ToupLite Help Manual

1. Overview

ToupLite is a camera control software for Windows, macOS, and Linux platforms. This article will start from the ToupLite software interface, introducing camera support, parameter control, measurement, and advanced image processing, and integrating these aspects

How to use Windows ToupView, explaining how to use ToupLite. Additionally, some common issues are summarized and listed for explanation.

2. ToupLite 界面介绍

After launching ToupLite, you will enter the main interface shown in Figure 2-1. Based on the layout on the main interface, it is divided into: toolbar, control panel, video/image display window, measurement information window, status bar, and other areas.

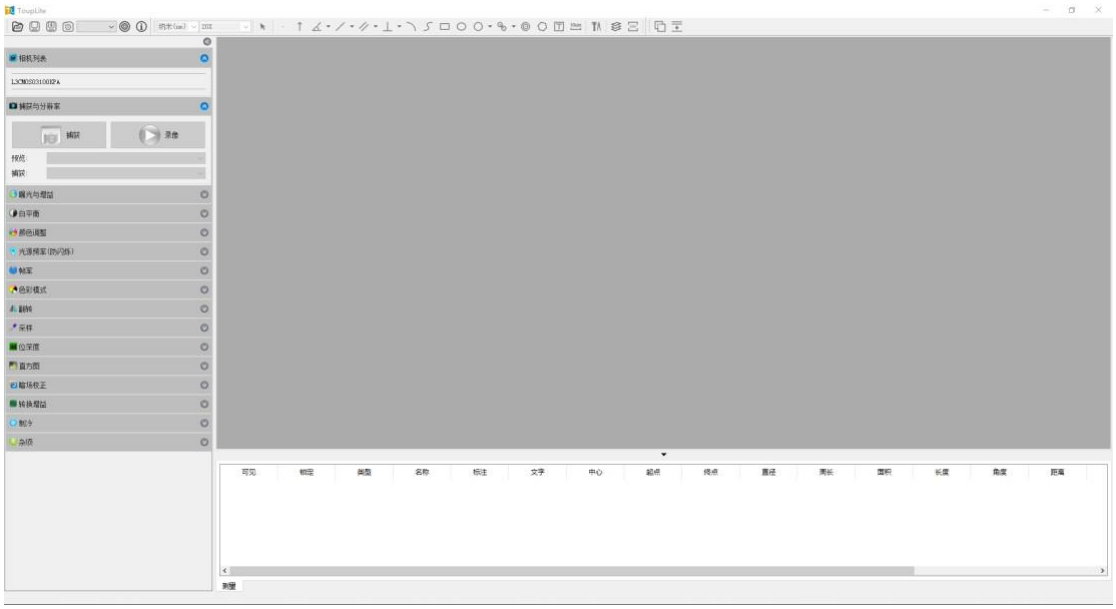

Figure **2-1** Diagram of the main interface of ToupLite

Toolbar

The ToupLite toolbar is located at the top of the main interface, as shown in Figure 2-2 .

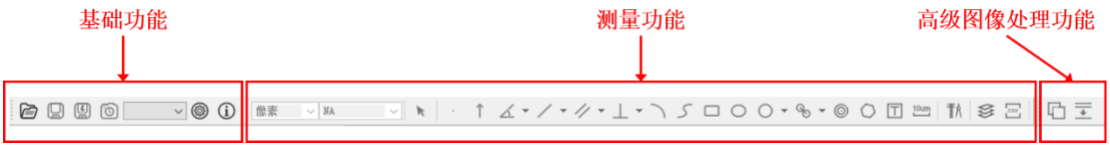

Figure **2-2 Schematic diagram of the ToupLite** toolbar

The toolbar is divided by function area, mainly including: basic functions, measurement functions, and advanced image processing functions.

These three functional areas support mouse draging, allowing users to freely arrange them according to their preferences.

Table **2.1 ToupLite** Toolbar Button Description Table

Tools and buttons	Explanation
Basic functions	
	Open the image file
	Save the current image
	The camera's current frame image is quickly saved to the specified path (the path can be modified in "Settings" - "Save").
	Camera on/off timer photo setting
	Zoom in on video/image display
	Bring up the settings window, including Save, Language, Measurement Table, Measurement Object, Magnification (Calibration), and other configuration options.
	Bring up the information window, including the software name, company information, date, and version number
Measurement function	
	Selection of measurement units
	Selection of bid information
	Measurement pattern selection mode

	Measurement graphics
	Set the standard
	Measurement information save mode switches (Burn In/Layer mode).
	Export of measurement information
Advanced image processing	
	Turn live image stitching on/off
	Turn real-time depth extension (EDF) on/off

Table 2.1 provides a brief description of the buttons on the toolbar and their functions. Here, the main focus is on the main functions of the toolbar Summary explanations will be provided. Corresponding modules and chapters that involve toolbars will be introduced in detail later.

Control panel

The ToupLite control panel is located on the left side of the main interface, as shown in Figure 2-3. There are two layout options for the control panel, which can be switched using the arrow buttons at the top of the control panel: (1) Docking window; (2) Toolbar. Under the layout mode of the docking window, a list of all control panels is displayed. Users can hid or expand by clicking the panel's title bar (left image); In the toolbar layout, only a series of control panel icons are displayed, and users can click icons to see the corresponding panel (right image).

Figure **2-3** Layout diagram of the ToupLite control **panel docking window**/toolbar

All functions of the control panel are related to the camera, including the camera list and parameter controls. Except for the camera list, all other panel functions require the camera to be opened. The specific functions of the control panel will be explained in detail in the corresponding parameter control chapter.

Video/image display window

The ToupLite video/image display window is used to show (1) the camera's video and the captured images; (2) For locally opened images, click the [File] button

on the toolbar to bring up the file browser shown below. Currently, ToupLite supports image file formats including: **BMP, PNG, JPG/JPEG, TIF/TIFF,** and **FITS** formats.

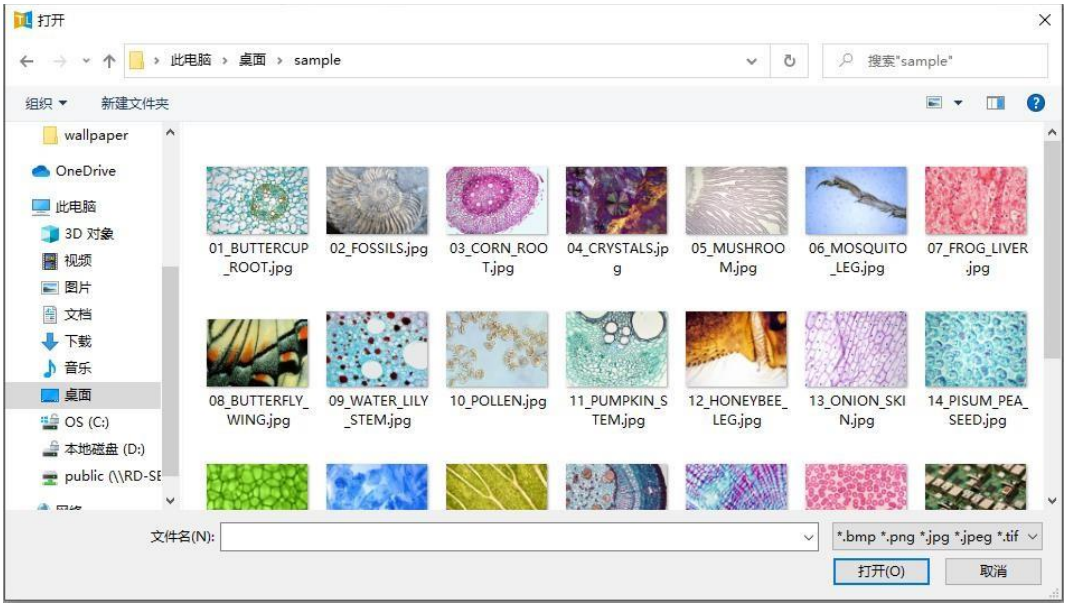

Figure **2-4** Diagram of opening local files with ToupLite

Users can switch between the current video or image by clicking on the title of a video/image; Click Close on the video/image title or double-click the title to close the current video or image. It's worth noting that if the camera video window is closed, the corresponding camera will also be closed; Select the [Zoom Percentage] dropdown on the toolbar to zoom in or out of the display area. The features related to ToupLite video/image display will not be further elaborated.

Measurement information window

The ToupLite measurement information window is located below the video/image display window. By default, when the software is open, it is hidden. At the bottom of the display window, there is an arrow to toggle the display information window between showing and hiding the measurement information window. The measurement information window currently includes measurement tables, whose main function is to display and analyze video/image measurement graphics. Its specific functions will be explained in detail in the corresponding measurement sections.

Status bar

The ToupLite status bar is located at the very bottom of the main interface. Its main function is to display some necessary information about the user's operations or the software itself, such as current image resolution and size, video frame rate/frames, camera temperature, and the path after recording the video.

3. ToupLite camera support status

ToupLite automatically detects all cameras connected to the computer interface from start to finish, and displays the detection results (camera names) in real time on the camera list in the control panel. If no supported cameras are found, it will display [No Devices]. Users can open the camera by clicking on a name on the list.

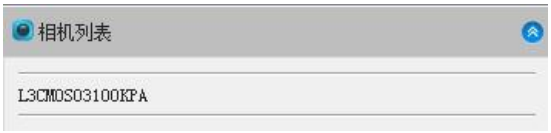

Figure **3-1 ToupLite** camera column schematic

USB camera

ToupLite supports the discovery, operation, and control of all our company's USB cameras on Windows, macOS, and Linux platforms, as well as Windows ToupView Maintain absolute consistency. Users need to connect the camera to the computer via the corresponding USB cable to be discovered by ToupLite.

UVC camera

ToupLite's support for UVC cameras (UVC output mode in S series cameras and HDMI series) is as indeed

Windows and macOS platforms remain basically consistent with Windows ToupView, and the official delivery version is no longer available

Support for Linux platforms: If users have requests for ToupLite UVC camera support in a Linux environment, the company has a better internal version available for users. Please contact us to request one. Users need to connect the camera to the computer via the corresponding USB cable to be discovered by ToupLite.

WiFi camera

ToupLite supports discovering, running, and controlling all our WiFi cameras on Windows, macOS, and Linux platforms, as well as Windows ToupView Maintain absolute consistency. Users need to connect their computer's network to the hotspot provided by the camera or the hotspot of the router connected to the camera for ToupLite to discover.

4. ToupLite 参数控制

ToupLite can control parameters for cameras that are already open, meaning the parameter control panel only works when the camera is running. The parameter control interface, as mentioned earlier, is located on the left side of the main interface. The main control panels include: capture and resolution, exposure and gain, white balance, color adjustment, light frequency (anti-flicker), frame rate, color modes, bit depth, flipping, sampling, histogram, dark field correction, cooling, miscellaneous items, and more.

Different camera models often support different parameters. ToupLite automatically adjusts the control panel based on the camera's supported parameters, and the corresponding panel will not display parameters that are not supported. Moreover, the same type of control panel may provide different parameters for different camera models, such as exposure and gain, white balance, and so on.

It should be especially noted that for USB and UVC cameras, regardless of the current camera parameters, if it is a first-time connection, ToupLite will use the camera's default parameters to initialize the control panel and set them into the camera; If the camera has been opened before ToupLite, it will automatically record the parameters after the last use to initialize the control panel and set them into the camera. And

For WiFi cameras, ToupLite takes the current camera parameters to initialize the control panel.

Below is a detailed explanation of the specific functions and features of each control panel.

Capture and resolution

The ToupLite Capture and Resolution Control Panel features image capture, video recording, video resolution switching, snapshot resolution switching, and trigger-related functions (for cameras that support triggering). The capture and resolution control panel is divided into two types depending on whether the camera supports triggering.

1. Triggered cameras are not supported

Most of our cameras do not support trigger functionality; the corresponding capture and resolution control panel is shown in Figure 4-2. The panel has two buttons for capturing and recording video, and two dropdown menus for setting preview and capture resolutions. Some cameras do not support static capture, so the capture resolution cannot be set and matches the preview resolution. Generally, switching resolution has a very short wait time, while WiFi cameras tend to wait longer, about 5 seconds.

Figure **4-1 Diagram of ToupLite** Capture and Resolution Control Panel (Standard).

2. Supports triggered cameras (only for select USB cameras).

Some cameras support triggering, and the corresponding capture and resolution control panel is shown in Figure 4-2. On top of the standard capture and resolution panel, exposure and trigger-related content are integrated. In this image, the camera enters trigger mode, where the user selects the trigger source, sets the exposure time, and the trigger mode (single, multi-shot, loop). Additionally, you can go to the [Options] to perform some basic trigger-related settings (such as image display format, save path, external trigger parameter presets, etc.).

Figure **4-2 Schematic diagram of the ToupLite** Capture and Resolution Control Panel (trigger).

3. Additional notes on capturing images

There are three ways ToupLite captures images:

（1） Quick saving

Users can click [Quick Save] in the toolbar to automatically and quickly save the image of the current video to a specified file path,

The size of the saved image and the capture match the resolution corresponding to the [Capture] dropdown in the Resolution panel. The save path and file name naming can be set via the toolbar under [Settings]-[Save], as shown in Figure 4-3 (this settings panel also includes setting the save path and naming rules for the recording).

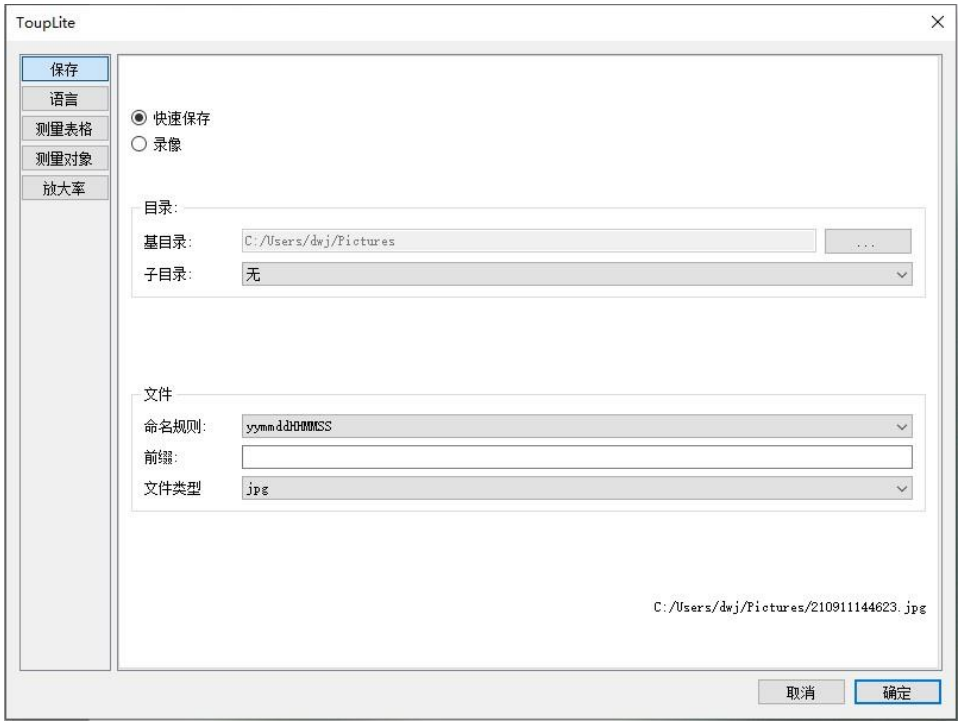

Figure **4-3 ToupLite** save settings schematic

（2） Caught at a scheduled time

Users can click the [Scheduled Capture] on the toolbar to bring up the scheduled capture configuration dialog box, configure the scheduled capture parameters, and start the capture, as shown in Figure 4-4. After the set time, the timed capture will automatically stop and complete the image saving along the

specified path. The saved image size matches the capture resolution corresponding to the [Preview] dropdown box in the resolution panel.

Figure **4-4 Schematic diagram of the ToupLite** timed capture configuration dialog

（3） Capture and resolution control panel

When the user clicks the [Capture] button in the Capture & Resolution control panel, the software will automatically create a new display window to show the captured image, with the image size matching the resolution corresponding to the panel's [Capture] dropdown box. The image name is marked with 【*】, indicating to be saved. Exposure and gain

Parameters involved in the ToupLite exposure and gain panel include auto exposure on/off, low-brightness compensation on/off, exposure target adjustment, exposure time adjustment, and gain adjustment, as shown in Figure 4-5. Among them, low-brightness compensation and exposure targets are displayed or hidden depending on the camera's supported status. Except for some S series and WiFi series cameras, most cameras support exposure targets.

Figure **4-5 Schematic diagram of the ToupLite** exposure and gain control panel

In auto exposure mode, exposure time and gain cannot be adjusted; exposure targets (or low brightness compensation) can be adjusted. Most cameras support setting ROI for the automatic exposure area , and when the panel is unfolded, a green rectangular box appears in the video display area. Users can adjust the size and position of the rectangular frame to select the range of automatic exposure; In manual exposure mode, the exposure target (or low brightness compensation) cannot be adjusted; exposure time and gain can be adjusted. Some cameras allow users to click on the exposure time value to bring up the manual exposure input dialog box for settings.

White balance

The parameters involved in the ToupLite white balance control panel include: color temperature/tint adjustment, R/G/B gain adjustment, Auto White Balance One Push, auto white balance on/off, ROI White balance switching, etc. Depending on the support for different camera white balance parameters, ToupLite offers a variety of different white balance panels, such as Figure 4-6, Figure 4-7, Figure 4-8, and Figure 4-9 As shown, the software automatically determines which type of white balance control panel to use.

Figure **4-6 Schematic diagram of the ToupLite color** temperature and white balance control panel (**One Push**).

Figure **4-7 ToupLite** color temperature and white balance control panel schematic (**Auto**).

Figure **4-8 Schematic diagram of ToupLite RGB** white balance control panel

Figure **4-9 Schematic diagram of the ToupLite ROI** white balance control panel

Users need to be clear before using it that automatic white balance is divided into two forms: One Push trigger and real-time calculation. Auto White Balance One Push corresponds to the control on the panel as the [White Balance]

button, which triggers an automatic white balance calculation by triggering the button; When the automatic white balance calculation is enabled, it continuously calculates the white balance based on changes in the camera's real-time scene.

When (1) the user selects ROI white balance mode, and (2) cameras supporting One Push display a red rectangular box in the video display area when the white balance panel is unfolded. Users can adjust the size and position of the rectangular box to select the range of the automatic white balance.

Color adjustment

The parameters involved in the ToupLite color adjustment control panel include: tone, saturation, brightness, contrast, and gamma, as shown in Figure 4-10.

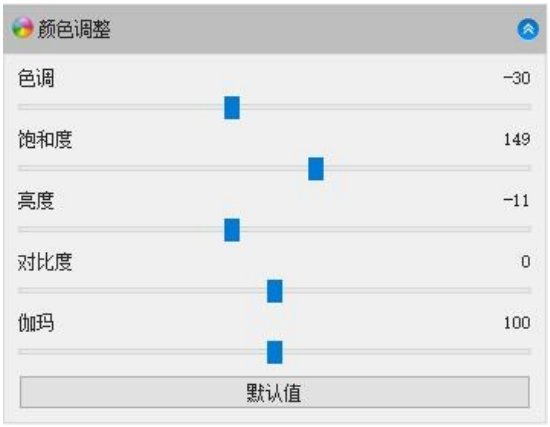

Figure **4-10** Schematic diagram of the ToupLite color adjustment control panel

Light Source Frequency (Flicker Reduction)

The ToupLite light source frequency control panel is used to switch between AC (50Hz), AC (60Hz), and DC (DC frequencies), as shown in Figure 4-11. It should be noted that the choice of light source frequency affects the exposure time value, with related information provided at the bottom of the panel.

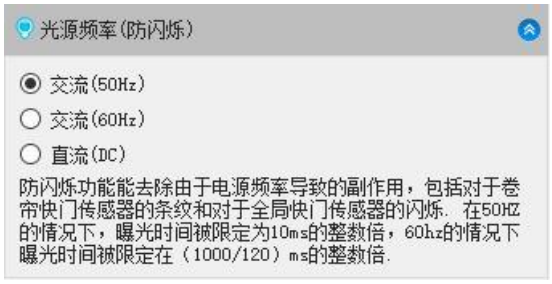

Figure **4-11 Schematic diagram of the ToupLite** light source frequency (anti-flicker) control panel

Frame rate

The ToupLite frame rate control panel is used to control the frame rate of the camera's captured video, as shown in Figure 4-12. If the computer and camera support user-selected frame rates, you can adjust the slider to the right to increase the video capture frame rate; If the current video displays abnormally or does not display, you can drag the slider left to appropriately lower the video frame rate to ensure normal video display in low-speed mode.

Figure **4-12 Diagram of ToupLite** Frame Rate Control Panel

Color modes

The ToupLite color mode control panel is used to switch between color and grayscale modes of video images, as shown in Figure 4-13. By default, it is in color mode. If you want to preview a monochrome video, you can select the [Grayscale] option.

Figure **4-13** Schematic diagram of the ToupLite color mode control panel

bit depth

The ToupLite bit depth control panel is used to switch bit depths in video images, as shown in Figure 4-14 .

Figure **4-14** Schematic diagram of the ToupLite bit depth control panel

Flip it

The ToupLite flip control panel is used to control the horizontal and vertical image transformation of video images, as shown in Figure 4-15.

Figure **4-15 Diagram of ToupLite** flip control panel

Sampling

The ToupLite sampling control panel is used to control two sampling modes for certain high-resolution cameras: Field Average (Bin) and Sampling Extraction (Skip), as shown. By comparison, Bin mode offers better image quality but lower frame rates, while Skip mode has higher frame rates but poorer image quality.

Figure **4-16 Schematic diagram of the ToupLite** sampling control panel

Straight Square Diagram

The ToupLite histogram control panel is used to display and control real-time histogram data of video images, as shown in Figure 4-17. Simply put, a histogram is a statistical chart of image R, G, B (color images) or grayscale (grayscale images). Users can select the type of channel displayed (for multi-channel images like RGB),

manually control the histogram's level range by adjusting the red and blue lines in the histogram, and also use [Default] and [Auto] to restore and automatically adjust the level range.

Currently, ToupLite only supports histogram statistics and control for USB cameras.

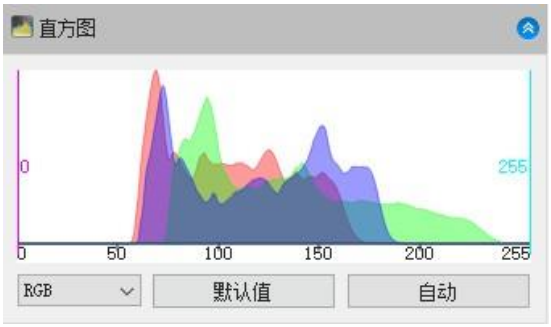

Figure **4-17 Schematic diagram of the ToupLite** histogram control panel

Dark Correction

The ToupLite dark field correction control panel is used to control the camera for dark field correction, as shown in Figure 4-18. After capturing several dark scene images, click [Enable] to have the camera and software automatically perform dark scene correction. For detailed instructions, see the text at the bottom of the panel.

Figure **4-18 ToupLite** Dark Field Correction Control Panel

Refrigeration

The ToupLite cooling control panel adjusts and controls cooling and fan parameters for cameras that support cooling

As shown in Figure 4-19. The cooling control panel includes turning cooling on/off, setting target temperatures, and controlling fan speed.

Figure **4-19** Schematic diagram of the ToupLite refrigeration control panel

Miscellaneous

The parameters involved in the ToupLite miscellaneous control panel include: sharpness and noise reduction adjustments, as shown in Figure 4-20.

Figure **4-20 Schematic diagram of the** ToupLite miscellaneous control panel

5. ToupLite measurement function

The main task of ToupLite's measurement function is to annotate and measure videos/images in geometric form for video/images, and to set calibration information. For example, using straight lines to measure length in images, or using circles or rectangles to measure area in images.

Measurement graphics

1. Introduction and creation of measurement graphics

ToupLite surveys are selected and drawn using the toolbar. The toolbar is in the default mode of [Select].

Click any geometric shape to enter the "Draw" mode of that measurement shape. Some measurement shapes have a small downward arrow in the toolbar, indicating

multiple measurement shapes exist in a measurement shape category. Clicking the arrow will pop up a dropdown box for users to select the measurement shape they need. Then, users can draw the shape in the window by right-clicking or clicking the toolbar

[Select] Exit drawing.

Currently, ToupLite offers measurement patterns including: points, straight/horizontal/vertical lines, arrows, 3-point angles/4-point angles, parallel/double parallel lines, and perpendicular lines /4 points perpendicular, arc, arbitrary curve, rectangle, ellipse, center-radius circle / 2 point circle /3 dot circle, double circle / 3 dot double circle, ring, polygon, text, scale (ruler). Measurement drawings have default attributes when created, so you may need to specify some initial attribute values before creation via the [Toolbar] - [Settings].

- [Measurement Object] to be modified, as shown in Figure 5-1.

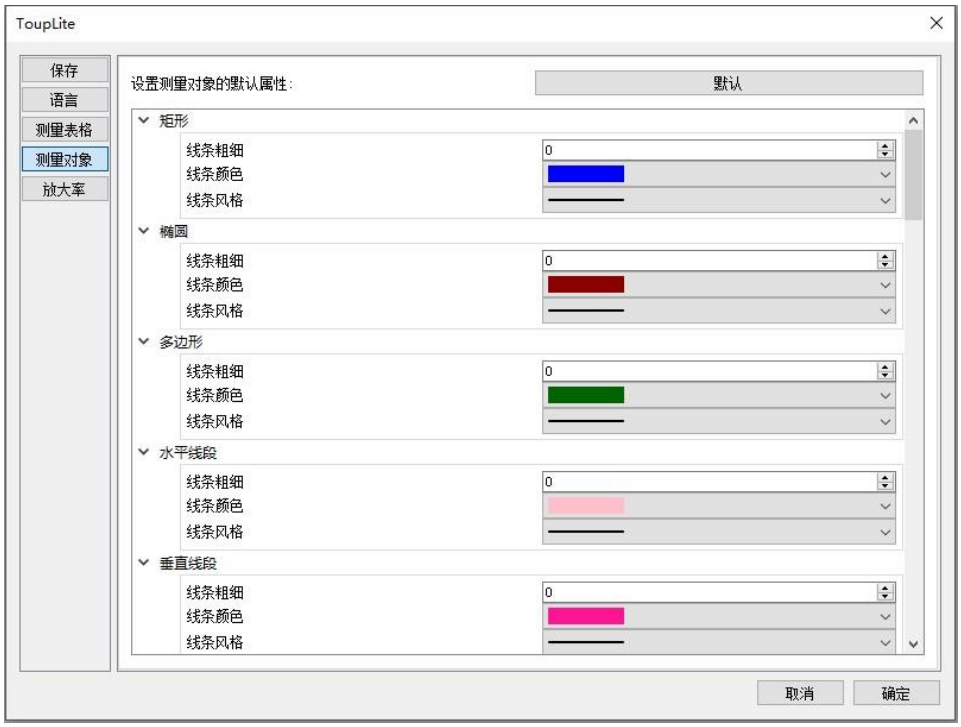

Figure **5-1** Schematic diagram of the initial property settings window for ToupLite measurement graphics

2. Measurement information

All measurement information for measurement figures is displayed in the measurement table at the bottom of the window, with one row representing a measurement figure.

Its measurement information is represented by columns in the table, as shown in Figure 5-2. Additionally, whether or not to display measurement information in the table is valid

[Toolbar]-[Settings]-[Measurement Table] to modify it, as shown in Figure 5-2.

Among them, [Visible], [Lock], and [Type] are fixed items and cannot be modified.

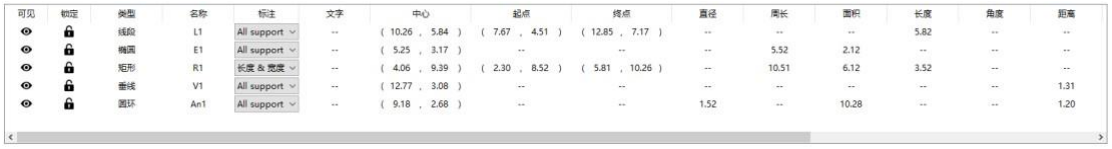

Figure **5-2 Diagram of ToupLite** measurement table

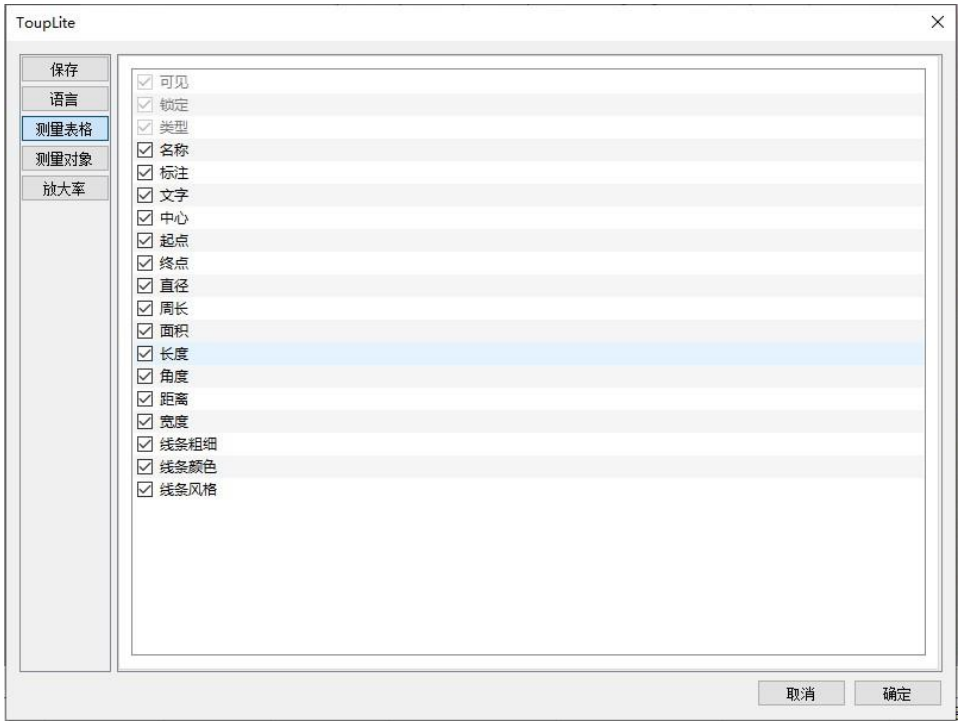

Figure **5-3 Schematic diagram of the ToupLite** measurement table setup window

Table 5.1 ToupLite Measurement Form Header Description The table provides explanations and explanations of the names of measurement information headers and their meanings.

Table **5.1 ToupLite** Measurement Table Header Description

It can be seen that	Control the hiding/display of measurement graphics	Editable

Locked	Control whether the measurement pattern can be moved and editable	Editable
Type	Measure types of shapes, such as straight lines, rectangles, etc	Non-editable
Name	The name of the measurement figure is based on the type name by default	Editable
Annotation	Control the display of measurement information annotation types in video/images	Editable
Text	Measures the textual information of the graphical and the unique properties of the text graphic	Editable
Center	Measure the coordinates of the center point of the graph	Editable
Starting point	The starting point coordinates for the measurement pattern drawing	Editable
The destination	Measurement graphs draw the endpoint coordinates	Editable
Diameter	Measure the diameter of the pattern	Non-editable
Perimeter	Measure the perimeter size of the figure	Non-editable
Area	Measure the area of the shape	Non-editable
Length	Measure the length and size of the graph	Non-editable
Angle	Measure the angular size of the shape and the unique properties of the angular figure	Non-editable
Distance	Measure the distance between the shapes	Non-editable
Width	Measure the width and size of the shape	Non-editable
Line thickness	Control the width of the lines drawn from the measurement graph	Editable
Line color	Control the color of the lines drawn by the measurement pattern	Editable
Line style	Control the style of line drawing in measurement graphics	Editable

3. Modification and editing of measurement graphics

After creating the measurement drawing, it can be modified in the following ways:

In the video/image window: the measurement pattern itself can be dragged when unlocked; The measurement graph point is not locked

you can drag it in such cases; The annotation information of measurement patterns can be dragged when not locked; Double-click the measurement pattern to appear as shown

5-4 The pop-up window shows in 5-4 to complete the relevant settings and modifications.

In the measurement table: some editable content of the measurement image can be directly modified for corresponding items in the table; That is also possible

Double-click the row where the measurement pattern is located, and a window as shown in Figure 5-4 will pop up for modification.

Figure **5-4** Schematic diagram of the ToupLite measurement graphics editing window

4. Frequently asked questions about the measurement patterns

4 points of angle

The angle of four points needs to be explained according to the rules for their angle calculation. The angle of four points consists of two straight lines with directional lines. The angle size is the angle required for one line to rotate from one line to another and keep the direction consistent, as shown in Figure 5-5.

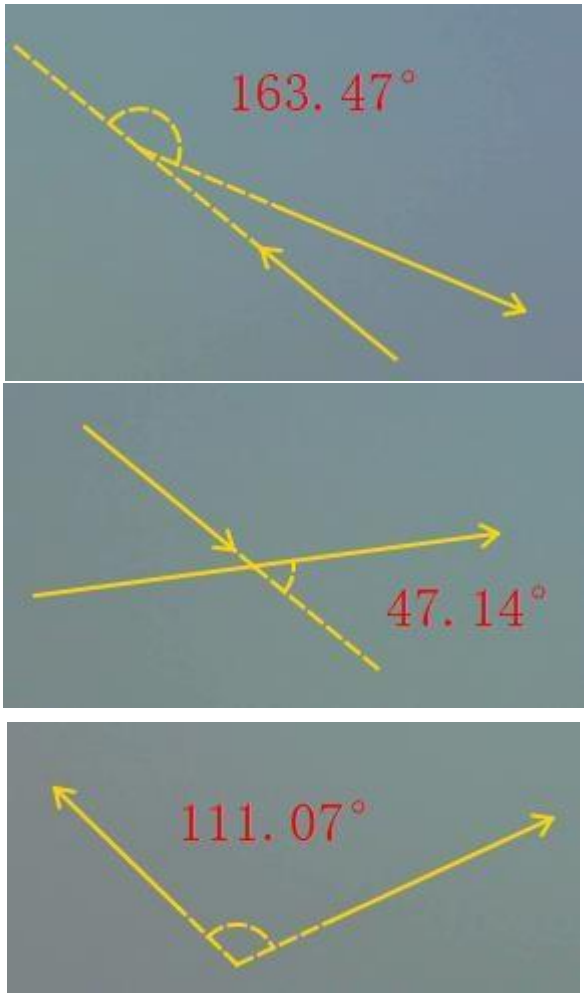

Figure **5-5 ToupLite** Angle Diagram of 4 Points Scale (Ruler).

A scale is a type of measurement graph, and its meaning is: a segment of a specified length in a video/image, serving as a measurement annotation for that video/image. Click the toolbar [Scale] to open a window. Users input length and select units. The software will automatically calculate based on the user's input and the current video/image calibration information to draw a ruler graphic. For example: the current calibration information is: 100 pixels/meter. If the user inputs 2

meters (value 2, unit selected in meters), the ruler length is 200 pixels. The displayed content is the user's input of "2 m".

If the current video/image is not calibrated, users can only enter the number of pixels.

Set the standard

The significance of ToupLite's calibration function lies in defining the mapping relationship between pixels in a video/image and the true value (or the artificially specified true value). A complete calibration information includes: the calibration name, the magnification value, and the calibration unit. Users can enter the mode to create a new calibration mode by clicking the [Toolbar]-[Calibration] button. At this point, the software's video/image window will display calibration lines and calibration tables, as shown. The standard microscope calibration steps are:

1) Place a reference of known actual length, such as the TS-M1 micrometer, in the center of the microscope's field of view and ensure the image is clear

Xi;

2) ToupLite enters calibration mode, where the video/image window displays calibration lines and calibration windows, as shown in Figure 5-6

The software will display the pixel value occupied by the calibration line;

3) Drag the calibration line to align it with both ends of the calibration reference object;

4) In the calibration popup, select or enter the calibration name, enter the actual length of the reference object, and choose the unit of that length.

Click [Confirm] to complete the award selection. This calibration information will serve as calibration information for the current video/image, affecting the measurement information of all measurement graphics on that video/image.

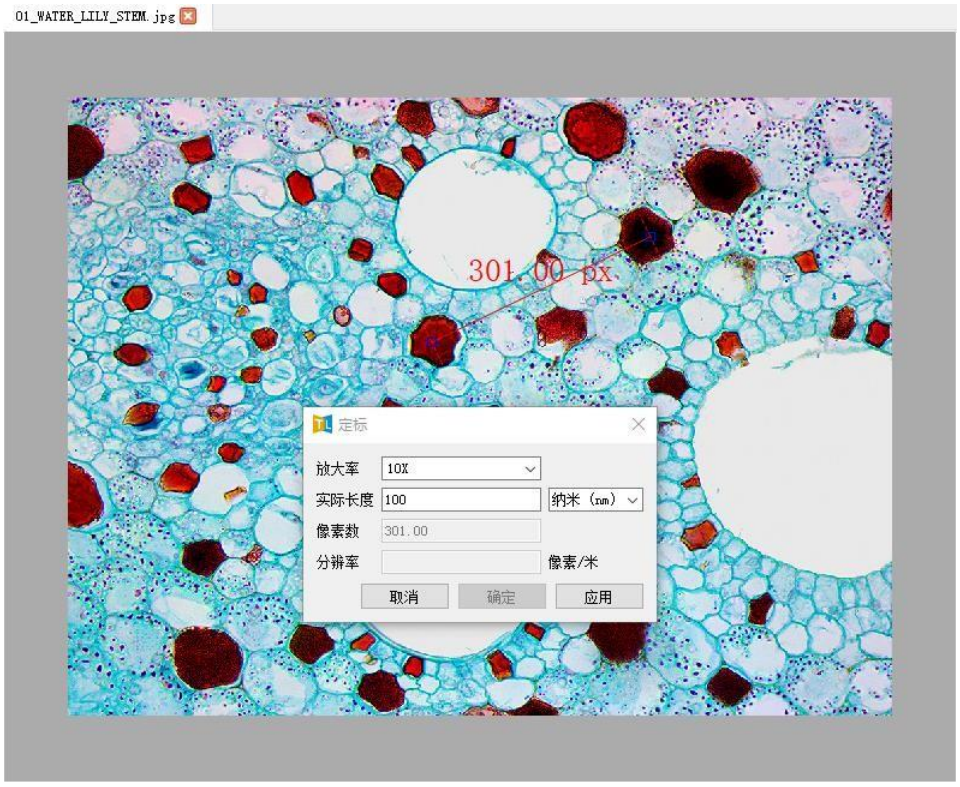

Figure **5-6** Schematic diagram of ToupLite calibration interface

All calibration information in the software is automatically saved locally and displayed in the [Toolbar]-[Calibration Information]. It provides users with the calibration information to switch the current video. For images, you can double-click the [Status] and [Resolution] to pop up a window to modify the current image calibration information. This calibration information will follow the image without being saved locally. Local calibration information management can be modified via [Toolbar]-[Settings]-[Magnification]. As shown in Figure 5-7, users can perform add, delete, modify, and clear operations.

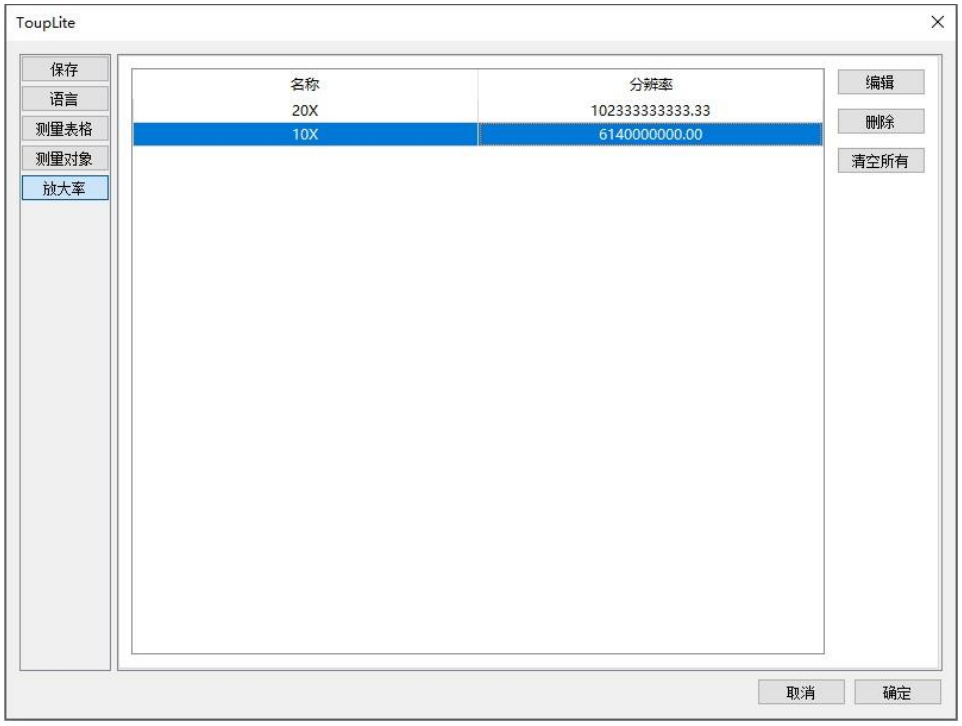

Figure **5-7** Schematic diagram of ToupLite calibration information management window

Save and export

ToupLite does not support saving measurement information from recorded videos, but it supports saving all image measurement data. There are two saving formats: layer & burn. Both methods select the measurement information storage method via the layer/burn toggle button corresponding to the [Toolbar].

Layer: Measurement information is saved in the form of layers in the image file. When reading images, ToupLite reads and parses the corresponding measurement patterns and calibration data, restoring and presenting them on the interface, allowing users to modify the measurement information. The advantage of this is that measurement information can be saved without destroying the original image data, but this measurement data cannot be viewed by software other than our company.

Burn: Printing measurement information into image data, users cannot modify already saved measurement data.

If users want to export measurement information, they can export it as a CSV file using the export button in the [Toolbar]. A corresponding pop-up window will appear for users to choose the export path.

6. ToupLite Advanced Image Processing

ToupLite currently integrates advanced image processing features such as Stitch and Depth of Field Extension (EDF) for display pairing Expanding microsystem imaging capabilities. Users can turn image stitching and depth expansion modes on or off using the [Image Stitching] and [Depth Expansion] buttons in the toolbar. Both advanced image processing features are based on the camera's video stream, so the controls in ToupLite are only enabled when the camera is running. Before processing, users need to adjust various camera parameters and turn off auto exposure and auto white balance to avoid affecting the processing results.

Stitch

The purpose of ToupLite image stitching is to expand the imaging capabilities of microscope systems on a horizontal plane. After enabling image stitching mode, users manually adjust the microscope's X and Y axis knobs to move the lens, and the software's internal algorithms automatically capture images from the camera's video stream for real-time calculation and stitching. The process of image stitching in ToupLite is shown in Figure 6-1. The green rectangle box displays the current camera video image, and above the green rectangle box shows whether the current camera video meets the high-quality stitching requirements. If red is shown, the user may need to adjust and control the knob accordingly. After turning off stitching mode, you will finally get a stitched image with a wide field of view.

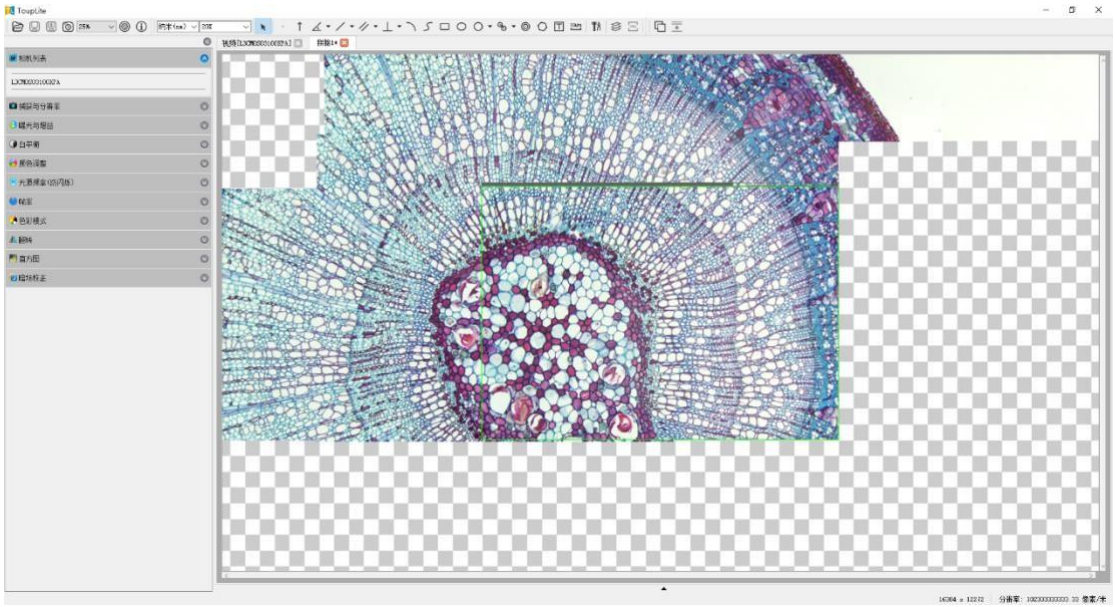

Figure **6-1 Diagram of ToupLite** image stitching process

Depth of field extension (**EDF**).

The purpose of ToupLite's depth expansion feature is to extend the imaging capabilities of microscope systems vertically. After enabling depth expansion mode, users manually adjust the microscope's Z-axis knob to move the lens, and the software's internal algorithms automatically capture images from the camera's video stream for real-time calculation and fusion. The process of expanding the depth of field in ToupLite is shown in Figure 6-2, where the rectangular box in the lower left corner displays the current camera video image and can be dragged to the four corners of the window. After turning off depth expansion mode, you will finally get a clear image with the expanded depth.

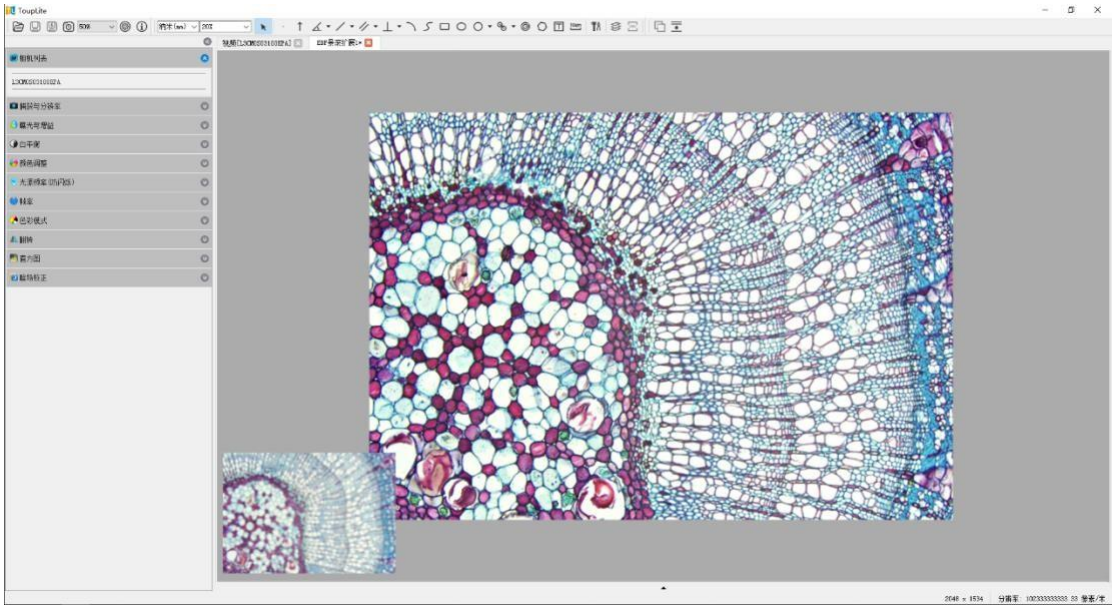

Figure **6-2** Schematic diagram of the ToupLite depth expansion process

7. ToupLite FAQ

1) How is ToupLite's support for system versions?

Windows：

x86：XP SP3 or above; The CPU must at least support the SSE2 instruction set

x64：Win7 or above

macOS：macOS 10.10 or above

Linux：Kernel version 2.6.27 or above

2) What are the differences in ToupLite across platforms or camera support?

ToupLite has a different interface style on Windows, macOS, and Linux platforms, but there are no functional differences. If you encounter functional issues, please first test under Windows ToupLite to confirm. For example, whether measurement is supported on macOS, and if supported on Windows, macOS will support it. These features do not differ across different platforms.

The main difference between ToupLite on Windows, macOS, and Linux is camera support. USB camera support is basically the same, but it needs to be noted for a few models The USB camera on the macOS M1 chip has issues where frame capture stops after running for a while, and we are working to resolve this issue; UVC cameras are not supported on Linux; contact Zhou Haiyang if needed; WiFi camera support is basically consistent. Additionally, some cameras may perform differently on different platforms. Occasionally, you might encounter issues like not finding the camera on a certain platform, not opening videos, or certain parameters not working. When encountering such issues, how to test positioning and who to report to refer to, refer to FAQ 3).

3) How are ToupLite camera support issues tested and located?

First, determine whether TOUPLITE does not support it or if the computer itself does not recognize the camera. See question 4 for the method. Test results should be explained according to actual conditions.

1. USB camera

For MACOS, test the issue on a MAC computer from Xiongsha. If it doesn't support it, test it on WINDOWS using the same version of TOUPLITE; Testing for WINDOWS issues yourself; Regardless of support, the test results should be reported to Engineer Xiang together.

2. UVC camera

For MACOS-related issues, test on a MAC computer from Xiongsha . If it doesn't support it, use the same method on WINDOWS

TOUPLITE version testing; Self-testing on WINDOWS; Regardless of support, feedback models and the PID corresponding to the model are provided

& VID to Zhou Haiyang.

Additionally, regarding UVC camera support, many colleagues have asked if there is an SDK for development .Currently, we use it internally and partially

open it to users. It supports WINDOWS/MACOS/LINUX/ANDROID platforms, and you can contact us if needed.

3. WIFI camera

After ensuring the network connection is normal, if the recognition still does not occur, please contact the worker directly to report the issue.

4) How can ToupLite distinguish between a computer that hasn't detected the camera device or if it's ToupLite?

Does this device not support it itself?

Cameras not recognized by the computer cannot be found in the System Device Manager. If they can be found in the system, it indicates an abnormal ToupLite support; otherwise, it is due to system issues or poor port contact; If you're on Windows, you can also check ToupView to see if you can find it. The method to view the system manager is as follows:

Windows: Right-click on [This PC] - [Properties] - [Device Manager] - View [Image Devices] or [Camera], as shown in Figure 7-1.

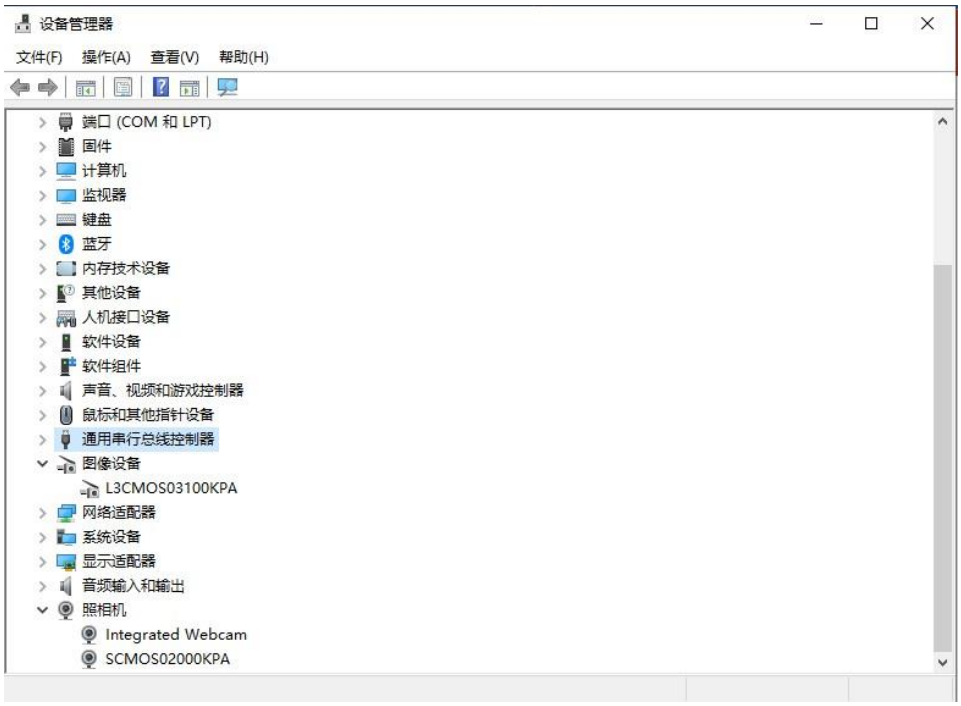

Figure **7-1 Windows** Device Manager Viewing Camera Device Schematic

macOS: Apple icon in the top left - [About Local] - [System Report] - left side [Hardware] bar - View [USB] or [Camera], as shown in Figure 7-2.

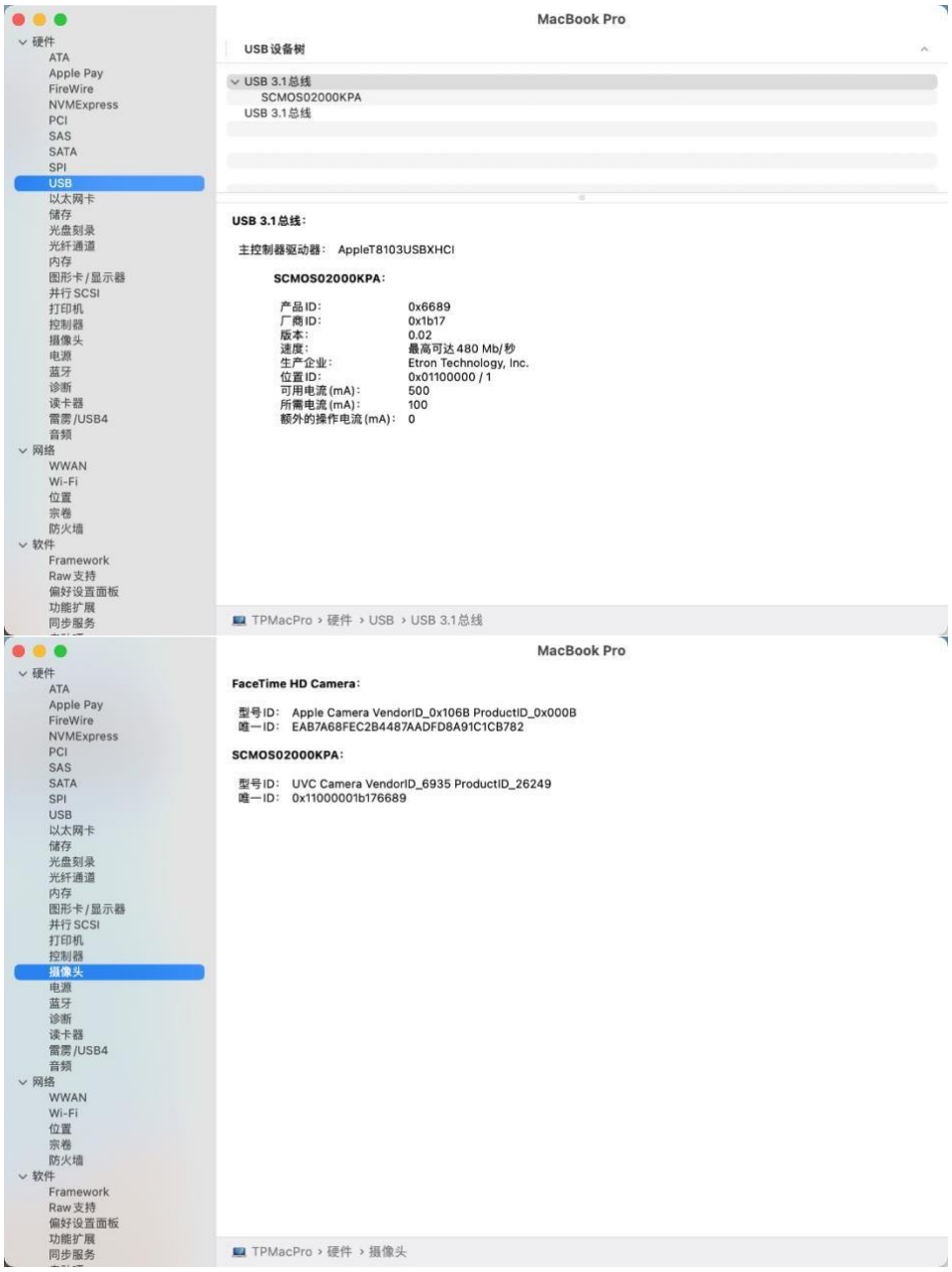

Figure 7-2 Diagram of camera devices viewed in macOS Device Manager

5) Issue with USB cameras unable to capture images properly when opening videos?

ToupLite USB camera fails to capture data when turned on. After trying low resolution and low frame rate mode, regardless of whether it works, I reported the above tests to the developer.

6) How to restore parameters saved by ToupLite to their default values?

ToupLite camera parameters are saved locally. If users need to restore default values, they simply delete the relevant local files. The specific path and method are as follows:

Windows: Use the shortcut keys [Win] + [R] to open the [Run] dialog box, enter "regedit" to open [Registry].

dialog box, as shown in Figure 7-3. In the registry, go to [Computer][-HKEY_CURRENT_USER][-SOFTWARE].

-[ToupTek] -[ToupLite], as shown in Figure 7-4. Users can delete items they want to delete, or delete all items directly to restore them.

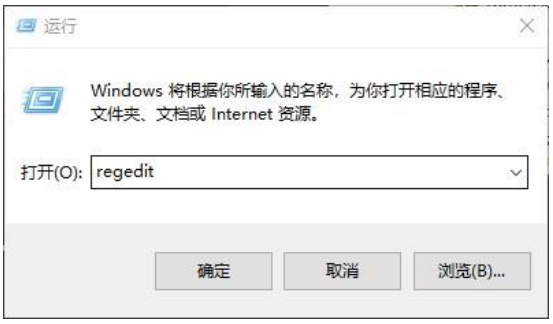

Figure **7-3 Diagram of the Windows** Runtime Dialog Box

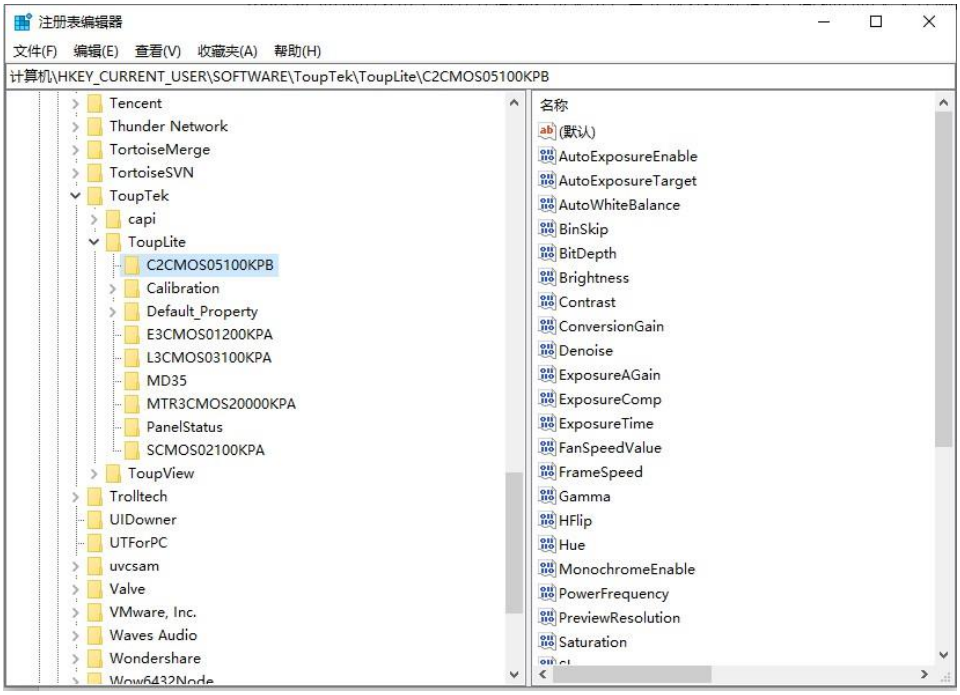

Figure **7-4 Diagram of the Windows** Registry dialog box and **ToupLite** local project

macOS: ToupLite macOS local files are saved in the [~/Library/Preferences] path. Let's go in first [Finder], use the shortcut keys [Shift] + [Command] + [G] or go to [Menu] (Top bar of the interface).

- [Go to (Go)] - [Go to Folder (Go to Folder...).)] Open the dialog box shown in Figure 7-5, where you can enter the file directory shown in Figure 7-6. In the directory, find the [com.touptek.touplite.plist] file and delete it.

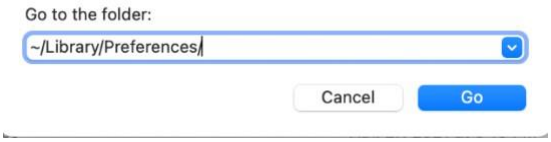

Figure **7-5 Diagram of the macOS** folder dialog box

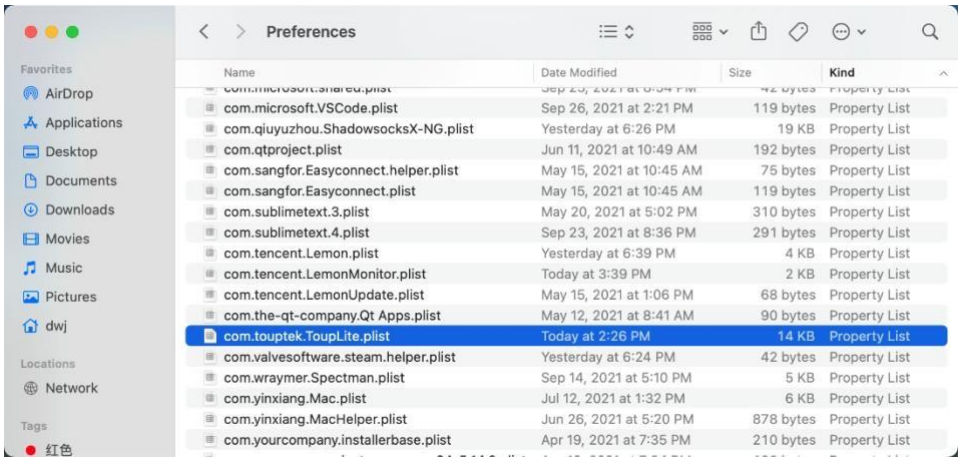

Figure **7-6 ToupLite** macOS Local Project Schematic Diagram

7) Where are the images and videos captured by ToupLite stored by default?

You can view and set the default path for quick capture and video saving through [Toolbar]-[Settings]- [Save].

8) Some notes on recording videos from ToupLite?

Currently, ToupLite records videos differently from Windows ToupView and does not support user configuration of parameters. Some related parameters, such as format and quality, are fixed, with the format being MP4 and quality Set to 100, and the frame rate will automatically adjust based on the frame rate of the video transmitted by the camera.