ALTRAview LITE Help Manual

ALTRAview LITE v2.1.28395.20250428

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Contents

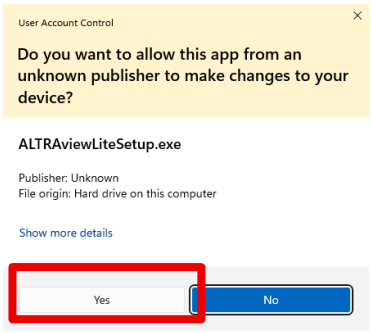
1. Summary

ALTRAview LITE is a camera control software compatible with Windows, macOS, and Linux platforms. This manual will guide you through ALTRAview LITE's interface by covering camera support, parameter adjustments, measurement tools, and advanced image processing features. It combines practical examples from the Windows version of ALTRAview to demonstrate its functionality, while also compiling frequently asked questions for clear explanations.

2. Installing ALTRAview Lite

On a Windows Computer

1. After downloading the ALTRAview Lite installer, double-click the file to launch the installer.
2. When challenged to allow the installer to make changes to your device, choose “Yes”.

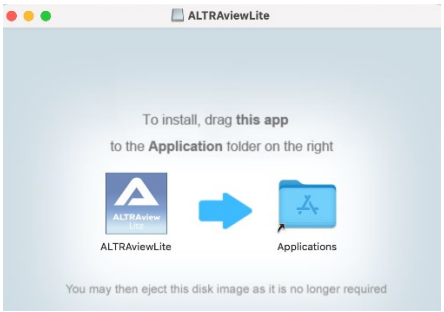


3. At the end of installation, you may choose to launch the software or exit the installer.

On an Apple Macintosh Computer

Apple includes additional security features in the macOS operating system. The security must be bypassed during the initial launch of ALTRAview Lite, after which the settings will be remembered for future uses of the software.

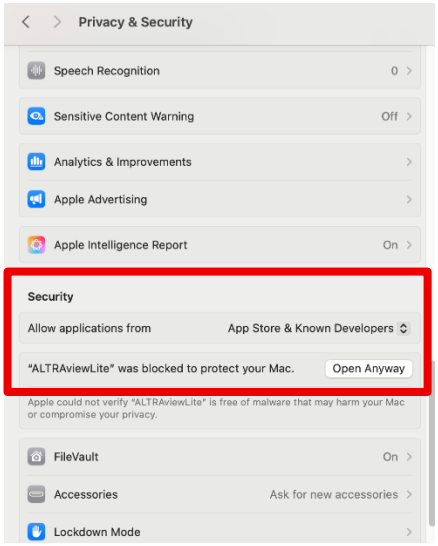
1. After downloading ALTRAview Lite, navigate to your Downloads folder and double-click ALTRAview Lite to install.
2. Follow the Pop-up instructions. This may involve dragging an icon of the software onto an icon of the Applications folder. This will install ALTRAview Lite into the Applications folder.



3. Navigate to the Applications folder and double-click the ALTRAview Lite app. You will be prompted to select Done or Move to Trash. Choose “Done”.

4. Navigate to Apple > System Settings > Privacy & Security, then scroll down to Security. Make sure you choose "Allow applications from" and "App Store & Known Developers".

5. Next to ALTRAview Lite, choose the "Open Anyway" option.



6. Navigate back to Applications > ALTRAview Lite and double-click the icon to launch the software. You should not be challenged again to launch ALTRAview Lite.

3. Interface Introduction

After the startup of ALTRAview LITE software, the main interface shown in Figure 3-1 is entered. According to the layout in the main interface, it is divided into toolbar, control panel, video/image display window, measurement information window, status bar and other areas.

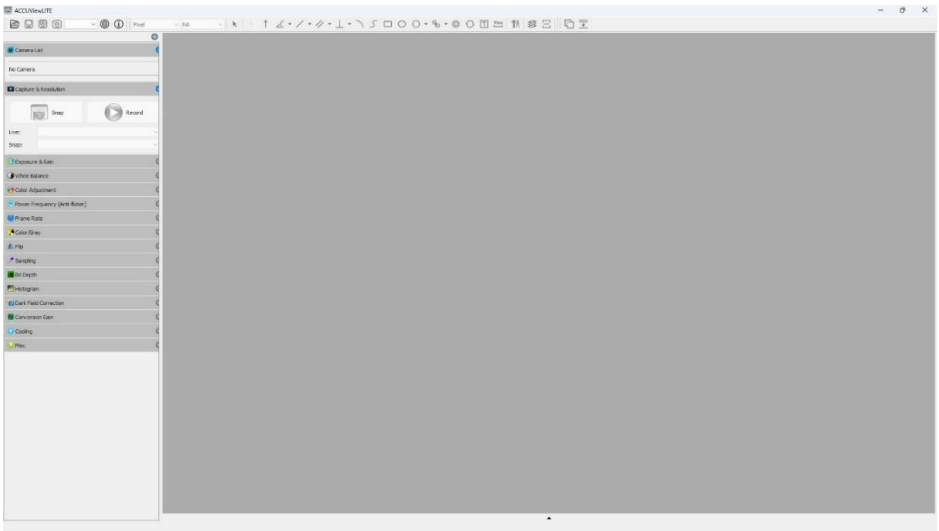


Figure 3-1 Example of ALTRAview LITE Main Interface

Tool Bar

The ALTRAview LITE toolbar is located at the top of the main interface, as shown in Figure 3-2.

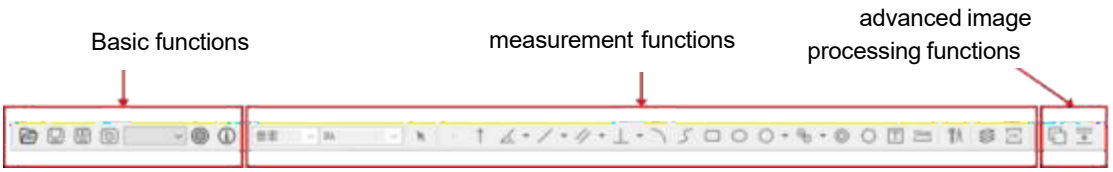
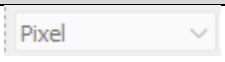


Figure 3-2 Schematic Diagram of ALTRAview LITE Toolbar

The toolbar is divided into functional areas, including basic functions, measurement functions, and advanced image processing functions. These three functional areas support mouse dragging, and users can arrange them freely according to their preferences.

Table 3.1 provides a brief description of the buttons on the toolbar and their functions. This section summarizes the main functions of the toolbar and provides introductions to the corresponding icons in the toolbar and their functions.

Table 3.1 ALTRAview LITE Toolbar Button Description Table

Tools	Description
Basic functions	
	Open an image file
	Save the current image
	Quickly save the camera's current image to the specified path (the path is modified in Settings > Save)
	Enable timed photography
	Zoom in on video/image display
	Display the settings window, including the configuration options such as save, language, measurement table, measurement object, and magnification (calibration).
	Display the information window, including the software name, company information, date and version number
Measurement functions	
	Specify the unit of measure
	Specify the objective magnification (and calibration to use)
	Measurement graphics selection mode

	Measurement of graphics
	Calibration
	Saving of measurement information. Choose between burn into the image or save measurement information as a separate layer.
	Measurement information export
Advanced image processing	
	Enable/Disable real-time image stitching (Stitch)
	Enable/Disable real-time Depth of Field Extension (EDF)

Control Panel

The ALTRAview LITE control panel is positioned on the left side of the main interface, as shown in Figure 3-3. It features two layout modes switchable via the arrow button (red box) at the top: (1) Docked Windows and (2) Toolbar. In Docked Windows mode, a list of all control panels is displayed, allowing users to hide or expand them by clicking their titles (two left images). In Toolbar mode, only control panel icons are shown, with users clicking an icon to reveal its corresponding panel (right image).

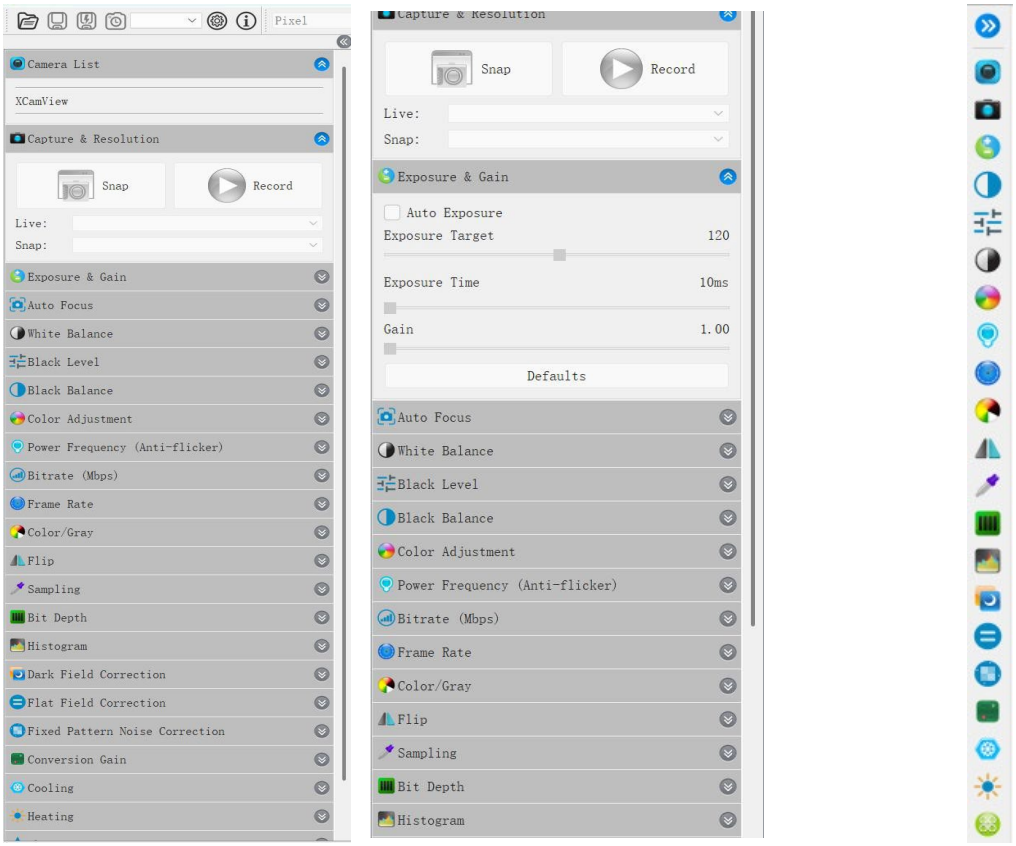


Figure 3-3 Layout Diagram of Docking Window/tools Bar on ALTRAview LITE Control Panel

The functions of the control panel all relate to the camera operation, including the camera list and the parameter control of the camera. Except for the camera list, the functions of other panels are only available when the camera is turned on. The specific functions of the control panel are explained in detail in Chapter 5 Parameter Controls.

Video/Image Display Window

The ALTRAview LITE video/image display window is used to show (1) the camera's video and captured images, and (2) locally opened images. By clicking the [File] button on the toolbar, a file browser is displayed. Currently, ALTRAview LITE supports the following image file formats: BMP, PNG, JPG/JPEG, TIF/TIFF and FITS.

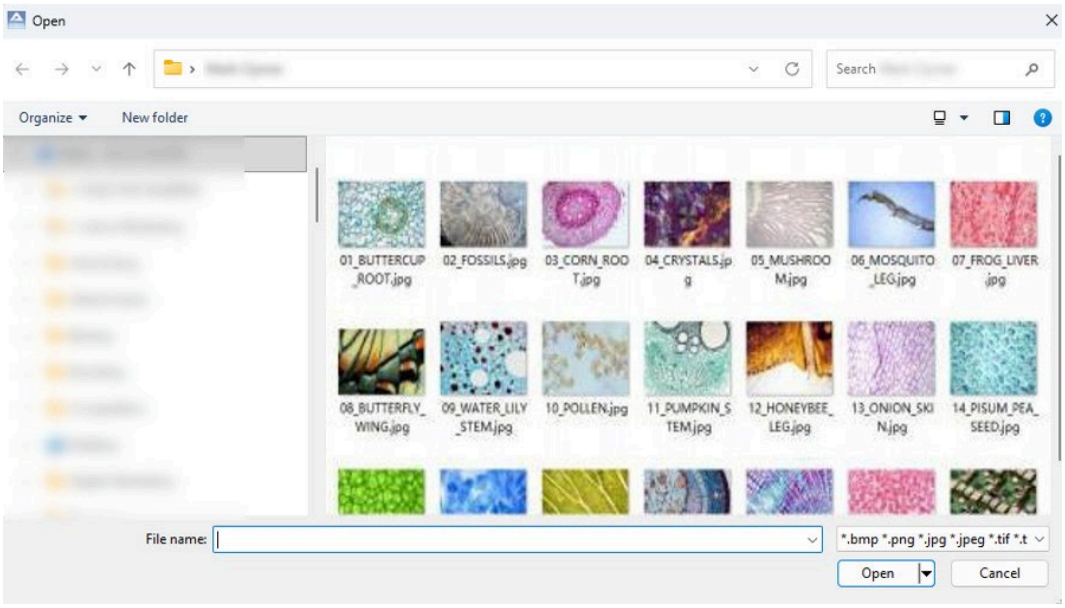


Figure 3-4 Example of ALTRAview LITE Opening Local Files

Users can switch between videos or images by clicking their titles. To close a video or image, either click the "Close" button next to the title or double-click the title. Notably, closing the camera video window will also close the corresponding camera application. The [Zoom Percentage] dropdown in the toolbar allows users to adjust the scale of the display area.

Measurement Information Window

The ALTRAview LITE measurement information window is positioned below the video/image display panel. By default, it remains hidden when the software is first launched. A navigation arrow at the bottom of the display panel (red box) enables users to show or hide the measurement information window. This interface currently contains a measurement table that primarily displays and analyzes graphical data from video/image measurements. Detailed functionalities will be explained in the corresponding measurement sections.

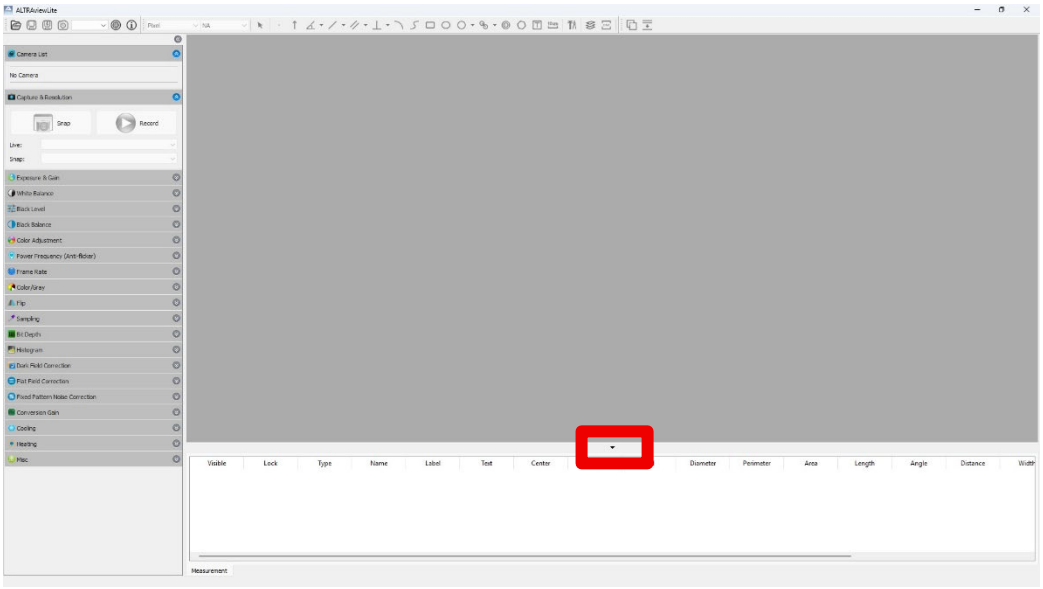


Figure 3-5 Example of Measurement Information Window, expanded

Status Bar

The ALTRAview LITE status bar is located at the bottom of the main interface. Its main function is to display some necessary information about the user's operation or the software itself, such as the current image resolution, video frame rate/number, camera temperature, and the path of the recorded video.

4. Camera Support and Status

ALTRAview LITE automatically detects all compatible cameras connected via computer interfaces from startup to shutdown, displaying the detected devices (camera names) in real-time on the control panel's camera list. If no compatible cameras are found, the camera list will display [No Device]. To open a camera, click on the name in the list.

Figure 4-1 ALTRAview LITE Camera Diagram

USB Camera

ALTRAview LITE supports the discovery, operation, and control of compatible cameras with a USB interface connected to Windows, macOS, and Linux platforms, maintaining complete compatibility with Windows ALTRAview. Users must connect the camera to their computer via a dedicated USB cable for detection by ALTRAview LITE.

UVC Camera

ALTRAview LITE's support for UVC cameras (often with HDMI cameras) remains largely consistent with Windows and macOS platforms, while the latest version no longer provides Linux support. To enable detection by ALTRAview LITE, users must connect the camera to their computer via a dedicated USB cable.

WiFi Camera

ALTRAview LITE supports the discovery, operation, and control of all compatible WiFi cameras across Windows, macOS, and Linux platforms, maintaining full compatibility with Windows ALTRAview. To enable detection, users must connect their computer's network to either the camera's hotspot or the router's hotspot associated with the camera.

5. Parameter Controls

ALTRAview LITE enables parameter control for open cameras, meaning the parameter control panel is only active when a camera is active. The parameter control interface resides on the left side panel of the main interface. The primary controls for parameter management include: capture and resolution, exposure and gain, white balance, color adjustment, light source frequency (anti-flicker), frame rate, color mode, bit depth, flip, sampling, histogram, dark field correction, cooling, miscellaneous.

Different camera models don’t always support the same parameter configurations. ALTRAview LITE automatically adjusts its control panels according to the supported parameters, with corresponding panels remaining hidden for unsupported features. Furthermore, even within the same category of control panels, parameters may differ across camera models—for example, exposure and gain settings, as well as white balance adjustments.

It's important to clarify that for USB and UVC cameras, regardless of their current settings: When connecting for the first time, ALTRAview LITE will use the camera's default parameters to initialize the control panel and configure it. For previously connected cameras, ALTRAview LITE will automatically retrieve the last- used parameters to initialize the control panel. For WiFi-connected cameras, ALTRAview LITE will obtain the camera's current settings to initialize the control panel.

The specific functions and features of each control panel are described below.

Capture and Resolution

The ALTRAview LITE Capture and Resolution Control Panel enables image capture, video recording, resolution switching, screenshot resolution adjustment, and trigger-related functions (for cameras with trigger support). This control panel is available in two configurations depending on whether the camera supports trigger functionality.

1. Cameras that do not support triggers

Most cameras in our lineup lack trigger functionality. The corresponding capture and resolution control panel is shown in Figure 5-2. Two buttons manage screenshot and video recording respectively, while dropdown menus let you set preview and capture resolutions. Note that cameras without static capture support have fixed screenshot resolutions matching their preview settings. Switching between resolutions typically causes brief hibernation - WiFi-enabled models may experience a longer wait period of approximately 5 seconds.

Figure 5-1 Example of ALTRAview LITE Capture and Resolution Control Panel (ordinary)

2. Camera with trigger support (for select USB cameras only)

Some cameras support trigger functionality, as illustrated in the corresponding Capture and Resolution Control

Panel shown in Figure 5-2. Building upon standard capture and resolution settings, this panel integrates exposure and trigger-related features. In the example, the camera is displayed in trigger mode where users can select a trigger source, configure exposure duration, and choose between triggering methods (single shot, multiple shots, or loop). Additionally, users can access the [Options] section to adjust basic trigger settings including image display format, save path, and external trigger parameter presets.

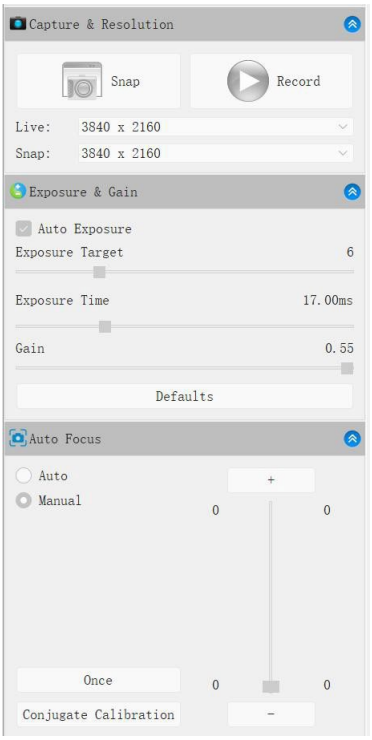


Figure 5-2 Example of the Capture and Resolution Control Panel (trigger)

3. Supplementary information: 3 Ways to Capture Images in ALTRAview LITE

(1) Quick Save 

By clicking the [Quick Save] button on the toolbar, users can automatically save the current image to a specified file path. The saved image size matches the resolution selected in the [Capture] dropdown menu of the Capture and Resolution panel. Path and filename naming conventions can be configured through the [Settings] > [Save] option on the toolbar, as shown in Figure 5-3 (this settings panel also governs recording path specifications and naming protocols)

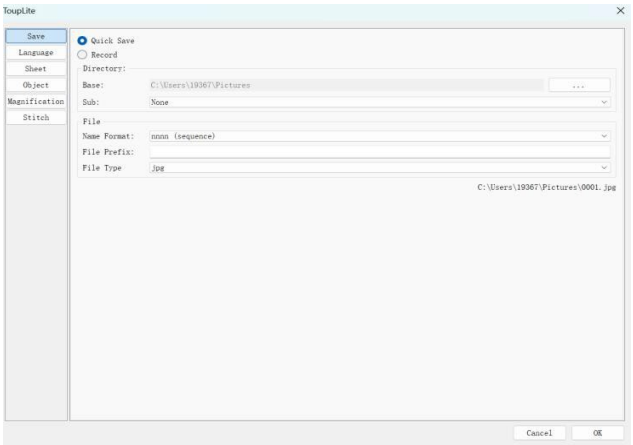


Figure 5-3 Example of Changing and Saving Settings

(2) Timed capture 

By clicking the [Timed Capture] button in the toolbar, users access the configuration dialog for scheduled image acquisition, where they can set parameters to initiate continuous monitoring as shown in Figure 5-4. Upon reaching the specified time interval, the system automatically pauses the process and saves images at the resolution selected in the [Preview] dropdown menu of the Capture and Resolution panel, ensuring file sizes match the configured resolution.

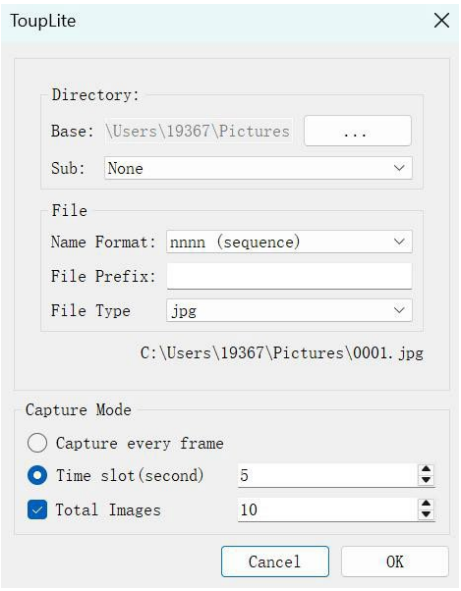
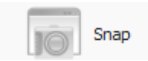


Figure 5-4 Example of the Timing Capture Configuration Dialog Box

(3) Capture and resolution control panel 

When the user clicks the [Snap] button on the Control Panel, the software automatically creates a new display window to show the captured image. The image size matches the resolution corresponding to the [Snap] dropdown menu in the panel. The image name is marked with an asterisk ([*]) to indicate that it has not yet been saved, only captured.

Exposure and Gain

The parameters involved in the ALTRAview LITE Exposure and Gain Panel include auto-exposure activation/deactivation, low-brightness compensation activation/deactivation, exposure target adjustment, exposure time adjustment, and gain adjustment, as shown in Figure 5-5. Among these, low-brightness compensation and exposure targets are displayed or hidden based on the camera's supported features. Except for some S-series (i.e., eyepiece cameras) and WiFi-series cameras, most cameras support exposure target functionality.

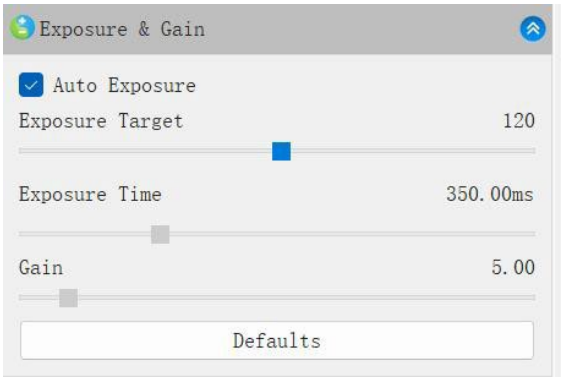


Figure 5-5 Example of ALTRAview LITE Exposure and Gain Control Panel

In automatic exposure mode, the exposure time and gain remain fixed, while the exposure target (or low-brightness compensation) can be adjusted. Most cameras support setting an ROI for automatic exposure, which appears as a green rectangular box in the video display area when the panel is expanded. Users can define the exposure target's range by adjusting the box's size and position. In manual exposure mode, the exposure target (or low-brightness compensation) remains fixed while the exposure time and gain can be modified. Some cameras allow users to click on the exposure time value to open a manual input dialog for precise adjustments.

White Balance

The ALTRAview LITE White Balance Control Panel manages parameters including: color temperature/Tint adjustment, R/G/B gain adjustment, Auto White Balance One-Click, Auto White Balance enable/disable, and ROI white balance switching. Depending on the camera's support for different white balance parameters, ALTRAview LITE provides multiple white balance panels as shown in Figure 5-6, Figure 5-7 , Figure 5-8, and Figure 5-9. The software automatically determines and selects the appropriate white balance control panel based on camera specifications.

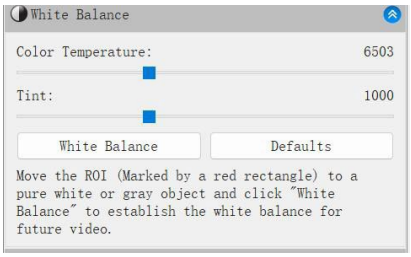


Figure 5-6 Example of ALTRAview LITE White Balance Control Panel (One Push)

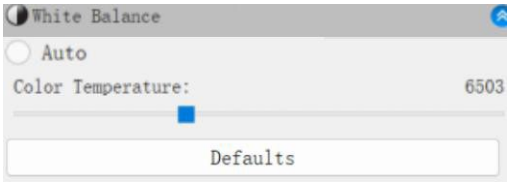


Figure 5-7 Example of ALTRAview LITE Color Temperature White Balance Control Panel (Auto)

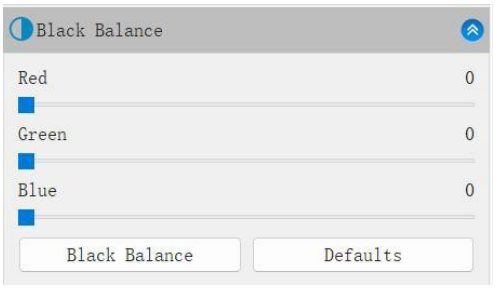


Figure 5-8 Example of ALTRAview LITE RGB White Balance Control Panel

Figure 5-9 Example of ALTRAview LITE ROI White Balance Control Panel Diagram

Before using the automatic white balance feature, users should understand that it operates in two modes: One-Click Trigger and Real-Time Calculation. The One-Click Trigger mode is controlled by the [White Balance] button on the panel, which triggers a single automatic white balance calculation. When activated, the real-time calculation mode continuously adjusts the white balance based on the camera's changing environment.

(1) The user selects the ROI white balance mode

(2) The camera that supports One Push unfolds in the white balance panel

A red rectangle is then displayed in the video display area. Users can adjust the size and position of the rectangle to select the range of automatic white balance.

Color Adjustments

The ALTRAview LITE color adjustment control panel involves the following parameters: hue, saturation, brightness, contrast, gamma, etc.

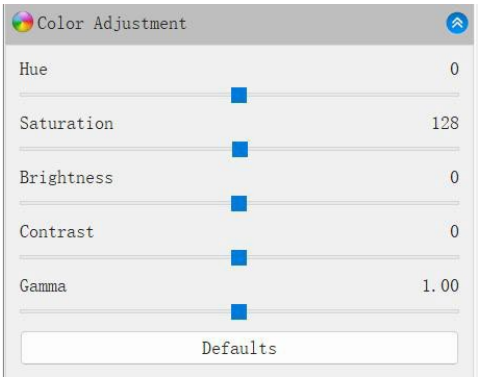


Figure 5-10 Example of ALTRAview LITE Color Adjustment Control Panel

Light Source Frequency (anti-Flicker)

The ALTRAview LITE light source frequency control panel is used to switch between AC (50Hz), AC (60Hz) and DC (DC) light source frequencies, as shown in Figure 5-11. It should be noted that the selection of light source frequency will affect the value of exposure time, and the relevant information is described in the text at the bottom of the panel.

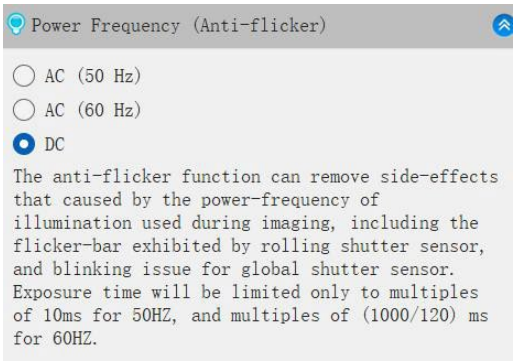


Figure 5-11 Example of ALTRAview LITE Light Source Frequency (anti-Flicker) Control Panel

Frame Rate

The ALTRAview LITE frame rate control panel manages video capture settings, as shown in Figure 5-12. When your computer and camera support the selected frame rate, adjusting the slider to the right increases the recording speed. If you encounter display issues or blackouts during playback, dragging the slider to the left reduces the frame rate to ensure smooth operation in low-speed modes.

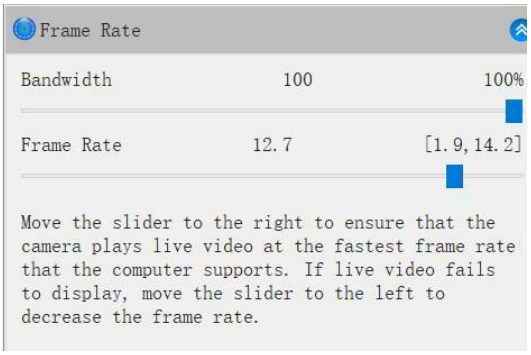


Figure 5-12 Example of ALTRAview LITE Frame Rate Control Panel

Color Mode

The ALTRAview LITE Color Mode Control Panel is used to switch between color and grayscale modes of video images, as shown in Figure 5-13. The default mode is color. If you want to preview monochrome video, select the [Grayscale] option.

Figure 5-13 Example of ALTRAview LITE Color Mode Control Panel

Bit Depth

The ALTRAview LITE bit depth control panel is used to switch video image bit depths, as shown in Figure 5-14. The available bit depth options will depend on the camera model.

Figure 5-14 Example of ALTRAview LITE Bit Depth Control Panel

Image Flip

ALTRAview LITE allows the user to flip the image horizontally, vertically, or both, as shown in Figure 5-15.

Figure 5-15 Example of ALTRAview LITE Flip Control Panel

Sampling

The ALTRAview LITE sampling control panel manages two sampling modes for high-resolution cameras: binning (Bin) and skip (Skip), as shown. Binning combines adjacent pixels into “super pixels” for increased sensitivity, delivers better image quality, but results in lower frame rates. Skip mode “skips” pixels, produces a lower quality image, but maintains higher frame rates.

Figure 5-16 Example of ALTRAview LITE Sampling Control Panel

Histogram

The ALTRAview LITE histogram control panel displays and manages real-time histogram data of video images, as shown in Figure 5-17. The histogram provides statistical analysis of image channels (e.g., R/G/B for color images or grayscale data for monochrome images). Users can select channel types to display (for multi-channel formats like RGB), manually adjust the level range by moving the red and blue lines in the histogram, and choose between [Default] or [Auto] modes to enable automatic level range adjustment.

ALTRAview LITE currently only supports histogram statistics and control for USB cameras.

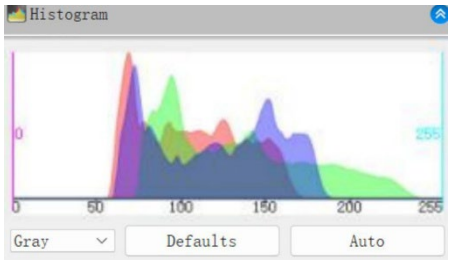


Figure 5-17 Example of ALTRAview LITE Histogram Control Panel

Dark-Field Correction

The ALTRAview LITE dark-field calibration control panel enables the camera to perform dark-field correction, as shown in Figure 4-18. After capturing multiple dark-field images, users can click [Enable] to initiate automatic calibration through both the camera and software. Dark field correction removes inherent noise in the camera from the image, especially during long exposures. Detailed operation instructions are provided in the text-based interface at the panel's bottom.

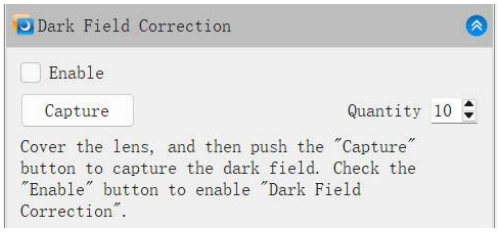


Figure 5-18 ALTRAview LITE Dark Field Correction Control Panel

Refrigeration

The ALTRAview LITE cooling control panel adjusts and controls parameters such as cooling and fan for cameras that support cooling, as shown in Figure 5-19. The cooling control panel includes turning cooling on/off, setting of target temperature, and control of fan speed. If supported by the camera, cooling reduces read noise in the camera sensor.

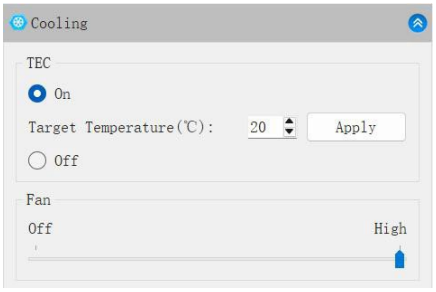


Figure 5-19 Example of ALTRAview LITE Refrigeration Control Panel

Miscellaneous

The miscellaneous control panel includes functions such as sharpness and noise reduction adjustments, as shown in Figure 5-20.

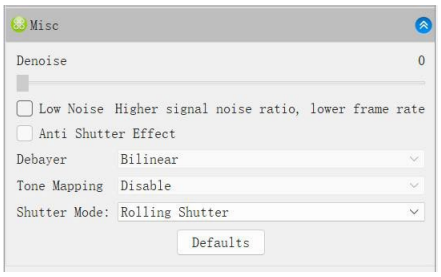


Figure 5-20 Example of ALTRAview LITE Miscellaneous Control Panel

6. Measurement Function

The main function of the measurement function is to measure and annotate videos/images in the form of geometric shapes, and to set up calibration information. For example, use a straight line to measure the length of an image, or use a circle or rectangle to measure the area of an image.

Measurement Graphics

1. Introduction to measuring graphics and creation

Measurement graphics can be selected and drawn from the toolbar. The toolbar defaults to [Select] mode. Clicking any geometric shape enters its "Draw" mode, with some measurement graphics featuring a downward arrow icon in the toolbar.

The arrow icon indicates that multiple measurement graphics exist within a category. Clicking the small arrow will trigger a dropdown menu allowing users to select the desired graphic. Users can then draw the selected graphic in the window and exit the drawing process by right-clicking on the mouse or clicking the [Select] button on the toolbar.

ALTRAview LITE currently provides the following measurement graphics: points, straight lines (horizontal/ vertical), arrows, 3-point angles/4-point angles, parallel lines/double parallel lines, perpendicular lines/4-point perpendiculars, arcs, arbitrary curves, rectangles, ellipses, concentric circles/radius-diameter circles/3-point/ double-point circles, double circles/3-point circles, rings, polygons, text, and scales. These measurement graphics come with default properties that may require initial configuration before creation. Users can modify these settings through the [Tools]> [Options]> [Measurement Objects] menu, as demonstrated in Figure 6-1.

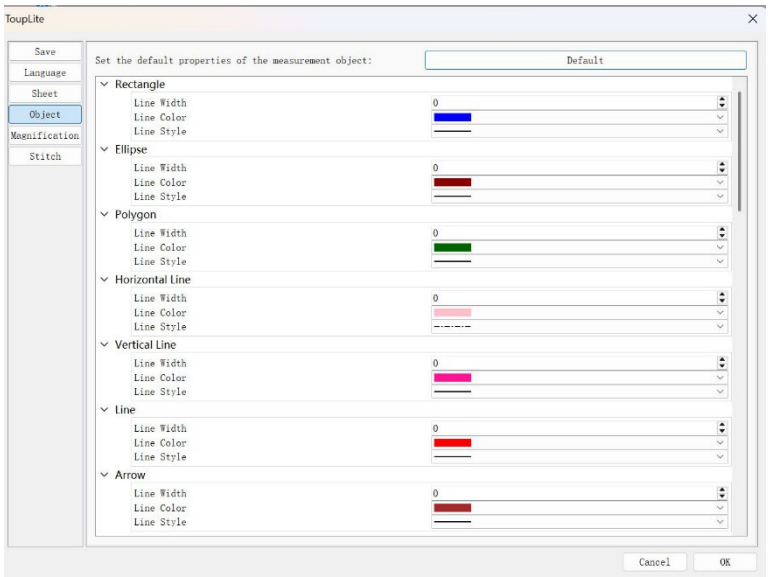


Figure 6-1 Example of Measurement Initial Graphics Attribute Setting Window

2. Measurement Information

All measurement data for graphic shapes are displayed in the measurement table at the bottom of the interface. Each row in the table represents a shape, with its specifications shown through corresponding columns, as illustrated in Figure 6-2. The visibility of these measurements can be customized through the [Tools] menu>[Settings]>[Measurement Tables], as demonstrated in Figure 6-2. It should be noted that options including[Visible],[Locked], and[Type] are fixed parameters and cannot be modified.

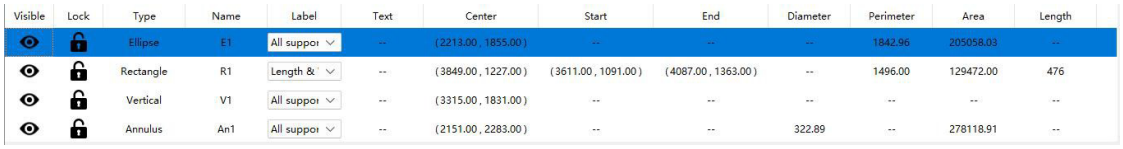


Figure 6-2 Example of ALTRAview LITE Measurement Table

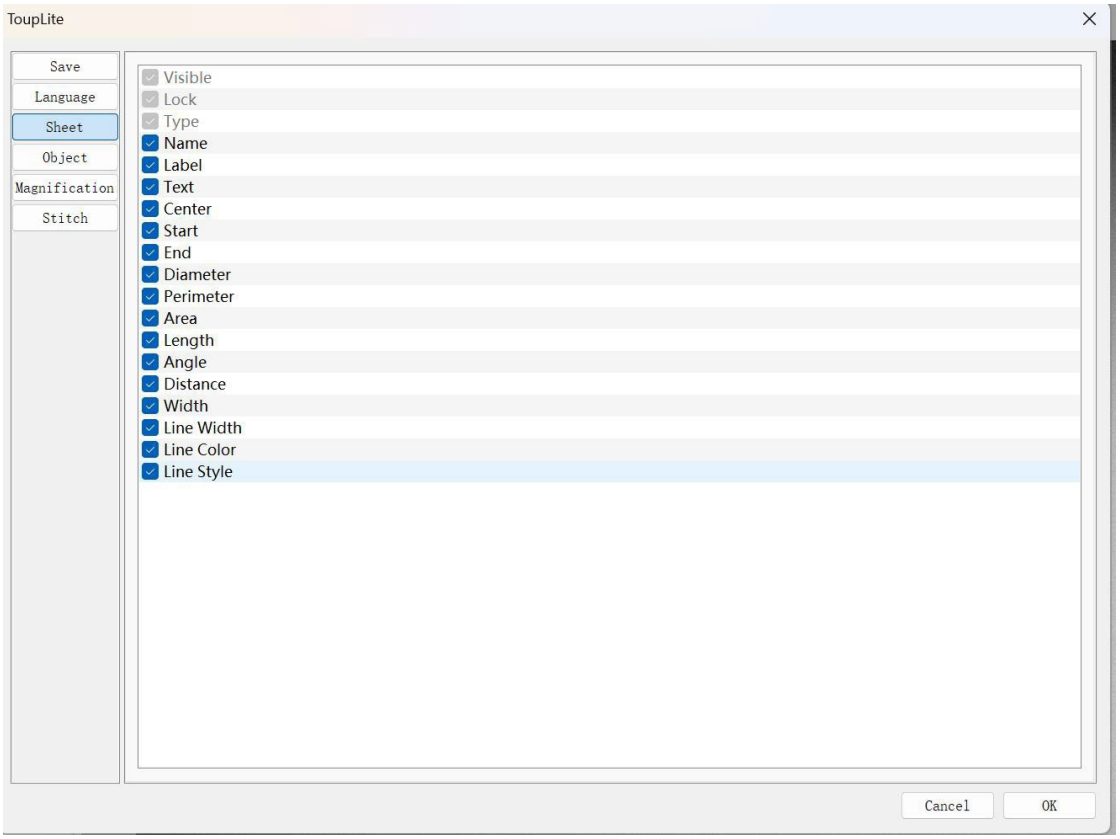


Figure 6-3 Example of Measurement Table Setting Window

Table 6.1 The table below provides an explanation of the Name of the Measurement function and its meaning.

Table 6.1 ALTRAview LITE Measurement Table Header Description Table

Visible	Control measurement graphics hide/show	editable
Lock	Control whether the measurement graph can be moved and edited	editable
Name	Measure the type of figure, such as line, rectangle, etc.	Cannot be edited
Type	The name of the measured figure is determined by the type name by default	editable
Label	Control the display of measurement information annotation types in video/image	editable
Text	Measure the graphic text information, the unique attributes of the text graphics	editable

Center	Measure the coordinates of the center point of the graph	editable
Start	Measure the starting coordinates of the drawing	editable
End	Measure the endpoint coordinates of the drawing	editable
Diameter	Measure the diameter of the figure	Cannot be edited
Perimeter	Measure the perimeter of the figure	Cannot be edited
Area	Measure the size of a graphic area	Cannot be edited
Length	Measure the length of the figure	Cannot be edited
Angle	Measure the size of an angular figure, a characteristic property of an angular figure	Cannot be edited
Distance	Measure the distance between graphics	Cannot be edited
Width	Measure the width of the graphics	Cannot be edited
Line Width	Control the width of lines drawn in the measurement graph	editable
Line Color	Control the color of the lines drawn in the measurement graph	editable
Line Style	Control the style of lines drawn in the measurement graph	editable

3. Modifying and Editing a Measurement Graphic

After they are created, measurement graphics can be modified in the following ways:

In the video/image window: The measurement graphic itself can be dragged without being locked; points on the measurement graphic can be dragged without being locked; annotation information on the measurement graphic can be dragged without being locked. Double-clicking the measurement graphic will display a dialog box as shown in Figure 6-4 to complete relevant settings and modifications.

In the measurement table: Some editable content of the measurement image can be directly modified in the corresponding item of the table; you can also double-click the row where the measurement graphic is located to open a window as shown in Figure 6-4 for modification.

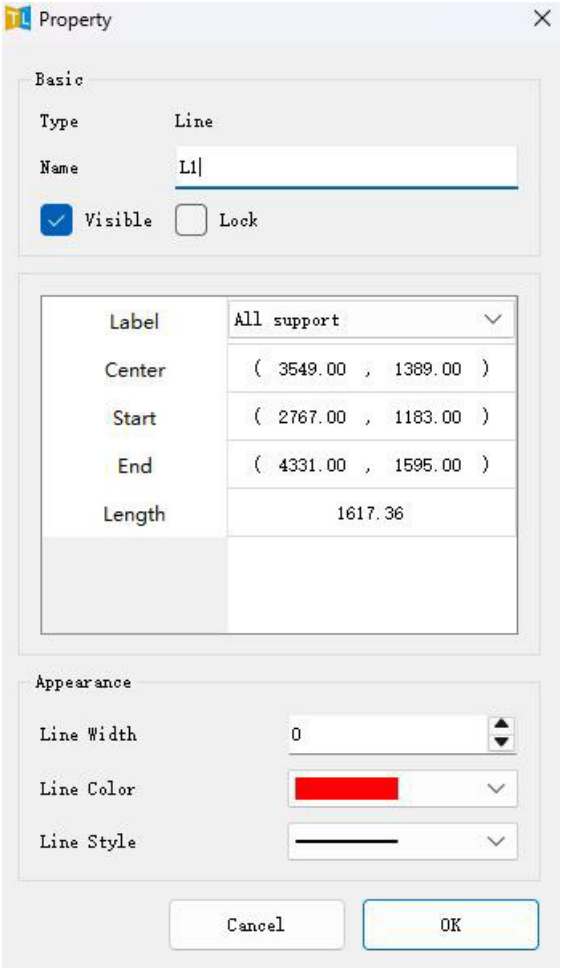
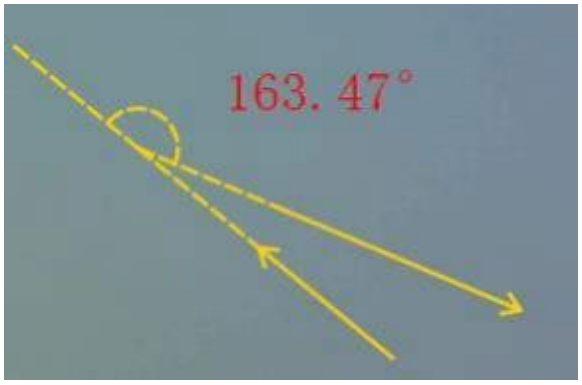


Figure 6-4 Example of Measurement Graphic Editing Window

4. Additional information on frequently asked measurement graphics

The Point Angle

The purpose of the Point Angle is to explain the calculation rule of its Angle. The Angle of four points is composed of two directional straight lines, and the size of the Angle is the angle between one straight line and another straight line that needs to be rotated to maintain the same direction, as shown in Figure 6-5.



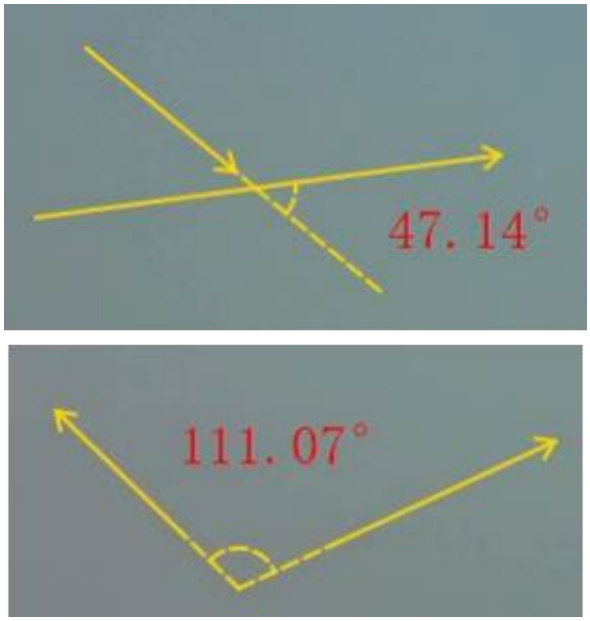


Figure 6-5 Angle Diagram of Four Points in ALTRAview LITE

Scale (ruler)

A scale is a measurement tool that represents the proportion of a specified length of line segment in video/image, serving as an annotated measurement reference. When clicking the [Scale] window in the toolbar, users input a length and select a unit. The software automatically calculates and displays a corresponding scale graphic based on user input and the current calibration settings. For example: If the current calibration setting is 100 pixels per micron, and a user inputs 2 microns (value 2, unit selected: microns), the scale length will be 200 pixels, displaying the value "2μ" as intended.

If the current video/image is not calibrated, the user will only see the number of pixels measured by the scale.

Calibrate

The calibration function establishes a mapping relationship between pixels in a video/image and their actual values (or manually specified reference values). A complete calibration profile includes: the calibration name, magnification value, and unit. Users can create a new calibration by clicking the [Calibration] button in the toolbar. The software's video/image window will then display a calibration line and table, as shown. Standard microscope calibration procedures are as follows:

1) Place a reference with known actual length, such as stage micrometer, in the center of the microscope field of view and ensure that the image is clear;
2) When ALTRAview LITE enters the calibration mode, the video/image window displays the calibration line and calibration window, as shown in Figure 6-6. The software will display the pixel value occupied by the calibration line;
3) Drag the calibration line and align it with both ends of the calibration reference;
4) In the calibration dialog box, select or enter the calibration name, input the actual length of the reference object, choose the unit for that length, and click [OK] to complete the calibration. This calibration information will serve as the current video/image calibration setting, affecting all measurement graphics on that video/image.

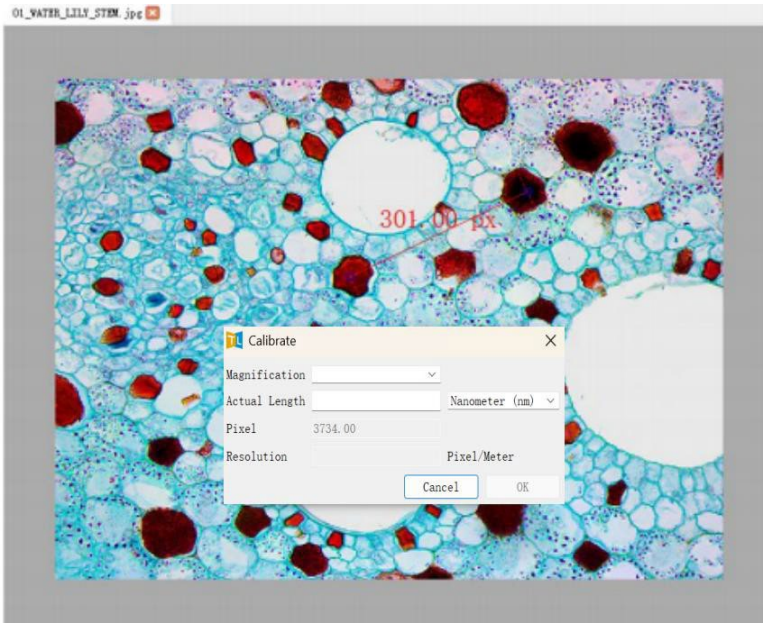


Figure 6-6 Example of Calibration Interface

The software automatically saves calibration data locally, which is displayed in the [Tool Bar] - [Calibration Information] section allowing users to switch between different calibration settings for current videos. For image calibration, double-clicking the [Resolution] icon in the [Status Bar] opens a window for modifying real-time image parameters. These dynamic calibration values update dynamically with the video feed rather than being stored locally. Local calibration management can be adjusted through [Tool Bar] > [Settings] > [Magnification] as shown in Figure 6-7, where users can perform operations including adding, deleting, modifying, or clearing calibration entries.

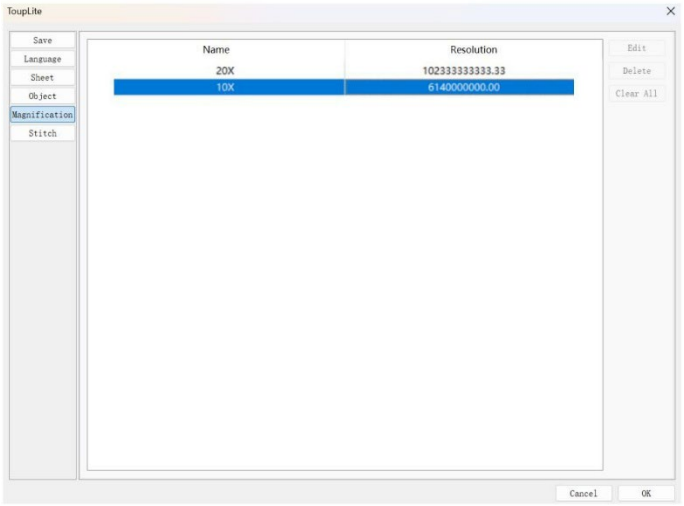


Figure 6-7 Schematic Diagram of ALTRAview LITE Calibration Information Management Window

Save and Export

ALTRAview LITE does not support saving measurement data for recorded video, but it allows saving all image measurement data in two formats: layer & burn. These methods can be selected through the corresponding layer/burn toggle buttons in the [Tool Bar].

Layer: Measurement data is stored in image files as separate layers. When processing images, ALTRAview LITE reads and parses the corresponding measurement graphics and calibration parameters to display them on the interface, while allowing users to modify the measurement information. This approach enables the preservation of

measurement details without compromising the original image data, though such information remains inaccessible to third-party software.

Burn: The measurement information is printed into the image data, and the user cannot modify the saved measurement information.

If the user wants to export the measurement information, it can be exported as a CSV file through the measurement information export button in the [Tool Bar]. At which time, a corresponding pop-up window will appear for the user to select the export path.

7. Advanced Image Processing

ALTRAview LITE currently integrates advanced image processing functions such as image stitching (Stitch) and extended depth of field (EDF) to extend the imaging capabilities of the microscopic system.

The [Stitch] and [EDF] buttons in the toolbar enable users to activate image stitching and depth-of-field enhancement modes. These advanced processing features are camera-dependent, as they rely on video streams. Consequently, all related controls in ALTRAview LITE remain disabled until a camera is active. Before processing, users must adjust camera parameters and disable auto-exposure and auto-white balance to prevent interference with the final output.

Image Stitching (Stitch)

The image stitching feature of ALTRAview LITE aims to expand the imaging capabilities of microscopes in horizontal planes. When stitching mode is activated, users manually adjust the microscope's X and Y-axis knobs to move the sample below the objective lens, while the software's algorithm automatically captures images from the camera's video stream for real-time computation and stitching. As shown in Figure 7-1, the green rectangular box displays the current camera video frame, with a condition indicator above it indicating whether the image meets high-quality stitching requirements. A red alert suggests adjustments to sample positioning may be needed. Upon deactivating stitching mode, the system ultimately produces a single stitched image capturing a wide field of view.

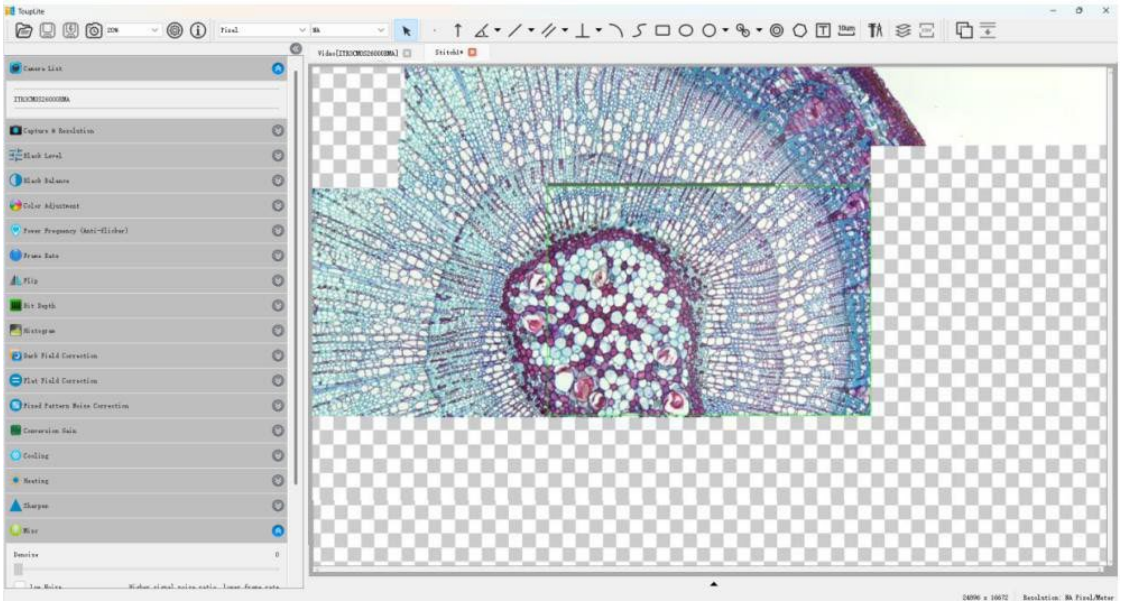


Figure 7-1 Example of ALTRAview LITE Image Mosaicking Process

Extended Depth of Field (EDF)

The depth-of-field extension feature of ALTRAview LITE aims to enhance the imaging capabilities of microscopes in vertical directions. When EDF mode is activated, users manually adjust the microscope's Z-axis knob (focus) to adjust the focus position, while the software's algorithm automatically captures images from the camera's video stream for real-time computation and fusion. The EDF process in ALTRAview LITE is illustrated in

Figure 7-2, where a rectangular area in the lower left corner displays the current camera video feed. This area can be dragged to any of the four corners of the window. Upon deactivating the depth-of-field extension mode, users ultimately obtain a sharp image with expanded depth of field.

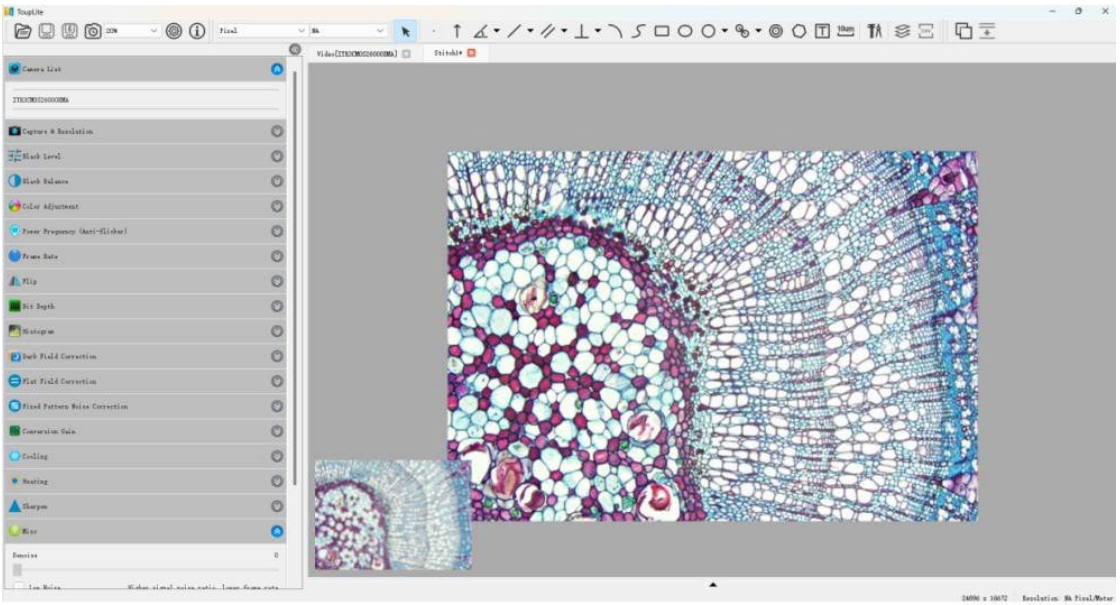


Figure 7-2 Example of Depth of Field Expansion Process of ALTRAview LITE

8. FAQ

1) What are the minimum Operating System requirements?

Windows：

x86: XP SP3 and later; CPU must support at least SSE2 instruction set

x64: Win7 and above

macOS: macOS 10.10 and later

Linux: kernel 2.6.27 and above

2) How Does ALTRAview LITE Differ Across Platforms or How Does It Support Cameras?

While ALTRAview LITE maintains identical functionality across Windows, macOS, and Linux platforms, their interface designs differ. For technical support, users should first test the software on Windows ALTRAview LITE to verify compatibility. If a feature works on macOS, it will work on Windows as well - these cross-platform differences are standard.

The main difference between ALTRAview LITE on Windows, macOS, and Linux lies in camera compatibility. USB camera support remains consistent across platforms, though it's worth noting that certain USB cameras may experience intermittent frame capture pauses when running on macOS M1 chips. UVC cameras are not supported on Linux.

WiFi camera support is generally consistent across platforms, however, performance may vary between devices and platforms. You might occasionally encounter issues like the camera not being found on certain platforms, video playback failures, or malfunctioning parameters. For such problems, refer to our FAQ section for troubleshooting steps and contact information.

3) How to Test and Locate ALTRAview LITE Camera Support Issues?

First, determine whether ALTRAVIEW LITE does not support the camera or the computer itself does not recognize the camera. The method is shown in question 4). Test results can be explained according to actual conditions.

a) USB camera

If the problem occurs on MACOS, try the same version of ALTRAVIEW LITE on WINDOWS for testing; if the problem occurs on WINDOWS, conduct self-test; regardless of whether it is supported or not, report the test situation to ACCU-SCOPE.

b) UVC camera

For MACOS issues: Try the same version of ALTRAVIEW LITE on WINDOWS for testing; conduct self-testing on WINDOWS. Regardless of whether it is supported or not, report the model number and the corresponding PID & VID to ACCU-SCOPE.

c) WIFI camera

After ensuring that the network connection is normal, if you still cannot identify the problem, please directly contact ACCU-SCOPE to report the problem.

4) The USB Camera Cannot Collect Images Normally When Video Is Opened

The ALTRAview LITE USB camera failed to open and could not collect images properly. First try a lower resolution and lower frame rate. If the issue persists, report the test results to ACCU-SCOPE.

5) Where Are the Images and Videos Captured by ALTRAview LITE by Default?

You can view and set the default path for quick screenshot and video recording in [Tool Bar] > [Settings] > [Save].

6) ALTRAview LITE Some Instructions About Recording Video?

The video recorded by ALTRAview LITE is different from ALTRAview for Windows in that it does not support user configuration parameters. Some related parameters, such as format and quality, are fixed. The format is MP4 format, the quality is 100, and the frame rate will be automatically adjusted according to the frame rate of the camera transmitting the video.

9. LIMITED WARRANTY

Digital Cameras for Microscopy

This digital camera is warranted to be free from defects in material and workmanship for a period of one (1) year from the date of invoice to the original (end user) purchaser.

This warranty does not cover damage caused in-transit, damage caused by misuse, neglect, abuse or damage resulting from either improper servicing or modification by other than ACCU-SCOPE or UNITRON approved service personnel. This warranty does not cover any routine maintenance work or any other work that is reasonably expected to be performed by the purchaser. No responsibility is assumed for unsatisfactory operating performance due to environmental conditions such as humidity, dust, corrosive chemicals, deposition of oil or other foreign matter, spillage or other conditions beyond the control of ACCU-SCOPE Inc. This warranty expressly excludes any liability by ACCU-SCOPE INC. and UNITRON Ltd for consequential loss or damage on only grounds, such as (but not limited to) the non-availability to the End User of the product(s) under warranty or the need to repair work processes.

All items returned for warranty repair must be sent freight prepaid and insured to ACCU-SCOPE INC., or UNITRON Ltd., 73 Mall Drive, Commack, NY 11725 – USA. All warranty repairs will be returned freight prepaid to any destination within the Continental United States of America. Charges for repairs shipped back outside this region are the responsibility of the individual/company returning the merchandise for repair.

To save your time and expedite service, please prepare the following information in advance:

• Camera model and S/N (product serial number).

• Software version number and computer system configuration information.

• As much detail as possible including a description of the problem(s) and any images help to illustrate the issue.