S-EYE 2.0 Software User Manual

Scope. This manual explains how to install, configure and operate S-EYE 2.0, the imaging and measurement software used with the camera mounted on the externally adjustable probe station. It covers the installation, the software interface, the camera settings, the capture and measurement workflow, the **Preferences** dialog, the image calibration and the measurement tools.

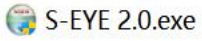
Menu names, dialog captions and option values are written in English exactly as they are displayed in the software interface.



1. Installation

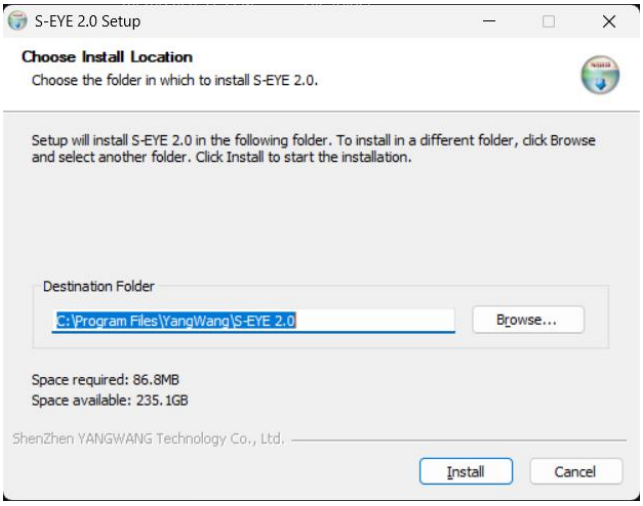
1.1 Run the installer

Double-click **S-EYE 2.0.exe** to start the setup program.



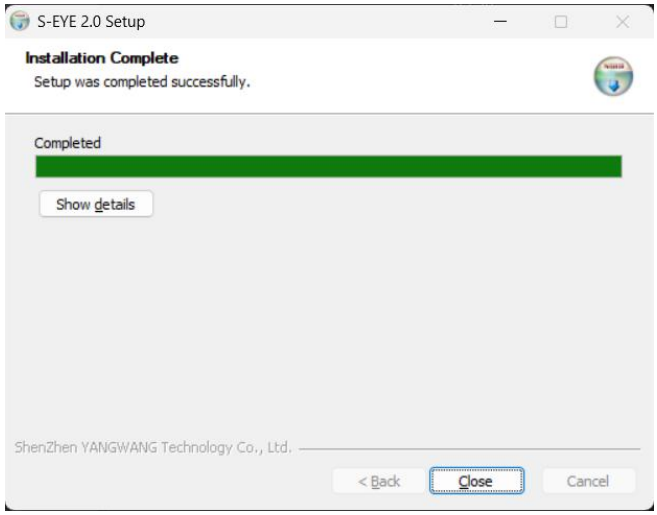
1.2 Choose the install location

The default destination folder is `C:\Program Files\S-EYE 2.0`. To install the software into another folder, click **Browse…**, select the target folder and then click **Install**.



1.3 Complete the installation

The **Installation Complete** page confirms that the setup was completed successfully. Click **Close** to finish.



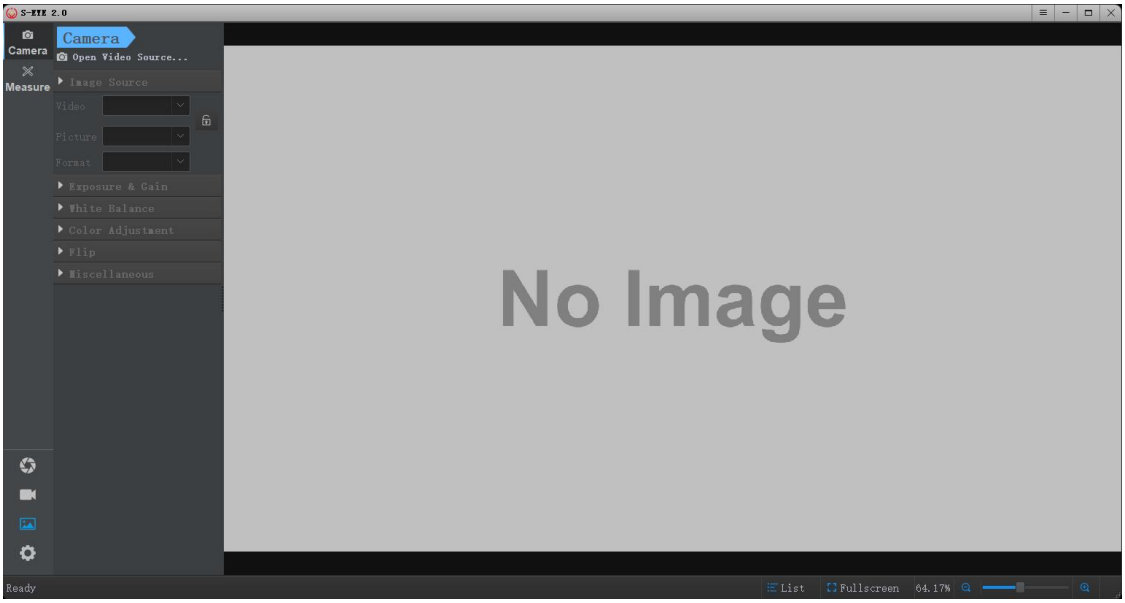
1.4 Start the software

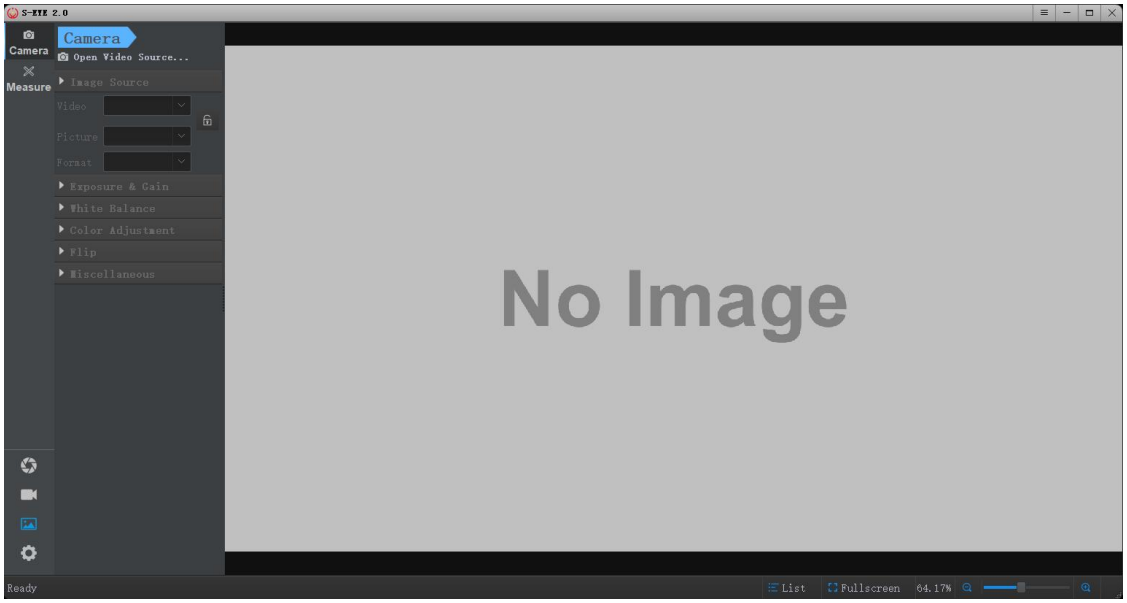
Double-click the **S-EYE 2.0** shortcut on the desktop.



1.5 Main window

The main window consists of the left tool panel, the image display area, the status bar and the bottom toolbar.

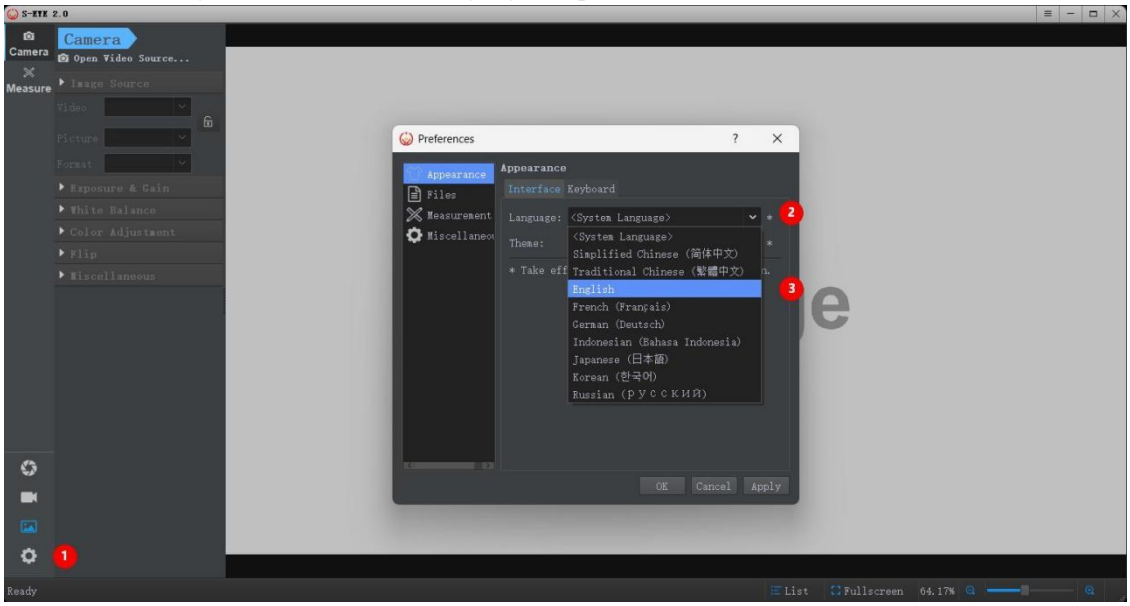




1.6 Change the interface language

If the interface is not shown in a language you are familiar with:

1. Click the **Preferences** (gear) icon in the lower-left corner of the window.
2. On the **Appearance > Interface** page, set **Language** to **English**.
3. Click **OK**, then close the software.
4. Start the software again — the interface language is updated on restart.



2. Interface Overview

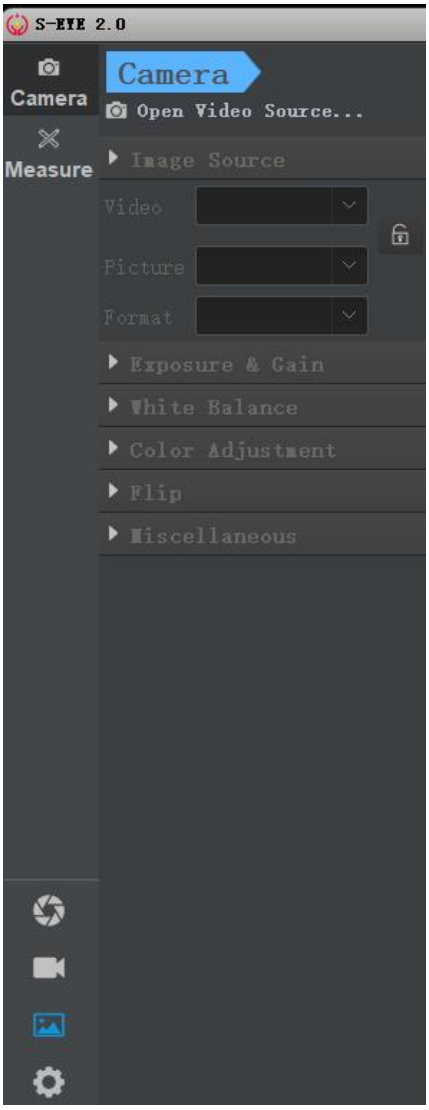
2.1 Window layout

Area	Description
Left tool panel	Two tabs. **Camera** contains the image source and the camera settings; **Measure** contains the calibrations, the measure tools and the tool attributes.
Image display area	Shows the live video. **No Image** is displayed when no video source is connected.

Area	Description
Status bar	Connection status (**Ready**), view mode (**List**), **Fullscreen** toggle, zoom value and zoom slider.
Bottom toolbar	**Capture**, **Record**, **Preview** and **Preferences** buttons, arranged from top to bottom in the lower-left corner.

2.2 Camera panel

Click **Open Video Source…** to connect or change the video source. The **Image Source** group contains three drop-down lists — **Video**, **Picture** and **Format** — and a lock button on the right.



2.3 Camera setting groups

Five groups can be expanded by clicking the arrow in front of the group name: **Exposure & Gain**, **White Balance**, **Color Adjustment**, **Flip** and **Miscellaneous**.

2.4 Bottom toolbar

Button	Function

Button	Function
Capture	Saves the current frame as an image file.
Record	Starts the video recording; click again to stop the recording.
Preview	Opens the images and videos saved on the computer for preview.
Preferences	Opens the **Preferences** dialog (see section 5).

3. Camera Settings

3.1 Resolution and image format

1. Click the down arrow next to **Video** and select the required resolution. Eight resolutions are available.
2. After the resolution is selected, click the lock button on the right to lock it. To change the resolution again, click the lock button once more to unlock it.
3. Once the selection is locked, the video resolution and the still-picture resolution remain identical.
4. **Format** provides two image data formats: **YUV** and **Motion JPEG**.

3.2 Exposure, gain and white balance

3.2.1 Exposure

Item	Setting
Auto exposure	Select **Auto**. When **Auto** is selected, **Exposure Time** and **Gain** below cannot be adjusted.
Manual exposure	Clear **Auto**, then drag **Exposure Time** and **Gain** with the mouse to the values required by the actual conditions.
Target value	Set the target exposure value according to the actual conditions by dragging the target control.

3.2.2 White balance

Item	Setting
One push white balance	Click **One Push White Balance** to perform the white balance in a single step.
Color temperature	Drag **Color Temperature** to the value required by the actual conditions.
Default	Restores the factory default value of the system.

3.3 Color adjustment

1. **Color Mode** provides three options: **Color**, **Monochrome** and **Invert**.
2. **Contrast**, **Saturation**, **Gamma**, **Sharpness** and **Noise Reduction** can be adjusted according to the actual conditions. Click the up or down arrow — the value increases upwards and decreases downwards.
3. **Default** restores the factory default value.

3.4 Flip and miscellaneous

3.4.1 Flip

1. **Mirror** mirrors the image. Click **Mirror** to apply it.
2. **Flip** flips the image. Click **Flip** to apply it.

3.4.2 Miscellaneous

Frequency — select the required power-line frequency. **50 Hz**, **60 Hz** and **Auto** are available.

4. Capture, Recording and Preview

The four buttons are located in the bottom toolbar at the lower-left corner of the main window.

4.1 Capture



Click **Capture**. The current frame is saved as an image into the folder configured under **Preferences > Files**.

4.2 Record



Click **Record** to start the recording; click the button again to stop it. The video file is saved into the same configured folder.

4.3 Preview



Click **Preview** to open the images and videos saved on the computer, and select the item to be previewed.

4.4 Preferences



Click **Preferences** to open the **Preferences** dialog. The individual pages are described in section 5.

5. Preferences

Open the dialog with the **Preferences** (gear) icon in the lower-left corner. The left pane contains **Appearance**, **Files**, **Measurement** and **Miscellaneous**. After a change, click **Apply** and then **OK** to confirm it.

5.1 Appearance

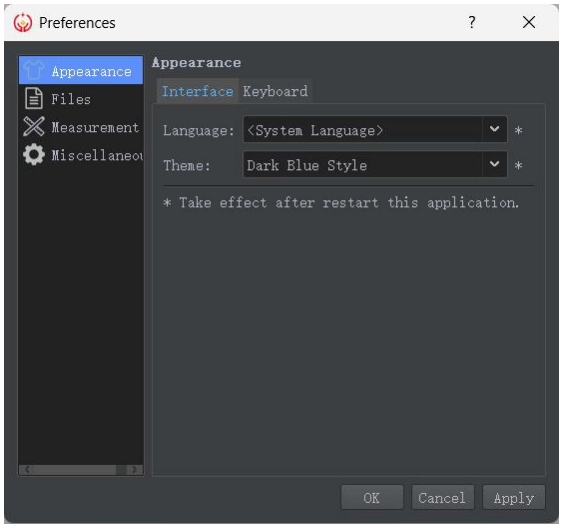
Interface tab:

5. **Language** — nine options: **<System Language>**, Simplified Chinese, Traditional Chinese, **English**, French, German, Indonesian, Japanese, Korean and Russian.
6. **Theme** — **<System Default>** or **Dark Blue Style**.

Keyboard tab:

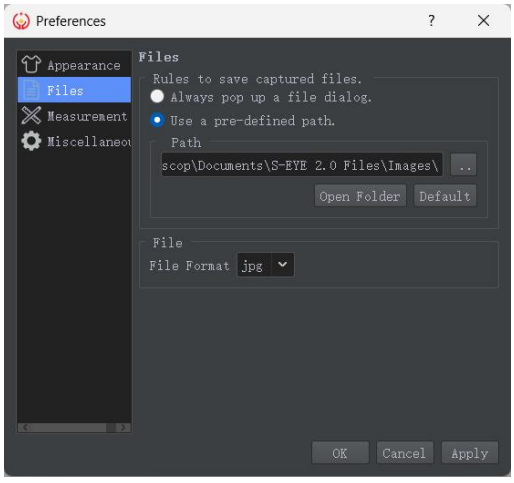
1. The fullscreen shortcut can be defined as required.
2. The capture shortcut can be defined as required.

Settings marked with an asterisk (*) take effect after the software is restarted.



5.2 Files

5. **Rules to save captured files** — select **Always pop up a file dialog** or **Use a pre-defined path**.
6. **Path** — the target folder. **Open Folder** opens the folder and **Default** restores the default path.
7. **File Format** — **jpg**, **bmp**, **png** or **tif**.



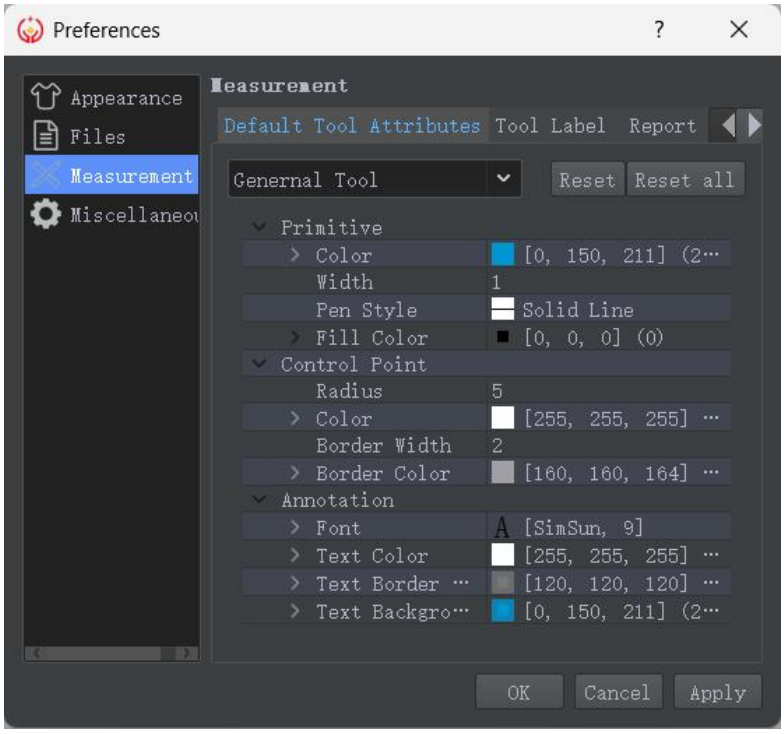
5.3 Measurement

5.3.1 Default Tool Attributes

Five tool types are available: **General Tool**, **Calibration Tool**, **Annotation Tool**, **Counter Tool** and **Scale Bar**. For the selected tool the following attributes can be adjusted:

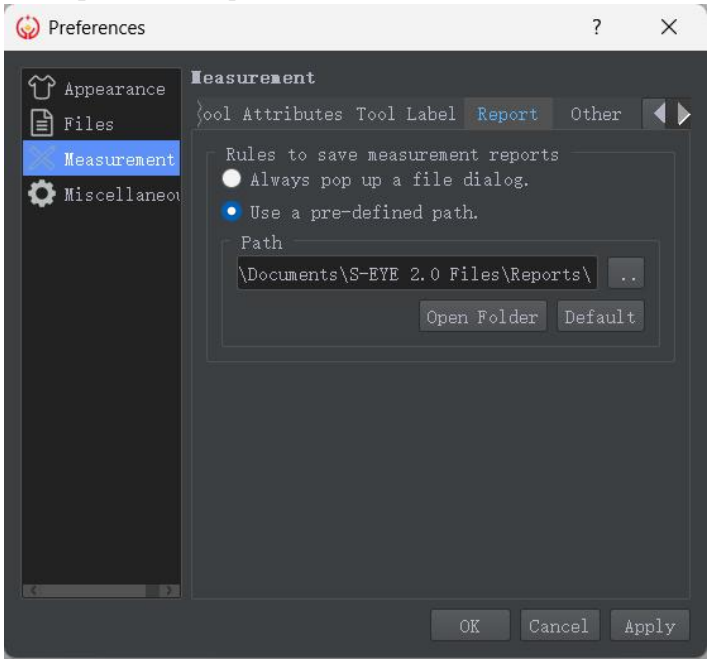
Group	Attributes
Primitive	Color, Width, Pen Style, Fill Color
Control Point	Radius, Color, Border Width, Border Color
Annotation	Font, Text Color, Text Border Color, Text Background Color

Reset restores the default value of the current item; **Reset all** restores the default values of all items.



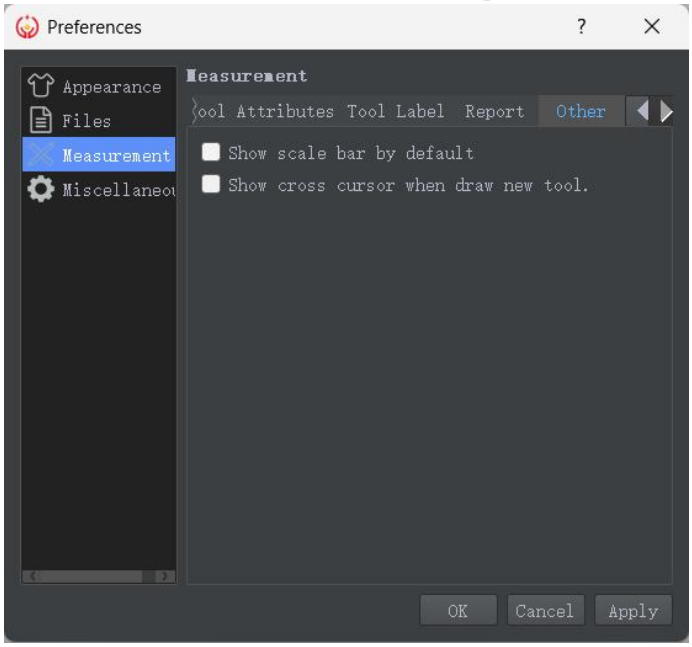
5.3.2 Report

8. **Rules to save measurement reports** — select **Always pop up a file dialog** or **Use a pre-defined path**.
9. **Path** — the target folder. **Open Folder** opens the folder and **Default** restores the default path.



5.3.3 Other

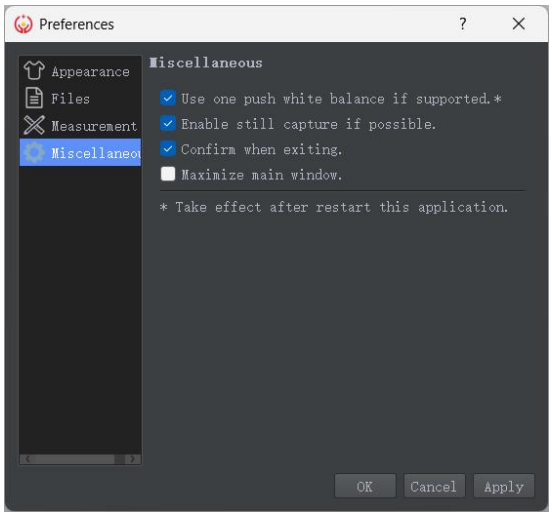
10. **Show scale bar by default** — the scale bar is displayed by default.
11. **Show cross cursor when draw new tool** — a cross cursor is displayed while a new tool is being drawn.



5.4 Miscellaneous

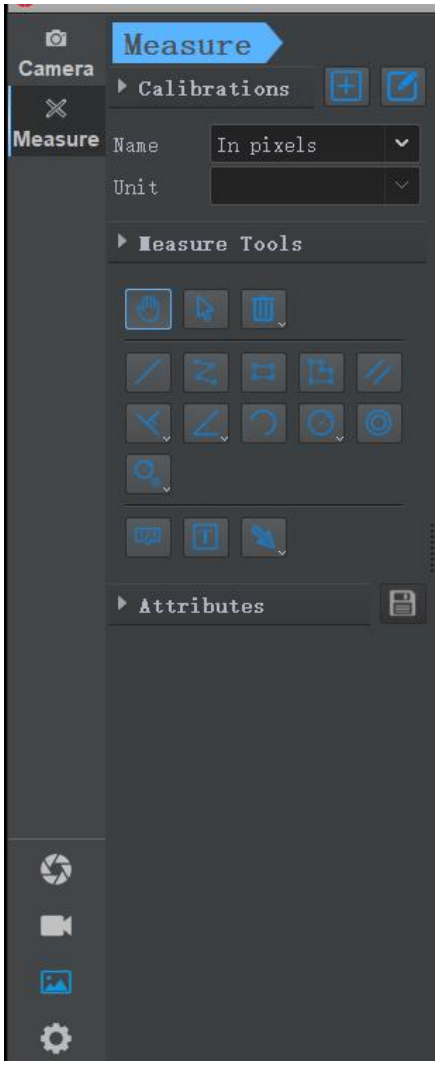
12. **Use one push white balance if supported** * — the one push white balance is used whenever it is supported.
13. **Enable still capture if possible.**
14. **Confirm when exiting.**
15. **Maximize main window.**

The setting marked with an asterisk takes effect after the software is restarted.



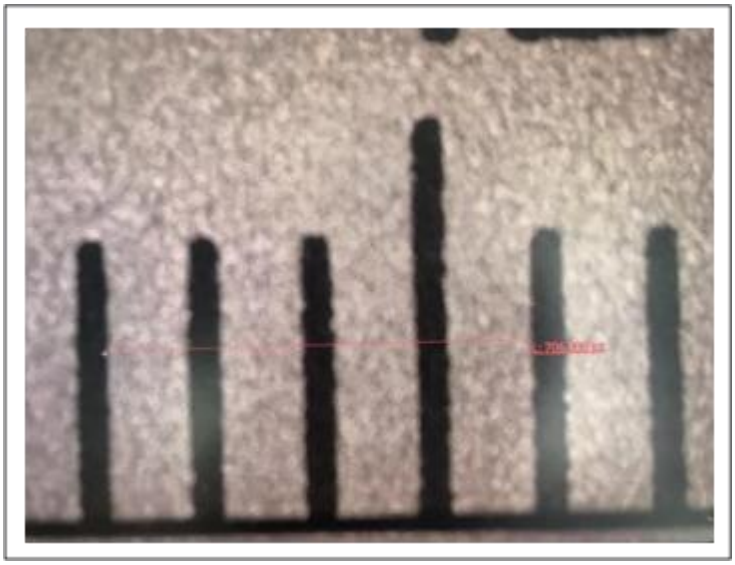
6. Calibration

Before measuring, the image must be calibrated for the current microscope magnification and the image preview resolution. Only a calibrated image allows the measurement tools to measure accurately.
The **Measure** tab contains the **Calibrations**, **Measure Tools** and **Attributes** groups.



6.1 Create a calibration

16. Click + next to **Calibrations** to open the calibration list.
17. Select the corresponding magnification in the **Name** box.
18. Drag the line in the middle of the screen to the required actual length. In the example the line is **766.00 px** long.
19. Enter the actual length in the **Actual Length** box and select the length unit in the **Unit** box. In the example the value is **4.000 nm**.
20. The scale is calculated automatically from the actual length and the pixel length.
21. When the values are correct, click **OK** to complete the calibration.



6.2 Edit or delete a calibration

Click the edit button next to **Calibrations** again to open the list, where a saved calibration can be deleted.

7. Measure Tools

The measure tools are provided in the **Measure Tools** palette of the **Measure** tab (see section 6). The tools are described below in the order in which they appear in the palette.

7.1 View and selection tools



Drag — click the button, then drag the image displayed on the screen.



Select — click the button, then select a line drawn on the image and move it to another position.



Delete — click the button to choose **Delete** or **Delete All**. **Delete** removes the selected item; **Delete All** removes all items from the screen.



Counter — click the button, then number the items on the screen in sequence.

7.2 Length and distance



Line — click any point to fix the start point; click a second time to fix the end point. The length of the straight line is measured.



Polyline — click any point to fix the start point; click a second time to fix the distance to the end point, which becomes the start point of the next segment; repeat as required. The total length is measured.



Parallel Line — click any point to fix the start point; click a second time to fix the first line; click a third time to fix the position of the parallel line. The distance between the two parallel lines is measured.



Perpendicular Line — click any point to fix the start point; click a second time to fix the line; click a third time to fix the distance perpendicular to that line. The length of the perpendicular line is measured.

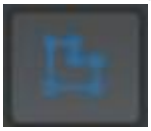


Angle — click any point to fix the start point; click a second time to fix the first line; click a third time to fix the second line through that point. The angle between the two lines is measured.

7.3 Area



Rectangle — click any point to fix the right-angle corner; click a second time to fix the opposite corner. The area of the rectangle is measured.



Polygon — click any point to fix one corner; every further click adds one corner. The area of the polygon is measured.

7.4 Arcs and circles



Arc — click any point to fix the start point; click a second time to fix a point of the arc; click a third point to

define the curvature through the three points. The length of the arc is measured.



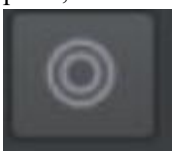
Circle (Center + Radius) — click any point to fix the center; click a second time to fix the distance from the center. The radius is measured.



Circle by Two Points — click any point on the circumference; click a second time to fix the diameter to that point. The radius is measured.



Circle by Three Points — click any point on the circumference; click a second time to fix the diameter to that point; click a third point on the circumference to fix the distance to the second point. The radius is measured.



Ring — click any point to fix the center; click a second time to fix the distance from the center (inner circle); click a third time to fix the distance from the center (outer circle). The radii of both circles are measured.

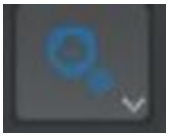
7.5 Distance between two circles



Circle (Center + Radius) — fix the center and the radius of the first circle; click a third time to fix the center of the second circle and a fourth time to fix its radius. The distance between the two centers is measured.

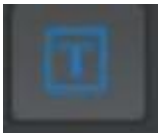


Circle by Two Points — define the first circle from two points; then define the second circle from two points. The distance between the two centers is measured.



Circle by Three Points — define the first circle from three points; then define the second circle from three points. The distance between the two centers is measured.

7.6 Text annotation



Text — click the button to open an input box for a character annotation.