The TYPECAMTOP Series C-mount CMOS Camera Help Manual

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Figure 1 The TYPECAMTOP Series Camera

The TYPECAMTOP series cameras do not require an external power supply. Simply connect a Type-C cable to a monitor equipped with a Type-C video input interface, or simply connect a Type-C cable to a USB Type-A interface on a computer. They can be used for video and image acquisition and processing in stereomicroscopes or biological microscopes. Its main features are as follows:

- The camera does not require a separate power supply and is provided by an external monitor or computer
- Sony Starvis or Starvis 2 back-illuminated CMOS sensor
- 4K multiple video outputs
- USB flash drive for captured image and video storage, support local preview and playback
- Supports USB Voice Control module, enabling real-time control of the camera through voice commands for snap, recording, freeze, and other operations
- Embedded XCamView for the control of the camera and image processing, supporting automatic edge finding and measurement functions
- Excellent ISP with local tone mapping and 3D denoising
- ToupView/ToupLite software for PC
- iOS/Android applications for smart phones or tablets

2   TYPECAMTOP Series Camera Datasheet and Functions（4）

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure(ms)
TYPECAMTOP4K8MPA	Sony IMX334(C) 1/1.8"(7.68x4.32)	2.0x2.0	505mv with 1/30s 0.1mv with 1/30s	30@3840*2160	1x1	0.04~1000
TYPECAMTOP4K8MPB	Sony IMX585(C) 1/1.2"(11.14x6.26)	2.9x2.9	5970mv with 1/30s 0.39mv with 1/30s	30@3840*2160	1x1	0.04~1000
TYPECAMTOP4K8MPC	Sony IMX678(C) 1/1.8"(7.68x4.32)	2.0x2.0	1364mv with 1/30s 0.15mv with 1/30s	30@3840*2160	1x1	0.04~1000
TYPECAMTOP1080P2MPA	Sony IMX385(C) 1/2"(7.2x4.05)	3.75x3.75	1175mv with 1/30s 0.15mv with 1/30s	60@1920*1080	1x1	0.04~1000

Camera Model	Video Saving (FPS/Resolution)	Monitor (FPS/Resolution)	USB Video (FPS/Resolution)	WiFi(FPS/Resolution)
TYPECAMTOP4K8MPA	30@3840*2160	30@3840*2160 30@1920*1080	30@3840*2160 30@2688*1512 30@1920*1080	30@3840*2160 30@1920*1080 30@1280*720
TYPECAMTOP4K8MPB	30@3840*2160	30@3840*2160 30@1920*1080	30@3840*2160 30@2688*1512 30@1920*1080	30@3840*2160 30@1920*1080 30@1280*720
TYPECAMTOP4K8MPC	30@3840*2160	30@3840*2160 30@1920*1080	30@3840*2160 30@2688*1512 30@1920*1080	30@3840*2160 30@1920*1080 30@1280*720
TYPECAMTOP1080P2MPA	60@1920*1080	60@1920*1080	60@1920*1080	60@1920*1080

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

Interface or Button	Function Description
USB 2.0(2)	Connect USB mouse for easy operation with embedded XCamView software Connect USB flash drive to save pictures and videos Connect 5G WiFi module to transfer video wirelessly in real time Connect USB microphone to record audio and video Connect the USB Voice Control module to enable real-time control of camera snap, recording, freeze, and other operations through voice commands
USB Video	Connect theType C cable to the USB Type-A port of the computer to achieve video image output.
Monitor	The Type-C cable is connected to a monitor with a Type-C video input interface. The monitor provides power to the camera, which outputs 4K/1080P video images to the monitor. The monitor supports automatic switching of 4K/1080P resolution
LED	LED status indicator
Video Output Interface	**Function Description**
Monitor Interface	Comply with Type-C standard 30fps@4K or 30fps@1080P (TYPECAMTOP4K8MPA, TYPECAMTOP4K8MPB, TYPECAMTOP4K8MPC) 60fps@1080P(TYPECAMTOP1080P2MPA)
WiFi Interface	Connecting 5G WiFi adapter (USB slot) in AP/STA mode
USB Video Interface	Connecting USB Video port of PC for video transfer MJPEG format video
Other Function	**Function Description**
Video Saving	Video format：8M (3840*2160) H264 encoded MP4 file(TYPECAMTOP4K8MPA,TYPECAMTOP4K8MPB,TYPECAMTOP4K8MPC) 2M (1920*1080) H264 encoded MP4 file(TYPECAMTOP1080P2MPA) Video saving frame rate：30fps(TYPECAMTOP4K8MPA,TYPECAMTOP4K8MPB,TYPECAMTOP4K8MPC); 60fps（TYPECAMTOP1080P2MPA）
Image Capture	8M (3840*2160 TYPECAMTOP4K8MPA, TYPECAMTOP4K8MPB, TYPECAMTOP4K8MPC) JPEG/TIFF image in USB flash drive 2M (1920*1080 TYPECAMTOP1080P2MPA) JPEG/TIFF image in 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 Conversion，50HZ/60HZ Anti-flicker Function
Image Operation	Zoom In/Zoom Out (Up to 10X), Mirror/Flip, Freeze, Grids, Overlay, Compare (Comparison between real time video and images in 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

Software Environment under WiFi/USB Video Output	
White Balance	Auto White Balance
Color Technique	Ultra-Fine Color Engine
Capture/Control SDK	Windows/Linux/Mac
Recording System	Still Picture or Movie
Operating System	Microsoft® Windows® / 7 / 8 / 8.1 /10/ 11(32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 8GB or More
	USB interface: USB 2.0 interface or higher
	Type-C interface: Supports Video Input
Operating Environment	
Operating Temperature (in Centidegree)	$-10^{\circ} \sim 50^{\circ}$
Storage Temperature (in Centidegree)	$-20^{\circ} \sim 60^{\circ}$
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH

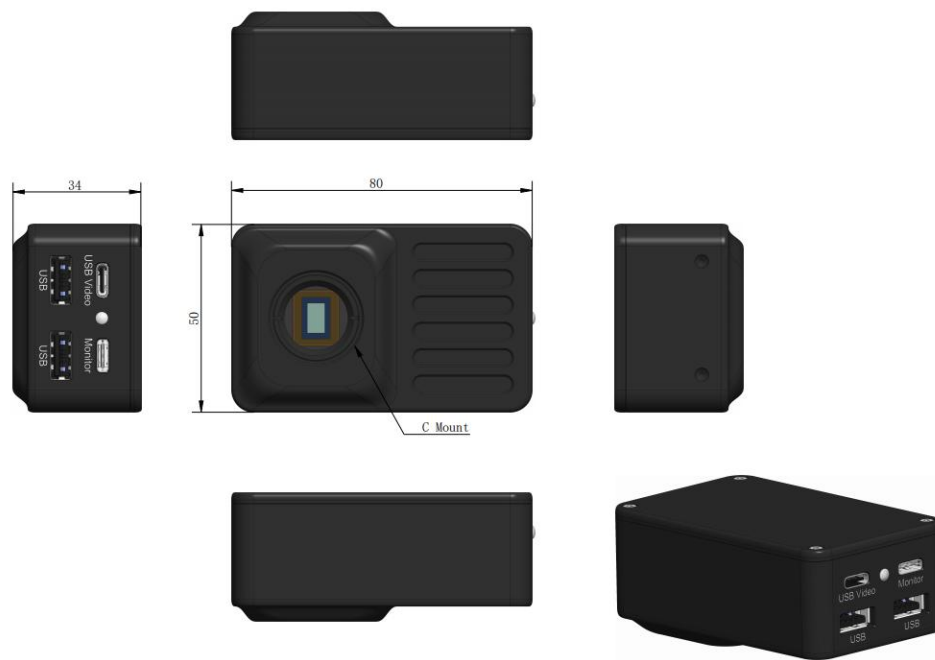# 3 Dimension of TYPECAMTOP Series

Figure 3 Dimension of TYPECAMTOP Series

4   TYPECAMTOP Series Camera Packing Information

Figure 4 TYPECAMTOP Series Camera Packing Information

Standard Packing List	
A	Gift box: L:16.3cm W:16.3cm H:7.4cm
B	TYPECAMTOP Camera (One of the four different shapes)
C	USB Type-C to Type-C data cable 1.5 meters(Connecting the monitor)
D	USB Mouse
E	USB Type-C to Type-A data cable 1.5 meters(Connecting the PC)
Optional Accessory	
F	USB flash drive
G	USB WiFi adapter

5   Software and App

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

Windows: https://www.touptekphotonics.com.cn/download/?dlID=0

macOS: https://www.touptekphotonics.com.cn/download/?dlID=1

Linux: https://www.touptekphotonics.com.cn/download/?dlID=2

Android: https://www.touptekphotonics.com.cn/download/?dlID=3

iOS: https://www.touptekphotonics.com.cn/download/?dlID=4

6 TYPECAMTOP Series Camera Configurations

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

6.1 TYPECAMTOP series cameras are connected to a monitor with a Type-C video input interface through the Monitor interface

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

Figure 5 TYPECAMTOP Series Camera with the Type-C Video Input Interface Monitor

Insert one end of the included Type-C cable into the Monitor interface of the camera, and connect the TYPECAMTOP series camera to a monitor equipped with a Type-C interface on the other end. The monitor supplies power to the camera through a Type-C cable and waits for it to start;
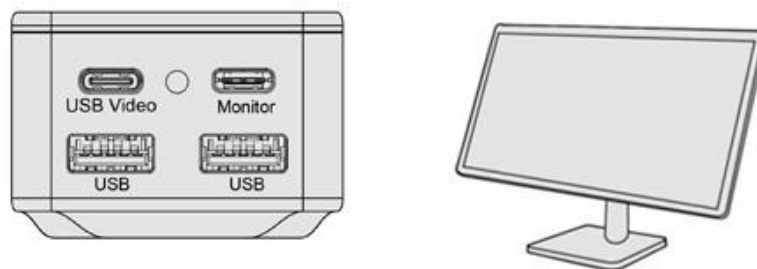
Insert the supplied USB mouse to the camera's USB port;
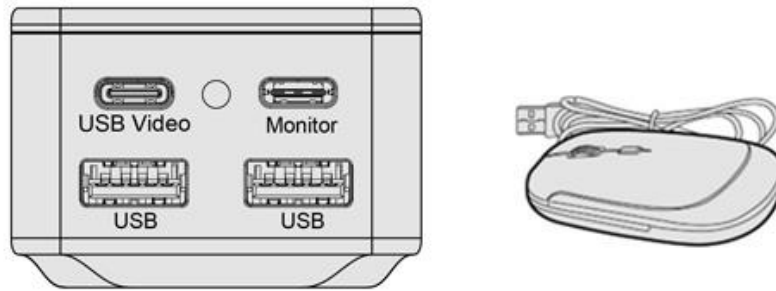
Insert the supplied USB flash drive into the TYPECAMTOP series camera USB slot;
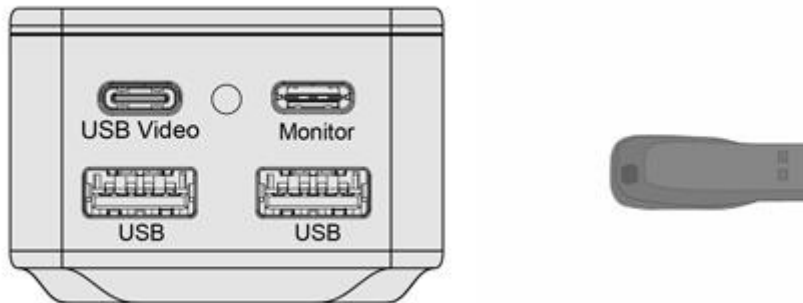
Turn on the monitor and view the video in the XCamView software. Move the mouse to the left, top or bottom of the XCamView UI, different control panel or toolbar will pop up and users could operate with the mouse at ease.
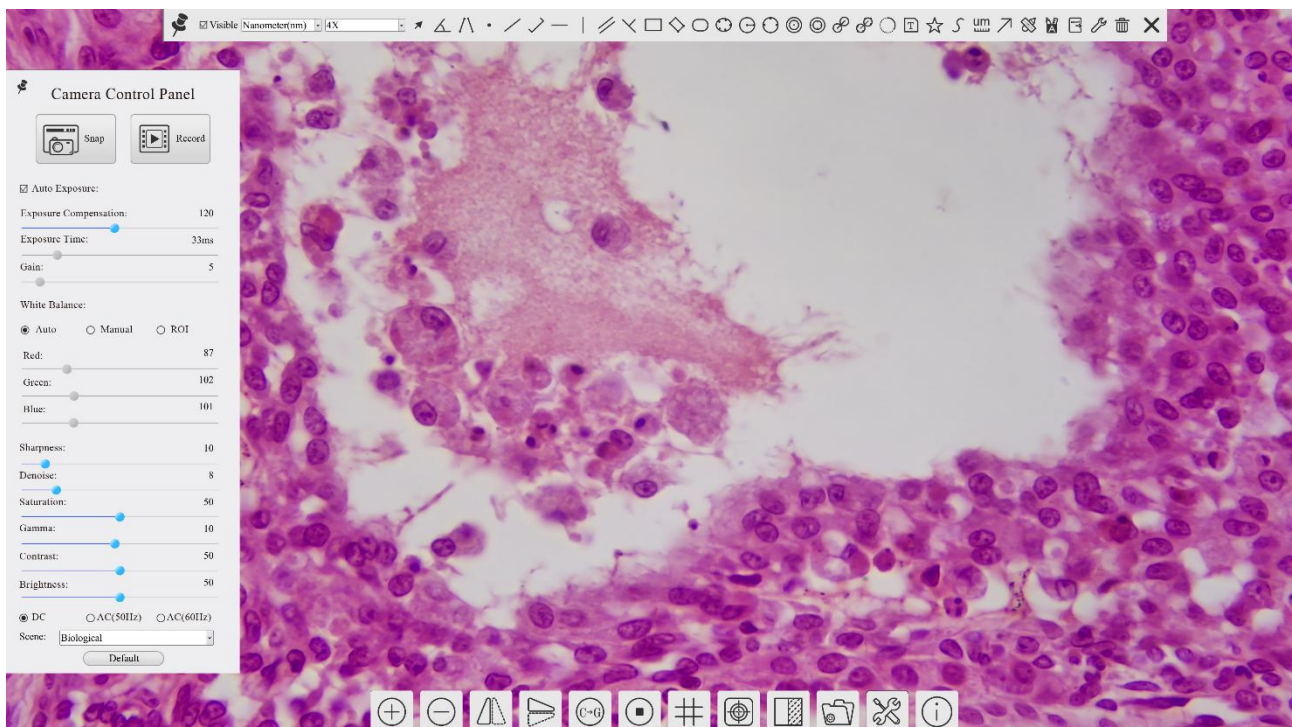

Figure 6 XCamView And TYPECAMTOP Series Camera in Type-C Mode

6.2 TYPECAMTOP series cameras are connected to a computer's USB Type-A interface using a Type-C cable via a USB Video interface

The steps to start the camera are listed below:

Install ToupView/ToupLite software on a PC;

Connect camera to computer with Type-C cable. Please use "USB Video" slot, NOT "USB Mouse" slot as shown below. The Type-C cable provides power to the camera, and the other end is plugged into the USB Type-A port of the PC, The computer supplies power to the camera through a Type-C cable;
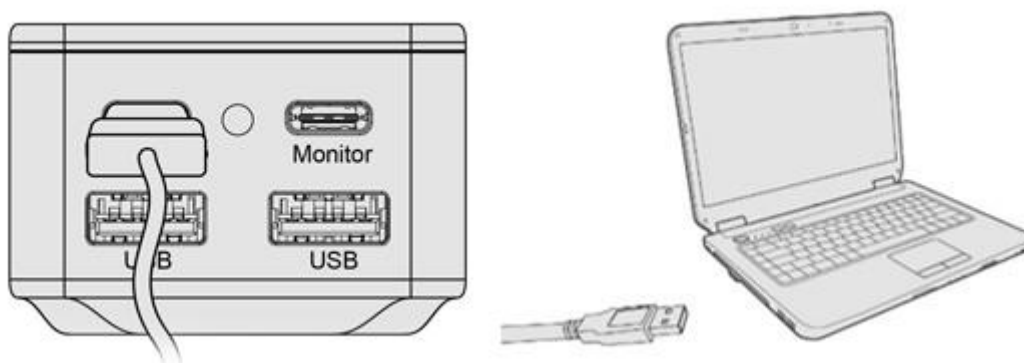
Install ToupView/ToupLite on your PC or install ToupView App on the mobile device; Run the software ToupView/ToupLite, clicking the camera name in the camera list n to start the live video as shown in Figure 7.
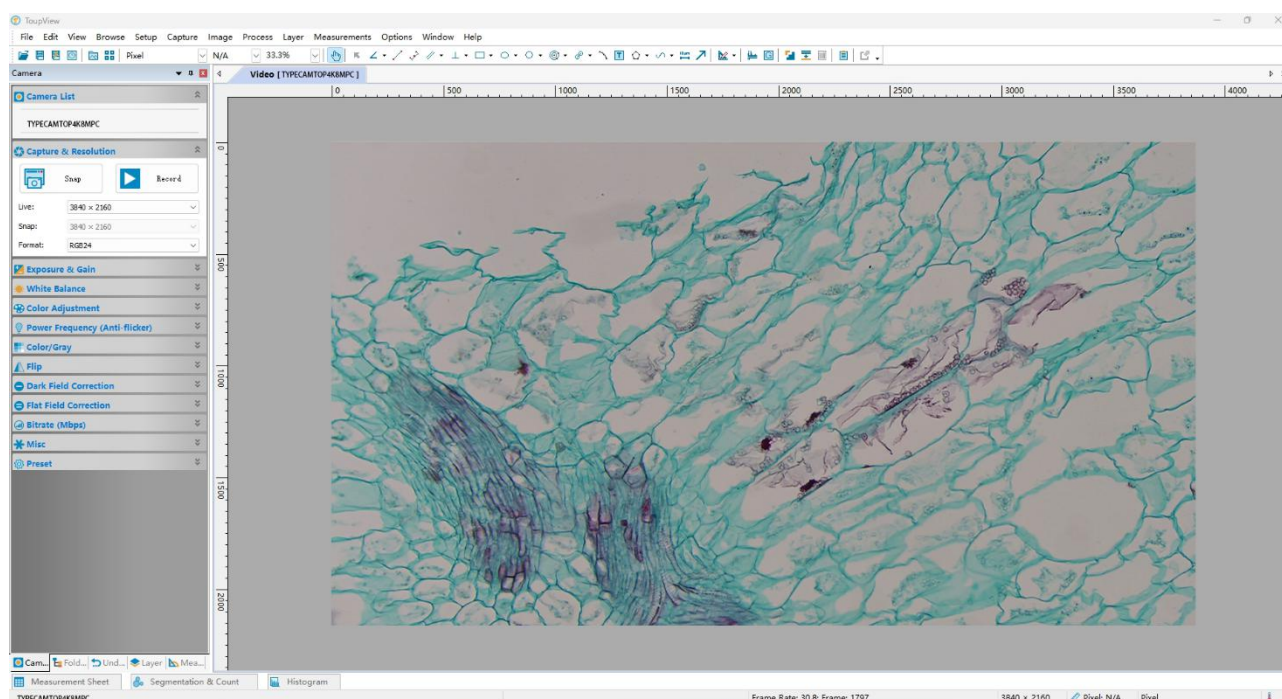

Figure 7 ToupView and TYPECAMTOP Series Camera in USB Mode

6.3   The TYPECAMTOP series cameras are connected to a display via the Monitor interface and to a computer via the USB Video port, enabling dual-channel synchronous video output.

The steps to start the camera are listed below:

Start the camera according to Sec6.1, Connect one end of the included Type-C cable to the camera's Monitor interface and the other end to a display equipped with a Type-C interface. Then, connect one end of another Type-C cable to the USB Video port of the TYPECAMTOP series camera and the other end to a USB Type-A port on a PC. In this application scenario, the monitor supplies power to the camera.
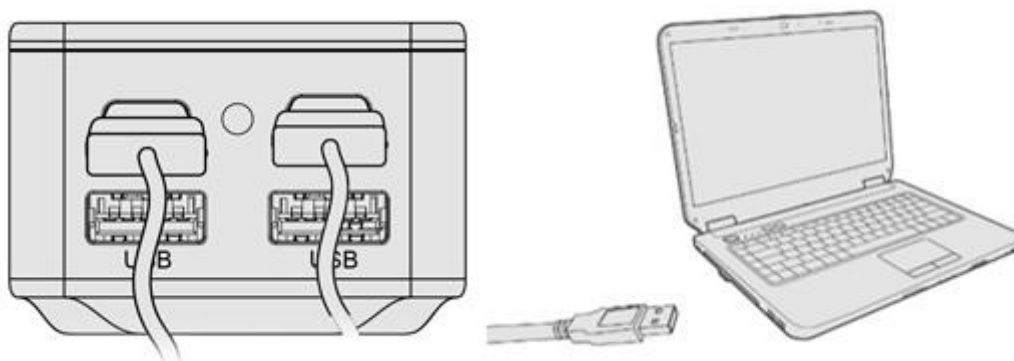
Install ToupView/ToupLite on your PC or install ToupView App on the mobile device; Run the software

ToupView/ToupLite, clicking the camera name in the camera list n to start the live video as shown in Figure 8.

After the USB Type-C cable is connected, the mouse will not work. If you want to use the mouse, please unplug the USB Type-C cable.
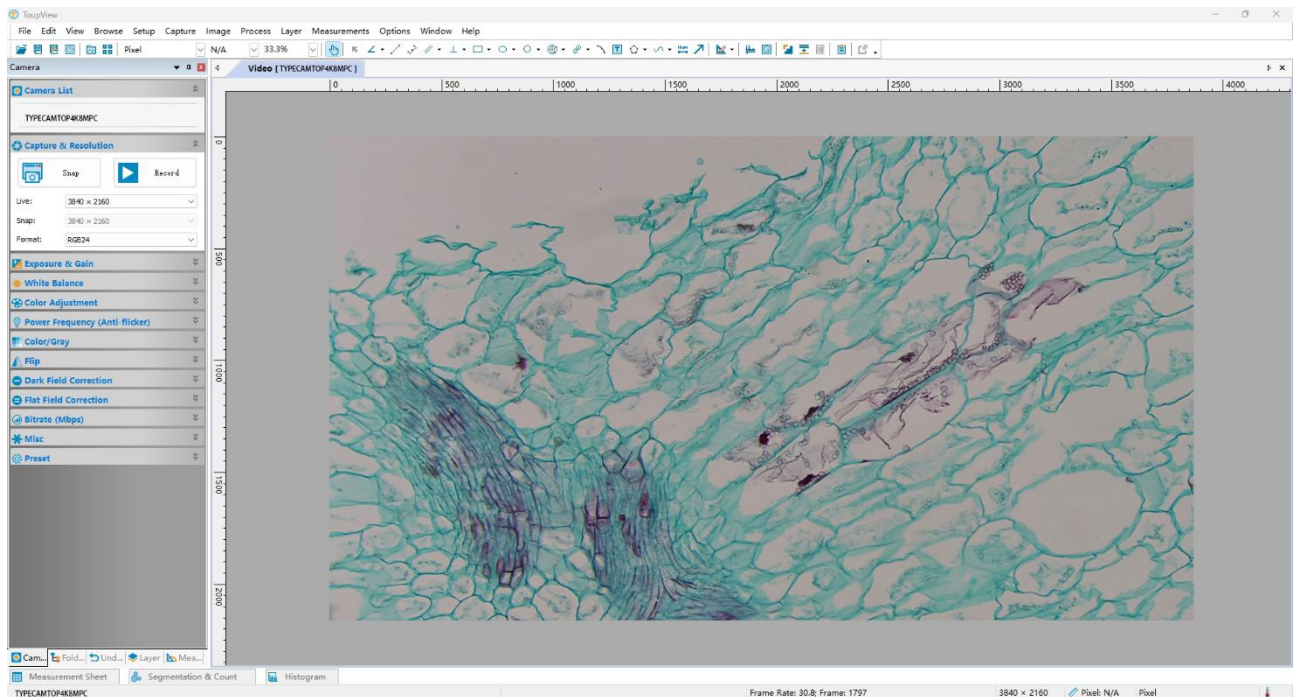

Figure 8 ToupView and TYPECAMTOP Series Camera in USB Video Mode

6.4   Camera working in WiFi mode (AP mode)

Please make sure your PC is WiFi enabled.

Figure 9 The PC or Mobile Device Connect to the Camera through WiFi

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 Sec6.1. 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 Setings>WiFi property page and choose the AP in the Wi-Fi Mode edit box(The factory default configuration is AP mode).
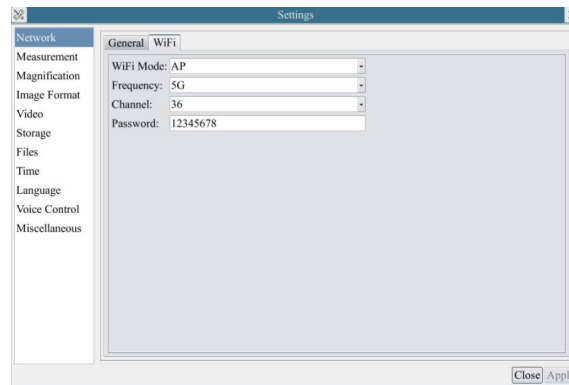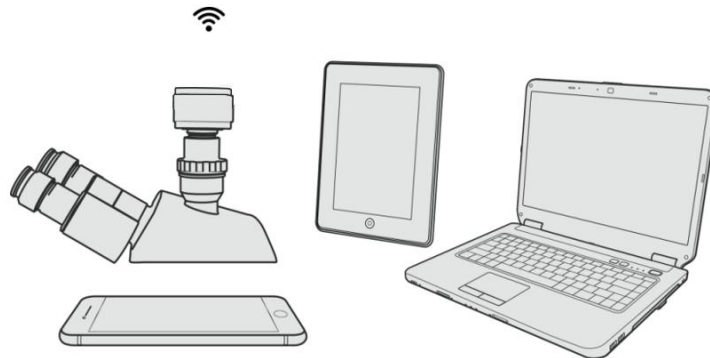
Plug the USB WiFi adapter into the camera's USB port;
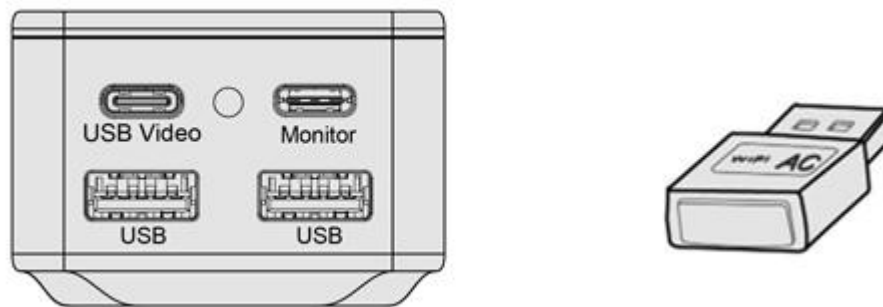
Install ToupView/ToupLite on your PC or install ToupView App on the mobile device, Connect the PC or mobile device to the camera's WiFi AP point; The WiFi name (SSID) and the WiFi password (The default one is 12345678) can be found on the camera's Setting>Network>WiFi page in AP mode.

Start ToupView/ToupLite software or ToupView App and check the configuration. Normally, the active TYPECAMTOP series cameras will be automatically recognized. The live image of each camera is shown in Figure 10. For the display, the Camera List tool window is used in ToupView/ToupLite software, and the Camera Thumbnail is used in ToupView App.
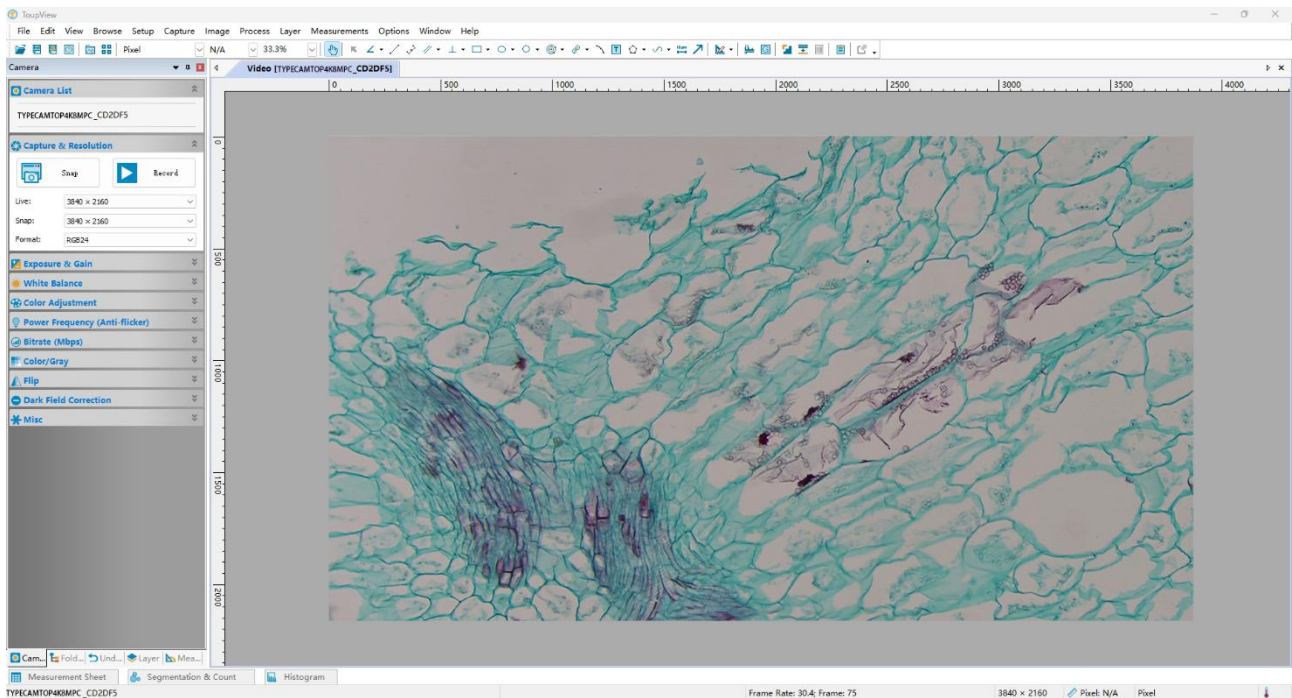
Figure 10 ToupView and TYPECAMTOP Series Camera in WiFi AP Mode

6.5   Connecting multi-cameras to the router through the WiFi STA mode for the network application

Multi TYPECAMTOP series cameras are connected to router through the WiFi STA mode, and the user can control the Type-C camera on the computer or mobile device through WiFi.


Figure 11 Multi TYPECAMTOP Series Cameras Connecting to the Router through the WiFi Style

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> WiFi property page and choosing the STA in the WiFi Mode edit box (The factory default configuration is AP mode). Choice or input the to be connected router's SSID and Password as shown below:
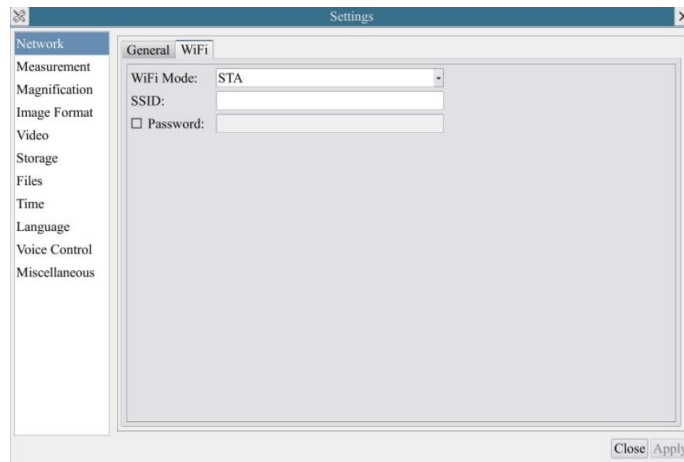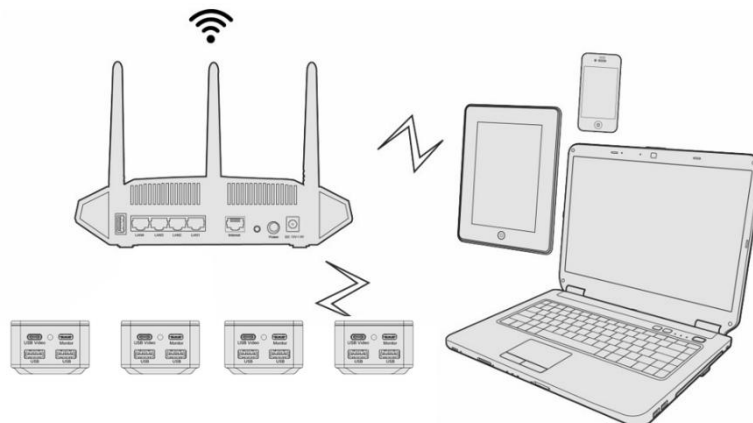
Install ToupView /ToupLite software on your PC. Alternatively, install the free ToupView App on the mobile device;

Plug the USB WiFi adapter into the camera's USB port(for those connected to router with WiFi STA mode), the upper left corner of the Type-C graphics interface will display "STA Mode";
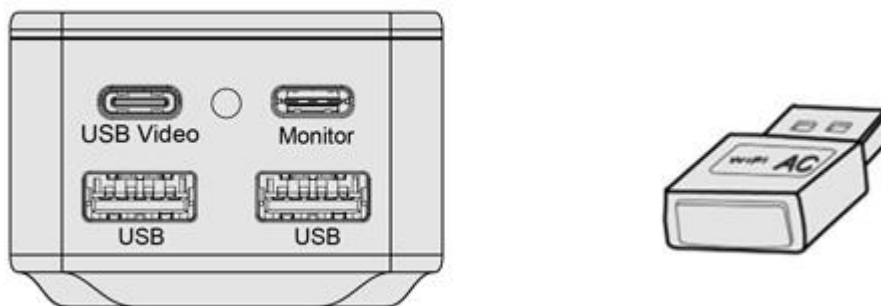
Finally, as shown below, 4 TYPECAMTOP cameras are connected to the same router with WiFi STA mode (The number of the cameras is determined by the router performance).

Make sure that your PC or your mobile device is connected to the WiFi of the router; Start ToupView/ToupLite software or ToupView App and check the configuration. Normally, active TYPECAMTOP cameras are automatically recognized. The live image of each camera is displayed. For the display, Camera List group is used in ToupView/ToupLite software, and Camera Thumbnail is used in ToupView App; Select the TYPECAMTOP 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 12)

About the routers/switches

It is suggested that routers/switches supporting WiFi 5G should be selected to achieve better wireless connection experience.

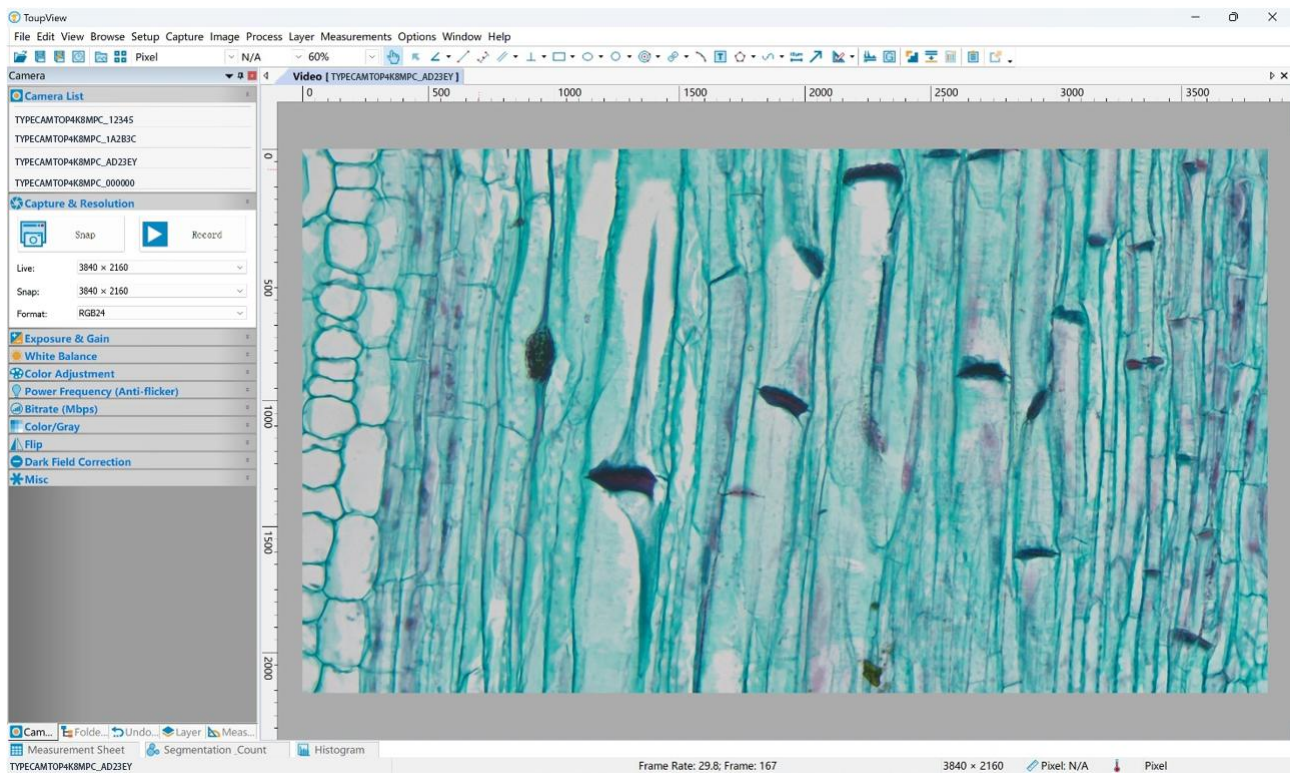Figure 12 ToupView and TYPECAMTOP Series Camera in WiFi STA mode

7   Brief Introduction of TYPECAMTOP UI and Its Functions

7.1   XCamView UI

The TYPECAMTOP UI shown in Figure 13 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.

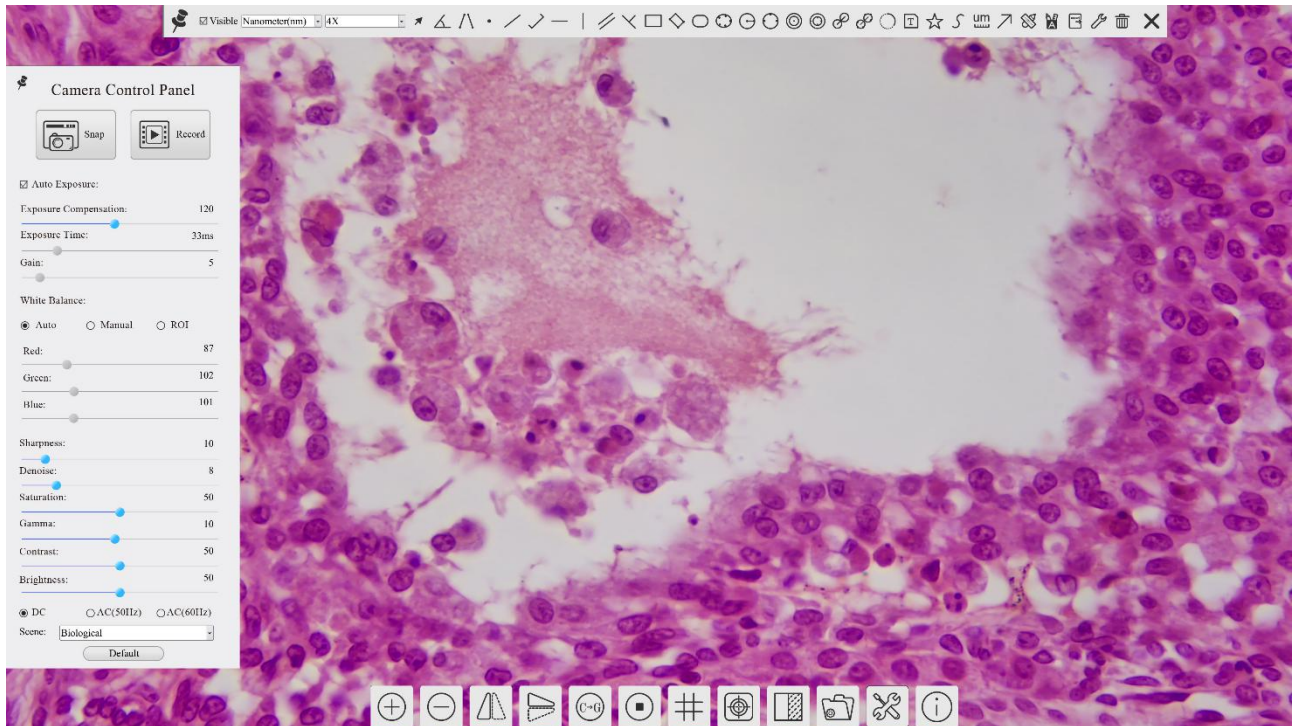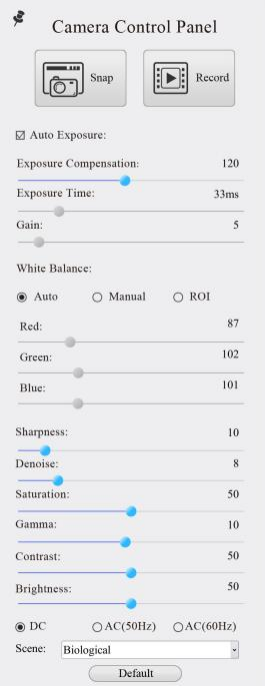Figure 13 The TYPECAMTOP Series Camera's Control UI

Notes	
1	To show the Camera Control Panel, 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 Measurement Toolbar will pop up for calibration and measurement operations. When user left-clicks the Float/Fixed button ✈ on the Measurement Toolbar, the Measurement Toolbar will be fixed. In this case the Camera Control Panel 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 Measurement Toolbar to exit from measuring procedure will they be able to do other operations on the Camera Control Panel, or the Synthesis Camera Control Toolbar. During the measuring process, when a specific measuring object is selected, an Object Location & Attributes Control Bar ⋀ ⋁ ⟨ ⟩ 🔴 🗑 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 Synthesis Camera Control Toolbar 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 USB drive
	Record	Record video and save it to the USB drive
	Auto Exposure	When Auto Exposure is checked, the system will automatically adjust exposure time and gain according to the value of exposure compensation
	Exposure Compensation	Available when Auto Exposure is checked. Slide to left or right to adjust Exposure Compensation according to the current video brightness to achieve proper brightness value
	Exposure Time	Available when Auto Exposure is unchecked. Slide to left or right to reduce or increase exposure time, adjusting brightness of the video
	Gain	Adjust Gain to reduce or increase brightness of video. The Noise will be reduced or increased accordingly
	Auto	White Balance adjustment according to the window video every time the button is clicked
	Manual	Adjust the Red or Blue item to set the video White Balance
	ROI	Check the ROI item will display a red ROI rectangle on the video window, drag it to the interested area will perform the White Balance according to the area video data
	Red	Slide to left or right to decrease or increase the proportion of Red in RGB on video
	Green	Slide to left or right to decrease or increase the proportion of Green in RGB on video
	Blue	Slide to left or right to decrease or increase the proportion of Blue in RGB on the video
	Sharpness	Adjust Sharpness level of the video
	Denoise	Slide left or right to denoise the video
	Saturation	Adjust Saturation level of the video
	Gamma	Adjust Gamma level of the video. Slide to the right side to increase Gamma and to the left to decrease Gamma.
	Contrast	Adjust Contrast level of the video. Slide to the right side to increase Contrast and to the left to decrease Contrast.
	Brightness	Adjust Brightness level of the video. Slide to the right side to increase Brightness and to the left to decrease Brightness.
	DC	For DC illumination, there will be no fluctuation in light source so no need for compensating light flickering
	AC(50Hz)	Check AC (50Hz) to eliminate flickering caused by 50Hz illumination
	AC(60Hz)	Check AC (60Hz) to eliminate flickering caused by 60Hz illumination
	Scene	Select different default parameters according to the type of microscope
	Default	Restore all the settings in the Camera Control Panel 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 14 The Measurement Toolbar on the Upper Side of the Video Window

Icon	Function
	Float/ Fix switch of the Measurement Toolbar
Visible	Show / Hide Measurement Objects
Pixel	Select the desired Measurement Unit
NA	Select Magnification for Measurement after Calibration
	Object Selection
	Angle
	4 Points Angle
	Point
	Arbitrary Line
	3 Points Line

		Horizontal Line
		Vertical Line
		Parallel
		3 Points Vertical
		Rectangle
		3 Points Rectangle
		Ellipse
		5 Points Ellipse
		Center + Radius
		3 Points
		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 Calibration to determine the corresponding relation between magnification and resolution, which will establish the corresponding relationship between measurement unit and the sensor pixel size. Calibration needs to be done with the help of a micrometer. For detailed steps of carrying out Calibration please refer to ToupView help manual.
		Auto Measurement: Two Points Parallel, Circle Detect, Annulus Detect, Rectangle Detect
		Export the Measurement information to CSV file(*.csv)
		Measurement Setup
		Delete all the measurement objects
		Exit from Measurement mode
		When the measurement ends, left-click on a single measuring object and the Object Location & Properties Control Bar 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 Move Left, Move Right, Move Up, Move Down, Color Adjustment and Delete.

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 15 The Synthesis Camera Control Toolbar on the Bottom of the Video Window

Icon	Function	Icon	Function
⊕	Zoom In the Video Window	⊖	Zoom Out the Video Window
	Horizontal Flip		Vertical Flip
C→G	Color Conversion	⊙	Video Freeze
#	Grids	◎	Overlay
	Compare Image with the Current Video		Browse images and videos in the USB drive

✕	Settings		ⓘ	Check the Version of XCamView

The ✕ Setting function is relatively more complicated than the other functions. Here is more information about it:

7.4.1   Setting>Network>General
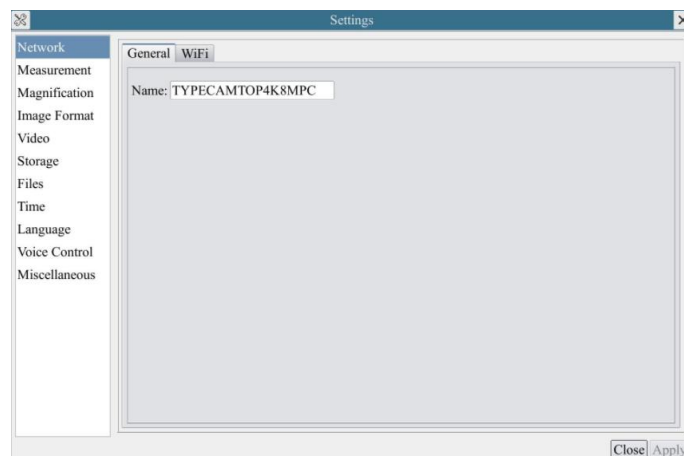
Figure 16 Comprehensive WiFi General Settings Page

Name	The current camera name recognized as the WiFi name

7.4.2   Setting>Network>WiFi

Figure 17 WiFi Setup

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

7.4.3   Setting>Measurement

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

Figure 18 The Measurement Setup

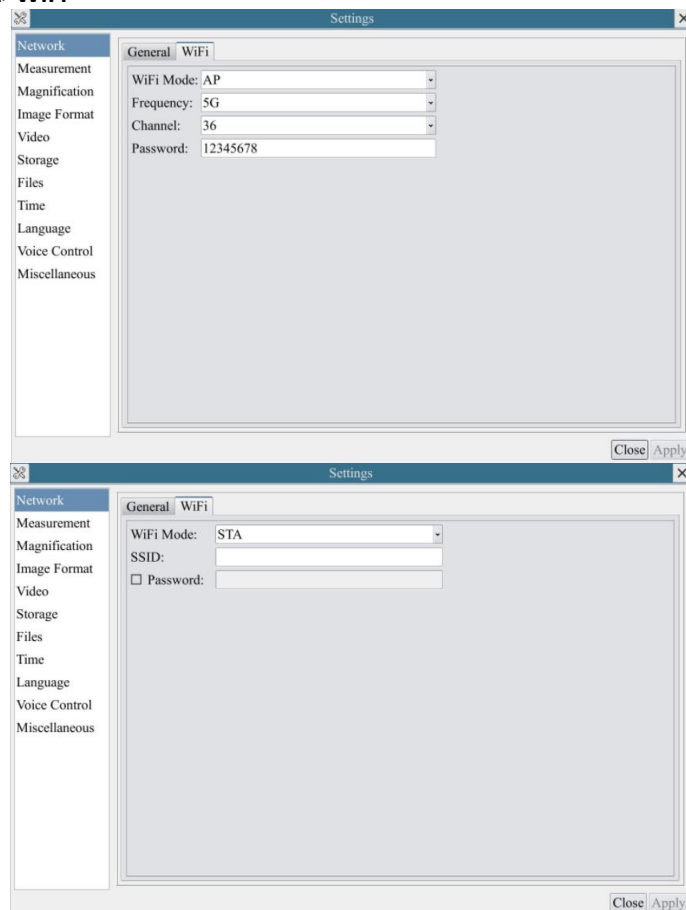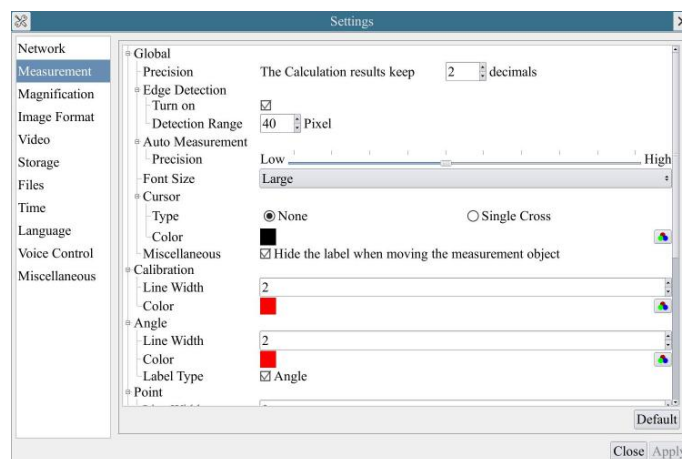|		
Global	Precision	Used for setting digits behind the decimal point for measurement results;
	Edge Detection	Select whether to enable the automatic edge search function and set the detection range;
	Auto Measurement	Used for define the level of accuracy used for auto measurement;
	Font Size	The font size of measurement data can be divided into three types: large, Middle, and Small;
	Cursor	Select whether the cursor is a single crosshair and set the color of the single cross;
	Miscellaneous	Whether to hide the label when moving the measurement objects;
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.	

7.4.4   Setting>Magnification

This page's items are formed by the Measurement Toolbar's Calibration command.
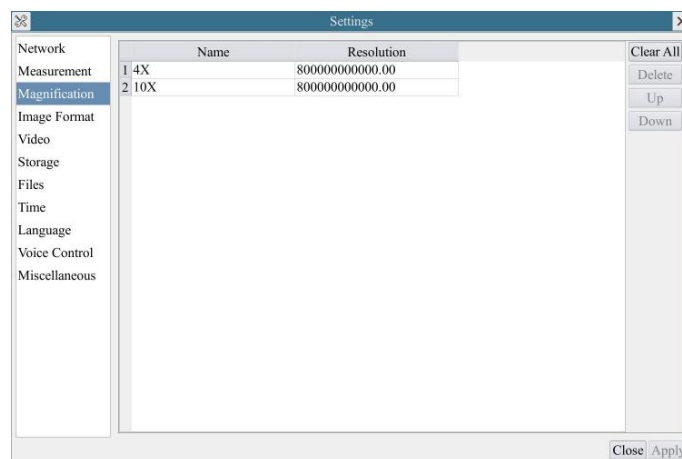
Figure 19 Comprehensive Magnification Settings Page

Name	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.
Resolution	Pixels per meter. Image device like microscopes have high Resolution value;
Clear All	Click the Clear All button will clear the calibrated magnifications;
Delete	Click Delete to delete the selected magnification;
Up	Click Up to delete the selected magnification;
Down	Click Down to delete the selected magnification;

7.4.5   Settings>Image Format

Figure 20 Comprehensive Image Format Settings Page

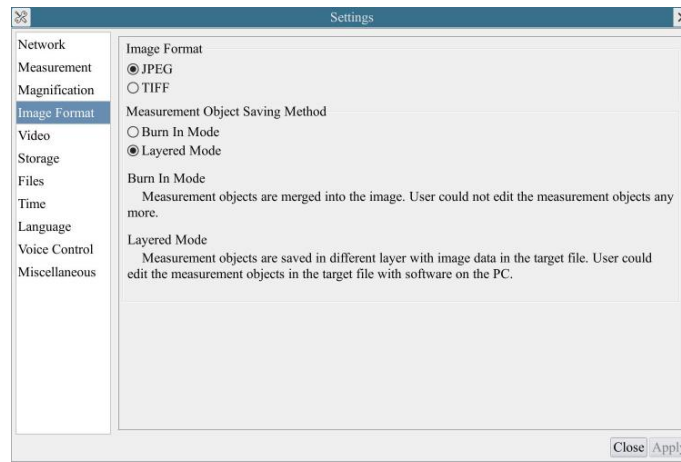| Image Format	JPEG: The extension of JPEG file can get very high compression rate and display very rich and vivid images by removing redundant images and color data. In other words, it can get better image quality with the least disk space. If measurement objects are available, the measurement objects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

7.4.6   Setting>Video
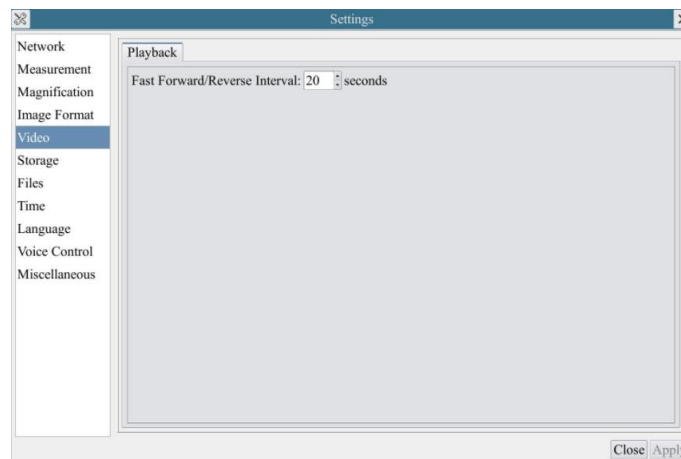
Figure 21 Comprehensive Setting of Video page

Video Playback	Fast Forward/Reverse internal in second unite for Video Playback

7.4.7   Setting>Storage

Figure 22 Comprehensive Setting of Storage Page

File System Format of the Storage Device	List the file system format of the current storage device FAT32: The file system of USB Flash Drive is FAT32. The maximum video file size of single file in FAT32 file system is 4G Bytes; exFAT: The file system of USB Flash Drive is exFAT. The maximum video file size of single file in FAT32 file system is

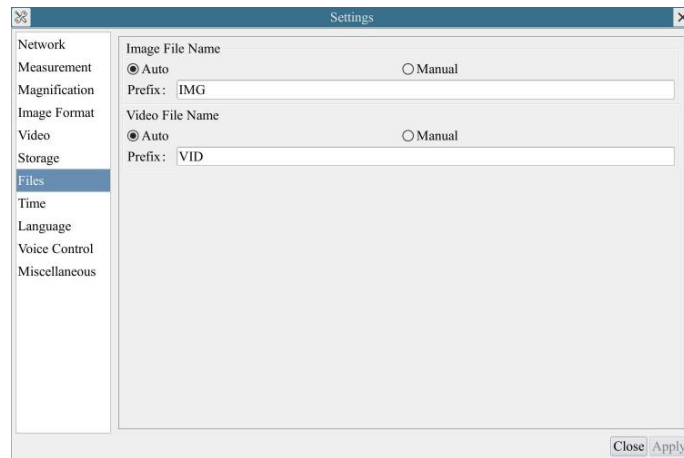| | 16E Bytes; |
	NTFS: The file system of USB Flash Drive is NTFS. The maximum video file size of single file is 2T Bytes.
	Unknown Status: USB Flash Drive not detected or the file system is not identified;
Note: For USB Flash Drive, USB 3.0 interface is preferred.	

7.4.8   Setting>Files

Figure 23 Comprehensive Setting of Files Name

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

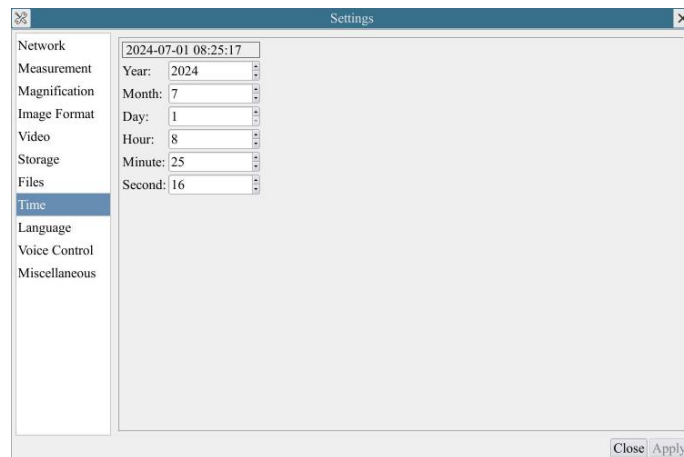### 7.4.9   Setting>Time

Figure 24 Time Setting

Time	User can set Year, Month, Day, Hour, Minute and Second ital.in this page.

7.4.10   Setting>Language

Figure 25 Comprehensive Setting of Language Selection Setting Page

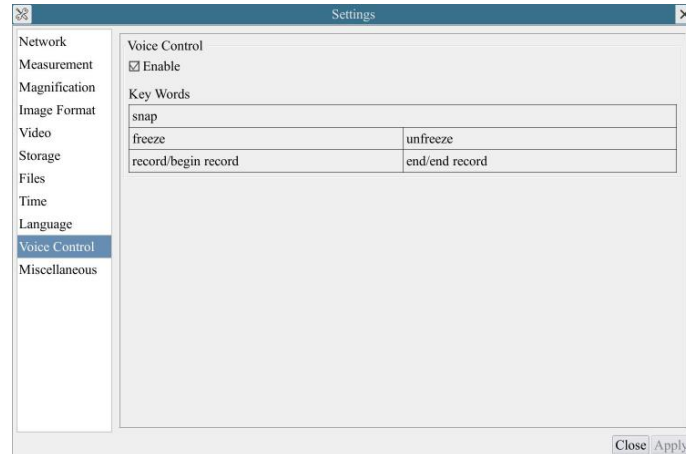| English	Set language of the whole software into English;
Simplified Chinese	Set language of the whole software into Simplified Chinese;
Traditional Chinese	Set language of the whole software into Traditional Chinese;
Korean:	Set language of the whole software into Korean;
Thailand	Set language of the 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;

7.4.11 Setting>Voice Control

Figure 26 Comprehensive Setting of Voice Control

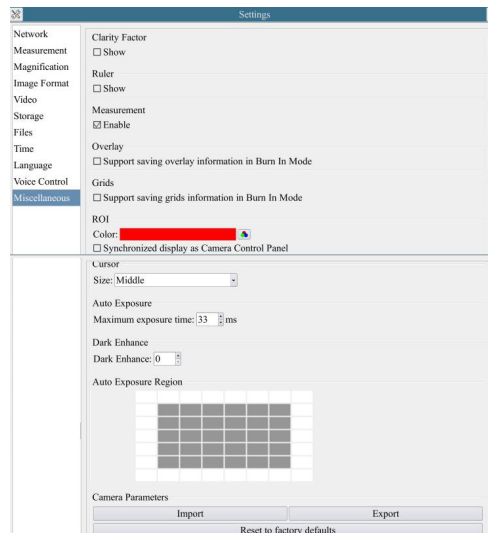| Voice Control	Select whether to enable or not;
Key Words	Provide Key Words for "snap";
	Provide Key Words for "freeze", "unfreeze";
	Provide Key Words for "record/begin record", "end/end record";
Note: After the camera is turned on, if the voice control module is not plugged in, the Key Words information will not be displayed by default;	

7.4.12 Setting>Miscellaneous

Figure 27 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;
Ruler	Select to display the ruler in the video window, otherwise not to display the ruler;
Measurement	Select to display the measurement toolbar in the video window, otherwise not to display the measurement toolbar;
Overlay	Select to support saving graphics overlay information in fusion mode, otherwise it will not support;
Grids	Select to support saving mesh information in fusion mode, otherwise not to support;
ROI Color	Choosing the ROI rectangle line color
Cursor	Choosing the Cursor size according to the screen resolution or personal preference
Auto Exposure	Define the maximum automatic exposure time;
Dark Enhance	Define the intensity value for dark enhancement

Auto Exposure Region	Select the AE reference area;
Camera Parameters Import	Import the Camera Parameters from the USB flash drive to use the previously exported Camera Parameters
Camera Parameters Export	Export the Camera Parameters to the USB flash drive to use the previously exported Camera Parameters
Reset to factory defaults	Restore camera parameters to its factory status;

Auto Exposure Region	Select the AE reference area;
Camera Parameters Import	Import the Camera Parameters from the USB flash drive to use the previously exported Camera Parameters

8   TYPECAMTOP Series Camera Upgrade Method

- Copy the firmware to a USB drive (note: the USB drive must be in FAT32 format);
- Insert the USB flash drive into the USB interface;
- Connect one end of the included Type-C cable to the camera's USB Video interface, and the other end (with a USB Type-A connector) to a computer.;
- The camera will automatically upgrade, and the power indicator light will quickly flash blue, indicating that the upgrade is in progress. The blue light is constantly on, indicating that the upgrade is complete.
- After the upgrade is complete, be sure to remove the upgrade USB drive and delete the upgrade files to prevent the camera from repeating the upgrade process upon the next restart.

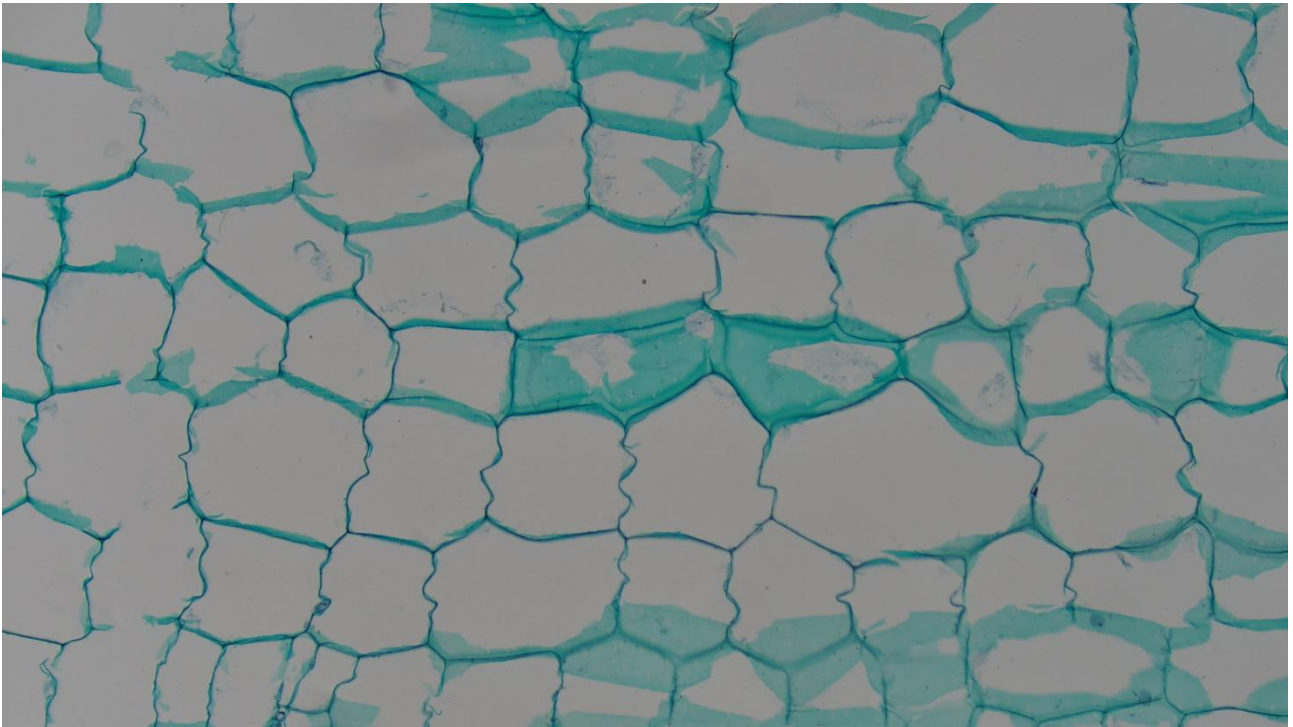**9   Sample Photos Captured with TYPECAMTOP Series Camera**

Figure 28 Cucurbit Stem.L.S. Captured with TYPECAMTOP4K8MPC
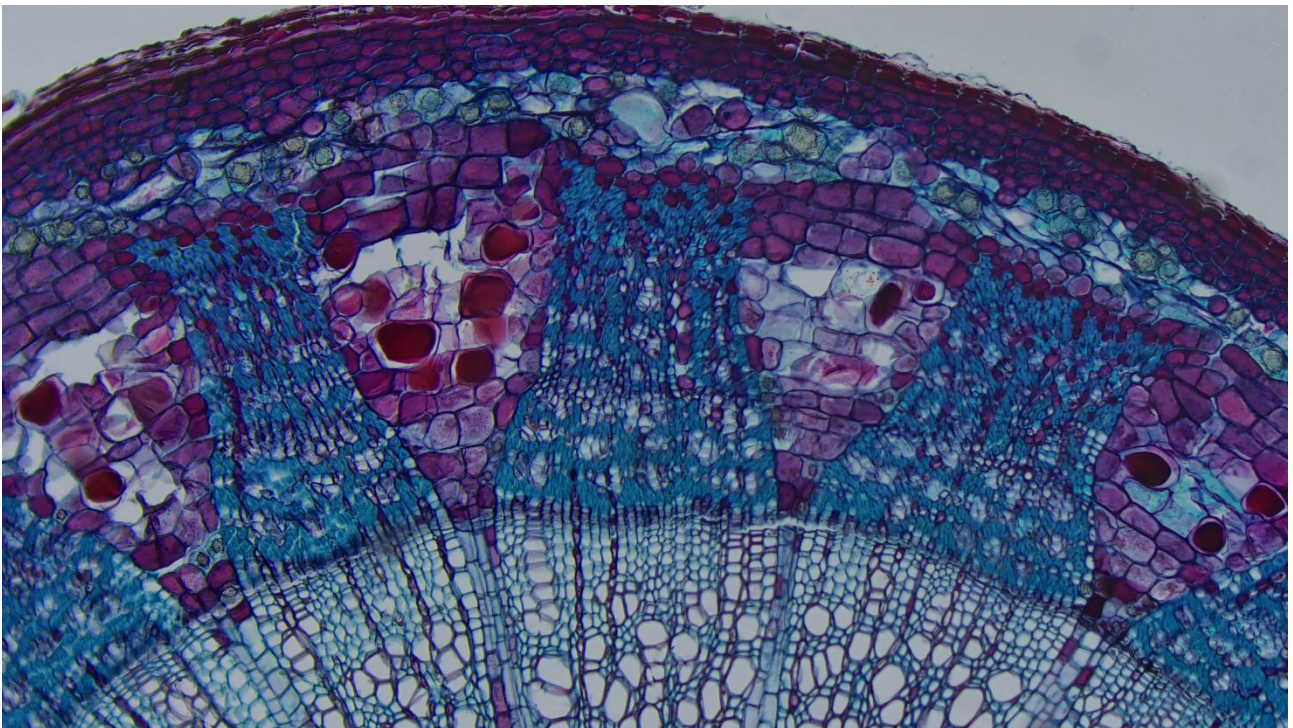

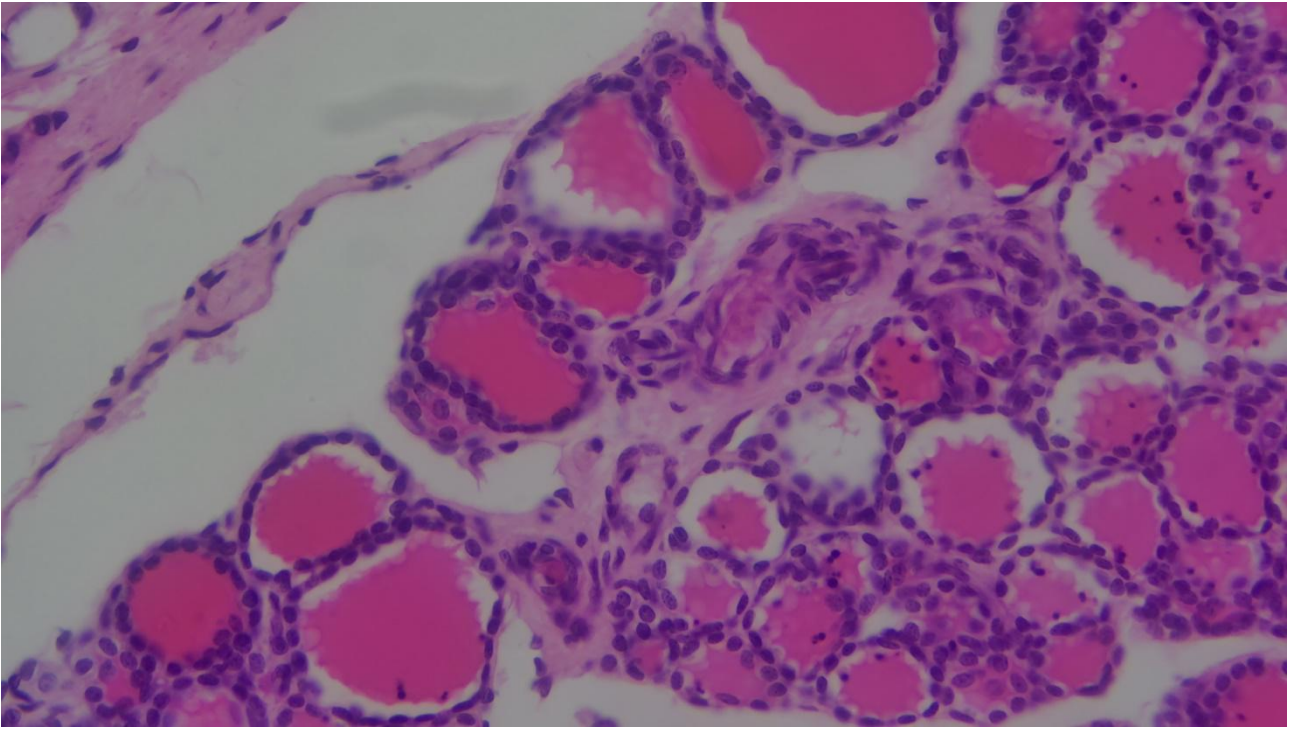Figure 29 Two Year Tilia Stem.C.S. Captured with TYPECAMTOP4K8MPC

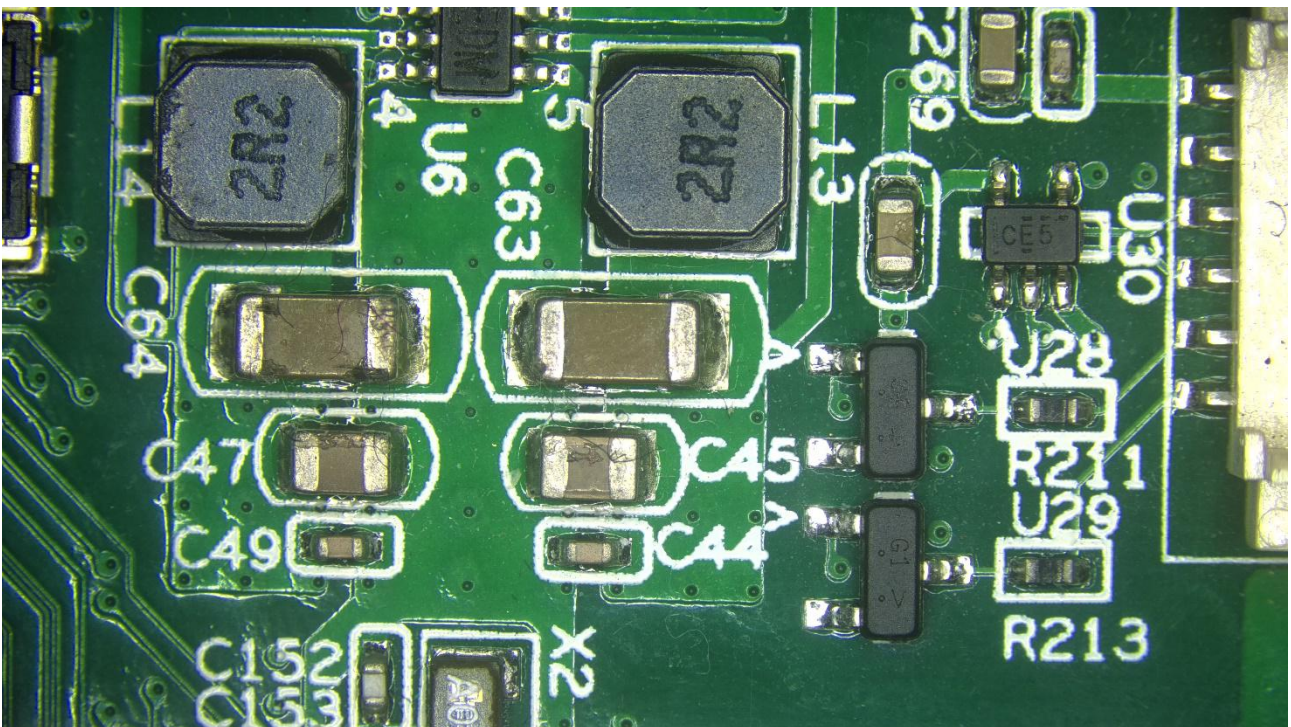Figure 30 Simple Cuboidal Epithelium.Sec. Captured with TYPECAMTOP4K8MPC

Figure 31 Circuit Board Captured with TYPECAMTOP4K8MPC

10   Contacting Customer Service

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