTOP4K Series Camera

The XCAMTOP4K series camera is intended for acquisition of digital images from stereo microscopes, biological microscopes, or online interactive teaching. The basic characteristic is listed as below:

- Sony Exmor/STARVIS back-illuminated CMOS sensor
- 4K HDMI/ NETWORK/ USB multiple video outputs
- 4K/1080P auto switching according to monitor resolution
- SD card/USB flash drive for captured image and video storage, support local preview and playback
- Embedded XCAMView for the control of the camera and image processing
- Excellent ISP with local tone mapping and 3D denoising
- ToupView/ToupLite software for PC
- iOS/Android applications for smart phones or tablets

## 2 XCAMTOP4K Series Camera Datasheet and Functions (2)

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure(ms)
<a href="#">XCAMTOP4K8MPA</a>	Sony IMX334(C) 1/1.8"(7.68x4.32)	2.0x2.0	505mv with 1/30s 0.1mv with 1/30s	30@3840*2160(HDMI) 30@3840*2160(NETWORK) 30@3840*2160(USB)	1x1	0.04~1000
<a href="#">XCAMTOP4K8MPB</a>	Sony IMX485(C) 1/1.2"(11.14x6.26)	2.9x2.9	2188mv with 1/30s 0.39mv with 1/30s	30@3840*2160(HDMI) 30@3840*2160(NETWORK) 30@3840*2160(USB)	1x1	0.04~1000



Figure 2 Available Ports on the Back Panel of the Camera Body

Interface or Button	Function Description
<a href="#">USB Mouse</a>	Connect USB mouse for easy operation with embedded <a href="#">XCAMView</a> software
<a href="#">USB2.0</a>	Connect USB flash drive to save pictures and videos Connect 5G WLAN module to transfer video wirelessly in real time
<a href="#">USB Video</a>	Connect PC or other host device to realize video image transmission

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HDMI	Comply with HDMI1.4 standard. 4K/1080P format video output and supporting automatic switch between 4K and 1080P format according to the connected monitors
LAN	LAN port to connect router and switch to transfer video
SD	Comply with SDIO3.0 standard and SD card could be inserted for video and images saving
ON/OFF	Power switch
LED	LED status indicator
DC12V	Power adapter connection (12V/1A)
<b>Video Output Interface</b>	<b>Function Description</b>
HDMI Interface	Comply with HDMI1.4 standard 30fps@4K or 30fps@1080P
LAN Interface	support real time resolution switching(4K/1080P/720P) H264 encoded video DHCP configuration or manual configuration Unicast/multicast configuration
WLAN Interface	Connecting 5G WLAN adapter (USB2.0 slot) in AP/STA mode
USB Video Interface	Connecting USB Video port of PC for video transfer MJPEG format video
<b>Other Function</b>	<b>Function Description</b>
Video Saving	Video format: 8M(3840*2160) H264/H265 encoded MP4 file Video saving frame rate: 30fps
Image Capture	8M (3840*2160) JPEG/TIFF image in SD card or USB flash drive
Measurement Saving	Measurement information saved in different layer with image content Measurement information is saved together with image content in burn in mode
ISP	Exposure(Automatic / Manual Exposure) / Gain, White Balance(Manual / Automatic / ROI Mode), Sharpening, 3D Denoise, Saturation Adjustment, Contrast Adjustment, Brightness Adjustment, Gamma Adjustment, Color to Gray, 50HZ/60HZ Anti-flicker Function
Image Operation	Zoom In/Zoom Out(Up to 10X), Mirror/Flip, Freeze, Cross Line, Compare(Comparison between real time video and images in SD card or USB flash drive ), Embedded Files Browser, Video Playback, Measurement Function
Embedded RTC(Optional)	To support accurate time on board
Restore Factory Settings	Restore camera parameters to its factory status
Multiple Language Support	English / Simplified Chinese / Traditional Chinese / Korean / Thailand / French / German / Japanese / Italian / Russian
<b>Software ToupView/ToupLite Environment under LAN/WLAN/USB Video Output</b>	
White Balance	Auto White Balance
Color Technique	Ultra-Fine Color Engine
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc)
Recording System	Still Picture or Movie
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 8.1 /10(32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 4GB or More
	Ethernet Port: RJ45 Ethernet Port
	Display:19" or Larger
	CD-ROM
<b>Operating Environment</b>	
Operating Temperature (in Centidegree)	-10°~ 50°
Storage Temperature (in Centidegree)	-20°~ 60°
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 12V/1A Adapter

### 3 Dimension of XCAMTOP4K Series

Installation drawings(Click to enlarge). The XCAMTOP4K series camera body, made from tough, CNC aluminum alloy, ensures a heavy duty, workhorse solution. The camera is designed with a high quality IR-CUT to protect the camera sensor. No moving parts included. This design ensures a rugged, robust solution with an increased lifespan when compared to other industrial camera solutions.



Figure 3 Dimension of XCAMTOP4K Series

### 4 XCAMTOP4K Series Camera Packing Information



Figure 4 XCAMTOP4K Series Camera Packing Information

Standard Packing List	
A	Gift box : L:25.5cm W:17.0cm H:9.0cm (1pcs, 1.57Kg/ box)
B	XCAMTOP4K Camera
C	Power Adapter: Input: AC 100~240V 50Hz/60Hz, Output: DC 12V 1A American standard: Model: POWER-U-12V1A(MSA-C1000IC12.0-12W-US): UL/CE/FCC European standard: Model: POWER-E-12V1A(MSA-C1000IC12.0-12W-DE): UL/CE/FCC EMI standard: FCC Part 15 Subpart B EMS standard: EN61000-4-2,3,4,5,6
D	USB Mouse
E	HDMI Cable

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<b>F</b>	USB2.0 A male to A male gold-plated connectors cable /2.0m		
<b>G</b>	CD (Driver & utilities software, Ø12cm)		
<b>Optional Accessory</b>			
<b>H</b>	SD Card(16G or above; Speed: class 10)		
<b>I</b>	Adjustable lens adapter	C-Mount to Dia.23.2mm Eyepiece Tube (Please choose 1 of them for your microscope)	108001/AMA037 108002/AMA050 108003/AMA075
<b>J</b>	Fixed lens adapter	C-Mount to Dia.23.2mm Eyepiece Tube (Please choose 1 of them for your microscope)	108005/FMA037 108006/FMA050 108007/FMA075
<b>Note:</b> For <b>I</b> and <b>J</b> optional items, please specify your camera type(C-mount, microscope camera or telescope camera), ToupTek engineer will help you to determine the right microscope or telescope camera adapter for your application;			
<b>K</b>	108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube		
<b>L</b>	108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube		
<b>M</b>	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)	
<b>N</b>	USB flash drive		
<b>O</b>	USB WLAN adapter		
<b>P</b>	Ethernet cable		

## 5 Software and App

The software or the APP can be downloaded from the following link:

Windows: <https://www.touptekphotonics.com/download/>

Linux & macOS: <https://www.touptekphotonics.com/download/>

iOS: <https://itunes.apple.com/us/app/toupview/id911644970>

Android: <https://play.google.com/store/apps/details?id=com.touptek.tpview>

## 6 XCAMTOP4K Series Camera Configurations

You can use the XCAMTOP4K series camera in 5 different ways. Each application requires different hardware environment.

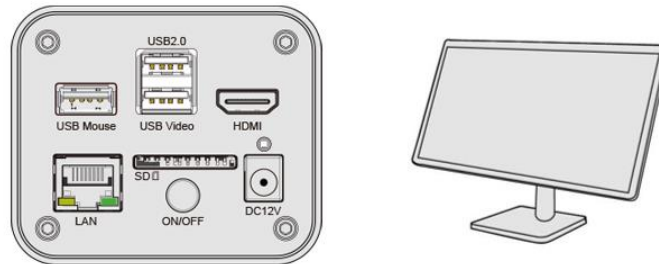
### 6.1 Camera working standalone with built-in XCAMView software

For this application, apart from the microscope, you only need an HDMI monitor, the supplied USB mouse, and the camera embedded XCAMView software. A computer or a network connection is not required to operate the camera in this application. The steps to start the camera are listed as below:

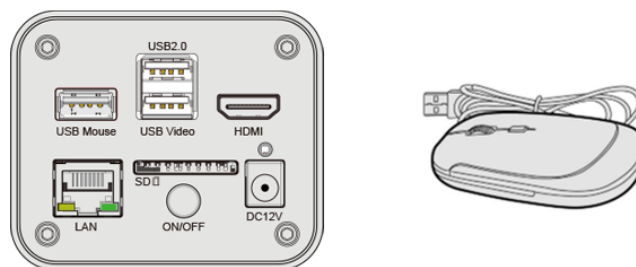


Figure 5 XCAMTOP4K Series Camera with the HDMI Monitor

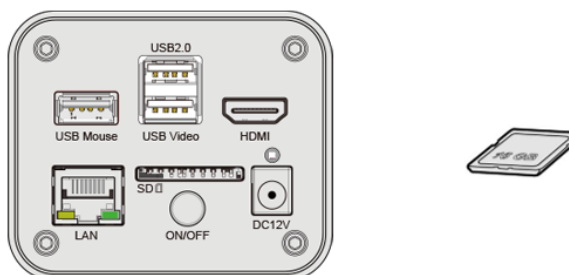
Connect the camera to a HDMI monitor using the HDMI cable;



Insert the supplied USB mouse to the camera's USB port;

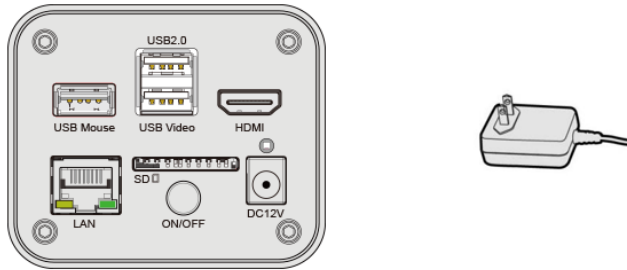


Insert the supplied SD card/USB flash drive (USB2.0 slot) into the XCAMTOP4K series camera SD card slot/USB2.0 slot;



Connect the camera to the power adapter and turn it on;





Turn on the monitor and view the video in the [XCAMView](#) software. Move the mouse to the left, top or bottom of the [XCAMView](#) UI, different control panel or toolbar will pop up and users could operate with the mouse at ease.

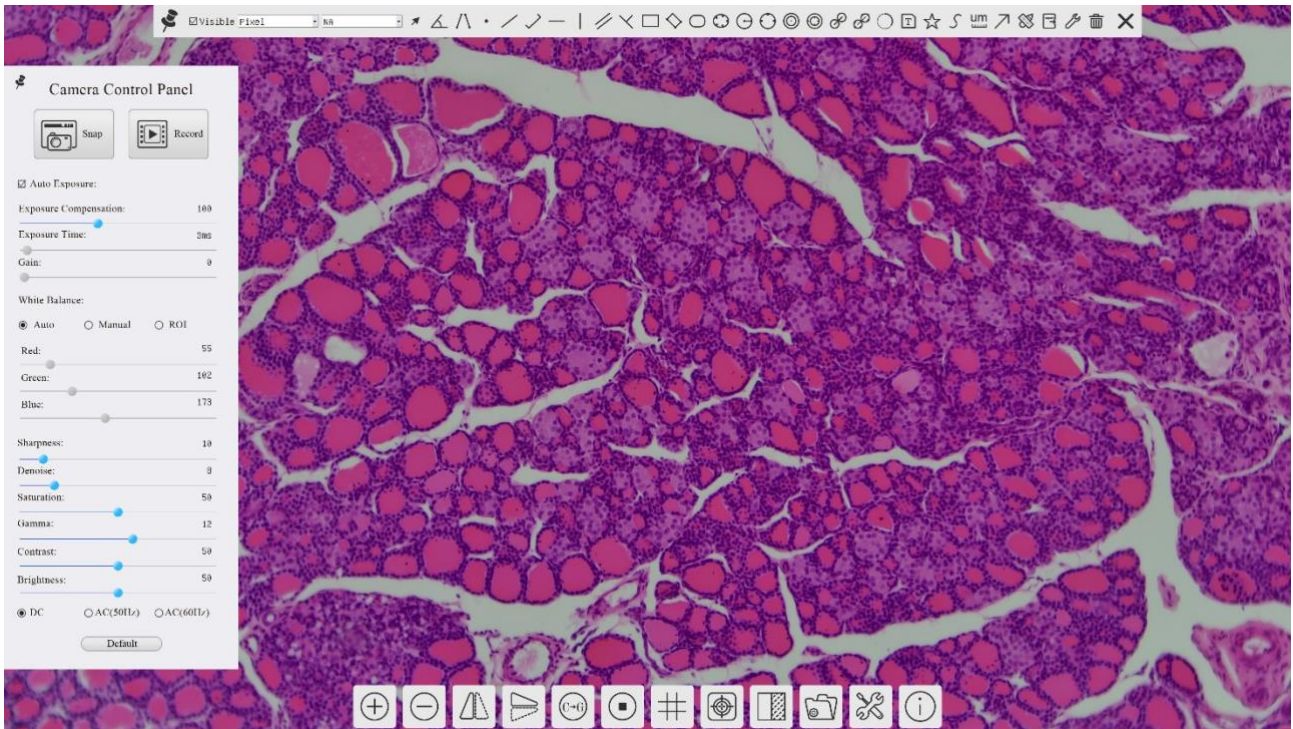


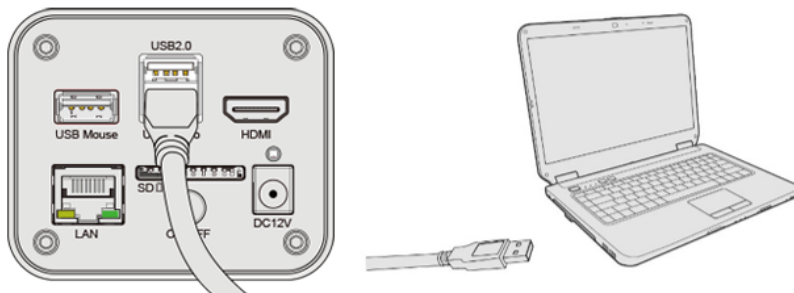
Figure 6 XCAMView And XCAMTOP4K Series Camera in HDMI Mode

## 6.2 Connecting camera to computers with USB2.0 Port

For Windows user (Windows XP (32bit), Windows 7/8/10/11 (32/64 bit) ), please use [ToupView](#).

For macOS and Linux user (macOS 10.10 or above or Linux distributions with kernel 2.6.27 or higher), please use [ToupLite](#). The steps to start the camera are listed below:

Start the camera according to Sec. 6.1. After the camera is running, connect camera to computer with USB cable. Please use “[USB Video](#)” slot, NOT “[USB Mouse](#)” slot as shown below.



Install [ToupView/ToupLite](#) on your PC or install [ToupView App](#) on the mobile device; Run the software [ToupView/ToupLite](#), clicking the camera name in the camera list n to start the live video as shown in Figure 7.

### Notice:

After the USB cable is connected, the mouse will not work. If you want to use the mouse, please unplug the USB cable and restart the camera.



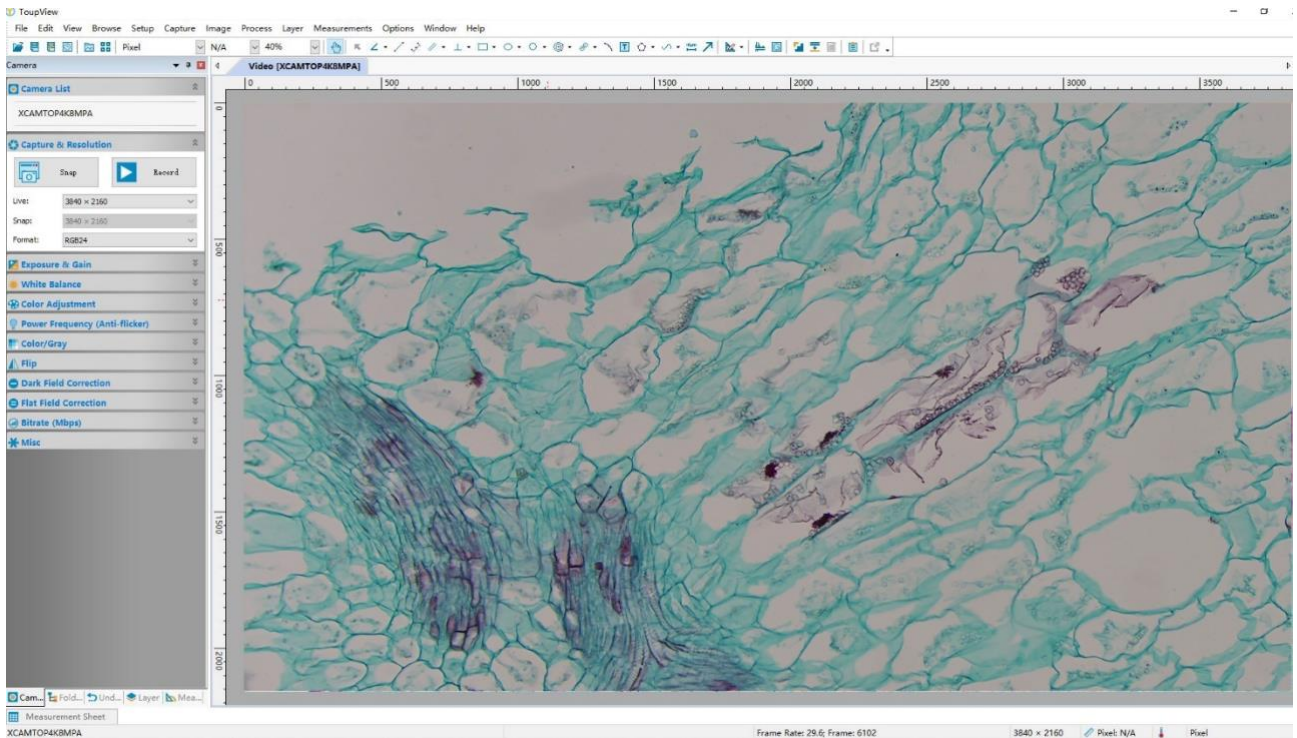


Figure 7 ToupView and XCAMTOP4K Series Camera in USB Mode

### 6.3 Camera working in WLAN mode (AP mode)

Please make sure your PC is WLAN enabled.




Figure 8 The PC or Mobile Device Connect to the Camera through WLAN

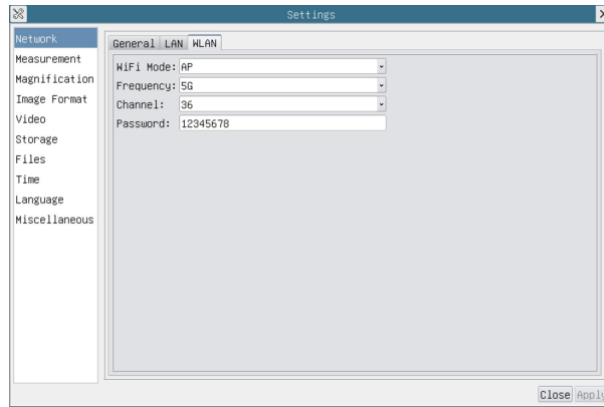
For Windows user (Windows XP (32bit), Windows 7/8/10/10/11 (32/64 bit) ), please use [ToupView](#).

For macOS and Linux user (macOS 10.10 or above or Linux distributions with kernel 2.6.27 or higher), please use [ToupLite](#). When connecting the camera with a mobile device, the free [ToupView App](#) is required. Just make sure that the mobile device uses iOS 11 or higher/Android 5.1 or higher operating systems.

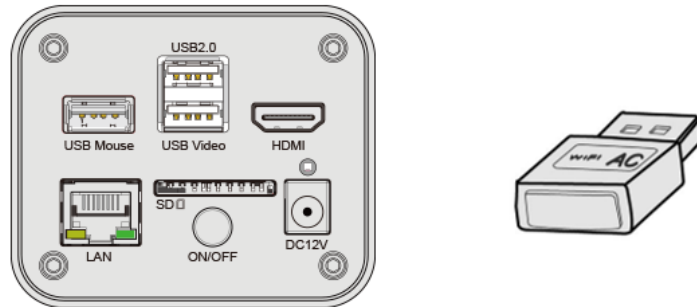
The steps to start the camera are listed below:

Start the camera according to Sec. 6.1. After the camera is running, move the mouse to the bottom of the GUI and clicking the  button on the [Synthesis Camera Control Toolbar](#) at the bottom of the video window, a small window called [Settings](#) will pop up as shown below. Click [Network>WLAN](#) property page and choose the [AP](#) in the [Wi-Fi Mode](#) edit box(The factory default configuration is [AP](#) mode ).

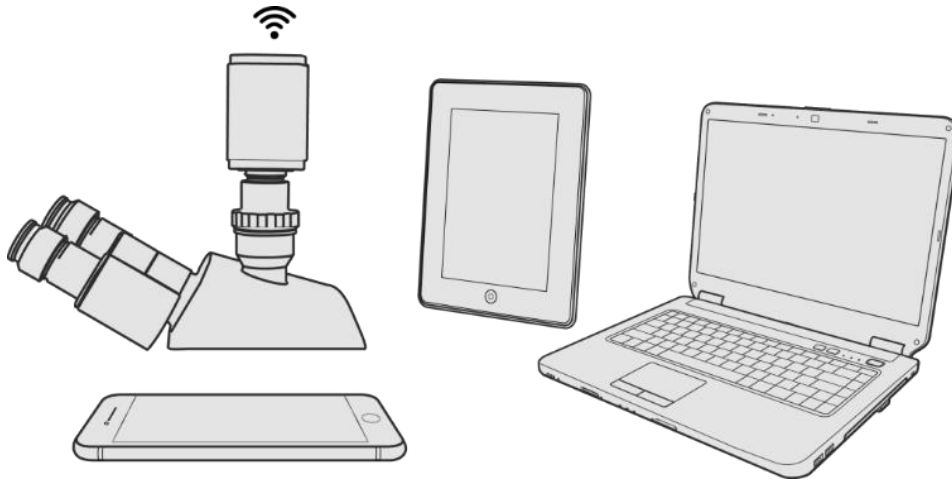
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Plug the **USB WLAN** adapter into the camera's USB2 .0 port;



Install [ToupView/ToupLite](#) on your PC or install [ToupView App](#) on the mobile device, Connect the PC or mobile device to the camera's **WLAN AP** point; The network name (SSID) and the **WLAN** password (The default one is 12345678) can be found on the camera's [Setting>Network>WLAN](#) page in **AP** mode.



Start [ToupView/ToupLite](#) software or [ToupView App](#) and check the configuration. Normally, the active XCAMTOP4K series cameras will be automatically recognized. The live image of each camera is shown in Figure 9. For the display, the [Camera List](#) tool window is used in [ToupView/ToupLite](#) software, and the [Camera Thumbnail](#) is used in [ToupView App](#).

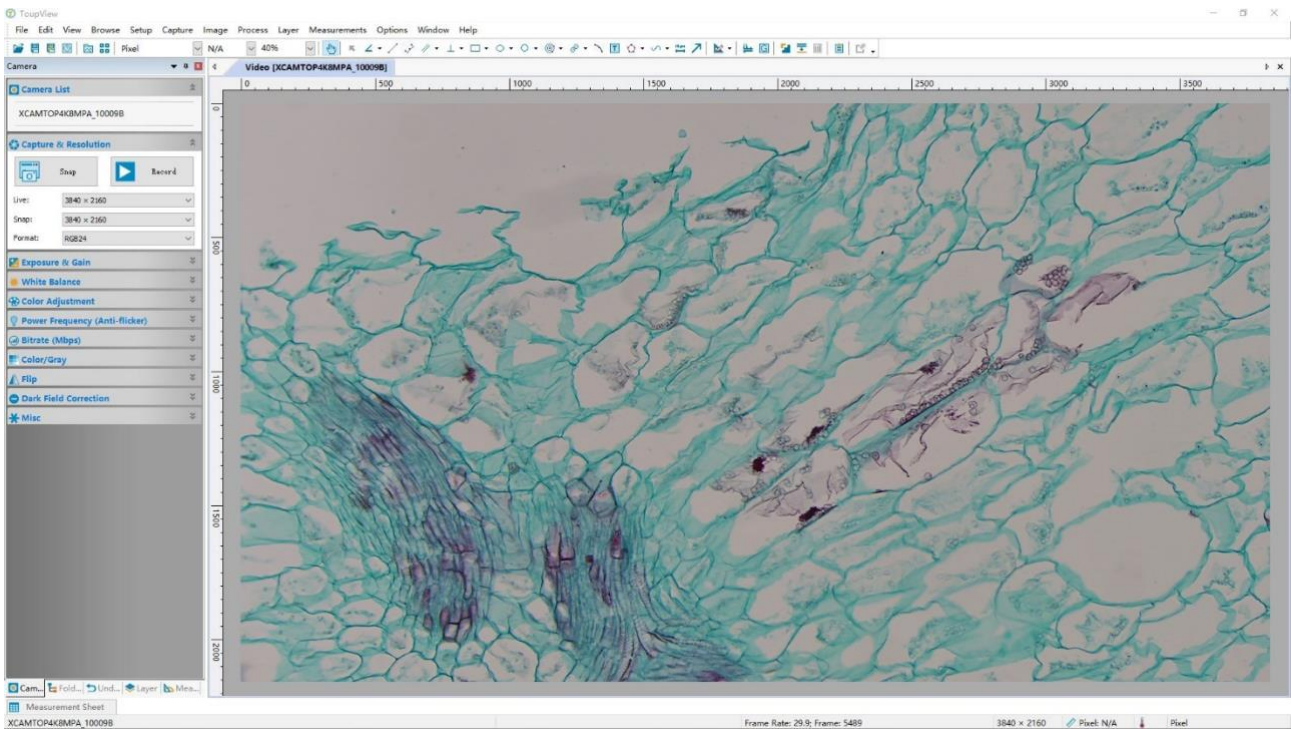


Figure 9 ToupView and XCAMTOP4K Series Camera in WLAN AP Mode

#### 6.4 Connecting camera to the PC with LAN port

This application uses the camera as the network camera. User must configure the IP of the camera and PC manually and ensure their IP addresses are in the same net. The subnet mask and gateway of the camera and PC must be the same.

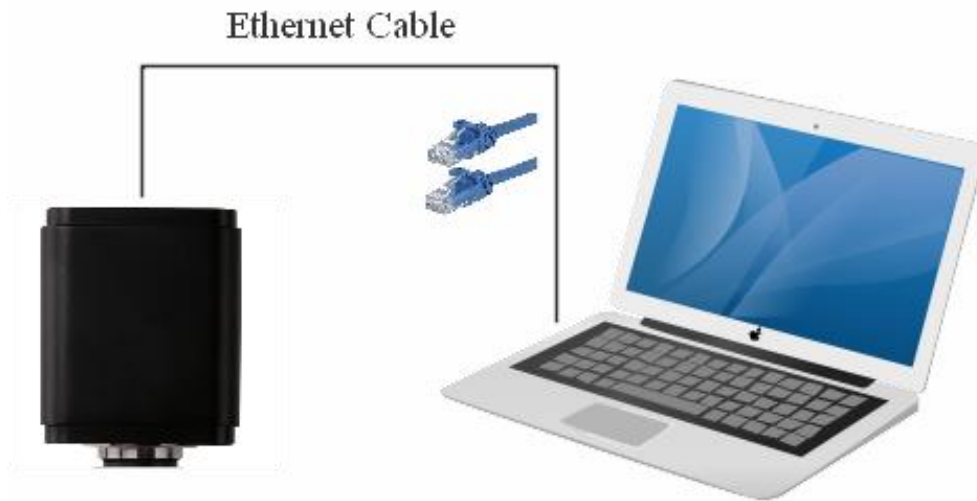



Figure 10 Connecting the XCAMTOP4K Series Camera with Ethernet Cable to the PC

Start the camera according to Sec. 6.1 after the camera is running, clicking  button on the [Synthesis Camera Control Toolbar](#) at the bottom of the video window (See Figure 6), a small window called [Settings](#) will pop up as shown below on the left side, clicking [LAN](#) property page, uncheck the DHCP item. Input [IP Address](#), [Subnet Mask](#) and [Default Gateway](#) for the camera. Designate [Internet Protocol Version 4 \(TCP/IPv4\) Settings](#) page's IP address on the PC with similar configuration as shown below on the right side but with different [IP address](#).

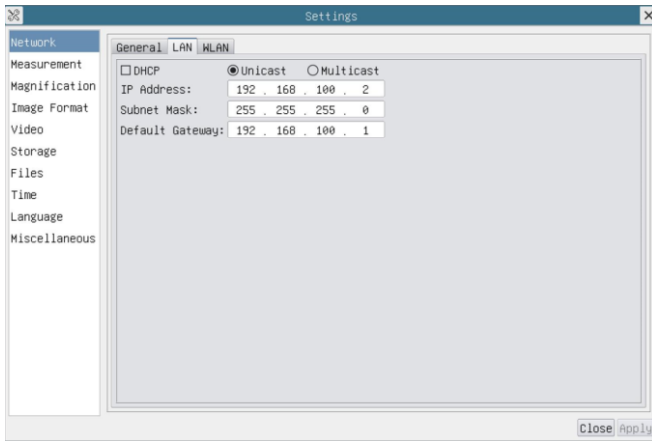


Figure 11 Configure the XCAMTOP4K Series Camera IP

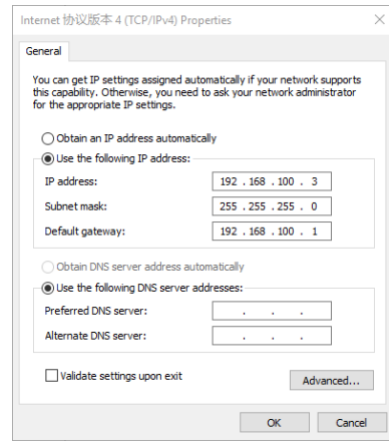
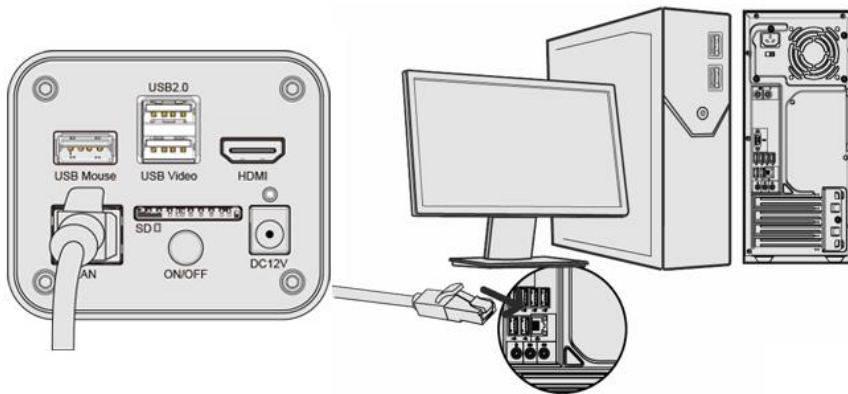


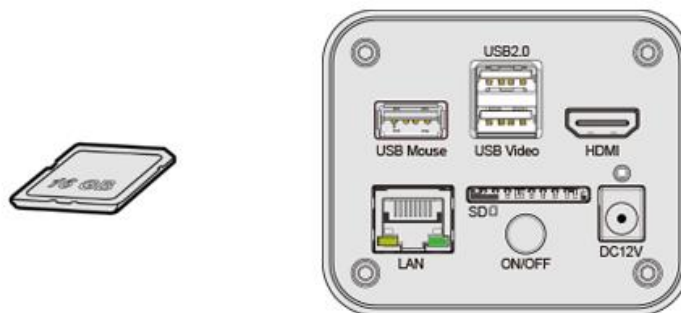
Figure 12 Configure the PC's IP

After the above configurations are finished, user can connect the XCAMTOP4K series camera to the computer through the Ethernet cable as shown below:

Connect the LAN port with the Ethernet cable to the PC's network port;



Insert the supplied SD card/USB flash drive (USB2.0 slot) into the XCAMTOP4K series camera's SD card slot/USB2.0 slot;



Install [ToupView/ToupLite](#) on your PC or install [ToupView App](#) on the mobile device; Run the software [ToupView/ToupLite](#), clicking the camera name in the camera list starts the live video as shown in Figure 9.

### 6.5 Connecting multi-cameras to the router through the LAN port/WLAN STA mode for the network application

In [LAN/WLAN STA](#) mode, the camera connects to the router by [LAN](#) port/[WLAN STA](#) mode. If a router with [LAN/WLAN](#) capability is used, users could connect the router with Ethernet cable/[WLAN](#) to control the camera.



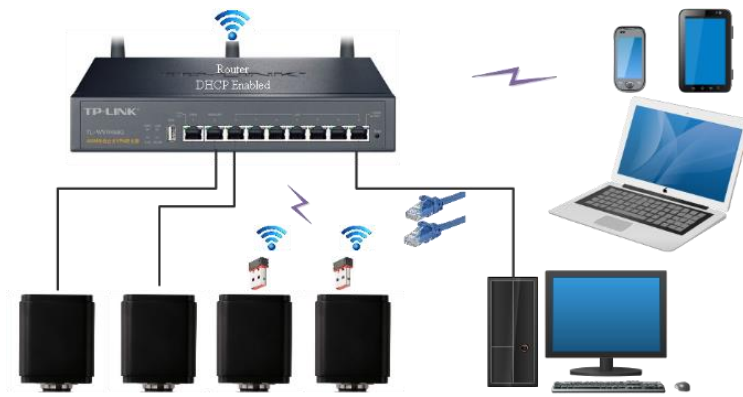
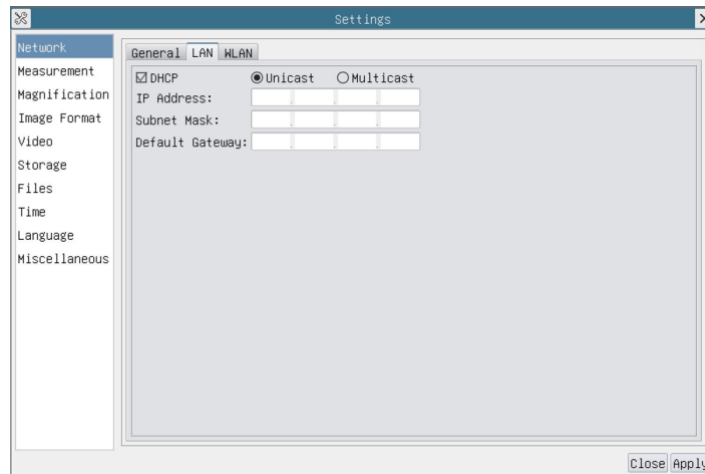



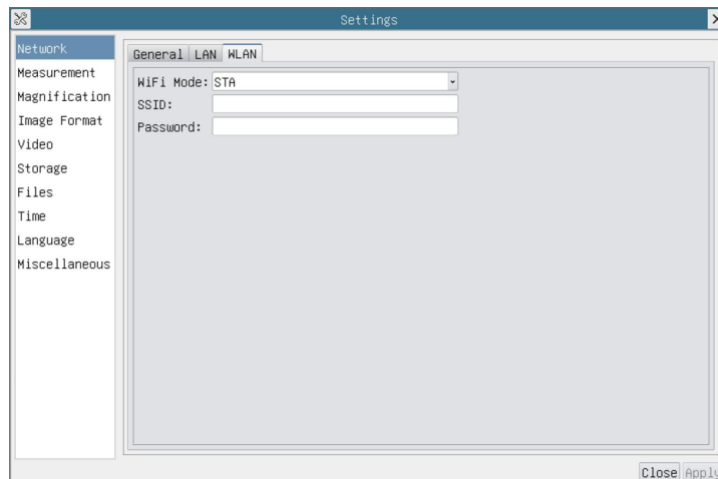
Figure 13 Multi XCAMTOP4K Series Cameras Connecting to the Router through the LAN Port/WLAN Style

The connection and configuration are just the same as in Sec.6.1 or Sec. 6.4. But here, users need to check **DHCP**. If **Multicast** is disabled or is not supported, users should only select **Unicast**. If **Multicast** is supported by the network, users could select **Multicast** to achieve a better performance, especially in the case that multi-users connecting to the same camera. In addition, please guarantee that the broadcasting function is enabled in the network.

Active XCAMTOP4K series camera is recognized by **ToupView/ToupLite** software or **ToupView App** and they are displayed as a camera list or thumbnail in the software or app as shown in Figure 7.

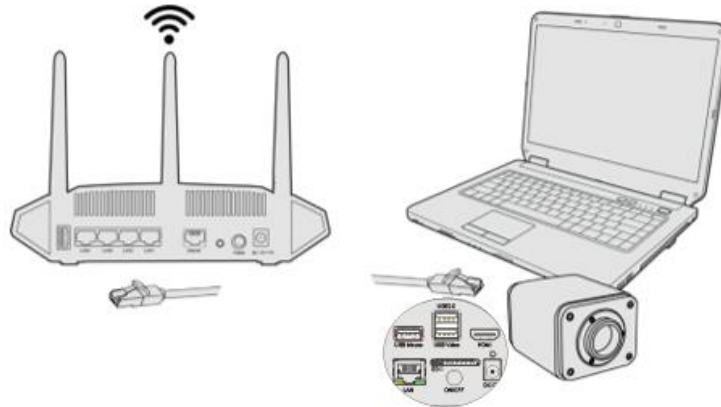


Or start the camera according to Sec. 6.1. After the camera is running, move the mouse to the bottom of the video window and clicking the  button on the **Synthesis Camera Control Toolbar** at the bottom of the video window, a small window called **Settings** will pop up as shown below. Clicking **Network>WLAN** property page and choosing the **STA** in the **Wi-Fi Mode** edit box(The factory default configuration is **AP** mode ). Input the to be connected router's **SSID** and **Password** as shown below:

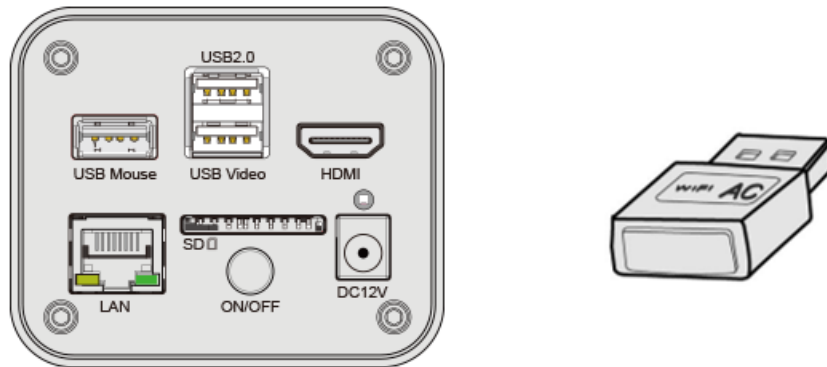


Install **ToupView /ToupLite** software on your PC. Alternatively, install the free **ToupView App** on the mobile device;

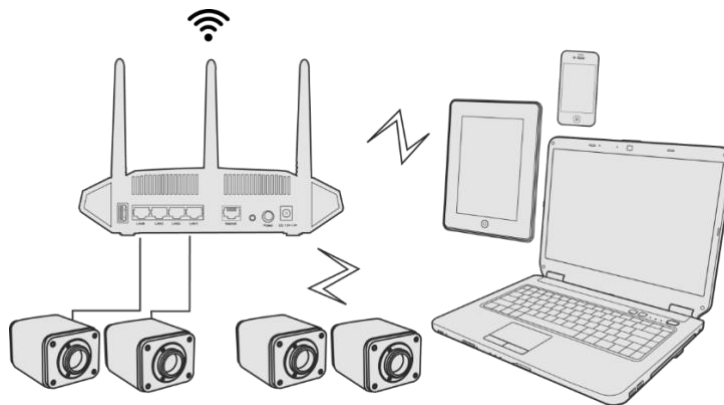
Plug the Ethernet cable into the camera's LAN port and the other end to the PC (for those connected to router with WLAN STA mode );



Or plug the USB WLAN adapter into the camera's USB2.0 port(for those connected to router with WLAN STA mode);



Finally, as shown below, 2 XCAMTOP4K series cameras are connected to the router with LAN cable and 2 XCAMTOP4K series cameras are connected to the same router with WLAN STA mode(The number of the cameras, the connection mode(LAN or WLAN STA)) connected to the router are determined by the router performance)



Make sure that your PC or your mobile device is connected to the LAN or WLAN of the router; Start [ToupView/ToupLite](#) software or [ToupView App](#) and check the configuration. Normally, active XCAMTOP4K series cameras are automatically recognized. The live image of each camera is displayed. For the display, [Camera List](#) control panel window is used in [ToupView/ToupLite](#) software, and [Camera Thumbnail](#) is used in [ToupView App](#); Select the XCAMTOP4K series camera you are interested in. To do so, double click the camera's name in [Camera List](#) tool window if you use [ToupView /ToupLite](#) software; If you use [ToupView App](#), tap the camera's thumbnail in [Camera List](#) page(See Figure 14)

#### [About the routers/switches](#)

It is suggested that routers/switches supporting 802.11ac 5G segment should be selected to achieve better



wireless connection experience.

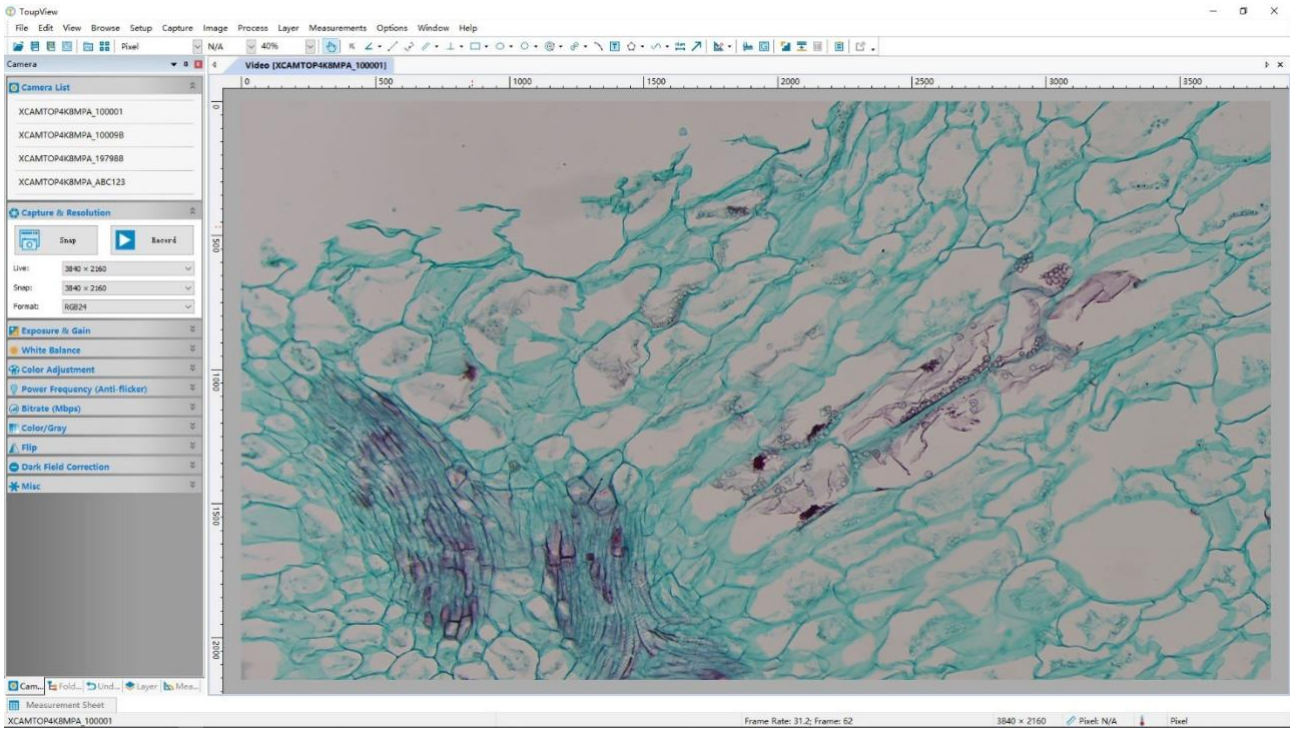


Figure 14 ToupView and XCAMTOP4K Series Camera in LAN port/WLAN STA mode

## 7 Brief Introduction of XCAMTOP4K UI and Its Functions

### 7.1 XCAMView UI

The XCAMTOP4K UI shown in Figure 15 includes a [Camera Control Panel](#) on the left of the video window, a [Measurement Toolbar](#) on the top of the video window and a [Synthesis Camera Control Toolbar](#) on the bottom of the video window.

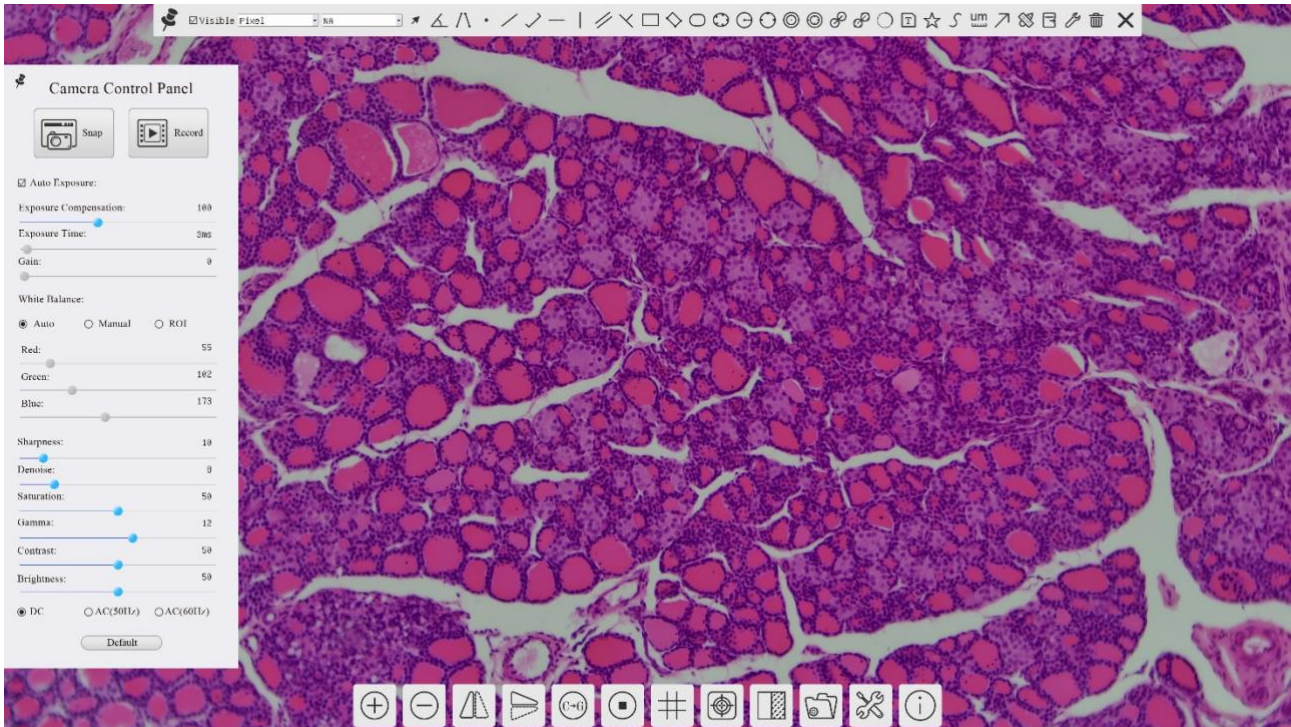







Figure 15 The XCAMTOP4K Series Camera's Control GUI

Notes	
1	To show the <a href="#">Camera Control Panel</a> , move your mouse to the left of the video window. See Sec.7.2 for details
2	Move the mouse cursor to the top of the video window, a <a href="#">Measurement Toolbar</a> will pop up for calibration and measurement operations. When user left-clicks the <a href="#">Float/Fixed</a> button  on the <a href="#">Measurement Toolbar</a> , the <a href="#">Measurement Toolbar</a> will be fixed. In this case the <a href="#">Camera Control Panel</a> will not pop up automatically even if users move mouse cursor to left side of the video window. Only when user left-clicks the  button on the <a href="#">Measurement Toolbar</a> to exit from measuring procedure will they be able to do other operations on the <a href="#">Camera Control Panel</a> , or the <a href="#">Synthesis Camera Control Toolbar</a> . During the measuring process, when a specific measuring object is selected, an <a href="#">Object Location &amp; Attributes Control Bar</a>  will appear for changing location and properties of the selected object. See Sec.7.3 for details.
3	When users move mouse cursor to the bottom of the video window, the <a href="#">Synthesis Camera Control Toolbar</a> will pop up automatically.  See Sec.7.4 for details.

### 7.2 The camera control panel on the left side of the video window

The [Camera Control Panel](#) controls the camera to achieve the best video or image quality according to the specific applications; It will pop up automatically when the mouse cursor is moved to the left side of the video window (in measurement status, the [Camera Control Panel](#) will not pop up. The [Camera Control Panel](#) will only pop up when the measurement process is finished or terminated while user's cursor on the left edge of the video window). Left-clicking  button to achieve [Display/Auto Hide](#) switch of the [Camera Control Panel](#).

Camera Control Panel	Function	Function Description
	Snap	Capture image and save it to the SD card
	Record	Record video and save it to the SD card
	Auto Exposure	When <a href="#">Auto Exposure</a> is checked, the system will automatically adjust exposure time and gain according to the value of exposure compensation
	Exposure Compensation	Available when <a href="#">Auto Exposure</a> is checked. Slide to left or right to adjust <a href="#">Exposure Compensation</a> according to the current video brightness to achieve proper brightness value
	Exposure Time	Available when <a href="#">Auto Exposure</a> is unchecked. Slide to left or right to reduce or increase exposure time, adjusting brightness of the video

	<b>Gain</b>	Adjust <b>Gain</b> to reduce or increase brightness of video. The Noise will be reduced or increased accordingly
	<b>Red</b>	Slide to left or right to decrease or increase the proportion of <b>Red</b> in <b>RGB</b> on video
	<b>Green</b>	Slide to left or right to decrease or increase the proportion of <b>Green</b> in <b>RGB</b> on video
	<b>Blue</b>	Slide to left or right to decrease or increase the proportion of <b>Blue</b> in <b>RGB</b> on the video
	<b>Auto</b>	<b>White Balance</b> adjustment according to the window video every time the button is clicked
	<b>Manual</b>	Adjust the <b>Red</b> or <b>Blue</b> item to set the video White Balance
	<b>ROI</b>	Check the <b>ROI</b> item will display a red <b>ROI</b> rectangle on the video window, drag it to the interested area will perform the <b>White Balance</b> according to the area video data
	<b>Sharpness</b>	Adjust <b>Sharpness</b> level of the video
	<b>Denoise</b>	Slide left or right to denoise the video
	<b>Saturation</b>	Adjust <b>Saturation</b> level of the video
	<b>Gamma</b>	Adjust <b>Gamma</b> level of the video. Slide to the right side to increase <b>Gamma</b> and to the left to decrease <b>Gamma</b> .
	<b>Contrast</b>	Adjust <b>Contrast</b> level of the video. Slide to the right side to increase <b>Contrast</b> and to the left to decrease <b>Contrast</b> .
	<b>Contrast</b>	Adjust <b>Brightness</b> level of the video. Slide to the right side to increase <b>Brightness</b> and to the left to decrease <b>Brightness</b> .
	<b>DC</b>	For <b>DC</b> illumination, there will be no fluctuation in light source so no need for compensating light flickering
	<b>AC(50HZ)</b>	Check <b>AC(50HZ)</b> to eliminate flickering caused by 50Hz illumination
	<b>AC(60HZ)</b>	Check <b>AC(60HZ)</b> to eliminate flickering caused by 60Hz illumination
<b>Default</b>	Restore all the settings in the <b>Camera Control Panel</b> to default values	

### 7.3 The Measurement Toolbar on top of the video window

The **Measurement Toolbar** will pop up when moving mouse cursor to any place near the upper edge of the video window. Here is the introduction of the various functions on the **Measurement Toolbar**:

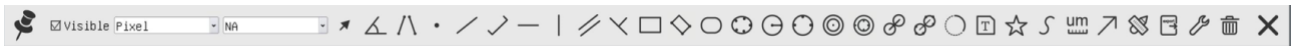


Figure 16 The Measurement Toolbar on the Upper Side of the Video Window

Icon	Function
	Float/ Fix switch of the Measurement Toolbar
<input checked="" type="checkbox"/> Visible	Show / Hide Measurement Objects
Pixel	Select the desired Measurement Unit
NA	Select Magnification for Measurement after Calibration
	Object Select
	Angle
	4 Points Angle
	Point
	Arbitrary Line
	3 Points Line
	Horizontal Line
	Vertical Line
	3 Points Vertical Line
	Parallel
	Rectangle
	Ellipse
	Circle
	3 Points Circle
	Annulus
	3 Points Annulus
	Two Circles and its Center Distance
	3 Points Two Circles and its Center Distance
	Arc

	Text
	Polygon
	Curve
	Scale Bar
	Arrow
	Execute <a href="#">Calibration</a> to determine the corresponding relation between magnification and resolution, which will establish the corresponding relationship between measurement unit and the sensor pixel size. <a href="#">Calibration</a> needs to be done with the help of a micrometer. For detailed steps of carrying out <a href="#">Calibration</a> please refer to <a href="#">ToupView</a> help manual.
	<a href="#">Export the Measurement information to CSV file(*.csv)</a>
	<a href="#">Measurement Setup</a>
	<a href="#">Delete</a> all the measurement objects
	<a href="#">Exit</a> from Measurement mode
	When the measurement ends, left-click on a single measuring object and the <a href="#">Object Location &amp; Properties Control Bar</a> will show up. User could move the object by dragging the object with the mouse. But more accurate movement could be done with the control bar. The icons on the control bar mean <a href="#">Move Left</a> , <a href="#">Move Right</a> , <a href="#">Move Up</a> , <a href="#">Move Down</a> , <a href="#">Color Adjustment</a> and <a href="#">Delete</a> .

Note:

1) When user left-clicks [Display/Hide](#) button on [Measurement Toolbar](#), [Measurement Toolbar](#) will be fixed. In this case [Camera Control Panel](#) will not pop up automatically even if moving the mouse cursor to the left edge of the video window. Only when user left-click the button on [Measurement Toolbar](#) to exit from the measurement mode will they be able to doing other operations on [Camera Control Panel](#) or [Synthesis Camera Control Toolbar](#).

2) When a specific [Measurement Object](#) is selected during the measurement process, [Object Location & Attributes Control Bar](#) will appear for changing the object location and properties of the selected objects.

#### 7.4 Icons and functions of the Synthesis Camera Control Toolbar at the bottom of the video window



Figure 17 The Synthesis Camera Control Toolbar on the Bottom of the Video Window

Icon	Function	Icon	Function
	<a href="#">Zoom In</a> the <a href="#">Video Window</a>		<a href="#">Zoom Out</a> the <a href="#">Video Window</a>
	<a href="#">Horizontal Flip</a>		<a href="#">Vertical Flip</a>
	<a href="#">Color/gray</a>		<a href="#">Video Freeze</a>
	<a href="#">Display Cross Line</a>		<a href="#">Image Overlay</a>
	<a href="#">Compare Image</a> with the <a href="#">Current Video</a>		<a href="#">Browse</a> images and videos in the SD Card
	<a href="#">Settings</a>		Check the Version of <a href="#">XCAMView</a>

The [Setting](#) function is relatively more complicated than the other functions. Here is more information about it:

##### 7.4.1 Setting>Network>General

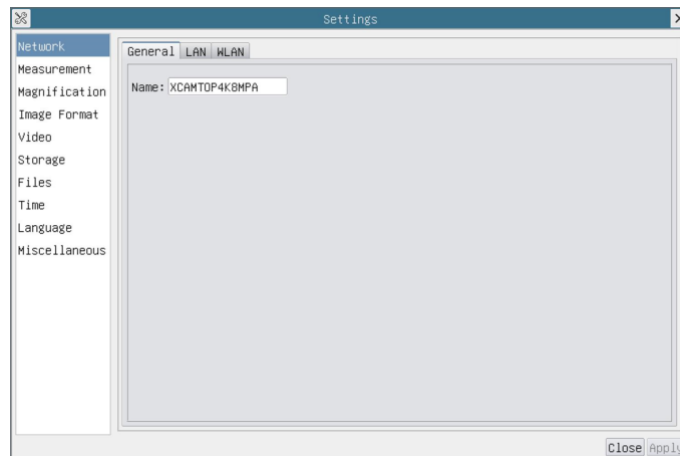


Figure 18 Comprehensive Network General Settings Page

Name	The current camera name recognized as the network name
------	--



7.4.2 Setting>Network>LAN

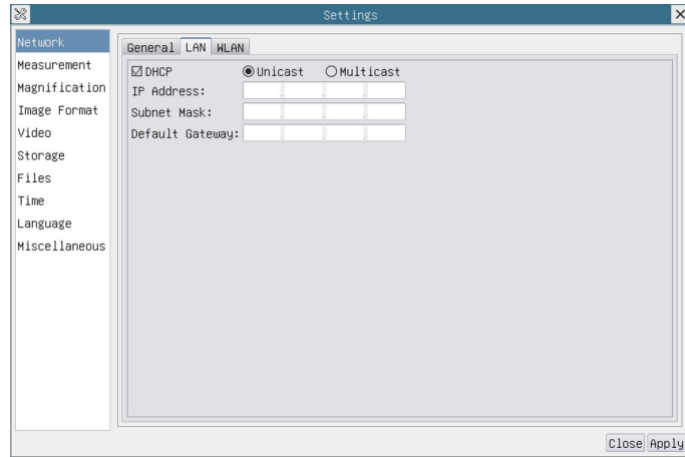


Figure 19 Comprehensive Network LAN Settings Page

<b>DHCP</b>	Dynamic host control protocol allows <b>DHCP</b> server to automatically assign IP information to the camera. Only in Sec 6.4 <b>LAN</b> networking this item should be checked, so that cameras can automatically get <b>IP</b> information from routers/switches to facilitate networking operation;
<b>Unicast/Multicast</b>	By default, unicast function is used. Only in Sec 6.4 networking environment, when the router/switch has multicast function, camera can switch to multicast mode, which can save the network bandwidth consumed by the camera and facilitate the connection of more cameras in the same network;
<b>IP Address</b>	Every machine on a network has a unique identifier. Just as you would address a letter to send in the mail, computers use the unique identifier to send data to specific computers on a network. Most networks today, including all computers on the Internet, use the <b>TCP/IP</b> protocol as the standard for how to communicate on the network. In the <b>TCP/IP</b> protocol, the unique identifier for a computer is called <b>IP</b> address. There are two standards for <b>IP</b> address: IP Version 4 ( <b>IPv4</b> ) and IP Version 6 ( <b>IPv6</b> ). All computers with <b>IP</b> addresses have an <b>IPv4</b> address, and many are starting to use the new <b>IPv6</b> address system as well. Users must manually configure their <b>IP</b> addresses on the camera side and computer side. The <b>IP</b> addresses set on the camera side and computer side should be in the same network segment. The specific settings are shown Figure 20. It's usually a private address. Private address is a non-registered address used exclusively within an organization. The internal private addresses retained are listed below: Class A 10.0.0-10.255.255; Class B 172.16.0-172.31.255.255; Class C 192.168.0-192.168.255.255. The suggested IP address is Class C.
<b>Subnet Mask</b>	Subnet Mask is used to distinguish network domain from host domain in 32-bit <b>IP</b> address;
<b>Default Gateway</b>	A default gateway allows computers on a network to communicate with computers on another network. Without it, the network is isolated from the outside. Basically, computers send data that is bound for other networks (one that does not belong to its local <b>IP</b> range) through the default gateway; Network administrators configure the computer's routing capability with an <b>IP</b> range's starting address as the default gateway and point all clients to that <b>IP</b> address.

Uncheck the **DHCP** and select the **Unicast** item, user still need to set the **IP address**, **Subnet mask** and **Default Gateway** as shown below:

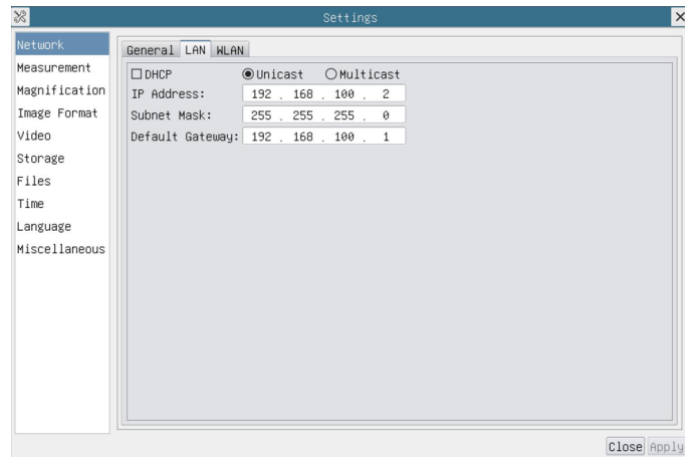


Figure 20 Manual DHCP and Unicast

Uncheck the **DHCP** and select the **Multicast** item, user still need to set the **IP address**, **Subnet Mask** and **Default Gateway** as shown below:

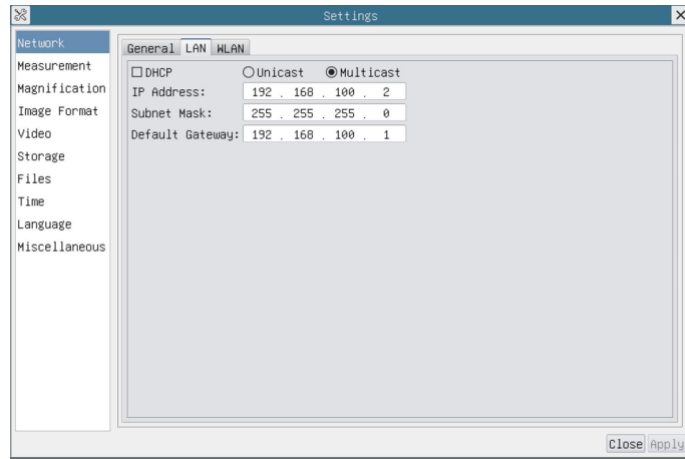


Figure 21 Manual DHCP and Multicast

**7.4.3 Setting>Network>WLAN**

Wi-Fi Mode	AP/STA mode to select;
Channel/SSID	Channel for the AP mode and SSID for the STA mode. Here, the SSID is the router's SSID;
Password	Camera Password for the AP mode. Router Password for the STA mode

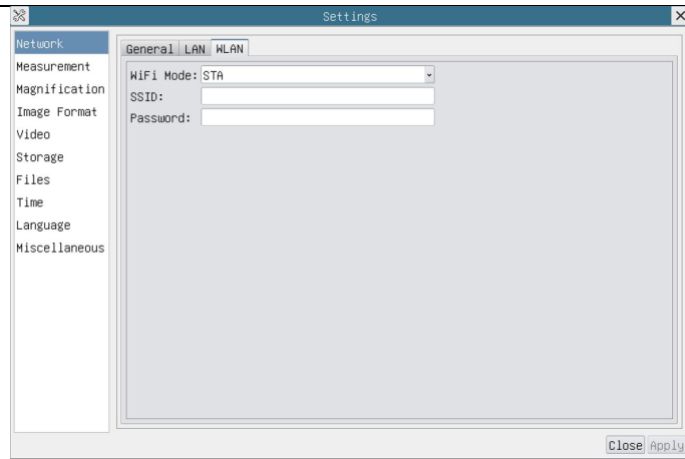


Figure 22 Network Setup

**7.4.4 Setting>Measurement**

This page is used for the define of the Measurement Object properties.

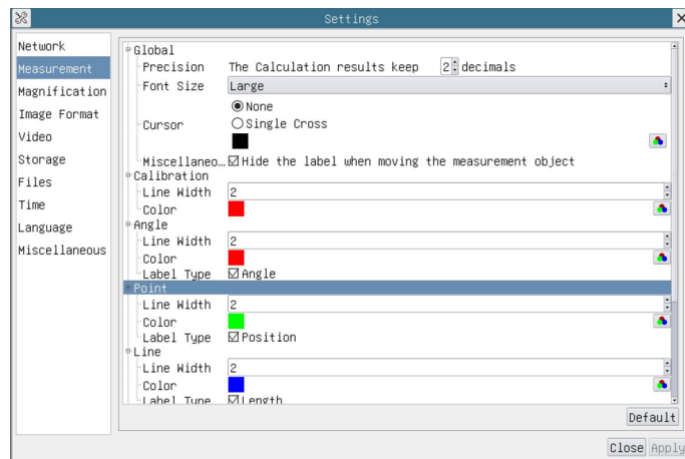



Figure 23 The Measurement Setup

Global	Used for setting digits behind the decimal point for measurement results;	
Calibration	Line Width	Used for defining width of the lines for calibration;
	Color	Used for defining color of the lines for calibration;
	EndPoint	Type: Used for defining shape of the endpoints of lines for calibration: Null means no EndPoint, rectangle means rectangle type of endpoints. It makes alignment more easily;
Point, Angle, Line, Horizontal Line, Vertical Line, Rectangle, Circle, Ellipse, Annulus, Two Circles, Polygon, Curve		



Left-click the  along with the [Measurement](#) command mentioned above will unfold the corresponding attribute settings to set the individual property of the [Measurement Objects](#).

### 7.4.5 Setting>Magnification

This page's items are formed by the [Measurement Toolbar](#)'s [Calibration](#) command.

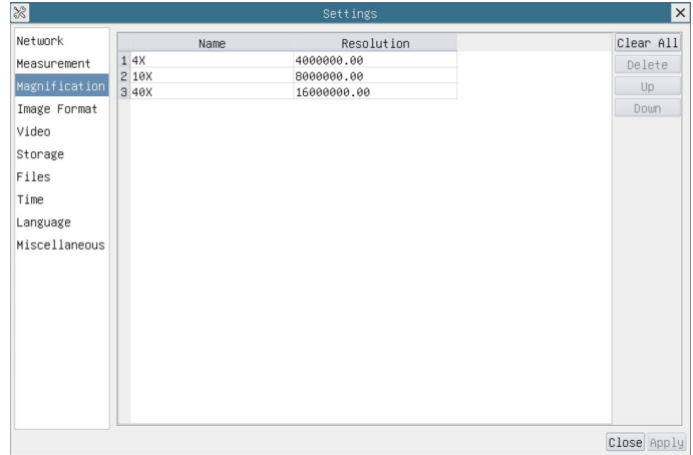


Figure 24 Comprehensive Magnification Settings Page

<a href="#">Name</a>	Names such as 10X, 40X, 100X are based on magnification of the microscopes. For continuous zoom microscopes, ensure that the selected magnification coincides with the scale alignment line on the microscope zoom knob; Users could also edit the name of the magnification with other information, for example, microscope mode, users name, etc.
<a href="#">Resolution</a>	Pixels per meter. Image device like microscopes have high <a href="#">Resolution</a> value;
<a href="#">Clear All</a>	Click the <a href="#">Clear All</a> button will clear the calibrated magnifications;
<a href="#">Delete</a>	Click <a href="#">Delete</a> to delete the selected magnification;

### 7.4.6 Settings>Image Format

<a href="#">Image Format</a>	<p><a href="#">JPEG</a>: The extension of <a href="#">JPEG</a> file can get very high compression rate and display very rich and vivid images by removing redundant images and color data. In other words, it can get better image quality with the least disk space. If measurement objects are available, the measurement objects will be burned into the image and the measurement cannot be edited.</p> <p><a href="#">TIFF</a>: <a href="#">TIFF</a> is a flexible bitmap format mainly used to store images including photos and artistic images.</p>
<a href="#">Measurement Object Saving Method</a>	<p><a href="#">Burn in Mode</a>: The measurement objects are merged into the current image. User could not edit the measurement objects any more. This mode is not reversible.</p> <p><a href="#">Layered Mode</a>: The measurement objects are saved in different layer with current image data in the target file. User could edit the measurement objects in the target file with some software on the PC. This mode is reversible.</p>

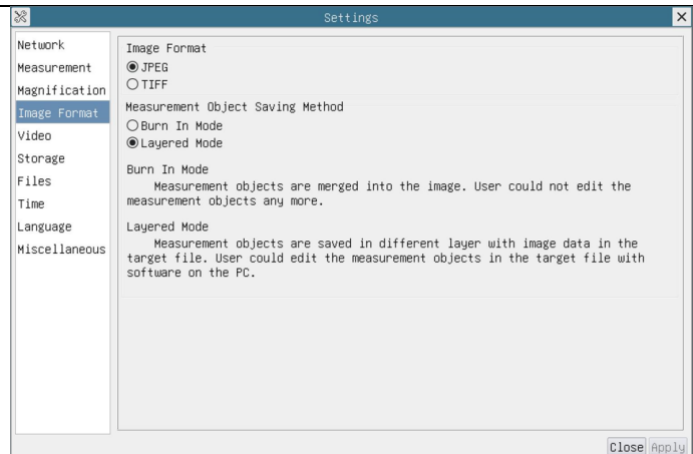


Figure 25 Comprehensive Image Format Settings Page

### 7.4.7 Setting>Video

<a href="#">Video Playback</a>	<a href="#">Fast Forward/Reverse internal in second</a> unite for <a href="#">Video Playback</a>
<a href="#">Video Encode</a>	Select the <a href="#">Video Encode</a> format. Can be <a href="#">H264</a> or <a href="#">H265</a> . Compared with <a href="#">H264</a> , <a href="#">H265</a> has a higher <a href="#">H265</a> compression ratio which is primarily used to further reduce the design flow rate, in order to lower the cost of storage and transmission

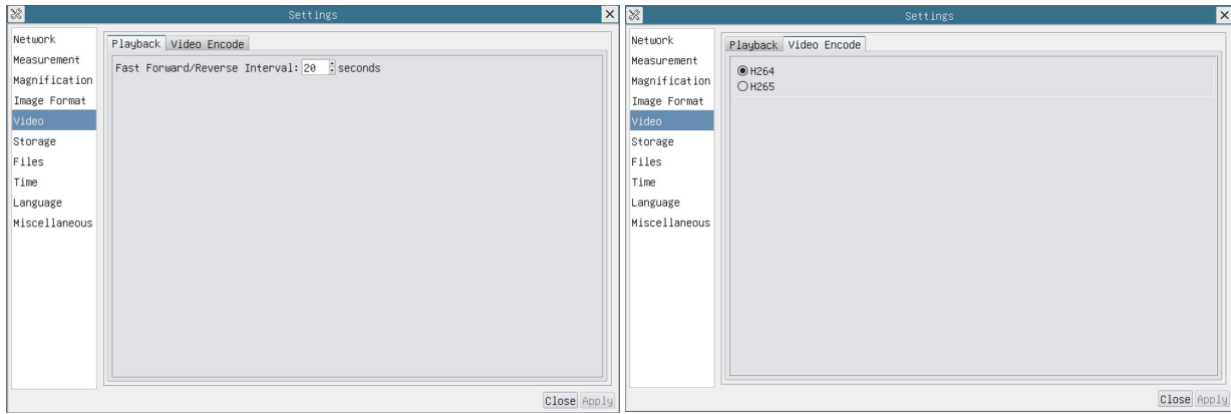


Figure 26 Comprehensive Setting of Video page

7.4.8 Setting>Storage



Figure 27 Comprehensive Setting of Storage Page

<p><b>File System Format of the Storage Device</b></p>	<p>List the file system format of the current storage device  <b>FAT32:</b> The file system of <b>SD Card</b> is <b>FAT32</b>. The maximum video file size of single file in <b>FAT32</b> file system is 4G Bytes;  <b>exFAT:</b> The file system of <b>SD Card</b> is <b>exFAT</b>. The maximum video file size of single file in <b>FAT32</b> file system is 16E Bytes;  <b>NTFS:</b> The file system of <b>SD Card</b> is <b>NTFS</b>. The maximum video file size of single file is 2T Bytes.  <b>Unknown Status:</b> <b>SD Card</b> not detected or the file system is not identified;</p> <p><b>Note:</b> For USB Flash Drive, USB 3.0 interface is preferred.</p>
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7.4.9 Setting>Files

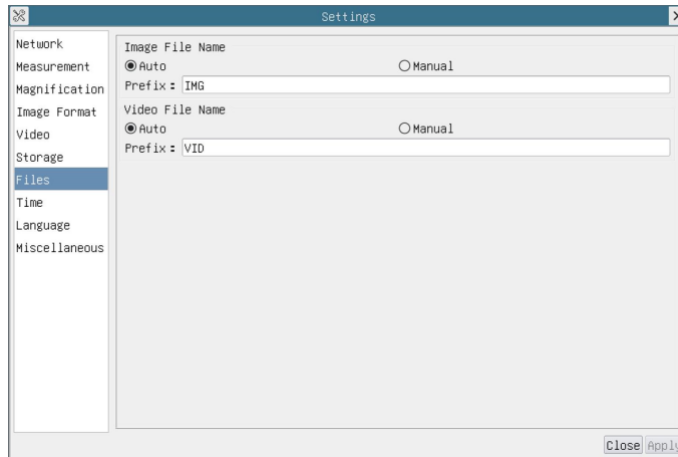


Figure 28 Comprehensive Setting of Files Name

<p><b>Image or Video File Name Paradigm</b></p>	<p>Provide <b>Auto</b> or <b>Manual</b> naming paradigm for <b>Image</b> or <b>Video</b> file;</p>
<p><b>Auto</b></p>	<p>With specified name as the <b>Prefix</b> and <b>XCAMView</b> will add digital after the <b>Prefix</b> for the <b>Image</b> or <b>Video</b> file;</p>
<p><b>Manual</b></p>	<p>A file dialog will pop up to enter the <b>Image</b> or <b>Video</b> file name for the captured <b>Image</b> or <b>Video</b>.</p>

7.4.10 Setting>Time

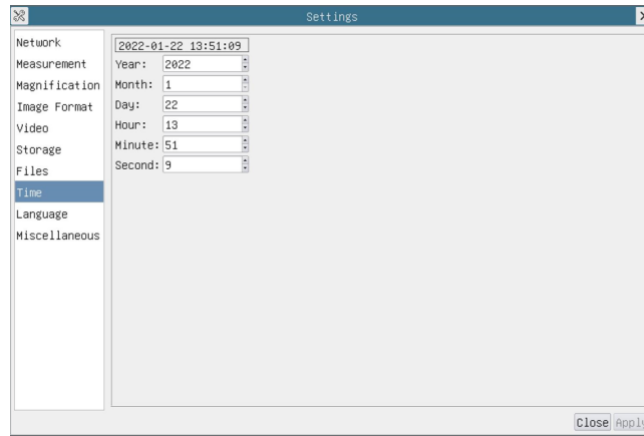


Figure 29 Time Setting

Time	User can set Year, Month, Day, Hour, Minute and Second in this page.
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7.4.11 Setting>Language



Figure 30 Comprehensive Setting of Language Selection Setting Page

English	Set language of the whole software into English;
Simplified Chinese	Set language of the whole software into Simplified Chinese;
Traditional Chinese	Set language of the whole software into Traditional Chinese;
Korean:	Set language of the whole software into Korean;
Thailand	Set language of the whole software into Thailand;
French	Set language of the whole software into French;
German	Set language of the whole software into German;
Japanese	Set language of the whole software into Japanese;
Italian	Set language of the whole software into Italian;
Russian	Set language of the whole software into Russian;

7.4.12 Setting>Miscellaneous

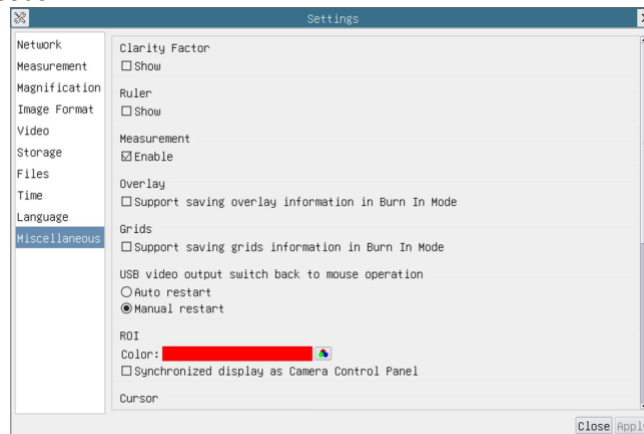


Figure 31 Comprehensive Miscellaneous Settings Page

Clarity Factor	Check this will show the Clarity Factor on the video window screen to tell if the camera is focused correctly or not;
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## XCAMTOP4K Series Camera Help Manual

<a href="#">Ruler</a>	Select to display the ruler in the video window, otherwise not to display the ruler;
<a href="#">Measurement</a>	Select to display the measurement toolbar in the video window, otherwise not to display the measurement toolbar;
<a href="#">Overlay</a>	Select to support saving graphics overlay information in fusion mode, otherwise it will not support;
<a href="#">Grids</a>	Select to support saving mesh information in fusion mode, otherwise not to support;
<a href="#">USB video output switch back to mouse operation</a>	Select automatic restart or manual restart to switch from USB video output to mouse operation;
<a href="#">ROI Color</a>	Choosing the <a href="#">ROI</a> rectangle line color
<a href="#">Cursor</a>	Choosing the <a href="#">Cursor</a> size according to the screen resolution or personal preference
<a href="#">Auto Exposure</a>	Define the maximum automatic exposure time;
<a href="#">Auto Exposure Region</a>	Select the AE reference area;
<a href="#">Camera Parameters Import</a>	Import the <a href="#">Camera Parameters</a> from the <a href="#">SD Card</a> or <a href="#">USB flash drive</a> to use the previously exported <a href="#">Camera Parameters</a>
<a href="#">Camera Parameters Export</a>	Export the <a href="#">Camera Parameters</a> to the <a href="#">SD Card</a> or <a href="#">USB flash drive</a> to use the previously exported <a href="#">Camera Parameters</a>
<a href="#">Reset to factory defaults</a>	Restore camera parameters to its factory status;

## 8 Sample Photos Captured with XCAMTOP4K Series Camera

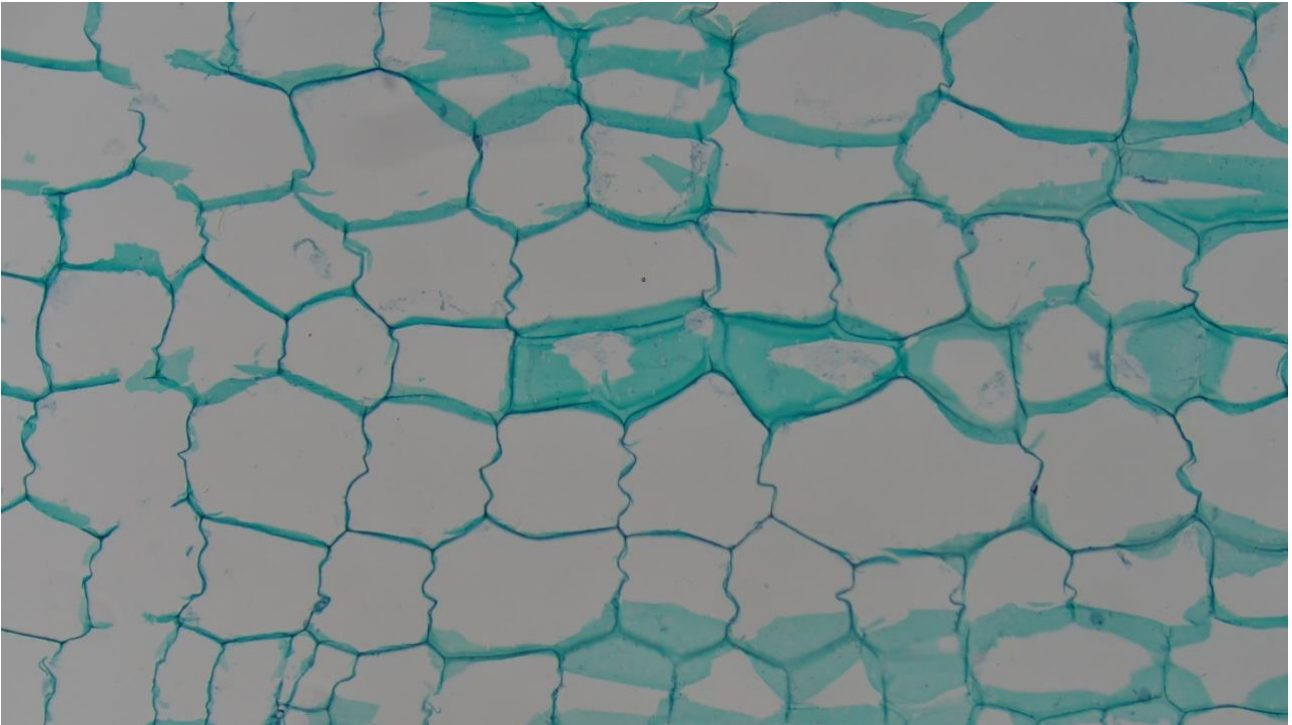


Figure 32 Cucurbit Stem.L.S. Captured with XCAMTOP4K8MPA

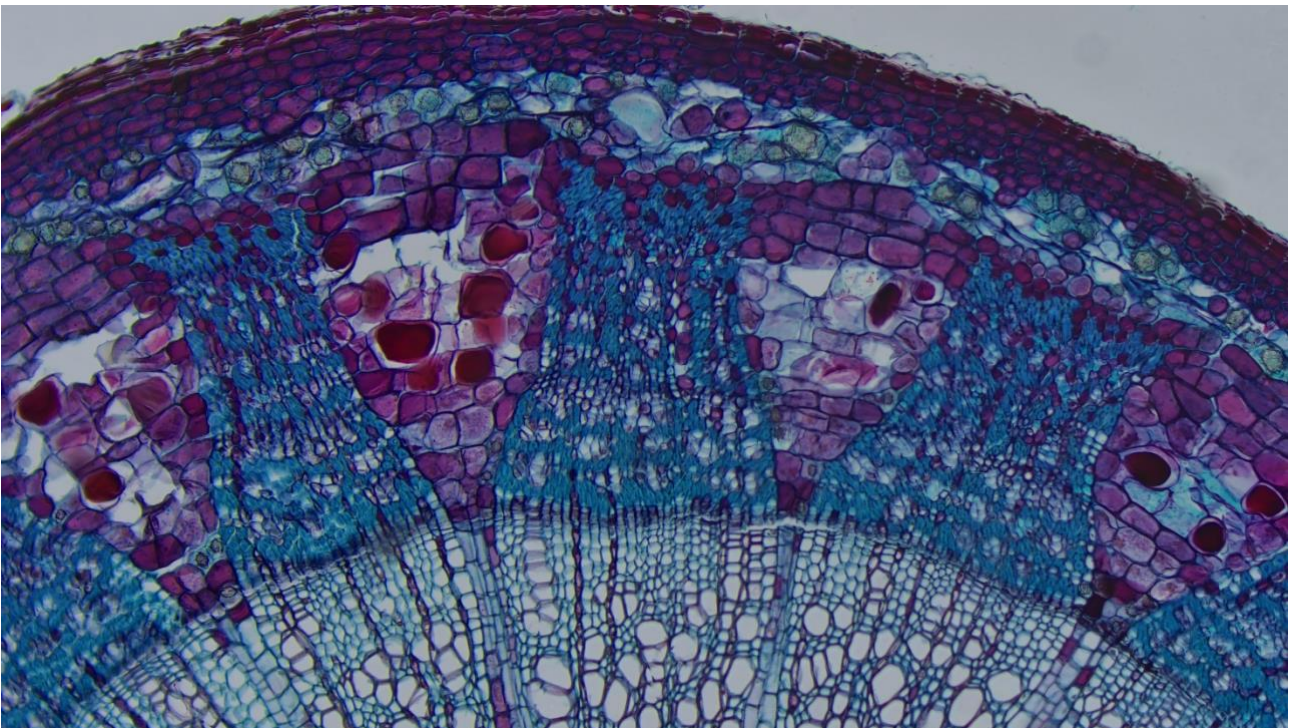


Figure 33 Two Year Tilia Stem.C.S. Captured with XCAMTOP4K8MPA



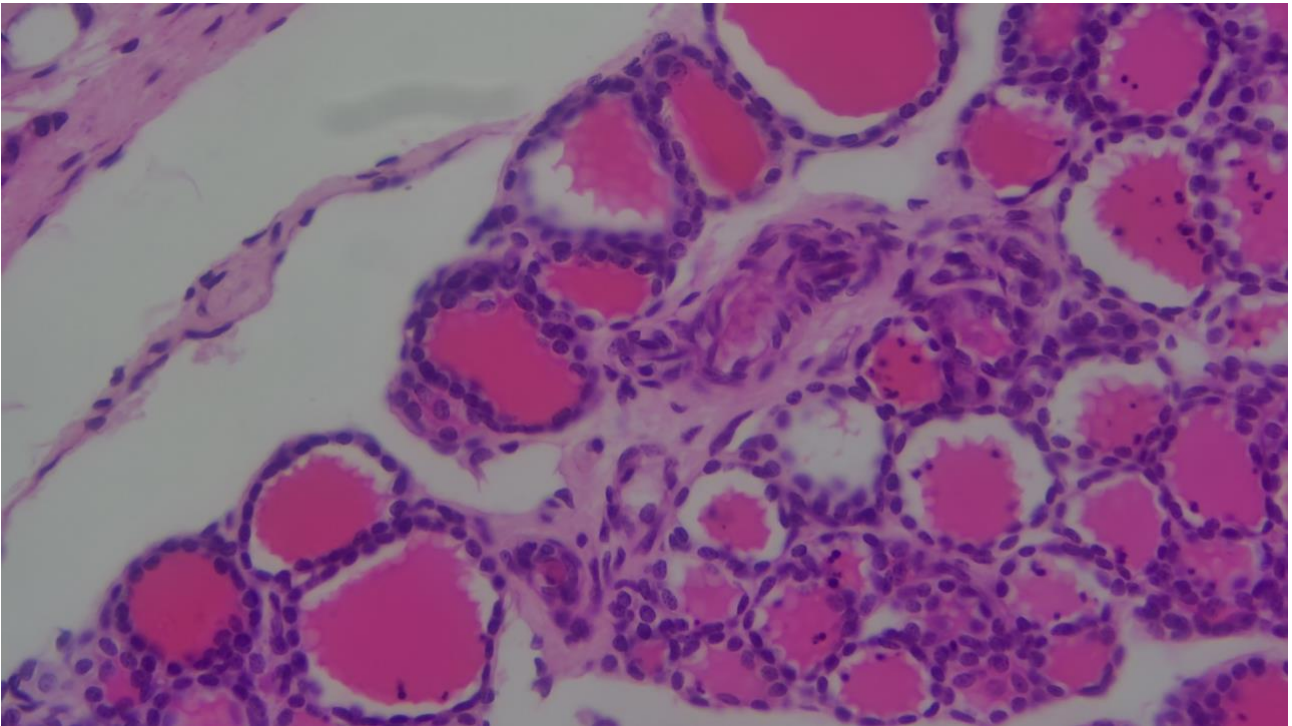


Figure 34 Simple Cuboidal Epithelium.Sec. Captured with XCAMTOP4K8MPA

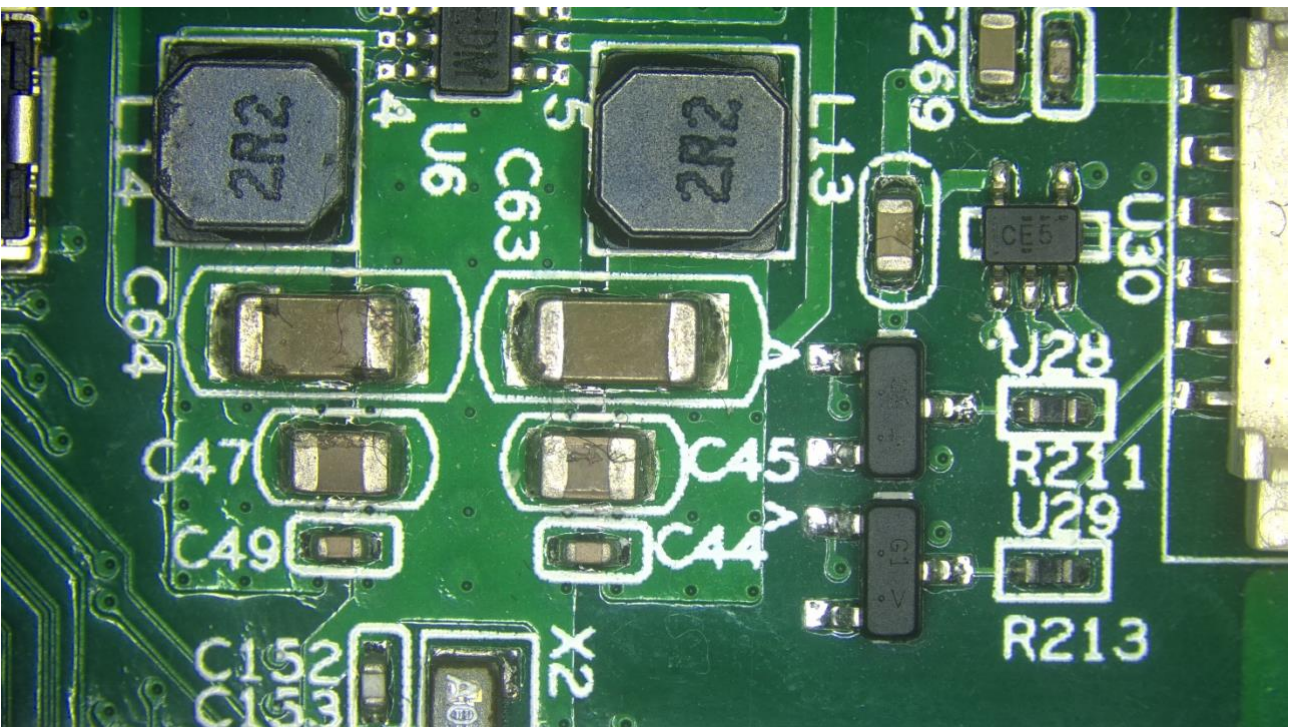


Figure 35 Circuit Board Captured with XCAMTOP4K8MPA

## 9 Contacting Customer Service

Please contact your local distributor if you have any questions about the product.