

Calibration **INSTRUCTIONS**



Calibration Instructions For *Excelis* HD




73 Mall Drive • Commack, NY 11725
631-864-1000 (P) • 631-543-8900 (F)
info@accu-scope.com • info@unitronusa.com
www.accu-scope.com • www.unitronusa.com

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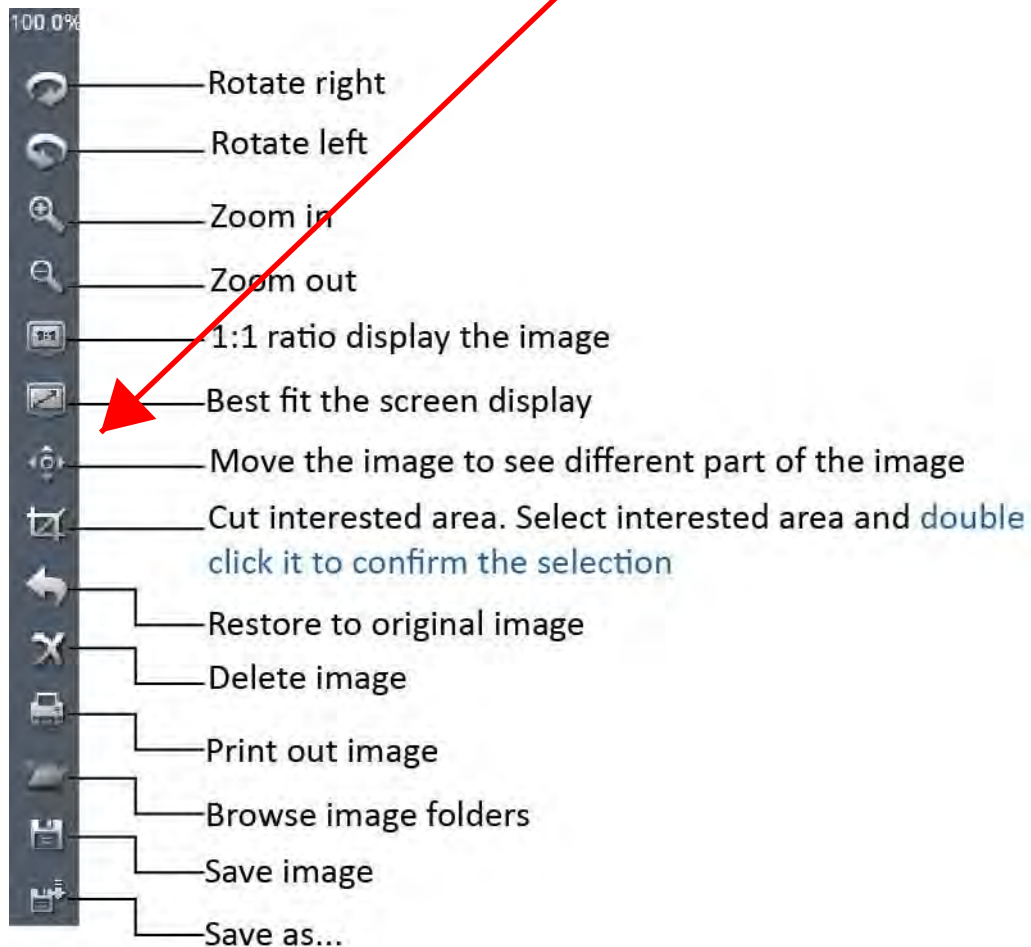
CaptaVision

Calibration Instructions

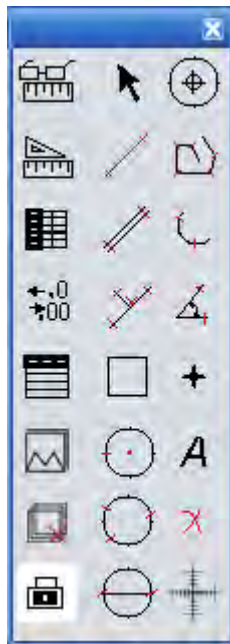
How to Calibrate the Microscope for Measurement Using CaptaVision Software












1. Under CAPTURE tab, place stage micrometer on microscope stage.
2. Focus and exposure adjust for sharpest image.
3. On far right screen tab, CLICK "Zoom Fit" icon 














Use this setting for all measurements.



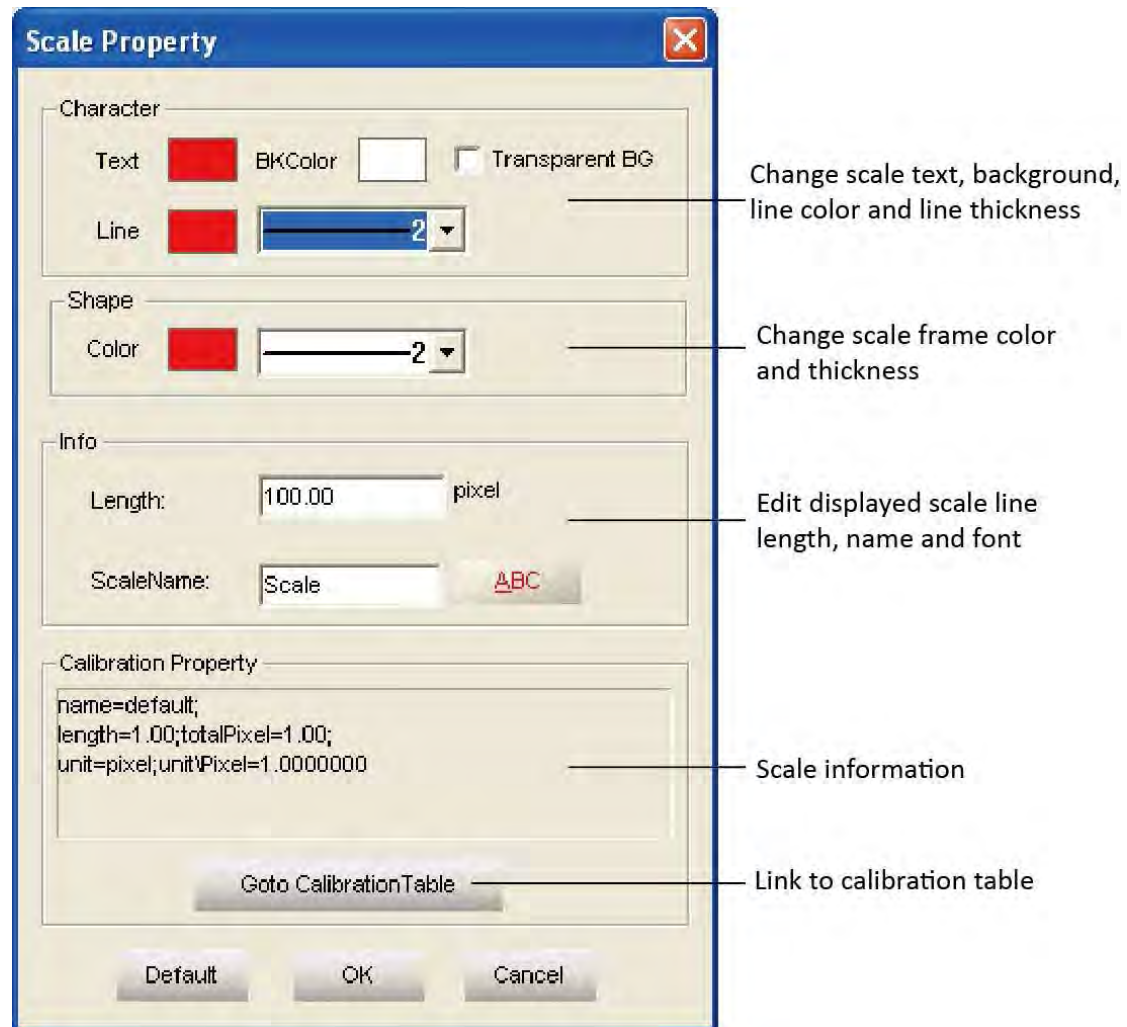
tools



| | | |
|---|------------------|---|
|  | Show Scale Line | On/off the scale line on the picture |
|  | Calibrate | Create Calibration file |
|  | Calibrate Table | Available calibration file list. Allow to add, edit and delete calibration file. |
|  | Decimal | Set measurement precision. Allowed decimal range is from 0 to 7 |
|  | Measurement List | List all the measurement data |
|  | Layer | Create multiple layers to apply measurements and save layer information |
|  | Delete All | Delete all the measurements and layers |
|  | UnLock/Lock | Unlock/lock the measurement operation. Allow to do same measurement continually when LOCKED . It is locked by DEFAULT. |
|  | Select | Select to change measurement or the measurement data position |
|  | Line | Measure the length |
|  | Parallel | Measure the distance of parallel. Allow to do multiple parallels' distance measurement. Double clicking to end |

| | | |
|---|-------------------|---|
| | | parallel measurement. |
|  | Perpendicular | Measure the perpendicular length. Allow to do multiple perpendiculars' length measurement. Double clicking to end perpendicular measurement. |
|  | Rectangle | Measure rectangle height, width, area and perimeter. |
|  | 2-points Circle | Use center point and point on the circle to draw a circle. Give the radius, area and perimeter of circle |
|  | 3-points Circle | Use 3 points on the circle to draw a circle. Give the radius, area and perimeter of circle |
|  | Diameter Circle | Draw a circle according to the diameter. Give the radius, area and perimeter of circle |
|  | Concentric Circle | Use center point and radius to draw concentric circles. Give concentric circles' radius, area and perimeter. Allow to do multiple concentric circles measurement. Double clicking to end concentric circles measurement |
|  | Polygon | Measure polygon area and perimeter. |
|  | Arc | Measure a curve angle, radius and length. |
|  | Angle | Measure the angle |
|  | Point | Counter. Count the quantity. |
|  | Annotate | Add remarks on the images. |
|  | Delete | Delete previous measurement. Select it then click on the measurement to delete the measurement. |
|  | Cross-ruler | On or off cross-ruler on the images. The unit of the ruler depends on the applied calibration file. |

Edit Scale Line



The image shows a 'Scale Property' dialog box with several sections and controls. Annotations on the right side point to specific features:

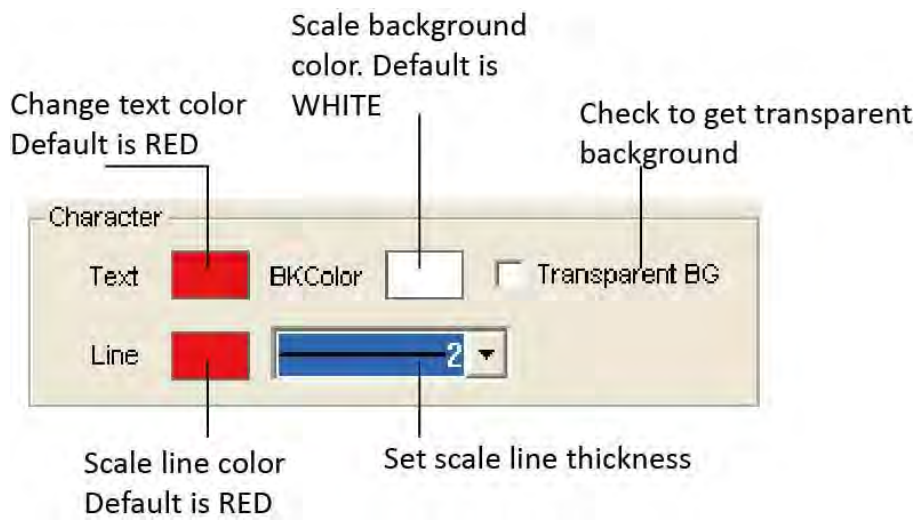
- Character:** Includes 'Text' (color swatch), 'BKColor' (color swatch), and a 'Transparent BG' checkbox. A line with a color swatch and a thickness dropdown (set to 2) is also present.
- Shape:** Includes 'Color' (color swatch) and a thickness dropdown (set to 2).
- Info:** Includes a 'Length' field (100.00 pixel) and a 'ScaleName' field (Scale) with an 'ABC' button.
- Calibration Property:** A text area containing: `name=default; length=1.00;totalPixel=1.00; unit=pixel;unit\Pixel=1.0000000`.
- Buttons:** 'Default', 'OK', 'Cancel', and 'Goto CalibrationTable'.

Annotations on the right side:

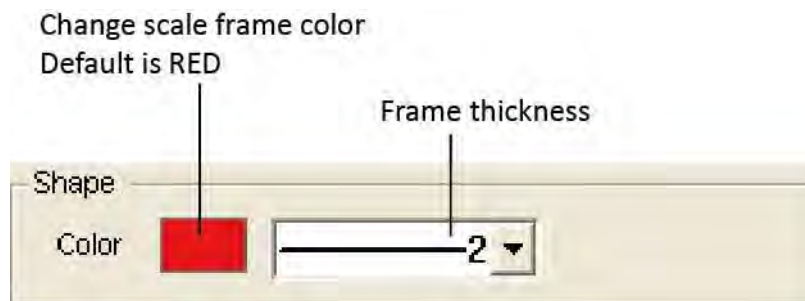
- Change scale text, background, line color and line thickness
- Change scale frame color and thickness
- Edit displayed scale line length, name and font
- Scale information
- Link to calibration table

Double click on the scale to get its properties and make changes to it.

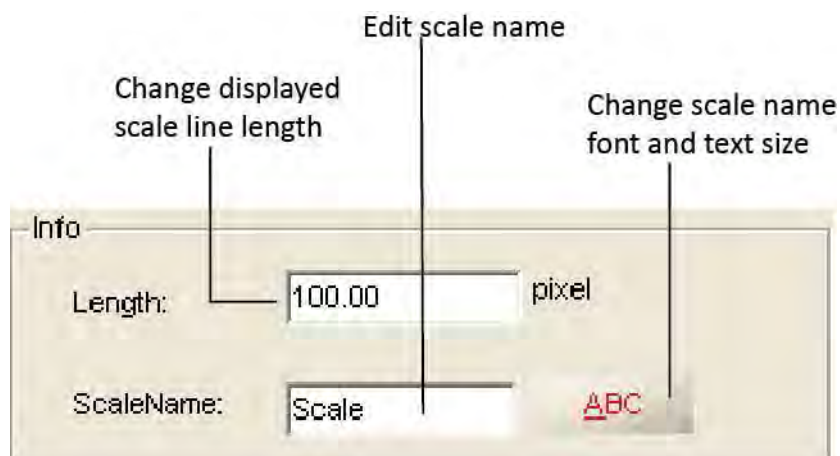
- Edit scale character



- Edit the frame of the scale



- Edit scale line length and name




Create Calibration File

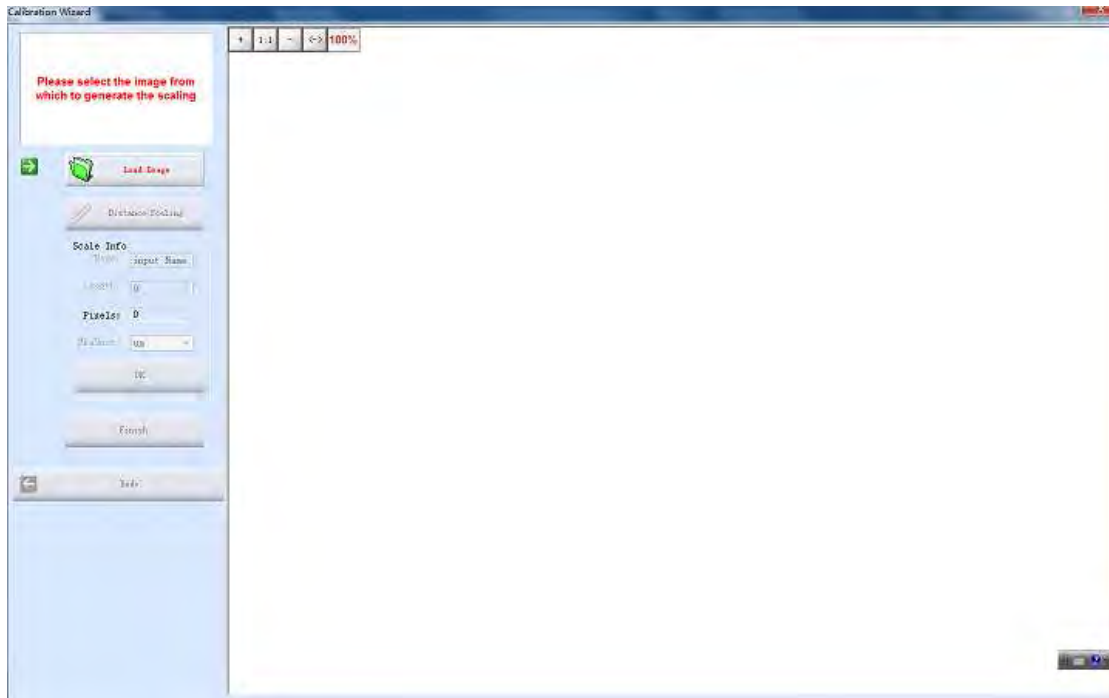
To measure the samples real size, the corresponding calibration file needs to be created first.

1. Take pictures of the calibration slide in all the required working objectives and resolution (if a reducing lens is also used in your application, it also requires you to take the calibration slide picture with the reduce lens attached).

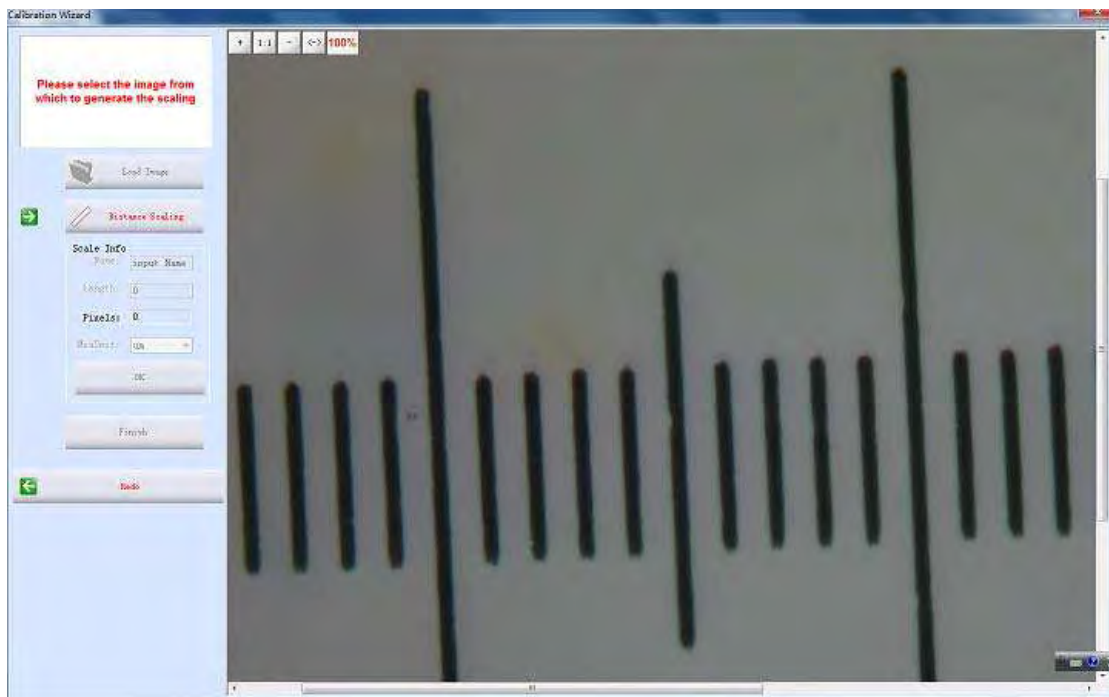


If **ONLY ONE** objective and **ONE** resolution is used in the application, one calibration slide picture is enough. The calibration slide picture **MUST** be taken with exactly the same lens or microscope settings as the target image taken.

2. Click  to start to create calibration file.



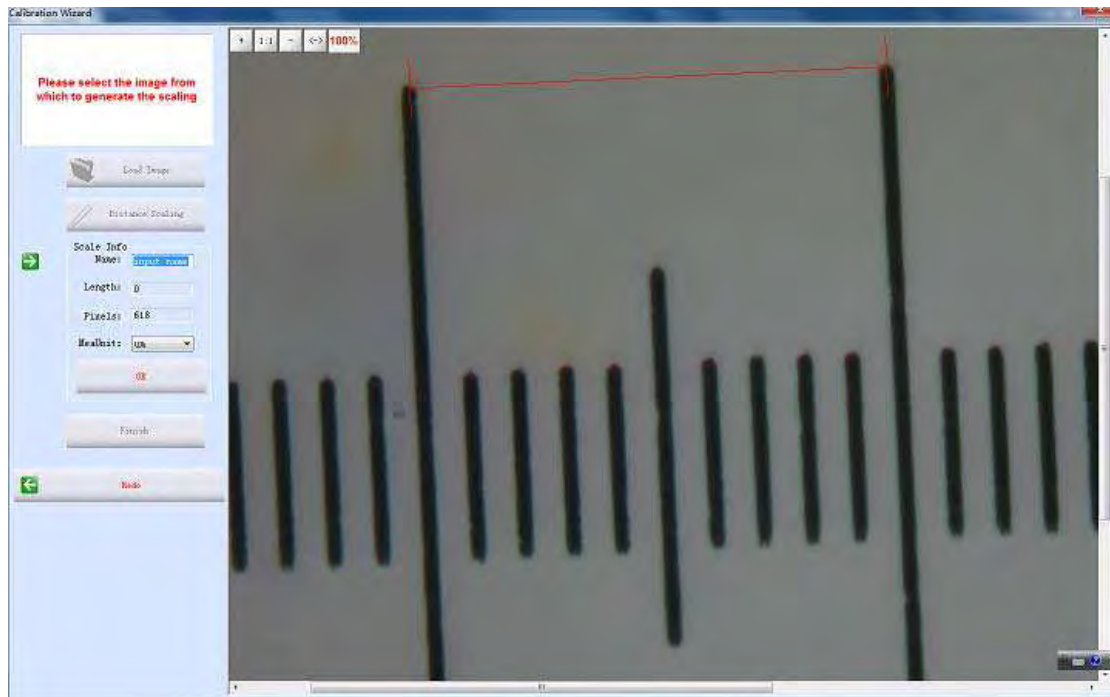
3. Click [Load Image] to load the calibration slide picture taken in Step1.



4. Click [Distance scaling] and move the cursor to the slide image, draw a line to get the reference length.



Using **longer** length as the reference length will give more accurate measurement results. For example, using 10 scale units as reference length will give more accurate result than using 1 scale unit.



5. Enter the name for the calibration file and the length of the line you draw.



If you need more than one calibration file, using **objective+reducing lens(if it is used)+resolution** as the name of the calibration file is recommended. This can help to prevent using the wrong file to do the calibration.



When keying in the length, please pay more attention to the calibration **scale unit** and the **Measure Unit** used here. For example, the calibration scale unit is 0.1mm; the Measure Unit is selected as μm ; and

the reference length is 10 scale units, so the length should be $10 \times 0.1\text{mm} \times 1000 = 1000 \mu\text{m}$.



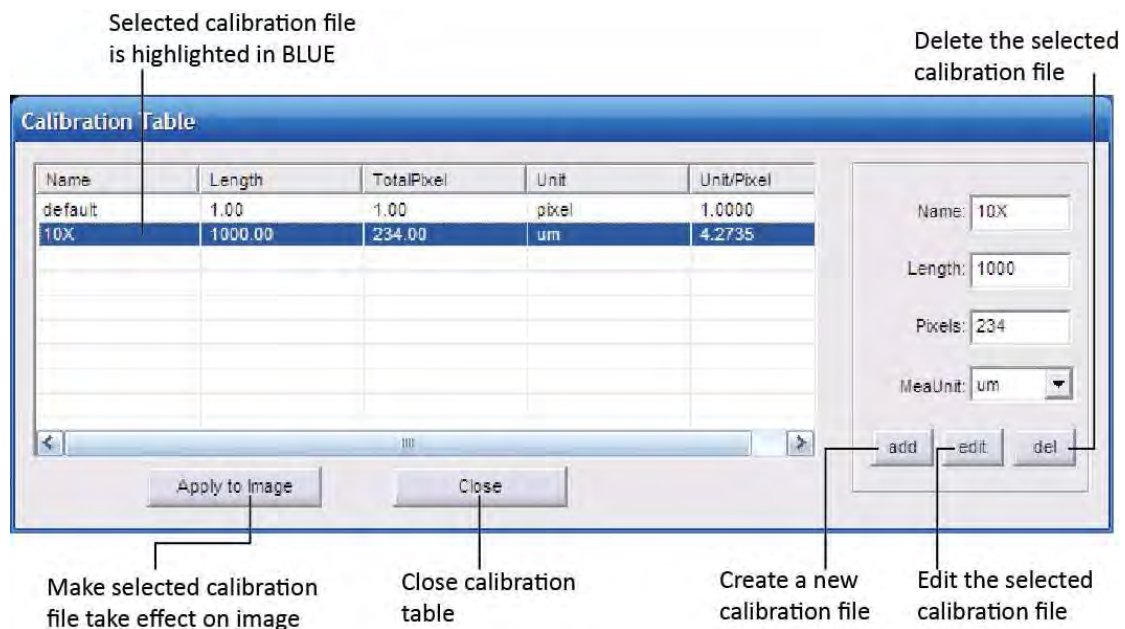
A dialog box titled "Scale Info" with the following fields:

- Name: 10X
- Length: 1000
- Pixels: 234
- MeaUnit: um

An OK button is located at the bottom.

- Click [OK] to confirm the calibration. The new calibration file named "10X" is created in the [Calibrate Table].

Calibration Table



Selected calibration file is highlighted in BLUE


Delete the selected calibration file


| Name | Length | TotalPixel | Unit | Unit/Pixel |
|---------|---------|------------|-------|------------|
| default | 1.00 | 1.00 | pixel | 1.0000 |
| 10X | 1000.00 | 234.00 | um | 4.2735 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Apply to Image Close


add edit del

Make selected calibration file take effect on image Close calibration table Create a new calibration file Edit the selected calibration file

- Click  [Calibrate Table] to open the calibration table.
- Select the correct calibration file for current image measurement.

 Using the **WRONG** calibration file will make the measurement result **innacurate**. Please make sure the calibration file is correctly corresponding to the current image. Hence, it is useful to name the calibration file with the capturing settings or objective name.

Measurement List



| Name | Length_um | Width_um | Height_um | Area_umsq | Perimeter_um | Radius_um | Angle |
|----------------|-----------|----------|-----------|-----------|--------------|-----------|--------|
| L1 | 612.73 | | | | | | |
| Parallel1 | 734.60 | | | | | | |
| Perpendicular1 | 462.92 | | | | | | |
| R1 | | 449.58 | 359.67 | 161700.66 | 1618.50 | | |
| C1 | | | | 420057.97 | 2297.52 | 365.66 | |
| P1 | | | | 225746.95 | 2283.12 | | |
| Arc1 | | | | | 440.31 | 175.46 | 143.79 |
| A1 | | | | | | | 28.92 |
| Remark1 | | | | | | | |

Export the measurement data to .txt file

Export the measurement data to Excel file

Copy all the measurement data to a file: txt, word or excel.

All the measurement data is listed in the [Measurement List]. The software allows you to export all the measurement data to [TXT](#) or [Excel file](#).