
The SWIR330KMB-WUH Camera Help manual



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1 SWIR330KMB-WUH Camera Application



Figure 1 The SWIR330KMB-WUH Camera

The SWIR330KMB-WUH camera is a short-wave infrared camera utilizing a SONY SWIR indium gallium arsenide (InGaAs) sensor. It features high quantum efficiency and high sensitivity, making it suitable for various industrial applications. Commonly found in sectors such as semiconductor manufacturing, medical imaging and research, video surveillance, security, and packaging, this camera delivers exceptional performance across diverse industrial segments.

The basic characteristic is listed as below:

- Compact size, easy to integrate
- Sony SWIR InGaAs CMOS sensor
- HDMI/ WiFi/ USB 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

2 SWIR330KMB-WUH Camera Datasheet and Functions (1)

Model Parameter	SWIR330KMB-WUH 0.33M pixels 1/4" CMOS USB3 industrial camera
Sensor model	Sony IMX991-AABJ-C
Sensor Type	InGaAs
Spectral Range	400nm-1700nm
Pixel size	5.0 μ m x 5.0 μ m
Sensor size	1/4"
ADC	12 Bit
Frame rate	137fps@640 x 512
Conversion Gain	43.0e/ADU
Dynamic range	59.6dB
Readout Noise	178.8e
Full Well	176.2ke
SNRmax	52.5dB
Sensitivity	121mV
Dark current	638e/s(20°C)
Exposure time	0.04-1000ms
Shutter	Global shutter
Binning	Software 1x1
Data Format	12bit
Optical filter	400-1800nm(default); 1030-1800nm(optional)
CRA	2.35 Deg

Camera Model	Video Saving (FPS/Resolution)	HDMI1.4 (FPS/Resolution)	USB (FPS/Resolution)	WiFi (FPS/Resolution)
SWIR330KMB-WUH	137@640*512	60@1920*1080	137@640*512	137@640*512



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

Interface or Button	Function Description
USB Mouse	Connect USB mouse for easy operation with embedded XCamView software
USB Video	Connect a Micro USB cable to a computer terminal to achieve video image transmission
HDMI	Comply with HDMI1.4 standard. 1080P format video output
DC12V	Power adapter connection (12V/1A)
USB2.0	Connect USB flash drive to save pictures and videos Connect USB microphone to record audio and video Connect the 5G WiFi adapter module to achieve wireless video and image transmission Connect the USB Voice Control module to enable real-time control of camera snap, recording, freeze, and other operations through voice commands
LED	LED status indicator
Video Output Interface	Function Description
HDMI Interface	Comply with HDMI1.4 standard 60fps@1080P
WiFi Interface	Connecting 5G WiFi adapter (USB2.0 slot) in AP/STA mode
USB Video Interface	Connecting Micro USB port of PC for video transfer MJPEG format video
Other Function	Function Description
Video Saving	Video format: 330K (640*512) H264 encoded MP4 file Video saving frame rate: 137fps

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Image Capture	330K (640*512) 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 , Sharpening , 3D Denoise , Contrast Adjustment , Brightness Adjustment , Gamma Adjustment , 50HZ/60HZ Anti-flicker Function
Image Operation	Zoom In/Zoom Out (Up to 10X), Horizontal/Vertical Flip, Freeze, Cross Line, 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

USB Video Interface	Connecting Micro USB port of PC for video transfer MJPEG format video
Video Saving	Static images or videos
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

Operating Environment

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 SWIR330KMB-WUH

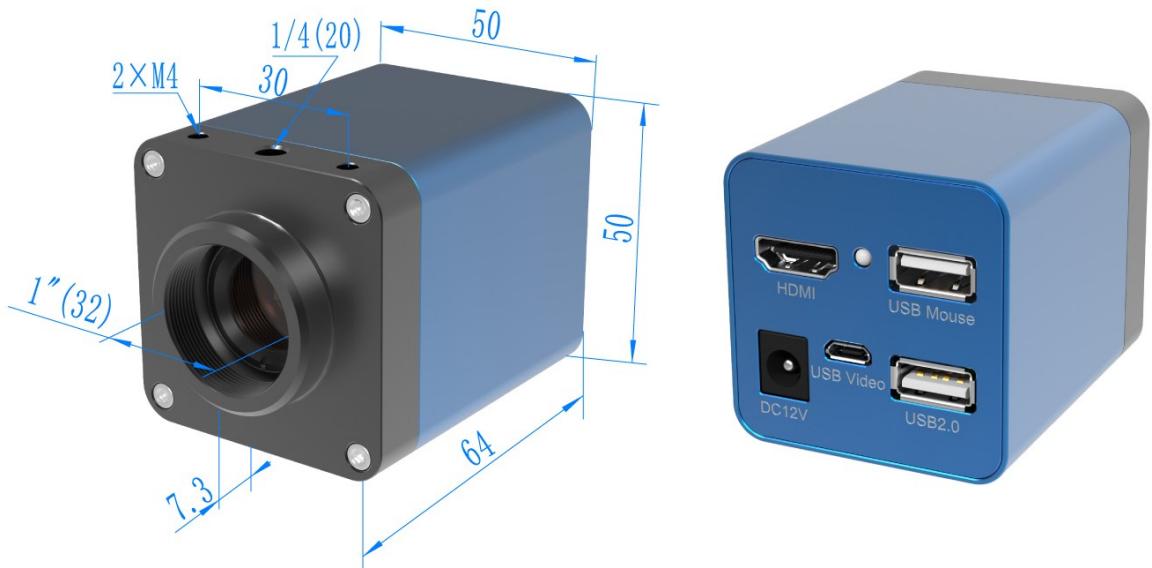


Figure 3 Dimension of SWIR330KMB-WUH

4 SWIR330KMB-WUH Camera Packing Information



Figure 4 SWIR330KMB-WUH Camera Packing Information

Standard Packing List			
A	Gift box: L:25.5cm W:17.0cm H:9.0cm (1pcs, 1.57Kg/ box)		
B	SWIR330KMB-WUH 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-C10001C12.0-12W-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		
F	Micro USB cable		
Optional Accessory			
G	Voice Control Module		
H	USB flash drive		
I	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
J	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
<p>Note: For I and L 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;</p>			
K	108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube		
L	108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube		
M	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/>

macOS: <https://www.touptekphotonics.com.cn/download/?category=macOS>

Linux: <https://www.touptekphotonics.com.cn/download/?category=Linux>

Android: <https://www.touptekphotonics.com.cn/download/?category=Android>

iOS: <https://www.touptekphotonics.com.cn/download/?category=iOS>

6 SWIR330KMB-WUH Camera Configurations

You can use the SWIR330KMB-WUH camera in 4 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:

- 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 USB flash drive (USB2.0 slot) into the [SWIR330KMB-WUH](#) camera 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.

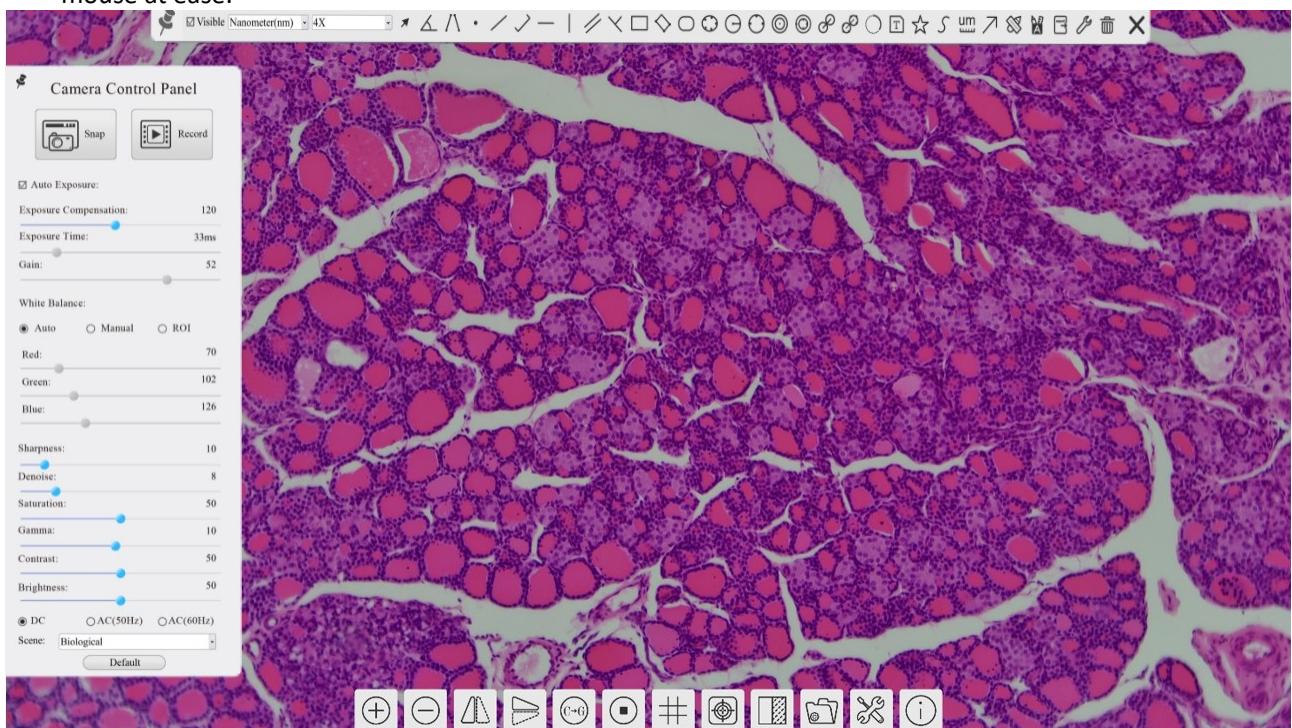


Figure 5 XCamView And SWIR330KMB-WUH Camera in HDMI Mode

6.2 Connecting camera to computers with Micro USB 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 Micro 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 6.

Notice:

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

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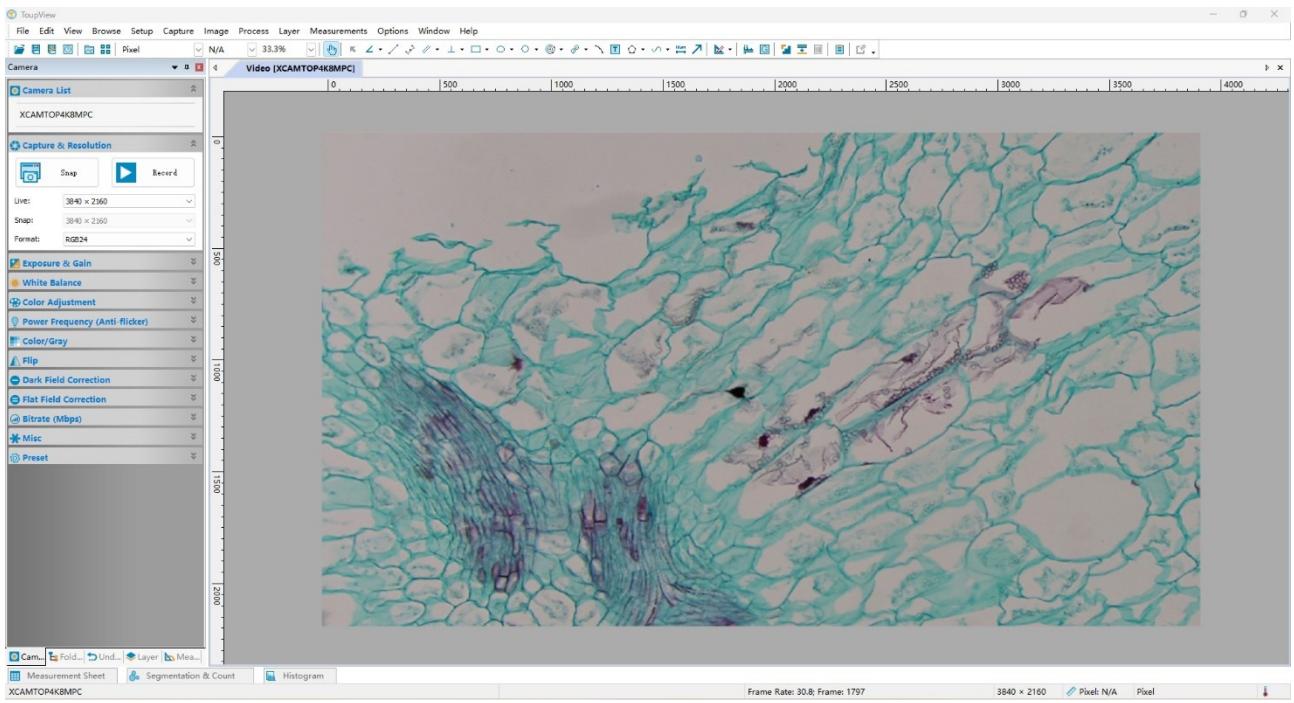


Figure 6 ToupView and SWIR330KMB-WUH Camera in USB Mode

6.3 Camera working in WiFi mode (AP mode)

Please make sure your PC is WiFi enabled.



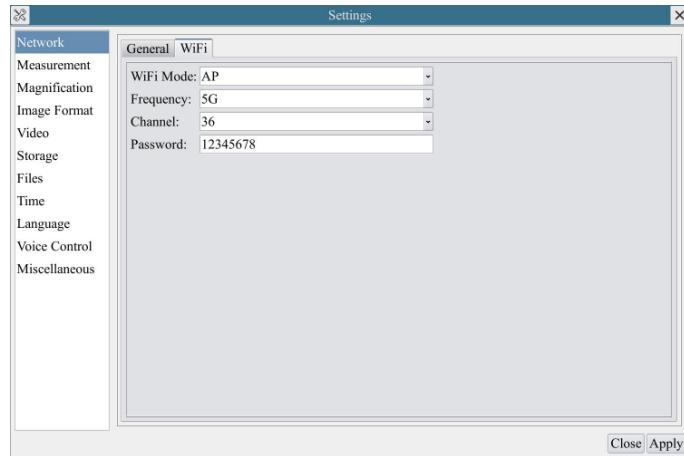
Figure 7 The PC or Mobile Device Connect to the Camera through WiFi

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

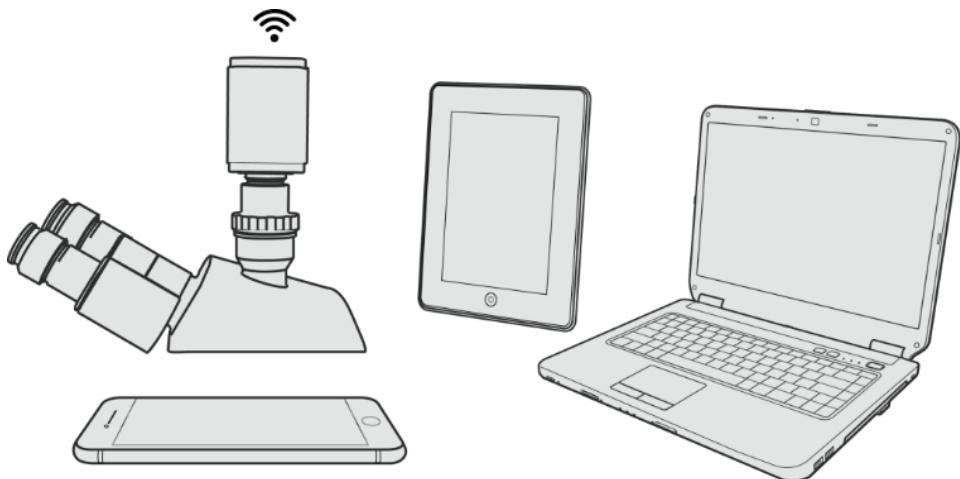
For [macOS](#) and [Linux](#) user ([macOS](#) 10.10 or above or [Linux](#) distributions with kernel 2.6.27 or higher), please use [ToupLite](#). When connecting the camera with a mobile device, the free [ToupView App](#) is required. Just make sure that the mobile device uses iOS 11 or higher/Android 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>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 USB2 .0 port, the upper left corner of the HDMI graphics interface will display "AP mode";
- 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 network 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 SWIR330KMB-WUH cameras will be automatically recognized. The live image of each camera is shown in Figure 8. For the display, the [Camera List](#) tool window is used in [ToupView/ToupLite](#) software, and the [Camera Thumbnail](#) is used in [ToupView App](#).

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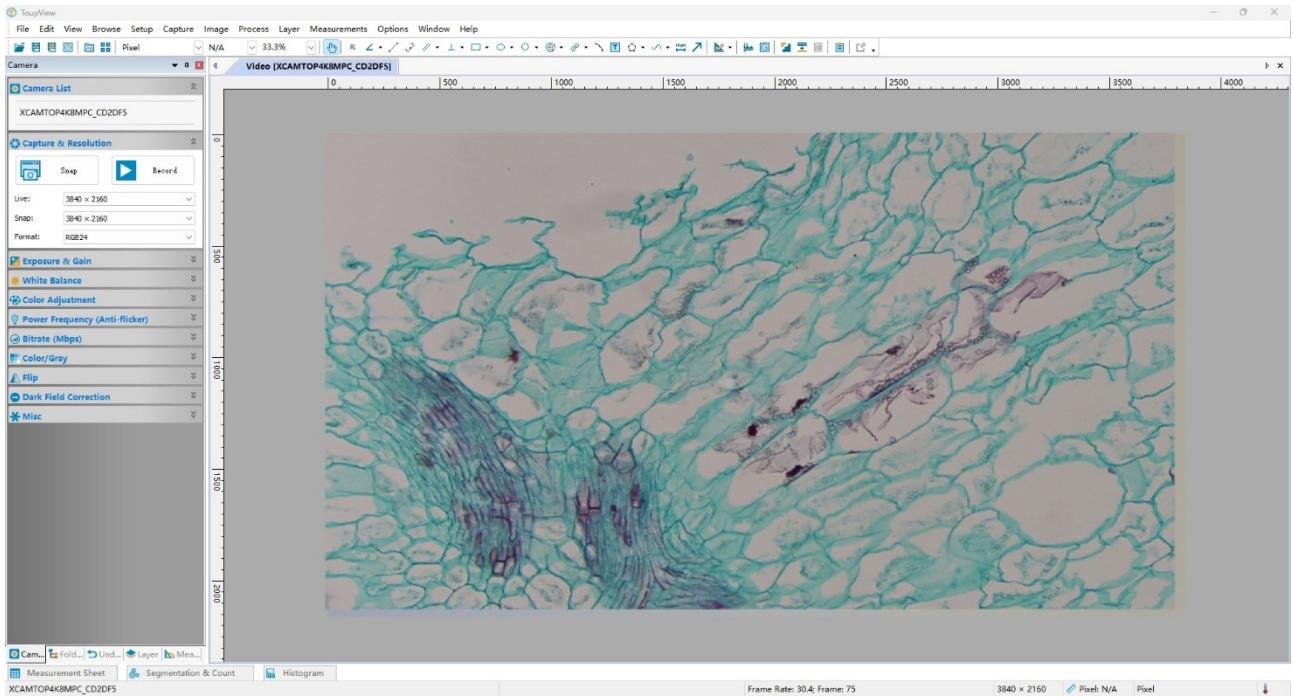


Figure 8 ToupView and SWIR330KMB-WUH Camera in WiFi AP Mode

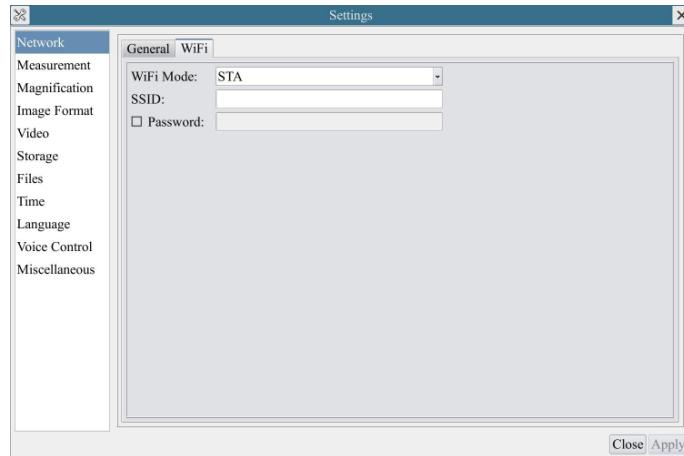
6.4 Connecting multi-cameras to the router through the WiFi STA mode for the network application

Multi SWIR330KMB-WUH cameras are connected to router through the WiFi STA mode, and the user can control the HDMI camera on the computer or mobile device through WiFi.

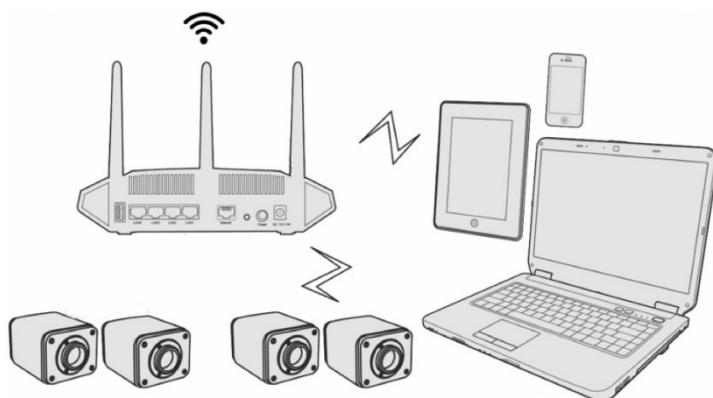


Figure 9 Multi SWIR330KMB-WUH All-in-One Cameras Connecting to the Router through the WiFi Style

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). 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 USB2.0 port(for those connected to router with [WiFi STA](#) mode), the upper left corner of the HDMI graphics interface will display “[STA Mode](#)” ;
- Finally, as shown below, 4 SWIR330KMB-WUH all-in-one cameras are connected to the same router with WiFi STA mode (The number of the cameras are 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 SWIR330KMB-WUH 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 SWIR330KMB-WUH 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 10)

About the routers/switches

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

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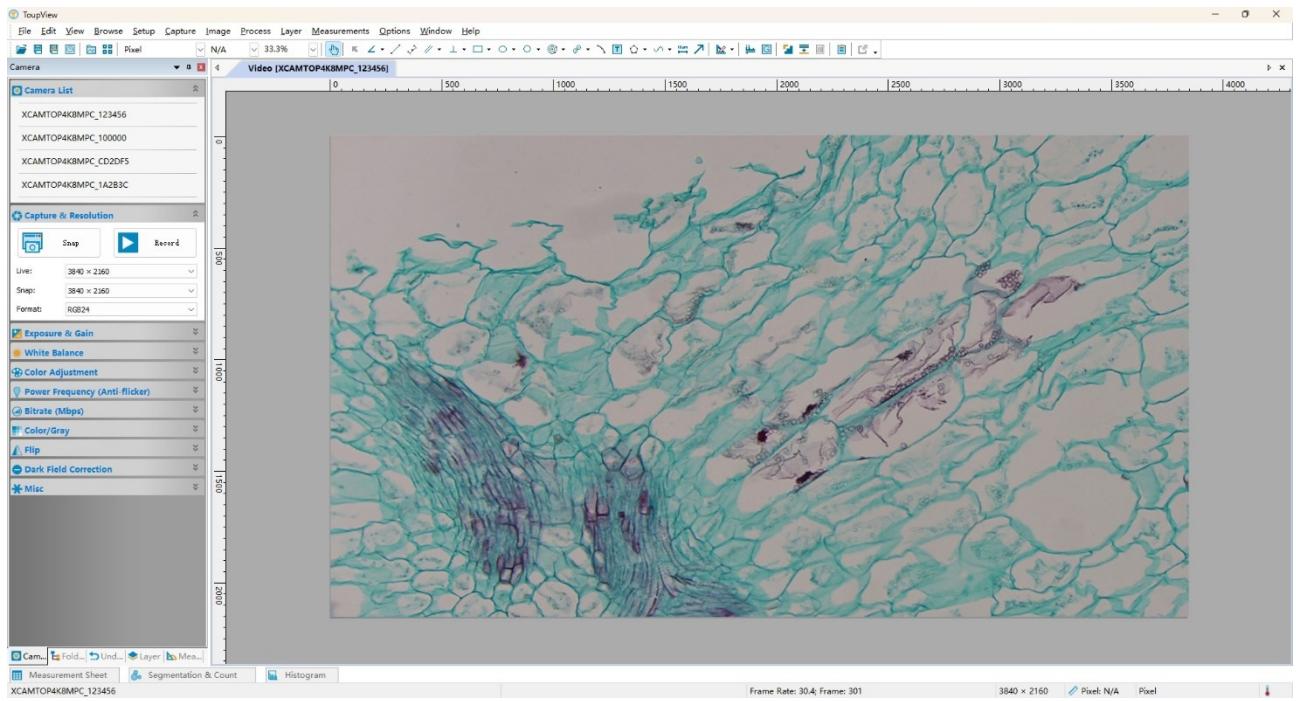


Figure 10 ToupView and SWIR330KMB-WUH Camera in WiFi STA mode

7 Brief Introduction of SWIR330KMB-WUH UI and Its Functions

7.1 XCamView UI

The SWIR330KMB-WUH UI shown in Figure 11 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.

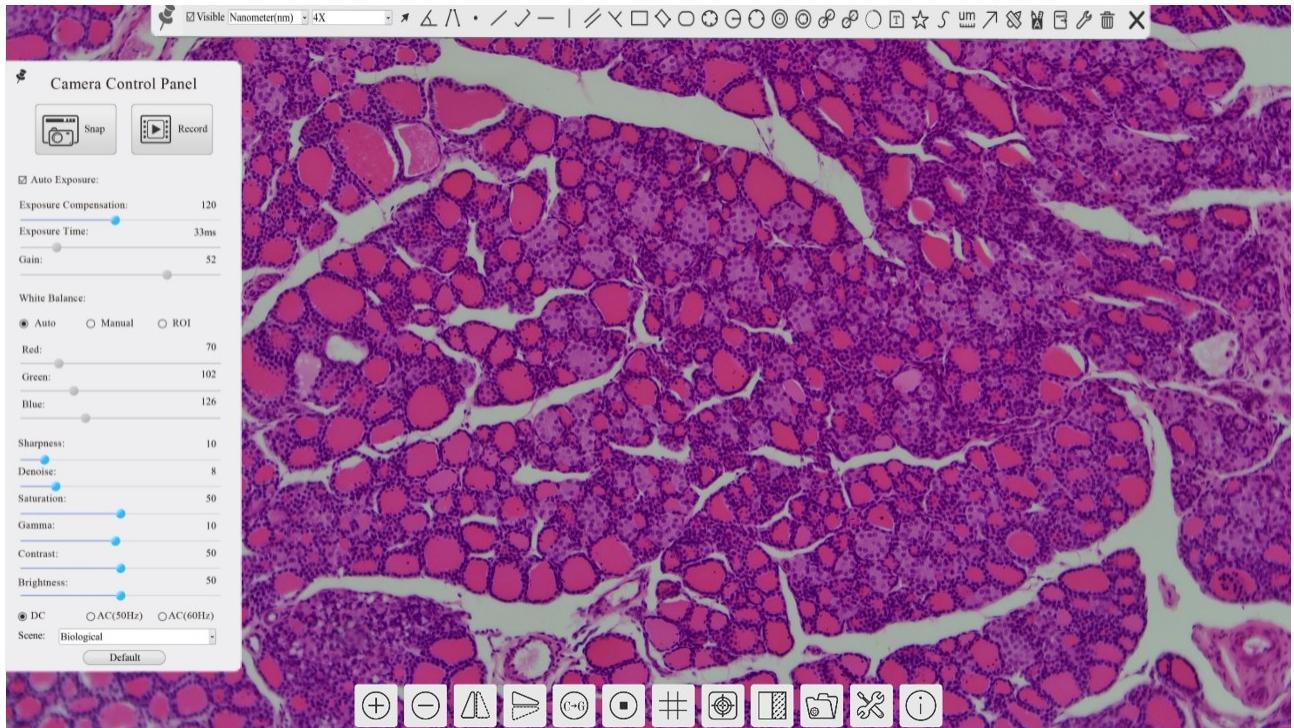
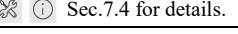
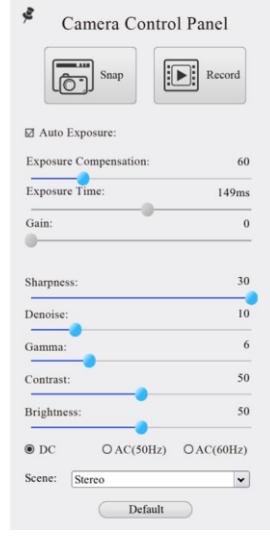


Figure 11 The SWIR330KMB-WUH Camera's Control GUI

Notes	
1	To show the Camera Control Panel , move your mouse to the left of the video window. See 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.  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
	Sharpness	Adjust Sharpness level of the video
	Denoise	Slide left or right to denoise 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
	Scence	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 12 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
	3 Points Rectangle
	Ellipse
	5 Points 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 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 13 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
	Video Freeze		Display Cross Line
	Image 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 [Settings>Network>General](#)

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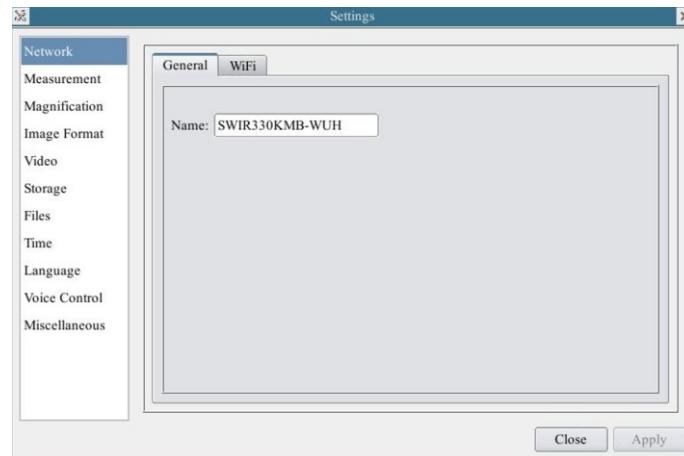


Figure 14 Comprehensive Network General Settings Page

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

7.4.2 Settings>Network>WiFi

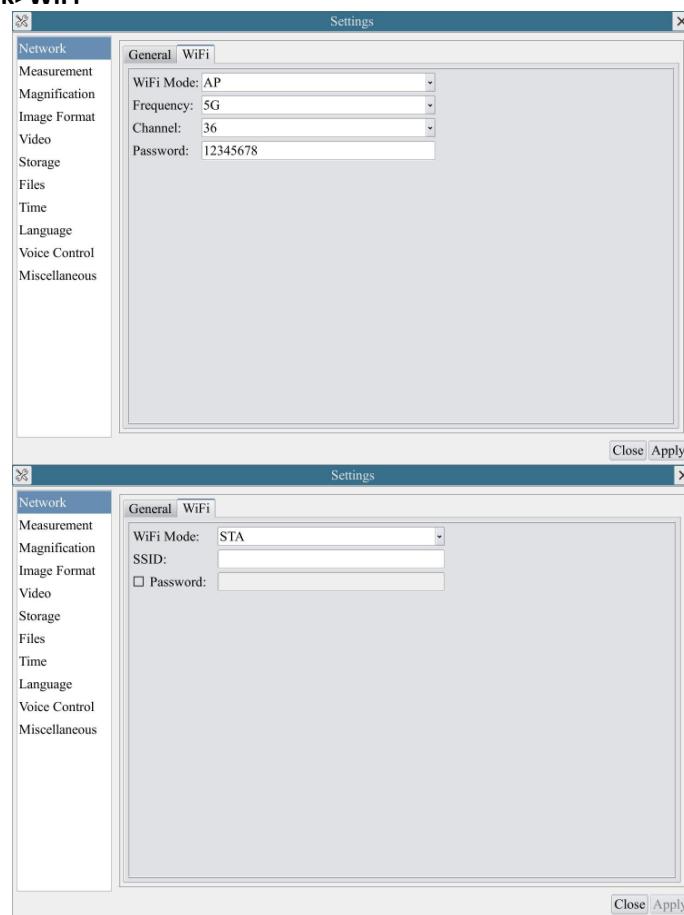


Figure 15 Network Setup

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 Settings>Measurement

This page is used for the define of the [Measurement Object](#) properties.

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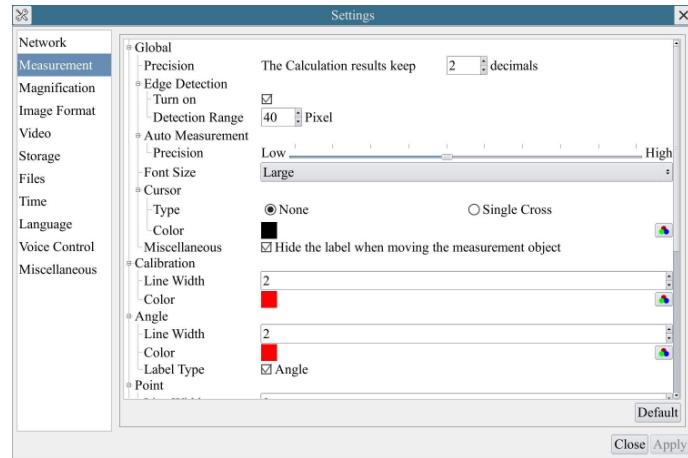


Figure 16 The Measurement Setup

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 Settings>Magnification

This page's items are formed by the **Measurement Toolbar**'s **Calibration** command.

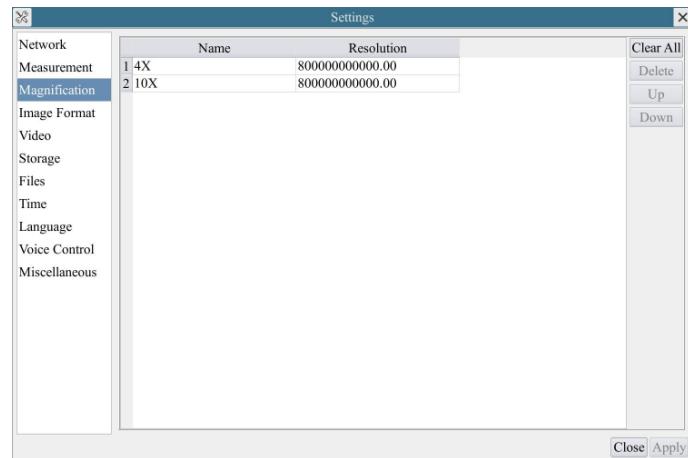


Figure 17 Comprehensive Magnification Settings Page

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

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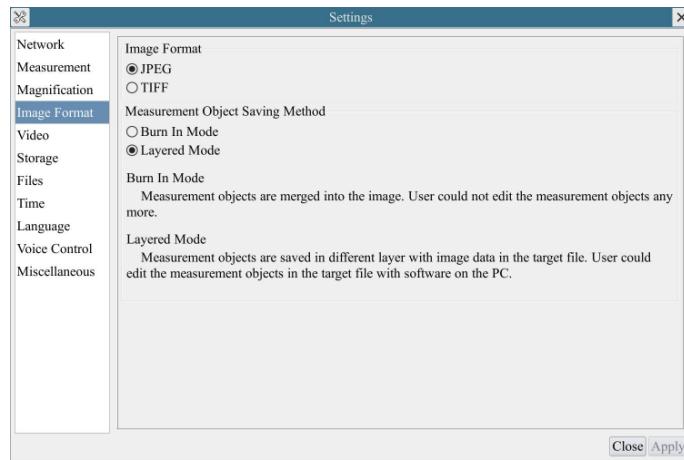


Figure 18 Comprehensive Image Format Settings Page

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 reversible. 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 reversible.

7.4.6 Settings>Video

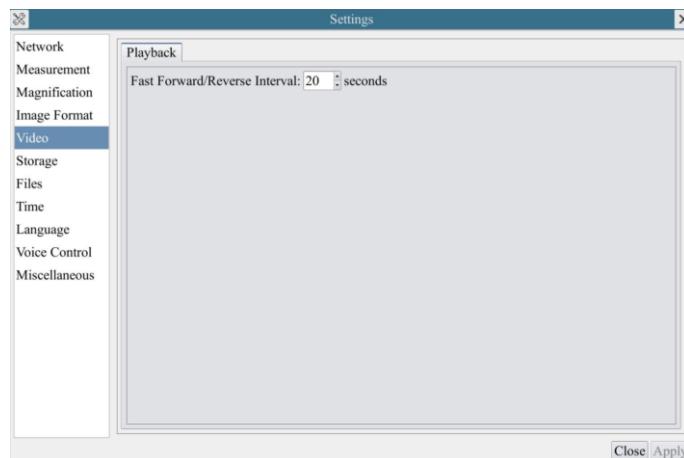


Figure 19 Comprehensive Setting of Video page

Video Playback	Fast Forward/Reverse internal in second unite for Video Playback
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7.4.7 Settings>Storage



Figure 20 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;
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	<p>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;</p> <p>NTFS: The file system of USB Flash Drive is NTFS. The maximum video file size of single file is 2T Bytes.</p> <p>Unknown Status: USB Flash Drive not detected or the file system is not identified;</p>
Note: For USB Flash Drive, USB 3.0 interface is preferred.	

7.4.8 Settings>Files

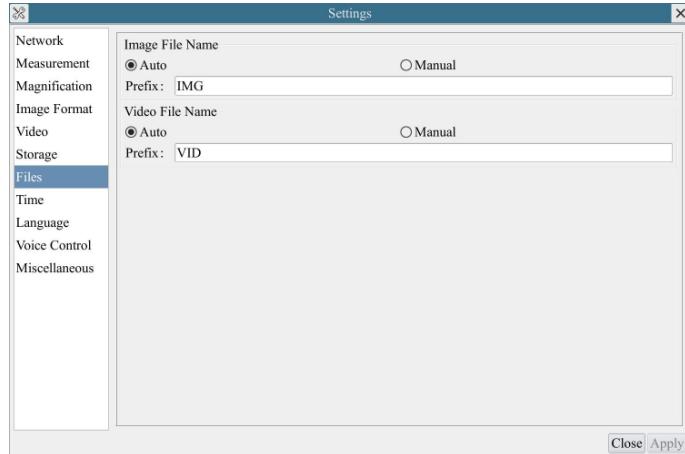


Figure 21 Comprehensive Setting of Files Name

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 Settings>Time

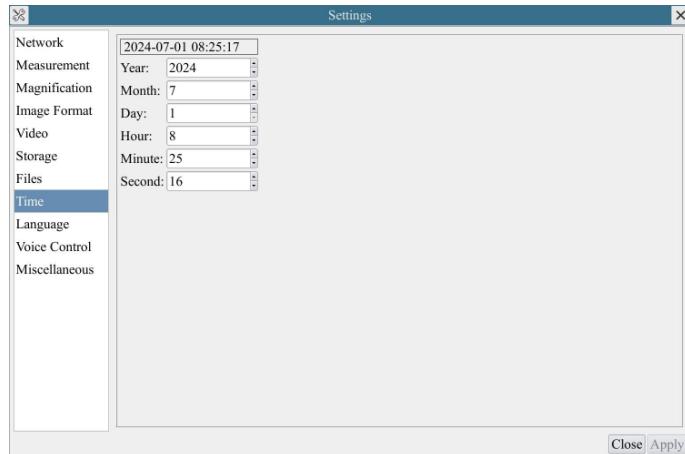


Figure 22 Time Setting

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

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Figure 23 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 Settings>Voice Control

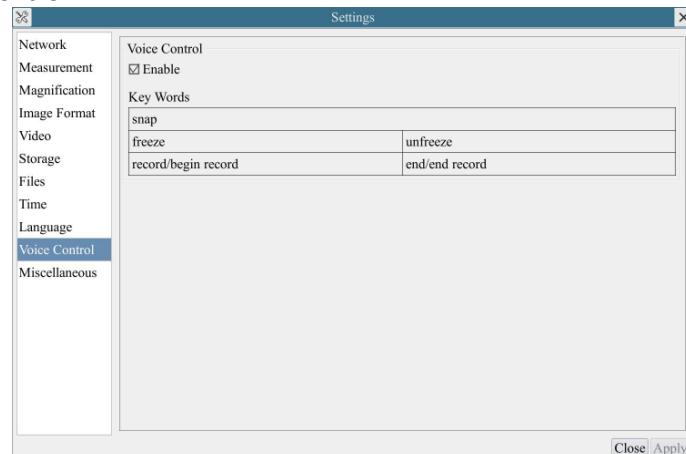


Figure 24 Comprehensive Setting of Voice Control

Voice Control	Select whether to enable or not;
	Provide Key Words for "snap";
Key Words	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 Settings>Miscellaneous

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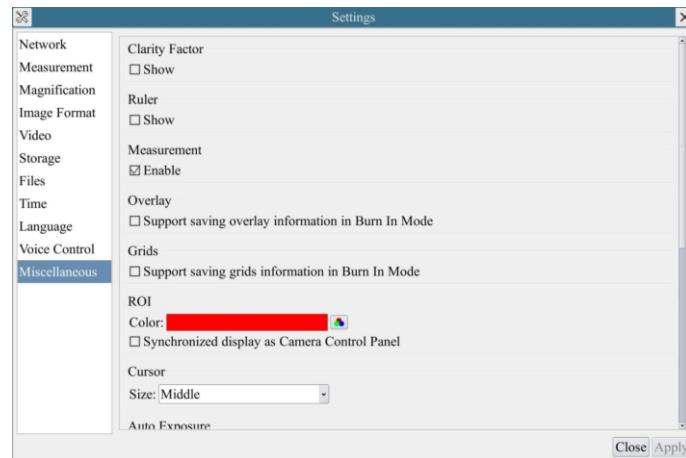


Figure 25 Comprehensive Miscellaneous Settings Page

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 of 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;

8 Sample Photos Captured with SWIR330KMB-WUH Camera

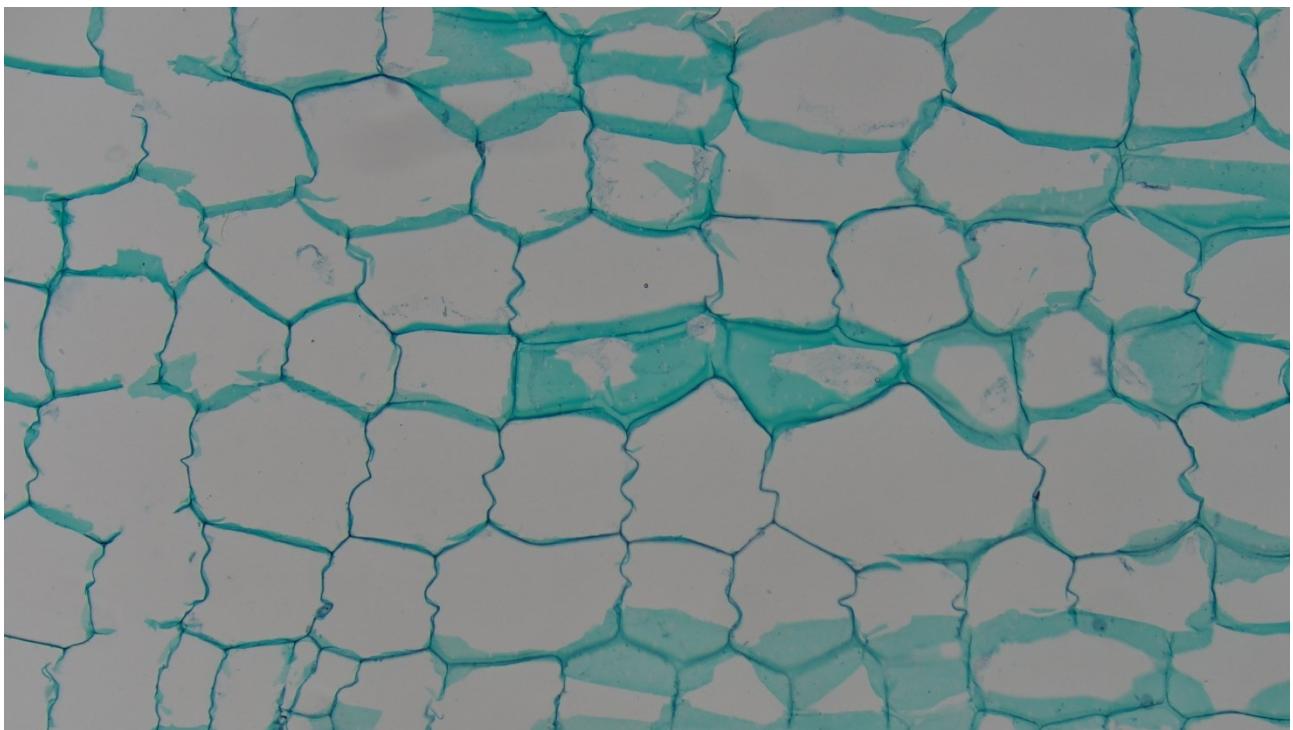


Figure 26 Cucurbit Stem.L.S. Captured with SWIR330KMB-WUH

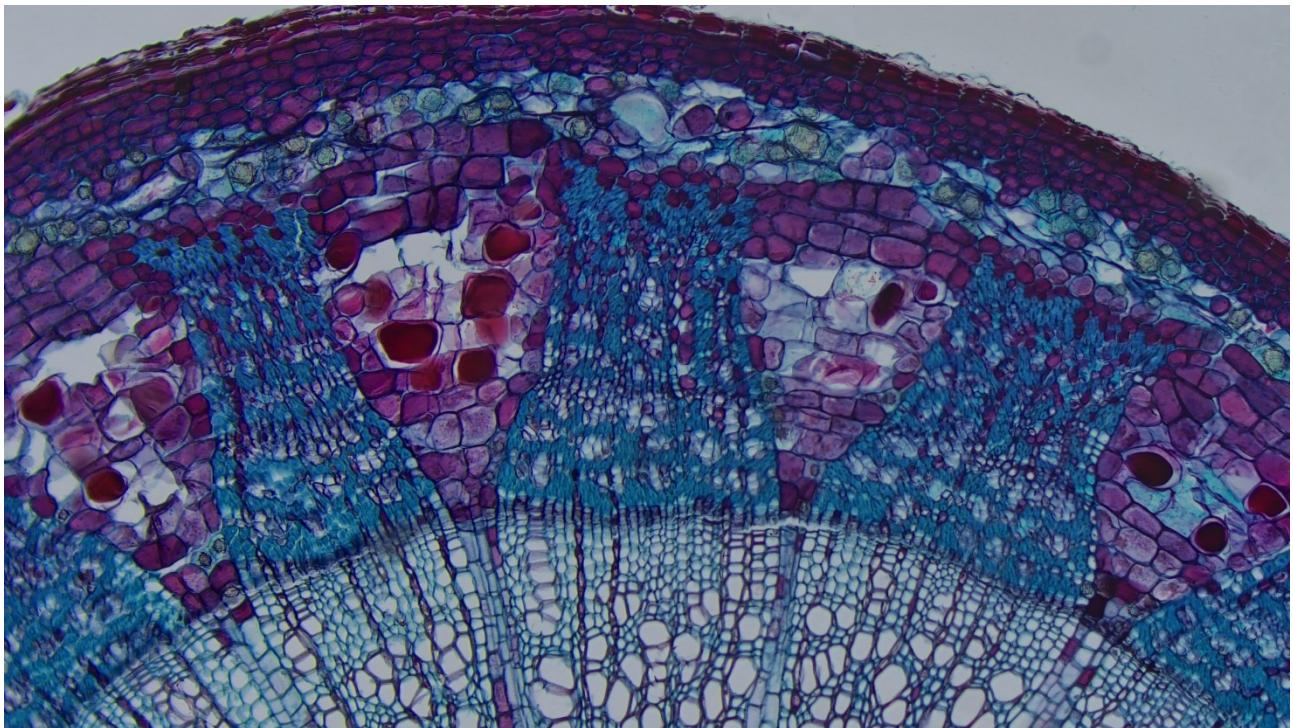


Figure 27 Two Year Tilia Stem.C.S. Captured with SWIR330KMB-WUH

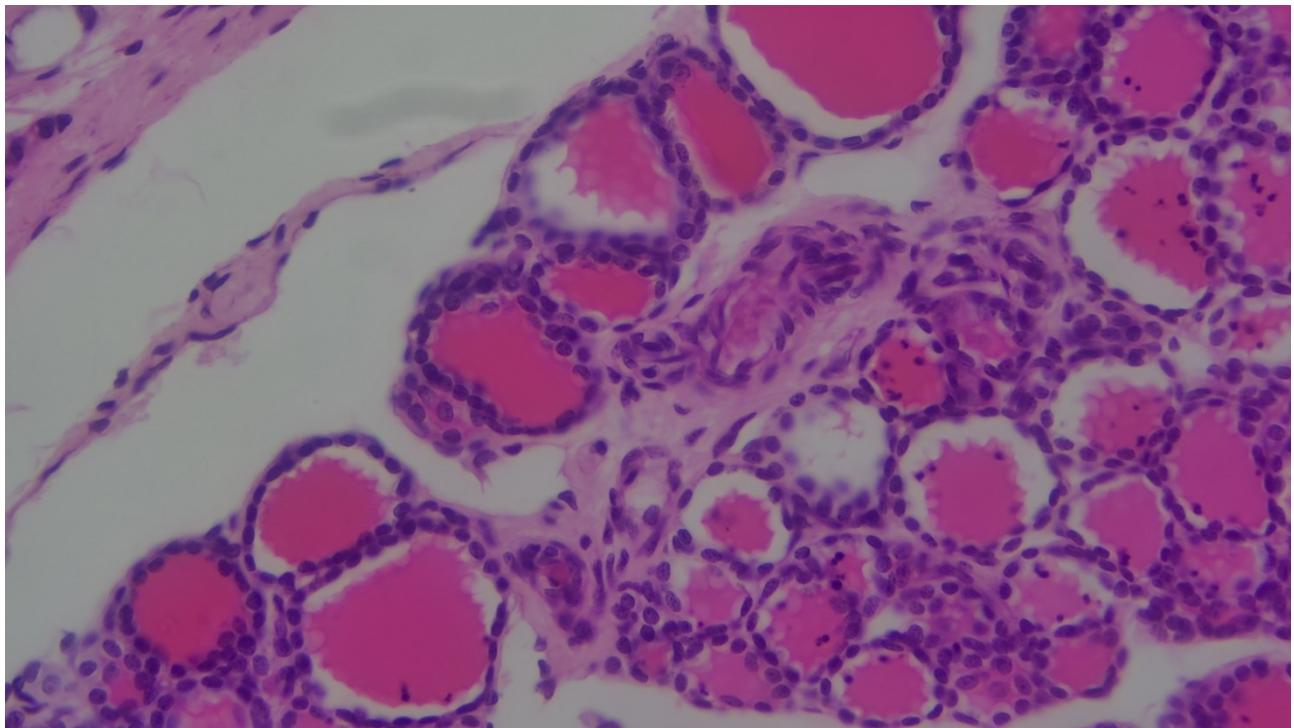


Figure 28 Simple Cuboidal Epithelium.Sec. Captured with SWIR330KMB-WUH

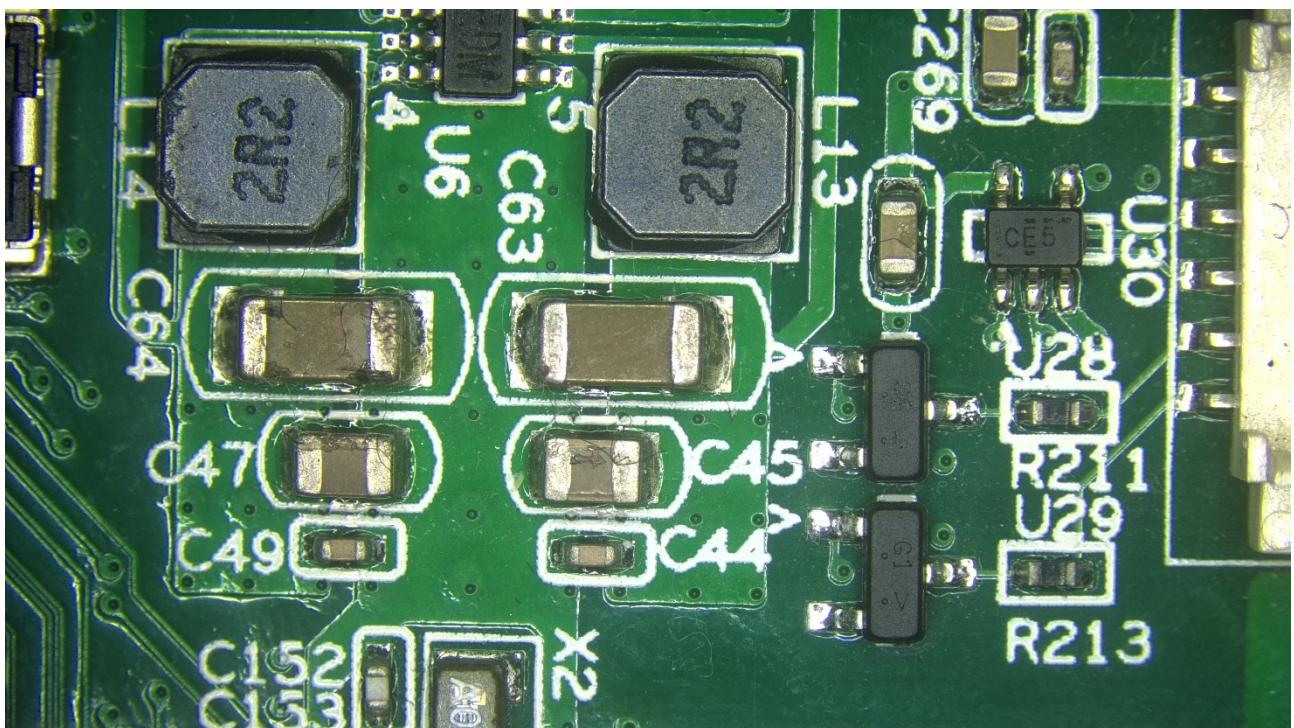


Figure 29 Circuit Board Captured with SWIR330KMB-WUH

9 Contacting Customer Service

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